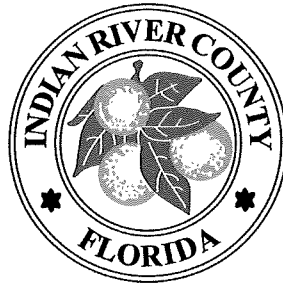


CONTRACT DOCUMENTS AND SPECIFICATIONS
for
***MOORHEN MARSH LOW
ENERGY AQUATIC PLANT
SYSTEM (LEAPS™)***
BIDDING DOCUMENTS



PROJECT NO. SW-2020-001 BID NO. 2020030

PREPARED FOR
THE BOARD OF COUNTY COMMISSIONERS
INDIAN RIVER COUNTY, FLORIDA
COMMISSIONER SUSAN ADAMS, CHAIRMAN
COMMISSIONER JOSEPH E. FLESCHER, VICE CHAIRMAN
COMMISSIONER PETER D. O'BRYAN
COMMISSIONER BOB SOLARI
COMMISSIONER TIM ZORC

JASON E. BROWN, COUNTY ADMINISTRATOR
JEFFREY R. SMITH, CLERK OF COURT AND COMPTROLLER
WILLIAM K. DEBRAAL, ESQ., DEPUTY COUNTY ATTORNEY
RICHARD B. SZPYRKA, P.E., PUBLIC WORKS DIRECTOR
W. KEITH McCULLY, P.E., STORMWATER ENGINEER

JUNE 2020

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2. Indian River County Major Site Plan Permit SP-MA-20-04-11 / 2019100047-86254
3. Indian River Farms Water Control District Permit for Connection to or Use of District Facilities – Permit No. 20-12
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BIDDING DOCUMENTS

SECTION 00100 – ADVERTISEMENT FOR BIDS

Notice is hereby given that the Indian River County Board of County Commissioners is calling for and requesting bids for the following:

Indian River County Bid #2020030 Moorhen Marsh Low Energy Aquatic Plant System

Detailed specifications are available at: www.demandstar.com or by contacting the Purchasing Division at (772) 226-1416 or purchasing@ircgov.com.

Deadline for receipt of bids has been set for **2:00 P.M. on July, 9, 2020**. Only bids received on or before the time and date listed will be considered. Bids should be addressed to Purchasing Division, 1800 27th Street, Vero Beach, Florida 32960. All bids will be opened publicly and read aloud at 2:00 PM. Bids submitted after 2:00 PM on the day specified above, will not be opened or considered.

A Non-Mandatory pre-bid conference will be held on Wednesday, June 17, 2020 at 9:30 AM via Zoom: <https://ircgov.zoom.us/j/7837260776>; Dial in 602-333-2017, conference code 153949.

All bidders shall submit one (1) original and one (1) copy of the Bid Forms provided within the Bidding Documents. Bid Security must accompany each Bid, and must be in the form of an AIA Document A310 Bid Bond, properly executed by the Bidder and by a qualified surety, or a certified check or a cashier's check, drawn on any bank authorized to do business in the State of Florida. Bid Security must be in the sum of not less than five percent (5%) of the total amount of the bid, made payable to Indian River County Board of County Commissioners. In the event the Contract is awarded to the Bidder, Bidder will enter into a Contract with the County and furnish the required 100% Public Construction Bond for work authorizations/work orders over \$100,000 within the timeframe set by the County. If Bidder fails to do so, the Bid Security shall be retained by the County as liquidated damages and not as a penalty.

The Board of County Commissioners reserves the right to accept or reject any and all bids in whole or in part and to waive any technicality or irregularity.

**PURCHASING MANAGER
INDIAN RIVER COUNTY**

Publish: For Publication in the Indian River Press Journal

Date: June 1, 2020

Please furnish Tear Sheet, Affidavit of Publication, and Invoice to:

Indian River County
Purchasing Division
1800 27th Street
Vero Beach, FL 32960

*** * END OF SECTION * ***

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SECTION 00200 - Instructions for Bidders

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

A. Bidder--The individual or entity who submits a Bid directly to OWNER.

B. ENGINEER – Keith McCully, P.E. of Indian River County Public Works Stormwater Division

C. Issuing Office--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

D. Successful Bidder--The lowest responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

E. OWNER – Indian River County Board of County Commissioners.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 As stated in the Advertisement for Bids, complete sets of the Bidding Documents are available at: www.demandstar.com or by contacting the Purchasing Division at (772) 226-1416 or purchasing@ircgov.com.

2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.01 **Because of the nature of this project, the BIDDER shall (1) be a Florida Certified General Contractor; (2) be known and recognized in the industry by its peers as a concrete construction contractor, skilled and experienced in the installation of concrete flatwork as well as concrete structures such as large pump stations, weirs, tanks, etc.; and (3) guarantee that a minimum of fifty-one (51) percent of the total billed work performed on the Project will be performed by BIDDER's bona fide employees. The bid of any BIDDER who does not meet these requirements shall be rejected.**

3.02 Besides information required by Section 00450, to demonstrate Bidder's additional qualifications to perform the Work, Bidders may be requested by the OWNER to submit additional information. Such information shall be submitted within five days of OWNER's request and the

information may include but not be limited to, written evidence such as financial data, additional previous experience, present commitments, and such other data as the OWNER may request.

3.03 Each bid must contain evidence of Bidder's qualification to do business in Florida or covenant to obtain such qualification prior to award of the contract.

3.04 The OWNER reserves the right to reject bids from Bidders that in the OWNER's sole opinion, are unable to meet any of the listed required qualifications.

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 Subsurface and Physical Conditions

A. The General Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.

2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in paragraph 4.01.A will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.02 of the General Conditions has also been identified and established in paragraph 4.02 of the General Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

4.02 Underground Facilities

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to OWNER and ENGINEER by OWNERS of such Underground Facilities, including OWNER, or others.

4.03 Hazardous Environmental Condition

A. The General Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in paragraph 4.03.A will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.06 of the General Conditions and also identified and established in paragraph 4.06 of the General Conditions. Bidder is responsible for any interpretation or

conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in paragraph 4.06 of the General Conditions.

4.05 Upon a written request directed to the Indian River County Purchasing Division – purchasing@ircgov.com, OWNER will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all test holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. A representative of the OWNER shall be with the bidder or its geotechnical investigator for the entire duration of said tests. All tests shall be taken at locations that will not require any clearing operations to access.

4.06 Reference is made to Article 7 of the General Conditions for the identification of any other work that is to be performed at the Site by OWNER or others (such as utilities and other prime contractors) that relates to the Work for which a Bid is to be submitted. On request, OWNER will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

4.07 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;

B. visit the site to become familiar with and satisfy bidder as to the general, local, and site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;

D. obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (overhead, surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

E. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

F. become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;

G. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

H. promptly give ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder; and

I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by ENGINEER are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 - PRE-BID CONFERENCE

5.01 The date, time, and location for a NON-MANDATORY Pre-Bid conference is specified in the Advertisement for Bids. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. ENGINEER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 - SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 *Cone of Silence – Potential bidders and their agents shall not communicate in any way with the Board of County Commissioners, County Administrator, or any County staff other than Purchasing personnel in reference or relation to this solicitation. This restriction shall be effective from the time of bid advertisement until the Board of County Commissioners meets to authorize award. Such communication may result in disqualification.*

7.02 All questions about the meaning or intent of the Bidding Documents are to be submitted by email to purchasing@ircgov.com. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda and provided

to all parties through the Issuing Office as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.03 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER or ENGINEER.

ARTICLE 8 - BID SECURITY

8.01 Each Bid must be accompanied by Bid Security made payable to Indian River County Board of County Commissioners in an amount of five percent (5%) of the Bidder's maximum base bid price and must be in the form of an AIA Document A310 Bid Bond, properly executed by the Bidder and by a qualified surety, or a certified check or a cashier's check, drawn on any bank authorized to do business in the State of Florida.

8.02 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Public Construction Bond, whereupon the Bid Security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required Public Construction Bond within fifteen calendar days after the Notice of Award, OWNER may annul the Notice of Award, and the Bid Security of that Bidder will be retained by Indian River County as liquidated damages and not as penalty.

8.03 The Bid Security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by the OWNER until the earlier of the seventh (7) day after the effective date of the Agreement or the sixty-first (61) day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with bids which are not competitive may be returned before the end of the sixty-day (60) period.

ARTICLE 9 - CONTRACT TIMES

9.01 The number of calendar days within which, or the dates by which, the Work is to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the

Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 If the Contract Documents require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to OWNER in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to OWNER a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, subject to OWNER approval, without an increase in the Bid.

12.02 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.06 of the General Conditions.

12.03 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

12.04 The Bidder agrees to take the following affirmative steps to assure that women and minority-owned business enterprises are given the opportunity for participation:

- A. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
- B. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
- C. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
- D. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and
- E. Using the service and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce.

ARTICLE 13 - PREPARATION OF BID

13.01 The Bid form is included with the Bidding Documents.

13.02 All blanks on the Bid form shall be completed by printing in ink or by typewriter and the Bid signed. A Bid price shall be indicated for each section, Bid item, alternative, adjustment unit price item, and unit price item listed therein.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturor in the manner indicated on the Bid form. The official address of the joint venture must be shown below the signature.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form.

13.10 The address, email, and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number or county registration number for the state or county of the Project, if any, shall also be shown on the Bid form.

13.12 All supporting information requested in the Bid Form must be furnished. Do not leave any questions or requests unanswered.

13.13 In accordance with Florida Statutes Section 218.80, the "Public Bid Disclosure Act", Indian River County as OWNER is obligated to disclose all license, permit, impact, or inspection fees that are payable to Indian River County in connection with the construction of the Work by the accepted bidder. The anticipated cost of the permit fees due to the Indian River County Building Division is provided as a fixed line item on the bid form, and/or specifically noted in the scope of work. This amount does not include fees for any necessary re-inspection(s), which are the responsibility of the Contractor. Indian River County will pay all permit application fees for this Project.

ARTICLE 14 - BASIS OF BID; EVALUATION OF BIDS

14.01 Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in paragraph 11.02 of the General Conditions.

14.03 The Bidder's attention is called to the fact that any estimate of quantities of work to be done and materials to be furnished under the Specifications as shown on the Bid Schedule, or elsewhere, is approximate only and not guaranteed. The OWNER does not assume any responsibility that the final quantities shall remain in strict accordance with the estimated quantities, nor shall the Bidder plead misunderstanding or deception because of such estimate of quantities or of the character, location of the work, or other conditions pertaining thereto.

ARTICLE 15 - SUBMITTAL OF BID

15.01 The Bid Form (Section 00310) is to be completed and submitted with the Bid security and the following data:

- A. Section 00450 – Bidder's Qualification Form and Questionnaire
- B. Section 00452 - Sworn Statement under Section 105.08, Indian River County Code, on Disclosure of Relationships.
- C. Section 00454 – Sworn Statement Under the Florida Trench Safety Act.
- D. Section 00458 - List of Subcontractors.
- E. Section 00459 – Drug-Free Workplace Certification.

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. The sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED."

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn 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 prior to the date and time for the opening of Bids.

16.02 If, within 24 hours after Bids are opened, any bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that bidder may withdraw its bid and bid security will be returned. Thereafter, if the work is rebid, that bidder may be disqualified from further bidding on the work.

ARTICLE 17 - OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be available to Bidders a reasonable time after the opening of Bids.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the time period stated in the Bid Form, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 - AWARD OF CONTRACT

19.01 OWNER reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. OWNER may also reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder. OWNER also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder. The OWNER will not reimburse any Bidder for bid preparation costs. The OWNER reserves the right to select, from among the various Bid alternatives, those alternatives to be included in the final Contract as well as the right and option to award or rebid alternatives in any sequence or at any time deemed to be in the best interest of the OWNER.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be a cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating Bidders, OWNER will consider the qualifications of Bidders and will consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted.

19.05 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, OWNER will award the Contract to the Bidder whose Bid is in the best interests of the Project.

19.07 OWNER has no local ordinance or preferences, as defined in FS 255.0991 (2) in place, therefore no preference prohibited by that section will be considered in the acceptance, review or award of this bid.

19.08 Any actual or prospective bidder or proposer who is aggrieved in connection with the bidding and/or selection process may protest to the OWNER's Purchasing Manager. The protest shall be submitted in writing to the Purchasing Manager within seven (7) calendar days after the bidder or proposer knows or should have known of the facts giving rise to the protest.

19.09 The bidder certifies that it and those related entities of respondent as defined by Florida law are not on the Scrutinized Companies that Boycott Israel List, created pursuant to s. 215.4725 of the Florida Statutes, and are not engaged in a boycott of Israel. In addition, if this agreement is for goods or services of one million dollars or more, bidder certifies that it and those related entities of respondent as defined by Florida law are not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473 of the Florida Statutes and are not engaged in business operations in Cuba or Syria. OWNER may terminate this Contract if bidder is found to have submitted a false certification as provided under section 287.135(5), Florida Statutes, been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or been engaged in business operations in Cuba or Syria, as defined by section 287.135, Florida Statutes. OWNER may terminate this Contract if bidder, including all wholly owned subsidiaries, majority-owned subsidiaries, and parent companies that exist for the purpose of making profit, is found to have been placed on the Scrutinized Companies that Boycott Israel List or is engaged in a boycott of Israel as set forth in section 215.4725, Florida Statutes.

Accordingly, firms responding to this solicitation shall return with their response an executed copy of the attached "Certification Regarding Prohibition Against Contracting With Scrutinized Companies." Failure to return this executed form with submitted bid/proposal/statement of qualifications will result in the response being deemed non-responsive and eliminated from consideration.

ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General Conditions sets forth OWNER's requirements as to the Public Construction Bond. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by such Bonds, unless the Bonds have been waived due to the total contract being less than \$100,000. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. The sureties for all Bonds must be authorized to issue surety bonds in Florida. The CONTRACTOR shall require the attorney-in-fact who executes any Bond, to affix to each a current certified copy of their Power of Attorney, reflecting such person's authority as Power of Attorney in the State of Florida. Further, at the time of execution of the

Contract, the CONTRACTOR shall for all Bonds, provide a copy of the Surety's current valid Certificate of Authority issued by the United States Department of the Treasury under 31 United States Code sections 9304-9308.

ARTICLE 21 - SIGNING OF AGREEMENT

21.01 When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within fifteen (15) days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER.

21.02 OWNER shall return one fully signed counterpart to Successful Bidder.

21.03 Should Bidder to whom the Contract has been awarded refuse or fail to complete the requirements of Article 21.01 above, the additional time in calendar days, required to correctly complete the documents will be deducted, in equal amount, from the Contract time. Or, the OWNER may elect to revoke the Award and the OWNER shall hold the Bid Bond for consequential damages incurred, and the Contract may be awarded as the OWNER desires.

ARTICLE 22 – PUBLIC ENTITY CRIMES

22.01 Pursuant to Florida Statutes Section 287.133(2)(a), all Bidders are hereby notified that 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, proposal, or reply on a contract to provide any goods or services to a public entity (defined as the State of Florida, any of its departments or agencies, or any political subdivision); may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals, or replies 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 Florida Statutes Section 287.017 for CATEGORY TWO [currently \$35,000] for a period of 36 months from the date of being placed on the convicted vendor list. A "public entity crime" 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, proposal, reply, or contract for goods or services, any lease for real property, or any contract for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

* * END OF SECTION * *

SECTION 00305 - STATEMENT OF NO BID

Should you elect not to bid, please complete and send this page by email (purchasing@ircgov.com), fax (772-770-5140) or by mail to Indian River County Purchasing, 1800 27th Street, Vero Beach, FL 32960.

Please select all of the following that apply. Our decision not to bid on the subject project was based on:

- Project is located too far from our base of operations
- Project value too low
- Project specifications unclear (please explain below)
- Material availability may be a challenge
- Our current schedule will not allow us to perform
- Unable to meet insurance requirements
- Other:
- Other:

General comments regarding the bid and/or plans and specifications:

CONTRACTOR's NAME: _____

SECTION 00310 – BID FORM

PROJECT IDENTIFICATION:

Project Name: **MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM**
Bid Number: 2020030
Project Address: 6520 53rd Street, Vero Beach, Florida 32967.
Project Summary: Construction of a regional stormwater treatment facility that will remove pollutants from North Relief Canal water.

THIS BID IS SUBMITTED TO: INDIAN RIVER COUNTY
PURCHASING DIVISION
1800 27th Street, Building B
VERO BEACH, FLORIDA 32960

1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with all other terms and conditions of the Bidding Documents.

2.01 Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

3.01 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

<u>Addendum Date</u>	<u>Addendum Number</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the General Conditions, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which have been identified in the General

CONTRACTOR's NAME: _____

Conditions.

E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.

J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

4.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

5.01 Bidder shall complete the Work in accordance with the Contract Documents for the price(s) contained in the Bid Schedule:

A. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

B. The OWNER reserves the right to omit or add to the construction of any portion or portions of the work heretofore enumerated or shown on the plans. Furthermore, the OWNER reserves the right to omit in its entirety, any one or more items of the Contract without forfeiture of Contract or claims for loss of anticipated profits or any claims by the Contractor on account of such omissions.

CONTRACTOR's NAME: _____

- C. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided. The quantities actually required to complete the contract and work may be less or more than so estimated, and, if so, no action for damages or for loss of profits shall accrue to the CONTRACTOR by reason thereof.
- D. Unit Prices have been computed in accordance with paragraph 11.03.B of the General Conditions (and Supplementary Conditions if applicable).
- E. If Bidder believes that the cost of any item of the Work has not been established by the Bid Form, then Bidder shall include that cost in some other applicable bid item, so that Bidder's proposal for the project reflects Bidder's total price for completing the Work in its entirety.

6.01 Bidder agrees that the Work will be completed and ready for final payment in accordance with paragraph 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified, which shall be stated in the Agreement.

7.01 The following documents are attached to and made a condition of this Bid:

- A. Required Bid security in the form of _____;
- B. Section 00450– Bidder's Qualification Form and Questionnaire;
- C. Section 00452 - Sworn Statement under Section 105.08, Indian River County Code, on Disclosure of Relationships;
- D. Section 00454 - Sworn Statement Under the Florida Trench Safety Act;
- E. Section 00458 - List of Subcontractors; and
- F. Section 00459 – Drug-Free Workplace Certification
- G. (List other documents as pertinent).

8.01 The terms used in this Bid with initial capital letters have the meanings indicated in the Instructions to Bidders and Section 00700 General Conditions.

9.01 By signing this form, Bidder acknowledges that it has read and understood all information contained herein.

SUBMITTED on _____, 20____.

State Contractor License No. _____

CONTRACTOR's NAME: _____

REFER TO THE TABULAR BID FORM AT THE END OF THIS SECTION (3 PAGES)

If Bidder is:

An Individual:

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____

Business address: _____

Phone No.: _____ FAX No.: _____

A Partnership:

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

Phone No.: _____ FAX No.: _____

A Corporation:

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____ (CORPORATE SEAL)

Attest _____
(Signature of Corporate Secretary)

Business address: _____

Phone No.: _____ FAX No.: _____

Date of Qualification to do business is _____.

CONTRACTOR's NAME: _____

A Joint Venture:

Joint Venture Name: _____ (SEAL)

By: _____
(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Joint Venture Name: _____ (SEAL)

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Phone and FAX Number, and Address for receipt of official communications:

(Each joint venturor must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

* * END OF SECTION * *

CONTRACTOR'S NAME: _____

MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM BID FORM

Item	Description	Quantity	Unit	Unit Price	Amount
PART A OF THE CONTRACT					
1.00	GENERAL ITEMS				
1.01	Mobilization/Demobilization	1	LS		
1.02	Maintenance of Traffic	1	LS		
1.03	Project Record Documents	1	LS		
1.04	Public Construction Bond	1	LS		
1.05	Construction Photographs	1	LS		
1.06	Insurance Coverage	1	LS		
1.07	Engineer's and Contractor's Field Office	1	LS		
SUBTOTAL PART 1 - GENERAL ITEMS					
2.00	SITE WORK				
2.01	Wildlife and Erosion Control Silt Fencing	1	LS		
2.02	Clear and Grub (including demolitions) including hauling material offsite for disposal	1	LS		
2.03	Monitoring existing structures per Section 02220, paragraph 3.15	1	LS		
2.04	Dewatering	1	LS		
2.05	Grade all areas not included in other pay items	1	LS		
2.06	Type B chain link perimeter fencing with 3-strand barb wire	2,863	LF		
2.07	46' wide two-piece cantilevered chain link fence gate with 3-strand barb wire at site entrance	1	Each		
2.08	24' wide two-piece cantilevered chain link fence gate with 3-strand barb wire at site entrance	1	Each		
2.09	Type B chain link perimeter fencing with no barb wire	22	LF		
2.10	8' wide single chain link fence gate with no barb wire	1	Each		
2.11	12" thick cemented coquina shell driving surface at 53rd Street entrance	291	SY		
2.12	12" thick Type B stabilized subgrade below cemented coquina shell driving surface at 53rd Street	306	SY		
2.13	2" thick Type SP-12.5 asphalt concrete pavement	4,788	SY		
2.14	8" thick cemented coquina shell base below asphalt pavement	5,027	SY		
2.15	12" thick Type B stabilized subgrade below asphalt pavement	5,279	SY		
2.16	Minimum 8" thick asphalt millings drives, including stabilized subgrade and filter fabric	1,638	SY		
2.17	Grass Surface Service Road (not including hydroseeding)	2,294	SY		
2.18	Stop sign at 53rd Street	1	Each		
2.19	Painting parking lot area stripes with thermoplastic paint, including all required handicap parking painting	1	LS		
2.20	Handicap Parking Sign	1	Each		
2.21	Concrete tire stops	3	Each		
2.22	Pole Barn	1	LS		
2.23	Pole Barn concrete slab	233.33	SY		
2.24	Pole Barn concrete driveway	116.67	SY		
2.25	Dumpster pad with fence and gate per details on Sheet C10	1	LS		
2.26	Minimum 8" thick asphalt millings drive for dumpster pad, including stabilized subgrade and filter fabric	31	SY		
2.27	Non-potable irrigation well, centrifugal pump, concrete pad, and piping as shown on Sheet C10 and as specified.	1	LS		
2.28	Influent pipe connection (North Relief Canal to Headworks Structure)	1	LS		
2.29	Effluent pipe connection (Structure S15 to North Relief Canal)	1	LS		
2.30	Headworks Structure	1	LS		
2.31	"L" shaped concrete Work Slab abutting Headworks Structure	1	LS		
2.32	Primary Influent Screen and Controls	1	LS		
2.33	Influent Pumps and Pump Controls	1	LS		
2.34	Slide Gate No. 7 (for Headworks Structure influent piping)	1	Each		
2.35	Headworks area discharge piping, valves, fittings, etc. from (and including) Bends #8 and #21 to (and including) Bend #19, as shown on Sheet PS1.	1	LS		

CONTRACTOR'S NAME: _____

2.36	Water Lettuce Scrubber force main and distribution header piping system	1	LS		
2.37	Flow Meter No. 1	1	LS		
2.38	Flow Meter No. 2	1	LS		
2.39	Structure S11	1	LS		
2.40	Structure S12	1	LS		
2.41	Structure S11 and S12 Sump Pumps	2	Each		
2.42	Structures S1 through S6	6	Each		
2.43	Primary Treatment Units including all associated grating, handrails, appurtenances, etc.				
a.	Water Lettuce Scrubbers 1 and 2	1	LS		
b.	Water Lettuce Scrubber 1A/1B Dewatering Flume	1	LS		
c.	Water Lettuce Scrubber 2A/2B Dewatering Flume	1	LS		
d.	Algal Reaeration Unit 1A	1	LS		
e.	Algal Reaeration Unit 1B	1	LS		
f.	Algal Reaeration Unit 2A	1	LS		
g.	Algal Reaeration Unit 2B	1	LS		
h.	Sludge Storage Area 1A and Composting Area 1A	1	LS		
i.	Sludge Storage Area 1B and Composting Area 1B	1	LS		
j.	Sludge Storage Area 2A and Composting Area 2A	1	LS		
k.	Sludge Storage Area 2B and Composting Area 2B	1	LS		
l.	Water Lettuce Scrubber Access Ramp	1	LS		
m.	Walls for Final Settling Basins 1 and 2	1	LS		
2.44	4" DIP water lettuce sludge supernatant force main from Sludge Storage Area #1A	168	LF		
2.45	4" DIP water lettuce sludge supernatant force main from Sludge Storage Area #2B	168	LF		
2.46	Final Settling Basin #1 and Wetland Polishing Marsh #1, including GCL.	1	LS		
2.47	Final Settling Basin #1 and Wetland Polishing Marsh #1, including GCL.	1	LS		
2.48	Rubble Riprap at southwest corner of Wetland Polishing Marsh #1	1	LS		
2.49	Structure S8	1	Each		
2.50	Structure S9	1	Each		
2.51	Structures S7 and S13	2	Each		
2.52	Structures S10 and S14	2	Each		
2.53	18" RCP between Structures S7 and S10	1	LS		
2.54	18" RCP between Structures S13 and S14	1	LS		
2.55	Tideflex inline check valve at Structure S9 discharge	1	Each		
2.56	24" RCP between Structures S8 and S9	248	LF		
2.57	36" PVC between Structures S9 and S15	220	LF		
2.58	Structure S15	1	Each		
2.59	Site Electric	1	LS		
2.60	Portable Water Lettuce Supernatant/Sludge Pump	1	Each		
2.61	Portable Eyewash Station	1	Each		
2.62	Safety Equipment	1	LS		
2.63	White solid PVC/Vinyl privacy perimeter fence	700	LF		
2.64	Nonpotable Water System	1	LS		
2.65	Clearing, grubbing, and final grading work within Indian River Farms Water Control District (IRFWCD) Lateral "A" Canal and North Relief Canal Right-of-Ways as described in the Special Conditions to the IRFWCD Permit to Connect to or Use District Facilities, No. 20-12, included herein in Appendix A.	1	LS		
SUBTOTAL PART 2 - SITE WORK					
3.00 LANDSCAPING					
<i>NOTE: BID ITEMS 3.01 THROUGH 3.18 ARE SHOWN ON DRAWING L1</i>					
3.01	Relocate and maintain until Final Acceptance, existing sable palms shown on Drawing C1a to be relocated	88	Each		
3.02	Live Oak (<i>Quercus virginiana</i>) 4" minimum diameter at 0.5' above grade, minimum 18' high	87	Each		
3.03	Live Oak (<i>Quercus virginiana</i>) 4" minimum DBH, minimum 18' high	148	Each		

CONTRACTOR'S NAME: _____

3.04	Slash Pine (<i>Pinus elliottii var densa</i>) 2" minimum diameter at 0.5' above grade, minimum 12' high	54	Each		
3.05	Scrub Hickory (<i>Carya floridana</i>) 2" minimum diameter at 0.5' above grade, minimum 12' high	36	Each		
3.06	Bald Cypress (<i>Taxodium distichum</i>) 2" minimum diameter at 0.5' above grade, minimum 12' high	3	Each		
3.07	Wax Myrtle (<i>Myrica cerifera</i>) 2" minimum diameter at 0.5' above grade, minimum 6' high	87	Each		
3.08	Southern Red Cedar (<i>Juniperus silicicola</i>) 2" minimum diameter at 0.5' above grade, minimum 6' high	152	Each		
3.09	Scrub Hickory (<i>Carya floridana</i>) 2" minimum diameter at 0.5' above grade, minimum 6' high	75	Each		
3.10	Rusty Lyonia (<i>Lyonia ferruginea</i>)	89	Each		
3.11	Wild Coffee (<i>Pyschotria nervosa</i>)	713	Each		
3.12	Cocoplum (<i>Chrysobalanus icaco</i>)	288	Each		
3.13	Firebush (<i>Hamelia patens</i>)	353	Each		
3.14	Marlberry (<i>Ardisia escalloniodes</i>)	240	Each		
3.15	Necklacepod (<i>Sophora tomentosa</i>)	319	Each		
3.16	Saltmarsh Cordgrass (<i>Spartina patens</i>)	60	Each		
3.17	Pink Muhly Grass (<i>Muhlenbergia capillaris</i>)	334	Each		
3.18	Silver Saw Palmettos (<i>Serenoa repens</i>)	36	Each		
NOTE: BID ITEMS 3.19 THROUGH 3.27 ARE SHOWN ON DRAWING L2					
3.19	"ROSE" color code Native Grass Hydroseed Mix	3.94	Acres		
3.20	"ORANGE" color code planting for Wetland Polishing Marsh #1	4,940	SF		
3.21	"ORANGE" color code planting for Wetland Polishing Marsh #2	7,300	SF		
3.22	"GREEN" color code planting for Wetland Polishing Marsh #1	9,140	SF		
3.23	"GREEN" color code planting for Wetland Polishing Marsh #2	10,100	SF		
3.24	"BRIGHT BLUE" color code planting on Sheet L2 (50% Mulhy Grass and 50% Sand Cordgrass) mix	4,900	SF		
3.25	"PURPLE" color code planting for Wetland Polishing Marsh #1	1	LS		
3.26	"PURPLE" color code planting for Wetland Polishing Marsh #2	1	LS		
3.27	"BLUE" color code planting in Sheet L2 for 15' wide berm/service road	0.49	Acres		
SUBTOTAL PART 3 - LANDSCAPING					
4.00 ALL OTHER WORK					
4.1	All other equipment, material, and Work required to complete the project not specifically listed in Parts 1, 2, or 3 above.	1	LS		
SUBTOTAL PART 4 - ALL OTHER WORK					
TOTAL PART A (PART 1 + PART 2 + PART 3 + PART 4)					
PART B OF THE CONTRACT					
5.0 LANDSCAPE MAINTENANCE AND WARRANTY PERIOD					
5.1	Twelve-Month Maintenance and Warranty Period	12	Month		
5.2	Twelve-Month Exotic and Invasive Vegetation Elimination Period	12	Month		
TOTAL PART B					
TOTAL PART A + PART B					

SECTION 00430 - BID BOND

AIA DOCUMENT A310 BID BOND

The Contractor shall use the document form entitled "AIA Document A310 Bid Bond".

****END OF SECTION****

SECTION 00450 – BIDDER’S QUALIFICATIONS FORM AND QUESTIONNAIRE

NOTICE: THE OWNER RETAINS THE DISCRETION TO REJECT THE BIDS OF NON-RESPONSIBLE BIDDERS.

UNDER PENALTY OF PERJURY, the undersigned Bidder Guarantees the truth and accuracy of all statements and answers herein contained. Bidder acknowledges that furnishing false information or failure to fully comply with these requirements may be considered sufficient justification to disqualify Bidder from bidding on this Project, as solely determined by the OWNER. Attach additional sheets as required.

Note the Following: Because of the nature of this project, the BIDDER shall (1) hold a State General Contractor license; (2) be known and recognized in the industry by its peers as a concrete construction contractor, skilled and experienced in the installation of concrete flatwork as well as concrete structures such as large pump stations, weirs, tanks, etc.; and (3) guarantee that a minimum of fifty-one (51) percent of the total billed work performed on the Project will be performed by BIDDER’s bona fide employees. The bid of any BIDDER who does not meet these requirements shall be rejected.

Documentation Submitted for the Following Project: MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM.

1. Bidder’s Name / Address: _____

2. Bidder’s Telephone Number, FAX Number, and Email: _____

3. Licensing and Corporate Status (NOTE: The bidder must be a Florida Certified General Contractor):
 - a. Is Contractor License current? _____
 - b. Bidder’s Contractor License No: _____
 - c. Attach a copy of Contractor’s License to the bid.
 - d. Attach documentation from the State of Florida Division of Corporations that indicates the business entity’s status is active and that lists the names and titles of all officers.
 - e. Attach evidence of authority to conduct business in Indian River County.
4. Number of years the firm has performed business as a Contractor in construction work similar to the type involved in this contract: _____
5. Has the firm ever failed to complete work awarded to it? _____

[If your answer is "yes, then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner's telephone number for each project in which the firm failed to complete the work.]

6. Has the firm ever been assessed liquidated damages? _____

[If your answer is "yes, then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner's telephone number for each project in which liquidated damages have been assessed.]

7. Has the firm ever been charged by OSHA for violating any OSHA regulations? _____

[If your answer is "yes, then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner's telephone number for each project in which OSHA violations were alleged.]

8. Has the firm ever been charged with noncompliance of any public policy or rules?

[If your answer is "yes, then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner's telephone number for each project.]

9. Attach to this questionnaire, a certified financial statement and other information that documents the firm's financial strength and history.

10. Has the firm ever defaulted on any of its projects? _____

[If your answer is "yes, then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner's telephone number for each project in which a default occurred.]

11. Attach a separate page to this questionnaire that summarizes the firm's current workload and that demonstrates its ability to meet the project schedule.

12. Name of person who inspected the site of the proposed work for the firm:

Name: _____ Dates of Inspections: _____

13. Name of Bidder's on-site Project Foreman: _____

Attach a separate page listing the Project Foreman's construction experience.

14. Name of Bidder's Project Manager: _____

Attach a separate page listing the Project Manager's construction experience.

15. What is the firm's bonding capacity? _____

16. What percentage of the total project construction will be directly performed by the firm's fulltime personnel? Note: This does not include administrative personnel time. Also note: A minimum of fifty-one (51) percent of the total billed work on the Project must be performed by the firm's bona fide employees.
_____ %
17. Attach a separate page to this questionnaire that lists the firm's construction equipment that will be used on this project. Also, separately list the construction equipment that the firm will rent for this project.
18. Name of Bidder's Geosynthetic Clay Liner (GCL) Installer Subcontractor:
_____.
19. Name of Bidder's GCL Installer Subcontractor's on-site Project Foreman:
_____. Attach a separate page listing this person's GCL installation construction experience.
20. Name of Bidder's GCL Installer Subcontractor's Project Manager:
_____. Attach a separate page listing this person's GCL installation construction experience.
21. Has the firm implemented a drug-free workplace program in compliance with Florida Statute 287.087? _____
___ Yes ___ No

[Questionnaire continues on following pages]

22. For BIDDER: Complete the following table for ten projects that are similar to this Project and whose construction cost exceeded \$1,000,000.

Name of Project	Date Completed	Owner	Contact Person: Name and Telephone Number	Original Contract Amount	Final Contract Amount

23. For BIDDER'S GCL INSTALLER SUBCONTRACTOR: Complete the following table for ten projects that are equal or greater in scope than the proposed Project.

Project Name / Square Yards of GCL Liner Installed	Date Completed	Owner	Contact Person: Name and Telephone Number	Original Liner Installation Contract Amount	Final Liner Installation Contract Amount

ADDITIONAL CERTIFICATIONS BY BIDDER:

1. Bidder has adequate fulltime staff such that all work not subcontracted to approved subcontractors will be performed by Bidder's own employees. Workers who are not permanently on the Bidder's payroll, such as but not limited to temporary workers leased from daily/weekly/etc. labor provider/service companies, are not allowed on this Project and Bidder agrees that violation of this requirement will be just cause for termination of the Contract.

Under oath, I swear that all statements and information contained in this entire Section are true.

Dated: _____

By: _____
(CONTRACTOR – must be signed by
an Officer of the Corporation)

Print Name and Title

STATE OF FLORIDA - COUNTY OF _____

Before me, a Notary Public, duly commissioned, qualified, and acting, personally appeared _____, who being by me first duly sworn upon oath, says that he/she is the _____ of the CONTRACTOR mentioned above and that he/she has been duly authorized to act on behalf of it, and that he/she executed the above Contractor's Application for Payment and Contractor's Certification statement on behalf of said CONTRACTOR; and that all of the statements contained herein are true, correct, and complete. Subscribed and sworn to before me this ____ day of _____, 20____.

_____ is personally known to me or has produced _____ as identification.

(SEAL)

NOTARY PUBLIC: _____

Printed name: _____

Commission No.: _____ Commission Expiration: _____

** END OF SECTION **

SECTION 00452 - SWORN STATEMENT UNDER SECTION 105.08,
INDIAN RIVER COUNTY CODE, ON DISCLOSURE OF
RELATIONSHIPS

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

1. This sworn statement MUST be submitted with the Bid for MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM

2. This sworn statement is submitted by: _____

(Name of entity submitting Statement)

whose business address is:

3. My name is _____
(Please print name of individual signing)

and my relationship to the entity named above is _____

4. I understand that an "affiliate" as defined in Section 105.08, Indian River County Code, means:

The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of the entity.

5. I understand that the relationship with a County Commissioner or County employee that must be disclosed as follows:

Father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, daughter-in-law, son-in-law, brother-in-law, sister-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half brother, half sister, grandparent, or grandchild.

6. Based on information and belief, the statement, which I have marked below, is true in relation to the entity submitting this sworn statement. [Please 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, have any relationships as defined in section 105.08, Indian River County Code, with any County Commissioner or County employee.

_____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents, who are active in management of the entity have the following relationships with a County Commissioner or County employee:

Name of Affiliate or entity	Name of County Commissioner or employee	Relationship
--------------------------------	--	--------------

_____	_____	_____
_____	_____	_____
_____	_____	_____

(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 _____ as identification.

NOTARY PUBLIC

SIGN: _____

PRINT: _____

Notary Public, State at large
My Commission Expires:

(Seal)

++ END OF SECTION ++

**SECTION 00454 – SWORN STATEMENT UNDER THE FLORIDA
TRENCH SAFETY ACT**

THIS FORM MUST BE SIGNED BY THE BIDDER WHO WILL BE RESPONSIBLE FOR THE EXCAVATION WORK ("BIDDER"), OR ITS AUTHORIZED REPRESENTATIVE, IN THE PRESENCE OF A NOTARY PUBLIC AUTHORIZED TO ADMINISTER OATHS.

1. This Sworn Statement is submitted with the Bid for **Moorhen Marsh Low Energy Aquatic Plant System**.

2. This Sworn Statement is submitted by _____
(Legal Name of Entity Submitting Sworn Statement)

hereinafter "BIDDER". The BIDDER's address is _____

BIDDER's Federal Employer Identification Number (FEIN) is _____.

3. My name is _____ and my relationship to the BIDDER
(Print Name of Individual Signing)
is _____
(Position or Title)

I certify, through my signature at the end of this Sworn Statement, that I am an authorized representative of the BIDDER.

4. The Trench Safety Standards that will be in effect during the construction of this Project are contained within the Trench Safety Act, Section 553.60 et.seq. Florida Statutes and refer to the applicable Florida Statute(s) and/or OSHA Regulation(s) and include the "effective date" in the citation(s). Reference to and compliance with the applicable Florida Statute(s) and OSHA Regulation(s) is the complete and sole responsibility of the BIDDER. Such reference will not be checked by OWNER or ENGINEER and they shall have no responsibility to review or check the BIDDER's compliance with the Trench Safety Standards.

5. The BIDDER assures the OWNER that it will comply with the applicable Trench Safety Standards and agrees to indemnify, defend and hold harmless the OWNER and ENGINEER, and any of their agents or employees, from any claims arising from the failure of the BIDDER to identify applicable standards or to comply with said standards. As specific consideration for the indemnification above, the OWNER agrees to give the BIDDER twenty-five dollars (\$25.00), which the OWNER agrees is paid on behalf of all parties indemnified hereinabove.

6. The BIDDER has allocated and included in its bid the total amount of \$ _____, based on the linear feet of trench to be excavated over five (5) feet deep, for compliance with the applicable Trench Safety Standards, and intends to comply with said standards by instituting the following specific method(s) of compliance on this Project: _____

The determination of the appropriate method(s) of compliance is the complete and sole responsibility of the BIDDER. Such methods will not be checked by the OWNER or ENGINEER for accuracy, completeness, or any other purpose. The OWNER and

ENGINEER shall have no responsibility to review or check the BIDDER's compliance with the Trench Safety Standards.

- 7) The BIDDER has allocated and included in its bid the total amount of \$ _____ based on the square feet of shoring to be used for compliance with shoring safety requirements and intends to comply with said shoring requirements by instituting the following specific method(s) of compliance on this Project: _____

The determination of the appropriate method(s) of compliance is the complete and sole responsibility of the BIDDER. Such methods will not be checked by the OWNER or ENGINEER for accuracy, completeness or any other purpose. The OWNER and ENGINEER shall have no responsibility to review or check the BIDDER's compliance with the Trench Safety Standards.

- 8) The BIDDER, in submitting this bid, represents that it has obtained and considered all available geotechnical information, has utilized said geotechnical information and that, based on such information and the BIDDER's own information, the BIDDER has sufficient knowledge of the Project's surface and subsurface site conditions and characteristics to assure BIDDER's compliance with the applicable Trench Safety Standards in designing the trench safety system(s) for the Project.

BIDDER: _____

By: _____

Position or Title: _____

Date: _____

STATE OF _____
COUNTY OF _____

Personally appeared before me, the undersigned authority, _____ who after first being sworn by me, affixed his/her signature in the space provided above on this _____ day of _____, 20____.

Notary Public, State at large
My Commission Expires:

+ + END OF SECTION + +

**SECTION 00456 - CERTIFICATION REGARDING PROHIBITION AGAINST
CONTRACTING WITH SCRUTINIZED COMPANIES**

I hereby certify that neither the undersigned entity, nor any of its wholly owned subsidiaries, majority-owned subsidiaries, parent companies, or affiliates of such entities or business associations, that exists for the purpose of making profit have been placed on the Scrutinized Companies that Boycott Israel List created pursuant to s. 215.4725 of the Florida Statutes, or are engaged in a boycott of Israel.

In addition, if this agreement is for a contract for goods or services of one million dollars or more, I hereby certify that neither the undersigned entity, nor any of its wholly owned subsidiaries, majority-owned subsidiaries, parent companies, or affiliates of such entities or business associations, that exists for the purpose of making profit are on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to s. 215.473 of the Florida Statutes, or are engaged in business operations in Cuba or Syria as defined in said statute.

I understand and agree that the County may immediately terminate any contract resulting from this solicitation upon written notice if the undersigned entity (or any of those related entities of respondent as defined above by Florida law) are found to have submitted a false certification or any of the following occur with respect to the company or a related entity: (i) it has been placed on the Scrutinized Companies that Boycott Israel List, or is engaged in a boycott of Israel, or (ii) for any contract for goods or services of one million dollars or more, it has been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or it is found to have been engaged in business operations in Cuba or Syria.

Name of Respondent: _____

By: _____
(Authorized Signature)

Title: _____

Date: _____

SECTION 00458 – LIST OF SUBCONTRACTORS

The Bidder **SHALL** list below the name and address of each Subcontractor who will perform work under this Contract in excess of one-half percent of the total bid price, and shall also list the portion of the Work which will be done by such Subcontractor. After the opening of Bids, changes or substitutions will not be allowed unless approved by the OWNER after a request for such a change has been submitted in writing by the CONTRACTOR, which shall include reasons for such request. Subcontractors must be properly licensed and hold a valid Certificate of Competency. The Geosynthetic Clay Liner Installer Subcontractor shall meet or exceed all requirements set forth in Section 00450 for the Bidder's Geosynthetic Clay Liner Installer Subcontractor.

Documentation Submitted with Bid for MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM.

	<u>Work to be Performed</u>	<u>Subcontractor's Name/Address</u>
1.	_____	_____

2.	_____	_____

3.	_____	_____

4.	_____	_____
	_____	_____

5.	_____	_____

Work to be Performed

Subcontractor's Name/Address

6.	_____	_____

7.	_____	_____

8.	_____	_____

9.	_____	_____

10.	_____	_____

Attach additional sheets as required.

**** END OF SECTION ****

SECTION 00459

DRUG-FREE WORKPLACE CERTIFICATION

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that

_____ does:
(Name of Business)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than 5 days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community by, any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of Section 287.087.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Company Name

Bidder's Signature

Date _____

+ + END OF SECTION + +

CONTRACT FORMS

SECTION 00510 – NOTICE OF AWARD (SAMPLE)
BOARD OF COUNTY COMMISSIONERS



[date]

via Email

Company

Attn:

Address

Address

Email address

NOTICE OF AWARD

Reference: ***Indian River County Bid No.***
 Bid Title

Dear Mr./Ms. :

It is my pleasure to inform you that on [DATE] the Board of County Commissioners awarded the above-referenced project to your company. The following documents are required before the applicable County department can issue a "Notice to Proceed" letter.

1. Public Construction Bond (unrecorded) in the amount of **100%** of the award amount (**\$.....**).
2. Two Signed Copies of Enclosed Agreement.
3. Certificate of Insurance indicating coverage required by Article 5 of the General Conditions (section 00700 of the bid documents). Certificate(s) **must name Indian River County as additional insured** and must provide for a 30 day Notice of Cancellation.
4. W-9.

In accordance with section 255.05(1)(a), Florida Statutes, you are required to execute a Public Construction Bond for the above referenced project. Please submit the Bond, W-9, the Certificate(s) of Insurance and two fully-executed copies of the enclosed agreement to this office at the address provided below no later than [Due **DATE (15 days from award)**]. Failure to comply with the established deadline for submittal of required documents may be grounds for cancellation of award.

Thank you for your prompt attention and if you have any questions, please do not hesitate to contact our office.

Sincerely,

Jennifer Hyde
Purchasing Manager

cc: Stormwater Division

Office of Management and Budget • Purchasing Division
1800 27th Street, Vero Beach, Florida 32960•(772) 226-1416•Fax: (772) 770-5140
E-mail: purchasing@ircgov.com

00510 - Notice of Award REV 04-07

00510-1

SECTION 00520 – AGREEMENT

THIS AGREEMENT is by and between INDIAN RIVER COUNTY, a Political Subdivision of the State of Florida organized and existing under the Laws of the State of Florida, (hereinafter called OWNER)

and _____
(hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 - WORK

1.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Construction of a regional stormwater pollution treatment facility that will remove pollutants from North Relief Canal water.

ARTICLE 2 - THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Project Name: MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM
Bid Number: 2020030
Project Address: 6520 53rd Street, Vero Beach, FL 32967.

ARTICLE 3 – ENGINEER

3.01 The Stormwater Division of the Indian River County Public Works Department is hereinafter called the ENGINEER and will act as OWNER's representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.01 *Time of the Essence*

- A. All time limits for Milestones, if any, Final Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence to the Contract.

4.02 *Days to Achieve Final Completion and Final Payment*

- A. The Work will be fully completed (Final Completion) and ready for final payment in accordance with paragraph 14.07 of the General Conditions on or before the 300th day from the date the Contract Time commences as set forth in the Notice-to-Proceed (Section 00550).

4.03 Liquidated Damages

- A. CONTRACTOR and OWNER recognize that time is of the essence for this Agreement and that OWNER will suffer financial loss if the Work is not completed on or before the date specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay OWNER \$3,645.00¹ for each calendar day that expires after the date specified in paragraph 4.02 for Final Completion, until the Work is finally complete and ready for final payment.

ARTICLE 5 - CONTRACT PRICE

5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents, an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 5.01.A and summarized in paragraph 5.01.B, below:

- A. For all Work, at the prices stated in CONTRACTOR's Bid, attached hereto as an exhibit.
- B. THE CONTRACT SUM subject to additions and deductions provided in the Contract:

Numerical Amount: \$ _____

Written Amount: _____

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

6.02 Progress Payments; Retainage

- A. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment at intervals not less than once each month during performance of the Work as provided in paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established in paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:

¹ Reference for liquidated damages amount: "Standard Specifications for Road and Bridge Construction", Florida Department of Transportation, July 2017, Section 8-10.2, page 93, for projects of \$5,000,000 but less than \$10,000,000. The actual liquidated damages amount will be based on the actual contract award amount and will be determined using the referenced Florida Department of Transportation criteria.

1. Progress payments will be made in an amount equal to the percentage indicated below, less the aggregate of payments previously made and less such amounts as ENGINEER may determine or OWNER may withhold, in accordance with paragraph 14.02 of the General Conditions:

a. Ninety percent (90%) of Work completed (with the balance being retainage).

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.07.

ARTICLE 7 - INDEMNIFICATION

7.01 CONTRACTOR shall indemnify OWNER, ENGINEER, and others in accordance with paragraph 6.20 (*Indemnification*) of the General Conditions to the Construction Contract.

ARTICLE 8 - CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

- A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. CONTRACTOR has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified as provided in paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified as provided in paragraph 4.06 of the General Conditions.
- E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto
- F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the

Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

- G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- I. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 - CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 00520-1 to 00520-8, inclusive);
 - 2. Section 00605 – Public Construction Bond (pages 00605-1 to 00605-3, inclusive);
 - 3. Section 00700 - General Conditions (pages 00700-1 to 00700-54, inclusive);
 - 5. Specifications as listed in the Table of Contents of the Project Manual;
 - 6. Drawings as listed in the Cover Sheet of the CONSTRUCTION DRAWINGS FOR MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM (LEAPS™);
 - 7. Addenda (numbers _____ to _____, inclusive);
 - 8. Exhibits to this Agreement (enumerated as follows):
 - a. Section 00310 – Bid Form (CONTRACTOR's Bid) (pages 00310-1 to 00310-5 and pages 1 of 3 through 3 of 3 (Tabular Bid Form), inclusive);
 - b. Section 00450 – Qualifications Questionnaire (page 00450-1 to 00450-7, inclusive including ___ attached pages);
 - c. Section 00452 - Sworn Statement Under Section 105.08, Indian River County Code, on Disclosure of Relationships (pages 00452-1 to 00452-2, inclusive);
 - d. Section 00454 – Sworn Statement Under the Florida Trench Safety Act (pages 00454-1 to 00454-2, inclusive);
 - e. Section 00456 - Certification Regarding Prohibition Against Contracting With Scrutinized Companies (page 00456-1);

- f. Section 00458 – List of Subcontractors (pages 00458-1 to 00458-2, inclusive);
 - g. Section 00459 – Drug-Free Workplace Certification (page 00459-1);
 - h. Section 00622 – Contractor’s Application for Payment (pages 00622-1 to 00622-5, inclusive);
 - i. Section 00632 – Contractor’s Final Certification of the Work (pages 00632-1 to 00632-2, inclusive);
 - j. Documentation submitted by CONTRACTOR prior to Notice of Award (pages _____ to _____, inclusive);
 - k. Certificates of Insurance as required by the General Conditions.
9. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
- a. Written Amendments;
 - b. Work Change Directives;
 - c. Change Order(s).
- B. The documents listed in paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in paragraph 3.04 of the General Conditions.

ARTICLE 10 - MISCELLANEOUS

10.01 *Terms*

- A. Terms used in this Agreement will have the meanings indicated in the General Conditions.

10.02 *Assignment of Contract*

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

- A. OWNER 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.

10.04 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 Venue

- A. This Contract shall be governed by the laws of the State of Florida. Venue for any lawsuit brought by either party against the other party or otherwise arising out of this Contract shall be in Indian River County, Florida, or, in the event of a federal jurisdiction, in the United States District Court for the Southern District of Florida.

10.06 Affirmative Steps With Respect to Minority and Women's Businesses

- A. CONTRACTOR shall take the following affirmative steps to ensure minority business, women's business enterprises and labor surplus area firms are used when possible:
 1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists.
 2. Ensuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources.
 3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises.
 4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises.
 5. Using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

10.07 Public Records

- A. Indian River County is a public agency subject to Chapter 119, Florida Statutes. The Contractor shall comply with Florida's Public Records Law. Specifically, the Contractor shall:
 1. Keep and maintain public records required by the County to perform the service.
 2. Upon request from the County's Custodian of Public Records, provide the County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119 or as otherwise provided by law.
 3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the County.

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

B. IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

(772) 226-1424

publicrecords@ircgov.com

Indian River County Office of the County Attorney

1801 27th Street

Vero Beach, FL 32960

C. Failure of the Contractor to comply with these requirements shall be a material breach of this Agreement.

[The remainder of this page was left blank intentionally]

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or on their behalf.

This Agreement will be effective on _____, 20__ (the date the Contract is approved by the Indian River County Board of County Commissioners, which is the Effective Date of the Agreement).

OWNER:
BOARD OF COUNTY COMMISSIONERS
INDIAN RIVER COUNTY, FLORIDA

CONTRACTOR:

By: _____
Susan Adams, Chairman

By: _____
(Printed name and title)

Approved by BCC _____

Jason Brown, County Administrator

Witnessed by:

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

By: _____
William K. DeBraal, Deputy County Attorney

(Printed name)

ATTEST:

Jeffrey R. Smith, Clerk of Court and Comptroller

Deputy Clerk

** END OF SECTION **

SECTION 00550 - NOTICE TO PROCEED
(SAMPLE)

Dated: _____

TO: _____
CONTRACTOR

ADDRESS: _____

TELEPHONE: () _____ - _____

Contract For: **MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM**

You are notified that the Contract Times under the above contract will commence to run on _____. By that date, you are to start performing your obligations under the Contract Documents. The Contract has allocated ____ calendar days for the completion of this project. In accordance with Article 4 of the Agreement the date of Final Completion is _____ 2020.

Before you may start any work at the site, you must obtain all insurance required under Article 5 of the General Conditions, and you must deliver to the Owner (with copies to Engineer and other identified additional insured), certificates of insurance that you are required to purchase and maintain in accordance with the Article 5 of the General Conditions, and the Owner has approved said insurance.

INDIAN RIVER COUNTY
(OWNER)

By: _____
(AUTHORIZED SIGNATURE)

Keith McCully, P.E., Stormwater Engineer

+ + END OF SECTION + +

SECTION 00605 PUBLIC CONSTRUCTION BOND

INSTRUCTIONS FOR PUBLIC CONSTRUCTION BOND

The front or cover page to the required Public Construction Payment and Performance Bond shall contain the information required by Fla. Stat. 255.05(1)(a), and be substantially in the format shown on the first page following this instruction.

The Public Construction Bond shall be in the form suggested by Fla. Stat. 255.05(3) as shown on the second page following this instruction.

A Power of Attorney from a surety insurer authorized to do business in Florida, authorizing the signature of the Attorney in Fact who executes the Public Construction Bond shall accompany that Bond.

SECTION 00605 – PUBLIC CONSTRUCTION BOND

F.S. Chapter 255.05 (1)(a)

COVER PAGE

THIS BOND IS GIVEN TO COMPLY WITH SECTION 255.05 OR SECTION 713.23 FLORIDA STATUTES, AND ANY ACTION INSTITUTED BY A CLAIMANT UNDER THIS BOND FOR PAYMENT MUST BE IN ACCORDANCE WITH THE NOTICE AND TIME LIMITATION PROVISIONS IN SECTION 255.05(2) OR SECTION 713.23 FLORIDA STATUTES.

BOND NO: _____

CONTRACTOR NAME: _____

CONTRACTOR ADDRESS: _____

CONTRACTOR PHONE NO: _____

SURETY COMPANY NAME: _____

SURETY PRINCIPAL

BUSINESS ADDRESS: _____

SURETY PHONE NO: _____

OWNER NAME: _____

OWNER ADDRESS: _____

OWNER PHONE NO: _____

OBLIGEE NAME: _____

(If contracting entity is different from the owner, the contracting public entity)

OBLIGEE ADDRESS: _____

OBLIGEE PHONE NO: _____

BOND AMOUNT: _____

CONTRACT NO: _____

(If applicable)

DESCRIPTION OF WORK: _____

PROJECT LOCATION: _____

LEGAL DESCRIPTION: _____

(If applicable)

FRONT PAGE

All other bond page(s) are deemed subsequent to this page regardless of any page number(s) that may be printed thereon.

PUBLIC CONSTRUCTION BOND

Bond No. _____
(enter bond number)

BY THIS BOND, We _____, as Principal and _____, a corporation, as Surety, are bound to Indian River County, herein called Owner, in the sum of \$ _____, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the contract dated _____, _____, between Principal and Owner for construction of _____, the contract being made a part of this bond by reference, 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 Statutes, 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 Owner all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that Owner 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.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

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.

DATED ON _____,

(Name of Principal)

By _____
(As Attorney in Fact)

(Name of Surety)

++ END OF SECTION ++

SECTION 00620 – SAMPLE CERTIFICATE OF LIABILITY INSURANCE

CERTIFICATE OF LIABILITY INSURANCE	
PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
	COMPANIES AFFORDING COVERAGE
INSURED	COMPANY A -
	COMPANY B -
	COMPANY C -
	COMPANY D -
	COMPANY E -

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED NOTWITHSTANDING ANY REQUIREMENT TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN THE INSURANCE ACCORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

HSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/D/YY)	LIMITS	
	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE - <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				EACH OCCURRENCE	\$ 1,000,000
					FIRE DAMAGE (Any One Fire)	\$ 50,000
					MED. EXP. (Any One Person)	\$ 5,000
					PERSONAL & ADV INJURY	\$ 1,000,000
					GENERAL AGGREGATE	\$ 1,000,000
					PRODUCTS – COMP/OP AGG.	\$ 1,000,000
						\$
	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS <input type="checkbox"/> <input type="checkbox"/>				COMBINED SINGLE LIMIT (Ea. Occurrence)	\$ 1,000,000
					BODILY INJURY (Per Person)	\$
					BODILY INJURY (Per Accident)	\$
					PROPERTY DAMAGE	\$
	GARAGE LIABILITY				AUTO ONLY – EA ACCIDENT	\$
	<input type="checkbox"/>				OTHER THAN EA ACC	\$
	<input type="checkbox"/>				AUTO ONLY AGG	\$
	EXCESS LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				EACH OCCURRENCE	\$
					AGGREGATE	\$
						\$
						\$
	WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY THE PROPRIETOR/PARTNERS/ EXECUTIVE OFFICERS ARE: <input checked="" type="checkbox"/> INCL <input type="checkbox"/> EXCL				<input checked="" type="checkbox"/> WC STATUTORY LIMITS	
					E.L. EACH ACCIDENT	\$ 100,000
					E.L. DISEASE – EA	\$ 500,000
					E.L. DISEASE-POLICY LIMIT	\$ 100,000
	OTHER: BUILDER'S RISK				FULL REPLACEMENT COST OF THE WORK	

DESCRIPTION OF OPERATIONS/LOCATIONS VEHICLES/SPECIAL ITEMS

CERTIFICATE HOLDER	ADDITIONAL INSURED; INSURER LETTER:	CANCELLATION
ADDITIONAL INSURED: (1) INDIAN RIVER COUNTY, FLORIDA 1840 25 TH STREET, VERO BEACH, FL 32960 (2) INDIAN RIVER FARMS WATER CONTROL DISTRICT, 7305 4 TH STREET, VERO BEACH, FLORIDA 32968		SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT. FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE

++ END OF SECTION ++

SECTION 00622 – CONTRACTOR’S APPLICATION FOR PAYMENT
MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM

Application for Payment No. _____.

For Work Accomplished through the period of _____ through _____.

To: Indian River County (OWNER)
 From: _____ (CONTRACTOR)

ENGINEER: Indian River County Public Works Department, Stormwater Division

1.	Original Contract Price:	\$ _____
2.	Net change by Change Orders and Written Amendments (+ or -):	
2.a	Change Order No. 1	\$ _____
2.b	Change Order No. 2	\$ _____
2.c	Change Order No. 3	\$ _____
2.d	Change Order No. 4	\$ _____
2.e	Total change in Contract Price (2.a + 2.b + ... 2.n)	\$ _____
3.	Current Contract Price (1 plus 2e):	\$ _____
4.	Total Work to date:	
4.a	Percentage of Work completed to date: _____%	
4.b	Total Work completed to date:	\$ _____
5.	Retainage:	
5.a	10% of completed Work up to 50% completion (0.10 x 4.b); or 5% of completed Work after 50% completion (0.05 x 4.b)	\$ _____
6.	Total Work completed less retainage (4.b minus 5.a):	\$ _____
7.	Previous Payments:	\$ _____
8.	AMOUNT DUE THIS APPLICATION (6 minus 7):	\$ _____

CONTRACTOR’s current mailing address:

CONTRACTOR'S CERTIFICATION:

UNDER PENALTY OF PERJURY, the undersigned CONTRACTOR certifies that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR's specific legitimate obligations associated with prior Applications for Payment. This certification includes, but is not limited to the following statements of fact: (1) the labor and materials listed on this request for payment have been used in the construction of this Work; (2) payment received from the last pay request has been used to make payments to all subcontractors, laborers, materialmen and suppliers except as listed on Attachment A, below; (3) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); (4) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective; and (5) If this Periodic Estimate is for a Final Payment to project or improvement, I further certify that all persons doing work upon or furnishing materials or supplies for this project or improvement under this foregoing contract have been paid in full, and that all taxes imposed by Chapter 212 Florida Statutes, (Sales and Use Tax Act, as Amended) have been paid and discharged, and that I have no claims against OWNER.

Attached to or submitted with this form are:

1. Signed release of lien forms (partial or final as applicable) from all subcontractors, laborers, materialmen and suppliers except as listed on Attachment A, together with an explanation as to why any release of lien form is not included;
2. Updated Construction Schedule per Specification Section 01310,
3. Construction progress photographs per Specification Section 01380, and
4. Progress Record Drawings per Specification Sections 01330 and 01720.
5. Updated Schedule of Values

Under oath, I swear that the foregoing statements are true.

Dated: _____

By: _____
(CONTRACTOR – must be signed by an Officer of the Corporation)

Print Name and Title

STATE OF FLORIDA - COUNTY OF _____

Before me, a Notary Public, duly commissioned, qualified, and acting, personally appeared _____, who being by me first duly sworn upon oath, says that he/she is the _____ of the CONTRACTOR mentioned above and that he/she has been duly authorized to act on behalf of it, and that he/she executed the above Contractor's Application for Payment and Contractor's Certification statement on behalf of said CONTRACTOR; and that all of the statements contained herein are true, correct, and complete. Subscribed and sworn to before me this ____ day of _____, 20____.

_____ is personally known to me or has produced _____ as identification.

NOTARY PUBLIC: _____

(SEAL) Printed name: _____

Commission No.: _____ Commission Expiration: _____

SURETY'S CONSENT OF PAYMENT TO CONTRACTOR:

The Surety, _____
_____, a
corporation, in accordance with Public Construction Bond Number _____,
hereby consents to payment by the OWNER to the CONTRACTOR, for the amounts
specified in this CONTRACTOR'S APPLICATION FOR PAYMENT.

TO BE EXECUTED BY CORPORATE SURETY:

Attest:

Secretary

Corporate Surety

Business Address

BY: _____
Print Name: _____
Title: _____

(Affix Corporate SEAL)

STATE OF FLORIDA
COUNTY OF INDIAN RIVER

Before me, a Notary Public, duly commissioned, qualified, and acting, personally
appeared _____, to me well known or who
produced _____ as identification, who being by me first
duly sworn upon oath, says that he/she is the _____ for
_____ and that he/she has been authorized by _____ it to
approve payment by the OWNER to the CONTRACTOR of the foregoing Contractor's
Application for Payment. Subscribed and sworn to before me this _____ day of
_____, 20_____.

Notary Public, State of _____
My Commission Expires: _____

[The remainder of this page was left blank intentionally]

CERTIFICATION OF OWNER'S CONSTRUCTION OBSERVER:

To the best of my knowledge and belief: the Work has progressed to the point indicated on this Application for Payment; the quality of the Work is generally in compliance with the Contract Documents; and the conditions precedent to the CONTRACTOR being entitled to such payment appear to have been fulfilled in so far as it is my ability to observe the Work. I am not certifying as to whether or not the Contractor has paid all subcontractors, laborers, materialmen, and suppliers because I am not in a position to accurately determine that issue.

Dated _____

SIGNATURE

CERTIFICATION OF ENGINEER:

To the best of my knowledge and belief: the Work has progressed to the point indicated on this Application for Payment; the quality of the Work is generally in compliance with the Contract Documents; and the conditions precedent to the CONTRACTOR being entitled to such payment appear to have been fulfilled in so far as it is my ability to observe the Work. I am not certifying as to whether or not the Contractor has paid all subcontractors, laborers, materialmen, and suppliers because I am not in a position to accurately determine that issue.

Dated _____

SIGNATURE

[The Remainder of This Page Was Left Blank Intentionally]

**SECTION 00632 - CONTRACTOR'S FINAL CERTIFICATION
OF THE WORK**

(TO ACCOMPANY CONTRACTOR'S FINAL APPLICATION FOR PAYMENT)

To: INDIAN RIVER COUNTY (OWNER)

From: _____ (CONTRACTOR)

UNDER PENALTY OF PERJURY, the undersigned CONTRACTOR swears that the following are true statements:

1. On _____, 20___, the CONTRACTOR and Indian River County, a Florida political subdivision, entered into a Contract for the performance of certain Work, generally described as follows: Construction of a regional stormwater pollution treatment facility that will remove pollutants from North Relief Canal water, called **Moorhen Marsh Low Energy Aquatic Plant System**. The facility will use aquatic plants, settling basins, and wetland polishing systems to remove pollutants from up to 10 million gallons per day of North Relief Canal water. Work includes, but is not limited to construction of access roads and driveways, pole barn, treatment units and supporting facilities, settling basins, shallow marshes, miscellaneous structures, work pads, native landscaping, etc.
2. CONTRACTOR has reviewed the Contract Documents;
3. CONTRACTOR has reviewed the Work for compliance with the Contract Documents;
4. CONTRACTOR has completed the Work in accordance with the Contract Documents and the Contract is fully performed;
5. All equipment and systems have been tested in the presence of the ENGINEER or his representative and are fully operational with no defects or deficiencies except as listed below:

6. The Work is ready for final acceptance by the OWNER;
7. Final payment is now due;

8. All liens of all firms and individuals contracting directly with or directly employed by CONTRACTOR have been paid in full EXCEPT:

Name	Description/Amount
_____	_____
_____	_____

who have not been paid and who are due the amount set forth; and

10. CONTRACTOR hereby certifies that it has no claims against the OWNER.

(Corporate Seal)

Dated _____

By: _____
(CONTRACTOR – must be signed by an Officer of the Corporation)

Print Name and Title

STATE OF FLORIDA
COUNTY OF _____

Before me, a Notary Public, duly commissioned, qualified, and acting, personally appeared, _____, who being by me first duly sworn upon oath, says that he/she is the _____ of the CONTRACTOR mentioned above and that he/she has been duly authorized to act on behalf of it, and that he/she executed the above Contractor's Final Certification of the Work statement on behalf of said CONTRACTOR; and that all of the statements contained herein are true, correct, and complete. Subscribed and sworn to before me this ____ day of _____, 20__.

_____ is personally known to me or has produced _____ as identification.

NOTARY PUBLIC: _____

(SEAL)

Printed name:

Commission No.: _____

Commission Expiration: _____

+ + END OF SECTION + +

SECTION 00634 - PROFESSIONAL SURVEYOR AND MAPPER'S CERTIFICATION AS TO ELEVATIONS AND LOCATIONS OF THE WORK

(TO BE COMPLETED BY A FLORIDA PROFESSIONAL SURVEYOR AND MAPPER RETAINED BY THE CONTRACTOR AND TO ACCOMPANY CONTRACTOR'S FINAL APPLICATION FOR PAYMENT)

I CERTIFY that I am a Florida Professional Surveyor and Mapper retained by:

(Insert name of CONTRACTOR)

Who is the CONTRACTOR for the following Project:

MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM

I FURTHER CERTIFY that I have personally performed the survey work for the preparation of Record Drawings for the CONTRACTOR for this project or that such work was performed under my direct control and supervision.

I FURTHER CERTIFY that all constructed elevations and locations of the Work are in conformance with the Contract Documents, except for discrepancies listed below.

[Attach additional sheets as necessary]

(SURVEYOR'S SEAL)

CERTIFIED BY: _____

Printed Name: _____

Florida Professional Surveyor and Mapper Registration Number: _____

Date Signed and Sealed by Professional Surveyor and Mapper: _____

Company Name: _____

Company Address: _____

Telephone Number: _____

CONDITIONS OF THE CONTRACT

SECTION 00700

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

INDIAN RIVER COUNTY PUBLIC WORKS DEPARTMENT

Note: These Standard General Conditions of the Construction Contract are modifications of the 1996 Edition of the Standard General Conditions of the Construction Contract, prepared by the ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE (EJCDC), which were issued and published jointly by PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE, a practice division of the NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS; the AMERICAN CONSULTING ENGINEERS COUNCIL; and the AMERICAN SOCIETY OF CIVIL ENGINEERS; and approved and endorsed by The Associated General Contractors of America Construction Specifications Institute.

NOTE:

Type in **BOLD** indicates ADDITIONS to the 1996 Edition of the EJCDC Standard General Conditions of the Construction Contract and ~~STRIKETHROUGH~~ text indicates DELETIONS from the 1996 Edition of the EJCDC Standard General Conditions of the Construction Contract

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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314

American Consulting Engineers Council
1015 15th Street N.W., Washington, DC 20005

American Society of Civil Engineers
345 East 47th Street, New York, NY 10017

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CONTRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *Change Order*--A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the

Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by OWNER or CONTRACTOR seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: ~~(i) achieve Substantial Completion;~~ and ~~(ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.~~

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement. **The CONTRACTOR shall be a contractor licensed in the**

State of Florida to perform construction services of the type required for this project. The CONTRACTOR shall have a General Contractor license.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *ENGINEER*--The individual or entity named as such in the Agreement.

20. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER or OWNER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project.

21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

25. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to **Final Completion** ~~Substantial Completion~~ of all the Work.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform the Work under the Contract Documents.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work. **There is no Partial Utilization for this Project.**

32. *PCBs*--Polychlorinated biphenyls.

33. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

36. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

40. *Site*--Lands or areas indicated in the Contract Documents as being furnished by OWNER upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by OWNER which are designated for the use of CONTRACTOR.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *Subcontractor*--An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the Site.

43. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof. **There is no Substantial Completion date or milestone for this Project.**

44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

45. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

49. *Work Change Directive*--A written statement to CONTRACTOR issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 *Terminology*

A. *Intent of Certain Terms or Adjectives*

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of ENGINEER as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed

Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. *Day*

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.04 or 14.05).

D. *Furnish, Install, Perform, Provide*

1. The word "furnish" shall mean to supply and deliver services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition. Equipment furnished by the OWNER shall be unloaded and stored at the site by the CONTRACTOR.

2. The word "install" shall mean to put into use or place in final position services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide" shall mean to furnish and install services, materials, or equipment complete and ready for intended use.

~~1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.~~

~~2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.~~

~~3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.~~

~~4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, "provide" is implied.~~

E. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds*

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 *Copies of Documents*

A. OWNER shall furnish to CONTRACTOR up to ~~three ten~~ copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the

Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity, or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless CONTRACTOR knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and
3. a preliminary schedule of values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of

overhead and profit applicable to each item of Work.

C. *Evidence of Insurance:* CONTRACTOR shall not commence work under this Contract until it has obtained all insurance required under Article 5 and such insurance has been delivered to the OWNER and approved by the OWNER, nor shall the CONTRACTOR allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been so obtained and approved. All such insurance shall remain in effect until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing *defective* Work in accordance with Article 13.

~~C. *Evidence of Insurance:* Before any Work at the Site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with Article 5.~~

2.06 *Preconstruction Conference*

A. Immediately after awarding the contract, but before the CONTRACTOR begins work, the ENGINEER (or OWNER's Project Manager as appropriate) will call a pre-construction conference at a place the ENGINEER designates, to establish an understanding among the parties as to the Work and to discuss schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, and maintaining required records. Utility companies and others as appropriate will be requested to attend to discuss and coordinate work.

B. Per the FDOT Standard Specifications for Road and Bridge Construction, the Contractor will certify to the Engineer the following:

1. A listing of on-site clerical staff, supervisory personnel and their pro-rated time assigned to the contract,
2. Actual Rate for items listed in Table 4-3.2.1 (see ATTACHMENT "A" on page 00700-53 for Table),
3. Existence of employee benefit plan for Holiday, Sick and Vacation benefits and a Retirement Plan, and,

4. Payment of Per Diem is a company practice for instances when compensation for Per Diem is requested.

Such certification must be made by an officer or director of the Contractor with authority to bind the Contractor. Timely certification is a condition precedent to any right of the Contractor to recover compensations for such costs, and failure to timely submit the certification will constitute a full, complete, absolute and irrevocable waiver by the Contractor of any right to recover such costs. Any subsequent changes shall be certified to the Engineer as part of the cost proposal or seven calendar days in advance of performing such extra work.

~~A. Within 20 days after the Contract Times start to run, but before any Work at the Site is started, a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.~~

2.07 *Initial Acceptance of Schedules*

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor.

2. CONTRACTOR's schedule of Shop Drawing and Sample submittals will be acceptable to ENGINEER if it provides a workable

arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to OWNER.

C. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

3.02 *Reference Standards*

A. *Standards, Specifications, Codes, Laws, and Regulations*

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in

the Contract Documents, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 *Reuse of Documents*

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER or ENGINEER's Consultant, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

3.06 *Coordination of Plans, Specifications, and Special Provisions*

A. In case of discrepancy, the governing order of the documents shall be as follows:

1. **Written Interpretations**
2. **Addenda**
3. **Specifications**
4. **Supplementary Conditions to the General Conditions (if any)**
5. **General Conditions**
6. **Approved Shop Drawings**
7. **Drawings**
8. **Referenced Standards.**

B. **Written/computed dimensions shall govern over scaled dimensions.**

ARTICLE 4 - AVAILABILITY OF LANDS;
SUBSURFACE AND PHYSICAL CONDITIONS;
REFERENCE POINTS

4.01 *Availability of Lands*

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR of any encumbrances or restrictions not of general application but specifically related to use of the Site with which CONTRACTOR must comply in performing the Work. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. **The Contract Price shall not be increased as a result of any delay in OWNER's furnishing the Site.** If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the ~~Contract Price or Contract Times, or both,~~ as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim for additional time ~~therefor~~ as provided in paragraph 10.05.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* **Identified below are The Supplementary Conditions identify:**

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the

general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. ~~Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data,"~~ CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER, or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

C. **In the preparation of Drawings and Specifications, ENGINEER or ENGINEER's Consultants relied upon the following reports of explorations and tests of subsurface conditions at the Site:**

1. **Report dated October 9, 2019, prepared by Anderson Andre Consulting Engineers, Inc. entitled: Subsurface Soil Exploration and Geotechnical Engineering Evaluation Moorhen Marsh Low Energy Aquatic Plant System (LEAPS) Project, Indian River County, Florida, AAVE File No. 19-140, consisting of 63 pages.**

D. **Reports and drawings itemized in paragraph 4.02.C are not included with the Bidding Documents. Copies may be examined at the Indian River County Administration Building, Public Works Department, 1801 27th Street, Vero Beach, Florida during regular business hours. These reports and drawings are not part of the Contract Documents.**

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *ENGINEER's Review:* After receipt of written notice as required by paragraph 4.03.A, ENGINEER will promptly review the pertinent condition, determine the necessity of OWNER's obtaining additional exploration or tests with respect thereto, and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

C. *Possible Price and Times Adjustments*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of paragraphs 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or ~~arbitration or other~~ dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities, including OWNER, or by others. Unless it is otherwise expressly provided **herein:** ~~in the Supplementary Conditions:~~

1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:

- a. reviewing and checking all such information and data,
- b. locating all Underground Facilities shown or indicated in the Contract Documents,
- c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and
- d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

2. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in

Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

4.05 *Reference Points*

A. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* **There are no reports and drawings relating to a Hazardous Environmental Condition identified at the Site that have been utilized by the ENGINEER in the preparation of the Contract Documents.** ~~Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.~~

~~B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER or any of ENGINEER's Consultants with respect to:~~

~~1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or~~

~~2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or~~

~~3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.~~

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify OWNER and ENGINEER (and promptly thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefor as provided in paragraph 10.05.

F. If after receipt of such written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in paragraph 10.05.

OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.E shall obligate OWNER to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Within fifteen (15) days of receipt of the Contract Documents for execution, the CONTRACTOR shall furnish a Public Construction Bond in an amount

equal to 100% of the Contract Price.

1. In lieu of the Public Construction Bond, CONTRACTOR may furnish an alternative form of security in the form of cash, money order, certified check, cashier's check, irrevocable letter of credit or a security as listed in Part II of F.S. Chapter 625. Any such alternative form of security shall be for the same purpose, and be for the same amount and subject to the same conditions as those applicable to the bond otherwise required. The determination of the value of an alternative form of security shall be made by OWNER.

2. Such Bond shall continue in effect for one (1) year after acceptance of the Work by OWNER.

3. The Public Construction Bond and the Certificate of Insurance shall be submitted to the Indian River County Purchasing Division along with the executed agreements. The Indian River County Purchasing Division shall record the Public Construction Bond with the Public Record Section of the Indian River County Courthouse located at 2000 16th Avenue, Vero Beach, Florida 32960.

~~A. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents.~~

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. The sureties for all Bonds must be authorized to issue surety bonds in Florida. The CONTRACTOR shall require the attorney-in-fact who executes any Bond, to affix to each a current certified copy of their Power of Attorney, reflecting such person's authority as Power of Attorney in the State of Florida. Further, at the time of execution of the Contract, the CONTRACTOR

shall for all Bonds, provide a copy of the Surety's current valid Certificate of Authority issued by the United States Department of the Treasury under 31 United States Code sections 9304-9308.

~~B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.~~

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary **General** Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain. ~~OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain.~~

5.04 *CONTRACTOR's Liability Insurance*

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all

such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing, or replacing defective Work in accordance with paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

C. The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. **Worker's Compensation: To meet statutory limits in compliance with the Worker's Compensation Law of Florida. This policy must include Employer Liability with a limit \$100,000 for each accident, \$500,000**

disease (policy limit) and \$100,000 disease (each employee). Such policy shall include a waiver of subrogation as against OWNER and ENGINEER on account of injury sustained by an employee(s) of the CONTRACTOR.

2. **Commercial General Liability:** Coverage shall provide minimum limits of liability of \$1,000,000 per occurrence Combined Single Limit for Bodily Injury and Property Damage. This shall include coverage for:

- a. Premises/Operations
- b. Products/Completed Operations
- c. Contractual Liability
- d. Independent Contractors
- e. Explosion
- f. Collapse
- g. Underground.

3. **Business Auto Liability:** Coverage shall provide minimum limits of liability of \$1,000,000 per occurrence Combined Single Limit for Bodily Injury and Property Damage. This shall include coverage for:

- a. Owned Autos
- b. Hired Autos
- c. Non-Owned Autos.

4. **CONTRACTOR's "All Risk" Insurance:** CONTRACTOR shall secure Builders' Risk "All Risk" insurance at his expense and provide properly completed and executed "Certificates of Insurance and Insurance Endorsement" forms *in the exact wording and format presented in these Contract Documents* before starting work.

5. **Special Requirements:**

- a. Ten (10) days prior to the commencement of any work under this Contract, certificates of insurance and endorsement forms in the exact wording and format as presented in these Contract Documents will be provided to the OWNER's Risk Manager for review and approval.
- b. "Indian River County, a political subdivision of the state of Florida" will be named as "Additional Insured" on both the General Liability, Auto Liability and Builder's Risk "All Risk" Insurance.

- c. The OWNER will be given thirty (30) days notice prior to cancellation or modification of any stipulated insurance. Such notification will be in writing by registered mail, return receipt requested and addressed to the OWNER's Risk Manager.
- d. An appropriate "Indemnification" clause shall be made a provision of the Contract (see paragraph 6.20 of the General Conditions).
- e. It is the responsibility of the CONTRACTOR to insure that all subcontractors comply with all insurance requirements.
- f. It should be remembered that these are minimum requirements, which are subject to modification in response to high hazard operation.
- g. Insured must be authorized to do business and have an agent for service of process in Florida and have at least an A- policyholder's rating and financial rating of at least Class VII in accordance with the most current Best's Rating.

D. **Additional Insureds:**

1. "Indian River County, a political subdivision of the state of Florida" shall be listed as "additional insureds" on the CONTRACTOR's liability insurance policies.

2. "Indian River Farms Water Control District, a political subdivision of the state of Florida" shall be listed as "additional insureds" on the CONTRACTOR's liability insurance policies.

E. Should the CONTRACTOR at any time, neglect or refuse to provide the insurance required herein, or should such insurance be canceled or should the full annual aggregate amount of any policy not be available to satisfy the requirements of the Contract, the OWNER shall have the right, but not the obligation, to procure such insurance for the CONTRACTOR and the cost thereof shall be deducted from the monies then due or thereafter to become due to the CONTRACTOR or to declare CONTRACTOR in default under the Contract.

5.05 ~~OWNER's Liability Insurance~~

~~A. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.~~

5.06 *Property Insurance*

A. CONTRACTOR shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. This insurance shall:

1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and any other individuals or entities identified in the General Conditions, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "All Risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER; and

5. allow for partial utilization of the Work by OWNER;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. CONTRACTOR shall be responsible for any deductible or self-insured retention.

C. The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph 5.06 shall comply with all other requirements of the General Conditions.

~~A. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:~~

~~1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;~~

~~2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;~~

~~3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);~~

~~4. cover materials and equipment stored at the Site or at another location that was agreed to in~~

writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;

5. allow for partial utilization of the Work by OWNER;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

~~B. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.~~

~~C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.~~

D. OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 to protect the interests of CONTRACTOR, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. Additional Insureds:

1. "Indian River County, a political subdivision of the state of Florida" shall be listed as "additional insureds" on the CONTRACTOR's

property insurance policies.

2. "Indian River Farms Water Control District, a political subdivision of the state of Florida" shall be listed as "additional insureds" on the CONTRACTOR's property insurance policies.

~~E. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraph 5.06, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.~~

5.07 Waiver of Rights

~~A. OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.~~

~~B. OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and the officers, directors,~~

partners, employees, agents, and other consultants and subcontractors of each and any of them for:

1. ~~loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril whether or not insured by OWNER; and~~

2. ~~loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.05, after Substantial Completion pursuant to paragraph 14.04, or after final payment pursuant to paragraph 14.07.~~

~~C. Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against CONTRACTOR, Subcontractors, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.~~

5.08 ~~Receipt and Application of Insurance Proceeds~~

~~A. Any insured loss under the policies of insurance required by paragraph 5.06 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.08.B. OWNER shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.~~

~~B. OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER~~

~~as fiduciary shall give bond for the proper performance of such duties.~~

5.09 ~~Acceptance of Bonds and Insurance; Option to Replace~~

~~A. If either OWNER or CONTRACTOR has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by paragraph 2.05.C. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.~~

5.10 ~~Partial Utilization, Acknowledgment of Property Insurer~~

~~A. There will be no partial utilization of the Work by the OWNER. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.~~

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 ~~Supervision and Superintendence~~

~~A. CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely~~

responsible for the means, methods, techniques, sequences, and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of OWNER or ENGINEER in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent fulltime resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

C. In all its contracts with subcontractors, CONTRACTOR shall require the subcontractor to assign a competent fulltime superintendent to the Work who will supervise and direct the subcontractor's activities at all times. Said superintendent shall be present at the Site at all times when the subcontractor is performing Work. At OWNER's written request, CONTRACTOR shall immediately replace any subcontractor who in ENGINEER's sole opinion does not meet this requirement. If CONTRACTOR fails to do so, OWNER may terminate the Contract.

6.02 *Labor; Working Hours*

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without OWNER's written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

1. **Regular working hours are defined as Monday through Friday, excluding Indian River County Holidays, from 7 a.m. to 5 p.m.**

2. **Indian River County Holidays are: New Year's Day; Martin Luther King, Jr. Day; Good Friday; Memorial Day, Independence Day; Labor Day; Veterans Day; Thanksgiving Day; Day after Thanksgiving; Christmas Eve; and Christmas Day. Working on these days (or if the day falls on a weekend, the associated non-workday being observed by the County) will not be permitted without prior written permission and approval from the ENGINEER.**

3. **The CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of eight hours in any one calendar day or 40 hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the ENGINEER in writing.**

4. **All costs of inspection and testing performed during overtime work by the CONTRACTOR, which is allowed for the convenience of the CONTRACTOR, shall be borne by the CONTRACTOR, and a credit given to the OWNER to deduct the costs of all such inspection and testing from any payments otherwise due the CONTRACTOR.**

5. **All costs of OWNER's employees and costs of ENGINEER's Consultant resulting from overtime work by the CONTRACTOR, which is allowed for the convenience of the CONTRACTOR, shall be borne by the CONTRACTOR, and a credit given to OWNER to deduct all such costs from any payments otherwise due the CONTRACTOR.**

6. **No work shall commence before 7 a.m. or continue after 7 p.m. except in case of emergency upon specific permission of the ENGINEER.**

7. **No work shall be performed on Saturday or Sunday without prior written permission and approval from the ENGINEER.**

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the General Requirements, CONTRACTOR shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 Progress Schedule

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.05 Substitutes and "Or-Equals"

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, that proprietary item or particular Supplier shall be used and no other will be considered. If the specification or description contains or is followed by words such as "equivalent" or "or-equal," then the specification or description is intended to establish the type, function, appearance, and quality required. In such case, substitution of other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below.

~~A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below.~~

1. **"Or-Equal" or "Equivalent" Items:** If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" or **"equivalent"** item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment ENGINEER determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) **it will reliably perform at least equally well the function of the named item of material or equipment, and;** ~~it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;~~

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or

equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.

c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of ~~Final Substantial~~ Completion on time, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, meth-

od, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.05.A.2.

C. *Engineer's Evaluation:* ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. *Special Guarantee:* OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

E. *ENGINEER's Cost Reimbursement:* ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. *CONTRACTOR's Expense:* CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the **Contract Documents Supplementary Conditions** require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the **Contract Documents, Supplementary Conditions**, OWNER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations. Pursuant to Florida Statutes section 255.05(1)(a), any claimant (as such term is defined in Florida Statutes section 713.01) may apply to Indian River County as OWNER for copies of the Contract and the recorded bonds and shall thereupon be furnished with certified copies of such documents. OWNER or ENGINEER may furnish to any such Subcontractor, Supplier, or other individual or entity, to the extent practicable, information about amounts paid to CONTRACTOR on account of Work performed for CONTRACTOR by a particular Subcontractor, Supplier, or other individual or entity.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or

furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.06, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.07 *Patent Fees and Royalties*

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless

OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the **Contract Supplementary Conditions**, CONTRACTOR shall obtain and pay for all construction permits and licenses required for the Work that are not listed in paragraph B, below. Unless otherwise provided in the Contract, CONTRACTOR shall obtain and pay for all licenses required for the Work. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

B. OWNER has obtained the following construction related permits (copies of the permits are contained in Appendix "A"):

1. SJRWMD Environmental Resource Permit No. 159508-1

2. Indian River Farms Water Control District Permit for Connection to or Use of District Facilities, Permit No. 20-12

3. Indian River Farms Water Control District Permit for Subdivisions, Bridges & Commercial Sites, Permit No. R-20-2.

4. Indian River County Site Plan Permit No. SP-MA-20-04-11 / 2019100047-862541.

C. CONTRACTOR shall obtain all other required permits and Licenses. OWNER will pay all permit fees and any impact fees. CONTRACTOR shall provide copies of the permits to OWNER and ENGINEER and shall comply with all conditions contained in the permits at no extra cost to OWNER.

D. CONTRACTOR shall be familiar with all permit requirements during construction and shall be responsible for complying with these requirements. The cost of this effort shall be included in the pay item in which the work is most closely associated with.

E. CONTRACTOR shall post copies of all permits at the Project site.

6.09 *Laws and Regulations*

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in paragraph 10.05.

6.10 *Taxes*

A. CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work CONTRACTOR shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to ~~Final Substantial~~ Completion of the Work CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to ENGINEER for OWNER.

6.13 *Safety and Protection*

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

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether completely or partially installed, or in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. **CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with**

them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR at no expense to OWNER (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). All damage, injury, or loss to any property referred to in paragraph 6.13 caused by disasters, including but not limited to hurricanes, tornadoes, floods, fires, abnormal weather conditions (including but not limited to drought and freezing), or acts of God shall be remedied by CONTRACTOR at no expense to OWNER. CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Final Completion).

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

- ~~1. all persons on the Site or who may be affected by the Work;~~
- ~~2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and~~
- ~~3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.~~

~~B. CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from~~

~~damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).~~

6.14 *Safety Representative*

A. CONTRACTOR shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR is obligated to act to prevent threatened damage, injury, or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused

thereby or are required as a result thereof. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

D. *Submittal Procedures*

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assem-

bly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. *ENGINEER's Review*

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a

separate item as such will not indicate approval of the assembly in which the item functions.

3. ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.3 and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. *Resubmittal Procedures*

1. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

G. Section 01340 – “Submittal of Shop Drawings, Product Data, and Samples” shall supplement Section 6.17 of the General Conditions. In the event of a conflict, Section 01340 shall govern.

6.18 *Continuing the Work*

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 *CONTRACTOR's General Warranty and Guarantee*

A. CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or

2. normal wear and tear under normal usage.

B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. observations by ENGINEER;

2. recommendation by ENGINEER or payment by OWNER of any progress or final payment;

3. the issuance of a certificate of ~~Final Substantial~~ Completion by ENGINEER or any payment related thereto by OWNER;

4. use or occupancy of the Work or any part thereof by OWNER;

5. any acceptance by OWNER or any failure to do so;

6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;

7. any inspection, test, or approval by others; or

8. any correction of defective Work by OWNER.

6.20 *Indemnification*

A. CONTRACTOR agrees to indemnify and hold harmless the OWNER, together with its agents, employees, elected officers and representatives, from liabilities, damages, losses, and costs, including but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness or intentionally wrongful conduct of the CONTRACTOR and persons employed or utilized by the CONTRACTOR in the performance of this Work under this Agreement. This indemnification and hold harmless provision shall

survive the termination or expiration of this Agreement.

~~A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:~~

~~1. is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom; and~~

~~2. is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.~~

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

ARTICLE 7 - OTHER WORK

7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to CONTRACTOR prior to starting any such other work; and

2. if OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in paragraph 10.05.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall 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 the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

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

7.02 *Coordination*

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 *Replacement of ENGINEER*

A. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer to whom ~~CONTRACTOR makes no reasonable objection~~, whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 *Furnish Data*

A. OWNER shall promptly furnish the data required of OWNER under the Contract Documents.

8.04 *Pay Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 *Insurance*

A. OWNER's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. OWNER's responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.09 *Limitations on OWNER's Responsibilities*

A. The OWNER shall not supervise, direct, or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *OWNER'S Representative*

A. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and will not be changed without written consent of OWNER and ENGINEER.

9.02 *Visits to Site*

A. ENGINEER will make visits to the Site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's

visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the Site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 *Authorized Variations in Work*

A. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR, who shall perform the Work involved promptly. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of a Field Order, a

Claim may be made therefor as provided in paragraph 10.05.

9.06 *Rejecting Defective Work*

A. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.07 *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *Determinations for Unit Price Work*

A. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR the ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). ENGINEER's written decision thereon will be final and binding (except as modified by ENGINEER to reflect changed factual conditions or more accurate data) upon OWNER and CONTRACTOR, subject to the provisions of paragraph 10.05.

9.09 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 *Limitations on ENGINEER's Authority and Responsibilities*

A. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in paragraph 3.04, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work

actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility. The amount of each applicable Bond will be adjusted to reflect the effect of any such change.

10.05 *Claims and Disputes*

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 60 days after the start of such event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30 days after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on

such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after ~~Final Substantial~~ Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include

only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

1. CONTRACTOR will receive payment for actual costs of direct labor and burden (see paragraph 2.06.B) for the additional or unforeseen work. Labor includes foremen actually engaged in the work; and will not include project supervisory personnel nor necessary on-site clerical staff, except when the additional or unforeseen work is a controlling work item and the performance of such controlling work item actually extends completion of the project due to no fault of the CONTRACTOR. Compensation for project supervisory personnel, but in no case higher than a Project Manager's position, shall only be for the pro-rata time such supervisory personnel spent on the contract. In no case shall an officer or director of the Company, nor those persons who own more than 1% of the Company, be considered as project supervisory personnel, direct labor or foremen hereunder. The expenses of performing additional or unforeseen Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above only to the extent authorized by OWNER.

~~1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.~~

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in

which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER, who will then determine, with the advice of ENGINEER, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in this paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, ma-

chinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

~~e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty~~ Royalty payments and fees for permits and licenses.

~~f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.~~

~~g.f.~~ The cost of utilities, fuel, and sanitary facilities at the Site.

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

~~i.h.~~ When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

~~j.i.~~ When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in CONTRACTOR's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.

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

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

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. *CONTRACTOR's Fee:* When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A and 11.01.B, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.02 *Cash Allowances*

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER subject to the provisions of paragraph 9.08.

B. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

C. OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs mate-

rially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE;
CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which shall include an allowance or credit for overhead and profit in accordance with paragraph 12.01.C); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 12.01.C); or

4. where the Work involved is not covered by unit prices contained in the Contract Documents and an entire lump sum bid item is being deleted, then the amount of total credit to be allowed by CONTRACTOR to OWNER shall be the entire bid amount of the lump sum bid item.

C. *CONTRACTOR's Fee:* The CONTRACTOR's fee - for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;

b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be determined by paragraphs 12.01.C.1 or 12.01.C.2.a through 12.01.C.2.d, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGINEER and the other

party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 *Delays Beyond CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in paragraph 12.02.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

12.04 *Delays Within CONTRACTOR's Control*

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety or employee or agent of any of them, for damages arising out of or resulting from any delay whatsoever. The CONTRACTOR's sole and exclusive remedy for delays to the Project are time extensions.

~~A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier,~~

~~or any other person or organization, or to any surety or employee or agent of any of them, for damages arising out of or resulting from:~~

~~1. delays caused by or within the control of CONTRACTOR; or~~

~~2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.~~

~~—B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.~~

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. OWNER, ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests. **CONTRACTOR shall be responsible for arranging and scheduling all tests and inspections.**

A. ~~CONTRACTOR shall pay for all failing tests, inspections or approvals. employ and pay for the services of an independent testing laboratory to perform all initial inspections, tests, or approvals required by the Contract Documents except those inspections, tests, or approvals listed immediately below. Subsequent inspections, tests, or approvals required after initial failing inspections, tests, or approvals shall be paid for by the CONTRACTOR by backcharge to subsequent applications for payment. The CONTRACTOR shall arrange, obtain, and pay for the following inspections, tests, or approvals:~~

~~1. inspections, tests, or approvals covered by paragraph 13.03.D below;~~

~~2. costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B;~~

~~3. tests otherwise specifically provided in the Contract Documents.~~

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

~~1. for inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;~~

~~2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and~~

~~3. as otherwise specifically provided in the Contract Documents.~~

~~C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection or approval.~~

~~D. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for~~

~~incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.~~

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

F. Uncovering Work as provided in paragraph 13.03.E shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice. **Timely notice is defined as no less than 48 hours, not counting weekends and holidays.**

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

B. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

13.05 *OWNER May Stop the Work*

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to comply with permit requirements, or fails to comply with the technical specifications, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

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

13.06 *Correction or Removal of Defective Work*

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not defective. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 *Correction Period*

A. If within one year after the date of Final Substantial-Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly,

without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or repaired or may have the rejected Work removed and replaced, and all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

B. In special circumstances where a particular item of equipment is placed in continuous service before Final Substantial-Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER's recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to OWNER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by CONTRACTOR pursuant to this sentence. If any such

acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and OWNER shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.09 *OWNER May Correct Defective Work*

A. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors, and ENGINEER and ENGINEER's Consultants access to the Site to enable OWNER to exercise the rights and remedies under this paragraph.

C. All Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 will be charged against CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, OWNER may make a Claim therefor as provided in paragraph 10.05. Such claims, costs, losses and damages

will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of CONTRACTOR's defective Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The schedule of values established as provided in paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments*

1. At least 20 days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge

CONTRACTOR's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. ENGINEER will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's observations on the Site of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon **Final Substantial Completion**, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.

3. By recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed

inspections of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents; or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or to determine that title to any of the Work, materials, or equipment has passed to OWNER free and clear of any Liens.

5. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Written Amendment or Change Orders;

c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or

d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

e. OWNER has been required to pay ENGINEER or ENGINEER's Consultant additional compensation because of CONTRACTOR delays or rejection of defective Work; or

f. OWNER has been required to pay an independent testing laboratory for subsequent inspections, tests, or approvals taken after initial failing inspections, tests, or approvals.

C. *Payment Becomes Due*

1. Payment shall be made by OWNER to CONTRACTOR according to the "Florida Prompt Payment Act" (F. S. Chapter 218.70, et. seq.).

~~1. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR.~~

D. *Reduction in Payment*

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

a. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;

c. there are other items entitling OWNER to a set-off against the amount recommended; or

d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

e. the Work for which payment is requested cannot be verified;

f. of persistent failure to carry out the Work in accordance with the Contract

Documents, or otherwise unsatisfactory prosecution of the Work; or

g. of any other breach of, default under or violation of, or failure to comply with, the provisions of the Contract Documents.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld. OWNER shall promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 *CONTRACTOR's Warranty of Title*

A. CONTRACTOR warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

~~14.04 *Substantial Completion*~~

~~A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Promptly thereafter, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after~~

considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

~~B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.~~

14.05 *Partial Utilization*

~~A. There will be no partial utilization of this Project. Use by OWNER at OWNER's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER, and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.~~

~~1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of~~

~~Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.~~

~~2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.10 regarding property insurance.~~

14.06 *Final Inspection*

~~A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete (Final Completion), ENGINEER will promptly make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.~~

14.07 *Final Payment*

A. Application for Payment

~~1. After CONTRACTOR has, in the opinion of ENGINEER, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.~~

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

B. *Review of Application and Acceptance*

1. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application for Payment to OWNER for payment. At the same time, ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due*

1. Payment shall be made by OWNER to CONTRACTOR according to the "Florida Prompt Payment Act" (F. S. Chapter 218.70, et. seq.).

~~1. Thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.~~

14.08 *Final Completion Delayed*

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. ~~If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.~~

14.09 *Waiver of Claims*

A. Acceptance of Final Payment as Release. The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER from all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this Work and for every act and neglect of the OWNER and others relating to or arising out of this Work. Any payment, however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligations under the Contract Documents or any Bonds.

~~A. The making and acceptance of final payment will constitute:~~

~~1. a waiver of all Claims by OWNER against CONTRACTOR, except Claims arising~~

~~from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and~~

~~2. a waiver of all Claims by CONTRACTOR against OWNER other than those previously made in writing which are still unsettled.~~

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 OWNER May Suspend Work

A. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an extension of the Contract Times, directly attributable to any such suspension if CONTRACTOR makes a Claim for an extension as provided in paragraph 10.05. CONTRACTOR shall not be allowed an adjustment of the Contract Price and CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such Work suspension. ~~CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes a Claim therefor as provided in paragraph 10.05.~~

15.02 OWNER May Terminate for Cause

A. The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.07 as adjusted from time to time pursuant to paragraph 6.04);

2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's disregard of the authority of ENGINEER; or

4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

5. CONTRACTOR's violation of Section 02225 - "Erosion Control and Treatment of Dewatering Water From the Construction Site."

6. CONTRACTOR's failure to make payment to Subcontractors or Suppliers for materials or labor in accordance with the respective agreements between the CONTRACTOR and the Subcontractors or Suppliers.

7. CONTRACTOR certifies that it and its related entities as defined by Florida law are not on the Scrutinized Companies that Boycott Israel List, created pursuant to s. 215.4725 of the Florida Statutes, and are not engaged in a boycott of Israel. In addition, if this agreement is for goods or services of one million dollars or more, CONTRACTOR certifies that it and its related entities as defined above by Florida law are not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473 of the Florida Statutes and are not engaged in business operations in Cuba or Syria.

a. OWNER may terminate this Contract if CONTRACTOR is found to have submitted a false certification as provided under section 287.135(5), Florida Statutes, been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or been engaged in business operations in Cuba or Syria, as defined by section 287.135, Florida Statutes.

b. OWNER may terminate this Contract if CONTRACTOR, including all wholly owned subsidiaries, majority-owned subsidiaries, and parent companies, that exist for the purpose of making profit, is found to have been placed on the Scrutinized Companies that Boycott Israel List or is engaged in a boycott of

Israel as set forth in section 215.4725, Florida Statutes.

B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. **If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and dispute resolution or litigation costs) sustained by OWNER arising out of or relating to completing the Work, CONTRACTOR will be paid for acceptable earned Work that is fully completed or partially completed, and executed in accordance with the Contract Documents, prior to the effective date of termination.** ~~If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by OWNER arising out of or relating to completing the Work, such excess will be paid to CONTRACTOR.~~ If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and, when so approved by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

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

D. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.03 *OWNER May Terminate For Convenience*

A. Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

~~3. for all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and~~

4. for reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *CONTRACTOR May Stop Work or Terminate*

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, ~~or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due,~~ then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Contract and recover from OWNER payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, ~~or~~

~~OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CONTRACTOR from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.~~

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Dispute resolution and procedures: OWNER and CONTRACTOR agree that they may submit any and all unsettled Claims or counterclaims, disputes, or other matters in question between them arising out of or relating to the Contract Documents or the breach thereof, to mediation by a certified mediator of the 19th Judicial Circuit in Indian River County, unless delay in initiating mediation would irrevocably prejudice one of the parties. The mediator of any dispute submitted to mediation under this agreement shall not serve as arbitrator of such dispute unless otherwise agreed. If mediation is unsuccessful, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

~~A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.~~

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or

sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

A. This Agreement shall be governed by the laws of the State of Florida. Venue for any lawsuit brought by either party against the other party or otherwise arising out of this Contract shall be in Indian River County, Florida, or in the event of a federal jurisdiction, in the United States District Court for the Southern District of Florida.

~~A. This Contract is to be governed by the law of the state in which the Project is located.~~

17.06 *Liens*

A. This project is a "Public Works" under Chapter 255, Florida Statutes. No merchant's liens may be filed against the OWNER. Any claimant may apply to the OWNER for a copy of this Contract. The claimant shall have a right of action against

CONTRACTOR for the amount due him. Such action shall not involve OWNER in any expense. Claims against CONTRACTOR are subject to timely prior notice to CONTRACTOR as specified in Florida Statutes Section 255.05. CONTRACTOR shall insert the following paragraph in all subcontracts hereunder:

“Notice: Claims for labor, materials and supplies are not assessable against Indian River County and are subject to proper prior notice to (CONTRACTOR’S Name) and to (CONTRACTOR Surety Company Name), pursuant to Chapter 255 of the Florida Statutes. This paragraph shall be inserted in every sub-subcontract hereunder.” The payment due under the Contract shall be paid by OWNER to CONTRACTOR only after CONTRACTOR has furnished OWNER with an affidavit stating that all persons, firms or corporations who are defined in Section 713.01, Florida Statutes, who have furnished labor or materials, employed directly or indirectly in the Work, have been paid in full. OWNER may rely on said affidavit at face value. CONTRACTOR does hereby release, remiss and quit-claim any and all rights he may enjoy perfecting any lien or any other type of statutory common law or equitable lien against the job.

**ATTACHMENT "A" TO THE STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT**

Reference Paragraph 2.06.B.2

FDOT Table 4-3.2.1	
Item	Rate
FICA	Rate established by Law
FUTA/SUTA	Rate established by Law
Medical Insurance	Actual
Holidays, Sick & Vacation Benefits	Actual
Retirement Benefits	Actual
Workers Compensation	Rates based on the National Council on Compensation Insurance basic rates tables adjusted by Contractor's actual experience modification factor in effect at the time of the additional work or unforeseen work
Per Diem	Actual but not to exceed State of Florida's rate
Insurance*	Actual
*Compensation for Insurance is limited solely to General Liability Coverage and does not include any other insurance coverage (such as, but not limited to, Umbrella Coverage, Automobile Insurance, etc.).	

+ + END OF SECTION 00700 + +

CHANGES TO THE CONTRACT

SECTION 00942 - Change Order Form

No. _____

DATE OF ISSUANCE: _____

EFFECTIVE DATE: _____

OWNER: Indian River County

CONTRACTOR _____

Project: **MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM**

OWNER's Project No. SW-2020-001

OWNER'S Bid No. 2020030

You are directed to make the following changes in the Contract Documents:

Description:

Reason for Change Order:

Attachments: (List documents supporting change)

CHANGE IN CONTRACT PRICE:	
Description	Amount
Original Contract Price	\$ _____
Net Increase (Decrease) from previous Change Orders No. _____ to _____:	\$ _____
Contract Price prior to this Change Order:	\$ _____
Net increase (decrease) of this Change Order:	\$ _____
Contract Price with all approved Change Orders:	\$ _____

CHANGE IN CONTRACT TIMES	
Description	Time
Original Contract Time:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____
Net change from previous Change Orders No. _____ to _____:	(days) _____
Substantial Completion:	_____
Final Completion:	_____
Contract Time prior to this Change Order:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____
Net increase (decrease) this Change Order:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____
Contract Time with all approved Change Orders:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____

ACCEPTED:
By:
CONTRACTOR (Signature)
Date:

RECOMMENDED:
By:
ENGINEER (Signature)
Date:

APPROVED:
By:
OWNER (Signature)
Date:

SECTION 00948 - Work Change Directive

No. _____

DATE OF ISSUANCE: _____

EFFECTIVE DATE: _____

OWNER: Indian River County

CONTRACTOR: _____

Project: **MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM**

OWNER's Project No. SW-2020-001

You are directed to proceed promptly with the following changes:

Description:

Purpose of Work Change Directive:

Attachments: (List documents supporting change)

If OWNER or CONTRACTOR believe that the above change has affected Contract Price any Claim for a Change Order based thereon will involve one or more of the following methods as defined in the Contract Documents.

Method of determining change in Contract Prices

- Unit Prices
- Lump Sum
- Other: _____
- By Change Order:

Method of determining change in Contract Times

- Contractor's Records
- Engineer's Records
- Other: _____
- By Change Order:

Estimated increase (decrease) of this Work Change Directive
\$ _____

If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Estimated increase (decrease) in Contract Times:

Substantial Completion: _____ days;
Ready for Final Completion: _____ days.

If the change involves an increase, the estimated time is not to be exceeded without further authorization.

ACCEPTED:
By:
CONTRACTOR (Signature)
Date:

RECOMMENDED:
By:
ENGINEER (Signature)
Date:

APPROVED:
By:
OWNER (Signature)
Date:

**** END OF SECTION ****

TECHNICAL SPECIFICATIONS

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MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM

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11022	Egress Ladders
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+ + END OF INDEX TO THE TECHNICAL SPECIFICATIONS + +

SECTION 01009

SPECIAL PROVISIONS

1.1 GENERAL

- A. Visits to the construction site may be made by representatives of permitting or governing bodies. Submit written details of all instructions from the above to the ENGINEER immediately. The Work will not be accepted by the OWNER until final acceptance has been received from the various Regulatory Agencies having jurisdiction.
- B. Maintain Approved Construction Schedule: Furnish sufficient labor, construction equipment and materials, and work such hours, including night shifts and overtime operations, as may be necessary (and permitted by the OWNER) to insure the prosecution of the Work in accordance with the approved progress schedule. If, in the opinion of the ENGINEER, the CONTRACTOR falls behind the progress schedule, take such steps as may be necessary to improve progress, all without additional cost to the OWNER. The ENGINEER shall be compensated for his overtime services in accordance with the General Conditions. Failure to comply with the requirements of the ENGINEER under this provision shall be grounds for determination by the ENGINEER that the CONTRACTOR is not prosecuting the Work with such diligence as will insure completion within the time specified. Upon such determination, the ENGINEER may recommend to the OWNER to seek such legal remedy as is deemed necessary to protect the OWNER's interest.
- C. All salvageable material and equipment for which specific use, relocation, or other disposal is not specifically noted, shall remain the property of the OWNER and shall be delivered to the OWNER at the following location: 4550 41ST Street, Vero Beach, FL, at the CONTRACTOR's expense. All material and equipment not in salvageable condition, as determined by the ENGINEER and the OWNER, shall be disposed of by the CONTRACTOR, at the CONTRACTOR's expense.
- D. Requirements of Permits or Grants: In addition to these Specifications, all Work shall comply with the requirements of all local, state, and federal agencies' permit or grant requirements. If there is a conflict between the Specifications and any permit or grant requirement, then the most stringent specification or requirement shall govern. In any event, the ENGINEER shall determine which specification or requirement governs, and the ENGINEER's decision shall be final.
- E. Other Specifications and Requirements: In some instances, the Specifications contained herein may refer to other requirements or specifications (such as FDOT's

Standard Specifications for Road and Bridge Construction or FDOT's Design Standards For Design, Construction, Maintenance and Utility Operations on the State Highway System (referred to throughout these Specifications as "FDOT Design Standards" or similar)). If there is a conflict between the Specifications and any referenced specification or requirement, then the most stringent specification or requirement shall govern. The ENGINEER shall determine which specification or requirement governs, and the ENGINEER's decision shall be final.

- F. Notify all permitting agencies of intention to begin construction. Give proper notification within the timeframe required by the agency.
- G. Give the ENGINEER ten (10) days minimum notice before beginning work on the Project.
- H. Give the ENGINEER forty-eight (48) hours minimum notice before performing any test.
- I. Before performing any work outside the designated limits of the work site, secure (1) all necessary permits, and (2) authorization from the applicable owner; or verify in writing that such has been previously obtained. Follow all requirements of any said permits or authorization. Give the ENGINEER and appropriate owner ten (10) days minimum notice before commencing construction operations outside the designated limits of the work site.
- J. Do not work overtime unless authorized to do so by OWNER. If overtime is required, provide forty-eight (48) hours minimum notice to the ENGINEER.
- K. Do not perform any work on County holidays or weekends.
- L. Anything mentioned in the Specifications and not shown in the Drawings, or shown in the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both.
- M. Maintain existing drainage during construction.
- N. Unless otherwise stated in the Specifications, the items of Work on this project are to proceed in the sequence listed in the CONTRACTOR's approved progress schedule and as discussed in Paragraph P, and shall be operable within the time frame stated from the date of the Notice to Proceed. Do not start any work that involves modification to existing facilities, until written approval and authorization has been received from the OWNER or his designated representative and the owner of the facility to be modified. Unless a longer notice period is required by the owner of the facility to be modified, after written approval and authorization has

been received, give all affected parties a minimum forty-eight (48) hours advance notice before starting any work that involves modifications to existing facilities.

- O. In the event of a conflict between the Specifications, the most stringent requirement or specification shall govern.

- P. Order of Work
 - 1. No main site clearing shall occur until the silt fencing delineating the limits of clearing has been installed, and the ENGINEER and the OWNER'S biologist have removed all discovered gopher tortoises and other turtles from the area and issued written authorization for the clearing to occur. Refer to Section 02050 – Site Preparation for additional information.

+ + END OF SECTION + +

SECTION 01010

SUMMARY OF WORK

1.1 GENERAL

- A. The summary of the Work described in this Section is a general summary of the responsibilities of the CONTRACTOR and his relation to the OWNER.

1.2 LOCATION OF WORK

- A. The proposed work is located at the northeast intersection of 53rd Street and 66th Avenue. The property street address is 6520 53rd Street, Vero Beach, FL 32967.

1.3 WORK TO BE DONE

- A. To determine the full scope of the project or any particular part of the project, coordinate the applicable information in the various parts of these Contract Documents. In general, this Contract covers the construction of a pollution removal facility that will receive flows from Indian River Farms Water Control District's North Relief Canal.
- B. Furnish all the labor, materials, equipment, tools, plant, supervision, transportation, safety control, traffic control, security, services, manuals, record drawings, training, incidentals, etc. to complete all of the Work in a first-class workmanlike manner as required or implied by the Contract Documents to the full and complete satisfaction of the OWNER. All work shall be performed by craftsmen that are knowledgeable of their trade and skilled in their trade.
- C. Work shall include all repairs, replacements, and restoration required as a result of any and all damages caused during the construction process.
- D. Furnish and install all materials, equipment, and labor that are reasonably and properly inferable and necessary for the proper completion of the Work, even though said materials, equipment, and labor may not be specifically indicated or discussed in the Contract Documents.

1.4 CONTRACTS

- A. The Work shall be constructed under one prime contract.

1.5 EXISTING FACILITIES

- A. Conduct the Work to maintain existing facilities in operation at all times.

1.6 OTHER CONTRACTORS

- A. It is not anticipated that other contractors will be working on the project site.

1.6 MISCELLANEOUS

- A. Provide and pay for labor, materials, equipment, tools, construction equipment, machinery; water, heat, and utilities required for construction; and other facilities and services necessary for proper execution and completion of the Work.
- B. Secure all required Government and agency permits and licenses not listed as already obtained by the OWNER in the General Conditions. The OWNER will pay all permit fees.
- C. Give required notice to Agencies and to the public. Take particular care to adequately inform the public of scheduled temporary disruption of water, drainage, road, electric, or sewer services.
- D. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities that bear on performance of the Work.
- E. Legally maintain traffic on all roads and streets.

+ + END OF SECTION + +

SECTION 01013

INDIAN RIVER FARMS WATER CONTROL DISTRICT OPERATIONS DURING CONSTRUCTION

1.01 CONTROL OF INDIAN RIVER FARMS WATER CONTROL DISTRICT DRAINAGE

- A. During the course of construction, Indian River Farms Water Control District (District) will maintain control of drainage operations within its boundaries, which include the North Relief Canal. Do not dam or divert the flow of water in the District without first preparing a plan of action, as approved by the District and the OWNER, and obtaining the District's written authorization to proceed with the plan. The District contact is Mr. David Gunter, Superintendent, (772) 562-2141, 4305 4th Street, Vero Beach, Florida 32968.
- B. During the course of construction, any consent to dam any District canal or ditch may be revoked at any time within four (4) hours notice, as determined by the District Superintendent.
- C. Do not operate any works in the District other than the facilities that are being installed.
- D. During emergency conditions as declared by the District's Supervisor, no obstructions to the District's operations are allowed. No claims other than time extensions for such conditions will be considered by the OWNER.

1.02 DISTRICT DRAINAGE DURING CONSTRUCTION

- A. The CONTRACTOR, by executing this Contract, acknowledges that during construction of this project, drainage of the District shall remain paramount. As needed, the District shall have the right to route water through any canal as necessary for proper drainage of the District, without recourse from the CONTRACTOR. Do not leave unattended equipment, tools, materials, etc. below the potential water level overnight or for any extended period throughout the day. Neither the District or OWNER will be responsible for the cost of any damage to or loss of such equipment, tools, materials, etc. due to rising or moving water caused by drainage of the District.

1.03 NOTIFICATION AND COORDINATION

- A. Coordinate with the District's Superintendent regarding receiving notifications of the District's water control structure operations and comply with all District requirements regarding same.

1.04 WORK WITHIN DISTRICT RIGHT-OF-WAY

- A. All work within District right-of-way shall be in strict accordance with District rules and permit requirements. The District has the legal authority to shut a project down within its right-of-way due to noncompliance with District rules or permit conditions.

++ END OF SECTION ++

SECTION 01025

MEASUREMENT AND PAYMENT

1.1 DESCRIPTION

- A. The items listed beginning with Paragraph 1.5, refer to and are the same pay items listed in the Bid Form. They constitute all of the pay items for the completion of the Work. Furnish and install any items shown or omitted that are required for a complete installation, at no additional cost to the OWNER, even if the words “furnish” or “install” are not present in the bid item description. (In the case of OWNER purchased equipment, OWNER will furnish the equipment for CONTRACTOR to install.) Unless provided for in a specific bid item, no direct or separate payments will be made for providing items such as but not limited to, miscellaneous temporary or accessory works, plant, services, construction staking and survey control, repair or replacement of existing utilities, job signs, sanitary requirements, testing equipment and installations, safety devices, replacement of unpaved roads, clean-up, protection of the Work and property, field verification or location of buried utilities, water supplies, power, maintaining traffic, removal of waste, watchmen, coordination with others, tools, fuel, disposal fees, and all other requirements of the Contract. Compensation for all such services, things, and materials shall be included in the prices stipulated for the lump sum or unit price pay items, as applicable, listed herein.
- B. Each lump sum and unit price pay item will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR’s overhead and profit for each item.
- C. Note that many of the descriptions for payment of the bid items listed below may include the words “including but not limited to” followed by a list of specific items that are included in the bid item. The use of “included but not limited to” or similar words, means that other items may be included in the bid item, but they have not been listed by the ENGINEER. If a list is provided, it is intended only as an aid to the CONTRACTOR and it shall not limit the actual items that are or should be included in the bid item. Provide and install all items necessary for a complete installation whether or not the items are listed.
- D. Furnish and install all necessary items for the Work. Unless it is specified that OWNER will furnish an item, CONTRACTOR shall furnish all items necessary for the Work whether or not the word “furnish” or similar terminology is mentioned in the text.

- E. Unless otherwise indicated herein, all lump sum pay items will be paid based on the estimated percentage complete at the time of the pay request pay period.

1.2 ENGINEER'S ESTIMATE OF QUANTITIES

- A. ENGINEER's estimated quantities for unit price items, as listed in the Bid Form, are approximate only and are included solely for the purpose of comparing Bids. OWNER does not expressly or by implication agree that the nature of the materials encountered or the actual quantities of material encountered or required will correspond therewith. OWNER reserves the right to increase or decrease any quantity or to eliminate entirely, any quantity as OWNER may deem necessary. CONTRACTOR will not be entitled to any adjustment in a unit bid price as a result of any change in an estimated quantity and agrees to accept the aforesaid unit bid prices as complete and total compensation for any additions or deductions caused by a variation in quantities as a result of more accurate measurement, or by any changes or alterations in the Work ordered by OWNER, and for use in the computation of the value of the Work performed for progress payments.

1.3 RELATED PROVISIONS

- A. Payments to CONTRACTOR: Refer to General Conditions and Agreement.
- B. Changes in Contract Price: Refer to General Conditions.

1.4 ADDITIONAL REQUIREMENTS FOR PAYMENT

- A. Submit the following items with each pay request. No payment shall be made until these items are submitted to the ENGINEER and approved.
1. Up-to-date Progress Record Drawings. These Progress Record Drawings shall be signed and sealed by a Florida Registered Surveyor and Mapper, certifying that the drawings accurately represent the constructed Work at the date of the pay request. For Record Drawings for final payment, refer to Section 01720. No payment will be made for Work not constructed to the dimensions, grades, elevations, etc. shown or implied by the Construction Documents.
 2. Up-to-date Construction Schedule.
 3. See additional requirements listed in Section 00622 – Contractor's Application for Payment.

1.5 BID ITEMS

PART A OF THE CONTRACT

PART 1 - GENERAL ITEMS

A. **Bid Item 1.01 – Mobilization/Demobilization**

1. Measurement and Payment: The lump sum payment will be full compensation for mobilization of construction operations at both sites, including but not limited to performance of construction preparatory operations, all labor and materials necessary to transport equipment and personnel to the project sites, temporary construction utilities, CONTRACTOR's field offices, and removing all of the CONTRACTOR's equipment, etc. from the project sites when the Work is complete. The total lump sum to be paid for this item shall not exceed five (5) percent of the total bid amount. No additional payment will be made for demobilization or remobilization due to shutdowns, suspensions of work, or for other mobilization activities. Payment schedule:¹
 - a. Fifty (50) percent of the bid item amount may be paid in the first application for payment; and
 - b. The remaining fifty (50) percent of the bid item amount shall be paid in the last application for payment as demobilization.

B. **Bid Item 1.02 – Maintenance of Traffic**

1. Measurement and Payment: The lump sum payment will be full compensation for implementation of Traffic Control Plans, including but not limited to furnishing all labor, materials, equipment and incidentals required to maintain traffic, including necessary detour facilities and traffic control signals during construction, and conformance to requirements of the Contract Documents, the "Manual of Uniform Traffic Control Devices" (M.U.T.C.D.) Part IV, and Florida Department of Transportation Roadway and Traffic Design Standards Index No. 600 series.

C. **Bid Item 1.03 - Project Record Documents**

1. Measurement and Payment: The lump sum payment will be full compensation, including but not limited to all labor, materials, and equipment required to prepare Project Record Documents. This bid item shall be paid in the final pay request and after the Record Documents have been approved by the ENGINEER.

D. **Bid Item 1.04 – Public Construction Bond**

1. Measurement and Payment: The lump sum payment will be full compensation for providing a Bond as required by these Contract Documents. The total lump sum to be paid for this item shall not exceed three (3) percent of the total bid.

¹ Note: For all bid items for which payment is broken into partial payments, retainage will also be withheld from these payments just as retainage is withheld from all other payments for all other bid items. For example, when a payment item states that "Fifty (50) percent of the bid item amount may be paid in the first application for payment," ten (10) percent of this amount will be withheld as retainage. This is typical for all payment items herein.

This item may be paid with the first application for payment.

E. Item 1.05 – Construction Photographs

1. Measurement and Payment: The lump sum payment will be full compensation for photographic construction documentation as specified.

F. Bid Items 1.06 - Insurance Coverage

1. Measurement and Payment: The lump sum payments will be full compensation for providing the insurance coverage required by the Contract Documents. Pay Schedule:
 - a. Fifty (50) percent of the bid item amount may be paid in the first application for payment;
 - b. The remaining fifty (50) percent of the bid item amount shall be paid in the final application for payment.

G. Item 1.07 – Engineer’s and Contractor’s Field Office

1. Measurement and Payment: The lump sum payment will be full compensation for furnishing, stocking, and maintaining the field office and all other items specified in Section 01590.

PART 2 – SITE WORK

A. Bid Item 2.01 – Wildlife Barrier and Erosion Control Silt Fencing

1. Measurement and Payment: The lump sum payment will be full compensation for furnishing and installing the silt fencing wildlife protection and erosion control barrier as shown on the Drawings. This Work includes but is not limited to providing all labor, fuel, materials, equipment, hardware, appurtenances, installation, continued maintenance and repair of installed system, etc.

B. Bid Items 2.02 – Clear and Grub (including demolitions) including hauling material offsite for disposal

1. Measurement and Payment: The lump sum payment will be full compensation for performing clearing, grubbing, demolitions, and related operations as specified in Sections 02040 and 02050. This Work includes but is not limited to providing all labor, fuel, materials, equipment, hardware, appurtenances, disposal fees, etc. Not included in this pay item is the wildlife barrier and erosion control silt fencing, which is included in Bid Item 2.01.

C. Bid Item 2.03 – Monitoring existing structures per Section 02220, paragraph 3.15

1. Measurement and Payment: The lump sum payment will be full compensation for preparing pre-vibratory and post-vibratory inspection reports and

coordinating all vibration monitoring measurements as discussed in Section 02220, paragraph 3.15.

D. Bid Item No. 2.04 – Dewatering

1. Measurement and Payment: The lump sum payment will be full compensation for all dewatering and legally treating and disposing of dewatering water in accordance with all permits, including but not limited to all labor, materials, equipment, permit acquisition (but not permit fees), fuel, pumps, hose/piping, water quality testing, dewatering water treatment, etc. for the duration of the project. This item is discussed generally in Section 02225.

E. Bid Item No. 2.05 – Grade all areas not included in other pay items

1. Measurement and Payment: The lump sum payment will be full compensation for grading, including but not limited to all labor, materials, equipment, transportation, fuel, etc. in accordance with Section 02230 and as shown or implied on the Drawings.

F. Bid Item 2.06 – Type B chain link perimeter fencing with 3-strand barb wire

1. Method of Measurement – The quantity to be paid for will be the quantity in lineal feet, completed and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for all Work specified, including but not limited to furnishing and installing fence posts, fencing material, top and bottom rails, coating, tie wire, tension wire, barbed wire, hog wire, hardware, concrete bases, wildlife passages, etc.

G. Bid Item 2.07 - 46' wide two-piece cantilevered chain link fence gate with 3-strand barb wire at site entrance

1. Method of Measurement – The quantity to be paid for will be the number of 46' wide two-piece cantilevered slide gates completed and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for all Work specified, including but not limited to furnishing and installing gates, posts, barb wire, top and bottom rails, tension wire, tie wire, coating, all required hardware, concrete bases, Fire Department key access box (Knox Box), etc.

H. Bid Item 2.08 - 24' wide two-piece cantilevered chain link fence gate with 3-strand barb wire at site entrance

1. Method of Measurement – The quantity to be paid for will be the number of 24' wide two-piece cantilevered slide gates completed and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for all Work specified, including but not limited to furnishing and installing gates, posts, barb wire, top and bottom rails, tension wire, tie wire, coating, all required hardware, concrete bases, Fire Department key access box (Knox Box), etc.

- I. **Bid Item 2.09 – Type B chain link perimeter fencing with no barb wire**
1. Method of Measurement – The quantity to be paid for will be the quantity in lineal feet, completed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for all Work specified, including but not limited to furnishing and installing fence posts, fencing material, top and bottom rails, coating, tie wire, tension wire, hog wire, hardware, concrete bases, etc.
- J. **Bid Item 2.10 – 8' wide single chain link fence gate with no barb wire**
1. Method of Measurement – The quantity to be paid for will be the number of 8' wide single chain link fence gates completed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for all Work specified, including but not limited to furnishing and installing gates, posts, top and bottom rails, tension wire, tie wire, coating, all required hardware, concrete bases, etc.
- K. **Bid Item 2.11 - 12" thick cemented coquina shell driving surface at 53rd Street entrance**
1. Method of Measurement – The quantity to be paid for will be the quantity in square yards, completed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for constructing the coquina shell driving surface. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, grading, compacting, etc. all as shown or implied by the Drawings and Specifications.
- L. **Bid Item 2.12 - 12" thick Type B stabilized subgrade below cemented coquina shell driving surface at 53rd Street**
1. Method of Measurement – The quantity to be paid for will be the quantity in square yards, completed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for constructing the subgrade. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, grading, compacting, etc. all as shown or implied by the Drawings and Specifications.
- M. **Bid Item 2.13 – 2" thick Type SP-12.5 asphalt concrete pavement**
1. Method of Measurement – The quantity to be paid for will be the quantity in square yards, completed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for constructing the asphalt pavement. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, grading, compacting, tack coat, asphalt, etc. all as shown or implied by the Drawings and Specifications.

- N. **Bid Item 2.14 - 8" thick cemented coquina shell base below asphalt pavement**
1. Method of Measurement – The quantity to be paid for will be the quantity in square yards, completed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for constructing the coquina shell base. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, grading, compacting, etc. all as shown or implied by the Drawings and Specifications.
- O. **Bid Item 2.15 - 12" thick Type B stabilized subgrade below asphalt pavement**
1. Method of Measurement – The quantity to be paid for will be the quantity in square yards, completed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for constructing the subgrade. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, grading, compacting, etc. all as shown or implied by the Drawings and Specifications.
- P. **Bid Item 2.16 – Minimum 8" thick asphalt millings drives, including stabilized subgrade and filter fabric**
1. Method of Measurement – The quantity to be paid for will be the quantity in square yards, completed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for constructing the asphalt millings drives. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, grading, compacting, clean asphalt millings, filter fabric, subgrade, etc. all as shown or implied by the Drawings and Specifications.
- Q. **Bid Item 2.17 – Grass Surface Service Road**
1. Method of Measurement – The quantity to be paid for will be the quantity in square yards, completed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for constructing the service roads that are indicated on the Drawings to receive hydroseeding. (Hydroseeding is not included in this Bid Item, but is included in Bid Item 3.27.) This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, grading, compacting, etc. all as shown or implied by the Drawings and Specifications.
- R. **Bid Item 2.18 – Stop Sign at 53rd Street**
1. Method of Measurement – The quantity to be paid for will be the quantity of stop signs installed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing the signs. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, sign posts, sign, concrete, etc. all as shown or implied by the Drawings and Specifications.

- S. **Bid Item 2.19 – Painting parking lot area stripes with thermoplastic paint, including all required handicap parking painting**
1. Measurement and Payment: The lump sum payment will be full compensation for painting the parking area as required by these Contract Documents.
- R. **Bid Item 2.20 – Handicap Parking Sign**
1. Method of Measurement – The quantity to be paid for will be the quantity of handicap parking signs installed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing the signs. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, sign posts, sign, concrete, etc. all as shown or implied by the Drawings and Specifications.
- S. **Bid Item 2.21 – Concrete tire stops**
1. Method of Measurement – The quantity to be paid for will be the quantity of tire stops installed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing the tire stops. This Work includes but is not limited to providing all labor, materials, equipment, tire stops, etc. all as shown or implied by the Drawings and Specifications.
- T. **Bid Item 2.22 – Pole Barn**
1. Measurement and Payment: The lump sum payment will be full compensation for designing, furnishing, permitting, and installing the pole barn as shown on the Drawings and Specifications, complete, including but not limited to all labor, materials, equipment, professional engineering services, blueprints, applying for and obtaining Building Department permit (but not including Building Department permit fee), gutters and downspouts, chain link security fencing and cantilever gate, lighting, etc.
- U. **Bid Item 2.23 – Pole Barn concrete floor slab**
1. Method of Measurement – The quantity to be paid for will be the quantity in square yards, completed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for designing and constructing the floor slab. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, grading, compacting, professional engineering services, required permits (but not permit fees), etc. all as shown or implied by the Drawings and Specifications.
- V. **Bid Item 2.24 – Pole Barn concrete driveway**
1. Method of Measurement – The quantity to be paid for will be the quantity in square yards, completed and accepted.

2. Basis of Payment – The unit price and payment will constitute full compensation for constructing the driveway. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, grading, compacting, etc. all as shown or implied by the Drawings and Specifications.
- W. **Bid Item 2.25 – Dumpster pad with fence and gate per details on Sheet C10**
1. Measurement and Payment: The lump sum payment will be full compensation for constructing the dumpster pad, fence, and gate as detailed on Sheet C10, including but not limited to all labor, materials, equipment, bollards, concrete, fencing, etc. The dumpster is not included in this Bid Item.
- X. **Bid Item 2.26 – Minimum 8" thick asphalt millings drive for dumpster pad, including stabilized subgrade and filter fabric**
1. Method of Measurement – The quantity to be paid for will be the quantity in square yards, completed and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for constructing the asphalt millings drive. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, grading, compacting, clean asphalt millings, filter fabric, subgrade, etc. all as shown or implied by the Drawings and Specifications.
- W. **Bid Item 2.27 – Non-Potable Irrigation System**
1. Measurement and Payment: The lump sum payment will be full compensation for furnishing and installing the irrigation well, pump, piping, concrete, hose bibs, etc. as detailed on Sheet C10 and as specified. All required permits are also included in this pay item, but permit fees are not included.
- X. **Bid Item 2.28 - Influent pipe connection (North Relief Canal to Headworks Structure)**
1. Measurement and Payment. The lump sum payment will be full compensation for furnishing and installing the influent 42" span x 29" rise aluminum pipe arch from the North Relief Canal to the Headworks Structure. This Work includes but is not limited to furnishing and installing piping, filter fabric, canal bank side and bottom stabilization, excavation, backfill, compaction, cleaning, connection to Headworks Structure, restoration of North Relief Canal right-of-way and canal banks, etc. as shown or implied on the Drawings, Specifications, or required by Indian River Farms Water Control District permits.
- X. **Bid Item 2.29 - Effluent pipe connection (Structure S15 to North Relief Canal)**
1. Measurement and Payment. The lump sum payment will be full compensation for furnishing and installing the effluent 36" diameter CAP from Structure S15 to the North Relief Canal. This Work includes but is not limited to furnishing and installing piping, filter fabric, canal bank side and bottom stabilization,

excavation, backfill, compaction, connection to Structure S15, animal guard, cleaning, restoration of North Relief Canal right-of-way and canal banks, etc. as shown or implied on the Drawings, Specifications, or required by Indian River Farms Water Control District permits.

Y. Bid Item 2.30 – Headworks Structure

1. Measurement and Payment. The lump sum payment will be full compensation for constructing the Headworks Structure and furnishing and installing all related equipment and appurtenances not specifically listed in separate Bid Items. This Work includes but is not limited to excavation, backfill, compaction, grating, concrete, formwork, labor, reinforcing steel, handrail systems, handrail posts and safety chains, double door hatch, link seals and sleeves, washed river rock and filter cloth at end of chutes, etc. as shown or implied on the Drawings and Specifications.

(A detailed Schedule of Values for the Work included in this Bid Items shall be provided by the CONTRACTOR per the Schedule of Values, which shall be used for Pay Request purposes. See Section 01026.)

Z. Bid Item 2.31 – “L” shaped concrete Work Slab abutting Headworks Structure

1. Method of Measurement – The quantity to be paid for will be the quantity in square yards, completed and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for constructing the concrete work pad. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, grading, compacting, concrete, reinforcing steel, etc. all as shown or implied by the Drawings and Specifications.

AA. Bid Item 2.32 – Primary Influent Screen and Controls

1. Measurement and Payment. The lump sum payment will be full compensation for furnishing and installing the primary influent screening system and all related equipment and appurtenances not specifically listed in separate Bid Items. This Work includes but is not limited to the self-cleaning Duperon HarvestRake, control panel and controls, remote controls, supports, testing, etc. as shown or implied on the Drawings and Specifications.

BB. Bid Item 2.33 – Influent Pumps and Pump Controls

1. Measurement and Payment. The lump sum payment will be full compensation for furnishing and installing the Headworks' influent pumps and pump controls and all related equipment and appurtenances not specifically listed in separate Bid Items. This Work includes but is not limited to pumps, control panel, pump control system, concrete pad for pump control panel, pump discharge piping up to long radius reducing bends #8 and #21 (as shown on Sheet PS1), testing, etc. as shown or implied on the Drawings and Specifications.

CC. Bid Item 2.34 – Slide Gate #7 (for Headworks Structure influent piping)

1. Method of Measurement – The quantity to be paid for will be the quantity of slide gates furnished, installed, and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing each slide gate. This Work includes but is not limited to providing all labor, materials, equipment, transportation, fuel, gates, testing, etc. all as shown or implied by the Drawings and Specification Section 11016.

DD. Bid Item 2.35 – Headworks area discharge piping, valves, fittings, etc. from (and including) Bends #8 and #21 to (and including) Bend #19, as shown on Sheet PS1

1. Measurement and Payment. The lump sum payment will be full compensation for furnishing and installing the Headworks area discharge piping system that connects to the force main leading to the Water Lettuce Scrubbers. This Work includes but is not limited to all piping, valves, fittings, pipe supports, appurtenances, flushing, pressure testing, bollards, etc. as shown or implied on the Drawings and Specifications.

EE. Bid Item 2.36 – Water Lettuce Scrubber force main and distribution header piping system

1. Measurement and Payment. The lump sum payment will be full compensation for furnishing and installing the Water Lettuce Scrubber force main and distribution header system. This Work includes but is not limited to all piping, valves, fittings, joint restraint, concrete work pads, appurtenances, flushing, pressure testing, etc. as shown or implied on the Drawings and Specifications, from Bend #19 (shown on Sheet PS1) to the discharges into Structures S1 through S6, inclusive; except for the flow meters, Structures S11 and S12, and related appurtenances within those structures that are specifically listed in separate Bid Items.

FF. Bid Items 2.37 and 2.38 – Flow Meters No. 1 and No. 2

1. Measurement and Payment: The lump sum payment will be full compensation for furnishing and installing each flow meter and all related equipment and accessories. This Work includes but is not limited to providing all labor, materials, equipment, hardware, flow meter, amplifier enclosure and support posts, flow meter signal and electrical cable, spare spool piece, optional parts, testing, bollards, etc. as shown or implied on the Drawings and Specifications.

GG. Bid Items 2.39 and 2.40 - Structures S11 and S12

1. Measurement and Payment: The lump sum payment will be full compensation for constructing the structures. This Work includes but is not limited to

providing all labor, materials, concrete, reinforcing steel, traffic bearing lid, formwork, curing compound, excavation, compaction, etc. as shown or implied on the Drawings and Specifications.

HH. Bid Item 2.41 – Structure S11 and S12 Sump Pumps

1. Method of Measurement – The quantity to be paid for will be the quantity of sump pumps systems furnished, installed, and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing each sump pump system. This Work includes but is not limited to all pumps, piping, electric, etc. as shown or implied on the Drawings and Specifications.

II. Bid Item 2.42 – Structures S1 through S6

1. Method of Measurement – The quantity to be paid for will be the quantity of structures installed and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing each structure. This Work includes but is not limited to all labor, fuel, materials, professional engineering services, concrete, reinforcing steel, excavation, backfilling, compaction, etc. as shown or implied on the Drawings and Specifications.

JJ. Bid Item 2.43, parts a through m, inclusive – Primary Treatment Units including all associated grating, handrails, appurtenances, etc.

1. Measurement and Payment. The lump sum payment will be full compensation for constructing complete and acceptable, each of the items listed under the bid item heading. See Drawings C18 and C19 for individual bid item boundaries. This Work includes but is not limited to furnishing and installing all equipment, furnishings, concrete, form boards, reinforcing steel, materials, excavation/fill-backfill/compaction, grating systems, handrail systems, stop log systems, slide gates, ladders, etc. shown or implied on the Drawings and Project Specifications, except for items that are specifically included in separate bid items. Note: HDPE liner installation for the Water Lettuce Scrubbers is included in this bid item; but construction of the interior perimeter berm, which is part of the 15-foot wide Service Road/Berm is not included in this bid item. Also, the cost of the Algal Unit Drain Sumps and their stop log systems shall be included in the respective Algal Reaeration Unit Costs.

(A detailed Schedule of Values for the Work for all these various bid items shall be provided by the CONTRACTOR per the Schedule of Values, which shall be used for Pay Request purposes. See Section 01026.)

KK. Bid Items 2.44 and 2.45 – 4” DIP water lettuce sludge supernatant force main from Sludge Storage Areas #1A and #2B

1. Method of Measurement – The quantity to be paid for will be the quantity of

- sludge supernatant force main installed and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing the sludge supernatant force mains. This Work includes but is not limited to all piping, valves, fittings, joint restraint, pipe supports, appurtenances, concrete pad, bollards, etc. as shown or implied on the Drawings and Specifications.
- LL. **Bid Items 2.46 and 2.47 – Final Settling Basins and Wetland Polishing Marshes, including GCL**
1. Measurement and Payment: The lump sum payment will be full compensation for constructing the final settling basins, wetland polishing marshes, and islands, including but not limited to all labor, materials, equipment, grading, compaction, furnishing and installing filter fabric, rubble, bottom delineator floats and anchors, geosynthetic clay liner (GCL), transportation, fuel, etc. as shown or implied on the Drawings and Specifications.
- MM. **Bid Item 2.48 - Rubble Riprap at southwest corner of Wetland Polishing Marsh #1**
1. Measurement and Payment: The lump sum payment will be full compensation for furnishing and installing rubble riprap as shown or implied on Sheet C10 and the Specifications, including but not limited to all labor, materials, equipment, geotextile fabric, etc.
- NN. **Bid Items 2.49 and 2.50 - Structures S8 and S9**
1. Measurement and Payment: The lump sum payment will be full compensation for constructing the structures. This Work includes but is not limited to providing all labor, materials, concrete, reinforcing steel, formwork, curing compound, excavation, compaction, grating, bollards, handrail systems, Tuff-Booms, etc. as shown or implied on the Drawings and Specifications.
- OO. **Bid Item 2.51 – Structures S7 and S13**
1. Method of Measurement – The quantity to be paid for will be the quantity of structures installed and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing each structure. This Work includes but is not limited to all materials, professional engineering services, concrete, reinforcing steel, traffic bearing grating, excavation, backfilling, compaction, etc. as shown or implied on the Drawings and Specifications.
- PP. **Bid Item 2.52– Structures S10 and S14**
1. Method of Measurement – The quantity to be paid for will be the quantity of structures installed and accepted.

2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing each structure. This Work includes but is not limited to all materials, professional engineering services, concrete, reinforcing steel, traffic bearing grating, excavation, backfilling, compaction, etc. as shown or implied on the Drawings and Specifications.

QQ. Bid Items 2.53 and 2.54 – 18” RCP

1. Measurement and Payment. The lump sum payment will be full compensation for furnishing and installing the 18” RCP between the structures. This Work includes but is not limited to furnishing and installing piping, excavation, backfill, compaction, connection to structures, filter fabric, cleaning, etc. as shown or implied on the Drawings and Specified.

RR. Bid Item 2.55 – Tideflex inline check valve at Structure S9 discharge

1. Method of Measurement – The quantity to be paid for will be the quantity of Tideflex inline check valves installed and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing each check valve. This Work includes but is not limited to all valves, appurtenances, etc. as shown or implied on the Drawings and Specifications.

SS. Bid Item 2.56 – 24" RCP between Structures S8 and S9

1. Method of Measurement – The quantity to be paid for will be the quantity in lineal feet, completed and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing the piping. This Work includes but is not limited to providing all labor, materials, equipment, hardware, pipe, appurtenances, connections, traffic bearing grating, excavation, backfilling, compaction, filter fabric, cleaning, etc. all as shown or implied by the Drawings and Specifications.

TT. Bid Item 2.57 – 36" RCP between Structures S9 and S15

1. Method of Measurement – The quantity to be paid for will be the quantity in lineal feet, completed and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing the piping. This Work includes but is not limited to providing all labor, materials, equipment, hardware, pipe, appurtenances, connections, excavation, backfilling, compaction, filter fabric, cleaning, etc. all as shown or implied by the Drawings and Specifications.

UU. Bid Item 2.58– Structure S15

1. Method of Measurement – The quantity to be paid for will be the quantity of structures installed and accepted.

2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing each structure. This Work includes but is not limited to all labor, fuel, materials, professional engineering services, concrete, reinforcing steel, traffic bearing access doors, flow channel, excavation, backfilling, compaction, bollard, etc. as shown or implied on the Drawings and Specification Section 11304.

VV. Bid Item 2.59 – Site Electric

1. Measurement and Payment: The lump sum payment will be full compensation for furnishing and installing all electric Work required to energize and operate the facility that has not been identified or included in the above Bid Items, including but not limited to wire, conduit, fittings, coordination with FPL, etc. as shown or implied on the Drawings and Specifications.

WW. Bid Item 2.60 – Portable Water Lettuce Supernatant/Sludge Pump

1. Method of Measurement – The quantity to be paid for will be the quantity of specified Water Lettuce supernatant/sludge pumps furnished and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing the pump, including all options and other equipment specified. This Work also includes but is not limited to providing a full tank of fuel and startup and testing services, etc. as shown or implied by the Drawings and Specifications.

XX. Bid Item 2.61 – Portable Eyewash Station

1. Method of Measurement – The quantity to be paid for will be the quantity of specified portable eyewash stations furnished, installed, and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing the portable eyewash station with mounting bracket and refills as shown or implied by the Drawings and Specifications.

YY. Bid Item 2.62 – Safety Equipment

1. Measurement and Payment: The lump sum payment will be full compensation for furnishing and installing all safety equipment specified in Section 11012 – Safety Equipment.

ZZ. Bid Item 2.63 – White solid PVC/Vinyl privacy perimeter fence

1. Method of Measurement – The quantity to be paid for will be the quantity in lineal feet, completed and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for all Work specified, including but not limited to furnishing and installing fence posts, fencing material, post caps, concrete, screws and other hardware, etc.

A1. Bid Item 2.64 – Nonpotable Water System

1. Measurement and Payment: The lump sum payment will be full compensation for furnishing and installing the nonpotable water system shown and detailed on Sheet C10, including but not limited to well, well pump, diaphragm tanks, valves, pipe, concrete slab, industrial hose and nozzle, etc.

A1. Bid Item 2.64 – Permit Special Condition Work within Indian River Farms Water Control District Right-of-Ways

1. Measurement and Payment: The lump sum payment will be full compensation for performing the Work described in the Special Conditions to the Indian River Farms Water Control District (IRFWCD) Permit to Connect to or Use District Facilities, No. 20-12, included herein in Appendix A, including but not limited to clearing, grubbing, and final grading work within IRFWCD's Lateral "A" Canal and North Relief Canal Right-of-Ways.

PART 3 – LANDSCAPING

A. Bid Items 3.01 – Relocate and maintain until Final Acceptance, existing sable palms shown on Drawing C1a to be relocated

1. Method of Measurement – The quantity to be paid for will be the quantity of sable palms relocated.
2. Basis of Payment – The unit price and payment will constitute full compensation for all Work specified, including but not limited to properly excavating and replanting the palms to the locations shown or implied on the Drawings and maintaining them until Final Acceptance of Part A of the Contract by the OWNER. (Payment for the one-year maintenance period following Final Acceptance shall be included in Part B of the Contract).

B. Bid Items 3.02 through 3.18 – Trees and Shrubs shown on Drawing L1

1. Method of Measurement – The quantity to be paid for will be the quantity of specified trees and shrubs furnished, planted, and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and planting the trees and shrubs as shown or implied on the Drawings and Specifications, including but not limited to plant material, watering, fertilization, and other maintenance during construction.

C. Bid Items 3.19 and 3.27 – Hydroseeding as shown on Drawing L2

1. Method of Measurement – The quantity to be paid for will be the quantity in acres hydroseeded and accepted.
2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and properly applying the hydroseed mixture as shown or implied on the Drawings and Specifications, including but not limited to seed, bulking agents, fertilizer, soil amendments, watering, and other maintenance during construction, etc.

- D. **Bid Items 3.20 through 3.24 – Various plants shown on Drawing L2**
1. Method of Measurement – The quantity to be paid for will be the quantity in square feet of specified plant material furnished, planted, and accepted.
 2. Basis of Payment – The unit price and payment will constitute full compensation for furnishing and installing the plant material as shown or implied on the Drawings and Specifications, including but not limited to plant material, netless erosion control blanket (as applicable), watering and other maintenance during construction, fertilization, etc.
- E. **Bid Items 3.25 and 3.26 – “PURPLE” color code planting for Wetland Polishing Marshes #1 and #2 shown on Drawing L2**
1. Measurement and Payment: The lump sum payment will be full compensation for furnishing and installing the duck potato plants as indicated. This Work includes but is not limited to providing all labor, materials, equipment, plants, watering and other maintenance during construction, fertilization, etc.

PART 4 – ALL OTHER WORK

- A. **Bid Item 4.1 - All other equipment, material, and Work required to complete the project not specifically listed in Parts 1, 2, or 3 above.**
1. Measurement and Payment: The lump sum payment will be full compensation for furnishing and installing all other items and performing all other Work required for the complete construction and operability of the Work that have not been identified in Bid Parts 1, 2, and 3.

PART B OF THE CONTRACT

- A. **Bid Item 5.1 - Twelve-Month Maintenance and Warranty Period**
1. Method of Measurement – Payment will be on a monthly basis.
 2. Basis of Payment – The unit price and payment will constitute full compensation for maintaining and warranting all hydroseeding and landscaping as specified in Sections 02232 and 02235 of the Specifications. This Work includes, but is not limited to providing all labor, materials, equipment, new hydroseeding, replacement plants, temporary irrigation facilities including maintenance and repairs, fertilization, etc.
- B. **Bid Item 5.2 - Twelve-Month Exotic and Invasive Vegetation Elimination Period**
1. Method of Measurement – Payment will be on a monthly basis.
 2. Basis of Payment – The unit price and payment will constitute full compensation for providing exotic and invasive vegetation elimination as specified in Section 02235 of the Specifications. This Work includes, but is not limited to providing all labor, materials, equipment, herbicide, etc.

++ END OF SECTION ++

SECTION 01026

SCHEDULE OF VALUES

1.1 GENERAL

- A. The Schedule of Values is an itemized list that establishes the value or cost of each part of the Work. It shall be used as the basis for preparing progress payments and may be used as a basis for negotiations concerning additional work or credits that may arise during the construction.

1.2 PREPARATION AND SUBMITTAL

- A. ENGINEER will prepare a basic Schedule of Values template that unless otherwise required by ENGINEER or herein, shall be used to prepare progress payments. ENGINEER will provide said basic Schedule of Values to CONTRACTOR in the form of an Excel spreadsheet before the first progress payment request.
- B. If required by ENGINEER at any time during the course of the Contract, expand the basic spreadsheet to create an "enhanced Schedule of Values" by adding additional columns to show breakdown of labor, materials, equipment, and other costs used to prepare the Bid. Each item shall include a directly proportional amount of the CONTRACTOR's overhead and profit. If requested by ENGINEER, support values with data that substantiates their correctness. The enhanced Schedule shall be in agreement with General Conditions Article 2.07A. Submit two review copies of the enhanced Schedule within ten days after a request by ENGINEER. Revise and resubmit the enhanced Schedule as required until it is approved. Once approved, submit a copy of the enhanced Excel spreadsheet file to ENGINEER.
- C. Bid Items 2.35 and 2.43 - Prepare a detailed Schedule of Values for all the items covered in Bid Items 2.35 and 2.43, so that all invoicing for said items is clear, complete, and concise. Prepare the detailed schedule using a Microsoft Excel templet provided by the ENGINEER and submit the schedule to the ENGINEER within ten days after receiving the Notice-to-Proceed. The ENGINEER shall review the detailed Schedule of Values for these Bid Items and incorporate the approved schedule into the overall Project Schedule of Values. The schedule shall list stop log systems and slide gate systems individually, as broken down in the respective tables in Sections 11014 and 11016.
- D. The sum of the individual values shown on the Schedule of Values shall equal the total approved Contract Price.

+ + END OF SECTION + +

SECTION 01040

PROJECT COORDINATION

1.1 SCOPE

- A. CONTRACTOR is solely responsible for coordination (including scheduling) of all of the Work to insure completion of the Work within the Contract Time. Supervise, direct, and cooperate fully with all subcontractors, manufacturers, fabricators, suppliers, distributors, installers, testing agencies, and all others whose services, materials, or equipment are required, including the work of any other contractor, utility service company, or OWNER'S employees performing additional work related to the Project.
- C. Maintain sufficient competent personnel, drafting equipment, and supplies at the site for the purpose of preparing layout and coordination drawings. These drawings shall supplement the Contract Documents, working drawings, and Shop Drawings as necessary, to correlate the work of various trades. Where such drawings are to be prepared by Subcontractors, ensure that each Subcontractor maintains the required personnel and facilities at the site.
- D. Attend and participate in all project meetings and report on the progress of all work and compliance with schedules.

1.2 COORDINATION WITH INDIAN RIVER FARMS WATER CONTROL DISTRICT

- A. At least ten days before commencing construction, schedule a joint meeting with Mr. David Gunter, IRFWCD Superintendent (772-562-2141) and with Mr. Keith McCully, P.E., of Indian River County (772-226-1562).

1.3 MISCELLANEOUS COORDINATION

- A. Before beginning work. prepare an Emergency Preparation and Restoration Plan to address eventualities such as tropical storms and hurricanes. Present the Plan at the preconstruction meeting.
- B. Before beginning work, provide all parties with an emergency 24-hour telephone number. Provide the numbers at the preconstruction meeting.
- C. Notify local law enforcement agencies before closing one or more lanes of traffic for periods exceeding one hour.

- D. Safely conduct the public through streets abutting the permitted work area from the time the Work begins to the time of final completion. Fully comply with these Specifications, Indian River County Traffic Division Standards, and FDOT's Roadway and Traffic Design Standards (600 Series). In the event of a conflict, the more stringent specification or requirement shall govern.
- E. Any activity within County or FDOT right-of-way requires supervision by personnel certified by FDOT.

+ + END OF SECTION + +

SECTION 01045

CUTTING AND PATCHING

1.1 GENERAL

- A. This Section includes all cutting and patching of all Work under construction, completed Work, and existing facilities in order to accommodate the coordination of Work, install other Work, uncover Work for access, inspection or testing, or similar purposes. "Demolition Work" is specified elsewhere. Execute all cutting and patching, including but not limited to excavation, backfill, compaction, and fitting. Examples of the need for cutting and patching include but are not limited to situations when it is required to:
1. Remove and replace defective Work or Work not conforming to requirements of the Contract Documents.
 2. Remove samples of installed Work as required for testing.
 3. Remove all construction required to provide for the specified alteration or addition to existing Work.
 4. Uncover Work to provide for the ENGINEER's inspection of covered Work or inspection by regulatory agencies having jurisdiction.
 5. Connect to completed Work that was not accomplished in the proper sequence.
 6. Remove or relocate existing utilities and pipes that obstruct the Work to which connections must be made.
 7. Make connections or alterations to existing or new facilities.
 8. Take immediate action in cases where interim measures are necessary for protection and safety of property, personnel, or the public.
- B. For pavement or sidewalk removal and restoration, refer to FDOT Design Standards Index 300 Series and these Contract Documents. In the event of a conflict the most stringent requirement shall prevail. All sidewalk and driveway repairs shall be minimum 6" thick 4,000 psi concrete with fibermesh.
- C. Restore all existing and new Work to the standards of these Specifications.
- D. Submittals:
1. Prior to any cutting which may affect the integrity and design function of the Project, OWNER's operations, or work of another contractor, submit written notice to the ENGINEER, requesting consent to proceed with the cutting. The request shall include:
 - a. Identification of Project.
 - b. Description of affected work of CONTRACTOR and work of others.
 - c. Necessity for cutting.

- d. Effect on other work and on structural integrity of Project.
 - e. Description of proposed work. Designate:
 - 1) Scope of cutting and patching, including drawings or sketches.
 - 2) CONTRACTOR, Subcontractor, or trade to execute the work.
 - 3) Products proposed to be used.
 - 4) Extent of refinishing.
 - 5) Schedule of operations.
 - f. Alternatives for cutting and patching, if any.
 - 2. Should conditions of Work or schedule indicate change of materials or methods, submit written recommendation to ENGINEER, including:
 - a. Conditions indicating change.
 - b. Recommendations for alternative materials or methods.
 - c. Submittals are required for substitutions.
 - 3. Submit written notice to the ENGINEER designating the time cutting and patching operations will occur. Provide minimum 48-hours written notice. Do not begin cutting or patching operations until authorized by the ENGINEER.
- E. Provide shoring, bracing, and support as required to maintain the structural integrity of the Project and protect adjacent Work from damage during cutting and patching.
- F. Conform to all applicable Specifications for application and installation of materials used for patching.
- G. Apply for and obtain all required permits. In accordance with Florida Statutes 218.8, Public Bid Disclosure Act, the OWNER will pay all permit fees.

+ + END OF SECTION + +

SECTION 01050

SURVEYING AND FIELD ENGINEERING SERVICES

1.1 GENERAL

- A. Provide civil, structural, survey, or other professional engineering services specified or required, to execute the CONTRACTOR's construction methods.
- B. Develop and make all detail surveys and measurements needed for construction including but not limited to, slope stakes, batter boards, piling layouts, and all other working lines, elevations, and cut sheets.
- C. Keep all necessary surveying equipment on the site at all times and a skilled instrument man available whenever necessary for layout of the Work.
- D. Provide all material required for benchmarks, control points, batter boards, grade stakes, and other items.
- E. CONTRACTOR is solely responsible for all locations, dimensions and levels. No data other than written orders of the ENGINEER shall justify departure from the dimensions and elevations required by the Drawings.
- F. Safeguard all points, stakes, grademarks, monuments, and benchmarks made or established on the Work, and reestablish same if disturbed. Rectify all Work improperly installed because of not maintaining, not protecting, or removing without authorization, such established points, stakes, marks, and monuments.
- G. The OWNER or its survey contractor may visit the site from time-to-time to review, confirm, or check the CONTRACTOR's construction staking. Cooperate fully with these activities.
- H. When requested by the ENGINEER, provide such facilities and assistance as may be necessary for the ENGINEER to check line and grade points placed by the CONTRACTOR. Do no excavation or embankment work until all cross-sectioning necessary for determining pay quantities has been completed and checked by the ENGINEER.

1.2 CONTRACTOR'S FIELD ENGINEER/SUPERINTENDENT

- A. Employ and retain at the site of the Work, a field engineer and/or superintendent capable of performing all engineering tasks required of the CONTRACTOR. These tasks include, but are not limited to:

1. Check all formwork, reinforcing, inserts, structural steel, bolts, sleeves, piping, other materials, and equipment.
2. Maintain field office files and drawings, Record Documents, and coordinate all work with Subcontractors. Prepare layout and construction drawings for construction operations.
3. Check and coordinate the Work for conflicts and interferences and immediately notify the ENGINEER in writing, of all discrepancies noted.
4. Coordinate with the ENGINEER in field reviews.

1.3 SURVEY WORK

- A. Prior to commencing work, verify the accuracy of all survey bench marks and references, and existing site information as indicated in the Contract Documents and provided by the ENGINEER or OWNER's survey contractor. Immediately notify the ENGINEER upon discovery of any errors, inaccuracies, or omissions in the survey data. The commencing of any of the Work by the CONTRACTOR shall be held as the CONTRACTOR's acceptance that all survey or existing site information is correct and accurate, without any reasonably inferable errors, inaccuracies or omissions. The OWNER does not guarantee that any survey control shown or implied on the Drawings established by the ENGINEER or OWNER will be in place when construction begins. If such previously established referenced survey control is missing or has been disturbed, the OWNER will provide necessary initial survey control or references.
- B. Carefully preserve all control stakes, benchmarks, reference points and property corners. The CONTRACTOR is responsible for any mistake or loss of time caused by their unnecessary loss or disturbance. If the loss or disturbance of any stakes or marks cause a delay in the Work, the CONTRACTOR shall have no claim for damages or extension of time. Control stakes, benchmarks, reference points and property corners disturbed by the CONTRACTOR's work shall be replaced by a Florida Registered Land Surveyor and Mapper, at the CONTRACTOR's expense. If the OWNER must provide the services of the Florida Registered Surveyor and Mapper to perform this replacement work, the cost of the surveying services will be deducted from any sums due the CONTRACTOR for the work performed under this Contract.
- C. All construction survey work and work for Record Drawings shall be performed under the guidance and direction of a Florida Registered Surveyor and Mapper.
- D. Maintain a complete, accurate log of all control and survey work as it progresses.

1.4 SUBMITTALS

- A. Before beginning work, submit name and qualifications of Field Engineer/Superintendent to ENGINEER.
- B. Before beginning work, submit name and address of Professional Surveyor and Mapper to ENGINEER.
- C. On request of ENGINEER, submit documentation to verify accuracy of field engineering work and survey.

1.5 PAYMENT

- A. The cost of performing engineering and layout work described above shall be included in the Contract unit prices for the various items of work to which it is incidental. No separate payment will be made for surveying or engineering except for Project Record Drawings.

+ + END OF SECTION + +

SECTION 01091

REFERENCE STANDARDS, CODES, AND SPECIFICATIONS

1.1 GENERAL

A. Whenever reference is made to the furnishing of materials or installation or testing thereof, to conform to the standards, codes, or specifications of any technical society, organization, or body it shall be construed to mean the latest standard, code, specification, or tentative specification adopted and published at the date of advertisement for bids, even though reference has been made to an earlier standard. When a reference standard, code, or specification is specified, comply with requirements and recommendations stated therein, except when they are modified in a more stringent manner by the Contract Documents, or when applicable laws, ordinances, rules, regulations, or codes establish stricter standards. Common standards, codes, and specifications prepared and adopted by various technical societies and organizations listed in Paragraph B are hereby made a part of the Contract Documents, the same as if repeated herein in full.

B. Technical Societies and Organizations:

AASHTO	The American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials

AWPA	American Wood Preservers Association
AWWA	American Water Works Association
AWS	American Welding Society
FED.SPEC.	Federal Specifications
CIPRA	Cast Iron Pipe Research Association
CRSI	Concrete Reinforcing Steel Institute
FDEP/DEP	Florida Department of Environmental Protection
DIPRA	Ductile Iron Pipe Research Association
DNR	Department of Natural Resources
IEEE	Institute of Electrical and Electronics Engineers
NCPI	National Clay Pipe Institute
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NEC	National Electric Code
NSF	National Sanitation Foundation
NLMA	National Lumber Manufacturers Association
NSPE	National Society of Professional Engineers
OSHA	Occupational Safety and Health Administration
PCI	Prestressed Concrete Institute
SBCC	Standard Building Code Congress International, Inc.
FDOT/DOT	Florida Department of Transportation Standard Specifications for Road and Bridge Construction

FDOT/DOT Florida Department of Transportation Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System (also referred to herein as "FDOT Design Standards" or "DOT Design Standards")

U. L., Inc. Underwriter's Laboratories, Inc.

OSHA Occupational Safety and Health Act

SSPC Steel Structures Painting Council

SJRWMD St. Johns River Water Management District

- C. When no reference is made to a code, standard or specification, the standard specifications of ASTM, ANSI, ASME, IEEE or NEMA shall govern as applicable.
- D. In the event of a conflict between the Contract Documents and any referenced specification, code, or standard, the more stringent requirement prevails. In the event of a conflict between the Contract Documents and any regulatory agency's specification, code, or standard, the more stringent requirement prevails.

+ + END OF SECTION + +

SECTION 01092

ABBREVIATIONS AND SYMBOLS

1.1 COMMON ABBREVIATIONS

- A. Some common abbreviations that may be found in the Specifications or Drawings are:

alternating current = a-c
ante meridian = am
ampere = A
average = avg.
biochemical oxygen demand = BOD
brake horsepower = bhp
British thermal unit = Btu

Centigrade = C
company = Co.
cubic inch = cu in
cubic foot = CF, cu. ft.
cubic yard = cu. yd.
cubic feet per minute = cfm
cubic feet per second = cfs

decibel = db
degree Centigrade (or Celsius) = (say) 20C
degree Fahrenheit = (say) 68F
diameter = dia.
direct current = d-c
dollars = \$

each = ea.
efficiency = eff.

maximum = max.
mercury = Hg
milligram = mg
milligrams per liter = mg/l

Fahrenheit = F
feet = ft.
feet per hour = fph
feet per minute = fpm
feet per second = fps
figure = Fig.
flange = flg.
foot-pound = ft-lb

gallon = gal.
gallons per minute = gpm
gallons per second = gps
gram = g

Hertz = Hz.
hour = hr.
horsepower = hp

inch = in.
inch-pound = in-lb
inside diameter = I.D.
kilovolt-ampere = kva
kilowatt = kw
kilowatt-hour = kwhr

linear foot = LF
liter = L

revolutions per minute = rpm

second = sec.

milliliter = ml
millimeter = mm
million gallon = MG
million gallons per day = MGD
minimum = min.

net positive suction head = npsh
number = No.
National Pipe Threads = NPT
ounce = oz.
outside diameter = O.D.

parts per million = ppm
post meridian = pm
pound = lb.
pounds per square foot = psf
pounds per square inch = psi
pounds per square inch absolute = psia
pounds per square inch gage = psig

specific gravity = sp. gr.
square = sq.
square foot = SF, sq ft
square inch = sq. in.
square yard = SY, sq. yd.
standard = std.
standard cubic feet per minute = scfm

total dynamic head = TDH
totally-enclosed-fan-cooled = TEFC

volt = v

1.2 ORGANIZATION ABBREVIATIONS

A. Abbreviations of some organizations that may be referenced in these Specifications or Drawings are:

ACS	American Chemical Society
ACI	American Concrete Institute
AGMA	American Gear Manufacturers Association
AIChE	American Institute of Chemical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
APHA	American Public Health Association
AREA	American Railway Engineering Association
ASTM	American Society for Testing and Materials
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
AWWA	American Water Works Association
AWS	American Welding Society
CRSI	Concrete Reinforcing Steel Institute

EPA	Environmental Protection Agency
FM	Factory Mutual
HEW	Department of Health, Education and Welfare
HUD	Department of Housing and Urban Development
IEEE	Institute of Electrical and Electronic Engineers
IRFWCD	Indian River Farms Water Control District
IRI	Industrial Risk Insurance
ISO	Insurance Services Office
NAAMM	National Association of Architectural Metal Manufacturers
NARUC	National Association of Railroad and Utilities Commissioners
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
PCI	Precast Concrete Institute
SMACNA	Sheet Metal and Air Conditioning National Association
SSPC	Steel Structures Painting Council
UL	Underwriters' Laboratories, Inc.
USGS	United States Geological Survey
USPHS	United States Public Health Service
WWEMA	Water and Wastewater Equipment Manufacturers Association
FDOT/DOT	Florida Department of Transportation
FDEP/DEP	Florida Department of Environmental Protection
SJRWMD	St. Johns River Water Management District
IRFWCD	Indian River Farms Water Control District
USEPA	United States Environmental Protection Agency
CFR	Code of Federal Regulations, www.gpoaccess.gov/cfr/index.html

1.3. SYMBOLS

- A. Refer to the Drawings for symbols used on the Drawings.

+ + END OF SECTION + +

SECTION 01210

PRECONSTRUCTION CONFERENCE

1.1 SCOPE

- A. Date, Time and Location: The Conference will be held after execution of the Agreement and before construction is started. ENGINEER will fix the date, time, and location of the meeting in accordance with the General Conditions.
- B. ENGINEER or OWNER's representative shall prepare agenda, preside at meeting, and prepare and distribute a transcript of proceedings to all parties.
- C. CONTRACTOR shall provide data required, contribute appropriate items for discussion, and be prepared to discuss all items on the agenda.
- D. A separate preconstruction meeting will be held with Indian River Farms Water Control District (IRFWCD) and that meeting will be scheduled by the ENGINEER. No Work within IRFWCD right-of-way shall proceed until this meeting is held and permission to work with the right-of-way has been given by IRFWCD.

1.2 REQUIRED ATTENDANCE

- A. CONTRACTOR and major Subcontractors.
- B. OWNER's representative.
- C. ENGINEER.
- D. ENGINEER will send notification to representatives of utilities and governmental permit agencies having any degree of concern, control, or responsibility.

1.3 AGENDA

- A. Agenda may include, but may not necessarily be limited to, the following:
 - 1. Designation of responsible personnel.
 - 2. Subcontractors.
 - 3. Coordination with other contractors.
 - 4. Progress schedule.
 - 5. Utility Concerns – Utility representatives as available.
 - 6. Processing of Shop Drawings.
 - 7. Schedule of Shop Drawing submittals.

8. Processing of Field Orders and Change Orders.
9. Requirements for copies of Contract Documents.
10. Insurance in force.
11. Schedule of values.
12. Processing of progress payments.
13. Use of premises.
14. CONTRACTOR's responsibility for safety and first aid procedures.
15. Security.
16. Housekeeping.
17. Field Offices.
18. Record Drawings.
19. Traffic Control Plan.
20. Review of Permits

+ + END OF SECTION + +

SECTION 01215

GENERAL QUALITY CONTROL

1.1 DESCRIPTION OF REQUIREMENTS

- A. Definitions: Specific quality control requirements for the Work are indicated throughout these Contract Documents. The requirements of this Section are primarily related to the performance of the Work beyond the furnishing of manufactured products. The term "Quality Control" includes, but is not limited to, inspection and testing and associated requirements. This Section does not specify or modify the OWNER's and ENGINEER's duties relating to quality review and Contract surveillance.

1.2 RESPONSIBILITY FOR INSPECTIONS AND TESTS

- A. The OWNER will select a testing laboratory to perform required inspections and tests. See Section 01410 – "Testing Laboratory Services".
- B. The OWNER will provide either full or part time resident engineering and construction observation services.
- C. CONTRACTOR's General Responsibility: No failure of test agencies, whether engaged by the OWNER or CONTRACTOR, to perform adequate inspections of tests or to properly analyze or report results, shall relieve the CONTRACTOR of responsibility for the fulfillment of the requirements of the Contract Documents. It is recognized that the required inspection and testing program is intended to assist the CONTRACTOR, OWNER, ENGINEER, and governing authorities in the nominal determination of probable compliance with requirements for certain crucial elements of Work. The program is not intended to limit the CONTRACTOR in his regular quality control program, as needed for general assurance of compliance.

1.3 GENERAL WORKMANSHIP STANDARDS

- A. It is a requirement that each category of tradesman or installer performing the Work be pre-qualified, to the extent of being familiar with the applicable and recognized quality standards for his or her category of work, and being capable of workmanship complying with those standards.

1.4 SUBMITTALS

- A. General: Refer to Section 01330 – "Required Submittals" for the general submittal requirements applicable to inspection and test reports, project photographs, damage surveys, quality control samples, maintenance agreements, guarantees, warranties, and similar documentation of quality compliance as required.

1.5 PRODUCT DELIVERY-STORAGE-HANDLING

- A. General: Handle, store, and protect materials and products, including fabricated components and OWNER purchased items, by methods and means which will prevent damage, deterioration, and losses (and resulting delays), thereby ensuring highest quality results as the performance of the Work progresses. Control delivery schedules so as to minimize unnecessary long-term storage at the project site prior to installation. See Sections 01610 and 01611 for additional requirements.

1.6 PREPARATION FOR INSTALLATION

- A. Pre-Installation Conferences: Well in advance of the installation of every major unit of work that requires coordination with other work, meet at the project site with installers and representatives of manufacturers and fabricators who are involved in or affected by the unit of work, and in its coordination or integration with other work which has preceded or will follow. Advise ENGINEER and OWNER of scheduled meeting dates. At each meeting, review the progress of other work under consideration, including the requirements of the Contract Documents, options, related change orders, purchases, deliveries, shop drawings, product data, quality control samples, possible conflicts, compatibility problems, time schedules, weather limitations, temporary facilities, space and access limitations, structural limitations, governing regulations, safety, inspection and testing requirements, required performance results, recording requirements, and protection. Record the significant discussions of each conference, and the agreements and disagreements, along with the final plan of action. Distribute a record of the meeting promptly to everyone concerned, including the OWNER and ENGINEER.
- B. Do not proceed with the work if the associated pre-installation conference cannot be concluded successfully. Investigate actions to resolve impediments to the performance of the work, and reconvene the conference at the earliest date feasible.
- C. Installer's Inspection of Conditions: Require the Installer of each major unit of work to inspect the substrate to receive the work and the conditions under which the work will be performed, and to report (in writing to the CONTRACTOR with a copy to the ENGINEER) all unsatisfactory conditions. Do not proceed with the work until all unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

1.7 COORDINATION OF TEST AGENCY WORK

- A. Coordination: Afford access and reasonable time in the construction sequence for OWNER and ENGINEER inspections and tests to be performed. Cooperate with test agencies and provide incidental labor and services needed for the removal and delivery of test samples, and for inspections and taking measurements. Provide

patching and restoration services where test samples have been removed.

- B. Test Agency Responsibility: Each test agency shall coordinate its assigned work with the construction schedule as maintained by the CONTRACTOR, and shall perform its work promptly so as not to delay the Work. Observances (by test agencies) having a bearing on the Work shall be reported to the ENGINEER and OWNER in the most expeditious way possible, and shall be recorded in writing by the test agency. Test agency personnel shall not interfere with or assume the duties of the CONTRACTOR.

1.8 PROJECT PHOTOGRAPHS

- A. Refer to Section 01380 – “Construction Photographs”.

1.9 INSTALLATION QUALITY CONTROL

- A. Manufacturer's Instructions: Where installations include manufactured products, comply with the manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in the Contract Documents.
- B. Inspect each item of materials or equipment immediately prior to installation and reject damaged or defective items.
- C. Recheck measurements and dimensions of the work, as an integral step of starting each installation.
- D. Install work during conditions of temperature, humidity, exposure, forecasted weather, and status of project completion, which will ensure the best possible results for each unit of work, in coordination with the entire Work. Isolate each unit of work from non-compatible work, as required to prevent deterioration.

+ + END OF SECTION + +

SECTION 01220

PROGRESS MEETINGS

1.1 SCOPE

- A. Date and Time:
 - 1. Regular Meetings: To be held weekly on a day and time mutually agreed upon by ENGINEER and CONTRACTOR.
 - 2. Other Meetings: On call.
- B. Location: ENGINEER's and CONTRACTOR's field office.
- C. ENGINEER shall prepare agenda, preside at meetings, and prepare and distribute a transcript of proceedings to all parties.
- D. CONTRACTOR shall provide data required and be prepared to discuss all items on agenda. At each meeting as a minimum, CONTRACTOR shall prepare and distribute in writing to ENGINEER and others as pertinent:
 - 1. A detailed summary of the work that occurred since the last Progress Meeting,
 - 2. A summary of the work that is planned before the next Progress Meeting, and
 - 3. A list of all problems encountered that require resolution.
- E. Representatives present for each party shall be authorized to act on their behalf.

1.2 MINIMUM ATTENDANCE

- A. CONTRACTOR:
 - 1. When needed for the discussion of a particular agenda item, require representatives of Subcontractors or suppliers to attend the meeting.
- B. ENGINEER.
- C. OWNER's representative.

1.3 AGENDA

- A. Agenda may include, but may not necessarily be limited to the following:
 - 1. Transcript of previous meeting.
 - 2. Progress since last meeting.
 - 3. Vendor meetings and equipment installation.
 - 4. Utility concerns.
 - 5. Planned progress for next period.

6. Problems, conflicts and observations.
7. Change Orders/Pay Requests.
8. Status of Shop Drawings.
9. Quality standards and control.
10. Schedules, including offsite fabrication and delivery schedules. Corrective measures, if required.
11. Coordination between parties.
12. Safety concerns.
13. Other business.

+ + END OF SECTION + +

SECTION 01310

CONSTRUCTION PROGRESS SCHEDULES

1.1 GENERAL REQUIREMENTS

- A. No partial payments shall be approved by the ENGINEER unless there is an accurately updated construction progress schedule included with the Request for Payment.
- B. Designate an authorized representative who shall be responsible for development and maintenance of the construction schedule and of all progress and payment reports. This representative shall have direct project control and complete authority to act on behalf of the CONTRACTOR in fulfilling the commitments of the CONTRACTOR's schedules.

1.2 REVISIONS TO THE CONSTRUCTION SCHEDULES

- A. Submit accurate revised (updated) progress schedules on a monthly basis:
 - 1. Indicate the progress of each activity to the date of submission.
 - 2. Highlight changes occurring since the previous submission listing:
 - a. Major changes in scope.
 - b. Activities modified since the previous submission.
 - c. Revised projections of progress and completion.
 - d. Other identifiable changes.
 - 3. Provide a written narrative report as needed to define:
 - a. Problem areas, anticipated delays, and the impact on the schedule.
 - b. Corrective action recommended and its effect.
 - c. The effect of changes on schedules of other prime contractors or subcontractors.

1.3 SUBMISSION OF THE CONSTRUCTION SCHEDULES

- A. On or before the tenth day after the effective date of the Agreement, submit the initial construction progress schedule to the ENGINEER. The ENGINEER will review the schedule and provide comments to the CONTRACTOR within 21 days after receipt. The review period does not restrict issuance of the Notice-to-Proceed. Resubmit revised schedules on or before the seventh day after receipt of the ENGINEER's comments.
- B. Submit accurate revised (updated) monthly construction progress schedules with that month's application for payment. In any event, the updated monthly

construction progress schedule shall be submitted no later than the fifth day of the month following the month's Work just completed. Consistent failure to meet this requirement is cause for termination of the construction contract by the OWNER.

- C. Submit one printed 24"x36" print and one .pdf copy.

1.4 DISTRIBUTION OF THE CONSTRUCTION SCHEDULES

- A. Distribute copies of the initial schedule and all reviewed revisions (updates) to:
 - 1. Job site file.
 - 2. Subcontractors (as necessary).
 - 3. Other concerned parties.
 - 4. OWNER
 - 5. ENGINEER

- B. In the cover letter, instruct recipients to report promptly to the CONTRACTOR, in writing, any problems anticipated by the projections shown in the schedule.

+ + END OF SECTION + +

SECTION 01330

REQUIRED SUBMITTALS

1.1 GENERAL

- A. Submit Record Drawings, design drawings, calculations, certifications, photographs and video tapes, pay requests, change orders, construction schedules, etc., as required or inferred by these Contract Documents.

1.2 DESCRIPTION OF REQUIREMENTS

- A. The individual submittal requirements are specified in the applicable Section for each unit of work.
1. Unless otherwise noted, submit each item of work-related submittal to the ENGINEER for review prior to purchase. The ENGINEER's review of work-related submittals is for general conformance with the design concept and the Contract Documents.
- B. Definitions: The work-related submittals of this Section, in addition to the definitions in the General Conditions and elsewhere in the Contract Documents, are defined as follows:
1. Shop Drawings are defined in Section 01340.
 2. Product Data is defined in Section 01340.
 3. Samples are defined in Section 01340.
 4. Design Drawings are defined in Section 01340.
- C. Miscellaneous submittals related directly to the Work (non-administrative) include but are not limited to warranties, guarantees, maintenance agreements, workmanship bonds, project photographs/videos, survey data and reports, physical work records, statement of applicability, quality testing and certifying reports, copies of industry standards, record drawings, parts list, operating and maintenance materials, overrun stock, security/protection/safety/keys and similar information and items, devices and materials applicable to the Work and not defined as shop drawings, product data, samples, and design drawings.

1.3 GENERAL SUBMITTAL REQUIREMENTS

- A. Coordination and Sequencing: Coordinate the preparation and processing of submittals with the performance of the Work so that work will not be delayed by submittals. Coordinate and sequence different categories of submittals for the same work, and for interfacing units of work, so that one will not be delayed for coordination with another. No extension of time will be allowed because of failure to

properly coordinate and sequence submittals. Do not proceed with purchasing, fabrication, or delivery of work related to a submittal until the submittal procedure has been successfully completed.

- B. **Preparation of Submittals:** Provide permanent marking on each submittal to identify it by project, date, Contractor, subcontractor, submittal name, and similar information to distinguish it from other submittals. Show CONTRACTOR's approval marking and provide space for review marking. Package each submittal individually and appropriately for transmittal and handling. Submittals that are received from sources other than the CONTRACTOR's office will be returned without review.

1.4 SPECIFIC CATEGORY SUBMITTAL REQUIREMENTS: WORK-RELATED AND MISCELLANEOUS SUBMITTALS

- A. **General:** Except as otherwise indicated in individual work sections, comply with the general requirements specified for each indicated category of submittal. Provide and process intermediate submittals (where required between initial and final) similar to initial submittals.
- B. **Shop Drawings:** Provide newly-prepared information, show dimensions, and note those based on field measurements, identify materials and product in the work shown, indicate compliance with standards and special coordination requirements. Do not allow shop drawing copies without appropriate final review markings by the ENGINEER to be used in connection with the Work. Submit shop drawings as outlined in Section 01340 of these specifications.
- C. **Product Data:** Collect the required data into one submittal for each material, product, or system; and mark each copy to show which choices and options are applicable to the project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements that have been checked, and special coordination requirements. Maintain one set of product data for each submittal at the project site, available for reference by the OWNER, ENGINEER or others. Submit product data as outlined in Section 01340 of these Specifications.
- D. **Samples:** Provide units identical with the final condition of the proposed materials or products for the work. Include "range" samples (not less than three units) where variations occur, and identify each unit of each set. Provide full set of optional samples where OWNER's or ENGINEER's selection is required. Prepare samples to match the selection sample where so indicated. Include information with each sample to show generic description, source or product name, and manufacturer, limitations, and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture, and "kind" by the ENGINEER, who will not

test them (except as otherwise indicated) for other requirements, which are the exclusive responsibility of the CONTRACTOR. Submit samples as outlined in Section 01340 of these Specifications.

- E. Inspection and Test Reports: Submittals are classified either as "shop drawings" or "product data," depending upon whether the report is uniquely prepared for the project or a standard publication of regular product or workmanship control testing at the point of production (respectively).
- F. Design Drawings: Prepare design drawings as specified elsewhere herein and signed and sealed by a registered professional engineer licensed to practice in the state of Florida.
- G. Record Drawings: Prepare record drawings in accordance with Section 01720 of these Specifications.
- H. Photographs: Take and submit photographs to the ENGINEER as outlined in Section 01380 of these Specifications.
- I. Warranties: Refer to individual sections for specific general requirements on the submittal of warranties, guarantees, product/workmanship bonds, and maintenance agreements which are uniquely prepared and executed for the project. Furnish two executed copies, except furnish two additional (conformed) copies where required for maintenance manuals.
- J. Receipts: Furnish all pertinent receipts (e.g. landfill receipts, etc.) that relate to pay estimates.

1.5 SPECIFIC CATEGORY SUBMITTAL REQUIREMENTS: ADMINISTRATIVE SUBMITTALS

- A. Affidavits: Submit affidavits from each subcontractor and supplier with the Final Payment Request.
- B. Pay Requests: Submit all pay requests as outlined in Article 14 of the General Conditions and in addition, they shall be accompanied by construction progress photographs and other required submittals.
- C. Change Orders: Submit change order requests in accordance with the Contract Documents.
- D. CONTRACTOR's Close-Out Submittals: Refer to Section 01810 - "Project Closeout".

- E. Construction Schedules: Submit Construction Schedules to the ENGINEER as outlined in Section 01310 of these Specifications.

+ + END OF SECTION + +

SECTION 01340

SUBMITTAL OF SHOP DRAWINGS, PRODUCT DATA, DESIGN DRAWINGS, AND SAMPLES

1.1 SCOPE

- A. Submit shop drawings, product data, design drawings, and samples as required by or inferred by the Drawings and Specifications. Submittals shall conform to the requirements of Section 6.17 of the General Conditions, Section 01330, and as described in this Section.

1.2 SHOP DRAWINGS

- A. Shop drawings are original drawings, prepared by the CONTRACTOR, a subcontractor, supplier, or distributor, that illustrate some portion of the Work; showing fabrication, layout, setting, or erection details. Shop drawings include but are not limited to custom-prepared data of all forms including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements, and similar information not in standard printed form applicable to other projects.
- B. Shop drawings shall be prepared by a qualified detailer and shall be identified by reference to sheet and detail numbers on the Drawings.

1.3 PRODUCT DATA

- A. Product data are manufacturer's standard schematic drawings and manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data on materials, products, and systems. Product data is for items not custom-prepared for this project, other than the designation of selections from available choices.
- B. Modify standard drawings to delete information not applicable to the project and supplement them to provide additional information applicable to the project.
- C. Clearly mark catalog sheets, brochures, etc., to identify pertinent materials, products, or models.

1.4 DESIGN DRAWINGS

- A. Design drawings are original drawings, prepared by a Florida licensed professional engineer or other appropriately licensed design professional for the CONTRACTOR, a subcontractor, supplier, or distributor, that illustrate some portion of the work; showing fabrication, layout, setting, or erection details.

- B. Design drawings shall be prepared by a qualified, appropriately licensed professional and shall be identified by reference to specification section number, sheet, and detail numbers on the Drawings. Design drawings include but are not limited to items such as details, materials, products, dimensions, and installation hardware and equipment. Also included are all installation and operation details and requirements.

1.5 SAMPLES

- A. Samples are physical examples to illustrate materials, equipment, or workmanship and to establish standards by which Work is to be evaluated. Samples include but are not limited to both fabricated and unfabricated physical examples of materials, products, and Work; both as complete units and as smaller portions of units of Work; either for limited visual inspection or (where indicated) for more detailed testing and analysis.
- B. Clearly mark each sample to identify representative physical location and where it is called for in the Drawings and/or Specifications.

1.5 CONTRACTOR'S RESPONSIBILITIES

- A. The CONTRACTOR's responsibilities for submittal of shop drawings, product data, design drawings, and samples are set forth in paragraph 6.17 of the General Conditions, Section 01330, and as further explained herein.
- B. Prior to submission, thoroughly check shop drawings, product data, design drawings, and samples for completeness and for compliance with the Contract Documents, verify all dimensions and field conditions, and coordinate the submittals with the requirements for other related work. Review each submittal before submitting it to the ENGINEER, to determine that it is acceptable in terms of the means, methods, techniques, sequences, and operations of construction, safety precautions, and programs incidental thereto, all of which are the CONTRACTOR's responsibility.
 - 1. It is CONTRACTOR'S responsibility to review submittals made by its suppliers and Subcontractors before transmitting them to ENGINEER to assure proper coordination of the Work and to determine that each submittal is in accordance with its desires and that there is sufficient information about materials and equipment for ENGINEER to determine compliance with the Contract Documents.
 - 2. Incomplete or inadequate submittals will be returned for revision without review.
- C. The CONTRACTOR's responsibility for errors and omissions in submittals is not relieved by the ENGINEER's review of submittals. The CONTRACTOR shall approve the submittals based on his in-the-field measurements, prior to submittal to

the ENGINEER for his review.

- D. In the submittal cover letter, notify the ENGINEER, in writing at the time of submission, of deviations in submittals from the requirements of the Contract Documents. The CONTRACTOR's responsibility for deviations in submittals from the requirements of the Contract Documents is not relieved by the ENGINEER's review of submittals, unless the ENGINEER gives written acceptance of specific deviations.
- E. Begin no work that requires submittals until return of submittals with the ENGINEER's stamp and initials or signature indicating the submittal has been reviewed and marked "No Exception Taken" or "Make Corrections Noted" or similar language.

1.6 SUBMITTAL REQUIREMENTS AND ENGINEER'S REVIEW FOR SHOP DRAWINGS, PRODUCT DATA, DESIGN DRAWINGS, AND SAMPLES

- A. Submit .PDFs of shop drawings to: Keith McCully, P.E. via email → kmccully@ircgov.com. In the email subject line type: "MOORHEN MARSH: SHOP DRAWING SUBMITTAL NO. ____." The ENGINEER will reply with submittal review comments via email.
- B. The following transmittal form shall accompany each submittal. If data for more than one Section of the Specifications is submitted, a separate transmittal form shall accompany the data submitted for each Section.

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- C. All submittals shall bear the signature of CONTRACTOR as evidence that the CONTRACTOR has reviewed them. Submittals without this signature will not be reviewed by the ENGINEER and will be returned to CONTRACTOR.
- D. Assign a number to each submittal starting with No. 1 and thence numbered consecutively. Identify resubmittals by the original submittal number followed by the suffix "A" for the first resubmittal, the suffix "B" for the second resubmittal, etc.
- E. After ENGINEER completes his review, submittals will be marked with one of the following notations (or similar):
 - 1. No Exception Taken
 - 2. Make Corrections Noted
 - 3. Rejected
 - 4. Revise And Resubmit
 - 5. Submit Specified Item
- G. If a submittal is acceptable, it will be marked "No Exception Taken" or "Make Corrections Noted" (or similar language).
- H. Upon return of a submittal marked "No Exception Taken" or "Make Corrections Noted" (or similar language), the OWNER does not object to the CONTRACTOR ordering, shipping, or fabricating the materials included on the submittal, provided it is in accordance with all corrections indicated and the CONTRACTOR has determined no other corrections are needed.
- I. If a submittal is unacceptable it will be returned to CONTRACTOR with one of the following notations (or similar language):
 - 1. "Rejected"
 - 2. "Revise and Resubmit" or
 - 3. "Submit Specified Item"
- J. Upon return of a submittal marked "Revise and Resubmit" (or similar language), make the corrections indicated and repeat the initial approval procedure.
- K. The "Rejected" (or similar language) notation is used to indicate material or equipment that is not acceptable. Upon return of a submittal so marked, repeat the initial approval procedure utilizing acceptable material or equipment.
- L. Upon return of a submittal marked "Submit Specified Item" (or similar language), resubmit using the specified item and repeat the initial approval procedure.
- M. Any related Work performed or equipment installed without return of a submittal marked "No Exception Taken" or "Make Corrections Noted" (or similar language) will be at the sole responsibility and risk of the CONTRACTOR.
- N. Submit all information well in advance of the need for the material or equipment for

construction and prior to purchasing the material or equipment, and with ample allowance for the time required to make delivery of material or equipment after data covering such is approved. CONTRACTOR shall assume the risk for all materials or equipment fabricated or delivered prior to the approval of submittals. Installed materials or equipment will not be included in periodic progress payments until approval thereof has been obtained in the specified manner.

- O. ENGINEER will review and process all submittals promptly, but a reasonable time shall be allowed for this, for the submittals being revised and resubmitted, and for time required to return the reviewed submittals to CONTRACTOR.
- P. Furnish required submittals with complete information and accuracy in order to achieve required acceptable review of an item within three submittals. All costs to ENGINEER involved with review of subsequent submittals will be backcharged to CONTRACTOR in accordance with the General Conditions. If CONTRACTOR requests a substitution for a previously approved item, all of ENGINEER'S costs in reviewing the substitution will be backcharged to CONTRACTOR unless the need for such substitution is beyond the control of CONTRACTOR.

+ + END OF SECTION + +

SECTION 01342

INSTALLATION DATA

1.1 GENERAL

- A. Installation data is defined as written instructions; drawings; illustrative, wiring, and schematic diagrams; diagrams identifying external connections, terminal block numbers and internal wiring; and all other such information pertaining to installation of materials and equipment that is not furnished with Shop Drawings or Design Drawings. Included are all printed manufacturer's installation instructions, including those that may be attached to equipment and for which approval by the ENGINEER is not required.

1.2 SUBMITTAL

- A. Submit two copies of all such data to the ENGINEER for each piece of equipment furnished. Data shall be acceptably identified and accompanied with a letter of transmittal.

+ + END OF SECTION + +

SECTION 01380

CONSTRUCTION PHOTOGRAPHS

1.1 SUMMARY

- A. This Section specifies requirements of photographic documentation of project conditions before, during, and after construction.
- B. The ENGINEER has the authority to reject any or all photographs and order that they be redone at no additional charge. Re-photograph areas of unacceptable coverage within five (5) days after being notified by the ENGINEER.

1.2 SUBMITTALS

- A. Required submittals:
 - 1. Pre-construction photographs: Submit before construction activities commence.
 - 2. Construction progress photographs and other construction photographs: Submit with each pay request.
 - 3. Post-construction photographs: Submit with the final application for payment.
- B. Photographs: All photographs shall be in color.
 - 1. Provide digital photographs on CD's.
 - 2. At least one aerial view of the Project site shall be provided with each photographic submittal package.

1.3 QUALITY ASSURANCE

- A. Take post-construction photographs at the same time of day as those taken for pre-construction photographs.
- B. Index and catalog documentary photographs in such a manner that each scene is readily identifiable. (e.g. For each documentary photograph, provide appropriate written documentation describing the location, orientation of view, date, time of day, and other pertinent comments.) All photographs do not have to be documentary photographs requiring cataloging - only those necessary to properly document and identify pertinent scenes.

2.1 CONSTRUCTION DOCUMENTATION

- A. Pre-Construction Photographs:
 - 1. Within fourteen days before construction commences, take photographs of all areas where construction is to take place. The purpose of the pre-

construction photographs is to determine any damage from construction activities to private or public property or OWNER property outside the limits of construction. These photographs will serve as a record of existing conditions for disputes arising from the restoration, and shall therefore clearly depict details of existing conditions.

2. Photograph coverage shall include all surface features located within the zone of influence of construction. Such coverage shall include but not be limited to, existing driveways, sidewalks, curbs, pavements, ditches, mailboxes, landscaping, trees and other vegetation, culverts, fences, signs, and headwalls within the area covered and as directed by the ENGINEER.
3. No construction shall begin prior to the ENGINEER's review of the photographs covering the construction area.

B. Construction Progress Photographs and Other Construction Photographs:

1. Take photographs as necessary during construction to clearly document construction phases, installation of major equipment, and construction progress.
2. Photograph unusual conditions encountered during construction.
3. Submit construction photographs with each pay request for the period covered by that pay request.

C. Post-Construction Photographs: Upon completion of construction work and before final payment, take photographs of all completed construction and of all areas disturbed or restored by construction activities.

+ + END OF SECTION + +

SECTION 01410

MATERIALS TESTING LABORATORY SERVICES

1.1 GENERAL

- A. OWNER shall select and pay for the services of a materials testing laboratory. When tests are taken after CONTRACTOR requests testing, the CONTRACTOR shall pay for all failing tests. This Section supersedes anything to the contrary contained in the Technical Specifications. Refer to Article 13 of the General Conditions for additional information.
- B. The testing laboratory is not authorized to approve or accept any portion of the Work. The testing laboratory is not authorized to rescind, alter, or augment the requirements of the Contract Documents; or perform any duties of the CONTRACTOR.
- C. Refer to Section 02225 – Erosion Control and Treatment for water quality testing.

1.2 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel, provide access to Work and to manufacturer's operations.
- B. Provide to laboratory, preliminary representative samples of materials to be tested, in required quantities.
- C. Furnish copies of product test reports.
- D. Provide to the laboratory the preliminary design mix proposed for concrete, and other material mixes that require testing by the testing laboratory.
- E. Furnish labor and facilities:
 - 1. To provide access to Work to be tested.
 - 2. To obtain and handle samples at the site.
 - 3. To facilitate inspections and tests.
 - 4. For laboratory's exclusive use for storage and curing of test samples.
 - 5. Forms for preparing concrete test beams and cylinders.
- F. Notify laboratory and ENGINEER a minimum of 48 hours prior to needing tests or sampling.

- G. Arrange with laboratory and pay for additional samples and tests required for CONTRACTOR'S convenience.
- H. Coordinate and schedule all testing services.

1.3 QUALIFICATIONS OF THE MATERIALS TESTING LABORATORY

- A. The testing laboratory shall meet "Recommended Requirements for Independent Laboratory Qualification," latest edition, published by American Council of Independent Laboratories and the basic requirements of ASTM E329 "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction."
- B. Testing equipment used by the laboratory shall be calibrated at maximum 12 month intervals by devices of accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

1.4 MATERIALS TESTING LABORATORY DUTIES

- A. The testing laboratory shall:
 - 1. Cooperate with ENGINEER and CONTRACTOR and provide qualified personnel promptly on notice.
 - 2. Perform specified inspections, sampling, and testing of materials and methods of construction; comply with applicable standards; ascertain compliance with requirements of Contract Documents.
 - 3. Promptly notify ENGINEER and CONTRACTOR of irregularities or deficiencies of Work which are observed during performance of services.
 - 4. Promptly submit two copies of reports of inspections and tests to ENGINEER and one copy to CONTRACTOR, including:
 - a. Date issued.
 - b. Project title and number.
 - c. Testing laboratory name and address.
 - d. Date of inspection or sampling.
 - e. Record of temperature and weather.
 - f. Date of test.
 - g. Identification of product and Specification Section.
 - h. Location in Project. Note: This means a map or drawing showing the actual location of each test. The test report(s) will not be accepted if in the ENGINEER's sole opinion, an adequate location map or drawing is not provided.
 - i. Type of inspection or test.
 - j. Results of tests and observations regarding compliance with Contract Documents.

- k. Recommendations as appropriate.
- 5. Perform additional tests and services as required by ENGINEER.

+ + END OF SECTION + +

SECTION 01520

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1.1 SCOPE

- A. Provide all construction equipment and facilities and temporary controls required to satisfactorily complete the Work represented on the Drawings and described in the Specifications.

1.2 RESPONSIBILITY

- A. All construction facilities and temporary controls remain the property of the Contractor establishing them and shall be maintained in a safe and useful condition until removed from the construction site.
- B. All construction facilities and temporary controls that may be needed in construction of any part of the Work, must be furnished, maintained and removed by the CONTRACTOR, who is also responsible for the safety and efficiency of such work and for any damage that may result from their failure or from their improper construction, maintenance, or operation.
- C. In accepting the Contract, the CONTRACTOR assumes full responsibility for the sufficiency and safety of all construction facilities and temporary controls and for any damage that may result from their failure or their improper construction, maintenance, or operation and will indemnify and save harmless the OWNER and ENGINEER from all claims, suits, actions, damages, and costs of every description arising by reason of failure to comply with the above provision.

1.3 TEMPORARY UTILITIES AND SERVICES

A. TEMPORARY WATER

- 1. Provide a temporary water service as required for all construction purposes and pay for all water used.
- 2. Furnish potable drinking water in suitable dispensers and with cups for use of all employees at the job.
- 3. Provide all temporary piping, hoses, etc., required to transport water to the point of usage by all trades.
- 4. When temporary water service is no longer required, remove all temporary water lines.

B. TEMPORARY SANITARY FACILITIES

- 1. Provide temporary toilet facilities separate from the job office. Maintain these

during the entire period of construction under this Contract for the use of all construction personnel on the job. Provide enough chemical toilets to conveniently serve the needs of all personnel. Properly seclude toilet facilities from public observation.

2. Toilets and their maintenance shall meet the requirements of State and local health regulations and ordinances. Immediately correct any facilities or maintenance methods failing to meet these requirements. Upon completion of work, remove the facilities from the premises.

C. TEMPORARY ELECTRICITY

1. Provide temporary electric service as required for all construction purposes and pay for all electricity used.

1.4 SECURITY

- A. Provide inspection of work area daily and take whatever measures are necessary to protect the safety of the public, workmen, and materials, and provide for the security of the site, both day and night.

1.5 TEMPORARY CONTROLS AND PERMITS

- A. Take all necessary precautions to control dust and mud associated with the Work. In dry weather, spray dusty areas daily with water in order to control dust. Take necessary steps to prevent the tracking of mud and other waste onto adjacent streets and highways. Obtain a State of Florida Department of Environmental Regulation Notice of Intent permit, a Generic Construction Permit, and an Uncontaminated Groundwater Release Permit (62-621) as required. (This may not be a complete listing of all permits CONTRACTOR must obtain for this project.)

1.7 FIELD OFFICES AND STORAGE SHEDS

- A. Provide a field office and secure storage sheds as required for the performance of the Work and protection and securing of materials and equipment. Refer to Section 01590 – “Engineer’s and Contractor’s Field Office” for field office requirements.

1.8 REMOVAL OF TEMPORARY CONSTRUCTION FACILITIES

- A. Remove the various temporary facilities, services, and controls and legally dispose of them as soon as the Work is complete. The areas of the site used for temporary facilities shall be properly reconditioned and restored to a condition acceptable to the ENGINEER and OWNER.

+ + END OF SECTION + +

SECTION 01541

PROTECTION OF THE WORK AND PROPERTY

1.1 GENERAL

- A. Take all precautions, provide all programs, and take all actions necessary to maintain, protect, and repair the Work and all public and private property and facilities from damage until the OWNER formally accepts the Work (i.e. Final Acceptance). Also, refer to General Conditions 6.13.B.
- B. In order to prevent damage, injury, or loss, CONTRACTOR's actions shall include but not be limited to:
1. Store apparatus, materials, supplies, and equipment in an orderly, safe manner that does not unduly interfere with the progress of the Work or the Work of any other Contractor or utility service company.
 2. Provide suitable storage facilities for all materials, equipment, supplies, etc. that are subject to injury by exposure to weather, theft, breakage, or otherwise.
 3. Place upon the Work or any part thereof, only such loads as are consistent with the safety of that portion of the Work.
 4. Clean up daily all refuse, rubbish, scrap materials, and debris caused by construction operations, so that at all times, the site of the Work presents a safe, orderly, and workmanlike appearance.
 5. Provide barricades and guardrails around openings, for scaffolding, for temporary stairs and ramps, around excavations, elevated walkways, and all other hazardous areas.
 6. Keep all haul roads clean from dirt and debris from haul operations.
 7. Provide site drainage (including temporary drainage systems) such that the Work is not damaged as a result of stormwater runoff from rainfall. All protective drainage activities shall comply with the requirements of Section 02225 and all pertinent permits.
 8. Keep the amount of dust produced during construction activities to a minimum. At CONTRACTOR's expense, spray water or other dust control agents over all areas which are producing dust. Schedule construction operations so that dust and other contaminants will not fall on wet or newly-coated surfaces.
- C. Except after written consent from proper parties, do not enter or occupy privately-owned land with men, tools, materials, or equipment.
- D. Assume full responsibility for the preservation of all public and private property or facility on or adjacent to the site and work area. If any direct or indirect damage is done by or on account of any execution of the Work by the CONTRACTOR, it shall

be restored by the CONTRACTOR, at its expense, to a condition equal to or better than that existing before the damage was done.

1.2 BARRICADES AND WARNING SIGNALS

- A. Where Work is performed on or adjacent to any roadway, right-of-way, or public place, provide barricades, fences, lights, warning signs, danger signals, and watchmen, and take other precautionary measures for the protection of persons or property and of the Work. Properly illuminate and paint barricades so they are easily visible at night (from sunset to sunrise). Erect sufficient barricades to keep vehicles from being driven on or into Work under construction. Barricades and traffic control devices shall conform to the Manual of Uniform Traffic Control Devices (MUTCD). Furnish watchmen in sufficient numbers to protect the Work. CONTRACTOR's responsibility for the maintenance of barricades, signs, lights, and for providing watchmen shall continue until the Project is accepted by OWNER.

1.3 PROTECTION OF VEGETATION AND WILDLIFE

- A. All Work is strictly limited to the limits of construction noted on the Drawings. Working outside these limits of construction will result in the termination of the contract by the OWNER.
- b. Do not disturb any vegetation located outside the limits of construction nor any vegetation located within the limits of construction that is to remain. Before beginning work, delineate these areas and protect them until final completion. Unless otherwise shown on the Drawings, locate barricades and other protective fencing at the drip line of existing native trees or at the edge of the native understory habitat, whichever is nearest to the construction activity, or as directed by the OWNER or ENGINEER. No mulching, grubbing, or any other operation of any mechanical equipment is allowed inside protected areas.
- c. Do not begin any clearing or grubbing operations until all protective barricades and fencing are installed and the OWNER has approved them. Protect all trees that are to remain within the work area (i.e. inside the limits of construction fencing) with barricades and fencing until completion of construction. Maintain all barricades and fencing until completion of construction. All work shall comply with Indian River County Ordinance Chapter 927, "Tree Protection and Clearing" and all permit requirements. (A copy of Chapter 927 may be obtained from Indian River County Community Development Department, 1801 27th Street, Vero Beach, FL 32960.)
- B. No fires are permitted at the site.

- C. Water all trees and plants that are to remain inside the construction limits as necessary, in order to maintain their health during construction operations. The CONTRACTOR shall supply and pay for all water used.
- D. Cover all exposed roots with burlap and keep it continuously wet and cover all exposed roots with earth as soon as possible. Protect root systems from mechanical damage and damage by erosion, flooding, runoff, or noxious materials in solution. If branches are damaged, neatly and cleanly prune branches immediately.
- E. Remove all damaged trees and plants inside the limits of construction fencing that die or suffer permanent injury and replace them at no cost to the OWNER with a specimen of equal or better quality and size.
- F. Close off the work area at the end of each day's operations with properly trenched-in silt fence to prevent gopher turtles and other wildlife from entering the work area. If gopher tortoises or any other turtle is discovered inside the work area, relocate it to the other side of the silt fence out of the work area.
- G. Coordinate Work in this Section with requirements of other Sections herein.

1.4 PROTECTION OF EXISTING STRUCTURES

- A. Underground Structures:
 - 1. Underground structures are defined to include, but not be limited to, all sewer, water, gas, and other piping, and manholes, chambers, electrical conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.
 - 2. All underground structures known to OWNER's land surveyor except service connections for water, sewer, electric, and telephone are shown on the Drawings. This information is shown for the assistance of CONTRACTOR, but is not guaranteed to be correct or complete. The existing utilities shown on the Drawings are located according to the information available to the OWNER's land surveyor at the time the Drawings were prepared and have not been independently verified by the OWNER or the ENGINEER. Guarantee is not made that all existing underground utilities are shown or that the locations of those shown are accurate. The locations shown are for bidding purposes only. Finding the actual location of any existing utilities is the CONTRACTOR's responsibility and shall be done before it commences any work in the vicinity. Furthermore, the CONTRACTOR shall be fully responsible for any and all damages that might be occasioned by the CONTRACTOR's failure to exactly locate and preserve any and all underground utilities. The OWNER or ENGINEER will assume no liability for

any damages sustained or costs incurred because of the CONTRACTOR's operations in the vicinity of existing utilities or structures, nor for temporary bracing and shoring of same. If it is necessary to shore, brace, or swing a utility, contact the utility company or department affected and obtain their permission regarding the method to use for such work.

3. Contact the various utility companies that may have buried or aerial utilities within or near the construction area before commencing work. Provide 48 hours minimum notice to all utility companies prior to beginning construction.
4. Schedule and execute all work involving existing utilities in order to minimize necessary interruption of services. Whenever such interruption is necessary for completion of the Work, notify the ENGINEER and the appropriate utility at least 48 hours in advance. Perform all work to repair/restore utility service to the satisfaction of the appropriate utility. Include all costs related to service, maintenance, interruption, and restoration in the appropriate line item(s) in the Bid.
5. Explore ahead of trenching and excavation work and uncover all obstructing underground structures sufficiently to determine their location, to prevent damage to them, and to prevent interruption of the services that such structures provide. If an underground structure is damaged, restore it to original condition at no cost to the OWNER.
6. Necessary changes in the location of the Work may be made by ENGINEER, to avoid unanticipated underground structures.
7. If permanent relocation of an underground structure or other subsurface facility is required and is not otherwise provided for in the Contract Documents, ENGINEER will direct CONTRACTOR in writing to perform the Work, which shall be paid for under the provisions of Article 11 of the General Conditions.

B. Surface Structures:

1. Surface structures are defined as structures or facilities above the ground surface. Included with such structures are their foundations and any extension below the surface. Surface structures include but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks, and all other facilities that are visible above the ground surface.

C. Protection of Underground and Surface Structures:

1. Sustain in-place and protect from direct or indirect injury, all underground and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully, and as required by the party owning or controlling such structure.
2. Assume all risks attending the presence or proximity of all underground and surface structures within or adjacent to the limits of the Work.

CONTRACTOR shall be responsible for all damage and expense for direct or indirect injury caused by its Work to any structure. CONTRACTOR shall repair immediately all damage caused by his work, to the satisfaction of the owner of the damaged structure.

- D. All other existing surface facilities, including but not limited to guardrails, posts, guard cables, signs, poles, markers, and curbs that are temporarily removed to facilitate installation of the Work shall be replaced and restored to their original condition at CONTRACTOR'S expense.

1.5 PROTECTION OF THE INSTALLED WORK

- A. Protect all portions of the Work from damage or degradation regardless of the stage of completion, until Final Acceptance by OWNER.
- B. Control traffic to prevent damage to equipment, materials, and surfaces.
- C. Provide coverings and other protection as necessary to protect the installed Work from damage. Remove the protection when it is no longer necessary, prior to Final Acceptance.
- D. Protect all tanks, channels, inlets, catch basins, stormwater ponds/basins, etc. from debris, dirt, etc. until completion of the Work.

1.6 PROTECT THE WORK FROM EROSION AND REPAIR ALL EROSION DAMAGE

- A. Protect the Work from damage caused by erosion of any kind (e.g. wind, waves, stormwater runoff, etc.). Comply with the requirements of Section 02225. Immediately clean all dirt and debris from pipes, structures, etc. and immediately repair all flooding, washouts, and other erosion damage to the Work, regardless of the state of completion of the Work, and until the Work is accepted by the OWNER, at no cost to the OWNER. Restore all erosion damaged areas to design grades.

1.7 PROTECTION OF PRIVATE PROPERTY

- A. Assume full responsibility for the preservation of all private property on or adjacent to the site and work area. If any direct or indirect damage is done in the execution of the Work by the CONTRACTOR, it shall be restored by the CONTRACTOR, at its expense, to a condition equal to or better than that existing before the damage was done. This restoration includes but is not limited to, sprinkler systems, lawns and landscaping, lighting, driveways, etc. installed by private individuals or entities within public right-of-way.

1.8 PAYMENT

- A. There shall be no additional payment for the work discussed or implied under this Section.

+ + END OF SECTION + +

SECTION 01542

OPERATIONS IN ROAD RIGHTS-OF-WAY

1.1 GENERAL

- A. Obtain all necessary permits not obtained by ENGINEER, and arrange all inspections required by permitting authorities and comply with all applicable rules and regulations.
- B. Maintain traffic flow in accordance with Section 01543, "Maintenance and Protection of Traffic" and as required by permitting authorities. In the event of a conflict, the most stringent requirement shall govern.
- C. Take all means necessary to prevent accidents. Furnish sufficient flagmen, barricades, lights, signs, and all other precautions necessary to provide safe conditions.
- D. Pavement: Replace damaged or destroyed street pavement and base in complete accordance with the requirements of the controlling authority and the Contract Documents.

+ + END OF SECTION + +

SECTION 01543

MAINTENANCE AND PROTECTION OF TRAFFIC

1.1 GENERAL

- A. Implement a Traffic Control System in accordance with M.U.T.C.D., Part IV and Florida Department of Transportation (FDOT) Roadway and Traffic Design Standards Index No. 600 series and any additional Indian River County requirements. Additionally, meet all other FDOT requirements (contractual or physical) related to maintenance and protection of traffic, even if they are not discussed or referenced herein. In the event of a conflict between any FDOT specification or requirement and these Specifications, the more stringent specification or requirement shall govern.
- B. Submit a Traffic Control plan at the Pre-Construction Conference for review and acceptance by the OWNER. Contact Janie Hollingsworth, P.E. (County Traffic Engineer) at 772-226-1568 regarding traffic control issues.
- C. No additional compensation shall be made for compliance with these requirements.
- D. Keep all streets and trafficways open for the passage of traffic and pedestrians during the construction period unless otherwise approved by the ENGINEER or authority having jurisdiction over same.
- E. When required to cross, obstruct, or temporarily close a street or trafficway, provide and maintain suitable bridges, detours, or other approved temporary facilities expedient for the accommodation of traffic. Give no less than 72 hours notice in advance of the time to close a street or trafficway or as may be otherwise provided in the Traffic Control Plan or required by local law enforcement agencies. Closings shall be effected only during non-peak traffic periods or as directed by the County Traffic Engineer. Closings shall remain in effect for the shortest time practical, and passage shall be restored immediately after completion of backfill and temporary paving or bridging. Obtain all required permits from the public authority having jurisdiction over the road.
- F. Whenever one or more travel lanes of a road will be closed for more than 1 hour, give 72 hours notice to the appropriate law enforcement agency and fire department, prior to commencing any work that will result in the closure.
- G. Give no less than 72 hours notice to owners or tenants of private property who may be affected by operations.

- H. Provide signs, signals, barricades, flares, lights, and all other equipment, service, and personnel required to regulate and protect all traffic, and warn of hazards. All such work shall conform to requirements of the authority having jurisdiction. Remove temporary equipment and facilities when no longer required, restore grounds to original, or to specified conditions. Furnish and install any and all maintenance of traffic hardware necessary to implement a safe and efficient Maintenance of Traffic Plan.

1.2 APPLICABLE STANDARDS

- A. Standard Specifications for Road and Bridge Construction, latest edition (including supplements), issued by the Florida Department of Transportation (FDOT), specified hereinafter as FDOT Specifications.
- B. FDOT's Manual of Traffic Control and Safe Practices for Street and Highway Construction, Maintenance and Utility Operations.
- C. All references to "Department" in the referenced FDOT standards shall be construed to mean "OWNER" for this Work.

1.3 FLAGMEN

- A. Provide qualified and suitably equipped flagmen when construction operations encroach on traffic lanes, as required for regulation of traffic and in accordance with the requirements of the authority having jurisdiction.

1.4 FLARES AND LIGHTS

- A. Provide flares and lights during periods of low visibility:
 - 1. To clearly delineate traffic lanes, to guide traffic, and to warn of hazardous areas.
 - 2. For use by flagmen in directing traffic.
- B. Provide illumination of critical traffic and parking areas.

1.5 PARKING CONTROL

- A. Control all CONTRACTOR related vehicular parking within the limits of the Work to preclude interference with public traffic or parking, access by emergency vehicles, OWNER's operations, or construction operations. Provide temporary parking facilities for the public as may be required because of construction or operations.
- B. Monitor parking of all construction vehicles and private vehicles:

1. Maintain free vehicular access to and through parking areas.
2. Prohibit parking on or adjacent to access roads, or in non-designated areas.

1.6 SIDEWALKS AND STORMWATER SYSTEMS

- A. Provide access for foot passengers, either by bridging or otherwise, and do not obstruct sidewalks, gutters, or drainage systems nor prevent in any manner the flow of water. Use all proper and necessary means to permit the free passage of surface water in drainage systems. Immediately cart away all offensive matter, exercising such precautions as may be directed by the ENGINEER or OWNER. All material excavated shall be legally disposed of as to not inconvenience the public and adjacent tenants.

1.7 RESPONSIBILITIES WHEN HAULING FILL MATERIAL, EXCESS MATERIAL, OR DEBRIS

- A. Provide traffic control as required at critical areas of haul routes to expedite traffic flow and to minimize interference with normal public traffic.
- B. Cleanup all spillage of dirt, mud, or other material along all roads. Immediately cleanup all spillage that creates a safety problem. Cleanup all other spillage within a reasonable time or as directed by OWNER. When hauling dirt or debris over unpaved roads or Indian River Farm Water Control District (IRFWCD) right-of-way, maintain the road surface in a safe condition by grading, rolling, etc. as necessary or as directed by OWNER or IRFWCD as applicable.
- C. Off-road construction equipment shall not travel over public or private roads.

1.8 SITE ACCESS

- A. The site shall be accessed only from the location of the proposed 53rd Street site entrance drive on the south property line; and only if permitted by IRFWCD, from the IRFWCD North Relief Canal right-of-way. Obtain any permits necessary. OWNER will pay all permit fees.

1.9 SPEED LIMITS

- A. Observe all speed limits. Speed limits will be strictly enforced by the Indian River County Sheriff Department during the contract period.

+ + END OF SECTION + +

SECTION 01550

ACCESS ROADS AND PARKING AREAS

1.1 GENERAL

- A. Provide all temporary construction roads, walks, and parking areas required during construction and for use of emergency vehicles. Design and maintain temporary roads and parking areas so they are fully usable in all weather conditions.
- B. Prevent interference with traffic and the OWNER's operations on existing roads. Indemnify and save harmless the OWNER from any expenses caused by CONTRACTOR's operations over these roads.
- C. Roadways damaged by CONTRACTOR shall be restored to their original condition by the CONTRACTOR subject to approval of the OWNER or ENGINEER.
- D. Remove temporary roads, walks, and parking areas prior to final acceptance and return the ground to its original condition, unless otherwise required by the Contract Documents.
- E. All work covered under this Section shall be at CONTRACTOR's expense and shall be included in the applicable pay item in its bid. No separate payment will be made for this work.

+ + END OF SECTION + +

SECTION 01590

ENGINEER AND CONTRACTOR'S FIELD OFFICE

1.1 GENERAL

- A. Furnish, install, equip, and maintain a lockable mobile trailer field office in first class condition for CONTRACTOR and ENGINEER. The joint use mobile office shall have front and back office spaces. The CONTRACTOR shall occupy the office with the largest space. Locate mobile office in a place that does not interfere with construction activities. Provide office complete and functional on the site within two weeks after the Notice-to-Proceed is issued. Note: A storage-type container of any size or shape does not qualify as a field office under this specification and no payment shall be made for such.
- B. Allocate two reserved parking spaces for use of ENGINEER and OWNER.

1.2 MINIMUM CONSTRUCTION

- A. Structurally sound foundation and superstructure conforming to local codes.
- B. Completely weather tight and insulated.
- C. Exterior and interior finishes acceptable to ENGINEER.
- D. Resilient floor covering in first class condition.
- E. Windows: Furnish with locks and exterior security bars.

1.3 MINIMUM SERVICES

- A. Suitable exterior and interior lighting.
- B. Automatic heating and cooling. Furnish and pay for all fuel/electric.
- C. Electric wall outlets. Furnish electric service and pay all charges.
- D. A bottled water cooler.
- E. Private sanitary facilities.
- F. Lockable closet for ENGINEER for storing instruments and equipment.

1.4 MINIMUM FURNISHINGS FOR ENGINEER'S OFFICE

- A. Furnishings to be provided shall include:
1. One desk with desk chair.
 2. One 6' long table
 3. Four cushioned folding chairs
 4. Two 4-drawer file cabinets
 5. One bookcase
 6. One wastebasket

1.5 OTHER MINIMUM FURNISHINGS

- A. Fire extinguishers and smoke detectors per code.
- B. One Plan Rack
- C. One large table with chairs for meetings.
- D. OSHA approved first aid kit.
- E. One copy machine, with auto-document feeder and sorting capability. Provide service (including toner and replacement cartridges) and maintenance for the duration of the Project. Provide 8-1/2-inch by 11-inch, 8-1/2-inch by 14-inch, and 11-inch by 17-inch copy paper for the duration of the Project. Copier shall make up to 11-inch by 17-inch copies. Copy machine shall be used by both ENGINEER and CONTRACTOR and CONTRACTOR shall pay all associated costs.
- F. Five protective helmets for use by ENGINEER, OWNER, and visitors. Helmets shall be custom hardhats, MSA Full Brim V-Gard Hard Hat with Ratchet Suspension, color = grey (<http://us.msasafety.com/Head-Protection/Industrial/Helmets/V-Gard%26reg%3B-Protective-Hat/p/000060001300001010>). At the end of the project, said helmets shall become the property of Indian River County.

1.6 MAINTENANCE

- A. Continuous maintenance of office and services for the duration of the Project. Cleaned not less than once per week.
- B. Provide soap, paper towels, cleansers, sanitary supplies, janitorial service, etc.
- C. Immediately repair any damage, leaks, or defective service.

1.7 REMOVAL

- A. Remove office upon final acceptance or when directed by ENGINEER.

+ + END OF SECTION + +

SECTION 01610

TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT

1.1 GENERAL

- A. Make all arrangements for transportation, delivery, and handling of equipment and materials required for prosecution and completion of the Work.
- B. Shipments of materials to CONTRACTOR or Subcontractors shall be delivered to the site only during regular working hours. Shipments shall be addressed and consigned to the proper party, giving name of Project, street number and city. Do not deliver shipments to OWNER except where otherwise directed.
- C. If necessary to move stored materials and equipment during construction (both CONTRACTOR provided equipment and OWNER provided equipment), do so without additional compensation.

1.2 DELIVERY

- A. Arrange deliveries of products in accord with construction schedules and in ample time to facilitate inspection prior to installation.
- B. Coordinate deliveries to avoid conflict with Work and conditions at site and to accommodate the following:
 - 1. Work of other contractors, or OWNER.
 - 2. Limitations of storage space.
 - 3. Availability of equipment and personnel for handling products.
 - 4. OWNER'S use of premises.
- C. Do not have products delivered to project site until related Shop Drawings have been marked "No Exception Taken" or "Make Corrections Noted" (or similar) by the ENGINEER.
- D. Do not have products delivered to site until required secure storage facilities have been provided.
- E. Have products delivered to site in manufacturer's original, unopened, labeled containers. Keep ENGINEER informed of delivery of all equipment to be incorporated in the Work.

- F. Clearly mark partial deliveries of component parts of equipment to identify the equipment, to permit easy accumulation of parts, and to facilitate assembly.
- G. Immediately on delivery, inspect shipment (including OWNER provided equipment) to assure:
 - 1. Product complies with requirements of Contract Documents and reviewed submittals.
 - 2. Quantities are correct.
 - 3. Containers and packages are intact and labels are legible.
 - 4. Products are properly protected and undamaged.

1.3 PRODUCT HANDLING

- A. Provide equipment and personnel necessary to handle products, including those provided by OWNER, by methods to prevent soiling or damage to products or packaging.
- B. Provide additional protection during handling as necessary to prevent scraping, marring, or otherwise damaging products or surrounding surfaces.
- C. Handle products by methods to prevent bending or overstressing.
- D. Lift heavy components only at designated lifting points.
- E. Always handle materials and equipment in a safe manner and as recommended by manufacturer or supplier so that no damage will occur to them. Do not drop, roll, or skid products off delivery vehicles. Hand carry or use suitable materials handling equipment.

+ + END OF SECTION + +

SECTION 01611

STORAGE OF MATERIAL AND EQUIPMENT

1.1 GENERAL

- A. Store and protect materials and equipment in accordance with manufacturer's recommendations/requirements and requirements of these Specifications. This entire Section 01611 includes all materials and equipment provided by the OWNER. In the event of a conflict between manufacturer's recommendations/requirements and these Specifications, the more stringent text shall govern.
- B. Secure a proper and safe location for onsite storage of material and equipment necessary for completion of this project. Submit the proposed location and storage layout to the ENGINEER at the pre-construction conference.
- C. Secure any required offsite areas for storage of material and equipment. Obtain and pay for all additional storage or work areas required.
- D. Make all arrangements and provisions necessary for the storage of materials and equipment. Place all excavated materials, construction equipment, and materials and equipment to be incorporated into the Work, so as not to injure any part of the Work or existing facilities, and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Keep materials and equipment neatly and compactly stored in locations that will cause a minimum of inconvenience to the OWNER, other contractors, public travel, adjoining owners, tenants, and occupants. Arrange storage in a manner to provide easy access for inspection. At no cost to the OWNER, move stored products that interfere with the OWNER's operations.
- E. Assume full responsibility for protection and safekeeping of products stored on or off premises.
- F. Store all materials and equipment to facilitate their inspection and to insure preservation of the quality and fitness of the Work, including proper protection against damage by humidity, moisture, and all weather related issues. Place them in inside storage areas unless otherwise acceptable to both the OWNER and the manufacturer.
- G. Do not use lawns, grass plots, or other private property for storage purposes without written permission of the property owner or other person in legal possession or control of such premises.

- H. CONTRACTOR is fully responsible for loss or damage to stored materials and equipment. This includes material and equipment provided by the OWNER. CONTRACTOR shall replace or repair such materials and equipment as directed by the OWNER. All costs shall be borne by the CONTRACTOR.
- I. Do not open manufacturers containers until time of installation unless recommended by the manufacturer or otherwise specified.
- J. Do not store products in the structures being constructed.

1.2 UNCOVERED STORAGE

- A. The following types of materials may be stored out-of-doors without cover unless otherwise specified by the manufacturer:
 - 1. Masonry units.
 - 2. Piping.
 - 3. Precast concrete items.
- B. Store the above materials on wood blocking so there is no contact with the ground.

1.3 COVERED STORAGE

- A. Unless otherwise specified by the manufacturer, the following types of materials may be stored out-of-doors if completely covered with material impervious to water:
 - 1. Rough lumber
 - 2. Filter media
 - 3. Fiberglass products
 - 4. Pumps
 - 5. Mechanical screens
 - 6. Castings
 - 7. Handrail
 - 8. Grating.
 - 9. Reinforcing steel.
 - 10. Structural steel.
 - 11. Other equipment whose manufacturer verifies in writing that the equipment can be safely stored under these circumstances.
- B. Tie down covers with rope and slope covers to prevent accumulation of water on covers.
- C. Store the above materials on wood blocking so there is no contact with the ground.

1.4 FULLY PROTECTED STORAGE

- A. Store all products not named above inside buildings or trailers that have a concrete or wooden floor, a roof, and fully closed walls on all sides.
- B. Provide heated storage space for materials that may be damaged by freezing.
- C. Protect mechanical and electrical equipment from being contaminated by dust, dirt, and moisture.
- D. Store all electrical and electronic equipment in an air conditioned structure.
- D. Maintain humidity at levels recommended by manufacturers for electrical and electronic equipment.

1.5 MAINTENANCE OF STORAGE

- A. Inspect stored products on a minimum weekly basis to assure that:
 - 1. State of storage facilities is adequate to provide required conditions.
 - 2. Required environmental conditions are consistently maintained on a continuing basis.
 - 3. Products exposed to elements are not adversely affected.
- B. Equipment that requires long-term storage (e.g. mechanical and electrical equipment) shall have complete manufacturer's servicing instructions accompanying each item, with notice of enclosed instructions shown on exterior of package.
 - 1. Comply with manufacturer's instructions following the schedule recommended by the manufacturer.
 - 2. Space heaters that are part of electrical equipment shall be connected and operated continuously until equipment is placed in service.

+ + END OF SECTION + +

SECTION 01620

INSTALLATION OF EQUIPMENT

1.1 GENERAL

- A. This Section describes Work necessary to install equipment and materials to be incorporated into this Project.
- B. Use Shop Drawings, installation drawings, and instructions furnished by the manufacturers to install equipment and materials.
- C. See Section 01215 – General Quality Control for additional requirements.

1.2 ANCHOR BOLTS AND EXPANSION BOLTS

- A. Furnish anchor and expansion bolts as specified and/or required. Use expansion bolts only where shown. Anchor and expansion bolts shall be of specified materials with heavy hexhead nuts. As a minimum, all bolts, washers, nuts, etc. shall be Type 316 stainless steel.

1.3 TRANSPORTING, HANDLING, STORING, AND INSTALLING EQUIPMENT AND MATERIALS

- A. Conform to requirements of Sections 01215, 01610, 01611, and 01620.
- B. Employ competent mechanics experienced in the installation of the types of equipment and materials to be furnished, and ensure that all equipment and materials are installed in accordance with the manufacturer's recommendations.
- C. Furnish all necessary bolts, nuts, and other fastenings and comply with the applicable requirements of these Specifications.

1.4 EQUIPMENT ERECTION

- A. General: Conform to the following as a minimum:
 - 1. Use only mechanics skilled in the handling, setting, aligning, leveling, and adjusting of the type of equipment and materials furnished.
 - 2. Use only an oil bath heater to expand couplings, gears, etc. Do not force or drive them on equipment shafts, nor subject them to an open flame or torch.
 - 3. Wedging will not be permitted. Use the least number of flat shims possible in leveling equipment. Shims shall be clean and free of slag. Shims shall be

Type 316 stainless steel. Provide all shims, filling pieces, keys, packing, red or white lead grout, or other materials necessary to properly align, level, and secure apparatus in place. Demonstrate that all elements so required are level and plumb. Grind as necessary to bring parts to proper bearing after erection.

4. Use proper tools in the assembly of equipment and materials to prevent deforming or marring the surface of shafts, nuts, or other parts.
5. Tighten connections requiring gaskets evenly all around to ensure uniform stress over the entire gasket area.
6. Equipment and materials shall not be altered or repaired, and no burning or welding will be permitted on any parts having machined surfaces.
7. Do not install rigging from any structure. CONTRACTOR shall be completely responsible for damage to structures resulting from CONTRACTOR's operations.
8. Use tools, equipment, and materials that will not damage the structure or equipment.
9. Furnish and install plugs in lubrication holes to prevent entry of foreign material.
10. Electrical work, testing, lubricating, and painting shall all comply with requirements of the applicable Section.

B. Setting and Erection:

1. All units shall be carefully set and aligned on their foundations by qualified millwrights after their sole plates have been shimmed to true alignment at the anchor bolts. Set anchor bolts in place and tighten the nuts against the shims. Bedplates or wing feet of the equipment shall be further checked after securing to the foundations and, after confirmation of all alignments, the sole plates shall be finally grouted in place. CONTRACTOR shall be responsible for the correct alignment of equipment with its associated piping. "Pipe springing" will not be allowed.
2. Ream misaligned holes. "Driving" of bolts or keys will not be permitted.

C. Alignment and Leveling:

1. Field check all shafts, couplings, and sheaves for alignment and adjust to manufacturer's specifications where necessary.
2. Align couplings while the equipment is free from all external loads.
3. Angular and parallel alignment shall be checked, and the actual alignment shall be recorded and submitted to ENGINEER. Alignment shall be within manufacturer's recommended tolerance.

D. Threaded Connections: Apply a molybdenum disulphide anti-seize compound to all threads in mechanical connections such as bolts, studs, cap screws, tubing, etc. unless otherwise specified.

- E. Equipment Drive Guards: Unless shown or specified otherwise, provide all equipment driven by open shafts, belts, chains, pulleys, sheaves, or gears with all-metal guards conforming to the requirements of 29 CFR, Subpart O – Machinery and Machinery Guarding, Article 1910.211. Guards shall enclose the drive and driven mechanism. Construct guards of galvanized sheet steel, galvanized woven wire, or expanded metal set in a frame of galvanized steel members. Secure guards in position by steel braces or straps, securely fastened to floor, wall, or frame of the equipment. Fastenings shall permit easy removal for servicing the equipment.

1.5 SERVICES OF MANUFACTURERS' REPRESENTATIVE

- A. Schedule and pay all costs necessary to provide competent, qualified representatives of manufacturers of equipment to supervise the entire installation, adjustment, startup, and testing of the equipment; and to instruct the OWNER's operating personnel on proper operation and maintenance. These services shall include those necessary or required for equipment supplied by the OWNER. Additional manufacturers representative's time may be required by other Specification Sections. The training time and additional requirements for furnishing services of manufacturers' representatives are specified in the appropriate Specification Sections. If no time is specified, the training time shall be at least one day. Supervision may be divided into two or more time periods as required by the CONTRACTOR's schedule or as directed by the ENGINEER.
- B. Submit to the ENGINEER, a certificate from the manufacturer on the manufacturer's letterhead, stating that (1) the installation of the equipment is proper and acceptable, (2) that the unit has been satisfactorily tested and is ready for operation, and (3) that the operating personnel have been suitably instructed in the operation, lubrication, use of manuals and spare parts lists, and care of the unit. Submit the certification on or before the tenth Calendar day after completion of the performance test. Additional requirements for manufacturer's reports may be specified in the appropriate Sections.
- C. Schedule all services of manufacturers' representatives. ENGINEER shall approve all dates and times of all manufacturers' onsite visits.

+ + END OF SECTION + +

SECTION 01630

SUBSTITUTES AND "OR-EQUALS"

1.1 GENERAL

- A. Requests for review of a substitution shall conform to the requirements of Article 6.05, of the General Conditions and shall contain complete data substantiating compliance of the proposed substitution with the Contract Documents.

1.2 CONTRACTOR'S OPTIONS

- A. For materials or equipment (hereinafter products) specified only by reference standard, select product meeting that standard by any manufacturer, fabricator, supplier, or distributor (hereinafter manufacturer). To the maximum extent possible, provide products of the same generic kind from a single source.
- B. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named which complies with Specifications.
- C. For products specified by naming one or more products or manufacturers and stating "or equivalent" or "or-equal," submit one of those named products or an "equivalent" or "or-equal" product for the ENGINEER's review.
- D. For products specified by naming more than one product or manufacturer, submit one of those named products for the ENGINEER's review.
- E. For products specified by naming only one product or manufacturer, there is no option.

1.3 SUBSTITUTIONS

- A. During a period of 15 calendar days after date of commencement of Contract Time, ENGINEER will consider written requests from CONTRACTOR for substitution of products or manufacturers, and construction methods (if specified). After end of specified period, requests will be considered only in case of unavailability of product or other conditions beyond control of CONTRACTOR.
- B. Submit 2 copies of Request for Substitution. Submit a separate request for each substitution. In addition to requirements set forth in Article 6.05 of the General Conditions, include in the request the following:

1. For products or manufacturers:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature with product description, performance and test data, and reference standards.
 - c. Samples, if appropriate.
 - d. Name and address of similar projects on which product was used, and date of installation.
 2. For construction methods (if specified):
 - a. Detailed description of proposed method.
 - b. Drawings illustrating method.
 3. Such other data as the ENGINEER may require to establish that the proposed substitution is equal to the product, manufacturer, or construction method specified.
- C. In making Request for Substitution, CONTRACTOR represents that:
1. CONTRACTOR has investigated proposed substitution, and determined that it is equal to or superior in all respects to the product, manufacturer, or construction method specified.
 2. CONTRACTOR will provide the same or better guarantees or warranties for proposed substitution as for product, manufacturer, or construction method specified.
 3. CONTRACTOR waives all claims for additional costs or extension of time related to a proposed substitution that subsequently may become apparent.
- D. A proposed substitution will not be accepted if:
1. Acceptance will require changes in the design concept or a substantial revision of the Contract Documents.
 2. It will delay completion of the Work, or the work of other contractors.
 3. It is indicated or implied on a Shop Drawing and is not accompanied by a formal Request for Substitution from CONTRACTOR.
 4. The proposed substitute deviates from a particular standardized make or model adopted by OWNER for operation and maintenance purposes.
 5. The proposed substitute does not result in a reduction in Contract Price.
- E. If the ENGINEER determines that a proposed substitute is not acceptable or not equal to that specified, furnish the product, manufacturer, or construction method specified at no additional cost to OWNER.
- F. Approval of a substitution will not relieve CONTRACTOR from the requirement for submission of Shop Drawings as set forth in the Contract Documents.

+ + END OF SECTION + +

SECTION 01655

STARTING AND PLACING EQUIPMENT IN OPERATION

1.1 GENERAL

- A. Initially start-up and place all equipment installed into successful operation according to manufacturers written instructions and as instructed by manufacturer's field representative. Provide all required material, labor, tools, equipment, and expendables. These requirements also apply to all OWNER provided equipment/systems that are delivered to the site.

- B. General Activities Include but are not limited to:
 - 1. Cleaning.
 - 2. Removing temporary protective coatings.
 - 3. Flushing and replacing greases and lubricants, where required by manufacturer.
 - 4. Lubrication.
 - 5. Check shaft and coupling alignments and reset where needed.
 - 6. Check and set motor, pump, and other equipment rotation, safety interlocks, belt tensions, etc.
 - 7. Check and correct if necessary, leveling plates, grout, bearing plates, anchor bolts, fasteners, and alignment of piping which may put stress on equipment connected to it.
 - 8. All adjustments required.
 - 9. Calibrate, adjust, and set all instruments, gauges, controls, switches, and interlocks.

- C. Provide initial filling of lubricants and all other required operating fluids.

- D. Provide fuel, electricity, water, filters, and other expendables required for initial start-up of equipment unless otherwise specified. After acceptance by OWNER, fill all fuel tanks (including day tanks, if any) with fuel, at no cost to OWNER. Do not fill tanks prior to acceptance by OWNER. For start-up and testing, place all fuel in day tank.

- E. OWNER will provide sufficient personnel to assist CONTRACTOR in the start-up, but the prime responsibility for proper mechanical operation will belong to CONTRACTOR. Manufacturers representatives shall be present during start-up and operation at no cost to OWNER. Pay for all costs related to start-up and testing.

1.2 MINIMUM START-UP PROCEDURES

- A. As per manufacturer's specifications and as may be specified elsewhere in these Specifications. Start-up shall satisfactorily establish subsequent continuous productive operation of all systems.

+ + END OF SECTION + +

SECTION 01660

FIELD TESTS OF EQUIPMENT

1.1 GENERAL

- A. In addition to testing required by this Section, perform all other tests required by detailed equipment Specifications.

1.2 PRELIMINARY TESTS

- A. Make preliminary field tests of all equipment as soon as conditions permit.
- B. Purpose of tests is to determine if equipment is:
 - 1. Properly installed.
 - 2. Complies with operating cycles.
 - 3. Operational and free from overheating, overloading, vibration, or other operating problems.
- C. Furnish all labor, materials, instruments, fuel, incidentals, and expendables required, unless otherwise provided.
- D. Make all changes, adjustments, and replacements required to place equipment in service and test it.
- E. Give ENGINEER and OWNER a minimum 48-hour notice to witness tests.

1.3 FINAL TESTS

- A. To the maximum extent possible, perform final field tests of equipment prior to initial start-up and operation of the Project. Where this is not practicable, perform final field tests during initial start-up and operation of the Project.
- B. Purpose of the tests is to demonstrate that equipment is:
 - 1. Properly installed.
 - 2. Completely ready for operation by the OWNER.
 - 3. In compliance with design conditions, material specifications, and all other requirements of the Contract Documents.
- C. Furnish all fuel and energy, labor, materials, instruments, lubricants, and expendables required for the tests except where otherwise specified.

- D. Until final field tests are completed and approved, make all necessary changes, adjustments, and replacements.
- E. Notify ENGINEER at least 48 hours prior to beginning of tests. Keep notes and data on tests and submit written test reports to the ENGINEER within ten days of completion of tests. ENGINEER and OWNER'S operating personnel shall witness all tests.

+ + END OF SECTION + +

SECTION 01710

SITE HOUSEKEEPING, CLEANUP AND RESTORATION

1.1 SCOPE

- A. Furnish all labor, equipment, appliances, and materials required or necessary to clean up and restore the site after construction is completed.

1.2 REQUIREMENTS

- A. During the progress of the project, keep the Work and the adjacent areas affected in a neat and orderly condition. Remove all rubbish, surplus materials, and unused construction equipment. Repair all damage.
- B. Provide onsite containers for the collection of waste materials, debris, and rubbish and regularly empty such containers in a legal manner when they become full.
- C. Where material or debris has been deposited in watercourses, ditches, gutters, drains, catch-basins, etc. as a result of the CONTRACTOR's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the Work, and the ditches, channels, drains, etc., shall be kept clean and open at all times.
- D. Before completion of the project, unless otherwise directed or permitted in writing:
 - 1. Tear down and remove all temporary buildings and structures;
 - 2. Remove all temporary works, tools, and machinery, or other construction equipment furnished;
 - 3. Remove all rubbish from any grounds occupied; and
 - 4. Leave the roads, all parts of the premises, and all property affected by construction operations, in a neat and satisfactory condition.
- E. Restore or replace any public or private property damaged by construction work, equipment, or employees, to a condition equal to or better than that existing immediately prior to the beginning of the operations. Restore all private property and all highway, roadside, and landscaping work within any right-of-way. Acceptable materials, equipment, and methods shall be used for such restoration.
- F. Thoroughly clean all materials and equipment on completion of the Work. Deliver the facilities undamaged and in fresh and new-appearing condition.
- G. It is the intent of the Specifications to place the responsibility on the CONTRACTOR to restore to original condition, all items disturbed, destroyed, or damaged during

construction.

- H. When finished surfaces require cleaning with cleaning materials, use only cleaning materials that will not create hazards to health or property and which will not damage the surfaces or the environment. Use cleaning materials only on those surfaces recommended by the manufacturer. Follow the manufacturer's directions and recommendations at all times.
- I. Keep the amount of dust produced during construction activities to a minimum. At CONTRACTOR's expense, spray water or other dust control agents over all areas which are producing dust. Schedule construction operations so that dust and other contaminants will not fall on wet or newly-coated surfaces.

1.3 CLEANUP AND RESTORATION

- A. Prior to final completion, the OWNER, ENGINEER, and CONTRACTOR shall review the Work area with regards to cleanup and restoration. Clean and/or restore all items determined to be unsatisfactory by the OWNER or ENGINEER, at no additional expense.
- B. Petroleum or Hazardous Material Spills: If any petroleum product or hazardous material is spilled on the ground or water surface, immediately begin cleanup operations and immediately report the spill to the ENGINEER and the Indian River County Health Department (794-7400). Remove all contaminated soil and remove all spilled material from canals and other waterways and dispose of it in a legal manner. All cleanup and restoration shall be at the CONTRACTOR's expense.

1.4 PAYMENT

- A. There shall be no separate payment for any work required by this Section. All necessary work required or implied herein shall be at the CONTRACTOR's expense.

+ + END OF SECTION + +

SECTION 01720

RECORD DOCUMENTS

1.1 GENERAL

- A. Maintain and provide the ENGINEER with record documents as specified below, except where otherwise specified or in the General Conditions or elsewhere herein. These requirements also apply to OWNER provided equipment/systems delivered to the site.

- B. Maintenance of Documents:
 - 1. Maintain complete sets of record documents in CONTRACTOR's field office in clean, dry, legible condition. "Record Documents" include but are not limited to: Drawings (including Contract Drawings, Record Drawings, and electronic files of Record Drawings), Specifications, Addenda, approved Shop Drawings, samples, photographs, Change Orders, other modifications of Contract Documents, test records, survey data, Field Orders, and all other documents pertinent to CONTRACTOR'S Work.
 - 2. Provide files and racks for proper storage and easy access.
 - 3. Make documents available at all times for inspection by ENGINEER and OWNER.
 - 4. Do not use record documents for any other purpose and do not remove them from the field office.

- D. Recording:
 - 1. Label each document "PROJECT RECORD" in 3/4-inch high printed letters.
 - 2. Keep record documents current.
 - 3. Do not permanently conceal any Work until required record drawing information has been recorded.

1.2 RECORD DRAWINGS

- A. During the entire construction operation, maintain records of all deviations from the Drawings and Specifications and prepare therefrom, "Record Drawings" showing correctly and accurately, all changes and deviations from the Work made during construction, to reflect the Work as it was actually constructed.

- B. Mark whichever drawing is most capable of showing the constructed condition fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at the corresponding location on the contract drawings. Mark-up new information that is recognized to be of importance to the OWNER, but was not shown on either the contract drawings or shop drawings. Give particular attention

to concealed work that would be difficult to measure and record at a later date. Note related change order numbers where applicable.

- C. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, date, and other identification on the cover of each set. The vertical datum for this project is North American Vertical Datum of 1988 (NAVD 88). Include the following minimum information, as applicable:
1. Depths of various elements of foundation in relation to datum.
 2. Horizontal and vertical location of underground utilities (every 50' minimum) and appurtenances referenced to permanent surface improvements or benchmarks and coordinates.
 3. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 4. Field changes of dimensions and details.
 5. Changes made by Change Order or Field Order.
 6. Construction dimensions, elevations, inverts, etc. of all improvements.
 7. Details not on the original Drawings.
 8. Information to be shown for treatment facilities shall include but not be limited to:
 - a. Precast Structures and Poured-in-Place Structures – Dimensions and elevations of all weirs, slots, gates, pumps, pipes, oil and grease skimmers; type, invert, and diameter of all pipe entering and leaving structure; structure top elevation; structure bottom elevation, etc.
 - b. Water Lettuce Scrubbers – Dimensions of each Scrubber unit; floor elevations of each on a 50' grid; discharge weir elevations every 25'.
 - c. Algal Reaeration Units – Dimensions of each unit; floor elevations of each on a 25' grid; discharge weir elevations every 10'.
 - d. Final Settling Basins and Wetland Polishing Marshes – Dimensions, elevations, one-foot contours, and cross-sections at 50' intervals.
 9. General earthwork - Show dimensions, elevations, one-foot contours, final grades, and cross-sections of the entire developed area.
 10. Information to be shown for roadways, pavement, Composting Areas, Sludge Storage Areas, and parking areas shall include but not be limited to, elevation of high and low points, edge of pavement elevations at inlets, edge of pavement and centerline of roadway elevations at 50 foot maximum intervals and where spot elevations are shown on the Drawings.
 11. Information to be shown for underground pressure pipe shall include but not be limited to the location of valves and fittings dimensioned to a baseline survey or permanent site structure. Provide elevations of top of pipe every 50 feet and at locations where design elevations were shown on the Drawings. For situations where the pipeline is being adjusted to avoid conflicts with other utilities, provide elevations at the beginning of the deflection, middle of the deflection, and the end of the deflection. Show pipe material, length, and diameter.

12. Information to be shown for gravity sanitary sewer mains, stormwater pipe/channels/culverts, and all other gravity pipe shall include but are not limited to pipe material, length, diameter, top of frame and invert elevations at all manholes and structures.
13. In addition to the information required above for pipng systems, include the length of all installed pipe. The constructed length shall be shown between discrete points, such as between drainage structures, manholes, valves, fittings, etc. This information shall be provided for all pipe.
14. Show elevation and location of all benchmarks used.
15. Information to be shown for buried electrical conduit shall include, but not be limited to the location of the conduit dimensioned to a baseline survey or permanent site structure. Provide elevations at top of conduit every 50 feet and at all changes in direction or elevation. Include the length and size of all conduit between discrete points.

1.3 RECORD SPECIFICATIONS AND ADDENDA

- A. Legibly mark up each Section to record:
 1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 2. Changes made by Change Order or Field Order.
 3. Other matters not originally specified.

1.4 SUBMITTAL OF PROGRESS RECORD DRAWINGS

- A. Submit a current set of Record Drawings with each pay request. Each Progress Record Drawing submittal shall clearly delineate changes in construction since the effective final date of the previous pay request using a colored ink or shading. Payment will not be made for any pay request that is not accompanied by an up-to-date Progress Record Drawing submittal.

1.5 SUBMITTAL OF FINAL RECORD DOCUMENTS

- A. Deliver the following final record documents to OWNER in accordance with Section 01810 – Project Closeout:
 1. Record Drawings:
 - a. Two bound sets signed and sealed by a Florida Registered Land Surveyor and Mapper.
 - b. One digital copy in 2016 AutoCad LT format.
 - c. One .PDF copy.
 2. Record Specifications and Addenda – two bound sets.
- B. Final Retainage will not be released until satisfactory record documents are received by ENGINEER.

- C. Accompany submittal with transmittal letter containing:
1. Date.
 2. Project title and number.
 3. CONTRACTOR'S name and address.
 4. Title and number of each record document.
 5. Certification that each document as submitted is complete and accurate.
 6. Signature of CONTRACTOR, or his authorized representative.

1.6 RESPONSIBILITY FOR ACCURACY OF RECORD DOCUMENTS

- A. The CONTRACTOR will be held responsible for the accuracy of Record Document data and shall bear all costs incurred by the OWNER as a result of incorrect data furnished by the CONTRACTOR that is contained in the Record Documents.

1.7 PAYMENT

- A. Payment for Record Documents shall be made under the pay item for Record Documents.

+ + END OF SECTION + +

SECTION 01730

OPERATION AND MAINTENANCE DATA

1.1 GENERAL

- A. Provide operation and maintenance data in the form of instructional manuals for use by the OWNER'S personnel for:
1. All equipment and systems.
 2. All valves, gates and related accessories.
 3. All instruments and control devices.
 4. All electrical gear.
- B. Definitions:
1. Operation and Maintenance Data:
 - a. The term "operation and maintenance data" includes all product-related information and documents that are required for preparation of the operation and maintenance manual. It also includes all data that must accompany said manual as directed by current regulations of any participating government agency.
 - b. Required operation and maintenance data includes, but is not limited to:
 - 1) Complete, detailed written operating instructions for each product or piece of equipment, including but not limited to equipment function; operating characteristics; limiting conditions; operating instructions for startup, normal and emergency conditions; regulation and control; and shutdown.
 - 2) Complete, detailed written preventive maintenance instructions as defined below.
 - 3) Recommended spare parts lists and local sources of supply for parts.
 - 4) Written explanations of all safety considerations relating to operation and maintenance procedures and any required Material Safety Data Sheets (MSDS).
 - 5) Name, address, phone number, email, and webpage of manufacturer, manufacturer's local service representative, and Subcontractor or installer.
 - 6) Copy of all approved Shop Drawings, and copy of warranty bond and service contract as applicable.
 2. Preventive Maintenance Instructions:
 - a. The term "preventive maintenance instructions" includes all information and instructions required to keep a product or piece of equipment properly lubricated, adjusted, and maintained so that the item functions economically throughout its full design life.

- b. Preventive maintenance instructions include, but are not limited to:
 - 1) A written explanation with illustrations for each preventive maintenance task.
 - 2) Recommended schedule for execution of preventive maintenance tasks.
 - 3) Lubrication charts.
 - 4) Table of alternative lubricants.
 - 5) Troubleshooting instructions.
 - 6) List of required maintenance tools and equipment.

C. Submittals:

1. General: Submit operations and maintenance data to the ENGINEER within 30 Calendar days after approval of Shop Drawings.
2. Number of Copies: Two of each item.
3. Letter of Transmittal: Provide a letter of transmittal with each submittal and include the following in the letter:
 - a. Date of submittal.
 - b. Contract title and number.
 - c. CONTRACTOR'S name, address, telephone, facsimile, and email.
 - d. Manufacturer's name, address, telephone, facsimile, webpage, and email.
 - e. A list of the attachments and the Specification Sections to which they relate.
 - f. Reference to or explanation of related submittals already made or to be made at a future date.
4. Format Requirements:
 - a. Use 8-1/2 inch by 11 inch paper (or 11 inch by 17 inch paper for large or illustrations).
 - b. All text must be legible typewritten or machine printed originals or high quality copies.
 - c. Each page shall have a binding margin of no less than 1 inch and be punched and placed in a three-ring loose leaf binder. Provide binders. Identify each binder with the following:
 - 1) Title "OPERATING AND MAINTENANCE INSTRUCTIONS FOR
"
 - 2) Title of Project: "MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM"
 - 3) Identity of equipment and location as applicable.
 - 4) Identity of general subject matter covered.
 - d. Use dividers and indexed tabs between major categories of information such as operating instructions, preventive maintenance instructions, or other. When necessary, place each major category in a separate binder.
 - e. Provide a Table of Contents for each binder.

- f. Identify products by their functional names in the Table of Contents and at least once in each chapter or section. Thereafter, abbreviations and acronyms may be used if their meaning is explained in a table in the back of each binder. Use of model or catalog numbers or letters for identification is not acceptable.

+ + END OF SECTION + +

SECTION 01750

SPARE PARTS AND MAINTENANCE MATERIALS

1.1 GENERAL

- A. Furnish spare parts and maintenance materials as specified in the individual Sections.
- B. Furnish parts and materials in manufacturers' unopened cartons, boxes, crates, or other protective covering suitable for preventing corrosion or deterioration for the maximum length of storage that may be anticipated. They shall be clearly marked and identified.
- C. During construction, store parts in buildings or trailers with floor, roof, and closed sides and in accordance with manufacturers' recommendations. Protect from weather, condensation, and humidity.
- D. Deliver parts and materials to the OWNER upon completion of the Work or when the OWNER assumes beneficial occupancy. Place them in permanent storage rooms or areas approved by the OWNER.
- E. Provide a letter of transmittal including the following:
 - 1. Date of letter and transfer of parts and material.
 - 2. Contract title and number.
 - 3. CONTRACTOR's name, address, telephone, facsimile, and email.
 - 4. Manufacturer's name, address, telephone, facsimile, and email.
 - 5. A complete inventory of the parts and material, listing the applicable Specification Section for each.
 - 6. A place for the OWNER to sign and signify receipt of the parts and materials.
- F. CONTRACTOR shall be fully responsible for loss or damage to parts and materials until they are transmitted to the OWNER, including parts and materials purchased by the OWNER and delivered to the project site.

+ + END OF SECTION + +

SECTION 01810

PROJECT CLOSEOUT

1.1 DESCRIPTION OF REQUIREMENTS

- A. This Section of the Contract Documents is provided for the purpose of guiding the CONTRACTOR's project closeout requirements and it is not intended to be all inclusive. Closeout is defined to include the general requirements near the end of the Contract Time, in preparation for final acceptance, final payment, normal termination of the Contract, occupancy by the OWNER, and similar actions evidencing completion of the Work.

1.2 MINIMUM INFORMATION REQUIRED FOR FINAL ACCEPTANCE OF THE CONTRACT

- A. Information required to accompany the Final Application for Payment (except as previously delivered) includes, but may not be limited to:
1. All information required by General Conditions 14.07.
 2. Final payment request.
 3. Final releases and supports from all subcontractors and suppliers not previously submitted and accepted.
 4. Certificates of insurance for products and completed operations.
 5. Updated final statement, accounting for additional changes to the Contract Sum.
 6. Certified copy of OWNER's final punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by the OWNER's Project Representative.
 7. Project Record Documents.
 8. Section 00632 – Contractor's Final Certification of the Work.
 9. Operating and Maintenance Manuals and Instructions.
 10. Instructions to Owner's personnel.
 11. Warranties – See Section 01830.
 12. Keys and Keying Schedule.
 13. Spare Parts, Parts Lists, and Maintenance Materials and Manuals.
 14. All test certificates and/or affidavits requested by the ENGINEER.
 15. Various submittals required in Division 11.
 16. Certificates of Occupancy as required by the Indian River County Building Department
 17. All other submittals required by other sections of these Specifications and Contract Documents.

1.3 CLOSEOUT PROCEDURES

- A. General Operating/Maintenance Instructions: Provide basic instructions for proper operation and maintenance of the entire Work. Include instructions by manufacturer's representatives as appropriate. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning, and similar procedures and facilities. For operational equipment, demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, and similar operations. Review maintenance and operations in relation with applicable guarantees, warranties, agreements to maintain, bonds, and similar continuing commitments.

1.4 FINAL CLEANING

- A. General: As specified herein and in Section 01710, provide final cleaning of the Work. Clean each surface or unit of work to the normal "clean" condition expected for a first-class cleaning and maintenance program. Comply with manufacturers' instructions for cleaning operations. The following are examples, but not by way of limitation, of the cleaning levels required.
1. Remove labels which are not required as permanent labels.
 2. Wipe surfaces of mechanical and electrical equipment clean; remove excess lubrication and other substances.
 3. Clean concrete floors in non-occupied spaces broom-clean.
 4. Clean project site (yard and grounds), including landscaping and development areas, of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petrochemical spills and other foreign deposits. Rake grounds which are neither planted nor paved, to a smooth even-textured surface.

1.5 REMOVAL OF PROTECTION

- A. Except as otherwise indicated or requested by the OWNER, remove temporary protection devices and facilities that were installed during the course of the Work to protect previously completed work during the remainder of the construction period. Completely fill all holes left by fence posts, etc.

1.6 COMPLIANCY

- A. Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at the site, or bury debris or excess materials on the OWNER's property, or discharge volatile or other harmful or dangerous materials into drainage systems or the environment. Remove waste materials from the site

and dispose of in a lawful manner.

- B. Where extra materials of value remaining after completion of the associated Work have become the OWNER's property, dispose or store at the site as directed by the OWNER.

+ + END OF SECTION + +

SECTION 01820

WARRANTY INSPECTION

1.1 GENERAL

- A. Approximately one year after Final Completion, the OWNER will make arrangements with the ENGINEER and the CONTRACTOR for a warranty inspection and will send a written notice to said parties to inform them of the date and time of the warranty inspection.
- B. Corrections of defective Work noted by OWNER and ENGINEER shall comply with the applicable sections of Article 13, General Conditions.
- C. After the inspection, the OWNER will inform the CONTRACTOR of any corrections required to release the Public Construction Bond.
- D. The CONTRACTOR shall promptly and properly perform all corrections to defective Work prior to the Bond's release.

+ + END OF SECTION + +

SECTION 01830

BONDS AND EQUIPMENT WARRANTIES

1.1 BONDS

- A. Prepare and submit the required Bonds as listed in the General Conditions, and any other Bonds required by these Contract Documents.

1.2 EQUIPMENT WARRANTIES

- A. For all major pieces of equipment, submit a warranty from the equipment manufacturer. Unless otherwise required by the Contract Documents, the manufacturer's warranty period shall be for a period of one year and shall run concurrent with the CONTRACTOR's warranty, commencing at the time of final acceptance by the OWNER.
- B. The CONTRACTOR is responsible for obtaining certificates for equipment warranty for all major equipment. Major equipment is defined as equipment which has a 1 HP motor or larger, or which lists for more than \$1,000. The ENGINEER reserves the right to request warranties for equipment not classified as major. The CONTRACTOR shall still warrant equipment not considered by the OWNER to be "major" in the CONTRACTOR's one-year warranty period even though certificates of warranty may not be required.
- C. If the equipment manufacturer or supplier is unwilling to provide a one-year warranty commencing at the time of OWNER acceptance of the Project (defined as approval of the CONTRACTOR's Final Pay Request by the Indian River County Commission), the CONTRACTOR shall obtain from the manufacturer a two-year warranty commencing at the time of equipment delivery to the job site. This two-year warranty from the manufacturer shall not relieve the CONTRACTOR of the one-year warranty starting at the time of OWNER acceptance of the Project.

+ + END OF SECTION + +

SECTION 02040

DEMOLITIONS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Provide all labor, materials, equipment, and transportation required for site demolition as specified. The Work includes but may not be limited to:
1. Removal of structures and equipment existing on the site whether or not shown or indicated as existing on the Drawings.
 2. Removing and legally disposing demolished materials.
 3. Removing miscellaneous materials and equipment or work necessary to install the new Work as shown and specified and to connect same with existing work.

1.2 PROJECT CONDITIONS

- A. Protection: Perform demolition work to prevent injury or damage to adjacent vegetation, wildlife, and the general public.
1. Provide free and safe passage to and from adjacent property.
 2. Closing or obstructing of roadways, sidewalks, and passageways adjacent to the Work by the placement or storage of materials is not permitted. Conduct all operations with a minimum interference to traffic.
 3. Erect and maintain barriers, lights, sidewalk sheds, and other necessary protective devices.
 4. Repair damage to facilities that will remain and to any other property damaged by the CONTRACTOR's operations. All repairs shall restore the damaged property to equal or better condition than existed before it was damaged by the CONTRACTOR.
 5. Provide necessary barricades, warning lights, and enclosures for public and worker safety and for protection of adjacent vegetation that will remain.
 6. Damage to existing vegetation designated to remain shall result in the CONTRACTOR replacing the damaged vegetation with the same species, and in quantity equal to the value of those damaged. The cost of replacement shall be the sole responsibility of the CONTRACTOR.
- B. Existing utility services: Notify applicable utility companies and obtain approval for terminating existing utility services.
1. Disconnect, seal, or cap utility services scheduled for demolition. Perform work in accordance with applicable utility company requirements.
 2. Identify utility service terminations on the project Record Documents. Place markers to indicate location of disconnected utility services below grade.

- C. Explosives: Use of explosives is not permitted.
- D. Scheduling: Carry out operations so as to avoid interference with OWNER's and Indian River Farms Water Control District's operations.
- E. Notification: At least 48 hours prior to commencement of a demolition or removal, notify ENGINEER in writing of proposed schedule. OWNER will inspect the existing equipment and mark for identification, items that are to remain the property of the OWNER. Do not start removals without the permission of the ENGINEER.

1.3 INSPECTION

- A. Examine the site. Verify extent of demolition work required and condition of the facilities scheduled for demolition.

PART 3 - EXECUTION

3.1 DEMOLITION

- A. Pollution Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to environmental protection.
 - 1. Do not use water when it may create hazardous or objectionable conditions such as flooding or pollution.
 - 2. Clean adjacent structures, facilities, and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to conditions existing prior to the start of the Work.
- B. Perform demolition by methods of Contractor's choice, in accordance with governing regulations.
- C. Mechanical Removal of Piping:
 - 1. Mechanical removals consist of dismantling and removal of existing piping and other appurtenances as specified, shown, or required for the completion of the Work. It shall include cutting, capping, and plugging as required.
 - 2. Existing piping not required for the new Work shall be removed where shown or where it will interfere with new Work. Piping not indicated to be removed or which does not interfere with new Work shall be removed to the nearest solid support, capped, and left in place.
 - 3. When underground piping is to be altered or removed, securely strap the remaining piping. Abandoned underground piping may be left in place unless it interferes with new Work or is shown or specified to be removed.

4. Any changes to potable water piping and other systems shall be made in conformance with all applicable codes and under the same requirements as other underground piping. All portions of any potable water system that have been altered or opened shall be pressure tested and disinfected in accordance with local codes.
- D. Break concrete and masonry into sections less than 3'-0" in any dimension.
- E. Remove all below-grade wood, organic material, and metal construction within building demolition areas.
- F. Grade compacted surfaces to meet adjacent grades and provide proper surface drainage. Provide uniform levels and slopes.

3.2 DISPOSAL OF DEMOLISHED MATERIALS

- A. Lawfully remove from the site and dispose all demolition materials, equipment, debris, and all other items not marked to remain property of OWNER and pay all disposal fees. Onsite accumulation is not allowed.
- B. Maintain disposal routes clear, clean, and free of debris.
- C. On-site burning of combustible demolished materials is not permitted.

3.3 CLEANING

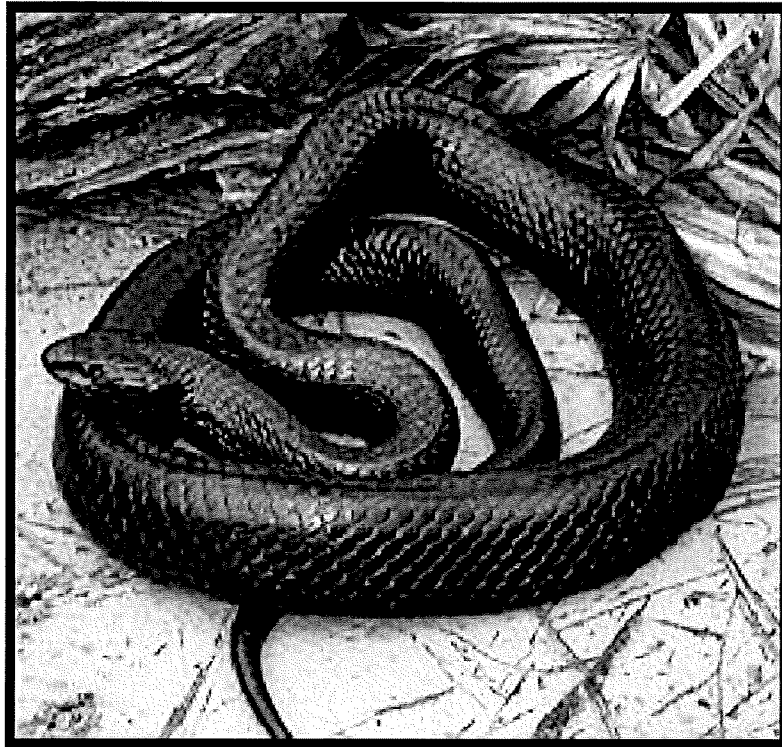
- A. Upon completion of site demolition work, clean all areas disturbed by the demolition, including offsite areas, and remove tools and equipment. Leave the construction site clear, clean, free of demolished materials, and suitable for site work operations.

3.4 SALVAGED MATERIALS

- A. All materials and equipment removed by the demolition shall become the property of the CONTRACTOR, except for those marked to become the property of the OWNER. Carefully remove all materials and equipment marked to be the property of the OWNER, so as not to damage them, and clean and store them on or adjacent to the site in a protected place specified by the ENGINEER, or load them onto trucks provided by the OWNER. Remove demolished materials from the site as work progresses. Storage and sale of Contractor's salvage items onsite is not allowed.

+ + END OF SECTION + +

SECTION 02045
CONSTRUCTION AND PROTECTION
MEASURES FOR THE
EASTERN INDIGIO SNAKE



Eastern Indigo Snake
Drymarchon corais couperi

Eastern Indigo Snake Construction Protection Measures

Introduction:

The CONTRACTOR shall make every effort to protect the Eastern Indigo Snake during the construction of this project. The information below describes the snake, its habitats, cover requirements, food, etc. Also discussed are requirements that must be followed if the snake is observed during construction activities. Failure to follow these requirements may lead to significant fines and jail time.

Description:

The eastern indigo snake (*Drymarchon couperi*) is a species of large non-venomous colubrid snakes native to the Eastern United States. It has been noted as being the longest native snake species in the United States. The eastern indigo snake is a listed threatened species.

The eastern indigo snake has an even blue-black coloration with some specimen having a reddish-orange to tan color on the throat, cheeks, and chin. This snake received its name from the glossy iridescent blackish-purple sheen it displays in bright light. This smooth scaled snake is considered to be the largest native snake species in the United States. The longest recorded specimen measured 2.8 m (9.2 ft). Unlike many snakes, mature male indigo snakes are slightly larger than females.

Common Names:

The eastern indigo snake has a number of common names including indigo, blue indigo snake, black snake, blue gopher snake, and blue bull snake.

Distribution:

The eastern indigo snake ranges from southern South Carolina south through Florida and west to Louisiana, Mississippi, and Alabama. A related species, the Texas indigo snake (*Drymarchon melanurus erebennus*), is found in southern Texas and Mexico.

Conservation Status:

Because of habitat loss, the eastern indigo snake is listed as a federally threatened species in Georgia and in Florida. The Alabama Department of Conservation and Natural Resources has listed the species as possibly extirpated within the state of Alabama.

Preferred Habitat:

Eastern indigo snakes frequent flatwoods, hammocks, stream bottoms, dray glades, cane fields, riparian thickets, and high ground with well-drained sandy soils. In Florida and Georgia, these snakes prefer excessively drained deep sandy soils along major streams, as well as xeric sand-ridge habitats. Habitat selection varies seasonally. From December to April, eastern indigo snakes prefer sand-hill habitats. From May to July, this snake shifts from winter dens to summer territories. From August through November, they are located more frequently in shady creek bottoms than during other seasons.

The eastern indigo snake is most abundant in the sand-hill plant communities of Florida and Georgia. These communities are primarily scrub oak longleaf pine (*Pinus palustris*) with occasional live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), Chapman's oak (*Quercus chapmanii*), and myrtle oak (*Quercus myrtifolia*). Other communities include longleaf pine-turkey oak (*Quercus laevis*), slash pine (*Pinus elliotii*), scrub oak, pine flatwoods, and pine mesic hardwoods.

Cover Requirements:

Because the cover requirements of the eastern indigo snakes change seasonally, maintaining corridors that link the different habitats used is important.

From the spring throughout the fall, snakes must be able to travel from sandhill communities and upland pine-hardwood communities to creek bottoms and agricultural fields. In winter, indigo snakes den in gopher tortoise burrows, which are usually found in open pine forests with dense herbaceous under-stories. Burrows need to be in areas where there is no flooding. Eastern indigo snakes frequently use debris piles left from site preparation operations on tree plantations. These piles are often destroyed for cosmetic reasons, but should be left intact because they provide important hiding cover for both the snake and its prey. Summer home ranges for the eastern indigo snake can be as large as 270 acres.

Food Habits and Behavior:

The eastern indigo snake is carnivorous like all snakes, and will eat any other small animal it can overpower. It has been known to kill its prey by wildly beating it against nearby objects. Captive specimen are frequently fed dead prey to prevent injury to the snake from this violent method of subduing its prey. Its diet has been known to include other snakes, including venomous snakes, as it is immune to the venom of the North American rattlesnakes. Eastern indigo snakes eat turtles, lizards, frogs, toads, a variety of small birds, small mammals, and eggs.

As defensive behavior, the eastern indigo snake vertically flattens its neck, hisses, and vibrates its tail, mimicking venomous snakes. If picked up, the eastern indigo snake seldom bites.

The eastern indigo snake often will cohabit with gopher tortoises in their underground burrows, although it will settle for armadillo holes, hollow logs, and debris piles when gopher tortoise burrows cannot be found.

Predators:

Humans represent the biggest threat to the eastern indigo snake. Highway fatalities, wanton killings, and the collection for the pet trade have adversely affected the eastern indigo snake population. These snakes are taken illegally from the wild for the pet trade. Eastern indigo snakes are sometimes illegally "gassed" in their burrows by rattlesnake hunters.

Construction and Protection Measures:

Prior to land clearing and construction, Indian River County staff and G. K. Environmental, Inc. staff will meet onsite with the contractor to review the eastern

indigo snake protection measures, including identification and required action if sighted.

In the event that eastern indigo snake is sighted prior to or during construction, work shall cease until the snake has moved or has been relocated to an area outside the limits of construction. Any handling of this snake must be done in accordance with federal regulations. The environmental consultant and/or the project engineer and/or regulatory agencies as listed on the attached "Eastern Indigo Snake Monitoring Report Form", shall be contacted immediately upon sighting. The above referenced monitoring report form shall be completed and filed with the federal agencies as required by permit conditions.

In addition, laminated field posters prepared by G. K. Environmental, Inc. with an identification photograph of the eastern indigo snake and informational data about the snake, will be posted onsite during construction. These posters will include both English and Spanish text.

Please refer to the attached Eastern Indigo Snake Monitoring Report Form for contact information and the referenced eastern indigo snake poster.

G. K. ENVIRONMENTAL, INC.

Environmental Consulting

GEORGE R. KULCZYCKI, CEC, CES, CEI

155 McKee Lane

Vero Beach, FL 32960

Phone 772-567-912 Email gke@me.com



Eastern Indigo Snake Monitoring Report Form

MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM

Inspector/Forman/Supervisor: _____ Date: _____ Time: _____

Eastern Indigo Snake observed: Yes No

If yes, what steps were taken to protect the species? _____

Agency / Person Contacted: _____

Action Required / Taken: _____

Onsite Construction Supervisor: _____

Contact Information:

Project Environmental Consultant:

G. K. Environmental, Inc.

George R. Kulczycki

772-567-9129 office

772-913-0294 cell

Project Engineer / Indian River County:

Mr. Keith McCully, P.E.

772-567-8000 office

Regulating Agencies:

Florida Game and Fresh Water Fish Commission

US Fish and Wildlife Service

561-625-5122

772-562-3909

Signature: _____

Date: _____

SECTION 02050

SITE PREPARATION

PART 1 - GENERAL

1.1 SCOPE

- A. This Section covers work within the limits of clearing shown on the Drawings. Work includes but is not limited to silt fencing to mark limits of construction and to keep wildlife out of the construction area, clearing, grubbing, stripping, and disposal, complete as specified herein. Refer to Section 01541 for additional requirements regarding protection of vegetation, wildlife, existing structures, etc. Refer to the Drawings for other instructions regarding clearing.

1.2 LIMITS OF CLEARING AND GRUBBING

- A. Only the areas shown on the Drawings to be cleared shall be cleared and grubbed. The clearing and grubbing limits are clearly shown on the Drawings. If clearing occurs outside the limits of construction shown or described on the Drawings, the OWNER will replant the area cleared with identical species and deduct the cost from the contract amount, including the cost to maintain said plantings for one year. If in the OWNER'S sole opinion, the CONTRACTOR is negligent in control of clearing operations and excessive clearing occurs beyond the designated limits of construction, the OWNER will terminate the Contract.

1.3 PERMITS

- A. The OWNER has applied for an Indian River County Land Clearing Permit and an Indian River County Tree Removal Permit. Verify both permits have been issued before beginning any clearing or grubbing work. If any such work begins before these permits are issued and posted on the Project site by the CONTRACTOR, the job will be shut down by the OWNER and the CONTRACTOR fined \$5,000. Work shall not restart until the fine has been paid and the County has issued a written restart notice. By submission of its bid, the CONTRACTOR agrees to these conditions.

1.4 BEFORE CLEARING OPERATIONS BEGIN

- A. Before any clearing operations begin, stake the limits of clearing with 48" long survey lath with pink flagging at 50' spacing. The ENGINEER and the OWNER'S biologist will walk the limits of clearing perimeter paths and determine if field adjustment is necessary to protect trees, gopher tortoises, or other natural features. If so, the ENGINEER will shift the clearing limits. The ENGINEER will make every

effort to minimize the time necessary for this task. After the limits of clearing perimeter has been approved by the ENGINEER and all observed gopher tortoise burrows in the immediate vicinity of the path have been located and marked, the double silt fence delineating the limits of clearing may be installed if there is no impact to gopher tortoises. Provide a 10' opening in the silt fence for every 250' of silt fencing installed around all perimeters, to allow wildlife egress from the property during clearing activities. The openings shall be sealed with silt fencing only upon written permission from the ENGINEER. The ENGINEER and the OWNER's biologist will relocate tortoises offsite as rapidly as possible.

- B. The limits of clearing silt fence barrier shall be a Type IV silt fence installed per FDOT Index No. 102, Sheet 3 of 3. This fencing is to be carefully installed and utmost care shall be taken to avoid damage to trees and other vegetation outside the limits of construction during installation. Route the silt fencing to the inside (work side) of trees in or near the designated limits of clearing. Provide the required openings as discussed above. Clearing during this construction phase shall be the minimum necessary to install the silt fencing. If clearing exceeds this limit, the OWNER will immediately shut the project down until a meeting is held at a location designated by the OWNER, to discuss why Specifications are not being followed. Work shall not recommence until approval to do so is granted by the OWNER. The Contract time clock will continue to run during this period. If over-clearing occurs again, the OWNER may terminate the Contract. If previously undiscovered gopher tortoise burrows are discovered in the path of the silt fencing, route the silt fencing a minimum of 25-feet away from the burrow entrance and so that the burrow is outside the area to be cleared. Flag the burrow location and immediately notify the ENGINEER. The ENGINEER and OWNER's biologist will relocate the tortoises as rapidly as possible.
- C. After the silt fence delineating the limits of construction is installed, notify the ENGINEER. The ENGINEER and the OWNER'S biologist will then investigate the remaining site to be cleared and relocate any gopher tortoises and other turtles discovered. For construction scheduling purposes, allow two weeks for the ENGINEER and the biologist to accomplish this activity. The ENGINEER will make every effort to accomplish this task as rapidly as possible and will make every effort to perform a detailed gopher tortoise survey prior to commencement of construction activities. Clearing operations shall not begin until tortoise relocation is complete and the ENGINEER provides the CONTRACTOR written approval to begin clearing.
- D. If additional gopher tortoise burrows are discovered at any time, immediately notify the ENGINEER and maintain a minimum 25-foot radius from the burrow. Failure to do so may result in a fine and possible arrest by U.S. Fish and Wildlife Service. The ENGINEER will relocate the tortoise(s) as rapidly as possible and if this process delays construction, the Project Time Clock will be halted as appropriate until the tortoise(s) are relocated. Also, notify the ENGINEER or County Construction

Observer if any tortoises or other turtles are discovered outside their burrows and the tortoise/turtle will be immediately relocated from the work site.

1.5 CLEARING

- A. Meeting With All Equipment Operators Before Clearing Operations Begin: Before clearing operations begin, the ENGINEER and the OWNER's biologist shall meet at the site with all of the CONTRACTOR'S equipment operators to discuss wildlife protection, protecting native trees to remain, and preservation/relocation of existing palm trees designated to be relocated from areas to be cleared. Ensure all operators attend this meeting.
- B. Except for areas around existing trees to remain, the surface of the ground for the area to be cleared and grubbed shall be completely cleared of all timber, brush, stumps, roots, grass, weeds, structures designated to be removed, concrete, rubbish, and all other objectionable obstructions resting on or protruding through the surface of the ground. Conduct clearing operations so as to prevent damage to existing structures and installations, vegetation to remain, other protected items, and to facilities under construction, and so as to provide for the safety of employees and others. Clearing for structures shall include topsoil and vegetation removal. Protect existing trees to remain as detailed on the Drawings prior to beginning clearing operations.

1.6 GRUBBING

- A. Grubbing consists of the complete removal of all stumps, roots larger than 1-1/2 inches in diameter, matted roots, brush, timber, logs, and any other organic, metallic, or other debris not suitable for foundation purposes, resting on, under, or protruding through the surface of the ground to a minimum depth of 18 inches below subgrade and under and at least 5 feet beyond the perimeter of all proposed structures. All areas to receive fill shall likewise be grubbed. All depressions excavated below the original ground surface for or by the removal of such objects, shall be refilled with suitable materials and compacted to a density conforming to the surrounding finished ground surface or as otherwise specified in Section 02220, whichever requirement is more strenuous.

1.7 ADDITIONAL INFORMATION ON REMOVAL OF EXOTICS AND PROTECTION OF VEGETATION TO REMAIN

- A. Clear and remove all exotic and invasive vegetation (dead and alive material) from the site. Mechanical clearing is allowed throughout the limits of clearing as long as the mechanical activities do not damage native trees to remain or their root systems. In such instances, all clearing and grubbing shall be by hand in those areas. All invasive and exotic vegetation shall be lawfully disposed offsite via

approved construction access routes.

- B. If not able to remove exotics by their roots without damaging other vegetation to remain or structures, cut all exotic and invasive trees flush with the existing grade and no higher than 4 inches above ground surface and spray or brush (as appropriate) each stump with an approved herbicide within 15 minutes after cutting. Re-treat with approved herbicide as required, to ensure that no regrowth occurs. Approved herbicides include, but are not limited to Rodeo, Garlon 4A, or equivalent products applied in accordance with the manufacturers label recommendations and state laws with the Florida Department of Agriculture and Consumer Services (FDACS). Roundup product is not permitted on County property (this site). For Brazilian pepper trees, use a herbicide proven to kill Brazilian peppers. Exotic and invasive vegetation shall be controlled during construction and for the period specified in Section 02235 – Landscaping.
- C. All herbicide must be applied by an individual possessing a State (FDACS) Certified herbicide application license of the appropriate class. Provide the OWNER with a copy of the individual's license before herbicide application. Do not impact native plants with herbicide.
- D. Vines growing in trees to remain do not need to be pulled out of the tree canopy. Cut the vines and carefully treat each vine and stump at the base with approved herbicide, leaving the remaining severed vines in the tree canopy.
- E. In accordance with Section 01541 and the Drawings, take all necessary steps to protect trees within the limits of construction that are designated by the ENGINEER or the OWNER'S biologist to remain in place or be relocated. All native plants (trees, shrubs, palmettoes, etc.) outside the limits of construction and all those within the limits of construction designated to remain, shall remain undisturbed and protected. (Minimum protection methods are detailed on the Drawings.) Conduct construction operations to prevent any damage or destruction to the natural surroundings in the vicinity of the Work. All movements of crews and equipment shall be performed in a manner to prevent damage to vegetation to be preserved. Advise all workers about potential fires from smoking; be careful when extinguishing a cigarette or cigar.
- F. If an existing tree to remain or be relocated is destroyed or damaged by the CONTRACTOR, it shall be replaced at no additional cost to the OWNER with an identical species or another species as determined by the OWNER. In instances in the OWNER's opinion, where it is impractical to replace a damaged or destroyed tree due to its size, replacement shall be as follows: The damaged or destroyed tree shall be replaced with additional trees having cumulative diameters equal to 4 times the diameter of the damaged or destroyed tree. The OWNER will determine the diameters of the replacement trees. (For example, if an 8-inch diameter tree is

damaged or destroyed, the number of replacement trees is determined as follows: 8-inch diameter *times* 4 = 32-inch cumulative diameter required by replacement trees. OWNER selects replacement trees to each be 4" diameter, meaning number of replacement trees = 32 *divided by* 4 = eight 4-inch diameter trees. If the division does not result in a whole number, the number of replacement trees will be the next highest whole number). For computations, the diameter of the destroyed or damaged tree shall be measured three-feet above existing ground surface.

- G. Guarantee all replaced vegetation will survive in a healthy condition for a period of one-year, beginning on the date of Final Acceptance of the Work by the Indian River County Commission. Provide all necessary maintenance (watering fertilizer, etc.) at no cost to the OWNER. All replacement vegetation that dies during the one-year maintenance period shall be replaced with identical species and size and a new one-year maintenance period will begin.

1.8 DISPOSAL OF MATERIAL

- A. No burning is permitted onsite. Haul all material offsite and dispose of it in a legal manner at no additional cost to OWNER. Do not store mulched material onsite long enough to create a potential fire hazard.
- B. Obtain and comply with the provisions of all necessary permits. The OWNER will pay all permit fees. CONTRACTOR shall pay all disposal fees.

1.9 MAINTENANCE OF PROTECTIVE SILT FENCE BARRIER

- A. Inspect and maintain the protective silt fence barrier each morning before beginning construction and at the end of each day's construction activities.
- B. Close off the work area at the end of each day's operations with silt fence to prevent gopher tortoises and other wildlife from entering the work area. If gopher tortoises or any other turtle is discovered inside the work area, call the ENGINEER or notify the County inspector and they will take charge of the animal.

+ + END OF SECTION + +

SECTION 02220

EXCAVATION AND BACKFILL

PART 1 - GENERAL

1.1 SCOPE

- A. Provide all labor, materials, equipment and incidentals required to perform all excavating, backfilling, filling and grading, and disposing of earth materials as shown, specified, and required for construction of the Work in every respect.
- B. All necessary preparation of subgrade for slabs, structures, and pavement is included.
- C. No classification of excavated materials will be made. Excavation includes all materials regardless of type, character, composition, moisture, or condition thereof.
- D. In addition to these Specifications, excavation and backfill requirements set forth in the FDOT "Standard Specifications for Road and Bridge Construction," latest edition at time of bid, shall also govern. If there is a conflict between the FDOT specifications and this Section, the most stringent specification or requirement shall govern.

1.2 DEFINITIONS

- A. Excavation - Earth or other below surface material to be removed from a trench or other cavity for installation of structures or underground utilities, or to reach desired elevation(s) for a pond, floway, marsh, or other similar project feature.
- B. Earth/Soil - Unconsolidated material in the crust of the Earth derived by weathering and erosion. Earth includes:
 - 1. Materials of inorganic and organic origin;
 - 2. Boulders less than 1/3 cubic yard in volume, gravel, sand, silt, and clay;
 - 3. Materials which can be excavated with a backhoe, trenching machine, dragline, clamshell, bulldozer, highlift, or similar excavating equipment without the use of explosives, rock rippers, rock hammers, or jack hammers.
- C. Rock - A natural aggregate of mineral particles connected by strong and permanent cohesive forces. Rock includes:

1. Limestone, sandstone, dolomite, granite, marble and lava;
 2. Boulders 1/3 cubic yard in volume.
 3. Materials which cannot be excavated with equipment which is used to remove earth overburden without the use of explosives, rock rippers, rock hammers, or jack hammers;
 4. Materials which cannot be excavated with a backhoe, trenching machine, dragline, clamshell, bulldozer, highlift, or similar excavating equipment without the use of explosives, rock rippers, rock hammers, or jackhammers.
- D. Undercutting - An example of undercutting is the excavation of rock and unsuitable earth below the bottom of the pipe or conduit to be installed in the trench.
- E. Bedding - An example of bedding is material placed in a trench to support pipe or conduit.
- F. Backfill - Earth placed and compacted in a trench or other excavation (e.g. from the top of bedding to finish grade, or to the subbase of pavement).
- G. Fill/Embankment - Soils placed and compacted above existing ground surface.
- H. Topsoil - Earth containing sufficient organic materials to support the growth of grass.

1.3 QUALITY ASSURANCE

- A. Tests:
1. An independent testing laboratory will be selected by the ENGINEER and OWNER. Payment for testing services shall be as specified in Section 01410 - Testing Laboratory Services and Section 00700 - General Conditions of the Construction Contract Article 13.03.
 2. Order and schedule all testing with the testing laboratory and notify ENGINEER at least two business days prior to performance of any test.
 3. Do not proceed with construction on work requiring testing until all tests for that work have proved satisfactory.
 4. Take tests at the locations specified herein or at locations selected by the ENGINEER.
- B. Permits and Regulations:
1. Obtain all required permits not secured by the ENGINEER at the time of Contract award. OWNER will pay all permit fees.

2. Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
- C. Reference Standards: Comply with applicable provisions and recommendations of the following (latest edition) except as otherwise shown or specified.
1. ASTM A36, Specification for Structural Steel.
 2. ASTM A328, Specification for Steel Sheet Piling.
 3. ASTM D422, Method for Particle-Size Analysis of Soils.
 4. ASTM D2937, Standard Test Method for Density of Soil In-Place by the Drive Cylinder Method.
 5. ASTM D1557, Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54 kg) Rammer and 18-in. (457 mm) Drop.
 6. ASTM D2922, Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 7. AISC Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings.
 8. OSHA Standard, Title 29, Code of Federal Regulations (CFR), Part 1926, Section .650 (Subpart P - Excavations).
 9. Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

1.4 SUBMITTALS

- A. Test Reports - Borrow, Backfill, and Grading:
1. Testing laboratory will submit two (2) signed and sealed copies of the following reports directly to ENGINEER, with copy to CONTRACTOR:
 - a. Tests on borrow material.
 - b. Tests on footing subgrade.
 - c. Field density tests.
 - d. Optimum moisture - maximum density curve for each soil type used for backfill.

1.5 JOB CONDITIONS

- A. Subsurface Information: Test borings and other exploratory operations may be made by the CONTRACTOR, at no cost to the OWNER, to obtain subsurface information. Completely fill and compact all borings/test holes with clean sand upon completion of testing. If the holes are not properly backfilled, OWNER will pay its employees or a third party to fill said holes and will deduct all expenses incurred from the CONTRACTOR's invoice.

- B. Existing Structures: The Drawings may show certain surface and underground utilities adjacent to the Work. This information has been obtained from existing records provided by others. It is not guaranteed to be correct or complete and is shown only for the convenience of CONTRACTOR. Explore ahead of the required excavation to determine the exact location of all structures. Support and protect all structures from damage. If they are broken or damaged, restore them immediately at no additional expense.
- C. Existing Utilities: Contact all utility companies in Work areas advising work schedule and request locates. Locate existing underground utilities in the areas of Work. If utilities are to remain in place, provide adequate means of protection during all operations.
1. If uncharted or incorrectly charted piping or other utilities are encountered during excavation, consult ENGINEER immediately for directions as to procedure. Cooperate with OWNER and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
 2. In general, service lines to individual houses and businesses are not shown; however, assume that a service exists for each utility to each house or business.
 3. Do not interrupt utilities serving existing facilities except when permitted in writing by the owner of the facility and the ENGINEER and then only after acceptable temporary utility services have been provided.
 4. Demolish and completely remove from the site, existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.
- D. Protection of Persons and Property:
1. Barricade open excavations occurring as part of this Work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
 2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
- E. Dust Control:
1. Prevent air and water pollution through dust and dirt control to the satisfaction of the OWNER throughout the entire Work area, including haul roads.
 2. Take all necessary steps to prevent soil from eroding onto all paved areas and into all canals and ditches.

3. Comply with the above requirements on a daily basis. If the CONTRACTOR fails to perform the above work in a satisfactory manner, all work, except cleanup operations, will be stopped immediately until the CONTRACTOR has complied with the above requirement to the satisfaction of the OWNER or ENGINEER.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

All backfill material shall be either Type 1, Type 2, or Type 3 as described below.

- A. TYPE 1 - Type 1 material shall be used as foundation material for manholes, drainage structures, pump stations and similar structures. Type 1 material shall be:
 1. Either well-graded crushed stone or crushed gravel meeting the requirements of ASTM Designation C33-71a, Gradation 67 (3/4 inch to No. 4 Sieve) or air-cooled blast furnace slag alone or in combination with crushed stone and/or crushed gravel conforming to ASTM Designation C33-71a requirements; or
 2. Sand with a percent-fines content less than 15% (free of organics and debris) and compacted to a minimum of 98 percent of the soils' maximum dry density value as determined by the modified Proctor (ASTM D1557/AASHTO T-180).
- B. TYPE 2 - Type 2 material shall be unclassified material obtained from the Contractor's excavations meeting the following conditions. The material shall contain not more than 5% (by weight) of organic material. It shall not contain clods, stones, masonry rubble, and the like greater than 3-inches through the largest dimension. In general, Type 2 material shall consist of sand, loam, sandy-loam, clayey-sand, gravel, or crushed stone.
- C. TYPE 3 - Type 3 material shall be select granular material, free from organic matter, of such size and gradation that the desired compaction can be readily attained and shall meet the requirements for A3 material according to the Revised Bureau of Public Roads Classifications.
 1. Unless otherwise shown or specified, material for filling or backfilling around pipe and structures shall be Type 3. Advise ENGINEER in writing of the source and submit a sample of the material to the ENGINEER. Also, submit a signed and sealed sieve analysis from a Florida Professional Engineer employed by the selected soils testing laboratory,

and a statement from that Engineer that the material meets the requirements for Type 3 material.

- D. If soil cement paving is proposed, local yellow sand or hardpan shall not be used in the subgrade nor in the base.
- E. IMPORTED FILL/BACKFILL: If there is not enough excavated material to complete the work, provide and deliver the necessary suitable material to the job site. Unless otherwise specified herein, this imported fill/backfill shall meet the requirements of Type 3 material. Advise ENGINEER in writing of the source and submit a sample of the material to the ENGINEER. Also, submit a signed and sealed sieve analysis from a Florida Professional Engineer employed by the OWNER's selected soils testing laboratory, and a statement from that Engineer that the material meets the requirements for Type 3 material.

PART 3 - EXECUTION

3.1 TEST PITS

- A. Excavate and backfill test pits in advance of construction, as required to determine conditions or location of existing facilities. Perform all work required in connection with excavating, stockpiling, maintaining, sheeting, shoring, backfilling, and replacing pavement for the test pits.
- B. No separate payment will be made for specified test pits or those made by CONTRACTOR for his own use.

3.2 DEWATERING

- A. Design and operate the dewatering system, including handling of the system discharge. Furnish, install and operate all necessary machinery, appliances and equipment to keep excavations free from water during construction, and dispose of the water so as not to cause injury to any portion of the Work under construction or completed or to public or private property or to cause a nuisance or a menace to the public or to result in violations of State water quality standards in receiving waters. Promptly repair any and all damage caused by dewatering at no cost to the OWNER.
- B. The receiving point for water from the dewatering operation shall be approved by the ENGINEER and Indian River Farms Water Control District. No dewatering water shall be discharged onto areas outside the limits of clearing or allowed to flow onto areas outside the limits of clearing.

- C. Obtain all required permits and any other approval necessary. In accordance with Florida Statutes, the OWNER will pay all permit fees. Convey water from the construction site in a closed conduit. Do not use trench excavations as temporary drainage ditches. Do not discharge water into storm drainage systems without written approval from the Owner of the drainage system.
- D. At all times have on hand sufficient pumping equipment (including backup units) and machinery in good working condition for all ordinary emergencies, and have available at all times competent workmen for the operation of the pumping equipment. The dewatering systems shall not be shut down between shifts, on holidays, or weekends, or during work stoppages. Pumps and engines for well point and other dewatering systems shall be operated with mufflers and at a minimum noise level suitable for a residential area.
- E. The control of groundwater shall be such that softening of the bottom of excavations or formation of "quick" conditions or "boils" are prevented. Design and operate dewatering systems to prevent the removal of natural soils. The static water level shall be drawn down below the bottom of the excavation to maintain a dry working surface and to maintain the undisturbed state of the natural soils. For structures, the groundwater table shall be lowered to at least two (2) feet below the maximum excavation depth. For installation of geosynthetic clay liner, the groundwater table shall be lowered to at least one (1) foot below the liner installation depth unless specified otherwise in Section 02575.
- F. While dewatering for new construction in the vicinity of existing structures, depletion of the groundwater level underneath these existing structures may cause settlement. To avoid this settlement, maintain the groundwater level under these structures.
- G. Release the groundwater to its static level in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted fill or backfill, and prevent flotation or movement of all structures, liners, pipelines, sewers, etc.
- H. Completely fill well point holes with clean sand or grout at the time the points are pulled. If necessary, use a rod or vibrator to prevent bridging of the backfill. If said holes are not completely filled and compacted with clean sand, OWNER will pay its employees or a third party to fill and compact them and will deduct all expenses incurred from CONTRACTOR's invoice.

- I. Comply with Section 02225 – “Erosion Control and Treatment of Dewatering Water and Stormwater Runoff From the Construction Site.” Neither OWNER or ENGINEER or any of their employees will provide guidance or direction to CONTRACTOR regarding chemical or physical characteristics of dewatering water or regarding treatment of dewatering water prior to its leaving the site. Chemical and physical analysis of dewatering water and treatment of dewatering water before it leaves the site is solely the CONTRACTOR’s responsibility. CONTRACTOR is solely responsible to insure that all dewatering water discharged from the site meets applicable water quality criteria prior to discharge.
- J. Apply for and obtain all required local and state dewatering permits. OWNER will pay all permit application fees.

3.3 EXCAVATION

- A. Perform all excavation required to complete the Work. Where it is necessary to cut roots projecting into an excavation or to trim branches for equipment clearance, all cut all ends true and straight.
- B. The elevation of the bottom of footings shown shall be considered as approximate only and ENGINEER may order such changes in dimensions and elevations as may be required to secure a satisfactory footing. Take care not to disturb the bottom of the excavation. Excavate to final grade for structures just before concrete reinforcement is placed. For structures, trim bottom to the required lines and grades to leave a solid base to receive concrete, formwork, shoring and bracing, reinforcing supports, and reinforcing. Trim all structure excavations to permit the placing of full widths and lengths of footings on horizontal beds. Rounded and undercut edges will not be permitted.
- C. Extend excavations sufficiently on each side of structures, footings, etc., to permit setting of forms, installation of shoring or bracing, or the safe sloping of banks.
- D. Subgrades for roadways, structures and trench bottoms shall be firm, dense, and thoroughly compacted and consolidated; shall be free from mud, muck, and other soft or unsuitable materials; and shall remain firm and intact under all construction operations. Subgrades which are otherwise solid, but which become soft or mucky on top due to construction operations, shall be reinforced with crushed stone or gravel. The finished elevation of stabilized subgrades shall not be above subgrade elevations shown on the Drawings.

E. Pipe Trench Excavation:

1. Trench grade for pipe or drainage structures not requiring special bedding material is defined as the grade of the bottom surface of the utility or structure to be constructed or placed within the trench. Such shaping of the trench bottom, as may be required to provide suitable bedding is considered to be a part of this work. Trench grade in non-cushioning material is defined as 6 inches below the outside of the bottom of the utility, which 6 inches shall be backfilled with suitable bedding material. Unauthorized excavation below trench grade shall be backfilled to trench grade and suitably compacted by the CONTRACTOR without additional cost to the OWNER. (See also paragraph 3.5, "Unauthorized Excavation.") Final trimming and grading of trench bottom shall be done manually.
2. Keep pipe laying operations as close to the excavation operation as possible during the prosecution of the Work. No more than 100 feet of trench may be opened in advance of pipe laying.
3. Minimize trench width to the greatest extent practical but conform to the following:
 - a. Sufficient to provide room for installing, jointing and inspecting piping, but where possible, no wider at top of pipe than pipe barrel outside diameter (OD) plus 2 feet. If this width is exceeded, provide at no additional cost, such additional bedding or select backfill materials as the ENGINEER may require.
 - b. Trench enlargements at pipe joints may be made if required.
 - c. Sufficient for shoring and bracing, or shielding and dewatering.
 - d. Sufficient to allow thorough compaction of backfill adjacent to bottom half of pipe.
 - e. Do not use excavating equipment that requires the trench to be excavated to excessive width.
4. Depth of trench shall be as shown on the Drawings or Specifications, as applicable.
5. Do not excavate trench bottoms with buckets, etc. that have teeth that dig into the soil. Use only buckets, etc. with smooth ends.

F. **Material Storage:** Stockpile satisfactory excavated materials in approved areas and where shown on the Drawings. Place, grade, and shape stockpiles for proper drainage. Locate and retain stockpiles of soil materials away from edge of excavations. Dispose of excess soil material and waste materials as specified hereinafter.

3.4 REMOVAL OF UNSUITABLE MATERIAL

- A. If the ENGINEER determines that soil conditions encountered at the bottom of the excavation are unsuitable for foundation material, then remove and dispose of the unsuitable material and replace with "Type 3" material as specified in paragraph 2.1.C. Remove the unsuitable material until suitable bearing material is encountered. The ENGINEER shall determine the extent of excavation required. Unsuitable material includes muck, clay, roots, heterogeneous fill material, and any other organic or similar materials. Unforeseen items such as buried trees, timbers, abandoned utilities, metal objects, concrete masses, and the like, shall also be removed from the excavation area.
- B. Removal of unsuitable foundation material within areas that will receive footings, slabs, or other foundations shall be completed for the full area under each structure and to five feet minimum outside the structure's perimeter. In areas to receive pavement, unsuitable material shall be removed under all pavement surface areas and to five feet minimum outside the shoulders and under sidewalks and bike paths, or as directed by the ENGINEER.
- C. All excess excavation due to unsuitable material must be field verified by the ENGINEER. Otherwise, the OWNER will not pay for the excess excavation or its subsequent replacement with Type "3 material."

3.5 UNAUTHORIZED EXCAVATION

- A. All excavation outside the lines and grades shown, and which is not approved by ENGINEER, together with the removal and disposal of the associated material shall be at CONTRACTOR'S expense. At the ENGINEER's discretion, the unauthorized excavation shall be filled and compacted with "Type 2" or "Type 3" material as defined in paragraph 2.1.B and C, by CONTRACTOR at his expense. Claims and damages resulting from CONTRACTOR's unauthorized excavation will be the CONTRACTOR's sole responsibility.

3.6 SPECIAL EMPHASIS ON EXCAVATION SAFETY AND TRENCH CONSTRUCTION

- A. The following are complementary to these Specifications: Occupational Safety and Health Administration's (OSHA's) trench safety standards, 29, C.F.R., s. Part 1926, Subpart P, and all subsequent revisions or updates adopted by the Department of Labor and Employment Security; and Florida's Trench Safety Act (Florida Statutes Chapter 553 Part VI – Trench Safety Act). If there is any duplication, redundancy or conflict between the stipulations of these

Specifications and those governmental standards, the most stringent requirement shall govern. Consider these and any more stringent trench safety standards as minimum Contract requirements.

- B. It is the CONTRACTOR's responsibility to ensure that excavations do not endanger workmen, existing structures, utilities, or other facilities. If such conditions occur which may endanger workmen, existing structures, utilities or other facilities, immediately install and maintain adequate sheeting and bracing per OSHA specifications. Cease all work until the sheeting and bracing has been properly and completely installed. Install the sheeting and bracing in a manner that will allow removal without injuring or endangering workmen, the Work, adjacent structures, and the like. Promptly and completely fill all voids caused by the withdrawal of sheeting with sand and compact it to a degree equal to the surrounding soil. Remove the sheeting as the work progresses or, at the discretion of the ENGINEER, cut the sheeting off below finished grade and leave in place.

3.7 SHEETING, SHORING, AND BRACING

A. General:

1. Any shoring system shall be designed and signed/sealed by a Professional Structural Engineer licensed in the State of Florida.
2. Used material shall be in good condition, not damaged, or excessively pitted. All sheeting designated to remain in place shall be new. New or used sheeting may be used for temporary work.
3. All timber used for breast boards (lagging) may be new or used, meeting the requirements for Douglas Fir Dense Construction Grade or Southern Pine No. 2 Dense. The bending strength must be 1,500 psi or greater.
4. All steel work for sheeting, shoring, bracing, cofferdams etc. shall be designed in accordance with the provisions of the "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings", of the AISC except that field welding will be permitted.
5. Steel sheet piling shall be manufactured from steel conforming to ASTM A328. Steel for soldier piles, wales, and braces shall be new or used and shall conform to ASTM A36.
6. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
7. Safe and satisfactory sheeting, shoring and bracing shall be the entire responsibility of the CONTRACTOR.

- B. Removal of Sheeting and Bracing:
1. Remove sheeting and bracing from excavations unless otherwise ordered in writing by the ENGINEER. Removal shall be done so as to not cause injury to the Work and shall not effect backfill compaction. Removal shall be equal on both sides of excavation to ensure no unequal loads are produced on the pipe or structure.
 2. Defer removal of sheeting and bracing, where removal may cause soil to come into contact with concrete, until the following conditions are satisfied:
 - a. Concrete has cured a minimum of 7 days.
 - b. Wall and floor framing up to and including grade level floors are in place.
- If different criteria is listed in Division 3 of these Specifications, the more stringent requirement shall govern.
- C. Sheeting left in place: If approved by the ENGINEER, sheeting may be cut off by the CONTRACTOR during backfill operations and left in place.

3.8 TRENCH SHIELDS

- A. Excavation of earth material below the bottom of a shield shall not exceed the limits established by ordinances, codes, laws, and regulations.
- B. When using a shield for pipe installation, the bottom of the shield shall not extend below the mid-diameter of installed pipe at any time.
- C. When using a shield for the installation of structures, the bottom of the shield shall not extend below the top of the foundation bedding for the structures.
- D. When a shield is removed or moved ahead, take extreme care to prevent the movement of pipe or structures or the disturbance of the bedding for pipe or structures previously installed. Pipe or structures that are disturbed shall be removed and reinstalled as specified.

3.9 PRE-BACKFILLING/FILLING REQUIREMENTS

- A. Before placing fill or backfill the following must be completed:
1. Observation and recording locations of underground utilities.
 2. Removal of all concrete formwork.
 3. Removal of all below grade shoring and bracing, and backfilling and properly compacting all voids with satisfactory materials.
 4. Permanent or temporary horizontal bracing is in place on horizontally supported walls.

5. Placement of settlement plates.
6. Acceptance by ENGINEER of construction below finish grade, including damp proofing and waterproofing.
7. Removal of all trash and debris.
8. Fill or backfill shall not be placed against concrete structures until they have attained their specified compressive strength.
9. Prepare ground surfaces for buildings and roads to receive fill as follows: Remove all vegetation, debris, unsatisfactory soil materials, obstructions and deleterious materials from the ground surface prior to placement of fill. Plow or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that the fill material will bond with the existing surface. When the existing ground surface has a density less than that which will be required for the fill material, the ground surface shall be plowed, pulverized, and compacted to the density which the fill material is to receive.
10. Compaction Requirements: As a minimum, compact the top 1-foot of all areas that will require fill/backfill and compaction, to a minimum 98 percent of maximum dry density, measured within ± 2 percent of optimum moisture content. Density tests shall be taken at the locations selected by the ENGINEER or his representative.

3.10 GENERAL REQUIREMENTS REGARDING PLACEMENT AND COMPACTION OF BACKFILL AND FILL MATERIAL

- A. Furnish, place, and compact all backfill and fill material required for structures and trenches and to provide the finished grades shown on the Drawings and specified. Unless otherwise specified, material may be obtained from on-site sources if it is suitable for the intended purpose. Additional materials, if required, shall be furnished from off-site sources in accordance with paragraphs 2.1.C. and 2.1.E.
- B. Prior to any fill/backfill operations, the existing stripped or excavated ground surface shall be compacted.
- C. In general, spread and dump material in horizontal loose layers not exceeding 12-inches loose thickness. Within 5 feet of structures, the fill/backfill shall not exceed 6-inches loose thickness. Mix and spread the material in a manner assuring uniform lift thickness after placing. During the process of dumping and spreading, remove all roots, debris, and stones greater than 1-1/2 inches diameter from the fill/backfill areas. Assign a sufficient number of men to this work to insure compliance with these requirements.

- D. If the compacted surface of any layer of material is determined to be too smooth to bond properly with the succeeding layer, loosen the surface before the succeeding layer is placed.
- E. All backfill and fill materials shall be placed and compacted "in-the-dry". Dewater excavated areas as required to perform the work and in such manner as to preserve the undisturbed state of the natural inorganic soils. Maintain all groundwater to a minimum of one-foot below the excavation bottom for all structures, including pipes.
- F. Place backfill and fill materials evenly adjacent to structures, to required elevations. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around the structure to approximately the same elevation in each lift.
- G. Prior to the installation of pipes that are to be installed in fill or embankment sections, place and compact the fill until a minimum height of 2-feet above the pipe is reached, unless otherwise specified. The pipe trench shall then be excavated and the pipe installed and backfilled. The remainder of the fill section shall then be placed and compacted.
- H. Control the water content of backfill and fill material during placement within the range necessary to obtain the compaction specified. In general, the moisture content of the material shall be within ± 2 percent of the moisture content for optimum compaction as determined by laboratory tests. Perform all necessary work to adjust the water content of the material to within the range necessary to permit the compaction specified. Do not place backfill or fill material when free water is standing on the surface of the area where it is to be placed. No compaction will be permitted with free water on any portion of the material to be compacted.
- I. Perform compaction with equipment suitable for the type of material placed and which is capable of providing the densities required. Compaction shall result in a firm and unyielding base (minimum compaction of 95 percent of ASTM D1557/AASHTO T-180).
- J. Fill/backfill shall be compacted by at least two coverages of all portions of the surface of each lift by compaction equipment. A single coverage is defined as the condition obtained when all portions of the surface of the material have been subjected to the direct contact of the compactor.

- K. Test the effectiveness of the equipment selected by CONTRACTOR at the commencement of compaction by construction of a small section of fill/backfill within the area where fill is to be placed. If tests on this section of material show that the specified compaction is not obtained, increase the number of coverages, decrease the lift thickness or obtain a different type of compactor. No additional cost to OWNER shall be incurred.
- L. Perform fill/backfill around structures using the specified procedures, except that within 10 feet of existing foundations and underground structures, use light compaction equipment. Take care not to over-compact the material around buried structures, thereby overstressing the walls of the structure.
- M. Fill/backfill slopes shall not exceed three horizontal to one vertical (3H:1V) unless approved by the ENGINEER.
- N. Take into account final contours and grades established by the Drawings when executing fill/backfill and compaction operations.

3.11 SPECIAL SITE PREPARATION, FILL, AND BACKFILL REQUIREMENTS FOR ALL CONCRETE STRUCTURES, ROADWAYS, PARKING LOTS, AND EARTHEN BERMS

- A. The proposed construction limits shall be cleared, stripped, and grubbed of all construction debris, trees, and vegetation, associated root systems to a depth of their vertical reach. This shall be done within and to a distance of 5 feet beyond the perimeter.
- B. After stripping, clearing, and leveling, proof roll and compact the construction areas with a minimum ten-ton vibratory roller. Excavate all soft, yielding soils and replace them with clean, compacted backfill conforming to the requirements of this Section. During proof rolling operations, make sufficient passes to produce dry densities equal or greater than the densities specified in paragraph 3.14, to depths of two feet below the bottom of the compacted surface, or two feet below the bottom of footings, whichever is lower. In any case, all construction areas shall receive no less than ten overlapping passes, half of them in each of two perpendicular directions.
- C. Upon successful completion of proof rolling and after the soil is tested to verify that the desired dry density is obtained, place material as required.
- D. All fill material under structures and pavement shall consist of clean sands free of organics and other deleterious material and shall be approved by the OWNER's

Geotechnical Engineer prior to placement. This fill material shall have not more than 12 percent by dry weight passing the U.S. #200 sieve, and no particle larger than 3-inches diameter. Place material in maximum 12-inch loose lifts and compact to the requirements specified in paragraph 3.14 with a vibratory roller as discussed in paragraph B, above.

- E. Place fill/backfill around buried walls in level lifts not exceeding 6-inches loose thickness, with each lift individually compacted with a plate tamper. Backfill behind walls shall be particularly pervious, with not more than 4 percent by dry weight passing the U.S. #200 sieve. Compact to the requirements specified in paragraph 3.14.
- F. The bottoms of foundation or structure excavations dug through compacted natural ground, fill, or backfill shall be compacted so as to densify soils loosened during or after the excavation process, or washed or sloughed into the excavation prior to the placement of forms. A vibratory, walk-behind plate compactor can be used for this final densification immediately prior to placement of reinforcing steel, with previously described density requirements to be maintained below the foundation level.
- G. The bottom of all footing excavations shall be examined by the ENGINEER or his representative to determine if the soil is free of all organic and/or deleterious material. All density tests must show passing results before placing reinforcing steel or concrete.

3.12 OMITTED

3.13 SPECIAL REQUIREMENTS FOR THE PLACEMENT AND COMPACTION OF BACKFILL AND FILL FOR UTILITIES AND OTHER PIPES

A. Bedding and Foundations:

1. Class A (Concrete Cradle or Concrete Arch Bedding) - This class of bedding shall be used only where specifically shown in the Drawings or directed by the ENGINEER. If the use of a concrete cradle is required, the pipe shall be bedded in a monolithic concrete cradle with a minimum thickness equal to 1/4 the outside pipe diameter or to a minimum of four inches under the barrel, whichever is greatest, and extending up the sides of the pipe to a height equal to 1/2 of the outside pipe diameter. The cradle shall have an overall width equal to 1-1/4 of the outside diameter of the pipe or a minimum width equal to the outside diameter of the pipe plus eight inches, whichever is greater. The concrete shall have a minimum 28-day compressive strength of 2,500 psi.

2. Class B (First-class Bedding)

- a. Where Class B Bedding is required, the trench shall be excavated below the planned bottom of the pipe to a depth equal to 1/4 the nominal diameter of the pipe, or 6 inches, whichever is greater. The over-excavated depth shall be backfilled using either Type 1 or Type 3 materials, carefully compacted and shaped to provide a uniform support for the lower portion of the pipe barrel. Shaping under the pipe bells shall be so that the bell does not support the pipe and joints can be made without bedding material interference.
- b. At the option of the CONTRACTOR, Class B Bedding may be used in place of Class C (Ordinary Bedding) provided that the exercise of this option shall create no additional expense to the OWNER.
- c. If Type 1 material is used, construct an impervious dam at minimum 200-foot intervals, across the full trench width for the height of the Type 1 material. The purpose for this dam is to prevent the Type 1 material from serving as a channel or conduit for the flow of groundwater along the outside of the pipe. Use silty-loam material to construct the dam. The dam shall be at least three feet wide.

3. Class C (Ordinary Bedding)

- a. For Class C Bedding the pipe shall be placed on undisturbed native soil and in such a manner that the lower portion of the pipe barrel is uniformly supported for the full length of the barrel. The trench bottom shall be hand shaped to provide a firm support for the pipe. Excavation under the bell shall be sufficient so that the bell does not support the pipe and the joint can be made without interference.
- b. Use Class C Bedding for all pipeline construction unless unsuitable bedding material is encountered, or unless shown otherwise on the Drawings, or unless the CONTRACTOR exercises the option to use Class B Bedding at no extra cost to the OWNER.

B. No pipe shall be laid in wet conditions or it will be rejected. This includes pipe installed in the Indian River Farms Water Control District canals. Maintain groundwater levels a minimum of one-foot below the trench excavation at all times.

C. Unsuitable Bedding Material: If the materials encountered at the normal bottom of the trench excavation are in the sole judgment of the ENGINEER, unsuitable to act as foundation for the pipe, such material shall be excavated to the depth necessary to obtain a suitable foundation. (Refer to paragraph 3.4, "Removal of Unsuitable Material.") Remove the unsuitable material as soon as possible and replace it with "Type 3" material as defined in paragraph 2.1.C.

D. Pipe Trench Backfill:

1. Place all backfilling in pipe trenches that are below structures, other pipes or paved areas, in horizontal layers not exceeding 6-inches in depth and thoroughly compact each before the next layer is placed. In other pipe trenches, compacted layers shall be 6-inches thick up to the pipe centerline and up to 12-inches thick thereafter.
2. Deposit backfill evenly along both sides of the pipe from a maximum height of 2 feet above the top of the pipe. Do not drop material directly on the unprotected pipe surface.
3. Where thrust blocks, encasement, or other cast-in-place concrete items are used, do not place backfill against those items until the specific items have been observed by the ENGINEER and a minimum seven day concrete curing time has elapsed.
4. Backfill Material:
 - a. In most circumstances, excavated material from the pipe trench should be acceptable as backfill, however, materials excavated from below the groundwater table will likely require time to dry before they can be utilized as backfill. The Geotechnical Engineering Report (not a part of these Contract Documents but available for reference) provides notes on the soils that may be encountered on this site. This backfill material must meet the requirements of "Type 2" material as defined in paragraph 2.1.B. Otherwise, use "Type 3" material as defined in paragraph 2.1.C, where the ENGINEER has determined the excavated material is unacceptable.
 - b. The backfill from the trench bottom to 12-inches above the top of the pipe shall not contain rock or stone fragments greater than 1-1/2 inches diameter. The maximum diameter of a rock or stone fragment in the rest of the backfill shall not exceed 3-inches.

E. Compaction Methods:

1. All backfill to the springline (centerline) of the pipe shall be thoroughly compacted with curved end tamping bars under and on each side of the pipe and flat tamped between the pipe and the trench wall. This compaction shall be completed before the remainder of the trench is backfilled. Take extra care to adequately compact the haunch area of the pipe without lifting the pipe off the bedding. The remainder of the backfill may be compacted by power-operated tampers, rollers, or vibratory equipment.
2. Flooding or puddling with water to consolidate backfill is not permitted.

3.14 DENSITY REQUIREMENTS FOR BACKFILL AND FILL COMPLIANCE

- A. The soil testing service must inspect and approve all fill layers and subgrades before construction work is performed thereon. The CONTRACTOR shall order and schedule all tests. CONTRACTOR shall pay for all failing tests.
- B. Number of Density Tests Required for Fill and Backfill Material (Unless otherwise shown on the Drawings):
1. Each inherently different material to be used for compacted backfill, fill, or embankment fill or where directed by the ENGINEER, shall be first tested to determine the maximum dry density/optimum moisture content. Use the Modified Proctor Maximum Dry Density Test (ASTM D1557/AASHTO T-180) for all density tests.
 2. Unless specified otherwise, perform a minimum of one test per 100 cubic yards of fill material at the point of use. Take tests at locations designated by the ENGINEER or specified elsewhere. If any tests are unsatisfactory, re-compact the material at no additional expense, until the required density is obtained.
 3. Structure Foundations: Unless otherwise specified, perform compliance tests on structure foundations at the following minimum frequencies. Provide a map/drawing showing the locations of all tests taken.
 - a. Water Lettuce Scrubbers – Not less than one test per 2,500 square feet per lift and one test per 2,500 square feet at the excavation bottom. Perform the tests in a grid pattern and in both instances, the maximum distance on any grid side shall be 50 feet.
 - b. Algal Reaeration Units, Composting Areas, and Sludge Storage Areas – Not less than one test per 400 square feet per lift and one test per 400 square feet at the excavation bottom. Perform the tests in a grid pattern and in both instances, the maximum distance on any grid side shall be 20 feet.
 - c. Small Structures Such as Manholes and Drainage Structures – Take at least one compliance test at the center of the bottom of the excavation and take additional tests on at least two opposite sides of the structure.
 - d. Headworks Structure and all other structures - Not less than one test per 100 square feet per lift and one test per 100 square feet at the excavation bottom.
 4. Structure Strip Footings:
 - a. Water Lettuce Scrubbers – Not less than one test every 50 lineal feet at the excavation bottom and at each lift.

- b. Algal Reaeration Units, Composting Areas, and Sludge Storage Areas – Not less than one test every 20 lineal feet at the excavation bottom and at each lift.
 - c. Small Structures Such as Manholes and Drainage Structures – Take tests at one-foot intervals on at least two opposite sides of the structure, beginning at the bottom of the excavation and ending at finish grade.
 - d. Headworks Structure and all other structures - Not less than one test every 10 lineal feet at the excavation bottom and at each lift.
5. Isolated Column Footings - Perform density tests at all isolated column footings at the center of the bottom of the excavation.
 6. Asphalt Pavement, Milling Areas, and Grassed Roadway Areas, including all berms: Perform compliance tests within the fill/backfill at a frequency of not less than one test per 1,000 square feet per lift and one test per 1,000 square feet at the excavation bottom; or at a minimum of two test locations in each area, whichever is greater.
 7. Foundation Walls: Take at least 2 field density tests, at locations and elevations as directed.
 8. Pipelines: The compacted backfill shall be tested for in-place density at the rate of one test location per 200 lineal feet (or fraction thereof) of trench, or as shown on the Drawings. Take density tests at each location in one-foot intervals beginning at the trench bottom and ending at the final grade. At road or pavement crossings, a minimum of two (2) density tests per crossing per lift is required.
- C. Compaction Requirements: Unless specified elsewhere or otherwise shown on the Drawings or stated in writing by the ENGINEER, each layer of all fill and backfill, including that for utility trenches, shall be compacted to the density listed below as determined by the Modified Proctor Maximum Dry Density Test (ASTM D1557/AASHTO T-180). For all areas not specified below, the compaction shall be no less than 95 percent maximum dry density. Each layer shall be compacted to the specified density before placing subsequent layers.
1. Structures and building slabs and footings, within 10 feet around perimeter of building slabs - Compact the material under slab and footing bottoms for a minimum depth of two-feet, to no less than 98 percent maximum dry density.
 2. Buried structure walls - Compact backfill around buried structure walls to no less than 95 percent of maximum dry density.
 3. Unpaved areas - 95 percent of maximum dry density.
 4. Sidewalks and driveways - 98 percent of maximum dry density.
 5. Paved and millings areas and within 6 feet around the perimeter of paved and millings areas – See details on the Drawings.

6. Utility Trench Backfill:
 - a. Pipe Bedding and Foundation - Compact the bedding material below the bottom of the pipe barrel to 98 percent of maximum dry density for a minimum depth of 6-inches for the full width and length of the trench.
 - b. Initial Backfill - Initial backfill is defined as the backfill from the trench bottom to 12-inches above the top of the pipe. Compact to 98 percent of maximum dry density.
 - c. Subsequent Backfill - Subsequent backfill is the backfill placed above the initial backfill. Compact to the limits denoted in paragraphs 3.14.C.1, 2, 3, and 4, as applicable.
 7. Manholes and Precast Structures not installed above GCL:
 - a. Bottom of Excavation - Compact the material below the bottom of the excavation to 98 percent of maximum dry density for a minimum depth of 12-inches.
 - b. Backfill – Compact to the limits denoted in paragraphs 3.14.C.1, 2, 3, and 4, as applicable.
 - c. For backfill in ditches, etc. adjacent to headwalls, mitered end sections, and other end-of-pipe treatment, compact all backfill to minimum 95 percent maximum dry density.
 8. Ditches, Canals, Swales, Berms, etc. – compact all backfill to no less than 95 percent maximum dry density.
 9. Grassed roadway areas - See details on the Drawings.
- D. If the specified densities are not obtained, perform whatever work is required to provide the required densities at no additional cost to the OWNER. This work shall include complete removal of unacceptable fill areas, and replacement and recompaction of the new fill material until passing densities are achieved.
- E. Attempt to complete all compaction efforts within +/-2 percent of the compacted material's optimum moisture content as determined by ASTM D1557/AASHTO T-180.

3.15 VIBRATION (SEISMIC) MONITORING

- A. An existing residence and a work building are located east of the site's eastern property line and a County bridge is located near the site's northwest property corner. Before beginning any activities that may produce vibration, inspect and document the condition of the existing structures and all existing cracks, with descriptions and pictures using a qualified Specialty Engineer selected by and paid by the CONTRACTOR. Prepare two reports documenting the condition of the structures: one report before beginning construction operations that may

affect the existing structures, and a second report after completing the construction operations. Include in the reports the Specialty Engineer's assessment of any damage present, and in the event of damage, the Specialty Engineer's assessment of whether the observed damage is the result of the construction operations. Submit both reports to the ENGINEER. In the event the homeowner is unwilling to allow access to his or her property for inspection, his or her structures will not be monitored and adjustments in seismograph equipment measurements will be made as discussed in paragraph B, below.

- B. Using a geotechnical engineering firm selected and paid for by the OWNER, perform vibration monitoring near these structures when using vibratory rollers, during pile driving operations, and during all other construction activities that may produce vibrations that may damage the existing structures. The peak particle velocity shall not exceed 0.5 inches/second within 20 feet from the structures. If at any time the peak particle velocity exceeds 0.5 inches/second within 20 feet from the structures, cease all work immediately and do not resume until receiving direction from the ENGINEER. Monitoring may be discontinued at either site when in the written opinion of the geotechnical engineering firm, monitoring is no longer necessary due to the distance from existing structures to the construction equipment. Schedule all monitoring activities with the OWNER's geotechnical engineering firm. In the event the homeowner is unwilling to allow access to his or her property for monitoring, the geotechnical engineer will setup seismograph equipment at various distances within the site to document how the vibration levels diminish with distance up to a distance similar to that of the residence.

3.16 CONSTRUCTION OF EMBANKMENTS

- A. To the maximum extent available, use excess earth obtained from structure and trench excavations for construction of embankments. Import additional material from borrow pits as necessary. After preparation of the embankment area, level and roll the subgrade so that surface materials of the subgrade will be compacted and well-bonded with the first layer of the embankment. All material deposited in embankments shall be free from rocks or stones, brush, stumps, logs, roots, debris, and organic or other objectionable materials. Construct embankments in horizontal layers not exceeding 8 inches in uncompacted thickness. Spread and level material deposited by excavating and hauling equipment prior to compaction. Thoroughly compact each layer by rolling or other methods.

3.17 DISPOSAL OF EXCESS CLEAN (SUITABLE) EXCAVATED MATERIAL

- A. All clean excess excavated material not used on the project shall remain the property of OWNER. Load and transport said material to the following location:
 - 1. OWNER's storage yard located across the street from the County Road and Bridge Division headquarters at 4550 41st Street, Vero Beach, Florida. OWNER will provide staff and equipment to stockpile the material at this site.
- B. Before transporting material offsite to the designated locations, ENGINEER and CONTRACTOR shall meet with Indian River County Road and Bridge Division staff to coordinate placement of the material at the storage site. Provide minimum seven-day notice before beginning delivery of material and provide daily notices regarding material delivery status.
- C. All such work shall be at no additional expense to OWNER.
- D. Submit to OWNER for approval, the proposed haul route to be used for transport of material, and confine construction traffic to approved haul routes. Promptly clean-up any spillage and pay for all damage resulting from spillage.

3.18 DISPOSAL OF UNSUITABLE MATERIAL

- A. Unsuitable material includes but is not limited to muck, clay, roots, heterogeneous fill material, and any other organic or similar materials. Unforeseen items such as buried trees, timbers, abandoned utilities, metal objects, concrete masses, and the like, are also considered unsuitable material. If there is a doubt as to whether the material is classified as suitable or unsuitable, ENGINEER shall make the determination. At no additional cost to OWNER, haul away all unsuitable material and lawfully dispose of it in compliance with ordinances, codes, laws and regulations.

3.19 SETTLEMENT

- A. CONTRACTOR shall repair at its expense, all damage caused by any settlement occurring within one year from the date of Final Acceptance by OWNER. Make all repairs and replacements within 30 days after notice from ENGINEER or OWNER.

+ + END OF SECTION + +

SECTION 02225

EROSION CONTROL AND TREATMENT OF DEWATERING WATER AND STORMWATER FROM THE CONSTRUCTION SITE

PART 1 – GENERAL

1.1 SCOPE

- A. This Section covers erosion control and the treatment of dewatering water and stormwater runoff from the construction site and work area. Pollution control measures shall prevent polluted or turbid waters from being discharged from the construction site or work area to undeveloped portions of the site or offsite.
- B. The OWNER considers pollution from dewatering water and stormwater runoff from a construction site or work area to be a very serious offense. The CONTRACTOR is solely responsible for preventing pollution caused by dewatering water and stormwater runoff from the construction site or work area. Note that state regulations do not allow mixing stormwater and dewatering groundwater in the same release – separate and independent discharges are required.
- C. Pollution control measures specified herein represent minimum standards to be adhered to by the CONTRACTOR throughout the Project's construction. The OWNER reserves the right to require the CONTRACTOR to employ additional pollution control measures, when in the sole opinion of the OWNER, they are warranted. All Best Management Practices (BMPs) shall be consistent with the guidelines contained in the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (FDOT and FDEP 2013). If site specific conditions require additional erosion and stormwater pollution control measures during any phase of construction or operation to prevent erosion or to control sediment or other pollution, beyond those specified in the Drawings, the Project's approved Stormwater Pollution Prevention Plan (SWPPP), or herein, immediately implement additional BMPs as necessary and immediately amend the Project's SWPPP to reflect all modifications.
- D. The OWNER may terminate this Contract if the CONTRACTOR fails to comply with this Section. Alternatively, the OWNER may halt the CONTRACTOR's operations until the CONTRACTOR is in full compliance with this Section. If the OWNER halts the CONTRACTOR's Work as a result of failure to comply with this Section, the Contract time clock will continue to run.
- E. In addition to these Specifications, comply with Chapter 4 - "Best Management Practices for Erosion and Sedimentation Control" and Chapter 5 – "Best Management Practices for Dewatering" of the Florida Erosion and Sediment

Control Inspector's Manual. In the event of a conflict between the referenced chapters and these Specifications, the more stringent requirement shall prevail.

- F, Submit to SJRWMD a "Notice to District of Dewatering Activity" (SJRWMD Form No. 40C-2.900(12)), also known as an RDS-50, prior to commencement of dewatering in accordance with F.A.C. 40C-2.042(9). Provide a copy of the Notice and the dewatering plan to Indian River County.

1.2 PERMITS

- A. The OWNER has obtained certain permits for this project and they are listed in paragraph 6.08.B of the EJCDC Standard General Conditions of the Construction Contract (General Conditions). Per paragraph 6.08.C of the General Conditions, apply for and obtain all other required federal, state, and local permits, licenses, sampling, and tests. OWNER will pay all permit fees.
- B. Provide copies of all approved permits to the OWNER and ENGINEER and comply with all conditions contained in all permits at no extra cost to the OWNER. If there is a conflict between any permit requirement and these Specifications or requirements between permits, the more stringent specification or requirement shall govern.

1.3 TESTING

- A. Schedule and pay for all required water quality sampling and laboratory tests. The testing laboratory may be selected by the CONTRACTOR, but must be approved by the OWNER. The testing laboratory shall be a NELAP (National Environmental Laboratory Accreditation Program) Certified Laboratory.

1.4 GENERAL

- A. Do not begin any other construction work until the pollution control and treatment system has been constructed in accordance with approved plans (prepared by CONTRACTOR or CONTRACTOR's engineer), Stormwater Pollution Prevention Plan (SWPPP), permits, and these Specifications; and the installed system has been examined by the OWNER for compliance and found to be in compliance.
- B. From time to time, the OWNER or ENGINEER will inspect the pollution control and treatment system and may take effluent samples for analysis by a testing laboratory selected and paid for by the OWNER. If at any time, the OWNER or ENGINEER determines that the pollution control and treatment system is not in compliance with the approved system, the OWNER or ENGINEER will shut the project down and it shall remain shut-down until the pollution control and treatment system is properly constructed or repaired, and complies with the approved pollution control and treatment system plans, specifications, contract documents, and permits.

- C. Schedule construction to minimize erosion and stormwater runoff from the construction site. Implement erosion control measures on disturbed areas as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased. In addition to other temporary erosion control measures that may be implemented, application of polyacrylamide is required on all such disturbed areas within 7 days after the construction activity in that portion of the site has temporarily or permanently ceased, unless final landscaping has been installed. Polyacrylamide application shall be as specified herein. Include polyacrylamide application in the Project's SWPPP.
- D. Inspect each pollution control system and BMP at least once per day and within 24-hours after each rainfall event. Clean and maintain each pollution control system as required until the system is no longer needed. If a water quality violation occurs, immediately cease all work contributing to the water quality violation and correct the problem. Immediately report all water quality violations to the OWNER. Immediately report the discharge of any hazardous substance to the State Warning Point at 800-320-0519 or 850-413-9911.
- E. Discharge shall not violate State or local water quality standards in receiving waters, nor cause injury to the public health or to public or private property, nor to the Work completed or in progress. The receiving point for water from construction operations shall be approved by the applicable owner, regulatory agency, and the ENGINEER. The receiving point shall be shown on the Project SWPPP and shall be approved by the receiving point's Owner.
- F. Promptly repair and re-stabilize all damage at no cost to the OWNER.
- G. Regarding dewatering and discharge of dewatering water, also refer to and comply with Section 02220, "Excavation and Backfill." Neither OWNER or ENGINEER or any of their employees will provide guidance or direction to CONTRACTOR regarding chemical or physical characteristics of dewatering water or regarding treatment of dewatering water prior to its leaving the site. Chemical and physical analysis of dewatering water and treatment of dewatering water before it leaves the site is solely the CONTRACTOR's responsibility. CONTRACTOR is solely responsible to insure that all dewatering water discharged from the site meets applicable water quality criteria prior to discharge.

1.5 SUBMITTALS

- A. Shop Drawings: Submit shop drawings of the proposed pollution control and treatment systems in accordance with Section 1340.
- B. Approved Stormwater Pollution Prevention Plan.

- C. A completed Indian River County "Permittee's Affidavit Regarding Pollution" form.
- D. Copies of County Right-of-Way Permit if dewatering water will be discharged in or over County right-of-way offsite.
- E. A completed Indian River County "Permit to Discharge Produced Groundwater into Indian River County's Municipal Separate Storm Sewer System (MS4)", if applicable.

1.6 STORMWATER TREATMENT AND EROSION CONTROL SYSTEM RESPONSIBILITY

- A. Prepare a site-specific design of the erosion and stormwater pollution control system. Install and maintain all erosion and stormwater pollution control devices under the supervision of a State Certified Stormwater, Erosion, and Sedimentation Control Inspector. Maintain the erosion and stormwater pollution control devices until (1) in the ENGINEER's sole opinion, the devices are no longer necessary (such time not to extend past the date the OWNER formally accepts the Project as complete); and (2) a Notice of Termination (NOT) has been filed with the state. The NOT shall be filed and a copy shall be provided to the OWNER before Final Payment. Do not file the NOT until the Project has reached a minimum 85 percent stabilization.
- B. Before beginning construction, submit to Indian River County a SWPPP, prepared by the certified erosion control subcontractor. Construction shall not begin until the SWPPP has been approved by Indian River County, FDEP, and all other applicable regulatory agencies. Submit the approved SWPPP to the ENGINEER before beginning construction. Include in the SWPPP, Indian River County's "Permittee's Affidavit Regarding Pollution" form.

1.7 "POLLUTION" AND CERTAIN UNCONTESTABLE POLLUTION EVENTS DEFINED

- A. With respect to this Section and as may be further defined below, "pollution" is the presence in groundwater or off-site waters of any substances, contaminants, or manmade or human-induced impairment of groundwater or off-site waters or alteration of the chemical, physical, biological, or radiological integrity of groundwater or off-site water in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property. Pollutants to be removed include but are not limited to, sediment and suspended solids, solid and sanitary wastes, phosphorus, nitrogen, pesticides, oil and grease, concrete truck washout, stucco mixer washout, curb machine washout, washout from other construction equipment, construction chemicals, and construction debris.

- B. When the Discharge is Directly Into an Existing Water Body: In addition to the items in paragraph D. below, an existing water body (including ditches and canals) is defined to be polluted by the CONTRACTOR's operations when at any time, the turbidity of the water immediately downstream of the CONTRACTOR's discharge point(s) is at least 29 nephelometric turbidity units (NTUs) higher than the turbidity of the background water upstream of the discharge point(s). [See Fla. Administrative Code 62-302.530] Exception: When the discharge is directly into or through an outfall discharging into "Outstanding Florida Waters," designated by Florida Statute 403.061(27), the turbidity of the discharged water cannot exceed the turbidity of the immediate receiving water. The ENGINEER or OWNER shall determine the locations where the turbidity is measured.
- C. When the Discharge is not Directly Into an Existing Water Body: In some instances, dewatering water or stormwater runoff from the construction site or work area may reach a water body indirectly, such as by overland flow. If the discharge water's TSS and turbidity measurements exceed pre-construction background values by 20 percent for TSS and 29 NTUs for turbidity, then the discharge is defined to be polluted.
- D. When Pollution Always Occurs: The discharge from a construction site or work area into groundwater or off-site waters is always defined to be polluted whenever the pH of the discharge is less than 6.5 or greater than 8.5, or whenever any of the following is present in the discharge water:
- (1) Hazardous waste or hazardous materials in any quantity,
 - (2) Any petroleum product or by-product in any quantity,
 - (3) Any chemical in any quantity, or
 - (4) Concentrated pollutants.
- E. The above paragraphs do not in any way, limit the types of conditions in which pollution may be determined to occur.

1.8 PENALTIES FOR NONCOMPLIANCE WITH THIS SECTION

- A. In addition to the OWNER's specific remedies, if erosion or pollution is caused by dewatering water or stormwater runoff from the construction site, the OWNER may report the violations to Indian River County Stormwater Enforcement, SJRWMD, FDEP, Indian River Farms Water Control District (or other F. S. Chapter 298 Drainage District, as appropriate), and other pertinent regulatory or enforcement agencies. Responsibility for payment of any fines for any violations are the sole responsibility of the CONTRACTOR.

PART 2 - MATERIALS AND INSTALLATION

2.1 GENERAL

- A. Polyacrylamide: As required in Paragraph 1.4.C, place polyacrylamide (PAM) on bare ground to reduce the potential for erosion and cover it with hay, jute, or mulch. PAM may also be used in water bodies to remove turbidity. In all cases, use the anionic form of polyacrylamide that does not stick to fish gills. For PAM information and its proper application, a contact is Applied Polymer Systems, Inc., (678) 494-5998, www.siltstop.com. Provide the ENGINEER with a copy of the PAM information prior to its application. Alum is not permitted.
- B. Staked Silt Fences:
1. General: Use silt fences to control runoff from the construction site where the soil has been disturbed. Silt fences shall not be installed across ditches, swales, or any other facility that holds or conveys water.
 2. Installation: Install per the manufacture's recommendations and in accordance with FDOT Index No. 102. Install the silt fence along the property perimeter – it is to serve as a combination wildlife barrier and erosion control fence.
 3. Product: All material shall be new and unused. The wildlife barrier and erosion control fence along the property perimeter shall be an FDOT Type IV silt fence.
- C. Turbidity Barriers:
1. General: Use turbidity barriers to control sediment contamination of rivers, lakes, ponds, canals, etc. In canals owned by Indian River Farms Water Control District, only install turbidity barriers parallel to canal banks.
 2. Installation: Install per the manufacturer's recommendations and per FDOT Index No. 103 unless directed otherwise by the ENGINEER.
 3. Product: All material shall be new and unused. The turbidity barrier shall be a pervious barrier and the fabric color shall be yellow. Use staked turbidity barriers in water less than one-foot deep. Use floating turbidity barriers in water one-foot or deeper.
- D. Sedimentation Control From Dewatering or Pumping Operations Using Filter Bags:
1. Filter bags shall be manufactured using a polypropylene non-woven geotextile and sewn by a double-needle machine, using a high strength nylon thread. The bag shall have a fill spout large enough to accommodate a 4-inch pump discharge hose. Straps shall be attached to the bag to secure the hose and prevent pumped water from escaping without being filtered.
 2. Installation: Install in accordance with the manufacturer's specifications. Use as many filter bags as required, at no additional cost to the OWNER. Legally dispose of the bags offsite, at no cost to the OWNER. If the bags are placed on aggregate to facilitate filtration efficiency, do not use limerock aggregate – use only non-calcareous rock.
 3. Product: The filter bag shall be supplied with lifting straps.

- a. "DIRTBAG 53 or 55 as applicable," supplied by ACF Environmental, Inc. (1-800-448-3636).
- b. "DANDY DEWATERING BAG" supplied by Dandy Products, Inc. (1-800-591-2284).
- c. Or equivalent.

E. Curb Inlet Protection:

1. Filter stormwater before it enters curb inlets.
2. Installation: Install in accordance with the manufacturer's specifications. Use as many of the specified filtration devices as required, at no additional cost to the OWNER.
3. Product: All materials shall be new and unused. The length of the curb inlet filtration device shall be at least 2-feet longer than the curb inlet opening.
 - a. "GUTTERBUDDY," supplied by ACF Environmental, Inc. (1-800-448-3636).
 - b. Or equivalent.

F. Catch Basin Protection:

1. Filter stormwater before it enters catch basins (drop inlets). The filter "sack" shall be manufactured from woven polypropylene geotextile and sewn by a double-needle machine, using a high strength nylon thread. The sack shall be manufactured to fit the opening of the catch basin or drop inlet and it shall have the following features: two dump straps attached at the bottom to facilitate emptying; lifting loops as an integral part of the system to be used to lift the sack from the basin; and a colored restraint chord approximately halfway up the sack to keep the sides away from the catch basin walls. The colored restraint chord shall also serve as a visual means of indicating when the sack should be emptied.
2. Installation: Install in each catch basin in accordance with the manufacturer's specifications. Use as many of the specified filtration devices as required, at no additional cost to the OWNER.
3. Product: All materials shall be new and unused.
 - a. "SILTSACK" (regular flow), supplied by ACF Environmental, Inc. (1-800-448-3636).
 - b. "FloGuard+PLUS," supplied by Kristar Enterprises, Inc. (1-800-579-8819).
 - c. Or equivalent.

- G. Construction Site Egress Driveways: Install a system that will minimize the transport of sediment and soil from the construction site or work area by vehicle wheels. Install the system at the vehicle exit point(s). Locate the site egress driveways a minimum of 25 feet from all drainage inlets or pipes. Provide an area large enough to remove the sediment and soil from vehicle wheels before the vehicle leaves the construction site or work area. In no instance shall this

area be less than 50 feet long. Provide wash-down stations as required to wash vehicle tires and retain all washwater on-site. Do not use limerock.

H. Rock and Stone for Erosion Control and Pollution Control and Treatment:

1. Crushed Limerock: Limerock shall not be used under any circumstance.
2. Acceptable Material: FDOT #4 non-calcareous aggregate, washed and meeting the requirements of FDOT Standard Specifications for Road and Bridge Construction, Section 901.
3. Install filter fabric under all rock and stone.

I. Hay Bales: Hay bales shall not be used as a BMP or in water.

PART 3 - EXECUTION

- A. Design, construct, and maintain the pollution control and treatment system to minimize erosion and capture and remove pollutants from the construction site and from all other areas disturbed by construction activities.
- B. Apply polyacrylamide in strict accordance with the polyacrylamide manufacturer/supplier's recommendations and specifications.
- C. REPAIR ALL EROSION DAMAGE – At no additional cost to the OWNER and regardless of the state of completion of the Work, immediately clean all dirt and debris from all pipes and drainage structures; and repair all flooding, washouts, ruts, and all other erosion damage to the Work. This responsibility shall not end until Final Acceptance of the Work by the OWNER. Included is damage caused by erosion of any kind (e.g. wind, waves, stormwater runoff, hurricanes, etc.) including Acts of God. Restore all erosion damaged areas to design grades and elevations. Also, refer to General Conditions 6.13.B.

PART 4 – PAYMENT

- A. There shall be no additional payment for the Work discussed or implied under this Section.

+ + END OF SECTION + +

SECTION 02230

GRADING

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish all material, labor, equipment, and supervision required to grade the areas shown on the Drawings and specified herein. Under no circumstances shall areas outside the Limits of Construction be disturbed.
- B. In addition to these Specifications, grading requirements set forth in the FDOT "Standard Specifications for Road and Bridge Construction," latest edition at time of bid, shall also govern. If there is a conflict between the FDOT specifications and this Section, the most stringent specification or requirement shall govern.

PART 2 – MATERIALS – Not Used

PART 3 - EXECUTION

- A. General: Uniformly grade areas including all transition areas. Smooth subgrade surfaces within specified tolerances; compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
- B. Existing Planting Beds and Furrows: In areas to be filled, the existing planting beds and furrows shall be leveled.
- C. Grading
 - 1. Hand-dress all areas where equipment operation is restricted and as required to produce a smooth well-graded surface.
 - 2. Compact true to grade and cross section.
 - 3. Grading Surface of Fill Under Structures: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Unless otherwise specified, provide final grades within a tolerance of 1/4 inch when tested with a 10 foot straightedge.
 - 4. Eliminate all depressions (except those shown on the Drawings) and other irregular surface features.
 - 5. Unless otherwise noted or implied on the Drawings, round the tops of embankments and breaks in grade with a minimum radius of 6 feet.
 - 6. Slope all surfaces to drain. Within 10 feet of structures and paved areas, slope all surfaces to drain away at a minimum of 1/4 inch per foot, unless shown otherwise on the Drawings or directed by the ENGINEER.
 - 7. All surfaces shall be cleared, grubbed, and stripped free of all roots, debris,

- topsoil, trash, vegetation, and other deleterious material.
8. Follow finish grading with one pass of a steel wheel roller weighing not more than 100 pounds per linear foot and not less than 25 pounds per linear foot. No power rolling will be permitted within 8 feet of any wall or structure.
 9. Fine grade and landscape all areas in the vicinity of pavement before the pavement is laid.
 10. Keep all graded areas free from sticks, rubble, and all other debris, repair washouts and ruts caused by equipment, all weather events (including but not limited to hurricanes and tropical storms), etc., and maintain until Final Acceptance of the Work.
 11. For non-paved areas and areas not under structure or within 10 feet of structures, the final grade shall be +/- 0.10 feet of design grade. Within 10 feet of pavement or structures, the final grade shall be +/- 0.05' of design grade.
- D. Compaction: Compact subgrade surfaces to the depth and percentage of maximum density required for each area classification.
- E. Repair Erosion Damage – At no additional cost to the OWNER, repair all ruts, washouts, and other types of site damage due to all weather events (including but not limited to hurricanes and tropical storms). This responsibility shall not end until Final Acceptance of the Work by the OWNER. Refer also to Section 02225 – “Erosion Control and Treatment of Dewatering Water and Stormwater Runoff From the Construction Site.”

+ + END OF SECTION + +

SECTION 02232

HYDROSEEDING NATIVE WILDFLOWER SEED AND NATIVE GRASS SEED

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish all material, labor, equipment, and supervision required to hydroseed the areas shown on the Drawings or specified herein. In addition, all disturbed areas outside the limits of construction are to receive hydroseed at no additional cost. The hydroseeding shall produce a healthy stand of native wildflowers and native grass, free of weeds and foreign growth.
- B. The objective of the hydroseeding is to provide and apply a mixture of native wildflowers and/or native grasses that will result in a healthy stand of vegetation for wildlife support, erosion prevention, and which can sustain occasional vehicular traffic along berms/service roads.

PART 2 - PRODUCTS

2.1 MATERIALS AND QUANTITIES TO BE APPLIED

- A. MULCH - Mulch shall be specially prepared for use in hydroseeding. Apply a minimum of 3,500 pounds/acre of Bonded Fiber Matrix Mulch.
- B. SOIL NEUTRALIZERS
 - 1. Minimum 10 gallons/acre of Profile Aqua-pHix™; or equivalent.
- C. BIOSTIMULANTS
 - 1. Minimum 5 gallons/acre of JumpStart™ Growth Stimulant by Profile; or equivalent.
 - 2. Minimum 160 pounds/acre of BioPrime™ by Profile; or equivalent.
- D. BIOTIC SOIL MEDIA
 - 1. Minimum 5,000 pounds/acre of ProGanics™ by Profile; or equivalent.
- E. SEED (GENERAL)
 - 1. The seed shall be harvested from the previous year's crop. All seed bags shall have an up-to-date label stating the date of harvest, LOT number, percent purity, percent germination, noxious weed certifications, and date of test.
 - 2. Furnish and deliver each species or variety of seed in separate labeled bags.

During handling and storage, the seed shall be cared for in such a manner that it will be protected from damage by heat, moisture, rodents, and other causes.

3. All seed shall have been tested within a period of six months before the date of planting.
4. All seed have a minimum percent of purity and germination as follows:
 - a. Bahia seed – minimum pure live seed content \geq 95 percent with a minimum germination of 90 percent.
 - b. Bermuda seed – minimum pure live seed content \geq 95 percent with a minimum germination of 90 percent.
 - c. Browntop Millet, Quail Mix, Wildflower Mix, and other specified seed – minimum pure live seed content \geq 95 percent with a minimum germination of 90 percent.

F. SEED MIX TO BE APPLIED ON “BLUE” COLORED AREAS ON SHEET L2 (15’ WIDE BERM / SERVICE ROAD AREAS):

1. 33 pounds/acre of Un-Hulled Bermuda seed.
2. 33 pounds/acre of Pensacola Bahia seed.
3. 34 pounds/acre of Browntop Millet

The seed mix shall be Hancock’s Erosion Control Seed Mix or equivalent.

G. SEED MIX TO BE APPLIED ON “PINK” COLORED AREAS ON SHEET L2

1. 40 pounds/acre of Un-Hulled Bermuda grass.
2. 15 pounds/acre of Quail Mix equivalent to Hancock's Southeast Native Quail Mix or if the Quail Mix is not available, 15 pounds/acre of Mix #1 listed in Attachment 1.
3. 30 pounds/acre of Wildflower Mix equivalent to Hancock's Southeast Wildflower Mixture.

H. ANNUAL FERTILIZER APPLICATION – Use the following annual fertilizer mix.

1. Nitrogen (N) = 126.3 pounds/acre per year
2. Phosphorus Pentoxide (P_2O_5) = 0.4 pounds/acre per year.
3. Potassium Oxide (K_2O) = 139.4 pounds/acre per year.

Apply the fertilizer at appropriate times during the landscape maintenance period (said application periods as determined by CONTRACTOR’s landscaping subcontractor).

I. SOILS ANALYSIS – An analysis of soil samples from the Project site is shown in Attachment 2.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. HYDROSEEDING

1. Remove silt fencing and then fill and final grade silt fence trenches before hydroseeding. Time all hydroseeding activities to minimize the amount of equipment traversing hydroseeded areas. Hydroseeded areas that are adversely impacted by construction activity will not be accepted and shall be redone at no additional cost to the OWNER.
2. Mix the proportions of seed and mulch with water and other appropriate components, such as soil neutralizers and growth stimulants, etc. Mix and apply the slurry with equipment specifically designed for this purpose. Uniformly apply the slurry over the area being covered at the specified application rates. All work shall be in accordance with the directions of the hydroseeding equipment manufacturer and the material supplier.

B. MAINTENANCE

1. Maintain the seeded areas until Project Final Acceptance, and afterwards in accordance with the landscaping maintenance requirements in Section 02235. Water and fertilize the seeded areas as necessary to provide optimum growth conditions. Until final acceptance, maintenance shall include the filling, leveling, repairing, and reseeded of any rutted, washed or eroded areas regardless of when or how the erosion occurs.
2. Within the twelve-month maintenance period, the ENGINEER will require replanting/rehydroseeding of any area in which the establishment of the seeded area does not appear to be developing satisfactorily.
3. If a planted area must be replanted/hydroseeded during the twelve-month maintenance period, such replacement shall be at the CONTRACTOR's expense.

3.2 PAYMENT

- A. Turn in all seed tags for all seeds. Fifty percent (50%) payment will be deducted if coated seeds are used or if seed tags are not turned in.
- B. Payment for hydroseeding will be on a lump sum basis and shall include but not be limited to all labor, fuel, equipment, water, materials, additives, seed, mulch, fertilizer, etc. required to properly apply the hydroseed and maintain the hydroseeded areas until Final Acceptance.
- C. Payment for maintenance during the specified maintenance period after Final Acceptance shall be on a per month basis. The unit price and payment will constitute full compensation for establishing and maintaining at least an 80% coverage over the hydroseeded areas. This Work includes, but is not limited to providing all labor, materials, equipment, re-hydroseeding as necessary, temporary irrigation facilities including maintenance and repairs, fertilization, etc.

ATTACHMENT 1

Custom Wildflower Mixture
Mix # 1 With Grasses
CUMX042619

%	Common Name	Latin Name
30.30	Wildrye, Virginia 'VNS'	<i>Elymus virginicus</i>
18.18	Partridge Pea	<i>Chamaecrista fasciculata</i>
12.12	Coreopsis, Lance Leaved	<i>Coreopsis lanceolata</i>
12.12	Coneflower, Purple	<i>Echinacea purpurea</i>
12.12	Bluestem, Little 'VNS'	<i>Schizachyrium scoparium</i>
6.06	Bundleflower, Illinois	<i>Desmanthus illinoensis</i>
3.03	Switchgrass 'Dacotah'	<i>Panicum virgatum 'Dacotah'</i>
3.03	Indiangrass 'VNS'	<i>Sorghastrum nutans</i>
1.52	Sunflower, Ox-Eye	<i>Heliopsis helianthoides</i>
1.52	Black-Eyed Susan	<i>Rudbeckia hirta</i>
	Germination,	04/19
100.00%	Pure Seed	
0.00%	Crop Seed	
0.00%	Inert Matter	
0.00%	Weed Seed	

ATTACHMENT 2

SOIL TEST RESULTS

* All soil tests were conducted by an independent, third-party laboratory.

Project: 5045-0003-1

*** Project Name:** Moorhen Marsh

Project Number:

File #:

Location: 1801 27th Street
Indian River, Florida
United States

Notes: . I just found out the Wildflower Mix #1 in the pdf I sent was a substitute for only the Quail Mix. The Bermuda and other wildflower mix in the original spec were both used with the Wildflower Mix #1. Keith McCully, P.E. Stormwater Division 772-226-1562

SOIL SAMPLE LOCATIONS AND DESCRIPTIONS

Sample (#)	Location	Description
1	VARIOUS LOCATIONS FOR COMPOSITE	WEST AND NORTH PERIMETER
2	VARIOUS LOCATIONS FOR COMPOSITE	EAST AND SOUTH PERIMETER

RECOMMENDED PRESCRIPTIVE AGRONOMIC FORMULATIONS BASED ON SOIL ANALYSIS

Please contact Profile Technical Services (tech@profileproducts.com) regarding these test results

Sample	Soil Neutralizers						Growth Stimulants				Biotic Soil Media™	
	Aqua-pHix™ ¹		NeutraLime™ ²		Agricultural Lime ³		JumpStart™		BioPrime™		ProGanics™ ⁴	
	gal/ac	L/ha	lb/ac	kg/ha	lb/ac	kg/ha	gal/ac	L/ha	lb/ac	kg/ha	lb/ac	kg/ha
1	10	94	0	0	0	0	5	47	160	179	5,000	5,600
2	10	94	0	0	0	0	3.75	35	120	135	4,500	5,040

Notes: 1. Aqua-pHix is also available in a granular form, please contact Tech@profileproducts.com with questions. 2. NeutraLime is also available in a liquid form, please contact Tech@profileproducts.com with questions. 3. Based on 100% Calcium Carbonate Equivalent tilled in to a depth of 6in. 4. ProGanics Dual™ may be a suitable alternative to ProGanics BSM, please contact tech@profileproducts.com to receive recommendations.

FERTILIZER RECOMMENDATIONS

Sample	Crop Yield or Turf/ Ornamental Code	Gypsum		Sulfur		N		P ₂ O ₅		K ₂ O	
		lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha	lb/ac	kg/ha
		1	TURF	0	0	0	0	126.3	141.6	0.4	0.5
2	TURF	0	0	0	0	122	136.7	0.4	0.5	135	151.4

SOIL ANALYSIS RESULTS (Optimal Plant Growth Conditions)

Sample	Nitrate N ppm	Phosphorus ppm	Potassium ppm	Magnesium ppm	Calcium ppm	Sulfur ppm	Zinc ppm	Manganese ppm	C
1	2	28	23	34	2237	2	5.53	2.3	

Sample	Nitrate N ppm	Phosphorus ppm	Potassium ppm	Magnesium ppm	Calcium ppm	Sulfur ppm	Zinc ppm	Manganese ppm	C
2	4	29	34	40	2203	3	8.58	4	
	(10 - 30)	IF pH ≤ 7.1 (20-40) IF pH > 7.1 (10-25)	(150 - 250)	(60 - 300)	(≥ 400)	(5 - 20)	(1.3 - 3.0)	(4.1 - 12.0)	(1

Sample	% Organic Matter	Soil Respiration mg CO2/kg soil/week ⁵	Sand %	Silt %	Clay %	Texture USDA
1	0.7	0	92.4	2.4	5.2	Sand
2	0.8	0	92.4	2.4	5.2	Sand
	(> 5%)	(> 1,000)	(20 - 60%)	Silt & Clay (40 - 80%)		

Notes: 5. Soil Respiration ppm = mg/kg

Sample	Soil pH ⁶	Buffer Index	TDS ⁷	Soluble Salts mmhos/cm	Sodium ppm	SAR ⁸	Bulk Density	
							g/cm ³	oz/in ³
1	7.7	7.5	185.6	0.17	8	0.18	1.55	0.9
2	8	7.5	204.8	0.18	9	0.16	1.54	0.89
	(6.3 - 7.3)		(<256)	(< 0.75)		(<2)		

Notes: 6. Contact Tech@profileproducts.com if pH is < 4.2 or > 9.2 for specific site recommendation. 7. Total Dissolved Salts. 8. Sodium Adsorption Ratio.

Sample	Cation Exchange Capacity: Actual % of Total CEC						Saturated Paste Extract Results				
	% K	% Mg	% Ca	% Na	% H	Total CEC	Bicarbonate ppm	Chloride ppm	Silicon ppm	SO ₄ ppm	Zinc ppm
1	0.5	2.5	96.7	0.3	0	11.6	221.5	9	13.5	6.7	0
2	0.8	2.9	96	0.3	0	11.5	589.4	19.4	29	12.5	0.1
	(3 - 7%)		(0 - 4%)		(10 - 30)						

Sample	Cation Exchange Capacity: Actual % of Total CEC						Saturated Paste Extract Results				
	% K	% Mg	% Ca	% Na	% H	Total CEC	Bicarbonate ppm	Chloride ppm	Silicon ppm	SO ₄ ppm	Zinc ppm
		(15 - 20%)	(65 - 75%)		(0 - 5%)						

For full overview of all soil testing methods and their interpretation please click on this link for the Profile Technical Document - Soil Testing and Interpretation

GENERAL FERTILIZATION GUIDANCE

- Fertilizer recommendations are based on annual requirements for turfgrass species. Application rates should be adjusted to account for annual application time, seasonality and vegetation that is being planted.
- Contact your seed supplier for specific recommendations that are applicable to your seed blend, area, and climate.
- Values shown above for Macro and Micro Nutrients should be reviewed by a local agronomist prior to making any general fertilization recommendations.

+++ END OF SECTION +++

SECTION 02235

LANDSCAPING

PART 1 - GENERAL

1.1 SCOPE

- A. This Work consists of furnishing all labor, supervision, material, equipment, transportation, etc., to complete all landscaping work for the areas shown or implied on the Drawings, and as specified herein. Work shall also include the initial removal of all invasive exotic species from within the work area, and continual removal of exotics for the times specified herein.
- B. The CONTRACTOR is solely responsible for watering and otherwise maintaining the landscaping from the time of planting until the end of the landscape maintenance and warranty period specified herein. Furnish and install a temporary irrigation system through the end of the landscape maintenance and warranty period at no additional cost to the OWNER.
- C. All native trees (including cabbage palms) and other vegetation to remain within or abutting the work area are to be flagged, protected with fencing as detailed on the Drawings, and preserved.
- D. Also refer to Section 02232 - Hydroseeding.

1.2 SUBMITTALS

- A. Before planting, submit two samples of each specified plant to the OWNER for approval and identify the name, address, and telephone number of the nursery supplier.
- B. Provide the following documentation from the supplier of native plants:
 - 1. A list and general description of three south/central Florida projects of similar size and complexity within the past 7 years.
 - 2. Certification that all plants were obtained legally and with proper permitting

1.3 PROTECTION OF GOPHER TORTOISES

- A. Gopher tortoises inhabit the site. Their burrows have been identified to the best extent possible. Take extreme care to prevent disturbing or harming the site's gopher tortoises. Maintain a minimum 25-foot radius from all gopher tortoise burrows. If a planting location appears that it will interfere with a tortoise burrow,

modify the planting layout as necessary so the burrow is not disturbed.

1.4 EXOTIC AND INVASIVE VEGETATION ELIMINATION

- A. Keep the work area free of exotics and invasive vegetation until the end of the landscape maintenance and warranty period specified herein.
- B. All herbicide must be applied by an individual possessing a State (FDACS) Certified herbicide application license of the appropriate class. Provide the OWNER with a copy of the individual's license before herbicide application. Do not impact native plants with herbicide. Each month, provide a list of types of herbicide applied, locations where each type was applied, and the amounts used. Use of "Roundup" or any other product containing Glyphosate is not allowed on this Project.
- C. Vines growing in trees within the work area that are to remain do not need to be pulled out of the tree canopy. Cut the vines and carefully treat each vine and stump at the base with approved herbicide, leaving the remaining severed vines in the tree canopy.

PART 2 – PRODUCTS

2.1 FERTILIZER

- A. Provide a complete analysis slow-release fertilizer that is uniform in composition, dry, and free flowing. Deliver to the site in the original unopened containers, each bearing the manufacturer's statement of analysis. Fertilizer shall meet the following requirements:
 - 1. 12 percent Nitrogen (Minimum 70% Slow Release N Source)
 - 2. 8 percent Potassium.The fertilizer shall also contain trace elements. All of the nitrogen shall be derived from organic materials. Do not place any fertilizer in settling basins or wetland polishing areas.

2.2 PLANT MATERIAL

- A. All nursery stock shall conform with Grades and Standards for Nursery Plants Parts I and II, latest edition, published by the Florida Department of Agriculture and Consumer Services. All plantings shall be Florida #1 specimens or better as determined by the Florida Division of Plant Industry. Supply native vegetation in proper containers and at the size indicated on the Drawings. Under no circumstances shall plant material containing fire ants or hydrilla be brought onto the Project Site. If this occurs, the plant material shall be immediately removed from the site.

- B. All vegetation shall be sound, healthy, well-branched, and free of disease, insect eggs, larvae, nematodes, weeds, and exotic or invasive vegetation. All plants shall have adequate root systems and shall not be root-bound. All plants not meeting this requirement will be immediately rejected and shall be immediately removed from the project site.
- C. Plants larger in size than specified may be used if approved by the OWNER. If the use of larger plants is approved, the required ball of earth or spread of roots shall be increased in proportion to the size of the plant.
- D. Inspection: At any time, the OWNER may inspect plants at the place of planting for quality, size, and variety. Prior approval shall not impair the right of re-inspection and rejection at the site during progress of the Work or after completion, for size and conditions of balls or roots, latent defects, disease, infestations, injuries, etc. Remove rejected plants immediately from the project site and replace with new material within two days. Plant material rejected shall be replaced at no additional charge.
- E. Condition of Plant Material at Project Final Completion: At Final Completion, which occurs before the beginning of the 12-month Maintenance and Warranty Period, all plant material shall be sound, healthy, well-branched, and free of disease, insect eggs, larvae, nematodes, weeds, and exotic or invasive vegetation. Plant material rejected shall be replaced at no additional charge at the end of Final Completion.

2.3 COLLECTED STOCK

- A. No collected stock is permitted from private / public property.

2.4 NATIVE STOCK

- A. Plants collected from wild or native stands shall be considered nursery grown when they have been reestablished in the nursery row and grown under regular nursery cultivation practices for a minimum of 12 months and have attained adequate root and top growth to indicate full recovery from transplanting into the nursery row.

2.5 CONTAINER-GROWN STOCK

- A. All container-grown stock shall be healthy, vigorous, well-rooted plants and established in the container within which they are sold. The tops shall be in good quality and in a healthy growing condition.
- B. An established container-grown plant shall have been transplanted into a container

and grown in that container sufficiently long for new fibrous roots to have developed so that the root mass will retain its shape and hold together when removed from the container.

- C. Root-bound plants will be rejected and shall be immediately removed from the project site.

2.6 NETLESS EROSION CONTROL BLANKET

- A. Where shown on the Drawings, furnish and install netless, fully biodegradable, wildlife friendly erosion control blankets (ECB) to protect slopes from erosion and to assist with landscaping plant growth. Netless erosion control blankets shall be Curlex Netfree ECB by American Excelsior Company (888-352-9582); or Futerra F4 Netless by Profile Products, LLC (888-298-9911).
- B. The cost for all netless erosion control blankets shall be included in the price bid for the plantings in the areas in which it is installed as shown on the Drawings.

PART 3 - EXECUTION

3.1 DIGGING AND HANDING

- A. Do not hold for planting more than the time recommended by the supplier and protect from excessive exposure and dehydration. Pack plant material during transport to prevent breakage and drying during transport. Trees transported more than ten miles or not planted within three days of delivery to the project site shall be sprayed with an antitranspirant product ("Wiltpruf" or equivalent) to minimize evapotranspiration loss.
- B. Dig balled and burlapped (B&B) plants with firm, natural balls of soil of sufficient size to encompass the plant's fibrous and feeding roots. Do not plant said plants if the ball is cracked or broken.
- C. Do not handle plants by their stems.
- D. If plants are marked "BR" on the Drawings they shall be dug with bare roots. Do not cut roots within the minimum spread listed on the Drawings. Ensure roots do not dry out during moving or before planting.
- E. Protection of Palms: Only remove a minimum of palm fronds from the crown of the palm tree to facilitate moving and handling. Clear Trunk (CT) shall be as specified.
- F. Excavate for plantings using extreme care to avoid damage to subsurface utilities,

Gopher Tortoise burrows, adjacent improvements, etc.

- G. Soil Parameter Check: Prior to ordering plants, test the soil pH and other pertinent soil parameters to verify the specified plants will grow well in the existing soil. If the soil conditions are such that the specified plants will not grow well, notify the ENGINEER in writing and provide a recommended substitute list of plants that will grow well in the existing soil, for the ENGINEER's review. The warranties set forth elsewhere in this Specification shall apply to all substitute plantings recommended by the CONTRACTOR.

3.2 PLANTING PROCEDURES

- A. Cleanup the site before commencing the work and after the work is completed. Remove all objectionable matter, rubbish, etc. from the site before planting. Do not mix these materials with the soil.
- B. After uniformly grading or hand raking the ground surface, prepare the ground prior to planting using appropriate methods. The surface shall be free of ruts and graded in accordance with the Drawings. The ground shall be free of weed growth either by cultivation or spraying of approved herbicides.
- C. Protect Geosynthetic Clay Liner: A geosynthetic clay liner is installed below the bottom and sides of the settling basins and wetland polishing marshes. Take extreme care when planting to not puncture or otherwise disturb this liner. Liner details and locations are shown on the Drawings. CONTRACTOR shall repair all liner damaged as recommended by the liner manufacture at no cost to the OWNER.
- D. Install and maintain all plants as recommended by the supplier nursery. Perform all planting procedures with qualified personnel. Insure no air pockets are around the roots.
- E. The diameter of all plant holes (trees and shrubs) shall be two times the diameter of the root ball or plant container (for container grown plants). Fill the void in the planting hole with top quality topsoil.
- F. Set plants straight and level such that after settlement, the plant crown will stand one to two inches above grade. Set each plant in the center of the pit.
- G. The OWNER will meet with the CONTRACTOR in the field to determine the locations of all trees (new or site-transplanted). The locations shown on the Drawings may be field adjusted to provide optimum aesthetics and habitat cover.
- H. After planting trees, remove all broken branches and suckers with a clean cut.

However, do not prune any trees if pruning is not required for the tree's health. The trees must remain as "bushy" or leafy as possible in order to provide windbreaks for the water lettuce scrubbers.

- I. Evenly space hedge plants in accordance with the Drawings.
- J. Guy and brace all trees to insure stability and to maintain the tree in an upright position and to secure it against high winds.
- K. Fertilize all upland plants at least once to ensure proper growth until the maintenance period begins. Notify the ENGINEER prior to applying the fertilizer. Immediately after fertilizer application, provide a written certification to the ENGINEER that the fertilizer was applied per the Specifications – payment for this fertilization will not be issued without this certification. Fertilize so that runoff of fertilizer-laden water into water bodies does not occur.

3.3 RELOCATED SABLE PALMS

- A. Certain sable palms are to be relocated as indicated on the Drawings. Immediately after relocation, protect and maintain these palms. Beginning on the date of Final Acceptance by the OWNER, the palms shall have the warranty period discussed in paragraph 3.6 and on the Drawings. All maintenance costs until the date of Final Acceptance shall be at no additional cost to the OWNER.

3.4 PLANTING AREAS

- A. Planting areas in general, are shown on the Drawings.

3.5 TEMPORARY IRRIGATION SYSTEM

- A. Design, furnish, install, and maintain a temporary irrigation system or provide other means to water and maintain all landscape items/planting areas during the maintenance and warranty period. CONTRACTOR may use water from the treatment units, settling basins, or wetlands. The OWNER will not provide electricity. Temporary facilities shall not conflict with the site's operation and maintenance. There is no set number of irrigation events in this Contract. Irrigate as many times as necessary to keep all landscape items/planting areas alive and healthy for the entire landscape maintenance and warranty period. Increase irrigation events as required during all drought periods and at no additional cost to the OWNER.

3.6 THE LANDSCAPE MAINTENANCE AND WARRANTY PERIOD (INCLUDING RELOCATED SABLE PALMS) – PART B OF THE CONTRACT

- A. Maintenance and Warranty Period: The maintenance and warranty period for all landscaping (including hydroseeded areas and relocated sable palms) shall run consecutive and the duration is one-year, beginning on the date of Final Acceptance of the Project's construction portion by the Indian River County Commission (which will occur at a County Commission meeting). Termination of Part B of the Contract and final contract closure will occur at the successful ending of the one-year period. During the maintenance and warranty period, operate and maintain the temporary irrigation facilities, maintain the plantings, and guarantee that:
1. One Hundred (100) percent of the upland planted individuals and ninety (90) percent of the hydroseeded areas become established and show signs of normal growth, based upon standard growth parameters such as height, base diameter, canopy circumference, etc.; and
 2. At least ninety (90) percent cover by appropriate wetland herbaceous species has been obtained.
- B. Replacement Plantings: Replace all plantings not meeting the above warranty period. All replacement plants shall be Florida #1 specimens and they shall be installed and maintained as recommended by the supplier nursery and specified herein and on the Drawings, for an additional one-year period. All re-hydroseeded areas shall meet the requirements of Section 02232. Coordinate planting with County personnel. Replacements and associated maintenance shall be at no cost to the OWNER.
- C. As a minimum, perform maintenance every two weeks. Take special care to not disturb birds, nests, or other wildlife.
- D. Fertilize plantings as necessary to ensure proper growth throughout the maintenance and warranty period and provide all other care necessary for their survival at no additional cost.

3.5 EXOTIC AND INVASIVE VEGETATION ELIMINATION PERIOD FOR ENTIRE DEVELOPED SITE

- A. Beginning on the same date as the landscape maintenance and warranty period, destroy and continually destroy, all exotic and invasive vegetation on the entire site for one-year. As a minimum, perform a complete exotic and invasive vegetation elimination every two weeks. Kill all exotic and invasive vegetation using methods approved by both the OWNER and St. Johns River Water Management District (SJRWMD) (i.e. hand remove or lightly spray with SJRWMD and OWNER approved herbicides) and keep all areas free of exotics. Use of "Roundup" or any other product containing Glyphosate is not allowed. Take special care to not disturb birds, nests, or other wildlife. Do not use any chemicals, etc. harmful to wildlife. All herbicides must be approved by the OWNER prior to their use. For Brazilian

pepper tree eradication, use a herbicide proven to kill Brazilian pepper trees. All herbicides shall be color-marked so it leaves a colored imprint where sprayed, to easily identify where it is applied. Replace all landscaping material damaged by overspray at no cost to the OWNER.

- B. In addition to cattails and other plants normally considered to be exotic or invasive species by the industry, eliminate and remove from the Project Site all of the plants in the following attachment "Upland and Wetland Invasive Exotics" (11 pages).

+ + END OF SECTION + +

PLANT IDENTIFICATION TIPS:

**UPLAND and WETLAND
INVASIVE EXOTICS**



K. C. Burks, Botanist
Bureau of Invasive Plant Management
Florida Department of Environmental Protection
Tallahassee, Florida 32399 850-245-2809
August 2003



www.dep.state.fl.us/lands/invaspec/index.htm

Illustrations courtesy of the Center for Aquatic and Invasive Plants, IFAS, University of Florida
(<http://plants.ifas.ufl.edu/>)

Except:

Abrus precatorius, courtesy of Jackie Smith, FDEP.

Albizia julibrissin, from Kurz, H., and R.K. Godfrey. 1962. *Trees of Northern Florida*. Univ. Press of Florida, Gainesville.

Albizia lebbek, *Cupaniopsis anacardioides*, *Ficus microcarpa*, *Jasminum dichotomum*, *Leucaena leucocephala*, courtesy of Miami-Dade County Dept of Environmental Resources Management, illustrations by Elizabeth Smith.

Imperata cylindrica, courtesy of LeRoy G. Holm (used in *World's Worst Weeds*, 1979).

Lonicera japonica, from Godfrey, R.K., and J. Wooten. 1981. *Aquatic and Wetland Plants of Southeastern United States: Dicotyledons*. Univ. of Georgia Press, Athens.

Neyraudia reynaudiana, from Hitchcock, A.S., and A. Chase. 1950. 2nd edition. *Manual of the Grasses of the United States*. USDA Ag. Research, Washington, DC.

Pueraria montana, courtesy of Suzanne Kennedy, Brevard County Natural Resources Dept.

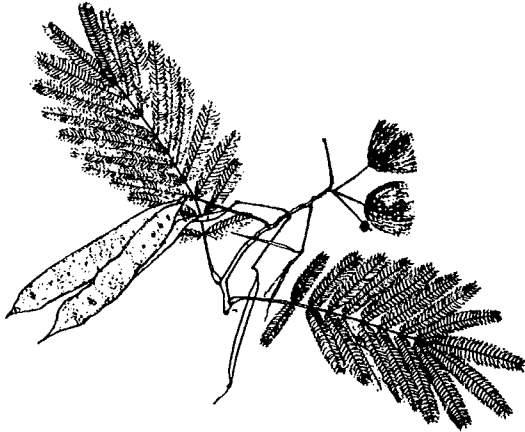
Scaevola sericea, courtesy of K.C. Burks, FDEP.

Solanum viarum, courtesy of Jeff Mullahey, Agronomy Dept., Univ. of Fla. IFAS (used in # SS-AGR-58. 1996).

Trees

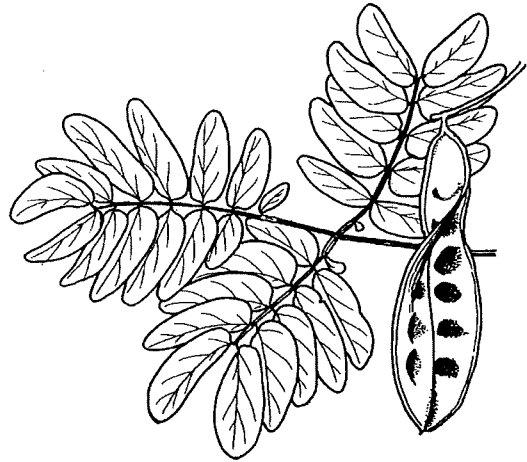
Albizia julibrissin – mimosa tree

- Trees to ___ ft, with spreading crown
- Unarmed, i.e., no thorns or prickles
- Leaves twice compound, leaflets tiny, many
- Flowers in pink “powder-puff” clusters
- Fruit a long, flat pod



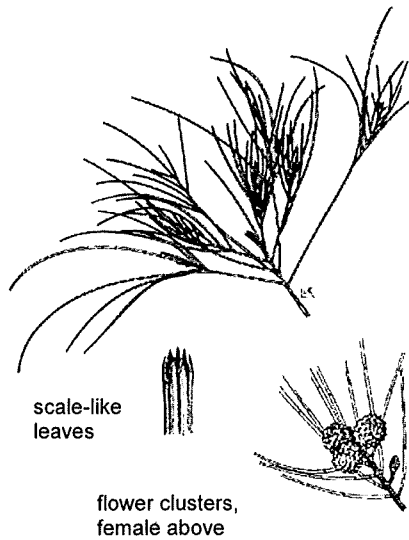
Albizia lebeck – woman's tongue

- Trees to 65 ft, with spreading crown
- Unarmed, i.e., no thorns or prickles
- Leaves twice compound, leaflets 1-2 in. long
- Flowers in yellowish “powder-puff” clusters
- Fruit a flat long pod, persisting & “rattling” in wind



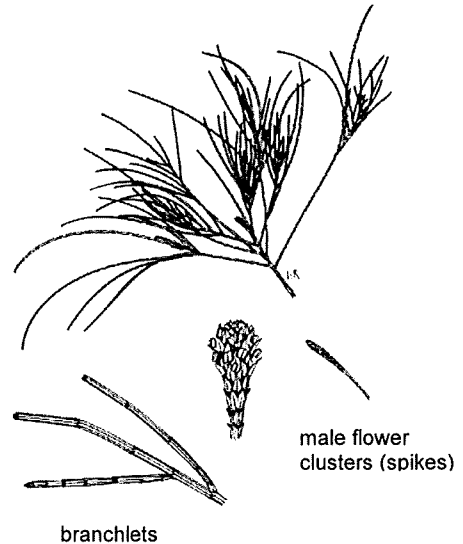
Casuarina equisetifolia – Australian-pine

- Trees to 150 ft, with open crown
- Branchlets thin, grayish green
- Leaves tiny, scalelike, in whorls of 6-8
- Flowers tiny, unisexual, on same tree
- Fruits in woody, conelike clusters



Casuarina glauca – thicket Australian-pine

- Trees to 65 ft, with dense crown
- Spreads by root suckers
- Branchlets thin, green, often waxy
- Leaves tiny, scalelike, in whorls of 12-17
- Flowers tiny, mostly male trees in Florida



Trees

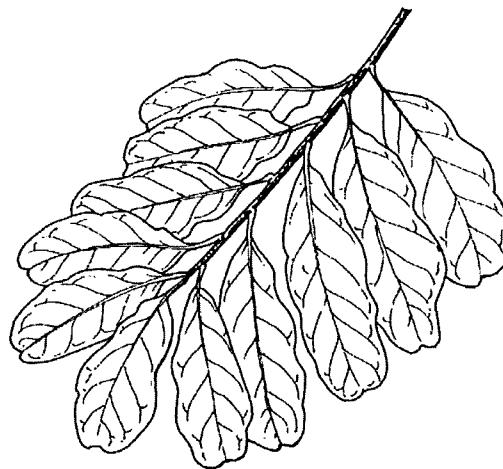
***Cinnamomum camphora* – camphor tree**

- Evergreen tree to 60 ft tall, glabrous
- Cut stems/leaves highly aromatic
- Leaves simple, alternate, with short petioles
- Leaf blades lustrous, entire
- Glands on lower leaf surfaces



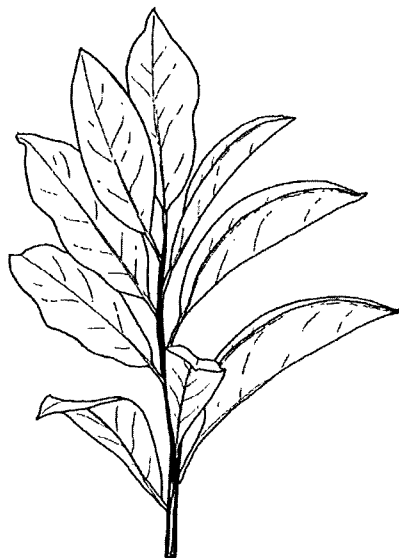
***Cupaniopsis anacardioides* – carrotwood**

- Slender evergreen tree to 10 m
- Inner bark often orange (carrot color)
- Leaves large, compound, with 4-12 leaflets
- Leaflets leathery, dark green, oblong
- Flowers tiny, green-yellow, in long racemes



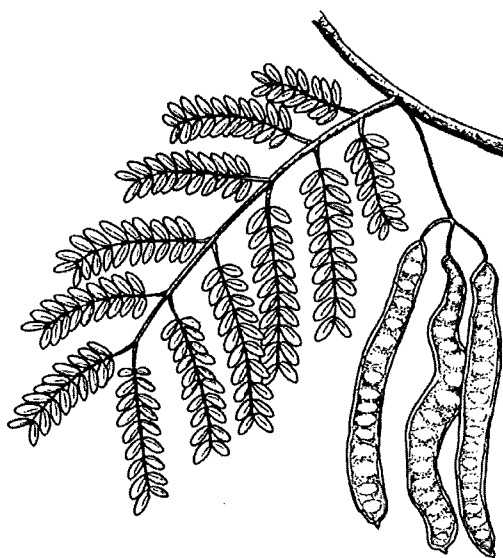
***Ficus microcarpa* – laurel fig**

- Tree with short trunk, rounded crown
- Often growing on other trees when young
- Milky sap from stems or leaves
- Leaves alternate, small, dark shiny green
- Figs yellow or dark red when ripe



***Leucaena leucocephala* – lead tree**

- Small tree, to 30 ft tall, often in thickets
- Stems unarmed, i.e., no thorns or prickles
- Leaves twice compound, leaflets oblong
- Flowers white to yellowish in round clusters
- Pods long flat, red-brown, hanging clusters



Trees

Melaleuca quinquenervia – melaleuca

- Evergreen tree to 100 ft, with slender crown
- Whitish, thick, spongy bark sheds easily
- Leaves alternate, evergreen, gray-green
- Flowers white, in "bottle-brush" spikes
- Fruits small, brown woody capsules



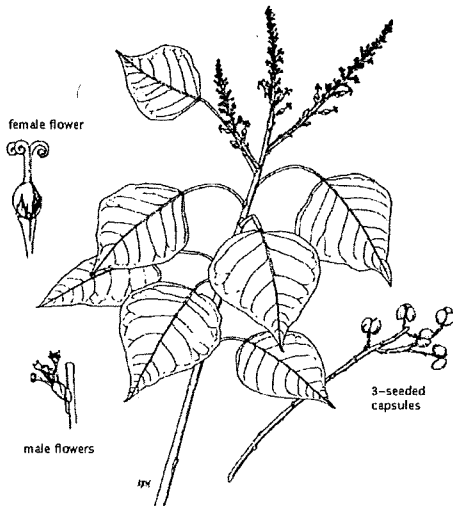
Melia azederach – Chinaberry

- Deciduous tree to 50 ft tall, often in thickets
- Twigs stout, with purplish bark
- Leaves large, twice or thrice compound
- Flowers lilac in large panicles
- Fruit a thin fleshy drupe, yellow



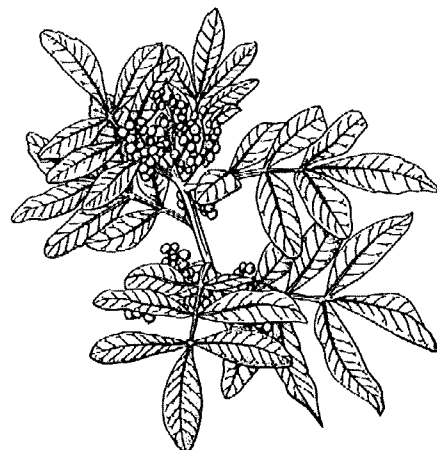
Sapium sebiferum – Chinese tallow tree

- Deciduous tree to 50 ft tall
- Sap milky, poisonous
- Leaves ovate with narrowed tips, aspen-like
- Pair of glands at petiole tops
- Fruit a hard capsule with 3 white, waxy seeds



Schinus terebinthifolius – Brazilian pepper

- Shrubby evergreen tree to 13 m tall
- Leaves alternate, once compound
- Leaflets usually 7-9, often toothed
- Flowers unisexual, small, white
- Fruits bright red small drupes in clusters



Vines

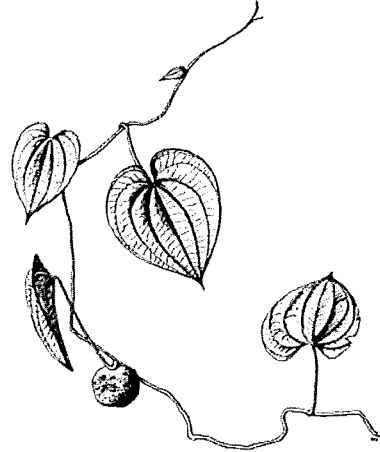
Abrus precatorius – rosary pea

- Stems branching, twining, woody below
- Leaves alternate, even-pinnate compound
- Leaflets oval-oblong, in 5-15 pairs
- Flowers pea-like, white-pink to reddish
- Seeds scarlet and black, **very poisonous**



Dioscorea bulbifera – air potato

- Stems herbaceous, twining to 60+ ft
- Leaves alternate, heart shaped
- Forms many aerial tubers
- Rarely flowering in Florida
- Leaf-blade veins in parallel curves



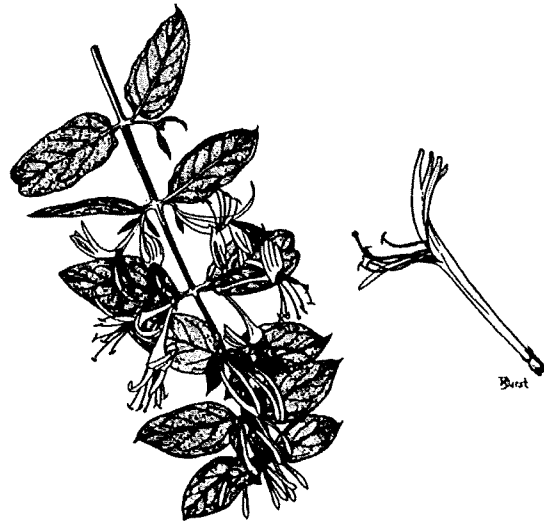
Jasminum dichotomum – Gold Coast jasmine

- Evergreen woody climber, often shrubby
- Leaves opposite, glossy green, roundish oval
- Flowers fragrant, white (pink in bud)
- Flowers opening at night
- Fruit a two-lobed fleshy black berry



Lonicera japonica – Japanese honeysuckle

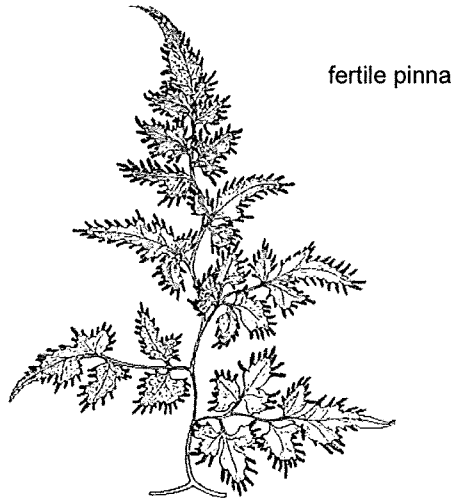
- Stems woody, trailing or climbing
- Leaves opposite, evergreen, oval
- Young stems and leaves hairy
- Flowers white, yellowing with age
- Leaves on new shoots often toothed



Vines

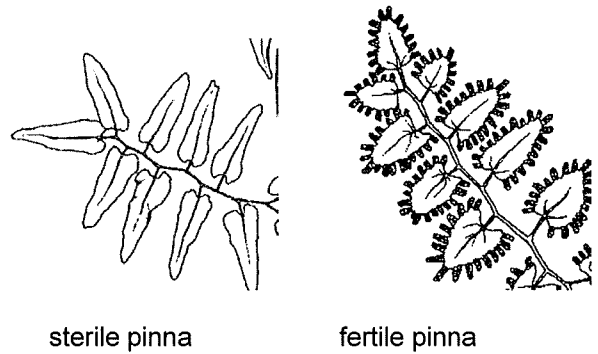
Lygodium japonicum – Japanese climbing fern

- Fronds delicate, twining, to 90 ft long
- Pinnae spread out along stemlike rachis
- Pinnae triangular shaped, pinnately divided
- Sterile leaflets incised on margin
- Fertile leaflets with lobe edges narrowed



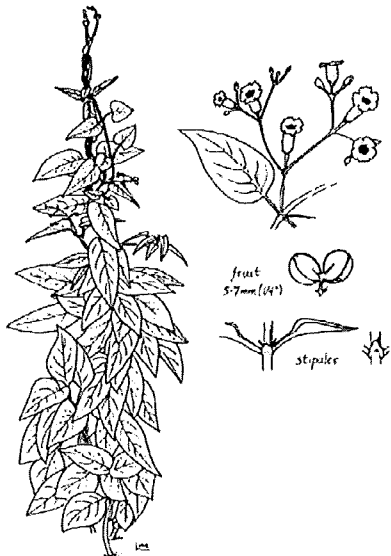
Lygodium microphyllum – Old World climbing fern

- Fronds delicate, twining, to 90 ft long
- Pinnae spread out along stemlike rachis
- Pinnae more oblong shaped, not as divided
- Sterile leaflets lance shaped, not incised
- Fertile leaflets fringed with pinched lobes



Paederia foetida – skunk vine

- Stems woody below, twining, climbing
- All parts with disagreeable odor
- Leaves opposite, lance shaped
- Flowers bell shaped, pale lilac
- Fruit a shiny orange-brown round capsule



Pueraria montana var. *lobata* – kudzu

- Deciduous, twining vine, engulfing area
- Leaves compound with 3 large leaflets
- Young stems hairy
- Flowers pea-type, reddish lavender
- Fruit a bean pod with golden-brown hairs



Shrubs

***Ardisia crenata* – coral ardisia**

- Small shrub tolerating deep shade
- Leaves alternate, shiny, leathery
- Leaf edges crisped, or scalloped
- Flowers white in axillary clusters
- Fruits bright red, in drooping clusters



***Ardisia elliptica* – shoebutton ardisia**

- Glabrous evergreen shrub to 15 ft tall
- Leaves alternate, entire, gland-dotted below
- New foliage often reddish
- Flowers mauve, in clusters at leaf axils
- Fruits black when ripe



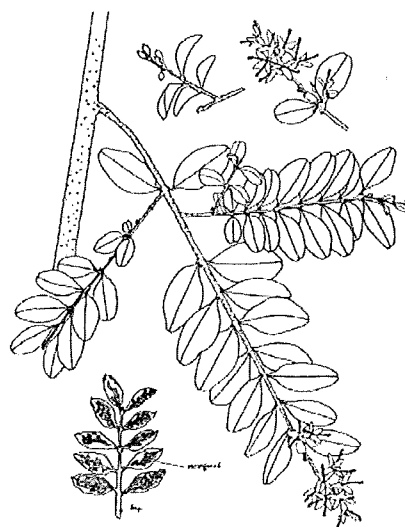
***Colubrina asiatica* – lather leaf**

- Sprawling evergreen shrub to 20+ ft tall
- Stems glabrous, many branched
- Leaves alternate, shiny, ovate, serrate
- Flowers tiny, greenish white, in leaf axils
- Fruit a brown capsule with 3 grayish seeds



***Ligustrum sinense* – Chinese privet**

- Semi-evergreen shrub to 15 ft tall
- Twigs densely pubescent
- Leaves opposite, small, dark green in wild
- Leaves variegated in cultivation
- Flowers white, small, many, odorous



Shrubs

***Mimosa pigra* – catclaw mimosa**

- Thicket-forming, prickly shrub to 20 ft tall
- Large recurved prickles on stems
- Mimosa-like compound leaves, sensitive
- Flowers pink in small rounded clusters
- Fruits flat brown hairy segmented pods



***Rhodomyrtus tomentosa* – downy rose myrtle**

- Evergreen shrub to 6 ft tall
- Young stems soft hairy
- Leaves opposite, entire, soft hairy below
- Flowers rose-pink, with 5 petals each
- Fruit a round, sweet-fleshed, purple berry



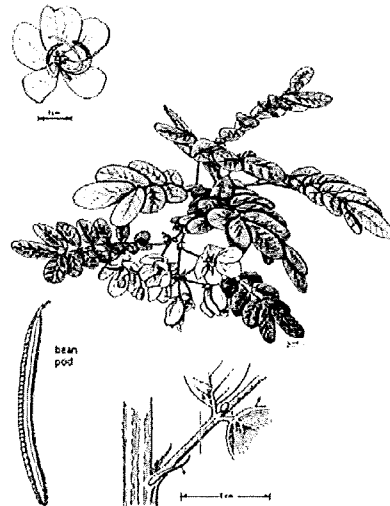
***Scaevola sericea* – beach naupaka**

- Large shrub, forming dense mounds
- Leaves alternate, crowded near stem tips
- Leaf blades coarse, shiny, with curved edges
- Flowers white to pale lilac, “half-flowers”
- Fruits round, shiny white



***Senna pendula* – climbing cassia**

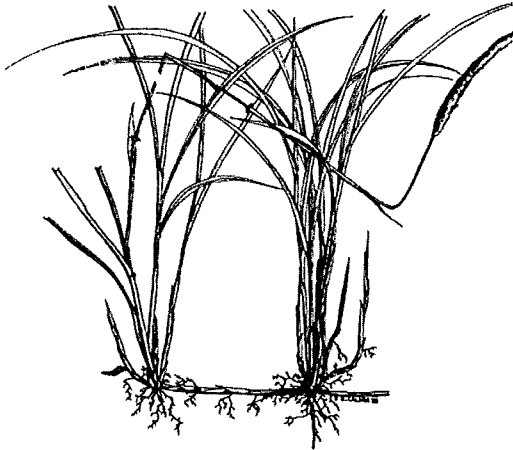
- Sprawling evergreen shrub to 14 ft tall
- Stems somewhat zigzag, sparsely hairy
- Leaves compound with 3-6 leaflet pairs
- Flowers yellow, 5 petaled, near stem tips
- Pods brown, slender, cylindric, glabrous



Grasses

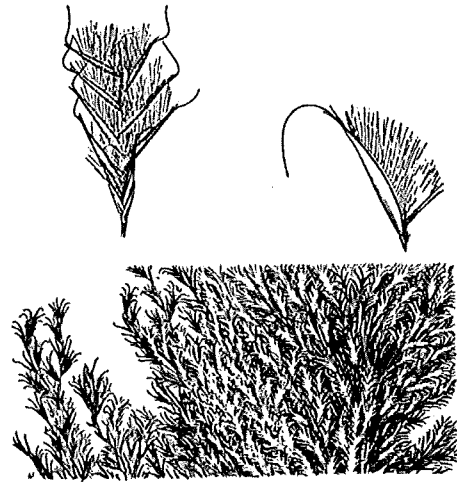
Imperata cylindrica – cogon grass

- Rhizomes scaly, pointy like *Panicum repens*
- Leaves yellow-green, long pointed, erect
- Leaf-blade midvein off-center
- Leaf blades hairy at base
- Flowers in narrow, fluffy, white spikes



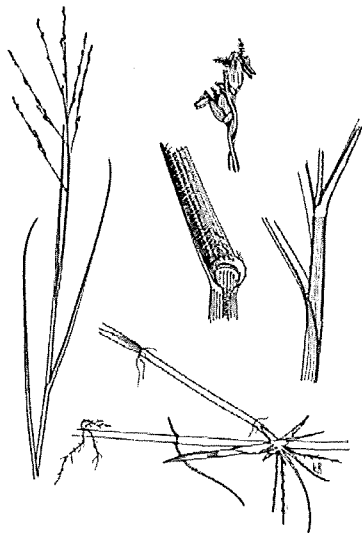
Neyraudia reynaudiana – silk, or Burma, reed

- Stems reedlike, to 9 ft tall
- Stems often branched
- Leaf sheaths woolly at top
- Large, densely feathery, nodding panicles
- Spikelets long-hairy, short awned



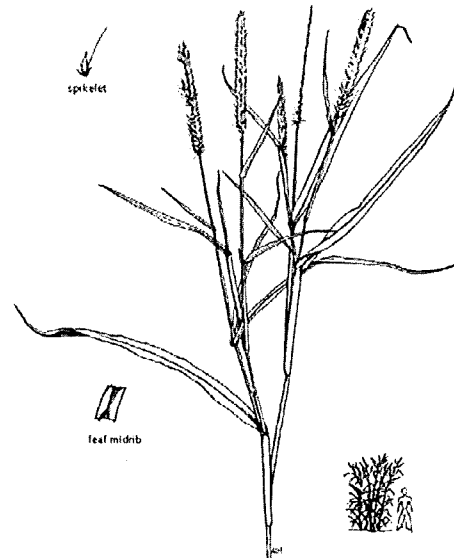
Panicum repens – torpedo grass

- Rhizomes with hard torpedo-like tips
- Leaf blades with sparse hairs on upper side
- Ligule a tiny collar with short hairs at top
- Sheaths glabrous or hairy near top
- Inflorescence branched & open



Pennisetum purpureum – elephant grass

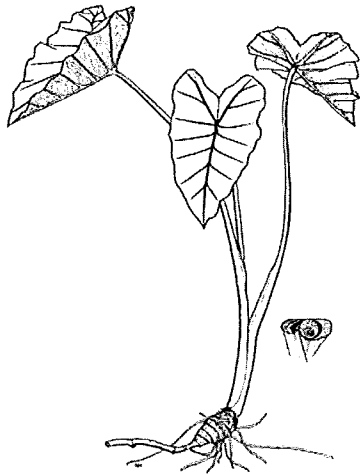
- Perennial grass to 9+ ft tall
- Stem nodes bluish, leaves often bluish green
- Leaf blades with stout, keeled midrib
- Inflorescence a dense, bristly, tawny spike
- Spikelets with bristles falling at maturity



Other Herbaceous Plants

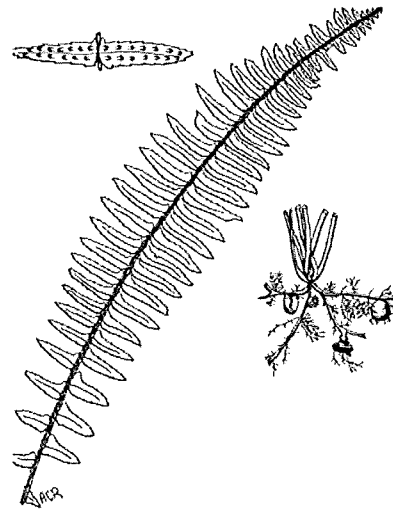
Colocasia esculenta – wild taro

- Perennial in stands to 5 ft tall
- Leaves from corms, stolons, rhizomes
- Leaves large, arrowhead shape
- Petioles attached to back of leaf blade (leaves “peltate”)
- Flowers tiny, hidden within yellow spathe



Nephrolepis cordifolia – tuber sword fern

- Stolons many, often with small buried tubers
- Fronds compound, erect, to 3 ft tall
- Leaflets crowded, with small lobe at bases
- Rachis with hair-like, 2-colored scales
- Fertile & sterile fronds similar in shape, size



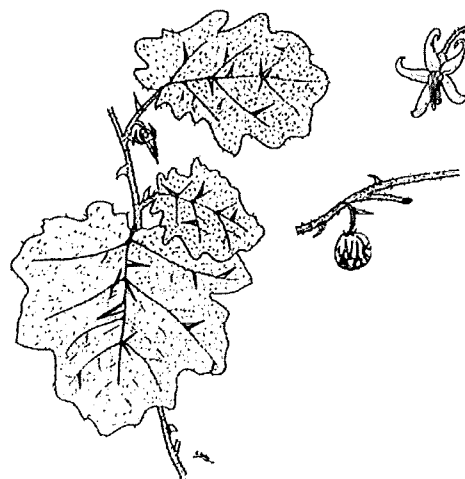
Ruellia brittoniana – Mexican petunia

- Perennial to 3 ft tall
- Stems mostly erect, with swollen nodes
- Leaves opposite, to 11 in, with pointed tips
- Flowers prominent, purple to white
- Fruit a 1-in capsule with many brown seeds



Solanum viarum – tropical soda apple

- Bushy perennial to 6 ft tall
- Stems with scattered, small, hooked prickles
- Leaves alternate, angle-lobed, velvety
- Flowers white with recurved petals
- Mature fruits leathery skinned, yellow



NOTES

SECTION 02440

DUMPSTER PAD AND POLE BARN CONCRETE DRIVEWAY

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide all labor, materials, equipment, and transportation required for the construction of the dumpster pad and pole barn concrete driveway to the lines and grades as shown on the Drawings and specified herein.
- B. In addition to these Specifications, requirements set forth in the FDOT "Standard Specifications for Road and Bridge Construction," latest edition at time of bid, shall also govern. If there is a conflict between the FDOT specifications and this Section, the most stringent specification or requirement shall govern.

1.2 QUALITY ASSURANCE

- A. Testing and inspections: See Section 01410.
- B. Materials and methods shall comply with the Drawings and standards indicated.
- C. Obtain concrete from a plant currently certified to comply with approval of requirements of the Concrete Materials Engineering Council, or the Florida Department of Transportation, or the Checklist for Plant Certification of the National Ready Mixed Concrete Association.

1.3 SUBMITTALS

Submit the following to the ENGINEER:

- A. Concrete mix design.
- B. Product literature for joint sealer, joint filler, and curing compound.
- C. Product literature for synthetic fiber reinforcement.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Concrete: Refer to the specifications in the Drawings.
- B. Admixtures are permitted in accordance with FDOT Standard Specifications for Road and Bridge Construction, Section 346-2.5.

- C. Use forms of either wood or metal with a depth equal to the Plan dimensions for the depth of concrete being deposited against them, as shown on the Drawings. Forms shall be straight, free from warp or bends, and of sufficient strength when staked to resist the pressure of the concrete without deviation from line and grade. Clean the forms each time they are used, and oil or saturate with water prior to placing the concrete.
- E. Preformed Joint Filler: Preformed joint filler shall be nonextruding and resilient bituminous type and shall conform to the requirements of Section 932-1, FDOT Standard Specifications for Road and Bridge Construction.
- F. Joint Sealer: Joint sealer shall conform to the requirements of Section 932-1.2, FDOT Standard Specifications for Road and Bridge Construction.
- G. Membrane Curing Compound: Membrane curing compound shall conform to the requirements of Section 925-2, FDOT Standard Specifications for Road and Bridge Construction.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Excavate or backfill the foundation to the required depth. Compact the foundation material to at least 98 percent of the maximum density as determined by AASHTO T-180, with an even surface, true to line, grade, and cross section, and soaking wet at the time the concrete is placed.
- B. Forms: Set the forms straight, free from warp or bends, and true to line and grade.

3.2 MIXING CONCRETE

- A. Mix concrete in accordance with FDOT Standard Specifications for Road and Bridge Construction, Section 346-7. Do not add water to the concrete mix at the job site.

3.3 INSTALLATION

- A. Placing Concrete:
 - 1. Concrete placement for the dumpster pad and the pole barn driveway shall each be performed in a single event. No construction joints are allowed.
 - 2. Distribute the concrete on the subgrade to such depth that when it is consolidated and finished, the thickness required by the Drawings will be obtained at all points and the surface will at no point be below the grade specified for the finished surface. Deposit the concrete on the subgrade in a manner that will require as little rehandling as possible. Placing of the concrete shall be continuous between transverse joints, without the use of intermediate bulkheads.

3. Thoroughly consolidate the concrete against and along the faces of all forms. Use vibrators if necessary. Vibrators (if needed) shall not contact the subgrade or a side form. Vibration at any one location shall not continue so long as to produce puddling or the accumulation of excessive grout on the surface. In no case shall the vibrator be operated longer than 15 seconds in any one location.
- B. Striking-Off, Consolidating, and Finishing Concrete:
1. Immediately after the placing, the concrete shall be struck off, consolidated, and finished to produce a finished product conforming to the cross section, width, and surface finish required by the Drawings and Specifications.
 2. After the concrete has sufficiently set a minimum of 12 hours, remove the forms and backfill the space on each side. Compact and grade the earth in a satisfactory manner without damage to the concrete work. Fill all honeycombs with sand-cement mortar. Rejected Work shall be removed and replaced without additional compensation.
- C. Final Finish: As soon as the water sheen has disappeared and just before the concrete becomes nonplastic, a light broom finish shall be given to the surfaces.
- D. Joints: Joints shall be constructed as shown on the Drawings or as follows.
1. Transverse Contraction Joints: Transverse contraction joints shall be constructed along curbs, driveways, and sidewalks at the intervals specified in 3.3.D.4 below and where shown on the Drawings, and shall consist of planes of weakness created by sawing the surface of the pavement or tooling the joint.
 - a. Insure that the sawing equipment does not damage the curb or sidewalk. Saw the transverse contraction joints as soon as the concrete has hardened to the degree that tearing and raveling are not excessive and within a maximum time of 18 hours after the pour. If, at any time, uncontrolled cracking occurs, replace the affected sections and modify construction methods.
 2. Transverse Expansion Joints: Form one half-inch expansion joints by placing preformed joint filler topped with joint sealant at the ends of each radius return, around all structures, and at intervals shown on the Drawings.
- E. Finishing
1. Strike off the concrete by means of a wood or metal screed used perpendicular to the forms in order to obtain the required grade, and remove surplus water and laitance.
 2. Broom-finish the concrete surface. The surface variations shall not be more than 1/4 inch under a 10-foot straight edge. Carefully finish the edge of the slabs on grade and sidewalk with an edging tool having a radius of 1/2 inch.
- F. Curing:
1. After the finishing operations have been completed and as soon as the concrete has hardened sufficiently that marring of the surface will not occur, the entire

surface and the edges of the newly placed concrete shall be covered and cured with membrane curing compound.

2. Curing compound shall be uniformly applied to the surfaces to be cured, in a single coat, continuous film, at the rate of one gallon to not more than 200 square feet, by a mechanical sprayer.
3. Curing compound shall not be applied during periods of rainfall. Curing compound shall not be applied to the inside faces of joints to be sealed. Should the film become damaged from any cause within the required curing period, the damaged portions shall be repaired immediately with additional compound. Upon removal of side forms, immediately coat the sides of the slabs exposed to provide a curing treatment equal to that provided for the surface.
4. If the concrete is not properly cured, payment for the line item will be reduced by fifty percent (50%).

- G. Backfilling and Compacting: After the concrete has set sufficiently, refill the spaces adjacent to the concrete to the required elevation with suitable material. Place and thoroughly compact to 98 percent of the maximum density as determined by AASHTO T-180.

3.4 REQUIRED TESTS AND DELIVERY TICKETS

- A. Obtain one strength test per day for each 50 cubic yards or fraction thereof placed. A minimum of one test shall be taken from each batch of concrete delivered to the site and used. Obtain one set of three (3) standard cylinders for each strength test. Mold and cure cylinders under standard temperature and moisture conditions in accordance with ASTM C31. Test one cylinder at 7 days, one cylinder at 28 days, and retain the third cylinder for later testing, if required. Testing shall be done in accordance with the requirements of ASTM C39.
- B. Perform and record the results of a slump test on a sample of concrete at the same location and time concrete is obtained for the cylinders for the compressive strength test in accordance with ASTM C94, Section 19. Also obtain the unit weight of the concrete and perform an air test if the concrete is air entrained. The ENGINEER may require slump tests to be made more frequently.
- C. Ready mixed concrete: Provide delivery tickets or weigh master's certificate per ASTM C-94, including weights of cement, each size of aggregate, amount of water in aggregate, and amount of water added at the plant.

3.5 CONCRETE FAILING TO MEET STRENGTH REQUIREMENTS

- A. Concrete having a 28-day strength of less than the minimum required strength shall be removed and replaced with concrete meeting the strength requirements, at the CONTRACTOR's expense.

3.6 STRUCTURES LESS THAN SPECIFIED THICKNESS

- A. No payment will be made for constructed work that is less than the specified thickness.

+ + END OF SECTION + +

SECTION 02510

STABILIZED SUBGRADE FOR ASPHALT PAVEMENT, MILLINGS AREAS, AND GRASSED ROADWAYS

The work specified in this item shall conform to Section 160 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (latest Edition) modified as follows:

- A. The stabilization thickness indicated on plans shall be considered a minimum thickness. Minimum L.B.R. = 40. There shall be no under-tolerance.
- B. Payment for stabilized subgrade shall be included in the particular bid item noted on the Bid Form.

+ + END OF SECTION + +

SECTION 02514

CEMENTED COQUINA SHELL BASE

The work specified in this item shall conform to Section 285 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (latest edition) modified as follows:

- A. There is no optional base material. Base material, thickness, and requirements are described on the Drawings. No additional payment will be made for base thickness in excess of the specified thickness.
- B. Payment shall be included in the particular bid item noted on the Bid Form.

+ + END OF SECTION + +

SECTION 02518

PRIME AND TACK COATS FOR BASE COURSES

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish all materials, transportation, tools, labor, and supervision necessary to apply bituminous material and all items called for that can be reasonably inferred from the Specifications and Drawings, including cleaning, applying prime or tack material, bituminous material, covering, and rolling for a complete job. If any items for a complete job are omitted or not shown, furnish and install the same without additional cost to the OWNER.

PART 2 - PRODUCTS

2.1 PRODUCTS

- A. Use rapid curing liquid cut back asphalt equal to RC-70 or RC-250. Prime and tack coats shall conform to Sections 300 and 916-2 of the DOT Standard Specifications for Road and Bridge Construction with the following deletions: "~~The Engineer will designate the actual temperature to ensure uniform distribution.~~" from Paragraph 300-7.1, General; and "~~The Engineer will designate the curing period for the tack coat.~~" from Paragraph 300-8.5, Curing and Time of Application.

PART 3 - EXECUTION

3.1 CLEANING THE BASE

- A. Before any bituminous material is applied, remove to the shoulders all loose material, dust, caked clay, and foreign material that may prevent proper bonding of the bituminous material with the existing surface. Take particular care to clean the outer edges of the strip to be treated to insure that the tack coat will adhere. Remove all materials planed from the base area. Where the prime or tack coat is applied adjacent to curb and gutter or valley gutter, such concrete surfaces are to be protected and kept free of bituminous material.

3.2 WEATHER LIMITATIONS

- A. Do not apply bituminous material when the air temperature is less than 40 degrees Fahrenheit in the shade, when the weather conditions or the condition of the

existing surface is unsuitable, while rain is falling, or when there is water on the surface to be covered.

3.3 APPLICATION OF THE PRIME COAT

- A. The surface to be primed shall be clean and dry. For limerock bases, the glazed finish shall have been removed as specified in Section 02514 of these Specifications. Apply per FDOT 300-7 and these Specifications. In the event of a conflict, the more stringent requirement shall prevail.
- B. Apply the prime coat uniformly with a pressure distributor. Set the spray bar at the height recommended by the manufacturer to insure even distribution. The temperature of the material shall be between 100 and 150 degrees Fahrenheit as required for even distribution. The application rate shall be approximately 0.10 to 0.25 gallons per square yard, dependent upon the type of base material, sufficient to coat the surface thoroughly and uniformly without having any excess to form pools or flow off the base.
- C. Preferably, schedule the work so that the asphaltic concrete wearing surface is applied less than 2 hours after the prime coat has been applied. If more than 2 hours will pass before the final wearing surface is to be applied, apply a light, uniform application of clean sand or screenings and roll with a traffic roller to cure the prime coat. This shall be done before opening the road to any traffic. If warranted by traffic conditions, apply the prime coat on only one-half of the base width at one time, taking care to insure that the correct amount of bituminous material is placed at the joint.
- D. The base must be sufficiently moist in order to obtain maximum penetration of the bituminous material.

3.4 APPLICATION OF THE TACK COAT

- A. On newly constructed base courses, the application of the tack coat shall follow the application of the prime coat immediately prior to placing the wearing surface when the tack coat is required. In general, a tack coat will not be required on prime bases, except in areas which have become excessively dirty and cannot be cleaned, or in areas where the prime coat has cured and lost its bonding effect.
- B. The tack coat shall be an Emulsified Asphalt, Grade RS-2. Apply the tack coat with a pressure distributor at a rate of 0.05 gallons per square yard and at a temperature between 100 and 150 degrees Fahrenheit. Keep the tack coat free of dust, foreign matter, and traffic until the wearing surface has been laid. Apply per FDOT 300-7 and these Specifications. In the event of a conflict, the more stringent requirement shall prevail.

+ + END OF SECTION + +

SECTION 02520

SUPERPAVE ASPHALT CONCRETE

The work specified in this item shall conform to Section 334 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition.

- A. Article 334-8.1 through 334-8.3 – Basis of Payment shall be deleted in its entirety. There will be no pay adjustments for any fuel surcharge during the duration of construction.
- B. Article 334-8.4 – Payment shall be amended as follows: Pavement for superpave asphaltic pavement shall be made under the appropriate bid item noted on the Bid Form.

+ + END OF SECTION + +

SECTION 02532

TRAFFIC SIGNS

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish and install street signs and traffic control signs as specified.

1.2 GENERAL

- A. All signs shall meet the requirements of the "Federal Highway Administration Manual of Uniform Traffic Control Devices". Sign locations shall be subject to the approval of the applicable governing body.
- B. Replace all signs damaged during the work with new signs at no expense to the OWNER.

+ + END OF SECTION + +

SECTION 02534

UTILITY CONDUITS

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish and install utility conduits under roads, milling areas, driveways, and parking areas as required or specified or as shown on the Drawings.

PART 2 - MATERIALS

2.1 CONDUIT

- A. Unless otherwise noted on the Contract Drawings, all conduit shall be 4-inch diameter SCH. 40 PVC pipe.

PART 3 - EXECUTION

3.1 CONDUIT INSTALLATION UNDER ROADS, DRIVEWAYS, AND PARKING AREAS

- A. Install all conduit before stabilized subgrade is constructed. The minimum burial depth at the finished centerline of the road shall be 30 inches. Extend all conduit a minimum of 4 feet beyond the edge of the pavement, millings, or curb.
- B. Install all conduit straight and level. Compact backfill in 8 inch maximum layers to a minimum of 98 percent of the maximum dry density per AASHTO T-180.
- C. Before backfilling, cap each end of all conduit with a PVC cap.

3.2 LOCATION MARKING

- A. In order to make the conduit ends locatable with electronic methods, drive a 24" long, 5/8" diameter reinforcing bar at each end of all conduit. The top of the reinforcing bar shall extend approximately 8" above the top of the conduit. In addition, drive a pressure treated 2"x4" marked "CONDUIT" and with orange colored flagging in the ground directly beside each end of all conduit installed. The marker stake shall extend a minimum of 3 feet above finished grade.

3.3 DENSITY TESTS

- A. Take density tests at three locations on the compacted backfill for each conduit crossing. At each location, take density tests one foot above the pipe, 2 feet above the pipe, and at the top of the backfilled trench. Test locations shall be at the centerline of the proposed road or other area, and 3 feet inside the edge of the proposed pavement or millings on each side of the centerline.

3.4 RECORD DRAWINGS

- A. Neatly prepare Record Drawings showing the locations and burial depth of all conduit installed. Reference all conduit from permanent objects such as manholes, valves, property corners, etc. to allow easy location of the conduit ends. Submit the Record Drawings in accordance with Section 01720 of these Specifications.

+ + END OF SECTION + +

SECTION 02536

PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SCOPE

- A. This Section discusses painting traffic stripes and pavement markings.

1.2 TEMPORARY TRAFFIC STRIPING AND MARKING

- A. If required for traffic safety or if required by the ENGINEER or other agencies having jurisdiction, install temporary traffic striping and marking as soon as practical after asphalt has been laid. If the temporary traffic stripes or marks become faded out before permanent stripes and marks are applied, repaint them at no additional expense to the OWNER.
- B. Maintain safety along the road improvements using warning signs, traffic cones, emergency lights, and other necessary equipment until the temporary traffic striping and marking is applied.

1.3 THERMOPLASTIC TRAFFIC STRIPES AND MARKINGS

- A. Use thermoplastic traffic stripes and markings. Apply per Section 711 of the FDOT "Standard Specifications for Road and Bridge Construction" and any other applicable FDOT specification or regulation. Articles 711-9 and 711-10 do not apply.
- B. At least 30 days must pass after the asphalt has been laid down before any thermoplastic stripes or markings may be applied.

+ + END OF SECTION + +

SECTION 02550

DRAINAGE PIPE

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish all labor, tools, materials, and equipment required to supply all drainage piping, as shown and specified herein.
- B. It is the intention of the Drawings and Specifications to provide complete and workable piping systems. Miscellaneous gaskets, fittings, and appurtenances required for proper completion of the Work shall be considered as having been included under this Section.

1.2 GENERAL

- A. All piping, fittings, and appurtenances shall be new and clean. In no case will used or damaged material be acceptable.
- B. All piping shall be of the sizes and materials shown on the Drawings or specified herein.
- C. Coordination: Review installation procedures under other Sections and coordinate the installation of items that must be installed with the piping.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: The manufacturer of each particular type of pipe and fittings shall have a minimum of 5 years of experience. All pipe and fittings of a particular material (e.g. concrete pipe) shall be the product of one manufacturer.

1.4 SUBMITTALS

- A. Shop Drawings: Shop Drawing submittals include the following:
 - 1. Illustrations, specifications, and engineering data including dimensions, materials, size, and weight for all piping and appurtenances, including fittings, gaskets, coatings, etc.
 - 2. Manufacturer's instructions and recommendations for installation of each type of pipe joint and special items.
- B. Certificates: Submit certificates of compliance with referenced standards.

PART 2 - MATERIALS

2.1 MATERIALS

- A. REINFORCED CONCRETE PIPE - This pipe shall meet the requirements of ASTM C76 (Class III) and DOT Standard Specifications for Road and Bridge Construction (DOT Specifications) Section 449. Unless otherwise designated, use wall "B". Reinforced Concrete Pipe may be abbreviated as "RCP" on the Plans. All round concrete pipe shall have profile gaskets meeting the requirements of ASTM C-443 and DOT Specification 942. O-ring gaskets are not permitted.
- B. CIRCULAR CORRUGATED ALUMINUM PIPE – This pipe and required coupling bands shall be corrugated aluminum and shall conform to Section 945 of the DOT Specifications except as may be noted herein. It shall be furnished in single lengths where practical. Corrugations shall be helical and shall be 2-2/3"x1/2" deep for 12-inch diameter and larger pipe, except 72-inch diameter pipe may have 3"x1" deep corrugations. Bands or couplings shall be standard or two-piece type with neoprene gasket. Corrugated aluminum pipe may be abbreviated as "Aluminum CMP", "Alum. CMP" or "CAP" on the Drawings. All non-aluminum fittings and hardware (nuts, bolts, etc.) shall be Type 316 stainless steel. To prevent galvanic corrosion, insulate all dissimilar metal-to-metal connections with non-conducting coatings or materials. Minimum gauge thickness shall be per the table below.

Table 1 – Minimum Gauge Thickness for Aluminum Pipe

Diameter	Minimum Gauge
6	16
8	16
10	16
12	14
15	14
18	14
21	14
24	14
27	14
30	14
36	12
42	10
48	10
54	10
60	10
66	10
72	10

- C. ALUMINUM PIPE-ARCH – This pipe shall be Contech CORLIX corrugated aluminum pipe-arch with 2 2/3" x 1/2" corrugations, minimum 12 gauge material. Furnish in as long of lengths as practical. Bands or couplings shall be as recommended by the manufacturer for the particular installation. All non-aluminum fittings and hardware (nuts, bolts, etc.) shall be Type 316 stainless steel. To prevent galvanic corrosion, insulate all dissimilar metal-to-metal connections with non-conducting coatings or materials.
- D. PVC PIPE – Unless otherwise noted on the Drawings, all PVC drainage pipe shall be Contec A-2000 PVC pipe or equal.
- E. GEOTEXTILE FABRIC – See Section 02565 – “Geotextile Fabric.”
- F. MITERED END SECTIONS - Mitered end sections shall be constructed per the FDOT Design Standard Index called for on the Drawings.
- G. FLARED END SECTIONS - Flared end sections shall be constructed in accordance with FDOT Design Standard Index No. 270.
- H. FITTINGS AND HARDWARE – All metal fittings and hardware shall be Type 316 stainless steel. To prevent galvanic corrosion, insulate all dissimilar metal-to-metal connections with non-conducting coatings or materials.

2.2 MARKINGS FOR IDENTIFICATION

- A. All pipeline materials shall be stamped, marked, or identified with the following:
 - 1. Name or trademark of the manufacturer.
 - 2. Size and length dimensions.
 - 3. Date and place of manufacture.

+ + END OF SECTION + +

SECTION 02552

INSTALLATION OF DRAINAGE PIPE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope: Provide all labor, materials, equipment and incidentals as shown, specified, and required to install, clean, and place into proper operation all buried drainage piping, fittings, and specials. The Work includes, but is not limited to, all types and sizes of buried drainage piping, work on or affecting existing piping, testing, cleaning, installation of all jointing and gasketing materials, specials, couplings, anti-corrosion protection, and all other Work required to complete the buried drainage piping installation.

1.2 GOVERNING SPECIFICATIONS AND QUALITY ASSURANCE

- A. This Section 02552 is general in nature and it is intended to supplement Section 430 – “Pipe Culverts” and other pertinent sections of the DOT Standard Specifications for Road and Bridge Construction, latest edition. If there is a conflict between these Specifications and the DOT Specifications, then the most stringent specification will govern. Also, if Section 02552 is silent on an issue, then refer to the DOT Specifications. The pay items listed in Section 01025 – “Measurement and Payment” govern payment for the Work.

1.3 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
1. Laying schedules.
 2. Full details of piping, specials, manholes, joints, and connections to existing piping, structures, equipment, and appurtenances.
- B. Certificates: Submit certificates of compliance with referenced standards.
- C. Record Drawings: Submit in accordance with Section 01720 – “Record Documents”.

PART 2 - PRODUCTS – See Section 02550 – “Drainage Pipe”.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General:

1. Install piping as shown, specified, and as recommended by the manufacturer.
 2. If there is a conflict between manufacturer's recommendations and the Drawings or Specifications, request instructions from ENGINEER before proceeding.
 3. Inspect all pipe bedding conditions prior to laying pipe. Notify ENGINEER in advance of excavating, bedding, and pipe laying operations.
 4. Schedule and order all required testing services.
 5. Earthwork required is specified in the applicable Sections of Division 2.
- B. Separation of Storm Sewers (drainage pipe) and Potable Water Pipe Lines: Separation shall be in accordance with Florida Department of Environmental Protection and Indian River County Division of Utility Services rules and regulations. In the event of a conflict, the more stringent specification shall govern.
- C. Bedding Pipe: Bed pipe as specified below and in accordance with the details shown.
1. Trench excavation and backfill, and bedding materials shall conform to the requirements of Section 02220, Excavation and Backfill.
 2. No pipe shall be brought into position until the preceding length has been bedded and secured in its final position.
- E. Laying Pipe:
1. Conform to manufacturer's instructions.
 2. Install all pipe accurately to line and grade shown. Use a laser to maintain proper grade during installation of pipe in runs greater than 100 feet. Verify invert elevations at sufficient points on all lines during installation to correct errors due to laser misalignment, equipment error, etc. Remove and re-lay pipes that are not laid accurately to line and grade.
 3. Slope piping uniformly between elevations shown.
 4. Place bell and spigot pipe so that bells face upstream (i.e. the flow is into the bell end).
 5. Carefully examine all pipe, fittings, and specials for cracks, damage, or other defects while suspended above the trench before installation. Immediately remove defective materials from site.
 6. Inspect interior of all pipe and fittings and clean all dirt, gravel, sand, debris, and other foreign material from pipe interior and joint recesses before it is moved into the trench. Bell and spigot mating surfaces shall be thoroughly wire brushed, and wiped clean and dry immediately before the pipe is laid.
 7. Store and apply gasket lubricants in a manner that minimizes contamination or pick-up of sand or grit.
 8. Field cut pipe with equipment specially designed for cutting piping. Make cuts carefully, without damage to pipe or lining, and with a smooth end at right angles to the axis of pipe. File sharp edges of cut pipe smooth. Flame cutting will not be allowed.
 9. Blocking under piping will not be permitted.

10. Touch up protective coatings as recommended by the manufacturer, prior to backfilling.
 11. Do not let the pipe move during installation.
 12. Prevent the pipe from flotation during construction. If a pipe floats for any reason, reinstall it to the proper line, grade, and depth, at no additional cost to the OWNER.
 13. Wrap all drainage pipe joints with filter cloth per FDOT Index No. 280, Sheet 1 of 3. Geotextile fabric shall be per Section 02565 – “Geotextile Fabric”.
 14. After installation is complete, clean all dirt, debris, etc. from inside the pipeline and keep the pipeline clean until the Work is accepted by the OWNER, at no cost to the OWNER.
- F. Jointing Pipe: Join all pipe and fittings per the manufacturer's directions. Joint tolerance shall be per FDOT Standard Specifications for Road and Bridge Construction or the pipe manufacturer's recommendations, whichever criteria is more stringent. Repair all joints not meeting these tolerances or reinstall the affected pipe, as directed by the OWNER and at no expense to the OWNER.
- G. Backfilling: Conform to the applicable requirements of Section 02220 – “Excavation and Backfill”.
- H. Transitions from One Type of Pipe to Another: Provide all necessary adapters, specials, concrete collars, or connection pieces required when connecting different types and sizes of pipe or connecting pipe made by different manufacturers. Comply with FDOT Index No. 280, Sheet 1 of 3.
- I. Jack and Bore Casing Installation: Install cased crossings in accordance with Section 02250, “Crossings by Boring and Jacking.”
- J. Cleaning: Clean the inside of all pipe before the final walk-through with the ENGINEER. All pipe must be cleaned of all dirt, debris, and other material by the date of the final walk-through or it will not be accepted by the OWNER. This includes dirt, debris, etc. washed into the pipe from stormwater runoff any time after the pipe is installed. If the CONTRACTOR does not clean the pipe, the ENGINEER will either (1) calculate the percentage of pipe volume lost due to the material in the pipe and deduct an equal percentage from the CONTRACTOR's payment for the pipe, or (2) have the pipe cleaned by a third party or by the OWNER's crews and deduct the cost for the cleaning work from the CONTRACTOR's payment.
- K. Testing: Leaking joints will not be accepted. Repair all leaking joints at no cost to the OWNER.

3.2 VERTICAL TOLERANCE

- A. Install all drainage pipe to plus or minus 0.05 feet of the design elevation. If this tolerance is exceeded, reinstall the pipe to the correct elevation, at no cost to the

OWNER. If the pipe is damaged during reinstallation, replace it with new, unused pipe at no cost to the OWNER.

3.3 WORK AFFECTING EXISTING PIPING

A. Location of Existing Piping:

1. The ENGINEER has not physically located any below ground facilities. Locations of existing underground utilities shown on the Drawings were provided by others and the ENGINEER has supplied this information solely for the convenience of the CONTRACTOR. The locations shown on the Drawings may not be accurate and there may be existing utilities that have not been shown.
2. Determine the exact location of existing piping and other facilities which could be disturbed during earthwork operations, or which may be affected in any way. The CONTRACTOR is solely responsible for determining the exact location of existing utilities.
3. Conform to applicable requirements of Division 1 pertaining to cutting and patching, and connections to existing facilities.

3.4 CONSTRUCTION LOADS

- #### A. CONTRACTOR is responsible for protecting pipe from construction loads. Provide all additional cover over the pipe as required to prevent damage to the pipe. Minimum cover is measured from the top of the pipe to the top of the maintained construction surface. Consult with pipe manufacture for particular information regarding the manufacturer's pipe.

+ + END OF SECTION + +

SECTION 02560

DRAINAGE STRUCTURES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope: Provide all labor, materials, equipment and incidentals as shown, specified, and required to furnish and install all precast drainage structures.
- B. General:
 - 1. Drainage structures shall conform in shape, size, dimensions, material, and other respects to the details shown or as ordered by the ENGINEER.
 - 2. Frames, grates and covers shall be the standard frame and grate or cover, unless otherwise shown on the Contract Drawings, and shall be as specified herein.
 - 3. All drainage structures, frames, grates, covers, etc. shall be new and clean. In no case shall used or damaged material be acceptable. In no case shall drainage structures be installed before they are visually examined by the ENGINEER or his authorized representative.
- C. All precast concrete units, including details of joints and openings for the connection of pipes, shall be designed by a Florida Registered Engineer (Specialty Engineer) retained by the CONTRACTOR. The cost for the Specialty Engineer's services shall be included in the CONTRACTOR's cost for the precast concrete units.
- D. Refer to Specification Division 3 for additional cast-in-place drainage structure information.

1.2 QUALITY ASSURANCE

- A. Reference Standards:
 - 1. ASTM C478, Specification for Precast Reinforced Concrete Manhole Sections.
 - 2. ASTM A48-74, Manhole Frame and Cover.

1.3 SUBMITTALS

- A. Shop Drawings: In accordance with Section 01340, "Submittal of Shop Drawings, Product Data, and Samples," submit the following:
 - 1. Shop drawings of all precast concrete units, including details of joints and openings for the connection of pipes, signed and sealed by the Specialty Engineer.
 - 2. Drainage Structure Frames and Covers/Inlets
 - 3. Filter Fabric

PART 2 - PRODUCTS

2.1 PRECAST CONCRETE DRAINAGE STRUCTURES

- A. Precast drainage structures shall conform to the Drawings and all materials used in construction shall conform to Section 346, "Portland Cement Concrete" (Type II), Section 415, "Reinforcing Steel" (Grade 60), and Section 425-3, "Materials" of the FDOT Specifications. Construction of the structures shall be as specified herein and in accordance with Section 425, "Inlets, Manholes, and Junction Boxes," of the FDOT Specifications (except for paragraphs 425-7 and 425-8). In the event of a conflict, the more stringent specification shall govern.
- B. Except where otherwise specified, precast components shall consist of reinforced concrete especially designed for drainage structure construction and manufactured in accordance with ASTM C478 except as modified herein. The base shall be monolithic with the first wall section. Provide cast-in-place concrete bases only where shown.
- C. Precast components shall be manufactured by wet cast methods only, using forms that will provide smooth surfaces free from irregularities, honeycombing, or other imperfections.
- D. Joints between components shall be the tongue and groove type and shall conform to AWWA C302. The circumferential and longitudinal steel reinforcement shall extend into the bell and spigot ends of the joint without breaking the continuity of the steel.
- E. All precast components shall be of approved design and of sufficient strength to withstand the loads imposed upon them. They shall be designed for a minimum earth cover loading of 130 pounds per cubic foot, and where indicated on the Drawings an H-20 wheel loading, and an allowance of 30 percent in roadways and 15 percent in rights-of-way and other areas for impact. Bases shall have two cages of reinforcing steel in their walls, each of the areas equal to that required in the riser sections. Wall thickness shall not be less than 8 inches. Concrete top slabs shall not be less than 8 inches thick.
- F. Lifting holes, if used in components, shall be tapered, and no more than two shall be cast in each section. Tapered, solid rubber plugs shall be furnished to seal the lifting holes. The lifting holes shall be made to be sealed by plugs driven from the outside face of the section only.
- G. Mark date of manufacture and name or trademark of manufacturer on inside of the structure.

- H. Sealing compound for precast concrete drainage structure joints shall be preformed plastic joint sealer conforming to Federal Specification SS-S-00210, "Ram-Nek," as manufactured by Henry Company, (800-231-4549), or equivalent.

2.2 DRAINAGE STRUCTURE FRAMES AND COVERS

- A. Drainage structure frames and covers shall be as shown on the Drawings and of such quality and composition as will make the metal of the casting strong, tough and of even grain. They shall be of uniform quality, free from scale, lumps, blisters, cracks, sand holes, etc. No plugging or filing will be allowed. All castings shall have a consistent pattern and all parts shall fit tightly together. Frames and covers shall have machined bearing surfaces and be designed so they do not rock or rattle under traffic. All covers shall have a non-penetrating or concealed-type pick hole.
- B. Cast-iron frames and covers shall be smooth and well cleaned by shot blasting and, unless otherwise specified, completely covered with a smooth coating of coal tar pitch varnish of a type which will be tough, tenacious, and resilient throughout the ~~expected~~ Temperature range.
- C. The material used to construct the castings shall conform to ASTM 536 for ductile iron castings.
- D. Unless stated otherwise on the Construction Drawings, all grates, frames, and covers shall be capable of withstanding the AASHTO H-20 vertical, dynamic wheel load.

2.3 MISCELLANEOUS

- A. Provide each inlet having a non-traffic bearing grate with eye bolt(s) and chain(s) for locking the grates to the inlets, in accordance with Index No. 201 (Sheet 2 of 5) of the F.D.O.T. Design Standards.

PART 3 - EXECUTION

3.1 DRAINAGE STRUCTURE BASES

- A. Precast bases shall be set at the proper grade and carefully leveled and aligned.
- B. Precast bases shall be set on a crushed stone or gravel foundation per Section 02562, Article 2.1.F.

3.2 PRECAST SECTIONS

- A. Set each precast section plumb on a bed of sealant to make a watertight joint with the preceding unit - no leakage is allowed. Point the joints and wipe off the excess sealant.
- B. Install sections, joints, and gaskets in accordance with manufacturer's recommendations.
- C. Seal lifting holes tight with a solid rubber plug driven into the hole from the outside of the structure and fill the remaining void with non-shrink grout.

3.3 EXCAVATION, BACKFILL, AND COMPACTION

- A. Excavate, backfill and compact in accordance with Section 02220 - Excavation and Backfill. Do not place backfill against a cast-in-place structure until the concrete has attained sufficient strength to resist the load without damage, and in no case, less than seven days after the concrete was placed.

3.4 FILTER FABRIC

- A. Wrap exterior joints and lifting holes with filter fabric. Filter Fabric shall meet the requirements of Section 02565 – Geotextile Fabric.

3.5 GRADING RINGS

- A. Use grading rings as required to set the frames and covers at the elevations shown on the Drawings. Grade rings shall be a maximum of 12-inches high, constructed on the roof slab or cone section on which the frame and cover will be placed. The height of the grade rings shall be such as is necessary to bring the frame to the proper grade.

3.6 GRADING AT DRAINAGE STRUCTURES

- A. CONTRACTOR shall be solely responsible for the proper height of all drainage structures. CONTRACTOR is cautioned that ENGINEER's review of shop drawings for drainage structure components will be general in nature and CONTRACTOR shall provide an adequate supply of random length precast drainage structure riser sections to adjust any drainage structure to meet final grading requirements.

3.7 PIPE CONNECTIONS

- A. Construct inlet and outlet pipes of the same size and kind as the connecting pipe shown on the Drawings. Extend the pipe through the walls for a distance beyond the outside surface sufficient for the intended connections, and unless specific wall connections for the pipe are recommended by the manufacturer, construct the concrete around them neatly to prevent leakage along their outer surface. Keep the

pipes flush with the inside of the structure wall. Only pipe barrels shall be used inside structure walls.

3.8 CLEANING

- A. Clean all dirt and debris from each drainage structure before the final walk-through with the ENGINEER or the structure will not be accepted by the OWNER. This includes dirt, debris, etc. washed into the structure by stormwater runoff any time after the structure is installed.

3.9 TOLERANCE

- A. Unless otherwise specified on the Drawings, install all drainage structures to plus or minus 0.05 feet of the design elevation(s) (this includes, but is not limited to top of grate or cover, inverts, top of weir, etc.). If this tolerance is exceeded, the ENGINEER may reject the structure or he may order it modified so that it conforms to the design elevations. All rehabilitative work, including reinstallation or replacement, shall be at no cost to the OWNER. If the structure is damaged during reinstallation, repair or replace it as directed by the ENGINEER, at no cost to the OWNER.

+ + END OF SECTION + +

SECTION 02562

BEDDING STONE AND RUBBLE RIPRAP

PART 1 - GENERAL

1.1 GENERAL

- A. This Section covers the materials and placement of rubble riprap (consisting of broken stone or broken concrete as noted below). Place riprap where indicated and install as specified herein. When specified in the Plans, place bedding stone under the rubble riprap.
- B. DOT SPECIFICATIONS - In addition to these Specifications, the rubble riprap shall conform to Section 530 – “Riprap” of the DOT Standard Specifications for Road and Bridge Construction. In the event of a conflict, the more stringent specification shall govern.

PART 2 - MATERIALS

2.1 MATERIALS

- A. RUBBLE FOR INDIAN RIVER FARMS WATER CONTROL DISTRICT (IRFWCD) CANALS AND OTHER SPECIFIED CANALS:
1. Provide sound, hard durable rubble, free of open or incipient cracks, soft seams, or other structural defects, consisting of broken stone with a specific gravity of at least 2.30. Ensure that the stones are rough and angular. Crushed concrete with no reinforcing is also acceptable. Refer to Sheets C11 and C15 of the Drawings for additional details and information.
- B. RUBBLE BEHIND OPERATIONS BUILDING:
1. Provide sound, hard durable 4” to 6” diameter rubble, free of open or incipient cracks, soft seams, or other structural defects, consisting of broken stone or clean rebar-free broken concrete with a specific gravity of at least 1.90. Ensure that the stones or broken concrete are rough and angular. See Sheet C10.
- C. PHYSICAL REQUIREMENTS OF BROKEN STONE AND BROKEN CONCRETE: Limerock shall not be used. Use broken stone and broken concrete meeting the following physical requirements:
1. Absorption – maximum 5%
 2. Los Angeles Abrasion (FM 1-T096) – maximum loss 45% (granite may not

- 3. have a loss greater than 55%)
- 3. Soundness (Sodium Sulphate) (FM 1-T104) – maximum loss 12%
- 4. Flat and elongated pieces – no more than 10% of the material by weight can have the least dimension less than 1/3 of the greatest dimension.
- 5. Dirt and fines – Do not use materials whose greatest dimension is less than 1/2 inch and which were accumulated from interledge layers, blasting or handling operations.
- 6. At no time shall materials contain asphalt, creosote, petroleum or other hydrocarbons, loose floating material, or deleterious substances.
- 7. Concrete shall be free of reinforcing steel.

D. GEOTEXTILE FABRIC: The geotextile fabric shall be per Section 02565 – “Geotextile Fabric.”

E. BEDDING STONE: Limestone shall not be used for bedding stone. Use quarry run stone with a specific gravity no less than 1.90 and that is reasonably free from thin, flat, and elongated pieces. Ensure that the bedding stone is also reasonably free from organic matter and soft, friable particles. Meet the following gradation limits:

Standard Sieve Sizes (inches)	Individual Percentage by Weight Passing
12 inches	100
10 inches	70 to 100
6 inches	60 to 80
3 inches	30 to 50
1 inch	0 to 15

PART 3 - EXECUTION

3.1 GEOTEXTILE FABRIC

A. Refer to Section 02565 – “Geotextile Fabric” and the Drawings.

3.2 BEDDING STONE

A. Place bedding stone without puncturing or tearing the geotextile fabric. Remove and replace damaged geotextile fabric at no expense to the OWNER.

B. The allowable in-place tolerance is ± 1 inch.

3.3 RUBBLE

- A. Place stones so they will be properly interlocked with the underlying or adjacent stones so that the finished product forms a compact layer conforming to the neat lines and thickness specified in the Drawings. Each stone shall be firmly set and well supported by underlying and adjacent stone. Head sized rock and "chink" rock shall be placed within the interstices of armor stones; no head sized or "smalled" stones may be free on the surface unless stated otherwise on the Drawings.

+ + END OF SECTION + +

SECTION 02565

GEOTEXTILE FABRIC

PART 1 - GENERAL

1.1 GENERAL

- A. This Section covers the materials and placement of geotextile fabrics for various applications. Place geotextile fabric where indicated and install as specified herein.

1.2 SUBMITTALS

- A. Furnish three 4 inch by 8 inch samples of the geotextile for product identification along with shop drawing information required in Section 01340. The geotextile fabric shall be approved by the OWNER and Indian River Farms Water Control District.

PART 2 - MATERIALS

2.1 MATERIALS

- A. General – Geotextiles shall be formed into a stable network of filaments or yarn that retain their relative position to each other, are inert to commonly encountered chemicals, and are resistant to ultraviolet light, heat, hydrocarbons, mildew, rodents, and insects. The geotextile shall be free of any chemical treatment or coating that might significantly reduce its permeability, and it shall have no flaws or defects that significantly alter its physical properties.
- B. The woven geotextile shall be manufactured from monofilament yarn that is woven into a uniform pattern with distinct and measurable openings. The fabric shall be manufactured so that the yarns will retain their relative position with regard to each other. Yarn composition shall be at least 85% by weight of propylene, ethylene, or vinylidene-chloride, and shall contain stabilizers and/or inhibitors to enhance its resistance to ultraviolet or heat exposure. The edges of the material shall be selvaged or otherwise finished to prevent the outer yarn from unraveling.
- C. Physical Properties - The geotextile fabric shall be a woven geotextile and it shall meet the following minimum physical requirements:

Physical Property	Test Procedure	Minimum Value
Grab Tensile Strength* (Unaged Geotextile)	ASTM D4632 Grab Test Method	200 Lbs. (in any principal direction)
Breaking Elongation* (Unaged Geotextile) (a)	ASTM D4632	30% max. (in any principal direction)
Burst Strength*	ASTM D3786 Diaphragm Tester	450 psi minimum
Puncture Strength*	ASTM D4833	115 lbs.
Apparent Opening Size (AOS), U.S. Std. Sieve	ASTM D4751	Minimum size \geq No. 100 U.S. standard sieve size
Ultraviolet Light Resistance	ASTM D4355, 500 hours exposure	70% minimum tensile strength retained
Percent Open Area	CWO-22125-86	4% minimum
Permittivity	ASTM D4491	0.5 sec ⁻¹

* = Minimum average roll value (weakest principal direction)

- D. Shipping and Storage Requirements - The fabric shall be wrapped in a protective covering that is sufficient to protect it from sunlight, dirt, and other debris during shipment and storage. The geotextile shall not be exposed to sunlight for more than fifteen days total from the time following manufacture until it is installed and covered with the specified substrate. Otherwise, it shall be rejected and immediately removed from the Project site.

PART 3 - EXECUTION

3.1 GENERAL

- A. Schedule the work so that covering the fabric with the specified material does not exceed the manufacturer's recommendations for exposure to ultraviolet light or five days, whichever is less. If the ENGINEER determines that the exposure time was exceeded, replace the fabric at no cost to the OWNER.
- B. Place the fabric in the manner and locations as shown in the Drawings, in accordance with the manufacture's directions, and as specified herein. Place the fabric on areas with a uniform slope that are smooth, free of depressions, soft or low density pockets of material, mounds, windrows, and free of any debris or projections that might damage the fabric.
- C. Loosely lay the material and do not stretch it. Replace or repair any fabric damaged or displaced before or during placement of overlying layers to the satisfaction of the

ENGINEER and at no expense to the OWNER.

- D. Overlaps and Seams: Overlaps shall be as specified on the Drawings or Specifications or as recommended by the manufacture for the particular application, with the more stringent requirement governing. To reduce overlaps, the geotextile fabric may be sewn together, unless specified to the contrary herein. Sew seams of the fabric with thread meeting the fabric's chemical requirements and strength requirements.
- E. Subsurface Drainage Applications: Where indicated on the Drawings, place the fabric with the long dimension parallel to the trench. Place the fabric to provide a minimum 24 inch overlap for each joint. Do not drop the filter material from heights greater than 3 feet.
- F. Stabilization and Reinforcement Applications: Overlap adjacent strips of fabric a minimum of 36 inches.
- G. Rubble Riprap Geotextile Fabric
1. Overlap adjacent strips of fabric a minimum of 36 inches and anchor them with securing pins (as recommended by the manufacturer) inserted through both strips of fabric along a line through the midpoint of the overlap and to the extent necessary to prevent displacement of the fabric.
 2. Place the fabric so that the upstream (upper) strip of fabric overlaps the downstream (lower) strip.
 3. Stagger vertical laps a minimum of 5 feet. Use full rolls of fabric whenever possible in order to reduce the number of vertical laps.
 4. Do not drop bedding stone or riprap from heights greater than 3 feet onto the fabric.

+ + END OF SECTION + +

SECTION 02572

CHAIN LINK FENCING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope:
1. Provide all labor, materials, equipment, and incidentals shown, specified, and required to furnish and install chain link fencing and gates.
 2. The extent and type of fencing, together with gate size and location, is shown on the Drawings.
 3. The types of fencing and appurtenances include the following:
 - A. FDOT Index No. 802 Type B, coated chain-link fence with 3-strand barbed wire and a top rail and as otherwise modified by these Specifications. In the event of a conflict between this Specification and the FDOT Index, the more stringent specification or requirement shall govern.
 - b. Cantilevered slide gates.
 - c. Swing gates.
 - d. Accessories and fittings.

1.2 QUALITY ASSURANCE

- A. Erector Qualifications: Erector must be a firm experienced in the erection of fencing of the type specified (5 years minimum).
- B. Design Criteria: Comply with the standards of the Chain Link Fence Manufacturer's Institute for "Galvanized Steel Chain Link Fence Fabric" and Federal Specification RR-F-191 (latest revision), unless otherwise shown or specified.
- C. Source Quality Control: Provide each type of fence and gate as a complete unit produced by a single manufacturer, including necessary erection accessories, fittings, and fastenings.
- D. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified:
1. ASTM A 53, Specification for Pipe, Steel, Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless.
 2. ASTM A 121, Specification for Zinc-Coated (Galvanized) Steel Barbed Wire.
 3. ASTM A 153, Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 4. ASTM A 392, Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
 5. Chain Link Fence Manufacturer's Institute, Galvanized Steel Chain- Link Fence Fabric.

6. Federal Specification, RR-F-191 (latest revision), Fencing, Wire and Post, Metal (Chain-Link Fence Fabric).
7. Florida Department of Transportation Standard Specifications for Road and Bridge Construction (FDOT Standards) Section 550 Fencing (except for paragraphs 550-5 and 550-6) and FDOT Design Standards Index 801 and 802.
8. AASHTO M181, Standard Specification for Chain-Link Fence.

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following as specified in the General Conditions and Section 01340 - Submittal of Shop Drawings, Design Drawings, Product Data, and Samples:
 1. Plan layout and details illustrating fence height, location and sizes of posts, rails, braces, gates, footings, operators, hardware list, and erection procedures.
 2. Copies of manufacturer's technical data test reports on physical properties, and installation instructions for steel fences and gates.
 3. Manufacturer's Certificate of Compliance certifying compliance with these Specifications and the referenced standards.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Delivery of Materials: Deliver material in manufacturer's original packaging with all tags and labels intact and legible.
- B. Handling of Materials: Handle and store material in such manner as to avoid damage. Replace all damaged material at no additional cost to OWNER.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Pipe sizes specified are commercial pipe sizes.
- B. Tube sizes specified are nominal outside dimension.
- C. Roll-formed section sizes are the nominal outside dimensions.
- D. COATED CHAIN-LINK FENCE MATERIALS – Chain-link fence fabric, posts, rails, tension wires, tie wires, stretcher bars, gates, and all miscellaneous fittings and hardware shall meet the requirements of AASHTO M181 unless otherwise specified herein.
 1. Polyolefin Elastomer Coating:

- a. All chain-link fence fabric, posts, framework (including top rail), gates, fittings, and appurtenances shall receive a polyolefin elastomer coating that is thermally fused to the metal.
 - (1) Coating thickness on fence fabric = 6 mils to 10 mils
 - (2) Coating thickness on posts = 10 mils minimum
 - (3) Coating thickness on framework = 10 mils minimum
 - (4) Coating thickness on fittings (tension and brace bands, caps, eye tops, rail ends, sleeves, tie wires, barb wire attachment pieces, etc.) = 6 mils minimum.
 - b. The coating shall be Permafused II by Master-Halco, or equivalent and the color shall be Master-Halco Midnight Black. The coating shall be fused and adhered to the wire per ASTM F668, Class 2b.
2. Chain Link Fabric:
- a. One-piece chain-link fabric widths with No. 9 gage, zinc coated steel wires.
 - b. 2-inch mesh with twisted and barbed selvage at the top and bottom, except for fences less than 6 feet high, in which case use knuckled top and bottom selvages.
 - c. Height shall be 6 feet.
 - d. The galvanized coating shall be greater than or equal to 1.8 ounces of zinc per square foot, complying with ASTM A 392, Class I.
3. Posts:
- a. Line Posts: 1.5-inch nominal diameter Schedule 40 galvanized steel pipe. Zinc galvanize at the rate of 1.8 oz/square foot. Comply with ASTM A53 Table X 2, ASTM F1083, and ASHTO M111.
 - b. Corner, End, and Pull Posts: 2-inch nominal diameter Schedule 40 galvanized steel pipe. Zinc galvanize at the rate of 1.8 oz/square foot. Comply with ASTM A53 Table X 2, ASTM F1083, and ASHTO M111.
4. Rails: 1.25-inch nominal diameter Schedule 40 galvanized steel pipe. Zinc galvanize at the rate of 1.8 oz/square foot. Comply with ASTM A53 Table X 2, ASTM F1083, and ASHTO M111. Top rails are required for fence and all gates. Furnish the top rails in the manufacturer's longest lengths, with expansion type couplings, approximately 6 inches long, for each joint. Provide means for attaching the top rail securely to each gate, corner, pull, and end post.
5. Tension Wire: No. 7 gage steel wire zinc galvanized at the rate of 1.2 oz/square foot. Comply with AASHTO M181. Locate the tension wire at the top and bottom of the fence fabric.
6. Tie Wire and Hog Wire: No. 9 gage steel wire zinc galvanized at the rate of 1.2 oz/square foot. Comply with AASHTO M181.
7. Barbed Wire Attachments: Install on all new fencing. Furnish and install pressed steel, wrought iron, or malleable iron barbed wire supporting arms, complete with provisions for anchorage to posts attaching 3 rows of barbed wire to each arm. The cap-arm shall be designed to provide a drive fit over the

- top of posts and to exclude moisture in posts with tubular sections. Provide a single vertical arm, one for each post.
8. Barbed Wire: Install on all new fencing where indicated on the Drawings. Furnish and install 3-strand, 11 gage wire with 14 gage, 4-point aluminum barbs spaced 5 inches on center. The wire shall be galvanized, complying with ASTM A 121, Class 3.
 9. Post Caps: Furnish one cap for each post unless equal protection is afforded by combination post top cap and barbed wire supporting arm, where barbed wire is required.
 10. Cantilever Gate: Gate widths shall be as shown on the Drawings. Gate shall be a cantilevered slide gate for an FDOT Type B fence per FDOT Index No. 803, meeting the material requirements described above. Install top rails and barbed wire on all cantilever gates.
 11. Swing Gate: Gate widths shall be as shown on the Drawings. Single or double leaf chain link swing gate for an FDOT Type B fence (as modified by these Specifications), meeting the material requirements described above. Gates across roadways and paths shall be centered on the roadway or path. Install top rails and barbed wire on all swing gates.
 12. Concrete: Use Class I concrete per FDOT Standard Specifications for Road and Bridge Construction (Standard Specifications) Section 347.

2.2 MANUFACTURER

- A. The chain-link fencing, gates, and all associated fittings, and appurtenances shall be provided by a single manufacture with a minimum of five years experience manufacturing thermally fused chain link fencing. The chain-link fencing material shall be supplied by:
 1. Master Halco Inc. (1-888-289-3362);
http://notes1.fenceonline.com/ContactMH.nsf/contactMH_C?OpenForm
 2. Or equal.

PART 3 - EXECUTION

3.1 INSPECTION

- A. CONTRACTOR and his installer must examine the conditions under which the fence and gates are to be installed and notify ENGINEER in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install in accordance with FDOT Standard Specifications Section 550 for Type B Fence, and per FDOT Index No. 802 and 803, and in accordance with the manufacturer's specifications and recommendations. In the event of a conflict, the

more stringent requirement shall govern. Note that even though the FDOT Specifications and the FDOT Index Drawings may not show a top rail, install the Type B chain-link fence and all gates with a top rail as specified herein. In areas where there are gaps between finish grade and the installed fence fabric that may allow or encourage wild hogs to enter the site, install at least one strand of hog wire (as specified above) per 6" of vertical opening between the fence fabric and the final ground surface to prevent such entry, all at no additional cost to the OWNER.

- B. Place concrete around all fence posts as detailed on FDOT Index Nos. 802 and 803 as applicable.
- C. The ENGINEER may permit (in writing) the fence route to be field located to prevent damage to native landscaping, wildlife areas, or to adjust to existing terrain. Consult with the ENGINEER before installing the fence regarding the final fence locations. Refer to Sheet C1c for additional information.
- D. Wildlife Crossings – Along the west and north fence lines, provide openings at the bottom of the fence sections for wildlife passage to and from the property. All openings shall be 16" high and 32" wide, except for (1) the middle opening along the west fence section, which shall be 24" high and 32" wide; and (2) the opening in the fence section opposite the headworks structure shown on Sheet PS1, which shall be 24" high and 36" wide. Fence openings shall be no more than 200' apart. If possible, locate openings in locations where they are hidden from observation from the canal right-of-ways.

3.4 ADJUSTMENT AND CLEANING

- A. Adjust all fencing and gates and leave in good working condition.
- B. Replace all broken or bent components with new components.
- C. Protect gates and fencing from damage until Final Acceptance of the Work.

+ + END OF SECTION + +

SECTION 02574

PVC/VINYL FENCING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope:
 - 1. Provide all labor, materials, equipment, and incidentals shown, specified, and required to furnish and install a solid, white PVC fence, including all appropriate accessories and fittings.
 - 2. The extent of fencing is shown on the Drawings.

1.2 QUALITY ASSURANCE

- A. Erector Qualifications: Erector must be a firm experienced in the erection of fencing of the type specified (5 years minimum).
- B. Quality Control: Provide each type of fence and gate as a complete unit produced by a single manufacturer, including necessary erection accessories, fittings, and fastenings.

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following as specified in the General Conditions and Section 01340 - Submittal of Shop Drawings, Design Drawings, Product Data, and Samples:
 - 1. Plan layout and details illustrating fence height, location and sizes of posts, rails, braces, gates, footings, operators, hardware list, and erection procedures.
 - 2. Copies of manufacturer's technical data test reports on physical properties, and installation instructions.
 - 3. Manufacturer's Certificate of Compliance certifying compliance with these Specifications, including certification that the fence is Wind Certified to a minimum 130 miles per hour.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Delivery of Materials: Deliver material in manufacturer's original packaging with all tags and labels intact and legible.
- B. Handling of Materials: Handle and store material in such manner as to avoid damage. Replace all damaged material at no additional cost to OWNER.

PART 2 - PRODUCTS

2.1 GENERAL

- A. The fence shall be a solid PVC/Vinyl privacy fence, white in color, and shall be 6-foot tall and come in 8-foot wide sections with appropriate posts and pyramid caps, all white in color. The fence shall be wind certified to a minimum of 130 miles per hour.
- B. The fencing and all associated fittings and appurtenances shall be provided by a single manufacture with a minimum of five-years experience manufacturing vinyl privacy fences.
- C. The fence shall be a Rainier Vinyl Privacy Fence, or equal.

PART 3 - EXECUTION

3.1 INSPECTION

- A. CONTRACTOR and his installer must examine the conditions under which the fence and gates (if any) are to be installed and notify ENGINEER in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install in accordance with the manufacturer's specifications, recommendations, and suggestions for high wind (minimum 130 MPH) installation. In the event of a conflict between these Specifications and the manufacturer's specifications, the more stringent requirement shall govern.
- B. Place concrete around all fence posts as detailed for pull posts on FDOT Index No. 802 for FDOT Type B chain link fences. Additionally, fill the inside of each fence post halfway up with concrete as detailed in the manufacturer's installation manual. All concrete shall be 28-day, 3,000 psi concrete.
- C. The ENGINEER may permit (in writing) the fence route to be field located to prevent damage to native landscaping, wildlife areas, or to adjust to existing terrain. Consult with the ENGINEER before installing the fence regarding the final fence locations. Refer to Sheet C1c for additional information.
- d. Protect the installation from damage until Final Acceptance of the Work and thoroughly wash both sides of the fence clean before Final Acceptance.

+ + END OF SECTION + +

SECTION 02575

GEOSYNTHETIC CLAY LINER

PART 1 – GENERAL

1.1 SUMMARY

- A. Furnish and install complete, a needlepunched Geosynthetic Clay Liner (GCL). The material(s) furnished and installation performed shall be in strict accordance with these requirements and the Contract Drawings.
- B. Definitions - For the purposes of this specification the following definitions apply:
1. Geosynthetic Clay Liner (GCL) - A factory manufactured hydraulic barrier consisting of granular sodium bentonite clay, sandwiched between, supported, and encapsulated by two geotextiles, held together by needlepunching.
 2. Geotextile - A semi-permeable woven or nonwoven fabric used to contain the bentonite used in a GCL.
 3. Sodium Bentonite - The high swelling clay component of GCLs consisting primarily of the mineral Montmorillonite.
 4. Needlepunching - A GCL manufacturing process whereby boards of barbed needles incorporate the staple fibers from a nonwoven geotextile, through a sodium bentonite clay layer, into the matrix of a second geotextile layer.
 5. Thermal Locking - A needlepunching enhancement process utilizing heat to bond the needlepunched fibers and more permanently lock them into the second geotextile to increase the internal shear strength characteristics.
 6. Minimum Average Roll Value (MARV) - The minimum average value of the material in a particular lot calculated as the mean of the tested values minus two standard deviations providing a 95% confidence level.

1.2 QUALITY ASSURANCE

- A. References - The following test methods shall be incorporated into this specification in their entirety, subject to the indicated test modifications:
1. ASTM D 4632, "Standard Test Method for Grab Breaking Load and Elongation of Geotextiles"
 2. ASTM D 4643, "Determination of Water (Moisture) Content of Soil by the Microwave Oven Method"
 3. ASTM D 5084, "Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter"

4. ASTM D 5261, "Standard Test Method for Measuring Mass Per Unit Area of Geotextiles"
5. ASTM D 5321, "Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method"
6. ASTM D 5887, "Measurement of Index Flux Through Saturated Geosynthetic Clay Liner Specimens Using a Flexible Wall Permeameter"
7. ASTM D 5888, "Standard Guide for Storage and Handling of Geosynthetic Clay Liners"
8. ASTM D 5889, "Standard Practice for Quality Control of Geosynthetic Clay Liners"
9. ASTM D 5890, "Standard Test Method for Swell Index of Clay Mineral Component of Geosynthetic Clay Liners"
10. ASTM D 5891, "Standard Test Method for Fluid Loss of Clay Component of Geosynthetic Clay Liners"

B. QUALIFICATIONS - The GCL Manufacturer and Installer shall meet the following experience requirements:

1. GCL Manufacturer - The GCL manufacturer selected for use on this project shall have successfully produced at least 10,000,000 square feet of needlepunched GCL product.
2. GCL Installer - The CONTRACTOR'S GCL installer shall demonstrate a minimum of 1,000,000 square feet of GCL installation. The GCL installer shall not use "labor force" type employees on this project. All GCL installation shall be performed by the GCL installer's regular employees (excavation and backfilling may be performed by the CONTRACTOR or its qualified subcontractor). If it is discovered that labor force type employees are used by the GCL installer, GCL installation work shall immediately cease and at the OWNER's option, the CONTRACTOR shall replace the GCL installer with another GCL installer acceptable to the OWNER, at no additional cost to the OWNER. The Contract Clock shall not stop during any resulting delays.

1.3 SUBMITTALS

A. In accordance with Section 01340, submit the following:

1. Prior to Installation – Submit the following within 10 business days of the Contract Award to verify that the materials and parties selected for use on the project meet the requirements of this specification:
 - a. Samples of GCL proposed for use on the project.
 - b. Reference list supplied by GCL Manufacturer indicating the required experience level.
 - c. Reference list supplied by the GCL Installer indicating the required experience level.
2. Prior to Deployment – Submit the following information prior to deployment of any GCL material to ensure that the materials and subgrade preparation meet the requirements of this specification:

- a. GCL Manufacturer's Quality Control Certifications.
- b. Signed and sealed Engineering Certifications of subgrade acceptance from the OWNER'S testing laboratory.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. GLC Materials - The GCL product supplied to the project shall be in full accordance with the requirements of this Section. It shall be Terrafix Geosynthetics, Inc. "Bentofix CNSL" Thermal Lock Geosynthetic Clay Liner or equivalent. Specific specifications for the CNSL Thermal Lock Geosynthetic clay liner are presented at the end of this Section
- B. The GCL shall be manufactured by mechanically bonding the geotextiles using a needlepunching process to enhance frictional and internal shear strength characteristics. In order to maintain these characteristics, no glues, adhesives or other non-mechanical bonding processes shall be used in lieu of the needlepunch process. Their use to enhance the physical properties of the GCL is permitted.
- C. GCL Manufacturing - The GCL supplied in accordance with this project shall be manufactured by needlepunching as described in Section 1.1.B - Definitions.
 1. The needlepunched GCL shall be thermally locked. The thermal lock process must heat set the nonwoven fibers where they protrude from the second geotextile to more permanently secure the reinforcement in place. Other means may be used to lock the fibers in place if the process demonstrates similar performance to the thermal lock process.
 2. To demonstrate the uniformity of the manufacturing process, no delamination of the geotextile components from the bentonite core shall occur when the GCL is exposed to 80-degreeF tap water for one hour.
- D. No other manufacturing techniques shall be approved. Isolated sewn or stitched rows do not constitute uniform reinforcement for the purposes of this specification.
- E. Dimensions - The minimum acceptable dimensions for the GCL panels shall be 15 feet wide and 125 feet long. Short rolls (rolls less than 125 feet long) may be supplied, but at a rate not to exceed 5% of the total square footage produced for this project.
- F. Overlap Markings - A minimum overlap guide-line and a construction match-line delineating the overlap zone shall be imprinted with non-toxic ink on both edges of the GCL panel to ensure the accuracy of the seam. These lines shall be used during to verify the minimum overlap is achieved. The minimum overlap guide-

line shall indicate where the edge of the panel must be placed in order to achieve a full 12-inches of bentonite overlap for each panel.

- G. Manufacturing Quality Control - The GCL shall be tested for compliance with this specification by the test methods and frequencies indicated on the material specification at the end of this Section. GCL materials may be tested pre-approved at the manufacturing location.
1. Manufacturer Quality Control Certification - Quality Control certificates shall be issued by the GCL manufacturer to the ENGINEER for each delivery of material. The certifications shall be signed by the quality control manager of the GCL manufacturer or other responsible party and shall include the following information:
 - a. Shipment Packing List - A list indicating the rolls shipped on a particular truckload.
 - b. Bill of Lading - The shipping documents for the truck used for the shipment.
 - c. Letter of Certification - The letter indicating the material is in conformance with the physical properties specified.
 - d. Physical Properties Sheet - The material specification for the GCL supplied in accordance with this Specification.
 2. Manufacturer Quality Control Submittal - Quality Control submittals shall be issued by the GCL manufacturer to the ENGINEER for each lot of material if necessary. The submittals shall include the following information:
 - a. Bentonite Manufacturer Certification - Bentonite manufacturer quality documentation for the particular lot of clay used in the production of the rolls delivered.
 - b. Geotextile Manufacturer Certification - Geotextile manufacturer quality control documentation for the particular lots of geotextiles used in the production of the rolls delivered.
 - c. GCL Manufacturer Tracking List - Cross referencing list delineating the corresponding geotextile and bentonite lots for the materials used in the production of the rolls delivered.
 - d. Manufacturing Quality Control Data - The manufacturing quality control test data indicating the actual test values obtained when tested at the appropriate frequencies for the properties specified at the end of this Section.
- H. Packaging – Package all GCL rolls in moisture resistant plastic sleeves. The cardboard cores shall be sufficiently strong to resist collapse during transit and handling.
- I. Roll Identification and Labeling - Prior to shipment, the manufacturer shall label each roll, both on the GCL roll and on the surface of the plastic protective sleeve. Labels shall be resistant to fading and moisture degradation to ensure legibility at

the time of the installation. At a minimum the roll labels shall identify the following:

1. Length and width of roll
2. Total weight of roll
3. Type of GCL material
4. Production Lot number and Individual Roll number.

- J. Accessory Bentonite - All accessory bentonite used for sealing seams, penetrations, or repairs, shall be the same granular bentonite as used in the production of the GCL itself.

PART 3 – EXECUTION

3.1 GENERAL

- A. The following installation procedures are as specific as possible while recognizing that the specific requirements of the project may necessitate minor modifications. Significant deviations from these procedures shall be pre-approved by the ENGINEER and the manufacturer.

3.2 PRECONSTRUCTION MEETING WITH GCL MANUFACTURE'S REPRESENTATIVE

- A. Before beginning GCL installation, schedule an onsite meeting with an experienced and knowledgeable GCL manufacturer's representative to discuss the liner delivery, storage, handling, installation, etc. Minimum attendees shall be the CONTRACTOR, the liner installer, the ENGINEER, and the OWNER'S geotechnical testing consultant. The manufacturer's representative shall run the meeting and provide all required assistance and recommendations necessary to produce a stellar GCL installation project. Pay all of the manufacturer's representative's expenses. Provide minimum two working day notice to ENGINEER regarding meeting date and time.

3.3 SHIPPING AND HANDLING

- A. Contact the manufacturer prior to shipment to determine the correct unloading methods and equipment.
- B. The Geosynthetic Clay Liner (GCL) shall be properly supported during handling to ensure worker safety and prevent damage to the liner. Under no circumstances shall the rolls be dragged, lifted from one end, lifted with only the forks of a lift truck, or pushed to the ground from the delivery vehicle. If any of these occur, the particular roll of liner shall be rejected and immediately removed from the Project site.

- C. Verify that proper handling equipment is available at the job site that will not pose any danger to installation personnel or risk of damage or deformation to the liner material itself. Suitable handling equipment is described below:
1. Spreader Bar Assembly - A spreader bar assembly shall include both a core pipe or bar and a spreader bar beam. The core pipe shall be used to uniformly support the roll when inserted through the GCL core while the spreader bar beam will prevent chains or straps from chafing the roll edges.
 2. Stinger - A stinger is a rigid pipe or rod with one end directly connected to a forklift or other handling equipment. If a stinger is used, it shall be fully inserted to its full length into the roll to prevent excessive bending of the roll when lifted.
 3. Roller Cradles - Roller cradles consist of two large diameter rollers spaced approximately 3 inches apart, which both support the GCL roll and allow it to freely unroll. The use of roller cradles shall be permitted if the rollers support the entire width of the GCL roll.
 4. Straps - Straps are allowed only to support the ends of spreader bars. They are not to be used for any other purpose.
- D. GCL Inspection Upon Delivery - Each roll shall be visually inspected when unloaded to determine if any packaging or material has been damaged during transit. Repairs to damaged GCL shall be performed in accordance with Section 3.4 of this specification.
1. Rolls exhibiting damage shall be marked and set aside for closer examination during deployment.
 2. To prevent moisture damage, minor rips or tears in the plastic packaging shall be repaired with moisture resistant tape approved by the GCL manufacturer, prior to being placed in storage.
 3. GCL rolls delivered to the project site shall be only those indicated on GCL manufacturing quality control certificates.
- E. Storage / Stockpiling / Staging
1. Store all GCL rolls in strict accordance with the manufacturer's specifications. All GCL rolls shall be stockpiled and maintained dry in a flat location area away from high-traffic areas but sufficiently close to the active work area to minimize handling. Store the material aboveground on proper supports with the storage area draining away from the stored material in a manner acceptable to the GCL manufacturer.
 2. For needlepunched GCLs, the presence of free-flowing water within the packaging shall require that roll be set aside for further examination to ascertain the extent of damage, if any. Free-flowing water within the packaging of unreinforced GCLs shall be cause for rejection of that roll.
 1. Do not store GCL higher than three to four rolls high. Situate stacks or tiers of rolls in a manner that prevents sliding or rolling by "chocking" the bottom layer of rolls.

2. In order to prevent bending, deformation, or other damage to the GCL, or cause difficulty inserting the core pipe, rolls shall not be stacked on uneven or discontinuous surfaces.
3. Use an additional tarpaulin or plastic sheet over the stacked rolls to provide extra moisture protection for GCL material stored outdoors.
- 4.3.4. Store and tarp bagged bentonite material next to GCL rolls unless other more protective measures are available. Store bags on pallets or other dry surface which will prevent pre-hydration.

F. Exposure to Sunlight – Under no circumstances shall the GCL be exposed to sunlight for more than 14 cumulative days. If this occurs, the liner will be rejected whether placed on the prepared slope or not, and immediately removed from the job site.

3.4 EARTHEN SUBGRADE PREPARATION

- A. The surface upon which the GCL material will be installed shall be certified by the OWNER'S testing laboratory before placement of the GCL. The subgrade shall be continuously inspected, approved, and certified by the testing laboratory prior to GCL placement.
- B. The subgrade soil shall be well graded containing less than 20% gravel two inches or larger and no sharp stones.
- C. Compact the subgrade to minimum 90 percent modified proctor or greater.
- D. The surfaces to be lined shall be smooth and free of any debris, vegetation, roots, sticks, sharp rocks, or other deleterious materials larger than two inches as well as free of any voids, large cracks, or standing water.
- E. Directly prior to deployment of the GCL, the subgrade shall be final-graded to fill remaining voids or desiccation cracks, and proof-rolled to eliminate sharp irregularities or abrupt elevation changes. The surfaces to be lined shall be maintained in this smooth condition.
- F. There will be no payment for GCL panels placed on subgrade that has not been approved to receive panels. The OWNER'S testing laboratory field personnel has the authority to approve or reject subgrade preparation.
- G. Subgrade Record Drawing Verification - As subgrade preparation progresses and as a condition for GCL installation payment, provide the ENGINEER with signed and sealed survey information (2 copies) on all subgrade that is ready to receive GCL. The ENGINEER or his designee will review the survey information as rapidly as possible. As a minimum, show top of subgrade elevations at 50' intervals at the following locations:
 1. Top of slope

2. Toe of slope
3. Midpoint of basin bottom

3.5 GCL PLACEMENT

A. GCL Orientation

1. Slopes - In the absence of specific guidelines, GCL panels shall be placed with the nonwoven side up on slopes to maximize the shear strength characteristics.
2. Base or Flat Areas - In base or flat areas, the GCL does not require any particular orientation.

B. GCL Panel Position - All slope panels shall be installed parallel to the maximum slope (i.e. perpendicular to the basin bottom) while panels installed in flat areas require no particular orientation. In basins in which flow occurs, install GCL panels by beginning downstream and working upstream, so that overlaps are on the upstream end (e.g. similar to installation of roof shingles).

C. Panel Deployment – Install GCL materials in general accordance with the procedures set forth in this section, subject to site specific conditions which would necessitate modifications. Used reinforced GCL on both slopes as well as the flat areas to ensure the GCL withstands the rigors of the installation and subsequent low load hydration.

1. Deployment shall proceed from the highest elevation to the lowest to facilitate drainage in the event of precipitation.
2. The GCL may be deployed on slopes by pulling the material from a suspended roll, or securing a roll end into an anchor trench and unrolling each panel as the handling equipment slowly moves backwards.
3. Deployment on flat areas shall be conducted in the same manner as that for the slopes, however, care shall be taken to minimize “dragging” the GCL. Slip-sheet may be used to facilitate positioning of the liner while ensuring the GCL is not damaged from underlying sources.
4. Overlaps shall be a minimum of 12-inches and free of wrinkles, folds, or “fish-mouths”. Panels installed with less than 12-inch overlap will be considered defective Work and rejected.
5. Only install as much GCL that can be covered at the end of the day. No GCL shall be left exposed overnight. Cover the exposed edge of the GCL with a temporary tarpaulin or other such water resistant sheeting until the next working day.

D. Anchoring- Standard trench anchors or “run-out” anchors shall be used as shown on the Drawings

E. Seaming - A 12-inch lap line and a 9-inch match line shall be imprinted on both edges of the upper geotextile component of the GCL to assist in installation

overlap quality control. Lines shall be printed as continuous dashes in easily observable non-toxic ink.

1. Overlap seams shall be a minimum of 12-inches on panel edges and 12-inches on panel ends.
2. Loose granular bentonite shall be placed between panels at a rate of 1/4 pound per lineal foot of seam.

F. Detailing - Detail work, defined as the sealing of the liner to pipe penetrations, foundation walls, drainage structures, spillways, and other appurtenances, shall be performed as recommended by the GCL Manufacturer.

G. Damage Repair - Prior to cover material placement, damage to the GCL shall be identified and repaired. Damage is defined as any rips or tears in the geotextiles, delamination of geotextiles, or a displaced panel.

1. Rip and Tear Repair (Flat Surfaces)

- a. Rips or tears may be repaired by completely exposing the affected area, removing all foreign objects or soil, and by then placing a patch cut from unused GCL over the damage (damaged material may be left in place), with a minimum overlap of 12-inches on all edges.
- b. Place accessory bentonite between the patch edges and the repaired material at a rate of a half-pound per lineal foot of edge spread in a continuous 12-inch fillet.

2. Rip and Tear Repair (Slopes) - Damaged GCL material on slopes shall be repaired by the same procedures above, however, the edges of the patch shall also be adhered to the repaired liner with an adhesive approved by the GCL manufacture, to keep the patch in position during backfill or cover operations.

3. Displaced Panels – Adjust displaced panels to the correct position and orientation. The adjusted panel shall then be inspected for any geotextile damage or bentonite loss. Damage shall be repaired by the above procedures.

4. Premature Hydration - If the GCL is prematurely hydrated, immediately notify the ENGINEER for a site specific determination as to whether the material is acceptable or if alternative measures must be taken to ensure the quality of the design. The ENGINEER shall be the sole judge as to whether or not the material is acceptable or if alternative measures must be taken.

H. Install all GCL in the dry. Dewater so the water table is at least one foot below the liner bottom.

I. Flotation During Construction – The CONTRACTOR is solely responsible if GCL panels “float” during construction. All liners that are dislodged due to flotation by rising groundwater shall be removed from the job site and the liner replaced at no cost to the OWNER. (Terrafix Geosynthetics, Inc. recommends keeping the

dewatering system active for each area until the water level in the basin, floway, etc. has been brought to design levels.)

3.6 EARTHEN COVER SOIL

- A. Cover materials shall be compatible as well as suitable for use over the GCL, and placed in a manner appropriate to the particular subgrade. Regardless of the cover material, protect the uncovered edge of GCL panels at the end of each working day with a waterproof sheet that is secured adequately with ballast.
- B. Place a minimum thickness of 24 inches over the GCL; however, if the GCL is installed below structures the minimum cover thickness shall be 2'-6". The soil cover shall be free of sharp-edged stones greater than 2 inches in size. Laboratory analysis of especially calcareous cover material shall be required to ensure compatibility with the GCL.
- C. Equipment – Place soil cover with low ground pressure equipment. Care shall be taken to avoid damaging the GCL by making sharp turns or pivots with equipment as well as sudden starts or stops.
- D. Placement - Soils may be placed on the GCL by pushing with a track dozer or by carefully placing it with a loader or a back-hoe. The use of scrapers or pans directly over the GCL is strictly prohibited.
- E. Thickness - A minimum thickness of 24 to 36 inches of cover shall be kept between heavy equipment and the GCL at all times, except when final-grading. No heavy vehicles shall be driven directly on the GCL until the proper thickness of cover has been placed.
- F. Compaction – Compact cover above the GCL to 95 percent of Modified Proctor. Coordinate with the GCL manufacture to determine the minimum initial lift thickness of cover that should be placed over the GCL to prevent damage to the GCL due to compaction efforts.
- G. Slope Placement – To prevent the liner from slipping during covering operations, all cover material shall be pushed up-slope. Exception: If overlaps are allowed by the GCL manufacturer, the fill at the overlap shall be carefully placed down-slope to prevent the overlap from moving. All GCL that slips during cover placement will be rejected. Place fill in the same direction as the liner is laid.
- H. The placement of all GCL panels must be inspected by the OWNER or the OWNER'S testing laboratory personnel before backfilling. There will be no payment for GCL panels that are covered without inspection. If panels are covered without inspection, they will be rejected.

PART 4 – WARRANTY

- A. Material – The GCL manufacturer shall provide a five-year material and workmanship warranty, stating that the GCL product supplied to the project was manufactured in accordance with industry accepted practices and meets the manufacturer’s specified certified properties.

- B. Installation - The CONTRACTOR shall provide a one year installation workmanship warranty, repairing and or replacing any material not installed in full compliance with the requirements of this Specification.

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BENTOFIX® CNSL

CNSL

Thermal Lock® Geosynthetic Clay Liners

Bentofix Thermal Lock® CNSL Geosynthetic Clay Liner (GCL) is a needlepunched, thermally reinforced composite comprised of a core of natural Wyoming sodium bentonite clay between two durable geotextile layers to form a low permeability hydraulic barrier. The top layer is a staple fiber nonwoven (NW) geotextile while the bottom layer is a woven (W) geotextile. The bottom woven (W) geotextile contains a rugged adhesive geofilm to provide a geomembrane type of hydraulic conductivity. The product is intended for applications that require excellent hydraulic conductivity properties and/or bentonite protection for moderate to steep slopes and moderate to high load applications where increased internal shear strength is required.

Property	ASTM Test Method	Frequency	Value Imperial Units	Value Metric Units
Typical Geotextile Properties				
• Top / Cap Nonwoven	D 5261	200,000 sq ft (20,000 m ²)	4.5 oz./yd ² MARV	150 g / m ² MARV ⁽¹⁾
• Woven	D 5261		3.1 oz./yd ² MARV	105 g / m ² MARV
Bentonite Properties (SI Units Only)				
• Swell Index	D 5890	100,000 lbs.	24 ml/ 2 g min	24 ml/ 2 g min
• Moisture Content	D 4643	(50,000 kg)	12 % max	12 % max
• Fluid Loss	D 5891		18 ml max	18 ml max
• Scecite (Montmorillonite)	XRD		90% min	90% min
Finished GCL Properties				
• Bentonite Mass/Unit Area ²	D 5993	40,000 ft ² (4,000 m ²)	0.75 lbs/ft ² MARV	3.66 kg/m ² MARV
• Tensile Strength ³	D 6768	40,000 ft ² (4,000 m ²)	30 lb/in MARV	5 kN/m MARV
• Peel Strength	D 6496	40,000 ft ² (4,000 m ²)	3.5 lbs/in min	610 N/m min
• Permeability ⁵	D 5887	Weekly	5 x 10 ⁻¹⁰ cm/s max	5 x 10 ⁻¹⁰ cm/s max 5 x 10 ⁻¹³ cm/s E96
• Index Flux ⁵	D 5887	Weekly	1 x 10 ⁻⁹ m ³ /m ² /s max	1 x 10 ⁻⁹ m ³ /m ² /s max
• Internal Shear Strength ⁶	D 6243	Periodic	500 psf Typical	24 kPa Typical

- (1) Minimum Average Roll Value.
 (2) Oven-dried measurement. Equates to 0.84 lb/sqft (4.1 kg/m²) when indexed to 12% moisture content.
 (3) Tested in machine direction.
 (4) Modified ASTM D4632 to use a 4 in (100mm) wide grip. The maximum peak of five specimens averaged in machine direction.
 (5) Deaired, deionized water @ 5 psi (34.5 kPa) maximum effective confining stress and 2 psi (13.8 kPa) head pressure.
 (6) Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf (9.6 kPa) normal stress.

The information contained herein has been compiled by TAG Environmental Inc., and is, to the best of our knowledge, true and accurate. This information is offered without warranty. Final determination of suitability for use contemplated is the sole responsibility of the user. This information is subject to change without notice. Bentofix is a registered trademark of Naue. TAG is a division of Terrafox Geosynthetics Inc. 04-2013

+ + END OF SECTION + +

SECTION 02750

HIGH DENSITY POLYETHYLENE GEOMEMBRANE LINER

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Furnish all labor, materials, tools, supervision, transportation, and installation equipment necessary for the installation of geomembrane as specified herein.
- B. High-density polyethylene (HDPE) geomembrane shall be used as the geomembrane for this Project.
- C. Retain the services of a Geosynthetics Installer to install the approved geomembrane together with the other related components. The Geosynthetics Installer shall be one of the firms listed in paragraph 1.3.A.

1.2 REFERENCES

- A. ASTM D 792 - Standard Test Methods for Specific Gravity and Density of Plastics by Displacement
- B. ASTM D 1505 - Standard Test Method for Density of Plastics by the Density-Gradient Technique
- C. ASTM D 1603 - Standard Test Method for Carbon Black in Olefin Plastics
- D. ASTM D 4218 - Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by Muffle-Furnace Technique
- E. ASTM D 4833 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
- F. ASTM D 5321 - Standard Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method

- G. ASTM D 5397 - Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test
- H. ASTM D 5596 - Standard Test Method for Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics
- I. ASTM D 5641 - Standard Test Method for Geomembrane Evaluation by Vacuum Chamber
- J. ASTM D 5820 - Standard Practice for Pressurized Air Channel Evaluation of Dual Seamed Geomembrane
- K. ASTM D 6365 - Standard Practice for the Nondestructive Testing of Geomembrane Seams using the Spark Test
- L. ASTM D 6392 - Practice for Determining the Integrity of Nonreinforced Geomembrane Seams Produced using Thermo-Fusion Methods
- M. ASTM D 6693 - Standard Test method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes
- N. Geosynthetic Research Institute (GRI) Test GM-5 - Test Method for Ductile/Brittle Transition Time for Notched Polyethylene Specimens Under Constant Stress
- O. GRI Test GM-13 - Standard Specification for Test Properties, Testing Frequencies and Recommended Warranty for HDPE Smooth and Textured Geomembrane

1.3 APPROVED GEOSYNTHETIC INSTALLERS

- A. National Lining Systems, Inc.
16970-3 San Carlos Blvd.
Suite 191
Ft. Myers, FL 33908
863-248-0580 phone
863-248-0581 fax
- B. Gundle/SLT Environmental, Inc. (GSE)
19103 Gundle Road

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Houston, TX 77073
800-435-2008 phone
281-230-2504 fax

- C. Plastic Fusion Fabricators
3455 Stanwood Boulevard
Huntsville, AL 35811
(256) 852-0378 phone
(256) 852-0388 fax
- D. Environmental Specialties International, Inc.
7943 Pecue Lane, Suite A
Baton Rouge, LA 79809
(225) 291-2700 phone
(225) 291-2788 fax
- E. CONTRACTOR shall accept and retain full responsibility for all materials and installation and shall be held responsible for any defects.

1.4 WARRANTY

- A. Provide a written warranty for a 20-year period against defects in material from the date the installation of the geomembrane is accepted.
- B. Provide a written warranty from the Geosynthetics Installer to OWNER for a one-year period against defects in workmanship from the date the installation of the geomembrane is accepted.

PART 2 - PRODUCTS

2.1 RESIN

- A. The geomembrane shall be manufactured from new, first-quality resin, designed and manufactured specifically for use in geomembrane. Reclaimed polymer shall not be added to the resin. However, the use of polymer recycled during the manufacturing process shall be permitted if performed with appropriate cleanliness and if the recycled polymer does not exceed 2 percent by weight of the total polymer weight.

2.2 GEOMEMBRANE PROPERTIES

- A. The geomembrane shall have properties that comply with Table 02750-1 and paragraph B, below.

TABLE 02750-1
GEOMEMBRANE PROPERTY VALUES⁽¹⁾

PROPERTIES	QUALIFIERS	UNITS	SPECIFIED VALUES	TEST METHOD
Thickness	nominal	Mils	40	ASTM D 5994
	minimum average	Mils	40	ASTM D 5994
	lowest individual 8 out of 10 values	Mils	N.A.	ASTM D 5994
	lowest individual for any of the 10 values	Mils	36	ASTM D 5994
Density	minimum	g/cc	0.940	ASTM D 792 or ASTM D 1505
Tensile Properties (each direction)				
1. Yield Strength	minimum	lb/in.	84	ASTM D 6693
2. Break Strength	minimum	lb/in.	152	ASTM D 6693
3. Yield Elongation	minimum	%	12	ASTM D 6693
4. Break Elongation	minimum	%	700	ASTM D 6693
Puncture Resistance	minimum	lb.	72	ASTM D 4833
Carbon Black Content		%	2.0-3.0	ASTM D 1603 or 4218
Carbon Black Dispersion	N/A	None	See Note 2	ASTM D 5596
Stress Crack Resistance	minimum	Hours	200	ASTM D 5397

Notes:

- All values represent minimum average roll values (i.e., any roll in a lot should meet or exceed these values).
- Carbon black dispersion (only near spherical agglomerates) for 10 different views: 9 in Categories 1 or 2; and 1 in Category 3.

- B. In addition to the property values listed in Table 02750-1, the geomembrane shall:

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1. Contain a maximum of 1 percent by weight of additives, fillers, or extenders (not including carbon black).
2. Not have striations, pinholes, or bubbles on the surface or in the interior.
3. Be produced so as to be free of holes, blisters, undispersed raw materials, or any sign of contamination by foreign matter.
4. Be manufactured in a single layer (thinner layers shall not be welded together to produce the final required thickness).
5. Have a rough exposed surface, suitable for walking on with low possibility of an individual slipping on it as compared to a smooth surface.

2.3 MANUFACTURING QUALITY CONTROL

A. Rolls.

1. The Geomembrane Manufacturer shall continuously monitor the geomembrane during the manufacturing process for inclusions, bubbles, or other defects. Geomembrane that exhibits any defects will not be accepted.
2. The Geomembrane Manufacturer shall continuously monitor the geomembrane thickness during the manufacturing process. Geomembrane that fails to meet the specified minimum thickness will not be accepted.
3. The Geomembrane Manufacturer shall sample and test the geomembrane in accordance with the test frequency stated in GRI Test Method GM13 for HDPE geomembrane to demonstrate that its properties conform to the values specified in Table 02750-1.
4. Samples of the geomembrane shall be taken across the entire width of the roll.
5. At a minimum, the following manufacturing quality control tests shall be performed:

Test	Procedure
Thickness	ASTM D 5994
Density	ASTM D 792 or ASTM D 1505
Tensile Properties	ASTM D 6693
Puncture Resistance	ASTM D 4833
Carbon Black Content	ASTM D 1603 or 4218
Carbon Black Dispersion	ASTM D 5596

6. Any geomembrane sample that does not comply with the requirement of this Section shall result in rejection of the roll from which the sample was obtained. Rejected rolls shall be replaced at no additional cost to OWNER.
7. In the case of the rejection of a roll of geomembrane, the Geomembrane Manufacturer shall sample and test each roll manufactured in the same lot, or at the same time, as the failing roll. Sampling and testing of rolls shall continue until a pattern of acceptable test results is established.
8. In addition to the tests listed under Paragraph 2.03.A.5 of this Section, CONTRACTOR and/or Geomembrane Manufacturer must provide laboratory test data that demonstrates that the geomembrane supplied meets the specifications for environmental stress crack (ASTM D 5397) as listed on Table 02750-1. This testing shall be performed on geomembrane manufactured at the same time, from the same type of resin, and exhibiting the same material properties as the geomembrane to be used for this Project. The Geomembrane Manufacturer shall provide the test results as part of his quality control documentation.

2.4 GEOMEMBRANE SUPPLY

- A. The geomembrane shall be supplied to the Site in rolls. The Manufacturer shall confirm the maximum height of rolls in a stockpile to avoid crushing of the center core.

PART 3 EXECUTION

3.1 PERSONNEL

- A. All personnel working on geomembrane installation shall be employees of the Geosynthetic Installer and shall be experienced in the Work being performed. Failure to comply with this requirement will result in replacement of the Geosynthetic Installer.

3.2 SURFACE PREPARATION

- A. The surface shall be free of stones, litter, organic matter, irregularities, protrusion, loose soil, and any abrupt changes in grade that could damage the geomembrane.

- B. Take special care to maintain the prepared subgrade.
- C. No geomembrane shall be placed onto an area which has been softened by precipitation or which has cracked due to desiccation. Observe the soil surface daily to evaluate the effects of desiccation cracking and/or softening on the integrity of the subgrade.
- D. Any damage to the soil surface caused by installation activities shall be repaired at CONTRACTOR's expense.

3.3 ANCHORAGE

- A. The anchor trench shall be excavated prior to geomembrane placement to the lines, grades, and configuration shown on the Drawings and as specified.
- B. Loose soil shall be compacted or removed from the anchor trench prior to installation of the geomembrane.
- C. The anchor trench shall be backfilled and compacted after the geomembrane has been installed in the trench. Care shall be taken when backfilling the trenches to prevent any damage to the geomembrane, and to ensure a level transition surface.
- D. Provide slightly rounded corners where the geomembrane adjoins the trench to avoid sharp bends in the geomembrane.

3.3 GEOMEMBRANE DEPLOYMENT

- A. Placement
 1. Geomembrane may only be deployed during daylight hours between one hour after sunrise and one hour before sunset, unless otherwise approved by OWNER and ENGINEER.
 2. Geomembrane shall not be placed when the ambient temperature is below 32°F or above 104°F.
 3. Geomembrane shall not be placed during any precipitation, in the presence of excessive moisture (e.g., frost, ice, fog, dew), in an area of ponded water, or in the presence of winds exceeding 20 miles per hour.
 4. Overlaps shall be shingled to aid in shedding water.
 5. The Geosynthetic Installer shall employ placement methods consistent with the following:

- a. no vehicular traffic shall be allowed on the geomembrane.
 - b. equipment used shall not damage the geomembrane by handling, trafficking, leakage of hydrocarbons, or other means.
 - c. personnel working on the geomembrane shall not smoke, wear damaging shoes, or engage in other activities that could damage the geomembrane.
 - d. the method used to unroll the panels shall not scratch or crimp the geomembrane and shall not damage the supporting soil.
 - e. the prepared surface underlying the geomembrane shall not be allowed to deteriorate after acceptance of the surface, and shall remain acceptable up to the time of geomembrane placement.
 - f. the method used to place the panels shall minimize wrinkles.
 - g. temporary loads and/or anchors (e.g., sand bags, tires), not likely to damage the geomembrane, may be placed on the geomembrane to prevent uplift by wind.
6. Any panel or portion thereof that becomes damaged (torn, twisted, or crimped) shall be replaced with new material at no cost to OWNER. Damaged panels material shall be removed from the work area.
7. Placement of geomembrane shall not damage the underlying compacted soil subgrade surface.

3.4 FIELD SEAMING

- A. In general, seams shall be oriented parallel to the line of maximum slope, (i.e., oriented down, not across, the slope). In corners and at odd-shaped geometric locations, the number of field seams shall be minimized. No horizontal seam shall be made within 5 ft. of any toe of the slope. No seams shall be located in an area of potential stress concentration.
- B. All personnel performing seaming operations shall be qualified as indicated in this Section. No seaming shall be performed unless a "master seamer" is present.
- C. The geomembrane shall have field seams that equal or exceed the strength requirements presented in Table 02750-2.

TABLE 02750-2

REQUIRED SMOOTH GEOMEMBRANE SEAM PROPERTIES

PROPERTIES	QUALIFIERS	UNITS	SPECIFIED VALUES	TEST METHOD
<u>Gauge</u>	nominal	mils	40	ASTM D 5994
<u>Shear Strength</u> ⁽¹⁾ at yield point	minimum	lb/in	76	ASTM D 6392
<u>Peel Adhesion</u> FTB ⁽²⁾ Fusion	minimum	lb/in	59	ASTM D 6392
<u>Peel Adhesion</u> FTB ⁽²⁾ Extrusion	minimum	Lb/in	59	ASTM D 6392

Notes:

1. Also called "Bonded Seam Strength."
2. In addition to the minimum passing values, passing seams shall not separate more that 10 percent of the width into the weld and shall exhibit the following location of breaks:
 - Fusion Welded Seams – BRK, SE1, SE2, and AD-BRK
 - Extrusion Welded Seams – SE1, SE2, SE3, BRK1, and BRK2

D. Weather Conditions for Seaming

1. Seaming shall not be attempted at ambient temperatures below 32°F or above 104°F or when wind velocity exceeds 20 miles per hour. At ambient temperatures between 32°F and 50°F, seaming shall be allowed if the geomembrane is preheated either by the sun or a hot air device, and if there is no excessive cooling from wind. At ambient temperatures above 50°F, no preheating will be required. In all cases, the geomembrane shall be dry and protected from excessive wind.
2. To minimize geomembrane contraction stresses, seaming should ideally be carried out in the morning and late evening when the geomembrane is relatively contracted, and during the middle of the day if overcast conditions prevail. If the geomembrane must be seamed in the middle of a sunny day, then the Geosynthetics Installer shall ensure that the panels to be seamed are at the same temperature and that there is sufficient slack in the geomembrane to prevent the generation of excessive stresses or trampolining when the geomembrane contracts as cooler temperatures prevail. The Geosynthetics Installer shall determine the required amount of slack and it should not be so much so as to cause significant wrinkling of the geomembrane. If trampolining

of the geomembrane is observed, then the Geosynthetics Installer will be required to make repairs so that the problem is eliminated.

3. Ambient temperatures shall be measured 6 in. above the geomembrane surface.

E. Overlapping and Temporary Bonding

1. Geomembrane panels shall be overlapped a minimum of 3 in. for extrusion welding and 5 in. for fusion welding, but in any event, sufficient overlap shall be provided to allow peel tests to be performed on the seam.
2. The procedure used to temporarily bond adjacent panels together shall not damage the geomembrane. The temperature of the air at the nozzle of spot welding apparatus shall be controlled such that the geomembrane is not damaged.
3. No solvent or adhesive shall be used.

F. Seam Preparation

1. Prior to seaming, the seam area shall be cleaned and made free of moisture, dust, dirt, debris of any kind, and foreign material.
2. If seam overlap grinding is required, then the process shall be completed according to the Geomembrane Manufacturer's instructions within 20 minutes of the seaming operation and in a manner that does not damage the geomembrane. The grind depth shall not exceed ten percent of the geomembrane thickness. Grinding marks shall not appear beyond 0.25 in. of the extrudate after it is placed.
3. Seams shall be aligned with the fewest possible number of wrinkles and "fishmouths".

G. General Seaming Requirements

1. Seaming shall extend to the outside edge of panels, including those panels placed in the anchor trench.
2. If required to provide a firm substrate, then a board, or similar hard surface, placed directly under the seam overlap may be used to achieve proper support.
3. Fishmouths or wrinkles at the seam overlaps shall be removed by cutting the geomembrane along the ridge of the wrinkle. At the end(s) of the cut, cut a circle in the geomembrane to achieve a flat overlap. The cut shall be seamed as described in the Section. Any portion where the overlap is inadequate shall then be patched

with an oval or round patch of the same geomembrane that extends a minimum of 6 in. beyond the cut in all directions.

H. Seaming Process

1. The approved process for field seaming is extrusion welding. Seaming equipment shall be operated in a manner that does not cause damage to the geomembrane.
2. Extrusion Equipment and Procedures:
 - a. The Geosynthetics Installer shall maintain at least one spare operable extrusion seaming apparatus on Site at all times.
 - b. Extrusion welding apparatus shall be equipped with gauges giving the temperature in the apparatus.
 - c. Prior to beginning a seam, the extruder shall be purged until all heat-degraded extrudate has been removed from the barrel.
 - d. The electric generator used for power supply to the welding machines shall be placed outside the area to be lined or mounted on soft tires such that no damage occurs to the geomembrane. The electric generator shall be equipped with a grounding rod that is driven into the ground outside the lined area. A smooth insulating plate or fabric shall be placed beneath the hot welding apparatus after use.

I. Trial Seams

1. Trial seams shall be made prior to production seaming by all seamers and by all equipment to be used during production seaming. The trial seams shall be made on fragment pieces of geomembrane to verify that seaming conditions are adequate. Such trial seams shall be made at the beginning of each seaming period, and at least once each five hours, for each seaming apparatus used that day. Trial seams shall be made under the same conditions as actual production field seams. The trial seam sample shall be at least 5-ft. long by 1-ft. wide (after seaming) with the seam centered lengthwise. Seam overlap shall be as specified in Part 3.05.E of this Section.
2. Four specimens, each 1.0-in. wide, shall be cut from the trial seam sample by the Geosynthetics Installer. The specimens shall be tested in peel (both tracks for fusion welds) using an electronic readout field tensiometer, and the specimen shall fail by film tear bond (FTB) (i.e., failure in the parent material) rather than in the seam. Testing using the field tensiometer shall be performed in

accordance with ASTM D 6392, at a strain rate of 2 in./minute. Ideally, the samples shall be conditioned at 73°F at a relative humidity of 50 percent for two hours prior to testing. If test conditions vary from this requirement, then a 1-in. wide specimen of the parent geomembrane (no weld) shall be tested in the same manner as the seam specimens to determine the break strength at this condition. At no time shall the specimens be soaked in water.

3. If a specimen fails to comply with the properties stated in Table 02750-2, then the entire operation shall be repeated. If the additional specimen fails to meet these requirements, then the seaming apparatus or seamer shall not be accepted and shall not be used for seaming until the deficiencies are corrected and two consecutive successful trial seams are achieved.
4. After completion of the above-described tests, the remaining portion of the trial seam sample can be discarded. The results of all testing shall be reported to OWNER.

J. Nondestructive Seam Continuity Testing

1. The Geosynthetics Installer shall nondestructively test all field seams over their full length using a vacuum test.
2. Vacuum testing of extrusion field seams and repairs shall be performed in accordance with ASTM D 5641.

L. Defects and Repairs

1. Seams and non-seam areas of the geomembrane will be examined for evidence of defects, holes, blisters, undispersed raw materials and any sign of contamination by foreign matter. The surface of the geomembrane shall be clean at the time of examination. The geomembrane surface shall be swept or washed by the Geosynthetics Installer if surface contamination inhibits examination. The Geosynthetics Installer shall ensure that this examination of the geomembrane precedes any seaming of that section.
2. Each suspect location, both in seam and non-seam areas, shall be nondestructively tested. Each location that fails nondestructive testing shall be marked and repaired by the Geosynthetics Installer. Work shall not proceed with any materials that will cover the defective area until the suspect location is repaired and passing nondestructive test are obtained.

3. When seaming of a geomembrane is completed, identify excessive geomembrane wrinkles. The Geosynthetics Installer shall cut and reseat the wrinkle areas so identified. The seams thus produced shall be tested like any other seams.
4. Repair Procedures.
 - a. Any portion of the geomembrane exhibiting a flaw, or failing a destructive or nondestructive test, shall be repaired by the Geosynthetics Installer. Several repair procedures are specified below. The final decision as to the appropriate repair procedure shall be agreed upon between owner and the Geosynthetics Installer. The procedures available include:
 - i. patching, used to repair large holes, small tears, undispersed raw materials, and contamination by foreign matter;
 - ii. abrading and reseaming, used to repair small sections of extruded seams;
 - iii. spot seaming, used to repair minor, localized flaws;
 - iv. capping, used to repair lengths of failed seams;
 - v. removing failed seam and replacing with a strip of new material seamed into place (used with long lengths of fusion seams) and/or extrusion seams.
 - b. In addition, the following shall be satisfied:
 - i. surfaces of the geomembrane that are to be repaired shall be abraded no more than 20 minutes prior to the repair;
 - ii. all surfaces must be clean and dry at the time of repair;
 - iii. patches or caps shall extend at least 6 in. beyond the edge of the defect, and all corners of holes and patches shall be rounded with a radius of at least 3 in.; and
 - iv. the geomembrane below large caps shall be appropriately cut to avoid water or gas collection between the two sheets.
5. Each repair shall be numbered and logged and shall be nondestructively tested using the methods described in this Section. Repairs that pass the nondestructive test shall be taken as an indication of an adequate repair. Failed tests will require the repair to be redone and retested until a passing test result is achieved.

3.5 MATERIALS IN CONTACT WITH THE GEOMEMBRANE

- A. Take all necessary precautions to ensure that the geomembrane is not damaged during its installation or during the installation of other components of the liner system or by other construction activities. Installation on rough surfaces, such as concrete, shall be performed carefully.
- B. Equipment shall not be driven directly on the geomembrane.

+ + END OF SECTION + +

SECTION 11010

PORTABLE EYEWASH STATION

PART 1 - GENERAL

1.1 SCOPE

- A. Provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install the portable eyewash station(s).
- B. The equipment includes:
 - 1. Portable Eyewash Station.
 - 2. Miscellaneous mounting brackets, accessories, fasteners, etc.
 - 3. Extra eyewash solution.

1.2 QUALITY ASSURANCE

- A. Quality Source Control: Furnish as complete, equipment and refills produced by one manufacturer, including hardware, accessory items, mounting brackets, and fastenings.
- B. Reference Standards: Comply with applicable provisions and recommendations unless otherwise shown or specified:
 - 1. Occupational Safety and Health Act of 1970.

1.3 SUBMITTALS

- A. Shop Drawings: Submit for approval manufacturer's detailed data sheets.

PART 2 - MATERIALS

2.1 MATERIALS

- A. Portable Industrial Eyewash Station With Refills: Provide 15 minute duration portable industrial eyewash stations. The stations shall be HAWS Portable Emergency Eyewash Station Model 7500 with a mounting bracket. Quantity = one. Also, provide 6 bottles of HAWS Eyewash Bacteriostatic Additive. A supplier is Select Safety Sales.com, <http://www.selectsafetysales.com/p-317-haws-portable-emergency-eyewash-station-7500.aspx>.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the substrates and conditions under which the equipment is to be installed and notify ENGINEER in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

3.2 INSTALLATION

- A. Install equipment as specified and in accordance with the manufacturer's instructions. Position units plumb and true, securely anchored in place with proper clips, brackets, and bolts for the type of mounting required. Location as directed by ENGINEER.
 - 1. Mount the Portable Industrial Eyewash Station inside the Pole Barn at a location selected by the OWNER. Give the eyewash bacteriostatic additives to OWNER as soon as it is received from supplier.

+ + END OF SECTION + +

SECTION 11012

SAFETY EQUIPMENT

PART 1 - GENERAL

1.1 SCOPE

- A. Provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install all safety equipment.
- B. The types of safety equipment required includes but is not necessarily limited to:
 - 1. Fire Extinguishers
 - 2. Safety Rope
 - 3. Miscellaneous mounting brackets, accessories, fasteners.

1.2 QUALITY ASSURANCE

- A. Quality Source Control: Furnish as complete, each item of safety equipment produced by one manufacturer, including hardware, accessory items, mounting brackets, and fastenings as appropriate.

1.3 SUBMITTALS

- A. Shop Drawings: Submit for approval manufacturer's detailed data sheets.

PART 2 - MATERIALS

2.1 MATERIALS

- A. Fire Extinguishers: Provide two (2) new, fully charged 20# ABC fire extinguishers with appropriate wall mounting hardware. The fire extinguishers shall be enameled steel containers with a pressure indicating gauge and a UL rating of 4A,60B:C.
- B. Safety Rope: Provide 5/8" rope safety lifeline assembly of polyester and polypropylene blend. One end shall have a locking snap and the other end shall be taped off. The rope shall meet or exceed all OSHA and ANSI standards, including ANSI Z359. Provide five ropes at 75 feet each.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the substrates and conditions under which the safety equipment is to be installed and notify ENGINEER in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

3.2 INSTALLATION

- A. Install safety equipment as specified and in accordance with the manufacturer's instructions. Position units plumb and true, securely anchored in place with proper clips, brackets, and bolts for the type of mounting required. Location as directed by ENGINEER.
- B. Deliver the safety ropes to the OWNER.

+ + END OF SECTION + +

SECTION 11014

STOP LOGS, GUIDES, AND LIFTERS

PART 1--GENERAL

1.1 DESCRIPTION:

- A. Furnish and install stop logs and guides and deliver the necessary lifting devices and spare stop logs to the job site. They shall be fabricated, assembled, and placed in proper operating condition in accordance with the equipment manufacturer's installation instructions and recommendations.

1.2 QUALITY ASSURANCE:

- A. The stop logs, guide frames, and lifters shall be the product of a single manufacturer having 10 years or more experience in the successful design and manufacture of low-leakage stop logs under similar conditions. Stop logs systems shall be Whipps Inc. Aluminum Stop Logs - Series 509.

1.3 SUBMITTALS

- A. Submit shop drawings of the equipment in the quantities and format as specified within Sections 01330 and 01340.

PART 2--PRODUCTS

2.1 STOP LOGS:

- A. Aluminum stop logs shall be extruded aluminum alloy 6061-T6. The aluminum extrusions shall have a minimum thickness of 5/16". Maximum bending stress shall not exceed 7,600 psi at maximum operating head. Each stop log shall not deflect more than 1/360 of the stop log span under maximum hydraulic head. All stop logs for a particular location shall be identical (except for their height as noted in the Plans or in these Specifications), and designed to stack in any order.
- B. Each stop log shall be provided with uninterrupted resilient lip-type seals attached along the bottom of the stop log and up both sides. The seals shall be attached to the stop log with Type 316 stainless steel bars and fasteners. Seals shall be located on stop logs for easy inspection and easy replacement. The shape of the seal shall provide a seating surface having a minimum one-inch width. The seal's vertical face shall always contact the seating surface of the groove to provide a proper seal at the corners. The bottom of the stop log shall seal flush with the top of the flush bottom member. Frame mounted seals are unacceptable.

- C. Each stop log shall be outfitted with an identification tag indicating the manufacturer, width of the opening, and maximum head rating at a minimum. Additional tags shall be included on each stop log that indicate "DRY SIDE" and "WET SIDE". Tags shall be welded to each log.

2.2 STOP LOG GUIDE:

- A. The stop log guide shall be extruded aluminum, alloy 6061-T6. The guide frames shall consist of two grooves and an invert member. The stop log guide shall be the embedded type and supplied with appropriate Type 316 stainless steel concrete anchors for embedment as required by the manufacturer. The invert member shall be designed for minimal flow interference along the channel bottom.

2.3 STOP LOG LIFTER:

- A. Provide two handheld aluminum stop log lifting poles/devices for each stop log installation. Lifters shall be of appropriate length to permit easy removal of stop logs from work areas.

2.4 PAINTING:

- A. All aluminum in contact with concrete shall have two heavy shop coats of bitumastic paint and the coating shall be observed by the OWNER before installation. Should field inspection indicate damage to the shop coat, as determined by the ENGINEER, apply an additional coat of compatible bitumastic paint at no additional cost.

2.5 ANCHORS, BOLTS, AND FASTENING DEVICES

- A. Furnish anchors, bolts, etc., as necessary for installation of the Work of this Section. All anchors, bolts, washers, and other fastening devices shall be Type 316 stainless steel or better. All anchor bolts shall have a minimum diameter of 1/2-inch.
- B. For structural purposes, unless otherwise noted, expansion bolts shall be "Power-Stud" by Powers Fasteners or "Kwik Bolt 3" by Hilti. When length of bolt is not called for on the Drawings, the length of bolt provided shall be sufficient to place the wedge portion of the bolt a minimum of 1-inch behind the reinforcing steel within the concrete.
- C. Pay for and provide all anchor bolts and fastening devices required for OWNER direct purchase items.

2.6 STOP LOG SYSTEM LOCATIONS AND NUMBERS OF STOP LOGS REQUIRED

A. Stop log systems and stop log quantities and sizes are listed below.

Table 1 – Stop Log System Information

Stop Log System Number	Location	Clear Opening Width (feet)	Stop Logs Required
1	Water Lettuce Bleed-down Structure #1	4'-0"	(2) 12" tall logs (2) 6" tall logs
2	Water Lettuce Bleed-down Structure #1	4'-0"	(2) 12" tall logs (2) 6" tall logs
3	Algal Unit 1A Drain Sump	3'-6"	(1) 12" tall log
4	Algal Unit 1B Drain Sump	3'-6"	(1) 12" tall log
5	Water Lettuce Bleed-down Structure #2	4'-0"	(2) 12" tall logs (2) 6" tall logs
6	Water Lettuce Bleed-down Structure #2	4'-0"	(2) 12" tall logs (2) 6" tall logs
7	Algal Unit 2B Drain Sump	3'-6"	(1) 12" tall log
8	Algal Unit 2B Drain Sump	3'-6"	(1) 12" tall log
9	Water Lettuce Sludge Discharge Structure No. 1	6'-0"	(3) 12" tall logs
10	Supernatant and Sludge Pump-Out Structure No. 1	4'-0"	(7) 6" tall logs
11	Water Lettuce Sludge Discharge Structure No. 4	6'-0"	(3) 12" tall logs
12	Supernatant and Sludge Pump-Out Structure No. 4	4'-0"	(7) 6" tall logs
13	Water Lettuce Sludge Discharge Structure No. 2	6'-0"	(3) 12" tall logs
14	Supernatant and Sludge Pump-Out Structure No. 2	5'-0"	(7) 6" tall logs
15	Water Lettuce Sludge Discharge Structure No. 3	6'-0"	(3) 12" tall logs
16	Supernatant and Sludge Pump-Out Structure No. 3	5'-0"	(7) 6" tall logs

Spare stop logs required = zero

2.7 MISCELLANEOUS

A. No galvanized material is permitted.

PART 3—EXECUTION

3.1 INSTALLATION:

- A. Each completely assembled stop log location shall be tested for leakage.
- B. Install all stop log systems in accordance with the manufacturer's specifications and recommendations. In the event of a conflict between these Specifications and the manufacturer's specifications or recommendations, the more stringent requirement shall govern.
- C. Insure all surfaces of aluminum in contact with dissimilar materials such as concrete, masonry, steel, nonferrous metals, etc. are thoroughly coated with two thick coats of approved asphaltic (bitumastic) or zinc chromate paint as appropriate.

3.2 FIELD TEST

- A. Perform operating tests to demonstrate that the equipment operates in the manner intended. Use the lifting device to remove and properly fit the stop logs at their locations in the presence of and to the satisfaction of the ENGINEER.
- B. The maximum allowable leakage for each stop log system is 0.05 gallons per minute per linear foot of wetted seal. Furnish all labor, materials, tools, and equipment necessary to conduct field leakage tests, including pumping equipment to dewater channels as directed by the ENGINEER. If any leakage test fails, make all repairs, reconstruction, etc. as required and as approved by the manufacturer and ENGINEER, until the installation passes the leakage test. If a system cannot pass the leakage test, fifty percent of the bid cost of the stop log system will be deducted from the applicable stop log pay item.
- C. After the field test and before final payment, the manufacturer shall certify to the OWNER in writing that all stop log systems are operating in compliance with the Specifications and the manufacturer's requirements and standards.
- C. Pay for all manufacturer's representative's services required for proper installation, testing, and certification.

+ + END OF SECTION + +

SECTION 11016

SLIDE GATES

PART 1--GENERAL

1.1 DESCRIPTION:

- A. Furnish and install slide gates, operator, and all appurtenances. They shall be fabricated, assembled, and placed in proper operating condition in accordance with the equipment manufacturer's installation instructions and recommendations.

1.2 SUBMITTALS

- A. Submit shop drawings of the equipment in the quantities and format as specified within Sections 01330 and 01340.

PART 2--PRODUCTS

2.1 SLIDE GATES

- A. Slide gates shall be Type 316 stainless steel Series HG516S Heavy Duty Slide Gates manufactured by Hydro Gate (813-888-5556) or approved equal. All alternate submittals shall be compared with the Hydro Gate specifications and approved or not approved accordingly. The gates and all hardware shall be Type 316 stainless steel.
- B. All gates shall be fully shop assembled, adjusted, inspected, and tested for operation and leakage before shipment.
- C. The manufacturer shall have a minimum of ten years of experience in regular production of slide gates and water control equipment. Welders and procedures shall be certified according to AWS D1.6 or ASME Section IX.

2.2 OPERATORS

- A. Provide hand wheels for all gates shown to have hand wheels. For gates listed to be operated with a portable drill, install heavy-duty nuts for drill operation and provide appropriate drill attachment to connect drill to nut on gate (quantity = three). Provide two additional hand wheels that will operate the gates listed for drill operation. Mount all gate operators so that hand wheel/drill nut faces the individual operating the gate.

2.3 SLIDE GATE INFORMATION

Table 1 – Slide Gate Information

Gate No.	Location	Opening Gate is to Cover/Seal	Gate Opening Height	Type of Mount	Type of Operator
1	Water Lettuce Basin No. 1 Dewatering Flume	4' wide rectangular channel	2'-6" high	Face mount with flush bottom	Hand Wheel
2	Water Lettuce Basin No. 2 Dewatering Flume	4' wide rectangular channel	2'-6" high	Face mount with flush bottom	Hand Wheel
3	Water Lettuce Sludge Discharge Structure No. 1	6'-0" wide rectangular channel	3'-0" high	Side mount with flush bottom	Drill
4	Water Lettuce Sludge Discharge Structure No. 4	6'-0" wide rectangular channel	3'-0" high	Side mount with flush bottom	Drill
5	Water Lettuce Sludge Discharge Structure No. 2	6'-0" wide rectangular channel	3'-0" high	Side mount with flush bottom	Drill
6	Water Lettuce Sludge Discharge Structure No. 3	6'-0" wide rectangular channel	3'-0" high	Side mount with flush bottom	Drill
7	Headworks Structure	42" span x 29" rise pipe opening	42" wide x 30" high **	Face mount	Drill

** Verify required gate size to seal pipe opening with gate manufacturer prior to ordering gate.

PART 3—EXECUTION

3.01 INSTALLATION:

- A. Install the gate and accessories according to the manufacturer's recommendations. The gate shall be clean and free of construction debris. Stem threads shall be lubricated prior to operation of the gate. Limit switches for the electric motor shall be adjusted according to manufacturer's instructions.

3.02 START-UP AND FIELD TEST

- A. Perform operating tests to demonstrate that the equipment operates in the manner intended under the supervision of the slide gate manufacturer's representative. Each gate shall be cycled for a minimum of 5 cycles to ensure smooth operation.
- B. Each gate shall be tested for leakage in the presence of the ENGINEER and OWNER. The maximum allowable leakage for each slide gate is 0.05 gpm per

foot of wetted perimeter at the rated head, seating or unseating. Furnish all labor, materials, tools, and equipment necessary to conduct field leakage tests, including pumping equipment to dewater channels. If any gate leakage test fails, make all repairs, reconstruction, etc. as required and as approved by the manufacturer and ENGINEER, until the installation passes the leakage test. If a gate cannot pass the leakage test, fifty percent of the bid cost of the gate will be deducted from the applicable pay item.

- C. After the field test and before final payment, the manufacturer shall certify to the OWNER in writing, that all gates are operating in compliance with the Specifications and the manufacturer's requirements and standards.
- D. Pay for all manufacturer's representative's services required for proper installation, testing, and certification.

+ + END OF SECTION + +

SECTION 11018

FLOATING DEBRIS BOOM

PART 1 -- GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, and incidentals required and perform all operations in connection with the installation of the floating boom assembly as shown on the Drawings and as specified herein.

1.02 STANDARDS

- A. The floating barrier shall be the TUFFBOOM system as Manufactured by Worthington Products, Inc. (1-800-899-2977) of Canton, Ohio.

PART 2 -- PRODUCTS

2.01 FLOATATION UNITS

- A. Flotation units shall be of fire resistant construction consisting of a medium density polyethylene encasement with a closed-cell polystyrene foam fill.
- B. Polystyrene shall meet the requirements of ASTM C-578 and shall have a minimum in-place density of 0.9 pounds per cubic foot and a maximum in-place density of 1.2 pounds per cubic foot.
- C. Water absorption of polystyrene shall not exceed 3% by volume as tested per ASTM C-272.
- D. Polystyrene shall be unable to support combustion without an external heat source.
- E. Polystyrene shall fill no less than 95% of the interior volume of the boom.
- F. Polystyrene shall be produced by a manufacturer who has been continuously engaged in the production of styrene foam for flotation for a minimum of five years.
- G. Polyethylene encasement shall be rotational molded with a nominal wall thickness of 0.200 inches.
- H. Polyethylene encasement shall have a minimum density of 0.95 grams/cc as determined by ASTM D1505-68.

- I. Polyethylene encasement shall be manufactured with antioxidants incorporated into the process and be resistant to UV radiation and petroleum products.
- J. Flotation units shall be designed to maintain desired buoyancy and freeboard even if structurally damaged or punctured.
- K. Flotation unit shall have no more than an 8% air gap internally and cannot fill with water more than 5% of volume.
- L. Each flotation unit shall be cylindrical in shape and incorporate inverted longitudinal ribbing for strength.
- M. Each flotation unit shall be 16 inch nominal diameter and a custom length as required for the various installations. Lengths shall be as shown on the Plans.

2.02 BALLAST

- A. Booms shall include an internal steel channel of minimum size C4 x 5.4, (length as required).
- B. The steel channel shall be secured to the interior of each unit in the center via quantity 3 at 1/2" diameter Type 316 stainless steel bolts and quantity 4 at 3/4" diameter Type 316 stainless steel hex nut bolts.
- C. All bolts shall be secured with 316 stainless steel washers and 316 stainless steel flat washers. Ballast must be physically attached to booms with an outer plate sandwiching the plastic material.
- D. 316 stainless steel bolts and fasteners shall be ASTM A-325 American standard regular with hexagonal heads and nuts.

2.03 CONNECTION

- A. Connections shall be designed such that wear between components is minimized.
- B. All external hardware and connections must be of Type 316 stainless steel construction. The use of non-metallic materials, such as pvc belting, or other materials that can be cut, ripped, torn or are subject to environmental degradation are expressly prohibited. Testing documents of connectors shall be provided documenting their breaking strength.
- C. Connection shall consist of a heavy-duty steel bottom connector plate, load rated safety type anchor shackles and load rated weldless links.
- D. Bottom connector plates shall consist of 5/8" thick x 3" wide x 18.5" long steel. Each plate shall be securely fastened to the bottom ends of each boom via two (2) 3/4" diameter

bolts and one (1) 1/2" diameter bolt. All Bolts must securely fasten to the interior steel channel.

- E. Anchor shackles shall be a minimum 3/4" safety type bolt anchor shackle.
- F. Anchor shackles shall be load rated with a minimum 4-3/4 ton WLL. The WLL load limit must be stamped and clearly visible on each shackle.
- G. Anchor shackles must include a separate Type 316 stainless steel cotter pin. "R" style pins are not acceptable.
- H. Supplier shall furnish testing data, from an independent certified testing lab verifying the ultimate breaking strength of the shackles is not less than 4x the working load limit. For the 3/4" 4.75 WLL ton shackle the minimum breaking strength is 38,000 pounds.
- I. No galvanized material is permitted.

2.04 COLOR

- A. Color shall be international orange.

2.05 DEFLECTOR PLATES

- A. Each Floatation unit shall include profile plates to be attached to one end of each unit for the purpose of restricting the passage of smaller debris between booms or channel walls. Deflector plates shall include a 3-point method of affixing to each floatation unit and shall be capable of moving independently of the adjoining floatation unit. Plate lengths shall be sized as necessary for the custom length of the booms.

+ + END OF SECTION + +

SECTION 11020

FLOW METERS - ELECTROMAGNETIC FLOW METERS

PART 1--GENERAL

1.1 DESCRIPTION

- A. Furnish and install two electromagnetic flow meters, amplifiers, cables, and all other necessary appurtenances and place them into proper operating condition in accordance with the equipment manufacturer's installation instructions and recommendations and these Specifications.

1.2 SUBMITTALS

- A. Submit shop drawings of the equipment in the quantities and format as specified within Sections 01330 and 01340.

PART 2--PRODUCTS

2.1 ELECTROMAGNETIC FLOW METER

- A. The flow meters shall be the size shown on the Drawings and shall be Badger Meter ModMAG M-Series M2000 electromagnetic flow meters with hard rubber liner, grounding rings, cable, and all other necessary appurtenances. The flow meters shall have junction boxes for remotely located amplifiers. The metering tube (detector) housing shall be constructed of carbon steel, welded at all joints, and rated to meet NEMA 6P (IP67) ratings. The amplifiers shall be housed in stainless steel panels as shown on the Drawings. Each flow meter shall have the following options: (1) Type 316 stainless steel flanges; (2) Hastelloy C electrode materials; (3) Type 316 stainless steel grounding rings. (4) Remote-mounted, submersible metering tube (detector). Verify cable lengths before ordering equipment. Contact Eric Corey, The Avanti Company, 863-453-5336, www.avanticompany.com. The flow meters will be installed outdoors inside buried concrete vaults.
- B. The enclosure for each flow meter amplifier shall be a NEMA4X Hoffman WS161608SS enclosure or approved equal. Provide appropriate Type 316 stainless steel mounting brackets that meet UL external mounting requirements.
- C. For each flow meter, furnish a flanged ductile iron spool piece the same length and diameter as the flow meter.
- D. Flow meter accuracy shall be per the manufacturer's specifications for each flow meter specified.

PART 3—EXECUTION

3.01 INSTALLATION:

- A. Install each flow meter and amplifier in strict accordance with the manufacturer's recommendations and specifications and these Specifications.
- B. Install each flow meter's amplifier inside a NEMA4X weatherproof outdoor enclosure near the flow meter as shown on the Drawings. Mount each protective enclosure so the bottom is 60" above finish grade unless otherwise directed by the OWNER in the field.

3.02 FIELD TEST

- A. Perform operating tests to demonstrate that the equipment operates in the manner intended. Schedule the services of factory representatives for each field test. The factory representative shall inspect each final installation and supervise the test run of the equipment.
- B. Do not conduct field tests until the entire installation is complete and ready for testing.
- C. Conduct in the presence of the ENGINEER and OWNER, such tests that are necessary to indicate that the equipment conforms to the Specifications and measures and records flow as required. Supply all electric power, water, labor, equipment, and incidentals required to complete the field tests.
- D. If the equipment fails to function properly, take corrective measures, or else remove the item and replace it with one that functions properly, at no cost to the OWNER.
- E. Deliver three copies of Certified Test Results to the ENGINEER upon completion of satisfactory testing of the equipment and prior to requesting Final Payment. The "Certified Test Results" shall be on the flow meter manufacturer's letterhead and shall certify that:
 - 1. Each flow meter and amplifier is operating as intended and to the satisfaction and approval of the manufacturer's representative;
 - 2. All controls and equipment specified have been properly installed; and
 - 3. Each flow meter system is ready for operation and acceptance by the OWNER.
- F. Pay for all of the manufacturer's onsite services and expenses.

+ + END OF SECTION + +

SECTION 11022
EGRESS LADDERS

PART 1--GENERAL

1.1 DESCRIPTION:

- A. Furnish and install egress ladders in the locations shown on the Drawings.

1.2 QUALITY ASSURANCE:

- A. The egress ladders shall be manufactured by MP Industries, Inc., Clearwater, Florida, 765-357-8263, sales@mpindustriesinc.com.

1.3 SUBMITTALS

- A. Submit shop drawings of the equipment in the quantities and format as specified within Sections 01330 and 01340.

PART 2--PRODUCTS

2.1 EGRESS LADDERS:

- A. Egress ladders shall meet the following minimum requirements:
1. High grade aluminum construction,
 2. Rungs on 12" centers,
 3. OSHA and ANSI compliant design,
 4. 300-pound capacity
 5. Extend 6" from the wall,
 6. 18-inch wide traction tread,
 7. Furnished complete with mounting plates,
 8. Lightweight, non-corrosive and non-sparking.
 9. Ladders shall have the 42" high handrail option.
- B. Hardware: Use appropriate Type 316 stainless steel concrete anchors for embedment as recommended by the manufacturer. Provide nylon washers between aluminum and stainless steel to prevent galvanic corrosion.
- C. No galvanized material is permitted.

PART 3—EXECUTION

3.1 INSTALLATION:

- A. Install all egress ladders in accordance with the manufacturer's specifications and recommendations. In the event of a conflict between these Specifications and the manufacturer's specifications or recommendations, the more stringent requirement shall govern.

- C. Insure all surfaces of aluminum in contact with dissimilar materials such as concrete, masonry, steel, nonferrous metals, etc. are thoroughly coated with two thick coats of approved asphaltic (bitumastic) or zinc chromate paint as appropriate. The coating shall be observed by the OWNER before installation. Should field inspection indicate damage to the shop coat, as determined by the ENGINEER, apply an additional coat of compatible bitumastic paint at no additional cost. Nylon washers may also be used to prevent contact between aluminum and dissimilar materials.

+ + END OF SECTION + +

SECTION 11300

SUBMERSIBLE PUMPS AND APPURTENANCES FOR HEADWORKS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Work under this Section includes, but is not limited to furnishing and installing all pipes, concrete structures, valves, fittings, frames and covers, grating, handrail systems, slide valve, connections, adjustments, electrical and telemetry controls and panels, level controllers, accessories, excavation (including removal and disposal of unsuitable material), dewatering, sheeting and shoring, bedding, backfill, compaction, testing, equipment, supervision, certifications, material, incidentals, and labor for the installation of the submersible pumping system as shown, noted, and reasonably intended by the Drawings and Specifications and making the system functional and ready for service. Payment for the Duperon FlexRake will be paid under a separate pay item.

1.2 QUALITY ASSURANCE

- A. **Unity of Responsibility:** The CONTRACTOR and pump manufacturer shall assume responsibility for the satisfactory installation and operation of the entire pumping systems, including pumps, motors, controls, motor starters, etc. specified in this Section.
- B. **Pre-Shipment Pump Tests:**
1. The pump manufacturer shall perform the following inspections and tests on each pumping unit before shipment from factory:
 - a. Impeller, motor rating, and electrical connections shall first be checked for compliance.
 - b. A motor and cable insulation test for moisture content and insulation defects.
 - c. Prior to submergence, the pump shall be run dry to establish correct rotation and mechanical integrity.
 - d. The pump shall be run for a minimum of 30 minutes submerged, a minimum of 10 feet underwater throughout its entire operating range.
 - e. After operational test No. d above, the insulation test No. b above, is to be performed again.
 2. A written report certifying the foregoing steps have been satisfactorily completed shall be supplied for each pump at the time of shipment. A copy

of these tests shall be submitted to the ENGINEER and included in the operation and maintenance manuals furnished.

3. Each pump shall be capable of operating in a totally dry condition under full load without damage for extended periods.
4. The pump manufacturer provide Hydraulic Institute certified pump test curves for each pumping unit.

C. Warranties:

1. Furnish a written manufacturer's warranty against defects in material and workmanship, for a period of one year from OWNER's Final Acceptance of the equipment. The manufacturer's warranty period shall run concurrently with the CONTRACTOR's warranty period. No exception to this provision shall be allowed. Replace without additional expense to the OWNER, all components, which prove defective during the warranty period. Items that are normally expended in service such as oil, grease, or light bulbs are exempt from the warranty.
2. Pumps - In addition to the above warranty, the pump manufacturer shall provide a 10,000-hour warranty, i.e., 100 percent of pump replacement cost within the first 3,000 hours of operation, 50 percent of the replacement cost within 3,000 to 6,500 hours of operation, and 25 percent of the replacement cost within 6,500 to 10,000 hours of operation.
3. Level Sensing Probe – The level sensing probe shall be covered by the probe manufacturer's standard ten-year (minimum) warranty.

D. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.

1. ASTM A48, Specification for Grey Iron Castings.
2. ASTM A53, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
3. ASTM A108, Specification for Steel Bars, Carbon, Cold-Finished, Standard Quality.
4. ASTM A575, Specification for Steel Bars, Carbon, Merchant Quality, M-Grades.
5. ASTM A576, Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality.
6. ASTM A584, Specification for Copper Alloy Sand Castings for General Applications.

E. Field Tests: Perform field tests as specified in this Section.

F. The pump manufacturer shall supply the pump monitoring units as specified elsewhere herein.

1.3 SUBMITTALS

- A. Shop Drawings: Submit detailed drawings on all equipment, said equipment may include but not be limited to rails, discharge elbow, access hatches, and all other related appurtenances. Reference Section 01340, Shop Drawing Procedures, for Submittals. Pump manufacturer shall submit detailed drawings of pump and controls to both ENGINEER and CONTRACTOR, including pump performance data and physical characteristics. Pump curves shall show the various System Head Curves associated with each pump (included herein) plotted against the pump's variable speed operating curves in units of feet and gallons per minute.
- B. Manufacturer's Certificate of Compliance certifying compliance with the referenced specifications and standards (submitted by the pump manufacturer).
- C. Manufacturer's installation instructions (submitted by the pump manufacturer).
- D. Manufacturer's Operation and Maintenance Manuals (submitted by the pump manufacturer). The manuals shall be prepared specifically for this installation and shall include all required cuts, drawings, pump characteristics curves, equipment/parts lists, schematic wiring diagrams, descriptions, etc. that are required to instruct operating and maintenance personnel unfamiliar with such equipment.
- E. Pre-Shipment Pump Tests specified in paragraph 1.2.B.
- F. Prior to request for Final Payment, the pump manufacturer shall furnish the following to the ENGINEER:
 - 1) Tools and Spare Parts:
 - a) Provide (1) set of all special tools required for normal operation and maintenance.
 - b) The pump manufacturer shall furnish a complete set of recommended spare parts for the first three (3) years operation of the pumping system, which shall include at least the following:
 - (1) One (1) set of upper bearings for each pump supplied.
 - (2) One (1) set of lower bearings for each pump supplied.
 - (3) One (1) set of upper and lower shaft seals for each pump supplied.
 - (4) One (1) relay and phase monitor for each type supplied with the pump control panel for each station.
 - (5) One (1) spare impeller
 - (6) Any special tools required.
 - c) Spare parts shall be properly bound and labeled for easy identification without opening the packaging and suitably protected for long-term

- storage.
- d) Certified copies of the Pre-Shipment Pump Tests.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Pumping units shall comply with Hydraulic Institute Standards.
- B. Pump materials shall comply with the specifications herein.
- C. Where applicable specifications are not designated herein, supply high class commercial grades of materials that meet the requirements specified and which are satisfactory to the ENGINEER.
- D. All hardware shall be Type 316 stainless steel or better.

2.2 PUMPS

- A. REQUIREMENTS: Both pumps shall be variable speed submersible non-clog wastewater pumps.
1. Pump 1 – Pump 1 shall be equipped with a variable speed 25 HP submersible electric motor, connected for operation on 460 volts, 3 phase, 60 hertz power, with 50 feet of submersible cable (SUBCAB) suitable for submersible pump applications. Size the power cable according to NEC and ICEA standards. The cable shall meet P-MSHA Approval. Supply the pump with a mating cast iron 10-inch discharge connection. The pump shall be capable of pumping 1 million gallons per day (mgd) to 5 mgd at the heads listed elsewhere in this Specification. Pump 1 shall be a Flygt Model N-3171.095 or approved equal.
 2. Pump 2 – Pump 2 shall be equipped with a variable speed 60 HP submersible electric motor, connected for operation on 460 volts, 3 phase, 60 hertz power, with 50 feet of submersible cable (SUBCAB) suitable for submersible pump applications. Size the power cable according to NEC and ICEA standards. The cable shall meet P-MSHA Approval. Supply the pump with a mating cast iron 14-inch discharge connection. The pump shall be capable of pumping 5 mgd to 10 mgd at the heads listed elsewhere in this Specification. Pump 2 shall be a Flygt Model N-3301.185/095 or approved equal.
- B. PUMP OPERATING INFORMATION:
1. The pumps will operate as follows:

- a. Pump 2 is normally "ON".
- b. Pump 2 "OFF" when water drops to elevation 11.87 and stays "OFF" until manually reset.
- c. Pump 1 "ON" (at 60 Hz) at elevation 11.87
- d. Pump 1 "OFF" when water drops to elevation 6.00
- e. Pump 1 restarts when water rises to elevation 10.00 and continues in this mode (Steps 4 and 5) until Pump 2 is placed back into service manually.

Both pumps cannot operate at the same time.

- 2. System Head Curves: System Head Curves for each pump at various canal operating levels are presented below.

System Head Loss Curves for Pump 1:

Pump 1 at Low Water Level (EL. 11.87)

Flow at Pump (GPM)	Friction Head Losses (feet)	Minor Head Losses (feet)	Static Head Loss (feet)	TDH (feet)
0	0.00	0.00	10.67	10.67
347	0.04	0.09	10.67	10.80
694	0.14	0.35	10.67	11.16
1,042	0.30	0.78	10.67	11.75
1,389	0.50	1.39	10.67	12.56
1,736	0.76	2.17	10.67	13.61
2,083	1.07	3.13	10.67	14.87
2,431	1.42	4.26	10.67	16.35
2,778	1.82	5.56	10.67	18.05
3,125	2.26	7.04	10.67	19.97
3,472	2.75	8.70	10.67	22.11

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Pump 1 at Elevation 10.00

Flow at Pump (GPM)	Friction Head Losses (feet)	Minor Head Losses (feet)	Static Head Loss (feet)	TDH (feet)
0	0.00	0.00	12.54	12.54
347	0.04	0.09	12.54	12.67
694	0.14	0.35	12.54	13.03
1,042	0.30	0.78	12.54	13.62
1,389	0.51	1.39	12.54	14.44
1,736	0.77	2.17	12.54	15.48
2,083	1.08	3.13	12.54	16.75
2,431	1.44	4.26	12.54	18.24
2,778	1.84	5.56	12.54	19.94
3,125	2.29	7.04	12.54	21.87
3,472	2.78	8.70	12.54	24.01

Pump 1 at Elevation 6.00

Flow at Pump (GPM)	Friction Head Losses (feet)	Minor Head Losses (feet)	Static Head Loss (feet)	TDH (feet)
0	0.00	0.00	16.54	16.54
347	0.04	0.09	16.54	16.67
694	0.14	0.35	16.54	17.03
1,042	0.30	0.78	16.54	17.62
1,389	0.51	1.39	16.54	18.44
1,736	0.77	2.17	16.54	19.48
2,083	1.08	3.13	16.54	20.75
2,431	1.44	4.26	16.54	22.24
2,778	1.84	5.56	16.54	23.94
3,125	2.29	7.04	16.54	25.87
3,472	2.78	8.70	16.54	28.01

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System Head Loss Curves for Pump 2:

Pump 2 at Normal Water Level (EL. 14.87)

Flow at Pump (GPM)	Friction Head Losses (feet)	Minor Head Losses (feet)	Static Head Loss (feet)	TDH (feet)
0	0.00	0.00	7.67	7.67
694	0.04	0.09	7.67	7.80
1,389	0.15	0.34	7.67	8.16
2,083	0.32	0.77	7.67	8.76
2,778	0.54	1.37	7.67	9.59
3,472	0.82	2.15	7.67	10.64
4,167	1.15	3.09	7.67	11.92
4,861	1.54	4.21	7.67	13.41
5,556	1.97	5.49	7.67	15.13
6,250	2.45	6.95	7.67	17.07
6,944	2.97	8.59	7.67	19.23

Pump 2 at Dry Season Water Level (EL. 15.87)

Flow at Pump (GPM)	Friction Head Losses (feet)	Minor Head Losses (feet)	Static Head Loss (feet)	TDH (feet)
0	0.00	0.00	6.67	6.67
694	0.04	0.09	6.67	6.80
1,389	0.15	0.34	6.67	7.16
2,083	0.32	0.77	6.67	7.76
2,778	0.54	1.37	6.67	8.59
3,472	0.82	2.15	6.67	9.64
4,167	1.15	3.09	6.67	10.92
4,861	1.54	4.21	6.67	12.41
5,556	1.97	5.49	6.67	14.13
6,250	2.45	6.95	6.67	16.07
6,944	2.97	8.59	6.67	18.23

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Pump 2 at Low Water Level (EL. 11.87)

Flow at Pump (GPM)	Friction Head Losses (feet)	Minor Head Losses (feet)	Static Head Loss (feet)	TDH (feet)
0	0.00	0.00	10.67	10.67
694	0.04	0.09	10.67	10.80
1,389	0.15	0.34	10.67	11.16
2,083	0.32	0.77	10.67	11.76
2,778	0.54	1.37	10.67	12.59
3,472	0.82	2.15	10.67	13.64
4,167	1.15	3.09	10.67	14.92
4,861	1.54	4.21	10.67	16.41
5,556	1.97	5.49	10.67	18.13
6,250	2.45	6.95	10.67	20.07
6,944	2.97	8.59	10.67	22.23

C. **PUMP DESIGN CONFIGURATION:** Each pump shall be automatically and firmly connected to its discharge connection, guided by no less than two Type 316L stainless steel guide bars extending from the top of the station to the discharge connection. There shall be no need for personnel to enter the wet-well. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined metal-to-metal watertight contact. Sealing of the discharge interface with a diaphragm, O-ring or profile gasket is not acceptable. No portion of the pump shall bear directly on the sump floor.

D. **PUMP CONSTRUCTION:**

1. Major pump components shall be of grey cast iron, ASTM A-48, Class 35B, with smooth surfaces devoid of blow holes or other irregularities. The lifting handle shall be of Type 316 or better stainless steel. All exposed nuts or bolts shall be Type 316 stainless steel. All metal surfaces coming into contact with the pumpage, other than stainless steel or brass, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump.
2. Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile rubber O-rings. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.
3. Rectangular cross-sectioned gaskets requiring specific torque limits to

achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease, or other devices shall be used.

- E. **COOLING SYSTEM:** Each pump shall be supplied with an integral, self-supplying cooling system. The motor shall be provided with an integral motor cooling system. A stainless steel cooling jacket shall encircle the stator housing, providing for dissipation of motor heat regardless of the type of pump installation. An impeller, integral to the cooling system and driven by the pump shaft, shall provide the necessary circulation of the cooling liquid through the jacket. The cooling liquid shall pass about the stator housing in the closed loop system in turbulent flow, providing for superior heat transfer. The cooling system shall have one fill port and one drain port integral to the cooling jacket.
- F. **CABLE ENTRY SEAL:** The cable entry seal design shall preclude specific torque requirements to insure a watertight and submersible seal. The cable entry shall consist of dual cylindrical elastomer grommets, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter. The grommets shall be compressed by the cable entry unit, thus providing a strain relief function. The assembly shall provide ease of changing the cable when necessary using the same entry seal. The cable entry junction chamber and motor shall be sealed from each other, which shall isolate the stator housing from foreign material gaining access through the pump top. Epoxies, silicones, or other secondary sealing systems shall not be considered equal.
- G. **MOTOR:**
 - 1. The pump motor shall be a NEMA B design, induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber. The stator windings shall be insulated with moisture resistant Class H insulation rated for 180°C (356°F). The stator shall be insulated by the trickle impregnation method using Class H monomer-free polyester resin resulting in a winding fill factor of at least 95%. The motor shall be inverter duty rated in accordance with NEMA MG1, Part 31. The stator shall be heat-shrink fitted into the cast iron stator housing. The use of multiple step dip and bake-type stator insulation process is not acceptable. The use of pins, bolts, screws or other fastening devices used to locate or hold the stator and that penetrate the stator housing are not acceptable. The motor shall be designed for continuous duty while handling pumped media of up to 104°F. The motor shall be capable of no less than 30 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of aluminum. Three thermal switches shall be embedded in the stator end coils, one per phase winding, to monitor the stator temperature. These thermal switches shall be

- used in conjunction with and supplemental to external motor overload protection and shall be connected to the motor control panel.
2. The junction chamber shall be sealed off from the stator housing and shall contain a terminal board for connection of power and pilot sensor cables using threaded compression type terminals. The use of wire nuts or crimp-type connectors is not acceptable. The motor and the pump shall be produced by the same manufacturer.
 3. The motor service factor (combined effect of voltage, frequency and specific gravity) shall be 1.15. The motor shall have a voltage tolerance of +/- 10%. The motor shall be designed for continuous operation in up to a 40°C ambient and shall have a NEMA Class B maximum operating temperature rise of 80°C. A motor performance chart shall be provided upon request exhibiting curves for motor torque, current, power factor, input/output kW and efficiency. The chart shall also include data on motor starting and no-load characteristics.
 4. Motor horsepower shall be sufficient so that the pump is non-overloading throughout its entire performance curve, from shut-off to run-out. The motor and cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet or greater.
- H. **BEARINGS:** The integral pump/motor shaft shall rotate on two bearings. The motor bearings shall be sealed and permanently grease lubricated with high temperature grease. The upper motor bearing shall be a two-row angular contact ball bearing. The lower bearing shall be a two-row angular contact ball bearing to handle the thrust and radial forces. The minimum L10 bearing life shall be 50,000 hours at any usable portion of the pump curve.
- I. **MECHANICAL SEALS:**
1. Each pump shall be provided with a positively driven dual, tandem mechanical shaft seal system consisting of two seal sets, each having an independent spring. The lower primary seal, located between the pump and seal chamber, shall contain one stationary and one positively driven rotating corrosion resistant tungsten-carbide ring. The upper secondary seal, located between the seal chamber and the seal inspection chamber shall be a leakage-free seal. The upper seal shall contain one stationary and one positively driven rotating corrosion resistant tungsten-carbide seal ring. The rotating seal ring shall have small back-swept grooves laser inscribed upon its face to act as a pump as it rotates, returning any fluid that should enter the dry motor chamber back into the lubricant chamber. All seal rings shall be individual solid sintered rings. Each seal interface shall be held in place by its own spring system. The seals shall not depend upon direction of rotation for sealing. Mounting of the lower seal on the impeller hub is not

- acceptable. Shaft seals without positively driven rotating members or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces are not acceptable. The seal springs shall be isolated from the pumped media to prevent materials from packing around them, limiting their performance.
2. Provide each pump with a lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and shall provide capacity for lubricant expansion. The seal lubricant chamber shall have one drain and one inspection plug that are accessible from the exterior of the motor unit. The seal system shall not rely upon the pumped media for lubrication.
 3. The area about the exterior of the lower mechanical seal in the cast iron housing shall have cast-in an integral concentric spiral groove. This groove shall protect the seals by causing abrasive particulate entering the seal cavity to be forced out away from the seal due to centrifugal action.
 4. Provide a separate seal leakage chamber so that any leakage that may occur past the upper, secondary mechanical seal will be captured prior to entry into the motor stator housing. Such seal leakage shall not contaminate the motor lower bearing. The leakage chamber shall be equipped with a float type switch that will signal if the chamber should reach 50% capacity.
- J. **PUMP SHAFT:** The pump and motor shaft shall be a single piece unit. The pump shaft is an extension of the motor shaft. Shafts using mechanical couplings shall not be acceptable. The shaft shall be ASTM A479 S43100-T stainless steel. Shaft sleeves will not be acceptable.
- K. **IMPELLER:** The impeller shall be of Hard-Iron™ (ASTM A-532 (Alloy III A) 25% chrome cast iron) dynamically balanced, semi-open, multi-vane, backswept, screw-shaped, non-clog design. The impeller leading edges shall be mechanically self-cleaned automatically upon each rotation as they pass across a spiral groove located on the volute suction. The screw-shaped leading edges of the gray iron impeller shall be hardened to Rc 60 and shall be capable of handling solids, fibrous materials, heavy sludge and other matter normally found in wastewater. The screw shape of the impeller inlet shall provide an inducing effect for the handling of up to 5% sludge and rag-laden wastewater. The impeller to volute clearance shall be readily adjustable by the means of a single trim screw. The impellers shall be locked to the shaft, held by an impeller bolt and shall be coated with alkyd resin primer.
- L. **VOLUTE / SUCTION COVER:** The pump volute shall be a single piece gray cast iron, ASTM A-48, Class 35B, non-concentric design with smooth passages of sufficient size to pass any solids that may enter the impeller. Minimum inlet and discharge size shall be as specified. The volute shall have a replaceable suction

cover insert ring in which are cast spiral-shaped, sharp-edged groove(s). The spiral groove(s) shall provide trash release pathways and sharp edge(s) across which each impeller vane leading edge shall cross during rotation so to remain unobstructed. The insert ring shall be cast of Hard-Iron™ (ASTM A-532 (Alloy III A) 25% chrome cast iron) and provide effective sealing between the multi-vane semi-open impeller and the volute housing.

M. PROTECTION:

1. Each pump motor stator shall incorporate three thermal switches, one per stator phase winding and be connected in series, to monitor the motor temperature. Should the thermal switches open, the motor shall stop and activate an alarm. A float switch shall be installed in the seal leakage chamber and will activate if leakage into the chamber reaches 50% chamber capacity, signaling the need to schedule an inspection.
2. The thermal switches and float switch shall be connected to a Mini CAS control and status monitoring unit. The Mini CAS unit shall be designed to be mounted in the pump control panel.

N. CATHODIC PROTECTION: All pumps shall be fitted with zinc anodes to improve corrosion resistance of the pumps. Provide with the spare parts one additional zinc anode set for each pump, with the appropriate number of anodes, fasteners and assembly instructions.

O. LIFTING CABLES: Each pump shall be fitted Type 316 or greater stainless steel lifting chain or cable at least five feet longer than the wet well depth to the wet well top slab. The working load of the lifting system shall be not less than three times greater than the pump weight. Provide an eye in the upper end of the chain or cable for hooking on brackets.

P. Type 316 stainless steel nameplates giving the name of the manufacturer, head, speed, and all other pertinent data shall be attached to each pump and motor.

2.3 MOTOR STARTERS

A. The Motor Starters shall be Solid State Motor Controllers equal to Allen-Bradley Bulletin 150 SMC PLUS™ Smart Motor Controllers.

2.4 CONTROL

A. General: All electrical wiring components, wire, cabinet, etc., shall meet the standards of the Electrical Building Code as adopted by Indian River County, and the National Electrical Code.

B. Level Controls – Level Sensing Probe:

1. Furnish and install a level sensing probe provided by the pump manufacturer. The probe shall be constructed from uPVC 32mm tubing with moulded sensor units at regular intervals along the probe. Each sensor unit shall be PVC injected to prohibit ingress of moisture, and the sensor material shall be Avesta SMO254 stainless steel. The probe shall be pressure injected with an epoxy resin to encapsulate all internal components and connections to form a rigid, homogenous unit.
2. Mount the probe in a turbulent area of the wet well, suspended on its own Type 316 stainless steel cable, and connected to a 6mm Type 316 stainless steel hook hanging from a 30mm Type 316 stainless steel angle containing a polyurethane squeegee pad. Position in the wet well opening so that the probe can be removed without entering the wet well. The squeegee shall have a 30mm hole and slot, enabling the probe to be pulled through and cleaned. Run the probe cable in a separate conduit away from any high voltage cables.
3. Space ten (10) sensors along the length of the probe assembly, each individually connected to a correspondingly numbered PVC/PVC .75mm flexible cable. The moulded sensor unit shall contain two Avesta sensors mounted on opposite sides of the sensor unit. Each Avesta sensor shall be 24mm high and no wider than 2mm, and shall protrude from the surface of the PVC. Each sensor unit containing the two Avesta sensors shall be rotated 90 degrees to the previous sensor unit to eliminate tracking between sensors.
4. Fail Safe - The probe shall have two additional wires that run the length of the probe that will be used to check for cable integrity. The wire shall be of black color on one end, red color on the other and be joined internal to the probe below all other sensors.
5. Cable - The cable shall be encoded for identification, with numbers and text along the entirety of the cable and at intervals not greater than 200mm. The cable shall be dark blue, with cores light blue cores. The flexible cables shall be capable of supporting the weight of the probe and cable, without the need for additional support. Secure the cable to the top of the probe by a synthetic rubber compression fitting.

2.5 STRUCTURES

- A. Headworks Structure: Refer to the applicable Drawings and Specifications.
- B. Concrete: Requirements shall be as specified elsewhere herein and as shown on

the Drawings.

- C. Access Hatches: Access hatches shall be rectangular with extruded aluminum angle/channel frame with heavy duty double lids and 1/4" aluminum diamond plate cover. The hatches shall be hinged as shown on the Drawings and do not have to be traffic bearing. Hinges shall be forged aluminum and hardware shall be all 316 stainless steel with tamper-proof nuts. Doors shall be watertight and shall be equipped with hold-open arms that automatically lock the cover in open position and fitted with red vinyl grip, flush drop handle, stainless steel spring-loaded latching device, inside release handle, and recessed padlock. Doors shall be of the size indicated on the Drawings. Access hatches shall be manufactured by Bilco Company, U.S. Foundry, or approved equal. At dissimilar metals and where in contact with concrete members, the hatches shall receive two coats of a suitable anticorrosion material.
- D. Hardware: The foundation plate for each pump shall be rigidly and accurately anchored into position. All necessary foundation bolts, plates, nuts, and washers shall be furnished by the pump manufacturer for installation by the CONTRACTOR. Each foundation plate shall be minimum 1/2" thick Type 316 stainless steel. Foundation bolts, nuts, washers, miscellaneous hardware, and spare parts shall be Type 316 stainless steel.
- F. Guide Bracket: A sliding guide bracket shall be an integral part of each pumping unit, and each pump casing shall have a machined connecting flange to connect with its cast iron discharge connection, which shall be bolted to the floor of the wet well with Type 316 stainless steel anchor bolts and so designed as to receive the pump connection without the need of any bolts or nuts. Sealing of the pumping units to the discharge connection shall be accomplished by a simple linear downward motion of the pump, with the entire weight of the pumping unit guided by two (2) Type 316 L stainless steel guides or T-bars, which will press it tightly against the discharge connection. No portion of a pump shall bear directly on the floor of the wet well, and no rotary motion of the pump shall be required for sealing.
- G. Mount a Type 316 stainless steel bracket below the lid to support the power cables and lifting cables for the pumps.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install the submersible pumps, controls, equipment, valves, piping, and appurtenances in accordance with the Drawings, these Specifications, and

manufacturer's written instructions.

- B. Install each pumping unit level and plumb to insure it is uniformly supported. Install the guide rails plumb.
- C. Anchors shall be 316 stainless steel or better.

3.2 PUMP STATION FIELD TEST

- A. Furnish the services of factory representatives for three (3) days, minimum. The factory representatives for the pump and control systems must have complete knowledge of proper operation and maintenance of the system. They shall inspect the final installation and supervise the test run of the equipment.
- B. Field tests shall not be conducted until the entire Facility is complete and ready for testing.
- C. After all pumps are completely installed and working under the direction of the manufacturer, conduct in the presence of the ENGINEER and OWNER, such tests that are necessary to indicate that the pumping system conforms to the Specifications. Flow meter certifications may occur at the same time as the pump tests. Supply all electric power, water, labor, equipment, and incidentals required to complete the field tests. Record test voltage and amperage measurements.
- D. Check direction of rotation of all motors and reverse connections if necessary.
- E. If any item fails to meet the Specifications, take corrective measures, or else remove the item and replace it with one that satisfies the conditions specified, at no cost to the OWNER.
- F. All pump operating settings, alarms and shutdown devices shall be calibrated and tested during the field tests.
- G. Deliver five (5) copies of Certified Test Results to the ENGINEER upon completion of satisfactory testing of the equipment and prior to requesting for Final Payment. The "Certified Test Results" shall be on the pump manufacturer's letterhead and must certify that:
 - 1. The pumping system is operating as intended and to the satisfaction and approval of the manufacturer's representative;
 - 2. All controls and equipment specified have been installed except as listed; and
 - 3. The pumping system is ready for operation and acceptance by the OWNER.

H. Pay for all of manufacturer's onsite services and expenses.

3.3 PAINTING

A. Shop Painting:

1. The pumps and motors shall have the pump manufacturer's standard painting, suitable to withstand a corrosive, wastewater environment. Protect all nameplates during painting.
2. Gears, bearing surfaces, and other similar surfaces obviously not to be painted shall be given a heavy shop coat of grease or other suitable rust-resistant coating. This coating shall be maintained as necessary to prevent corrosion during periods of storage and erection.

++ END OF SECTION ++

SECTION 11302

SUMP PUMP FOR FLOW METER STRUCTURES

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish and install a sump pump for each flow meter vault structure as shown on the Drawings.

1.2 QUALITY ASSURANCE

- A. Quality Source Control: Furnish and install as complete, each sump pump, including hardware, piping, accessory items, mounting brackets, fastenings, etc. as appropriate.

1.3 SUBMITTALS

- A. Shop Drawings: Submit for approval manufacturer's detailed data sheets.

PART 2 - MATERIALS

2.1 MATERIALS

- A. Sump Pumps: Dayton Model No. 3YU69, 1/4 HP, 1-1/4" vertical discharge submersible pump, 115 V. A supplier is Zoro.com (Zoro No. G1624691).

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacture's specifications.
- B. Startup: Prior to Final Completion, verify in the ENGINEER's presence that each sump pump operates as intended. The minimum test time per pump shall be 15 minutes. Prior to testing, insure structure interior is clean and free of sand, silt, and other debris that might damage the pump. All test water shall be clean and clear.

+ + END OF SECTION + +

SECTION 11304

PORTABLE WATER LETTUCE SUPERNATANT/SLUDGE PUMP

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish a new and unused portable water lettuce supernatant/sludge pump as described herein.

1.2 SUBMITTALS

- A. Shop Drawings: Submit for approval manufacturer's detailed data sheets.

PART 2 - MATERIALS

2.1 MATERIALS

- A. Portable Water Lettuce Supernatant/Sludge Pump: The pump shall be a Gorman-Rupp VPA Series (Valueprime) diesel engine driven Priming Assisted Centrifugal Pump with Autostart, Model VPA4A60C-3CH1 FT4, Size 4"x4". The pump shall be mounted on a High Speed Trailer (certified by FDOT), also furnished by Gorman-Rupp. Provide a 12-volt battery as recommended by Gorman-Rupp for the pump. Gorman-Rupp telephone number = (419) 755-1011.
- B. Quick Disconnect Couplings – Provide and install "Kamlok" Series quick disconnect couplings with appropriate adapters, to pump discharge and suction connections and at connections to the two sludge supernatant force mains. Provide Kamloc" dust caps for installation on the sludge supernatant force main connections when the pump is not connected to them. All suction and discharge hoses shall be equipped with "Kamlok" quick disconnect couplings for interconnection. All material shall be Type 316 stainless steel.
- C. Provide the following lengths of 4-inch diameter suction and discharge hoses:
1. Suction Hose: One each - 20' and 40' lengths.
 2. Discharge Hose: One each - 20', 40', and 60' lengths.
- D. The suction ends of each suction hose shall be equipped with a strainer.

PART 3 - EXECUTION

3.1 PREPARATION AND STARTUP

- A. Prepare the pump and trailer for service in accordance with the manufacturer's recommendations. Fill the diesel tank with ten gallons of fuel and furnish an appropriate five-gallon fuel container, which shall become the property of the OWNER.
- B. Furnish the services of factory representatives for one day, minimum. The factory representative must have complete knowledge of proper operation and maintenance of the equipment. He or she shall inspect the equipment and supervise the test run of the equipment.
- C. Startup: Prior to Final Completion, verify in the ENGINEER's presence at one of the actual supernatant discharge structures, that the pump operates as intended. During testing, develop a pump curve to determine the flow rates at the various pump speed settings. The CONTRACTOR shall furnish an appropriate flow meter that will accurately record the flows at the various pump speeds.
- D. Upon completion of satisfactory testing of the equipment and prior to requesting Final Payment, the pump manufacturer's representative shall certify on his or her Company's letterhead that:
 - 1. The pumping system is operating as intended and to the satisfaction and approval of the manufacturer's representative;
 - 2. The trailer is in roadworthy condition as intended and to the satisfaction and approval of the manufacturer's representative; and
 - 3. The pump and trailer system is ready for operation and acceptance by the OWNER.
- E. Pay for all of manufacturer's expenses and onsite services.

+ + END OF SECTION + +

SECTION 11400

DUPERON HARVESTRAKE®

PART 1 – GENERAL

1.1 DESCRIPTION:

- A. Furnish, install, test, and place into service a self-cleaning screening device, including all auxiliary equipment and accessories, at the headworks structure as indicated on the Drawings and as specified. The design flow is 10 million gallons per day.

1.2 QUALITY ASSURANCE:

- A. This equipment complete with necessary attachments, screens, controls, and support appurtenances shall be manufactured by the Duperon Corporation, 1200 Leon Scott Court Saginaw, Michigan, 48601, Florida contact telephone (352) 237-1869.
- B. The equipment furnished shall be fabricated, assembled, erected, and placed in proper operating condition in full conformity with approved drawings, specifications, engineering data, and/or recommendations furnished by the equipment manufacturer.
- C. References
1. American National Standards Institute (ANSI) ANSI B18.6.2 (1972) Slotted Head Cap Screws, Square Head Set Screws, and Slotted Headless Set Screws (R1983) ANSI B46.1 (1985) Surface Texture (Surface Roughness, Waviness, and Lay)
 2. American Society for Testing and Materials (ASTM) ASTM A36 (1989) Structural Steel ASTM A307 (1989) Carbon Steel Bolts and Studs - 60,000 PSI Tensile ASTM A48 Cast Iron Castings
 3. American Welding Society (AWS) AWS D1.1 Structural Welding Code – Steel
 4. American Institute of Steel Construction (AISC) Manual of Steel Construction
 5. Research Council on Structural Connections (1988) Load and Resistance Factor Design Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts.

1.3 SUBMITTALS:

- A. Submit the following items:
1. Shop and erection drawings showing important details of construction dimensions, anchor bolt locations, and field connections.

2. List of Spare Parts and Special Tools.
3. (2) O&M Manuals.

B. Submit shop drawings in the quantities and format as specified within Sections 01330 and 01340.

PART 2 – PRODUCTS

2.1 MECHANICALLY CLEANED BARSCREEN:

- A. The screening device shall be the patented Duperon HarvestRake®. No alternatives allowed. The HarvestRake® shall be similar to the system currently installed at the Egret Marsh Stormwater Park's harvest structure. The HarvestRake® will be installed within the 8'-0" wide influent channel as indicated on the Drawings. The unit length shall be as required to discharge at the height and clearances shown on the Drawings. The unit shall have one-inch clear openings between the screen's bars. Duperon shall supply a standard set of spare parts for the unit and chain slides as required. The unit shall have an inverter rated motor.
- B. The FlexLink® chain system shall consist of all 316 stainless steel components (FlexLinks®, clevis pins, and snap-rings).
- C. All anchors and fasteners (nuts, bolts, washers, etc.) shall be 316 stainless steel.
- D. All non-stainless bar screen components shall be coated in strict accordance with the paint manufacturer's specification. Surface Preparation shall be done in accordance with SSPC-SP-10 Near White. The three-part coating system shall be manufactured by Tnemec as follows: Prime Coat Series 90-97 Tnemec Zinc at 2.5-3.5 mils DFT, Intermediate Coat Series 27 F.C. Typoxy at 3.0-5.0 mils DFT, and Top Coat Series 1075U Endura-Shield II at 2.0-3.0 mils DFT. Standard color is 11SF Safety Blue. Material shall meet all state and federal VOC and other regulatory requirements.
- E. Scrapers shall be made from UHMW. Scraper shall fully penetrate the bar screen a minimum of 1 inch. The scrapers shall be oriented and spaced such that at any one time, the unit can lift a load of wet fibrous biomass and/or trash of not less than 1,000 pounds, and overcome the influence of associated drag and contact friction at a maximum scraper velocity over the screen of 1 fps, without losing full penetration of the screen.
- G. On each side of each screen, furnish deflectors that completely seal the space between the side of the screen and the structure wall, from the channel bottom (Elevation 6.00) to Elevation 23'-7.5".
- H. All ancillary and support equipment furnished under this Section shall be supplied through Duperon Corporation and shall be of a single manufacturer regularly

engaged in the design and manufacture of the equipment. Said equipment shall have been in successful operation at similar installations for at least five (5) years.

- I. The equipment furnished shall be fabricated, assembled, erected, and placed in proper operating condition in full conformity with approved drawings, specifications, engineering data, and/or recommendations furnished by the equipment manufacturer.
- J. The completed screening system installation shall be capable of withstanding a design wind speed of 160 miles per hour and a hydrostatic head of 5 feet.

3.02 CONTROLS:

- A. Mount the electrical control equipment within a NEMA 4X Type 316 stainless steel lockable control panel, dead front enclosure. The enclosure shall be equipped with a door and shall incorporate a removable back panel on which control components can be mounted. The back panel shall be secured to the enclosure with collar studs. All control panel hardware and appurtenances shall be manufactured of Type 316 stainless steel. The panel will be powder coated white for outside installation.
- B. The control panel shall consist of a main circuit breaker, motor circuit breaker for each motor, VFD for each motor, 480-volt to 120-volt step down transformer for controls, fuses and fuse block, Hand-Off-Automatic (HOA) switch, normal off, and alarm lights. The bar screen system shall operate continuously with forward and momentarily with jog reverse functions when in Hand mode. VFD to provide torque overload protection for the drive unit.
- C. Provide indicator lights to indicate the existence of "in auto," "off," and "run" conditions.
- D. The equipment manufacturer shall be responsible for the proper sizing and operation of the control equipment to adequately protect and control the system.
- E. Provide all necessary relays to annunciate status and alarm conditions.
- F. Securely mount all operating controls and instruments on the control compartment door. Clearly label all controls and instruments to indicate function.
- G. Mount indicator lamps in NEMA 4X modules, as manufactured by Square D, or equal. Lamp modules shall be equipped to operate at 120-volt input and shall be of the press-to-test type. Lamps shall be easily replaceable from the front of the control compartment door without removing the lamp module from its mounted position.

- H. Each control panel shall contain the following minimum devices for proper operation of the equipment:
1. Required relays and timers.
 2. Elapsed (run) time meter.
 3. Alarm reset button for rake controls.
 4. Repeat cycle timer, set to run 15min per hour. Timer capable of being readjusted to OWNER's preference.
 5. Emergency Stop Push Button.
 6. Hand-Off-Automatic (HOA) Selector Switch.
 7. Control Power On Indicating Light.
 8. VFD Fault Light
 9. Power On Light.
 10. VFD
 11. Push to test pilot lights
 12. Indicator light for jog reverse
- J. The barscreen drive unit shall have an emergency power off button (EPO) and push button (potentiometer, forward, jog reverse, stop) station as shown on the electrical drawings. The EPO buttons shall be UL Type NEMA 4X. All conduit and wiring between the EPO buttons and the barscreen control panel shall be by contractor.
- K. Provide 480-volt to 120-volt step-down transformer for controls.
- L. Alarm relays shall be magnetic latching type. Time delay relays shall be electronic type.
- M. Circuit breaker shall be thermal-magnetic air, Type FAL or newer series as manufactured by Square D Company.
- N. All work shall be performed and all materials shall be in accordance with the National Electrical Code (NEC) and applicable local regulations and ordinances.
- O. The control panel shall have a main breaker. All components within the control panel shall be weatherproof.
- P. The HarvestRake® shall be capable of being operated with a timer, which shall be included in the control panel.

PART 3 – INSTALLATION

3.1 GENERAL

- A. Installation shall be in strict conformance with the manufacturer's installation instructions. Installation shall utilize standard torque values and be installed secure in position and neat in appearance. Installation shall include any site

preparation tasks such as de-watering and clearing the forebay of debris; pre-installation tasks such as unloading, touch-up painting, etc.; and any other installation tasks and materials such as wiring, conduit, controls stands, etc. The CONTRACTOR must ensure the unit's frame is plumb and true and will be held within 1/8-inch of the scraper on each side as the equipment is installed.

- B. Anchors shall be 316 stainless steel and provided by manufacturer.

3.2 TESTING

- A. After completion of installation, test and run the unit in the presence of the manufacturer's representative, the ENGINEER, and the OWNER. Testing shall demonstrate that the equipment is operational and that the equipment will pick up and deposit materials as intended.

3.3 MANUFACTURER'S SERVICES ONSITE

- A. The manufacturer's representative shall be onsite for a minimum of one day for installation of the screen.
- B. The manufacturer's representative shall be onsite as required during startup and testing, until the startup and testing is successful or for a minimum of two days, whichever is longer.
- C. CONTRACTOR shall schedule the manufacturer's representative's visits and pay for all manufacturer's onsite services and expenses.

3.4 WARRANTY:

- A. In addition to CONTRACTOR's warranty, a written one-year standard warranty from the date of Final Completion shall be provided by the equipment supplier to guarantee that there shall be no defects in material or workmanship in any item supplied.

+ + END OF SECTION + +

SECTION 13140

PRE-ENGINEERED POLE BARN

PART 1 – GENERAL

1.1 SUMMARY

- A. Design, furnish, and erect complete, one pre-engineered pole barn including concrete building slab. Electrical engineering work if required for permitting, shall be by Treasure Coast Engineering, Inc. – contact Bryant Jenks, P.E. at 772-567-1007 (this work if required, shall be paid for by the CONTRACTOR). Prepare pole barn foundation in accordance with manufacturer's and geotechnical professional's recommendations.
- B. Provide and pay for signed and sealed engineering drawings (including foundation design) and all other drawings and certifications required for permitting of the pole barn, concrete building slab, and all other components by the Indian River County Building Department (hereinafter "Building Department"). Obtain building permits and all other permits required for the building and the concrete slab. Meet all these requirements at no additional cost to OWNER, including, but not limited to payment of engineering fees and payment for copies of all required submittals. OWNER will pay all permit fees.

1.2 QUALITY ASSURANCE

- A. Comply with ANSI/ASCE-7-93 "Building Code Requirement for Minimum Design Loads in Buildings and Other Structures".
- B. Comply with the latest Florida Building Code as pertains to pole barns.
- C. Comply with the National Electric Code.

1.3 DESIGN REQUIREMENTS

- A. Refer to the Drawings for pole barn dimensions.
- B. Design Loads: Wind Loading – 160 MPH or as required by the Building Department, whichever is greater.

1.4 SUBMITTALS

- A. Retain a geotechnical professional to prepare a report of the soil conditions and make recommendations for design of the pole barn foundation. The report shall

be signed and sealed by a Florida Professional Engineer and it shall be submitted with drawings to the Building Department as necessary for obtaining required permits. Pay for the geotechnical professional's services.

- B. Submit to the Building Department for approval by the Building Department, all design calculations and drawings, signed and sealed by a Florida licensed Professional Engineer, needed to properly design and construct the pole barn and to secure all necessary building permits, including electrical permit. The signed and sealed design calculations and drawings shall include all necessary details for construction, such as but not limited to reactions, loadings, stresses, column locations, reinforcement details, anchor bolt locations and size, concrete building slab design, electric, etc. The drawings shall account for all grade differentials between building finish floor elevations and abutting exterior finish grades. Pay all design and submittal related costs, including but not limited to professional engineering services, reproduction costs (copies of blueprints, calculations, etc.), and all other related costs. OWNER will pay all permit application fees.
- C. After the Building Department has issued permits, provide three (3) copies of the approved calculations and drawings to the ENGINEER.
- D. Before submitting to the Building Department, submit shop drawings as specified in Section 01340. The ENGINEER must comment on all drawings before they are submitted to the Building Department for permits. Prior to submitting the shop drawings to the ENGINEER, they shall be reviewed, approved, and marked as such by the CONTRACTOR'S engineer.
- E. Submit manufacturer's color charts for roofing and roof end color selection, which shall be determined by the OWNER.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Concrete: To be specified by CONTRACTOR's engineer.
- B. Reinforcing Steel: ASTM A615, grade 60 unless a higher grade is specified by CONTRACTOR's engineer.
- C. Roof bracing shall be pressure treated. Structural support posts shall be pressure treated and coated with bitumastic where they will be in contact with earth or concrete.
- D. All other materials shall be the manufacturer's standard product.

- E. Pole barns shall be Timbercraft Buildings, furnished and installed by Cornerstone Building Company, Inc., 920 Wekiva Springs Road #916297, Longwood, FL 32791, (800) 330-2276, <http://www.cornerstonebuildingcompany.com>
- F. Security Fencing and Gate: Meet the requirements of Section 02572 – Fencing.

PART 3 – EXECUTION

3.1 GENERAL

- A. The pole barn shall be installed by Cornerstone Building Systems.
- B. Place minimum 50 pounds of drainage rock at the bottom of each structural support post hole.
- C. Pole Barn Security Fence: Install a security fence around the entire pole barn perimeter with a 20' cantilevered rolling slide gate as indicated on the Drawings. The security fence shall encase all open areas along the pole barn's perimeter to prevent the entry of unauthorized individuals. Provide all support posts, braces, etc. as required to result in a strong, secure installation. The pole barn security fence shall comply with Section 02572 as pertinent for this installation. No barb wire is required.
- D. The clear height into and at all areas inside the pole barn shall be 12'-0" minimum.

3.2 FINISHES

- A. The metal roof panel and siding colors shall be selected by the OWNER. Use the manufacturer's standard coating system.

3.3 WARRANTIES

- A. The building manufacturer shall provide its standard written warranty on the manufacturer's letterhead, with the warranty period beginning on the date of final project acceptance by the Indian River County Commission.

+ + END OF SECTION + +

SECTION 15051

DUCTILE IRON PIPE AND FITTINGS

PART 1 – SCOPE

1.1 GENERAL

- A. This Section covers ductile iron pipe and fittings.
- B. All ductile iron pipes shall be manufactured in accordance with AWWA Standard Specifications C150/A21.50-96 and C151/A51-96, or latest revisions, and shall be pressure Class 300 or 350 minimum as depicted on Table 6.1, herein. All ductile iron pipes crossing under roadways shall be pressure Class 350 minimum.
- C. Unless specifically indicated otherwise, underground piping shall be bell and spigot and aboveground piping shall be flanged.
- D. Cutting of ductile iron pipe shall be by sawing.

1.2 SUBMITTALS

- A. Before fabricating ductile iron pipe and fittings, submit complete detailed working drawings in accordance with Sections 01330 and 01340. Such drawings shall show piping layouts and contain schedules of all pipe, fittings, valves, expansion joints, hangers and supports, and other appurtenances. Where special fittings are required, show them in large detail with all necessary dimensions. The drawings submitted shall show flanged joined sections placed so as to be removable without disturbance to the main pipe sections.
- B. Certification of Lining Inspection: The pipe or fitting manufacturer shall supply a certificate attesting to the fact that the applicator met the requirements of this Specification, and that the material used was as specified, and that the material was applied as required by the Specification.

PART 2 – MATERIAL

2.1 PIPE

- A. Buried ductile iron pipe shall be bell and spigot cast in accordance with AWWA Standard Specifications C150/A21.50-96 and C151/A51-96, or latest revisions. Ductile iron pipe shall have a minimum tensile strength of 60,000 psi with a minimum yield strength of 42,000 psi. Pipe wall thicknesses shall be computed in accordance with AWWA Standard Specification C150/A21.50-96, or latest revision, using the physical characteristics cited above with a minimum working pressure of 200 psi and a Laying Condition "Type 2." Unless otherwise indicated or specified herein, the pipe shall have the minimum wall thickness according to class designation for diameters shown. All pipe shall be given a minimum factory hydrostatic test of 500 pounds per square inch.

TABLE 6.1 - PRESSURE CLASS

SIZE (Inches)	OUTSIDE Diameter (Inches)	300 PSI Thickness (Inches)	350 PSI Thickness (Inches)
3	3.96	---	0.25
4	4.80	---	0.25
6	6.90	---	0.25
8	9.05	---	0.25
10	11.10	---	0.26
12	13.20	---	0.28
14	15.30	0.30	0.31
16	17.40	0.32	0.34
18	19.50	0.34	0.36
20	21.60	0.36	0.38
24	25.80	0.40	0.43
30	32.00	0.45	0.49
36	38.30	0.51	0.56
42	44.50	0.52	0.63
48	50.80	0.64	0.70
54	57.56	0.72	0.79
60	61.61	0.76	0.83
64	65.67	0.80	0.87

- B. Ductile Iron Pipe and fittings shall be purchased per Indian River County's Approved Manufacturer's Product List.

2.2 FITTINGS

- A. All underground fittings shall be either push-on, restrained, or mechanical joint. Mechanical joints shall conform to AWWA Standard Specification C110/A21.10-98) or C153/A21.53-00), or latest revisions. All aboveground fittings shall be flanged joint.
- B. The pressure rating shall be 350 psi.
- C. All fittings shall be lined with the same material as specified for the pipe.

2.3 LINING AND COATING

- A. Unless otherwise indicated, all ductile iron pipe and fittings shall be factory lined and coated.
- B. Lining: For 4" and larger, the interior of the pipe shall have a fusion-bonded ceramic epoxy lining. The epoxy material shall be applied in 1 coat with a minimum dry film thickness of 40.0 mils.
- C. Coating: Unless otherwise specified, the exterior of the pipe shall have a bituminous coating to a minimum dry film thickness of 1.0 mil. Flanged pipe shall be primed red.
- D. Lining Inspection:
 - 1. All ductile iron pipe and fitting linings shall be checked for thickness using a magnetic film thickness gauge. The thickness testing shall be done using the method outlined SSPC-PA-2 film thickness rating.
 - 2. The interior lining of all pipe and fittings shall be tested for pinholes with a nondestructive 2,500-volt test.
 - 3. Each pipe joint and fitting shall be marked with the date of application of the lining system and with its numerical sequence of application on that date.
- E. Repair: Anywhere that the coating is removed purposely or accidentally, the area shall be cleaned of any rust, grease, and dirt and re-coated to a minimum dry film as specified for the individual piece.
- F. Encasement: If and when directed by ENGINEER, a polyethylene encasement shall be provided around pipe, fittings, and valves. The material, installation, and workmanship shall conform to applicable sections of AWWA Standard Specifications C105/A21.5-99, or latest revision. Installation Methods A or B shall be employed using flat tube polyethylene. Make provisions to keep the polyethylene from direct exposure to sunlight prior to installation. Backfilling

following installation shall be completed without delay to avoid exposure to sunlight.

- H. All exposed ductile iron pipe and fittings shall be painted per Section 15163.

2.4 BELL AND SPIGOT CONNECTIONS

- A. Joints in bell and spigot pipe shall be push-on, mechanical, or restrained joints in accordance with AWWA Standard Specifications C111/A21.11-00, or latest revision.

2.5 FLANGED CONNECTIONS

- A. All flanged pipe barrels shall comply with the physical and chemical requirements as set forth in the Handbook of Ductile Iron Pipe Research Association. Flanges shall be in accordance with ANSI Specification B16.1 for Class 125 flanges. Bolts shall be stainless and comply with ANSI Specification B18.2.
- B. Flanged pipes shall be faced and drilled to the American Standard Drilling, unless special drilling is called for or required. Where tap or stud bolts are required, flanges shall be tapped. Flanges shall be accurately faced and drilled smooth and true, at right angles to the pipe axis, and shall be covered with zinc dust and tallow or a rust preventive compound immediately after facing and drilling.
- C. Flanged pipe with screwed-on flanges shall be furnished with long hubs, and the flanges shall be screwed on the threaded end of the pipe in the shop and the face of the flange and end of pipe refaced together. There shall be no leakage through the pipe threads and the flanges shall be designed to prevent corrosion of the threads from outside.
- D. Flanged joints shall be made with bolts or stud bolts and nuts. Bolts, stud bolts, and nuts shall be Type 316 stainless steel and shall conform to American Standard heavy dimensions, semi-finished with square or hexagonal heads and cold punched hexagonal nuts, meeting the requirements of ASTM Designation A-307. Bolt sizes shall be American Standard for the flanges specified, and bolts and nuts shall have good, true threads.
- E. Gaskets shall be in accordance with AWWA Standard Specifications C115/A21.15-99, or latest revisions.

+ + END OF SECTION + +

SECTION 15052

POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

PART 1 - GENERAL

1.1 GENERAL

- A. This Section covers polyvinyl chloride (PVC) pipe and fittings.

1.2 SUBMITTALS

- A. Before starting fabrication of the PVC pipe and fittings, submit complete detailed working drawings in accordance with Sections 01330 and 01340. Such drawings shall show the piping layouts and contain schedules of all pipe, fittings, valves, and other appurtenances. Where special fittings are required, show them in large detail with all necessary dimensions.

PART 2 – MATERIAL

2.1 GENERAL

- A. All pipe shall be identified by its nominal pipe size, plastic pipe material code, SDR class, pressure rating, ASTM designation, manufacturer's name, production code, and if used for potable water – the National Sanitation Foundation seal (NSF-pw).

2.2 PIPE SIZES 12" AND SMALLER

- A. All pipe and fittings shall be designed for a minimum working pressure of 150 psi.
- B. Polyvinyl chloride pressure pipe shall conform to AWWA Standards Specifications C900 latest revision, or C909, latest revision and ASTM D1784 and D2241, latest revision. PVC pressure pipe shall be made from Class 12454-A or Class 12454-B material and conform to the outside diameter of cast iron pipe with a minimum wall thickness of DR18.
- C. Polyvinyl chloride pressure pipe less than 4" diameter shall be DR-21, PR-200 unless shown otherwise on the Drawings.
- D. Polyvinyl chloride pipe shall be purchased per Indian River County's Approved Manufacturer's Product List.

- E. Pipe used for stormwater shall be purple in color.

2.3 PIPE SIZES 14" THROUGH 36"

- A. All pipe and fittings shall be designed for a minimum working pressure of 150 psi.
- B. Polyvinyl chloride pressure pipe shall conform to the latest AWWA Standards Specifications C905-97 and ASTM D1784, latest revisions. PVC pressure pipe shall be made from Class 12454-A or Class 12454B material and conform to the outside diameter of cast iron pipe with a minimum wall thickness of DR18.
- C. Polyvinyl chloride pipe shall be purchased per Indian River County's Approved Manufacturer's Product List.
- D. Pipe used for stormwater force mains shall be purple in color.

2.4 PIPE JOINTS

- A. Joints for PVC pressure pipe 4" diameter and larger shall be bell and spigot push-on rubber gasket type only.

2.5 FITTINGS

- A. All underground fittings shall be either ductile iron push-on, restrained, or mechanical joint. Mechanical joints shall conform to AWWA Standard Specifications C110/A21.10 or C153/A21.53 latest revisions. Fittings shall be fusion-bonded ceramic epoxy lined. The epoxy material shall be applied in one coat with a minimum dry film thickness of 40.0 mils and shall be Protecto 401. All aboveground exposed fittings shall be flanged.
- B. The pressure rating shall be 350 psi.

PART 3 – EXECUTION

3.1 GENERAL

- A. Storage – Do not store PVC pipe where it will be exposed to direct sunlight. Completely cover all stored PVC pipe with an acceptable opaque covering. All PVC pipe determined by the OWNER or ENGINEER to have been exposed to direct sunlight for too long a period or which experiences discoloration or fading from its original cover shall be rejected and immediately removed from the job site, and replaced with new PVC pipe at no cost to the OWNER.

- B. Refer to Section 15051, PART 3 – EXECUTION for remainder of Section 3 specifications.

+ + END OF SECTION + +

SECTION 15100

VALVES AND APPURTENANCES

PART 1 – SCOPE

1.01 GENERAL

- A. Provide all labor, materials, equipment, and incidentals required to furnish and install all valves and appurtenances.

1.02 REFERENCES

- A. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
1. ANSI B16.34 - Valves-Flanged, Threaded and Welding End.
 2. API 598 - Valve Inspection and Test.
 3. ASTM A536 - Standard Specification for Ductile Iron Castings.
 4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings.
 5. AGMA (American Gear Manufacturers Association) Standards.

1.03 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
1. Manufacturer's literature, illustrations, specifications, detailed drawings, weights, data, and descriptive literature on all valves and appurtenances.
 2. Proposed deviations from Drawings and Specifications.
 3. Design engineering data including dimensions, materials, size and weight.
 4. Fabrication, assembly and installation diagrams.
- B. Operation and Maintenance Data: Submit complete manuals including:
1. Copies of all Shop Drawings, test reports, maintenance data and schedules, description of operation, and spare parts information.
- C. Shop Tests:
1. Hydrostatic and pressure tests shall be performed, when required by the valve specifications included herein.
- D. Certificates: Submit test certificates where specified or otherwise required by the ENGINEER.

PART 2 – MATERIAL

2.01 VALVES

A. General:

1. Valves shall have manufacturer's name and working pressure cast in raised letters on valve body.
2. Manual valve operators shall turn clockwise to close unless otherwise specified.
3. Manually operated valves, with or without extension stems, shall require not more than a 40-pound pull on the manual operator to open or close a valve against the specified criteria. The gear actuator and the valve components shall be able to withstand a minimum pull of 200 pounds on the manual operator and an input torque of 300 foot pounds to an actuator nut. Manual operators include handwheel, chain, crank, lever and a T-handle wrench.
4. Unless otherwise specified, all flanged valves shall have ends conforming to ANSI B16.1, Class 125. The pressure class of the flanges shall be equal to or greater than the specified pressure rating of the valves.
5. All bolts, nuts and studs on valves shall be Type 316 stainless steel.
6. Bolts and nuts shall have hexagon heads.
7. Gasket material and installation shall conform to manufacturer's recommendations.
8. All materials of construction of the valves shall be suitable for the application as shown on the Drawings.
9. Provide valves with the following minimum information either cast into the body or engraved into a brass or Type 316 stainless steel nameplate attached with Type 316 stainless steel screws:
 - a. Valve size.
 - b. Pressure and temperature ratings.
 - c. Application (other than water and wastewater or stormwater).
 - d. Date of manufacture.
 - e. Manufacturer's name.
10. Protect wetted parts from galvanic corrosion due to contact of two different metals.
11. For stainless steel bolting, except where Nitronic-60 nuts are required, use anti-seize compound, graphite free, to prevent galling. Strength of the joint shall not be affected by the use of anti-seize compound.

B. Eccentric Plug Valves

1. The plug valves shall be 100% port eccentric plug valves manufactured by DeZurik. No substitutions will be allowed.
2. General:
 - a. Rated Working Pressure:
 - (1) Valves 12 Inch and Smaller: 175 psi.
 - (2) Valves 14" and larger: 150 psi.
 - b. Maximum Fluid Temperature: 180 degrees F.
 - c. Packing and packing gland shall be accessible without disassembly of the valve and shall be externally adjustable. Packing shall be able to withstand a full vacuum pressure by using multiple sets of packing.

- d. Valves shall provide drip-tight bi-directional shutoff at the rated pressures.
- e. The plug shall have a cylindrical seating surface eccentrically offset from the center of the plug shaft. The interface between the plug face and body seat, with the plug in the closed position, shall be externally adjustable in the field with the valve in the line under pressure.
- f. All plug valves shall be installed with the stem horizontal and the plugs on top when the valves are open and plugs on upstream end when the valves are closed. Valves shall be tagged or marked by the manufacturer to indicate the proper mounting position. All plug valves shall have 10 degree increment position indicators.
- g. All valves shall have a C_v (flow in gpm of water at 1 psi pressure drop) equal to or greater than the C_v 's specified in the table below:

Nominal Valve Diameter (in)	C_v
12	4,140
14	5,500
16	7,300
24	17,500

- 3. Materials of Construction:
 - a. Body: Cast iron (ASTM 126-Grade B)
 - b. Plug:
 - 1. Core: Ductile iron (ASTM A536, Grade 65-45-12) or Cast iron (ASTM 126-Grade B).
 - 2. Plug Facing: Neoprene.
 - 3. Plugs with rubber facing shall be furnished. Minimum thickness of rubber lining shall be 1/8 inch. The rubber hardness shall be a minimum of 70 (Shore A) durometer. The rubber to metal bond shall withstand minimum 75 pound pull conforming to ASTM D429, Method B.
 - c. Seats: Minimum 1/8-inch welded overlay of minimum 90 percent pure nickel on all surfaces contacting the plug face. Seats shall provide a contact area of at least 1/2-inch width all around.
 - d. Stem Bearings: Sintered, oil impregnated permanently lubricated of Type 316 stainless steel or ASTM B30, alloy 95400 aluminum bronze.
 - e. Stem Seal: Self adjusting V-type chevron or U-cup seals.
 - f. All internal and external bolting and other hardware including pins, set screws, plug, studs, bolts, nuts and washers: Type 316 stainless steel.
- 4. Interior Lining and Exterior Coating:
 - a. All valves shall be coated inside. The steel, cast-iron and ductile iron surfaces, except machined surfaces, shall be epoxy coated in accordance with AWWA C550.
- 5. Shop Testing:

- a. Operational Tests:
 - 1) To demonstrate that the complete assembly is workable, operate each valve (with the actuator mounted directly on the valve) three times from the fully closed to the fully opened position and the reverse under a no-flow condition.
 - b. Leakage Tests:
 - 1) Test each valve for leaks in the closed position.
 - 2) Test the valves at the rated pressures. During the test, the valves shall be drip-tight. The test duration shall be at least five minutes for valves up to 20 inches and 10 minutes for valves 20 inches and larger. The tests shall be repeated with pressure in the opposite direction.
 - c. Hydrostatic Test:
 - 1) Test all valves to an internal hydrostatic pressure equivalent to twice the rated pressure. During the hydrostatic test, there shall be no leakage through the metal, end joints, or shaft seal, nor shall any part be permanently deformed. The duration of the hydrostatic test shall be sufficient to allow visual examination for leakage. Test duration shall be at least three minutes for valves 8 inch and smaller, five minutes for valves 10 inch through 20 inch, and 10 minutes for valves 24 inch and larger.
6. Gear Actuators for Manually Operated Valves:
- a. Provide gear actuators on all buried and exposed valves, except 4-inch valves.
 - b. Size gear actuators for valves 12-inch and smaller for 175-psig differential pressure.
 - c. Size gear actuators for valves larger than 12-inch for a maximum differential pressure of 150 psig.
 - d. Design the actuators to hold the valves in any intermediate position without creeping or vibrating out of position.
 - e. Provide a valve position indicator on each actuator. Provide stop-limiting devices for open and closed position.
 - f. Provide an adjustable stop to adjust the seating pressure.
 - g. Make packing accessible for adjustment without requiring the removal of actuator from the valve.
 - h. The diameter ratio of the handwheel or the chainwheel and the gear sector shall be less than two.
 - i. For buried or submerged valves, the gear actuator shall be grease-packed and designed to withstand submersion and be driptight in water to 20 feet submergence. Floor stands for buried valves shall be furnished by the valve manufacturer.
 - j. Provide each actuator with gearing totally enclosed.
 - k. The operator shaft and the gear sector shall be supported on permanently lubricated bronze bearings.
 - l. Actuators shall be designed to produce the indicated torque with a

maximum pull of 40 pounds on the handwheel or chainwheel and a maximum input of 150 foot pounds on operating nuts, both for seating and unseating heads equal to the maximum differential pressure.

- m. All actuator components between the input and the stops shall be designed to withstand, without damage, a pull of 200 pound for handwheel or chainwheel actuators and an input torque of 300 foot-pound for operating nuts when operating against the stops.
 - n. Materials of Construction:
 - 1. Housing: Cast Iron, ASTM A126, Class B.
 - 2. Gear Sector: Ductile Iron, ASTM A536.
 - 3. Worm Gear: Steel, AISI 1144, hardened and tempered to an average Rc 40 and within range of Rc 35-45.
 - 4. All Bearings: Bronze oil impregnated.
 - 5. All Hardware including Bolts, Nuts, Washers, Set Screws and Pins: Type 316 stainless steel.
7. Orient hand wheel operators as shown on the Drawings.

C. Check Valves

- 1. Check valves shall be Val-Matic Resilient Hinge Check Valves (a.k.a. Swing-Flex® Check Valves) suitable for cold working pressures of 250 psig, 150 psig for 30 in. and larger in water, wastewater, abrasive, and slurry service. No substitutions will be allowed.
- 2. The check valve shall be of the full body type, with a domed access cover and only one moving part, the flexible disc.
- 3. The valve body shall be full flow equal to nominal pipe diameter at all points through the valve. 4 inch valves shall be capable of passing a 3 inch sphere. Seating surfaces shall be on a 45 degree angle to minimize disc travel. A threaded port with pipe plug shall be provided on the bottom of the valve to allow for field installation of a backflow actuator or oil cushion without special tools or removing the valve from the line.
- 4. The top access port shall be full size, allowing removal of the disc without removing the valve from the line. The access cover shall be domed in shape to provide flushing action over the disc for operating in lines containing high solids content. A threaded port with pipe plug shall be provided in the access cover to allow for field installation of a mechanical, disc position indicator.
- 5. The disc shall be of one-piece construction, precision molded with an integral o-ring type sealing surface, and contain alloy steel and nylon reinforcement in the flexible hinge area. The flex portion of the disc shall be warranted for twenty-five years. Non-Slam closing characteristics shall be provided through a short 35 degree disc stroke and a memory disc return action to provide a cracking pressure of 0.25 psig.
- 5. The valve disc shall be cycle tested 1,000,000 times in accordance with ANSI/AWWA C508 and show no signs of wear, cracking, or distortion to the valve disc or seat and shall remain drop tight at both high and low pressures.

6. The valve body and cover shall be constructed of ASTM A536 Grade 65-45-12 ductile iron.
 7. The disc shall be precision molded Buna-N (NBR), ASTM D2000-BG.
 8. A mechanical indicator shall be provided (when specified) to provide disc position indication on valves 3" (80 mm) and larger. The indicator shall have continuous contact with the disc under all operating conditions to assure accurate disc position indication.
- D. Combination Air/Vacuum Valves for Wastewater shall be as specified on the Drawings.

2.02 VALVE APPURTENANCES

- A. Extension Stems, Stem Guides, Wrenches and Keys:
1. Extension stem shall be at least as large as valve stem it operates.
 2. Stem brackets and guides shall be made of cast iron and have fully adjustable bronzed bushed guide block.
 3. Operating nuts about 2-inches square shall be included with each extension stem and located in floor box or grating recess, as required.
 4. Provide operating key or wrench of suitable length and size for each valve that is not readily accessible to direct operation. (Not required for pedestal operated underground valves.)
- B. Valve Boxes: Provide each buried valve with a valve box as follows:
1. Made of heavy pattern cast-iron, 2-piece adjustable slip/sliding type.
 2. Lower section shall enclose operating nut and stuffing box and rest on bonnet.
 3. Inside diameter shall be at least 4-1/2 inches.
 4. Provide extension stem and operating nut. Extend operating nut to within 6-inches of the top of the valve box cover.
 5. Valve boxes shall be manufactured by Russell Pipe and Foundry (Russco/Sigma) Models VB461-AX, VB562-AX, VB 564-AX, or equal.
 6. Cover shall be heavy duty cast-iron with direction to open arrow cast in.

2.03 PRESSURE GAUGES

- A. Pressure gauges shall be Ashcroft Duragauge pressure gauges, Type 1279 in the psi ranges noted on the Drawings. Provide a shutoff valve shall with each pressure gauge. Install and locate pressure gauge in accordance with the manufacturer's specifications and so it is easy to read without needing to physically enter valve vaults, etc.

2.04 PAINTING

- A. Painting of Exposed Valves and Appurtenances: Exterior ductile iron surfaces except machined surfaces of all exposed valves and appurtenances shall be finish

painted in the shop and touched up as necessary in the field after installation with paint recommended by the valve manufacturer.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install all valves and appurtenances in accordance with manufacturer's instructions.
- B. Install all valves so that operating handwheels or wrenches may be conveniently turned from operating floor or normal operator position but without interfering with access or other equipment.
- C. Install all valves plumb and level. Install valves free from distortion and strain caused by misaligned piping, equipment or other causes.

3.3 FIELD TESTS AND ADJUSTMENTS

- A. Adjust all parts and components as required to provide correct operation.
- B. Conduct functional field test of each valve in presence of ENGINEER to demonstrate that each part and all components together function correctly.

+ + END OF SECTION + +

SECTION 15160

INSTALLATION OF BURIED PRESSURE MAINS

PART 1 - GENERAL

1.1 SCOPE

- A. Provide all labor, materials, equipment, and incidentals as shown, specified and required to install all buried pressure piping, fittings, and specials. The Work includes, but is not limited to, the following:
1. All types and sizes of buried piping, except where specified under other Sections.
 2. Piping beneath structures.
 3. Supports, restraints, and thrust blocks.
 4. Pipe encasements.
 5. Work on or affecting existing piping.
 6. Cleaning.
 7. Installation of all jointing and gasketing materials, specials, flexible couplings, mechanical couplings, harnessed and flanged adapters, sleeves, tie rods, and all other Work required to complete the buried piping installation.
 8. Incorporation of valves, meters, and special items shown or specified into the piping systems as required and as specified.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of all jurisdictional authorities.
- B. Reference Standards: Comply with the latest revision of all applicable industry standards and Indian River County Division of Utility Service standards. In the event of a conflict the more stringent standard or requirement shall govern.

1.3 SUBMITTALS

- A. Shop Drawings: Submit the following:
1. Detailed drawings in plan and profile.
 2. Laying schedules for all pipe.
 3. Full details of piping, specials, joints, harnessing and thrust blocks, and connections to existing piping, structures, equipment, and appurtenances.
- B. Certificates: Submit certificates of compliance with referenced standards.

- C. Record Drawings: Submit record drawings along with each pay request that includes buried piping.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. See the Drawings and appropriate Sections in Division 15.
- B. General:
1. Pipe Information:
 - a. Clearly mark each piece of pipe or fitting with a designation conforming to that shown on the Shop Drawings.
 - b. Cast or paint material, type, and pressure designation on each piece of pipe or fitting 4 inches in diameter and larger.
 - c. Pipe and fittings smaller than 4 inches in diameter shall be clearly marked by manufacturer as to material, type, and rating.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General:
1. Install piping as shown, specified, and as recommended by the manufacturer.
 2. If there is a conflict between manufacturer's recommendations and the Contract Documents, request instructions from ENGINEER before proceeding
 3. All pipe bedding conditions shall be inspected prior to laying pipe. Notify ENGINEER in advance of excavating, bedding, and pipe laying operations.
 4. Lay all pipe to the elevations shown on the Drawings. Tolerance shall be within +/- 0.1 foot of the elevations shown on the Drawings.
 5. Earthwork is specified in the applicable Sections of Division 2.
 6. Schedule and order all required testing services.
- B. Plugs:
1. Temporarily plug installed pipe at the end of each day's work or other interruption to the installation of any pipeline. Plugging shall prevent the entry of animals, liquids and other substances, or persons into the pipe.
 2. Install standard plugs into all bells at dead ends, tees or crosses. Cap all spigot ends.
 3. Fully secure and block all plugs and caps installed for pressure testing to withstand the specified test pressure.

4. Where plugging is required for phasing of the Work or for subsequent connection of piping, install watertight, permanent type plugs.
- C. Bedding Pipe: Bed pipe as specified below and in accordance with the details shown on the Drawings.
1. Trench excavation, backfill, and bedding materials shall conform to the requirements of Section 02220, Excavation and Backfill.
 2. No pipe shall be brought into position until the preceding length has been bedded and secured in its final position.
- D. Laying Pipe:
1. Conform to manufacturer's instructions and requirements of the standards listed below, where applicable:
 - a. Ductile Iron Pipe: AWWA C600, AWWA C105.
 - b. ASCE Manual of Practice No. 37.
 - c. Indian River County Division of Utility Services Specifications
 2. Install all pipe accurately to line and grade shown unless otherwise approved by ENGINEER. Remove and relay pipes that are not laid correctly.
 3. Slope piping uniformly between elevations shown.
 4. Place bell and spigot pipe so that bells face upstream. (i.e. the flow is into the bell end.)
 5. Deflections at pressure pipe joints shall not exceed 75 percent of the amount allowed by the pipe manufacturer.
 6. For copper tubing and thermoplastic piping, snake piping in trench to compensate for thermal expansion.
 7. Carefully examine all pipe, fittings and specials for cracks, damage, or other defects while suspended above the trench before installation. Immediately remove defective materials from site.
 8. Inspect interior of all pipe and fittings and clean all dirt, gravel, sand, debris or other foreign material from pipe interior and joint recesses before it is moved into the trench. Bell and spigot mating surfaces shall be thoroughly wire brushed, and wiped clean and dry immediately before the pipe is laid.
 9. Field cut pipe where required, with a machine specially designed for cutting piping. Make cuts carefully, without damage to pipe or lining, and with a smooth end at right angles to the axis of pipe. Cut ends on push-on joint shall be tapered and sharp edges filed off smooth. Flame cutting is not allowed.
 10. Blocking under piping will not be permitted unless specifically approved by ENGINEER for special conditions. If permitted, conform to requirements of AWWA C600.
 11. Touch up protective coatings as recommended by the manufacturer, prior to backfilling.
 12. On steep slopes, take measures to prevent movement of the pipe during installation.

13. Thrust Restraint: During the installation of the pipe, thrust blocks, tied joints, or proprietary restrained joint systems shall be provided wherever required for thrust restraint.
 14. Prevent the pipe from flotation during construction. If a pipe floats for any reason, reinstall it to the proper line, grade and depth at no additional cost to OWNER.
- E. Jointing Pipe:
1. All pipe and fittings shall be joined in accordance with the manufacturer's recommendations and specifications.
 2. General:
 - a. Make joints in accordance with the pipe manufacturer's recommendations and the requirements below.
 - b. Cut piping accurately and squarely and install without forcing or springing.
 - c. Ream out all pipes and tubing to full inside diameter after cutting. Remove all sharp edges on end cuts.
 - d. Remove all cuttings and foreign matter from the inside of pipe and tubing before installation. Thoroughly clean all pipe, fittings, valves, specials, and accessories before installing.
- F. Backfilling: Conform to the applicable requirements of Section 02220.
- G. Transitions from One Type of Pipe to Another: Provide all necessary adapters, specials, and connection pieces required when connecting different types and sizes of pipe or connecting pipe made by different manufacturers.
- H. Fittings and appurtenances must not bear on the pipe when they are installed. They must be fully and independently supported on the bedding or on a permanent foundation.
- I. Install valve boxes so they do not transmit shock or stress to the valve or pipe. They shall be plumb and centered over the valve wrench nut. The valve box cover shall be flush with the surface of the finished pavement or other level as indicated. A concrete pad shall be constructed around the cover where shown on the Contract Drawings.

3.2 THRUST RESTRAINT FOR PRESSURIZED PIPING SYSTEMS

- A. All bends, hydrants, tees, reducers, wyes, crosses, dead ends, and valves in buried pipe systems must be properly and adequately restrained against movement due to the resultant thrust at the specified test pressure.

- B. Unless specifically called for on the Drawings, no concrete thrust blocks will be allowed. All external restraint shall be ductile iron. Pipe, bends, fittings and valves shall be restrained as follows:
1. Ductile Iron Pipe and Ductile Iron Fittings
 - a. Where possible, construct sections of piping requiring restraint using pipe and fittings with restrained "locked-type" joints. Restrained joints for push-on joint piping shall be:
 - 1) Fastite joint with Fast-Grip gasket for pipe sizes 4-inch to 24-inch, Flex-Ring 4-inch through 36-inch, and Lok-Ring for 42-inch and larger pipe, as manufactured by American Cast Iron Pipe Company. <http://www.acipco.com/adip/fittings/fastite-flex-lok/>
 - 2) Or equivalent.
 - b. Restrained joints for mechanical joint piping and fittings shall be:
 - 1) Megalug restraint systems, as manufactured by EBBA Iron Sales, Inc. <http://www.ebaa.com/Products/1100/index.htm>
 - 2) Or equivalent.
 2. PVC Pipe and Fittings - Use pipe restraining device manufactured by Ebaa Iron Sales, Inc.; Uni-Flange; or equivalent.
 3. Pipe restraint systems using set screws are not permitted on this project.
 4. The minimum length of restrained pipe required for resisting forces at fittings and changes in direction of pipe shall be as indicated on the Drawings.
 5. Bolts and nuts for restrained joints shall be high strength low alloy material in accordance with ANSI/AWWA C111/A21.11.
 6. All joints shall be capable of overcoming the reaction forces developed from line pressures of 150 psi unless a greater pressure is specified elsewhere.
- C. Thrust blocks, if approved, shall be ready-mix concrete poured between the fitting and undisturbed earth. Concrete for thrust blocking shall have a minimum 28-day compressive strength of 3,000 psi and shall be carefully placed so that the fitting joints will be clear and accessible for repair. All fittings shall be wrapped with polyethylene prior to pouring the block. All thrust blocks must be neatly formed to the shape and dimensions shown on the Drawings or as indicated by the ENGINEER. No thrust block shall be poured until the ENGINEER or his representative has visually observed the forming for the thrust block.
- D. Restraining rods, if approved, shall be Type 316 stainless steel, maximum diameter, with Type 316 stainless steel hardware.

3.3 BURIED PIPE IDENTIFICATION

A. Detectable Buried Pipe Warning Tape:

1. All PVC and DIP pressure mains shall have detectable warning tape installed above it. The tape shall be long lasting plastic with a metalized foil core

detectable to depths of up to six feet using commercially available utility/pipe location equipment. The tape shall be Terra Tape "D" manufactured by Reef Industries, Inc., or equivalent.

<http://www.reefindustries.com/uploads/pdf/specs/ttdetectable.pdf>

2. The tape shall be tied to each valve and fitting and run continuously between valves and fittings with no splices. The tape shall be placed directly above the pipe centerline at a maximum depth of 12-inches below finish grade. Place backfill over the tape with care to prevent displacement or damage of the tape.
3. The tape shall be permanently imprinted continuously with the following words: "CAUTION BURIED STORMWATER FORCE MAIN BELOW"

B. Trace Wire: Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of all pipe. See Trace Wire Detail M-16 in the Indian River County Division of Utility Services' Standard Details for specifications regarding installation.

3.4 WORK AFFECTING EXISTING PIPING

A. Location of Existing Piping:

1. The ENGINEER has not physically located any below ground facilities. Locations of existing underground utilities shown on the Contract Drawings were provided by others and the ENGINEER has supplied this information solely for the convenience of the CONTRACTOR. The locations shown on the Drawings may not be accurate and there may be existing utilities that have not been shown.
2. Determine the exact location of existing piping to which connections are to be made, and location of other facilities which could be disturbed during earthwork operations, or which may be affected in any way. The CONTRACTOR is solely responsible for the location of existing utilities.
3. Conform to applicable requirements of Division 1 pertaining to cutting and patching, and connections to existing facilities.

B. Taking Existing Pipelines Out of Service: Do not take pipelines out of service unless specifically listed or approved by ENGINEER and pipeline owner.

C. Work on Existing Pipelines:

1. Cut or tap pipes as shown or required with machines specifically designed for this work.
2. Install temporary plugs to prevent entry of mud, dirt, water, and debris.
3. Provide all necessary adapters, fittings, pipe, and appurtenances required to complete the Work.
4. OWNER does not guarantee watertight closing of isolation valves on existing piping. Provide, at no additional expense to OWNER, all temporary caps,

plugs, dewatering, pumping, and other measures required during installation of the pipe connection.

+ + END OF SECTION + +

SECTION 15162

EXPOSED PIPING INSTALLATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope:
1. Provide all labor, materials, equipment and incidentals as shown, specified and required to install all exposed piping, fittings, and specials. The Work includes, but is not limited to, the following:
 - a. All types and sizes of exposed piping, except those specified under other Sections.
 - b. Piping embedded in concrete within a structure or foundation will be considered as exposed and included herein.
 - c. Work on or affecting existing piping.
 - d. Cleaning.
 - e. Installation of all jointing and gasketing materials, specials, flexible couplings, mechanical couplings, harnessed and flanged adapters, sleeves, tie rods, and all other Work required to complete the exposed piping installation.
 - f. Incorporation of valves, meters, and special items shown or specified into the piping systems as required and as specified in the appropriate Division 15 Sections.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of all jurisdictional authorities.
- B. Reference Standards: Comply with the latest revision of all applicable industry standards and Indian River County Division of Utility Service standards. In the event of a conflict the more stringent standard or requirement shall govern.

1.3 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
1. Detailed drawings in plan and profile.
 2. Laying schedules.
 2. Details of piping, valves, supports, accessories, specials, joints, harnessing, and connections to existing pipes, structures, equipment, and appurtenances.
- B. Certificates: Submit certificates of compliance with referenced standards.

- C. Record Drawings: Submit record drawings along with each pay request that includes buried piping.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. See the Drawings and appropriate Sections in Division 15.
- B. General:
 - 1. Pipe Marking:
 - a. Clearly mark each piece of pipe or fitting with a designation conforming to that shown on the Shop Drawings.
 - b. Cast or paint material, type, and pressure designation on each piece of pipe or fitting.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General:
 - 1. Install piping as shown, specified and as recommended by the manufacturer.
 - 2. If there is a conflict between manufacturer's recommendations and the Drawings or Specifications, request instructions from ENGINEER before proceeding.
- B. Piping Installation:
 - 1. Install straight runs true to line and elevation.
 - 2. Install vertical pipe truly plumb in all directions.
 - 3. Install piping parallel or perpendicular to building walls. Piping at angles and 45 degree runs across corners will not be accepted unless specifically shown or approved.
 - 4. Install small diameter piping generally as shown when specific locations and elevations are not indicated. Locate such piping as required to avoid ducts, equipment, beams, and other obstructions.
 - 5. Install piping so as to leave all corridors, walkways, work areas, and like spaces unobstructed.
 - 6. Protect and keep pipe interiors, fittings, and valves clean.
 - 7. Provide temporary caps or plugs over all pipe openings at the end of each days work, and when otherwise required or directed by ENGINEER.
 - 8. Cutting: Cut pipe from measurements taken at site, not from Drawings.
 - 9. Additional Requirements for FRP and Thermoplastic Piping:
 - a. Support all valves independently of the piping system.
 - b. Utilize wide band supports as recommended by manufacturer and approved by ENGINEER to minimize localized stresses.

- c. Provide piping passing through walls with a sleeve of wearing material to prevent abrasion damage to piping.
- d. When anchors are required at locations other than equipment or tanks they shall be placed at elbows, valve locations, and at bends in pipeline.
- e. Spacing of supports shall be in accordance with the manufacturer's published recommendations at the maximum design operating temperature of the pipe.
- f. Use "U" clamps with wide band circumferential contact.
- g. Use guides on long runs of piping to maintain alignment and reduce chance of elastic failure of pipe. Space guides as recommended by manufacturer.
- h. Use bellows with low axial force to take up pipe expansion. Provide anchors to restrain the expansion joint. Use of bellows joints shall be kept to a minimum. Flexible connectors may be used to absorb thermal movement when approved by ENGINEER.
- i. Provide air chambers with shut-off and drain valve on all pump discharge lines to reduce hydraulic hammer and flexible connectors to absorb vibration. Submit details for ENGINEER to review.
- j. Do not install pipe when temperature is less than 60 F.

C. Joints:

1. General:

- a. Make joints in accordance with the pipe manufacturer's recommendations and the requirements below.
- b. Cut piping accurately and squarely and install without forcing or springing.
- c. Ream out all pipes and tubing to full inside diameter after cutting. Remove all sharp edges on end cuts.
- d. Remove all cuttings and foreign matter from the inside of pipe and tubing before installation. Thoroughly clean all pipe, fittings, valves, specials, and accessories before installing.

2. Flanged Joints:

- a. Assemble flanged joints using 1/8-inch ring-type gaskets for raised face flanges. Use full-face gaskets for flat face flanges unless otherwise approved by ENGINEER. Gaskets shall be suitable for the service intended in accordance with the manufacturer's ratings and instructions. Gaskets shall be properly centered.
- b. The length of bolts shall be uniform, and they shall not project beyond the nut more than 1/4-inch or fall short of the nut when fully taken up. The ends of bolts shall be machine cut so as to be neatly rounded. No washers shall be used.
- c. Bolt threads and gasket faces for flanged joints shall be lubricated prior to assembly.

- d. Alternately tighten bolts 180 degrees apart to insure equal distribution of bolt loads which will compress the gasket evenly.
- D. Installing Valves and Accessories:
1. Provide supports for valves, flow meters and other heavy items as shown or required.
 2. Install concrete supports or floor stands as shown on the Drawings and as recommended by the manufacturer.
 3. Provide Type 316 stainless steel lateral restraints for extension bonnets and extension stems as shown and as recommended by the manufacturer.
 4. Provide Type 316 stainless steel sleeves where operating stems pass through floor. Extend sleeves 2 inches above floor.
 5. Position valve operators as shown. When the position is not shown, install the valve so that it can be conveniently operated. Do not place operators at angles to the floors or walls.
 6. Position flow measuring devices in pipelines so that they have the amount of straight upstream and downstream runs recommended by the manufacturer, unless specific location dimensions are shown. Position swing check valves so that they do not conflict with the discs of butterfly valves, or other internal units.
- E. Unions:
1. Install dielectric unions wherever dissimilar metals are connected except for bronze or brass valves in ferrous piping.
 2. Provide a union downstream of each valve with screwed connections.
 3. Provide screwed or flanged unions at each piece of equipment, where shown or required, and where necessary to install or dismantle piping.
- F. Eccentric Reducers: Use eccentric reducers where shown and where air or water pockets would otherwise occur in mains because of a reduction in pipe size.
- G. Transitions from One Type of Pipe to Another:
1. Provide all necessary adapters, specials and connection pieces required when connecting different types and sizes of pipe or connecting pipe made by different manufacturers.
- H. Taking Existing Pipelines Out of Service: Do not take pipelines out of service unless specifically listed or approved by ENGINEER.
- J. Taps and Outlets in Piping:
1. Taps and connections to piping shall be made as required to connect other piping equipment, gages, valves, and where otherwise shown. The taps are included under this Section. Taps shall be made with corporation stops having standard pipe thread of the size indicated or

required. Install corporation stops at air release devices such that inlet is flush with inside surface of pipe wall.

2. Taps in ductile iron pipe and fittings shall permit engagement of at least four threads. Refer to the appendix of ANSI A 21.51 for requirements. Provide tapped saddles as manufactured by Clow, or equivalent, for taps larger than permitted by ANSI A 21.51 for the pipe thickness available.

K. Pipe hangers:

1. Pipe hangers and supports shall be furnished complete with necessary inserts, bolts, nuts, rods, washers and other accessories. Unless otherwise shown or specified, all pipe hangers and hardware shall be Type 316 stainless steel.
2. Prevent contact between dissimilar metals by use of rubber or vinyl coating.
3. Product and manufacturer: Cooper B-Line, or equivalent.

3.2 PAINTING

- A. Paint all exposed DIP per Section 15163.

++ END OF SECTION ++

SECTION 15163

PAINTING ABOVEGROUND DUCTILE IRON PIPE AND FITTINGS

PART 1 - GENERAL

1.1 SCOPE

- A. Provide all labor, materials, equipment, and incidentals as shown, specified, and required to paint all aboveground ductile iron pipe and ductile iron fittings.
- B. All aboveground ductile iron pipe and ductile iron fittings shall be delivered to the site factory primed for painting. Any such aboveground pipe or fitting delivered to the site with an asphalt coating or any other coating other than a prime coat for painting, shall be rejected and removed from the worksite and replaced with a properly primed unit at no additional cost to the OWNER.

1.2 SUBMITTALS

- A. Shop Drawings: Submit manufacturer's detailed data sheets on the specified paint.

PART 2 – MATERIALS

- A. All paint shall be Tnemec. Contact Lynn Kendig at lkendig@tnemec.com or ordersfl@tnemec.com.

PART 3 - EXECUTION

- A. Paint all aboveground primed ductile iron pipe and ductile iron fittings as described below. Do not paint stainless steel nuts, bolts, or other stainless steel hardware, pipe, or fittings.
- B. Surface Preparation
 - 1. Remove all grease, oil, dirt and contaminants by pressure washing with minimum 3,000 psi water before proceeding. Use a cleaning detergent such as Trisodium Phosphate to facilitate cleaning or the work will be rejected. A degreaser may be required for oil soaked areas. Remove all oil residues before proceeding with any surface preparation.
 - 2. Power tool clean per SSPC SP3 all bare areas and rusted areas. Featheredge bare areas to tightly adhered existing coating. Hand Tool cleaning may be used for limited accessibility areas. Roughen all surface areas and connections.

3. Clean and dry all surfaces prior to the application of any coatings.

C. Coating System

1. Spot Prime: Prime all bare areas and areas around nuts and bolts with 1 coat of Tnemec Series 66 Hi-Build Epoxoline polyamide epoxy at 3.0 – 5.0 mils dft.
2. Prime: Apply overall 1 coat of Tnemec Series 66 Hi-Build Epoxoline polyamide epoxy at 2.0 – 5.0 mils dft. Use a color in a similar color palette as the topcoat.
3. Topcoat: Apply (1) coat of Tnemec Series 1095 Endura-Shield aliphatic acrylic polyurethane at 2.5 – 5.0 mils dft.

D. Colors

1. Canal Water Force Main: Color = Pond, 28BL, RGB: 16,101,160.
2. Water Lettuce Sludge Supernatant Force Main: Color = Crawford Red, 21RD, RGB: 167,30,42.

E. All unused paint shall be delivered in its original containers to the OWNER.

F. Payment – Payment for painting aboveground ductile iron pipe and ductile iron fittings shall be included in the bid price for the particular pipe or fitting.

+ + END OF SECTION + +

SECTION 15165

TESTING OF PRESSURE PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:

1. Provide all materials, equipment, pumps, gauges, measuring equipment, stop watches, air compressors, water, labor, transportation, etc., required to flush and test the pipe systems, as applicable.

B. General:

1. Install all temporary connections necessary to flush and test the pipe system. Upon completion of this work, install all appropriate plugging/capping devices or permanent connections where required. Pay for all water used.
2. Notify the ENGINEER and the applicable municipal or private utility a minimum of 48 hours before any testing for acceptance of the work is to be performed. The ENGINEER or his authorized representative and a representative of the Utility must be present before such acceptance testing can begin. The ENGINEER or his representative must be present during all testing. Schedule and pay for all tests.
3. No interconnection between the work and an existing active system shall be made.
4. Test all piping.
5. Unless otherwise noted, pipelines shall hold the specified test pressure for two hours minimum.
6. Repair and retest pipelines which fail to hold specified test pressure or which exceed the allowable leakage rate.
7. Unless otherwise specified, test pressures required are at the lowest elevation of the pipeline section being tested.
8. Schedule, pay for, and order all required testing services.

SUBMITTALS

- A. Submit a plan for hydrostatic and leakage tests to the ENGINEER for review and approval at least five (5) working days before starting the test. The schedule must indicate the sequence in which pipe sections will be tested and a description of the methods and equipment proposed.

PART 2 - TESTS FOR PRESSURE MAINS

2.1 FLUSHING AND CLEANING PRESSURE MAINS

A. General:

1. Flush each run of pressure main in accordance with AWWA C651. The purpose of flushing is to remove all sand, debris, and other foreign material that may be in the pipeline prior to pressure testing. When each run of pipe between main valves or between a main valve and a terminal blow-off is complete, flush the pipe run with clean water from an acceptable source. The velocity of the water in the pipe as it is being flushed must be no less than 2.5 feet per second. During flushing, all in-line service meters must be bypassed or replaced with a temporary spool piece to prevent possible damage to the meter.
2. If a pipe section is looped, only one loop may be flushed at a time.
3. Before flushing, open all valves, hydrants, and services to allow the escape of air as the line is being filled. In addition, provide ALL high points in the pipeline with air release valves to allow any isolated air pockets to escape. Then fill the pipe slowly with clean water. When the pipe run is full and prior to flushing, shut tight all services and hydrant stub-out valves. Secure the ends of all services above ground to prevent backflow of ponded water.
4. Flush the pipe until a minimum water volume of at least five times the total pipe volume has passed through the section being cleaned. Include all pipe carrying flushing water in the total pipe volume. Measure the flow through the section being flushed for the entire duration of the flushing and report it in writing to the ENGINEER.
5. Flush all pipe through a discharge extension of at least the full pipe diameter.
6. Discharge flushing water in a manner that will not cause erosion or structural damage on or off-site, nor cause pollution as determined by State Water Quality Standards, in receiving surface waters. Provide adequate extension pipe, sedimentation basins and/or diffusion devices necessary to prevent such damage.
7. All lines must be totally clean prior to acceptance.

2.2 HYDROSTATIC PRESSURE AND LEAKAGE TESTS FOR PRESSURE MAINS

A. General:

1. All pressure piping shall undergo pressure and leakage testing.
2. Hydrostatic pressure and leakage tests shall conform with the latest edition of AWWA C600 Specification for DIP and AWWA M23 for PVC pipe, with the exception that the CONTRACTOR must furnish all gauges, meters, pressure pumps and other equipment needed to test the line. The ENGINEER or his designated representative must be present during all testing.
3. Test piping (buried and exposed) at 100 psi.

4. Provide temporary plugs and blocking necessary to maintain the required test pressure. Provide corporation cocks at least 1 inch in diameter, pipe riser and angle globe valves for each pipe dead-end and at all high points in the pipeline, in order to bleed air from the line. Duration of pressure test is at least 2 hours. The cost of these items must be included as a part of testing.
5. Conduct the leakage test concurrently with the hydrostatic pressure test and it may not be less than 2 hours duration. Repair all leaks. Lines which fail to meet tests must be repaired and retested by the CONTRACTOR, at its expense, as necessary until test requirements are complied with. Defective materials, pipes, valves and accessories shall be removed and replaced. Test the pipeline one section at a time by shutting valves or installing temporary plugs as required. Slowly fill the line with water and remove all air, and maintain the test pressure in the pipe for the entire test period by means of a pump to be furnished by the CONTRACTOR. Provide accurate means for measuring the water required to maintain this pressure. The amount of water required to maintain the test pressure is a measure of the leakage. The allowable leakage rate is zero.
6. Remove and adequately dispose of all blocking material and equipment after completion and acceptance of the field hydrostatic test, unless otherwise directed by the ENGINEER. Any damage to the pipe coating shall be repaired by the CONTRACTOR at his expense.
7. No pipe section containing thrust blocks shall be pressure tested until at least 7 days after the concrete was poured. However, if high early-strength cement was used only 3 days must elapse before testing.
8. All auxiliary devices connected to the main piping, such as pilot piping, switches, transmitters, and gages shall be valved off or disconnected prior to testing. On completion of the tests, all connections shall be reestablished.
9. When a pressure test has been successfully completed, all valves shall be operated to insure they are opening and closing fully.
10. The hydrostatic pressure test must be completed prior to disinfection (if disinfection is required).
11. Perform a preliminary pressure test to determine the tightness of the pipe and fittings prior to the final pressure and leakage tests.
12. Pressure and Leakage Test Procedure:
 - a. Examine exposed pipe, joints, fittings, and valves. Repair visible leakage or replace the defective pipe, fitting, or valve.
 - b. Refill the line under test to reach the required test pressure.
 - c. Provide a test container filled with a known quantity of water at the start of the test. Attach the test pump suction to the test container.
 - d. Pump water from the test container into the line with the test pump to hold the specified test pressure for the test period. Water remaining in the container shall be measured and the amount used during the test shall be recorded on the test report.
 - e. Perform all repair, replacement, and retesting required because of failure to meet testing requirements.

f. Allowable leakage is zero.

++ END OF SECTION ++

APPENDIX A

PERMITS

- 1. SJRWMD Environmental Resource Permit No. 159508-1**
- 2. Indian River County Major Site Plan Permit SP-MA-20-04-11 / 2019100047-86254**
- 3. Indian River Farms Water Control District Permit for Connection to or Use of District Facilities – Permit No. 20-12**
- 4. Indian River Farms Water Control District Permit for Subdivisions, Bridges & Commercial Sites - Permit No. R-20-2**

**1. SJRWMD Environmental
Resource Permit No. 159508-1**



St. Johns River Water Management District

Ann B. Shortelle, Ph.D., Executive Director

4049 Reid Street • P.O. Box 1429 • Palatka, FL 32178-1429 • 386-329-4500
On the internet at www.sjrwmd.com.

December 19, 2019

Richard B. Szpyrka
Indian River County
1801 27th St
Vero Beach, FL 32960-3388

SUBJECT: Permit Number: 159508-1
Project Name: Moorhen Marsh LEAPS

Dear Mr. Szpyrka:

Enclosed is your individual permit issued by the St. Johns River Water Management District on December 19, 2019. This permit is a legal document and should be kept with your other important documents. Permit issuance does not relieve you from the responsibility of obtaining any necessary permits from any federal, state, or local agencies for your project.

Technical Staff Report:

If you wish to review a copy of the Technical Staff Report (TSR) that provides the District's staff analysis of your permit application, you may view the TSR by going to the Permitting section of the District's website at www.sjrwmd.com/permitting. Using the "search applications and permits" feature, you can use your permit number or project name to find information about the permit. When you see the results of your search, click on the permit number and then on the TSR folder.

Noticing Your Permit:

For noticing instructions, please refer to the noticing materials in this package regarding closing the point of entry for someone to challenge the issuance of your permit. Please note that if a timely petition for administrative hearing is filed, your permit will become non-final and any activities that you choose to undertake pursuant to your permit will be at your own risk. Please refer to the attached Notice of Rights to determine any legal rights you may have concerning the District's agency action.

Compliance with Permit Conditions:

To submit your required permit compliance information, go to the District's website at www.sjrwmd.com/permitting. Under the "Apply for a permit or submit compliance data" section, click to sign-in to your existing account or to create a new account. Select the "Compliance Submittal" tab, enter your permit number, and select "No Specific Date" for the Compliance Due Date Range. You will then be able to view all the compliance submittal requirements for your project. Select the compliance item that you are ready to submit and then attach the appropriate information or form. The forms to comply with your permit conditions are available at www.sjrwmd.com/permitting under the section "Handbooks, forms, fees, final orders". Click on forms to view all permit compliance forms, then scroll to the ERP application forms section and select the applicable compliance forms. Alternatively, if you have difficulty finding forms or need

GOVERNING BOARD

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Douglas C. Bournique
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Daniel Davis
JACKSONVILLE

Susan Dolan
SANFORD

copies of the appropriate forms, please contact the Bureau of Regulatory Support at (386) 329-4570.

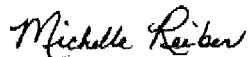
Transferring Your Permit:

Your permit requires you to notify the District within 30 days of any change in ownership or control of the project or activity covered by the permit, or within 30 days of any change in ownership or control of the real property on which the permitted project or activity is located or occurs. You will need to provide the District with the information specified in rule 62-330.340, Florida Administrative Code (F.A.C.). Generally, this will require you to complete and submit Form 62-330.340(1), "Request to Transfer Permit," available at <http://www.sjrwmd.com/permitting/permitforms.html>.

Please note that a permittee is liable for compliance with the permit before the permit is transferred. The District, therefore, recommends that you request a permit transfer in advance in accordance with the applicable rules. You are encouraged to contact District staff for assistance with this process.

Thank you and please let us know if you have additional questions. For general questions contact e-permit@sjrwmd.com or (386) 329-4570.

Sincerely,



Michelle Reiber, Bureau Chief
Division of Regulatory Services
St. Johns River Water Management District
525 Community College Parkway, S.E.
Palm Bay, FL 32909
(321) 409-2129

Enclosures: Permit
Notice of Rights
List of Newspapers for Publication

cc: District Permit File

Environmental Consultant: George R Kulczycki
GK Environmental, Inc.
155 McKee Ln
Vero Beach, FL 32960-4218
Registered Professional Consultant: William Keith McCully
Indian River County
1801 27th St
Vero Beach, FL 32960-3388

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
Post Office Box 1429
Palatka, Florida 32178-1429

PERMIT NO: 159508-1

DATE ISSUED: December 19, 2019

PROJECT NAME: Moorhen Marsh LEAPS

A PERMIT AUTHORIZING:

Construction and operation of a Stormwater Management System for a 18.03-acre water treatment project known as Moorhen Marsh LEAPS as per plans received by the District on December 4, 2019.

LOCATION:

Section(s): 17 Township(s): 32S Range(s): 39E
Indian River County

Receiving Water Body:

Name	Class
Indian River Lagoon	II, OFW, AP, IW

ISSUED TO:

Indian River County
1801 27th St
Vero Beach, FL 32960-3388

The permittee agrees to hold and save the St. Johns River Water Management District and its successors harmless from any and all damages, claims, or liabilities which may arise from permit issuance. Said application, including all plans and specifications attached thereto, is by reference made a part hereof.

This permit does not convey to the permittee any property rights nor any rights or privileges other than those specified herein, nor relieve the permittee from complying with any law, regulation or requirement affecting the rights of other bodies or agencies. All structures and works installed by permittee hereunder shall remain the property of the permittee.

This permit may be revoked, modified or transferred at any time pursuant to the appropriate provisions of Chapter 373, Florida Statutes.

PERMIT IS CONDITIONED UPON:

See conditions on attached "Exhibit A", dated December 19, 2019

AUTHORIZED BY: St. Johns River Water Management District
Division of Regulatory Services

By: 

Chou Fang
Supervising Professional Engineer

"EXHIBIT A"
CONDITIONS FOR ISSUANCE OF PERMIT NUMBER 159508-1
Moorhen Marsh LEAPS
DATED: December 19, 2019

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.
2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the District staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.
3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5, F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.
4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the District a fully executed Form 62-330.350(1), "Construction Commencement Notice," (October 1, 2013) (<http://www.flrules.org/Gateway/reference.asp?No=Ref-02505>), incorporated by reference herein, indicating the expected start and completion dates. A copy of this form may be obtained from the District, as described in subsection 62-330.010(5), F.A.C., and shall be submitted electronically or by mail to the Agency. However, for activities involving more than one acre of construction that also require a NPDES stormwater construction general permit, submittal of the Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Form 62-621.300(4)(b), shall also serve as notice of commencement of construction under this chapter and, in such a case, submittal of Form 62-330.350(1) is not required.
5. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.
6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
 - a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex — "Construction Completion and Inspection Certification for Activities Associated with a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or
 - b. For all other activities — "As-Built Certification and Request for Conversion to

Operation Phase" [Form 62-330.310(1)].

c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:

a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as-built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.4 of Volume I) as filed with the Florida Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.

b. Within 30 days of submittal of the as- built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation and Maintenance Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the District in writing of changes required by any other regulatory District that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:

a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;

b. Convey to the permittee or create in the permittee any interest in real property;

c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or

d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the District in writing:

a. Immediately if any previously submitted information is discovered to be inaccurate; and

b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, District staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.
14. If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, stone tools, 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 permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section (DHR), at (850) 245-6333, as well as the appropriate permitting agency office. Project activities shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, F.S. For project activities subject to prior consultation with the DHR and as an alternative to the above requirements, the permittee may follow procedures for unanticipated discoveries as set forth within a cultural resources assessment survey determined complete and sufficient by DHR and included as a specific permit condition herein.
15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.
16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.
17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the District will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.
18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.
19. This permit for construction will expire five years from the date of issuance.
20. At a minimum, all retention and detention storage areas must be excavated to rough grade prior to building construction or placement of impervious surface within the area to be served by those facilities. To prevent reduction in storage volume and percolation rates, all accumulated sediment must be removed from the storage area prior to final grading and stabilization.

21. All wetland areas or water bodies that are outside the specific limits of construction authorized by this permit must be protected from erosion, siltation, scouring or excess turbidity, and dewatering.
22. This permit does not authorize the permittee to cause any adverse impact to or "take" of state listed species and other regulated species of fish and wildlife. Compliance with state laws regulating the take of fish and wildlife is the responsibility of the owner or applicant associated with this project. Please refer to Chapter 68A-27 of the Florida Administrative Code for definitions of "take" and a list of fish and wildlife species. If listed species are observed onsite, FWC staff are available to provide decision support information or assist in obtaining the appropriate FWC permits. Most marine endangered and threatened species are statutorily protected and a "take" permit cannot be issued. Requests for further information or review can be sent to FWCConservationPlanningServices@MyFWC.com.
23. The operation and maintenance entity shall inspect the stormwater or surface water management system once within two years after the completion of construction and every two years thereafter to determine if the system is functioning as designed and permitted. The operation and maintenance entity must maintain a record of each required inspection, including the date of the inspection, the name and contact information of the inspector, and whether the system was functioning as designed and permitted, and make such record available for inspection upon request by the District during normal business hours. If at any time the system is not functioning as designed and permitted, then within 30 days the entity shall submit a report electronically or in writing to the District using Form 62-330.311(1), "Operation and Maintenance Inspection Certification," describing the remedial actions taken to resolve the failure or deviation.
24. The proposed project must be constructed and operated as per plans and calculations received by the District on December 4, 2019.

Notice of Rights

1. A person whose substantial interests are or may be affected has the right to request an administrative hearing by filing a written petition with the St. Johns River Water Management District (District). Pursuant to Chapter 28-106 and Rule 40C-1.1007, Florida Administrative Code, the petition must be filed (received) either by delivery at the office of the District Clerk at District Headquarters, P. O. Box 1429, Palatka Florida 32178-1429 (4049 Reid St., Palatka, FL 32177) or by e-mail with the District Clerk at Clerk@sjrwm.com, within twenty-six (26) days of the District depositing the notice of District decision in the mail (for those persons to whom the District mails actual notice), within twenty-one (21) days of the District emailing the notice of District decision (for those persons to whom the District emails actual notice), or within twenty-one (21) days of newspaper publication of the notice of District decision (for those persons to whom the District does not mail or email actual notice). A petition must comply with Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Chapter 28-106, Florida Administrative Code. The District will not accept a petition sent by facsimile (fax), as explained in paragraph no. 4 below.
2. Please be advised that if you wish to dispute this District decision, mediation may be available and that choosing mediation does not affect your right to an administrative hearing. If you wish to request mediation, you must do so in a timely-filed petition. If all parties, including the District, agree to the details of the mediation procedure, in writing, within 10 days after the time period stated in the announcement for election of an administrative remedy under Sections 120.569 and 120.57, Florida Statutes, the time limitations imposed by Sections 120.569 and 120.57, Florida Statutes, shall be tolled to allow mediation of the disputed District decision. The mediation must be concluded within 60 days of the date of the parties' written agreement, or such other timeframe agreed to by the parties in writing. Any mediation agreement must include provisions for selecting a mediator, a statement that each party shall be responsible for paying its pro-rata share of the costs and fees associated with mediation, and the mediating parties' understanding regarding the confidentiality of discussions and documents introduced during mediation. If mediation results in settlement of the administrative dispute, the District will enter a final order consistent with the settlement agreement. If mediation terminates without settlement of the dispute, the District will notify all the parties in writing that the administrative hearing process under Sections 120.569 and 120.57, Florida Statutes, is resumed. Even if a party chooses not to engage in formal mediation, or if formal mediation does not result in a settlement agreement, the District will remain willing to engage in informal settlement discussions.
3. A person whose substantial interests are or may be affected has the right to an informal administrative hearing pursuant to Sections 120.569 and 120.57(2), Florida Statutes, where no material facts are in dispute. A petition for an informal hearing must also comply with the requirements set forth in Rule 28-106.301, Florida Administrative Code.

Notice of Rights

4. A petition for an administrative hearing is deemed filed upon receipt of the complete petition by the District Clerk at the District Headquarters in Palatka, Florida during the District's regular business hours. The District's regular business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Petitions received by the District Clerk after the District's regular business hours shall be deemed filed as of 8:00 a.m. on the District's next regular business day. The District's acceptance of petitions filed by e-mail is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation (issued pursuant to Rule 28-101.001, Florida Administrative Code), which is available for viewing at sjrwmd.com. These conditions include, but are not limited to, the petition being in the form of a PDF or TIFF file and being capable of being stored and printed by the District. Further, pursuant to the District's Statement of Agency Organization and Operation, attempting to file a petition by facsimile is prohibited and shall not constitute filing.
5. Failure to file a petition for an administrative hearing within the requisite timeframe shall constitute a waiver of the right to an administrative hearing. (Rule 28-106.111, Florida Administrative Code).
6. The right to an administrative hearing and the relevant procedures to be followed are governed by Chapter 120, Florida Statutes, Chapter 28-106, Florida Administrative Code, and Rule 40C-1.1007, Florida Administrative Code. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means the District's final action may be different from the position taken by it in this notice. A person whose substantial interests are or may be affected by the District's final action has the right to become a party to the proceeding, in accordance with the requirements set forth above.
7. Pursuant to Section 120.68, Florida Statutes, a party to the proceeding before the District who is adversely affected by final District action may seek review of the action in the District Court of Appeal by filing a notice of appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, within 30 days of the rendering of the final District action.
8. A District action is considered rendered, as referred to in paragraph no. 7 above, after it is signed on behalf of the District and filed by the District Clerk.
9. Failure to observe the relevant timeframes for filing a petition for judicial review as described in paragraph no. 7 above will result in waiver of that right to review.

NOTICING INFORMATION

Please be advised that the St. Johns River Water Management District will not publish a notice in the newspaper advising the public that it has issued a permit for this project.

Newspaper publication, using the District's notice form, notifies members of the public of their right to challenge the issuance of the permit. If proper notice is given by newspaper publication, then there is a 21-day time limit for someone to file a petition for an administrative hearing to challenge the issuance of the permit.

To close the point of entry for filing a petition, you may publish (at your own expense) a one-time notice of the District's decision in a newspaper of general circulation within the affected area as defined in Section 50.011 of the Florida Statutes. If you do not publish a newspaper notice to close the point of entry, the time to challenge the issuance of your permit will not expire and someone could file a petition even after your project is constructed.

A copy of the notice form and a partial list of newspapers of general circulation are attached for your convenience. However, you are not limited to those listed newspapers. If you choose to close the point of entry and the notice is published, the newspaper will return to you an affidavit of publication. In that event, it is important that you either submit a scanned copy of the affidavit by emailing it to compliancesupport@sjrwmd.com (preferred method) or send a copy of the original affidavit to:

Office of Business and Administrative Services
4049 Reid Street
Palatka, FL 32177

If you have any questions, please contact the Office of Business and Administrative Services at (386) 329-4570.

NOTICE OF AGENCY ACTION TAKEN BY THE
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Notice is given that the following permit was issued on _____:

(Name and address of applicant) _____
permit# _____. The project is located in _____ County, Section
_____, Township _____ South, Range _____ East. The permit authorizes a surface
water management system on _____ acres for
_____ known as
_____. The receiving water body is _____.

A person whose substantial interests are or may be affected has the right to request an administrative hearing by filing a written petition with the St. Johns River Water Management District (District). Pursuant to Chapter 28-106 and Rule 40C-1.1007, Florida Administrative Code (F.A.C.), the petition must be filed (received) either by delivery at the office of the District Clerk at District Headquarters, P.O. Box 1429, Palatka FL 32178-1429 (4049 Reid St, Palatka, FL 32177) or by e-mail with the District Clerk at Clerk@sjrwm.com, within twenty-one (21) days of newspaper publication of the notice of District decision (for those persons to whom the District does not mail or email actual notice). A petition must comply with Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes (F.S.), and Chapter 28-106, F.A.C. The District will not accept a petition sent by facsimile (fax). Mediation pursuant to Section 120.573, F.S., may be available and choosing mediation does not affect your right to an administrative hearing.

A petition for an administrative hearing is deemed filed upon receipt of the complete petition by the District Clerk at the District Headquarters in Palatka, Florida during the District's regular business hours. The District's regular business hours are 8 a.m. – 5 p.m., excluding weekends and District holidays. Petitions received by the District Clerk after the District's regular business hours shall be deemed filed as of 8 a.m. on the District's next regular business day. The District's acceptance of petitions filed by e-mail is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation (issued pursuant to Rule 28-101.001, Florida Administrative Code), which is available for viewing at www.sjrwm.com. These conditions include, but are not limited to, the petition being in the form of a PDF or TIFF file and being capable of being stored and printed by the District. Further, pursuant to the District's Statement of Agency Organization and Operation, attempting to file a petition by facsimile (fax) is prohibited and shall not constitute filing.

The right to an administrative hearing and the relevant procedures to be followed are governed by Chapter 120, Florida Statutes, Chapter 28-106, Florida Administrative Code, and Rule 40C-1.1007, Florida Administrative Code. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means the District's final action may be different from the position taken by it in this notice. **Failure to file a petition for an administrative hearing within the requisite time frame shall constitute a waiver of the right to an administrative hearing. (Rule 28-106.111, F.A.C.).**

If you wish to do so, please visit http://www.sjrwm.com/nor_dec/ to read the complete Notice of Rights to determine any legal rights you may have concerning the District's decision(s) on the permit application(s) described above. You can also request the Notice of Rights by contacting the Director of Business and Administrative Services, 4049 Reid St., Palatka, FL 32177-2529, tele. no. (386)329-4570.

NEWSPAPER ADVERTISING

ALACHUA

The Alachua County Record, Legal Advertising
P. O. Box 806
Gainesville, FL 32602
352-377-2444/ fax 352-338-1986

BRAFORD

Bradford County Telegraph, Legal Advertising
P. O. Drawer A
Starke, FL 32901
904-964-6305/ fax 904-964-8628

CLAY

Clay Today, Legal Advertising
1560 Kinsley Ave., Suite 1
Orange Park, FL 32073
904-264-3200/ fax 904-264-3285

FLAGLER

Flagler Tribune, c/o News Journal
P. O. Box 2831
Daytona Beach, FL 32120-2831
386- 681-2322

LAKE

Daily Commercial, Legal Advertising
P. O. Drawer 490007
Leesburg, FL 34749
352-365-8235/fax 352-365-1951

NASSAU

News-Leader, Legal Advertising
P. O. Box 766
Fernandina Beach, FL 32035
904-261-3696/fax 904-261-3698

ORANGE

Sentinel Communications, Legal Advertising
633 N. Orange Avenue
Orlando, FL 32801
407-420-5160/ fax 407-420-5011

PUTNAM

Palatka Daily News, Legal Advertising
P. O. Box 777
Palatka, FL 32178
386-312-5200/ fax 386-312-5209

SEMINOLE

Seminole Herald, Legal Advertising
300 North French Avenue
Sanford, FL 32771
407-323-9408

BAKER

Baker County Press, Legal Advertising
P. O. Box 598
MacLenny, FL 32063
904-259-2400/ fax 904-259-6502

BREVARD

Florida Today, Legal Advertising
P. O. Box 419000
Melbourne, FL 32941-9000
321-242-3832/ fax 321-242-6618

DUVAL

Daily Record, Legal Advertising
P. O. Box 1769
Jacksonville, FL 32201
904-356-2466 / fax 904-353-2628

INDIAN RIVER

Vero Beach Press Journal, Legal Advertising
P. O. Box 1268
Vero Beach, FL 32961-1268
772-221-4282/ fax 772-978-2340

MARION

Ocala Star Banner, Legal Advertising
2121 SW 19th Avenue Road
Ocala, FL 34474
352-867-4010/fax 352-867-4126

OKEECHOBEE

Okeechobee News, Legal Advertising
P. O. Box 639
Okeechobee, FL 34973-0639
863-763-3134/fax 863-763-5901

OSCEOLA

Little Sentinel, Legal Advertising
633 N. Orange Avenue
Orlando, FL 32801
407-420-5160/ fax 407-420-5011

ST. JOHNS

St. Augustine Record, Legal Advertising
P. O. Box 1630
St. Augustine, FL 32085
904-819-3439

VOLUSIA

News Journal Corporation, Legal Advertising
P. O. Box 2831
Daytona Beach, FL 32120-2831
(386) 681-2322

**2. Indian River County Major Site
Plan Permit SP-MA-20-04-11 /
2019100047-86254**



INDIAN RIVER COUNTY
COMMUNITY DEVELOPMENT DEPARTMENT
1801 27th Street, Vero Beach FL 32960
772-226-1237 / 772-978-1806 fax
www.ircgov.com

May 15, 2020

Keith McCully, P.E.
Stormwater Engineer
Indian River County Public Works
1801 27th Street
Vero Beach FL 32960

**RE: Moorhen Marsh LEAPS Administrative Permit Use and Major Site Plan Approval
[SP-MA-20-04-11 / 2019100047-86254]**

Dear Mr. McCully:

At its regular meeting of May 14, 2020, the Planning and Zoning Commission approved the above-referenced administrative permit use application by a vote of 6-0. In addition, County staff approved the corresponding major site plan application. Those actions approve the construction of an 18.03-acre regional stormwater treatment facility (Limited Public Utility) at 6520 53rd Street, with the following conditions:

1. Prior to site plan release, the developer shall submit all required jurisdictional permits to Planning staff as follows:
 - a. Indian River County Land Clearing Permit
 - b. Indian River County Tree Removal Permit
 - c. Indian River County Right-of-way Permit
 - d. SJRWMD Environmental Resources Permit
 - e. IRFWCD Right-of-Way Permit
2. Prior to site plan release, the applicant shall record a unity of title to combine the two separate parcels/ sites into a single development.
3. Prior to issuance of a Certificate of Occupancy, the applicant shall install all required buffers and landscape improvements.

4. Project construction must follow county construction regulations under 974.04(2).

(2) Construction equipment and activity. It shall be unlawful to operate any equipment or perform any outside construction or repair work on buildings, structures, roads, or projects within the county between the hours of 8:00 p.m. and 6:00 a.m. unless an administrative approval as set forth in section 974.07 for such construction or repair work between such hours has been obtained from Indian River County on the basis of good cause shown.

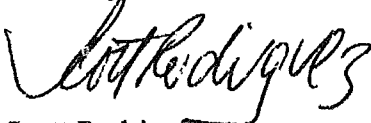
Upon completion of the listed requirements, the applicant shall provide, in writing, the intent to begin construction and arrange an appointment with a current development division staff member to release the approved plan.

Please be advised that site plan approval shall terminate and become null and void without notice if construction has not commenced within 24 months from the date of approval. Site plan approval may be extended one time only for good cause by the Board of County Commissioners for a period not to exceed 12 months. Construction shall be considered abandoned and site plan approval may be terminated if a good faith effort to proceed with the completion of the project has not occurred for a continuous period of 6 months.

Be advised that the Code Enforcement Department may conduct periodic inspections to ensure the project is completed in accordance with the approved site plan. Upon completion of construction the applicant shall submit a formal request for certificate of occupancy inspections through the planning division, see attached checklist for submittal instructions.

If you have any questions please contact this office at 772-226-1003 or srodriguez@ircgov.com.

Sincerely,



Scott Rodriguez
Senior Planner, Current Development

Attachment: Site CO Checklist

cc:	Phillip J. Matson, AICP (via e-mail)	Ryan Sweeney (via e-mail)
	Vincent Burke (via e-mail)	Arjuna Weragoda (via e-mail)
	Thomas "Tad" Stone (via e-mail)	Kevin Yelvington (via e-mail)
	Richard B. Szyrka, P.E. (via e-mail)	James Ennis, P.E. (via e-mail)
	David W. Schryver, PSM (via e-mail)	Adam Heltemes, P.E. (via e-mail)
	Todd Tardif (via e-mail)	Steven Hitt (via e-mail)
	Lori Hoffman (via e-mail)	Jesse Roland (via e-mail)
	Kevin Guenther (via e-mail)	Janie Hollingsworth, P.E. (via e-mail)
	Lt. Mike Davison (via e-mail)	

Community Development Department
County Administration Building
1801 27th Street, Building "A"
Vero Beach FL 32960



This Covers Project
Site Work **NOT**
Included in
Building Dept's
Final Inspection

SITE PLAN PROJECTS CERTIFICATE OF OCCUPANCY CHECKLIST

- I. To request site work inspections for Certificate of Occupancy, applicant must submit the following items to Maria Bowdren in the **Planning Division** (mbowdren@ircgov.com / 772-226-1242):
 - (a) Certification Letter sealed by Architect or Engineer of Record stating site has been completed in conformance with approved plan. **MUST INCLUDE: Address, Project #, Site Plan # and all applicable Building Permit #'s.**
 - (b) Landscape Certification Letter from landscape provider or landscape architect certifying that landscape material is Florida #1 or better quality and when last inspected. **If mitigation trees are required, the certification letter must include the number and location of the mitigation trees.**

- II. Applicant must submit to the **Engineering Department** (772-226-1283):
 - (a) Certification Letter sealed by Architect or Engineer of Record stating site has been completed in conformance with approved site plan.
 - (b) One as-built site plan.

- III. Applicant must contact the **Solid Waste Disposal District** at swddlees@ircgov.com or 772-226-1300 to determine required solid waste fees due prior to CO.

- IV. Other departments involved that you may need to contact **after** inspections are made include:
 - (a) **Environmental Health Department:** (794-7440).
 - (b) **Utilities:** Arjuna Weragoda (226-1821), Jesse Roland (226-1636). Note: F.D.E.P. water/sewer line certifications may be needed before Utilities will clear the project for Certificate of Occupancy.
 - (c) **Traffic Engineering:** Maya Miller (226-1637).
 - (d) **Fire Prevention Bureau:** 772-226-1880 Chief David Johnson, Lt. Rich Marini, Lt. Sandy Seeley, Lt. Peggy Parmenter, Lt. Jesse Hobbs, Lt. Mike Davison, and Inspector Jennifer MacKinnon
 - (e) **[If Needed] - St. Johns River Water Management District,** Palm Bay Office 800-295-3264

**3. Indian River Farms Water Control
District Permit for Connection to
or Use of District Facilities -
Permit No. 20-12**

INDIAN RIVER FARMS WATER CONTROL DISTRICT

7305 4th Street
Vero Beach, Florida 32968
(772) 562-2141

APPLICATION FOR CONNECTION TO OR USE OF DISTRICT FACILITIES

Date: 01-16-2020

No. 20-12

A. Applicant Information:

Name: Indian River County
Address: 1801 27th Street
Vero Beach, FL 32966

Authorized Agent and Title: Keith McCully, P.E., Stormwater Engineer
Telephone Number: 226-1562

B. Proposed Connection or Use: (check appropriate box or boxes) NON-REFUNDABLE

- Culvert connection to District canal for irrigation or drainage \$100.00
- Pump connection to District canal for irrigation or drainage stormwater treatment west 10 acres of (treated water) to canal North Relief Canal System \$300.00
- Culvert and/or control structure in District canal for crossing and/or water storage \$200.00
- Other (specify) culvert connection to return water to return water \$100.00

C. Location: Tract 13, Section 17, Township 32S, Range 39E, Canal No. North Relief Canal

Other appropriate description: inflow bellvent connections for canal water treatment system

Property I.D. Parcel No.: 32-39-17-0001-0130-0001.0 and 32-39-17-0001-0130-0002.1

Attach drawing to show details (include acreage to be served).

D. Details of proposed Construction: (Give diameter and length of culvert; diameter and rated capacity of pump; height and width of riser or other details on water control structure.)

inflow culvert = 42" spw x 29" rise CAP, 123', pump = 10 MGD design flow

effluent culvert = 36" CAP, 245 L.F.

E. Special Conditions: (for District use only)

SEE ATTACHED LIST OF SPECIAL CONDITIONS.

F. Estimated Date of Construction Commencement: 5/2020

Estimated Date of Construction Completion: 5/2021

G. As the Applicant for permit, I do understand and agree that:

1. The use of, or construction within, the right-of-way of the Indian River Farms Water Control District will be in accordance with the details of the approved sketch and/or permit conditions shown hereon, supporting this application; and if any changes are required, same will be cleared with the District.

(Continued on Reverse hereof)

Signed: Keith McCully on behalf of Indian River County Date: 01-16-2020
Applicant

(For District Use Only)

Application approved by: David E. Carter
for the Indian River Farms Water Control District

Application approved by: David E. Carter
for Carter Associates, Inc., Engineer for District

Date of approval: 3-5-2020

Expiration Date of this approved application: 3-5-2022

PERMISSION, WHEN GRANTED, WILL BE SUBJECT TO THE STANDARD PROVISOS SET FORTH ON THE REVERSE HEREOF.

REF. PERMIT # R-20-02

G. (continued)

2. I accept full responsibility for any erosion to or shoaling in the District's canal or levee due to my work and I shall remove or repair same promptly and at no expense to the District; and I will prevent the discharge of any hyacinths or aquatic growth into the District's canal through my connection.
3. I will neither plant trees or shrubs or erect any structure that will prohibit or limit the existing access of District equipment or vehicles without securing proper authorization thereof.
4. It is further understood and agreed that any other requirements of the District are binding upon me, the application, and I do hereby indicate acceptance of this notice thereof.
5. It is further understood and agreed that the lands to be benefited by this request are, or may be, subject to flooding during periods of high water due to heavy rains or other acts of God, and that the permit will be accepted subject to this possibility which is recognized not to be within the control of the District.

STANDARD PROVISOS

1. Permittee assumes full responsibility for any construction, operation or maintenance of District property or right-of-way subject to this Permit and shall save and hold harmless District from any expense, loss, damage or claim in regard thereto, and the District assumes and shall have no liability in connection therewith.
2. This Permit may not be assigned or subletted to a third party and any transfer of Permittee's property abutting District's property or right-of-way shall ipsofacto and without move, cancel, nullify and revoke this Permit.
3. This Permit is subject always to the paramount right of the District to keep and maintain its drainage district functions and operations, and is subject to revocation and cancellation upon thirty days' notice from District to Permittee.
4. In no event shall the District be liable for any damages done or caused by the District to the Public, to Permittee or any other person using the right-of-way or property subject to this Permit, and Permittee shall save the District, its officers, agents, supervisors and employees harmless from any costs, charge or expense of claim or demand of any person against the District arising from or pertaining to any use made of the property or right-of-way subject to this permit. Permittee shall, at any time upon request of District, provide to District evidence, satisfactory to District, of liability insurance coverage, in amounts and with companies as may be required by District, protecting the interests of District and naming District as an additional insured.
5. The District may, on thirty days' written notice to Permittee, require removal and/or alteration of any installation or construction on District right-of-way.
6. Any construction on District right-of-way or property and clean up shall be completed promptly by Permittee and in a workmanlike manner with minimum disturbance to existing berm, channel slopes and grade with proper restoration and planting of any disturbed areas to prevent erosion within ten days after completion of construction or installation.
7. Permittee shall advise District's office prior to commencement and upon completion of all construction. (562-2141)
8. Permittee shall not discharge any pollutants, contaminants or deleterious materials into water or structures owned or maintained by, or subject to the jurisdiction of District, nor permit anything to obstruct the flow of water, and shall save and hold District harmless from any expense, loss or damage to District or others by any such discharge or obstruction, remedying or removing the same immediately upon request of District.
9. Permittee, as a condition to the continuance of this Permit, shall reimburse District immediately upon demand, for any testing or other costs or expenses to District associated with or arising from Permittee's use of District facilities.
10. Applicant is cautioned that electrical, water and sewer, or other installations or utilities may be located within the construction area, and applicant shall use diligent efforts to first detect and locate all such installations and shall coordinate construction with all other lawful users of said right-of-way. Applicant shall be liable for all damages proximately resulting from its interference with or interruption of services provided by other lawful right-of-way users.
11. This permit shall be considered to be a license only, for the limited purpose of installation, placement and maintenance of the improvements specified on the face hereof, and does not convey any other right, title or interest of the District in the subject right-of-way property.
12. An as-built/location certification of all culvert/structure installations within the District's canals/right-of-way shall be performed by a Florida Registered Professional Surveyor and Mapper on form provided by the District, and submitted to the District within thirty (30) days following completion of installation. If as-built certification is not received **within thirty days of installation**, the District will **either** have certification completed at owner/applicants expense **or order removal of the installation**.

**SPECIAL CONDITIONS FOR PERMIT NO. 20-12
FOR
PROPOSED MOORHEN MARSH LOW ENERGY
AQUATIC PLANT SYSTEM PROJECT LOCATED IN THE
WEST 21.32 ACRES OF TRACT 13, SECTION 17-32-39
(AT THE SOUTH EAST QUADRANT OF INTERSECTION OF THE
NORTH RELIEF CANAL AND LATERAL "A" CANAL)**

- (1) This permit is issued based on plans prepared, submitted, signed and sealed by Keith McCully, P.E., Indian River County Stormwater Engineer, dated January 16, 2020 and revised Sheet C-11, dated February 6, 2020.
- (2) Clearing and grubbing of project site shall also include the clearing of east bank and berm of Lateral "A" Canal, and removal of any exotics (i.e. Pepper Trees, Australian Pines, etc.) existing on south right-of-way of North Relief Canal, adjacent to project site. All clearing of canal berm, from top of bank to right-of-way line can be performed in conventional manor. All trees and heavy vegetation from top of bank to water's edge, shall be cut to grade with minimal disturbance of canal bank.
- (3) Final grading of cleared canal berm shall be away from top of bank with sufficient drainage provided to prevent ponding of surface water and overbank discharge of stormwater into canal.
- (4) Canal maintenance equipment access from 53rd Street right-of-way to east berm of canal shall be provided.
- (5) All proposed construction within the canal rights-of-way shall be coordinated with David E. Gunter, Superintendent of the Indian River Farms Water Control District.
- (6) Permittee shall provide a copy of this permit to all contractors and sub-contractors involved in the construction of subject project.
- (7) Contractors shall be fully aware of conditions, applicable standard provisos and special conditions of the permit, and shall advise the District in advance of date of commencement of work and completion of project construction.
- (8) As-built (record) drawings of all facilities constructed within the District's canal right-of-ways shall be provided to the District (see Standard Provisos No. 12).

**4. Indian River Farms Water Control
District Permit for Subdivisions,
Bridges & Commercial Sites –
Permit No. R-20-2**

INDIAN RIVER FARMS WATER CONTROL DISTRICT

7305 4th Street
Vero Beach, Florida 32968
(772) 562-2141

**APPLICATION FOR
REVIEW OF SITE PLANS FOR SUBDIVISION, BRIDGES & COMMERCIAL SITES**

Date: 01-16-2020

No. R-20-002

A. Applicant Information: Name: Indian River County
Address: 1801 27th Street
Vero Beach, FL 32960

Authorized Agent and Title: Keith McCully, P.E., Stormwater Engineer
Telephone Number: 326-1562

B. NON-REFUNDABLE APPLICATION FEE:

Subdivision, Bridges, Commercial Site Plan comprising one acre or more, \$1,000.00-
or Planned Development review. This is the minimum charge for District
Staff and consulting professionals. Any time and/or costs expended in
excess of the minimum charge will be billed to and paid by the applicant.
Failure to pay can cause permit revocation.

*west 10 acres
of*

C. Location: Tract 13, Section 17, Township 32S, Range 39E, Canal No. _____
Property I.D. Parcel No.: 32-39-17-0000-0130-00001.0 and
Project Name: Moorhen Marsh Low Energy Aquatic Plant System
32-39-00001-0130-00002.1

Attach legal description in recordable form, "Attachment A".

see attachment "A"

D. Attach Plans and Details of proposed Construction within or into District facilities.

*see attached sheets C11 and C15 (2 sets)
and SP-2*

E. In addition to this Review Application, a Connection or Use and/or Utility Permits will be required as applicable for all projects, together with the appropriate fees.

F. Estimated Date of Construction Commencement: 5/2020
Estimated Date of Construction Completion: 5/2021

G. As the Applicant for all District permits, I do understand and agree that:

- 1. The use of, or construction within, the right-of-way of the Indian River Farms Water Control District will be in accordance with the details of the approved sketch and/or permit conditions shown hereon, supporting this application; and if any changes are required, same must be reviewed by the District.

(Continued on Reverse hereof)

Signed: Keith McCully on behalf of Indian River County Date 01-16-2020

(For District Use Only)

Application approved by: David E. Counts
for the Indian River Farms Water Control District

Date of approval: _____

G. (continued)

2. I accept full responsibility for any erosion to or shoaling in the District's canal or levee due to my work and I shall remove or repair same promptly and at no expense to the District; I will prevent the discharge of any hyacinths or aquatic growth into the District's canal through my connection.
3. I will neither plant trees or shrubs nor erect any structure that will prohibit or limit the existing access of District equipment or vehicles without securing proper authorization thereof.
4. It is further understood and agreed that any other requirements of the District are binding upon me and I do hereby indicate acceptance of notice thereof.
5. It is further understood and agreed that the lands to be benefited by this request are, or may be, subject to flooding during periods of high water due to heavy rains or other acts of God, and that the permit will be accepted subject to this possibility which is recognized not to be within the control of the District.

STANDARD PROVISOS

1. Permittee assumes full responsibility for any construction, operation or maintenance on District property or right-of-way subject to this Permit and shall save and hold harmless District from any expense, loss, damage or claim in regard thereto, and the District assumes and shall have no liability in connection therewith.
2. This Permit is subject always to the paramount right of the District to keep and maintain its drainage district functions and operations, and is subject to revocation and cancellation upon thirty days' notice from District to Permittee.
3. In no event shall the District be liable for any damages done or caused by the District to the Public, to Permittee or any other person using the right-of-way or property subject to this Permit, and Permittee shall save the District, its officers, agents, supervisors and employees harmless from any costs, charge or expense of claim or demand of any person against the District arising from or pertaining to any use made of the property or right-of-way subject to this permit. Permittee shall, at any time upon request of District, provide to District evidence, satisfactory to District, of liability insurance coverage, in amounts and with companies as may be required by District, protecting the interests of District and naming District as an additional insured.
4. The District may, on thirty days' written notice to Permittee, require removal and/or alteration of any installation or construction on District right-of-way.
5. Any construction on District right-of-way or property and clean up shall be completed promptly by Permittee and in a workmanlike manner with minimum disturbance to existing berm, channel slopes and grade with proper restoration and planting of any disturbed areas to prevent erosion within ten days after completion of construction or installation.
6. Permittee shall advise District's office prior to commencement and upon completion of all construction. (772-562-2141)
7. Permittee shall not discharge any pollutants, contaminants or deleterious materials into water or structures owned or maintained by, or subject to the jurisdiction of District, nor permit anything to obstruct the flow of water, and shall save and hold District harmless from any expense, loss or damage to District or others by any such discharge or obstruction, remedying or removing the same immediately upon request of District.
8. Permittee, as a condition to the continuance of this Permit, shall reimburse District immediately upon demand, for any testing or other costs or expenses to District associated with or arising from Permittee's use of District facilities.
9. Applicant is cautioned that electrical, water and sewer, or other installations or utilities may be located within the construction area, and applicant shall use diligent efforts to first detect and locate all such installations and shall coordinate construction with all other lawful users of said right-of-way. Applicant shall be liable for all damages resulting from its interference with or interruption of services provided by other lawful right-of-way users.
10. This permit shall be considered to be a license only, for the limited purpose of installation, placement and maintenance of the improvements specified on the face hereof, and does not convey any other right, title or interest of the District in the subject right-of-way property.
11. An as-built/location certification of all culvert/structure installations within the District's canals/right-of-way shall be performed by a Florida Registered Professional Surveyor and Mapper on form provided by the District, and submitted to the District within thirty (30) days following completion of installation. If as-built certification is not received **within thirty days of installation**, the District will **either** have certification completed at owner/applicants expense **or order removal of the installation**.

APPENDIX B

SJRWMD COST-SHARE AGREEMENT #34516

**COST-SHARE AGREEMENT
BETWEEN THE
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
AND INDIAN RIVER COUNTY**

THIS AGREEMENT ("Agreement") is entered into by and between the GOVERNING BOARD of the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT (the "District"), whose address is 4049 Reid Street, Palatka, Florida 32177, and INDIAN RIVER COUNTY ("Recipient"), 1801 27th Street, Building A, Vero Beach, Florida 32960-3388. All references to the parties hereto include the parties, their officers, employees, agents, successors, and assigns.

RECITALS

The waters of the state of Florida are among its basic resources, and it has been declared to be the policy of the Legislature to promote the conservation, development, and proper utilization of surface and ground water. Pursuant to chapter 373, Fla. Stat., the District is responsible for the management of the water resources within its geographical area.

The District 2019-2020 cost-share funding program is designed to fund the construction of local stormwater management and alternative water supply projects as well as conservation implementation projects. Its goals are to contribute to: (1) reduction in water demand through indoor and outdoor conservation measures; (2) development of alternative or non-traditional water supply sources; such as reclaimed water, surface water, or seawater; (3) water quality improvements (for example, nutrient-loading reduction in springsheds or other surface-water systems); and (4) water resource development opportunities (for instance, increasing available source water through expansion or development of surface-water storage). The current cost-share funding program also recognizes the importance of providing funding opportunities for construction of flood protection and natural-systems restoration projects, which are important components of the District's core mission focus.

The District has determined that providing cost-share funding to Recipient for the purposes provided for herein will benefit the water resources and one or more of the District's missions and initiatives.

At its April 2019 meeting, the Governing Board selected Recipient's proposal for cost-share funding. The parties have agreed to jointly fund the following project in accordance with the funding formula further described in the Statement of Work, Attachment A (hereafter the "Project"):

Moorhen Marsh Low Energy Aquatic Plant System Project

In consideration of the above recitals, and the funding assistance described below, Recipient agrees to perform and complete the activities provided for in the Statement of Work, Attachment A. Recipient shall complete the Project in conformity with the contract documents and all attachments and other items incorporated by reference herein. This Agreement consists of all of the following documents: (1) Agreement, (2) Attachment A — Statement of Work; and (3) all other attachments, if any. The parties hereby agree to the following terms and conditions.

1. TERM; WITHDRAWAL OF OFFER

- (a) The term of this Agreement is from the date upon which the last party has dated and executed the same ("Effective Date") until December 31, 2020 ("Completion Date"). Recipient shall not commence the Project until any required submittals are received and approved. Time is of the essence for every aspect of this Agreement, including any time extensions. Any request for an extension of time beyond the Completion Date must be made before October 1, 2020. Timely requests to extend, for longer than six months, the Completion Date of the Agreement for projects whose District contribution exceeds \$100,000 may only be approved by the District's Governing Board. Notwithstanding specific mention that certain provisions survive termination or expiration of this Agreement, all provisions of this Agreement that by their nature extend beyond the Completion Date survive termination or expiration hereof (e.g., delivery of a final report, will remain in full force and effect after the Completion Date as necessary to effect performance).
- (b) This Agreement constitutes an offer until authorized, signed and returned to the District by Recipient. This offer terminates 90 days after receipt by Recipient; provided, however, that Recipient may submit a written request for extension of this time limit to the District's Project Manager, stating the reason(s) therefor. Request for extension of time after the 90 days will be denied. The Project Manager shall notify Recipient in writing if an extension is granted or denied. If granted, this Agreement shall be deemed modified accordingly without any further action by the parties.
- (c) If the construction project, or the conservation project, which is eligible for District reimbursement, does not begin before June 30, 2020, the cost-share agreement will be subject to termination and the funds subject to reallocation.

2. DELIVERABLES. Recipient shall fully implement the Project, as described in the Statement of Work, Attachment A. Recipient is responsible for the professional quality, technical accuracy, and timely completion of the Project. Both workmanship and materials shall be of good quality. Unless otherwise specifically provided for herein, Recipient shall provide and pay for all materials, labor, and other facilities and equipment necessary to complete the Project. The District's Project Manager shall make a final acceptance inspection of the Project when completed and finished in all respects. Upon satisfactory completion of the Project, the District will provide Recipient a written statement indicating that the Project has been completed in accordance with this Agreement. Acceptance of the final payment by Recipient shall constitute a release in full of all claims against the District arising from or by reason of this Agreement.

3. OWNERSHIP OF DELIVERABLES. Unless otherwise provided herein, the District does not assert an ownership interest in any of the deliverables under this Agreement.

4. AMOUNT OF FUNDING.

- (a) For satisfactory completion of the Project, the District shall pay Recipient approximately 17% of the total estimated construction cost of the Project, but in no event shall the District cost-share exceed \$1,500,000. The District cost-share is not subject to modification based upon price escalation in implementing the Project during the term of this Agreement. Recipient shall be responsible for payment of all costs necessary to ensure completion of the Project. Recipient shall notify the District's Project Manager in writing upon receipt of any additional external funding for the Project not disclosed prior to execution of this Agreement.
- (b) "Construction cost" is defined to include actual costs of constructing Project facilities, including construction management. Land acquisition, engineering design, permitting, and solicitation costs are excluded. Construction cost does not include any costs incurred prior to the Effective Date, unless expressly authorized by the Statement of Work. Costs that are excluded will not be credited toward Recipient's cost-share.
- (c) Cooperative funding shall not be provided for expenses incurred after the Completion Date.

5. PAYMENT OF INVOICES

- (a) Recipient shall submit itemized invoices quarterly as per the Statement of Work, Attachment A for reimbursable expenses by one of the following two methods: (1) by email to acctpay@sjrwmd.com (preferred) or (2) by mail to the St. Johns River Water Management District, Finance Director, 4049 Reid Street, Palatka, Florida 32177-2571. The invoices shall be submitted in detail sufficient for proper pre-audit and post-audit review. Invoices shall include a copy of contractor and supplier invoices to Recipient and proof of payment. Recipient shall be reimbursed for 100% of approved cost or the not-to-exceed sum of \$1,500,000, whichever is less. The District shall not withhold any retainage from this reimbursement. District reimbursement is subject to annual budgetary limitation, if applicable, as provided in subsection (g). If necessary for audit purposes, Recipient shall provide additional supporting information as required to document invoices.
- (b) **End of District Fiscal Year Reporting.** The District's fiscal year ends on September 30. Irrespective of the invoicing frequency, the District is required to account for all encumbered funds at that time. When authorized under the Agreement, submittal of an invoice as of September 30 satisfies this requirement. The invoice shall be submitted no later than October 30. If the Agreement does not authorize submittal of an invoice as of September 30, Recipient shall submit, prior to October 30, a description of the additional work on the Project completed between the last invoice and September 30, and an estimate of the additional amount due as of September 30 for such Work. If there have been no prior invoices, Recipient shall submit a description of the work completed on the Project through September 30 and a statement estimating the dollar value of that work as of September 30.
- (c) **Final Invoice.** The final invoice must be submitted no later than 45 days after the Completion Date; provided, however, that when the Completion Date corresponds with the end of the District's fiscal year (September 30), the final invoice must be submitted no later than 30 days after the Completion Date. **Final invoices that are submitted after the requisite date shall be subject to a penalty of ten percent of the invoice. This penalty may be waived by the District, in its sole judgment and discretion, upon a showing of special circumstances that prevent the timely submittal of the final invoice. Recipient must request approval for delayed submittal of the final invoice not later than ten days prior to the due date and state the basis for the delay.**
- (d) All invoices shall include the following information: (1) District contract number; (2) Recipient's name, address, and authorization to directly deposit payment into Recipient's account (if Recipient has not yet provided the District with a completed Direct Deposit Authorization form); (3) Recipient's invoice number and date of invoice; (4) District Project Manager; (5) Recipient's Project Manager; (6) supporting documentation as to cost and/or Project completion (as per the cost schedule and other requirements of the Statement of Work); (8) Diversity Report (if otherwise required herein). Invoices that do not correspond with this paragraph shall be returned without action within 20 business days of receipt, stating the basis for rejection. Payments shall be made within 45 days of receipt of an approved invoice.
- (e) **Travel expenses.** If the cost schedule for this Agreement includes a line item for travel expenses, travel expenses shall be drawn from the project budget and are not otherwise compensable. If travel expenses are not included in the cost schedule, they are a cost of providing the service that is borne by Recipient and are only compensable when specifically approved by the District as an authorized District traveler. In such instance, travel expenses must be submitted on District or State of Florida travel forms and shall be paid pursuant to District Administrative Directive 2000-02.
- (f) **Payments withheld.** The District may withhold or, on account of subsequently discovered evidence, nullify, in whole or in part, any payment to such an extent as may be necessary to protect the District from loss as a result of: (1) defective work not remedied; (2) failure to maintain adequate progress in the Project; (3) any other material breach of this Agreement. Amounts withheld shall not be considered due and shall not be paid until the ground(s) for withholding payment have been remedied.

(g) **Annual budgetary limitation.** For multi-fiscal year agreements, the District must budget the amount of funds that will be expended during each fiscal year as accurately as possible. The Statement of Work, Attachment A, includes the parties' current schedule for completion of the Work and projection of expenditures on a fiscal year basis (October 1 – September 30) ("Annual Spending Plan"). If Recipient anticipates that expenditures will exceed the budgeted amount during any fiscal year, Recipient shall promptly notify the District's Project Manager and provide a proposed revised work schedule and Annual Spending Plan that provides for completion of the Work without increasing the Total Compensation. The last date for the District to receive this request is August 1 of the then-current fiscal year. The District may in its sole discretion prepare a District Supplemental Instruction Form incorporating the revised work schedule and Annual Spending Plan during the then-current fiscal year or subsequent fiscal year(s).

6. **LIABILITY AND INSURANCE.** Each party is responsible for all personal injury and property damage attributable to the negligent acts or omissions of that party, its officers, employees and agents. Recipient accepts all risks arising from construction or operation of the Project. Nothing contained herein shall be construed or interpreted as denying to any party any remedy or defense available under the laws of the state of Florida, nor as a waiver of sovereign immunity of the state of Florida beyond the waiver provided for in §768.28, Fla. Stat., as amended. Each party shall acquire and maintain throughout the term of this Agreement such liability, workers' compensation, and automobile insurance as required by their current rules and regulations. If Florida Department of Environmental Protection ("FDEP") funds will be used to fund all or a portion of the Agreement, additional FDEP insurance requirements applicable to the Recipient are included in the insurance attachment to the Agreement.

7. **FUNDING CONTINGENCY.** This Agreement is at all times contingent upon funding availability, which may include a single source or multiple sources, including, but not limited to: (1) ad valorem tax revenues appropriated by the District's Governing Board; (2) annual appropriations by the Florida Legislature, or (3) appropriations from other agencies or funding sources. Agreements that extend for a period of more than one Fiscal Year are subject to annual appropriation of funds in the sole discretion and judgment of the District's Governing Board for each succeeding Fiscal Year. Should the Project not be funded, in whole or in part, in the current Fiscal Year or succeeding Fiscal Years, the District shall so notify Recipient and this Agreement shall be deemed terminated for convenience five days after receipt of such notice, or within such additional time as the District may allow. For the purpose of this Agreement, "Fiscal Year" is defined as the period beginning on October 1 and ending on September 30.

8. **PROJECT MANAGEMENT**

(a) The Project Managers listed below shall be responsible for overall coordination and management of the Project. Either party may change its Project Manager upon three business days' prior written notice to the other party. Written notice of change of address shall be provided within five business days. All notices shall be in writing to the Project Managers at the addresses below and shall be sent by one of the following methods: (1) hand delivery; (2) U.S. certified mail; (3) national overnight courier; or (4) email. Notices via certified mail are deemed delivered upon receipt. Notices via overnight courier are deemed delivered one business day after having been deposited with the courier. Notices via e-mail are deemed delivered on the date transmitted and received.

DISTRICT
 Melisa Diolosa, Project Manager
 St. Johns River Water Management District
 525 Community College Parkway, S.E.
 Palm Bay, Florida 32909
 Phone: 321-676-6622
 Email: mdiolosa@sjrwmd.com

RECIPIENT
 Keith McCully, P.E., Project Manager
 Indian River County
 1801 27th Street, Building A
 Vero Beach, Florida 32960
 Phone: 772-226-1562
 Email: kmccully@ircgov.com

- (b) The District's Project Manager shall have sole responsibility for transmitting instructions, receiving information, and communicating District policies and decisions regarding all matters pertinent to performance of the Project. The District's Project Manager may issue a District Supplemental Instruction (DSI) form, Attachment C, to authorize minor adjustments to the Project that are consistent with the purpose of the Project. Both parties must sign the DSI. A DSI may not be used to change the District cost-share or percentage, quantity, quality or the Completion Date of the Project, or to change or modify the Agreement.

9. PROGRESS REPORTS AND PERFORMANCE MONITORING.

- (a) **Progress Reports.** Recipient shall provide to the District quarterly Project update/status reports as provided in the Statement of Work. Reports will provide detail on progress of the Project and outline any potential issues affecting completion or the overall schedule. Recipient shall use the District's Project Progress Report form, Attachment B. Recipient shall submit the Project Progress Reports to the District's Project Manager and District's Budget Specialist within 15 days after the closing date of each calendar quarter (March 31, June 30, September 30 and December 31).
- (b) **Performance Monitoring.** For as long as the Project is operational, the District shall have the right to inspect the operation of the Project during normal business hours upon reasonable prior notice. Recipient shall make available to the District any data that is requested pertaining to performance of the Project.

10. **WAIVER.** The delay or failure by the District to exercise or enforce any of its rights under this Contract shall not constitute or be deemed a waiver of the District's right thereafter to enforce those rights, nor shall any single or partial exercise of any such right preclude any other or further exercise thereof or the exercise of any other right.

11. FAILURE TO COMPLETE PROJECT

- (a) Should Recipient fail to complete the Project, Recipient shall refund to the District all of the funds provided to Recipient pursuant to this Agreement. However, the District, in its sole judgment and discretion, may determine that Recipient has failed to complete the Project due to circumstances that are beyond Recipient's control, or due to a good faith determination that the Project is no longer environmentally or economically feasible. In such event, the District may excuse Recipient from the obligation to return funds provided hereunder. If the Project has not been completed within 30 days after the Completion Date, Recipient shall provide the District with notice regarding its intention as to completion of the Project. The parties shall discuss the status of the Project and may mutually agree to revise the time for Project completion or the scope of the Project. Failure to complete the Project within 90 days after the Completion Date shall be deemed to constitute failure to complete the Project for the purposes of this provision.
- (b) In the event the Project constitutes a portion of the total functional project, this paragraph shall apply in the event the total functional project is not completed. In such event, the 90-day timeframe provided herein shall commence upon the date scheduled for completion of the total functional project at the time of execution of this Agreement, unless extended by mutual agreement of the parties. Paragraphs 11(a) and 11(b) shall survive the termination or expiration of this Agreement.

12. **TERMINATION.** If Recipient materially fails to fulfill its obligations under this Agreement, including any specific milestones established herein, the District may provide Recipient written notice of the deficiency by forwarding a Notice to Cure, citing the specific nature of the breach. Recipient shall have 30 days following receipt of the notice to cure the breach. If Recipient fails to cure the breach within the 30-day period, the District shall issue a Termination for Default Notice terminating this Agreement without further notice. In such event, Recipient shall refund to the District all funds provided to Recipient pursuant to this Agreement within 30 days of such termination. The District may also terminate this Agreement upon ten days' written notice in the event of any material misrepresentations in the Project Proposal.

Delay or failure by the District to enforce any right, remedy or deadline hereunder shall not impair, or be deemed a waiver of, any such right, remedy or deadline, or impair the District's rights or remedies for any subsequent breach or continued breach of this Agreement.

ADDITIONAL PROVISIONS (Alphabetical)

13. **ASSIGNMENT.** Recipient shall not assign this Agreement, or any monies due hereunder, without the District's prior written consent. Recipient is solely responsible for fulfilling all work elements in any contracts awarded by Recipient and payment of all monies due. No provision of this Agreement shall create a contractual relationship between the District and any of Recipient's contractors or subcontractors.
14. **AUDIT; ACCESS TO RECORDS; REPAYMENT OF FUNDS**
- (a) **Maintenance of Records.** Recipient shall maintain its books and records such that receipt and expenditure of the funds provided hereunder are shown separately from other expenditures in a format that can be easily reviewed. Recipient shall keep the records of receipts and expenditures, copies of all reports submitted to the District, and copies of all invoices and supporting documentation for at least five years after expiration of this Agreement. In accordance with generally accepted governmental auditing standards, the District shall have access to and the right to examine any directly pertinent books and other records involving transactions related to this Agreement. In the event of an audit, Recipient shall maintain all required records until the audit is completed and all questions are resolved. Recipient will provide proper facilities for access to and inspection of all required records.
- (b) **Repayment of Funds.** District funding shall be subject to repayment after expiration of this Agreement if, upon audit examination, the District finds any of the following: (1) Recipient has spent funds for purposes other than as provided for herein, including but not limited to construction materials not used in the Project; (2) Recipient has failed to perform a continuing obligation of this Agreement; (3) Recipient has received duplicate funds from the District for the same purpose; (4) Recipient has been advanced or paid unobligated funds; (5) Recipient has been paid funds in excess of the amount Recipient is entitled to receive under the Agreement; and/or (6) Recipient has received more than 100% contributions through cumulative public agency cost-share funding.
15. **CIVIL RIGHTS.** Pursuant to chapter 760, Fla. Stat., Recipient shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin, age, handicap, or marital status.
16. **COOPERATION WITH THE INSPECTOR GENERAL, PURSUANT TO §20.055(5) FLA. STAT.** Recipient and any subcontractors understand and will comply with their duty, pursuant to §20.055(5), Fla. Stat., to cooperate with the inspector general in any investigation, audit, inspection, review, or hearing.
17. **DISPUTE RESOLUTION.** Recipient is under a duty to seek clarification and resolution of any issue, discrepancy, or dispute involving performance of this Agreement by submitting a written statement to the District's Project Manager no later than ten business days after the precipitating event. If not resolved by the Project Manager, the Project Manager shall forward the request to the District's Office of General Counsel, which shall issue a written decision within ten business days of receipt. This determination shall constitute final action of the District and shall then be subject to judicial review upon completion of the Project.
18. **DIVERSITY REPORTING.** The District is committed to the opportunity for diversity in the performance of all cost-sharing agreements, and encourages Recipient to make a good faith effort to ensure that women and minority-owned business enterprises (W/MBE) are given the opportunity for maximum participation as contractors. The District will assist Recipient by sharing information on W/MBEs. Recipient shall provide with each invoice a report describing: (1) the company names for all W/MBEs; (2) the type of minority, and (3) the amounts spent with each during the invoicing period. The report will also denote if there were no W/MBE expenditures.

19. **GOVERNING LAW, VENUE, ATTORNEY'S FEES, WAIVER OF RIGHT TO JURY TRIAL.** This Agreement shall be construed according to the laws of Florida and shall not be construed more strictly against one party than against the other because it may have been drafted by one of the parties. As used herein, "shall" is always mandatory. In the event of any legal proceedings arising from or related to this Agreement: (1) venue for any state or federal legal proceedings shall be in Orange County; (2) each party shall bear its own attorney's fees, including appeals; (3) for civil proceedings, the parties hereby consent to trial by the court and waive the right to jury trial.
20. **INDEPENDENT CONTRACTORS.** The parties to this Agreement, their employees and agents, are independent contractors and not employees or agents of each other. Nothing in this Agreement shall be interpreted to establish any relationship other than that of independent contractors during and after the term of this Agreement. Recipient is not a contractor of the District. The District is providing cost-share funding as a cooperating governmental entity to assist Recipient in accomplishing the Project. Recipient is solely responsible for accomplishing the Project and directs the means and methods by which the Project is accomplished. Recipient is solely responsible for compliance with all labor, health care, and tax laws pertaining to Recipient, its officers, agents, and employees.
21. **CONFLICTING INTEREST IN RECIPIENT.** Recipient certifies that no officer, agent, or employee of the District has any material interest, as defined in §112.312, Fla. Stat., either directly or indirectly, in the business of Recipient to be conducted hereby, and that no such person shall have any such interest at any time during the term of this Agreement.
22. **NON-LOBBYING.** Pursuant to §216.347, Fla. Stat., as amended, Recipient agrees that funds received from the District under this Agreement shall not be used for the purpose of lobbying the Legislature or any other state agency.
23. **PERMITS.** Recipient shall comply with all applicable federal, state and local laws and regulations in implementing the Project and shall include this requirement in all subcontracts pertaining to the Project. Recipient shall obtain any and all governmental permits necessary to implement the Project. Any activity not properly permitted prior to implementation or completed without proper permits does not comply with this Agreement and shall not be approved for cost-share funding.
24. **PUBLIC ENTITY CRIME.** 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, proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals, or replies 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 §287.017, Fla. Stat., for CATEGORY TWO (\$35,000) for a period of 36 months following the date of being placed on the convicted vendor list.
25. **PUBLIC RECORDS.** Records of Recipient that are made or received in the course of performance of the Project may be public records that are subject to the requirements of chapter 119, Fla. Stat. If Recipient receives a public records request, Recipient shall promptly notify the District's Project Manager. Each party reserves the right to cancel this Agreement for refusal by the other party to allow public access to all documents, papers, letters, or other materials related hereto and subject to the provisions of chapter 119, Fla. Stat., as amended.
26. **ROYALTIES AND PATENTS.** Recipient certifies that the Project does not, to the best of its information and belief, infringe on any patent rights. Recipient shall pay all royalties and patent and license fees necessary for performance of the Project and shall defend all suits or claims for infringement of any patent rights and save and hold the District harmless from loss to the extent allowed by Florida law.

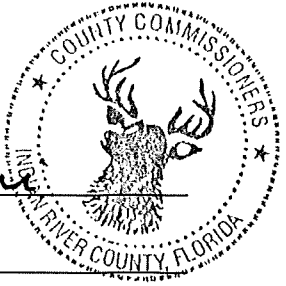
IN WITNESS WHEREOF, the St. Johns River Water Management District has caused this Agreement to be executed on the day and year written below in its name by its Executive Director, or duly authorized designee, and Recipient has caused this Agreement to be executed on the day and year written below in its name by its duly authorized representatives, and, if appropriate, has caused the seal of the corporation to be attached. This Agreement may be executed in separate counterparts, which shall not affect its validity. Upon execution, this Agreement constitutes the entire agreement of the parties, notwithstanding any stipulations, representations, agreements, or promises, oral or otherwise, not printed or inserted herein. This Agreement cannot be changed by any means other than written amendments referencing this Agreement and signed by all parties.

ST. JOHNS RIVER WATER
MANAGEMENT DISTRICT

INDIAN RIVER COUNTY

By: Wade L. Cox
Ann B. Shortelle, Ph.D., Executive Director (or designee)

By: Bob Solari
Bob Solari, Chairman
Typed Name and Title



Date: 6-6-19

Date: May 21, 2019

Attest: Rhonda D. Zirkle
Rhonda D. Zirkle, Deputy Clerk
Typed Name and Title

- Attachments:
Attachment A — Statement of Work
Attachment B — Project Progress Report Form
Attachment C — District Supplemental Instructions Form

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY
BY [Signature]
DYLAN REINGOLD
COUNTY ATTORNEY

**ATTACHMENT A - STATEMENT OF WORK
MOORHEN MARSH LOW ENERGY AQUATIC PLANT SYSTEM PROJECT**

I. INTRODUCTION/BACKGROUND

The St. Johns River Water Management District (District) is continuing its Cooperative Cost Share Initiative Program in Fiscal Year (FY) 2019-2020 to develop and implement resource and water supply development projects and promote conservation. On April 9, 2019, the District's Governing Board approved funding for Cooperative Cost Share projects. Each project selected for funding will have a positive benefit to one or more of the District's core missions; including water supply, water quality, natural systems or flood mitigation.

Indian River County (Recipient) requested funding for their Moorhen Marsh Low Energy Aquatic Plant System (LEAPS) project (Project) for the not to exceed amount of \$1,500,000 towards the estimated construction cost of \$8,705,000. This request was approved by the Governing Board. The Recipient is located in Indian River County.

II. OBJECTIVES

The objective of this contract is to provide cost share dollars that will enable the Recipient to provide a water quality benefit to the Indian River Lagoon by reducing the nutrient load approximately 7,614 lbs. total nitrogen and 1,251 lbs. total phosphorus a year.

III. SCOPE OF WORK

The project site is located in Vero Beach. The project includes the construction of a LEAPs (Low Energy Aquatic Plant System) facility. The facility will treat water from the Indian River Farms Water Control District's North Relief Canal by using aquatic plants to uptake nutrients from the canal water. The water lettuce scrubber system will be followed by an algal treatment unit for reoxygenation and additional nutrient polishing. A final settling and created wetland will provide additional detention time and further nutrient reduction. The water lettuce will be harvested and composted. The treated water will be returned to the North Relief Canal, which discharges to the Indian River Lagoon.

IV. PROJECT ADMINISTRATION AND DELIVERABLES

The Recipient shall be responsible for the following:

- Complete and obtain final project design, construction plans, and specifications;
- Obtain all required permits, including right of access to the project sites, related to project construction and subsequent operation and maintenance of the completed work;
- Assure compliance with all permits and permit conditions;
- Provide procurement for project construction;
- Perform supervision and inspection of construction;
- Perform construction contract administration;
- Assure compliance with cost accounting practices and procedures required for reimbursement of cost share funds expended.

The Recipient shall provide the following to the District's Project Manager:

- Timely invoices for actual construction costs in accordance with this cost share agreement (i.e. quarterly, with appropriate substantiation that demonstrates that the applicant has paid for the total work cost and is seeking reimbursement up to the match amount) to enable proper review by the District's Project Manager prior to payment authorization. Deliverables to be submitted with invoices include (as applicable):

- Interim progress status summaries including inspections, meeting minutes and field notes and dated color photographs of the construction completed to include on-going work that represents the time-period being invoiced;
- Final invoice submittals for completed construction including inspections and dated color photographs of the construction site prior to, during and immediately following completion of the construction task.
- Construction plans, specifications, and contract documents for the site work must be made available upon request;
- Written verification that the record drawings and any required final inspection reports for the project are received.
- Quarterly progress reports identifying project progress to date, key milestones reached, overall project schedule versus time for project completion, an updated spend-down plan, key issues to be resolved, project construction photos. Quarterly reports shall also be emailed to the District's Budget Analyst at hbarber@sjrwmd.com.
- Certification of construction completion by a Professional Engineer registered in the state of Florida.

The Recipient shall ensure the task in the Task Identification section below is completed.

V. TASK IDENTIFICATION AND TIME FRAMES

The expiration date of this cost share agreement is December 31, 2020. The projected schedule is as follows:

Task Description	Anticipated Start Date	Anticipated Completion Date
Construction	3/1/2020	12/31/2020

VI. BUDGET/COST SCHEDULE

For satisfactory completion of the Project, the District shall pay Recipient approximately 17% of the total construction cost of the Project, but in no event shall the District's cost-share exceed \$1,500,000. It is anticipated that the FY breakdown will be \$750,000 for FY 2019-2020 and \$750,000 for FY 2020-2021.

Recipient shall invoice the District quarterly with appropriate documentation. The District's Project Manager shall provide an invoice template that will be used. Invoices shall include a copy of the contractor's invoices submitted to the Recipient, proof of payment by Recipient, and other required supporting documentation for reimbursement up to match amount. For in-house expenses, Recipient shall provide copies of all receipts for materials and a system report showing documentation of staff time or other proof of staff time expenses for the Project. The final invoice shall be submitted with the final project report. If the total actual cost of this project is less than originally estimated, the District's cost-share amount shall be reduced accordingly. Recipient may invoice more frequently submitting all required documentation and include general status information.

Recipient may invoice the District for Project construction work beginning **October 1, 2019**. The District will not reimburse for any expenses prior to October 1, 2019.

Recipient shall submit quarterly progress reports to the District's Project Manager and the District's Budget Analyst within 15 days of the end of quarter for work accomplished during each quarter. The email address for the District's Budget Analyst is hbarber@sjrwmd.com. The Recipient shall submit a final project report within 15 days of Final Completion and acceptance by Indian River County detailing the Project's accomplishments and any issues resolved during the course of the work.

Estimated Cost Schedule for Reimbursement

FY 19-20 (10/1/2019 – 9/30/2020)

Description	Estimated Task Amount	Estimated Reimbursement Amount
Construction	\$4,352,500	\$750,000

FY 20-21 (10/1/2020 – 9/30/2021)

Description	Estimated Task Amount	Estimated Reimbursement Amount
Construction	\$4,352,500	\$750,000

**ATTACHMENT B
PROJECT PROGRESS REPORT**

St. Johns River Water Management District
Project Progress Report

Date: _____

Report Number: _____

Contract/Project Identification

Project Name:	Moorhen Marsh Low Energy Aquatic Plant System (LEAPS) Project		
Recipient:	Indian River County		
SJRWMD Contract Number:	34516	SJRWMD Project Manager:	Melisa Diolosa
		Recipient's Project Manager:	Keith McCully, P.E.

Construction Schedule

Construction Start Date:	
Construction Completion Date:	
Contract Expiration Date:	

Reporting Period

Beginning Date:	
Ending Date:	

Cost-Share Budget

Total Cost-Share Budget:		Cost-Share Amount Expended This Period:	
Cost-Share Amount Expended To-date:		Percent Cost-Share Budget Expended:	

Spend-Down Plan

Fiscal Year 1

Reimbursement #	Anticipated Amount	Anticipated Date
1		
2		
3		
4		

Fiscal Year 2

Reimbursement #	Anticipated Amount	Anticipated Date
1		
2		
3		
4		

Project Readiness and Schedule Tracking

Project Phase	% Complete Shown in Application	% Complete Currently	Start Date Shown in Application	Completion Date Shown in Application	Current Start Date	Current Completion Date	Notes: Explain anticipated deviations from schedule
Planning							
Design							
Permitting							
Bidding & Award							

SOW Construction Tasks/Milestones/Deliverables

Task Number	Tasks/Milestones/Deliverables	Total Construction % Complete	Start Date Shown in SOW	Completion Date Shown in SOW	Current Start Date	Current Completion Date
1						

Project update including problems, issues and solutions. Explain in detail.

Include digital photographs of work accomplished during reporting period. Attach an additional page of notes if necessary to explain reasons for lateness or unusual events or circumstances.

ATTACHMENT C — DISTRICT’S SUPPLEMENTAL INSTRUCTIONS (sample)

DISTRICT SUPPLEMENTAL INSTRUCTIONS #

DATE:

TO: Keith McCully, P.E.
Indian River County
1801 27th Street, Building A
Vero Beach, FL 32960

FROM: Melisa Diolosa, Project Manager

CONTRACT NUMBER: 34516

CONTRACT TITLE: Moorhen Marsh Low Energy Aquatic Plant System Project

The Work shall be carried out in accordance with the following supplemental instruction issued in accordance with the Contract Documents without change in the Contract Sum or Contract Time. Prior to proceeding in accordance with these instructions, indicate your acceptance of these instructions for minor adjustments to the work as consistent with the Contract Documents and return to the District’s Project Manager.

- 1. RECIPIENT’S SUPPLEMENTAL INSTRUCTIONS:
- 2. DESCRIPTION OF WORK TO BE CHANGED:
- 3. DESCRIPTION OF SUPPLEMENTAL INSTRUCTION REQUIREMENTS:

Recipient’s approval: (choose one of the items below):

Approved: _____ Date: _____

(It is agreed that these instructions shall not result in a change in the Total Compensation or the Completion Date.)

Approved: _____ Date: _____

(Recipient agrees to implement the Supplemental Instructions as requested, but reserves the right to seek a Change Order in accordance with the requirements of the Agreement.)

Approved: _____ Date: _____
Melisa Diolosa, District Project Manager

Acknowledged: _____ Date: _____
Carol Miller, District Senior Procurement Specialist

c: Contract file
Financial Services

APPENDIX C

FLORIDA LEGISLATIVE GRANT AGREEMENT #LPA0018

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Standard Grant Agreement**

This Agreement is entered into between the Parties named below, pursuant to Section 215.971, Florida Statutes:

1. Project Title (Project): Indian River County North Relief Canal Aquatic Plant Project Agreement Number: LPA0018

2. Parties State of Florida Department of Environmental Protection,
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000 (Department)

Grantee Name: Indian River County Entity Type: Local Government

Grantee Address: 1801 27th Street, Vero Beach, FL 32960 FEID: 59-600674 (Grantee)

3. Agreement Begin Date: Upon Execution Date of Expiration: June 30, 2022

4. Project Number: _____ Project Location(s): Lat/Long (27.6916, -80.4614)

Project Description: The Grantee will construct a Regional Pollutant Removal Facility that will use naturally occurring aquatic plants to absorb and remove dissolved nutrients from the North Relief Canal.

5. Total Amount of Funding:	Funding Source?	Award #s or Line Item Appropriations:	Amount per Source(s):
<u>\$650,000.00</u>	<input checked="" type="checkbox"/> State <input type="checkbox"/> Federal	<u>LP (FY19-20), GAA Line Item 1657A</u>	<u>\$650,000.00</u>
	<input type="checkbox"/> State <input type="checkbox"/> Federal		
	<input type="checkbox"/> Grantee Match		

Total Amount of Funding + Grantee Match, if any: \$650,000.00

6. Department's Grant Manager Name: Zachary Easton or successor
Address: 3900 Commonwealth Blvd.
Douglas Building, MS 3602
Tallahassee, FL 32399-3000
Phone: (850) 245-2949
Email: Zachary.Easton@dep.state.fl.us

Grantee's Grant Manager Name: Keith McCully, P.E. or successor
Address: 1801 27th Street
Vero Beach, FL 32960
Phone: (772) 226-1562
Email: kmccully@ircgov.com

7. The Parties agree to comply with the terms and conditions of the following attachments and exhibits which are hereby incorporated by reference:

<input checked="" type="checkbox"/> Attachment 1: Standard Terms and Conditions Applicable to All Grants Agreements
<input checked="" type="checkbox"/> Attachment 2: Special Terms and Conditions
<input checked="" type="checkbox"/> Attachment 3: Grant Work Plan
<input checked="" type="checkbox"/> Attachment 4: Public Records Requirements
<input checked="" type="checkbox"/> Attachment 5: Special Audit Requirements
<input type="checkbox"/> Attachment 6: Program-Specific Requirements
<input type="checkbox"/> Attachment 7: Grant Award Terms (Federal) *Copy available at https://facts.fldfs.com , in accordance with §215.985, F.S.
<input type="checkbox"/> Attachment 8: Federal Regulations and Terms (Federal)
<input type="checkbox"/> Additional Attachments (if necessary):
<input checked="" type="checkbox"/> Exhibit A: Progress Report Form
<input type="checkbox"/> Exhibit B: Property Reporting Form
<input checked="" type="checkbox"/> Exhibit C: Payment Request Summary Form
<input type="checkbox"/> Exhibit D: Quality Assurance Requirements for Grants
<input type="checkbox"/> Exhibit E: Advance Payment Terms and Interest Earned Memo
<input type="checkbox"/> Additional Exhibits (if necessary):

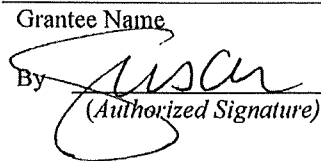
8. The following information applies to Federal Grants only and is identified in accordance with 2 CFR 200.331(a)(1):

Federal Award Identification Number(s) (FAIN):	
Federal Award Date to Department:	
Total Federal Funds Obligated by this Agreement:	
Federal Awarding Agency:	
Award R&D?	<input type="checkbox"/> Yes <input type="checkbox"/> N/A

IN WITNESS WHEREOF, this Agreement shall be effective on the date indicated by the Agreement Begin Date above or the last date signed below, whichever is later.

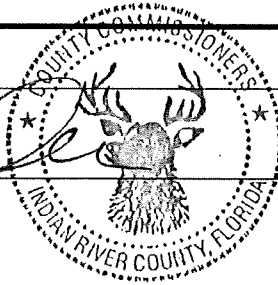
Indian River County

Grantee Name

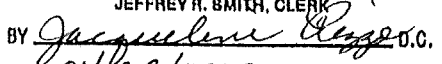
By 
(Authorized Signature)

Susan Adams, Chairman

Print Name and Title of Person Signing




GRANTEE

STATE OF FLORIDA
INDIAN RIVER COUNTY
JAN 23 2020
THIS IS TO CERTIFY THAT THIS IS A TRUE AND CORRECT
DATE SIGNED ORIGINAL ON FILE IN THIS OFFICE.
JEFFREY R. SMITH, CLERK
BY  D.C.
DATE 01/23/2020

State of Florida Department of Environmental Protection

DEPARTMENT

By 
Secretary or Designee

2/3/2020
Date Signed

Trina Vielhauer, Director - Division of Water Restoration Assistance

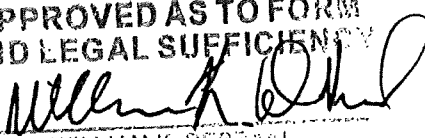
Print Name and Title of Person Signing

Additional signatures attached on separate page.

DWRA Additional Signatures


Zachary Easton, DEP Grant Manager


Sandra Waters, DEP QC Reviewer

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY
BY 
WILLIAM K. DEBRAAL
DEPUTY COUNTY ATTORNEY

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STANDARD TERMS AND CONDITIONS
APPLICABLE TO GRANT AGREEMENTS

ATTACHMENT 1

1. Entire Agreement.

This Grant Agreement, including any Attachments and Exhibits referred to herein and/or attached hereto (Agreement), constitutes the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements, whether written or oral, with respect to such subject matter. Any terms and conditions included on Grantee's forms or invoices shall be null and void.

2. Grant Administration.

- a. Order of Precedence. If there are conflicting provisions among the documents that make up the Agreement, the order of precedence for interpretation of the Agreement is as follows:
 - i. Standard Grant Agreement
 - ii. Attachments other than Attachment 1, in numerical order as designated in the Standard Grant Agreement
 - iii. Attachment 1, Standard Terms and Conditions
 - iv. The Exhibits in the order designated in the Standard Grant Agreement
- b. All approvals, written or verbal, and other written communication among the parties, including all notices, shall be obtained by or sent to the parties' Grant Managers. All written communication shall be by electronic mail, U.S. Mail, a courier delivery service, or delivered in person. Notices shall be considered delivered when reflected by an electronic mail read receipt, a courier service delivery receipt, other mail service delivery receipt, or when receipt is acknowledged by recipient. If the notice is delivered in multiple ways, the notice will be considered delivered at the earliest delivery time.
- c. If a different Grant Manager is designated by either party after execution of this Agreement, notice of the name and contact information of the new Grant Manager will be submitted in writing to the other party and maintained in the respective parties' records. A change of Grant Manager does not require a formal amendment or change order to the Agreement.
- d. This Agreement may be amended, through a formal amendment or a change order, only by a written agreement between both parties. A formal amendment to this Agreement is required for changes which cause any of the following: (1) an increase or decrease in the Agreement funding amount; (2) a change in Grantee's match requirements; (3) a change in the expiration date of the Agreement; and/or (4) changes to the cumulative amount of funding transfers between approved budget categories, as defined in Attachment 3, Grant Work Plan, that exceeds or is expected to exceed twenty percent (20%) of the total budget as last approved by Department. A change order to this Agreement may be used when: (1) task timelines within the current authorized Agreement period change; (2) the cumulative transfer of funds between approved budget categories, as defined in Attachment 3, Grant Work Plan, are less than twenty percent (20%) of the total budget as last approved by Department; and/or (3) fund transfers between budget categories for the purposes of meeting match requirements. This Agreement may be amended to provide for additional services if additional funding is made available by the Legislature.
- e. All days in this Agreement are calendar days unless otherwise specified.

3. Agreement Duration.

The term of the Agreement shall begin and end on the dates indicated in the Standard Grant Agreement, unless extended or terminated earlier in accordance with the applicable terms and conditions. The Grantee shall be eligible for reimbursement for work performed on or after the date of execution through the expiration date of this Agreement, unless otherwise specified in Attachment 2, Special Terms and Conditions. However, work performed prior to the execution of this Agreement may be reimbursable or used for match purposes if permitted by the Special Terms and Conditions.

4. Deliverables.

The Grantee agrees to render the services or other units of deliverables as set forth in Attachment 3, Grant Work Plan. The services or other units of deliverables shall be delivered in accordance with the schedule and at the pricing outlined in the Grant Work Plan. Deliverables may be comprised of activities that must be completed prior to Department making payment on that deliverable. The Grantee agrees to perform in accordance with the terms and conditions set forth in this Agreement and all attachments and exhibits incorporated by the Standard Grant Agreement.

5. Performance Measures.

The Grantee warrants that: (1) the services will be performed by qualified personnel; (2) the services will be of the kind and quality described in the Grant Work Plan; (3) the services will be performed in a professional and workmanlike manner in accordance with industry standards and practices; (4) the services shall not and do not knowingly infringe upon the intellectual property rights, or any other proprietary rights, of any third party; and (5) its employees, subcontractors, and/or subgrantees shall comply with any security and safety requirements and processes, if provided by Department, for work done at the Project Location(s). The Department reserves the right to investigate or inspect at any time to determine whether the services or qualifications offered by Grantee meet the Agreement requirements. Notwithstanding any provisions herein to the contrary, written acceptance of a particular deliverable does not foreclose Department's remedies in the event deficiencies in the deliverable cannot be readily measured at the time of delivery.

6. Acceptance of Deliverables.

- a. Acceptance Process. All deliverables must be received and accepted in writing by Department's Grant Manager before payment. The Grantee shall work diligently to correct all deficiencies in the deliverable that remain outstanding, within a reasonable time at Grantee's expense. If Department's Grant Manager does not accept the deliverables within 30 days of receipt, they will be deemed rejected.
- b. Rejection of Deliverables. The Department reserves the right to reject deliverables, as outlined in the Grant Work Plan, as incomplete, inadequate, or unacceptable due, in whole or in part, to Grantee's lack of satisfactory performance under the terms of this Agreement. The Grantee's efforts to correct the rejected deliverables will be at Grantee's sole expense. Failure to fulfill the applicable technical requirements or complete all tasks or activities in accordance with the Grant Work Plan will result in rejection of the deliverable and the associated invoice. Payment for the rejected deliverable will not be issued unless the rejected deliverable is made acceptable to Department in accordance with the Agreement requirements. The Department, at its option, may allow additional time within which Grantee may remedy the objections noted by Department. The Grantee's failure to make adequate or acceptable deliverables after a reasonable opportunity to do so shall constitute an event of default.

7. Financial Consequences for Nonperformance.

- a. Withholding Payment. In addition to the specific consequences explained in the Grant Work Plan and/or Special Terms and Conditions, the State of Florida (State) reserves the right to withhold payment when the Grantee has failed to perform/comply with provisions of this Agreement. None of the financial consequences for nonperformance in this Agreement as more fully described in the Grant Work Plan shall be considered penalties.
- b. Corrective Action Plan. If Grantee fails to correct all the deficiencies in a rejected deliverable within the specified timeframe, Department may, in its sole discretion, request that a proposed Corrective Action Plan (CAP) be submitted by Grantee to Department. The Department requests that Grantee specify the outstanding deficiencies in the CAP. All CAPs must be able to be implemented and performed in no more than sixty (60) calendar days.
 - i. The Grantee shall submit a CAP within ten (10) days of the date of the written request from Department. The CAP shall be sent to the Department's Grant Manager for review and approval. Within ten (10) days of receipt of a CAP, Department shall notify Grantee in writing whether the CAP proposed has been accepted. If the CAP is not accepted, Grantee shall have ten (10) days from receipt of Department letter rejecting the proposal to submit a revised proposed CAP. Failure to obtain Department approval of a CAP as specified above may result in Department's termination of this Agreement for cause as authorized in this Agreement.
 - ii. Upon Department's notice of acceptance of a proposed CAP, Grantee shall have ten (10) days to commence implementation of the accepted plan. Acceptance of the proposed CAP by Department does not relieve Grantee of any of its obligations under the Agreement. In the event the CAP fails to correct or eliminate performance deficiencies by Grantee, Department shall retain the right to require additional or further remedial steps, or to terminate this Agreement for failure to perform. No actions approved by Department or steps taken by Grantee shall preclude Department from subsequently asserting any deficiencies in performance. The Grantee shall continue to implement the CAP until all deficiencies are corrected. Reports on the progress of the CAP will be made to Department as requested by Department's Grant Manager.
 - iii. Failure to respond to a Department request for a CAP or failure to correct a deficiency in the performance of the Agreement as specified by Department may result in termination of the Agreement.

8. Payment.

- a. Payment Process. Subject to the terms and conditions established by the Agreement, the pricing per deliverable established by the Grant Work Plan, and the billing procedures established by Department, Department agrees to pay Grantee for services rendered in accordance with Section 215.422, Florida Statutes (F.S.).
- b. Taxes. The Department is exempted from payment of State sales, use taxes and Federal excise taxes. The Grantee, however, shall not be exempted from paying any taxes that it is subject to, including State sales and use taxes, or for payment by Grantee to suppliers for taxes on materials used to fulfill its contractual obligations with Department. The Grantee shall not use Department's exemption number in securing such materials. The Grantee shall be responsible and liable for the payment of all its FICA/Social Security and other taxes resulting from this Agreement.
- c. Maximum Amount of Agreement. The maximum amount of compensation under this Agreement, without an amendment, is described in the Standard Grant Agreement. Any additional funds necessary for the completion of this Project are the responsibility of Grantee.
- d. Reimbursement for Costs. The Grantee shall be paid on a cost reimbursement basis for all eligible Project costs upon the completion, submittal, and approval of each deliverable identified in the Grant Work Plan. Reimbursement shall be requested on Exhibit C, Payment Request Summary Form. To be eligible for reimbursement, costs must be in compliance with laws, rules, and regulations applicable to expenditures of State funds, including, but not limited to, the Reference Guide for State Expenditures, which can be accessed at the following web address:
https://www.myfloridacfo.com/Division/AA/Manuals/Auditing/Reference_Guide_For_State_Expenditures.pdf.
- e. Invoice Detail. All charges for services rendered or for reimbursement of expenses authorized by Department pursuant to the Grant Work Plan shall be submitted to Department in sufficient detail for a proper pre-audit and post-audit to be performed. The Grantee shall only invoice Department for deliverables that are completed in accordance with the Grant Work Plan.
- f. Interim Payments. Interim payments may be made by Department, at its discretion, if the completion of deliverables to date have first been accepted in writing by Department's Grant Manager.
- g. Final Payment Request. A final payment request should be submitted to Department no later than sixty (60) days following the expiration date of the Agreement to ensure the availability of funds for payment. However, all work performed pursuant to the Grant Work Plan must be performed on or before the expiration date of the Agreement.
- h. Annual Appropriation Contingency. The State's performance and obligation to pay under this Agreement is contingent upon an annual appropriation by the Legislature. This Agreement is not a commitment of future appropriations. Authorization for continuation and completion of work and any associated payments may be rescinded, with proper notice, at the discretion of Department if the Legislature reduces or eliminates appropriations.
- i. Interest Rates. All interest rates charged under the Agreement shall be calculated on the prevailing rate used by the State Board of Administration. To obtain the applicable interest rate, please refer to:
www.myfloridacfo.com/Division/AA/Vendors/default.htm.
- j. Refund of Payments to the Department. Any balance of unobligated funds that have been advanced or paid must be refunded to Department. Any funds paid in excess of the amount to which Grantee or subgrantee is entitled under the terms of the Agreement must be refunded to Department. If this Agreement is funded with federal funds and the Department is required to refund the federal government, the Grantee shall refund the Department its share of those funds.

9. Documentation Required for Cost Reimbursement Grant Agreements and Match.

If Cost Reimbursement or Match is authorized in Attachment 2, Special Terms and Conditions, the following conditions apply. Supporting documentation must be provided to substantiate cost reimbursement or match requirements for the following budget categories:

- a. Salary/Wages. Grantee shall list personnel involved, position classification, direct salary rates, and hours spent on the Project in accordance with Attachment 3, Grant Work Plan in their documentation for reimbursement or match requirements.
- b. Overhead/Indirect/General and Administrative Costs. If Grantee is being reimbursed for or claiming match for multipliers, all multipliers used (i.e., fringe benefits, overhead, indirect, and/or general and administrative rates) shall be supported by audit. If Department determines that multipliers charged by Grantee exceeded the rates supported by audit, Grantee shall be required to reimburse such funds to Department within thirty (30) days of written notification. Interest shall be charged on the excessive rate.

- c. Contractual Costs (Subcontractors). Match or reimbursement requests for payments to subcontractors must be substantiated by copies of invoices with backup documentation identical to that required from Grantee. Subcontracts which involve payments for direct salaries shall clearly identify the personnel involved, salary rate per hour, and hours spent on the Project. All eligible multipliers used (i.e., fringe benefits, overhead, indirect, and/or general and administrative rates) shall be supported by audit. If Department determines that multipliers charged by any subcontractor exceeded the rates supported by audit, Grantee shall be required to reimburse such funds to Department within thirty (30) days of written notification. Interest shall be charged on the excessive rate. Nonconsumable and/or nonexpendable personal property or equipment costing \$1,000 or more purchased for the Project under a subcontract is subject to the requirements set forth in Chapters 273 and/or 274, F.S., and Chapter 69I-72, Florida Administrative Code (F.A.C.) and/or Chapter 69I-73, F.A.C., as applicable. The Grantee shall be responsible for maintaining appropriate property records for any subcontracts that include the purchase of equipment as part of the delivery of services. The Grantee shall comply with this requirement and ensure its subcontracts issued under this Agreement, if any, impose this requirement, in writing, on its subcontractors.
- i. For fixed-price (vendor) subcontracts, the following provisions shall apply: The Grantee may award, on a competitive basis, fixed-price subcontracts to consultants/contractors in performing the work described in Attachment 3, Grant Work Plan. Invoices submitted to Department for fixed-price subcontracted activities shall be supported with a copy of the subcontractor's invoice and a copy of the tabulation form for the competitive procurement process (e.g., Invitation to Bid, Request for Proposals, or other similar competitive procurement document) resulting in the fixed-price subcontract. The Grantee may request approval from Department to award a fixed-price subcontract resulting from procurement methods other than those identified above. In this instance, Grantee shall request the advance written approval from Department's Grant Manager of the fixed price negotiated by Grantee. The letter of request shall be supported by a detailed budget and Scope of Services to be performed by the subcontractor. Upon receipt of Department Grant Manager's approval of the fixed-price amount, Grantee may proceed in finalizing the fixed-price subcontract.
 - ii. If the procurement is subject to the Consultant's Competitive Negotiation Act under section 287.055, F.S. or the Brooks Act, Grantee must provide documentation clearly evidencing it has complied with the statutory or federal requirements.
- d. Travel. All requests for match or reimbursement of travel expenses shall be in accordance with Section 112.061, F.S.
- e. Direct Purchase Equipment. For the purposes of this Agreement, Equipment is defined as capital outlay costing \$1,000 or more. Match or reimbursement for Grantee's direct purchase of equipment is subject to specific approval of Department, and does not include any equipment purchased under the delivery of services to be completed by a subcontractor. Include copies of invoices or receipts to document purchases, and a properly completed Exhibit B, Property Reporting Form.
- f. Rental/Lease of Equipment. Match or reimbursement requests for rental/lease of equipment must include copies of invoices or receipts to document charges.
- g. Miscellaneous/Other Expenses. If miscellaneous or other expenses, such as materials, supplies, non-excluded phone expenses, reproduction, or mailing, are reimbursable or available for match or reimbursement under the terms of this Agreement, the documentation supporting these expenses must be itemized and include copies of receipts or invoices. Additionally, independent of Grantee's contract obligations to its subcontractor, Department shall not reimburse any of the following types of charges: cell phone usage; attorney's fees or court costs; civil or administrative penalties; or handling fees, such as set percent overages associated with purchasing supplies or equipment.
- h. Land Acquisition. Reimbursement for the costs associated with acquiring interest and/or rights to real property (including access rights through ingress/egress easements, leases, license agreements, or other site access agreements; and/or obtaining record title ownership of real property through purchase) must be supported by the following, as applicable: Copies of Property Appraisals, Environmental Site Assessments, Surveys and Legal Descriptions, Boundary Maps, Acreage Certification, Title Search Reports, Title Insurance, Closing Statements/Documents, Deeds, Leases, Easements, License Agreements, or other legal instrument documenting acquired property interest and/or rights. If land acquisition costs are used to meet match requirements, Grantee agrees that those funds shall not be used as match for any other Agreement supported by State or Federal funds.

10. Status Reports.

The Grantee shall submit status reports quarterly, unless otherwise specified in the Attachments, on Exhibit A, Progress Report Form, to Department's Grant Manager describing the work performed during the reporting period, problems encountered, problem resolutions, scheduled updates, and proposed work for the next reporting

period. Quarterly status reports are due no later than twenty (20) days following the completion of the quarterly reporting period. For the purposes of this reporting requirement, the quarterly reporting periods end on March 31, June 30, September 30 and December 31. The Department will review the required reports submitted by Grantee within thirty (30) days.

11. Retainage.

The following provisions apply if Department withholds retainage under this Agreement:

- a. The Department reserves the right to establish the amount and application of retainage on the work performed under this Agreement up to the maximum percentage described in Attachment 2, Special Terms and Conditions. Retainage may be withheld from each payment to Grantee pending satisfactory completion of work and approval of all deliverables.
- b. If Grantee fails to perform the requested work, or fails to perform the work in a satisfactory manner, Grantee shall forfeit its right to payment of the retainage associated with the work. Failure to perform includes, but is not limited to, failure to submit the required deliverables or failure to provide adequate documentation that the work was actually performed. The Department shall provide written notification to Grantee of the failure to perform that shall result in retainage forfeiture. If the Grantee does not correct the failure to perform within the timeframe stated in Department's notice, the retainage will be forfeited to Department.
- c. No retainage shall be released or paid for incomplete work while this Agreement is suspended.
- d. Except as otherwise provided above, Grantee shall be paid the retainage associated with the work, provided Grantee has completed the work and submits an invoice for retainage held in accordance with the invoicing procedures under this Agreement.

12. Insurance.

- a. Insurance Requirements for Sub-Grantees and/or Subcontractors. The Grantee shall require its sub-grantees and/or subcontractors, if any, to maintain insurance coverage of such types and with such terms and limits as described in this Agreement. The Grantee shall require all its sub-grantees and/or subcontractors, if any, to make compliance with the insurance requirements of this Agreement a condition of all contracts that are related to this Agreement. Sub-grantees and/or subcontractors must provide proof of insurance upon request.
- b. Deductibles. The Department shall be exempt from, and in no way liable for, any sums of money representing a deductible in any insurance policy. The payment of such deductible shall be the sole responsibility of the Grantee providing such insurance.
- c. Proof of Insurance. Upon execution of this Agreement, Grantee shall provide Department documentation demonstrating the existence and amount for each type of applicable insurance coverage *prior to* performance of any work under this Agreement. Upon receipt of written request from Department, Grantee shall furnish Department with proof of applicable insurance coverage by standard form certificates of insurance, a self-insured authorization, or other certification of self-insurance.
- d. Duty to Maintain Coverage. In the event that any applicable coverage is cancelled by the insurer for any reason, or if Grantee cannot get adequate coverage, Grantee shall immediately notify Department of such cancellation and shall obtain adequate replacement coverage conforming to the requirements herein and provide proof of such replacement coverage within ten (10) days after the cancellation of coverage.

13. Termination.

- a. Termination for Convenience. When it is in the State's best interest, Department may, at its sole discretion, terminate the Agreement in whole or in part by giving 30 days' written notice to Grantee. The Department shall notify Grantee of the termination for convenience with instructions as to the effective date of termination or the specific stage of work at which the Agreement is to be terminated. The Grantee must submit all invoices for work to be paid under this Agreement within thirty (30) days of the effective date of termination. The Department shall not pay any invoices received after thirty (30) days of the effective date of termination.
- b. Termination for Cause. The Department may terminate this Agreement if any of the events of default described in the Events of Default provisions below occur or in the event that Grantee fails to fulfill any of its other obligations under this Agreement. If, after termination, it is determined that Grantee was not in default, or that the default was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of Department. The rights and remedies of Department in this clause are in addition to any other rights and remedies provided by law or under this Agreement.
- c. Grantee Obligations upon Notice of Termination. After receipt of a notice of termination or partial termination unless as otherwise directed by Department, Grantee shall not furnish any service or deliverable on the date, and to the extent specified, in the notice. However, Grantee shall continue work on any portion of the Agreement not terminated. If the Agreement is terminated before performance is completed, Grantee shall be paid only for

that work satisfactorily performed for which costs can be substantiated. The Grantee shall not be entitled to recover any cancellation charges or lost profits.

- d. Continuation of Prepaid Services. If Department has paid for any services prior to the expiration, cancellation, or termination of the Agreement, Grantee shall continue to provide Department with those services for which it has already been paid or, at Department's discretion, Grantee shall provide a refund for services that have been paid for but not rendered.
- e. Transition of Services Upon Termination, Expiration, or Cancellation of the Agreement. If services provided under the Agreement are being transitioned to another provider(s), Grantee shall assist in the smooth transition of Agreement services to the subsequent provider(s). This requirement is at a minimum an affirmative obligation to cooperate with the new provider(s), however additional requirements may be outlined in the Grant Work Plan. The Grantee shall not perform any services after Agreement expiration or termination, except as necessary to complete the transition or continued portion of the Agreement, if any.

14. Notice of Default.

If Grantee defaults in the performance of any covenant or obligation contained in the Agreement, including, any of the events of default, Department shall provide notice to Grantee and an opportunity to cure that is reasonable under the circumstances. This notice shall state the nature of the failure to perform and provide a time certain for correcting the failure. The notice will also provide that, should the Grantee fail to perform within the time provided, Grantee will be found in default, and Department may terminate the Agreement effective as of the date of receipt of the default notice.

15. Events of Default.

Provided such failure is not the fault of Department or outside the reasonable control of Grantee, the following non-exclusive list of events, acts, or omissions, shall constitute events of default:

- a. The commitment of any material breach of this Agreement by Grantee, including failure to timely deliver a material deliverable, failure to perform the minimal level of services required for a deliverable, discontinuance of the performance of the work, failure to resume work that has been discontinued within a reasonable time after notice to do so, or abandonment of the Agreement;
- b. The commitment of any material misrepresentation or omission in any materials, or discovery by the Department of such, made by the Grantee in this Agreement or in its application for funding;
- c. Failure to submit any of the reports required by this Agreement or having submitted any report with incorrect, incomplete, or insufficient information;
- d. Failure to honor any term of the Agreement;
- e. Failure to abide by any statutory, regulatory, or licensing requirement, including an entry of an order revoking the certificate of authority granted to the Grantee by a state or other licensing authority;
- f. Failure to pay any and all entities, individuals, and furnishing labor or materials, or failure to make payment to any other entities as required by this Agreement;
- g. Employment of an unauthorized alien in the performance of the work, in violation of Section 274 (A) of the Immigration and Nationality Act;
- h. Failure to maintain the insurance required by this Agreement;
- i. One or more of the following circumstances, uncorrected for more than thirty (30) days unless, within the specified 30-day period, Grantee (including its receiver or trustee in bankruptcy) provides to Department adequate assurances, reasonably acceptable to Department, of its continuing ability and willingness to fulfill its obligations under the Agreement:
 - i. Entry of an order for relief under Title 11 of the United States Code;
 - ii. The making by Grantee of a general assignment for the benefit of creditors;
 - iii. The appointment of a general receiver or trustee in bankruptcy of Grantee's business or property; and/or
 - iv. An action by Grantee under any state insolvency or similar law for the purpose of its bankruptcy, reorganization, or liquidation.

16. Suspension of Work.

The Department may, in its sole discretion, suspend any or all activities under the Agreement, at any time, when it is in the best interest of the State to do so. The Department shall provide Grantee written notice outlining the particulars of suspension. Examples of reasons for suspension include, but are not limited to, budgetary constraints, declaration of emergency, or other such circumstances. After receiving a suspension notice, Grantee shall comply with the notice. Within 90 days, or any longer period agreed to by the parties, Department shall either: (1) issue a notice authorizing resumption of work, at which time activity shall resume; or (2) terminate the Agreement. If the Agreement is terminated after 30 days of suspension, the notice of suspension shall be deemed to satisfy the thirty (30) days' notice

required for a notice of termination for convenience. Suspension of work shall not entitle Grantee to any additional compensation.

17. Force Majeure.

The Grantee shall not be responsible for delay resulting from its failure to perform if neither the fault nor the negligence of Grantee or its employees or agents contributed to the delay and the delay is due directly to acts of God, wars, acts of public enemies, strikes, fires, floods, or other similar cause wholly beyond Grantee's control, or for any of the foregoing that affect subcontractors or suppliers if no alternate source of supply is available to Grantee. In case of any delay Grantee believes is excusable, Grantee shall notify Department in writing of the delay or potential delay and describe the cause of the delay either (1) within ten days after the cause that creates or will create the delay first arose, if Grantee could reasonably foresee that a delay could occur as a result; or (2) if delay is not reasonably foreseeable, within five days after the date Grantee first had reason to believe that a delay could result. **THE FOREGOING SHALL CONSTITUTE THE GRANTEE'S SOLE REMEDY OR EXCUSE WITH RESPECT TO DELAY.** Providing notice in strict accordance with this paragraph is a condition precedent to such remedy. No claim for damages, other than for an extension of time, shall be asserted against Department. The Grantee shall not be entitled to an increase in the Agreement price or payment of any kind from Department for direct, indirect, consequential, impact or other costs, expenses or damages, including but not limited to costs of acceleration or inefficiency, arising because of delay, disruption, interference, or hindrance from any cause whatsoever. If performance is suspended or delayed, in whole or in part, due to any of the causes described in this paragraph, after the causes have ceased to exist Grantee shall perform at no increased cost, unless Department determines, in its sole discretion, that the delay will significantly impair the value of the Agreement to Department, in which case Department may: (1) accept allocated performance or deliveries from Grantee, provided that Grantee grants preferential treatment to Department with respect to products subjected to allocation; (2) contract with other sources (without recourse to and by Grantee for the related costs and expenses) to replace all or part of the products or services that are the subject of the delay, which purchases may be deducted from the Agreement quantity; or (3) terminate Agreement in whole or in part.

18. Indemnification.

- a. The Grantee shall be fully liable for the actions of its agents, employees, partners, or subcontractors and shall fully indemnify, defend, and hold harmless Department and its officers, agents, and employees, from suits, actions, damages, and costs of every name and description arising from or relating to:
 - i. personal injury and damage to real or personal tangible property alleged to be caused in whole or in part by Grantee, its agents, employees, partners, or subcontractors; provided, however, that Grantee shall not indemnify for that portion of any loss or damages proximately caused by the negligent act or omission of Department;
 - ii. the Grantee's breach of this Agreement or the negligent acts or omissions of Grantee.
- b. The Grantee's obligations under the preceding paragraph with respect to any legal action are contingent upon Department giving Grantee: (1) written notice of any action or threatened action; (2) the opportunity to take over and settle or defend any such action at Grantee's sole expense; and (3) assistance in defending the action at Grantee's sole expense. The Grantee shall not be liable for any cost, expense, or compromise incurred or made by Department in any legal action without Grantee's prior written consent, which shall not be unreasonably withheld.
- c. Notwithstanding sections a. and b. above, the following is the sole indemnification provision that applies to Grantees that are governmental entities: Each party hereto agrees that it shall be solely responsible for the negligent or wrongful acts of its employees and agents. However, nothing contained herein shall constitute a waiver by either party of its sovereign immunity or the provisions of Section 768.28, F.S. Further, nothing herein shall be construed as consent by a state agency or subdivision of the State to be sued by third parties in any matter arising out of any contract or this Agreement.
- d. No provision in this Agreement shall require Department to hold harmless or indemnify Grantee, insure or assume liability for Grantee's negligence, waive Department's sovereign immunity under the laws of Florida, or otherwise impose liability on Department for which it would not otherwise be responsible. Any provision, implication or suggestion to the contrary is null and void.

19. Limitation of Liability.

The Department's liability for any claim arising from this Agreement is limited to compensatory damages in an amount no greater than the sum of the unpaid balance of compensation due for goods or services rendered pursuant to and in compliance with the terms of the Agreement. Such liability is further limited to a cap of \$100,000.

20. Remedies.

Nothing in this Agreement shall be construed to make Grantee liable for force majeure events. Nothing in this Agreement, including financial consequences for nonperformance, shall limit Department's right to pursue its remedies for other types of damages under the Agreement, at law or in equity. The Department may, in addition to other remedies available to it, at law or in equity and upon notice to Grantee, retain such monies from amounts due Grantee as may be necessary to satisfy any claim for damages, penalties, costs and the like asserted by or against it.

21. Waiver.

The delay or failure by Department to exercise or enforce any of its rights under this Agreement shall not constitute or be deemed a waiver of Department's right thereafter to enforce those rights, nor shall any single or partial exercise of any such right preclude any other or further exercise thereof or the exercise of any other right.

22. Statutory Notices Relating to Unauthorized Employment and Subcontracts.

- a. The Department shall consider the employment by any Grantee of unauthorized aliens a violation of Section 274A(e) of the Immigration and Nationality Act. If Grantee/subcontractor knowingly employs unauthorized aliens, such violation shall be cause for unilateral cancellation of this Agreement. The Grantee shall be responsible for including this provision in all subcontracts with private organizations issued as a result of this Agreement.
- b. Pursuant to Sections 287.133 and 287.134, F.S., the following restrictions apply to persons placed on the convicted vendor list or the discriminatory vendor list:
 - i. Public Entity Crime. 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, proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals, or replies on leases of real property to a public entity; may not be awarded or perform work as a Grantee, 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, F.S., for CATEGORY TWO for a period of 36 months following the date of being placed on the convicted vendor list.
 - ii. Discriminatory Vendors. An entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid, proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals, or replies 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.
 - iii. Notification. The Grantee shall notify Department if it or any of its suppliers, subcontractors, or consultants have been placed on the convicted vendor list or the discriminatory vendor list during the life of the Agreement. The Florida Department of Management Services is responsible for maintaining the discriminatory vendor list and posts the list on its website. Questions regarding the discriminatory vendor list may be directed to the Florida Department of Management Services, Office of Supplier Diversity, at (850) 487-0915.

23. Compliance with Federal, State and Local Laws.

- a. The Grantee and all its agents shall comply with all federal, state and local regulations, including, but not limited to, nondiscrimination, wages, social security, workers' compensation, licenses, and registration requirements. The Grantee shall include this provision in all subcontracts issued as a result of this Agreement.
- b. No person, on the grounds of race, creed, color, religion, national origin, age, gender, or disability, shall be excluded from participation in; be denied the proceeds or benefits of; or be otherwise subjected to discrimination in performance of this Agreement.
- c. This Agreement shall be governed by and construed in accordance with the laws of the State of Florida.
- d. Any dispute concerning performance of the Agreement shall be processed as described herein. Jurisdiction for any damages arising under the terms of the Agreement will be in the courts of the State, and venue will be in the Second Judicial Circuit, in and for Leon County. Except as otherwise provided by law, the parties agree to be responsible for their own attorney fees incurred in connection with disputes arising under the terms of this Agreement.

24. Scrutinized Companies.

- a. Grantee certifies that it is not on the Scrutinized Companies that Boycott Israel List or engaged in a boycott of Israel. Pursuant to Section 287.135, F.S., the Department may immediately terminate this Agreement at its sole option if the Grantee is found to have submitted a false certification; or if the Grantee is placed on the Scrutinized Companies that Boycott Israel List or is engaged in the boycott of Israel during the term of the Agreement.

- b. If this Agreement is for more than one million dollars, the Grantee certifies that it is also not on the Scrutinized Companies with Activities in Sudan, Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or engaged with business operations in Cuba or Syria as identified in Section 287.135, F.S. Pursuant to Section 287.135, F.S., the Department may immediately terminate this Agreement at its sole option if the Grantee is found to have submitted a false certification; or if the Grantee is placed on the Scrutinized Companies with Activities in Sudan List, or Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or engaged with business operations in Cuba or Syria during the term of the Agreement.
- c. As provided in Subsection 287.135(8), F.S., if federal law ceases to authorize these contracting prohibitions then they shall become inoperative.

25. Lobbying and Integrity.

The Grantee agrees that no funds received by it under this Agreement will be expended for the purpose of lobbying the Legislature or a State agency pursuant to Section 216.347, F.S., except that pursuant to the requirements of Section 287.058(6), F.S., during the term of any executed agreement between Grantee and the State, Grantee may lobby the executive or legislative branch concerning the scope of services, performance, term, or compensation regarding that agreement. The Grantee shall comply with Sections 11.062 and 216.347, F.S.

26. Record Keeping.

The Grantee shall maintain books, records and documents directly pertinent to performance under this Agreement in accordance with United States generally accepted accounting principles (US GAAP) consistently applied. The Department, the State, or their authorized representatives shall have access to such records for audit purposes during the term of this Agreement and for five (5) years following the completion date or termination of the Agreement. In the event that any work is subcontracted, Grantee shall similarly require each subcontractor to maintain and allow access to such records for audit purposes. Upon request of Department's Inspector General, or other authorized State official, Grantee shall provide any type of information the Inspector General deems relevant to Grantee's integrity or responsibility. Such information may include, but shall not be limited to, Grantee's business or financial records, documents, or files of any type or form that refer to or relate to Agreement. The Grantee shall retain such records for the longer of: (1) three years after the expiration of the Agreement; or (2) the period required by the General Records Schedules maintained by the Florida Department of State (available at:

<http://dos.myflorida.com/library-archives/records-management/general-records-schedules/>).

27. Audits.

- a. **Inspector General.** The Grantee understands its duty, pursuant to Section 20.055(5), F.S., to cooperate with the inspector general in any investigation, audit, inspection, review, or hearing. The Grantee will comply with this duty and ensure that its sub-grantees and/or subcontractors issued under this Agreement, if any, impose this requirement, in writing, on its sub-grantees and/or subcontractors, respectively.
- b. **Physical Access and Inspection.** Department personnel shall be given access to and may observe and inspect work being performed under this Agreement, with reasonable notice and during normal business hours, including by any of the following methods:
 - i. Grantee shall provide access to any location or facility on which Grantee is performing work, or storing or staging equipment, materials or documents;
 - ii. Grantee shall permit inspection of any facility, equipment, practices, or operations required in performance of any work pursuant to this Agreement; and,
 - iii. Grantee shall allow and facilitate sampling and monitoring of any substances, soils, materials or parameters at any location reasonable or necessary to assure compliance with any work or legal requirements pursuant to this Agreement.
- c. **Special Audit Requirements.** The Grantee shall comply with the applicable provisions contained in Attachment 5, Special Audit Requirements. Each amendment that authorizes a funding increase or decrease shall include an updated copy of Exhibit 1, to Attachment 5. If Department fails to provide an updated copy of Exhibit 1 to include in each amendment that authorizes a funding increase or decrease, Grantee shall request one from the Department's Grants Manager. The Grantee shall consider the type of financial assistance (federal and/or state) identified in Attachment 5, Exhibit 1 and determine whether the terms of Federal and/or Florida Single Audit Act Requirements may further apply to lower tier transactions that may be a result of this Agreement. For federal financial assistance, Grantee shall utilize the guidance provided under 2 CFR §200.330 for determining whether the relationship represents that of a subrecipient or vendor. For State financial assistance, Grantee shall utilize the form entitled "Checklist for Nonstate Organizations Recipient/Subrecipient vs Vendor Determination" (form number DFS-A2-NS) that can be found under the "Links/Forms" section appearing at the following website: <https://apps.fldfs.com/fsaa>.

- d. **Proof of Transactions.** In addition to documentation provided to support cost reimbursement as described herein, Department may periodically request additional proof of a transaction to evaluate the appropriateness of costs to the Agreement pursuant to State guidelines (including cost allocation guidelines) and federal, if applicable. Allowable costs and uniform administrative requirements for federal programs can be found under 2 CFR 200. The Department may also request a cost allocation plan in support of its multipliers (overhead, indirect, general administrative costs, and fringe benefits). The Grantee must provide the additional proof within thirty (30) days of such request.
- e. **No Commingling of Funds.** The accounting systems for all Grantees must ensure that these funds are not commingled with funds from other agencies. Funds from each agency must be accounted for separately. Grantees are prohibited from commingling funds on either a program-by-program or a project-by-project basis. Funds specifically budgeted and/or received for one project may not be used to support another project. Where a Grantee's, or subrecipient's, accounting system cannot comply with this requirement, Grantee, or subrecipient, shall establish a system to provide adequate fund accountability for each project it has been awarded.
 - i. If Department finds that these funds have been commingled, Department shall have the right to demand a refund, either in whole or in part, of the funds provided to Grantee under this Agreement for non-compliance with the material terms of this Agreement. The Grantee, upon such written notification from Department shall refund, and shall forthwith pay to Department, the amount of money demanded by Department. Interest on any refund shall be calculated based on the prevailing rate used by the State Board of Administration. Interest shall be calculated from the date(s) the original payment(s) are received from Department by Grantee to the date repayment is made by Grantee to Department.
 - ii. In the event that the Grantee recovers costs, incurred under this Agreement and reimbursed by Department, from another source(s), Grantee shall reimburse Department for all recovered funds originally provided under this Agreement and interest shall be charged for those recovered costs as calculated on from the date(s) the payment(s) are recovered by Grantee to the date repayment is made to Department.
 - iii. Notwithstanding the requirements of this section, the above restrictions on commingling funds do not apply to agreements where payments are made purely on a cost reimbursement basis.

28. Conflict of Interest.

The Grantee covenants that it presently has no interest and shall not acquire any interest which would conflict in any manner or degree with the performance of services required.

29. Independent Contractor.

The Grantee is an independent contractor and is not an employee or agent of Department.

30. Subcontracting.

- a. Unless otherwise specified in the Special Terms and Conditions, all services contracted for are to be performed solely by Grantee.
- b. The Department may, for cause, require the replacement of any Grantee employee, subcontractor, or agent. For cause, includes, but is not limited to, technical or training qualifications, quality of work, change in security status, or non-compliance with an applicable Department policy or other requirement.
- c. The Department may, for cause, deny access to Department's secure information or any facility by any Grantee employee, subcontractor, or agent.
- d. The Department's actions under paragraphs b. or c. shall not relieve Grantee of its obligation to perform all work in compliance with the Agreement. The Grantee shall be responsible for the payment of all monies due under any subcontract. The Department shall not be liable to any subcontractor for any expenses or liabilities incurred under any subcontract and Grantee shall be solely liable to the subcontractor for all expenses and liabilities incurred under any subcontract.
- e. The Department will not deny Grantee's employees, subcontractors, or agents access to meetings within the Department's facilities, unless the basis of Department's denial is safety or security considerations.
- f. The Department supports diversity in its procurement program and requests that all subcontracting opportunities afforded by this Agreement embrace diversity enthusiastically. The award of subcontracts should reflect the full diversity of the citizens of the State. A list of minority-owned firms that could be offered subcontracting opportunities may be obtained by contacting the Office of Supplier Diversity at (850) 487-0915.
- g. The Grantee shall not be liable for any excess costs for a failure to perform, if the failure to perform is caused by the default of a subcontractor at any tier, and if the cause of the default is completely beyond the control of both Grantee and the subcontractor(s), and without the fault or negligence of either, unless the subcontracted products

or services were obtainable from other sources in sufficient time for Grantee to meet the required delivery schedule.

31. Guarantee of Parent Company.

If Grantee is a subsidiary of another corporation or other business entity, Grantee asserts that its parent company will guarantee all of the obligations of Grantee for purposes of fulfilling the obligations of Agreement. In the event Grantee is sold during the period the Agreement is in effect, Grantee agrees that it will be a requirement of sale that the new parent company guarantee all of the obligations of Grantee.

32. Survival.

The respective obligations of the parties, which by their nature would continue beyond the termination or expiration of this Agreement, including without limitation, the obligations regarding confidentiality, proprietary interests, and public records, shall survive termination, cancellation, or expiration of this Agreement.

33. Third Parties.

The Department shall not be deemed to assume any liability for the acts, failures to act or negligence of Grantee, its agents, servants, and employees, nor shall Grantee disclaim its own negligence to Department or any third party. This Agreement does not and is not intended to confer any rights or remedies upon any person other than the parties. If Department consents to a subcontract, Grantee will specifically disclose that this Agreement does not create any third-party rights. Further, no third parties shall rely upon any of the rights and obligations created under this Agreement.

34. Severability.

If a court of competent jurisdiction deems any term or condition herein void or unenforceable, the other provisions are severable to that void provision, and shall remain in full force and effect.

35. Grantee's Employees, Subcontractors and Agents.

All Grantee employees, subcontractors, or agents performing work under the Agreement shall be properly trained technicians who meet or exceed any specified training qualifications. Upon request, Grantee shall furnish a copy of technical certification or other proof of qualification. All employees, subcontractors, or agents performing work under Agreement must comply with all security and administrative requirements of Department and shall comply with all controlling laws and regulations relevant to the services they are providing under the Agreement.

36. Assignment.

The Grantee shall not sell, assign, or transfer any of its rights, duties, or obligations under the Agreement, or under any purchase order issued pursuant to the Agreement, without the prior written consent of Department. In the event of any assignment, Grantee remains secondarily liable for performance of the Agreement, unless Department expressly waives such secondary liability. The Department may assign the Agreement with prior written notice to Grantee of its intent to do so.

37. Execution in Counterparts and Authority to Sign.

This Agreement, any amendments, and/or change orders related to the Agreement, may be executed in counterparts, each of which shall be an original and all of which shall constitute the same instrument. In accordance with the Electronic Signature Act of 1996, electronic signatures, including facsimile transmissions, may be used and shall have the same force and effect as a written signature. Each person signing this Agreement warrants that he or she is duly authorized to do so and to bind the respective party to the Agreement.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Special Terms and Conditions
AGREEMENT NO. LPA0018

ATTACHMENT 2

These Special Terms and Conditions shall be read together with general terms outlined in the Standard Terms and Conditions, Attachment 1. Where in conflict, these more specific terms shall apply.

1. Scope of Work.

The Project funded under this Agreement is Indian River County North Relief Canal Aquatic Plant Project. The Project is defined in more detail in Attachment 3, Grant Work Plan.

2. Duration.

- a. Reimbursement Period. The reimbursement period for this Agreement begins on July 1, 2019 and ends at the expiration of the Agreement.
- b. Extensions. There are extensions available for this Project.
- c. Service Periods. Additional service periods are not authorized under this Agreement.

3. Payment Provisions.

- a. Compensation. This is a cost reimbursement Agreement. The Grantee shall be compensated under this Agreement as described in Attachment 3.
- b. Invoicing. Invoicing will occur as indicated in Attachment 3.
- c. Advance Pay. Advance Pay is not authorized under this Agreement.

4. Cost Eligible for Reimbursement or Matching Requirements.

Reimbursement for costs or availability for costs to meet matching requirements shall be limited to the following budget categories, as defined in the Reference Guide for State Expenditures, as indicated:

<u>Reimbursement</u>	<u>Match</u>	<u>Category</u>
<input type="checkbox"/>	<input type="checkbox"/>	Salaries/Wages
		Overhead/Indirect/General and Administrative Costs:
<input type="checkbox"/>	<input type="checkbox"/>	a. Fringe Benefits, N/A.
<input type="checkbox"/>	<input type="checkbox"/>	b. Indirect Costs, N/A.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Contractual (Subcontractors)
<input type="checkbox"/>	<input type="checkbox"/>	Travel, in accordance with Section 112, F.S.
<input type="checkbox"/>	<input type="checkbox"/>	Equipment
<input type="checkbox"/>	<input type="checkbox"/>	Rental/Lease of Equipment
<input type="checkbox"/>	<input type="checkbox"/>	Miscellaneous/Other Expenses
<input type="checkbox"/>	<input type="checkbox"/>	Land Acquisition

5. Equipment Purchase.

No Equipment purchases shall be funded under this Agreement.

6. Land Acquisition.

There will be no Land Acquisitions funded under this Agreement.

7. Match Requirements

There is no match required on the part of the Grantee under this Agreement.

8. Insurance Requirements

Required Coverage. At all times during the Agreement the Grantee, at its sole expense, shall maintain insurance coverage of such types and with such terms and limits described below. The limits of coverage under each policy

maintained by the Grantee shall not be interpreted as limiting the Grantee's liability and obligations under the Agreement. All insurance policies shall be through insurers licensed and authorized to issue policies in Florida, or alternatively, Grantee may provide coverage through a self-insurance program established and operating under the laws of Florida. Additional insurance requirements for this Agreement may be required elsewhere in this Agreement, however the minimum insurance requirements applicable to this Agreement are:

- a. Commercial General Liability Insurance.
The Grantee shall provide adequate commercial general liability insurance coverage and hold such liability insurance at all times during the Agreement. The Department, its employees, and officers shall be named as an additional insured on any general liability policies. The minimum limits shall be \$250,000 for each occurrence and \$500,000 policy aggregate.
- b. Commercial Automobile Insurance.
If the Grantee's duties include the use of a commercial vehicle, the Grantee shall maintain automobile liability, bodily injury, and property damage coverage. Insuring clauses for both bodily injury and property damage shall provide coverage on an occurrence basis. The Department, its employees, and officers shall be named as an additional insured on any automobile insurance policy. The minimum limits shall be as follows:

\$200,000/300,000	Automobile Liability for Company-Owned Vehicles, if applicable
\$200,000/300,000	Hired and Non-owned Automobile Liability Coverage
- c. Workers' Compensation and Employer's Liability Coverage.
The Grantee shall provide workers' compensation, in accordance with Chapter 440, F.S. and employer liability coverage with minimum limits of \$100,000 per accident, \$100,000 per person, and \$500,000 policy aggregate. Such policies shall cover all employees engaged in any work under the Grant.
- d. Other Insurance. None.

9. Quality Assurance Requirements.

There are no special Quality Assurance requirements under this Agreement.

10. Retainage.

No retainage is required under this Agreement.

11. Subcontracting.

The Grantee may subcontract work under this Agreement without the prior written consent of the Department's Grant Manager except for certain fixed-price subcontracts pursuant to this Agreement, which require prior approval. The Grantee shall submit a copy of the executed subcontract to the Department prior to submitting any invoices for subcontracted work. Regardless of any subcontract, the Grantee is ultimately responsible for all work to be performed under this Agreement.

12. State-owned Land.

The work will not be performed on State-owned land.

13. Office of Policy and Budget Reporting.

The Grantee will identify the expected return on investment for this project and provide this information to the Governor's Office of Policy and Budget (OPB) within three months of execution of this Agreement. For each full calendar quarter thereafter, the Grantee will provide quarterly update reports directly to OPB, no later than 20 days after the end of each quarter, documenting the positive return on investment to the state that results from the Grantee's project and its use of funds provided under this Agreement. Quarterly reports will continue until the Grantee is instructed by OPB that no further reports are needed, or until the end of this Agreement, whichever occurs first. All reports shall be submitted electronically to OPB at env.roi@laspbs.state.fl.us, and a copy shall also be submitted to the Department at legislativeaffairs@floridaDEP.gov.

14. Additional Terms.

There are no additional terms under this Agreement.

**ATTACHMENT 3
GRANT WORK PLAN**

PROJECT TITLE: Indian River County North Relief Canal Aquatic Plant Project

PROJECT LOCATION: The Project will be located on Indian River County property within Indian River County; Lat/Long (27.6916, -80.4614).

PROJECT BACKGROUND: The Indian River Lagoon (IRL) is an impaired water body that has been impacted by large discharges of nitrogen and phosphorus into the watershed. The increased nutrient loading can contribute to algal blooms and reductions to the IRL's water quality, impacting aquatic flora and fauna. Indian River County (Grantee) has identified that the construction of a Regional Pollutant Removal Facility for the North Relief Canal would mitigate further nutrient loading impacts on the IRL. Approximately 6,300 acres contribute stormwater runoff and groundwater seepage into the North Relief Canal. The Project will reduce nitrogen pollution to the IRL by approximately 7,614 lbs of total nitrogen, and reduce phosphorous pollution by approximately 1,251 lbs of total phosphorous. The captured nutrients will be stored in harvested plant tissue and composted, and/or be used as cover material for the Grantee's landfill.

PROJECT DESCRIPTION: The Grantee will construct a Regional Pollutant Removal Facility that will use naturally occurring aquatic plants to absorb and remove dissolved nutrients from the North Relief Canal. The initial projected flow rate from the North Relief Canal into the RPRF will be an estimated 10 million gallons per day. The Project's main treatment module will be water lettuce scrubbers that will remove the majority of the nutrients and settleable suspended solids from the water. The water lettuce system will be followed by an algal treatment unit for reoxygenation and additional nutrient polishing of the water, and then followed by a final settling and wetland formation to offer additional detention time and further nutrient reduction.

The Grantee does not anticipate that the funding under this Agreement will result in a fully completed project, so this Agreement will cover a portion of the work.

TASKS:

All documentation should be submitted electronically unless otherwise indicated.

Task 1: Construction

Deliverables: The Grantee will construct a Regional Pollutant Removal Facility in accordance with the construction contract documents.

Documentation: The Grantee will submit a signed acceptance of the completed work to date by the Grantee and the Engineer's Certification of Payment Request.

Performance Standard: The Department's Grant Manager will review the documentation to verify that the deliverables are completed as described above. Upon review and written acceptance by the Department's Grant Manager, the Grantee may proceed with payment request submittal.

Payment Request Schedule: The Grantee may submit a payment request for cost reimbursement no more frequently than monthly.

PROJECT TIMELINE & BUDGET DETAIL: The tasks must be completed by, and all documentation received by, the corresponding task end date.

Task No.	Task Title	Budget Category	Budget Amount	Task Start Date	Task End Date
1	Construction	Contractual Services	\$650,000	07/01/2019	12/31/2021
Total:			\$650,000		

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Public Records Requirements**

Attachment 4

1. Public Records.

- a. If the Agreement exceeds \$35,000.00, and if Grantee is acting on behalf of Department in its performance of services under the Agreement, Grantee must allow public access to all documents, papers, letters, or other material, regardless of the physical form, characteristics, or means of transmission, made or received by Grantee in conjunction with the Agreement (Public Records), unless the Public Records are exempt from section 24(a) of Article I of the Florida Constitution or section 119.07(1), F.S.
- b. The Department may unilaterally terminate the Agreement if Grantee refuses to allow public access to Public Records as required by law.

2. Additional Public Records Duties of Section 119.0701, F.S., If Applicable.

For the purposes of this paragraph, the term "contract" means the "Agreement." If Grantee is a "contractor" as defined in section 119.0701(1)(a), F.S., the following provisions apply and the contractor shall:

- a. Keep and maintain Public Records required by Department to perform the service.
- b. Upon request, provide Department with a copy of requested Public Records or allow the Public Records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, F.S., or as otherwise provided by law.
- c. A contractor who fails to provide the Public Records to Department within a reasonable time may be subject to penalties under section 119.10, F.S.
- d. Ensure that Public Records that are exempt or confidential and exempt from Public Records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the Public Records to Department.
- e. Upon completion of the contract, transfer, at no cost, to Department all Public Records in possession of the contractor or keep and maintain Public Records required by Department to perform the service. If the contractor transfers all Public Records to Department upon completion of the contract, the contractor shall destroy any duplicate Public Records that are exempt or confidential and exempt from Public Records disclosure requirements. If the contractor keeps and maintains Public Records upon completion of the contract, the contractor shall meet all applicable requirements for retaining Public Records. All Public Records stored electronically must be provided to Department, upon request from Department's custodian of Public Records, in a format specified by Department as compatible with the information technology systems of Department. These formatting requirements are satisfied by using the data formats as authorized in the contract or Microsoft Word, Outlook, Adobe, or Excel, and any software formats the contractor is authorized to access.
- f. **IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, F.S., TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THE CONTRACT, CONTACT THE DEPARTMENT'S CUSTODIAN OF PUBLIC RECORDS AT:**

Telephone: (850) 245-2118

Email: public.services@floridadep.gov

Mailing Address: Department of Environmental Protection

ATTN: Office of Ombudsman and Public Services

Public Records Request

3900 Commonwealth Boulevard, MS 49

Tallahassee, Florida 32399

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Special Audit Requirements
(State and Federal Financial Assistance)

Attachment 5

The administration of resources awarded by the Department of Environmental Protection (*which may be referred to as the "Department", "DEP", "FDEP" or "Grantor", or other name in the agreement*) to the recipient (*which may be referred to as the "Recipient", "Grantee" or other name in the agreement*) may be subject to audits and/or monitoring by the Department of Environmental Protection, as described in this attachment.

MONITORING

In addition to reviews of audits conducted in accordance with 2 CFR Part 200, Subpart F-Audit Requirements, and Section 215.97, F.S., as revised (see "AUDITS" below), monitoring procedures may include, but not be limited to, on-site visits by DEP Department staff, limited scope audits as defined by 2 CFR 200.425, or other procedures. By entering into this Agreement, the recipient agrees to comply and cooperate with any monitoring procedures/processes deemed appropriate by the Department of Environmental Protection. In the event the Department of Environmental Protection determines that a limited scope audit of the recipient is appropriate, the recipient agrees to comply with any additional instructions provided by the Department to the recipient regarding such audit. The recipient further agrees to comply and cooperate with any inspections, reviews, investigations, or audits deemed necessary by the Chief Financial Officer (CFO) or Auditor General.

AUDITS

PART I: FEDERALLY FUNDED

This part is applicable if the recipient is a State or local government or a non-profit organization as defined in 2 CFR §200.330

1. A recipient that expends \$750,000 or more in Federal awards in its fiscal year, must have a single or program-specific audit conducted in accordance with the provisions of 2 CFR Part 200, Subpart F. EXHIBIT 1 to this Attachment indicates Federal funds awarded through the Department of Environmental Protection by this Agreement. In determining the federal awards expended in its fiscal year, the recipient shall consider all sources of federal awards, including federal resources received from the Department of Environmental Protection. The determination of amounts of federal awards expended should be in accordance with the guidelines established in 2 CFR 200.502-503. An audit of the recipient conducted by the Auditor General in accordance with the provisions of 2 CFR Part 200.514 will meet the requirements of this part.
2. For the audit requirements addressed in Part I, paragraph 1, the recipient shall fulfill the requirements relative to auditee responsibilities as provided in 2 CFR 200.508-512.
3. A recipient that expends less than \$750,00 in federal awards in its fiscal year is not required to have an audit conducted in accordance with the provisions of 2 CFR Part 200, Subpart F-Audit Requirements. If the recipient expends less than \$750,000 in federal awards in its fiscal year and elects to have an audit conducted in accordance with the provisions of 2 CFR 200, Subpart F-Audit Requirements, the cost of the audit must be paid from non-federal resources (i.e., the cost of such an audit must be paid from recipient resources obtained from other federal entities).
4. The recipient may access information regarding the Catalog of Federal Domestic Assistance (CFDA) via the internet at www.cfda.gov

PART II: STATE FUNDED

This part is applicable if the recipient is a nonstate entity as defined by Section 215.97(2), Florida Statutes.

1. In the event that the recipient expends a total amount of state financial assistance equal to or in excess of \$750,000 in any fiscal year of such recipient (for fiscal years ending June 30, 2017, and thereafter), the recipient must have a State single or project-specific audit for such fiscal year in accordance with Section 215.97, F.S.; Rule Chapter 69I-5, F.A.C., State Financial Assistance; and Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General. EXHIBIT 1 to this form lists the state financial assistance awarded through the Department of Environmental Protection by this agreement. In determining the state financial assistance expended in its fiscal year, the recipient shall consider all sources of state financial assistance, including state financial assistance received from the Department of Environmental Protection, other state agencies, and other nonstate entities. State financial assistance does not include federal direct or pass-through awards and resources received by a nonstate entity for Federal program matching requirements.
2. In connection with the audit requirements addressed in Part II, paragraph 1; the recipient shall ensure that the audit complies with the requirements of Section 215.97(8), Florida Statutes. This includes submission of a financial reporting package as defined by Section 215.97(2), Florida Statutes, and Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General.
3. If the recipient expends less than \$750,000 in state financial assistance in its fiscal year (for fiscal year ending June 30, 2017, and thereafter), an audit conducted in accordance with the provisions of Section 215.97, Florida Statutes, is not required. In the event that the recipient expends less than \$750,000 in state financial assistance in its fiscal year, and elects to have an audit conducted in accordance with the provisions of Section 215.97, Florida Statutes, the cost of the audit must be paid from the non-state entity's resources (i.e., the cost of such an audit must be paid from the recipient's resources obtained from other than State entities).
4. For information regarding the Florida Catalog of State Financial Assistance (CSFA), a recipient should access the Florida Single Audit Act website located at <https://apps.fldfs.com/fsaa> for assistance. In addition to the above websites, the following websites may be accessed for information: Legislature's Website at <http://www.leg.state.fl.us/Welcomes/index.cfm>, State of Florida's website at <http://www.myflorida.com/>, Department of Financial Services' Website at <http://www.fldfs.com/> and the Auditor General's Website at <http://www.myflorida.com/audgen/>.

PART III: OTHER AUDIT REQUIREMENTS

(NOTE: This part would be used to specify any additional audit requirements imposed by the State awarding entity that are solely a matter of that State awarding entity's policy (i.e., the audit is not required by Federal or State laws and is not in conflict with other Federal or State audit requirements). Pursuant to Section 215.97(8), Florida Statutes, State agencies may conduct or arrange for audits of State financial assistance that are in addition to audits conducted in accordance with Section 215.97, Florida Statutes. In such an event, the State awarding agency must arrange for funding the full cost of such additional audits.)

PART IV: REPORT SUBMISSION

1. Copies of reporting packages for audits conducted in accordance with 2 CFR Part 200, Subpart F-Audit Requirements, and required by PART I of this form shall be submitted, when required by 2 CFR 200.512, by or on behalf of the recipient directly to the Federal Audit Clearinghouse (FAC) as provided in 2 CFR 200.36 and 200.512
 - A. The Federal Audit Clearinghouse designated in 2 CFR §200.501(a) (the number of copies required by 2 CFR §200.501(a) should be submitted to the Federal Audit Clearinghouse), at the following address:

By Mail:

Federal Audit Clearinghouse
Bureau of the Census
1201 East 10th Street
Jeffersonville, IN 47132

Submissions of the Single Audit reporting package for fiscal periods ending on or after January 1, 2008, must be submitted using the Federal Clearinghouse's Internet Data Entry System which can be found at <http://harvester.census.gov/facweb/>

2. Copies of financial reporting packages required by PART II of this Attachment shall be submitted by or on behalf of the recipient directly to each of the following:

- A. The Department of Environmental Protection at one of the following addresses:

By Mail:

Audit Director
Florida Department of Environmental Protection
Office of Inspector General, MS 40
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Electronically:

FDEPSingleAudit@dep.state.fl.us

- B. The Auditor General's Office at the following address:

Auditor General
Local Government Audits/342
Claude Pepper Building, Room 401
111 West Madison Street
Tallahassee, Florida 32399-1450

The Auditor General's website (<http://flauditor.gov/>) provides instructions for filing an electronic copy of a financial reporting package.

3. Copies of reports or management letters required by PART III of this Attachment shall be submitted by or on behalf of the recipient directly to the Department of Environmental Protection at one of the following addresses:

By Mail:

Audit Director
Florida Department of Environmental Protection
Office of Inspector General, MS 40
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Electronically:

FDEPSingleAudit@dep.state.fl.us

4. Any reports, management letters, or other information required to be submitted to the Department of Environmental Protection pursuant to this Agreement shall be submitted timely in accordance with 2 CFR 200.512, section 215.97, F.S., and Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General, as applicable.

5. Recipients, when submitting financial reporting packages to the Department of Environmental Protection for audits done in accordance with 2 CFR 200, Subpart F-Audit Requirements, or Chapters 10.550 (local governmental entities) and 10.650 (non and for-profit organizations), Rules of the Auditor General, should indicate the date and the reporting package was delivered to the recipient correspondence accompanying the reporting package.

PART V: RECORD RETENTION

The recipient shall retain sufficient records demonstrating its compliance with the terms of the award and this Agreement for a period of **five (5)** years from the date the audit report is issued, and shall allow the Department of Environmental Protection, or its designee, Chief Financial Officer, or Auditor General access to such records upon request. The recipient shall ensure that audit working papers are made available to the Department of Environmental Protection, or its designee, Chief Financial Officer, or Auditor General upon request for a period of **three (3)** years from the date the audit report is issued, unless extended in writing by the Department of Environmental Protection.

EXHIBIT – 1

FUNDS AWARDED TO THE RECIPIENT PURSUANT TO THIS AGREEMENT CONSIST OF THE FOLLOWING:

Note: If the resources awarded to the recipient represent more than one federal program, provide the same information shown below for each federal program and show total federal resources awarded

Federal Resources Awarded to the Recipient Pursuant to this Agreement Consist of the Following:					
Federal Program A	Federal Agency	CFDA Number	CFDA Title	Funding Amount	State Appropriation Category
				\$	
Federal Program B	Federal Agency	CFDA Number	CFDA Title	Funding Amount	State Appropriation Category
				\$	

Note: Of the resources awarded to the recipient represent more than one federal program, list applicable compliance requirements for each federal program in the same manner as shown below:

Federal Program A	First Compliance requirement: i.e.: (what services of purposes resources must be used for)	
	Second Compliance requirement: i.e.: (eligibility requirement for recipients of the resources)	
	Etc.	
	Etc.	
Federal Program B	First Compliance requirement: i.e.: (what services of purposes resources must be used for)	
	Second Compliance requirement: i.e.: (eligibility requirement for recipients of the resources)	
	Etc.	
	Etc.	

Note: If the resources awarded to the recipient for matching represent more than one federal program, provide the same information shown below for each federal program and show total state resources awarded for matching.

State Resources Awarded to the Recipient Pursuant to this Agreement Consist of the Following Matching Resources for Federal Programs:					
Federal Program A	Federal Agency	CFDA	CFDA Title	Funding Amount	State Appropriation Category
Federal Program B	Federal Agency	CFDA	CFDA Title	Funding Amount	State Appropriation Category

Note: If the resources awarded to the recipient represent more than one state project, provide the same information shown below for each state project and show total state financial assistance awarded that is subject to section 215.97, F.S.

State Resources Awarded to the Recipient Pursuant to this Agreement Consist of the Following Resources Subject to Section 215.97, F.S.:						
State Program A	State Awarding Agency	State Fiscal Year	CSFA Number	CSFA Title or Funding Source Description	Funding Amount	State Appropriation Category
Original Agreement	Dept. of Environmental Protection, GAA Line Item 1657A	2019-2020	37.039	Statewide Surface Water Restoration and Wastewater Projects	\$650,000	140047
State Program B	State Awarding Agency	State Fiscal Year	CSFA Number	CSFA Title or Funding Source Description	Funding Amount	State Appropriation Category

Total Award	\$650,000	
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Note: List applicable compliance requirement in the same manner as illustrated above for federal resources. For matching resources provided by the Department for DEP for federal programs, the requirements might be similar to the requirements for the applicable federal programs. Also, to the extent that different requirements pertain to different amount for the non-federal resources, there may be more than one grouping (i.e. 1, 2, 3, etc) listed under this category.

For each program identified above, the recipient shall comply with the program requirements described in the Catalog of Federal Domestic Assistance (CFDA) [www.cfda.gov] and/or the Florida Catalog of State Financial Assistance (CSFA) [https://apps.fldfs.com/fsaa/searchCatalog.aspx], and State Projects Compliance Supplement (Part Four: State Projects Compliance Supplement [https://apps.fldfs.com/fsaa/state_project_compliance.aspx]). The services/purposes for which the funds are to be used are included in the Agreement's Grant Work Plan. Any match required by the Recipient is clearly indicated in the Agreement.

Attachment 5, Exhibit 1

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**Exhibit A
Progress Report Form**

DEP Agreement No.:	LPA0018
Project Title:	Indian River County North Relief Canal Aquatic Plant Project
Grantee Name:	Indian River County
Grantee's Grant Manager:	Keith McCully, P.E.
Reporting Period:	

Provide the following information for all tasks identified in the Grant Work Plan:

Summarize the work completed within each task for the reporting period. Provide an update on the estimated completion date for each task and an explanation for any anticipated delays or problems encountered. Add or remove task sections and use as many pages as necessary to cover all tasks. Use the format provided below.

Task #: Task Title

- **Progress for this reporting period:** Add Text
- **Identify any delays or problems encountered:** Add Text

Task #: Task Title

- **Progress for this reporting period:** Add Text
- **Identify any delays or problems encountered:** Add Text

Indicate the completion status for the following tasks (if included in the Grant Work Plan):

- **Design (Plans/Submittal):** 30% , 60% , 90% , 100%
- **Permitting (Completed):** Yes , No
- **Construction (Estimated):** _____ %

This report is submitted in accordance with the reporting requirements of the above DEP Agreement number and accurately reflects the activities associated with the project.

Signature of Grantee's Grant Manager

Date

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**Exhibit C
Payment Request Summary Form**

The **Payment Request Summary Form** for this grant can be found on our website at this link:

<https://floridadep.gov/wra/wra/documents/payment-request-summary-form>

Please use the most current form found on the website, linked above, for each payment request.