

Bid Set



**CONTRACT DOCUMENTS AND SPECIFICATIONS
FOR
58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET)
FULL DEPTH RECLAMATION**

BID NO. 2020021

PROJECT NO. IRC-1325

FM NO. 436416-1-54-01

PREPARED FOR
THE BOARD OF COUNTY COMMISSIONERS
INDIAN RIVER COUNTY, FLORIDA
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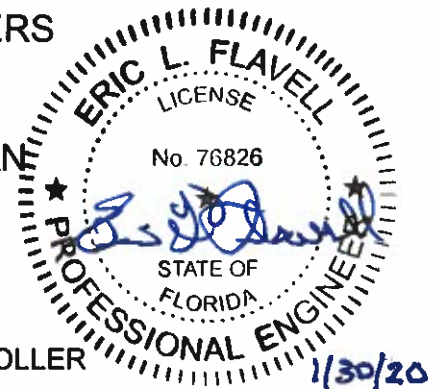


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SECTION 00100 - Advertisement for Bids

BOARD OF COUNTY COMMISSIONERS

1801 27th Street
Vero Beach, Florida 32960



**ADVERTISEMENT FOR BIDS
INDIAN RIVER COUNTY**

Sealed bids will be received by Indian River County until 2:00 P.M. on **Wednesday, March 11, 2020**. Each bid shall be submitted in a sealed envelope and shall bear the name and address of the bidder on the outside and the words "**58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION and Bid No. 2020021**". Bids should be addressed to Purchasing Division, Room B1-301, 1800 27th Street, Vero Beach, Florida 32960. All bids will be opened publicly and read aloud at 2:00 P.M. All bids received after 2:00 P.M., on the day specified above, will not be accepted or considered.

**INDIAN RIVER COUNTY PROJECT NO. IRC-1325
INDIAN RIVER COUNTY BID NO. 2020021**

PROJECT DESCRIPTION: *The proposed improvements to 58th Avenue from north of 57th Street to 85th Street and 69th Street from Sta 11+84 to Sta 30+47 consist of reconstructing the roadway utilizing full depth reclamation, milling and resurfacing, widening the existing shoulders to 5-feet, structural asphalt, surface asphalt, drainage improvements, waterline directional bore, utility adjustments, signing, and pavement markings. This project is an F.D.O.T. Small County Outreach Program (SCOP) funded project, FM No. 436416-1-54-01.*

All material and equipment furnished and all work performed shall be in strict accordance with the plans, specifications, and contract documents pertaining thereto. Copies of the documents are available at: www.demandstar.com or by contacting the Purchasing Division at (772) 226-1416 or purchasing@ircgov.com. All communications concerning this bid shall be directed to IRC Purchasing Division at purchasing@ircgov.com.

All bidders shall submit one (1) original and one (1) copy of the Bid Proposal forms provided within the specifications. Please note that the questionnaire must be filled out completely including the financial statement. 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 in a Contract with the County and furnish the required 100% Public Construction Bond and certificates of insurance 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 penalty.

The County reserves the right to delay awarding of the Contract for a period of **ninety (90)** days after the bid opening, to waive informalities in any bid, or reject any or all bids in whole or in part with or without cause/or to accept the bid that, in its judgement, will serve the best interest of Indian River County, Florida. The County will not reimburse any Bidder for bid preparation costs.

A **MANDATORY** Pre-Bid Conference will be held on **Wednesday, February 19, 2020** at **10:00 A.M.**, in the first-floor conference room **A1-303** of the Indian River County Administration Building located at 1801 27th Street, Vero Beach, Florida, 32960. ATTENDANCE AT THIS CONFERENCE BY ALL BIDDERS IS **REQUIRED**. **No bidder arriving after the meeting has begun will be allowed to sign in.**

INDIAN RIVER COUNTY

By: Jennifer Hyde
Purchasing Manager

For Publication in the Indian River Press Journal

Dates: **February 9, 2020** and **February 16, 2020**

For: Indian River Press Journal

Please furnish tear sheet and Affidavit of Publication to:

INDIAN RIVER COUNTY
PURCHASING DIVISION
1800 27th Street
Building "B"
Vero Beach, FL 32960

**** END OF SECTION ****

SECTION 00101 – Statement of No Bid

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:

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SECTION 00200 - Instructions to Bidders

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary 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. Issuing Office--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
- C. 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.
- D. ENGINEER—References County Engineer or their designee.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement for Bids or Invitation to Bid may be obtained from the Issuing Office.

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 To demonstrate Bidder's qualifications to perform the Work, within five days of OWNER's request Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.

- A. Bidder must have at least five years' experience in (full depth reclamation) construction projects (as defined in Division 2 Technical Provisions section of this document) of this size and larger.
- B. Bidder must have successfully constructed, as prime CONTRACTOR, at least three projects shall be of the same size and scope to this project.
- C. Bidder must have good recommendations from at least three clients similar to the OWNER.

- D. The Bidder's superintendent and assistants must be qualified and experienced in similar projects in all categories.
- E. Bidder must be able to provide evidence of authority to conduct business in the jurisdiction in which the project is located.

3.02 Each bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.

3.03 The OWNER reserves the right to reject bids from Bidders that are unable to meet the listed required qualifications.

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

4.01 Subsurface and Physical Conditions

A. 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 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 been identified and established in paragraph 4.02 of the Supplementary 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 Supplementary 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. 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 request directed to the Purchasing Division (purchasing@ircgov.com or (772) 226-1416), 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 holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.06 “[This paragraph has been deleted intentionally]”

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 AND 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. carefully study all 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 Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and carefully study all reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions;

E. 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;

F. 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;

G. 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;

H. 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;

I. 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

J. 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 **MANDATORY** Pre-Bid conference are specified in the Advertisement for Bids. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are **REQUIRED** 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. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided 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 to PURCHASING (purchasing@ircgov.com) in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered 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 OWNER in the amount of five percent of the Bidder's maximum base bid price and in the form of a certified check; cashier's check; or an AIA Document A310 Bid Bond issued by a surety meeting the requirements of Paragraph 5.01 of the General Conditions. The Bid Bond 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 Surety must be authorized to issue surety bonds in Florida. The Bidder 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 Successful Bidder 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. The Surety shall also meet the requirements of paragraphs 5.01 and 5.02 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be retained by the owner. The Bid Security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of seven days after the Effective Date of the Agreement or 91 days after the Bid opening, whereupon Bid Security furnished by such Bidders will be returned.

8.03 Bid Security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

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 and may be supplemented in the General Requirements.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 If the Supplementary Conditions 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, 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.

ARTICLE 13 - PREPARATION OF BID

13.01 The Bid form is included with the Bidding Documents. Only the bid form provided by OWNER is acceptable (Bidders are not to recreate the bid form).

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, or the words "No Bid," "No Change," or "Not Applicable" entered.

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 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. All permit, impact, or inspection fees payable to Indian River County in

connection with the work on this County project will be paid by Indian River County, with the exception of re-inspection fees. The Bidder shall not include ANY PERMIT, IMPACT, NOR INSPECTION FEES payable to **Indian River County** in the bid.

ARTICLE 14 - BASIS OF BID; EVALUATION OF BIDS

14.01 Unit Price

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.

B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with paragraph 11.03 of the General Conditions.

C. 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 is to be completed and submitted with the Bid security and the following data:

- A. Sworn Statement under Section 105.08, Indian River County Code, on Disclosure of Relationships.
- B. Sworn Statement under the Florida Trench Safety Act.
- C. Qualifications Questionnaire.
- D. List of Subcontractors.
- E. Certification Regarding Prohibition Against Contracting with Scrutinized Companies

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 Bid Number (and, if applicable, the designated portion of the Project for which the Bid is submitted), Bid Number, the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If mail or other delivery system sends a Bid, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to Indian River County, Purchasing Division, 1800 27th Street, Vero Beach, Florida, 32960.

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 the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will 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 made available to Bidders after the opening of Bids.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time 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 technicalities and informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder. The County will not reimburse any Bidder for bid preparation costs. Owner reserves the right to cancel the award of any Contract at any time before the execution of such Contract by all parties without any liability to the Owner. For and in consideration of the Owner considering Bids submitted, the Bidder, by

submitting its Bid, expressly waives any claim to damages, of any kind whatsoever, in the event the Owner exercises its right to cancel the award in accordance herewith.

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 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 may 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 as provided in the Supplementary Conditions.

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 set forth 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 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.

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.

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.

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, as may be modified by the Supplementary Conditions, sets forth OWNER's requirements as to Public Construction Bond and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required insurance certificate(s) and Bond, unless the Bond has been waived due to the total contract being less than \$100,000.

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.

**** END OF SECTION ****

SECTION 00300 - Bid Package Contents

THIS PACKAGE CONTAINS:

<u>SECTION TITLE</u>	<u>SECTION NUMBER</u>
Bid Form	00310
Bid Bond	00430
Sworn Statement on Disclosure of Relationships	00452
Sworn Statement Under the Florida Trench Safety Act	00454
Qualifications Questionnaire	00456
List of Subcontractors	00458
Certification Regarding Prohibition Against Contracting with Scrutinized Companies	00460

SUBMIT ONE (1) ORIGINAL AND ONE (1) COPY OF THIS COMPLETE PACKAGE WITH YOUR BID

*** * END OF SECTION * ***

SECTION 00310 - Bid Form

PROJECT IDENTIFICATION:

Project Name: **58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION**

County Project Number: **IRC-1325**

Bid Number: **2020021**

Project Address: **58th Avenue (North of 57th Street to 85TH Street)
Vero Beach, Florida 32967**

Project Description: ***The proposed improvements to 58th Avenue from north of 57th Street to 85th Street and 69th Street from Sta 11+84 to Sta 30+47 consist of reconstructing the roadway utilizing full depth reclamation, milling and resurfacing, widening the existing shoulders to 5-foot, structural asphalt, surface asphalt, drainage improvements, waterline directional bore, utility adjustments, signing, and pavement markings. This project is an F.D.O.T. Small County Outreach Program (SCOP) funded project, FM No. 436416-1-54-01***

THIS BID IS SUBMITTED TO:

INDIAN RIVER COUNTY
 1800 27th Street
 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 the 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 90 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 Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General 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.

ITEMIZED BID SCHEDULE

PROJECT NAME: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION

PROJECT NO: IRC-1325 BID NO. 2020021

FM NO: 436416-1-54-01

BIDDER'S NAME: _____

Item No.	Description	Unit	Unit Price	Quantity	Amount
101-1	MOBILIZATION	LS \$		1	\$
102-1	MAINTENANCE OF TRAFFIC PREVENTION, CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION	LS \$		1	\$
104-1		LS \$		1	\$
110-1-1	CLEARING & GRUBBING	LS \$		1	\$
110-7-1	MAILBOX RELOCATION	EA \$		37	\$
120-1	REGULAR EXCAVATION	CY \$		6,700	\$
120-1A	EXCAVATION OF EXISTING ASPHALT AND BASE	SF \$		5,000	\$
120-2	BORROW EXCAVATION (RECLAIMED FDR)	CY \$		6,000	\$
120-6	EMBANKMENT	CY \$		4,150	\$
121-70	FLOWABLE FILL (NON-EXCAVATABLE)	CY \$		200	\$
160-4	TYPE B STABILIZATION, 3' SHOULDER & WIDENING (LBR 40), 12"	SY \$		22,000	\$
285-709	OPTIONAL BASE, GROUP 9, (LBR 100) LIMEROCK	CY \$		600	\$
327-70-6	MILL EXISTING ASPHALT (1.5" AVERAGE DEPTH)	SY \$		3,000	\$
332-1	RECLAIMED ASPHALT BASE COURSE (FULL DEPTH RECLAMATION), 12"	SY \$		72,000	\$
332-2	ASPHALT EMULSION TYPE CSS-1h - PAYMENT WILL BE BASED ON ACTUAL QUANTITY	GAL \$		260,000	\$
332-3	CEMENT TYPE 1 OR TYPE 2 - PAYMENT WILL BE BASED ON ACTUAL QUANTITY	TN \$		1,400	\$
334-1-13A	TYPE SP - 12.5 ASPHALTIC CONCRETE (2" THICK)	SY \$		86,000	\$
334-1-13B	TYPE SP - 12.5, ASPHALTIC CONCRETE CONFORM (VARIABLE THICKNESS)	TN \$		900	\$
334-1-13C	TYPE SP - 12.5, ASPHALTIC CONCRETE DRIVEWAY, (1-1/2") REMOVE AND REPLACE	SY \$		400	\$
337-7-82	TYPE F.C. - 9.5 ASPHALTIC CONCRETE (1" THICK)	SY \$		89,000	\$

ITEMIZED BID SCHEDULE

PROJECT NAME: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION

PROJECT NO: IRC-1325 BID NO. 2020021 FM NO: 436416-1-54-01

BIDDER'S NAME: _____

Item No.	Description	Unit	Unit Price	Quantity	Amount
400-4-2A	CONCRETE HEADWALL (INCLUDE STEEL)	EA \$		1	\$
425-2-14	MANHOLE ALT A, 4', P-7, <10'	EA \$		3	\$
425-3-81	JUNCTION BOX, DRAINAGE, SPECIAL,<10', 6'X10'	EA \$		1	\$
425-3-81A	JUNCTION STRUCTURE, TYPE E,<10'	EA \$		2	\$
425-5	MANHOLE ADJUSTMENT	EA \$		4	\$
425-5A	VAULT ADJUSTMENT	EA \$		9	\$
425-6	VALVE BOX ADJUSTMENT	EA \$		79	\$
425-6A	FIRE HYDRANT ADJUSTMENT	EA \$		4	\$
425-6B	FIRE HYDRANT RELOCATION	EA \$		6	\$
425-15-21	DITCH BOTTOM INLET, TYPE C,<10'	EA \$		4	\$
430 -175 -112	PIPE CULVERT, RCP, ROUND,12", S/CD	LF \$		55	\$
430 -175 -112A	PIPE CULVERT, CMP,ROUND,12",S/CD	LF \$		20	\$
430 -175 -115A	PIPE CULVERT, CMP,ROUND,15", S/CD	LF \$		185	\$
430-175-118	PIPE CULVERT, RCP, ELLIPTICAL, 23"X14", S/CD	LF \$		84	\$
430 -175 -124	PIPE CULVERT, RCP,ROUND,24",S/CD	LF \$		327	\$
430 -175 -124A	PIPE CULVERT, CMP,ROUND,24",S/CD	LF \$		10	\$
430-175-148	PIPE CULVERT, RCP, ROUND, 48" S/CD	LF \$		155	\$
430-175-152	PIPE CULVERT, RCP, ROUND, 52" S/CD (FIELD VERIFY)	LF \$		10	\$
430-175-276	PIPE CULVERT, RCP, ELLIPTICAL, 76" x 48" S/CD (FIELD VERIFY)	LF \$		10	\$
430-982-121	MITERED END SECTION,RCP,ROUND,12"	EA \$		2	\$

ITEMIZED BID SCHEDULE

PROJECT NAME: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION

PROJECT NO: IRC-1325 BID NO. 2020021

FM NO: 436416-1-54-01

BIDDER'S NAME: _____

Item No.	Description	Unit	Unit Price	Quantity	Amount
430-982-123	MITERED END SECTION,CMP,ROUND,15"	EA \$		6	\$
430-982-129	MITERED END SECTION,CMP,ROUND,24"	EA \$		1	\$
430-982-129A	MITERED END SECTION,RCP,ROUND,24"	EA \$		4	\$
430-982-625	MITERED END SECTION, RCP,ELLIPTICAL,18"X12"	EA \$		5	\$
520-1-10	CONCRETE CURB & GUTTER, TYPE F	LF \$		350	\$
0520-2-1	CONCRETE CURB, TYPE A	LF \$		40	\$
522-1	CONCRETE, 6" THICK, FIBER REINFORCED SIDEWALK, REMOVE & REPLACE	SY \$		70	\$
522-1A	HC RAMP, 6" THICK, REMOVE AND REPLACE	SF \$		240	\$
522-2	DRIVEWAY CONCRETE, 6" THICK, REMOVE AND REPLACE	SF \$		1,550	\$
522-4	BUS SHELTER PAD - CONCRETE, 8", REINFORCED	SF \$		320	\$
527-2	DETECTABLE WARNING STRIPS	SF \$		265	\$
530-3-3A	RIP RAP, RUBBLE, BANK AND SHORE	CY \$		600	\$
536-1-1A	GUARDRAIL, LONG STEEL POSTS WITH A.C. PAVEMENT	LF \$		1,690	\$
536-85-24	GUARDRAIL END ANCHORAGE ASSEMBLY PARALLEL WITH A.C. PAVEMENT	EA \$		6	\$
550-10-231	FENCE, TYPE B WITH BARBED WIRE	LF \$		75	\$
570-1-2	PERFORMANCE TURF - SOD (BAHIA OR MATCH EXIST)	SY \$		44,500	\$
630-2-11A	CONDUIT (INCLUDES 2-2" DIA.HDPE), F&I, OPEN TRENCH	LF \$		15,000	\$
630-2-12A	CONDUIT (INCLUDES 2-2" DIA.HDPE), F&I, DIRECTIONAL DRILL	LF \$		2,200	\$
635-2-12A	PULL BOX, F&I, WITH 6" FIBER CONCRETE COLLAR	EA \$		27	\$
700-1-11	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS \$		2	\$

ITEMIZED BID SCHEDULE

PROJECT NAME: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION

PROJECT NO: IRC-1325 BID NO. 2020021

FM NO: 436416-1-54-01

BIDDER'S NAME:

Item No.	Description	Unit	Unit Price	Quantity	Amount
700-1-50	SINGLE POST SIGN, RELOCATE	AS \$		28	\$
700-1-60	SINGLE POST SIGN, REMOVE	AS \$		8	\$
700-3-601	SIGN PANEL, REMOVE, UP TO 12 SF	EA \$		8	\$
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	EA \$		1,365	\$
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS (BLUE/BLUE)	EA \$		22	\$
711-11-123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12" FOR CROSSWALK AND ROUNDABOUT	LF \$		255	\$
711-11-125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE AND CROSSWALK	LF \$		219	\$
711-11-141	THERMOPLASTIC, STANDARD, WHITE, 2'-4" DOTTED GUIDELINE/ 6'-10' GAP EXTENSION, 6"	GM \$		0.00	\$
711-11-170	THERMOPLASTIC, STANDARD, WHITE, ARROW	EA \$		39	\$
711-11-224	THERMOPLASTIC, STANDARD, YELLOW, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF \$		850	\$
711-11-241	THERMOPLASTIC, STANDARD, YELLOW, 2'-4" DOTTED GUIDELINE/ 6'-10' GAP EXTENSION, 6"	GM \$		0.00	\$
711-14-160	THERMOPLASTIC, PREFORMED, WHITE, MESSAGE	EA \$		31	\$
711-14-170	THERMOPLASTIC, PREFORMED, WHITE, ARROW (BIKE THRU)	EA \$		31	\$
711-16-101	THERMOPLASTIC, STANDARD-OTHER SURFACES, WHITE, SOLID, 6"	GM \$		7.97	\$
711-16-201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	GM \$		7.02	\$
711-16-231	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SKIP, 6"	GM \$		1.04	\$
SUB-TOTAL OF ROADWAY IMPROVEMENTS					\$
SIGNALIZATION					
630-2-11	CONDUIT, F&I, OPEN TRENCH	LF \$		28	\$
630-2-14	CONDUIT, F&I, ABOVEGROUND	LF \$		25	\$

ITEMIZED BID SCHEDULE

PROJECT NAME: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION

PROJECT NO: IRC-1325 BID NO. 2020021

FM NO: 436416-1-54-01

BIDDER'S NAME:

Item No.	Description	Unit	Unit Price	Quantity	Amount
632-7-1	SIGNAL CABLE - NEW OR RECONSTRUCTED INTERSECTION, FURNISH & INSTALL	PI \$		1	\$
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	EA \$		12	\$
633-3-11	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE ENCLOSURE	EA \$		1	\$
633-3-15	FIBER OPTIC CONNECTION HARDWARE, F&I, PRETERMINATED PATCH PANEL	EA \$		1	\$
634-4-153	SPAN WIRE ASSEMBLY, F&I, TWO POINT, BOX	PI \$		1	\$
635-2-11	PULL & SPLICE BOX, F&I, 13"X24" COVER SIZE	EA \$		4	\$
635-2-12	PULL & SPLICE BOX, F&I, 24" X 36" COVER SIZE	EA \$		1	\$
639-1-122	ELECTRICAL POWER SERVICE, F&I, UG, METER PURCHASED BY CONTRACTOR	AS \$		1	\$
639-2-1	ELECTRICAL SERVICE WIRE, FURNISH & INSTALL	LF \$		100	\$
641-2-18	PRESTRESSED CONCRETE POLE, F&I, TYPE P-VIII	EA \$		4	\$
641-2-80	PRESTRESSED CONCRETE POLE, COMPLETE REMOVAL	EA \$		2	\$
650-1-24	TRAFFIC SIGNAL, FURNISH & INSTALL POLYCARBONATE W/ALUM TOP, 3 SECTION, 1 WAY	AS \$		4	\$
650-1-29	TRAFFIC SIGNAL, FURNISH & INSTALL POLYCARBONATE W ALUMIN, 5 SECTION CLUSTER, 1 WAY	AS \$		4	\$
660-4-11	VEHICLE DETECTION SYSTEM- VIDEO, F&I CABINET EQUIPMENT	EA \$		1	\$
660-4-12	VEHICLE DETECTION SYSTEM- VIDEO, F&I ABOVE GROUND EQUIPMENT	EA \$		4	\$
670-5-111	TRAFFIC CONTROLLER ASSEMBLY, F&I	AS \$		1	\$
684-1-1	MANAGED FIELD ETHERNET SWITCH, FURNISH & INSTALL	EA \$		1	\$
700-5-22	INTERNALLY ILLUMINATED SIGN, F&I, OVERHEAD MOUNT, 12-18 SF	EA \$		4	\$
715-5-31	LUMINAIRE & BRACKET ARM, F&I, ALUMINUM	EA \$		4	\$
999-1	RECORD DRAWINGS/AS-BUILTS	LS \$		1	\$

ITEMIZED BID SCHEDULE

PROJECT NAME: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION

PROJECT NO: IRC-1325 BID NO. 2020021 FM NO: 436416-1-54-01

BIDDER'S NAME: _____

Item No.	Description	Unit	Unit Price	Quantity	Amount
SUB-TOTAL OF SIGNALIZATION IMPROVEMENTS					
WATER MAIN RELOCATION					
101-1A	MOBILIZATION	LS \$		1	\$
102-1A	MAINTENANCE OF TRAFFIC	LS \$		1	\$
104-1A	EROSION CONTROL	LS \$		1	\$
110-1-1A	CLEARING AND GRUBBING	LS \$		1	\$
120-1B	EXCAVATION AND EMBANKMENT	LS \$		1	\$
285-706	OPTIONAL BASE COURSE 8" LIMEROCK (LBR=100)	SY \$		640	\$
334-1-13D	SUPERPAVE ASPHALT CONCRETE, 2" SP 12.5	SY \$		580	\$
570-1-2A	SOD AND SITE RESTORATION	SY \$		900	\$
630-2-11B	4-2" CONDUITS	LF \$		560	\$
1050-11-425A	FURNISH AND INSTALL 20" DIP WATER MAIN	LF \$		40	\$
1050-42-224A	FURNISH AND INSTALL 24" HDPE HDD	LF \$		560	\$
1055-11-4A	FURNISH AND INSTALL FITTINGS AND APPURTENANCES	TN \$		5	\$
1080-11-404A	FURNISH, INSTALL AND REMOVE 12" BYPASS ASSEMBLY	LS \$		1	\$
1080-11-506A	FURNISH AND INSTALL AIR RELEASE VALVE AND VAULT	EA \$		1	\$
1080-11-512A	SAMPLE POINTS	EA \$		2	\$
1080-11-512B	PIGGING AND FLUSHING	LS \$		1	\$
1080-11-512C	DISINFECTION AND TESTING	LS \$		1	\$
1080-23-120A	FURNISH AND INSTALL 20" X 12" WET TAP ASSEMBLY	EA \$		2	\$
1080-24-112A	FURNISH AND INSTALL 12" GATE VALVE	EA \$		2	\$

ITEMIZED BID SCHEDULE

PROJECT NAME: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION

PROJECT NO: IRC-1325 BID NO. 2020021 FM NO: 436416-1-54-01

BIDDER'S NAME: _____

Item No.	Description	Unit	Unit Price	Quantity	Amount
1080-24-120A	FURNISH AND INSTALL 20" GATE VALVE	EA \$		2	\$
1080-27-120A	FURNISH AND INSTALL 20" LINE STOP	EA \$		2	\$
SUB-TOTAL OF WATER MAIN RELOCATION					\$
WATER MAIN FORCE ACCOUNT					\$ 58,203.24
SUB-TOTAL OF ROADWAY AND SIGNALIZATION IMPROVEMENTS					\$
FORCE ACCOUNT					\$ 687,299.53
TOTAL PROJECT BID AMOUNT (INCLUDING FORCE ACCOUNTS)					\$

LS=Lump Sum EA=Each CY=Cubic Yard SY=Square Yard GAL=Gallon TN=Ton LF=Linear Feet
 SF=Square Foot AS=Assembly GM=Gross Mile PI=Per Intersection

NOTE: IF THERE IS A DISCREPANCY BETWEEN THE PLANS (SUMMARY OF PAY ITEMS) AND THE ITEMIZED BID SCHEDULE, THE BID SCHEDULE WILL BE UTILIZED FOR BIDDING PURPOSES.

TOTAL PROJECT BID AMOUNT IN WORDS

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

- A. The 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.
- 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.

6.01 Bidder agrees that the Work will be substantially 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. Itemized Bid Schedule;
- B. Required Bid security in the form of _____;
- C. Sworn Statement under Section 15.08, Indian River Code, on Disclosure of Relationships;
- C. Sworn Statement Under the Florida Trench Safety Act;
- D. Qualifications Questionnaire;
- E. List of Subcontractors;
- G. Certification Regarding Prohibition Against Contracting with Scrutinized Companies

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

SUBMITTED on _____, 20__.

State Contractor License No. _____

If Bidder is:

An Individual

Name (typed or printed): _____

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

Doing business as: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

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.: _____

Email: _____

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.: _____

Email: _____

Date of Qualification to do business is _____.

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.: _____

Email: _____

Joint Venture Name: _____ (SEAL)

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

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

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 ****

SECTION 00430

AIA DOCUMENT A310 BID BOND

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

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 Bid, Proposal or Contract No. 2020021
for 58th AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH

RECLAMATION

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)

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 Project No. IRC-1325 for 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION.

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 is _____
(Print Name of Individual Signing)
(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.

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 – QUALIFICATIONS QUESTIONNAIRE

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

Documentation Submitted with Project No: IRC-1325

Project Name: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION

1. Bidder's Name / Address: _____

2. Bidder's Telephone & FAX Numbers: _____

3. Licensing and Corporate Status:
 - a. Is Contractor License current? _____
 - b. Bidder's Contractor License No: _____ [Attach a copy of Contractor's License to the bid]
 - c. 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.
4. Number of years the firm has performed business as a Contractor in construction work of the type involved in this contract: _____
5. What is the last project OF THIS NATURE that the firm has completed?

6. Has the firm ever failed to complete work awarded to you? _____

[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.]
7. 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.]
8. 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.]

9. Has the firm implemented a drug-free workplace program in compliance with Florida Statute 287.087? _____
(In the case of a tie, preference will be given to businesses with drug-free workplace programs)
10. 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.]
11. Attach to this questionnaire, a notarized financial statement and other information that documents the firm's financial strength and history.
12. 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.]
13. Attach a separate page to this questionnaire that summarizes the firm's current workload and that demonstrates its ability to meet the project schedule.
14. Name of person who inspected the site of the proposed work for the firm:
Name: _____ Date of Inspections: _____
15. Name of on-site Project Foreman: _____
Number of years of experience with similar projects as a Project Foreman: _____
16. Name of Project Manager: _____
Number of years of experience with similar projects as a Project Manager: _____
17. State your total bonding capacity: _____
18. State your bonding capacity per job: _____
19. Please provide name, address, telephone number, and contact person of your bonding company: _____

[The remainder of this page was left blank intentionally]

20. Complete the following table for SIMILAR projects:

Name of Project	Date Completed	Owner	Contact Person: Name/ Email Address/Phone	Original Contract Amount	Final Contract Amount

SECTION 00458 - List of Subcontractors

The Bidder **MUST** 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, additions, changes or substitutions will not be allowed unless approved by Indian River County 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.

Documentation Submitted with Project No. **IRC-1325** for **58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION**

	<u>Work to be Performed</u>	<u>Subcontractor's Name/Address</u>	<u>Portion of Work (%)</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			

Note: Attach additional sheets if required.

**** END OF SECTION ****

BOARD OF COUNTY COMMISSIONERS



Month Day, 20__

VIA EMAIL

Persons Name
Vendor name
Vendor address
City/State, Zip

NOTICE OF AWARD

Reference: **Indian River County Bid # 2020021**

Project Name: **58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION**

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) and Supplemental Conditions (Section 00800 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: Engineering Division

Office of Management & Budget • Purchasing Division
1800 27th Street, Vero Beach, Florida 32960 • (772) 567-8000 Ext. 1416 • Fax: (772) 770-5140
E-mail: purchasing@ircgov.com

SECTION 00520 - Agreement (Public Works)

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THE REMAINDER OF THIS PAGE WAS LEFT BLANK INTENTIONALLY]

SECTION 00520 - Agreement (Public Works)

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:

The proposed improvements to 58th Avenue from north of 57th Street to 85th Street and 69th Street from Sta 11+84 to Sta 30+47 consist of reconstructing the roadway utilizing full depth reclamation, milling and resurfacing, widening the existing shoulders to 5-feet, structural asphalt, surface asphalt, drainage improvements, waterline directional bore, utility adjustments, signing, and pavement markings. This project is an F.D.O.T. Small County Outreach Program (SCOP) funded project, FM No. 436416-1-54-01.

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: **58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION**

County Project Number: **IRC-1325**

FM Number: **436416-1-54-01**

Bid Number: **2020021**

Project Address: **58th Avenue (North of 57th Street to 85th Street)
Vero Beach, Florida 32967**

ARTICLE 3 – ENGINEER

3.01 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, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Days to Achieve Substantial Completion, Final Completion and Final Payment*

- A. The Work will be substantially completed on or before the **365th** calendar day after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions on or before the **395th** calendar day after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. Liquidated damages will commence for this portion of work. 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 **\$3,447.00** for each calendar day that expires after the time specified in paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER **\$3,447.00** for each calendar day that expires after the time specified in paragraph 4.02 for completion and readiness for final payment until the Work is completed 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 and the Contract Documents.

6.02 *Progress Payments.*

A. The OWNER shall make progress payments to the CONTRACTOR on the basis of the approved partial payment request as recommended by ENGINEER in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq. The OWNER shall retain ten percent (10%) of the payment amounts due to the CONTRACTOR until fifty percent (50%) completion of the work. After fifty percent (50%) completion of the work is attained as certified to OWNER by ENGINEER in writing, OWNER shall retain five percent (5%) of the payment amount due to CONTRACTOR until final completion and acceptance of all work to be performed by CONTRACTOR under the Contract Documents. Pursuant to Florida Statutes section 218.735(8)(b), fifty percent (50%) completion means the point at which the County as OWNER has expended fifty percent (50%) of the total cost of the construction services work purchased under the Contract Documents, together with all costs associated with existing change orders and other additions or modifications to the construction services work provided under the Contract Documents.

6.03 *Pay Requests.*

A. Each request for a progress payment shall be submitted on the application for payment form supplied by OWNER and the application for payment shall contain the CONTRACTOR'S certification. All progress payments will be on the basis of progress of the work measured by the schedule of values established, or in the case of unit price work based on the number of units completed. After fifty percent (50%) completion, and pursuant to Florida Statutes section 218.735(8)(d), the CONTRACTOR may submit a pay request to the County as OWNER for up to one half (1/2) of the retainage held by the County as OWNER, and the County as OWNER shall promptly make payment to the CONTRACTOR unless such amounts are the subject of a good faith dispute; the subject of a claim pursuant to Florida Statutes section 255.05; or otherwise the subject of a claim or demand by the County as OWNER or the CONTRACTOR. The CONTRACTOR acknowledges that where such retainage is attributable to the labor, services, or materials supplied by one or more subcontractors or suppliers, the Contractor shall timely remit payment of such retainage to those subcontractors and suppliers. Pursuant to Florida Statutes section 218.735(8)(c), CONTRACTOR further acknowledges and agrees that: 1) the County as OWNER shall receive immediate written notice of all decisions made by CONTRACTOR to withhold retainage on any subcontractor at greater than five percent (5%) after fifty percent (50%) completion; and 2) CONTRACTOR will not seek release from the County as OWNER of the withheld retainage until the final pay request.

6.04 Paragraphs 6.02 and 6.03 do not apply to construction services work purchased by the County as OWNER which are paid for, in whole or in part, with federal funds and are subject to federal grantor laws and regulations or requirements that are contrary to any provision of the Local Government Prompt Payment Act. In such event, payment and retainage provisions shall be governed by the applicable grant requirements and guidelines.

6.05 *Acceptance of Final Payment as Release.*

A. 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

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other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with the work under this Contract and for every act and neglect of the OWNER and others relating to or arising out of the work. Any payment, however, final or otherwise, shall not release the CONTRACTOR or its sureties from any obligations under the Contract Documents or the Public Construction Bond.

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.
- 7.02 "To the fullest extent permitted by law, the Recipient's contractor/consultant shall indemnify and hold harmless the Recipient and the State of Florida, Department of Transportation, including the Department's officers and employees, from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness or intentional wrongful misconduct of the contractor or consultant and persons employed or utilized by the contractor or consultant in the performance of this Agreement."

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 in the Supplementary Conditions 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 in the Supplementary Conditions 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 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 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 00520-10, inclusive);
 2. Notice to Proceed (page 00550-1);
 3. Public Construction Bond (pages 00610-1 to 0610-3, inclusive);
 4. Sample Certificate of Liability Insurance (page 00620-1);
 5. Contractor's Application for Payment (pages 00622-1 to 00622-6 inclusive);
 6. Certificate of Substantial Completion (page 00630-1 to 00630-2, inclusive);
 7. Contractor's Final Certification of the Work (page 00632-1 to 00632-2, inclusive);
 8. Professional Surveyor and Mapper's Certification as to Elevations and Locations of the Work (page 00634-1);
 9. General Conditions (pages 00700-1 to 700-44, inclusive);
 10. Supplementary Conditions (pages 00800-i to 00800-11, inclusive);
 11. Specifications as listed in Division 1 (General Requirements) and Division 2 (Technical Provisions);
 12. Drawings consisting of a cover sheet and sheets numbered 1 through 184, sheets S1 through S46 and sheets T1 through T9, inclusive, with each sheet bearing the following general title: 58th Avenue (57th St to 85th St) Reclamation Project.
 13. Addenda (if applicable _____);

13. Addenda (if applicable _____);
14. Appendices to this Agreement (enumerated as follows):
 - Appendix A – Permits
 - Appendix B – Indian River County Fertilizer Ordinances
 - Appendix C – Indian River County Traffic Engineering Division Special Conditions for Right-of-way Construction
 - Appendix D – Geotechnical Reports
15. CONTRACTOR'S BID (pages 00310-1 to 00310-12, inclusive);
16. Bid Bond (page 00430-1);
17. Sworn Statement Under Section 105.08, Indian River County Code, on Disclosure of Relationships (pages 00452-1 to 00452-2, inclusive);
18. Sworn Statement Under the Florida Trench Safety Act (pages 00454-1 to 00454-2, inclusive);
19. Qualifications Questionnaire (page 00456-1 to 00456-3, inclusive);
20. List of Subcontractors (page 00458-1);
21. Certification Regarding Prohibition Against Contracting with Scrutinized Companies (page 00460-1);
22. 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);

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 *Public Records Compliance*

- 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:

CONTRACTOR:

INDIAN RIVER COUNTY

By: _____
Susan Adams, Chairman

By: _____
(Contractor)

By: _____
Jason E. Brown, County Administrator

(CORPORATE SEAL)

Attest _____

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

By: _____
Dylan Reingold, County Attorney

Address for giving notices:

Jeffrey R. Smith, Clerk of Court and Comptroller

License No. _____
(Where applicable)

Attest: _____
Deputy Clerk

Agent for service of process: _____

(SEAL)

Designated Representative:
Name: James W. Ennis, P.E., PMP
Title: Assistant Public Works Director
1801 27th Street
Vero Beach, Florida 32960
(772) 226-1221
Facsimile: (772) 778-9391

Designated Representative:
Name: _____
Title: _____
Address: _____

Phone: _____
Facsimile: _____

(If CONTRACTOR is a corporation or a partnership, attach evidence of authority to sign.)

**** END OF SECTION ****

SECTION 00550 - Notice to Proceed

Dated _____

TO:

(BIDDER)

ADDRESS:

Contract For: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION

Project No: **IRC-1325**
FM No: **436416-1-54-01**
IRC Bid No. **2020021**

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 **365** calendar days for Substantial Completion of this project and **395** calendar days for Final Completion. In accordance with Article 4 of the Agreement the date of Substantial Completion is _____ and the date of readiness for final payment is _____.

CONTRACTOR shall not commence work under this Contract until he 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.

Also, before you may start any Work at the Site, you must:
(add other requirements, if applicable)

INDIAN RIVER COUNTY
(OWNER)

By: _____
(AUTHORIZED SIGNATURE)

(TITLE)

00610 - PUBLIC CONSTRUCTION BOND

INSTRUCTION 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.

**Public Work
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 _____, 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)

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.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/D/YY)	LIMITS		
A	GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE - <input 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	
						\$	
A	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input 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 <input type="checkbox"/> <input type="checkbox"/>				AUTO ONLY – EA ACCIDENT	\$	
					OTHER THAN	EA ACC	\$
						AUTO ONLY	AGG
A	EXCESS LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				EACH OCCURRENCE		
					AGGREGATE	\$	
						\$	
						\$	
A	WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY THE PROPRIETOR/PARTNERS/ EXECUTIVE OFFICERS ARE: <input type="checkbox"/> INCL <input type="checkbox"/> EXCL				<input 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: INDIAN RIVER COUNTY 1801 27 TH STREET, VERO BEACH, FL 32960-3388		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

SECTION 00622 - Contractor's Application for Payment

58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION

Application for Payment No. _____

For Work Accomplished through the period of _____ through _____

To: Indian River County (OWNER)
 From: _____ (CONTRACTOR)
 Bid No.: 2020021
 Project No.: IRC-1325
 FM No.: 436416-1-54-01

1) Attach detailed schedule and copies of all paid invoices.

1.	Original Contract Price:	\$ _____
2.	Net change by Change Orders and Written Amendments (+ or -):	\$ _____
3.	Current Contract Price (1 plus 2):	\$ _____
4.	Total completed and stored to date:	\$ _____
5.	Retainage (per Agreement):	
	_____ % of completed Work:	
	_____ % of retainage:	\$ _____
	Total Retainage:	\$ _____
6.	Total completed and stored to date less retainage (4 minus 5):	\$ _____
7.	Less previous Application for Payments:	\$ _____
8.	DUE THIS APPLICATION (6 MINUS 7):	\$ _____

CONTRACTOR'S CERTIFICATION:

UNDER PENALTY OF PERJURY, the undersigned CONTRACTOR certifies that (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 the 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](#).

Dated _____

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

Print Name and Title

STATE OF FLORIDA
COUNTY OF INDIAN RIVER

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: _____

Please remit payment to:

Contractor's Name: _____

Address: _____

[The remainder of this page was left blank intentionally]

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 ENGINEER:

I certify that I have reviewed the above and foregoing Periodic Estimate for Partial Payment; that to the best of my knowledge and belief it appears to be a reasonably accurate statement of the work performed and/or material supplied by the Contractor. 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 INSPECTOR:

I have checked the estimate against the Contractor's Schedule of Amounts for Contract Payments and the notes and reports of my inspections of the project. To the best of my knowledge, this statement of work performed and/or materials supplied appears to be reasonably accurate, that the Contractor appears to be observing the requirements of the Contract with respect to construction, and that the Contractor should be paid the amount requested above, unless otherwise noted by me. 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]

ATTACHMENT A

- 1. List of all subcontractors, laborers, materialmen and suppliers who have not been paid from the payment received from the last Pay Request and the reason why they were not paid (attach additional pages as necessary):**

- 2. List of all subcontractors, laborers, materialmen and suppliers for which a signed release of lien form (partial or final as applicable) is not included with this Pay Request, together with an explanation as to why the release of lien form is not included (attach additional pages as necessary):**

PROJECT NAME: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION

Project No. IRC-1325

Payment Application No. _____

WORK COMPLETED

Item No.	Description	Unit	Quantity	SCHEDULED VALUE		PREVIOUS APPLICATION		THIS PERIOD		TOTAL COMPLETED		%	MATERIALS STORED	BALANCE TO FINISH	
				Unit Price	Amount	QUANTITY	TOTAL	QUANTITY	TOTAL	QUANTITY	TOTAL			QUANTITY	TOTAL
SUBTOTAL															
				SUBTOTAL	0.00		0.00		0.00		0.00		0.00		0.00
	FORCE ACCOUNT	1	LS												
GRAND TOTAL					0.00										

AMOUNT COMPLETED TO DATE	\$0.00
MATERIALS STORED TO DATE	\$0.00
SUB-TOTAL MATERIALS STORED AND COMPLETED TO DATE	\$0.00
RETAINAGE AT 10%	\$0.00
TOTAL COMPLETED AND STORED LESS RETAINAGE	\$0.00
LESS PREVIOUS PAYMENT	\$0.00
AMOUNT DUE CONTRACTOR	\$0.00

SECTION 00630 - Certificate of Substantial Completion

Date of Issuance: _____, 20____

OWNER: Indian River County

CONTRACTOR: _____

CONTRACT FOR: **58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION**

Project No. **IRC-1325**

OWNER's Bid No. **2020021**

Project Description: **The proposed improvements to 58th Avenue from north of 57th Street to 85th Street and 69th Street from Sta 11+84 to Sta 30+47 consist of reconstructing the roadway utilizing full depth reclamation, milling and resurfacing, widening the existing shoulders to 5-feet, structural asphalt, surface asphalt, drainage improvements, waterline directional bore, utility adjustments, signing, and pavement markings. This project is an F.D.O.T. Small County Outreach Program (SCOP) funded project, FM No. 436416-1-54-01.**

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

To: _____
OWNER

And To: _____
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within **30** calendar days of the above date of Substantial Completion.

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees shall be as follows:

OWNER:

CONTRACTOR:

The following documents are attached to and made a part of this Certificate:

[For items to be attached see definition of Substantial Completion as supplemented and other specifically noted conditions precedent to achieving Substantial Completion as required by Contract Documents.]

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

Executed by ENGINEER on: _____ (Date).

ENGINEER: _____

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on _____ (date).

CONTRACTOR: _____

By: _____
(Authorized Signature)

OWNER accepts this Certificate of Substantial Completion on _____ (date).

OWNER: INDIAN RIVER COUNTY

By: _____
(Authorized Signature)

**** END OF SECTION ****

SECTION 00632 - CONTRACTOR'S FINAL CERTIFICATION
OF THE WORK

(TO ACCOMPANY CONTRACTOR'S FINAL APPLICATION FOR PAYMENT)

PROJECT NAME: **58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET)**
FULL DEPTH RECLAMATION

PROJECT NO: **IRC-1325**

STATE OF _____
COUNTY OF _____

Personally before me the undersigned officer, authorized by the laws of said state to administer oaths, comes _____, who on oath says: That he is the CONTRACTOR with whom Indian River County, Florida, a political subdivision of said state, did on the _____ day of _____, 20____, enter into a contract for the performance of certain work, more particularly described as follows:

UNDER PENALTY OF PERJURY, affiant further says that said construction has been completed and the Contract therefore fully performed and final payment is now due and that all liens of all firms and individuals contracting directly with or directly employed by such CONTRACTOR have been paid in full EXCEPT:

Name	Description/Amount
_____	_____
_____	_____

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

Affiant further says that:

1. CONTRACTOR has reviewed the Contract Documents.
2. CONTRACTOR has reviewed the Work for compliance with the Contract Documents.
3. CONTRACTOR has completed the Work in accordance with the Contract Documents.
4. 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.

5. The Work is complete and ready for final acceptance by the OWNER.
6. CONTRACTOR hereby certifies that it has no claims against the OWNER.

(Corporate Seal)

(Contractor)

By: _____

Subscribed and sworn to before me this ____ day of _____, 20____.

Notary Public State of Florida at Large

My Commission expires: _____

+ + 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:

PROJECT NAME: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION
PROJECT # IRC-1325

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: _____

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN CONSULTING ENGINEERS COUNCIL

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General Contractors of America

Construction Specifications Institute

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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.

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 to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.~~

~~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 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.

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.

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," 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 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 ninetieth 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:* 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. 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.

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. 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 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:* 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.

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 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:* 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. 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. 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 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 CON-

TRACTOR 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).

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. 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. 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. 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 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.

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.

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, 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" 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" 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 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 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, method, 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 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 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.

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 Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. 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.

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.
- B. OWNER qualifies for state and local sales tax exemption in the purchase of all material and equipment.

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 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 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, assembly, 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.

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 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. 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' compen-

sation 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 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. 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, machinery, 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 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. The cost of utilities, fuel, and sanitary facilities at the Site.

h. 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. 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. 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. Deter-

minations 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 materially 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

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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 may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2); 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).

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 the amount of the actual net

decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 12.01.C.2.a through 12.01.C.2.e, 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 for 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.

~~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.

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 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 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 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 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.~~

C. *Payment Becomes Due*

~~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.

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 cov-

ered 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 therefore. ~~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. 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, 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. 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

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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. 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 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.

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 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.

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 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 Contract is to be governed by the law of the state in which the Project is located.

SECTION 00800 - SUPPLEMENTARY CONDITIONS
TO THE GENERAL CONDITIONS

<u>Article Title</u>	<u>Article Number</u>
Introduction	SC – 1.00
Defined Terms	SC – 1.01
Terminology	SC – 1.02
Before Starting Construction	SC – 2.05
Preconstruction Conference	SC – 2.06
Coordination of Plans, Specifications, and Special Provisions	SC – 3.06
Subsurface and Physical Conditions	SC – 4.02
Performance, Payment and Other Bonds	SC – 5.01
Certificates of Insurance	SC – 5.03
CONTRACTOR's Liability Insurance	SC – 5.04
OWNER's Liability Insurance	SC – 5.05
Property Insurance	SC – 5.06
Waiver of Rights	SC – 5.07
Receipt and Application of Insurance Proceeds	SC – 5.08
Acceptance of Bonds and Insurance; Option to Replace	SC – 5.09
Labor; Working Hours	SC – 6.02
Concerning Subcontractors, Suppliers and Others	SC – 6.06
Permits	SC – 6.08
Authorized Variations in Work	SC – 9.05
Cost of the Work	SC – 11.01
Test and Inspections	SC – 13.03
OWNER May Stop the Work	SC – 13.05
Correction Period	SC – 13.07
Progress Payments	SC – 14.02

Substantial Completion	SC – 14.04
Final Payment	SC – 14.07
OWNER May Suspend Work	SC – 15.01
OWNER May Terminate for Cause	SC – 15.02
CONTRACTOR May Stop Work or Terminate	SC – 15.04
Mediation	SC –16.02
Liens	SC – 17.06

+++ END OF THIS SUPPLEMENTARY CONDITIONS INDEX +++

SECTION 00800 - SUPPLEMENTARY CONDITIONS TO THE GENERAL CONDITIONS

SC-1.00 Introduction

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 Edition) and other provisions of the Contract Documents as indicated below. All provisions, which are not so amended or supplemented, remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions.

SC-1.01 Defined Terms

SC-1.01.A.20. *Add the following language to the end of GC 1.01.A.20.*

ENGINEER's Consultant: Bowman Consulting Group
4450 W. Eau Gallie Blvd., Suite 232
Melbourne, Florida 32934

SC-1.01.A.21. *Delete paragraph GC 1.01.A.21 in its entirety.*

SC-1.02 Terminology

SC-1.02.D.1, 2, and 3 *Delete paragraphs GC-1.02.D.1, 2, and 3 in their entirety and insert the following paragraphs in their place:*

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.
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.

SC-2.05 Before Starting Construction

SC-2.05.C. *Delete paragraph GC 2.05.C in its entirety and insert the following paragraph in its place:*

- C. *Evidence of Insurance:* CONTRACTOR shall not commence work under this Contract until he 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.

SC-2.06 Preconstruction Conference

SC-2.06 *Delete paragraph GC-2.06.A in its entirety and insert the following paragraph in its place:*

- A. Immediately after awarding the contract, but before the CONTRACTOR begins work, the Project Manager will call a preconstruction 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 below),
 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.

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.).	

SC-3.06 Coordination of Plans, Specifications, and Special Provisions

SC-3.06 *Add the following new paragraphs immediately after paragraph GC-3.05:*

SC-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
 5. General Conditions
 6. Approved Shop Drawings

7. Drawings
8. Referenced Standards.

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

SC-4.02 Subsurface and Physical Conditions

SC-4.02 *Add the following new paragraphs immediately after paragraph GC-4.02.B:*

- 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: Appendix D – Geotechnical Reports

SC-5.01 Performance, Payment and Other Bonds

SC-5.01.A. *Delete paragraph GC-5.01.A in its entirety and insert the following paragraphs in its place:*

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

SC-5.03 Certificates of Insurance

SC-5.03 *Delete the second sentence of paragraph GC-5.03 in its entirety.*

SC-5.04 CONTRACTOR's Liability Insurance

SC-5.04 *Add the following new paragraphs immediately after paragraph GC-5.04.B:*

- 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. 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 Florida" will be named as "Additional Insured" on both the General Liability, Auto Liability. 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.
 - c. An appropriate "Indemnification" clause shall be made a provision of the Contract (see paragraph 6.20 of the General Conditions).
 - d. It is the responsibility of the CONTRACTOR to insure that all subcontractors comply with all insurance requirements.
 - e. 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 Best's Rating of A-VII or better.

D. Additional Insureds:

1. In addition to "Indian River County, Florida," the following individuals or entities shall be listed as "additional insureds" on the CONTRACTOR's liability insurance policies:
 - a. Indian River Farms Water Control District

SC-5.05 OWNER's Liability Insurance

SC-5.05 *Delete paragraph GC-5.05.A in its entirety.*

SC-5.06 Property Insurance

SC-5.06 *Delete paragraphs GC-5.06.A, B, and C in their entirety and insert the following paragraphs in their place:*

- 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 Supplementary 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 SC-5.06 shall comply with the requirements of paragraph 5.06.C of the General Conditions.

SC-5.06.E *Delete paragraph GC-5.06.E in its entirety and insert the following in its place:*

- E. Additional Insureds:
1. The following individuals or entities shall be listed as "additional insureds" on the CONTRACTOR's property insurance policies:
 - a. Indian River County, Florida
 - b. Indian River Farms Water Control District

SC-5.07 Waiver of Rights

SC-5.07 *Delete GC-5.07 (paragraphs A, B, and C) in its entirety.*

SC-5.08 Receipt and Application of Insurance Proceeds

SC-5.08 *Delete GC-5.08 (paragraphs A and B) in its entirety.*

SC-5.09 Acceptance of Bonds and Insurance; Option to Replace

SC-5.09 *Delete GC-5.09(paragraph A)in its entirety.*

SC-6.02 Labor; Working Hours

SC-6.02.B. *Add the following paragraphs immediately after paragraph GC-6.02.B:*

1. Regular working hours are defined as Monday through Friday, excluding Indian River County Holidays, from 7 a.m. to 5 p.m. Lane closures are limited to the hours of 9:00 a.m. to 4:00 p.m., unless otherwise authorized by the OWNER in writing.
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, Friday after Thanksgiving, Christmas Eve and Christmas Day. Working on these days will not be permitted without prior written permission and approval from the Construction Coordination Manager.
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 solely 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 solely 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 5 p.m. except in case of emergency upon specific permission of the ENGINEER.

SC-6.06 Concerning Subcontractors, Suppliers, and Others

SC-6.06.C. *Add the following sentence at the end of paragraph GC-6.06.C:*

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.

SC-6.08 Permits

SC-6.08 *Add the following paragraphs immediately after paragraph GC-6.08.A:*

1. The OWNER has obtained the following permits (copies of these permits are contained in Appendix "A"):
 - A. Indian River Farms Water Control District Permits 18-02 and 18-03
 - B. St. Johns River Water Management District Permit Determination No. PDEX:150413-1:

2. The CONTRACTOR shall obtain and pay for all other required permits and licenses. The CONTRACTOR shall provide copies of the permits to the OWNER and ENGINEER and shall comply with all conditions contained in the permits at no extra cost to the OWNER.
3. The 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.

SC-9.05 Authorized Variations in Work

SC-9.05.A. *Delete the second sentence in paragraph GC-9.05.A in its entirety.*

SC-11.01 Cost of the Work

SC-11.01.A.1. *Delete paragraph GC-11.01.A.1 in its entirety, and insert the following sentences in its place:*

1. CONTRACTOR will receive payment for actual costs of direct labor and burden (see SC-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 Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

SC-13.03 Test and Inspections

SC-13.03.B. *Delete paragraph GC-13.03.B in its entirety, and insert the following sentences in its place:*

- B. OWNER shall 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 back charge 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 paragraphs 13.03.C and 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.

SC-13.05 OWNER May Stop the Work

SC-13.05.A. *Delete paragraph GC-13.05.A in its entirety and insert the following paragraph in its place:*

- 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.

SC-13.07 Correction Period

SC-13.07 A. *Delete the first sentence of paragraph GC-13.07.A in its entirety and insert the following sentence in its place*

- A. If within one year after the date of Final 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.

SC-13.07 B. *Delete paragraph GC-13.07.B in its entirety and insert the following sentence in its place*

- B. In special circumstances where a particular item of equipment is placed in continuous service before Final 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.

SC-14.02 Progress Payments

SC-14.02.B.5. *Delete paragraph GC-14.02.B.5.d in its entirety and insert the following paragraph in its place:*

- d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A; or

SC-14.02.B.5. *Add the following sentences at the end of paragraph GC-14.02.B.5:*

- e. OWNER has been required to pay ENGINEER 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.

SC-14.02.C.1. *Delete paragraph GC-14.02.C.1 in its entirety and insert the following paragraph in its place:*

- C. Payment Becomes Due
1. Payment shall be made by OWNER to CONTRACTOR according to the Local Government Prompt Payment Act. F.S. 218.70 et. seq.

SC-14.04 Substantial Completion

SC-14.04A. *After the third sentence in paragraph GC-14.04A of the General Conditions, delete the remainder of paragraph 14.04A in its entirety and replace with the following:*

“If Engineer considers the Work substantially complete, Engineer will prepare and deliver to Owner a tentative certificate of Substantial Completion that shall fix the date of Substantial Completion. In accordance with the provisions of Florida Statutes section 208.735(7)(a)(2005), upon receipt of the tentative certificate of Substantial Completion from Engineer, the Owner, the Engineer, and the Contractor shall conduct a walk-through inspection of the Project to document a list of any items required to render the Work on the Project complete, satisfactory, and acceptable under this Agreement (herein the “Statutory List”). The Statutory List shall be reduced to writing and circulated among the Owner, the Engineer, and the Contractor by the Owner or the Engineer within 30 calendar days after substantial completion. The Owner and Contractor acknowledge and agree that: 1) the failure to include any corrective work, or pending items that are not yet completed, on the Statutory List does not alter the responsibility of the Contractor to complete all of the Work under this Agreement; 2) upon completion of all items on the Statutory List, the Contractor may submit a pay request for all remaining retainage except as otherwise set forth in this Agreement; and 3) any and all items that require correction under this Agreement and that are identified after the preparation of the Statutory List remain the obligation of the Contractor to complete to the Owner’s satisfaction under this Agreement. After receipt of the Statutory List by the Contractor, the Contractor acknowledges and agrees that it will diligently proceed to complete all items on the Statutory List and schedule a final walk-through in anticipation of final completion on the Project.”

SC-14.04B *Add the following new paragraph immediately after paragraph GC 14.04B:*

C. 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

SC-14.07 Final Payment

SC-14.07.C.1. *Delete paragraph GC-14.07.C.1 in its entirety and insert the following paragraph in its place:*

- C. Payment Becomes Due

1. Payment shall be made by OWNER to CONTRACTOR according to the “ Local Government Prompt Payment Act” , Florida Statutes section 218.70, et. seq.

SC-15.01 OWNER May Suspend Work

SC-15.01.A *Delete the last sentence in paragraph GC-15.01.A and insert the following in its place:*

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.

SC-15.02 OWNER May Terminate For Cause

SC-15.02.A.5 and SC-15.02.A.6 *Add the following new paragraphs immediately after paragraph GC-15.02.A.4:*

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.

OWNER may terminate this Contract if Company 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 Company, 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.

SC-15.04 CONTRACTOR May Stop Work or Terminate

SC-15.04 *Delete the following text from the first sentence of paragraph GC-15.04.A:*

~~or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due,~~

SC-15.04 *Delete the following text from the second sentence of paragraph GC-15.04.A:*

~~or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due,~~

SC-16 DISPUTE RESOLUTION

SC-16.02 Mediation

SC-16 *Add the following new paragraph immediately after paragraph GC-16.01.*

SC-16.02 Mediation

- A. OWNER and CONTRACTOR agree that they shall 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.

SC-17 Miscellaneous

SC-17.06 Liens

Add the following new paragraphs immediately after paragraph GC17.05:

SC-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 the CONTRACTOR for the amount due him. Such action shall not involve the OWNER in any expense. Claims against the CONTRACTOR are subject to timely prior notice to the CONTRACTOR as specified in Florida Statutes Section 255.05. The 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 the OWNER to the CONTRACTOR only after the CONTRACTOR has furnished the 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. The OWNER may rely on said affidavit at face value. The 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.

++END OF SUPPLEMENTARY CONDITIONS++

SECTION 00942 - Change Order Form

No. _____

DATE OF ISSUANCE: _____

EFFECTIVE DATE: _____

OWNER: Indian River County

CONTRACTOR _____

Project: **58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION**

OWNER's Project No. **IRC-1325** FM No: **436416-1-54-01** OWNER'S Bid No. **2020021**

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: **58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET) FULL DEPTH RECLAMATION PROJECT**

OWNER's Project No. **IRC-1325**

Bid No. **2020021**

FM No. **436416-1-54-01**

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

Method of determining change in Contract Times

- Unit Prices
- Lump Sum
- Other: _____
- By Change Order:

- Contractor's Records
- Engineer's Records
- Other: _____
- By Change Order:

Estimated increase (decrease) of this Work Change Directive
\$ _____

Estimated increase (decrease) in Contract Times:

Substantial Completion: _____ days;
Ready for Final Completion: _____ days.

If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

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 ****

SECTION 01009

SPECIAL PROVISIONS

1.1 GENERAL

- A. Visits to the construction site may be made by representatives of permitting or governing bodies. Submit 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. Furnish sufficient labor, construction equipment and materials, and work such hours, including night shifts and overtime operations, as may be necessary 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 Supplementary Conditions, SC-6.02.
- 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, Florida 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. In addition to these Specifications all work must comply with the requirements of the local governing agency, St. Johns River Water Management District, Department of Environmental Protection, Army Corps of Engineers, Indian River Farms Water Control District, and all other applicable State or Federal agencies' specifications and permits. In the event of a conflict, the more stringent specification or requirement shall govern.
- E. Before performing any work outside the designated limits of the work site, secure any necessary permits and 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.

SECTION 01024

FORCE ACCOUNT

1.1 General

CONTRACTOR shall furnish all labor, materials, equipment and incidentals necessary to perform additional work not covered on the Contract Drawings. The force Account is intended as a contingency for unforeseen work.

1.1 PAYMENT

- A. Lump sum amount for force account work is included in the bid schedule. The value of force account work will be determined in accordance with Article 12 of the General Conditions.

+ + END OF SECTION + +

SECTION 01050

FIELD ENGINEERING AND LAYOUT

1.1 GENERAL

- A. The CONTRACTOR will furnish all construction staking for the project. All staking from control will be under the supervision of a Florida Registered Land Surveyor.
- 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 a transit and leveling instrument 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. Be solely responsible for all locations, dimensions and levels. No data other than written orders of the ENGINEER shall justify departure from the dimensions and levels 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. 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.
- H. 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.

1.2 SURVEY WORK AND QUALIFICATIONS OF SURVEYOR

- A. Prior to commencing work, the CONTRACTOR shall satisfy himself as to the accuracy of all survey and existing site information as indicated in the Contract Documents. 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.

- B. The CONTRACTOR shall carefully preserve all control stakes, benchmarks, reference points and property corners and will be responsible for any mistake or loss of time caused by their unnecessary loss or disturbance. If the loss or disturbance of the 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. In the event 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 survey work shall be performed under the guidance and direction of a Florida Registered Surveyor and Mapper.
- D. All survey work for Record Drawings shall be performed by a Florida Registered Surveyor and Mapper.

1.3 STATION BOARDS

- A. CONTRACTOR shall erect and maintain white/black standard FDOT station markers every 100 feet.

1.4 LAYOUT OF STRIPING

Establish by instrument, and mark the finished surface, the points necessary for striping finished roadway in conformance with Section 5-7 of FDOT Standard Specifications.

+ + END OF SECTION + +

SECTION 01091

REFERENCE STANDARDS

1.1 GENERAL

- A. Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards 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, unless noted otherwise in the Technical Specifications or on the Drawings. When a reference standard is specified, comply with requirements and recommendations stated in that standard, except when they are modified by the Contract Documents, or when applicable laws, ordinances, rules, regulations or codes establish stricter standards. The list of specifications presented in Paragraph B is hereby made a part of the Contract, the same as if repeated herein in full.
- B. Reference to a technical society, organization, or body may be made in the Specifications by abbreviations, in accordance with the following list:

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
ASCE	American Society of Civil 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

CRSI	Concrete Reinforcing Steel Institute
FDEP/DEP	Florida Department of Environmental Protection
DNR	Department of Natural Resources
NCPI	National Clay Pipe Institute
NEMA	National Electrical Manufacturers Association
NEC	National Electric Code
NSPE	National Society of Professional Engineers
OSHA	Occupational Safety and Health Administration
PCI	Prestressed Concrete Institute
FDOT/DOT	Florida Department of Transportation
U. L., Inc.	Underwriter's Laboratories, Inc.
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, FDOT, or ANSI shall govern.
- D. In the event of a conflict between the specifications prepared by the ENGINEER and the above referenced specifications and standards, or any other regulatory specification or standard, the more stringent requirement prevails.

+ + 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 the Contract Documents. The requirements of this section are primarily related to the performance of the work beyond the furnishing of manufactured products. The term "Quality Control" includes, but is not necessarily limited to, inspection and testing and associated requirements. This section does not specify or modify the OWNER and ENGINEER duties relating to quality review and Contract surveillance.

1.2 RESPONSIBILITY FOR INSPECTIONS AND TESTS

- A. Residual OWNER Responsibility: The OWNER will employ and pay for the services of independent testing laboratories to perform those required inspections and tests.
- B. CONTRACTORS 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 QUALITY ASSURANCE

- A. General Workmanship Standards: 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 category of work, and being capable of workmanship complying with those standards.

1.4 PRODUCT DELIVERY-STORAGE-HANDLING

Handle, store and protect materials and products, including fabricated components, by methods and means which will prevent damage, deterioration and losses (and resulting delays), thereby ensuring highest quality results as the performance of the work progresses. Control delivery schedules so as to minimize unnecessary long-term storage at the project site prior to installation.

SECTION 01215

GENERAL QUALITY CONTROL

1.5 PROJECT PHOTOGRAPHS/VIDEOS

- A. The CONTRACTOR shall make provisions, at his expense, for photographs and video tapes of all work areas just prior to construction, and for unusual conditions during construction. The photographs and videos shall show pertinent physical features along the line of construction. The purpose of the videos is to determine any damage to private or public property during construction. The video must be performed by a professional videographer.
- B. Pre-Construction Photographs and Video:
1. Contractor shall provide the Owner with photographs and video record and one copy of the existing conditions prior to construction. These photographs and videos shall be a standard DVD format and shall be narrated.
 2. The photographs and video shall include, but not be limited to, the following items shown in a clear manner:
 - 1) All existing features within the right-of-way.
 - 2) All existing features within the temporary construction easement.
 - 3) All existing features within permanent easements.
 - 4) All existing features adjacent to any construction.
 3. Detail of the photographs and video shall be such that the following examples shall be clear and visible:
 - 1) Cracks in walls.
 - 2) Condition of fencing.
 - 3) Condition of planted areas and types of vegetation.
 - 4) Condition of sodded areas.
 - 5) Conditions of sprinkler systems and associated controls and wiring.
 - 6) Condition of signs.
 - 7) Conditions of lighting and associated wiring.
 - 8) Significant detail of any pre-existing damages physical features shall be shown. The coverage of the photographs and video should include the limits of effects of the use of vibratory rollers.
 - 9) These photographs and video record shall be presented and approved by the Owner prior to the Notice to Proceed. A copy shall be kept in the Contractor's field office.
 - 10) Payment – No additional payment will be made for this work.

+ + END OF SECTION + +

SECTION 01220

PROGRESS MEETINGS

1.1 SCOPE

- A. Date and Time:
 - 1. Regular Meetings: As mutually agreed upon by ENGINEER and CONTRACTOR.
 - 2. Other Meetings: On call.
- B. Place: CONTRACTOR'S office at Project site or other mutually agreed upon location.
- 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.

1.2 MINIMUM ATTENDANCE

- A. CONTRACTOR
- B. SUBCONTRACTOR:
When needed for the discussion of a particular agenda item, CONTRACTOR shall require representatives of Subcontractors or suppliers to attend a meeting.
- C. CONSTRUCTION COORDINATION MANAGER
- D. OWNER'S representative, if required.
- E. Utility Representatives
- F. Others as appropriate.
- G. Representatives present for each party shall be authorized to act on their behalf.

1.3 AGENDA

Agenda will include, but will not necessarily be limited to, the following:

- 1. Transcript of previous meeting.
- 2. Progress since last meeting.
- 3. Planned progress for next period.
- 4. Problems, conflicts and observations.
- 5. Change Orders.
- 6. Status of Shop Drawings.
- 7. Quality standards and control.
- 8. Schedules, including off-site fabrication and delivery schedules. Corrective measures, if required.
- 9. Coordination between parties.
- 10. Safety concerns.
- 11. Other business.

+ + END OF SECTION + +

SECTION 01310

CONSTRUCTION SCHEDULES

1.1 GENERAL REQUIREMENTS

- A. No partial payments shall be approved by the ENGINEER until there is an approved construction progress schedule on hand.
- B. Designate an authorized representative who shall be responsible for development and maintenance of the 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

When the ENGINEER requires the CONTRACTOR to submit revised (updated) progress schedules on a monthly basis the CONTRACTOR shall:

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

1.3 SUBMISSION OF THE CONSTRUCTION SCHEDULES

On or before the tenth day after the effective date of the Agreement, submit the initial schedules to the ENGINEER. The ENGINEER will review the schedules and return a review copy to the CONTRACTOR within 21 days after receipt. If required by the ENGINEER, resubmit revised schedules on or before the seventh day after receipt of the review copy. If required by the ENGINEER, submit revised monthly progress schedules with that month's application for payment.

SECTION 01310

CONSTRUCTION SCHEDULES

1.4 DISTRIBUTION OF THE CONSTRUCTION SCHEDULES

- A. After receiving approval by the ENGINEER, distribute copies of the approved initial schedule and all reviewed revisions (updated) to:
 - 1. Job site file.
 - 2. Subcontractors.
 - 3. Other concerned parties.
 - 4. OWNER (two copies).
 - 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 schedules.

+ + END OF SECTION + +

SECTION 01340 SUBMITTAL OF SHOP DRAWINGS

1.1 SCOPE

- A. Submit shop drawings, product data and samples as required by or inferred by the Drawings and Specifications. Submittals shall conform to the requirements of Article 6.17 of the General Conditions, Section 00700, 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, which illustrate some portion of the work; showing fabrication, layout, setting, or erection details. Shop drawings are further defined in Article 6.17, Section 00700.
- B. Shop drawings shall be prepared by a qualified detailer and shall be identified by reference to sheet and detail numbers on the Contract 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. Product data are further defined in Article 6.17, Section 00700.
- B. Modify standard drawings to delete information which is 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 SAMPLES

Samples are physical examples to illustrate materials, equipment, or workmanship and to establish standards by which work is to be evaluated. Samples are further defined in Article 6.17, Section 00700.

SECTION 01340
SUBMITTAL OF SHOP DRAWINGS

1.5 CONTRACTOR'S RESPONSIBILITIES FOR SUBMITTAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. The CONTRACTOR's responsibilities for submittal of shop drawings, product data, and samples are set forth in paragraph 6.17 of the General Conditions and as further explained herein.
- B. Prior to submission, thoroughly check shop drawings, product data, and samples for completeness and for compliance with the Contract Documents, verify all dimensions and field conditions, and coordinate the shop drawings with the requirements for other related work. Also review each shop drawing 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 his suppliers and Subcontractors before transmitting them to ENGINEER to assure proper coordination of the Work and to determine that each submittal is in accordance with 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 shop drawings based on his in-the-field measurements, prior to submittal to the ENGINEER for his review.
- D. 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, which requires submittals until return of submittals with the ENGINEER's stamp and initials or signature indicating the submittal has been reviewed.

SECTION 01340
SUBMITTAL OF SHOP DRAWINGS

1.6 SUBMITTAL REQUIREMENTS AND ENGINEER'S REVIEW FOR SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Submit to:
 Indian River County
 Engineering Division
 1801 27th Street
 Vero Beach, FL 32960
- B. A letter of transmittal shall accompany each submittal. If data for more than one Section of the Specifications is submitted, a separate transmittal letter shall accompany the data submitted for each Section.
- C. At the beginning of each letter of transmittal, provide a reference heading indicating the following:
- 1. OWNER'S Name
 - 2. Project Name
 - 3. Project Number
 - 4. Transmittal Number
 - 5. Section Number
- D. All submittals shall have a title block with complete identifying information satisfactory to the ENGINEER. The following is a sample Submittal Form that the CONTRACTOR may use:

[The remainder of this page has been left blank intentionally]

**SECTION 01340
SUBMITTAL OF SHOP DRAWINGS**

CONTRACTOR SUBMITTALS

SUBMITTAL NO. _____

Contractor:

Date Sent to County _____

No. Copies Sent to County _____

Original Submittal Re-Submittal

**Project Name: 58TH AVENUE (FROM NORTH OF 57TH STREET TO 85TH STREET)
FULL DEPTH RECLAMATION**

Project No.: IRC-1325

Shop Drawing Cut Sheet Other _____

Description: _____

Sub-Contractor: _____

Remarks: _____

Reviewing Agency: (As checked below)

	<u>Date Received</u>	<u>Date Returned</u>	<u>No. Copies Ret'd</u>
<input type="checkbox"/> I R C Engineering Div.	_____	_____	_____
<input type="checkbox"/> I R C Utilities Services	_____	_____	_____

Remarks: _____

IRC Engineering Division

Date Rec'd from Contractor _____

Date Ret'd to Contractor _____

1801 27th Street
Vero Beach, Fl. 32960

No. Copies Ret'd _____

Remarks: _____

Distribution of Copies:
IRC Engineering Division
Office File
Field Office File

SECTION 01340
SUBMITTAL OF SHOP DRAWINGS

- E. All submittals shall bear the stamp of approval and signature of CONTRACTOR as evidence that they have been reviewed by CONTRACTOR. Submittals without this stamp of approval will not be reviewed by the ENGINEER and will be returned to CONTRACTOR.
- F. 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.
- G. Initially submit to ENGINEER a minimum of two (2) copies of all submittals that are on 11-inch by 17-inch or smaller sheets (no less than 8 1/2-inch x 11-inch).
- H. After ENGINEER completes his review, Shop Drawings will be marked with one of the following notations:
 - 1. Approved
 - 2. Approved as Noted
 - 3. NOT Approved - Resubmit
- I. If a submittal is acceptable, it will be marked "Approved" or "Approved as Noted". One (1) electronic copy of the submittal will be returned to CONTRACTOR.
- J. Upon return of a submittal marked "Approved" or "Approved as Noted", CONTRACTOR may order, ship or fabricate the materials included on the submittal, provided it is in accordance with the corrections indicated.
- K. If a submittal is unacceptable, one (1) copy will be returned to CONTRACTOR with following notation, "NOT Approved - Resubmit".
- L. Upon return of a submittal marked "NOT Approved - Resubmit", make the corrections indicated and repeat the initial approval procedure. Upon return of a submittal so marked, repeat the initial approval procedure utilizing acceptable material or equipment.
- M. Work shall not be performed nor equipment installed without an ENGINEER "Approved" or "Approved as Noted" Shop Drawing.
- N. Submit Shop Drawings well in advance of the need for the material or equipment for construction and with ample allowance for the time required to make delivery of material or equipment after data covering such is approved. CONTRACTOR shall assume the risk for all materials or

01340 - Submittal of Shop Drawings

01340-5

SECTION 01340

SUBMITTAL OF SHOP DRAWINGS

equipment which is fabricated or delivered prior to the approval of Shop Drawings. Materials or equipment requiring Shop Drawings which have not yet received approval by the ENGINEER shall not be installed on the project. 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 should be allowed for this, for the Shop Drawings being revised and resubmitted, and for time required to return the approved Shop Drawings to CONTRACTOR.

- P. Furnish required submittals with complete information and accuracy in order to achieve required approval of an item within three submittals. All costs to ENGINEER involved with subsequent submittals of Shop Drawings, Samples or other items requiring approval, will be back-charged to CONTRACTOR in accordance with the General Conditions and the Supplementary Conditions. If the CONTRACTOR requests a substitution for a previously approved item, all of ENGINEER'S costs in the reviewing and approval of the substitution will be back-charged to CONTRACTOR unless the need for such substitution is beyond the control of CONTRACTOR.

+ + 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 false work, scaffolding, ladders, hoistways, braces, pumps, roadways, sheeting, forms, barricades, drains, flumes, and the like, any of which may be needed in construction of any part of the work and which are not herein described or specified in detail, must be furnished, maintained and removed by the CONTRACTOR, who is 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 hoists, cranes, temporary structures or work and for any damage which 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 or actions and damages or 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.

SECTION 01520

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

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. Chemical 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.

1.4 SECURITY

Full time watchmen will not be specifically required as a part of the Contract, but the CONTRACTOR shall provide inspection of work area daily and shall 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

Take all necessary precautions to control dust and mud associated with the work of this Contract. In dry weather, spray dusty areas daily with water in order to control dust. Take necessary steps to prevent the tracking of mud onto adjacent streets and highways.

1.6 REMOVAL OF TEMPORARY CONSTRUCTION FACILITIES

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 OWNER.

+ + END OF SECTION + +

SECTION 01541

PROTECTION OF THE WORK AND PROPERTY

1.1 GENERAL

- A. CONTRACTOR shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect the Work and all public and private property and facilities from damage as specified in the General Conditions and herein.
- B. In order to prevent damage, injury or loss, CONTRACTOR'S actions shall include, but not be limited to, the following:
 - 1. Store apparatus, materials, supplies, and equipment in an orderly, safe manner that will not unduly interfere with the progress of the Work or the Work of any other Contractor or utility service company.
 - 2. Provide suitable storage facilities for all materials, which are subject to injury by exposure to weather, theft, breakage, or otherwise.
 - 3. Place upon the Work or any part thereof, only such loads as are consistent with the safety of that portion of the Work.
 - 4. Clean up frequently all refuse, rubbish, scrap materials, and debris caused by construction operations, so that at all times, the site of the Work presents a safe, orderly, and workmanlike appearance.
 - 5. Provide barricades and guard rails around openings, for scaffolding, for temporary stairs and ramps, around excavations, elevated walkways and other hazardous areas.
- C. Except after written consent from proper parties, do not enter or occupy privately-owned land with men, tools, materials or equipment, except on easements provided herein.
- D. Assume full responsibility for the preservation of all public and private property or facility on or adjacent to the site. If any direct or indirect damage is done by or on account of any act, omission, neglect or misconduct in the execution of the Work by the CONTRACTOR, it shall be restored by the CONTRACTOR, at its expense, to a condition equal to or better than that existing before the damage was done.

1.2 BARRICADES AND WARNING SIGNALS

CONTRACTOR's responsibility for the maintenance of barricades, signs, lights, and for providing watchmen shall continue until OWNER accepts the Project.

1.3 TREE AND PLANT PROTECTION

- A. Protect existing trees, shrubs and plants on or adjacent to the site that are shown or designated to remain in place against unnecessary cutting, breaking or skinning of trunk, branches, bark or roots.

SECTION 01541

PROTECTION OF THE WORK AND PROPERTY

- B. Do not store or park materials or equipment within the drip line.
- C. Install temporary fences or barricades to protect trees and plants in areas subject to traffic.
- D. Fires shall not be permitted under or adjacent to trees and plants.
- E. Within the limits of the Work, water trees and plants that are to remain, in order to maintain their health during construction operations.
- F. Cover all exposed roots with burlap and keep it continuously wet. Cover all exposed roots with earth as soon as possible. Protect root systems from mechanical damage and damage by erosion, flooding, run-off or noxious materials in solution.
- G. If branches or trunks are damaged, prune branches immediately and protect the cut or damaged areas with emulsified asphalt compounded specifically for horticultural use.
- H. Remove all damaged trees and plants that die or suffer permanent injury and replace them with a specimen of equal or better quality.
- I. Coordinate Work in this Section with requirements of other sections herein.

1.4 PROTECTION OF IRRIGATION

The CONTRACTOR shall be responsible for maintaining in good condition all irrigation systems within the easements, which could be damaged by construction activities. The CONTRACTOR shall repair any irrigation systems damaged by construction activities within two (2) days. Irrigation systems partially within the right-of-way of 58th Avenue and all intersecting side streets within project limits may be cut off and capped or connected to same system to maintain functionality. The CONTRACTOR shall be responsible for maintaining the functionality of the remaining portion of the system if it should fall outside of the right-of-way.

1.5 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.

SECTION 01541

PROTECTION OF THE WORK AND PROPERTY

2. All underground structures known to ENGINEER except service connections for water, sewer, electric, and telephone are shown. This information is shown for the assistance of CONTRACTOR in accordance with the best information available, but is not guaranteed to be correct or complete. The existing utilities shown on the Contract Drawings are located according to the information available to the ENGINEER 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, which 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 which 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 in the Contract.
5. Where it is necessary to temporarily interrupt house or business services, the CONTRACTOR shall notify the owner or occupant, both before the interruption (24-hour minimum), and again immediately before service is resumed. Before disconnecting and pipes or cables, the CONTRACTOR shall obtain permission from their owner, or shall make suitable arrangement for their disconnection by their owner.
6. 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 which such structures provide. If CONTRACTOR damages an underground structure, restore it to original condition at CONTRACTOR's expense.

SECTION 01541

PROTECTION OF THE WORK AND PROPERTY

7. Necessary changes in the location of the Work may be made by ENGINEER, to avoid unanticipated underground structures.
8. 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 their places and protect from direct or indirect injury, all underground and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully, and as required by the party owning or controlling such structure. Before proceeding with the work of sustaining and supporting such structure, satisfy the ENGINEER that the methods and procedures to be used have been approved by the party owning same.
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, guard rails, posts, guard cables, signs, poles, markers, and curbs which are temporarily removed to facilitate installation of the Work shall be replaced and restored to their original condition at CONTRACTOR'S expense.

1.6 DAMAGE TO EXISTING STRUCTURES AND UTILITIES

- A. The CONTRACTOR shall be responsible for and make good all damage to pavement beyond the limits of this Contract, buildings, telephone or other cables, water pipes, sanitary pipes, or other structures which may be encountered, whether or not shown on the Drawings.

SECTION 01541

PROTECTION OF THE WORK AND PROPERTY

- B. Information shown on the Drawings as to the location of existing utilities has been prepared from the most reliable data available to the Engineer. This information is not guaranteed, however, and it shall be this CONTRACTOR's responsibility to determine the location, character and depth of any existing utilities. He shall assist the utility companies, by every means possible to determine said locations. Extreme caution shall be exercised to eliminate any possibility of any damage to utilities resulting from his activities.

1.7 ADJUSTMENTS OF UTILITY CASTINGS, COVERS AND BOXES

- A. All existing utility castings, including valve boxes, junction boxes, manholes, pull boxes, inlets and similar structures in the areas of construction that are to remain in service shall be adjusted by the CONTRACTOR to bring them flush with the surface of the finished work.
- B. The CONTRACTOR shall coordinate the utilities to ensure proper construction sequencing. CONTRACTOR shall make available survey reference markers to the various utility companies.

+ + END OF SECTION + +

SECTION 01550

ACCESS ROADS, PARKING AREAS AND USE OF PUBLIC STREETS

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.

1.2 USE OF PUBLIC STREETS

The use of public streets and alleys shall be such as to provide a minimum of inconvenience to the public and to other traffic. Any earth or other excavated material spilled from trucks shall be removed immediately by the CONTRACTOR and the streets cleaned to the satisfaction of the Owner.

1.3 USE OF PUBLIC STREETS FOR HAUL ROADS

- A. Prior to construction, the CONTRACTOR shall designate all proposed haul roads to be used during the life of the project. Any earth or other materials spilled from trucks shall be removed by the CONTRACTOR and streets cleaned to the satisfaction of the Owner. He further shall be responsible for repairs to any damages caused by his operations, prior to final payment.
- B. All trucks carrying earth shall be covered while moving with an appropriate tarpaulin. Should trucks hauling earth fail to cover their loads, the CONTRACTOR will be given two (2) written warnings, after which the CONTRACTOR shall pay a fine of \$50 per uncovered truck to the Owner when invoked by the Owner to Owner's Engineer. All cleanup shall be the responsibility of the CONTRACTOR.
- C. All trucks/moving equipment shall have backup warning horns in proper working order while on the job site.

+ + 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. Shipments shall not be delivered to OWNER except where otherwise directed.
- C. If necessary to move stored materials and equipment during construction, CONTRACTOR shall move or cause to be moved materials and equipment without any 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 approved by the ENGINEER.
- D. Do not have products delivered to site until required 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. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts, and to facilitate assembly.

SECTION 01610

TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT

- G. Immediately on delivery, inspect shipment to assure:
 - 1. Product complies with requirements of Contract Documents and reviewed submittals.
 - 2. Quantities are correct.
 - 3. Containers and packages are intact, 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. Materials and equipment shall at all times be handled 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 and requirements of Specifications.
- B. 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 other contractors, public travel, adjoining owners, tenants and occupants. Arrange storage in a manner to provide easy access for inspection.
- C. Areas available on the construction site for storage of material and equipment shall be as shown or approved by the ENGINEER.
- D. Store materials and equipment which are to become the property of the OWNER to facilitate their inspection and insure preservation of the quality and fitness of the Work, including proper protection against damage by extreme temperatures and moisture.
- E. Do not use lawns, grass plots or other private property for storage purposes without written permission of the OWNER or other person in possession or control of such premises.
- F. CONTRACTOR shall be fully responsible for loss or damage to stored materials and equipment.
- G. Do not open manufacturers containers until time of installation unless recommended by the manufacturer or otherwise specified.
- H. When appropriate store materials on wood blocking so there is no contact with the ground.

+ + END OF SECTION + +

SECTION 01630

SUBSTITUTIONS

1.1 GENERAL

- A. Requests for review of a substitution shall conform to the requirements of Article 6.05, "Substitutes and Or-Equals," 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," submit a request for a substitution for any product or manufacturer which is not specifically named.
- D. For products specified by naming only one product or manufacturer and followed by words indicating that no substitution is permitted, there is no option and no substitution will be allowed.
- E. Where more than one choice is available as a CONTRACTOR's option, select product which is compatible with other products already selected or specified.

1.3 SUBSTITUTIONS

- A. During a period of 15 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).
 - 1. 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 5 copies of Request for Substitution. Submit a separate request for each substitution. In addition to requirements set forth in Article 6.05 of 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.

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SUBSTITUTIONS

- 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 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 method specified.
 2. CONTRACTOR will provide the same or better guarantees or warranties for proposed substitution as for product, manufacturer, or 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.
- E. If the ENGINEER determines that a proposed substitute is not equal to that specified, furnish the product, manufacturer, or 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.
- G. The procedure for review by Engineer will include the following:
 1. Requests for review of substitute items of material and equipment will not be accepted by Engineer from anyone other than CONTRACTOR.
 2. Upon receipt of an application for review of a substitution, Engineer will determine whether the review will be more extensive than a normal shop drawing review for the specified item.
 3. If the substitution will not require a more extensive review, Engineer will proceed with the review without additional cost to CONTRACTOR.

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SUBSTITUTIONS

4. If the substitution requires a more extensive review, Engineer will proceed with the review only after CONTRACTOR has agreed to reimburse Owner for the review cost.
 5. Engineer may require CONTRACTOR to furnish at CONTRACTOR's expense additional data about the proposed substitute.
- H. Any redesign of structural members shall be performed by, and the plans signed and sealed by, a Professional Engineer registered in the State of Florida. The redesign shall be at the CONTRACTOR's expense. Any redesign will require an extensive review by the Engineer. The CONTRACTOR must agree to reimburse the Owner for the review cost prior to the Owner's Engineer proceeding with the design review. The ENGINEER's estimated cost of review shall be provided to the CONTRACTOR prior to proceeding with the review to allow the CONTRACTOR the opportunity to rescind the request.
- I. Engineer will be allowed a reasonable time within which to evaluate each proposed substitution. Engineer will be the sole judge of acceptability and shall have the right to deny use of any proposed substitution. The CONTRACTOR shall not order, install, or utilize any substitution without either an executed Change Order or Engineer's notation on the reviewed shop drawing. Owner may require CONTRACTOR to furnish at CONTRACTOR's expense a special manufacturer's performance guarantee(s) or other surety with respect to any substitute and an indemnification by the CONTRACTOR. ENGINEER will record time required by Engineer and Engineer's consultants in evaluating substitutions proposed by CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not a proposed substitute is used, CONTRACTOR shall reimburse Owner for the charges of Engineer and Engineer's consultants for evaluating each proposed substitute.
- J. Substitute materials or equipment may be proposed for acceptance in accordance with this Section. In the event that substitute materials or equipment are used and are less costly than the originally specified material or equipment, than the net difference in cost shall benefit the Owner and CONTRACTOR in equal proportions. This cost difference shall not be reduced by any failure of the CONTRACTOR to base his bid on the named materials or equipment.

+ + END OF SECTION + +

SECTION 01710

SITE CLEANUP AND RESTORATION

1.1 SCOPE

Furnish all labor, equipment, appliances, and materials required or necessary to clean up and restore the site after the construction is completed.

1.2 REQUIREMENTS

- A. During the progress of the project, keep the work and the adjacent areas affected thereby in a neat and orderly condition. Remove all rubbish, surplus materials, and unused construction equipment. Repair all damage so that the public and property owners will be inconvenienced as little as possible.
- B. Provide onsite containers for the collection of waste materials, debris, and rubbish and empty such containers in a legal manner when they become full.
- C. Where material or debris has been deposited in watercourses, ditches, gutters, drains, or catch-basins 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 the completion of the project, unless otherwise especially 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 adjacent 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 at least equal to that existing immediately prior to the beginning of the operations. To this end, the CONTRACTOR shall restore all highway, roadside, and landscaping work within any right-of-way, platted or prescriptive. Acceptable materials, equipment, and methods shall be used for such restoration.
- F. Thoroughly clean all materials and equipment installed and on completion of the work, deliver the facilities undamaged and in fresh and new-appearing condition.

SECTION 01710

SITE CLEANUP AND RESTORATION

- G. It is the intent of the Specifications to place the responsibility on the CONTRACTOR to restore to their original condition all items disturbed, destroyed, or damaged during construction. Particular attention will be placed on restoration of canals to equal or better condition than prior to construction.
- H. When finished surfaces require cleaning with cleaning materials, use only those cleaning materials which will not create hazards to health or property and which will not damage the surfaces. 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 the areas, which are producing the dust. Schedule construction operations so that dust and other contaminants will not fall on wet or newly coated surfaces.

1.3 SITE CLEANUP AND RESTORATION

Prior to final completion, the OWNER, ENGINEER, IRFWCD and CONTRACTOR shall review the site with regards to site cleanup and restoration. Clean and/or restore all items determined to be unsatisfactory by the OWNER or ENGINEER, at no additional expense.

+ + END OF SECTION + +

SECTION 01820
POST FINAL INSPECTION

1.1 GENERAL

- A. Approximately one year after Final Completion, the OWNER will make arrangements with the Construction Coordination Manager and the CONTRACTOR for a post final inspection and will send a written notice to said parties to inform them of the date and time of the inspection.

- B. Corrections of defective work noted by OWNER and Construction Coordination Manager 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 performance and payment bonds.

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DIVISION 1 GENERAL REQUIREMENTS

<u>TITLE</u>	<u>SECTION NO.</u>
SPECIAL PROVISIONS	01009
FORCE ACCOUNT	01024
FIELD ENGINEERING AND LAYOUT	01050
REFERENCE STANDARDS	01091
GENERAL QUALITY CONTROL	01215
PROGRESS MEETINGS	01220
CONSTRUCTION SCHEDULES	01310
SUBMITTAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES	01340
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS	01520
PROTECTION OF THE WORK AND PROPERTY	01541
ACCESS ROADS, PARKINGS AREAS AND USE OF PUBLIC STREETS	01550
TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT	01610
STORAGE OF MATERIAL AND EQUIPMENT	01611
SUBSTITUTIONS	01630
SITE CLEANUP AND RESTORATION	01710
POST FINAL INSPECTION	01820

DIVISION 2 TECHNICAL PROVISIONS

SECTION NO. 001	Technical Specifications
SECTION NO. 004	Scope of Work
SECTION NO. 101	Mobilization
SECTION NO. 102	Maintenance of Traffic
SECTION NO. 104	Prevention, Control, and Abatement of Erosion and Water Pollution
SECTION NO. 110	Clearing and Grubbing
SECTION NO. 120	Excavation and Embankment
SECTION NO. 121	Flowable Fill
SECTION NO. 160	Stabilizing
SECTION NO. 283	Reclaimed Asphalt Pavement Base
SECTION NO. 285	Optional Base Course
SECTION NO. 327	Milling of Existing Asphalt Pavement
SECTION NO. 332	Full Depth Reclamation
SECTION NO. 334	Superpave Asphalt Concrete
SECTION NO. 337	Asphalt Concrete Friction Courses
SECTION NO. 400	Concrete Structures
SECTION NO. 425	Inlets, Manholes, and Junction Boxes
SECTION NO. 430	Pipe Culverts
SECTION NO. 520	Concrete Gutter, Curb Elements and Traffic Separator
SECTION NO. 522	Concrete Sidewalk and Driveways
SECTION NO. 527	Detectable Warnings
SECTION NO. 530	Revetment Systems
SECTION NO. 536	Guardrail
SECTION NO. 550	Fencing

SECTION NO. 570	Performance Turf
SECTION NO. 630	Conduit
SECTION NO. 632	Signal Cable
SECTION NO. 633	Communication Cable
SECTION NO. 634	Span Wire Assembly
SECTION NO. 635	Pull, Splice, and Junction Boxes
SECTION NO. 639	Electrical Power Service Assemblies
SECTION NO. 641	Prestressed Concrete Poles
SECTION NO. 650	Vehicular Traffic Signal Assemblies
SECTION NO. 660	Vehicle Detection System
SECTION NO. 670	Traffic Controller Assemblies
SECTION NO. 684	Network Devices
SECTION NO. 700	Highway Signing
SECTION NO. 706	Retroreflective Pavement Markers and Bituminous Adhesive
SECTION NO. 711	Thermoplastic Pavement Markings
SECTION NO. 715	Highway Lighting System
SECTION NO. 999	Record Drawings/As-Builts
SECTION NO. 1050-1080	Watermain Relocation

WATER SYSTEM SPECIFICATIONS

SECTION NO. 1	Water Mains – Ductile Iron Pipes (DIP) and Fittings
SECTION NO. 2	Water Mains – Polyvinyl Chloride Pipe (PVC) and Fittings
SECTION NO. 3	Water Services – Crosslinked Polyethylene (PEXa) Tubing and Water Mains – High Density Polyethylene Pipe (HDPE)
SECTION NO. 2413	Horizontal Directional Drilling
SECTION NO. 18	Approved Manufacturers' Product List

SECTION 1 - Technical Specifications

STANDARD SPECIFICATIONS

- A. All work of this Contract shall conform to the applicable technical specifications of Florida Department of Transportation Standard Specifications for Road and Bridge Construction, July 2017, and Supplemental Specification, Special Provisions and addenda thereto, except as modified and supplemented hereinafter. Reference to Article numbers herein-after apply to the FDOT Standard Specifications, and reference in FDOT Standard Specifications to Department shall be taken as the Owner or its appointed Representative. Wherever the Specifications, Supplementals, etc. may refer to the "Owner", "Department", "State of Florida Department of Transportation", or words relating to offices of State Government, such words shall be taken as meaning Owner or Indian River County, Florida. Wherever the word "Owner's Engineer", "District Engineer", "Engineer", "Project Engineer", etc., appears, it shall be taken to mean the Registered Professional Project Engineer of the Indian River County Public Works Department, Engineering Division acting directly or through duly authorized representatives. Wherever the word "Resident Engineer" appears, it shall be taken to mean an authorized representative of the Owner's Engineer on the Project (Resident Construction Inspector) who will act as an agent for Indian River County, assigned to observe the progress quantity and quality of the work.

The work to be performed per line items 700 through 711 shall conform to the applicable standards of Indian River County Typical Drawings for Pavement Markings, Signing & Geometrics Revised March 2012.

The work to be performed for utility work (if any) shall conform to the applicable technical specifications of the "Indian River County Department of Utility Services, Water, Wastewater, and Reclaimed Water Utility Construction Standards" March, 2018 or the current version, and The City of Vero Beach Water and Sewer Department.

SECTION - 4 - SCOPE OF WORK

Section 4-3.9 Value Engineering Incentive is deleted in its entirety.

SECTION - 101 - MOBILIZATION

The work specified in this item shall conform to Section 101 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

PART 1 - GENERAL

1.01 The work specified in this section shall include:

- A. Field engineering and layout shall be in conformance to Section 01050, Field Engineering and Layout of Division 1, General Requirements.

- B. Public Construction Bond shall be done and conform to Section 00610 – Public Construction Bond
- C. Trench Safety Compliance (Over 5') shall be done and comply to Section 00454 – Sworn Statement under the Florida Trench Safety Act
- D. Trench Safety Compliance (Shoring) shall be done and comply to Section 00454 – Sworn Statement under the Florida Trench Safety Act
- E. The Contractor shall maintain all grassed and landscaped areas within the project limits in a satisfactory condition until final acceptance of the project. Such maintenance within the limits of construction shall include the mowing of all existing grassed areas within the Right-of-Way, removal of all trash and debris on a weekly basis, and keeping vegetation trimmed on all sidewalks. Grass height shall not exceed 6" without mowing. Clippings shall be removed from sidewalk.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 101-1 - Mobilization – Per Lump Sum

Bid item No. 101-1A – Mobilization (W&S) – Per Lump Sum

SECTION - 102 - MAINTENANCE OF TRAFFIC

The work specified in this item shall conform to Section 102 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, except as modified herein.

- A. **GENERAL PROVISIONS-DESCRIPTION:** The work specified in this Section consists of maintaining traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of the work. It shall include the construction and maintenance of any necessary detour facilities; the providing of necessary facilities for access to residences, businesses, etc., along the project; the furnishing, installing and maintaining of traffic control and safety devices during construction, the control of dust through the use of calcium chloride if necessary, and any other special requirements for safe and expeditious movement of traffic as may be called for on the plans. The term, Maintenance of Traffic, as used herein, shall include all of such facilities, devices and operations as are nuisance; all as specified in this Itemized Section 14 of these provisions and Paragraph 24 in General Conditions Section.
- B. **BEGINNING DATE OF CONTRACTOR'S RESPONSIBILITY:** **The Contractor shall present his Maintenance of Traffic Plan at the pre-construction conference.** The Maintenance of Traffic Plan shall indicate the type and location of all signs, lights, barricades, striping and barriers to be used for the safe passage of pedestrians and vehicular traffic through the project and for the protection of the workmen. The plan will indicate conditions and setups for each phase of the Contractor's activities. When the project plans include or specify a specific Maintenance of Traffic Plan, alternate proposals will be considered when they are found to be equal to or better than the plan specified.

In no case may the Contractor begin work until the Maintenance of Traffic Plan has been approved in writing by the Engineer. Modifications to the Maintenance of Traffic Plan that become necessary shall also be approved in writing. Except in an emergency, no changes to the approved plan will be allowed until approval to change such plan has been received.

The cost of all work, including the Maintenance of Traffic Plan prepared by a professional engineer licensed in the State of Florida, shall be included in the pay item for Maintenance of Traffic.

The Contractor shall be responsible for performing daily inspections, including weekends and holidays, with some inspections at nighttime, of the installations on the project and replace all equipment and devices not conforming with the approved standards during that inspection. The project personnel will be advised of the schedule of these inspections and be given the opportunity to join in the inspection as is deemed necessary. **Maintenance of Traffic plan shall include provisions for maintaining access to the Indian River County Fairgrounds during the Firefighters Fair between March 13 and March 22, 2020.**

- C. **TRAFFIC CONTROL - STANDARDS:** The FDOT Design Standards For Design, Construction, Maintenance and Utility Operations On The State Highway System, Edition as dated on the plans set forth the basic principles and prescribes minimum standards to be followed in the design, application, installation, maintenance and removal of all traffic control devices and all warning devices and barriers which are necessary to protect the public and workmen from hazards within the project limits. The standards established in the aforementioned manual constitute the minimum requirements for normal conditions, and additional traffic control devices warning devices, barriers or other safety devices will be required where unusual, complex or particularly hazardous conditions exist.

The above referenced standards were developed using F.H.W.A., U.S.D.O.T. Manual on Uniform Traffic Control Devices (MUTCD).

- D. **TRAFFIC CONTROL DEVICES, WARNING DEVICES AND BARRIERS - INSTALLATION:** The responsibility for installation and maintenance of adequate traffic control devices, warning devices and barriers, for the protection of the travel in public and workmen, as well as to safeguard the work area in general shall rest with the Contractor. Consideration shall be given to recommendations of the Engineer. The required traffic control devices, warning devices and barriers shall be erected by the Contractor prior to creation of any hazardous condition and in conjunction with any necessary re-routing of traffic. The Contractor shall immediately remove, turn or cover any devices or barriers which do not apply to existing conditions. All traffic control devices shall conform to MUTCD standards and shall be clean and relatively undamaged. Damaged devices diminishing legibility and recognition, during either night or day conditions, are not acceptable for use.
- E. **NO WAIVER OF LIABILITY:** The Contractor shall conduct his operations in such a manner that no undue hazard will result due to the requirements of this article, and

the procedures and policies described therein shall in no way act as a waiver of any of the terms of the liability of the Contractor or his surety.

- F. Variable Changing Message Signs shall be in place two (2) weeks prior to ALL road closings. Cost shall be included in the Maintenance of Traffic pay item.
- G. Variable Changing Message Signs necessary for the Maintenance of Traffic Plan and the cost of the signs shall be included in the Maintenance of Traffic pay item.
- H. In addition to above, the Contractor shall comply with INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION SPECIAL CONDITIONS FOR RIGHT-OF-WAY CONSTRUCTION in Appendix C.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 102-1 - Maintenance of Traffic – Per Lump Sum

Bid Item No. 102-1A - Maintenance of Traffic (W&S) – Per Lump Sum

SECTION - 104 - PREVENTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLUTION

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, including but not limited to Multiple Separate Storm Sewer Systems (MS4s) and Waters of the State.
- 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. 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, implement additional best management practices as necessary, in accordance with [Chapter 4, “Best Management Practices for Erosion and Sedimentation Control” of the Florida Erosion and Sediment Control Inspector’s Manual](#) and other references as may be applicable or required by regulatory permits.

- 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)) prior to commencement of dewatering in accordance with F.A.C. 40C-2.042(9). Provide a copy of the Notice 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.
- 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.
- C. Pay for all required water quality sampling and laboratory tests.

1.3 GENERAL

- A. Do not begin any other construction work until the pollution control and treatment system has been constructed in accordance with approved plans, permits, and these Specifications; and the installed system has been examined by the OWNER for 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 portion of the project

down that is not in compliance, 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 at least once per day and 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.
- F. Promptly repair all damage at no cost to the OWNER.

1.4 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. "Contractor's Affidavit Regarding Erosion Control and Treatment of Dewatering Water and Stormwater From Construction Activities"

1.5 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 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). Before beginning construction, submit to Indian River County, Florida Department of Environmental Protection (FDEP) and other applicable regulatory agencies for review and approval, a Stormwater Pollution Prevention Plan (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 applicable regulatory agencies. Submit the approved SWPPP to the ENGINEER before beginning construction. Include in the SWPPP, the "Contractor's Affidavit Regarding Erosion Control and Treatment of Dewatering Water and Stormwater From Construction Activities" (located at the end of this Section).

1.6 "POLLUTION" AND CERTAIN UNCONTESTABLE POLLUTION EVENTS DEFINED

- A. With respect to this Section and as may be further defined in paragraphs [1.6.B](#), [1.6.C](#), and [1.6.D](#), "pollution" is the presence in off-site waters of any substances, contaminants, or manmade or human-induced impairment of off-site waters or alteration of the chemical, physical, biological, or radiological integrity of 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 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 is 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. Above paragraphs [1.6.B](#), [1.6.C](#), and [1.6.D](#) do not in any way, limit the types of conditions in which pollution may be determined to occur.

1.7 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.

PART 2 - MATERIALS AND INSTALLATION

2.1 GENERAL

- A. Polyacrylamide: As required in Paragraph 1.3.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.
- B. Staked Silt Fences:
1. General: Use silt fences to control runoff from the construction site where the soil has been disturbed.
 2. Installation: Install per the manufacture's recommendations and as specified herein. In general, install the silt fence in a manner that allows it to stop the water long enough for the sediment to settle while the water passes through the silt fence fabric. All supporting posts shall be on the down-slope side of the fencing. Place the bottom of the fabric 6-inches minimum, under compacted soil to prevent the flow of sediment underneath the fence. Place silt fences away from the toe of slopes. Otherwise, work shall conform to Section 104 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.
 3. Product: All material shall be new and unused. Use FDOT Types III through IV silt fences where large sediment loads are anticipated, where slopes are 1:2 (vertical: horizontal) or steeper, or as directed by the ENGINEER; otherwise use FDOT Type II silt fence.
- C. Turbidity Barriers:
1. General: Use turbidity barriers to control sediment contamination of rivers, lakes, ponds, canals, etc.
 2. Installation: Install per the manufacturer's recommendations and per Section 104 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction 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 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: Minimize the transport of sediment and soil from the construction site or work area by vehicle wheels. Construct a crushed rock driving surface 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. 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.
- I. Hay Bales: Hay bales shall not be used.

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, 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](#).

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 104-1 – Prevention, Control and Abatement of Erosion and Water Pollution – Per Lump Sum

Bid Item No. 104-1A – Erosion Control (W&S) – Per Lump Sum

PERMITTEE'S AFFIDAVIT REGARDING POLLUTION

This sworn statement is submitted to Indian River County for the following project (list project name and site address): **58TH AVENUE (FROM NORTH OF 57TH TO 85TH STREET)**
FULL DEPTH RECLAMATION, VERO BEACH, FLORIDA 32697.

STATE OF _____
COUNTY OF _____

Personally before me the undersigned authority, appeared

_____, who upon oath duly administered, stated as follows:

1. This sworn statement is submitted by the PERMITTEE,

_____,
whose business address is _____

and (if applicable) its Federal Identification No.(FEIN) is _____.

2. My name is _____ and my relationship to the
entity named above is _____.

(If signing as Owner's Agent, attach Letter of Authorization to Sign from Owner)

3. Permittee understands and agrees that in addition to complying with the terms and conditions of the Stormwater Management System Permit issued by Indian River County, Permittee is responsible for complying with the terms and conditions of the following as applicable to the site:

- (a) State of Florida Generic Permit for Stormwater Discharge From Large and Small Construction Activities (for projects one acre or larger),
- (b) Stormwater Pollution Prevention Plan (regardless of project size),
- (c) St. Johns River Water Management District permit(s) (regardless of project size),
- (d) Florida Department of Environmental Protection permit(s) (regardless of project size),
- (e) All other permits required for this project not specifically listed herein, and
- (f) All Codes and Ordinances of Indian River County.

4. Permittee understands and agrees that "pollution" as defined by Florida Statutes Chapter 403.031(7) includes: ". . . the presence in the outdoor atmosphere or waters of the state of any substances, contaminants, noise, or manmade or human-induced impairment of air or waters or alteration of the chemical, physical, biological, or radiological integrity of air or 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 or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation unless authorized by applicable law.”

5. Permittee understands and agrees that in addition to the definition set forth in Item 4 above, “pollution” is also defined by Florida Administrative Code 62-302.530 and as may be further defined in the Indian River County permit(s).
6. Permittee understands that Indian River County requires the design, installation, and maintenance of proper erosion control measures at all times during construction until complete stabilization is achieved at the project site. Permittee understands that this requirement is for this project regardless of the project size.
7. Permittee understands that there are civil and criminal penalties for pollution listed in Florida Statutes Ch. 403.141 and Ch. 403.161 and that there are other penalties listed in Indian River County’s permits, including but not limited to, Indian River County issuing a Cease and Desist Order for the project. Permittee understands that it may be liable for these and other penalties if offsite pollution occurs as a result of activities associated with the Project.
8. Transfer of Ownership or County Issued Permits:
 - (a) Transfer of Interest in Real Property: Within twenty-one (21) days of any transfer of ownership or control of the real property at which the permitted activity, facility, or system is located or authorized, the Permittee shall notify in writing, both the Indian River County Engineering Division and the Indian River County Stormwater Division of the transfer. Permittee shall provide the name, mailing address, and telephone number of the transferee and a copy of the instrument effectuating the transfer. Said notification is in addition to notifying the County Attorney’s Office as required by County Code.
 - (b) Transfer of a County Permit. To transfer a County issued permit, Permittee must provide (1) the information required in Item 8(a); (2) a written statement from the proposed transferee that it will be bound by all terms and conditions of the permit; and (3) a new “Permittee’s Affidavit” form properly executed by the transferee. Upon proper receipt of these items the County shall transfer the permit to the transferee.
 - (c) Permittee is encouraged to request a permit transfer prior to the sale or legal transfer of the real property at which a permitted facility, system, or activity is located or authorized. However, the transfer shall not be effective prior to the sale or legal transfer.
 - (d) An “Illicit Discharge Sign” must be present at the site at the time of transfer. Replacement or additional signs may be obtained from the Indian River County Public Works Department at a cost of \$30.00 per sign.

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Under penalty of perjury, Permittee declares that it has read the foregoing affidavit and the facts stated in it are true.

FURTHER AFFIANT SAYETH NAUGHT

Permittee: _____

Authorized Signature: _____
(If signing as Owner's Agent, attach Letter of Authorization to Sign from Owner)

Printed Name: _____

Date: _____

Work Telephone: _____

Mobile Telephone: _____

Email Address: _____

The foregoing instrument was subscribed and sworn to before me this ___ day of _____, 20__ by _____, who is personally known to me or has produced _____ as identification and who did take oath.

Notary Public State of Florida at Large

My Commission expires: _____

+ + END OF SECTION + +

SECTION - 110 - CLEARING AND GRUBBING

The work specified in this item shall conform to Section 110 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction with the following modifications:

- A. Prior to any clearing and grubbing, the contractor will stake the right-of-way. Unimproved areas shall be cleared of trees, logs, stumps, brush, vegetation, rubbish and other perishable or objectionable matter within limits shown on the plans excepting for certain trees and shrubs shown on the plans or as directed by the Engineer which are to remain undisturbed and protected. Stumps and roots between slope stakes in cuts and in embankments 3 feet or less in depth shall be removed to a depth of 18 inches below subgrade. No stumps, roots, or perishable matter of any description shall remain under concrete slabs or footing, including pavement and sidewalks.
- B. No trees shall be removed or relocated until the Engineer or his representative has marked all trees to be saved, after a review of the project site with the Contractor's representative.
- C. Where the final pavement or structural work will be close to existing trees, the Contractor shall exercise care in the vicinity of the trees. Further, the Contractor shall saw cut along the edge of the outside limits of the stabilization, structure subgrade or sidewalk to a minimum depth of 4 feet below the finish grade and paint with a commercial grade pruning paint the ends of all sawn roots. If directed by the Engineer or where shown on the drawings, work shall be done by hand in order to protect the trees.
- D. The Contractor shall exercise care when working in the vicinity of all trees to remain so as to not damage or remove major root structures. The Contractor shall not pull hair or major root structures. All severed roots shall be sawn clean and paint with pruning paint. Stumps, roots, etc., shall be completely removed and disposed of by the Contractor. Undesirable, dead, and/or damaged trees (as so designated by the Engineer) shall be removed.
- E. All trees to be removed shall be disposed of off site; burning will be strictly prohibited.
- F. All trees or shrubs which are to remain shall be preserved and protected by the Contractor. Where the removal of valuable trees or shrubs specifically for transplanting is required, this work shall be done in cooperation with the Owner and at no additional expense to the Owner.
- G. All items to be removed shall be excavated to their full depth. All culverts removed from residential driveway entrances within the right-of-way shall become the property of the respective homeowner. Those homeowners not desiring the culverts may donate them to the County free of charge. (See Paragraph C, Special Provisions) The Contractor shall transport the culverts to the County's storage yard. All metal castings for catch basins, manholes, or other structures shall be carefully

removed and stored in the County's Storage Yard if they are deemed salvageable by the Engineer. The excavated materials shall be removed from the job site and disposed in a location designated or approved by the Owner. Any culverts, structures or any material excavated or removed from the project site under clearing and grubbing deemed unsalvageable by the Engineer shall be disposed of in a legal manner by the Contractor. Where required, suitable material as approved by the Engineer shall then be backfilled and compacted to restore the original contour of the ground. The fill material shall be backfilled and compacted in accordance with Section 120 of these specifications.

- H. No additional payment will be made, nor will additional work, or change orders be authorized for work needed to remove, relocate, protect, or otherwise account for in the construction of the work depicted in the plans, for any feature, or item that would be apparent from a careful inspection of the site and review of the plans, even though such feature or item is not specifically called out in the plans. It is therefore essential the contractor make such inspection and review.
- I. The unit price bid for this item shall include the cost of all labor, tools, and equipment necessary to excavate, remove, and dispose of those items as directed by the Engineer and where designated on the Drawings. The cost of restoration and backfill and compaction for the specific area of removal shall also be included under this item.

Item of Payment

Payment for the work specified in this item shall be made under:
Bid Item 110-1-1 - Clearing & Grubbing – Per Lump Sum
Bid Item 110-1-1A – Clearing and Grubbing (W&S) – Per Lump Sum
Bid Item 110-7-1 – Mailbox Relocation – Per Each

SECTION - 120 – EXCAVATION AND EMBANKMENT

- A. This item shall include but not be limited to;
 - Swale and shoulder excavation
 - The excavation and utilization of the boxed out material sections where the new paved shoulder will be constructed.
 - Final grading to meet the proposed sections on the plans.
- B. Earthwork, including earthwork for drives outside the right-of-way limits, shall be paid for as embankment. Cost shall include all work specified in this section and Section 120 of the Standard Specifications. Such price and payment shall specifically include all cost of any roadway, lateral ditch or canal, and final dressing operations.
- C. Earthwork quantities shall be considered as in-place material with no shrinkage or expansion factors.
- D. Subsoil Excavation - Any excavation below the proposed bottom elevation of the

select fill, isolated swale bottom locations, isolated locations for pipe installations and as approved by the engineer shall be paid for as subsoil excavation. Approximately 2.0 ft of subsoil excavation is required in sublateral canals. Cost of replacement embankment shall be included in cost of subsoil excavation. Contractor to coordinate with county representative prior to any subsoil excavation.

- E. Embankment - General Requirements for Embankment Materials: The following is added after the first paragraph of Subarticle 120-7.2:

Roadway Design Standard Index No. 505, Embankment Utilization Details is modified by the addition of the following:

Any stratum or stockpile or soil which contains obvious pockets of highly organic material may be designated as muck or unsuitable for construction of subgrade by the Owner.

Backfill material containing more than 2.0% by weight of organic material, as determined by FM 1-T 267 and by averaging the test results for three randomly selected samples from each stratum or stockpile of a particular material, shall not be used in construction of the reinforced volume. If an individual test value of the three samples exceeds 3.0%, the stratum or stockpile will not be suitable for construction of the reinforced volume.

No A-8 material permitted in embankment.

Item of Payment

Payment for the work specified in this item shall be under:

Bid Item No. 120-1 – Regular Excavation - Per Cubic Yard

Bid Item No. 120-1A– Excavation of Existing Asphalt and Base–Per Square Foot

Bid Item No. 120-1B – Excavation and Embankment (W&S) – Per Lump Sum

Bid Item No. 120-2 – Borrow Excavation (Reclaimed FDR) – Per Cubic Yard

Bid Item No. 120-6 – Embankment – Per Cubic Yard

SECTION - 121 – FLOWABLE FILL

The work specified in this item shall conform to Section 121 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 121-70 –Flowable Fill (Non-Excavatable) – Per Cubic Yard

SECTION - 160 - STABILIZING

- A. Section 160 is modified by the addition of the following:

"The stabilization thickness indicated on plans shall be considered a minimum

"The stabilization thickness indicated on plans shall be considered a minimum thickness. Thickness will vary to conform to the lines, and grades shown in the plans." Minimum L.B.R. = 40 - No under-tolerance.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 160-4 - Type B Stabilization 3' Shoulder & Widening (LBR 40) 12" - Per Square Yard

SECTION - 285 – OPTIONAL BASE COURSE

The work specified in this item shall conform to Section 285 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Items of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 285-706 - Optional Base Course, 8" Limerock, (LBR=100) (W&S) – Per Square Yard

Bid Item No. 285-709 – Optional Base, Group 9 (LBR100) Limerock – Per Cubic Yard

SECTION - 327 – MILLING OF EXISTING ASPHALT PAVEMENT

The work specified in this item shall conform to Section 327 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 327-70-6 – Mill Existing Asphalt (1.5" Average Depth) – Per Square Yard

SECTION - 332 - FULL DEPTH RECLAMATION

332-1 Description.

This work shall consist of the preparation of a base course constructed by in-place pulverizing and blending of the existing bituminous pavement and base materials, and the introduction of asphalt emulsion and Portland cement, as called for in the mix design. Pulverize existing asphalt pavement and base material by a method that does not damage the material below the design depth as shown on the plans. The Contractor should anticipate multiple handling of the base material to meet the requirements of the project.

This item will include, but not be limited to moving the base material to the proposed paved shoulder, to areas to adjust finish grade higher, to areas of road widening, imported select material or moving acceptable excavated material required to meet the line and grade and conforming to the proposed sections on the plans, grading, compaction, prime and tack coat, sawcut and removal of existing materials for driveways and side streets.

332-2 Materials.

332-2.1 Asphalt Emulsion: The mix design calls for stabilization with asphalt emulsion, utilizing CSS-1h or CMS-2h, meeting the requirements of AASHTO M 208-01 (2009) and approved by the Engineer prior to use.

332-2.2 Portland Cement: Portland cement shall be added to the reclaimed mixture if required by the mix design. Cement used for full depth reclamation shall be Type I or II and comply with Section 921. Cement shall be limited to no more than 3.0 percent by dry weight of reclaimed material. Cement amounts greater than 3.0 percent will only be allowed if approved by the Engineer.

332-2.3 Sampling, Certification, and Verification: At any time during the project, the Engineer may sample and test the asphalt emulsion or asphalt binder delivered to the project to verify and determine compliance with specification requirements. Where these tests identify material outside specification requirements, the Engineer may require the supplier to cease shipment of the product. Further shipment of the product will remain suspended until the cause of the problem is evaluated and corrected by the supplier to the satisfaction of the Engineer.

332-2.4 Water: The water for the base course compaction shall meet the requirements of Section 923.

332-2.5 Granular Base Material: Granular base material added to the reclaimed layers shall consist of limerock meeting the requirements for Limerock Stabilized Base of the FDOT Specifications, Section 911. Further, it shall have a minimum LBR value of 100. All costs for handling the material will be included in this bid item, however the material provided to the project will be paid under separate bid item.

332-2.6 Documents: Provide copies of all materials delivery tickets to the Engineer upon materials delivery to the project site.

332-3 Mix Design.

Prior to construction, the Engineer obtained an adequate number of core samples to develop the mix design(s) which is included in the Project Documents. Representative samples of the asphalt pavement material, underlying base material, and virgin materials, where applicable, were supplied to a nationally accredited laboratory for testing to determine the proportions of asphalt emulsion and Portland cement, needed to produce a mix design meeting the requirements of Table 332-1. The optimum binder content shall be the binder content that results in the highest wet tensile strength while also having 70% retained Marshall stability compared to the dry Marshall stability of 3,500 pounds. Cement shall be used at a minimum dosage rate of 1.0 percent and a maximum dosage rate of 3.0 percent by dry weight of reclaimed material. Cement amounts greater than 3.0 percent will only be allowed if approved by the Engineer. Included in the project documents are the mix designs which are signed and sealed by a professional engineer and were submitted to the Engineer prior to use for approval. The project mix designs meet the following criteria:

Table 332-1 Mix Design Criteria		
Test	Test Method Number	Criteria
Gradation of reclaimed material	AASHTO T 27-11	Report
Determination of optimum binder content		
Compaction effort at optimum fluids content. Marshall Compactor; 50 blows/side or	Asphalt Institute MS 14, Appendix F.	Report

Superpave Gyrotory Compactor, 100 mm diameter specimens, 30 gyrations. Density determination.	ASTM D6926-10 AASHTO T 312-12 FM 1-T 166	
Marshall stability Cure at 60°C to constant weight. Test at 40°C.	ASTM D6927-06	3,500 lbs. minimum stability design specimen, 2,500 lbs. minimum field production specimen
Resistance of compacted bituminous mixture to moisture induced damage. 55 to 75% vacuum saturation, water bath at 25°C for 23 hours, last hour in water bath at 40°C.	AASHTO T 283-07 (2011) with modification of Marshall stability instead of tensile strength	70% minimum retained tensile strength

332-4 Equipment.

332-4.1 Road Reclaimer: Utilize a road reclaimer specifically designed for pavement reclaiming and capable of pulverizing and mixing pavement, additives, base materials, and subgrade soil to a depth of 16 inches. Road reclaimer shall be equivalent to the Wirtgen 2500/240 in horsepower and drum width. It shall have the capability of introducing and metering additives uniformly and accurately and have positive displacement pumps which can accurately meter the planned amount of asphalt emulsion into the mixture. The reclaiming machine shall mix the emulsified asphalt additive thoroughly with the RAP, Portland cement and soil materials. The pump shall be interlocked with the ground speed of the machine. The asphalt metering system and water metering system shall be capable of continuously monitoring flow and totaling the quantity of water and asphalt applied into the mixing chamber. Additives, as specified, shall be uniformly distributed and mixed with the pulverized material and any existing underlying material.

332-4.2 Cement Spreader: Ensure cement is spread uniformly and accurately during the reclamation process with a calibrated screw-type distributor capable of spreading 25 tons at one time before being reloaded. The cement spreader shall be used with a curtain to minimize the amount of airborne cement dust to the satisfaction of the Engineer and in accordance with OSHA regulations. The spreader shall accurately place the amount of cement required by the mix design onto the roadbed for mixing. Cement will not be allowed to be spread with spreader bars from a cement tanker.

332-4.3 Motor Grader: Utilize a motor grader of sufficient size and horsepower to adequately rough grade the pulverized base and rough and finish grade the mixed and compacted base. The equipment shall be in good working order free from leaks and capable of maintaining an accurate grade and cross-slope.

332-4.4 Rollers: Utilize rollers in good working order free from leaks and capable of compacting the mix to the requirements of this specification. A pneumatic, rubber-tire roller weighing a minimum of 25 tons shall be required. A finish, steel wheel roller weighing a minimum of 10 tons shall be required. A minimum of two rollers of each type shall be onsite, at all times, and in good working order.

332-4.5 Additional equipment: Utilize additional equipment as needed to complete the work in the contract.

332-5 Construction.

332-5.1 Layout: In locations the existing road line and grade is to be maintained, the Contractor will be responsible for the string lining and layout of the roadway prior to paving. Elevations of the existing roadway must be referenced at sufficient intervals to ensure the roadway elevation is not changed in any location after the final surface is placed. Maintain roadway elevations except for cross slope correction or as approved by the Engineer.

In locations where the plans call for line and grade, the contractor shall construct to the line and grade called for on the plans. The contractor shall control his operations to meet the line and grade and the cross sectional requirements called for on the plans.

332-5.2 Weather and Seasonal limitations: Do not mix or place the base while the air temperature is below 40°F or when conditions indicate that the temperature may fall below 40°F within 24 hours. Do not mix or place the base when the weather is heavy fog or during rain or when the soil or subgrade is frozen.

332-5.3 Widening: When the existing base is to be widened, excavate the shoulder from the edge of the existing pavement to at least six inches beyond the planned new width of the base prior to pulverization. Maintain the bottom of the trench free of loose soil and vegetation and deleterious materials.

If additional material is needed, place approved base material (materials listed in FDOT Design Standard Index 514 as General Use Optional Base Materials) onto the existing pavement so it can be mixed in with the existing pavement and base material during the pulverization operation to make a homogeneous base course across the entire width of the road, including the widening area. Correct all areas of irregular grade or deficient thickness and remove and replace material contaminated with soil, organic material, or debris.

332-5.4 Phased Construction: This project will be constructed in phases to facilitate maintenance of traffic during construction and provide the Contractor with access to the full width of the road. A substantial portion for the excess material will be used for road widening on 69th Street. However residents and business shall have access maintained during construction with minimal wait. Emergency vehicles shall have access at all times. Excess homogeneously mixed FDR material maybe moved to other areas of the work as long as it is consistent with the mix design for that reach of road being constructed.

Contractor may remove three inches of blended parent material from 58th Avenue between 69th Street to 85th Street (CR 510) and use it as Optional Base for the 69th Street widening or other locations within the work. Additional base can be generated by adding imported Limerock base with an LBR of 100 on top of the road being pulverized to develop the additional material and maintain a homogenous base. The mixing depth will need to be increased to offset the material added. All materials used for FDR base shall conform to Table 332-2. Soil removed from 69th street to facilitate road widening can be used in the conform fill areas beyond the stabilized shoulder or removed from the site as required. Do not overfill side banks, construct to line and grade, and the cross sections shown on the plans.

332-5.5 Additional Material: When additional material is to be added to correct cross slope deficiencies or change elevation as directed by the Engineer, use approved base material (bases listed in FDOT Design Standard Index 514 as General Use Optional Base Materials) placed on the roadway prior to the final pass for pulverization and mix uniformly with the existing material.

332-5.6 Pulverization: Pulverize and blend the existing pavement, additives and base material to the depth required so that all of the material shall be uniformly graded in accordance with AASHTO T 27-11 to meet the requirements of Table 332-2.

Table 332-2 Gradation Requirements for Pulverized Material	
Sieve Size	Minimum Percent Passing
3 inches	100
2 inches	95
No. 4	55
No. 200*	5

*For asphalt emulsion, the maximum allowable percent passing the No. 200 sieve is 20%.

Material gradation may vary due to local aggregates and conditions. A minimum of two passes of the reclaimer is required. Additional passes may be necessary to achieve the required gradation.

Introduce the asphalt emulsion into the mix through the reclaimer uniformly and accurately metered such that areas are of equal consistency and moisture content. Combine the reclaimed material and additives in place to meet the requirements specified in such proportions that the reclaimed mixture is of acceptable composition and stability. Before the start and at the end of each day's work and at any time requested, permit the Engineer access to the mixing equipment in order to read the meter to verify the quantity of asphalt emulsion applied during the day's work. Make field adjustments, as necessary, to the mix design under the guidance of a knowledgeable and competent technician or superintendent to obtain a satisfactory reclaimed mixture of consistent composition and stability throughout the project.

332-5.7 Compaction: After the material has been processed, compact the base course to the lines, grades, and depth required. Apply water as necessary to ensure optimum moisture content at the time of mixing and compaction.

Obtain density readings using a nuclear gauge in accordance with FM 1-T 238, while witnessed by the Engineer. Begin rolling at the low side of the course, except leave three to six inches from any unsupported edge or edges unrolled initially to prevent distortion.

Construct a control strip of not less than 1000 feet to develop proper rolling/compaction patterns and methods to obtain the required density. Obtain density readings using a nuclear gauge in accordance with FM 1-T 238, while witnessed by the Engineer. Whenever there is a change in the reclaimed material, compaction method, equipment, mix design or unacceptable results occur, construct a new control strip of the same length, as determined by the Engineer. Control strips failing to meet specification criteria may be required to be reworked, as determined by the Engineer. Acceptance of the control strips shall be obtained prior to continuance with production.

Furnish the proper number, weight and type of rollers to obtain the required compaction of the reclaimed material. Begin rolling at the low side of the course, except leave three to six inches from any unsupported edge or edges unrolled initially to prevent distortion. Compact the base course to a field dry density (i.e. corrected gauge wet density) of at least 97.0 percent of the maximum laboratory dry density as determined by Modified Proctor FM 1-T180.

Correct any pavement shoving or other unacceptable displacement. Take care in rolling the edges of the reclaimed mixture so the line and grade of the edges are maintained.

At the end of each day's production, construct a transverse joint formed by a header or by cutting back into the compacted material to form a true vertical face free of loose material. Protect construction joints so that the placing, spreading, and compacting of base material will not damage previous work.

332-5.8 Thickness: Construct the base to a daily average thickness within 1/2 inch of the plan thickness. Individual measurements may deviate from the plan thickness by 3/4 inch. Measure the thickness while being witnessed by the Engineer. When the thickness is not within the tolerances given, the Engineer will evaluate the area and determine if it shall be reconstructed at the Contractor's expense or the deficiency deducted from the total material in place.

332-5.9 Finishing: After completing all base course operations, assure the base course conforms to the required lines, grades, and cross section. If necessary, lightly scarify the surface to eliminate any imprints made by equipment and then recompact the surface to the required density. When the posted speed is 55 MPH or greater and the reclaimed base is to be opened to traffic, if the Engineer identifies an objectionable surface irregularity, straightedge and correct all deficiencies, 50 feet either side, in excess of 3/8 inch over 15 feet in length within 72 hours of placement to the full depth of the reclaimed base or as determined by the engineer. (Correct all straightedge or surface irregularities greater than 1/2 inch over 10 feet to the satisfaction of the Engineer.)

332-5.10 Protection and Curing: Protect and cure the completed base course by applying a prime coat meeting the requirements of Section 300 at a rate of 0.10 to 0.20 gallons per square yard. Apply the prime coat after the completion of finishing operations but prior to opening to traffic. Keep the finished base course continuously moist until the prime coat is placed. At the time the prime coat is applied, ensure the surface is dense, free of all loose and extraneous material, and contains sufficient moisture to promote proper penetration of the bituminous material. Apply water in sufficient quantity to fill the surface voids immediately before the bituminous curing material is applied.

To prevent equipment from marring or damaging the completed work, protect finished portions of base used by equipment.

Do not allow traffic on the reclaimed base until it is assured the reclaimed base surface will not distort, shove, or ravel under the anticipated vehicular loading. Apply sand to primed surface and broom off excess sand to install temporary striping prior to opening to traffic.

332-5.10 Preparing FDR Base for Paving: If traffic is allowed on the FDR base, the contractor shall clear all loose material and prepare the base for pavement placement. Contractor shall provide leveling course A.C. to smooth divots and ruts in the base. The finished surface shall meet the criteria called for in section 322-5.9 Finishing. All costs of leveling course shall be considered incidental to the preparation of FDR base and no additional payment will be made therefore.

332-6 Quality Control Testing.

332-6.1 Frequency: Perform the following quality control tests at the prescribed frequency. Randomly determine sample locations in accordance with ASTM D 3665-12 or equivalent. Correct all deficiencies unless approved by the Engineer.

Reclaimed material gradation: Determine the percent passing the following sieve sizes: 3 inches, 2 inches, No. 4, and No. 200. Obtain a sample at a frequency of one

sample per 3,000 SY. Meet the requirements of Table 332-2. If the requirements of table 332-2 are not met, adjust the pulverization operation so that the resultant material will meet specification requirements or to the satisfaction of the Engineer.

Moisture/density relationship of reclaimed base: Establish a wet/dry density relationship for density specification compliance by obtaining a sample at the location of a nuclear density measurement, at a frequency of once per day. Determine modified Proctor maximum density in accordance with FM 1-T180 and moisture content in accordance with AASHTO T 110-03 (2011), AASHTO T 265-12, or ASTM D 4643-08.

In-place field density: Perform one nuclear density test per 1000 square yards. The average dry field density (i.e. corrected gauge wet density) of the compacted mixture shall be at least 97.0 percent of the maximum laboratory dry density. No individual density test shall be lower than 94.0 percent of the maximum laboratory dry density. If one density test is below 94.0 percent or two consecutive density tests are below 95.0 percent of the maximum laboratory dry density, re-sample the affected area for modified Proctor determination. Following re-sampling and comparison of field density, if percent compaction remains deficient, cease production and resolve the issue to the satisfaction of the Engineer before resuming production.

Marshall stability: Perform Marshall stability testing twice per day or once per day if less than 1,500 square yards is reclaimed. Meet the requirements of Table 332-1. If the Marshall stability does not meet the requirements of Table 332-1, cease production and resolve the issue to the satisfaction of the Engineer before resuming production.

Retained Marshall stability: Perform retained Marshall stability testing twice per day or once per day if less than 1,500 square yards is reclaimed. Meet the requirements of Table 332-1. If the retained Marshall stability does not meet the requirements of Table 332-1, cease production and resolve the issue to the satisfaction of the Engineer before resuming production.

Depth of mixing: Determine the depth of mixing at least once per 250 square yards. Meet the requirements of 332-5.7.

Cross slope measurement: The reclaimed pavement layer cross slope shall be checked regularly during placement. A minimum 2 % Cross-Slope shall be maintained through the length of the project, unless directed by the Engineer.

Additional sampling and testing may be required if significant changes in the characteristics of the reclaimed material are observed, such as a much coarser or finer gradation or a noticeable difference in asphalt content, or when there is considerable variability in the field test results.

332-7 Acceptance.

Acceptance of the material will be based on providing documentation that component materials meet the requirements of 332-2 and by quality control test results meeting the requirements of 332-6.

332-8 Contractor Qualification.

The full depth reclamation Contractor will provide a list of similar projects with owner's or user agency's contact information (to include Project Manager and Field Inspector) and project location in which a minimum of three projects of a minimum of 7,000 SY each of full depth reclamation has been constructed using a combination of emulsion and cement stabilization within the past three years from the date of the submittal of bid. Include documentation that indicates the specification criteria of each project were met without significant time delays or cost overruns. Contractor shall be capable of meeting all

the requirements of this specification at the time of the bid. Staff shall have the option to inspect the Contractor's equipment and if found deficient, it shall be the basis for rejection of Contractor's bid.

332-9 Method of Measurement.

Full depth reclamation will be measured by square yards as shown on the plans or approved by the Engineer. All materials deliver tickets will be collected daily. Materials will be paid per the unit price described in 332-10 Basis of Payment.

332-9 Basis of Payment.

332-9.1 General: The full depth reclamation shall be paid for at the Contract unit price per square yard of existing pavement surface within the limits of the work, completed and accepted. Asphalt emulsion unit price is per gallon. Portland cement unit price is per ton. Such price and payment shall be full compensation for performing all full depth reclamation work, shoulder widening and road widening, as described in this Section.

332-9.2 Payment: Payment will be made under:

- | | |
|----------------|--|
| Item No. 332-1 | Reclaimed Asphalt Base Course (Full Depth Reclamation), 12"- Per Square Yard |
| Item No. 332-2 | Asphalt Emulsion Type CSS-1h - Payment will be based on Actual Quantity - Per Gallon |
| Item No. 332-3 | Cement Type 1 or Type 2 – Payment will be based on Actual Quantity - Per Ton |

SECTION - 334 - 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.

Sub article 334-8.1 through 334-8.3 – Basis of Payment shall be deleted in entirety.

Sub article 334-8.4 – Payment shall be amended as follows:

Item of Payment

Payment for the work specified in this item shall be made under:

- Bid Item No. 334-1-13A – Type S.P. - 12.5, Asphaltic Concrete, (2" Thick) - Per Square Yard
- Bid Item No. 334-1-13B – Type S.P. - 12.5, Asphaltic Concrete Conform (Variable Thickness) – Per Ton
- Bid Item No. 334-1-13C – Type S.P. - 12.5, Asphaltic Concrete Driveway, (1-1/2") – Remove and Replace – Per Square Yard
- Bid Item No. 334-1-13D – Superpave Asphalt Concrete, 2" SP 12.5 (W&S) – Per Square Yard

SECTION - 337 - ASPHALT CONCRETE FRICTION COURSES

The work specified in this item shall conform to Section 337 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:
Bid Item No. 337-7-82 – Type F.C – 9.5 Asphaltic Concrete (1" Thick) – Per Square Yard

SECTION - 400 – CONCRETE STRUCTURES

The work specified in this item shall conform to Section 400 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:
Bid Item No. 400-4-2A – Concrete Headwall (Include Steel) - Per Each

SECTION - 425 - INLETS, MANHOLES, AND JUNCTION BOXES

The work specified in this item shall conform to Section 425 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:
Bid Item No. 425-2-14 – Manhole Alt A, 4', P-7 <10' – Per Each
Bid Item No. 425-3-81 – Junction Box, Drainage, Special, <10', 6'X10' – Per Each
Bid Item No. 425-3-81A – Junction Structure, Type E, <10' – Per Each
Bid Item No. 425-5 – Manhole Adjustment – Per Each
Bid Item No. 425-5A – Vault Adjustment – Per Each
Bid Item No. 425-6 – Valve Box Adjustment – Per Each
Bid Item No. 425-6A – Fire Hydrant Adjustment – Per Each
Bid Item No. 425-6B – Fire Hydrant Relocation – Per Each
Bid Item No. 425-15-21 — Ditch Bottom Inlet, Type C, <10 - Per Each

SECTION - 430 – PIPE CULVERTS

The work specified in this item shall conform to Section 430 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:
Bid Item No. 430-175-112 - Pipe Culvert, RCP, Round, 12" S/CD – Per Linear Foot

- Bid Item No. 430-175-112A - Pipe Culvert, CMP, Round, 12" S/CD – Per Linear Foot
- Bid Item No. 430-175-115A - Pipe Culvert, CMP, Round, 15" S/CD – Per Linear Foot
- Bid Item No. 430-175-118 – Pipe Culvert, RCP, Elliptical, 23" X 14", S/CD – Per Linear Foot
- Bid Item No. 430-175-124 - Pipe Culvert, RCP, Round, 24" S/CD – Per Linear Foot
- Bid Item No. 430-175-124A - Pipe Culvert, CMP, Round, 24" S/CD – Per Linear Foot
- Bid Item No. 430-175-148 - Pipe Culvert, RCP, Round, 48" S/CD – Per Linear Foot
- Bid Item No. 430-175-152 - Pipe Culvert, RCP, Round, 52" S/CD
(Field Verify) – Per Linear Foot
- Bid Item No. 430-175-276 - Pipe Culvert, RCP, Elliptical, 76"x48" S/CD
(Field Verify) - Per Linear Foot
- Bid Item No. 430-982-121 – Mitered End Section, RCP, Round, 12" – Per Each
- Bid Item No. 430-982-123 – Mitered End Section, CMP, Round, 15" – Per Each
- Bid Item No. 430-982-129 – Mitered End Section, CMP, Round, 24" – Per Each
- Bid Item No. 430-982-129A – Mitered End Section RCP, Round, 24" – Per Each
- Bid Item No. 430-982-625 – Mitered End Section, RCP, Elliptical, 18" x 12" – Per Each

SECTION - 520 – CONCRETE GUTTER, CURB ELEMENTS AND TRAFFIC SEPARATOR

The work specified in this item shall conform to Section 520 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

- Payment for the work specified in this item shall be made under:
- Bid Item No. 520-1-10 – Concrete Curb & Gutter, Type F – Per Linear Foot
- Bid Item No. 0520-2-1 – Concrete Curb (Type A) – Per Linear Foot

SECTION - 522 – CONCRETE SIDEWALK AND DRIVEWAYS

The work specified in this item shall conform to Section 522 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction

Item of Payment

- Payment for the work specified in this item shall be made under:
- Bid Item No. 522-1 – Concrete, 6" Thick, Fiber Reinforced Sidewalk, Remove and Replace – Per Square Yard
- Bid Item No. 522-1A – HC Ramp, 6" Thick, Remove and Replace – Per Square Foot
- Bid Item No. 522-2 – Driveway Concrete 6" Thick, Remove and Replace – Per Square Foot
- Bid Item No. 522-4 – Bus Shelter Pad – Concrete, 8", Reinforced – Per Square Foot

SECTION - 527 – DETECTABLE WARNINGS

The work specified in this item shall conform to Section 527 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:
Bid Item No. 527-2 – Detectable Warning Strips – Per Square Foot

SECTION - 530 – REVETMENT SYSTEMS

The work specified in this item shall conform to Section 530 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:
Bid Item No. 530-3-3A – Rip Rap, Rubble, Bank and Shore – Per Cubic Yard

SECTION - 536 – GUARDRAIL

The work specified in this item shall conform to Section 536 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:
Bid Item No. 536-1-1A – Guardrail, Long Steel Posts with A.C. Pavement – Per Linear Foot
Bid Item No. 536-85-24 – Guardrail End Anchorage Assembly Parallel with A.C. Pavement – Per Each

SECTION - 550 – FENCING

The work specified in this item shall conform to Section 550 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:
Bid Item No. 550-10-231 – Fence, Type B with Barbed Wire – Per Linear Foot

SECTION - 570 – PERFORMANCE TURF

The work specified in this item shall conform to Section 570 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

- A. Description: Sod for the project shall be of the variety that is common to the area and of a variety approved by the Engineer. This work shall also include mowing, to be mowed at maximum 6" height with a mulching mower.

- B. Work Included: Scope of Work: The work specified in this section consists of the establishing of a stand of grass, within the project, right-of-way, easements, and other areas indicated on the Drawings, by furnishing and placing grass sod. Also included are fertilizing, watering and maintenance as required to assure a healthy stand of grass. Two applications of fertilizer will be required with the initial application being fertilizer and the second application being "weed and feed".
- C. Guarantee: All sodded areas shall be guaranteed for one year after date of final acceptance.

Replacement of Defective Sod: Any dead sod or sod showing (less than 95% of a square) indication of probable non survival or lack of health and vigor, or which do not exhibit the characteristics to meet specifications, shall be replaced within two weeks of notice from Owner or Engineer. All replacement sod shall be furnished/installed at no additional cost to the Owner and shall be guaranteed for three months. All replacement shall meet original specifications.

The Contractor shall notify the Owner and Engineer ten days prior to the end of the guarantee period and such guarantee shall be extended until notification is received.

At the end of the guarantee period, all sod that is dead or in unsatisfactory growth shall be replaced within two weeks.

- D. Fertilizer: Commercial fertilizers shall comply with the Indian River County Fertilizer Ordinance 2013-012 and Supplement Ordinance 2013-014 (see Appendix B).
- E. Water for Grassing: Contractor shall provide the water used in the sodding operations as necessary to meet the requirements of Article 570-3.6.
- F. Preparation of Ground: The area over which the sod is to be placed shall be scarified or loosened to a depth and then raked smooth and free from debris. Where the soil is sufficiently loose and clean, the Owner, at his discretion, may authorize the elimination of ground preparation.
- G. Application of Fertilizer: Before applying fertilizer, the soil pH shall be brought to a range of 6.0 - 7.0.

Contractor shall apply two (2) applications. The initial shall be fertilizer and the second application shall be "weed and feed".

The fertilizer shall be spread uniformly over the sodded area at the rate of 436 pounds per acre, or 10 pounds per 1,000 square feet, by a spreading device capable of uniformly distributing the material at the specified rate.

Contractor shall apply applications as per manufacturer's specification. All tickets from bags shall be handed over to the County Inspector.

On steep slopes, where the use of a machine for spreading or mixing is not practicable, the fertilizer shall be spread by hand and raked in and thoroughly mixed with the soil to a depth of approximately 2 inches.

- H. Placing Sod: The sod shall be placed on the prepared surface, with edges in close contact and shall be firmly and smoothly embedded by light tamping with appropriate tools.

Where sodding is used in drainage ditches, the setting of the pieces shall be staggered so as to avoid a continuous seam along the line of flow. Along the edges

of such staggered areas, the offsets of individual strips shall not exceed 6 inches. In order to prevent erosion caused by vertical edges at the outer limits, the outer pieces of sod shall be tamped so as to produce a featheredge effect.

Where sodding is placed abutting paved shoulder, the contractor is to ensure that the finished sod elevation is 1½" below paved shoulder.

On slopes greater than 3:1, the Contractor shall prevent the sod from sliding by means of wooden pegs driven through the sod blocks into firm earth, at suitable intervals.

Sodding shall not be performed when weather and soil conditions are, in the Engineer's opinion, unsuitable for proper results.

Sod shall be placed around all structures, equipment pads, etc.

I. Watering: The areas on which the sod is to be placed shall contain sufficient moisture, as determined by the Engineer, for optimum results. After being placed, the sod shall be kept in a moist condition to the full depth of the rooting zone for at least 2 weeks. Thereafter, the Contractor shall apply water as needed until the sod roots and starts to grow for a minimum of 60 days (or until final acceptance, whichever is latest).

J. Maintenance: The Contractor shall, at his expense, maintain the sodded areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include repairing of any damaged areas and replacing areas in which the establishment of the grass stand does not appear to be developing satisfactorily.

Replanting or repair necessary due to the Contractor's negligence, carelessness or failure to provide routine maintenance shall be at the Contractor's expense.

The Contractor shall maintain the sodded area up to the final acceptance date as directed by the Engineer. Grass height shall not exceed 6" without mowing. Clippings shall be removed from sidewalk.

K. Article 570-9. The first two paragraphs under this Article are deleted and the following is added:

The contract unit price for performance turf shall include the costs of sod, fertilizer (2 applications), sidewalk sweeping after mowing, mowing, pegging disposal of clippings, water, tools, equipment, labor and all other incidentals necessary.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 570-1-2 – Performance Turf - Sod (Bahia or Match Exist) - Per Square Yard

Bid Item No. 570-1-2A – Sod and Site Restoration (W&S) – Per Square Yard

SECTION - 630 – CONDUIT

The work specified in this item shall conform to Section 630 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 630-2-11 - Conduit, F&I, Open Trench – Per Linear Foot

Bid Item No. 630-2-11A - Conduit (Includes 2-2" DIA. HDPE), F&I, Open Trench
– Per Linear Foot

Bid Item No. 630-2-11B – 4-2" Conduits – Per Linear Foot

Bid Item No. 630-2-12A – Conduit (Includes 2-2" DIA. HDPE), F&I, Directional Drill
– Per Linear Foot

Bid Item No. 630-2-14 – Conduit, F&I, Aboveground – Per Linear Foot

SECTION - 632 – SIGNAL CABLE

The work specified in this item shall conform to Section 632 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 632-7-1 – Signal Cable – New or Reconstructed Intersection, Furnish
& Install – Per Installation

SECTION - 633 – COMMUNICATION CABLE

The work specified in this item shall conform to Section 633 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 633-2-31 – Fiber Optic Connection, Install, Splice – Per Each

Bid Item No. 633-3-11 – Fiber Optic Connection Hardware, F&I, Splice Enclosure,
– Per Each

Bid Item No. 633-3-15 – Fiber Optic Connection Hardware, F&I, Preterminated
Patch Panel - Per Each

SECTION - 634 – SPAN WIRE ASSEMBLY

The work specified in this item shall conform to Section 634 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 634-4-153 – Span Wire Assembly, F&I, Two Point, Box – Per
Installation

SECTION - 635 – PULL, SPLICE, AND JUNCTION BOXES

The work specified in this item shall conform to Section 635 of the Florida Department

of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 635-2-11 – Pull & Splice Box, F&I, 13"x24" Cover Size – Per Each

Bid Item No. 635-2-12 - Pull & Splice Box, F&I, 24"x36" Cover Size – Per Each

Bid Item No. 635-2-12A - Pull Box, F&I, With 6" Fiber Concrete Collar – Per Each

SECTION - 639 – ELECTRICAL POWER SERVICE ASSEMBLIES

The work specified in this item shall conform to Section 639 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 639-1-122 – Electrical Power Service, F&I, UG, Meter Purchased by Contractor – Per Assembly

Bid Item No. 639-2-1 – Electrical Service Wire, Furnish & Install – Per Linear Foot

SECTION - 641 – PRESTRESSED CONCRETE POLES

The work specified in this item shall conform to Section 641 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 641-2-18 – Prestressed Concrete Pole, F & I, Type P-VIII – Per Each

Bid Item No. 641-2-80 – Prestressed Concrete Pole, Complete Removal – Per Each

SECTION - 650 – VEHICULAR TRAFFIC SIGNAL ASSEMBLIES

The work specified in this item shall conform to Section 650 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 650-1-24 – Traffic Signal, Furnish & Install Polycarbonate w/Alum Top, 3 Section, 1 Way - Per Assembly

Bid Item No. 650-1-29 – Traffic Signal, Furnish & Install, Polycarbonate w/Alumin, 5 Section Cluster, 1 Way – Per Assembly

SECTION - 660 – VEHICLE DETECTION SYSTEM

The work specified in this item shall conform to Section 660 of the Florida Department

of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 660-4-11 – Vehicle Detection System – Video, F&I Cabinet Equipment – Per Each

Bid Item No. 660-4-12 – Vehicle Detection System – Video, F&I, Above Ground Equipment – Per Each

SECTION - 670 – TRAFFIC CONTROLLER ASSEMBLIES

The work specified in this item shall conform to Section 670 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 670-5-111 – Traffic Controller Assembly, F&I – Per Assembly

SECTION - 684 – NETWORK DEVICES

The work specified in this item shall conform to Section 684 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 684-1-1 – Managed Field Ethernet Switch, Furnish & Install – Per Each

SECTION - 700 – HIGHWAY SIGNING

The work specified in this item shall conform to Section 700 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction with the following modifications.

A. Signing for traffic control shall conform to the requirements of the Standard Specifications, Manual on Uniform Traffic Control Devices, Supplemental Specifications, Roadway and Traffic Design Standards, manufacturer's specifications.

B. Traffic Signs: All existing signs which are the property of the Owner shall be transported to the Indian River County Road and Bridge Maintenance Yard by the Contractor during construction if they are within the construction limits. Care shall be exercised by the Contractor during removal, storage and relocation so as not to damage the signs. If any damage occurs, as determined by the Owner's Engineer or Resident Construction Inspector, the sign shall be replaced by the Contractor with no compensation.

Item of Payment

Payment shall be made under:

Bid Item No. 700-1-11 – Single Post Sign, F&I Ground Mount
Up to 12 SF – Per Assembly

Bid Item No. 700-1-50 – Single Post Sign, Relocate – Per Assembly

Bid Item No. 700-1-60 – Single Post Sign, Remove – Per Assembly

Bid Item No. 700-3-601 – Sign Panel, Remove, Up to 12 SF – Per Each

Bid Item No. 700-5-22 – Internally Illuminated Sign, F&I, Overhead Mount,
12 – 18 SF – Per Each

SECTION - 706 - RETROREFLECTIVE PAVEMENT MARKERS AND BITUMINOUS ADHESIVE

The work specified in this item shall conform to Section 706 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 706-3 – Retro-Reflective Pavement Markers – Per Each

Bid Item No. 706-3 – Retro-Reflective Pavement Markers (Blue/Blue) – Per
Each

SECTION - 711 – THERMOPLASTIC PAVEMENT MARKINGS

The work specified in this item shall conform to Section 711 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 711-11-123 – Thermoplastic, Standard, White, Solid, 12” for
Crosswalk and Roundabout – Per Linear Foot

Bid Item No. 711-11-125 – Thermoplastic Standard White, Solid, 24” for
Stop Line and Crosswalk – Per Linear Foot

Bid Item No. 711-11-141 – Thermoplastic, Standard, White, 2’-4’ Dotted Guideline /
6’-10’ Gap Extension, 6” – Per Gross Mile

Bid Item No. 711-11-170 – Thermoplastic, Standard, White, Arrow – Per
Each

Bid Item No. 711-11-224 – Thermoplastic, Standard Yellow, Solid, 18”
for Diagonal or Chevron – Per Linear Foot

Bid Item No. 711-11-241 – Thermoplastic, Standard, Yellow, 2’-4’ Dotted Guideline /
6’-10’ Gap Extension, 6” – Per Gross Mile

Bid Item No. 711-14-160 – Thermoplastic, Preformed, White, Message – Per Each

Bid Item No. 711-14-170 – Thermoplastic, Preformed, White, Arrow (Bike Thru) –
Per Each

Bid Item No. 711-16-101 – Thermoplastic, Standard-Other Surfaces, White, Solid, 6”
– Per Gross Mile

Bid Item No. 711-16-201 – Thermoplastic, Standard-Other Surfaces, Yellow, Solid,
6” – Per Gross Mile

Bid Item No. 711-16-231 – Thermoplastic, Standard-Other Surfaces,
Yellow, Skip 6” – Per Gross Mile

SECTION - 715 – HIGHWAY LIGHTING SYSTEM

The work specified in this item shall conform to Section 715 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 715-5-31 – Luminaire & Bracket Arm, F & I, Aluminum – Per Each

SECTION - 999 – RECORD DRAWINGS/AS-BUILTS

GENERAL

Maintain, prepare and provide the ENGINEER with record documents as specified below, except where otherwise specified or modified within the scope of work provided in the specific project contract documents. The Contractor and/or Developer shall be responsible for, and required to provide, Record Drawings as outlined in this section.

MAINTENANCE OF RECORD DOCUMENTS:

1. The CONTRACTOR's is to maintain on-site in clean, dry, legible condition complete sets of the following project documents: 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.
5. Label each document "RECORD DRAWING" in 2-inch high printed letters.
6. Keep record documents current at all times.
7. No work shall be permanently concealed until the required record data has been obtained.

RECORD / AS-BUILT DRAWINGS

- A. During the construction operation, the CONTRACTOR shall maintain records of all deviations from the approved Project Plans and Specifications and shall 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. The Record/As-Built survey shall be performed and subsequent plans prepared by a Professional Surveyor and Mapper, registered in the state of Florida and certified to the standards set forth in Chapter 472, Florida Statutes and Chapter 5J-17.050 Florida Administrative Code (Florida Minimum Technical Standards).
- C. Field measurements of vertical or horizontal dimensions of constructed improvements shall be obtained so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans. Clearly shown by symbols, notations, or delineations, those constructed improvements located by the survey.
- D. All vertical information (elevations) provided on the Record Drawings shall be referenced to the North American Vertical Datum of 1988 (NAVD 88) unless otherwise specified by the Project Engineer.
- E. The horizontal information provided on the Record Drawings shall be referenced to the State of Florida, State Plane Coordinate System, Florida East Zone as established by Global Positioning System (GPS) which meets or exceeds Third Order Class I Accuracy Standards according to current publication of the Federal Geodetic Control Committee (FGCC) procedures.
- F. All Record/As-Built drawings shall be prepared in digital format (AutoCAD Civil 3D 2013) and shall utilize the digital design drawings as prepared by the Project Engineer as a base for the Record/As-Built drawings. It is the responsibility of the Surveyor to request these files from the Contractor or Project Owner in order to produce the Record/As-Built drawing set.
- G. All improvements proposed to be constructed as shown on the approved construction plans shall be field measured upon completion and shown on the Record/As-Built survey. Any improvements that appear in both plan and profile views shall show the Record/As-Built information in both views.
- H. The following items are required to be shown on all Indian River County project Record/As-Built drawings submitted to the County:

DRAINAGE:

1. Right-of-way Swale/Drainage – All culvert inverts, elevations and station offsets; inlet grate and bottom elevations; swale beginning and end bottom elevations; and highs and lows along top of bank. Size of swale.
2. Pipe Culvert/PVC Sleeves – All inverts, pipe size, stations and offsets.
3. Outfalls – All pipe inverts, pipe size, elevations and station offsets, weir box elevations, weir elevation, bleeder elevation and sizes.
4. Roadway/Off Site Drainage – All inverts, elevations and station offsets; manhole top elevation; grate top elevations.

5. Retention Ponds – Provide perimeter elevations, grade breaks, depths and calculated pond areas at control elevation and grade breaks above and below water surface. Show as-built of typical cross section as shown on design plan.

ROADWAY:

1. Stations and offsets related to controlling baseline and elevations of all structures, sidestreet and major driveway radius returns (edge of pavement), bends and/or change in direction of roadway alignment, minimum of 1000' intervals along roadway alignment.
2. Elevations along Profile Grade Line (PGL), of all edge of pavements on each side of Profile Grade Line (PGL), at medians at the high/low and PVI points along Profile Grade Line (PGL).
3. All final Elevations to be plotted on PGL AND Plan & Profile sheets as applicable.
4. Elevations of edge of pavement and flow line at curb inlets and on the adjacent edge of pavement at curb inlets.

WATER, FORCE, AND RECLAIMED WATER MAINS:

1. Show size and type of material used to construct mains.
2. Show horizontal location and elevation of all tees, crosses, bends, terminal ends, valves, fire hydrants, air release valves, and sampling points, etc., by distances from known reference points.
3. Show location, size and type of material of all sleeves and casing pipes.
4. Elevation and horizontal location of all storm sewers, gravity sewers including laterals, force mains, water mains, etc. which are crossed; including clearance dimension at all conflicts or crossings.
5. Top of pipe elevation and horizontal location of all water and force main stub-outs.
6. Horizontal location of all services at the property lines.
7. Horizontal and vertical location of pipe including size of all mains and ground elevation shall be obtained at one-hundred (100) foot intervals. Contractor shall place temporary PVC stand pipes (tell-tales) at each of the one-hundred (100) foot intervals and at all fittings and conflicts/crossings to facilitate the record drawing survey. The tell-tale pipes shall be constructed of 2-inch PVC pipe, shall be placed on the top of the pipes to be surveyed, and shall be removed by the Contractor after completion of the field survey by the "As-Built" Professional Surveyor.
8. Location of fire lines.
9. Dedicated easement locations, identified by O.R. Book and Page Number.

GRAVITY SEWER:

1. Manholes: Elevation of top rim, bottom elevation and invert of each influent and effluent line.
2. Show distance between manholes center-to-center and horizontal location by baseline station and offset.
3. Show material size and type used to construct sewer mains.

4. Show length (center of manhole to end of stub) distances from known reference points or baseline offsets, and elevation of stub-outs.
5. Show which services have twenty (20) foot length of DIP at water main crossings.
6. Show station and offset location of sanitary services at property line. Particular care in dimensioning needed in special situations, i.e., cul-de-sacs and locations where services are not perpendicular to wye.
7. Show invert elevation of sanitary service at property line.
8. Any and all necessary dedicated easement locations, identified by O.R. Book and Page Number.

PUMP / LIFT STATION:

Record Drawings shall show elevations for the top and bottom and diameter of wet well along with invert of effluent line. Record Drawings should also indicate the make, model number, horsepower, impeller and condition point of pumps selected and installed, shape of wet well, location of control panel, location of pump out connection, float level settings, any deviation from the plans, and serial number(s) of the pump(s).

SURVEY CONTROL

1. Install/re-establish: It shall be the contractor's responsibility to hire a Professional Surveyor and Mapper as defined per Chapter 472, Florida Statutes, to replace any horizontal and vertical control shown on the engineering plans that was destroyed during construction.
2. New roadway alignment control points (survey baseline or controlling line and all points as indicated on the plans or control sheet) upon final roadway completion. Include all intersections and side streets. State plane coordinates and elevations for all control points.
3. If shown on plans or not: Any Public Land Corner or Governmental Survey Control point(s), vertical control (bench marks), property corners destroyed and/or disturbed during the scope of the project shall be properly re-established as per standards as set forth within Florida Statutes, Administrative code and Minimum Technical Standards for that type of survey. All said surveying mentioned above shall be performed under the direct supervision of a registered Professional Surveyor and Mapper in the state of Florida and certified accordingly. Said Governmental agency(s) shall be notified in writing of disturbance and re-establishments.

RECORD/AS-BUILTS DRAWINGS FORMAT - SUBMITTAL

- A. ENGINEER will supply the CONTRACTOR with the electronic file of the approved construction plans for the input of the As-Built (record) information.

- B. CONTRACTOR shall deliver two (2) certified sets of Record/As-Builts with Electronic Drawing files prepared in AutoCAD Civil 3D 2013 AND PDF format or in current version as agreed by the ENGINEER.
- C. CONTRACTOR's surveyor shall review, sign and seal As-Builts or Record drawing(s). Said drawing(s) shall clearly state type of survey, positional tolerances, adhere and be certified to by a registered Professional Surveyor and Mapper in the state of Florida, any standards set forth by Florida Statutes, Administrative code and Minimum Technical Standards for As-Built/Record surveys.
- D. All Record/As-Built drawings are subject to review and approval by County Surveyor.

ACCURACY

The CONTRACTOR will be held responsible for the accuracy and completeness of Record Drawings and Electronic As-Builts and shall bear any costs incurred in finding utilities as a result of incorrect data furnished by the CONTRACTOR.

COMPLETION OF WORK

Upon Substantial Completion of the Work, deliver Record Drawings/As-Built Drawings to ENGINEER. Final payment will not be made until satisfactory record documents are received and approved by ENGINEER.

Item of Payment

Payment for the work specified in this item shall be made under:
Bid Item No. 999-1 – Record Drawings/As-Builts – Per Lump Sum

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Board of Professional Surveyors and Mappers

Record As-Built Survey Checklist

Lic. Name _____ Date: _____

Project Name: **58TH AVENUE (FROM NORTH OF 57TH TO 85TH STREET) FULL DEPTH RECLAMATION**

Project No.: **IRC-1325**

Chapter 61G17-6 Minimum Technical Standards F.A.C

61G17-6.003 General Survey, Map, and Report Content Requirements

(1) REGULATORY OBJECTIVE: The public must be able to rely on the accuracy of measurements and maps produced by a surveyor and mapper. In meeting this objective, surveyors and mappers must achieve the following minimum standards of accuracy, completeness, and quality:

(a) Accuracy of survey measurements based on the type of survey and expected use.

(b) Measurements made in accordance with the United States standard, feet or meters.

(c) Records of measurements maintained for each survey (check field notes.)

(d) Measurement and computation records dated.

(e) Measurement and computation records substantiate the survey map.

(f) Measurement and computation records support accuracy statement (closure calculations or redundant measurements, if applicable.)

(2) Other More Stringent Requirements:

(a) Met more stringent requirements set by federal, state, or local governmental agencies.

(3) Other Standards and/or Requirements that Apply to All Surveys, Maps, and/or Survey Products:

(a) REGULATORY OBJECTIVE: In order to avoid misuse of a survey and map, the surveyor and mapper must adequately communicate the survey results to the public through a map, report, or report with an attached map.

(b) Survey map or report identified the responsible surveyor and mapper and contain standard content. In meeting this objective, surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:

(c) Type survey stated on map and report:

As-Built Survey

Boundary Survey

Condominium Survey

Construction Layout Survey

Control Survey

Hydrographic Survey

Mean High Water Line Survey

Quantity Survey

Record Survey

- (d) Name, certificate of authorization number, and street and mailing address of the business entity on the map and report.**
- (e) Name and license number of the surveyor and mapper in responsible charge.**
 - (f) Name, license number, and street and mailing address of a surveyor and mapper practicing independent of any business entity on the map and report.**
 - (g) Survey date (date of data acquisition.)**
 - (h) Revision date for any graphic revisions (when survey date does not change.)**
 - (i) Map and report statement “Survey map and report or the copies thereof are not valid without the signature and the original raised seal of a Florida licensed surveyor and mapper.”**
 - (j) Insurance statement in ¼” high letters “The survey depicted here is not covered by professional liability insurance” if there is no professional liability insurance.**
 - (k) Additions or deletions to survey maps or reports by other than the signing party or parties is prohibited without written consent of the signing party or parties.**
 - (l) All computed data or plotted features shown on survey maps supported by accurate survey measurements unless clearly stated otherwise.**
 - (m) Bearings, distances, coordinates, and elevations shown on a survey map shall be substantiated by survey measurements unless clearly stated otherwise.**
 - (n) Bearing reference (well established and monumented line)**
 - (o) A designated “north arrow”**
 - (p) Stated scale or graphic scale**
 - (q) Abbreviations in legend or notes.**
 - (r) Special conditions and any necessary deviation from the standards noted upon the map or report.**
 - (s) Responsibility for all mapped features stated on the map or report**
 - (t) Map or report clearly states the individual primarily responsible for the map or report when mapped features have been integrated with others.**
 - (u) Map Accuracy.**
 - (1) Vertical Feature Accuracy:**

- (a) **Vertical Control:** Field-measured control for elevation information shown upon survey maps or reports shall be based on a level loop or closure to a second benchmark.
- (b) **Closure in feet** must be accurate to a standard of plus or minus .05 ft. times the square root of the distance in miles.
- (c) All surveys and maps or reports with elevation data shall indicate the datum and a description of the benchmark(s) upon which the survey is based.
- (d) Minor elevation data may be obtained on an assumed datum provided the base elevation of the datum is obviously different than the established datum.

(2) Horizontal Feature Accuracy:

- (a) **Horizontal Control:** All surveys and maps or reports expressing or displaying features in a publicly published coordinate system shall indicate the coordinate datum and a description of the control points upon which the survey is based.
- (b) Minor coordinate data may be obtained and used on an assumed datum provided the numerical basis of the datum is obviously different than a publicly published datum.
- (c) The accuracy of control survey data shall be verified by redundant measurements or traverse closures. All control measurements shall achieve the following closures:
Commercial/High Risk Linear: 1 foot in 10,000 feet;
Suburban: Linear: 1 foot in 7,500 feet;
Rural: Linear: 1 foot in 5,000 feet;
- (d) When statistical procedures are used to calculate survey accuracies, the maximum acceptable positional tolerance, based on the 95% confidence level, should meet the same equivalent relative distance standards as set forth in 61G17- 6.003(3)(p)(2.) (c) F.A.C.
- (e) **Intended Display Scale:** All maps or reports of surveys produced and delivered with digital coordinate files must contain a statement to the effect of: "This map is intended to be displayed at a scale of 1/___ or smaller".

61G17-6.004 Specific Survey, Map, and Report Requirements

(1) As-Built/Record Survey:

- (a) Obtained field measurements of vertical or horizontal dimensions of constructed improvements so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans.
- (b) Clearly shows by symbols, notations, or delineations, those

- constructed improvements located by the survey.
- (c) All maps prepared shall meet applicable minimum technical standards.
 - (d) Vertical and horizontal accuracy of the measurements made shall be such that it may be determined whether the improvements were constructed consistent with planned locations.

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+++END OF SECTION+++

SECTION – 1050 to 1080 – WATERMAIN RELOCATION

Section 1

Water Mains – Ductile Iron Pipes (DIP) and Fittings

1.01 General

- A. DIP shall be allowed for use as water pipe where compatible with the specific conditions of the project. The use of material other than ductile iron may be required by IRCDUS during construction permit review or by IRCDUS field personnel during construction, if it is determined that DIP is unsuitable for the particular application.
- B. All DIP shall be manufactured in accordance with AWWA Specification C150 (A21.50-96), or latest revision and shall be pressure Class 300 or 350 minimum as depicted on Table 1.1 on page 1-2. All DIP crossings under roadways and other traffic areas shall be pressure Class 350 minimum.
- C. Unless specifically indicated otherwise, restrained push-on joint underground piping shall be manufactured restrained bell and spigot and above ground piping shall be flanged.
- D. Cutting of DIP shall be by sawing only.

1.02 Pipe

- A. DIP shall be bell and spigot cast in accordance with AWWA Specification C150 (ANSI A21.50), or latest revision. Cast ductile iron 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 Specification C150 (ANSI A21.51), 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 psi.

**Table 1.1
Pressure Class 300 and 350**

Nominal Size Diameter (Inches)	Actual Outside Diameter (Inches)	300 psi Wall Thickness (Inches)	350 psi Wall 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

1.03 Fittings

- A. All underground fittings shall be either push-on, restrained, or mechanical joint. Mechanical joints shall conform to AWWA Specification C110 (ANSI 21.10-98) or C153 (ANSI 21.53-00), or latest revisions. All aboveground fittings shall be flanged joint.
- B. The pressure rating shall be 350 psi (Class 350).
- C. Joint restraints, when required, shall be in accordance with IRCDUS Approved Manufacturers' Products List or an approved equal.
- D. All fittings shall be lined with the same material as specified for the pipe as per paragraph 1.04.

1.04 Lining and Coating

- A. Unless otherwise indicated, all DIP shall be factory lined and coated.

- B. All pipe shall be cement mortar lined and seal coated in accordance with AWWA Standard C104 (ANSI A21.4-95), or latest revision unless double lining is required by IRCDUS.
- C. Unless specified otherwise, all ductile iron pipe shall be bituminous coated outside to a dry film thickness of at least 1 mil.
- D. 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.
- E. If and where directed by IRCDUS's Engineer, a polyethylene encasement shall be provided around pipe, fittings, and valves. The material, installation, and workmanship shall conform to applicable sections of AWWA C105 (ANSI A21.5-99), or latest revision. Installation methods A or B shall be employed using flat tube polyethylene. The Contractor shall 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.
- F. All exposed (i.e. aerial crossings) DIP water mains shall be primed and painted "blue" as per IRCDUS Approved Manufacturers' Products List or equal.

1.05 Bell and Spigot Connections

- A. Joints in bell and spigot pipe shall be push-on, mechanical, or restrained joints in accordance with AWWA Standard C111 (ANSI 21.11-00), or latest revision. Pipe restraints shall also be in accordance with IRCDUS Standards or as directed by IRCDUS's Engineer.

1.06 Flanged Connections

- A. All flanged pipe barrels shall comply with the physical and chemical requirements as set forth in the Handbook of DIP of the Cast Iron Pipe Research Association, latest revisions. Flanges shall be in accordance with ANSI Specification B16.1 for Class 125 flanges. Bolts shall comply with ANSI Specification B18.2.
- B. Flanged pipe 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 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-316SS. 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 C115 (ANSI A21.15-99), latest revision.

1.07 Submittals

- A. Before starting fabrication of the DIP and fittings, the Contractor shall submit one set of complete working drawings (shop drawings) to the Engineer of Record and IRCDUS for approval. Such drawings shall show the pipe, fittings, valves, expansion joints, hangers, supports, and other appurtenances to be installed. Where special fittings are required, they shall be shown in large detail with all the necessary dimensions. The Engineer of Record shall review the drawings and notify IRCDUS of the drawings approved and not approved. IRCDUS will also review the drawings and coordinate approvals and disapprovals with the Engineer of Record and Contractor. The drawings submitted shall show flanged jointed sections placed so as to be removable without disturbance to the main pipe sections.

1.08 Marking

- A. Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details Drawing M-13 for specifications regarding installation.
- B. Trace wire is required over or around all pipes unless otherwise approved by IRCDUS.

- C. Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS engineering.

1.09 Installation

- A. Handling and Protection of Pipe: Unless otherwise noted on the drawings or in other sections of this specification, the pipe shall be handled and installed in strict accordance with the manufacturers' instructions and with the applicable provisions of AWWA C600-99, latest revision. If a conflict exists between the manufacturers' instructions and the AWWA Standards, the manufacturers' instructions shall govern. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Where the groundwater elevation is above the bottom of the trench, the Contractor shall provide suitable dewatering equipment. All piping shall be placed in a dry trench, unless otherwise approved by IRCDUS.
- B. Depth of Cover and Pipe Elevation: Unless otherwise shown on the drawings, or otherwise approved by IRCDUS, all pipe shall have a minimum cover of 36 inches. Contractor shall determine top of pipe elevation and top of ground elevation for every two joints of pipe installed using a level. Pipe must have the minimum cover described above and must be within +/- 0.2 feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it does meet these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to IRCDUS. IRCDUS reserves the right to have Contractor excavate and check top of pipe and top of ground elevations to see if they conform to the aforementioned requirements, at no cost to IRCDUS.

END OF SECTION

Section 2

Water Mains Polyvinyl Chloride Pipe (PVC) and Fittings

2.01 General

- A. PVC pipe shall be allowed for use as potable water pipe where compatible with the specific conditions of the project. IRCDUS may require the use of material other than PVC during construction permit review or by IRCDUS field personnel during construction, if it is determined that PVC pipe is unsuitable for the particular application.
- B. The pipe shall be identified by its nominal pipe size, plastic pipe material code, SDR class, pressure rating, ASTM Designation, manufacturers' name, production code, and the National Sanitation Foundation seal for potable water (NSF-pw).

2.02 PVC Pipe 3 Inches in Diameter and Smaller

- A. PVC pipe 3 inches and smaller in diameter intended for conveying potable water shall conform to ASTM D2241, latest revision.
- B. Pipe shall be Iron Pipe Size (IPS), and SDR 21 with a pressure rating of 200 psi.
- C. Joint design tested to the requirements of ASTM D3139.
- D. Gaskets shall conform to ASTM F477 and D1869.
- E. No solvent weld joints are permitted.
- F. The pipe shall be "blue" in color.
- G. PVC pipe shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

2.03 PVC Pipe 4 Inches in Diameter and Larger

- A. PVC pipe intended for conveying or transmitting potable water shall conform to AWWA Standard Specifications C900-16 (or latest revision) and ASTM D1784 Cell Class 12454.
- B. Pipe shall be Ductile Iron Pipe Size (DIPS), and SDR 18 with a pressure rating of 235 psi.
- C. Joint design tested to the requirements of ASTM D3139. Gaskets shall conform to ASTM F477.
- D. Gasket material shall conform to ASTM F477.
- E. The pipe shall be "blue" in color.

- F. The pipe shall be identified by its nominal pipe size, plastic pipe material code, DR class, pressure rating, ASTM Designation, manufacturers' name, code, and the National Sanitation Foundation seal for potable water (NSF-pw).
- G. PVC pipe shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

2.04 Joints

- A. Joints for PVC pipe shall be bell and spigot push-on rubber gasket type only unless otherwise approved by IRCDUS. No solvent weld or threaded joints will be permitted.
- B. Restraining joints, when required, shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

2.05 Fittings

- A. All fittings shall be ductile iron mechanical joint and shall conform to AWWA Standard Specifications C110/A21.10-98 or C153/A 21.53-00, or latest revisions. Fittings shall be cement mortar lined and seal-coated in accordance with AWWA Standard Specifications C104/A21.4, or latest revision.
- B. The pressure rating shall be 350 psi (3" – 24" diameter), and 250 psi (30" – 48" diameter).
- C. Joint restraint, when required, shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

2.06 Submittals

- A. Before starting installation of the PVC pipe and fittings, the Contractor shall submit one set of complete working drawings (shop drawings) to the Engineer of Record and IRCDUS for approval. Such drawings shall show the pipe, fittings, valves, hydrants, blow-offs, services, and other appurtenances to be installed. Where special fittings are required, they shall be shown in large detail with all the necessary dimensions. The Engineer of Record shall review the drawings and notify IRCDUS of the drawings approved and not approved. IRCDUS shall also review the drawings and coordinate approvals and disapprovals with the Engineer of Record and Contractor.

2.07 Marking

- A. Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details Drawing M-13 for specifications regarding installation.
- B. Trace wire is required over or around all pipes.

- C. Location tape is required over all pipes. Tape is to be installed 12” below proposed grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS engineering.

2.08 Storage

- A. PVC pipes are not to be stored where exposed to direct sunlight because of possible ultraviolet light degradation. Pipes stored on the jobsite are to be covered. PVC pipes that exhibit discoloration or fading from their original color will be rejected by IRCDUS field representatives.

2.09 Installation

- A. **Handling and Protection of Pipe:** Unless otherwise noted on the drawings or in other sections of these standards, the pipe shall be handled and installed in strict accordance with the manufacturers’ instructions and with the applicable provisions of AWWA Standard Specifications C605-94, or latest revision. If a conflict exists between the manufacturers’ instructions and the AWWA Standard Specifications, the manufacturers’ instructions shall govern. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Where the groundwater elevation is above the bottom of the trench, the Contractor shall provide suitable dewatering equipment. All piping shall be placed in a dry trench, unless approved by IRCDUS.
- B. **Depth of Cover and Pipe Elevation:** Unless otherwise shown on the drawings, or otherwise authorized by IRCDUS, all pipe shall have a minimum depth of cover of 36 inches. Contractor shall determine top of pipe elevation and top of finished grade elevation for every two joints of pipe installed using a level. Pipe must have the minimum cover described above and must be within +/- 0.2 feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it does meet these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to Engineer or his representative. IRCDUS reserves the right to have Contractor excavate and check top of pipe and top of ground elevations to see if they conform to the aforementioned requirements.

END OF SECTION

Section 3

Water Services - Crosslinked Polyethylene (PEXa) Tubing and Water Mains - High Density Polyethylene Pipe (HDPE)

Water Services Crosslinked Polyethylene Tubing (PEXa)

3.01 General

Crosslinked polyethylene (PEXa) tubing shall be allowed for use as potable water pipe where compatible with the specific conditions of the project. IRCDUS may require the use of material other than PEXa during construction permit review or by IRCDUS field personnel during construction if it is determined that PEXa pipe is unsuitable for the particular application.

3.02 Polyethylene (PEXa) Tubing 3 inches Diameter and Smaller

- A. This specification requires PEXa to be designated as PEXa, high pressure peroxide method.
- B. PEXa tubing shall comply with applicable requirements for extrusion compound PEXa plastic material as stated in AWWA Standard Specifications C904, or latest revision, and shall comply with the following:
 - 1. Tubing shall have a working pressure of 200 psi at 73.4° F.
 - 2. Tubing surfaces shall be glass smooth, and shall be free from bumps and irregularities. Materials must be completely homogeneous and uniform in appearance.
 - 3. Tubing dimensions and tolerances shall correspond with values listed in ASTM D-2239, with a standard outside dimension ratio (SDR) of 9.
 - 4. Tubing shall carry the following markings every (3) feet: Manufacturers' name or trademark, nominal size, PEXa 3306 (material designation) SDR (standard dimension ratio), POTABLE TUBING, ASTM F876/F877/F2080, CSA B137.5, NSF-pw, UP Code 200psi/73.4°F 100psi/180°F, manufacturing date and footage mark.

3.03 Joints

- A. Joints for PEXa tubing shall be of the compression type or compression-sleeve type, utilizing a totally confined grip seal and coupling nut, unless otherwise approved by IRCDUS. Stainless steel tube stiffener inserts shall also be used for PEXa tubing services.

3.04 Installation

- A. Backfill shall be free of rocks and debris.
- B. Bending radius shall be large enough so that tubing is not crimped or damaged and so that the flow of water is not restricted. Manufacturers' minimum radius recommendations are to be utilized during installation of PEXa tubing.
- C. PEXa tubing shall have ability for kink repair using a heat gun.

3.05 Marking

- D. Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details M-14 for specifications regarding installation.
- E. Trace wire is required over or around all pipes.
- F. Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape adhered directly on top of the pipe if required by IRCDUS engineering.

3.06 Pressure PEXa Pipe

- A. PEXa pipe shall be allowed for use as all pressure utility pipes where compatible with the specific conditions of the project. The use of material other than PEXa pipe may be required by IRCDUS during construction permit review or by IRCDUS field personnel, if it is determined that PEXa is unsuitable for the particular application.
- B. Documentation from the resin's manufacturer showing results of the following tests for resin identification:
 - 1. Melt Flow Index ASTM D 1238
 - 2. Density ASTM F876
- C. All PEXa pipe and fittings shall be from a single manufacturer on the Approved Manufacturers' Product List. The pipe shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications. See Approved Manufacturers' Product List.
- D. Finished Product Evaluation
 - 1. Production staff for the items listed below shall check each length of pipe produced. The results of all measurements shall be recorded on production sheets that become part of the manufacturers' permanent records.
 - a. Pipe in process shall be checked visually, inside and out for cosmetic defects (grooves, pits, hollows, etc.)

- b. Pipe outside diameter shall be measured using a suitable periphery tape to ensure conformance with ASTM F714 or ASTM D-3035 whichever is applicable.
- c. Pipe wall thickness shall be measured at 12 equally spaced locations around the circumference at both ends of the pipe to ensure conformance with ASTM F714 or ASTM D-3035, whichever is applicable.
- d. Pipe length shall be measured.
- e. Pipe marking shall be examined and checked for accuracy.
- f. Pipe ends shall be checked to ensure they are cut square and clean.
- g. Subject inside surface to a "reverse bend test" to ensure the pipe is free of oxidation (brittleness).

E. Stress Regression Testing

- 1. The PEXa pipe manufacturer shall provide certification that stress regression testing has been performed on the specific PEXa resin being utilized in the manufacturing of this product. This stress regression testing shall have been done in accordance with ASTM D2837 and the manufacturer shall provide a product supplying a minimum Hydrostatic Design Basis (HDB) of 1,600 psi as determined in accordance with ASTM D2837.

F. Developer is responsible for compatibility between pipe materials, fittings and appurtenances.

G. The pipe manufacturer shall provide a warranty against manufacturing defects of material and workmanship for a period of ten (10) years after the final acceptance of the project by the IRCDUS. The manufacturer shall replace at no expense to IRCDUS any defective pipe material including labor within the warranty period.

3.07 High Density Polyethylene Pipe (HDPE) 4 inches in Diameter and Larger

- A. HDPE pipe intended for conveying or transmitting potable water shall conform to AWWA Standard Specifications C906-15 (or latest revision).
- B. Pipe shall be Ductile Iron Pipe Size (DIPS) and SDR 11 with a pressure rating of 200 psi.
- C. HDPE pipe shall be made from a PE 4710 resin compound conforming to ASTM D3350 with the cell classification 445574/4C/E.
- D. Dimensions and workmanship shall be as specified by ASTM F714. HDPE fittings and transitions shall meet ASTM D3261. HDPE pipe shall have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis

(HDB) of 1,600 psi.

- E. If rework compounds are required, only those generated in the manufacturers' own plant from resin compounds of the same class and type from the same raw material supplier shall be used.
- F. The pipe manufacturer must certify compliance, with the above requirements.
- G. HDPE flange adapters at pipe material transitions shall be backed up by stainless steel flanges conforming to ANSI B16.1 and shaped as necessary to suit the outside dimensions of the pipe. The flange adapter assemblies shall be connected with corrosion resisting bolts and nuts of Type 316 Stainless Steel as specified in ASTM A726 and ASTM A307. All bolts shall be tightened to the manufacturers' specified torques. Bolts shall be tightened alternatively and evenly.
- H. HDPE pipe shall be striped blue for potable water, green for wastewater, and purple for reclaimed/reuse water.
- I. HDPE pipe shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

3.08 Fittings

- A. All molded fittings and fabricated fittings shall be fully pressure rated to match the pipe SDR pressure rating to which they are made. All fittings shall be molded or fabricated by the manufacturer. No fabricated fittings shall be used unless approved by IRCDUS.
- B. The manufacturer of the HDPE pipe shall supply or specify all HDPE fittings and accessories as well as any adapters and/or specials required to perform the work as shown on the drawings and specified herein.
- C. All transitions from HDPE pipe to PVC or ductile iron shall be made per the HDPE, PVC, or ductile iron pipe manufacturers' recommendations and specifications whichever is more stringent. A molded flange connector adapter within a carbon steel back-up ring assembly shall be used for pipe type transitions. Ductile iron back-up rings shall mate with cast iron flanges per ANSI B16.1. A 316 stainless steel back-up ring shall mate with a 316 stainless flange per ANSI B16.1.
- D. The pipe manufacturer must certify compliance with the above requirements.

3.09 Joints

- A. The HDPE pipe shall be joined with butt, heat fusion joints. All joints shall be made in strict compliance with the manufacturers' recommendations.

- B. Lengths of pipe shall be assembled into suitable installation lengths by the butt-fusion process. All pipes so joined shall be made from the same class and type of raw material made by the same raw material supplier. Pipe shall be furnished in standard lay lengths not to exceed 50 feet.
- C. All above ground HDPE pipe shall have flange adapters. Below ground shall be MJ adapters. Stainless Steel inserts allowed on water main only 4" to 6". FM 4" and larger MJ adapter only with no insert. Pipe material transitions shall be backed up by stainless steel flanges conforming to ANSI B16.1 and shaped as necessary to suit the outside dimensions of the pipe. The flange adapter assemblies shall be connected with corrosion resisting bolts and nuts of Type 316 Stainless Steel as specified in ASTM A726 and ASTM A307. All bolts shall be tightened to the manufacturers' specified torques. Bolts shall be tightened alternatively and evenly.

3.10 Pipe Identification

- A. The following shall be continuously indent printed on the pipe or spaced at intervals not exceeding 5-ft.
 - 1. Name and/or trademark of the pipe manufacturer.
 - 2. Nominal pipe size and OD base.
 - 3. Material Code
 - 4. Dimension ratio.
 - 5. Pressure Class
 - 6. Current AWWA C906 (if Applicable)
 - 7. Manufacturing standard reference, e.g., ASTM F714 or D-3035, as required.
 - 8. A production code from which the date and place of manufacture can be determined.
- B. Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of all pipe and fittings. See Trace Wire Details Drawing M-13 for specifications regarding installation.

3.11 Installation by Open Cut Method

- A. HDPE Pipe shall be installed in accordance with the instruction of the manufacturer, as shown on the Drawings and as specified herein. A factory qualified joining technician as designated by the pipe manufacturer shall do all heat fusion joints.
- B. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe. Pipe or fittings shall not be dropped. All pipe or fittings shall be examined before installation, and no piece shall be installed which is found to be defective. Any damage to the pipe shall be repaired as directed by the Engineer of Record and IRCDUS. If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a

satisfactory manner by the Contractor, at his own expense.

- C. Under no circumstances shall the pipe or accessories be dropped into the trench.
- D. Care shall be taken during transportation of the pipe such that it will not be cut, kinked, or otherwise damaged.
- E. Ropes, fabric, or rubber protected slings and straps shall be used when handling pipes. Chains, cables, or hooks inserted into the pipe ends shall not be used. Two slings spread apart shall be used for lifting each length of pipe.
- F. Pipes shall be stored on level ground, preferably turf or sand, free of sharp objects, which could damage the pipe. Stacking of the PE pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature conditions. Where necessary due to ground conditions, the pipe shall be stored on wooden sleepers, spaced suitably and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.
- G. Care shall be exercised when lowering pipe into the trench to prevent damage or twisting of the pipe.
- H. Pipe shall be laid to lines and grade shown on the Drawings with bedding and backfill as shown on the Drawings.
- I. When installation of pipe is not in progress, including lunchtime, the open ends of the pipe shall be closed by fabricated plugs, or by other approved means.
- J. Pipe shall be stored on clean level ground to prevent undue scratching or gouging. The handling of the pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. The maximum allowable depth of cuts, scratches or gouges on the exterior of the pipe is 5 percent of wall thickness. Sections of pipe with cuts, scratches or gouges exceeding five percent of the pipe wall thickness shall be removed completely and the ends of the pipeline rejoined. The interior pipe surface shall be free of cuts, gouges or scratches.
- K. HDPE pipe shall be joined by the method of thermal butt fusion, as outlined in ASTM D2657. All joints shall be made in strict compliance with the manufacturers' recommendations.
- L. Mechanical connections of the HDPE pipe to auxiliary equipment such as valves, pumps and tanks shall be through flanged connections which shall consist of the following:
 - 1. An HDPE flange shall be thermally butt-fused to the stub end of the pipe. A stainless steel or ductile iron back-up ring shall

- be used on both sides of the connection prior to thermally butt-fusing the PE flange.
2. A 316 stainless steel back-up ring shall mate with a 316 stainless steel flange.
 3. Ductile iron back-up rings shall mate with cast iron flanges.
- M. Flange connections shall be provided with a full-face neoprene gasket.
- N. All HDPE pipe must be at the temperature of the surrounding soil at the time of backfilling and compaction.
- O. No single piece of pipe shall be laid unless it is straight. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16-in per foot of length. If a piece of pipe fails to meet this requirement check for straightness, it shall be rejected and removed from the site. Laying instructions of the manufacturer shall be explicitly followed.
- P. If a defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner. All pipe and fittings shall be thoroughly cleaned before installation, shall be kept clean until they are used in the work and when laid, shall conform to the lines and grades required.
- Q. As soon as the excavation is complete to normal grade of the bottom of the trench, bedding shall be placed, compacted and graded to provide firm, uniform and continuous support for the pipe. Bell holes shall be excavated so that only the barrel of the pipe bears upon the bedding. The pipe shall be laid accurately to the lines and grades indicated on the Construction Plans. Blocking under the pipe will not be permitted. Bedding shall be placed evenly on each side of the pipe to mid-diameter and hand tools shall be used to force the bedding under the haunches of the pipe and into the bell holes to give firm continuous support for the pipe. Bedding shall then be placed to 12-in above the top of the pipe. The initial 3 feet of backfill above the bedding shall be placed in 1 foot layers and carefully compacted. Generally, the compaction shall be done evenly on each side of the pipe and compaction equipment shall not be operated directly over the pipe until sufficient backfill has been placed to ensure that such compaction equipment will not have a damaging effect on the pipe. The pipe manufacturers' representative prior to use shall approve equipment used in compacting the initial 3 feet of backfill. Pipe shall be installed per IRCDUS Drawing M-1 or M-2, Trench Details.
- R. Good alignment shall be preserved during installation. The deflection at joints shall not exceed that recommended by manufacturer. Fittings, in addition to those shown on the Drawings, shall be provided, if required, in crossing of utilities that may be encountered upon opening the trench.

- S. Each length of the pipe shall have the assembly mark aligned with the pipe previously laid and held securely until enough backfill has cramped.
- T. Before any joint is made, the pipe shall be checked to assure that a close joint with the next adjoining pipe has been maintained and that the inverts are matched and conform to the required grade. The pipe shall not be driven down to grade by striking it.
- U. Precautions shall be taken to prevent flotation of the pipe in the trench.
- V. When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be used in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and the backfill. Trench boxes, moveable sheeting, shoring or plates shall not be allowed to extend below the top of the pipe. As trench boxes, moveable sheeting, shoring or plates are moved, pipe bedding shall be placed to fill any voids created and the backfill shall again be compacted to provide uniform side support for the pipe.
- W. Sheeting and shoring will be required as determined in the field in accordance with OSHA regulations.
- X. Restrained joints shall be installed where shown on the Construction Plans, as required by IRCDUS Standards, or otherwise as directed by IRCDUS.

3.12 Marking

- A. Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details, M-13 for specifications regarding installation.
- B. Trace wire is required over or around all pipes.
- C. Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS.

3.13 Trenchless Installation of High Density Polyethylene (HDPE) Pressure Mains by Directional Bore

- A. Description
 - 1. Portions of the pressure mains shall be installed by the directional bore method within the limits indicated of the contract plans and as specified here in. Generally, as a minimum, the

pressure main is to be located within the road right-of-way and shall be installed by directional boring.

2. This section includes material, performance and installation standards, and the contractor's responsibilities associated with the furnishing of labor, material, equipment, and identical required to install, complete, required trenchless installation of pressure mains, as shown on the Drawings and as specified herein.

B. Experience

1. The Contractor must demonstrate expertise in trenchless method by providing a list of ten utility references for which similar work has been performed in the last two years. The references should include a name and phone number where the contact can be made to verify the Contractor's capability. The Contractor must provide documentation showing successful completion of the projects used for reference. Conventional trenching experience will not be considered applicable.
2. Supervisory personnel must be adequately trained and shall have at least four years of experience in directional boring. The Contractor shall submit the names and resumes of all supervisory field personnel prior to construction.
3. Directional boring equipment shall be capable of installing the minimum pipe diameter noted on the drawings.

C. Submittals

1. Submit technical data for equipment including clay slurry material, method of installation with working drawings, and proposed sequence of construction for approval by the IRCDUS.
2. Prior to approval for directional boring, the Contractor must submit the names of supervisory personnel, and history information of the directional boring experience. In addition, the Contractor must submit for approval the nameplate, data for the drilling equipment, mobile spoils removal units and Material Safety Data Sheets (MSDS) for the drilling slurry compounds.
3. The Contractor is required to bring to the attention of the engineer any known design discrepancies with actual tunneling methods that the contractor will be performing. This shall be stated in writing to the Engineer at the pre-construction meeting.

D. Installation

1. Installation shall be in a trenchless manner producing continuous bores.

2. The tunneling system shall be remotely steerable and permit electronic monitoring of tunnel depth and location. Accurate placement of pipe within a +/- 2-inch window is required both horizontally and vertically. Turning capability of 90-degrees radius in 40 feet is required. Continuous monitoring of the boring head is required, including across open water if necessary.
3. The directional boring Contractor shall submit certification, by a Professional Engineer licensed in the State of Florida, that the directional boring has been performed in accordance to the construction drawings, and shall submit signed and sealed drawings. AS-Built Record Drawings shall be provided both in electronic format and hard paper copy.
4. Tunneling shall be performed by a fluid-cutting process (high pressure-low volume) utilizing liquid clay i.e. bentonite. The clay lining will maintain tunnel stability and provide lubrication in order to reduce frictional drag while the pipe is being installed. In addition, the clay fluid must be totally inert and contain no environmental risk. The Contractor must also have a mobile vacuum spoils recovery vehicle on site to remove the drilling spoils from the access pits. The spoils must then be transported from the job site and be properly disposed off the site. The drilling spoils shall not, under any circumstances, be disposed into a sanitary sewer, storm, or other public or private drainage system. Spoils may be transported to the County's Solid Waste Facility and the cost of disposal shall be at the Contractor's expense.
5. Liquid clay type colloidal drilling fluid shall consist of at least 10 percent of high-grade carefully processed bentonite to consolidate cuttings of the soil, to seal the walls of the hole, and to furnish lubrication for subsequent removal of cuttings. The slurry that is heavier than the surrounding material, is high in colloids of the bentonite type and it will deposit a thin filter cake of low permeability material on the walls of the bore. This will allow only a small amount of the fluid to pass into the surrounding soils and will stabilize the bore. The colloidal content of the fluid imparts excellent lubricating qualities to the slurry that is a distinct aid to the removal of the soil cuttings.
6. Pneumatic or water-jetting methods will be considered unacceptable due to the possibility of surface subsidence.
7. After an initial bore has been completed, a reamer will be installed at the termination pit and the pipe shall be pulled back to the starting pit. The reamer shall be capable of discharging liquid clay to facilitate the installation of the pipe into a stabilized and lubricated tunnel.
8. A minimum of two insulated #6 stranded conductor copper tracer wire shall be wrapped or affixed to the top of the pipe and fittings

along with the HDPE pipe. The tracer wire shall be tested for continuity or traceability upon completed installation. Should both tracer wires fail to test for continuity then the test shall be considered a failure and the wires shall be replaced.

9. Upon completion of boring and pipe installation, the Contractor shall remove all spoils from the starting and termination pits. All pits shall be restored to their original condition.
10. Restoration shall be as required by IRC DUS. The shoulders, ditches, banks, and slopes of roads and railroads crossed and paralleled shall not wash out before becoming accepted.

END OF SECTION

**SECTION 02413
HORIZONTAL DIRECTIONAL DRILLING**

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall furnish all labor, equipment, and materials necessary to install carrier pipe by horizontal directional drilling (HDD) at the locations shown on the Contract Documents and as specified herein.
- B. The directional boring scope shall include, but not be limited to, steerable directional boring equipment, operator control cabin, mud plant, entry and exit pits, pumps, hoses, and other equipment, sheeting, location signs as required, and miscellaneous appurtenances to complete the entire Work as shown on the Contract Drawings. Directional boring operations shall be performed within the right-of-way and/or easements shown on the Contract Drawings.
- C. The ENGINEER has relied upon subsurface data for general information purposes only and the data are not part of the Contract Documents. The CONTRACTOR shall examine the site and or undertake his own geotechnical investigation prior to submitting his bid, taking into consideration all conditions that may affect his work. The OWNER and ENGINEER will not assume responsibility for variations of subsurface conditions at locations other than places shown and at the time the investigation was made.

1.02 RELATED WORK

- A. High density polyethylene (HDPE) pipe and fittings are included in Section 3.
- B. Trenching, backfilling and compaction are included in Section 1.

1.0.3 DEFINITIONS

- A. Annular Space: The space between the excavated HDD final reamed bore diameter and the pipe.
- B. Bent Sub: A section of drill pipe behind the cutting tools that is inclined at an angle at one to three degrees from the axis of the bore in the desired direction of steering. The bent sub allows steering while rotating the cutting tools.
- C. Drilling Fluid/Mud: A mixture of water, bentonite, and/or polymers continuously pumped to the drilling tools to facilitate the removal of soil cuttings, and stabilization of the bore. These fluids also cool the cutting tools and lubricate the drill pipe and product pipe string.
- D. Drill String: The total length of the drill pipe in the borehole.
- E. Drilling Tool/Bit: Any tool or system of tools which excavates at the face of a bore.
- F. Entry Pit: The location where the pilot bore initially penetrates the ground surface and where the HDD rig is positioned.

- G. Exit pit: The location where the pilot bore exists the ground surface.
- H. Horizontal Directional Drilling: A surface-launched, guided, steerable drilling system used for the trenchless installation of pipes, conduits, and cables.
- I. HDD Work Plan: Written descriptions, together with sketches, profile drawings, schedules, and other documents defining CONTRACTOR's plans and procedures for horizontal directional drilling.
- J. Inadvertent Return – Uncontrolled flow of drilling fluid/mud to the surface at a location other than the entry or exit pit. In certain conditions, this may also be known as hydrofracture or frac-out.
- K. Geotechnical Investigation Report: A report which provides the geotechnical boring locations and logs, geotechnical and environmental laboratory data results, and testing procedures.
- L. Obstruction: Any object lying completely or partially within the design pathway of the bore and pipe that prevents further advancement of the drill pipe, pre-reamer, reamer, and/or pipe, after all reasonable CONTRACTOR attempts to advance past the object or re-drill around the object have failed.
- M. Pilot Bore: The action of creating the first guided pass of the HDD process which is then reamed in one or more passes to the size required to allow pullback of the pipe.
- N. Pullback: The part of a horizontal directional drilling process in which the drill pipe, swivel, and product pipe or cable is pulled back through the bore to the entry.
- O. Pullback Loads: The loads (forces) applied to a drill string and product pipe during the pullback process. In addition to the tensile pullback loads, bending, buckling and combination loads must be considered during construction.
- P. Reamer: A cutting tool pushed or pulled through the borehole in order to enlarge the pilot bore hole to a diameter sufficient for the installation of the product pipe.
- Q. Settlement Point: A fixed point with elevation and spatial location established by survey prior to construction to monitor ground movements.

1.04 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. API Bulletin 13D, 1985. Bulletin on the Rheology of Oil-Well Drilling Fluids, Second Edition, Dallas, Texas, American Petroleum Institute.
- B. API Recommended Practice 13B-1, 1990. Standard Procedures for Field Testing Water-Based Drilling Fluids, First Edition, Dallas, Texas, American Petroleum Institute.
- C. API Recommended Practice 13B-1, 1990. Standard Procedures for Field Testing Water-Based Drilling Fluid Materials, Fifteenth Edition, Dallas, Texas. American Petroleum Institute.
- D. Horizontal Directional Drilling Good Practices Guidelines, Latest Edition, HDD

Industry Consortium, 300pp.

- E. IADC Drilling Manual, 1992. Eleventh Edition, Houston, Texas, International Associated of Drilling Contractors.
- F. Installation of Pipelines Beneath Levees Using Horizontal Directional Drilling, US Army Corps of Engineers, Waterways Experiment Station, Final Report, CPAR-GL-98-1, April 1998.
- G. Installation of Pipelines Beneath Levees Using Horizontal Directional Drilling, US Army Corps of Engineers, Waterways Experiment Station, Final Report, CPAR-GL-98-1, April 1998.
- H. Installation of Pipelines by Horizontal Directional Drilling, Pipeline Research Committee, American Gas Association, PR-227-9424, April 1995.
- I. Pipeline Design for Installation by Horizontal Directional Drilling, ASCE Manuals and reports on Engineering Practice No. 108, 2005.
- J. Pressure Pipelines Design for Water and Wastewater, American Society for Civil Engineers, 2nd ed., 1992.
- K. Tables for Hydraulic Design of Pipes and Sewers, American Society for Civil Engineers, 5th ed., 1990.

1.05 SUBMITTALS

- A. Following is the summary of information to be included in submittals required for the HDD Work. The CONTRACTOR may combine submittals at his discretion but at a minimum the following information must be addressed and provided for review.

- 1. Risk Mitigation
- 2. Contingency Plan for Remediation of Potential Problems
- 3. Disposal of Spoils and Drilling Fluids Plan
- 4. Equipment Layout Plan and confirmation of work area on design plans is acceptable.
- 5. Inadvertent Return (Frac-Out) and Surface Spill Contingency Plan
- 6. Horizontal Directional Drilling Work Plan
- 7. Maximum Allowable Drilling Fluid Pressure Calculations
- 8. Methods, Equipment, and Materials Description Plan
- 9. Pipe Filling Methods and Testing during Pullback
- 10. Protection of Adjacent Structures and Facilities Plan
- 13. Qualifications of Superintendent and Key Personnel
- 14. Radius of Curvature Confirmation
- 15. Rig Capacity Plan
- 16. Health and Safety Plan
- 17. Construction Activities Schedule
- 19. Surveying Equipment and Procedures
- 20. Construction Progress
- 21. Settlement Monitoring Plan

- B. In addition to other requirements indicated throughout this Specification, the

following sections describe the above required submittals in more detail.

1. Submittals shall be in accordance with the requirements of the Specifications, providing sufficient detail to allow the ENGINEER to judge whether or not the proposed equipment, materials, and procedures will meet the Contract requirements. The ENGINEER's review of submittal details and data will be based on considerations for the completed Work, utilities, and the possibility of necessary delays in the execution of the Work to be constructed under this Contract. Review and acceptance of the CONTRACTOR's submittals by the ENGINEER shall not be construed in any way as relieving the CONTRACTOR of its responsibilities under this Contract.
 2. The CONTRACTOR shall submit all Shop Drawings to the ENGINEER. Unless otherwise noted, all Shop Drawings shall have been reviewed and accepted by the ENGINEER prior to CONTRACTOR's mobilization. All Drawings shall be legible with dimensions accurately shown and clearly marked in English.
- C. Contingency Plan for Remediation of Potential Problems: The CONTRACTOR shall submit a Contingency Plan for Remediation of Potential Problems that may be encountered during the drilling operations. The contingency plans shall address the observations that would lead to the discovery of the problem and the methods that would be used to mitigate the problem. Potential problems that shall be addressed in this Plan include, but are not limited to, the following:
1. Loss of returns/loss of circulation of drilling fluids.
 2. Inadvertent returns (frac-out)/hydrofracture or surface spills resulting in drilling fluids entering water or reaching the surface. Stand-by equipment shall be provided by the CONTRACTOR to recover fluids. Turbidity barriers or other appropriate methods of containing and clean-up shall be part of the stand-by equipment to minimize dispersion in the event that drilling fluids reach the surface.
 3. Encountering obstruction during pilot bore or reaming/pullback.
 4. Drill pipe or product pipe cannot be advanced.
 5. Deviations from design line and grade exceed allowable tolerances.
 6. Drill pipe or product pipe broken off in borehole.
 7. Product pipe collapse or excessive deformation.
 8. Utility strike.
 9. Deviation from planned bore path.
 10. Hydrolock occurs or is suspected.
 11. Excessive ground settlement or heave.
- D. Disposal of Spoils and Drilling Fluids Plan: The CONTRACTOR shall submit Plans for disposal of waste materials resulting from the pipeline construction, including drilling fluids, cuttings, waste oil, fuel, discharge water, etc. The CONTRACTOR shall identify the disposal site and submit a letter indicating willingness and legal authority to accept the described and anticipated waste products.
- E. Equipment Layout Plan: The CONTRACTOR shall submit a plan which provides sketches depicting the layout and locations of equipment within the rig side work area and pipe side work area, including any proposed drilling fluid containment and recirculation pits. The CONTRACTOR shall confirm that all operations shall be completely contained within the permanent and Right of Way, and any temporary

construction easement that may be shown on the Contract Documents.

- F. CONTRACTOR shall be responsible to for design and implementation (including all required costs, equipment and personnel) of Maintenance of Traffic (MOT) Plans necessary for the completion of the work as depicted in the design drawings, specifications and all referenced documents. MOT Plan shall be prepared submitted to the Indian River County Public Works Department for review and approval prior to any implementation or construction activities.
- G. Inadvertent Return (Frac-Out) and Surface Spill Contingency Plan: An Inadvertent Return (Frac-Out) and Surface Spill Contingency Plan shall be prepared for the installation of the pipeline using HDD. The Contractor shall submit letter signed by an authorized representative of Contractor confirming that the Plan will be followed. If required by permit conditions, Contractor shall revise the Plan as necessary to satisfy the associated regulatory agency.
- H. Horizontal Directional Drilling Work Plan: The CONTRACTOR shall submit a HDD Work Plan complete with drawings and written description identifying details of the proposed method of construction and the sequence of operations to be performed during construction including placement, entry and exit points, and method of attachment and pullback of bundled carrier pipes.
 - 1. The Plan shall include a detailed plan and profile of the bore showing any proposed deviations from the drawings included in design documents and plotted at a scale no smaller than one inch equals 40 feet horizontal and one inch equals four feet vertical.
 - 2. The drilling plan shall provide detail of the planned drilled bore path and the method for monitoring and controlling the speed, line, grade, and rate of fluids delivery. It shall include the sequence, size, and description of each reamer and capabilities of each through various geologic formations. Any drill plan should include a swabbing of the bore path prior to pipe pullback.
- I. Maximum Allowable Drilling Fluid Pressure Calculations: The CONTRACTOR shall submit calculations identifying the critical downhole pressure that would cause hydrofracture or inadvertent return of drilling fluid. The calculations shall identify the critical points in the alignment beneath the channel and near the exit point where the soil cover above the bore is low. The calculations shall identify all parameters used and state all assumptions made in the calculations.
- J. Methods, Equipment, and Materials Description Plan: The CONTRACTOR shall submit detailed description of methods, equipment, and materials to be used for the pipeline installation. Descriptions of drilling fluid additives shall be accompanied by Materials Safety Data Sheets (MSDS) and Manufacturers' descriptions and warranties. Descriptions of equipment shall include Manufacturers' specifications, calibrations, appropriate drawing, photographs, and descriptions of any modifications since manufacture. This plan shall also include the CONTRACTORs means for complying with all local noise ordinances.
- K. Pipe Filling Methods and Testing during Pullback: The CONTRACTOR shall submit methods and procedures for filling the pipe with water during pull back and testing.
- L. Protection of Adjacent Structures and Facilities Plan: The Contractor shall submit a

plan that provides details on measures to be taken to monitor and protect adjacent utilities, structures, roadways and sidewalks, and provide details on monitoring equipment and provisions, including the layout of all settlement points and other monitoring points. Provide two (2) copies of pre-construction survey of adjacent structures and photographs with captions to document pre-construction conditions prior to beginning HDD construction.

- M. Qualifications of Superintendent and Key Personnel: The CONTRACTOR shall submit written documentation of HDD superintendent and key personnel experience in accordance with Paragraph 1.07A and 1.07B. Submit evidence of OSHA Certification for the Site Safety Representative.
- N. Radius of Curvature Confirmation: The CONTRACTOR shall confirm that the bore can be completed using the radius of curvature and geometry shown on the Contract Drawings along with the calculations showing that installation stresses do not exceed allowable pipe stresses.
- O. Rig Capacity Plan: The CONTRACTOR shall submit a plan which provides details on the capacity of the drill rig verifying that the pullback capacity is greater than the required pullback calculated and submitted by the CONTRACTOR under paragraph 1.05N.
- P. Health and Safety Plan: The CONTRACTOR shall submit a Health and Safety Plan, including the name of the CONTRACTOR's Site Safety Representative, emergency telephone numbers for medical facilities, and precautions for handling and disposal of any hazardous or flammable materials. The Safety Plan shall include a code of safe practices and an emergency plan in accordance with OSHA and Florida/OSHA requirements.
- Q. Construction Activities Schedule: At least fifteen (15) working days prior to mobilization for HDD operations, the CONTRACTOR shall submit a detailed schedule for the HDD installation showing all major construction activities and durations, with beginning and completion dates shown. The schedule shall be updated at least every week or more frequently, as directed by the ENGINEER, and shall include:
1. "One call" utility locate requests and visual confirmation of all crossing utilities and all parallel utilities within the vicinity of the bore centerline.
 2. Rig mobilization and setup.
 3. Pilot bore drilling.
 4. Pre-reaming and reaming.
 5. Layout and fusing of pipe.
 6. Pressure testing of pipe prior to pullback.
 7. Final reaming and pullback of pipe.
 8. Pressure testing of pipe after installation.
 9. Mandrel/pig test to confirm deformations of pipe are within allowable tolerances.
 10. Cleanup, surface restoration, and demobilization.
- R. The following shall be submitted as construction progresses and at the completion of construction.
1. Daily Logs and Records: The CONTRACTOR shall submit complete, legible, written daily logs and records as specified in Paragraph 1.07C and as directed

by the ENGINEER, by noon of the following day to which the records correspond.

2. Drilling and Reaming Rates: The CONTRACTOR shall submit maximum drilling speeds and reaming rates for pilot bore and each reaming pass and confirm that the pump capacity is adequate for these anticipated drilling rates for the mud and/or drilling fluid weights and viscosities anticipated. These shall be submitted to the ENGINEER on a daily basis.
 3. Drilling Fluid Viscosity and Density (Mud Weight): The CONTRACTOR shall submit measured mud and/or drilling fluid weights used during pilot boring and reaming of the bore measured at a minimum of three times per shift or at least once per 200 feet of drilled or reamed length, whichever is more frequent, with at least two (2) hours between readings.
 4. Pilot Bore As-Built Profile: The CONTRACTOR shall submit an as-built profile of the pilot bore within 24 hours of completion of the pilot bore.
 5. Pressure Test Records: The CONTRACTOR shall submit all pressure test records for both the pre-installation and post-installation tests. These shall be submitted within 24 hours of completion of such tests.
 6. Variations in Plan and Profile: The CONTRACTOR shall document any variations between the actual Contract Drawings and profile of the bore path and the location shown on the Contract Drawings. The CONTRACTOR shall notify in writing and by telephone the ENGINEER immediately upon discovery of any deviations.
- S. Settlement Monitoring Plan: The Contractor shall submit a settlement monitoring plan showing location of proposed settlement points and frequency of readings.
- T. Risk Mitigation: At least seven (7) working days prior to each major operations milestone, the CONTRACTOR and HDD superintendent shall attend a risk mitigation meeting with representatives of the ENGINEER and OWNER for each HDD crossing. The major operations milestones shall include the following as a minimum:
1. Rig mobilization and setup.
 2. Pilot bore drilling.
 3. Pre-reaming and reaming.
 4. Layout and fusing of pipe.
 5. Pressure testing of pipe prior to pullback.
- U. CONTRACTOR to provide Record Drawings of the completed Directional Drill including a vertical record of the location of the drilling head at a minimum of 20 Ft. horizontal increments along the path of the Bore.

1.06 PERFORMANCE REQUIREMENTS

- A. The CONTRACTOR shall provide all equipment, materials, and personnel necessary for completing the installation as shown on the Contract Drawing and specified herein. The equipment and materials shall include but are not limited to:

1. Directional drilling rig with all ancillary equipment, including drill pipe, drilling fluid, cutting tools, reaming bits, swivels, expanders, motors, pumps, hoses, mixing equipment, drilling fluid processing equipment (cuttings separation equipment), downhole survey equipment, energized surface grid tracking system, fluid pressure and flow rate monitoring equipment, spare parts, pipe handling equipment (cranes, backhoes, rollers, side boom tractors) control equipment, and office equipment.
 2. Drilling fluids, water, fuel, lubricant, polymers, or other additives.
 3. Any other expendable or reusable materials, supplies, and equipment needed for the installation.
- B. The drilling equipment shall be capable of advancing through the geologic conditions to be encountered at the site, as presented in the Contract Documents, the Geotechnical Report and as anticipated by the CONTRACTOR.
- C. The drilling fluid shall be designed for the geologic conditions to be encountered at the site and as anticipated by the CONTRACTOR.
- D. The drilling system shall include a fluid pump and separation plant that can achieve the rates of drilling fluid pumping, spoil separation, and slurry cleaning required by the CONTRACTOR to achieve planned production rates for the soils described in the Geotechnical Report, and as anticipated by the CONTRACTOR. Shaker screens and hydrocyclones may be required for efficient separation of spoils. The CONTRACTOR is advised that the separation plant must fit within the allowable Work areas shown on the Contract Drawings.
- E. All spoil and slurry must be contained in trucks, tanks, approved recirculation pits, or other containers at all times. Dumping of spoil or slurry on the ground, discharge into sewers, or discharge into the water bodies will not be permitted. All spoils will be transported and disposed of off-site at an approved disposal facility that meets all State of Florida and local requirements.
- F. Perform all Work within Work areas shown on the Contract Drawings.
- G. The pipeline shall be installed using the radii of curvature and entry and exit angles shown on the Contract Drawings; unless deviations are approved in writing by the ENGINEER.
- H. Pipe rollers and lifters will be required to help the transition of the carrier pipe into the bore and to minimize the pull force. The number of pipe rollers and lifters shall be determined by the Contractor in accordance with the pipe supplier's recommendations. Location and spacing of the rollers and lifters will be done in accordance with the pipe manufacturer's recommendations based on bend radius.
- I. It shall be the CONTRACTOR's sole responsibility that all Work is done in conformance with all applicable federal, state, and local safety requirements. Required safety equipment and procedures shall be employed by the CONTRACTOR at all times. All materials and methods of construction shall meet the applicable requirements of the State of Florida Administrative Code.

- J. The pipe shall be certified by the CONTRACTOR as meeting all requirements of the Contract Documents. The fabricated pipe will be pressure-tested by the CONTRACTOR prior to pullback and after installation is completed.
- K. The CONTRACTOR shall allow access to the OWNER and/or ENGINEER and shall furnish necessary assistance and cooperation to aid the ENGINEER in observations and data and sample collection, including, but not limited to the following:
 - 1. The OWNER and/or ENGINEER shall have full access to the operator control center prior to, during, and following all HDD operations. This shall include, but not be limited to, providing visual access to real-time operator control screens, gauges, and indicators.
 - 2. The OWNER and/or ENGINEER shall have full access to the slurry separation plant prior to, during, and following all HDD operations. This shall include, but not be limited to, full access to shaker screens, hydrocyclones, conveyor belts, and slurry and spoil holding tanks. The ENGINEER shall be allowed to collect soil samples from the shaker screens and/or spoil holding tanks on the slurry separation plant a minimum of once per installed pipe section, and whenever changes in conditions are observed or suspected. If requested, the CONTRACTOR shall assist in the collection of these samples as directed by the ENGINEER.
- L. CONTRACTOR shall comply with all local noise ordinances. Sound levels in excess of these values are sufficient cause to have the Work halted until equipment can be quieted to these levels. Work stoppage for excessive noise shall not relieve the CONTRACTOR of the portions of this Specification including, but not limited to completion of all Work within specified Contract Time and Contract Price. The CONTRACTOR shall submit a Plan prior to construction identifying all noise reduction/abatement procedures. The Plan will be reviewed by the ENGINEER prior to construction.
 - 1. If mufflers cannot achieve the necessary noise reduction, noise abatement shall be accomplished by the CONTRACTOR's installation of baffles (or other acceptable means) positioned to break line-of-sight from the noise source to affected residences and/or commercial structures. Minimum noise abatement measures shall consist of equipping all engines with hospital grade mufflers or silencers.

1.07 QUALITY ASSURANCE

- A. Contractor Qualifications and Experience: The Contractor shall meet the following minimum qualifications:
 - 1. Contractor must be licensed in the State of Florida as an underground utility Contractor for a minimum of five (5) years.
 - 2. The Contractor shall have at least five (5) years of demonstrated successful experience installing pipelines by the means of HDD.
 - 3. The Contractor must have successfully completed three (3) water or sewer projects where the pipe was installed with HDD techniques, each (unless

otherwise noted) meeting the following criteria.

- a. Minimum carrier pipe nominal diameter of at least 16-inches.
- b. Minimum length of 600 linear feet in a single pull through soil.
- c. The carrier pipe must be high density fusible polyethylene (HDPE) pipe.

And provide the following for each project.

- a. Project Description.
- b. Pipe-Size, Length, Material.
- c. Bore Length.
- d. Soil Types.
- e. OWNER's Contact Information.
- f. ENGINEER's Contact Information.
- g. Change Orders.
- h. Scheduled Completion Date and Actual Completion Date.

4. The Contractor will be required to employ skilled, experienced superintendent(s), equipment operator(s) and personnel throughout the project. The superintendent for this project shall have at least five (5) years of successful experience using the HDD process, with at least two (2) projects meeting the criteria identified in Paragraph 1.07A.3.
5. The HDD equipment operator for this project shall have at least five (5) years of successful experience using the HDD process, with at least one (1) project meeting the criteria identified in Paragraph 1.07A.3.

B. The Contractor shall furnish resumes of the superintendent(s) and key personnel. Personnel experience records should include project names, locations, pullback lengths, ground conditions, pipe materials, project description, project Owner, Engineer, and references with names, addresses, and telephone numbers. The superintendent listed in the submittal shall be on site during all construction related activities required for the HDD installation for this project.

C. Daily Logs and Records: Daily logs and records shall be maintained by the Contractor and shall include the following

1. drilling lengths,
2. location of drill head,
3. drilling fluid pressures and flow rates,
4. drilling fluid losses,
5. inadvertent returns (Frac-out),
6. drilling times required for each pipe joint,
7. any instances of retraction and re-drilling of the pilot bore or segments thereof, and
8. any other relevant observations, including any observed settlement, heave, frac-outs, or surface spills.

The downhole annular drilling fluid pressures shall be measured and recorded throughout the pilot hole drilling. These records shall be maintained and provided daily to the Engineer. The position of the drill head shall be continuously tracked

and recorded by a downhole tracking locator system. A plot of actual locations of the bore path shall be maintained and updated daily, or more frequently, as directed by the Engineer. These records shall be maintained and provided daily to the Engineer.

- D. Advance Notices and Inspections: The Contractor shall provide at least 24 hours advance written notice to the Engineer of the planned inspection of major drilling activities, including pilot bore launch, pre-reaming, reaming, and pipe pullback. The Contractor shall immediately notify the Engineer, in writing, when any significant problems are encountered or if ground conditions are considered by the Contractor to be materially and significantly different than those represented with the Geotechnical Report. All Work by the Contractors shall be performed in the presence of the Engineer unless Engineer grants prior written approval to perform such Work in Engineer's absence.
- E. Surveying Equipment and Procedures: All surveying equipment used for downhole surveying and tracking of the bore path and drill head shall be inspected and calibrated by the equipment manufacturer prior to use. Proof of this inspection and calibration shall be provided to the Engineer prior to commencement of drilling operations.

PART 2 – PRODUCTS

2.01 DRILLING FLUIDS

- A. The CONTRACTOR shall select drilling fluid mixture proportions to ensure continuous circulation, bore stability, reduce drag on the pipe, and completely fill the annular space between the bore and the pipe to control settlement. Management and disposal of drilling fluids shall be the CONTRACTOR's responsibility. Drilling fluids shall not be disposed of on-site or discharged to sanitary or storm sewers, or the waterways or adjacent wetlands.

2.02 DRILL PIPE

- A. The CONTRACTOR shall provide high quality drill pipes that have been inspected and determined to be adequate for the project requirements. Bent, racked, or fatigued drill pipes shall not be used. Threads must be in good condition. The length of each drill pipe shall be measured and recorded.

2.03 PIPE

- A. The CONTRACTOR shall provide and HDPE pipe in accordance with Section 3.
- B. The pipe thickness must conform to the most conservative design with respect to design calculations for the critical combination of internal and external pressure, pullback and bending. The carrier pipe shall meet the dimension ratio (DR-11) or greater as depicted in the design drawings.

2.04 WATER

- A. Testing and construction water will be provided via construction water connection as detailed on the design drawings and located on the 12" Dia. bypass connection to be installed on the existing 30" Dia. DIP watermain at the north end of the project.

- B. Water required for the HDD operations shall be provided by the OWNER

PART 3 - EXECUTION

3.01 GENERAL

- A. The CONTRACTOR shall provide adequate control of surface water and drilling fluids drainage and runoff, and provide silt fences, hay bales, and wattles to prevent surface water or drilling fluids from being transported off-site.
- B. The CONTRACTOR shall not initiate HDD until all submittals as specified in Paragraph 1.05 are received, reviewed, and approved by the ENGINEER.
- C. The CONTRACTOR shall not initiate HDD until all required permits are obtained. Copies of all permits shall be provided to the ENGINEER prior to construction.
- D. It is the CONTRACTOR's responsibility to provide barricades, fencing, or other safety measures to prevent public access into Work and staging areas.

3.02 PROTECTION OF UNDERGROUND UTILITIES

- A. The Contract Drawings show existing buried utilities that are believed to be near the directional drill alignment. There is no guarantee that these utilities are located as shown or that other utilities are not present. It will be the CONTRACTOR's responsibility to field locate all nearby utilities or other potential subsurface obstructions that may interfere with the Work.
- B. The CONTRACTOR shall notify "One Call" system to request marking of utilities that subscribe to One Call, at least 72 hours (excluding Saturdays, Sundays and Legal Holidays) before excavating in any public way and shall individually notify all other known or suspected utilities to request marking of these utilities. The CONTRACTOR shall confirm that all requested locates are made prior to commencing drilling operations. CONTRACTOR shall make all diligent efforts to locate any unmarked or abandoned utilities using all available information, maps, and drawings. The CONTRACTOR shall visually confirm and stake all existing lines, cables, or other underground facilities including exposing all crossing utilities and utilities within twenty (20) feet laterally of the centerline of designed drilled path at the discretion of the ENGINEER.
- C. The CONTRACTOR shall control drilling practices to prevent damage to existing utilities, existing pavement and sidewalks.
- D. The CONTRACTOR shall make diligent effort to locate surface evidence of any other potential subsurface obstructions, such as piers and piles.
- E. The CONTRACTOR shall be responsible for all losses and repairs occasioned by damage to underground utilities, structures and pavement/sidewalks resulting from drilling operations.

3.03 WORK STAGING AREA

- A. Barricades, Warning Signs, and Lights: The CONTRACTOR shall, in accordance with FDOT Standards erect appropriate barriers, warning lights, and signs, painted with approved colors, warnings, and graphics to ensure adequate warnings to

personnel and the public.

- B. **Combustible Materials:** Combustible materials (fuel, oil, lubricants, etc.) shall be stored off-site or in a well-ventilated storage facility removed from the immediate vicinity of the drilling area by at least twenty (20) feet.
- C. **Construction Impacts:** The CONTRACTOR shall maintain the Work area in a manner that shall minimize adverse impacts on other public use activities. The CONTRACTOR shall proceed with Work in a safe, orderly manner, while maintaining the Work site free of debris and unnecessary equipment and materials.
- D. **Control of Drilling Fluids:** The CONTRACTOR shall follow all requirements of the Inadvertent Return (Frac-Out) and Surface Spill Contingency Plan as submitted and approved and shall control operational pressures, drilling mud weights, drilling speeds, and any other operational factors required to avoid hydrofracture fluid losses to formations, and control drilling fluid spillage. This includes any spillages or returns at entry and exit locations or at any intermediate point. All inadvertent returns (Frac-Outs) or spills shall be promptly contained and cleaned up by the CONTRACTOR. The CONTRACTOR shall maintain on-site mobile spoil removal equipment during all drilling, pre-reaming, reaming, and pullback operations and shall be capable of quickly removing spoils. The CONTRACTOR shall immediately notify ENGINEER of any inadvertent returns (Frac-Outs) or spills and immediately contain and clean up the return or spill.
- E. **Removal of Temporary Facilities:** At the completion of construction, the CONTRACTOR shall remove all temporary facilities installed by the CONTRACTOR. Unused soil, aggregate, and other materials shall be removed and disposed of at approved sites in accordance with Federal, State, and Local regulations. Any damage to streets, lawns, common areas, and sidewalks shall be restored to original or better conditions. All disturbed areas shall be re-vegetated.
- G. **Temporary Lighting:** The CONTRACTOR shall procure and maintain all temporary lighting needed for CONTRACTOR's operations, safety, testing, and inspection. Temporary lighting shall be removed immediately after completion of construction.
- H. **Work Staging:** The CONTRACTOR shall limit staging and Work operations to the areas shown on the Contract Drawings, or as otherwise accepted in writing by the ENGINEER and all necessary approvals and permits for storage of equipment and materials, parking, drilling and other Work.
- I. **Pipe Layout Staging Areas:**
 - 1. The Contractor shall visit and fully evaluate the proposed work areas prior to submitting a bid for this work.
 - 2. CONTRACTOR is responsible for securing all necessary permits and approvals for the use of the temporary staging area layout of the pipe. All costs associated with this shall be included in the CONTRACTOR's bid price.

3.04 MOBILIZATION

- A. The CONTRACTOR shall mobilize all equipment, materials, and personnel necessary to construct the casing and carrier pipes using the HDD process at the

locations shown in the Contract Drawings.

1. Entry Area: The CONTRACTOR shall set up temporary workspace within the areas delineated on the Contract Drawings. Appropriate precautions and measures shall be employed by the CONTRACTOR to prevent erosion, surface drainage, and spillage of drilling fluids or other materials that could adversely impact the environmental quality of the site. Silt fences, hay wattles, and hay bales shall be used to line the Work area to minimize erosion and contain any spillage or runoff. Shovels, brooms, buckets, and barrels shall be kept on-site to facilitate containment and cleanup. A vacuum truck or trailer unit will be on standby and capable of responding within one hour to any spill or inadvertent return incident.
2. Exit Area: The exit area shall have appropriate precautions and measures for containing drilling fluids and cuttings. The CONTRACTOR shall use appropriate methods to minimize erosion and runoff. Containment and cleanup equipment shall be available to contain and clean up any surface spills and frac-outs.
3. Pipe Layout Area: Layout area shall be free of stones, wood, debris, and obstructions. Pipe rollers shall be provided by the CONTRACTOR during the fusion process to facilitate pipe fusion and pullback. The pipe layout area may not allow the entire length to be fused in a single length before start of pull-in. CONTRACTOR will plan work accordingly.

3.05 HORIZONTAL DIRECTIONAL DRILLING

- A. Drill Rig Capacity: The capacity of the directional drilling system used by the CONTRACTOR shall be adequate to install the specified pipes.
- B. Pump Capacity: The pumps used by the CONTRACTOR shall be adequate to supply the required flow rate and pressures at the anticipated drilling fluid viscosity at all times. Drilling speeds shall not exceed pump capacity. Drilling speeds shall be monitored continuously during HDD operations.
- C. Bore Tracking and Monitoring: At all times during the pilot bore the CONTRACTOR shall provide and maintain a bore tracking system that is capable of accurately locating the position of the drill head in the x, y, and z axes. The CONTRACTOR shall record these data at least once per drill pipe length or every thirty (30) feet, whichever is less.
 1. Downhole and Surface Grid Tracking System: CONTRACTOR shall monitor and record x, y, and z coordinates relative to an established surface survey benchmark from downhole survey data. The data shall be continuously monitored and recorded at least once per drill pipe length.
 2. Deviations between the recorded and design bore path shall be calculated and reported on the daily log. If the deviations exceed tolerances specified, such occurrences shall be reported immediately to the ENGINEER. The CONTRACTOR shall undertake all necessary measures to correct deviations and return to design line and grade.
 3. Drilling Fluid Pressures and Flow Rates: Drilling fluid pressures and flow rates shall be continuously monitored and recorded by the CONTRACTOR. The

pressure shall be monitored at the pump. These measurements shall be made during pilot bore drilling, reaming, and pullback operations.

4. Drilling Speeds: Maximum allowable drilling speeds shall be calculated by the CONTRACTOR for pilot boring and each reaming pass and shall not be exceeded for pilot boring or reaming passes. Measurements shall be taken every thirty (30) feet or thirty (30) minutes, whichever is more frequent.
 5. Drilling Fluid Viscosity and Density (Mud Weight): The CONTRACTOR shall measure and record drilling fluid viscosity and density at least three (3) times per shift or at least once per 200 feet of drilled and reamed length, whichever is more frequent with at least two (2) hours between readings, using calibrated Marsh funnel and mud balance. These measurements shall be included in daily logs submitted to the ENGINEER. The CONTRACTOR shall document modifications to the drilling fluids, by noting the types and quantities of drilling fluid additives and the dates and times when introduced. The reason for the addition of drilling fluid additives or other modifications shall be documented and reported.
- D. Location of Entry and Exit Points: Entry and exit points shall be as shown on the Contract Drawings, unless otherwise approved in writing by the ENGINEER or as shown on the approved HDD Work Plan. The CONTRACTOR shall employ experienced licensed surveyors registered in the state of Florida to locate the entry and exit points, and to establish horizontal and vertical datum for the bore and the pipe layout and fabrication areas.
- E. Entry and Exit Angles: Drill entry and exit angles shall be as shown on the Contract Drawings, unless otherwise approved in writing by the ENGINEER.
- F. Pilot Bore: The pilot bore shall follow the design path of the bore shown on the Contract Drawings.
1. Horizontal and Vertical Tolerances: Horizontal and vertical deviations shall be less than plus or minus two (2) feet from the design path centerline. The CONTRACTOR shall continuously monitor horizontal and vertical position and record the position at least once per drill pipe length, or at thirty (30) feet, whichever is less.
 2. Radius of Curvature: The radius of curvature shall not be less than that shown on the Contract Drawings. The radius of curvature shall be calculated over the distance of three (3) drill pipe sections.
 3. Entry and Exit Tolerances: The location of the entry and exit points shall be in accordance with the approved HDD Work Plan. The CONTRACTOR shall be solely responsible for all Work necessary to correct excessive deviations from line and grade, including re-drilling, redesigning connections, and acquiring additional easement, at no additional cost to the OWNER and without schedule extension.
- G. Pre-reaming and Reaming: The pilot bore shall be pre-reamed and reamed using equipment and methods submitted by the CONTRACTOR. The CONTRACTOR shall completely pre-ream the bore to the final diameter prior to pullback.

- H. Hydrostatic Pretest: CONTRACTOR shall perform a low hydrostatic water pressure test per Section 1. Test shall be at a reduced pressure (Minimum 50 psig) prior to pipe pullback.
- I. Pipe Pullback:
1. A final swabbing of the bore path prior to pipe pullback is required, unless otherwise approved by the ENGINEER prior to the start of drilling operations, pipe pullback of new pipe without prior swabbing of the bore path to the furnished bore path inside diameter will not be permitted. The pipe shall be installed by pulling it into the reamed bore path in a continuous operation, behind a final reaming tool selected by the CONTRACTOR.
 2. The pipe shall be isolated from excessive torsional and axial stresses by a swivel device.
 3. All measurements shall be made, recorded, and submitted on the daily logs during final reaming and pipe pullback.
 4. Pulling Loads: The maximum pull (axial tension force) exerted on the carrier pipeline shall be measured continuously in the control center and at the pulling head and limited to the maximum allowed by the pipe Manufacturer so that the pipe or joints are not overstressed. A factor of safety over the maximum allowable is not required.
 5. Pipeline Support: The pipelines shall be adequately supported during installation so as to prevent overstressing or buckling. The CONTRACTOR shall provide adequate support/rollers along the stringing area to support the required length of the carrier pipe for each bore. Such support/rollers shall be spaced according to the pipe supplier, and the rollers be comprised of a non-abrasive material arranged in a manner to provide support to the bottom and bottom quarter points of the pipeline allowing for free movement of the pipeline during pullback. The pipe layout area shall be cleared of all large stones, construction debris, or other foreign objects that could damage the piping during pullback.
 6. The pipe shall have ballast during pullback (filled with water).
 7. The leading end of the pipe shall be closed during the pullback operation, in accordance with the pipe supplier's recommendations. A pulling head shall be used that is rated at the allowable pull force capability of the pipe section being installed, in accordance with the pipe supplier's recommendations.
 8. Each length of pipe shall be inspected and cleaned as necessary to be free of debris immediately before joining.
 9. Two separate and complete runs of tracer wire will be attached to the leading end of the pipe pulling head and shall extend the full length of the installed pipe. No mid span splices will be permitted. Tracer wire and continuity testing shall be in accordance with IRCDUS construction standards and specifications.
 10. The CONTRACTOR shall at all times handle the pipe in a manner that does not overstress or otherwise damage the pipe. Vertical and horizontal curves shall be limited to manufacturer's recommended bend radius so that wall stresses do

not exceed the allowable bending radius as recommended by the pipe supplier. If the pipe is buckled or otherwise damaged due to CONTRACTOR's acts or omissions, the damaged section shall be removed and replaced by the CONTRACTOR at his expense. The CONTRACTOR shall take appropriate steps during pullback to ensure that the carrier pipe and tracer wires will be installed without damage.

11. If the pipe has mid-welds, the CONTRACTOR shall engage the pipe supplier to provide a fusion technician to ensure Quality Assurance and Quality Control (QA/QC) of the mid-welds during the pullback operation.
 12. The CONTRACTOR shall monitor and inspect pipe rollers and method for suspending pipe at entry during the pullback operation to avoid damage to the pipe.
 13. The CONTRACTOR shall cease operations if the pipe is damaged and shall remove the pipe from the bore and repair the pipe using the Manufacturer's recommended procedure or replace the damaged pipe before resuming installation.
 14. Damage to the pipe resulting from installation or contact grouting is the responsibility of the CONTRACTOR, including costs for replacement and labor and materials at no cost to the OWNER. To confirm no damage to the pipe, upon completing of pullback and grouting, the CONTRACTOR shall perform the following test on the completed pipeline.
 - a. A mandrel or pig, one inch less in diameter than the internal diameter (including fusion beads) of the product pipe, which is capable of allowing water to pass through it, complete with a pulling cable on either side of mandrel or pig, shall be pulled through the entire length of the pipeline. If the pig or mandrel cannot pass through the pipe, it shall be considered collapsed and damaged and the CONTRACTOR shall be responsible for replacement of the carrier pipe and all costs associated with the replacement. Check Manufacturer's tolerance and fuse bead size.
 15. After the casing pipe is completely pulled through the bore, a sufficient period as recommended by the pipe Manufacturer shall be provided before the final pipe tie-in.
 16. Final Hydrostatic Test: The CONTRACTOR shall conduct a final hydrostatic test of the installed pipeline. Final test shall be in accordance with Section 3. The CONTRACTOR shall repair any defects discovered during the test, and repeat until the pipe passes the test.
 17. Upon completion of the installation and successful pressure testing of the directional bore and ancillary piping, CONTRACTOR shall provide bacteriological testing of the main in accordance with FDEP standards for certification.
- K. Obstructions: The CONTRACTOR shall notify the ENGINEER immediately in the event that any obstruction is encountered that prevents further advancement of the drill pipe, or pullback of the pre-reamer, reamer, and/or pipe. The CONTRACTOR shall make all diligent and reasonable efforts to advance past the object by drilling slowly through the object, pulling back, and drilling along a new bore path that

avoids the object, or excavating and exposing and removing the object, and all other reasonable attempts to continue the bore. The CONTRACTOR shall notify the ENGINEER or proposed measures to attempt to advance past the object, prior to initiating the attempt. If the CONTRACTOR attempts to pullback and re-drill, the CONTRACTOR shall adhere to line and grade tolerances established in this Specification section, unless the ENGINEER approves variance, in writing, prior to the CONTRACTOR's attempt to re-drill. The CONTRACTOR and ENGINEER shall investigate the cause and together determine an appropriate response. Appropriate response may include revisions to equipment or methods, retraction and re-drilling of a portion of the bore, or abandonment of the hole. If abandonment is deemed necessary, the CONTRACTOR shall recover, to the extent practicable, any drill pipe, product pipe, and tools in the bore, and properly abandon the bore by contact grouting unless otherwise directed in writing by the ENGINEER. If the bore is abandoned, the CONTRACTOR shall be allowed to begin a second attempt to install the pipeline at an alternate location subject to approval, in writing, by the ENGINEER. The CONTRACTOR shall take all reasonable actions to complete the installation with minimal delays. The extra costs and payments associated with encountering a confirmed obstruction shall be negotiated between the Owner and Contractor, based on reasonable time and materials.

- L. Site Restoration and Demobilization: The CONTRACTOR shall remove all equipment, materials, drilling fluids, muck, waste, and debris from the site and restore the site to its original condition upon completion of the installation. Restoration and demobilization shall be completed by the CONTRACTOR within seven (7) calendar days of the completion of the pipeline installation.

*** * END OF SECTION * ***

SECTION 18

Approved Manufacturers' Products List

Air Release Valves – Sewer

- A.R.I.

Air Release Valves – Water

- APCO
- A.R.I.
- GA Industries
- Val-Matic

Backflow Preventer (RPZ) and Double Detector Check Valves with RPZ Assembly

- AMES Fire and Waterworks -Silver Bullet Series
- FEBCO
- Watts
- Wilkins

Blow-Off Valves

- John C. Kupferle Foundry Co. – Model Eclipse #85 or approved equal

Bronze Gate Valves

- American Valve Inc.
- East Jordan
- NIBCO
- Red-White Valve Corp.
- United Brass Works

Casing Spacers/Insulators

- APS- Advance Product &Systems
- Cascade Waterworks Mfg.
- GPT
- Raci North America

Check Valves- Weight & Lever Resilient Seat

- American Darling
- Clow Valve Company
- Kennedy Valve
- M&H Valve
- Mueller Co.
- Val-Matic

Corporation Stops

- A.Y. McDonald Mfg. Co
- The Ford Meter Box Co. Inc. - FB1100 x G-NL Style, FB1700
- Mueller Co. Part #'s H-15028 & H10046

Couplings

- EBAA-Iron
- Krausz-HYMAX
- Smith-Blair (Pump Stations EZ with Seal and Restraint)
- Wal-Rich Dresser™ Pipeline Solutions

Curb Stops

- The Ford Meter Box Co. Inc. - KV43-342WG, KV43444WG, BA43342WG, BA43444WG, B41666WG, B41777WG, BFA43-666WG *& BFA43777WG
- AY McDonald: (Equal to Ford Part Numbers)
- Mueller: (Equal to Ford Part Numbers)

Ductile Iron Pipe

Water: Cement Lined Class 350/50

Sewer/Force Main: Protecto 401 Lines Class 350/50

- American
- Clow Valve Co.
- Griffin Pipe Products Co.
- McWane
- U.S. Pipe

Ductile Iron Fittings

Water: Cement Lined Class 350/50

Sewer/Force Main: Protecto 401 Lines Class 350/50

- American Valve
- Clow
- McWane Ductile
- Star Pipe Products
- Tyler
- U.S. Pipe

Electrical Equipment as listed or approved equal

- Crouse-Hinds
 1. Cable Connectors "CGB" Series
 2. Emergency Power Receptacle – 3W, No. AR1042-S22 with AR610 Panel Adaptor for pumps less than 25hp, AR2042-S22 with AR610 Panel Adaptor for pumps greater than 25hp
- Eagle Signal Bulletin 705

1. HK series Elapsed Timer Meter
- Square D
 1. Unfused Safety Switch
 2. Thermal Magnetic Air Circuit Breaker
 3. Magnetic Motor Starter
 4. Reduced Voltage Motor Starter
 5. Pump Mode Selector Switch
 6. Indicator Lamps

Fire Hydrants 5 ¼" Valve Opening

- Clow – Medallion F2545
- East Jordan Iron Works – Part no. 5CD250
- Mueller-Centurion 250

Generator Sets

1000 KW or Greater

- Caterpillar
- Cummins/Onan
- Detroit Diesel

1000 KW or Less

- Atlas-Copco
- Katolight
- Kohler Power
- Tradewinds Power
- Winco

Lift Station Access Door

- Bilco – Type J-AL Single Leaf with Stainless Steel Hardware-Waterproof
- Halliday Products – Single Leaf with Stainless Steel Hardware-Waterproof

Lift Station Control Panels

- ECS (Economy Control Systems, Jacksonville, FL)

Lift Station Joint Sealer

- Marbri Supply Co.
 1. Embeco 636 Grout
 2. Embeco 885 Grout

Lift Station and Manhole Sealant and Coatings

- Pro-Tech EW-1 Water Base Epoxy
- CANUSA WRAPID SEAL

Lift Station Submersible Pumps

- ABS Pump - If a grinder pump is proposed, only ABS type grinder pumps under 5.0 hp are permitted. ABS V2 Pirana Grinder Pumps are not permitted
- Xylem Flygt.

Lift Station Valve Pit Access Door

- Bilco
- Halliday Products

Lift Station Valve Pit Quick Disconnect

- Kamloc Male Kwik Disconnect
- Kamloc Coupler 4"

Lift Station Valve Pit Safety Grate

- Halliday Products
- Bilco

Line Setter for Meter Boxes

6" – Part # Retro-2BVBHH-NL
5/8" X 3/4" Meter Retrosetter

12" – Part # VHH42-12W-NL
5/8" X 3/4" Meter Retrosetter
No Lead 3/4" Key Valve
By Dual Check Valve

- Ford Meter Box

Marker Balls Electronic

- 3M – Water 3M 1403XR, Sewer 3M 1404XR

Manhole Frames and Covers

- U. S. Foundry – Drawing No. 420-C
- PAM –Pamrex Hinged Manhole Cover and Frame

Manholes Flexible Plastic Gaskets

- Press Seal Gasket Corp
- Ram-Nek

Manhole and Lift Station Linings

- AP/M Permaform
- Associated Fiberglass Enterprises
- GU Florida

- LF Manufacturing Co. Inc.

Manhole Pipe Connection (Boot)

- Kor-N-Seal –Neoprene Boot with Stainless Steel Accessories
- PBX (Press Seal Gasket Corp)

Manhole Watertight Rain Guard Boot

- LF Manufacturing Co. Inc.
- Parson Environmental Products

Mechanical Joint Restraints

- EBAA –Megalugs and Bell Restraints
- SIGMA Corp
- Star Pipe Products
- U.S. Pipe – Field Lock Gaskets

Meter Boxes

Polymer Concrete & Fiberglass sizes 11”X18”, 13”X24”, 17”X30”, 24”X36”

- CDR Systems Corp.
- GlasMasters, Pre-Plumbed Box
- Hubbell

Meters for Sewer Force Mains and Reuse Mains

- Mag-Meter (on a case by case basis)
- The Abb Group/Fisher Porter

PE Pipe & Tubing

3/4”to 2” SDR 9 CTS
3” to 48” DR11 DIPS

- Chevron-Phillips
- Flying W Plastics Inc.
- JM Eagle
- Municplex
- Polypipe

Plug Valves

- Clow Valve Co
- DeZurik-Series 100
- Henry Pratt Co.
- Kennedy Valve
- M&H Valve Co.
- Val-Matic-Series 1500

PVC Pipe & Fittings

Water/Force Main - DR18 C900/C909 (for Fittings, see Ductile Iron Fittings on Page 18-2)
Sewer - SDR 26 3034 (for Fittings, see Sewer Fittings ASTM D-3034 on Page 18-7)

- Diamond Plastics
- ETI Pipe and Supply
- Freedom Plastics
- J-M Manufacturing Co. Inc.
- National Pipe and Plastic
- North American Pipe Corp.

Reduce Pressure Backflow Preventer Assembly

- AMES Fire and Waterworks - 400SS & 4000SS
- Wilkins –Part No. 975
- FEBCO- Part No. LF825Y
- Watts – Part No. LF909

Remote Telemetry Unit

- DataFlow Systems Inc. - Model TAC II telemetry unit, complete with Model PCU-001 pump control module, BPR backpack radio/TAC pack, power supply with battery backup, Model RTU-03 enclosure, cable and antenna

Resilient Seat Gate Valves

- American Flow Control
- Clow Valve Co.
- Kennedy Valve
- M&H Valve Co.
- Mueller Co.

Service Saddles-Stainless Steel Straps

- The Ford Meter Box Co.
- JCM Industries
- Romac Industries Inc.

Sewer Fittings ASTM D-3034

- The Harrington Corp./HARCO
- Multi Fittings
- Royal Building Products

Sleeve Type Couplings

- The Ford Meter Box Co.
- Smith-Blair - Style 413
- JCM Industries

Tapping Sleeves- Stainless Steel

- The Ford Meter Box Co. – Style FTSS
- JCM Industries- Model 432
- Smith-Blair – Style 663
- Romac Industries Inc.

Tie Rods

All tie rods shall be stainless steel all-thread rods

Trace Wire Covering

- King Innovation –Dryconn Weatherproof Connectors
- SKRINK WRAP
 - a) 3M-ScotchKote Weatherproofing Compound
 - b) 3M- Scotch 33 tape

Trace Wire Port

- Snake Pit (Cast Iron Cover)

Valve Boxes (Domestic Heavy Duty)

- East Jordan Iron Works – Long Throat Lid General Foundries Inc
- Russell
- Star Pipe Products
- Tyler Union
- U. S. Foundry

Valve Name Plate

- LF Mfg. Co
- Shiedow Bronze Corp.
- Wager Co.

[The remainder of this page was left blank intentionally]

SECTION – 1050 TO 1080 – WATERMAIN RELOCATION

The work specified in these items shall conform to Indian River County Department of Utility Services Standards and Specifications.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 1050-11-425A – Furnish and Install 20” DIP Water Main – Per Linear Foot

Bid Item No. 1050-42-224A – Furnish and Install 24” HDPE HDD – Per Linear Foot

Bid Item No. 1055-11-4A – Furnish and Install Fitting and Appurtenances – Per Ton

Bid Item No. 1080-11-404A – Furnish, Install and Remove 12” Bypass Assembly – Per Lump Sum

Bid Item No. 1080-11-506A – Furnish and Install Air Relief Valve and Vault – Per Each

Bid Item No. 1080-11-512A – Sample Points – Per Each

Bid Item No. 1080-11-512B – Pigging and Flushing – Per Lump Sum

Bid Item No. 1080-11-512C – Disinfection and Testing – Per Lump Sum

Bid Item No. 1080-23-120A – Furnish and Install 20” X 12” Wet Tap Assembly – Per Each

Bid Item No. 1080-24-112A – Furnish and Install 12” Gate Valve – Per Each

Bid Item No. 1080-24-120A – Furnish and Install 20” Gate Valve – Per Each

Bid Item No. 1080-27-120A – Furnish and Install 20” Line Stop – Per Each

+++END OF SECTION+++

APPENDIX A

PERMITS

Indian River Farms Water Control District – Permit Nos. 18-02 & 18-03
St. Johns River Water Management District – Permit Determination No. PDEX:150413-1

INDIAN RIVER FARMS WATER CONTROL DISTRICT

7305 4th Street
Vero Beach, Florida 32968
(772) 562-2141

RECEIVED

DEC - 5 2017

INDIAN RIVER COUNTY
DIVISION

APPLICATION FOR CONNECTION TO OR USE OF DISTRICT FACILITIES

Date: November 30, 2017

No. 18-02

A. Applicant Information:

INDIAN RIVER COUNTY
Name: James W Ennis, P.E.
Address: 1801 27th Street
Vero Beach, FL 32960

Authorized Agent and Title: _____
Telephone Number: 772-226-1221

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 \$300.00
- Culvert and/or control structure in District canal for crossing and/or water storage \$200.00
- Other (specify) _____ \$100.00

C. Location: Tract 144, Section 748, Township 32, Range 39, Canal No. A-13-E
Other appropriate description: 69th Street at 58th Avenue
Property I.D. Parcel No.: _____

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.)

48 Inch Diameter RCP Culvert Crossing 58th Avenue, and minor associated drainage modifications at the intersection. See attached design drawings for detailed design of the proposed work.

E. Special Conditions: (for District use only)

SEE ATTACHED LIST OF SPECIAL CONDITIONS.

F. Estimated Date of Construction Commencement: March 2018
Estimated Date of Construction Completion: June 2018 (Window of when work should occur)

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: [Signature] Date 12/5/17
Applicant

(For District Use Only)

Application approved by: [Signature]
for the Indian River Farms Water Control District

Application approved by: [Signature]
for Carter Associates, Inc., Engineer for District

Date of approval: 1-15-18
Expiration Date of this approved application: 1-15-19

PERMISSION, WHEN GRANTED, WILL BE SUBJECT TO THE STANDARD PROVISOS SET FORTH ON THE REVERSE HEREOF.

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 sub-let to a third party and any transfer of Permittee's property abutting District's property or right-of-way shall ipso facto 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.(772-562-2141)
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.

By initialing and dating this page I am agreeing to all standard and special provisos:

Initial: _____ Date: _____

SPECIAL CONDITIONS FOR PERMIT NO. 18-02
FOR
58th AVENUE/69TH STREET ROADWAY INTERSECTION
IMPROVEMENTS; REPLACING 48" R.C.P. UNDER 58TH AVENUE
IN SUB-LATERAL A-13-E/G-4 CANAL

- 1) This permit is issued based on plans prepared by Bowman Consulting Group, signed and sealed by Eric L. Flavell, P.E., dated December 6, 2017.
- 2) Proposed guard rail shall be installed no more than three (3) feet from top of bank of Sub-lateral A-13-E (69th Street) Canal to permit canal maintenance access and maintenance operation to the canal.
- 3) All final grading at the roadway intersection and along the canal section shall be away from top of canal bank, with sufficient drainage provided to prevent ponding of surface water and any overbank discharge of stormwater resulting in erosion of canal bank into canal.

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: December 13, 2017

No. 18-03

A. Applicant Information: INDIAN RIVER COUNTY
Name: James W Ennis, P.E.
Address: 1801 27th Street
Vero Beach, FL 32960

Authorized Agent and Title: _____
Telephone Number: 772-226-1221

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 \$300.00
- Culvert and/or control structure in District canal for crossing and/or water storage \$200.00
- Other (specify) _____ \$100.00

C. Location: Tract "5", Section 33, Township 31, Range 39, Canal No. LAT. "G"
Other appropriate description: Lateral G and 58th Avenue
Property I.D. Parcel No.: _____

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.)

Removal of existing 24" CMP across 58th Avenue at IRFWCD Lateral G, and installation of 24" RCP and CMP with the associated storm manhole as depicted in the plan and profile views on sheet 180, attached.

E. Special Conditions: (for District use only)

RECEIVED
JAN 18 2018

F. Estimated Date of Construction Commencement: March 2018
Estimated Date of Construction Completion: June 2018 (Window of when work should occur)

INDIAN RIVER COUNTY
ENGINEERING DIVISION

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: [Signature]
Applicant

Date 12/13/17

(For District Use Only)

Application approved by: [Signature]
for the Indian River Farms Water Control District

Application approved by: [Signature]
for Carter Associates, Inc., Engineer for District

Date of approval: 1-15-18
Expiration Date of this approved application: 1-15-19

PERMISSION, WHEN GRANTED, WILL BE SUBJECT TO THE STANDARD PROVISOS SET FORTH ON THE REVERSE HEREOF.

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 sub-let to a third party and any transfer of Permittee's property abutting District's property or right-of-way shall ipso facto 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.(772-562-2141)
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.

By initialing and dating this page I am agreeing to all standard and special provisos:

Initial: 

Date: 12/13/17

SPECIAL CONDITIONS FOR PERMIT NO. 18-03
FOR
REPLACEMENT OF 58TH AVENUE DRAINAGE SWALE
OUTFALL CULVERT INTO LATERAL "G" CANAL

- 1) This permit is issued based on plans prepared by Bowman Consulting Group, signed and sealed by Eric L. Flavell, P.E., dated December 6, 2017.
- 2) Final grading at site shall: (1) Be away from top of canal bank to prevent ponding of surface water and any overbank discharge of stormwater into canal; and (2) Provide sufficient access across outfall/discharge culvert for passage of heavy canal maintenance equipment.
- 3) All disturbed sections of canal bank shall be regraded, compacted and stabilized to typical section of existing canal bank.



St. Johns River

Water Management District

Ann B. Shortelle, Ph.D., Executive Director

525 Community College Parkway S.E. • Palm Bay, FL 32909 • 321-984-4940
On the internet at www.sjrwmd.com.

July 20, 2017

Eric Flavell - Sent via email: eflavell@bowmanconsulting.com
Bowman Consulting

Re: 58th Avenue - resurfacing and reclamation from 57th Street to 85th Street
PDEX: 150413-1
(Please reference the permit determination number on all correspondence)

Dear Mr. Flavell:

On July 19, 2017, the St. Johns River Water Management District (District) received your application, construction plans, and determination fee requesting an exemption verification for the above referenced project. Based on this submittal, the proposed project involves re-surfacing of existing roadways, along with the construction of new turn lanes, less than 0.25 miles in length, and the extension of several pipes with surface water impacts less than 0.1 acres at each location.

Pursuant to 62-330.051, Florida Administrative Code (F.A.C.), an Environmental Resource Permit is not required since the project meets the exemption requirements.

Please be advised that this determination only applies to the District and does not relieve you from the permitting requirements of other agencies.

Thank you for your cooperation with the permitting and compliance process. If you have any questions, please contact the District at (321) 676-6631 or by email at mcrosby@sjrwmd.com.

Sincerely,

A handwritten signature in black ink that reads "John Julianna".

John Julianna, Regulatory Coordinator
Division of Regulatory Services

CC: Marc Van Heden
Fariborz Zanganeh
Susan Moor
Mark Crosby
Elois Lindsey
William Johnson, P.E – Sent via email: wjohnson@ircgov.com
Nathan Ottoson, P.E. – Sent via email: nottoson@ircgov.com

GOVERNING BOARD

John A. Miklos, CHAIRMAN
ORLANDO

Fred N. Roberts Jr., VICE CHAIRMAN
OCALA

Chuck Drake, SECRETARY
ORLANDO

Ron Howse, TREASURER
COCOA

Douglas C. Bourmique
VERO BEACH

Douglas Burnett
ST. AUGUSTINE

Susan Dolan
SANFORD

Janet Price
FERNANDINA BEACH

APPENDIX B

Indian River County Fertilizer Ordinances

Appendix B-IRC Fertilizer Ordinances

ORDINANCE NO. 2013 - 012

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA, AMENDING THE CODE OF INDIAN RIVER COUNTY TO ESTABLISH A NEW CHAPTER 316, ENTITLED "FERTILIZER AND LANDSCAPE MANAGEMENT;" ADOPTING THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S MODEL ORDINANCE FOR FLORIDA-FRIENDLY USE OF FERTILIZER ON URBAN LANDSCAPES, WITH MODIFICATIONS; MAKING FINDINGS AND PROVIDING FOR SEVERABILITY, CODIFICATION; DIRECTING COUNTY ATTORNEY'S OFFICE TO POST SUMMARY ON COUNTY WEBSITE, AND AN EFFECTIVE DATE.

WHEREAS, as a result of impairment to Indian River County's surface waters caused by excessive nutrients, or, as a result of increasing levels of nitrogen in the surface and/or ground water within the aquifers or canals within the boundaries of Indian River County, the Board of County Commissioners has determined that the use of fertilizers on lands within Indian River County creates a risk of contributing to adverse effects on surface and/or ground water; and

WHEREAS, in order to address this risk, the Board of County Commissioners has determined that it is not only critical to adopt the Florida Department of Environmental Protection's Model Ordinance for Florida-Friendly Use of Fertilizer on Urban Landscapes, but that as part of Indian River County's science-based, and economically and technically feasible, comprehensive program to address nonpoint sources of nutrient pollution, additional and more stringent standards are necessary in order to adequately address urban fertilizer contributions to nonpoint source nutrient loading to the surface and/or ground water of Indian River County; and

WHEREAS, this ordinance regulates the proper use of fertilizers by any applicator; requires proper training of Commercial Fertilizer Applicators and Institutional Fertilizer Applicators; establishes training and licensing requirements; establishes a Prohibited Application Period; and specifies allowable fertilizer application rates and methods, fertilizer-free zones, low maintenance zones, and exemptions. The ordinance requires the use of Best Management Practices which provide specific management guidelines to minimize negative secondary and cumulative environmental effects associated with the misuse of fertilizers. These secondary and cumulative effects have been observed in and on Indian River County's natural and constructed stormwater conveyances, rivers, creeks, canals, lakes, estuaries and other water bodies. Collectively, these water bodies are an asset critical to the environmental, recreational, cultural and economic well-being of Indian River County residents and the health of the public. Overgrowth of algae and vegetation hinder the effectiveness of flood attenuation provided by natural and constructed stormwater conveyances. Regulation of nutrients, including both phosphorus and nitrogen contained in fertilizer, will help improve and maintain water and habitat quality,

ORDINANCE NO. 2013 - 012

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA, THAT:

Section 1. Enactment Authority.

Article VIII, §1 of the Florida Constitution and Chapter 125, Florida Statutes vest broad home rule powers in counties to enact ordinances, not inconsistent with general or special law, for the purpose of promoting the public health, safety and welfare of the residents of the county. The Board specifically determines that the enactment of this ordinance is consistent with general or special law, and is necessary and appropriate to promote the health, safety and welfare of the residents of Indian River County.

Section 2. Findings.

The Board finds that the above "Whereas" clauses are true and correct, and hereby incorporates such clauses as findings of the Board.

Section 3. Adoption of Chapter 316 of the Code of Indian River County (the "Code").

Chapter 316 of the Code is hereby adopted, as follows (new language is indicated by underline):

Section 316.1. Title.

This chapter shall be known as the "Indian River County Fertilizer and Landscape Management Ordinance."

Section 316.2. Definitions.

For the purposes of this chapter, the following terms shall have the following meanings:

"Administrator" shall mean the County Administrator, or an administrative official of the County designated by the County Administrator to administer and enforce the provisions of this chapter.

"Application" or "apply" shall mean the actual physical deposit of fertilizer to turf or landscape plants.

"Applicator" shall mean any Person who applies fertilizer on turf and/or landscape plants in Indian River County.

"Board" shall mean the Indian River County Board of County Commissioners.

"Best Management Practices" shall mean turf and landscape practices or combination of practices based on research, field-testing, and expert review, determined to be the most effective

ORDINANCE NO. 2013 - _____

and practicable on-location means, including economic and technological considerations, for improving water quality, conserving water supplies and protecting natural resources.

"Chapter 85-427" shall mean The Indian River County Environmental Control Act, Chapter 85-427, Special Acts, Laws of Florida.

"Code Enforcement Officer" shall mean any designated employee or agent of Indian River County whose duty it is to enforce codes and ordinances enacted by Indian River County.

"Commercial Fertilizer Applicator," except as provided in §482.1562(9), Florida Statutes, shall mean any person who applies fertilizer for payment or other consideration to property not owned by the person or firm applying the fertilizer or the employer of the applicator.

"Code" shall mean The Code of Indian River County.

"Environmental Control Officer" shall mean the Indian River County Environmental Control Officer appointed by the Board pursuant to Chapter 85-427, and Chapter 303 (Part I) of this Code, and his or her designees.

"Fertilize," "fertilizing," or "fertilization" shall mean the act of applying fertilizer to turf, specialized turf, or landscape plants.

"Fertilizer" shall mean any substance or mixture of substances that contains one or more recognized plant nutrients and promotes plant growth, or controls soil acidity or alkalinity, or provides other soil enrichment, or provides other corrective measures to the soil.

"Heavy rain" shall mean rainfall greater than two inches in a 24 hour period.

"Institutional Fertilizer Applicator" shall mean any person, other than a private, non-commercial applicator or a Commercial Fertilizer Applicator (unless such definitions also apply under the circumstances), that applies fertilizer for the purpose of maintaining turf and/or landscape plants. Institutional Fertilizer Applicators shall include, but shall not be limited to, owners, managers or employees of public lands, schools, parks, religious institutions, utilities, industrial or business sites and any residential properties maintained in condominium and/or common ownership.

"Landscape plant" shall mean any native or exotic tree, shrub, or groundcover (excluding turf).

"Low maintenance zone" shall mean an area a minimum of ten feet wide adjacent to water courses which is planted and managed in order to minimize the need for fertilization, watering, mowing, etc.

"Person" shall mean any natural person, business, corporation, limited liability company, partnership, limited partnership, association, club, organization, and/or any group of people acting as an organized entity.

ORDINANCE NO. 2013 - 012

"Restricted Season" shall mean June 1 through September 30.

"Saturated soil" shall mean a soil in which the voids are filled with water. Saturation does not require flow. For the purposes of this chapter, soils shall be considered saturated if standing water is present or the pressure of a person standing on the soil causes the release of free water.

"Slow Release Nitrogen" shall mean nitrogen in a form which delays its availability for plant uptake and use after application, or which extends its availability to the plant longer than a reference rapid or quick release product.

"Turf," "sod," or "lawn" shall mean a piece of grass-covered soil held together by the roots of the grass.

"Urban landscape" shall mean pervious areas on residential, commercial, industrial, institutional, highway rights-of-way, or other nonagricultural lands that are planted with turf or horticultural plants. For the purposes of this section, agriculture has the same meaning as in §570.02, Florida Statutes.

Section 316.3. Timing of fertilizer application.

No applicator shall apply fertilizers containing nitrogen and/or phosphorus to turf and/or landscape plants during the Restricted Season, to saturated soils, or during a period in which a Flood Watch or Warning, or a Tropical Storm Watch or Warning, or a Hurricane Watch or Warning is in effect for any portion of Indian River County, issued by the National Weather Service, or if heavy rain is likely.

Section 316.4. Fertilizer-free zones.

Fertilizer shall not be applied within ten feet of any pond, stream, watercourse, lake, canal, or wetland as defined by the Florida Department of Environmental Protection (Chapter 62-340, Florida Administrative Code) or from the top of a seawall. If more stringent Indian River County Code regulations apply, this provision does not relieve the requirement to adhere to the more stringent regulations. Newly planted turf and/or landscape plants may be fertilized in this zone only for a 60-day period beginning thirty days after planting if needed to allow the plants to become well established. Caution shall be used to prevent nutrients from being directly deposited into the water.

Section 316.5. Low maintenance zones.

A voluntary ten foot low maintenance zone is strongly recommended, but not mandated, from any pond, stream, water course, lake, wetland or from the top of a seawall. A swale/berm system is recommended for installation at the landward edge of this low maintenance zone to capture and filter runoff. If more stringent Indian River County Code regulations apply, this provision

ORDINANCE NO. 2013 - 012

does not relieve the requirement to adhere to the more stringent regulations. Notwithstanding the voluntary nature of the above sentences, no mowed or cut vegetative material may be deposited or left remaining in this zone or deposited in the water. Care should be taken to prevent the overspray of aquatic weed products in this zone.

Section 316.6. Fertilizer content and application rates.

(a) No fertilizer containing phosphorous shall be applied to turf or landscape plants in Indian River County unless a soil or plant tissue deficiency is verified by a University of Florida, Institute of Food and Agriculture Sciences, approved testing methodology. In the case that a deficiency has been verified, the application of a fertilizer containing phosphorous shall be in accordance with the rates and directions for the Central Region of Florida as provided by Rule 5E-1.003(2), Florida Administrative Code. Deficiency verification shall be no more than 2 years old. However, recent application of compost, manure, or top soil shall warrant more recent testing to verify current deficiencies.

(b) The nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least 50% slow release nitrogen per guaranteed analysis label.

(c) Fertilizers applied to an urban lawn or turf within Indian River County shall be applied in accordance with requirements and directions set forth on the label or tag for packaged fertilizer products, or in the printed information accompanying the delivery of bulk fertilizer products, as provided by Rule 5E-1.003(2), Florida Administrative Code, *Labeling Requirements For Urban Turf Fertilizers*. All packaged and bulk fertilizer products sold in Indian River County shall be sold in packages with labels or tags, or, if sold in bulk, be accompanied by printed information, which complies with the requirements of Rule 5E-1.003(2), Florida Administrative Code.

(d) Fertilizer containing nitrogen or phosphorus shall not be applied before seeding or sodding a site, and shall not be applied for the first 30 days after seeding or sodding, except when hydro-seeding for temporary or permanent erosion control in an emergency situation (wildfire, etc.), or in accordance with the Stormwater Pollution Prevention Plan for that site.

Section 316.7. Application practices.

(a) Spreader deflector shields are required when fertilizing via rotary (broadcast) spreaders. Deflectors must be positioned such that fertilizer granules are deflected away from all impervious surfaces, fertilizer-free zones and water bodies, including wetlands.

(b) Fertilizer shall not be applied, spilled, or otherwise deposited on any impervious surfaces.

(c) Any fertilizer applied, spilled, or deposited, either intentionally or accidentally, on any impervious surface shall be immediately and completely removed to the greatest extent practicable.

ORDINANCE NO. 2013 - 012

(d) Fertilizer released on an impervious surface must be immediately contained and either legally applied to turf or any other legal site, or returned to the original or other appropriate container.

(e) In no case shall fertilizer be washed, swept, or blown off impervious surfaces into stormwater drains, ditches, conveyances, or water bodies.

Section 316.8. Management of grass clippings and vegetative materials.

In no case shall grass clippings, vegetative material, and/or vegetative debris be washed, swept, or blown off into stormwater drains, ditches, conveyances, water bodies, wetlands, or sidewalks or roadways. Any material that is accidentally so deposited shall be immediately removed to the maximum extent practicable.

Section 316.9. Exemptions.

The provisions set forth above in this chapter shall not apply to:

(a) bona fide farm operations as defined in the Florida Right to Farm Act, § 823.14, Florida Statutes;

(b) other properties not subject to or covered under the Florida Right to Farm Act that have pastures used for grazing livestock;

(c) any lands used for bona fide scientific research, including, but not limited to, research on the effects of fertilizer use on urban stormwater, water quality, agronomics, or horticulture.;

(d) golf courses when landscaping is performed within the provisions of the Florida Department of Environmental Protection document, "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses", these provisions shall be followed when applying fertilizer to golf course practice and play areas;

(e) athletic fields at public parks and school facilities that apply the concepts and principles embodied in the Florida Green BMPs, while maintaining the health and function of their specialized turf areas;

(f) vegetable gardens owned by individual property owners or a community, and trees grown for their edible fruit.

Section 316.10. Training.

(a) Within the time period set forth in section 316.12 of this Chapter, all Commercial Fertilizer Applicators and Institutional Fertilizer Applicators within Indian River County shall abide by and successfully complete the six-hour training program in the "Florida-friendly Best

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Management Practices for Protection of Water Resources by the Green Industries” offered by the Florida Department of Environmental Protection through the University of Florida Extension “Florida-Friendly Landscapes” program, or an approved equivalent.

(b) Private, non-commercial applicators are encouraged to follow the recommendations of the University of Florida Institute of Food and Agriculture Sciences Florida Yards and Neighborhoods program when applying fertilizers.

Section 316.11. General education program.

The Public Works Department shall have an employee who shall address issues pertaining to this Chapter. This employee shall implement a program to inform the general public of the requirements of this chapter, which program shall include, among other things, informative postings on the County website, printing and distributing informative brochures and other print materials, and speaking engagements at community associations, civic organizations, etc. The program shall also include, to the extent practicable, use of any materials from the Be Floridian program and coordination and collaboration with University of Florida Institute of Food and Agriculture Sciences educational activities. Any claimed or alleged deficiency in the County’s general education program shall not constitute a defense to any action brought to enforce the provisions of this chapter.

Section 316.12. Licensing of commercial fertilizer applicators.

(a) No later than December 31, 2013, all Commercial Fertilizer Applicators within Indian River County, shall abide by and successfully complete training and continuing education requirements in the “Florida-friendly Best Management Practices for Protection of Water Resources by the Green Industries,” offered by the Florida Department of Environmental Protection through the University of Florida Institute of Food and Agriculture Sciences “Florida-friendly Landscapes” program, or an approved equivalent program, prior to obtaining an Indian River County Local Business Tax Certificate for any category of occupation which may apply any fertilizer to turf and/or landscape plants. Commercial Fertilizer Applicators shall provide proof of completion of the program to the Indian River County Tax Collector’s Office within 180 days of the effective date of this ordinance.

(b) After December 31, 2013, all Commercial Fertilizer Applicators within Indian River County shall have and carry in their possession at all times when applying fertilizer, evidence of certification by the Florida Department of Agriculture and Consumer Services as a Commercial Fertilizer Applicator per Rule 5E-14.117(18), Florida Administrative Code.

(c) All businesses applying fertilizer to turf and/or landscape plants (including but not limited to residential lawns, golf courses, commercial properties, and multi-family and condominium properties) must ensure that at least one employee has a “Florida-friendly Best Management Practices for Protection of Water Resources by the Green Industries” training certificate prior to the business owner obtaining a Local Business Tax Certificate. Owners for any category of

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occupation which may apply any fertilizer to turf and/or landscape plants shall provide proof of completion of the program to the Indian River County Tax Collector's Office.

Section 316.13. Enforcement.

This chapter may be enforced by the Code Enforcement Officer in the Public Works Department who is devoted to issues pertaining to this Chapter, pursuant to Chapter 162, Florida Statutes, and §103.07 of this Code. In addition, this chapter may be enforced by the Environmental Control Officer pursuant to Chapter 85-427, Special Acts, Laws of Florida, and §303.14 of this Code. Penalties and remedies for violations shall be as set forth in §100.05 of this Code, and, to the extent applicable, Chapter 85-427, Special Acts, Laws of Florida. Funds generated by penalties imposed under this section shall be used by Indian River County for the administration and enforcement of §403.9337, Florida Statutes, and the corresponding sections of this chapter, and to further water conservation and nonpoint pollution prevention activities.

Section 316.14. References to state law.

Any references in this chapter to Florida Statutes, rules or regulations shall refer to such statutes, rules or regulations, as amended from time to time.

Section 316.15. Applicability.

This chapter shall be applicable to and shall regulate any and all applicators of fertilizer and areas of application of fertilizer within the area of Indian River County, unless such applicator is specifically exempted; provided, however, that this chapter shall not apply within the limits of any municipality which has adopted an ordinance regulating the same subject matter. This chapter shall be prospective only, and shall not impair any existing contracts.

Section 4. Severability.

If any part of this ordinance is held to be invalid or unconstitutional by a court of competent jurisdiction, the remainder of this ordinance shall not be affected by such holding and shall remain in full force and effect.

Section 5. Codification.

It is the intention of the Board of County Commissioners that the provisions of this ordinance shall become and be made part of the Indian River County Code, and that the sections of this ordinance may be renumbered or re-lettered and the word ordinance may be changed to section, article or such other appropriate word or phrase in order to accomplish such intention.

ORDINANCE NO. 2013 - 012

Section 6. Directing County Attorney's Office to Post Summary on County Website.

The County Attorney's Office is directed to post a summary of this ordinance on the County's website within 15 days of the filing of this ordinance with the Florida Department of State.

Section 7. Effective Date.

This ordinance shall become effective 45 days after the filing of the ordinance with the Florida Department of State.

This ordinance was advertised in the Vero Beach Press Journal, on the 8th day of July, 2013, for a public hearing to be held on the 18th day of July, 2013, and on the 10th day of August, 2013 for an additional public hearing to be held on the 20th day of August, 2013, at which time it was moved for adoption by Commissioner Solari, seconded by Commissioner O'Bryan, and adopted by the following vote:

Chairman Joseph E. Flescher	<u>AYE</u>
Vice Chairman Wesley S. Davis	<u>AYE</u>
Commissioner Peter D. O'Bryan	<u>AYE</u>
Commissioner Bob Solari	<u>AYE</u>
Commissioner Tim Zorc	<u>AYE</u>

The Chairman thereupon declared the ordinance duly passed and adopted this 20th day of August, 2013.



**BOARD OF COUNTY COMMISSIONERS
INDIAN RIVER COUNTY, FLORIDA**

By: Joseph E. Flescher
Joseph E. Flescher, Chairman

ATTEST: Jeffrey R. Smith, Clerk of Court
and Comptroller

Approved as to form and legal sufficiency:

By: Jeffrey R. Smith
Deputy Clerk

Dylan Reingold
Dylan Reingold, County Attorney

EFFECTIVE DATE: This ordinance was filed with the Florida Department of State on the _____ day of _____, 2013.

ORDINANCE NO. 2013 -014

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA CONCERNING THE FERTILIZER AND LANDSCAPE MANAGEMENT ORDINANCE, AMENDING SECTION 316.6 (FERTILIZER CONTENT AND APPLICATION RATES) AND SECTION 316.15 (APPLICABILITY) OF CHAPTER 316 (INDIAN RIVER COUNTY FERTILIZER AND LANDSCAPE MANAGEMENT ORDINANCE) OF THE CODE OF INDIAN RIVER COUNTY TO ALLOW FOR THE GRADUAL AMORTIZATION OF THE SUPPLY OF CERTAIN NITROGEN CONTAINING FERTILIZER AND APPLYING CHAPTER 316 TO UNINCORPORATED INDIAN RIVER COUNTY, AND MAKING FINDINGS AND PROVIDING FOR SEVERABILITY, CODIFICATION; AND AN EFFECTIVE DATE.

WHEREAS, the Board of County Commissioners adopted an ordinance regulating the proper use of fertilizers in order to protect the water quality of Indian River County's natural and constructed stormwater conveyances, rivers, creeks, canals, lakes, estuaries and other water bodies; and

WHEREAS, the new fertilizer regulations require that the nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least 50% slow release nitrogen per guaranteed analysis label; and

WHEREAS, the new fertilizer regulations go into effect on October 14, 2013; and

WHEREAS, in order to provide adequate time for the supply of fertilizer containing nitrogen that does not comply with these regulations to be eliminated, it is necessary to provide additional time for retailers to eliminate those supplies that meet at least a minimum threshold of slow release nitrogen,

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA, THAT:

Section 1. Enactment Authority.

Article VIII, §1 of the Florida Constitution and Chapter 125, Florida Statutes vest broad home rule powers in counties to enact ordinances, not inconsistent with general or special law, for the purpose of promoting the public health, safety and welfare of the residents of the county. The Board specifically determines that the enactment of this ordinance is consistent with general or special law, and is necessary and appropriate to promote the health, safety and welfare of the residents of Indian River County.

Section 2. Findings.

The Board finds that the above "Whereas" clauses are true and correct, and hereby incorporates such clauses as findings of the Board.

ORDINANCE NO. 2013 - 014

Section 3. Amendment of Section 316.6 (Fertilizer content and application rates) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code of Indian River County (the "Code").

Section 316.6 (Fertilizer content and application rates) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code is hereby amended as follows:

Section 316.6. Fertilizer content and application rates.

(b) As of the effective date of this chapter, the The nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least ~~25~~50% slow release nitrogen per guaranteed analysis label. As of June 1, 2014, the nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least 50% slow release nitrogen per guaranteed analysis label.

Section 4. Amendment of Section 316.15 (Applicability) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code of Indian River County (the "Code").

Section 316.15 (Applicability) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code is hereby amended as follows:

Section 316.15. Applicability.

This chapter shall be applicable to and shall regulate any and all applicators of fertilizer and areas of application of fertilizer within the unincorporated area of Indian River County, unless such applicator is specifically exempted; ~~provided, however, that this chapter shall not apply within the limits of any municipality which has adopted an ordinance regulating the same subject matter.~~ This chapter shall be prospective only, and shall not impair any existing contracts.

Section 5. Severability.

If any part of this ordinance is held to be invalid or unconstitutional by a court of competent jurisdiction, the remainder of this ordinance shall not be affected by such holding and shall remain in full force and effect.

Section 6. Codification.

It is the intention of the Board of County Commissioners that the provisions of this ordinance shall become and be made part of the Indian River County Code, and that the sections of this ordinance may be renumbered or re-lettered and the word ordinance may be changed to section, article or such other appropriate word or phrase in order to accomplish such intention.

ORDINANCE NO. 2013 - 014

Section 7. Effective Date.

This ordinance shall become effective upon filing with the Florida Department of State.

This ordinance was advertised in the Vero Beach Press Journal, on the 16th day of September, 2013, for a public hearing to be held on the 1st day of October, 2013, at which time it was moved for adoption by Commissioner Solari, seconded by Commissioner O'Bryan, and adopted by the following vote:

Chairman Joseph E. Flescher	<u>Aye</u>
Vice Chairman Wesley S. Davis	<u>Aye</u>
Commissioner Peter D. O'Bryan	<u>Aye</u>
Commissioner Bob Solari	<u>Aye</u>
Commissioner Tim Zorc	<u>Aye</u>

The Chairman thereupon declared the ordinance duly passed and adopted this 1st day of October, 2013.



**BOARD OF COUNTY COMMISSIONERS
INDIAN RIVER COUNTY, FLORIDA**

By: Joseph E. Flescher
Joseph E. Flescher, Chairman

ATTEST: Jeffrey R. Smith, Clerk of Court
and Comptroller

Approved as to form and legal sufficiency:

By: Shara Allen
Deputy Clerk

Dylan Reingold
Dylan Reingold, County Attorney

EFFECTIVE DATE: This ordinance was filed with the Florida Department of State on the ____ day of _____, 2013.

APPENDIX C

INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION

SPECIAL CONDITIONS FOR RIGHT-OF-WAY CONSTRUCTION



INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION SPECIAL CONDITIONS FOR RIGHT-OF-WAY CONSTRUCTION

SPECIAL CONDITIONS:

1. All work performed under this permit shall be in accordance with the Florida Department of Transportation Design Standards (<https://www.fdot.gov/design/standardplans/current/default.shtm>), Indices 102-600 and the Manual on Uniform Traffic Control Devices.
2. All special conditions listed are in addition to the attached Indian River County Traffic Engineering Regulations for Maintenance of Traffic.
3. It shall be the contractor's responsibility to contact Sunshine State One Call System (1-800-432-4770) at least 72 hours in advance of commencing construction work to coordinate traffic control and obtain locations of underground traffic signal conduit for the County's Computerized Traffic Signal Coordination System.
4. The contractor shall be responsible for using the applicable Traffic Control Plan for the type of work being performed. All job supervisors shall have a copy of the control plan on site at all times and shall be familiar with the correct set-up of the plan.
5. At least one lane of traffic shall be maintained at all times. One-lane traffic shall be controlled with at least two (2) flagmen. Flagmen shall use STOP/SLOW paddles at all times. Flags shall not be used for one-lane traffic control.
6. **After proper notification to Traffic Engineering**, consideration will be given to the contractor to close roadways to through traffic on a daily basis during daylight hours on narrow roadways where maintaining one-lane traffic would be difficult. The roadway shall be open to traffic at the end of each work day and on weekends. It shall be the contractor's responsibility to provide all necessary construction signs and traffic control devices to close the road and provide a detour route in accordance with Indian River County standards. Signing shall be installed that clearly indicates the time periods the road is closed to traffic.
7. There shall be no construction work after dark.
8. All open excavations shall be back filled before the close of each work day.
9. A compacted roadway shall be provided at the end of each work day. Disrupted roadways shall be clearly marked as a construction area.
10. Refer to the attached Traffic Engineering Regulations for construction work on Indian River County roadways for maintenance of traffic inspection policy and procedure
11. All construction equipment, materials, etc. shall be stored outside of the clear zone. Equipment and construction materials that are stored within the clear zone shall be clearly marked with Type II barricades with flashing yellow lights.
12. All projects and work within Indian River County right-of-way shall have an approved Traffic Control Plan (TCP). All work shall be executed under the established TCP and Indian River County approved procedures. The TCP shall provide the proposed detour route, traffic control devices, and other pertinent information for the proposed project and shall be submitted for review and approval by the Public Works Department.
The TCP shall be prepared by personnel with a minimum of an Intermediate Maintenance of Traffic current certification in the State of Florida. (Denote on the TCP, certification number and name of the certified personnel that prepared the MOT plan.)
For full road closures, a TCP is required to be submitted by the contractor a minimum of two (2) weeks prior to the proposed road closure.

All traffic control devices shall be in accordance with the Florida Department of Transportation (FDOT) Design Standards, Indices 102-600, FY 2019-2020, and the Manual on Uniform Traffic Control Devices, 2009 Edition.
13. For full road closures, Portable Changeable Message Signs are required to pre-advertise the roadway closure, a minimum of seven (7) days in advance of the road closure and during the duration of the road closure. The use of Portable Changeable Message Signs for lane closures on thoroughfare plan roadways will be required. Messages are to be approved by the Public Works Department and shown on the TCP.

TRAFFIC ENGINEERING REGULATIONS

Maintenance and Protection of Traffic:

It shall be the responsibility of the contractor to provide for the maintenance and protection of traffic in accordance with the applicable indices in the most current edition of the Florida Department of Transportation Roadway and Traffic Design Standards and the Federal Highway Administration Manual on Uniform Traffic Control Devices. The indices shall be considered the minimum standards and a

Special Conditions for Right of Way Construction

Page 2

more extensive work zone set-up or modifications may be required by the County Public Work Director or his designee for the protection of personnel in the work area as well as the traveling public.

It shall be the responsibility of the contractor to ensure that all subcontractors are in full compliance with all traffic control regulations. It shall be the responsibility of the contractor working on County roadways or within Right-of-Ways to establish maintenance of traffic prior to any work being performed. The contractor shall frequently monitor the work zone set-up to ensure that all signing is properly placed and that warning signs remain at the proper advance posting distance from the work area. Any signs that do not apply to the work zone shall be removed or covered. The contractor shall remove the work zone set-up at the conclusion of the work.

Traffic Engineering shall be notified a minimum of seventy-two (72) hours in advance of any lane closings and ten (10) days in advance of any road closures.

Lane closures are restricted to outside the normal peak hours of traffic, lane closures shall occur during the hours of 9:00 AM to 4:00 PM unless otherwise approved by the Public Works Director or his designee.

Traffic Engineering staff shall inspect the Maintenance of Traffic prior to construction commencement to ensure compliance with the approved Traffic Control Plan.

It is the policy of the Traffic Engineering Division to randomly monitor the contractor's compliance with all regulations while working on County roadways and within right-of-ways. Matters of public safety shall be attended to immediately upon notification by the County Public Work Director or his designee.

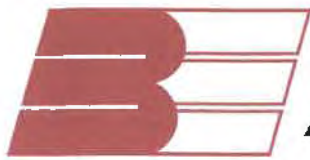
If the contractor is found to be negligent in maintaining proper work zone set-up in accordance with the County's Right-of-Way ordinance (Chapter 312), the County Public Work Director or his designee shall impose penalties in the amount of \$250.00 for working without the proper traffic control.

Construction at or Near Signalized Intersections:

The contractor shall have full responsibility for any work performed at or near any traffic signals in Indian River County. The contractor shall request that the County locate buried interconnect conduit and cable, loop sensors, and pull boxes prior to commencing construction. Any damage to the interconnect conduit, loop sensors, and pull boxes or any other traffic signal equipment shall be repaired at the contractor's expense. It shall be the responsibility of the contractor to notify Traffic Engineering Division a minimum of 72 hours prior to any work being performed near a signalized intersection or flashing beacon.

Once the proper notification and locate procedures are satisfied, the contractor working in or near signalized intersections or around traffic signal poles, signal cabinets, or flashing beacons shall be advised of the following regulations:

1. No excavation shall be performed within a 15-foot radius of any traffic signal pole. If excavation is necessary within a 15-foot radius, it will be the contractors responsibility to provide the following:
 - a. In a manner approved by the County Public Works Director or his designee, the contractor shall provide constant support of the traffic signal pole to prevent movement during excavation and backfill operations.
 - b. Compaction around the excavation site to a 98% density, bringing the backfill up in 1 foot lifts.
 - c. Density reports from a licensed testing company provided to the County Public Works Director.
 - d. Restore the traffic signal and all support equipment to original condition or better.
2. There shall be no pavement cuts made within 500 feet of a signal or flashing beacon without contacting Indian River County Traffic Engineering Division at (772-226-1547), 72 hours prior to construction.
3. Any traffic signal, loop sensors, conduit, interconnect cable, or any support equipment damaged by a contractor shall be repaired/replaced at the contractor's expense.
4. Any contractor that works at or in the vicinity of a signalized intersection shall have full responsibility for any liability incurred by causing damage to signal equipment that results in the failure of the traffic signal functions. If such a failure occurs, the contractor shall notify the police and the Traffic Engineering Division immediately at (772-226-1547).



BECHTOL ENGINEERING AND TESTING, inc.

August 16, 2017
BET Project No. 17233
Document Report 17233.01

TO: Mr. Eric L. Flavell, P.E.
Bowman Consulting Group
4450 West Eau Gallie Blvd, Suite 232
Melbourne, Florida 32934

RE: Full Depth Reclamation Base Course Mix Designs (Asphalt Emulsion + Portland Cement)
58th Avenue Widening and Reclamation: Indian River County Project 1325
Indian River County, Florida

As requested, Bechtol Engineering and Testing, Inc. (BET) has completed a limited scope of testing of roadway asphaltic concrete and underlying base course and subgrade materials sampled at the above referenced site. The purpose of BET's testing was to provide mix design recommendations prior to the mixing and placement of the asphalt emulsion (and portland cement) Full-Depth-Reclaimed (FDR) base course. BET's testing was performed in general accordance with Asphalt Institute's MS 14 Manual, Appendix F, Marshall Method for Emulsified Asphalt-Aggregate Cold Mixture Design. The following report summarizes BET's findings and conclusions.

Project Scope of Work

Project scope specifies crushing and mixing by reclamation the existing asphalt surface course and underlying base/subbase materials to a depth of 12". Up to 3" of the blended parent materials may be removed to lower the elevation. Following pre-crushing to the specified depth and subsequent removal of surficial material if needed; the remaining parent materials are to be strengthened by re-mixing to a depth of 9" while adding CSS1H liquid asphalt emulsion and powdered portland cement, to create a new, stable base course to be overlaid with minimum 3" of type SP (Superpave) asphaltic concrete with minimum grade PG 67-22 asphaltic cement binder.

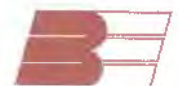
Project specifications require the reclaimed base to meet a minimum Structural Coefficient (SC) of 0.20 per inch and minimum Structural Number (SN) of 1.8 for the total thickness of the finished/completed base course.

On-Site Field Testing

Existing pavement cross-slopes were measured. Samples of the existing surface course asphaltic concrete and underlying base and subbase materials along 58th Avenue (to a depth of 14.0 inches) were cored and extracted. Shallow hand-augured borings were conducted adjacent to roadway shoulders. Depth of groundwater table was measured. These measurements are presented in tabular form, on the next two pages.

Full Depth Reclamation Base Course Mix Designs (Asphalt Emulsion + Portland Cement)
58th Avenue Widening and Reclamation: Indian River County Project 1325
 BET Project No. 17233
 Document Report No. 17233.01

58 th Avenue Pavement Section Encountered Conditions and Materials						
Location	Cross-Slope	Asphalt Thickness	Base Thickness	Base Type	Subgrade (to 14 inches)	Ground-Water Depth
Sta. 15+00, L-1	4.1%	3.3"	None	N/A	Brown slightly silty sand	N. E.
Sta. 20+00, R-1	2.2%	3.0"	6.5"	Limerock	Brown slightly clayey sand	5.0 ft.
Sta. 25+00, L-1	4.3%	---	---	---	---	---
Sta. 30+00, R-1	2.3%	---	---	---	---	---
Sta. 35+00, L-1	3.7%	3.0"	7.0"	Limerock	Gray slightly silty sand	4.0 ft.
Sta. 40+00, R-1	2.4%	3.0"	6.0"	Limerock	Brown slightly silty sand	N. E.
Sta. 45+00, L-1	4.0%	---	---	---	---	---
Sta. 50+00, R-1	3.3%	---	---	---	---	---
Sta. 55+00, L-1	4.1%	3.5"	6.5"	Limerock	Brown slightly silty sand	N. E.
Sta. 60+00, R-1	2.3%	2.8"	6.3"	Limerock	Gray-brown slightly silty sand	3.7 ft.
Sta. 65+00, L-1	2.4%	---	---	---	---	---
Sta. 70+00, R-1	2.5%	---	---	---	---	---
Sta. 75+00, L-1	1.2%	2.0"	5.0"	Limerock	Brown clayey sand, trace rock	5.0 ft.
Sta. 80+00, R-1	1.1%	1.5"	6.3"	Limerock	Gray-brown slightly clayey sand	5.0 ft.
Sta. 85+00, L-1	1.2%	---	---	---	---	---
Sta. 90+00, R-1	3.4%	---	---	---	---	---
Sta. 95+00, L-1	3.7%	7.5"	None	N/A	Brown slightly silty sand with shell	4.0 ft.
Sta. 100+00, R-1	2.0%	---	---	---	---	3.0 ft.
Sta. 105+00, L-1	2.8%	---	---	---	---	---
Sta. 110+00, R-1	0.2%	---	---	---	---	---
Sta. 115+00, L-1	2.9%	8.5"	None	N/A	Brown slightly silty sand with shell	4.0 ft.
Sta. 120+00, R-1	2.6%	7.0"	None	N/A	Brown slightly silty sand with shell	3.5 ft.
Sta. 125+00, L-1	2.9%	---	---	---	---	---
Sta. 130+00, R-1	0.0%	---	---	---	---	---
Sta. 135+00, L-1	3.2%	9.8"	None	N/A	Brown slightly silty sand with shell	N. E.
Sta. 140+00, R-1	0.0%	2.3"	None	N/A	Brown clayey sand	3.8 ft.
Sta. 145+00, L-1	0.4%	---	---	---	---	---
Sta. 150+00, R-1	2.6%	---	---	---	---	-



Full Depth Reclamation Base Course Mix Designs (Asphalt Emulsion + Portland Cement)
58th Avenue Widening and Reclamation: Indian River County Project 1325
 BET Project No. 17233
 Document Report No. 17233.01

58 th Avenue Pavement Section Encountered Conditions and Materials (continued)						
Location	Cross-Slope	Asphalt Thickness	Base Thickness	Base Type	Subgrade (to 14 inches)	Ground-Water Depth
Sta. 155+00, L-1	2.4%	7.5"	6.5"	Limerock	—	N. E.
Sta. 160+00, R-1	6.1%	7.5"	None	N/A	Gray slightly silty sand	N. E.
Sta. 165+00, L-1	4.2%	—	—	—	—	—
Sta. 170+00, R-1	2.4%	—	—	—	—	—
Sta. 175+00, L-1	4.2%	4.5"	7.5"	Limerock	Brown slightly silty sand	N. E.
Sta. 180+00, R-1	5.4%	4.3"	None	N/A	Brown clayey sand	—
Sta. 185+00, L-1	1.7%	—	—	—	—	—
Sta. 190+00, R-1	2.8%	—	—	—	—	—
Sta. 195+00, L-1	4.3%	3.0"	11.0"	Limerock	—	5.1 ft.
Note #1. Location stationing is approximated per the site diagram attached.						
Note #2. Cross slope measurements should be considered approximate due to the rutted condition of the pavement surface.						
Note #3. Groundwater depth measured in auger boring adjacent to the roadway shoulder.						
Note #4. N. E. = Not Encountered						

Discussion

Primarily, two distinct pavement section types were identified: A "Limerock Base" type section, consisting of an average asphalt thickness of 1.5" to 4.5" underlain by limerock base course and sandy subgrade; and a "Sand/Clay Base" type section, consisting of an average asphalt thickness of 3.5" to 9.5" underlain by sandy subgrade.

Two separate rehabilitated base course mix designs were developed; one to represent each of the two separate existing pavement sections.

Laboratory Testing

The aggregate gradation of each of the two types of parent materials was determined.

Limerock Bearing Ratio testing was performed to determine the Modified Proctor Values and LBR Values of each type of parent material with no addition of emulsion or cement; and with varying percentages of both emulsion and cement added.



Full Depth Reclamation Base Course Mix Designs (Asphalt Emulsion + Portland Cement)
58th Avenue Widening and Reclamation: Indian River County Project 1325
 BET Project No. 17233
 Document Report No. 17233.01

The Unconfined Compressive Strength of blended specimens (with both emulsion and cement added) was determined, after seven days moist curing.

Marshall Stability, Bulk Specific Gravity, and Maximum Specific Gravity Tests were performed on the two types of crushed parent materials blended with varying blend percentages of CSS1H Emulsion and powdered portland cement. Results are tabulated below, and on the following pages.

TABLE 1: Gradation of Crushed Parent Material ("Limerock Base" material type, encountered at approximately Stations 18+00 to 86+00 (L-1 & R-1); and 154+00 to 199+00 (L-1)											
1.5 Inch	1 Inch	3/4 Inch	1/2 Inch	3/8 Inch	No. 4	No. 8	No. 18	No. 30	No. 50	No. 100	No. 200
100	96.1	94.5	90.0	87.1	87.8	80.5	55.6	50.6	36.0	18.9	12.4

TABLE 2: Modified Proctor Value, Optimum Moisture, and Limerock Bearing Ratio Values ("Limerock Base" material type, encountered at approximately Stations 18+00 to 86+00 (L-1 & R-1); and 154+00 to 199+00 (L-1)			
Sample Description	Maximum Density (pcf)	Optimum Moisture (%)	Limerock Bearing Ratio
Parent Material Alone	127.0	9.0	123
Parent Material with 2.5% CSS1H Emulsion & 2.0% Cement	128.5	8.1	155
Parent Material with 2.5% CSS1H Emulsion & 2.5% Cement	125.8	7.8	266

TABLE 3: Unconfined Compressive Strength ("Limerock Base" material type, encountered at approximately Stations 18+00 to 86+00 (L-1 & R-1); and 154+00 to 199+00 (L-1)	
Sample Description	Compressive Strength (psi)
Parent Material with 2.5% CSS1H Emulsion & 2.0% Cement	120
Parent Material with 2.5% CSS1H Emulsion & 2.5% Cement	150



Full Depth Reclamation Base Course Mix Designs (Asphalt Emulsion + Portland Cement)
58th Avenue Widening and Reclamation: Indian River County Project 1325
 BET Project No. 17233
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TABLE 4: 50-Blow Marshall Stability, Gmb, Gmm, Unit Weight with 2.5 % Emulsion, and 2.5 % Cement
 ("Limerock Base" material type, encountered at approximately Stations 18+00 to 86+00 (L-1 & R-1); and 154+00 to 199+00 (L-1)

Sample Description (Parent Material + 2.5% CSS1H Emulsion & 2.5% Portland Cement)	Marshall Stability (pounds)	Average Retained Stability After Saturation	Flow (.01 in)	Bulk Specific Gravity (Bsg)	Unit Weight (p.c.f.)	Max. Specific Gravity (Gmm)	Air Voids (percent)
2.5% CSS1H Emulsion & 2.5% Cement	6850-Unsaturated	97 %	11	2.032	126.8	2.439	16.7
2.5% CSS1H Emulsion & 2.5% Cement	6840-Unsaturated		12	2.040	127.3		16.4
2.5% CSS1H Emulsion & 2.5% Cement	6530-Saturated		11	2.050	127.9		15.9
2.5% CSS1H Emulsion & 2.5% Cement	6530-Saturated		13	2.041	127.4		16.3

TABLE 5: 50-Blow Marshall Stability, Gmb, Gmm, Unit Weight with 2.5 % Emulsion, and 2.0 % Cement
 ("Limerock Base" material type, encountered at approximately Stations 18+00 to 86+00 (L-1 & R-1); and 154+00 to 199+00 (L-1)

Sample Description (Parent Material + 2.5% CSS1H Emulsion & 2.0% Portland Cement)	Marshall Stability (pounds)	Average Retained Stability After Saturation	Flow (.01 in)	Bulk Specific Gravity (Bsg)	Unit Weight (p.c.f.)	Max. Specific Gravity (Gmm)	Air Voids (percent)
2.5% CSS1H Emulsion & 2.0% Cement	5570-Unsaturated	93 %	12	2.016	125.8	2.439	17.3
2.5% CSS1H Emulsion & 2.0% Cement	5350-Unsaturated		10	2.034	126.9		16.6
2.5% CSS1H Emulsion & 2.0% Cement	4920-Saturated		11	2.032	126.8		16.7
2.5% CSS1H Emulsion & 2.0% Cement	5250-Saturated		9	2.048	127.8		16.0

TABLE 6: Estimated Structural Coefficient
 ("Limerock Base" material type, encountered at approximately Stations 18+00 to 86+00 (L-1 & R-1); and 154+00 to 199+00 (L-1)

Sample Description	<u>Saturated</u> Marshall Stability (pounds)	Average Retained Stability After Saturation	Limerock Bearing Ratio (LBR)	Compressive Strength (psi)	Estimated Structural Coefficient Per Inch
2.5% CSS1H Emulsion & 2.0% Cement	5,085	93 %	155	120	0.20
2.5% CSS1H Emulsion & 2.5% Cement	6,530	97 %	280	150	0.22



Full Depth Reclamation Base Course Mix Designs (Asphalt Emulsion + Portland Cement)
58th Avenue Widening and Reclamation: Indian River County Project 1325
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REHABILITATED BASE RECOMMENDATIONS: {Applicable to "Limerock Base" material type, encountered at approximately Stations 18+00 to 86+00 (L-1 & R-1); and Stations 154+00 to 199+00 (L-1) }

In order to meet project mix design specification minimum criteria, BET recommends the following mixture percentages for full-depth rehabilitation with CSS1H emulsion and portland cement:

Blend and construct reclaimed base sections utilizing :

2.5% by weight CSS1H asphaltic cement emulsion (0.28 gallons/square yard/inch compacted thickness, 2.5 gallons/square yard/9 inch compacted thickness); and 2.0% by weight portland cement (1.9 pounds/square yard/inch compacted thickness, 17.0 pounds/square yard/9 inch compacted thickness); mixed with the pre blended existing asphaltic concrete and underlying base/subgrade to construct a rehabilitated roadway base section.

Estimated Structural Coefficient:

9" Limerock Reclaimed Base -	1.80
3" Type SP Asphaltic Concrete -	1.32
Combined Base and Pavement -	3.12

Note: Variations in the locations of the two distinct pavement section compositions encountered may extend beyond the station locations noted. Parent material composition changes must be field-verified during crushing and reclaiming operations.

TABLE 7: Gradation of Crushed Parent Material ("Sand/Clay Base" material type, representing approximately Stations 10+00 to 18+00 and 86+00 to 154+00 in lanes L-1 & R-1 ; and 154+00 to 199+00, in Lane R-1)											
1.5 Inch	1 Inch	3/4 Inch	1/2 Inch	3/8 Inch	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
100	100	92.2	79.1	72.6	60.1	47.8	47.5	42.5	30.1	15.8	7.0



Full Depth Reclamation Base Course Mix Designs (Asphalt Emulsion + Portland Cement)
58th Avenue Widening and Reclamation: Indian River County Project 1325
 BET Project No. 17233
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TABLE 8: Modified Proctor Value, Optimum Moisture, and Limerock Bearing Ratio Values
 ("Sand/Clay Base" material type, representing approximately Stations 10+00 to 18+00 and 86+00 to 154+00 in lanes L-1 & R-1 ; and 154+00 to 199+00, in Lane R-1)

Sample Description	Maximum Density (pcf)	Optimum Moisture (%)	Limerock Bearing Ratio
Parent Material Alone	122.0	8.0	70
Parent Material with 2.5% CSS1H Emulsion & 2.5% Cement	123.2	7.9	95
Parent Material with 2.5% CSS1H Emulsion & 3.0% Cement	123.2	7.7	143
Parent Material with 2.5% CSS1H Emulsion & 3.5% Cement	124.0	7.6	187

TABLE 9: Unconfined Compressive Strength
 ("Sand/Clay Base" material type, representing approximately Stations 10+00 to 18+00 and 86+00 to 154+00 in lanes L-1 & R-1 ; and 154+00 to 199+00, in Lane R-1)

Sample Description	Compressive Strength (psi)
Parent Material with 2.5% CSS1H Emulsion & 2.5% Cement	90
Parent Material with 2.5% CSS1H Emulsion & 3.0% Cement	140
Parent Material with 2.5% CSS1H Emulsion & 3.5% Cement	180

TABLE 10: 50-Blow Marshall Stability, Gmb, Gmm, Unit Weight with 2.5 % Emulsion, and 2.5 % Cement
 ("Sand/Clay Base" material type, representing approximately Stations 10+00 to 18+00 and 86+00 to 154+00 in lanes L-1 & R-1 ; and 154+00 to 199+00, in Lane R-1)

Sample Description (Parent Material + 2.5% CSS1H Emulsion & 3.0% Portland Cement)	Marshall Stability (pounds)	Average Retained Stability After Saturation	Flow (.01 in)	Bulk Specific Gravity (Bsg)	Unit Weight (p.c.f.)	Max. Specific Gravity (Gmm)	Air Voids (percent)
2.5% CSS1H Emulsion & 2.5% Cement	4520-Unsaturated	71 %	11	2.025	128.4	2.444	17.1
2.5% CSS1H Emulsion & 2.5% Cement	4310-Unsaturated		12	2.010	125.5		17.8
2.5% CSS1H Emulsion & 2.5% Cement	3200-Saturated		11	2.006	125.2		17.0
2.5% CSS1H Emulsion & 2.5% Cement	3040-Saturated		12	2.011	125.5		17.7

Full Depth Reclamation Base Course Mix Designs (Asphalt Emulsion + Portland Cement)
58th Avenue Widening and Reclamation: Indian River County Project 1325
 BET Project No. 17233
 Document Report No. 17233.01

TABLE 11: 50-Blow Marshall Stability, Gmb, Gmm, Unit Weight with 2.5 % Emulsion, and 3.0 % Cement
 ("Sand/Clay Base" material type, representing approximately Stations 10+00 to 18+00 and 86+00 to 154+00 in lanes L-1 & R-1 ;
 and 154+00 to 199+00, in Lane R-1)

Sample Description (Parent Material + 2.5% CSS1H Emulsion & 3.0% Portland Cement)	Marshall Stability (pounds)	Average Retained Stability After Saturation	Flow (.01 in)	Bulk Specific Gravity (Bsg)	Unit Weight (p.c.f.)	Max. Specific Gravity (Gmm)	Air Voids (percent)
2.5% CSS1H Emulsion & 3.0% Cement	4920-Unsaturated	92 %	11	2.043	127.5	2.453	16.7
2.5% CSS1H Emulsion & 3.0% Cement	4710-Unsaturated		12	2.066	128.9		15.8
2.5% CSS1H Emulsion & 3.0% Cement	4500-Saturated		11	2.038	127.2		16.9
2.5% CSS1H Emulsion & 3.0% Cement	4390-Saturated		12	2.043	127.5		16.7

TABLE 12: 50-Blow Marshall Stability, Gmb, Gmm, Unit Weight with 2.5 % Emulsion, and 3.5 % Cement
 ("Sand/Clay Base" material type, representing approximately Stations 10+00 to 18+00 and 86+00 to 154+00 in lanes L-1 & R-1 ;
 and 154+00 to 199+00, in Lane R-1)

Sample Description (Parent Material + 2.5% CSS1H Emulsion & 3.5% Portland Cement)	Marshall Stability (pounds)	Average Retained Stability After Saturation	Flow (.01 in)	Bulk Specific Gravity (Bsg)	Unit Weight (p.c.f.)	Max. Specific Gravity (Gmm)	Air Voids (percent)
2.5% CSS1H Emulsion & 3.5% Cement	5780-Unsaturated	93 %	12	2.043	127.5	2.467	17.2
2.5% CSS1H Emulsion & 3.5% Cement	5570-Unsaturated		11	2.050	127.9		16.9
2.5% CSS1H Emulsion & 3.5% Cement	5250-Saturated		11	2.056	128.3		16.7
2.5% CSS1H Emulsion & 3.5% Cement	5350-Saturated		12	2.056	128.3		16.7

TABLE 13: Estimated Structural Coefficient
 ("Sand/Clay Base" material type, representing approximately Stations 10+00 to 18+00 and 86+00 to 154+00 in lanes L-1 & R-1 ;
 and 154+00 to 199+00, in Lane R-1)

Sample Description	<u>Saturated</u> Marshall Stability (pounds)	Average Retained Stability After Saturation	Limerock Bearing Ratio (LBR)	Compressive Strength (psi)	Estimated Structural Coefficient Per Inch
2.5% CSS1H Emulsion & 2.5% Cement	3,120	71%	95	90	0.18
2.5% CSS1H Emulsion & 3.0% Cement	4,445	92 %	143	140	0.20
2.5% CSS1H Emulsion & 3.5% Cement	5,300	93 %	187	180	0.21



REHABILITATED BASE RECOMMENDATIONS: {Applicable to "Sand/Clay Base" material type, representing approximately Stations 10+00 to 18+00 and 86+00 to 154+00 in lanes L-1 & R-1; and 154+00 to 199+00, in Lane R-1}

In order to meet project mix design specification minimum criteria, BET recommends the following mixture percentages for full-depth rehabilitation with CSS1H emulsion and portland cement:

Blend and construct reclaimed base sections utilizing :

2.5% by weight CSS1H asphaltic cement emulsion (0.28 gallons/square yard/inch compacted thickness, 2.5 gallons/square yard/9 inch compacted thickness); and 3.0% by weight portland cement (2.8 pounds/square yard/inch compacted thickness, 25.0 pounds/square yard/9 inch compacted thickness); mixed with the pre blended existing asphaltic concrete and underlying base/subgrade to construct a rehabilitated roadway base section.

Estimated Structural Coefficient:

9" Sand/Clay Reclaimed Base -	1.80
3" Type SP Asphaltic Concrete -	1.32
Combined Base and Pavement -	3.12

Note: Variations in the locations of the two distinct pavement section compositions encountered may extend beyond the specific locations noted. Parent material composition changes must be field-verified during crushing and reclaiming operations.



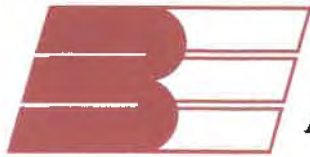
General Recommendations, Applicable to All Rehabilitated Roadway Sections:

Recommended minimum degree of reclaimed base compaction is 98% of the material's theoretical maximum dry density, as determined by Modified Proctor Test (ASTM D-1557, AASHTO T-180). In areas with no curb, or other rigidly supported edge, BET recommends that the base course be extended, laterally, 6-12 inches beyond the edge of pavement; in order to minimize potential for future edgeline settling/cracking.

BET envisions that approximately 2.0% to 3.0% "add water" will be added at time of construction in order to aid pulverizing and compaction operations; however, due to the relatively low optimum moisture content of the existing material and the anticipated vehicular traffic during and immediately following construction, BET cautions that rainfall or excessive additional moisture of any kind could seriously impact the material's initial stability.

Evaluations and recommendations presented herein are based on limited data derived from visual observations, cores, and laboratory testing. Conditions not disclosed by BET's observations exist. BET did not perform any drainage study or traffic study related to this project. BET's laboratory services in connection with this project were performed using the degree of care and skill ordinarily exercised under similar conditions by reputable members of the Geotechnical Engineering Materials Testing profession practicing in the same or similar locality of the project site. The recommended mix design option indicated in this report is intended primarily to address structural characteristics with lesser importance placed on aesthetics.





BECHTOL ENGINEERING AND TESTING, inc.

November 6, 2017
BET Project No. 17233
Document Report 17233.02

TO: Mr. Eric L. Flavell, P.E.
Bowman Consulting Group
4450 West Eau Gallie Blvd, Suite 232
Melbourne, Florida 32934

RE: 69th Street Encountered Materials and Full Depth Reclamation Base Course Recommendations
58th Avenue Widening and Reclamation: Indian River County Project 1325
Indian River County, Florida

As requested, Bechtol Engineering and Testing, Inc. (BET) has completed a limited scope of sampling roadway asphaltic concrete and underlying base course and subgrade materials within 69th Street; East and West of the 58th Avenue intersection. The purpose of BET's testing was to examine and document encountered materials and determine their suitability for use with previously reported Full-Depth-Reclaimed (FDR) mix designs developed for 58th Avenue.

On-Site Field Testing

Samples of the existing surface course asphaltic concrete and underlying base and subbase materials along 69th Street (to a depth of 14.0 inches) were cored and extracted. Encountered materials are presented in tabular form below.

69th Street Pavement Section Encountered Conditions and Materials				
Location	Asphalt Thickness	Base Thickness	Base Type	Subgrade (to 14 inches)
Sta. 12+50	2.3"	8.0"	Sand/Clay	Dark brown slightly silty sand
Sta. 15+50	2.5"	7.5"	Sand/Clay	Dark brown slightly silty sand
Sta. 18+50	3.0"	11.0	Sand/Clay/RAP	—
Sta. 23+00	4.0"	6"	Limerock	Dark brown slightly silty sand
Sta. 26+00	5.0"	4.5"	Limerock	Dark brown slightly silty sand
Sta. 29+00	5.0"	7.0"	Limerock	Dark brown slightly silty sand



Discussion

Primarily, two distinct pavement section types were identified: A "Limerock Base" type section, and a "Sand/Clay Base" type section.

Two separate rehabilitated base course mix designs were previously developed and reported by BET (BET Document No. 17233.01 dated 8/16/2017); one to represent each of the two encountered existing pavement sections.

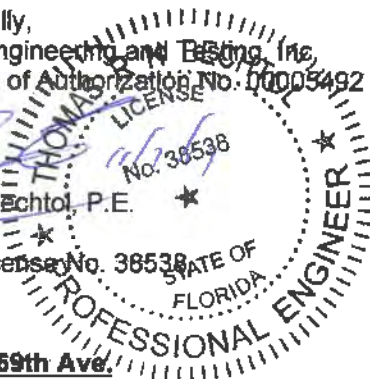
BET recommends that the "Sand Clay Base" mix design be utilized to reclaim the subject area of 69th street that is West of 58th Avenue. BET further recommends that the "Limerock Base" mix design be utilized to reclaim the subject area of 69th street that is East of 58th Avenue.

Evaluations and recommendations presented herein are based on limited data derived from visual observations, cores, and laboratory testing. Conditions not disclosed by BET's observations exist. BET did not perform any drainage study or traffic study related to this project. BET's laboratory services in connection with this project were performed using the degree of care and skill ordinarily exercised under similar conditions by reputable members of the Geotechnical Engineering Materials Testing profession practicing in the same or similar locality of the project site. The recommended mix design option indicated in this report is intended primarily to address structural characteristics with lesser importance placed on aesthetics.

BET cautions that cracking/settling/rutting/moisture saturation of the pavement section may occur in the future, regardless of the rehabilitation methods used. No other warranty expressed or implied is made or intended. BET shall not be responsible for the interpretation by others of the information presented herein. BET shall not be responsible for the performance of the rehabilitated roadway.

Respectfully,
Bechtol Engineering and Testing, Inc.
Certificate of Authorization No. 00005492

Thomas Bechtol, P.E.
President
Florida License No. 38538
TB/RS/rs



A handwritten signature in blue ink, appearing to read "Randal W. Stormant, Jr.".

Randal W. Stormant, Jr.
Vice President

17233.02.69th Ave

2 cc: Client





BECHTOL ENGINEERING AND TESTING, inc.

September 29, 2017
BET Project No. G17189

TO: Mr. Eric Flavell, P.E.
EFlavell@bowmanconsulting.com
Bowman Consulting Group
4450 West Eau Gallie Boulevard, Suite 232
Melbourne, Florida 32934

RE: Report of Geotechnical Data
58th Avenue Reclamation
Vero Beach, Indian River County, Florida

Dear Mr. Flavell:

As requested, Bechtol Engineering and Testing, Inc. (BET) has completed geotechnical services relative to proposed intersection signalization along 58th Avenue (Kings Highway) in Vero Beach, Florida. The purpose of BET's services was to evaluate existing subgrade soil and groundwater characteristics within the areas of proposed improvements, and based on these characteristics, to provide a summary of existing conditions and recommended soil strength properties to aid in the design and construction of the proposed improvements.

BET's field study, completed on August 29 and 30, 2017, consisted of advancing eight (8) Standard Penetration Test borings (ASTM D1586) within the proposed construction areas, each to depth of 20 feet below existing site grades. Approximate locations of the test borings are shown on the Boring Location Plan presented on the attached Sheet A1. Encountered subsurface conditions are presented in the form of Soil Profiles, along with corresponding Soil and Symbol Legend on Sheet A2.

At the northern intersection of 58th Avenue and 85th Street, the borings encountered surficial fill deposits comprised of mixed dark brown, brown and gray-brown fine sands, some with concrete debris (Stratum 1). The surficial fill soils extended to depths ranging from 1.0 to 3.5 feet below the ground surface existing at the time of drilling, and were underlaid by very loose to loose fine sands (Stratum 2) to depths ranging from 5.0 to 6.5 feet. Underlying soils consisted of loose to medium dense dark brown to brown fine sand and slightly silty fine sand (Stratum 3) and/or loose to medium dense fine sand to slightly clayey fine sand (Stratum 4) to depths ranging from 11.5 to 12.5 feet below the ground surface existing at the time of drilling. Underlying soils to the boring termination depths consisted of medium dense to dense fine sands (Stratum 6). Groundwater level was encountered at depths ranging from 5.8 to 6.4 feet below the ground surface existing at the time of drilling. Average seasonal high groundwater level is estimated to be about 48 inches below the ground surface existing at the time of drilling.

At the southern intersection of 58th Avenue and 69th Street, the borings encountered surficial deposits of fill and/or native soils comprised of mixed dark brown, brown and gray-brown fine sand, some with concrete debris (Stratum 1) and/or light gray-brown, gray-brown and gray fine sands (Stratum 2) existing mostly in a very loose to loose condition. Surficial deposits were underlaid by loose to medium dense dark brown to brown fine sand to slightly silty fine sand (Stratum 3) and light gray to gray fine sand to slightly clayey fine sand (Stratum 4) to depths ranging from 12.0 to 18.0 feet below the ground surface existing at the time of drilling. Underlying soils to the boring termination depths of 20 feet consisted of medium dense to dense dark brown to dark reddish-brown slightly silty to silty fine sands [hardpan] (Stratum 5). Groundwater level was encountered at depths ranging from 4.7 to 5.3 feet below the ground

surface existing at the time of drilling. Average seasonal high groundwater level is estimated to be about +/- 36 inches below the ground surface existing at the time of drilling.

For purposes designing signal strain poles or other structural improvements, BET recommends the use of the following estimated soil parameters:

SOIL PARAMETER	ASSUMED VALUE
Moist Unit Weight	110 PCF
Submerged Unit Weight	45 PCF
Internal Friction Angle	30°
Cohesion	0 KSF
Relative Density	20%
Soil - Concrete Interface Friction Angle	20°

This report is prepared solely for the use of BET's client and their various design professionals as an aid in project design and preparation of project plans and documents. Evaluations and recommendations presented herein are based on limited subsurface data derived from test borings and without the knowledge of specific improvements proposed. Subsurface conditions not disclosed by the cores and borings performed may occur, and could influence construction of proposed improvements.

At your request, BET would be pleased to review the design and/or provide site specific design for structural improvements. BET appreciates the opportunity to be of service, and trusts this report is sufficient for your immediate needs. If you should have any questions, or whenever BET may be of further service, please do not hesitate to call.

Respectfully,

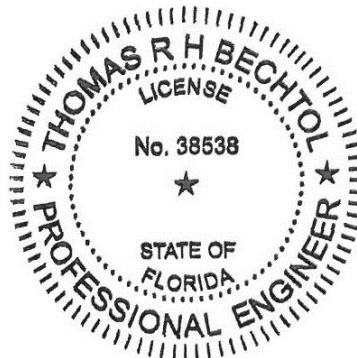
Bechtol Engineering and Testing, Inc.
Certificate of Authorization No. 00005492

L. Patel

Love B. Patel
Project Engineer

Thomas Bechtol, P.E.
President / Principal Engineer
Florida License No. 38538

This item has been electronically signed and sealed by Thomas R. Bechtol, P.E. on the time and date stamp shown using digital signature. Printed copies of this document are not considered signed and sealed, and the signature must be verified on any electronic copies.

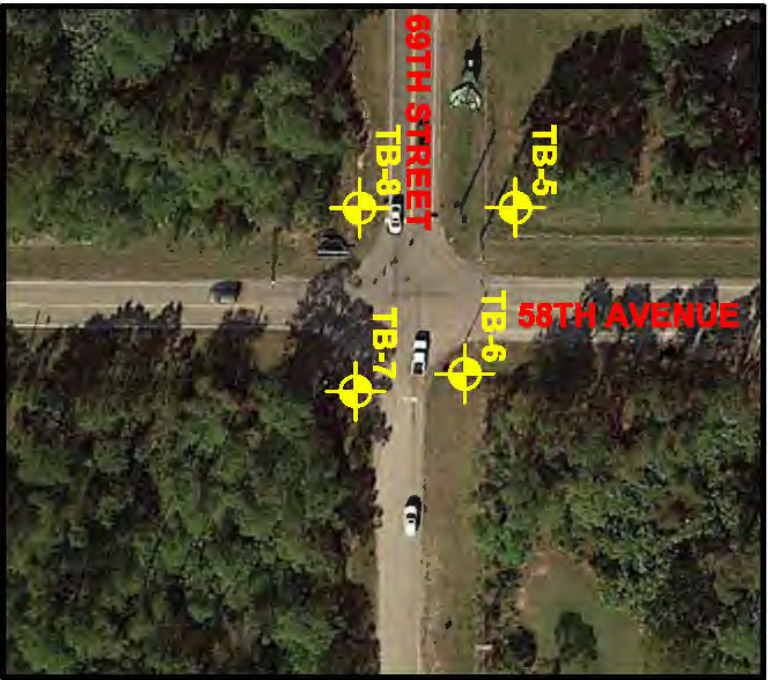


The official record of this report is the electronic file signed and sealed under Rule 61G 15- 23.003, F.A.C.



BORING LOCATION PLAN

SCALE: 1" = 100'



SYMBOL LEGEND
 APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING



BECHTOL ENGINEERING AND TESTING, inc.

CONSULTING GEOTECHNICAL, ENVIRONMENTAL, AND MATERIALS TESTING ENGINEERS
 Certificate of Authorization No. 00005462

GEOTECHNICAL SERVICES

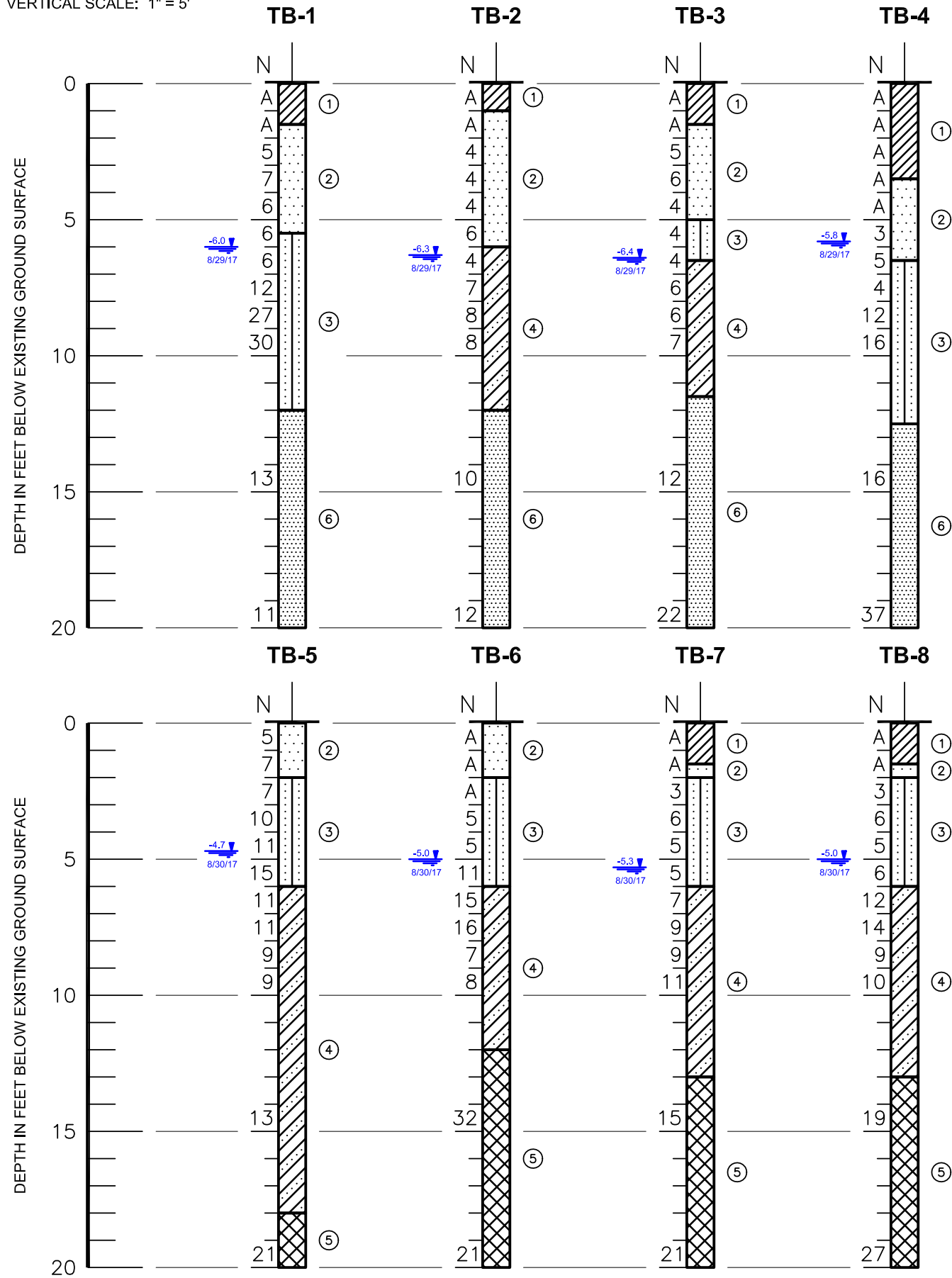
58TH AVENUE RECLAMATION

VERO BEACH, INDIAN RIVER COUNTY, FLORIDA

FIELD:	RK CT	DATE:	9/15/17
DRAWN:	LP	SCALE:	NOTED
CHECKED:	TB	PROJ. NO.:	G17189
APPROVED:	TB	SHEET A1	

SOIL PROFILES

VERTICAL SCALE: 1" = 5'



SOIL & SYMBOL LEGEND

- ① MIXED DARK BROWN, BROWN AND GRAY-BROWN FINE SAND, SOME WITH CONCRETE DEBRIS, [FILL], (SP)
- ② LIGHT GRAY-BROWN, GRAY-BROWN AND GRAY FINE SAND, (SP), VERY LOOSE TO LOOSE
- ③ DARK BROWN TO BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND, (SP), (SP-SM), LOOSE TO MEDIUM DENSE
- ④ LIGHT GRAY TO GRAY FINE SAND TO SLIGHTLY CLAYEY FINE SAND, (SP), (SP-SC), LOOSE TO MEDIUM DENSE
- ⑤ DARK BROWN TO DARK REDDISH-BROWN SLIGHTLY SILTY TO SILTY FINE SAND, [HARDPAN], (SP-SM), (SM), MEDIUM DENSE TO DENSE
- ⑥ LIGHT BROWN TO BROWN FINE SAND, (SP), MEDIUM DENSE TO DENSE
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL AS DETERMINED BY VISUAL EXAMINATION
- 6.0
8/29/17 GROUNDWATER LEVEL, REFERENCED IN FEET TO EXISTING GROUND SURFACE, DATE OF READING
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT
- A BORING HAND-AUGERED AT THIS DEPTH

DATE:	9/15/17
SCALE:	NOTED
PROJ. NO.:	G17189
FIELD:	RK CT
DRAWN:	LP
CHECKED:	TB
APPROVED:	TB

GEOTECHNICAL SERVICES
58TH AVENUE RECLAMATION
 VERO BEACH, INDIAN RIVER COUNTY, FLORIDA

BECHTOL ENGINEERING
AND TESTING, inc.
CONSULTING GEOTECHNICAL, ENVIRONMENTAL, AND MATERIALS TESTING ENGINEERS
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