



CITY OF VENICE, FLORIDA

Purchasing Department

**401 W. Venice Avenue
Venice, FL 34285**

Invitation to Bid

ITB Number 3027-16

Date of Issue: March 19, 2016

Submission Deadline: April 21,

2016 at 2:00 PM

Title and Purpose of ITB:

Replacement Well 7AW

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**CITY OF VENICE
REPLACEMENT WELL 7AW**

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INVITATION TO BID

The City of Venice invites sealed bids from qualified bidders to provide the following goods or services, which is described in detail in the Specifications.

Bid No.: 3027-16

Bid Title: Replacement Well 7AW

PROJECT DESCRIPTION: Construction of public supply Well 7AW, including the well, wellhead, all above ground appurtenances and piping.

BID OPENING LOCATION: City of Venice, Venice City Hall, Community Hall, room # 114, 401 West Venice Ave., Venice FL 34285

BID SUBMITTAL DEADLINE and BID OPENING DATE & TIME: April 21
at 2:00 PM

PRE-BID MEETING: YES **DATE & TIME:** March 31 at 2:00 PM

LOCATION: City of Venice Water Treatment

**Plant, Building “C” Break Room, 200 North Warfield Ave.,
Venice FL 34285**

Specifications and Bid documents are available by calling Onvia DemandStar at (800) 711-1712 or by their Internet address at <http://www.demandstar.com>. Proposers may also pick up Bid documents at the City of Venice Procurement- Finance Department, Room 204, 401 West Venice Ave., Venice Florida 34285, (941) 882-7422 at no charge.

A non-mandatory pre-bid meeting/site visit will be held on March 31, 2016 at 2:00 p.m., City of Venice Reverse Osmosis Water Treatment Plant, Building “C” Break Room, 200 North Warfield Ave., Venice FL 34285. Representatives from the City will be present to discuss the overall project and the Invitation to Bid. **Interested Firms are encouraged to attend.**

All questions, comments, or concerns about this ITB must be submitted in writing to Mr. Peter Boers, Procurement- Finance Department, for the City of Venice, Room 204, 401 West Venice Avenue, Venice, FL 34285 or e-mail at pboers@venicegov.com Mr. Boers is the only designated representative of the City authorized to respond to comments, questions, and concerns. The City will not respond to comments, questions or concerns addressed to any person other than Mr. Boers. If the City determines that a particular comment, question or

concern necessitates a global response to all Proposers, the City will issue a clarifying memorandum or addendum. The final day that the City will accept questions will be April 12, 2016 by 1:00 p.m.

Bids must be submitted in **four sets** and at least one set must bear an original signature, in a sealed envelope marked **“Invitation to Bid # 3027-16: “Replacement Well 7AW”** and mailed or delivered to the City of Venice- Purchasing Department, 401 W. Venice Ave. Room # 204, Venice, FL 34285, no later than the deadline specified. The City assumes no responsibility for bids received after the bid submittal time or at any location other than that specified, no matter what the reason. Late bids will be held unopened and will not be considered for award.

No bid will be received after the specified time for acceptance and no bidder may withdraw his bid within a period of ninety (90) days after the actual date of opening thereof.

Bids will be considered only from bidders who have the applicable license, if a license is required by the City of Venice and/or State of Florida, for the type of work specified. A copy of the applicable license must be submitted with bid if a license is required.

The City reserves the right to reject any or all bids in whole or in part, with or without cause, to waive any requirements, irregularities or technical defects therein, when it is deemed to be in the interest of the City.

CITY OF VENICE, FLORIDA

Publish: March 19, 2016
March 23, 2016

City of Venice Utilities Department
City of Venice, Florida

Replacement Well 7AW

INSTRUCTIONS TO BIDDERS

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ARTICLE 1 – DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders 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. Issuing Office: The office from which the Bidding Documents are to be issued and here the bidding procedures are to be administered.

ARTICLE 2 – BIDS RECEIVED

- 2.01 Refer to the Invitation To Bid for information on receipt of Bids.

ARTICLE 3 – LOCATION AND DESCRIPTION OF PROJECT

- 3.01 Refer to Section 01010, Summary of Work, in the General Requirements for the location and description of the Project.

ARTICLE 4 – COPIES OF BIDDING DOCUMENTS

- 4.01 Refer to the Invitation To Bid for information on location where Bidders may examine and obtain the Bidding Documents.
- 4.02 (Not Used)
- 4.03 Complete sets of Bidding Documents shall 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.
- 4.04 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 grant permission for any other use.
- 4.05 Bidders who obtain solicitation documents from sources other than the Owner or download from <http://www.demandstar.com/> must officially register receipt of the solicitation with the City's Procurement – Finance Department in order to be placed on the notification list for any forthcoming addendum or other official communications. Failure to register as a prospective Bidder may cause your submittal to be rejected as non-responsive if you have submitted a response without acknowledgment of issued addenda. The Owner is not responsible for the accuracy of bid documents and information obtained from any source other than <http://www.demandstar.com/>.

ARTICLE 5 – QUALIFICATIONS OF BIDDERS

- 5.01 Bidders shall be experienced in the kind of Work to be performed, shall have the necessary equipment therefor, and shall possess sufficient capital to properly execute the Work within the time allowed. Bids received from Bidders who have previously failed to complete work within the time required, or who have previously performed similar work in an unsatisfactory manner, may be rejected. A Bid may be rejected if Bidder cannot show that Bidder has the necessary ability, plant, and equipment to commence the Work at the time prescribed and thereafter to prosecute and complete the Work at the rate or within the times specified. A Bid may be rejected if Bidder is already obligated for the performance of other work which would delay the commencement, prosecution or completion of the Work.
- 5.02 To demonstrate qualifications to perform the Work, Bidder shall submit within 5 days after Bid opening, upon Owner's request, a separate Bidder Qualifications Statement that will be furnished by OWNER. An example of the Bidder Qualifications Statement is bound in the Project Manual.
- 5.03 Bidders shall be qualified to do business in the state where the Project is located or covenant to obtain such qualification prior to signing the Agreement.
- 5.04 Bids will be received only from contractors licensed or registered by the State of Florida.

ARTICLE 6 – EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

6.01 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 have been utilized by Engineer in preparation of the Bidding Documents.
- 2. Those drawings of physical conditions relating to existing surface or subsurface structures (except Underground Facilities) which are at or contiguous to the Site, that have been utilized by Engineer in preparation of the Bidding Documents.

B. Electronic copies of the reports and drawings referenced in Paragraph 6.01.A above 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 SC-4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion drawn from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

6.02 Underground Facilities - Physical Conditions

- 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.

6.03 Hazardous Environmental Condition

- A. Owner has no actual knowledge of a Hazardous Environmental Condition at the Site.

6.04 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 unforeseen subsurface or physical 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.

6.05 Other Related Data (Not Used)

6.06 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a Bid. Bidder shall fill all holes and clean up and restore the Site to its original conditions upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all Laws and Regulations relative to such explorations, investigations, tests, and studies.

6.07 A single Site visit has been scheduled following the pre-bid conference. No other Site visits will be allowed without Owner's approval.

6.08 (Not Used)

6.09 (Not Used)

6.10 It is the responsibility of Bidder, before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, the other related data identified in the Bidding Documents and Addenda (if any);
- 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 the Laws and Regulations that may affect cost, progress and performance of the Work;
- D. carefully study all:
 - 1. reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in the Supplementary Conditions in Paragraph SC-4.02 as containing reliable “technical data”, and
 - 2. reports and drawings of Hazardous Environmental Condition identified at the Site, if any, that have been identified in the Supplementary Conditions in Paragraph SC-4.06 as containing reliable “technical data”;
- E. consider the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in Bidding Documents with respect to the effect of such information, observation, and documents on
 - 1. the cost, progress and performance of the Work;
 - 2. the means, methods, techniques, sequences and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences and procedures of construction expressly required by the Bidding Documents; and
 - 3. Bidder’s safety precautions and programs;
- 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 the performance of the Work at the price(s) bid and within the times required and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of work (if any) to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

6.11 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 6, that without exception the Bid is premised upon performing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, or 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 the Work.

ARTICLE 7 – PRE-BID MEETING

7.01 A non-mandatory Pre-Bid Meeting will be held at the date and time indicated in the Invitation To Bid. Representatives of the Owner and Engineer will be present to discuss the Project. Owner will transmit to all prospective Bidders of record such Addenda as Owner considers necessary in response to questions raised at the pre-Bid conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 8 – SITE AND OTHER AREAS

8.01 The Site is identified in the Bidding Documents. 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. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment, to be incorporated into the Work are to be obtained and paid for by Contractor.

ARTICLE 9 – INTERPRETATIONS AND ADDENDA

9.01 All questions about the meaning or intent of the Bidding Documents shall be submitted to Owner in writing. To receive consideration, questions must be received by Owner by the date indicated in the Invitation To Bid. Interpretations or clarifications considered necessary by Owner in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Owner as having received the Bidding Documents for receipt not later than three days prior to the date for the opening of Bids. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

9.02 Addenda may also be issued to clarify, correct or change the Bidding Documents as deemed advisable by Owner or Engineer. Such Addenda, if any, will be issued in the manner and within the time period stated in Paragraph 9.01 of these Instructions to Bidders.

ARTICLE 10 – BID SECURITY

- 10.01 A Bid shall be accompanied by Bid security made payable to Owner in the amount of 5% of Bidder's maximum Bid price and in the form of Bid bond.
- 10.02 Bid bond shall be on the form bound in the Project Manual. Bid bond shall be issued by a surety complying with the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- 10.03 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security, and complied with the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to sign 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 may retain from the Bid security an amount equal to the damages which Owner may suffer by reason of such failure. Said damages shall be the difference between that Bidder's Bid and the Bid of the next lowest, responsible and responsive Bidder, but such amount shall not exceed the Bid security amount, and, if there is no such next lowest, responsible and responsive Bidder, then the Bid security amount of that Bidder will be forfeited to the Owner as liquidated damages for such failure.
- 10.04 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 the seventh day after the Effective Date of the Agreement or the ninety-first day after the Bid opening whereupon the Bid security furnished by such Bidders will be returned. The Bid security of Bidders whom Owner believes do not have a reasonable chance of receiving an award will be returned within seven days of the Bid opening.

ARTICLE 11 – CONTRACT TIMES

- 11.01 The number of days within which Work is to be completed and ready for final payment (the Contract Times) are set forth in the Agreement.

ARTICLE 12 – LIQUIDATED AND SPECIAL DAMAGES

- 12.01 Provisions for liquidated and special damages, if any, are set forth in the Agreement.

ARTICLE 13 – SUBSTITUTE AND “OR EQUAL” ITEMS

- 13.01 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 accepted by Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submittal of any such application by Contractor and consideration by Engineer is set forth in the General Conditions which may be supplemented in the General Requirements.

13.02 Refer to Section 01340, Shop Drawings, Product Data, and Samples of the General Requirements for the period of time after the Effective Date of the Agreement during which the Engineer will accept applications for substitute items of material or equipment.

ARTICLE 14 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

14.01 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, other individuals, and 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 qualifications for each such Subcontractor, Supplier, individual, and 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 the apparent Successful Bidder to submit an acceptable substitute without an increase in the Bid price.

14.02 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 and other 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.

14.03 (Not Used)

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

ARTICLE 15 – PREPARATION OF BID

15.01 A Bid shall be made on the Bid Form bound in the Project Manual. The Bid Form shall not be separated from the Project Manual nor shall the Bid Form be altered in any way.

15.02 All blanks in the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each Bid item listed therein. In the case of optional alternatives the words “No Bid”, “No Change”, or “Not Applicable” may be entered. Ditto marks shall not be used.

15.03 A Bid shall be executed as stated below.

- A. A Bid by an individual shall indicate the Bidder's name and official address.
 - B. A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title shall appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be indicated.
 - C. A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be indicated.
 - D. A Bid by a corporation shall be executed in the corporate name by an officer of the corporation and shall be accompanied by a certified copy of a resolution of the board of directors authorizing the person signing the Bid to do so on behalf of the corporation. The corporate seal shall be affixed and attested by the secretary or an assistant secretary of the corporation. The state of incorporation and the official corporate address shall be indicated.
 - E. 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 shall be indicated below the signature.
 - F. All names shall be printed in ink below the signature.
 - G. If applicable, the Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located.
 - H. Contractor's license or registration number, if any, shall be entered in the space provided on the Bid Form.
- 15.04 The Bid shall contain an acknowledgment of the receipt of all Addenda, the numbers of which shall be filled in at the space provided on the Bid Form.
- 15.05 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be indicated.
- 15.06 In addition to the Bid Form, the forms listed in the Required Forms List, which are bound in the Project Manual, shall be submitted with the Bid. Each document shall be executed in the manner described in Paragraph 15.03 unless another manner is indicated.

ARTICLE 16 – BASIS OF BIDS; COMPARISON OF BIDS

16.01 Base Bid with Alternatives

- A. Bidder shall submit its Bid on the basis of a lump sum for the Base Bid and shall provide a separate Bid price for each additive alternative described in the Bidding Documents and as provided for on the Bid Form.

- B. For determination of the apparent low Bidder, Bids will be compared on the basis of the aggregate amount of the Base Bid, plus the additive alternative Bid prices providing the most features of the Work within the funds determined by the Owner to be available before Bids are opened. If the addition of another alternative Bid price in the listed order of priority would make the aggregate amount exceed such available funds for all Bidders, it will be skipped and the next subsequent alternative Bid price in a lower amount will be added if award thereon can be made within such funds.
- C. After the determination of the apparent low Bidder as stated, award in the best interest of the Owner may be made to said Bidder on its Base Bid and any combination of its additive alternative Bids for which Owner determines funds will be available at the time of award, provided that the award on any such combination of Base Bid and additive alternative Bids does not exceed the amount offered by any other Bidder for the same combination.

16.02 (Not Used)

16.03 Discrepancies between words and numerals will be resolved in favor of words. 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.

16.04 (Not Used)

ARTICLE 17 – SUBMITTAL OF BID

17.01 A Bid shall be received no later than the date and time prescribed and at the place indicated in the Invitation To Bid.

17.02 Bid shall be enclosed in an opaque sealed envelope plainly marked on the outside with the Project title, solicitation number, the name and address of the Bidder, and its license or registration number, if applicable. Bid shall be accompanied by Bid security and other required documents.

17.03 If the Bid is sent by mail or other delivery method, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation **“Invitation to Bid # XXXX-XX: “Replacement Well 7AW”**. A mailed Bid shall be addressed to:

*Procurement – Finance Department
City of Venice – Procurement
401 West Venice Ave., Room #204
Venice, FL, 34285*

ARTICLE 18 – MODIFICATION OR WITHDRAWAL OF BID

18.01 Withdrawal Prior to Bid Opening:

- A. A Bid may be 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 fixed for the opening of Bids. Upon receipt of such written notice, the unopened Bid will be returned to the Bidder.

18.02 Modification Prior to Bid Opening:

- A. If a Bidder wishes to modify its Bid, Bidder must withdraw its initial Bid in the manner specified in Paragraph 18.01.A of these Instructions to Bidders and submit a new Bid.

18.03 Withdrawal After Bid Opening

- A. After expiration of the period for receiving Bids, no Bid may be withdrawn or modified.

ARTICLE 19 – OPENING OF BIDS

19.01 Bids will be opened at the time and place where Bids are to be submitted and, unless obviously non-responsive, read aloud publicly. An abstract of the Bids will be made available to Bidders after the opening.

19.02 Bids received by mail or otherwise after the date and time specified for the opening of Bids will not be accepted. It will be the Bidder's responsibility to make arrangements for the return of their submittal at their expense.

ARTICLE 20 – DISQUALIFICATION OF BIDDERS

20.01 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.

ARTICLE 21 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

21.01 All Bids shall 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 that period.

ARTICLE 22 – EVALUATION OF BIDS AND AWARD OF CONTRACT

22.01 Owner reserves the right to reject any or all Bids, including without limitation the right to reject any or all 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 not responsible. Owner also reserves the right to waive any informality not involving price, time or changes in the Work.

- 22.02 Owner reserves the right to reject any Bid not accompanied by specified documentation and Bid security.
- 22.03 Owner reserves the right to reject any Bid that, in its sole discretion, is considered to be unbalanced or unreasonable as to the amount bid for any lump sum or unit price item.
- 22.04 In evaluating Bidders, Owner will consider the qualifications of Bidders, whether or not their Bids comply with the prescribed requirements, the alternatives, if any, the lump sum and unit prices, and other data as may be requested in the Bid Form or prior to the Notice of Award.
- 22.05 Owner 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.
- 22.06 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of the Bidders to perform the Work in accordance with the Contract Documents. Owner reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.
- 22.07 If a Contract is to be awarded, Owner will award the Contract to the lowest responsive and responsible Bidder who has neither been disqualified nor rejected pursuant to Article 20 of the Instructions to Bidders or this Article 22.
- 22.08 A notice of intent for award will be posted for review by interested parties in City Hall or on the City's website prior to submission through the appropriate approval process to the appropriate level for final approval of award.

ARTICLE 23 – CONTRACT SECURITIES

23.01 Performance Bond shall be in the form "Construction Performance Bond". Payment Bond shall be in the form "Construction Payment Bond". The amounts of and other requirements for Performance and Payment Bonds are stated in Paragraph 5.01 of the General Conditions. The requirements for delivery of Bonds are stated in Paragraph 2.01 of the General Conditions. Additional requirements may be stated in the Supplementary Conditions.

23.02 (Not Used)

ARTICLE 24 – CONTRACTOR'S INSURANCE

24.01 The requirements for Contractor's insurance are stated in Article 5 of the General Conditions and in the Supplementary Conditions. The requirements for delivery of

certificates of insurance and other evidence of insurance are stated in Paragraph 2.01.B of the General Conditions.

24.02 Successful Bidder shall within 15 days from the date of the Notice of Award deliver to Owner, for review and approval, the required policies of insurance. Upon approval, the policies will be returned to the Bidder and Bidder shall submit certificates of insurance and other evidence of insurance to the Owner as stated in the General Conditions.

ARTICLE 25 – SIGNING OF AGREEMENT

25.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner will deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

ARTICLE 26 – NOTICE TO PROCEED

26.01 Issuance of the Notice to Proceed shall be as stated in Article 2 of the General Conditions.

ARTICLE 27 – PARTNERING (Not Used)

ARTICLE 28 – SALES AND USE TAXES

28.01 Refer to the Paragraph SC-6.10 of the Supplementary Conditions for information on Owner's exemption from sales and use taxes on materials and equipment to be incorporated into the Work. Do not include said taxes in Bid.

ARTICLE 29 – LOCAL PREFERENCE

~~29.01 Unless otherwise noted in the solicitation, preference shall be given to a "local business" in the awarding of any Invitation to Bid (ITB), Request for Proposal (RFP) or Request for Qualifications (RFQ) in accordance with Section 2-217 of the City of Venice's Code. Local preference shall not apply to other types of solicitations unless explicitly stated in the subject solicitation.~~

~~29.02 "Local business" means the vendor has paid a local business tax to either Sarasota, Manatee, DeSoto or Charlotte County, whichever county the Bidder is located, if applicable prior to bid submission that authorizes the Bidder to provide the commodities or services to be purchased, and maintains a permanent physical business address located within the limits of either Sarasota, Manatee, DeSoto or Charlotte County from which the Bidder operates or performs business, and at which at least one full time employee is located.~~

- ~~29.03 In addition, fifty percent (50%) or more of the employees based at the local business location must reside within Sarasota, Manatee, DeSoto or Charlotte County.~~
- ~~29.04 In the event the local office is not the primary location of the Bidder, at least ten percent (10%) of the Bidder's entire full-time employees must be based at the local office location. Alternatively, this requirement may be satisfied if at least one corporate officer, managing partner or principal owner of the Bidder resides in Sarasota, Manatee, DeSoto or Charlotte County.~~
- ~~29.05 Bidders wishing to be given preference as a local business must submit with their Bid, all of the Local Preference documentation identified in the "Required Forms Section" of the solicitation.~~
- ~~29.06 For local preference to be granted, the name of the company represented on the required forms must be the same as the name on the Local Preference documentation.~~
- ~~29.07 Information regarding Sarasota County's Local Business Tax can be found at www.sarasotataxcollector.governmax.com.~~
- ~~29.08 In case of a Bid submitted by more than one entity, any one of those entities can qualify the Bid for the local preference. Sub-contractors or sub-consultants cannot qualify a Bid for local preference.~~

ARTICLE 30 – PUBLIC RECORDS/TABULATION

- 30.01 Bids are not public records, subject to the provisions of Florida State Statutes, Chapters 119 and 120, until such time as notice of a decision or intended decision is provided, or within thirty (30) days after the bid opening, whichever is earlier. A copy of the tabulation results will be forwarded upon receipt of a stamped, self-addressed envelope. An electronic tabulation will be posted on Demand Star at the Internet Website at <http://www.demandstar.com/>.

ARTICLE 31 – INDEMNIFICATION/HOLD HARMLESS

- 31.01 The Bidder shall defend, indemnify and hold the Owner, the Owner's representatives or agents, and the officers, directors, agents, employees, and assigns of each harmless for and against any and all claims, demands, suits, judgments, damages to persons or property, injuries, losses or expenses of any nature whatsoever arising directly or indirectly from or out of any negligent act or omission of the Bidder, its sub-consultants and their officers, directors, agents or employees; any failure of the elected firm to perform its services hereunder in accordance with generally accepted professional standards; any material breach of the elected firm representations as set forth in the proposal or any other failure of the elected firm's to comply with the obligations on its part to be performed under this contract.

ARTICLE 32 - PUBLIC ENTITY CRIMES/NON-COLLUSIVE AFFIDAVIT

- 32.01 Each Bidder shall complete the Non-Collusive Affidavit and the Public Entity Crimes Form and shall submit the forms with the submittal. Owner considers the failure of the Bidder to submit these documents to be a major irregularity and may be cause for rejection of their submittal.
- 32.02 A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a response on a contract to provide any goods or services to a public entity, may not submit a response on a contract with a public entity for the construction or repair of a public building or public work, may not submit responses on leases of real property to a public entity, may not be awarded or perform work as a Bidder, supplier, Sub-Bidder, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.
- 32.03 Termination for Cause: Any Agreement with the Owner obtained in violation of this Section shall be subject to termination for cause. A Sub-Bidder who obtains a subcontract in violation of this Section shall be removed from the Project and promptly replaced by a Sub-Bidder acceptable to the City.

ARTICLE 33 – GRATUITIES AND KICKBACKS

- 33.01 Gratuities: It is unethical for any person to offer, give, or agree to give any employee or for any employee to solicit, demand, accept or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation of any part of program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, audit, or in any other advisory capacity in any proceeding or application, request for ruling, determination claim or controversy, or other particular matter, pertaining to any program requirement or an Agreement or subcontract, or to any solicitation or proposal therefore.
- 33.02 Kickbacks: It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a Sub-Bidder under a Contract to Bidder or higher tier Sub-Bidder any person associated therewith, as an inducement of the award of a subcontract or order.
- 33.03 Contract Clause: The prohibition against gratuities and kickbacks prescribed in this section shall be conspicuously set forth in every Contract and subcontract and solicitation therefore.

ARTICLE 34 – EQUAL EMPLOYMENT OPPORTUNITY

- 34.01 Bidder shall be in compliance with Executive Order 11426 Equal Opportunity as amended by Executive Order 11375, and as supplemented by the Department of Labor Regulations as applicable.

ARTICLE 35 – CONFLICT OF INTEREST

35.01 No employee of an agency acting in his or her official capacity as a purchasing agent, or public officer acting in his or her official capacity, shall either directly or indirectly purchase, rent, or lease any realty, goods, or services for his or her own agency from any business entity of which the officer or employee or the officer's or employee's spouse or child is an officer, partner, director, or proprietor or in which such officer or employee or the officer's or employee's spouse or child, or any combination of them, has a material interest. Nor shall a public officer or employee, acting in a private capacity, rent, lease, or sell any realty, goods, or services to the officer's or employee's own agency, if he or she is a state officer or employee, or to any political subdivision or any agency thereof, if he or she is serving as an officer or employee of that political subdivision. The foregoing shall not apply to district offices maintained by legislators when such offices are located in the legislator's place of business or when such offices are on property wholly or partially owned by the legislator. This subsection shall not affect or be construed to prohibit contracts entered into prior to:

- October 1, 1975
- Qualification for elective office
- Appointment to public office
- Beginning public employment

ARTICLE 36 – DRUG FREE WORKPLACE

36.01 The Owner has adopted a policy in observance of the Drug Free Work Place Act of 1988. Therefore, it is unlawful to manufacture, distribute, disperse, possess, or use any controlled substance in the Owner's workplace. The Owner requests the attached Drug Free Workplace Affidavit to accompany your response. This form has been adopted by the Owner in accordance with the Drug Free Workplace Act. The Owner will not disqualify any respondent who does not concur with the affidavit. The Drug Free Workplace Affidavit is primarily used as tiebreaker when two or more separate entities have submitted proposals at the same price, terms and conditions.

ARTICLE 37 – APPLICABLE LAWS

37.01 Interested parties are advised that all Owner contracts and/or documentation pertinent to this solicitation are subject in full or in part to all legal requirements provided in applicable City Ordinances, State Statutes, and Federal Regulations. Uniform Commercial Code, Chapter 672, Florida State Statutes shall prevail, as the basis for contractual obligations between the Bidder and the Owner for any terms and conditions not specifically stated within the context of this contract.

ARTICLE 38 – DISCLOSURE – PUBLIC OFFICER, PUBLIC EMPLOYEE OR ADVISORY BOARD MEMBER OF OWNER

- 38.01 Sections 112.313(3) and 112.313(7), Florida Statutes, prohibit any public officer, employee, or advisory board member of the Owner from holding any employment or contractual relationship with any business entity doing business with the Owner. Section 112.313(12) provides that a public officer, employee, or advisory board member will not be in violation of the prohibition if all three of the following conditions are met. The filing of the disclosure form with the Supervisor of Elections is the sole responsibility of the Proposer and must be filed prior to or at the time of submission of the proposal. A copy of the filed disclosure form shall be submitted as part of the proposal.
- 38.02 Bid is awarded under a sealed, competitive Bid to lowest or best Bidder system. Advisory board member is required to, prior to or at the time of the submission of the Bid, file a statement with the Supervisor of Elections, disclosing his interest and the nature of the intended business. The form is entitled "Form 3A Interest in Competitive Proposal for Public Business," a copy of which is available from the Owner's Procurement- Finance Department.
- 38.03 The public officer, employee, or advisory board member, spouse, or child is required to have in no way used or attempted to use his influence to persuade a member of the Owner or any of its personnel to enter into such a contract other than by the mere submission of the Bid.
- 38.04 The public officer, employee, or advisory board member, spouse, or child is required to have in no way participated in the determination of the Bid specifications or the determination of the lowest or best Bidder.

ARTICLE 39 – BID PROTESTS

- 39.01. In any case where a bidder wishes to protest either the results of, or the intended disposition of any bid, the bidder must:
- A. File a written notice to the city manager of the bidder's intention to protest within one business day of the bid opening or the city's declaration of intent with regard to the disposition. Upon receipt of a protest, the bid process shall be suspended until the protest procedure herein described has been completed.
 - B. Within five days of filing the written notice of intent to protest, the protester shall file a formal written protest with the city manager, acting as the bid protest officer, explaining in detail the nature of the protest and the grounds on which it is based. During this five-day period, the protester is encouraged to attempt to resolve the issue with the finance department.
 - C. The protester must include with the formal written protest a bid protest bond in the form of a certified check, cashier's check or money order made payable to the city in an amount equal to five percent of the lowest acceptable bid or \$5,000.00 whichever is less. The bond will be deposited with the cashier's office where it will be put into an account and the

protester will receive a receipt.

39.02 Upon timely receipt of the formal written protest and protest bond:

- A. The bid protest officer shall issue formal findings of fact and a written decision with regard to the validity or nonvalidity of the formal written protest within ten business days of the city's receipt of the protest.
- B. Within two business days of receipt of the formal findings of fact and written decision, the city shall notify the protester of the decision of the bid protest officer. Such notification shall be transmitted via certified return receipt mail.

39.03 Should the protest be found to be without merit or validity, the bid protest bond shall be forfeited to the city in its entirety, and the bid process may resume. If a decision favorable in whole or in part to the protest is rendered, a check for the full amount of the bond will be returned to the protester.

ARTICLE 40 – SCRUTINIZED COMPANIES

40.01 Pursuant to Section 287.135, F.S., a company that, at the time of bidding or submitting a proposal for a new contract or renewal of an existing contract, is 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, F.S., is ineligible for, and may not bid on, submit a proposal for, or enter into or renew a contract with an agency or local governmental entity for goods or services of \$1 million or more. Any contract with an agency or local governmental entity for goods or services of \$1 million or more entered into or renewed on or after July 1, 2011, must contain a provision that allows for the termination of such contract at the option of the awarding body if the company is found to have submitted a false certification as provided under Subsection 287.135(5), F.S., or has been placed on either of the aforementioned lists. The Owner agrees to comply with the requirements of Section 287.135, F.S. in connection with the implementation of the Project.

Engineer:
Atkins North America, Inc.
101 Arthur Anderson Parkway
Suite 260
Sarasota, Florida 34232
Phone: 941-378-0272
Fax: 941-371-7297

++ END OF INSTRUCTIONS TO BIDDERS ++

BID FORM

CITY OF VENICE
REPLACEMENT WELL 7AW

TABLE OF ARTICLES

1. Bid Recipient
2. Bidder's Acknowledgements
3. Bidder's Representations
4. Bidder's Certifications
5. Basis of Bid
6. Time of Completion
7. Attachments to this Bid
8. Defined Terms
9. Bid Submittal
10. Required Forms

ARTICLE 1 - BID RECIPIENT

- 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 price(s) and within the times indicated in this Bid and in accordance with the Bidding Documents.

ARTICLE 2 - BIDDER'S ACKNOWLEDGEMENTS

- 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. This 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. Bidder will sign the AGREEMENT and will furnish the required contract security, and other required documents within the time periods set forth in the Bidding Documents.

ARTICLE 3 - BIDDER'S REPRESENTATIONS

- 3.01 In submitting this Bid, Bidder represents that:

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

Addendum No.	Date Received	Addendum No.	Date Received
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

- 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 Hazardous Environmental Conditions identified at the Site, if any, which that 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 accepts the consequences for not doing 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 (if any) 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.

3.02 Bidder further represents that:

- A. this Bid is genuine and is 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;
- B. 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;
- C. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER; and
- D. No person or persons acting in any official capacity for the OWNER are directly or indirectly interested in this Bid, or in any portion of the profit thereof.

ARTICLE 4 – BIDDER’S CERTIFICATIONS

4.01 Bidder certifies that:

- A. this Bid is genuine and is 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;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid
- C. Bidder; has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive or coercive practices in competing for the Contract. For the purposes of the Paragraph 4.01.D;
 - 1. Corrupt practice” means the offering, giving, or soliciting of anything of value likely to influence the action of a public official in the bidding process

2. "Fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
3. "Collusive practice" means to scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
4. "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 - BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

**CITY OF VENICE
PUBLIC SUPPLY WATER WELL RO-7AW CONSTRUCTION AND TESTING**

ITB NO. 3027-16

****THE PRICES ON THIS FORM CORRESPOND WITH THE ITEMS LISTED IN THE
MEASUREMENT AND PAYMENT SECTION 01026 OF THE TECHNICAL
SPECIFICATIONS****

<u>Item No.</u>	<u>Description</u>	<u>Est. Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Amount</u>
A-1	Mobilization – Total Bid.	1	LS	N/A	\$ _____
A-2	Plug and Abandon Well. RO-7AW – Total Bid	1	LS	\$ _____	\$ _____
A-3	Drill Nominal 24-inch Diameter Borehole – Total Bid.	110	LF	\$ _____	\$ _____
A-4	Furnish, Install, and Cement Nominal 20-inch Diameter Steel Casing to Total Depth – Total Bid.	110	LF	\$ _____	\$ _____
A-5	Drill Nominal 20-inch Diameter Borehole – Total Bid.	140	LF	\$ _____	\$ _____
A-6	Geophysical Logging – Total Bid.	1	LS	N/A	\$ _____
A-7	Furnish, Install, and Cement 14-inch Certa-Lok PVC Casing to Total Depth – Total Bid.	250	LF	\$ _____	\$ _____
A-8	Drill Nominal 12-inch Diameter Open Borehole, - Total Bid.	100	LF	\$ _____	\$ _____
A-9	Install Well Development System, Total Bid.	1	LS	N/A	\$ _____

<u>Item No.</u>	<u>Description</u>	<u>Est. Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Amount</u>
A-10	Well Development by Airlift Pumping, Total Bid.	20	HR	\$ _____	\$ _____
A-11	Pumping Test Setup – Total Bid.	1	LS	NA	\$ _____
A-12	Perform Pumping Test, Total Bid.	16	HR	\$ _____	\$ _____
A-13	Water Quality Testing, Total Bid.	1	LS	N/A	\$ _____
A-14	Install Acid Injection System, Total Bid.	1	LS	N/A	\$ _____
A-15	HCL Acid Injection, Total Bid.	1000	Gallon	\$ _____	\$ _____
A-16	Install Post-Acidization Well Development System, Total Bid.	1	LS	N/A	\$ _____
A-17	Post-Acidization Well Development and Disposal, Total Bid.	12	HR	\$ _____	\$ _____
A-18	Wellhead Completion, Total Bid.	1	LS	N/A	\$ _____
A-19	Site Work, Total Bid.	1	LS	N/A	\$ _____
A-20	Site Piping and Valving, Total Bid.	1	LS	N/A	\$ _____
A-21	Well Pump and Motor, Total Bid.	1	LS	N/A	\$ _____
A-22	Electrical and Controls, Total Bid.	1	LS	N/A	\$ _____
A-23	Demobilization, Total Bid.	1	LS	N/A	\$ _____
A-24	Standby Time.	8	HR	\$ _____	\$ _____

A-25 Owner's Allowance. 1 LS N/A \$ 20,000.00

TOTAL BID PRICE \$ _____

Bid Price in Written Words: _____

Name & Address of Bidding firm: _____

Tel # _____ Fax # _____

Signature & Title
of Authorized Individual Signing Bid: _____

Current License Number: _____

- 5.04 Unit prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.
- 5.05 Bidder acknowledges that estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price items will be based on actual quantities of Unit Price Work determined as provided in the Contract Documents.
- 5.06 All specified cash allowances are included in the price(s) set forth above and have been completed in accordance with Paragraph 11.02 of the General Conditions.

ARTICLE 6 - TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete within 168 calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and will be completed and ready for final payment in accordance with paragraph 14.07.B of the General Conditions within 198 calendar days after the date when the Contract Times commence to run, which days will be entered by OWNER into the AGREEMENT as the Contract Times.
- 6.02 Bidder accepts the provisions of the AGREEMENT as to liquidated and special damages, if any, in the event of failure to complete the Work within the Contract Times.

ARTICLE 7 - ATTACHMENTS TO THIS BID

- 7.01 The following documents are attached to and made a condition of this Bid:
- A. Required Bid security.
 - B. Required Bidder Qualifications Statement with supporting data.
 - C. Miscellaneous Bid Forms

ARTICLE 8 - DEFINED TERMS

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

ARTICLE 9 - BID SUBMITTAL

9.01 This Bid submitted on _____, 20__ by:

If Bidder is:

Individual

Name (Typed or Printed): _____

By _____
(Individual's Signature)

Doing business as _____

License or Registration Number: _____

Business Address: _____

Phone No.: _____ Facsimile: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of General Partner - Attach evidence of authority to sign)

(Name (Typed or Printed): _____

License or Registration Number: _____

Business Address: _____

Phone No.: _____ Facsimile: _____

A Corporation

Corporation Name: _____

(State of Incorporation)

By _____
(Signature - Attach evidence of authority to sign)

Name and Title (Typed or Printed): _____

(CORPORATE
SEAL)

Attest: _____
(Secretary)

License or Registration Number: _____

Business Address: _____

Phone No.: _____ Facsimile: _____

Limited Liability Company

By: _____
(Firm Name)

(State of Formation)

By: _____
(Signature of Member/Authorized to Sign)

(Printed or Typed Name and Title of Member Authorized to Sign)
(Attach evidence of authority to sign.)

License or Registration Number: _____

Business Address: _____

Phone No.: _____ Facsimile: _____

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____

By: _____

(Signature of First Joint Venturer - Attach evidence of authority to sign)

Name (Typed or Printed): _____ (Title)

Title: _____

Second Joint Venturer Name: _____

By: _____

(Signature of Second Joint Venturer - Attach evidence of authority to sign)

Name (Typed or Printed): _____ (Title)

(Each joint venturer must sign. The manner of signing for each individual, partnership, corporation or limited liability company that is a party to the joint venture shall be in the manner indicated above).

Business Address: _____

Phone and FAX number and address for receipt of communications to joint venture:

Phone: _____ Facsimile: _____

ARTICLE 10 – REQUIRED FORMS

Required Forms Check List: ITB# 3027-16: Replacement Well 7AW

- Proposal Bond
- Qualifications Statement
- Co-operative Procurement with Other Jurisdictions
- Form 3A- Interest in Competitive Bid for Public Business
- Indemnification/Hold Harmless
- FDEP & U.S. EPA Construction Notices of Intent (NOI)
- Statement of References for Contractor
- Contractor’s Statement of Sub-contractors
- Drug Free Workplace Certification
- Non-Collusive Affidavit
- Public Entity Crime Information
- Statement of “No Bid” (if applicable)

All required forms are included in this package. All forms must be filled out and returned with the firm’s proposal.

Failure to do so will result in the firm being considered non-responsive and their proposal will be disallowed.

Mark N/A if not applicable to your firm

PROPOSAL BOND

**Not to be completed if a certified check is submitted.*

KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned,

_____ as Principal,

and _____ as Surety

are held and firmly bound unto the City of Venice, Florida, in the sum of

_____ \$_____, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that if the attached Proposal of Principal and Surety for work specified as:

all as stipulated in said Proposal, by doing all work incidental thereto, in accordance with the plans and specifications provided heretofore, all within Sarasota County, is accepted and the bidder shall within ten (10) days after notice of said award, enter into a contract, in writing, and furnish the required Performance Bond with surety or sureties to be approved by the Director of Purchasing, this obligation shall be void; otherwise the same shall be in full force and virtue by law and the full amount of this Proposal Bond will be paid to the City as stipulated or liquidated damages.

Signed this _____ day of _____, 20__.

Principal

Surety

Principal must indicate whether corporation, partnership, company, or individual.

The person signing shall, in his own handwriting, sign the Principal's name, his own name, and his title. The person signing for a corporation must, by affidavit, show his authority to bind the corporation.

QUALIFICATIONS STATEMENT

The undersigned certifies under oath the truth and correctness of all statements and all answers to questions made hereinafter:

SUBMITTED TO:

CITY OF VENICE
Procurement- Finance Department
401 W. Venice Avenue
Venice, Florida 34285

CHECK ONE:

- Corporation
- Partnership
- Individual
- Joint Venture
- Other

SUBMITTED BY:

NAME: _____
ADDRESS: _____
PRINCIPLE OFFICE: _____

State the true, exact, correct and complete legal name of the partnership, corporation, trade or fictitious name under which you do business and the address of the place of business.

The correct name of the Offeror is:

The address of the principal place of business is:

If the Offeror is a corporation, answer the following:

- a. Date of Incorporation: _____
- b. State of Incorporation: _____
- c. President's Name: _____
- d. Vice President's Name: _____
- e. Secretary's Name: _____
- f. Treasurer's Name: _____
- g. Name and address of Resident Agent: _____

If Offeror is an individual or partnership, answer the following:

- a. Date of Organization: _____
- b. Name, address and ownership units of all partners:

- c. State whether general or limited partnership: _____

If Offeror is other than an individual, corporation partnership, describe the organization and give the name and address of principals:

If Offeror is operating under fictitious name, submit evidence of compliance with the Florida Fictitious Name Statute.

How many years has your organization been in business under its present business name?

a. Under what other former names has your organization operated?

ACKNOWLEDGEMENT

State of _____

County of _____



SS.

On this the _____ day of _____, 20____, before me, the undersigned Notary Public of the State of _____, personally appeared _____ and (Name(s) of individual(s) who appeared before notary) whose name(s) is/are Subscribed to the within instrument, and he/she/they acknowledge that he/she/they executed it.

NOTARY PUBLIC
SEAL OF OFFICE:

NOTARY PUBLIC, STATE OF _____

(Name of Notary Public: Print, stamp, or type as commissioned)

Personally known to me, or Produced Identification: _____ DID take an oath, or DID NOT take an oath

COOPERATIVE PROCUREMENT WITH OTHER JURISDICTIONS

The vendor, by submitting a bid, authorizes other Public Agencies to "Piggy-Back" or purchase equipment or services being proposed in this invitation to bid at prices bid unless otherwise noted on the proposal sheet.

Yes _____ No _____

AUTHORIZED SIGNATURE

By submission of the ITB, the undersigned certifies that:

1. He/She has not paid or agreed to pay any fee or commission, or any other thing of value contingent upon the award of this contract, to any City of Venice, Florida employee or official or to any current consultant to the City of Venice, Florida;
2. He/She has not paid or agreed to pay any fee or commission or any other thing of value contingent upon the award of this contract to any broker or agent or any other person;
3. The prices contained in this proposal have been arrived at independently and without collusion, consultation, communication or agreement intended to restrict competition.
4. He/She has the full authority of the Offeror or to execute the proposal and to execute any resulting contract awarded as the result of, or on the basis of, the proposal.

Authorized Representative: _____

Signature: _____

Title: _____

Company Name: _____

Address: _____

City, State, ZIP: _____

Telephone Number: _____

Fax Number: _____

E-mail address: _____

FORM 3A INTEREST IN COMPETITIVE BID FOR PUBLIC BUSINESS

LAST NAME — FIRST NAME — MIDDLE INITIAL			OFFICE / POSITION HELD
MAILING ADDRESS			AGENCY
CITY	ZIP	COUNTY	ADDRESS OF AGENCY

WHO MUST FILE THIS STATEMENT

Sections 112.313(3) and 112.313(7), Florida Statutes, prohibit certain business relationships on the part of public officers and employees, their spouses, and their children. See Part III, Chapter 112, Florida Statutes, and/or the brochure entitled "A Guide to the Sunshine Amendment and Code of Ethics for Public Officers and Employees" for more details on these prohibitions. However, Section 112.313(12), Florida Statutes, provides certain limited exemptions to the above-referenced prohibitions, including one where the business is awarded under a system of sealed, competitive bidding; the public official has exerted no influence on bid negotiations or specifications; AND where disclosure is made, prior to or at the time of the submission of the bid, of the official's or his spouse's or child's interest and the nature of the intended business. This form has been promulgated by the Commission on Ethics for such disclosure, *if and when applicable* to a public officer or employee.

INTEREST IN COMPETITIVE BID FOR PUBLIC BUSINESS *(Required by § 112.313(12)(b), Fla. Stat.)*

1. The competitive bid to which this statement applies has been / will be (strike one) submitted to the following government agency:		
2. The person submitting the bid is:	NAME ▼	POSITION ▼
3. The business entity with which the person submitting the bid is associated is:		
4. My relationship to the person or business entity submitting the bid is as follows:		
5. The nature of the business intended to be transacted in the event that this bid is awarded is as follows:		
a. The realty, goods, and / or services to be supplied specifically include: _____		
b. The realty, goods, and / or services will be supplied for the following period of time: _____		
c. Will the contract be subject to renewal without further competitive bidding? <input type="checkbox"/> Yes <input type="checkbox"/> No. If so, how often?		
6. Additional comments:		
7. SIGNATURE	DATE SIGNED	DATE FILED

FILING INSTRUCTIONS

If you are a state officer or employee required to disclose the information above, please file this form with the Department of State in Room 316, R.A. Gray Building, 500 South Bronough Street, Tallahassee, Florida 32399-0250. If you are an officer or employee of a political subdivision of this state and are subject to this disclosure, please file the statement with the Supervisor of Elections of the county in which the agency in which you are serving has its principal office.

NOTICE: UNDER PROVISIONS OF FLORIDA STATUTES §112.017, A FAILURE TO MAKE ANY REQUIRED DISCLOSURE CONSTITUTES GROUNDS FOR AND MAY BE PUNISHED BY ONE OR MORE OF THE FOLLOWING: IMPEACHMENT, REMOVAL OR SUSPENSION FROM OFFICE OR EMPLOYMENT, DEMOTION, REDUCTION IN SALARY, REPRIMAND, OR A CIVIL PENALTY NOT TO EXCEED \$10,000.

CE FORM 3A — REV. 1-95

THIS PAGE MUST BE COMPLETED & SUBMITTED WITH OFFER

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INDEMNIFICATION/HOLD HARMLESS

The elected firm shall (if required by City) defend, indemnify and hold the City, the City's representatives or agents, and the officers, directors, agents, employees, and assigns of each harmless for and against any and all claims, demands, suits, judgments, damages to persons or property, injuries, losses or expenses of any nature whatsoever (including attorneys' fees at trial at appellate level) arising directly or indirectly from or out of any negligent act or omission of the elected firm, its Sub-Offers and their officers, directors, agents or employees; any failure of the elected firm to perform its services hereunder in accordance with generally accepted professional standards; any material breach of the elected firm's representations as set forth in the proposal or any other failure of the elected firm to comply with the obligations on its part to be performed under this contract.

I, _____, being an authorized representative of the firm of
_____ located at City
_____, State _____, Zip Code _____ Phone:
_____ Fax: _____. Having read and
understood the contents above, hereby submit accordingly as of this Date,
_____, 20__.

Please Print Name

Signature

This signed document shall remain in effect for a period of one (1) year from the date of signature or for the contract period, whichever is longer.

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CITY OF VENICE, FLORIDA
FDEP & U.S. EPA CONSTRUCTION NOTICES OF INTENT (NOI)

The undersigned bidder acknowledges the requirement of the U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP) which have published the rules for NPDES General Permits for stormwater discharges from construction sites and said bidder agrees to assist the owner in the preparation of these permits and associated plans. The bidder acknowledges that he has taken these permits and associated construction costs into account in the preparation of his lump sum bid. These permits are mandated under Section 402(p) of the Clean Water Act for "Stormwater Discharge from Construction Activities (including clearing, grading, and excavation activities) that result in the disturbance of five (5) or more acres total land area, including areas that are part of a larger common plan of development or sale." The EPA has published summary guidance for: "Developing Prevention Plans and Best Management Practices" (EPA 833-R-92-001, October 1992).

The EPA permit format is a *Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity to be covered under a NPDES Permit*, and it is to be submitted according to the NOI instructions. The Stormwater Pollution Prevention Plan which must accompany the NOI must be signed by authorized representatives of the contractor and subcontractors as well as the facility Owner. Copies of the EPA NOI must be provided to state and local agencies who have issued stormwater management, grading, or land alteration permits or approvals.

An NOI must also be submitted to the Florida Department of Environmental Protection, NPDES Stormwater Notices Center, MS 2510, 2600 Blair Stone Road, Tallahassee, FL 32399. FDEP forms may be downloaded from the State's web site <http://www.dep.state.fl.us/water/stormwater/npdes/> or phone 850-921-9870 if you have questions.

Acceptance of the bid to which this certification and disclosure applies in no way represents the Owner or its Representative has evaluated and thereby determined that the information is adequate to comply with the applicable U.S. EPA or FDEP requirements nor does it in any way relieve the contractor of its sole responsibility to comply with the applicable U.S. EPA and FDEP requirements, including inspection of all control measures at least once each week and following any storm (rainfall) event of 0.5 inches or greater and maintaining reports of each inspection.

Bidder (Company): _____

Name and Title: _____

Address: _____

Telephone: _____

BY SIGNATURE BELOW OF AUTHORIZED REPRESENTATIVE, CONTRACTOR ACKNOWLEDGES RECEIPT OF A COPY OF CITY ORDINANCES 95-12 and 96-09 AND AGREES TO ABIDE BY THE REQUIREMENTS OF SAID ORDINANCES.

Signature: _____ Date: _____

Printed name/title:

ORDINANCE 95-12

AN ORDINANCE OF THE CITY OF VENICE, FLORIDA, AMENDING THE CODE OF ORDINANCES BY AMENDING CHAPTER 9, HEALTH AND SANITATION, ARTICLE IV, DISPOSAL OF EXCRETA, SECTION 9-71, DISCHARGE OF RAW SEWAGE INTO STORMWATER; DELETING ARTICLE V, PROHIBITED STORMWATER DISCHARGES; ADDING CHAPTER 19, WATER AND SEWERS, ARTICLE VI, STORMWATER QUALITY; DELETING CHAPTER 15, STREETS AND SIDEWALKS, ARTICLE IV, EXCAVATIONS, SECTION 15-53, STORM DRAINAGE AND POLLUTION; PROVIDING FOR CONFLICT WITH OTHER ORDINANCES; PROVIDING FOR A SEVERABILITY CLAUSE AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, control of stormwater runoff is necessary from individual lots that do not require a permit from the Southwest Florida Water Management District and requiring compliance with the provisions of the Clean Water Act 33 U.S.C.1251 et.seq., as amended by the Water Quality Act of 1987; and

WHEREAS, the City is desirous of complying with its U.S. Environmental Protection Agency National Pollutant Discharge Elimination System Permit and its Stormwater Master Plan, therefore, stormwater runoff and any discharge to the City storm sewer system will be closely monitored and regulated; and

WHEREAS, the control of stormwater runoff is the responsibility of each individual property owner; and

WHEREAS, the City is desirous of controlling stormwater runoff and insuring compliance with the Comprehensive Plan.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF VENICE, FLORIDA:

SECTION 1. Chapter 9, Water and Sewers, Article IV, Disposal of Excreta, Section 9-71, Discharge of Raw Sewage into Storm Sewer, is amended to read as follows:

Sec. 9-71. Discharge of raw sewage into storm sewer.

It shall be unlawful for any person to discharge raw sewage or to discharge the effluent of and from any septic tank into the storm sewer system of the city or to construct or maintain any system of drainage, pipes, conduits or other apparatus whereby raw sewage or the effluent of and from any septic tank shall or may be discharged into or through the storm sewer system of the city.

SECTION 2. Chapter 9, Water and Sewers, Article V, Prohibited Stormwater Discharges, is deleted in its entirety.

SECTION 3. Chapter 19, Water and Sewers, Article VI, Stormwater Quality is added to read as follows:

ARTICLE VI. STORMWATER QUALITY

Sec. 19-141. Definitions.

As used in this article "industrial stormwater" means stormwater runoff from a site with industrial activities, as defined under 40 CFR Section 122.26(a)(14) U.S. Environmental Protection Agency regulation.

As used in this article "construction sites" refers to all sites.

As used in this article, "illicit discharge" is any discharge of anything other than stormwater to the municipal separate storm sewer system (MS4) or the waters of the State of Florida or the United States.

As used in this article "industrial wastewater" refers to liquids used by an entity in their course of business, that if discharged to the MS4, would degrade the quality of stormwater.

Sec. 19-142. Disposal of industrial stormwater discharges.

The following types of discharges to the municipal separate storm sewer of the city must be controlled as indicated.

(1) **Industrial wastewater/illicit discharge:** Industrial wastewater/illicit discharge may not be discharged to the city's municipal separate storm sewer system.

(2) **Industrial stormwater:** As required to comply with NPDES regulations, the quality of industrial stormwater which is discharged through the city's municipal separate storm sewer system may be subject to regulation or permitting, and any violation of such regulation or permit may be subject to an order to immediately cease such

discharge.

Sec. 19-143. Runoff stormwater and Best Management Practice (BMPs) for construction sites.

BMPs shall be implemented as necessary, to insure that all discharges from construction activities are in compliance with the City of Venice EPA/NPDES Stormwater Permit and the Stormwater Master Plan, or the SWFWMD Permit or EPA's NPDES Construction Activity General Permit, whichever is most stringent in its requirements.

Best Management Practices include but are not limited to, the following requirements:

- (a) All site grading shall be conducted in such a manner that all stormwater management facilities located adjacent to the site are not altered in any way which will diminish their designated flow or pollutant removal capacity or the shape of the drainage facility.
- (b) Maintenance of vegetative buffers or use of a silt fence and/or staked hay bales which minimize erosion and retain sediment on site, shall be implemented prior to any construction activities taking place at sites which discharge to surface water or the municipal separate storm sewer system (MS4). These controls, when utilized, shall be secured and properly maintained during construction activities until the site has been stabilized with sod and/or seed and mulch. A double silt fence may be required as an additional measure to insure that discharges from the site are in compliance with water quality standards as established by the EPA/NPDES Stormwater Permit. Undisturbed vegetative buffers shall be maintained intact to the maximum extent possible to reduce erosion and the discharge of sediment from stormwater runoff. All areas of exposed soil shall be stabilized within 72 hours of attaining final grade.
- (c) Storm sewer systems (eg. inlets, pipes and ditches, etc.) adjacent to the site must be protected by a silt fence and/or staked hay bales during construction, to keep solids from entering conveyance systems.
- (d) Vehicles such as concrete or dump trucks and other construction equipment shall not be washed at locations where the runoff will flow directly into a lake, wetland, watercourse or stormwater conveyance system. Special areas must be designated for washing vehicles. In all new subdivisions, a wash area may be established by the owner/developer which can be used by the site contractor and home builders. If established, wash areas shall be located where the wash water will spread out and evaporate or infiltrate directly into the ground, or where the runoff can be collected in a temporary holding or seepage basin. Gravel or rock bases are recommended for temporary holding or seepage basins, to minimize mud generation. Underdrains shall be installed where infiltration basins are provided as required by the owner/developer's engineer or the Southwest Florida Water Management District. Upon completion of the project, the wash areas shall be graded and stabilized and any trash or waste shall be collected and disposed of properly.
- (e) Fuel, chemicals, cements, solvents, paints, topsoil, or other potential water pollutants shall be stored in areas where they will not cause runoff pollution. Toxic chemicals and materials, such as pesticides, paints, and acids, must be stored in accordance with manufacturer's guidelines. Groundwater resources shall be protected from leaching by placing a plastic mat, packed clay, tar paper, or other impervious material on any areas where toxic liquids are to be opened and stored.
- (f) A minimum of one permitted driveway must be established prior to construction and shall be used as the only access for ingress/egress during construction in order to provide minimum disturbance of drainage facilities and vegetative cover on site.

Sec. 19-44. Owner responsibility for stormwater runoff.

- (a) The control of stormwater runoff is the responsibility of each individual property owner.
- (b) Any property owner constructing or causing to be constructed any building which requires an elevated slab and the elevation of the building pad is higher than that of adjoining properties, will control stormwater runoff during construction. Likewise, any property that is filled more than twelve inches above the adjacent property must provide additional control measures for stormwater during construction. Upon completion of the work, all stormwater runoff shall flow to its natural preconstruction drainage swale, ditch, etc., or be retained in a retention or detention pond(s) designed and constructed for that purpose.
- (c) For any construction where the elevation of the building pad or site fill will be higher than adjoining properties, construction plans certified by a professional engineer registered with the State of Florida, retained by the property owner, will be provided to the City prior to issuance of a building permit.
- (d) Any single lot not covered under Southwest Florida Water Management District rules, exceeding forty-five percent in impervious coverage (including buildings, drives, sidewalks, patios, etc.) shall require stormwater retention facilities to be designed by a Florida registered engineer. The design is to meet the City of Venice EPA/NPDES Permit requirements for quantity and quality of treatment.
- (e) The property owner's engineer will be required to certify to the City Engineer that construction was completed in accordance with the certified plans, prior to issuance of a Certificate of Occupancy.

(f) All improvements to property affecting stormwater drainage must be done in compliance with the City's Comprehensive Plan.

Sec. 19-145. Illicit discharges.

It shall be unlawful for any person to discharge anything other than stormwater into the city's municipal separate storm sewer system whether such discharges occur through piping connections, runoff, exfiltration, infiltration, seepage, or leaks. No person may maintain, use, or establish any direct or indirect connection to any storm sewer owned by the city that results in any discharge in violation of any provision of federal, state, city, or other law or regulation. This provision is retroactive to January 1, 1995, and applies to connections made prior to the effective date of this provision, regardless of whether made under a permit, or other authorization, or whether permissible under laws or practices applicable or prevailing at the time the connection was made.

No materials other than those composed entirely of stormwater shall be disposed of, dumped, or spilled into the city's municipal separate storm sewer system, whether such materials are in a solid or liquid form.

Sec. 19-146. Inspections.

It shall be the duty of the city engineer or designee to carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance with this article.

SECTION 4. Chapter 15, Streets and Sidewalks, Article IV, Excavations, Section 15-53, Storm Drainage and Pollution, is deleted in its entirety.

SECTION 5. To the extent of any conflict between the provisions of this Ordinance, and any other Ordinance, Resolution, or Agreement of the City of Venice, Florida, the provisions of this Ordinance shall prevail.

SECTION 6. Severability. If for any reason a provision of this Ordinance or the application thereof to any person, group of persons, or circumstances is held invalid, the invalidity shall not effect other provisions or applications of the Ordinance which can be given effect without the invalid provision or application, and to this end the provisions of the Ordinance are severable.

SECTION 7. Effective Date. This Ordinance shall take effect immediately upon its adoption, as required by law.

PASSED BY THE COUNCIL OF THE CITY OF VENICE, FLORIDA, THIS 23RD DAY OF MAY, 1995.

First Reading: May 9, 1995 - Final Reading: May 23, 1995 - ADOPTION: May 23, 1995

ATTEST: /s/LORI STELZER, CMC, CITY CLERK /S/ MERLE L. GRASER, MAYOR

I, LORI STELZER, City Clerk of the City of Venice, Florida, a municipal corporation in Sarasota County, Florida, do hereby certify that the foregoing is a full and complete, true and correct copy of an Ordinance duly adopted by the Venice City Council, at a meeting thereof duly convened and held on the 23rd day of May, 1995, a quorum being present.

WITNESS my hand and the official seal of said City this 24th day of May, 1995.

/S/ LORI STELZER, CMC, CITY CLERK Approved as to form: /S/ ROBERT C. ANDERSON, CITY ATTORNEY

/S/ LORI STELZER, CMC, CITY CLERK Approved as to form: /S/ ROBERT C. ANDERSON, CITY ATTORNEY.

STATEMENT OF REFERENCES
FOR CONTRACTOR

NAME OF CONTRACTOR: _____

BUSINESS ADDRESS: _____

How many years have you been engaged in the business under the present firm name? _____

List previous business experience: _____

List at least three construction references:

(1) Person to contact: _____

Company Name: _____

Address: _____

Telephone: _____ Date work performed: _____

(2) Person to contact: _____

Company Name: _____

Address: _____

Telephone: _____ Date work performed: _____

(3) Person to contact: _____

Company Name: _____

Address: _____

Telephone: _____ Date work performed: _____

(4) Person to contact: _____

Company Name: _____

Address: _____

Telephone: _____ Date work performed: _____

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**CONTRACTOR'S STATEMENT OF
SUBCONTRACTORS TO BE USED FOR THIS WORK**

NAME OF CONTRACTOR: _____

BUSINESS ADDRESS: _____

LIST SUBCONTRACTORS TO BE USED IN THE PROJECT:

(1) Company Name: _____

Address: _____

Telephone: _____ Phase of Work Sublet: _____

(2) Company Name: _____

Address: _____

Telephone: _____ Phase of Work Sublet: _____

(3) Company Name: _____

Address: _____

Telephone: _____ Phase of Work Sublet: _____

(4) Company Name: _____

Address: _____

Telephone: _____ Phase of Work Sublet: _____

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DRUG FREE WORKPLACE CERTIFICATION

If identical tie bids exist, preference will be given to the vendor who submits a certification with their bid/proposal certifying they have a drug-free workplace in accordance with Section 287.087, Florida Statutes. The drug-free workplace preference is applied as follows:

IDENTICAL TIE BIDS: Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids, which are equal with respect to price, quality, and service, are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program.

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

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

Contractor's Name Signature

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NON-COLLUSIVE AFFIDAVIT

State of _____

County of _____

} SS.

_____ being first duly sworn, deposes and says that:

1. He/she is the _____, (Owner, Partner, Officer, Representative or Agent) of _____ the Offeror that has submitted the attached Proposal;
2. He/she is fully informed respecting the preparation and contents of the attached Proposal and of all pertinent circumstances respecting such Proposal;
3. Such Proposal is genuine and is not a collusive or sham Proposal;
4. Neither the said Offeror nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, have in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Offeror, firm, or person to submit a collusive or sham Proposal in connection with the Work for which the attached Proposal has been submitted; or have in any manner, directly or indirectly sought by agreement or collusion, or have in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference with any Offeror, firm, or person to fix the price or prices in the attached Proposal or of any other Offeror, or to fix any overhead, profit, or cost elements of the Proposal price or the Proposal price of any other Offeror, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against (Recipient), or any person interested in the proposal Work.

Signed, sealed and delivered in the presence of:

By: _____

(Printed Name)

(Title)

ACKNOWLEDGEMENT

State of _____

County of _____

On this _____ day of _____, 20____, before me, the undersigned Notary Public of the State of _____, personally appeared _____ and (Name(s) of Individual(s) who appeared before notary) whose name(s) in/are Subscribed to the written instrument, and he/she/they acknowledge that he/she/they executed it.

NOTARY PUBLIC, STATE OF _____

NOTARY PUBLIC
SEAL OF OFFICE:

(Name of Notary Public: Print, stamp, or type as commissioned)

Personally known to me, or Produced Identification: _____ DID take an oath, or DID NOT take an oath

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PUBLIC ENTITY CRIME INFORMATION

A person or affiliate who has been placed on the State of Florida’s convicted vendor list following a conviction for a public entity crime may not submit a BID/ITB proposal on a contract to provide any goods or services to a public entity, may not submit a response on a contract with a public entity for services in the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a Contractor, supplier, Sub-Contractor, or Contractor under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in **Section 2876.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.**

I, _____, being an authorized representative
of the firm of _____, located at City:
_____ State: _____ Zip: _____, have
read and understand the contents of the Public Entity Crime Information and of this
formal BID/ITB package, hereby submit our proposal accordingly.

Signature: _____
Phone: _____
Federal ID#: _____

Date: _____
Fax: _____

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NO BID RESPONSE

IMPORTANT: If you choose not to submit a bid for the attached "Invitation To Bid," please complete and return this form only on/before bid closing date. Failure to respond will result in your company being negatively registered as non-responsive. In the event five (5) "no responses" are posted, you will be automatically dropped from our mailing list for future solicitations for the described product/service.

Thank you for taking this opportunity to help us update and improve the solicitation process.

Bid Open/Close Date: **April 21, 2016 at 2:00 PM**

Bid Number: **3027-16**

Description: Construction of public supply Well 7AW, including the well, wellhead, all above ground appurtenances and piping.

Contact: Peter Boers, Procurement- Finance Department

Please check the appropriate response. We respectfully submit "No bid" for the following reason(s):

- 1. We are unable to meet the required delivery date
- 2. We cannot provide a product to meet the required specifications.
- 3. We no longer provide the requested product.
- 4. We do not represent the required brand name product.
- 5. The bid closing date does not allow adequate time to prepare a response.
- 6. The specifications are too restrictive.
- 7. We have chosen not to do business with the City
- 8. Other (feel free to provide our response on your company letterhead.)

Company Name _____ Vendor No. _____

Authorized Signature _____

Print Name _____

Title _____

Date _____ Telephone No. _____

++ END OF NO BID RESPONSE FORM ++

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SAMPLE CONTRACT

THIS CONTRACT, pursuant to City Council approval granted on _____, is made and entered into this _____ day of _____, 20____, by and between the City of Venice, Florida, hereinafter referred to as the City, and _____, hereinafter referred to as the Contractor.

W I T N E S S E T H:

THAT FOR and in consideration of the mutual covenants and obligations hereafter set forth, the parties hereto agree as follows:

(1) The Contract Documents consist of this Contract, Performance and Payment Bonds attached hereto as composite Attachment A and, the City's Invitation to Bid (ITB) # **3027-16 Replacement Well 7AW**, including: standard general conditions, supplemental conditions, special conditions, technical specifications, drawings, Contractor's bid proposal for ITB 3027-16, all of which are incorporated herein by reference. All of the Contract Documents are made a part of this Contract.

(2) The Contractor shall perform all the work required by the Contract Documents and shall include installation of the listed items per the bid specifications.

(3) The work to be performed under this Contract shall be completed within **one hundred ninety-eight (198)** days of the issuance of the Notice to Proceed by the City.

(4) The City shall pay the Contractor for the performance of the work, in accordance with Exhibit B, subject to the terms and conditions of the Contract Documents and any written change orders, the contract sum not to exceed: _____ & ___/100s (\$ _____).

(5) Time is of the essence in this contract. In the event that the work is not completed within the required time as specified in Section 3 herein, then from the compensation otherwise to be paid to the Contractor, the City may retain the sum of **one thousand five hundred thirty-two dollars (\$ 1,532) per day** for each calendar day that the work remains incomplete beyond the time limit, which sum shall represent the actual damage which the City will have sustained per day by failure of the Contractor to complete the work within the required time, said sum not being a penalty but being the stipulated damages the City will have sustained in the event of such default by the Contractor.

(6) In connection with the performance of work under this Contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, sex, religion, color, or national origin. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, lay-off or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post hereafter in conspicuous places, available for employees or applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the non-discrimination clause. The Contractor further agrees to insert the

foregoing provisions in all contracts hereunder, including contracts or agreements with labor unions and/or workers' representatives, except subcontracts for standard commercial supplies or raw materials.

(7) Contractor must secure and maintain any and all permits and licenses required to complete the work under this Contract, unless the Contract Documents provide otherwise.

(8) Throughout the term of this Contract the Contractor must maintain insurance in at least the amounts and coverage required as shown in Exhibit C. The Contractor must provide a Certificate of Insurance to the City evidencing such coverage prior to issuance of the Notice to Proceed by the City.

(9) Pursuant to applicable Florida law, Contractor's records associated with this Contract may be subject to Florida's public record laws, Florida Statutes 119.01, *et seq*, as amended from time to time. Contractor shall comply with all public records obligations set forth in such laws, including those obligations to keep, maintain, provide access to, and maintain any applicable exemptions to public records, and transfer all such public records to the City at the conclusion of this Contract, as provided for in Section 119.0701, Florida Statutes.

(10) Contractor shall indemnify, pay the cost of defense, including attorneys' fees, and hold harmless the City from all suits, actions, or claims of any kind brought on account of any injuries or damages received or sustained by any person or property by or from the Contractor or in consequence of any neglect in safeguarding the work; or by the use of any unacceptable materials related to the work; or on account of any act or omission, neglect or misconduct of the Contractor; or on account of any claim or amounts received under the "Workers' Compensation Law" or any other laws or ordinances, except only such injury or damage as shall have been caused by the negligence of the City. The first ten dollars (\$10.00) of compensation received by the Contractor represents specific consideration for this indemnification obligation.

(11) Contractor shall be responsible for compliance with the requirements under Chapter 556, Florida Statutes, the "Underground Facility Damage Prevention and Safety Act." Contractor's obligations to defend, indemnify, and hold harmless the City, as provided for under Section 10 of this Contract, shall specifically apply to any violations alleged against the City under the Underground Facility Damage Prevention and Safety Act related to the performance of the work under this Contract. Contractor acknowledges that included in the various items of the proposal and in the total bid price, are costs for complying with the Florida Trench Safety Act (90-96 Laws of Florida) effective October 1, 1990.

(12) Termination. This Contract may be terminated by the City without cause, by giving thirty (30) days prior written notice to contractor of the intention to cancel. or with cause at any time contractor fails to fulfill or abide by any of the terms or conditions specified. Failure of contractor to comply with any of the provisions of this agreement shall be considered a material breach of contract and shall be cause for immediate termination of the agreement at the discretion of the city. This Contract may be terminated by the Contractor only by mutual consent of both parties. If this Contract is terminated before performance is completed, the Contractor shall be paid only for that work satisfactorily performed for which costs can be substantiated.

(13) The laws of the State of Florida shall govern all provisions of this Contract. Venue

for any dispute shall be Sarasota County, Florida. If any court proceeding or other action occurs between the parties as a result of this Contract or any other document or act required by this Contract, the prevailing party shall be entitled to recover attorney's fees and all court costs, including attorney's fees and court costs incurred in any pre-trial, trial, appellate, and/or bankruptcy proceedings, as well as, attorney's fees and costs incurred in determining entitlement to and reasonableness of fees and costs.

(14) This Contract and the Contract Documents constitute the entire agreement of the parties and may not be changed or modified, except by a written document signed by both parties hereto. This Contract shall be binding upon the successors and assigns of the parties.

IN WITNESS WHEREOF, the parties to the agreement have hereunto set their hands and seals and have executed this agreement, the day and year first above written.

(SEAL)

ATTEST: CITY OF VENICE
IN SARASOTA COUNTY, FLORIDA

CITY CLERK

BY: _____
MAYOR JOHN HOLIC

ATTEST: _____

BY: _____

Signed by (typed or printed)

Signed by (typed or printed)

Approved as to Form and Correctness

David Persson, City Attorney

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EXHIBIT A

SURETY BONDS

At the time of executing the Contract Documents, the successful proposer shall append to this sheet separate performance and payment bonds each equal to one-hundred percent (100%) of the contract amount. Said bonds become an integral part of these Contract Documents and shall meet the following requirements:

1. Surety bonds submitted shall be written by a surety company that is approved by the City Finance Director and authorized to do business in the State of Florida, shall be accompanied by evidence of the authority of the issuing agent, and shall be on a form to be approved by the City Attorney. No bond in an amount greater than \$5,000 required by the City Charter, the Ordinances of The City of Venice, or the laws of the State of Florida shall be approved by the City Finance Director unless the surety company executing the bond is listed by the United States Treasury Department as being approved for writing bonds for Federal projects and its current list in an amount not less than the amount of the bond tendered to The City of Venice.

2. Both the separate payment and performance bonds shall be in the general form of AIA documents A311. Additionally, the payment bond shall state as follows:

“This bond is issued in compliance with Section 255.05, Florida Statutes (1994 Supp.), as may be amended. A claimant, except a laborer, who is not in privity with the contractor and who has not received payment for his labor, materials, or supplies shall, within 45 days after beginning to furnish labor, materials, or supplies for the prosecution of the work, furnish the contractor with a notice, that he intends to look to the bond for protection. A claimant who is not in privity with the contractor and who has not received payment for his labor, materials, or supplies shall, within 90 days after performance of the labor or after complete delivery of the materials or supplies, or with respect to rental equipment, within 90 days after the date that the rental equipment was last on the job site available for use, deliver to the contractor and to the surety written notice of the performance of the labor or delivery of the materials or supplies and of the nonpayment. No action for the labor, materials, or supplies may be instituted against the contractor or the surety unless both notices have been given. No action shall be instituted against the contractor or the surety on the payment bond or the payment provisions of a combined payment and performance bond after 1 year from the performance of the labor or completion of delivery of the materials or supplies. A claimant may not waive in advance his right to bring an action under the bond against the surety. In any action brought to enforce a claim against a payment bond under this section, the prevailing party is entitled to recover a reasonable fee for the services of his attorney for trial and appeal or for arbitration, in an amount to be determined by the court, which fee must be taxed as part of his costs, as allowed in equitable actions.”

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PUBLIC WORKS PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT _____, as Principal, hereinafter called Contractor; and _____, a corporation of the State of Florida, as surety, hereinafter called Surety, are held and firmly bound unto the City of Venice as Obligee, hereinafter called the City, in the amount of (\$_____) _____/100's, for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated the _____day of _____, 2016, entered into a Contract with the City for the following described project: **ITB# 3027-16 Replacement Well 7AW** which contract is by reference incorporated herein and made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall promptly make payments to all persons supplying Contractor labor, materials and supplies, used directly or indirectly by the said Contractor or Subcontractors in the prosecution of the work provided for in said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in anywise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

PROVIDED FURTHER, that this Bond is issued pursuant to Section 255.05, Florida Statutes, and reference is hereby made to the notice and time limitations in said statute for making claims against this Bond.

PROVIDED FURTHER, that any suit under this Bond must be instituted before the expiration of one (1) year from the performance of the labor or completion of delivery of the materials or supplies.

PROVIDED FURTHER, no right of action shall accrue on this Bond to or for the use of any person or corporation other than the City named herein and those persons or corporations provided for by Section 255.05, Florida Statutes, their heirs, executors, administrators, successors or assigns.

SIGNED AND SEALED this _____ day of _____, A.D., 20__.

IN THE PRESENCE OF:

CONTRACTOR

BY: _____

INSURANCE COMPANY

BY: _____
Agent and Attorney-in-Fact

PUBLIC WORKS PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT _____, as Principal, hereinafter called Contractor; and _____, a corporation of the State of Florida, as surety, hereinafter called Surety, are held and firmly bound unto the City of Venice as Obligee, hereinafter called the City, in the amount of (\$ _____) & _____/100's, for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated the _____ day of _____, 2016, entered into a contract with the City of Venice for the following described project: **ITB# 3027-16 Replacement Well 7AW** which contract is by reference incorporated herein and made a part hereof, and is hereinafter referred to as the contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Contractor shall promptly and faithfully perform the Contract during the original term thereof and any extensions thereof which may be granted by the City with or without notice to the Surety and during any guarantee or warranty period, including the obligation to correct any latent defects not discovered until after acceptance of the project by the City, and if he shall satisfy all claims and demands incurred under said Contract and shall fully indemnify and save harmless the City, its agents, Engineer and employees from all losses, damages, expenses, costs and Attorney's Fees, including appellate proceedings which it may suffer by reason of failure to do so, and shall reimburse and repay the City all outlay and expense which the City may incur in making good any default, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED FURTHER, whenever Contractor shall be, and declared by the City to be in default under the Contract, the City having performed its obligations thereunder, the Surety may promptly remedy the default or shall promptly:

- (1) Complete the Contract in accordance with its terms and conditions; or
- (2) Obtain a bid or bids for submission to the City for completing the Contract in accordance with its terms and conditions and upon determination by the City and Surety of the lowest responsible bidder, arrange for a contract between such bidder and City and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion, less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price" as used in this paragraph, shall mean the total

EXHIBIT B

(Bid Form to be Supplied)



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EXHIBIT C

Before performing any work, the Contractor shall procure and maintain, during the life of the Contract, insurance listed below. The policies of insurance shall be primary and written on forms acceptable to the City and placed with insurance carriers approved and licensed by the Insurance Department in the State of Florida and meet a minimum financial AM Best and Company rating of no less than A:VII. No changes are to be made to these specifications without prior written specific approval by the City.

1. The City of Venice is to be specifically included as an **ADDITIONAL INSURED** for **Commercial General Liability** and **Business Auto Policy**.
2. The City of Venice shall be named as Certificate Holder. *Please Note that the Certificate Holder should read as follows:*

*The City of Venice 401
W. Venice Avenue
Venice, FL 34285*

No City Division, Department, or individual name should appear on the certificate.
NO OTHER FORMAT WILL BE ACCEPTABLE.

3. The “Acord” certification of insurance form shall be used.
 4. Required Coverage
 - a) **Commercial General Liability:** including but not limited to bodily injury, property damage, contractual liability, products and completed operations, and personal injury with limits of not less than \$ _____ per occurrence, \$ _____ aggregate covering all work performed under this Contract. Include broad form property damage (provide insurance for damage to property under the care custody and control of the contractor)
 - b) **Business Auto Policy:** including bodily injury and property damage for all vehicles owned, leased, hired and non-owned vehicles with limits of not less than \$1,000,000 combined single limit covering all work performed under this Contract.
 - c) **Workers Compensation:** Contractor will provide Workers Compensation Insurance on behalf of all employees, including sub-contractors, who are to provide a service under this Contract, as required under Florida Law, Chapter 440, and Employers Liability with limits of not less than \$100,000 per employee per accident; \$500,000 disease aggregate; and \$100,000 per employee per disease.
 - d) **Installation Floater/Installation Builders’ Risk–Property Coverage:** Policy to cover direct physical loss or damage to materials, supplies, machinery, and equipment being installed, constructed or rigged by the contractor in conjunction with its installation or construction. All items involved in the project including drainage/water sewer pipes, etc. (as included in description of project) need to be insured for the total completed replacement value. Coverage should include perils of fire, theft, vandalism, windstorm/hail, collapse and transit, sewer backup, testing, equipment breakdown,
-

waterborne property. Coverage shall start when the items to be installed are transported to City premises and remain in place until the interest of the contractors ceases or the City accepts possession whichever comes first. Coverage should apply to owned property and non-owned property in the contractor's care, custody and control. The installation coverage forms shall provide coverage for building materials and supplies at the construction site, in transit to the site and similar property intended for the construction project at other locations as necessary or because of lack of storage space at the construction site. Coverage should apply on a Primary basis and should include a Waiver of Subrogation. Contractor should be responsible for any deductibles.

5. Policy Form:

- a) All policies required by this Contract, with the exception of Workers Compensation, or unless specific approval is given by the City, are to be written on an occurrence basis, shall name the City of Venice, its Elected Officials, Officers, Agents, Employees as additional insured as their interest may appear under this Contract. Insurer(s), with the exception of Workers Compensation, shall agree to waive all rights of subrogation against the City of Venice, its Elected Officials, Officers, Agents, and Employees.
 - b) Insurance requirements itemized in this Contract, and required of the Contractor, shall be provided on behalf of all subcontractors to cover their operations performed under this Contract. The Contractor shall be held responsible for any modifications, deviations, or omissions in these insurance requirements as they apply to subcontractors.
 - c) Each insurance policy required by this Contract shall:
 - (1) apply separately to each insured against whom claim is made and suit is brought, except with respect to limits of the insurer's liability;
 - (2) be endorsed to state that coverage shall not be suspended, voided or canceled by either party except after thirty (30) calendar days prior written notice by certified mail, return receipt requested, has been given to the City of Venice's Director of Administrative Services.
 - d) The City shall retain the right to review, at any time, coverage form, and amount of insurance.
 - e) The procuring of required policies of insurance shall not be construed to limit Contractor's liability nor to fulfill the indemnification provisions and requirements of this Contract.
 - f) The Contractor shall be solely responsible for payment of all premiums for insurance contributing to the satisfaction of this Contract and shall be solely responsible for the payment of any deductible and/or retention to which such policies are subject, whether or not the City is an insured under the policy. In the event that claims in excess of the insured amounts provided herein are filed by reason of operations under the contract, the amount excess of such claims, or any portion thereof, may be withheld from any payment due or to become due to the contractor until such time the contractor shall furnish additional security covering such claims as may be determined by the City.
 - g) Claims Made Policies will be accepted for professional and hazardous materials and
-

such other risks as are authorized by the City. All Claims Made Policies contributing to the satisfaction of the insurance requirements herein shall have an extended reporting period option or automatic coverage of not less than two years. If provided as an option, the Contractor agrees to purchase the extended reporting period on cancellation or termination unless a new policy is affected with a retroactive date, including at least the last policy year.

- h) Certificates of Insurance evidencing Claims Made or Occurrence form coverage and conditions to this Contract, as well as the City's Bid Number and description of work, are to be furnished to the City's Director of Administrative Services, 401 West Venice Avenue, Venice, FL 34285, ten (10) business days prior to commencement of work and a minimum of thirty (30) calendar days prior to expiration of the insurance policy.
 - i) Notices of Accidents and Notices of Claims associated with work being performed under this Contract, shall be provided to the Contractor's insurance company and the City's Director of Administrative Services, as soon as practicable after notice to the insured.
 - j) All property losses shall be payable to, and adjusted with, the City.
-

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CONTRACTOR'S RELEASE OF LIEN

BEFORE ME, the undersigned authority in said County and State, appeared _____, who being first duly sworn, deposes and says that he is _____ of _____ a company and/or corporation authorized to do business under the laws of Florida, which is the contractor on Project known as City of Venice Bid # 3027-16, located in the City of Venice, County of Sarasota, Florida, under contract with the City of Venice, dated the _____ day of _____, 20____, that the said deponent is duly authorized to make this affidavit by resolution of the Board of Directors of said company and/or corporation; that deponent knows of his own knowledge that said contract has been complied with in every particular by said contractor and that all parts of the work have been approved by the City Engineer; that there are no bills remaining unpaid for labor, material or otherwise, in connection with said contract and work, and that there are no suits pending against the undersigned as contractor or anyone in connection with the work done and materials furnished or otherwise, under said contract.

DEPONENT further says that the final estimate which has been submitted to the City simultaneously with the making of this affidavit, constitutes all claims and demands against the City on account of said contract or otherwise, and that acceptance of the sum specified in said final estimate will operate as a full and final release and discharge of the City from any further claims, demands or compensation by contractor under the above contract.

DEPONENT further agrees that all guarantees under this contract shall start and be in full force from the date of this release as spelled out in the contract documents.

Signature: _____

Printed Name:

STATE OF FLORIDA)
COUNTY OF)

Signed before me this _____ day of _____, 20____,
by _____ who is personally known to me or has produced
_____ as identification.

Notary Public
My Commission Expires:
Commission Number:

WE, the _____, having heretofore executed a performance bond and a payment bond for the above named contractor covering project and section as described above in the sum of (\$ _____) _____ Dollars, hereby agree that the Owner may make full payment of the final estimate, including the retained percentage, to said contractor.

IT IS fully understood that the granting of the right to make the payment of the final

estimate to said contractor and/or his assigns, shall in no way relieve this surety company of its obligations under its bonds, as set forth in the specifications, contract, and bonds pertaining to the above project.

IN WITNESS WHEREOF, the _____ has caused this instrument to be executed on its behalf by its _____, and/or its duly authorized attorney in fact, and its corporate seal to be hereunto affixed, all on this _____ day of _____, A.D., 20__.

Surety Company

Attorney in Fact

Power of Attorney must be attached if executed by Attorney in Fact.

STATE OF)

COUNTY OF)

BEFORE ME, the undersigned authority, appeared _____, who is personally known to me or has produced _____ as identification, and who executed the foregoing instrument in the name of _____ as its _____ and the said _____ acknowledged that he executed said instrument in the name of _____ as its _____ and/or _____, for the purpose therein expressed and that he had due and legal authority to execute the same on behalf of said _____, a corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal at _____ this _____ day of _____, 20__.

Notary Public

My Commission Expires:

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT NO.

PROJECT:

CONTRACTOR CONTRACT DATE

CONTRACT FOR

Project or Specified Part Shall Include:

DEFINITION OF SUBSTANTIAL COMPLETION

The date of substantial completion of a project or specified part of a project is the date when the work is sufficiently completed, in accordance with the Contract Documents, so that the project or specified part of the project can be utilized for the purpose for which it was intended.

TO: (Contractor)

DATE OF SUBSTANTIAL COMPLETION: _____

The work performed under this contract has been inspected by authorized representatives of the City of Venice and the contractor, and the project or specified part of the project, is hereby declared to be substantially completed on the above date.

A tentative list of items to be completed or corrected is appended hereto. This list may not be exhaustive, and the failure to include an item on it does not alter the responsibility of the contractor to complete all the work in accordance with the contract documents. These items shall be completed by the contractor within _____ days of Substantial Completion.

The date of Substantial Completion is the date upon which all guarantees and warranties begin, except as noted below. The responsibilities between the Owner and the Contractor for maintenance shall be as set forth below.

CITY OF VENICE

By:

Date: _____

The contractor accepts the foregoing Certification of Substantial Completion and agrees to complete and correct the items on the tentative list within the time indicated.

Contractor Authorized Representative

Date: _____

RESPONSIBILITIES:

OWNER:

CONTRACTOR:

EXCEPTIONS AS TO GUARANTEES AND WARRANTIES:

ATTACHMENTS (Identify)



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BIDDER QUALIFICATION STATEMENT

(Completion of this statement is required in advance of
consideration for award of Contract.)

SUBMITTED TO:

City of Venice
401 West Venice Avenue
Venice, FL 34285

SUBMITTED FOR:

Replacement Well 7AW

SUBMITTED BY:

Name of Organization: _____
(Print or Type Name of Bidder)

Name of Individual: _____

Title: _____

Business Address: _____

Telephone No.: _____

Fax No.: _____

E-mail Address: _____

Bidder's Website: _____

If address and phone number given above is for a branch office, provide address and phone number of principal home office:

Principal Home Office Address: _____

Principal Home Office Telephone No.: _____

Gentlemen:

The undersigned certifies under oath the truth and correctness of all statements and of all answers to questions made hereinafter.

(Note: Attach additional sheets as required.)

1.0 Bidder's General Business Information

1.1 Check if:

Corporation Partnership Joint Venture Other

Limited Liability Company Sole Proprietorship

If Corporation:

A. Date and State of Incorporation:

B. List of Executive Officers:

Name	Title	Address
_____	_____	_____
_____	_____	_____
_____	_____	_____

If Partnership:

A. Date and State of Organization:

B. Current General Partners (name and address for each):

C. Type of Partnership

General Publicly Traded Limited

Limited Liability Other (describe): _____

If Joint Venture:

A. Date and State of Organization:

B. Name, Address, Form of Organization, and State of Organization of Each Joint Venture Partner: (Indicate with an asterisk (*) the managing or controlling Joint Venturer if applicable):

If Limited Liability Company:

A. Date and State of Organization:

B. Members:

Name	Address
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<hr/>	<hr/>
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If Sole Proprietorship:

A. Date and State of Organization:

B. Name and Address of Owner or Owners:

If Other Type of Organization:

A. Type of Organization: _____

B. Date and State of Organization:

C. Name and Address of Each Owner or Principal:

1.2 Certifications: In addition to the above categories of business entities, indicate whether Bidder's organization is a:

- Disadvantaged Business Enterprise, certified by _____
- Minority Business Enterprise, certified by _____
- Women's Business Enterprise, certified by _____
- Historically Underutilized Business Zone Small Business Concern, certified by _____

2.0 How many years has your organization been in business as a general contractor?

3.0 If your organizational structure has changed within the past five years, provide data as listed above in Item 1.0 for your previous organization.

4.0 Do you plan to subcontract any part of this project? _____ If so, give details.

- 5.0 Has any construction contract to which you have been a party been terminated by the owner; have you ever terminated work on a project prior to its completion for any reason; has any surety which issued a performance bond on your behalf ever completed the work in its own name or financed such completion on your behalf; has any surety expended any monies in connection with a contract for which they furnished a bond on your behalf? If the answer to any portion of this question is "yes", furnish details of all such occurrences including name of owner, architect or engineer, and surety, and name and date of project.
- 6.0 Has any officer or partner of your organization ever been an officer or partner of another organization that had any construction contract terminated by the owner; terminated work on a project prior to its completion for any reason; had any surety which issued a performance bond complete the work in its own name or financed such completion; or had any surety expend any monies in connection with a contract for which they furnished a bond? If the answer to any portion of this question is "yes", furnish details of all such occurrences including name of owner, architect or engineer, and surety, and name and date of project.
- 7.0 In the last five years, has your organization, or any predecessor organization, failed to substantially complete a project in a timely manner? If the answer to this question is "yes", furnish details of all such occurrences including name of owner, architect or engineer, and surety, and name and date of project.
- 8.0 On Schedule A, attached, list name, location and description of project, owner, architect or engineer, contract price, percent complete and scheduled completion of the major construction projects your organization has in progress on this date. Provide name, address and telephone number of a reference for each project listed.
- 9.0 On Schedule B, attached, list name, location and description of project, owner, architect or engineer, contract price, date of completion and percent of work with your own forces of major projects of the same general nature as this project which your organization has completed in the past five years. Provide name, address and telephone number of a reference for each project listed.

10.0 On Schedule C, attached, list name and construction experience of the principal individuals of your organization directly involved in construction operations.

11.0 Licenses and Registrations:

11.1 Indicate the jurisdictions in which your firm is legally qualified to practice. Indicate license or registration number for each jurisdiction, if applicable, and type of license or registration. Attach separate sheet as required.

Jurisdiction	License/Registration No.	Type
_____	_____	_____
_____	_____	_____
_____	_____	_____

11.2 In the past five years, has Bidder had any business or professional license suspended or revoked?

No Yes

If yes, describe on a separate attachment the circumstances, including the jurisdiction and bases for suspension or revocation.

12.0 Provide the following information for your surety:

12.1 Surety Company: _____

12.2 Agent: _____

A. Address: _____

B. Telephone No.: _____

13.0 Provide the following with respect to an accredited banking institution familiar with your organization.

13.1 Name of Bank: _____

13.2 Address: _____

13.3 Account Manager: _____

13.4 Telephone No.: _____

14.0 Provide the name, address and telephone number of an individual who represents a major equipment/material supplier whom the Owner may contact for a financial reference:

15.0 Industry Affiliations, Memberships, Awards, and Honors

15.1 List below the industry organizations with which your organization is affiliated or which your organization is a member:

15.2 List below the industry awards or honors received by your organization and the date for each. Attach supporting documentation as necessary.

16.0 Statement of Potential Conflicts of Interest: List below business associations, financial interests, or other circumstances that may create a conflict of interest with the Owner or other entity involved in the Project. Attach additional documentation as required.

17.0 Dated at _____, this _____ day of _____, 20__.

Bidder: _____
(Print or Type Name of Bidder)

By: _____

Title: _____

00451-8

Attachments A, B and C

(Seal, if corporation)

------(Affidavit for Individual)-----

_____ being duly sworn, deposes and says that:

a) the financial statement, taken from his/her books, is a true and accurate statement of his/her financial condition as of the date thereof; and b) all of the foregoing qualification information is true, complete, and accurate.

------(Affidavit for Partnership)-----

_____ being duly sworn, deposes and says that:

a) he/she is a member of the partnership of _____;
b) he/she is familiar with the books of said partnership showing its financial condition;
c) the financial statement, taken from the books of said partnership, is a true and accurate statement of the financial condition of the partnership as of the date thereof; and d) all of the foregoing qualification information is true, complete, and accurate.

------(Affidavit for Corporation)-----

_____ being duly sworn, deposes and says that: a) he/she is
_____ of _____;
(Full name of Corporation)

b) he/she is familiar with the books of said corporation showing its financial condition;
c) the financial statement, taken from the books of said corporation, is a true and accurate statement of the financial condition of said corporation as of the date thereof; and d) that all of the foregoing qualification information is true, complete, and accurate.

------(Affidavit for Limited Liability Company (LLC))-----

_____ being duly sworn, deposes and says that: a) he/she is
_____ of _____;
(Full name of LLC)

b) he/she is familiar with the books of said company showing its financial condition; c) the financial statement, taken from the books of said company, is a true and accurate statement of the financial condition of said company as of the date thereof; and d) that all of the foregoing qualification information is true, complete, and accurate.

------(Affidavit for Joint Venture)-----

Each joint venturer shall complete the affidavit appropriate for the joint venturer's type of organization and attach said affidavit to the Bidder Qualifications Statement. Submit separate acknowledgement for each joint venturer's affidavit.

----- (Acknowledgment) -----

_____ being duly sworn, deposes and says
that he/she is _____ of _____;
(Name of Bidder)

that he/she is duly authorized to make the foregoing affidavit and that he/she makes it on behalf of

() himself/herself; () said partnership; () said corporation;

() said joint venture; () said limited liability company

Sworn to before me this _____ day of _____, 20____, in the County of _____, State of _____.

—

(Notary Public)

My commission expires _____

(Seal)

++ END OF BIDDER QUALIFICATIONS STATEMENT ++

GENERAL CONDITIONS
OF THE CONSTRUCTION CONTRACT

Adapted from EJCDC C-700, Standard General Conditions
of the Construction Contract (2007 Edition)

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GENERAL CONDITIONS

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda* – Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed 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. *Bidder* – The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents* – The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements* – The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.
 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* – Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor’s submittals, and the reports and drawings of subsurface and physical conditions 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 Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer’s written recommendation of final payment.
15. *Contractor* or *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* or *ENGINEER* – The individual or entity named as such in the Agreement.
20. *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.
21. *General Requirements* – Sections of Division 01 of the Specifications.

22. *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.
23. *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.
24. *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.
25. *Liens* – Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *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.
27. *Notice of Award* – The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *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.
29. *Owner or OWNER* – The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs* – Polychlorinated biphenyls.
31. *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.
32. *Progress Schedule* – A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project* – The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *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.
35. *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.
36. *Resident Project Representative* – The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *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.
38. *Schedule of Submittals* – A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values* – A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
40. *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.
41. *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.
42. *Specifications* – That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *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.
44. *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.

45. *Successful Bidder* – The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions* – That part of the Contract Documents which amends or supplements these General Conditions.
47. *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 Subcontractor.
48. *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.
49. *Unit Price Work* – Work to be paid for on the basis of unit prices.
50. *Work* – The entire 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.
51. *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.

1.02 *Terminology*

- A. The words and terms referenced in this Paragraph 1.02 are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives*

1. The Contract Documents include the terms “as allowed”, “as approved”, “as ordered”, “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, 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 exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with information in the Contract Documents and with the design concept of the 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 is not intended to and 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 9.09 or any other provision of the Contract Documents.

C. *Day*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents, or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or
 - c. 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).

E. *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.
- F. Unless stated otherwise in the Contract Documents, words or phrases that 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 and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *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.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

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

2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times

commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
1. a preliminary Progress Schedule;
 2. a preliminary Schedule of Submittals; 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.

2.06 *Preconstruction Conference; Designation of Authorized Representative*

- A. Before any Work at the Site is started, a conference attended by Owner, 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.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 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.A. Contractor shall have an additional 10 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 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 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 required by one is as binding as if required 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 reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated 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. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants or subcontractors 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. *Contractor's Review of Contract Documents Before Starting Work:* 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 discovers or has actual knowledge of and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* 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
 - a) any applicable Law or Regulation,
 - b) any standard, specification, manual or code, or,
 - c) any instruction of any Supplierthen Contractor shall promptly report it to Engineer in writing. 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.
3. 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 had actual knowledge 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 the instruction of any Supplier (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 by either a Change Order or 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:
 - 1. a Field Order;
 - 2. Engineer's approval of a Shop Drawing or Sample; (subject to the provisions of Paragraph 6.17.D.3); or
 - 3. Engineer's written interpretation or clarification.

3.05 Reuse of Documents

- A. Contractor and any Subcontractor or Supplier shall not:
 - 1. 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 consultants, including electronic media editions; or
 - 2. reuse any 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 adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 Electronic Data

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor or by Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS;
HAZARDOUS ENVIRONMENTAL 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 or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. 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 on 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 or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants or subcontractors 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 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 9.07 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 with respect to 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 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, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants or subcontractors shall 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 provided by others; 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:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.,
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the 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 or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants or subcontractors 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.A); 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. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- 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, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, 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.G shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's sole negligence.
 - H. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not 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

of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, 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 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 or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- 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 promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide 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 and loss payee 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.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee 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.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full

compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Liability Insurance*

- A. Contractor shall purchase and maintain such 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:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. 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 required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, 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, members, partners, employees, agents, 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 contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, 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 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);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations insurance;
 - a. such insurance shall remain in effect for at least two years after final payment, and
 - b. 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 (Not Used)

5.07 (Not Used)

5.08 (Not Used)

5.09 (Not Used)

5.10 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 2.01.B. 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.

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. 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.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. Unless the Owner shall otherwise agree in writing, 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 and lay out the Work and perform construction 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. Contractor will not permit the performance of Work on a 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 Contract Documents, 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 special warranties and guarantees required 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.
- C. 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. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract

Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

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:

- 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics; and
- 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
- 3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
- 2) it will conform substantially 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 if 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 requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall 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:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) whether 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 other work on the Project) to adapt the design to the proposed substitute item, and
 - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and

- b) available engineering, sales, maintenance, repair, and replacement services; and
 - 4) shall 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.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is 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 requirements for review by Engineer will be similar to those provided in Paragraph 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 may require Contractor to furnish additional data about the proposed substitute item. 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 a Change Order in the case of a substitute and 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 Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each 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. 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:
 - 1. 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
 - 2. shall anything in the Contract Documents 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 a loss payee 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, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, 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.
- B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, 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 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. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall 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 shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

- A. *Limitation on Use of Site and Other Areas*
 - 1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
 - 2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute

resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, 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 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 the Work 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, 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. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons and property in the performance of their work nor for compliance with applicable safety Laws and Regulations. 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.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety programs with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. 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 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).
- F. 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 and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings*

- a. Submit number of copies specified in the General Requirements.
- b. 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.D.

2. *Samples*

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, 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.

C. *Submittal Procedures*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. 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.;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials offered with respect to indicated use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of 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 shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.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. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *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 that all Work will be in accordance with the Contract Documents and will not be defective for a minimum period of one (1) year. Engineer and its officers, directors, members, partners, employees, agents, consultants and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. 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.
- C. 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 review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. 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 and Engineer, and the officers, directors, members, partners, employees, agents, 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 real or personal property (other than the Work itself), including the loss of use resulting therefrom; and
 2. is caused by any 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 an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws or Regulations.
- B. In any and all claims against Owner or Engineer or any of their , officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor,

- any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not be limited in any way by the amount or types of insurance provided by Contractor under Article 5 of the General Conditions.
 - D. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the sole negligence or willful misconduct of Owner or Engineer or of the officers, directors, members, partners, employees, agents, and consultants and subcontractors of each and any of them.

6.21 Delegation of Professional Design Services

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 Related Work at Site

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through 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, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide 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. 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 such work; provided, however, Contractor may cut or alter the work of others 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 Legal Relationships

- A. Paragraph 7.01.A is not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

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 Furnish Data

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

8.03 Pay When Due

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.04 Lands and Easements; Reports and Tests

- A. Owner's duties with respect to 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 relating to existing surface or subsurface structures at or contiguous to the Site.

8.05 Insurance

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

8.06 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.07 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.08 *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.

8.09 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.10 *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.

8.11 *Compliance With Safety Programs*

- A. While on the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.B.

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 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, or have control over Contractor's Work, nor shall Engineer have authority over or responsibility for the means, methods, techniques, sequences, or procedures of construction selected by Contractor, for safety precautions and programs incident to Contractor's Work in progress, nor for any failure of Contractor to comply with Laws and Regulations applicable to Contractor's furnishing and performing 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 authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. 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 *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 or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both,

and the parties 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.

9.05 Rejecting Defective Work

- A. Engineer will have authority to 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.

9.06 Shop Drawings, Change Orders and Payments

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, if any,
 - 1. as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21;
 - 2. as to Change Orders, see Articles 10, 11, and 12; and
 - 3. as to Applications for Payment, see Article 14.

9.07 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.

9.08 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. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, 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.

9.09 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 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Programs*

- A. While on the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of the Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.C.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract 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 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 covering:
 - 1. changes in the Work which are:
 - a) ordered by Owner pursuant to Paragraph 10.01.A,
 - b) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or
 - c) 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 the provisions of any bond require notice to be given to a surety 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), 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*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim 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. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, 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). 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 Times 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).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any,

take one of the following actions in writing:

1. deny the Claim in whole or in part,
 2. approve the Claim, or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; 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, except those excluded in Paragraph 11.01.B, 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 not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
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 on the Work. 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, express and courier services, and similar petty cash items in connection with the Work.
 - i. 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, safety 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.
- 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 *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 and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*
1. Contractor agrees that:
 - a. the cash 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
 - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash 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.
- C. *Contingency Allowance*
1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

- D. 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.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. 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.
- D. 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 to any other item of Work; and
 - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

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

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. 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 and 12.01.C.2.b 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 may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times 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 covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times 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.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for 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.
- C. If Owner, Engineer, or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- D. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of other contractors or utility owners, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.D.

- E. Owner and Engineer and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each of them 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.

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. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

- A. Owner, Engineer, their consultants and 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, inspection, 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.C; 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, Contractor shall if requested by Engineer, uncover such Work 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.
- C. If it is found that the uncovered 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.
- D. If, the uncovered 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 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. Promptly after receipt of written notice, 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).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

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 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:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. 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.

- B. If Contractor does not promptly comply with the terms of Owner's written 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. 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.
- C. 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.
- D. 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.
- E. 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 for 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 or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or 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 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 in the Agreement 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 Contract.

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 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 9.07, 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:
 - a. 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
 - b. 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:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. 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 stated 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 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 will 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 remedies the reasons for such action.
3. Upon a subsequent determination 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 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will 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.
- D. 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.

- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy 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, subject to the following conditions.
 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 2. 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.
 3. 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.
 4. No use or 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:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. 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:
 - a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and
 - b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property 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. *Engineer's 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, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and 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 (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. 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 accordance with the requirements herein and expressly acknowledged by Owner in writing as 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 granted 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 repeated 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 surety) seven days written notice of its intent to terminate the services of Contractor:
 - 1. 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);
 - 2. 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
 - 3. complete the Work as Owner may deem expedient.

- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. 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.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. 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.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

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, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 1. 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. 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. 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. 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, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) 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.
- B. 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 Paragraph 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:

1. 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
2. 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. 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 Contract or termination of the services of Contractor.

17.05 *Controlling Law*

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

17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

++ END OF GENERAL CONDITIONS ++

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SUPPLEMENTARY CONDITIONS

SCOPE

These Supplementary Conditions amend or supplement the General Conditions of the Construction Contract. All provisions of the General Conditions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to the singular and plural thereof.

The address system used in these Supplementary Conditions conforms to the address system used in the General Conditions, with the prefix "SC" added thereto.

SC-1.01.A.36 Change the definition of *Resident Project Representative* to read as follows:

SC-1.01.A.36 *Resident Project Representative*: The Owner's representative who will provide day to day inspection services of construction activities.

SC-1.01.A.51 Change the last sentence in the definition of *Work Change Directive* to read as follows:

“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 IFCA or Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.”

SC-1.01.A.52 Add the following definition:

1.01.A.52 *Interim Field Change Agreement (IFCA)* - A document signed by the Engineer, Contractor, Owner and Owner's Representative documenting a change to the Work, which does not result in the total contract price exceeding the amount specified in the contract. An IFCA will authorize re-distribution of existing contract amounts or use of Owner's Allowance funds.

SC-4.03, A. Change the last paragraph to read as follows:

“then Contractor shall, within seven (7) days 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.

SC-4.06 Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:

SC-4.06.A. In the preparation of the Drawings and Specifications, Engineer has not utilized any report or drawing related to a Hazardous Environmental Condition identified at the Site.

SC-4.06.B (Not Used)

SC- Article 5 Replace the entire article with the following:

Before performing any work, the Contractor shall procure and maintain, during the life of the Contract, insurance listed below. The policies of insurance shall be primary and written on forms acceptable to the Owner and placed with insurance carriers approved and licensed by the Insurance Department in the State of Florida and meet a minimum financial AM Best and Company rating of no less than A:VII. No changes are to be made to these specifications without prior written specific approval by the City.

1. The City of Venice is to be specifically included as an **ADDITIONAL INSURED**.
2. The City of Venice shall be named as Certificate Holder. *Please Note that the Certificate Holder should read as follows:*

The City of Venice 401
W. Venice Avenue
Venice, FL 34285

No City Division, Department, or individual name should appear on the certificate.
NO OTHER FORMAT WILL BE ACCEPTABLE.

3. The “Acord” certification of insurance form shall be used.
4. Required Coverage
 - a) **Commercial General Liability**: including but not limited to bodily injury, property damage, contractual liability, products and completed operations, and personal injury with limits of not less than \$ 1,000,000 per occurrence, \$ 1,000,000 aggregate covering all work performed under this Contract. Include broad form property damage (provide insurance for damage to property under the care custody and control of the contractor)
 - b) **Business Auto Policy**: including bodily injury and property damage for all vehicles owned, leased, hired and non-owned vehicles with limits of not less than \$1,000,000 combined single limit covering all work performed under this Contract.

- c) **Workers Compensation:** Contractor will provide Workers Compensation Insurance on behalf of all employees, including sub-contractors, who are to provide a service under this Contract, as required under Florida Law, Chapter 440, and Employers Liability with limits of not less than \$100,000 per employee per accident; \$500,000 disease aggregate; and \$100,000 per employee per disease.

- d) **Installation Floater/Installation Builders' Risk-Property Coverage:** Policy to cover direct physical loss or damage to materials, supplies, machinery, and equipment being installed, constructed or rigged by the contractor in conjunction with its installation or construction. All items involved in the project including drainage/water sewer pipes, etc. (as included in description of project) need to be insured for the total completed replacement value. Coverage should include perils of fire, theft, vandalism, windstorm/hail, collapse and transit, sewer backup, testing, equipment breakdown, waterborne property. Coverage shall start when the items to be installed are transported to Owner premises and remain in place until the interest of the contractors ceases or the Owner accepts possession whichever comes first. Coverage should apply to owned property and non-owned property in the contractor's care, custody and control. The installation coverage forms shall provide coverage for building materials and supplies at the construction site, in transit to the site and similar property intended for the construction project at other locations as necessary or because of lack of storage space at the construction site. Coverage should apply on a Primary basis and should include a Waiver of Subrogation. Contractor should be responsible for any deductibles.

5. Policy Form:

- a) All policies required by this Contract, with the exception of Workers Compensation, or unless specific approval is given by the Owner, are to be written on an occurrence basis, shall name the City of Venice, its Elected Officials, Officers, Agents, Employees as additional insured as their interest may appear under this Contract. Insurer(s), with the exception of Workers Compensation, shall agree to waive all rights of subrogation against the City of Venice, its Elected Officials, Officers, Agents, and Employees.

- b) Insurance requirements itemized in this Contract, and required of the Contractor, shall be provided on behalf of all subcontractors to cover their operations performed under this Contract. The Contractor shall be held responsible for any modifications, deviations, or omissions in these insurance requirements as they apply to subcontractors.

- c) Each insurance policy required by this Contract shall:
 - (1) apply separately to each insured against whom claim is made and suit is brought, except with respect to limits of the insurer's liability;

- (2) be endorsed to state that coverage shall not be suspended, voided or canceled by either party except after thirty (30) calendar days prior written notice by certified mail, return receipt requested, has been given to the City of Venice's Director of Administrative Services.
- d) The Owner shall retain the right to review, at any time, coverage form, and amount of insurance.
 - e) The procuring of required policies of insurance shall not be construed to limit Contractor's liability nor to fulfill the indemnification provisions and requirements of this Contract.
 - f) The Contractor shall be solely responsible for payment of all premiums for insurance contributing to the satisfaction of this Contract and shall be solely responsible for the payment of any deductible and/or retention to which such policies are subject, whether or not the Owner is an insured under the policy. In the event that claims in excess of the insured amounts provided herein are filed by reason of operations under the contract, the amount excess of such claims, or any portion thereof, may be withheld from any payment due or to become due to the Contractor until such time the contractor shall furnish additional security covering such claims as may be determined by the Owner.
 - g) Claims Made Policies will be accepted for professional and hazardous materials and such other risks as are authorized by the Owner. All Claims Made Policies contributing to the satisfaction of the insurance requirements herein shall have an extended reporting period option or automatic coverage of not less than two years. If provided as an option, the Contractor agrees to purchase the extended reporting period on cancellation or termination unless a new policy is affected with a retroactive date, including at least the last policy year.
 - h) Certificates of Insurance evidencing Claims Made or Occurrence form coverage and conditions to this Contract, as well as the Owner's Bid Number and description of work, are to be furnished to the City's Director of Administrative Services, 401 West Venice Avenue, Venice, FL 34285, ten
(10) business days prior to commencement of work and a minimum of thirty (30) calendar days prior to expiration of the insurance policy.
 - i) Notices of Accidents and Notices of Claims associated with work being performed under this Contract, shall be provided to the Contractor's insurance company and the City's Director of Administrative Services, as soon as practicable after notice to the insured.
 - j) All property losses shall be payable to, and adjusted with, the City.

SC-6.02.B Add new paragraphs immediately after Paragraph 6.02.B that are to read as follows:

SC-6.02.B.1 If it shall become absolutely necessary to perform Work at night or on Saturdays, Sundays, or legal holidays, written notice shall be submitted to Owner and Engineer at least 5 days in advance of the need for such Work. Owner will only consider the performance of such Work as can be performed satisfactorily under the conditions. Good lighting and all other necessary facilities for carrying out and observing the Work shall be provided and maintained where such Work is being performed at night.

SC-6.02.B.2 If Owner authorizes Work during other than regular working hours, Contractor shall reimburse Owner for all Owner's additional costs associated with such Work, including, but not necessarily limited to, the overtime costs for Owner's, Engineer's, and Resident Project Representative's personnel on the Site and other additional costs assessed against or incurred by the Owner. At Owner's option, such additional costs may either be deducted from Contractor's progress payments or deducted from the retained amount prior to release following Substantial Completion.

SC-6.07.B Change the first sentence of Paragraph 6.07.B by replacing the term "Owner and Engineer" with the term "Owner, Engineer, and Resident Project Representative".

SC-6.11.A.3. Change the first sentence of Paragraph 6.11.A.3. by replacing the term "Owner and Engineer" with the term "Owner, Engineer, and Resident Project Representative".

SC-6.12 Add a new paragraph immediately after Paragraph 6.12.A, that is to read as follows:

SC-6.12.B Contractor will be required to review with Engineer the status of record documents in connection with the Engineer's review of an Application for Payment. Failure to maintain record documents current may be just cause for Engineer to recommend withholding of payments for Work performed.

SC-6.15 Add a new paragraph immediately after Paragraph 6.15.A that is to read as follows:

SC-6.15.B Contractor shall be responsible for coordinating 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 all Laws and Regulations. Contractor shall provide a centralized location for the maintenance of the material safety data sheets or other hazard communication information required to be made available by any

employer on the Site. Location of the material safety data sheets or other hazard communication information shall be readily accessible to the employees of employers on the Site.

SC-6.17 Add the following new paragraphs immediately after Paragraph 6.17.E that are to read as follows:

SC-6.17.F Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval or acceptance of submittal with no more than two (2) submittals (initial submittal plus one re-submittal). Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, Samples, or other submittals or items requiring approval or acceptance, and Contractor shall reimburse Owner for Engineer's charges for such time.

SC-6.19.A Supplement Paragraph 6.19.A by adding, after the term, "Engineer" in the second sentence, the term "and Resident Project Representative".

SC-6.19.C.1. Supplement Paragraph 6.19.C.1. by adding, after the term, "Engineer" the term "or Resident Project Representative".

SC-6.20.A. Change the first sentence of Paragraph 6.20.A by replacing the term "Owner and Engineer" in the first sentence, with the term " , Owner, Engineer, and Resident Project Representative".

SC-6.20.B Change the first sentence of Paragraph 6.20.B by replacing the term "Owner or Engineer" with the term "Owner, Engineer or Resident Project Representative".

SC-7.03 Add a new paragraph immediately after Paragraph 7.02 that is to read as follows:

SC-7.03 Separate Contractor Claims

A. Should Contractor cause damage to the work or property of another contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any other contractor against Contractor, Owner or Engineer or Resident Project Representative, Contractor, without involving any other party, shall either:

1. remedy the damage,
2. agree to compensate the other contractor for remedy of the damage,
or
3. remedy the damage and attempt to settle with such other contractor by agreement, or otherwise resolve the dispute by arbitration or at law.

- B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner, Engineer, Resident Project Representative, and the officers, directors, members, partners, employees, agents, 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 directly, indirectly, or consequentially out of or relating to any claim or action, legal or equitable, brought by any other contractor against Owner or Engineer or Resident Project Representative to the extent said claim is based upon Contractor's performance of the Work.

- C. Should another contractor cause damage to the Work or property of Contractor at the Site or should the performance of work by any other contractor at the Site give rise to any other claim, Contractor shall not institute any action, legal or equitable, against Owner or Engineer or Resident Project Representative, or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner or Engineer or Resident Project Representative on account of any such damage or claim.

- D. If Contractor is delayed at any time in performing or furnishing Work by any act or neglect of another contractor and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim therefore in accordance with Article 12. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner or Engineer or Resident Project Representative for any delay, disruption, interference, or hindrance caused by any other contractor.

SC-8.01.A. Amend paragraph 8.01.A. by adding after the term "Engineer" to words "or Resident Project Representative".

SC-9.03 Add a new paragraph immediately after Paragraph 9.03.A that is to read as follows:

SC-9.03.B Resident Project Representative (RPR) will be Owner's employee or agent at the Site, will act as directed by and under the supervision of the Owner, and will confer with the Owner and Engineer regarding RPR's actions. RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor keeping Owner advised as necessary. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner with the knowledge of the Engineer.

1. Duties and Responsibilities of RPR:
 - a. Schedules: Review the Progress Schedule, Schedule of Submittals, and Schedule of Values prepared by Contractor and consult with Owner and Engineer concerning acceptability.
 - b. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.
 - c. Liaison:
 - 1) Serve as Owner's and Engineer's liaison with Contractor, working principally through Contractor's superintendent, and assist in providing understanding of the intent of the Contract Documents as directed by the Engineer.
 - 2) Assist in obtaining from Owner or Engineer additional details or information, when required for proper execution of the Work.
 - d. Shop Drawings and Samples:
 - 1) Record date of receipt of Shop Drawings and Samples, that are received at the Site.
 - 2) Receive Samples that are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
 - 3) Advise Engineer and Contractor of the commencement of any Work requiring a Shop Drawing or Sample if the submittal has not been approved by Engineer.
 - e. Review of Work, Rejection of Defective Work, Inspections and Tests:
 - 1) Conduct observations of the Work in progress on the Site to assist Engineer in determining if the Work is, in general, proceeding in accordance with the Contract Documents.
 - 2) Report to Engineer when RPR believes that any Work is unsatisfactory, faulty, or defective or does not conform generally to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test, or approval required to be made; and advise Engineer of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.
 - 3) Verify that tests, equipment, and systems startups, and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof; and observe, record, and report to Engineer appropriate details relative to the test procedures and startups.
 - 4) Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to Engineer.

- f. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
- g. Modifications: Consider and evaluate Contractor's suggestions for modifications to Drawings or Specifications and report with RPR's recommendations to Engineer. Transmit to Contractor decisions issued by Engineer.
- h. Records:
 - 1) Maintain at the Site orderly files for correspondence, reports of job conferences, Shop Drawings and Samples, and reproductions of original Contract Documents including all Addenda, Change Orders, Work Change Directives, Field Orders, additional Drawings issued subsequent to the execution of the Agreement, Engineer's clarifications and interpretations of the Contract Documents, progress reports, and other Project-related documents.
 - 2) Keep a record recording Contractor's hours, personnel and equipment on the Site, weather conditions, data relative to questions on Change Orders or changed conditions, list of visitors to the Site, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
 - 3) Record names, addresses, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
- i. Reports:
 - 1) Furnish Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and Schedule of Submittals.
 - 2) Consult with Engineer in advance of scheduled major tests, inspections, or start of important phases of the Work.
 - 3) Report immediately to Engineer and Owner upon the occurrence of any Site accident, any Hazardous Environmental Condition, emergencies or acts of God endangering the Work, or property damage by fire or other cause.
- j. Payment Requests: Review Applications for Payment with Contractor for compliance with the established procedure for their submission, and submit recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
- k. Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals, and other data required by the Specifications to be assembled and furnished by Contractor are applicable to the items actually

installed and in accordance with the Contract Documents, and have this material delivered to Engineer for review and forwarding to Owner prior to final payment for the Work.

1. Completion:
 - 1) Before Engineer issues a certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
 - 2) Observe whether Contractor has arranged for inspections required by Laws and Regulations, including but not limited to those to be performed by public authorities having jurisdiction over the Work.
 - 3) Conduct final inspection in the company of Engineer, Owner, and Contractor, and prepare a final list of items to be completed or corrected.
 - 4) Observe that all items on final list have been completed or corrected and make recommendations to Engineer concerning acceptance of the Work.
2. The RPR shall not:
 - a. Authorize any deviation from the Contract Documents or substitution of materials or equipment, including “or equal” items.
 - b. Exceed limitations of Engineer’s authority as set forth in the Contract Documents.
 - c. Undertake any of the responsibilities of Contractor, Subcontractors, or Contractor’s superintendent.
 - d. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction, unless such advice or directions are specifically required by the Contract Documents.
 - e. Advise on, issue directions regarding, or assume control over safety precautions and programs in connection with the Work.
 - f. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
 - g. Authorize Owner to occupy the Project in whole or in part.
 - h. Participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by Engineer.

SC-9.08.A Change “30 days” in the last sentence to read “10 days”.

SC-10.05.B Delete paragraph B in its entirety and replace with the following:.

Notice: Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 10 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 30 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). 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 Times 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).

- SC-12.01.C Delete the semicolon at the end of GC 12.01.C.2.c, and add the following:
- provided, however, that on any subcontracted work the total maximum fee to be paid by Owner to Contractor under this Paragraph shall be no greater than 27 percent of the costs incurred by the Subcontractor who actually performs the work;
- SC-12.03.C. Change the first sentence of Paragraph 12.03.C by replacing the term "Owner and Engineer" in the first sentence, with the term "Owner, Engineer, and Resident Project Representative".
- SC-12.03.E. Change the first sentence of Paragraph 12.03.E by replacing the term "Owner and Engineer" in the first sentence, with the term "Owner, Engineer, and Resident Project Representative".
- SC-13.01.A. Change the first sentence of Paragraph 13.01.A. by replacing the term "Owner or Engineer" with the term "Owner, Engineer, or Resident Project Representative".
- SC-13.03.A. Change the first sentence of Paragraph 13.03.A. by replacing the term "Engineer" with the term "Engineer and Resident Project Representative".
- SC-13.03.B. Delete Paragraph 13.03.B. and subparagraphs in their entirety and replace with the following:
- B. Contractor shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents.
- SC-13.04.A. Delete Paragraph 13.04.A. in its entirety and replace with the following:
- A. If any Work is covered contrary to the written request of Engineer or Resident Project Representative, it must, if requested by Engineer or Resident Project Representative, be uncovered for Engineer's or Resident Project Representative's observation and replaced at Contractor's expense.

SC-13.04.D. Change the words “If, the uncovered work is not found to be defective,” to read “Unless the Contractor was provided with prior written request not to cover the work, if the uncovered work is not found to be defective,”.

SC-14.02.A Add new paragraphs immediately after Paragraph 14.02.A.3 that are to read as follows:

SC-14.02.A.4. Owner shall make monthly progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment as recommended by Engineer. Contractor's Applications for Payment will be due within 7 days after the last day of each month during performance of the Work. All progress payments will be on the basis of the progress of the Work measured by the Schedule of Values provided for in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work, based on the number of units completed) or, in the event there is no Schedule of Values, as provided in the General Requirements. A progress payment will not be made whenever the value of the Work completed since the last previous progress payment is less than \$5,000.

1. Prior to Substantial Completion

- a. Progress payments will be made in the amount of up to 90 percent of the Work completed, (with the balance being retainage), less the aggregate of payments previously made and less such amounts as Engineer shall determine, or Owner may withhold, in accordance with Paragraph 14.02 of the General Conditions; and
- b. 90 percent of the cost of materials and equipment not incorporated in the Work but suitably stored (with the balance being retainage).

2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

SC-14.02.C. Replace the existing paragraph with the following:

All payments to Contractor shall be made in accordance with Florida's Local Government Prompt Payment Act.

SC-14.04.B. Change the terms “Owner, Contractor and Engineer” to read “Owner, Contractor, Engineer and Resident Project Representative”.

SC-14.07.C. Replace the existing paragraph with the following:

All payments to Contractor shall be made in accordance with Florida's Local Government Prompt Payment Act.

SC-16.01 Add new paragraphs immediately after Paragraph 16.01.A that are to read as follows:

SC-16.01.B Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

SC-16.01.C Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

SC-16.01.D If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor,

1. elects in writing to demand arbitration of the Claim, pursuant to Paragraph SC-16.02, or
2. agrees with the other party to submit the Claim to another dispute resolution process.

SC-16.02 Add a new paragraph immediately after Paragraph 16.01 that is to read as follows:

SC-16.02 *Arbitration*

- A. All Claims or counter claims, disputes, or other matters in question between Owner and Contractor arising out of or relating to the Contract Documents or the breach thereof (except for Claims that have been waived by the making or acceptance of final payment as provided by Paragraph 14.09), including but not limited to those not resolved under the provisions of Paragraph SC-16.01.B and SC-16.01.C will be decided by arbitration in accordance with Construction Industry Arbitration Rules of the American Arbitration Association, subject to the conditions and limitations

of this Paragraph SC-16.02. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.

- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the 30-day period specified in Paragraph SC-16.01.D. and in all other cases within a reasonable time after the Claim or counter claim, dispute, or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such Claim or counter claim, dispute, or other matter in question would be barred by the applicable statute of limitations.
- C. No arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder, or in any other manner any individual or entity (including Engineer, Resident Project Representative, and the officers, directors, partners, employees, agents, or consultants of each and any of them) who is not party to this Contract unless:
 - 1. the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and
 - 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings, and
- D. The award rendered by the arbitrator(s) shall be:
 - 1. consistent with the agreement between the parties, and
 - 2. in writing, and shall include:
 - a. a concise breakdown of the award, and
 - b. a written explanation of the award specifically citing the Contract Document provisions deemed applicable and relied on in making the award.
- E. Subject to provisions of the Controlling Law relating to vacating or modifying an arbitration award, the award will be final. Judgment may be entered upon it in any court having jurisdiction thereof and it will not be subject to modification or appeal.

- F. The fees and expenses of the arbitrator(s) and any arbitration service shall be shared equally by Owner and Contractor.

SC-17.07 Add a new paragraph immediately after Paragraph 17.06 that is to read as follows:

SC-17.07 Confidential Information

- A. All Drawings, Specifications, technical data, and other information furnished to Contractor either by Owner or Engineer or developed by Contractor or others in connection with the Work are, and will remain, the property of Owner or Engineer, and shall not be copied or otherwise reproduced or used in any way except in connection with the Work, or disclosed to third parties or used in any manner detrimental to the interests of Owner or Engineer.
- B. The following information is not subject to the above confidentiality requirements:
 - 1. information in the public domain through no action of Contractor in breach of the Contract Documents; or
 - 2. information lawfully possessed by Contractor before receipt from Owner or Engineer; or
 - 3. information required to be disclosed by Laws or Regulations, or by a court or agency of competent jurisdiction. However, in the event Contractor shall be so required to disclose such information, Contractor shall, prior to disclosure, provide reasonable notice to Owner and Engineer, who shall have the right to interpose all objections Owner may have to the disclosure of such information.

SC-18 Add new Article immediately after Article 17, which is to read as follows:

ARTICLE SC-18 – STATUTORY REQUIREMENTS

SC-18.01 This Article contains portions of certain Laws or Regulations which, by provision of Laws or Regulations, are required to be included in the Contract Documents. The material included in this Article may not be complete or current. Contractor's obligation to comply with all Laws and Regulations applicable to the Work is set forth in Paragraph 6.09 of the General Conditions.

++ END OF SPECIAL CONDITIONS ++

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SUPPLEMENTARY CONDITIONS (CONSTRUCTION)

Florida Department of Environmental Protection
State Revolving Fund Program
Supplementary Conditions
for

Formally Advertised
Construction Procurement

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ENVIRONMENTAL PROTECTION
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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION SUPPLEMENTARY CONDITIONS

The intent of the Florida Department of Environmental Protection (FDEP) Supplementary Conditions is to complement and supplement other provisions of the Bidding Documents. However, if there is any conflict between the FDEP Supplementary Conditions and other provisions of the Bidding Documents, the FDEP Supplementary Conditions shall take precedence over the other provisions except when the other provisions are similar to, but more stringent than, the FDEP Supplementary Conditions. When other provisions of the Bidding Documents are similar to, but more stringent than, the FDEP Supplementary Conditions, the more stringent provisions shall apply.

ARTICLE 1 - DEFINITIONS

Wherever used in these Supplementary Conditions (except in the appendices to these Supplementary Conditions), the following terms have the meanings indicated, which are applicable to both the singular and plural thereof.

- 1.1 Addendum - A written or graphic instrument that is issued prior to the opening of bids and that clarifies, corrects, or changes the Bidding Documents.
- 1.2 Agreement or Contract - The written agreement between the Owner and the Contractor covering the Work to be performed and furnished; these Supplementary Conditions and other Contract Documents are attached to the Agreement/Contract and made a part thereof as provided therein.
- 1.3 Bid - The offer or proposal of a bidder submitted on the prescribed form and setting forth the price(s) for the Work to be performed and furnished.
- 1.4 Bidder - Any person, firm, or corporation that submits a bid directly to the Owner.
- 1.5 Bidding Documents - The Advertisement for Bids or the Invitation to Bid, the Instructions to Bidders or the Information for Bidders, the Bid Form, the proposed Contract Documents, and all addenda.
- 1.6 Bond - An instrument of security.
- 1.7 Change Order - A document that is recommended by the Engineer and signed by the Contractor and the Owner; that authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Time; and that is issued on or after the Effective Date of the Agreement/Contract.
- 1.8 Contract Documents - The Agreement/Contract; the Contractor's Bid when attached as an exhibit to the Agreement/Contract; the Performance and Payment Bond(s); the General Conditions; the Supplementary Conditions (including these Supplementary Conditions); the Specifications (written technical descriptions of material, equipment, construction systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto); the Drawings (drawings that show the character and scope of the Work to be performed and furnished); all addenda that pertain to the Contract Documents; and all change orders.
- 1.9 Contract Time - The number of days or the date stated in the Contract Documents for completion of the Work.
- 1.10 Contractor - The person, firm, or corporation with whom or which the Owner enters into the Agreement/Contract.
- 1.11 Effective Date of the Agreement/Contract - The date indicated in the Agreement/Contract on which the Agreement/Contract becomes effective, or if no such date is indicated in the Agreement/Contract, the date on which the Agreement/Contract is signed and delivered by the last of the two parties to sign and deliver the Agreement/Contract.
- 1.12 Engineer - The person, firm, or corporation named as such in the Contract Documents.
- 1.13 Minority Business Enterprise (MBE) - A historically Black college or university or a business that is (a) certified as socially and economically disadvantaged by the Small Business Administration, (b) certified as an MBE by a state or federal agency, or (c) an independent business concern which is at least 51-percent owned and controlled by minority group members. (A minority group member is an individual who is a citizen of the United States and one of the following: [i] Black American; [ii] Hispanic American [with origins from Puerto Rico, Mexico, Cuba, or South or Central America]; [iii] Native American [American Indian, Eskimo, Aleut, or native Hawaiian]; or [iv] Asian-Pacific American)

[with origins from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the U.S. Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, Taiwan, or the Indian Subcontinent].)

1.14 Notice to Proceed -The written notice given by the Owner to the Contractor fixing the date on which the Contract Time will commence to run and on which the Contractor shall start to perform its obligations under the Contract Documents.

1.15 Owner - The local government (municipality, county, district, or authority; or any agency thereof; or a combination of two or more of the foregoing acting jointly) with which the Florida Department of Environmental Protection (FDEP) may execute, or has executed, a State Revolving Fund loan agreement and for which the Work is to be provided.

1.16 Project - The total construction or facilities described in a State Revolving Fund loan agreement between the FDEP and the Owner, of which the Work to be provided under the Contract Documents may be the whole or a part.

1.17 Sponsor – The recipient of the State Revolving Fund loan agreement that provides funds for the project.

1.18 Subcontract - A direct contract between a subcontractor and the Contractor, or any other subcontractor at any tier, for the furnishing of goods (material and equipment) or the performance of services (including construction) necessary to complete the Work.

1.19 Subcontractor - A person, firm, or corporation having a direct contract with the Contractor, or any other subcontractor at any tier, for the furnishing of goods (material and equipment) or the performance of services (including construction) necessary to complete the Work.

1.20 Successful Bidder - The lowest responsive, responsible bidder to whom or which the Owner intends to award the Agreement/Contract.

1.21 Women's Business Enterprise (WBE) - A business that is (a) certified as a WBE by a state or federal agency or (b) an independent business concern which is at least 51-percent owned and controlled/operated by women. (Determination of whether a business is at least 51-percent owned by women shall be made without regard to community property laws [e.g., an otherwise qualified WBE that is 51-percent owned by a married woman in a community property state will not be disqualified because the married woman's husband has a 50-percent interest in the married woman's share of the business; similarly, a business that is 51-percent owned by a married man and 49-percent owned by women will not become a qualified WBE by virtue of the married man's wife having a 50-percent interest in the married man's share of the business].)

1.22 Work - The entire completed construction or the various separately identifiable parts thereof required to be performed and furnished under the Contract Documents; Work is the result of performing services, furnishing labor, furnishing material and equipment, and incorporating material and equipment into the construction as required by the Contract Documents.

ARTICLE 2 - PRIVACY OF AGREEMENT/CONTRACT

2.1. The Owner expects to finance this Agreement/Contract with assistance from the FDEP, which administers a State Revolving Fund loan program supported in part with funds directly made available by grants from the United States Environmental Protection Agency (USEPA). Neither the State of Florida nor the United States (nor any of their departments, agencies, or employees) will be a party to this Agreement/Contract or any lower-tier subcontract.

ARTICLE 3 - PROCUREMENT REQUIREMENTS

3.1. This Agreement/Contract and the Owner's solicitation and award of this Agreement/Contract are subject to requirements contained in Chapter 62-503 (Revolving Loan Program) and/or Chapter 62-552, Florida Administrative Code as applicable.

ARTICLE 4 - RESOLUTION OF PROTESTS AND CLAIMS/DISPUTES

Resolution of Protests Concerning the Owner's Solicitation and/or Award of this Agreement/Contract:

4.1. Protests concerning the Owner's solicitation and/or award of this Agreement/Contract must be filed in writing with the Owner to be considered.

4.2. All timely written protests concerning the Owner's solicitation and/or award of this Agreement/Contract are to be resolved in accordance with the Owner's dispute resolution process. A copy of the ordinance(s), resolution(s), or written policy (policies) that set forth the Owner's dispute resolution process is included elsewhere in the Bidding Documents or is to be made available by the Owner upon request.

4.3. Neither the (FDEP) nor the USEPA will become a party to, or have any role in resolving, protests concerning the Owner's solicitation and/or award of this Agreement/Contract. Protest decisions made by the Owner cannot be appealed to the FDEP or the USEPA.

Resolution of Claims and Disputes Between the Owner and the Contractor:

4.4. Unless otherwise provided in the Contract Documents, all claims and disputes between the Owner and the Contractor arising out of, or relating to, the Contract Documents or the breach thereof are to be decided by arbitration (if the Owner and the Contractor mutually agree) or in a court of competent jurisdiction within the State of Florida.

4.5. Neither the FDEP nor the USEPA will become a party to, or have any role in resolving, claims and disputes between the Owner and the Contractor.

ARTICLE 5 - CHANGES TO THE BIDDING AND CONTRACT DOCUMENTS

5.1. All changes to the Bidding Documents made subsequent to the FDEP's acceptance of the Bidding Documents and prior to the opening of bids are to be documented via addendum (addenda) to the Bidding Documents; all changes to the Contract Documents made after the opening of bids are to be documented by change order(s) to the Contract Documents. The Owner shall submit all addenda and change orders to the FDEP.

ARTICLE 6 - BONDS AND INSURANCE

Bid Guarantees:

6.1. Each bidder's bid is to be accompanied by a bid guarantee made payable to the Owner in an amount at least equal to five percent of the bidder's maximum bid price and in the form of a certified check or bid bond.

Performance and Payment Bond(s):

6.2. The Contractor shall furnish a combined performance and payment bond in an amount at least equal to 100 percent of the Contract Price (or, if required elsewhere in the Contract Documents, the Contractor shall furnish separate performance and payment bonds, each in an amount at least equal to 100 percent of the Contract Price) as security for the faithful performance and payment of all the Contractor's obligations under the Contract Documents. This (these) bond(s) are to be delivered to the Owner by the Contractor along with the executed Agreement/Contract. The Owner shall forward a copy of this (these) bond(s) to the FDEP.

Insurance:

6.3. The Owner and/or the Contractor (as required elsewhere in the Contract Documents) shall purchase and maintain, during the period of construction, such liability insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims that may arise out of, or result from, the Contractor's performance and furnishing of the Work (whether the Work is to be performed or furnished by the Contractor or any subcontractor at the Work site) and the Contractor's other obligations under the Contract Documents. This insurance is to include workers' compensation insurance, comprehensive general liability insurance, comprehensive automobile liability insurance, and contractual liability insurance applicable to the Contractor's indemnification obligations and is to be written for not less than the limits of liability and coverages determined by the Owner or required by law, whichever is greater.

6.4. The Owner and/or the Contractor (as required elsewhere in the Contract Documents) shall purchase and maintain, during the period of construction, property insurance upon the Work at the Work site in an amount equal to the full replacement cost of the Work or the full insurable value of the Work. This insurance is to include the interests of the Owner, the Contractor, and all subcontractors at the Work site (all of whom are to be listed as insured or additional insured parties); is to insure against the perils of fire and extended coverage; and is to include "all-risk" insurance for physical loss or damage due to theft, vandalism and malicious mischief, collapse, water damage, and/or all other risks against which coverage is obtainable.

6.5. Before any Work at the Work site is started, the Contractor shall deliver to the Owner certificates of insurance that the Contractor is required to purchase and maintain in accordance with Paragraphs 6.3 and 6.4 of this Article and other provisions of the Contract Documents, and the Owner shall deliver to the Contractor certificates of insurance that the Owner is required to purchase and maintain in accordance with Paragraphs 6.3 and 6.4 of this Article and other provisions of the Contract Documents.

ARTICLE 7 - AWARD OF AGREEMENT/CONTRACT

7.1. If this Agreement/Contract is awarded, it is to be awarded to the lowest responsive, responsible bidder. A fixed price (lump sum or unit price or both) agreement/contract is to be used. A clear explanation of the method of evaluating bids and the basis for awarding this Agreement/Contract are included elsewhere in the Bidding Documents. All bids may be rejected when in the best interest of the Owner. After the contract has been awarded, the Owner shall give the Contractor a notice to proceed fixing the date on which the Contract Time will commence to run. The Owner shall forward a copy of this notice to proceed to the FDEP.

ARTICLE 8 - ITEMIZED CONSTRUCTION COST BREAKDOWN; CONSTRUCTION AND PAYMENT SCHEDULES

8.1. The Contractor shall submit to the Owner, within ten calendar days after the Effective Date of this Agreement/Contract, an itemized construction cost breakdown and construction and payment schedules.

8.1.1. The itemized construction cost breakdown, or schedule of values, is to include quantities and prices of items aggregating the Contract Price and is to subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices are to include an appropriate amount of overhead and profit applicable to each item of Work.

8.1.2. The construction, or progress, schedule is to indicate the Contractor's estimated starting and completion dates for the various stages of the Work and is to show both the projected cost of Work completed and the projected percentage of Work completed versus Contract Time.

8.1.3. The payment schedule is to show the Contractor's projected payments cumulatively by month.

ARTICLE 9 – FDEP/USEPA ACCESS TO RECORDS AND PROJECT SITE

9.1. Authorized representatives of the Owner, the FDEP, and the USEPA shall have access to, for the purpose of inspection, the Work site(s), any books, documents, papers, and records of the Contractor that are pertinent to this Agreement/Contract at any reasonable time. The Contractor shall retain all books, documents, papers, and records pertinent to this Agreement/Contract for a period of five years after receiving and accepting final payment under this Agreement/Contract.

NOTE: ARTICLE 10 ONLY APPLIES TO FEDERAL CAP GRANT PROJECTS

ARTICLE 10 - DISADVANTAGED BUSINESS ENTERPRISES

10.1 A goal of five percent of the Contract Price is established for Minority Business Enterprise (MBE) participation in the Work, and a goal of five percent of the Contract Price is established for Women's Business Enterprise (WBE) participation in the Work. If bidders or prospective contractors (including the Contractor) intend to let any lower-tier goods

or services (including construction) subcontracts for any portion of the Work, they shall physically include these percentage goals for MBE and WBE participation in all solicitations for subcontracts and shall take good faith efforts to assure that MBEs and WBEs are utilized, when possible, as sources of goods and services. Good faith efforts are to include the following:

10.1.1. Require Disadvantaged Business Enterprises (DBEs) are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local and Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.

10.1.2. Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.

10.1.3. Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

10.1.4. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.

10.1.5. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

10.1.6. If the prime contractor awards subcontracts, require the prime contractor to take the steps in paragraphs 10.1.1 through 10.1.5 of this section.

10.2. Within ten calendar days after being notified of being the apparent Successful Bidder, the apparent Successful Bidder shall submit to the Owner documentation of the affirmative steps it has taken to utilize Minority and Women's Business Enterprises (MBEs and WBEs) in the Work and documentation of its intended use of MBEs and WBEs in the Work. The Owner shall keep this documentation on file and shall forward to the FDEP a copy of the apparent Successful Bidder's documentation concerning its intended use of MBEs and WBEs in the Work.

ARTICLE 11 - DEBARMENT AND SUSPENSION (EXECUTIVE ORDER 12549)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

11.1. The bidder certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.

11.2. Where the bidder is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

11.3. The bidder also certifies that it and its principals:

11.3.1. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under a public transaction; violation of federal or state anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

11.3.2. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state or local) with commission of any of the offenses enumerated in paragraph 11.3.1 of this certification; and

11.3.3. Have not within a three-year period preceding this proposal had one or more public transactions (federal, state or local) terminated for cause or default. Where the bidder is unable to certify to any of the above, such owner shall attach an explanation to this proposal.

11.3.4. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the federal government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

11.3.5. The bidder shall incorporate the foregoing requirements 11.1 through 11.3 in all subcontracts.

ARTICLE 12 - EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

12.1. Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246). (Applicable to contracts/subcontracts exceeding \$10,000)

12.1.1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

12.1.2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in Florida, are as follows:

Goal for female participation: 6.9 percent statewide

Goal for minority participation: (See Appendix B at FDEP-20 for goals for each county)

These goals are applicable to all the Contractor's construction work (whether or not it is federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

12.1.3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

12.1.4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is the State of Florida.

12.1.5. Contractors shall incorporate the foregoing requirements in all subcontracts.

12.2. Equal Opportunity Clause (Applicable to contracts/subcontracts exceeding \$10,000)

During the performance of this contract, the contractor agrees as follows:

12.2.1. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor shall take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

12.2.2. The Contractor shall post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. The notice can be obtained online at http://www.eeoc.gov/employers/upload/eeoc_self_print_poster.pdf. The Contractor shall state that all qualified applicants be considered without regard to race, color, religion, sex or national origin.

12.2.3. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

12.2.4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

12.2.5. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

12.2.6. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

12.2.7. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

12.2.8. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs 12.2.1 through 12.2.8 in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

12.3. The Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

12.3.1. As used in these specifications:

- a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
- b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
- c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
- d. "Minority" includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

12.3.2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

12.3.3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

12.3.4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction Contractors performing construction work in geographical areas where they do not have a federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the FEDERAL REGISTER in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

12.3.5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

12.3.6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

12.3.7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 12.3.7b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

- n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

12.3.8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (12.3.7a through 12.3.7p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

12.3.9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

12.3.10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

12.3.11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12.3.12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

12.3.13. The Contractor, in fulfilling its obligation under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

12.3.14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

12.3.15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

12.4. Pursuant to 41 CFR 60-1.7, if the price of this bid exceeds \$10,000, the bidder, by signing and submitting this proposal, certifies the following:

12.4.1. Affirmative action programs pursuant to 41 CFR 60-2 have been developed and are on file;

12.4.2. Documentation of a previous contract or subcontract subject to the equal opportunity clause is available;

12.4.3. All reports due under the applicable filing requirements have been filed with the Joint Reporting Committee, the Deputy Assistant Secretary or the Equal Employment Opportunity Commission; and

12.4.4. Each prospective construction subcontractor that may be awarded a lower-tier construction subcontract with a price exceeding \$10,000 shall meet the above requirements 12.4.1 through 12.4.3.

12.5. Pursuant to 41 CFR 60-1.8, if the price of this bid exceeds \$10,000, the bidder, by signing and submitting this proposal, certifies the following:

12.5.1. That he/she does not maintain or provide for his/her employees any segregated facility at any of his/her establishments;

12.5.2. That he/she does not permit employees to perform their services at any location, under his/her control, where segregated facilities are maintained;

12.5.3. That he/she will not maintain or provide for employees any segregated facilities at any of his/her establishments;

12.5.4. That he/she will not permit employees to perform their services at any location under his/her control where segregated facilities are maintained;

12.5.5. That a breach of this certification is violation of the Equal Opportunity Clause of this contract; and

12.5.6. That he/she will obtain identical certifications from proposed Subcontractors prior to the award of Subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his/her files.

As used in this certification, the term “segregated facilities” means any waiting rooms, work eating areas, time clocks, locker rooms, and other storage or dressing areas, transportation and housing facilities provided for employees which are in fact segregated on the basis of race, color, religion, or otherwise.

12.6. If the price of this Agreement/Contract exceeds \$10,000, the Owner shall give written notice to the Director of the Office of Federal Contract Compliance Programs within ten working days of award of this Agreement/Contract. The notice is to include the name, address, and telephone number of the Contractor; the employer identification number of the Contractor; the dollar amount of this Agreement/Contract; the estimated starting and completion dates of this Agreement/Contract; the number of this Agreement/Contract; and the geographical area in which the Work is to be performed.

12.7. If the price of this Agreement/Contract equals or exceeds \$50,000 and if the Contractor has 50 or more employees, the Contractor shall electronically file Standard Form 100 (EEO-1) online at <https://egov.eeoc.gov/eeol/eeol.jsp> within 30 calendar days after the award of this Agreement/Contract unless the Contractor has submitted such a report within 12 months preceding the date of award of this Agreement/Contract. In addition, the Contractor shall ensure that each construction subcontractor having 50 or more employees and a lower-tier construction subcontract with a price equaling or exceeding \$50,000 also electronically files this form within 30 calendar days after the award to it of the lower-tier construction subcontract, unless the construction subcontractor has submitted such a report within 12 months preceding the date of award of the lower-tier construction subcontract.

ARTICLE 13 - IMMIGRATION REFORM AND CONTROL ACT OF 1986 (STATE OF FLORIDA EXECUTIVE ORDER 11-116)

The Immigration Reform and Control Act of 1986 prohibits employers from knowingly hiring illegal workers. The Contractor shall only employ individuals who may legally work in the United States – either U.S. citizens or foreign citizens who are authorized to work in the U.S. The Contractor shall use the U.S. Department of Homeland Security’s E-Verify Employment Eligibility Verification system (<http://www.uscis.gov/portal/site/uscis>) to verify the employment eligibility of:

- all new employees, during the term of this Agreement, to perform employment duties within Florida; and,
- all new employees (including subcontractors and subrecipients) assigned by the Contractor to perform work pursuant to this Agreement.

The Contractor shall include this provision in all subcontracts/subgrants it enters into for the performance of work under this Agreement.

ARTICLE 14 – ENVIRONMENTAL COMPLIANCE

The Contractor, and all subcontractors at any tier, shall comply with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act (42 U.S.C. 1857[h]), Section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738 (Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans), and 40 CFR Part 15.

ARTICLE 15 – FEDERAL LABOR STANDARDS PROVISION

Contracts being constructed with assistance from the State Revolving Fund Program are currently required to comply with the Federal Labor Standards Provisions as provided in Appendix C. Signing Appendix A certifies compliance with these provisions.

ARTICLE 16 – AMERICAN IRON AND STEEL PROVISION

Contracts being constructed with assistance from the State Revolving Fund Program are currently required to comply with The American Iron and Steel Provision as provided in Appendix D. Signing Appendix A certifies compliance with these provisions.

ARTICLE 17 - PROHIBITED LOCAL GOVERNMENT CONSTRUCTION PREFERENCES

- A. Pursuant to Section 255.0991, F.S., for a competitive solicitation for construction services in which 50 percent or more of the cost will be paid from state-appropriated funds which have been appropriated at the time of the competitive solicitation, a state, college, county, municipality, school district, or other political subdivision of the state may not use a local ordinance or regulation that provides a preference based upon:
1. The contractor’s maintaining an office or place of business within a particular local jurisdiction;
 2. The contractor’s hiring employees or subcontractors from within a particular local jurisdiction; or
 3. The contractor’s prior payment of local taxes, assessments, or duties within a particular local jurisdiction.
- B. For any competitive solicitation that meets the criteria in Paragraph A., a state college, county, municipality, school district, or other political subdivision of the state shall disclose in the solicitation document that any applicable local ordinance or regulation does not include any preference that is prohibited by Paragraph A.

**APPENDIX A TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SUPPLEMENTARY CONDITIONS**

**CERTIFICATION OF COMPLIANCE WITH THE FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION SUPPLEMENTARY CONDITIONS**

This certification relates to a construction contract proposed by _____,
(Insert the name of the Owner)

which expects to finance the proposed construction contract with assistance from the Florida Department of Environmental Protection (which administers a State Revolving Fund loan program supported in part with funds directly made available by grants from the United States Environmental Protection Agency). I am the undersigned prospective construction contractor or subcontractor.

I certify that I have read the Florida Department of Environmental Supplementary Conditions and agree to incorporate the following articles into the bid and/or contract:

- ARTICLE 11 DEBARMENT AND SUSPENSION (EXECUTIVE ORDER 12549)
- ARTICLE 12 EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)
- ARTICLE 13 IMMIGRATION REFORM AND CONTROL ACT OF (STATE OF FLORIDA EXECUTIVE ORDER 11-116)
- ARTICLE 14 ENVIRONMENTAL COMPLIANCE
- ARTICLE 15 FEDERAL LABOR STANDARDS PROVISION
- ARTICLE 16 AMERICAN IRON AND STEEL PROVISION

I agree that I will obtain identical certifications from prospective lower-tier construction subcontractors prior to the award of any lower-tier construction subcontracts with a price exceeding \$10,000. I also agree that I will retain such certifications in my files.

(Signature of Authorized Official)

(Date)

(Name and Title of Authorized Official [Print or Type])

(Name of Prospective Construction Contractor or Subcontractor [Print or Type])

(Address and Telephone Number of Prospective Construction Contractor or Subcontractor [Print or Type])

(Employer Identification Number of Prospective Construction Contractor or Subcontractor)

**APPENDIX B TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SUPPLEMENTARY CONDITIONS**

GOALS AND TIMETABLES FOR MINORITIES AND FEMALES

[Note: These goals and timetables are the goals and timetables referred to in Paragraph 2 of the "Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)"; these goals and timetables are to be included in all FDEP assisted construction contracts and subcontracts with a price exceeding \$10,000 and in all solicitations for such contracts and subcontracts.]

The following goals and timetables for female utilization shall be included in all federal and federally assisted construction contracts and subcontracts in excess of \$10,000. The goals are applicable to the contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a federal or federally assisted construction contract or subcontract.

Area covered: Goals for Women apply nationwide.

Goals and Timetables

Timetable	Goals (percent)
Indefinite	6.9

Goals for minority utilization can be found in the Department of Labor's Technical Assistance Guide for Federal Construction Contractors (May 2009), available on the internet at <http://www.dol.gov/ofccp/TAGuides/consttag.pdf>. These goals shall be included for each craft and trade in all federal or federally assisted construction contracts and subcontracts in excess of \$10,000 to be performed in the respective geographical areas. The goals are applicable to each nonexempt contractor's total onsite construction workforce, regardless of whether or not part of that workforce is performing work on a federal, federally assisted or non-federally related project, contract or subcontract.

Construction contractors which are participating in an approved Hometown Plan (see 41 CFR 60-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply with the applicable SMSA or EA goal contained in this Appendix.

APPENDIX C
TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SUPPLEMENTARY CONDITIONS

Davis-Bacon Requirements

FEDERAL LABOR STANDARDS PROVISIONS

(Davis-Bacon Act, Copeland Act, and Contract Works Hours & Safety Standards Act)

The Project to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such federal assistance.

1 Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act, 29 CFR Part 3, the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii) (a) The sponsor, on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The FDEP shall approve a request for an additional classification and wage rate and fringe benefits; therefore, only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the sponsor(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the sponsor to the FDEP. The FDEP will transmit the request to the Administrator of the Wage and Hour Division, employment Standards Administration, U. S. Department of Labor. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional

classification action within 30 days of receipt and so advise the FDEP or will notify FEDP within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event that the Contractor, the laborers or mechanics to be employed in the Classification or their representatives, and the sponsor do not agree on the proposed classification and wage rate (including the amount designed for fringe benefits, where appropriate), the FDEP shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of FDEP, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account, assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding.

The sponsor shall, upon written request of the EPA or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, EPA may, after written notice to the contractor, sponsor, applicant, or owners, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017).

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed, a copy of all payrolls to the sponsor. Such documentation shall be available upon request by FDEP. As to each payroll copy received, the sponsor shall provide a certification that the project is in compliance with the requirements of 29 CFR 5.5(a)(1) with each disbursement request. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(I), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead, the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site <http://www.dol.gov/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current addresses of each covered worker, and shall provide them upon request to the sponsor for transmission to the FDEP or EPA if requested by EPA, the FDEP, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsor. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149).

(b) Each payroll submitted shall be accompanied by a Statement of Compliance, signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR Part 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR Part 5.5 (a)(3)(I), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Option Form WH-347 shall satisfy the requirement for submission of the Statement of Compliance required by paragraph A. 3(ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3(I) of this section available for inspection, copying, or transcription by authorized representatives of the FDEP or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FDEP may, after written notice to the contractor, or sponsor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U. S. Department of Labor, the Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio

of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program, shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with the determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U. S. Department of Labor, the Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program the contract will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements.

The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

6. Subcontracts.

The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as EPA determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract Termination, Debarment.

A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3 and 5 are herein incorporated by referenced in this contract.

9. Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the sponsor, FDEP, EPA, the U. S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded EPA contracts or participate in EPA programs pursuant to Executive Order 12549.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded EPA contracts or participate in EPA programs pursuant to Executive Order 12549.

(iii) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U. S. C. 1001. Additionally, U. S. Criminal Code, Section 1010, Title 18, U. S. C., Federal Housing Administration transactions, provides in part "Whoever, for the purpose of . . . influencing in any way the action of such Administration . . . makes, utters or publishes any statement, knowing the same to be false . . . shall be fined not more than \$5,000 or imprisoned not more than two years, or both".

11. Complaints, Proceedings, or Testimony by Employees.

A. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this contract are applicable shall be discharged or in any other manner discriminated against by the contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this contract to his employer.

B. Contract Work Hours and Safety Standards Act. The sponsor shall insert the following clauses set forth in paragraphs B.(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by item 3 above or 29 CFR 4.6. As used in the paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. The sponsor, upon written request of the FDEP or an authorized representative of the Department of Labor, may withhold or cause to be withheld, from any moneys payable on

account of work performed by the contractor or subcontractor under any such contract or any other federal contract with the same prime contract, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54.83 State 96).

(3) The contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

12. Guidance to Contractor for Compliance with Labor Standards Provisions

a) Contracts with Two Wage Decisions

If the contract includes two wage decisions, the contractor, and each subcontractor who works on the site, must submit either two separate payrolls (one for each wage decision) or one payroll which identifies each worker twice and the hours worked under each wage decision. One single payroll, reflecting each worker once, may be submitted provided the Contractor uses the higher rate in the wage decisions for each identical job classification. However, where a job classification is not listed in a wage decision and is needed for that portion of the work, the classification **must** be added to the wage decision. A worker may not be paid at the rate for a classification using the hourly rate for that same classification in another wage decision. After the additional classification is approved, the contractor may pay the higher of the two rates and submit one payroll, if desired.

b) Complying with Minimum Hourly Amounts

1) The minimum hourly amount due to a worker in each classification is the total of the amounts in the Rates and Fringe Benefits (if any) columns of the applicable wage decision.

2) The contractor may satisfy this minimum hourly amount by any combination of cash and bona fide fringe benefits, regardless of the individual amounts reflected in the Rates and Fringe Benefits columns.

3) A contractor payment for a worker which is required by law is not a fringe benefit in meeting the minimum hourly amount due under the applicable wage decision. For example, contractor payments for FICA or unemployment insurance are not a fringe benefit; however, contractor payments for health insurance or retirement are a fringe benefit. Generally, a fringe benefit is bona fide if (a) it is available to most workers and (b) involves payments to a third party.

4) The hourly value of the fringe benefit is calculated by dividing the contractor's annual cost (excluding any amount contributed by the worker) for the fringe benefit by 2080. Therefore, for workers with overtime, an additional payment may be required to meet the minimum hourly wages since generally fringe benefits have no value for any time worked over 40 hours weekly. (If a worker is paid more than the minimum rates required by the wage decision, this should not be a problem. As long as the total wages received by a worker for straight time equals the hours worked times the minimum hourly rate in the wage decision, the requirement of the Davis-Bacon and Related Acts has been satisfied.)

c) Overtime

For any project work over 40 hours weekly, a worker generally must be paid 150% of the actual hourly cash rate received, not the minimum required by the wage decision. (The Davis-Bacon and Related Acts only establishes minimum rates and does not address overtime. The Contract Work Hours Act contains the overtime requirement and uses basic rate of pay as the base for calculation, not the minimum rates established by the Davis-Bacon and Related Acts.)

d) Deductions

Workers who have deductions, not required by law, from their pay must authorize these deductions in writing. The authorization must identify the purpose of each deduction and the amount, which may be a specific dollar amount or a percentage. A copy of the authorization must be submitted with the first payroll containing the deduction. If deducted amounts increase, another authorization must be submitted. If deducted amounts decrease, no revision to the original authorization is needed. Court-ordered deductions, such as child support, may be identified by the responsible payroll person in a separate document. This document should identify the worker, the amount deducted and the purpose. A copy of the court order should be submitted.

e) Classifications Not Included in the Wage Decision

If a classification not in the wage decision is required, please advise the owner's representative in writing and identify the job classification(s) required. In some instances, the state agency may allow the use of a similar classification in the wage decision.

Otherwise, the contractor and affected workers must agree on a minimum rate, which cannot be lower than the lowest rate for any trade in the wage decision. Laborers (including any subcategory of the laborer classification) and truck drivers are not considered a trade for this purpose. If the classification involves a power equipment operator, the minimum cannot be lower than the lowest rate for any power equipment operator in the wage decision. The owner will provide forms to document agreement on the minimum rate by the affected workers and contractor.

The U.S. Department of Labor (USDOL) must approve the proposed classification and rate. The contractor may pay the proposed rate until the USDOL makes a determination. Should the USDOL require a higher rate, the contractor must make wage restitution to the affected worker(s) for all hours worked under the proposed rate.

f) Supervisory Personnel

Foremen and other supervisory personnel who spend at least 80% of their time supervising workers are not covered by the Davis-Bacon and Related Acts. Therefore, a wage decision will not include such supervisory classifications and their wages are not subject to any minimums under the Davis-Bacon and Related Act or overtime payments under the Contract Work Hours and Safety Standards Act. However, foremen and other supervisory personnel who spend less than 80% of their time engaged in supervisory activities are considered workers/mechanics for the time spent engaged in manual labor and must be paid at least the minimum in the wage decision for the appropriate classification(s) based on the work performed.

g) Sole Proprietorships / Independent Contractors / Leased Workers

The nature of the relationship between a prime contractor and a worker does not affect the requirement to comply with the labor standards provisions of this contract. The applicability of the labor standards provisions is based on the nature of the work performed.

If the work performed is primarily manual in nature, the worker is subject to the labor standards provisions in this contract. For example, if John Smith is the owner of ABC Plumbing and performs all plumbing work himself, then Mr. Smith is subject to the labor standards provisions, including minimum wages and overtime. His status as owner is irrelevant for labor standards purposes.

If a worker meets the IRS standards for being an independent contractor, and is employed as such, this means that the worker must submit a separate payroll as a subcontractor rather than be included on some other payroll. The worker is still subject to the labor standards provisions in this contract, including minimum wages and overtime.

If a contractor or subcontractor leases its workers, they are subject to the labor standards provisions in this contract, including minimum wages and overtime. The leasing firm must submit payrolls and these payrolls must reflect information required to determine compliance with the labor standards provisions of this contract, including a classification for each worker based on the nature of the work performed, number of regular hours worked, and number of overtime hours worked.

h) Apprentices / Helpers

A worker may be classified as an apprentice **only if participating in a federal or state program**. Documentation of participation must be submitted. Generally, the apprentice program specifies that the apprentice will be compensated at a percentage of journeyman rate. For Davis-Bacon Act purposes, the hourly rate cannot be lower than the percentage of the hourly rate for the classification in the applicable wage decision.

If the worker does not participate in a federal or state apprentice program, then the worker must be classified according to duties performed. This procedure may require classification in the trade depending on tools used, or as a laborer if specialized tools of the trade are not used. The contractor may want to consult with the Wage and Hour Division of the U.S. Department of Labor located in most large cities regarding the appropriate classification.

Presently, no worker may be classified as a helper. As with apprentices not participating in a formal apprentice program, the worker must be classified according to duties performed and tools used.

**APPENDIX D TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SUPPLEMENTARY CONDITIONS**

American Iron and Steel Requirement

The Contractor acknowledges to and for the benefit of the _____ (“Owner”) and the State of Florida (the “State”) that it understands that iron and steel products to be installed as a part of this contract must be in compliance with the requirements in H.R. 3547, “Consolidated Appropriations Act, 2014,” (Appropriations Act). H.R. 3547 includes the following language in Division G, Title IV, Sec. 436, under the heading, "Use of American Iron and Steel,":

(a) (1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.

(2) In this section, the term "iron and steel products" means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

(b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the "Administrator") finds that--

- (1) applying subsection (a) would be inconsistent with the public interest;
- (2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
- (3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

(d) This section shall be applied in a manner consistent with United States obligations under international agreements.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

For waivers to these requirements based on (2)(b) above, contact Sheryl Parsons at USEPA Region IV. She can be reached by phone at (404) 562-9337.

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Appendix E

General Decision Number: FL160230 01/08/2016 FL230

Superseded General Decision Number: FL20150230

State: Florida

Construction Type: Highway

County: Sarasota County in Florida.

HIGHWAY CONSTRUCTION PROJECTS

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.15 for 2016 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number
0

Publication Date
01/08/2016

***SULF2013-048 08/19/2013**

	Rates	Fringes
CARPENTER, Includes Form Work.....	\$ 8.00	0.00
CEMENT MASON/CONCRETE FINISHER.....	\$13.37	0.00
ELECTRICIAN.....	\$21.80	0.00
HIGHWAY/PARKING LOT STRIPING: Operator (Striping Machine).....	\$16.79	0.00
HIGHWAY/PARKING LOT STRIPING: Painter.....	\$12.13	0.00
INSTALLER – GUARDRAIL.....	\$11.94	0.28
IRONWORKER, ORNAMENTAL.....	\$13.48	0.00
IRONWORKINR, REINFORCING.....	\$16.39	0.00
IRONWORKER, STRUCTURAL.....	\$16.42	0.00
LABORER (Traffic Control Specialist).....	\$12.77	2.23
LABORER: Asphalt, Includes Raker, Shoveler, Spreader and Distributor.....	\$13.89	0.00
LABORER: Common or General.....	\$11.03	0.29
LABORER: Concrete Saw (Hand Held/Walk Behind).....	\$11.71	0.00
LABORER: Flagger.....	\$11.77	0.00
LABORER: Grade Checker.....	\$14.56	0.00
LABORER: Mason Tender – Cement/Concrete.....	\$12.93	0.00
LABORER: Pipelayer.....	\$13.32	0.29
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$15.89	0.36

	Rates	Fringes
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$12.88	0.00
OPERATOR: Broom/Sweeper.....	\$13.69	0.00
OPERATOR: Bulldozer.....	\$16.79	0.00
OPERATOR: Concrete Finishing Machine.....	\$15.44	0.00
OPERATOR: Crane.....	\$21.69	0.00
OPERATOR: Curb Machine.....	\$19.67	0.00
OPERATOR: Drill.....	\$14.78	0.00
OPERATOR: Forklift.....	\$12.58	0.00
OPERATOR: Gradall.....	\$14.71	0.00
OPERATOR: Grader/Blade.....	\$18.28	0.00
OPERATOR: Loader.....	\$14.95	0.00
OPERATOR: Mechanic.....	\$19.49	0.00
OPERATOR: Milling Machine.....	\$16.09	0.00
OPERATOR: Oiler.....	\$17.31	0.00
OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....	\$18.01	0.00
OPERATOR: Piledriver.....	\$17.23	0.00
OPERATOR: Post Driver (Gaurdrail/Fences).....	\$19.35	0.00
OPERATOR: Roller.....	\$14.59	0.00
OPERATOR: Scraper.....	\$11.74	0.00
OPERATOR: Screed.....	\$17.05	0.00
OPERATOR: Tractor.....	\$13.77	0.00
OPERATOR: Trencher.....	\$16.07	0.66
PAINTER: Spray.....	\$16.38	0.00
TRUCK DRIVER: Dump Truck.....	\$12.85	0.00
TRUCK DRIVER: Flatbed Truck.....	\$14.13	0.00
TRUCK DRIVER: Lowboy Truck.....	\$18.29	0.00
TRUCK DRIVER: Slurry Truck.....	\$11.96	0.00
TRUCK DRIVER: Water Truck.....	\$14.88	0.00

WELDERS- Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only a provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

- 1.) Has there been an initial decision in the matter? This can be:
 - * an existing published wage determination

- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

+ + END OF GENERAL DECISION + +

Appendix F

General Decision Number: FL160176 01/15/2016 FL176

Superseded General Decision Number: FL20150176

State: Florida

Construction Type: Heavy

County: Sarasota County in Florida.

HEAVY CONSTRUCTION PROJECTS (Including Sewer and Water Lines)

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.15 for 2016 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016
1	01/15/2016

ELEC0915-003 12/07/2015

	Rates	Fringes
Electrician.....	\$26.53	9.3484

ENGI0925-010 06/01/2013

	Rates	Fringes
Power Equipment Operator Crawler Cranes; Truck Cranes; Pile Driver Cranes; Rough Terrain Cranes; and Any Crane not otherwise described below.....	\$29.61	11.50
Drill.....	\$29.61	11.50
Hydraulic Cranes Rated 100 Tons or Above but Less Than 250 Tons; and Lattice Booms Cranes Less Than 150 Tons if not described below.....	\$30.61	11.50
Lattice Boom Cranes Rated at 150 Tons or Above; Friction Cranes of Any Sixe; Mobile Tower Cranes or Luffing Boom Cranes of Any Size; Electric Tower Cranes; Hydraulic Cranes Rated at 250 Tons or Above; and Any Crane Equipped with 300 Foot or More of Any Boom Combination.....	\$31.61	11.50

	Rates	Fringes
Oiler.....	\$22.91	11.50

***IRON0397-006 02/01/2015**

	Rates	Fringes
IRONWORKER, STRUCTURAL.....	\$28.25	13.49

LAB00517-002 05/01/2014

	Rates	Fringes
LABORER: Grade Checker.....	\$18.35	6.45

PAIN0088-008 08/01/2014

	Rates	Fringes
PAINTER: Brush, Roller and Spray.....	\$19.50	8.83

SULFL2009-172 06/24/2009

	Rates	Fringes
CARPENTER.....	\$14.95	2.92
CEMENT MASON/CONCRETE FINISHER.....	\$14.77	3.50
LABORER: COMMON OR GENERAL.....	\$ 9.50	1.69
LABORER: Landscape.....	\$ 7.25	0.00
LABORER: Pipelayer.....	\$13.75	2.06
LABORER: Power Tool Operator (Hand Held Drills/Saws, Jackhammer and Power Saws Only).....	\$10.63	2.20
OPERATOR: Asphalt Paver.....	\$11.59	0.00
OPERATOR: Backhoe Loader Combo.....	\$16.10	2.44
OPERATOR: Backhoe/Excavator.....	\$15.00	0.52
OPERATOR: Bulldozer.....	\$17.00	0.00
OPERATOR: Grader/Blade.....	\$16.00	2.84
OPERATOR: Loader.....	\$14.75	0.00
OPERATOR: Mechanic.....	\$14.32	0.00
OPERATOR Roller.....	\$10.76	0.00
OPERATOR: Scraper.....	\$11.00	1.74
OPERATOR: Trackhoe.....	\$20.92	5.50
OPERATOR: Tractor.....	\$10.54	0.00
TRUCK DRIVER, Includes Dump Truck.....	\$11.00	0.00
TRUCK DRIVER: Lowboy Truck.....	\$12.73	0.00
TRUCK DRIVER: Off the Road Truck.....	\$12.21	1.97

WELDERS- Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal

number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

+ + END OF GENERAL DECISION + +

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SECTION 01000

PROJECT REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work: The work to be done consists of the furnishing of all labor, materials and equipment, and the performance of all work included in this Contract.
- B. Work Included:
1. The CONTRACTOR shall furnish all labor, superintendence, materials, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, and means of construction necessary for proper performance and completion of the work. The CONTRACTOR shall obtain and pay for all necessary local building permits. The CONTRACTOR shall perform and complete the work, in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the OWNER and ENGINEER, and in strict accordance with the Contract Documents. The CONTRACTOR shall clean up the work and maintain it during and after construction, until accepted, and shall do all work and pay all costs incidental thereto. The CONTRACTOR shall repair or restore all structures and property that may be damaged or disturbed during performance of the work.
 2. The cost of incidental work described in these General Requirements, for which there are no specific Contract Items, shall be considered as part of the general cost of doing the work and shall be included in the prices for the various Contract Items. No additional payment will be made therefore.
 3. The CONTRACTOR shall provide and maintain such modern plant, tools, and equipment as may be necessary, in the opinion of the OWNER and ENGINEER, to perform in a satisfactory and acceptable manner all the work required by this Contract. Only equipment of established reputation and proven efficiency shall be used. The CONTRACTOR shall be solely responsible for the adequacy of his workmanship, materials, and equipment, prior approval of the OWNER and ENGINEER notwithstanding.
- C. Public Utility Installations and Structures:
1. Public utility installations and structures shall be understood to include all poles, tracks, pipes, wires, conduits, vaults, manholes and all other appurtenances and facilities pertaining thereto whether owned or controlled by the OWNER, other governmental bodies or privately owned by individuals, firms or corporations, used to serve the public with transportation, traffic control, gas, electricity, telephone,

sewerage, drainage, water or other public or private property that may be affected by the work shall be deemed included hereunder.

2. The Contract Documents contain data relative to existing public utility installations and structures above and below the ground surface. These data are not guaranteed as to their completeness or accuracy and it is the responsibility of the CONTRACTOR to make his own investigations to inform himself fully of the character, condition and extent of all such installations and structures as may be encountered and as may affect the construction operations.
3. The CONTRACTOR shall protect all public utility installations and structures from damage during the work. Access across any buried public utility installation or structure shall be made to avoid any damage to these facilities. All required protective devices and construction shall be provided by the CONTRACTOR at his expense. All existing public utilities damaged by the CONTRACTOR that are shown on the Drawings or have been located in the field by the utility shall be repaired by the CONTRACTOR, at his expense. No separate payment shall be made for such protection or repairs to public utility installations or structures.
4. Public utility installations or structures owned or controlled by the OWNER or other governmental body which are shown on the Drawings to be removed, relocated, replaced or rebuilt by the CONTRACTOR shall be considered as a part of the general cost of doing the work and shall be included in the prices bid for the various contract items. No separate payment shall be made therefore.
5. Where public utility installations of structures owned or controlled by the OWNER or other governmental body are encountered during the course of the work, and are not indicated on the Drawings or in the Specifications, and when, in the opinion of the ENGINEER, removal, relocation, replacement or rebuilding is necessary to complete the work under this Contract, such work shall be accomplished by the utility having jurisdiction, or such work may be ordered, in writing by the OWNER and ENGINEER, for the CONTRACTOR to accomplish. If such work is accomplished by the utility having jurisdiction it will be carried out expeditiously and the CONTRACTOR shall give full cooperation to permit the utility to complete the removal, relocation, replacement or rebuilding as required. If such work is accomplished by the CONTRACTOR, it will be paid for as extra work as provided in the Agreement.
6. The CONTRACTOR shall, at all times in performance of the work, employ acceptable methods and exercise reasonable care and skill so as to avoid unnecessary delay, injury, damage or destruction of public utility installations and structures; and shall, at all times; in the performance of the work, avoid unnecessary interference with, or interruption of, public utility services, and shall cooperate fully with the OWNERS thereof to that end.

7. The CONTRACTOR shall give written notice to OWNER and other governmental utility departments and other OWNER'S of public utilities of the location of his proposed construction operations, at least forty-eight hours in advance of breaking ground in any area or on any unit of the work.
8. The maintenance, repair, removal, relocation or rebuilding of public utility installations and structures, when accomplished by the CONTRACTOR as herein provided, shall be done by methods approved by the OWNER'S of such utilities.

1.02 DRAWINGS AND PROJECT MANUAL

- A. Drawings: When obtaining data and information from the Drawings, figures shall be used in preference to scaled dimensions, and large scale drawings in preference to small scale drawings.
- B. Copies Furnished to CONTRACTOR:
 1. After the Contract has been executed, the CONTRACTOR will be furnished one (1) complete set of reproducible drawings (24 inches by 36 inches) and one (1) copy of the Project Manual (Contract Requirements and Specifications) and all addenda.
 2. The CONTRACTOR shall furnish each of the subcontractors, manufacturers, and material men such copies of the Contract Documents as may be required for their work. All copies of the Contract Documents shall be printed from the reproducible sets furnished to the CONTRACTOR. All costs of reproduction and printing shall be borne by the CONTRACTOR.
- C. Supplementary Drawings:
 1. When, in the opinion of the ENGINEER, it becomes necessary to explain more fully the work to be done or to illustrate the work further or to show any changes which may be required, drawings known as Supplementary Drawings, with specifications pertaining thereto, will be prepared by the ENGINEER; the CONTRACTOR will be furnished one (1) complete set of reproducible drawings (24 inches by 36 inches) and one (1) reproducible copy of the Project Manual.
 2. The Supplementary Drawings shall be binding upon the CONTRACTOR with the same force as the Contract Drawings. Where such Supplementary Drawings require either less or more than the estimated quantities of work, credit to the OWNER or compensation to the CONTRACTOR shall be subject to the terms of the Agreement.
- D. CONTRACTOR to Check Drawings and Data:
 1. The CONTRACTOR shall verify all dimensions, quantities, and details shown on the Drawings, Supplementary Drawings, schedules, Specifications, or other data

received from the ENGINEER, and shall notify him of all errors, omissions, conflicts, and discrepancies found therein. Failure to discover or correct errors, conflicts or discrepancies shall not relieve the CONTRACTOR of full responsibility for unsatisfactory work, faulty construction or improper operation resulting therefrom nor from rectifying such conditions at his own expense. He will not be allowed to take advantage of any errors or omissions, as full instructions will be furnished by the ENGINEER, should such errors or omissions be discovered.

2. All schedules are given for the convenience of the ENGINEER and the CONTRACTOR and are not guaranteed to be complete. The CONTRACTOR shall assume all responsibility for the making of estimates of the size, kind, and quality of materials and equipment included in work to be done under the Contract.

E. Intent:

1. All work called for in the Specifications applicable to this Contract, but not shown on the Drawings in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified either in the Drawings or in the Specifications, but involved in carrying out their intent or in the complete and proper execution of the work, is required and shall be performed by the CONTRACTOR as though it were specifically delineated or described.
2. The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, the interpretation of these Specifications shall be made upon that basis.

1.03 MATERIALS AND EQUIPMENT

A. Manufacturer:

1. The names of proposed manufacturers, material men, suppliers and dealers who are to furnish materials, fixtures, equipment, appliances or other fittings shall be submitted to the OWNER and ENGINEER for approval, as early as possible, to afford proper investigation and checking. Such approval must be obtained before Shop Drawings will be checked. No manufacturer will be approved for any materials to be furnished under this Contract unless he is of good reputation and has a plant of ample capacity. He shall, upon the request of the OWNER and ENGINEER, be required to submit evidence that he has manufactured a similar product to the one specified and that it has been previously used for a like purpose for a minimum of 5 years to demonstrate its satisfactory performance.
2. All transactions with the manufacturers or subcontractors shall be through the CONTRACTOR, unless the CONTRACTOR shall request and at the OWNER and ENGINEER's option, that the manufacturer or subcontractor deal directly with the

ENGINEER. Any such transactions shall not in any way release the CONTRACTOR from his full responsibility under this Contract.

3. Any two or more pieces of material or equipment of the same kind, type or classification, and being used for identical types of service, shall be made by the same manufacturer.
4. Major pieces of equipment are listed in the Bid Proposal and are required to be named as part of said Bid Proposal.

B. Delivery:

1. The CONTRACTOR shall deliver materials in ample quantities to insure the most speedy and uninterrupted progress of the work to complete the work within the allotted time.
2. The CONTRACTOR shall also coordinate deliveries in order to avoid delay in, or impediment of, the progress of the work of any related CONTRACTOR.

1.04 INSPECTION AND TESTING

A. General:

1. Inspection and testing of materials will be provided by the CONTRACTOR unless otherwise specified.
2. For tests specified to be made by the CONTRACTOR, the testing personnel shall make the necessary inspections and tests and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Contract Documents. Five copies of the reports shall be submitted and authoritative certification thereof must be furnished to the ENGINEER as a prerequisite for the acceptance of any material or equipment.
3. If, in the making of any test of any material or equipment, it is ascertained by the OWNER and ENGINEER that the material or equipment does not comply with the Contract Documents, the CONTRACTOR will be notified thereof and he will be directed to refrain from delivering said material or equipment, or to remove it promptly from the site or from the work and replace it with acceptable material, without cost to the OWNER.
4. The CONTRACTOR shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage that may occur to equipment prior to the time when the OWNER formally takes over the operation thereof.

B. Costs:

1. All inspection and testing of materials furnished under this Contract will be provided by the CONTRACTOR, unless otherwise expressly specified.
2. The cost of shop and field tests of equipment and of certain other tests specifically called for in the Contract Documents shall be borne by the CONTRACTOR and such costs shall be deemed to be included in the Contract price.
3. Materials and equipment submitted by the CONTRACTOR as the equivalent to those specifically named in the Contract may be tested by the OWNER for compliance. The CONTRACTOR shall reimburse the OWNER for the expenditures incurred in making such tests of materials and equipment that are rejected for non-compliance.

C. Inspection of Materials:

1. The CONTRACTOR shall give notice in writing to the OWNER and ENGINEER, sufficiently in advance of his intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain a request for inspection, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, the ENGINEER will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials or he will notify the CONTRACTOR that the inspection will be made at a point other than the point of manufacture.
2. The CONTRACTOR must comply with these provisions before shipping any material. Such inspection shall not release the CONTRACTOR from the responsibility for furnishing materials meeting the requirements of the Contract Documents.

D. Certificate of Manufacture:

1. When inspection is waived or when the OWNER and ENGINEER so requires, the CONTRACTOR shall furnish to him authoritative evidence in the form of Certificate of Manufacture that the materials to be used in the work have been manufactured and tested in conformity with the Contract Documents.
2. These certificates shall be notarized and shall include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

E. Shop Tests:

1. Each piece of equipment for which pressure, duty, capacity, rating, efficiency, performance, function or special requirements are specified shall be tested in the shop of the maker in a manner that shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents.
2. No such equipment or materials shall be shipped to the work site until the ENGINEER notifies the CONTRACTOR, in writing, that the results of such tests are acceptable.
3. Five (5) copies of the manufacturer's actual test data and interpreted results thereof, accompanied by a certificate of authenticity sworn to by a responsible official of the manufacturing company and/or independent laboratory, shall be forwarded to the OWNER and ENGINEER for approval.
4. The cost of shop tests and of furnishing manufacturer's preliminary and shop test data of operating equipment shall be borne by the CONTRACTOR.

F. Start-up Tests:

1. As soon as conditions permit, the CONTRACTOR shall furnish all labor, materials, and instruments and shall make start-up tests of equipment.
2. If the start-up tests disclose any equipment furnished under this Contract that does not comply with the requirements of the Contract Documents, the CONTRACTOR shall, prior to demonstration tests, make all changes, adjustments and replacements required. The furnishing CONTRACTOR shall assist in the start-up tests as applicable.

G. Demonstration Tests:

1. Upon completion of the work and prior to final payment, all equipment and piping installed under this Contract shall be subjected to demonstration tests as specified or required to provide compliance with the Contract Documents.
2. The CONTRACTOR shall furnish labor, fuel, energy, water and all other materials, equipment and instruments necessary for all demonstration tests, at no additional cost to the OWNER. The furnishing CONTRACTOR shall assist in the demonstration tests as applicable.

H. Final Inspection:

During such final inspections, the work shall be clean and free from water. In no case will the final estimate be prepared until the CONTRACTOR has complied with all requirements set forth and the ENGINEER and OWNER has made his final inspection

with the CONTRACTOR of the entire work and is satisfied that the entire work is properly and satisfactorily constructed in accordance with the requirements of the Contract Documents.

1.05 TEMPORARY STRUCTURES

- A. Temporary Fences: If, during the course of the work, it is necessary to remove or disturb any fence or part thereof, the CONTRACTOR shall provide a suitable temporary fence at his own expense.
- B. Responsibility for Temporary Structures: In accepting the Contract, the CONTRACTOR assumes full responsibility for the sufficiency and safety of all 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 from all claims, suits or actions and damages or costs of every description arising by reason of failure to comply with the above provisions.

1.06 TEMPORARY SERVICES

- A. Accident Prevention:
 - 1. Precautions shall be exercised at all times for the protection of person and property. The safety provisions of applicable laws, building and construction codes shall be observed.
 - 2. The CONTRACTOR shall comply with the U.S. Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596), and under Section 107 of the contract work. Hours and Safety Standards Act (PL 91-54), except where state and local safety standards have been approved by the Secretary of Labor in accordance with provisions of the Occupational Safety and Health Act, shall be complied with.
- B. First Aid: The CONTRACTOR shall keep upon the site, at each location where work is in progress, a completely equipped first aid kit and a handbook with telephone numbers for emergency medical services (EMS) and shall provide ready access thereto at all times when men are employed on the work.

1.07 LINES AND GRADES

- A. Grade:
 - 1. All work under this Contract shall be constructed in accordance with the lines and grades shown on the Drawings, or as given by the ENGINEER. The full responsibility for keeping alignment and grade shall rest upon the CONTRACTOR.

2. The OWNER and ENGINEER will provide benchmark information and base line controlling points. Reference marks for lines and grades as the work progresses will be located by the CONTRACTOR to cause as little inconvenience to the prosecution of the work as possible. The CONTRACTOR shall so place excavation and other materials as to cause no inconvenience in the use of the reference remarks provided. The CONTRACTOR shall remove any obstructions placed by him contrary to this provision.

B. Surveys:

1. The CONTRACTOR shall furnish and maintain, at his own expense, stakes and other such materials.
2. The CONTRACTOR shall retain the services of a qualified registered professional land surveyor currently licensed in the State of Florida to identify existing control points and provide line and grade surveys necessary to properly construct the work.
3. The CONTRACTOR shall check such reference marks by such means as he may deem necessary and, before using them, shall call the OWNER and ENGINEER'S attention to any inaccuracies.
4. The CONTRACTOR shall, at his own expense, establish all working or construction lines and grades as required from the reference marks set by the ENGINEER, and shall be solely responsible for the accuracy thereof. He shall, however, be subject to the review of the OWNER and ENGINEER.
5. The CONTRACTOR shall keep the OWNER and ENGINEER informed a minimum of (48) hours in advance as to the need for line and grade reference marks, in order that they may be furnished and all necessary measurements made for record and payment with the minimum of inconvenience to the OWNER or of delay to the CONTRACTOR.
6. It is the intention not to delay the work for the establishment of reference marks but, when necessary, working operations shall be suspended for such reasonable time as the OWNER may require for this purpose.

C. Safeguarding Marks:

1. The CONTRACTOR shall so place excavation and other materials as to cause no inconvenience in the use of the reference marks provided. Any obstructions placed by the CONTRACTOR contrary to this provision shall be removed.
2. The CONTRACTOR shall safeguard all points, stakes, grade marks, monuments and bench marks made or established on the work, bear the cost of re-establishing them if disturbed, and bear the entire expense of rectifying work improperly

installed due to not maintaining or protecting or to removing without authorization such established points, stakes and remarks.

3. The CONTRACTOR shall safeguard all existing and known property corners, monuments and marks adjacent to but not related to the work and, shall bear the cost of re-establishing them if disturbed or destroyed.
4. The CONTRACTOR shall notify the OWNER and ENGINEER immediately upon disturbing or destroying any reference marks.

1.08 ADJACENT STRUCTURES AND LANDSCAPING

A. Responsibility:

1. The CONTRACTOR shall also be entirely responsible and liable for all damage or injury because of his operations to all other adjacent public and private property, structures of any kind and appurtenances thereto met with during the progress of the work.
2. The cost of protection, replacement in their original locations and conditions or payment of damages for injuries to such adjacent public and private property and structures affected by the work, whether or not shown on the Drawings, and the removal, relocation and reconstruction of such items called for on the Plans or specified shall be included in the various Contract items and no separate payments will be made therefor.
3. The CONTRACTOR is expressly advised that the protection of buildings, structures, tunnels, tanks, pipelines, etc. and related work adjacent and in the vicinity of his operations, wherever they may be, is solely his responsibility.
4. Conditional inspection of buildings or structures in the immediate vicinity of the project which may reasonably be expected to be affected by the Work shall be performed by and be the responsibility of the CONTRACTOR.
5. CONTRACTOR shall, before starting operations, make an examination of the interior and exterior of the adjacent structures, buildings, facilities, etc., and record by notes, measurements, photographs, etc., conditions that might be aggravated by open excavation and construction. Repairs or replacement of all conditions disturbed by the construction shall be made to the satisfaction of the OWNER. This does not preclude conforming to the requirements of the insurance underwriters. Copies of surveys, photographs, reports, etc., shall be given to the OWNER.
6. Prior to the beginning of any excavations the CONTRACTOR shall advise the OWNER and ENGINEER of all buildings or structures on which he intends to perform work or which performance of the project work will affect.

- B. Protection of Trees: Unless noted on the Drawings, all trees and shrubs shall be adequately protected by the CONTRACTOR with boxes and otherwise and in accordance with ordinances governing the protection of trees. No excavated materials shall be placed so as to injure such trees or shrubs. Trees or shrubs destroyed by the CONTRACTOR or his employees shall be replaced by him with new stock of similar size and age, at its proper season and at the sole expense of the CONTRACTOR.
- C. Lawn Areas: Unless noted on the Drawings, lawn areas shall be left in as good condition as before the starting of the work. Where sod is to be removed, it shall be carefully removed, and later replaced, or the area where sod has been removed shall be restored with new sod matching that which was removed or disturbed.
- D. Restoration of Fences:
 - 1. Any fence, or part thereof, that is damaged or removed during the course of the work shall be replaced or repaired by the CONTRACTOR and shall be left in as good a condition as before the starting of the work.
 - 2. The manner in which the fence is repaired or replaced and the materials used in such work shall be subject to the approval of the OWNER.
 - 3. The cost of all labor, materials, equipment, and work for the replacement or repair of any fence shall be deemed included in the appropriate Contract item or items, or if no specific item is provided therefore, as part of the overhead cost of the work, and no additional payment will be made therefore.

1.09 PROTECTION OF WORK AND PUBLIC

- A. Barriers and Lights:
 - 1. During the execution of the work, the CONTRACTOR shall put up and maintain at all times such barriers and lights as will effectually prevent accidents.
 - 2. The CONTRACTOR shall provide suitable barricades, red lights, "danger" or "caution" or "street closed" signs and watchmen at all places where the work causes obstructions to the normal traffic or constitutes in any way a hazard to the public.
- B. Noise:
 - 1. The CONTRACTOR shall eliminate noise to as great an extent as practicable at all times. Air compressing plants shall be equipped with silencers and the exhaust of all gasoline motors or other power equipment shall be provided with mufflers. The CONTRACTOR shall construct sound barriers as necessary to eliminate noise.

2. In the vicinity of hospitals and schools, special care shall be used to avoid noise or other nuisances. The CONTRACTOR shall strictly observe all local regulations and ordinances covering noise control.
 3. Except in the event of an emergency, no work shall be done between the hours of 4:30 p.m. and 7:30 a.m., or on Saturdays, Sundays or legal holidays without written permission of the OWNER. If the proper and efficient prosecution of the work requires operations during the night, the written permission of the OWNER shall be obtained before starting such items of the work. Requests for working outside normal working hours must be made at least 48 hours in advance of the proposed working time.
- C. Access to Public Services: Neither the materials excavated nor the materials or plant used in the construction of the work shall be so placed as to prevent free access to all fire hydrants, valves, manholes, etc.
- D. Dust Prevention: The CONTRACTOR shall prevent dust nuisance from his operations or from traffic by keeping the roads clean and/or construction areas sprinkled with water at all times.

1.10 CUTTING AND PATCHING:

- A. The CONTRACTOR shall do all cutting, fitting or patching of his portion of the work that may be required to make the several parts thereof join and coordinate in a manner satisfactory to the OWNER and ENGINEER and in accordance with the Drawings and Specifications.
- B. The work must be done by competent workmen skilled in the trade required by the restoration.

1.11 CLEANING

- A. During Construction:
 1. During construction of the work, the CONTRACTOR shall, at all times, keep the site of the work and adjacent premises as free from material, debris and rubbish as is practicable and shall remove the same from any portion of the site if, in the opinion of the OWNER, such material, debris, or rubbish constitutes a nuisance or is objectionable.
 2. The CONTRACTOR shall remove from the site all of his surplus materials and temporary structures when no further need therefore develops. CONTRACTOR shall be responsible and liable for all spillage and incur all associated costs including, but no limited to, costs related to repair and maintenance resulting from damages thereof.

B. Final Cleaning:

1. At the conclusion of the work, all erection plant, tools, temporary structures and materials belonging to the CONTRACTOR shall be promptly taken away, and he shall remove and promptly dispose of all water, dirt, rubbish or any other foreign substances.
2. The CONTRACTOR shall thoroughly clean all equipment and materials installed by him and shall deliver such materials and equipment undamaged in a bright, clean, polished and new operation condition.

1. 12 MISCELLANEOUS

A. Protection Against Siltation and Bank Erosion:

1. The CONTRACTOR shall arrange his operations and construct erosion control devices to minimize siltation and bank erosion on construction sites and on existing or proposed water courses and drainage channels.
2. The CONTRACTOR, at his own expense, shall remove any siltation deposits and correct any erosion problems as directed by the OWNER and ENGINEER that results from his construction operations.

B. Protection of Wetland Areas:

1. The CONTRACTOR shall properly dispose of all surplus material, including soil, in accordance with local, state and federal regulations.
2. Under no circumstances shall surplus material be disposed of in wetland areas as defined by the Florida Department of Environmental Protection or the Southwest Florida Water Management District.

C. Existing Facilities: The work shall be so conducted to maintain existing facilities in operation insofar as is possible.

D. Use of Chemicals: All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

E. Cooperation With Other CONTRACTORS and Forces:

1. During progress of work under this Contract, it may be necessary for other CONTRACTOR'S and persons employed by the OWNER to work in or about the project.

2. The OWNER reserves the right to put such other CONTRACTOR'S to work and to afford such access to the Site of the Work to be performed hereunder at such times as the OWNER deems proper.
 3. The CONTRACTOR shall not impede or interfere with the work of such other CONTRACTORS engaged in or about the work and shall so arrange and conduct his work that such other CONTRACTOR'S may complete their work at the earliest date possible.
- F. Construction shall be conducted and shall result in construction of the improvements of this project in full accordance with the conditions of the Permits granted for the Project.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This section describes the work to be performed under this Contract. Detailed requirements and extent of work are stated in applicable Specification sections and shown on the Drawings.
- B. Specifications and Drawings included in these contract documents establish the performance, quality requirements, location and general arrangement of materials and equipment, and establish the minimum standards for quality of workmanship and appearance.
- C. In general, the project will provide the OWNER with the following:

The plugging and abandonment of the existing public supply water well RO-7 (DID-51) and the construction and testing of replacement public supply water well RO-7AW (DID-80) within the City of Venice Wellfield. The wells are permitted for groundwater withdrawals under Water Use Permit No.20005393.010. Well RO-7 was completed with nominal 12-inch Inside Diameter (ID) PVC casing to 248 feet below land surface (ft bls) and nominal 12-inch diameter open bore hole to 350 ft bls, with a 6-inch PVC liner cemented in place from 245 to 265 ft bls. Well RO-7AW is to be drilled to a total depth of 350 ft bls, with approximately 250 feet of 12-inch inside diameter CERTA-LOK PVC final casing.

Well RO-7AW is located in Sarasota County Florida, Section 18, Township 39S, Range 19E at approximate coordinates of 27⁰ 5' 27.40"N Latitude and 82⁰ 26' 3.96"W Longitude.

- D. The CONTRACTOR is advised that the work is to be performed in a fully operational water supply wellfield, which is the principal source of water to the City of Venice Reverse Osmosis Water Treatment Plant. The CONTRACTOR shall be fully responsible for all precautionary measures together with all remediation, cleanup, disinfection, regulatory fines and all other labor, materials, and costs associated with any contamination of the water supply caused directly or indirectly by the activities of the CONTRACTOR in the performance of the work.

- E. The OWNER reserves the right to award any or all of the Contract parts to the CONTRACTOR, as best serves the interest of the OWNER. All parts thereof, which shall be constructed, shall be awarded to one CONTRACTOR. The OWNER further reserves the right to select which part to perform first, and the order of the parts performed thereafter.
- F. The CONTRACTOR shall, except as otherwise specifically stated in applicable parts of these Contract Documents, provide and pay for labor, materials, equipment, tools, construction equipment, facilities, and services necessary for proper execution, testing, and completion of the work.
- G. The CONTRACTOR must be licensed as a State of Florida Water Well CONTRACTOR and provide proof to the ENGINEER of all secured permits and operating licenses as required by local and state agencies.
- H. All work performed will be in accordance with these specifications and applicable American Water Works Association standards, and applicable Southwest Florida Water Management District, City of Venice, and Sarasota County rules and regulations.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

- A. Work parts include the following for the construction and testing of the Test/ Production Well (TP-1):
 - 1. Demolish and remove existing wellhead, pipes, and controls of well RO-7 (DID-51) and plug and abandon well.
 - 2. Prepare site for construction of replacement well RO-7AW (DID-80) including clearing and grubbing and erecting temporary security fence; install "pit" casing at CONTRACTOR'S discretion.
 - 3. Drill nominal 24- inch diameter bore hole to approximately 110 feet bls using mud rotary technique. Prepare borehole for casing installation.
 - 4. Furnish, install, and cement a nominal 20-inch diameter steel casing to approximately 110 feet bls.
 - 5. Drill nominal 20- inch diameter bore hole to approximately 250 feet bls using mud rotary technique. Prepare borehole for casing installation. Perform gamma and caliper logs of borehole.

6. Furnish, install, and cement a nominal 12-inch ID (14-inch OD) Certa-lok PVC casing to approximately 250 feet bls.
7. Drill out cement plug and switch to reverse-air drilling technique. Drill nominal 12-inch bore hole to 350 feet.
8. Provide and install air-lift system and develop well by air.
9. Install pump equipment for specific capacity pumping test and collection of background water sample.
10. Perform up to an 8-hour specific capacity pumping test.
11. Collect water samples and analyze for select primary drinking water standards, secondary drinking water standards, and operations water quality parameters.
12. If requested, furnish and install acid injection system and acidize well with up to 1,000 gallons of HCL.
13. Reinstall pump equipment and develop well by over-pumping, Contain and adjust pH of development water, and transport to Water Reclamation Facility (WRF) for disposal.
14. Perform up to an 8-hour specific capacity pumping test.
15. Perform gamma and caliper logs and video camera survey of completed well.
16. Complete wellhead and disinfect well. Contain and transport chlorinated water pumped to waste to the WRF for disposal.
17. Restore site and demobilize.

B. LIST OF DRAWINGS:

<u>Drawing No.</u>	<u>Drawing Title</u>
1	Well Construction Diagram

PART 4 - PAYMENT

- A. **GENERAL:** Payment for all work, materials and equipment specified in this section will be included in the appropriate unit price or lump sum items as stated in the CONTRACTOR's bid schedule and defined in the Measurements and Payment Section (Section 01026).

END OF SECTION

SECTION 01020

TROPICAL STORMS AND HURRICANES PREPAREDNESS/RECOVERY PLAN

PART 1 - GENERAL

1.01 INTRODUCTION

- A. The National Weather Service names a tropical weather system and begins to issue advisories as soon as the system reaches tropical storm strength. The advisories are issued every 6 hours. Supplemental advisories are issued at 3-hour intervals when landfall is expected in 24 hours or less.
- B. CONTRACTORS are fully responsible for any aspect of their construction work that may affect the city utility operations. The duration of this responsibility starts from the first construction day to final acceptance of the equipment or facilities installed. Therefore, during inclement weather, CONTRACTOR shall protect, maintain and repair installations as needed in a timely manner.

1.02 DEFINITIONS:

- A. Tropical Storm - a tropical storm/cyclone in which the maximum sustained surface winds are 39 miles per hour (34 knots) to 73 miles per hour (63 knots). At this point, the system is given a name to identify and track it.
- B. Tropical Storm Watch - a forecast issued well in advance of a severe weather event to alert the public of the possibility of a particular hazard.
- C. Tropical Storm Warning - a forecast issued when severe weather has developed, is already occurring and reported, or is detected on radar. Warning states a particular hazard or imminent danger.
- D. Hurricane - the name for a tropical cyclone with sustained winds of 74 miles per hour (65 knots) or greater in the North Atlantic Ocean, Caribbean Sea, Gulf of Mexico, and in the Eastern North Pacific Ocean. The same tropical cyclone is known as a typhoon in the Western Pacific and a cyclone in the Indian Ocean.
- E. Hurricane Watch - a formal advisory issued by forecasters at the National Hurricane Center when they have determined that hurricane conditions are a potential threat to a coastal area or group of islands within a 24 to 36 hour period. A watch is used to inform the public and marine interests of the storm's location, intensity, and movement. Everyone in the area covered by the watch should listen for further advisories and be ready to take precautionary actions including evacuation if directed.
- F. Hurricane Warning - a formal advisory issued by forecasters at The National Hurricane Center when they have determined that hurricane conditions are expected in a coastal area

or group of islands within a 24-hour period. A warning is used to inform the public and marine interests of the storm's location, intensity, and movement. The warning will specify areas where sustained winds of 74 mph, or higher, are expected to make landfall within 24 hours.

1.03 PREPAREDNESS

A. This plan is designed to supplement any storm preparedness/recovery plan currently established by the CONTRACTOR. The preparedness & recovery steps listed below shall be the minimum requirements set by the City of Venice for construction areas under contract with the City. OWNER or administrative personnel may also direct specific site requirements.

B. AFTER A STORM WATCH IS ISSUED

1. CONTRACTOR's field supervisor or project manager shall communicate with the City's field inspector or OWNER to discuss necessary actions. The CONTRACTOR shall obtain a copy of this plan. Emergency phone numbers, including cellular phone numbers will be exchanged.
2. General cleanup of loose construction items shall be accomplished. Excess signs and barricades shall be stored in a secured location.
3. Seal and secure all wells that are under repairs to prevent entry of debris or water intrusion.

C. AFTER A STORM WARNING IS ISSUED

1. CONTRACTOR'S field supervisor or project manager shall communicate with the City's field inspector or OWNER to discuss necessary actions if not previously accomplished. The CONTRACTOR shall obtain a copy of this plan. Emergency phone numbers, including cellular phone numbers will be exchanged.
2. Complete clean-up of construction items and equipment shall be accomplished. Excess signs and barricades shall be stored in a secured location. 120# of sand/shell bags shall be placed on each side barricades that must stay in place.
3. No open holes shall be left at the end of daily construction activities.
4. Tighten down all panel fasteners (cover with plastic if needed) and lock electric panels.

D. AFTER A HURRICANE WATCH IS ISSUED

1. CONTRACTOR shall meet with his/her key personnel and a city representative to discuss preparedness procedures, resolve any unusual circumstances and confirm

communication lines.

2. All construction power equipment shall be removed from the public right-of-way and stored at CONTRACTOR'S facilities. All construction materials including piping, valves, excess signs, barricades, etc. shall be stored in a secured location. 120# of sand/shell bags shall be placed on each side barricades that must stay in place. All barricades must be lighted.
3. Be alert for tornado warnings, as hurricanes often spawn tornadoes.
4. All auxiliary and standby equipment should be thoroughly checked out to determine its operational condition.
5. Fill all fuel tanks of vehicles and auxiliary equipment to capacity. Have sufficient fuel reserves for at least 48 hours of operation stored in approved 5-gallon gas cans.
6. Protect any installed electronic equipment (control panels, pull boxes, computers, etc.) from driving rain or flooding.

E. AFTER A HURRICANE WARNING IS ISSUED

1. All auxiliary and standby equipment should be thoroughly re-checked out to determine its operational condition.
2. Tighten down all electric panel fasteners (cover with plastic if needed) and lock electric panels and fence gate.
3. Prior to the storm hitting, turn off all unnecessary electrical equipment including lighting.

1.04 RECOVERY PLAN

A. AFTER THE TROPICAL STORM OR HURRICANE PASSES

1. Survey all construction site damage and notify emergency management agencies, city utilities and local regulators about utility status including estimation of placing contracted items back in service time.
2. Take photos and video of damaged areas to suit any proposed claims.
3. Have electrical systems inspected by a qualified electrical technician before placing the equipment on line.
4. Hurricane recovery activities including labor hours, inventory & supply usage, equipment & vehicle usage and necessary purchases should be well documented for insurance reimbursement purposes. Repairs to facilities should be differentiated as to whether the repair is temporary or permanent.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01026

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The CONTRACTOR shall receive and accept the compensation per quantity provided in the Proposal and the Contract as full payment for furnishing all materials, labor, tools and equipment, for performing all operations necessary to complete the work under the Contract, and also in full payment for all loss or damages arising from the nature of the work, or from the action of the elements or from any unforeseen difficulties which may be encountered during the execution of the work until the final acceptance by the OWNER.
- B. The prices stated in the Proposal include all costs and expenses for taxes, labor, equipment, materials, commissions, transportation charges and expenses, patent fees and royalties, labor for handling materials during inspection, together with any and all other costs and expenses for performing and completing the work as shown on the Drawings and as specified herein. The basis of payment for an item at the price shown in the Proposal shall be in accordance with the description of that item in this Section.

1.02 MEASUREMENT

- A. The quantities for payment under lump sum items in this Contract will be in accordance with the CONTRACTOR'S bid price.
- B. The quantities for payment under unit price items in this Contract will be determined by actual measurement of the completed items in place or performed, ready for service and accepted by the OWNER.

1.03 PAYMENT ITEMS

- A. Item No. A-1: Mobilization -Total Bid
 - 1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for mobilizing all necessary equipment and personnel to the site, demolition of existing site including removal of existing concrete slab, fencing, piping, electrical panels, etc., site preparation, pit casing installation, clearing and grubbing, temporary fencing, etc.
- B. Item No. A-2: Plug and Abandon Well RO-7 - Total Bid
 - 1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for providing all items necessary to plug and abandon well RO-7

including but not limited to, all permits, materials, equipment, labor, and all other incidentals required to complete the work as shown on the drawings and included in the Specifications.

C. Item No. A-3: Drill Nominal 24-inch Diameter Borehole - Total Bid

1. Payment will be made at the Contract unit price for the item, which shall be full compensation for providing all items necessary to drill a nominal 24-inch diameter borehole to approximately 110 feet below land surface (ft bls) using mud-rotary drilling techniques, including but not limited to, all materials, equipment, labor, and all other incidentals required to complete the work as shown on the drawings and included in the Specifications.

D. Item No. A-4: Furnish, Install and Cement Nominal 20-inch Diameter Steel Casing to Total Depth- Total Bid

1. Payment will be made at the Contract unit price for the item, which shall be full compensation for providing all items necessary to install and cement nominal 20-inch diameter steel casing of specified diameter to approximately 110 ft bls, including but not limited to, all materials, equipment, labor, and all other incidentals required to complete the work as shown on the drawings and included in the Specifications.

E. Item No. A-5: Drill Nominal 20-inch Diameter Borehole - Total Bid

1. Payment will be made at the Contract unit price for the item, which shall be full compensation for providing all items necessary to drill a nominal 20-inch diameter borehole to approximately 250 ft bls using mud-rotary drilling techniques, including but not limited to, all materials, equipment, labor, and all other incidentals required to complete the work as shown on the drawings and included in the Specifications.

F. Item No. A-6: Geophysical Logging - Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for providing caliper logging services for the plugging and abandonment of well RO-7, caliper and gamma ray geophysical logging services of the nominal 20-inch diameter borehole at well RO-7AW, and caliper and gamma ray geophysical logging services and video survey of the completed well RO-7AW, including but not limited to, all materials, equipment, labor and all other incidentals required to complete the work as shown on the drawings and included in the Specifications.

G. Item No. A-7: Furnish, Install, and Cement 14-inch Certa-lok PVC Casing to Total Depth- Total Bid

1. Payment will be made at the Contract unit price for the item, which shall be full compensation for providing all items necessary to install and cement 14-inch Certa-lok PVC casing of specified diameter to a depth of approximately 250 ft bls, including but not limited to, all materials, equipment, labor, and all other incidentals required to complete the work as shown on the drawings and included in the Specifications.

H. Item No. A-8: Drill Nominal 12-inch Diameter Open Borehole - Total Bid

1. Payment will be made at the Contract unit price for the item, which shall be full compensation for providing all items necessary to drill a nominal 12-inch diameter open borehole to 350 ft bls using reverse-air drilling, including but not limited to, all materials, equipment, labor, and all other incidentals required to complete the work as shown on the drawings and included in the Specifications.

I. Item No. A-9: Install Well Development System – Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for furnishing, installing, and removing the development system including but not limited to the air compressor, airline, pumps, storage tanks, pipes, gauges, valves and meters. Payment shall also constitute full compensation for all time, materials, and equipment required to obtain, assemble and disassemble the equipment as described in the Specifications.

J. Item No. A-10: Well Development by Airlift Pumping – Total Bid

1. Payment will be made at the Contract unit price per hour for the item which shall be full compensation for operating the equipment to develop the well by airlift pumping including but not limited to, all materials, equipment, labor, and all other incidentals required to complete the work as shown on the drawings and included in the Specifications.

K. Item No. A-11: Pumping Test Setup– Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for installing pump equipment for specific capacity testing including furnishing, temporarily installing, and removing the pump, driver and associated discharge piping, valve(s), and meter(s). Payment shall also constitute full compensation for all time, materials, and equipment required to obtain, assemble and disassemble the equipment as described in the Specifications.

L. Item No. A-12: Perform Pumping Test

1. Payment will be made at the Contract unit price per hour for the item, which shall be full compensation for operating the pump during the pumping test and all other incidentals required to complete the work as shown on the drawings and included in the Specifications. Payment will not include the hourly rate for pumping during the time the equipment is not actually in use or in the event the pumping test is not performed for the full duration of eight hours.

M. Item No. A-13: Water Quality Testing - Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for providing sampling bottles, purging the well, collection of the samples, conveyance and submittal of the samples to the CONTRACTORs approved laboratory and all other incidentals required to complete the work as shown on the drawings and included in the Specifications. Laboratory analyses for the parameters identified in the Specifications are also included in the unit price specified herein.

N. Item No. A-14: Install Acid Injection System – Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for furnishing, installing, and removing the acid injection system including but not limited to pumps, storage tanks, gauges, valves, piping and meters. Payment shall also constitute full compensation for all time, materials, and equipment required to obtain, assemble and disassemble the equipment as described in the Specifications.

O. Item No. A-15: HCL Acid Injection –Total Bid

1. Payment will be made at the Contract unit price per gallon of hydrochloric acid, which shall be full compensation for providing the hydrochloric acid with acid inhibitor, injecting the acid, and post-acidification monitoring.

P. Item No. A-16: Install Post-Acidization Well Development System – Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for furnishing, installing, and removing the post-acidization development system including but not limited to the pumps, storage tanks, pipes, gauges, valves, and meters. Payment shall also constitute full compensation for all time, materials, and equipment required to obtain, assemble and disassemble the equipment as described in the Specifications.

Q. Item No. A-17: Post-Acidization Well Development – Total Bid

1. Payment will be made at the Contract unit price per hour for the item, which shall be full compensation for developing the well and discharging the development water to a storage tank/tanker truck, adjusting the pH, and transporting it to the OWNER's Water Reclamation Facility and all other incidentals required to complete the work as included in the Specifications

R. Item No. A-18: Wellhead Completion - Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for providing wellhead completion and disinfecting the well, including all materials, equipment, labor, and all other incidentals required to complete the work as shown on the drawings and included in the Specifications.

S. Item No. A-19: Site Work - Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for completing the site work, including all materials, equipment, labor, and all other incidentals required to complete the concrete slab, fencing, site lighting, restoration and other work as shown on the drawings and included in the Specifications.

T. Item No. A-20: Site Piping and Valving - Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for providing and installing the site piping and valving, including all materials, equipment, labor, and all other incidentals required to complete the site piping, butterfly valves, check valves, air release valves, flow meter, and other work as shown on the drawings and included in the Specifications.

U. Item No. A-21: Well Pump and Motor - Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for providing and installing the well pump and motor, including all materials, equipment, labor, and all other incidentals required to complete the work as shown on the drawings and included in the Specifications.

V. Item No. A-22: Electrical and Controls - Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for providing and installing electrical and controls, including all materials, equipment, labor, and all other incidentals required to complete the work as shown on the drawings and included in the Specifications.

W. Item No. A-23: Demobilization - Total Bid

1. Payment will be made at the Contract lump sum price for the item, which shall be full compensation for removal of all drilling equipment, temporary fencing, signs, debris, material, and personnel from the site, removal and disposal of unused wellhead piping and materials, and restoring the site to its original condition.

X. Item No. A-24: Standby Time - Total Bid

1. Payment will be made at the Contract unit price per hour for the item, which shall be full compensation for shutdown time of the equipment and drill crew for any portion of the working day as directed by the OWNER or ENGINEER and detailed in the specifications.

Z. Item No. A-25: OWNER'S Allowance

1. This Bid Item includes an OWNER'S Allowance of \$20,000 for unforeseen tasks required to complete the project, which will be used only with the written approval of the OWNER. A scope description and fee breakdown will be provided to the OWNER for any proposed use of the OWNER'S Allowance.

PART 2.0 - PRODUCTS (Not Used)

PART 3.0 - EXECUTION (Not Used)

PART 4.0 - PAYMENT (Not Used)

END OF SECTION

SECTION 01027

APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Submit Applications for Payment to the OWNER and ENGINEER in accordance with schedule established by Conditions of the Contract and Agreement between OWNER and CONTRACTOR.

1.02 FORMAT AND DATA REQUIRED

- A. Submit applications typed on forms provided by the OWNER, Application for Payment, with itemized data typed on 8-1/2 inch x 11 inch or 8-1/2 inch x 14 inch white paper continuation sheets.
- B. Provide itemized data on continuation sheet of format, schedules, line items and values: Those of the Schedule of Values accepted by the OWNER and ENGINEER.

1.03 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
 - 1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
 - 2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
 - 3. Execute certification with signature of a responsible officer of Contract firm.
- B. Continuation Sheets:
 - 1. Fill in total list of all scheduled component items of work, with item number and scheduled dollar value for each item.
 - 2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored. Round off values to nearest dollar, or as specified for Schedule of Values.
 - 3. List each Change Order executed prior to date of submission, at the end of the continuation sheets. List by Change Order Number, and description, as for an original component item of work.

4. To receive approval for payment on component material stored on site, submit copies of the original invoices with the application for payment.
5. As provided for in the "Application for Payment" form, the CONTRACTOR shall certify, for each current pay request, that all previous progress payments received from the OWNER, under this Contract, have been applied by the CONTRACTOR to discharge in full all obligations of the CONTRACTOR in connection with Work covered by prior Applications for Payment, and all materials and equipment incorporated into the Work are free and clear of all liens, claims, security interest and encumbrances. CONTRACTOR shall attach to each Application for Payment like affidavits by all subcontractors.

1.04 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the OWNER or the ENGINEER requires substantiating data, CONTRACTOR shall submit suitable information, with a cover letter identifying:
 1. Project.
 2. Application number and date.
 3. Detailed list of enclosures.
 4. For stored products:
 - a. Item number and identification as shown on application.
 - b. Description of specific material.
- B. Submit one copy of data and cover letter for each copy of application.
- C. As a prerequisite for payment, CONTRACTOR is to submit a "Surety Acknowledgment of Payment Request" letter showing amount of progress payment which the CONTRACTOR is requesting.
- D. The CONTRACTOR is to maintain an updated set of drawings to be used as record drawings in accordance with Section 01720. As a prerequisite for monthly progress payments, the CONTRACTOR is to exhibit the updated record drawings for review by the OWNER and the ENGINEER.

1.05 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in Application form as specified for progress payments.

1.06 SUBMITTAL PROCEDURE

- A. Submit Applications for Payment to the ENGINEER at the time stipulated in the Agreement.
- B. Number of copies for each Application for Payment:
 - 1. OWNER: Three (3) copies
 - 2. ENGINEER: Two (2) copies
 - 3. CONTRACTOR: As required for his needs
- C. When the ENGINEER finds Application properly completed and correct, he will transmit certificate for payment to OWNER, with copy for CONTRACTOR.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01041

PROJECT COORDINATION

PART 1 - GENERAL

1.01 CITY

- A. The CONTRACTOR shall coordinate with the OWNER prior to any shutdown, removal, or installation of the City's system.

1.02 PRIVATE LAND

- A. The CONTRACTOR shall not enter or occupy private land outside the site, except by written permission of the appropriate owners. The CONTRACTOR shall provide a minimum of 48 hours of advanced notice prior to entering the property and at least 72 hours of advanced notice for any work being conducted on their property.

1.03 PIPE LOCATIONS

- A. Pipelines shall be located as indicated on the Drawings, but the OWNER and ENGINEER reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings are noted on the Drawings, such notation is for the CONTRACTOR'S convenience and does not relieve him from laying and jointing different or additional items where required.

1.04 OPEN EXCAVATIONS

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The CONTRACTOR shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by workmen.

1.05 CARE AND PROTECTION OF PROPERTY

- A. The CONTRACTOR shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the CONTRACTOR, such property shall be restored by the CONTRACTOR, at his expense, to a condition equal to or better than existing before the damage was done, or he shall make good the damage in other manner acceptable to the OWNER and ENGINEER.

1.06 CARE AND PROTECTION OF WORK

- A. All newly constructed work shall be carefully protected from damage in any way. No wheeling walking or placing of heavy loads on it shall be allowed on fresh concrete work and all portions damaged shall be reconstructed by the CONTRACTOR at his own expense.
- B. All structures and the concrete trail shall be protected in a manner approved by the OWNER and ENGINEER. Should any parts of the structures or trail become heaved, cracked or otherwise damaged, all such damaged portions of the work shall be completely repaired and made good by the CONTRACTOR at his own expense and to the satisfaction of the OWNER and ENGINEER. If, in the final inspection of the work, any defects, faults or omissions are found, the CONTRACTOR shall repair, remove and/or replace with proper materials and workmanship any defects, faults or omissions without extra compensation for the materials and labor required. Further, the CONTRACTOR shall be fully responsible for the satisfactory maintenance and repair of the construction and other work undertaken herein, for at least the guarantee period described in the contract.
- C. Further, the CONTRACTOR shall take all necessary precautions to prevent damage to any structure due to water pressure during and after construction and until such structure is accepted and taken over by the OWNER.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 – GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The ENGINEER shall schedule and administer a preconstruction meeting, periodic progress meetings and specially called meetings throughout the progress of the work and shall be responsible for the following:
1. Prepare agenda for meeting.
 2. Distribute written notice of each meeting.
 3. Make physical arrangements for meeting.
 4. Preside at meetings.
 5. Record the minutes; include all significant proceedings and decisions.
 6. Reproduce and distribute copies of minutes:
 - a. To all participants in the meeting.
 - b. To all parties affected by decisions made at the meeting.
- B. Representatives of the Design and Construction ENGINEER, other Utility Companies, CONTRACTORS, subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

1.02 PRE-CONSTRUCTION MEETING

- A. Schedule within ten (10) days after date of Agreement between OWNER and CONTRACTOR.
- B. Location: A central site, convenient for all parties.
- C. Attendance:
1. Representative from the City of Venice, Utilities Department.
 2. Resident City Inspector.

3. CONTRACTOR'S Superintendent.
 4. Major Subcontractors.
 5. Major Suppliers.
 6. Others as Appropriate.
- D. Suggested Agenda:
1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers.
 - b. Projected Construction Schedules.
 2. Critical Work Sequencing.
 3. Major equipment deliveries and priorities.
 4. Project Coordination.
 - a. Designation of responsible personnel.
 5. Procedures and processing of:
 - a. Field decisions.
 - b. Proposal requests.
 - c. Submittals.
 - d. Change Orders.
 - e. Applications for Payment.
 6. Adequacy of distribution of Contract Documents.
 7. Procedures for maintaining Record Documents.
 8. Use of premises:
 - a. Office, work and storage areas.
 - b. OWNER'S requirements.

9. Construction facilities, controls and construction aids.
10. Temporary utilities.
11. Safety and first-aid procedures.
12. Security procedures.
13. Housekeeping procedures.

1.03 PROGRESS MEETINGS

- A. Schedule regular periodic meetings, as required.
- B. Hold called meetings as required by progress of the Work.
- C. Attendance:
 1. Project OWNER.
 2. Resident City Inspector.
 3. CONTRACTOR and subcontractor as appropriate to the Agenda.
 4. Suppliers as appropriate to the Agenda.
 5. Other Utility Companies.
- D. Suggested Agenda:
 1. Review, approval of minutes of previous meeting.
 2. Review of Work progress since previous meeting.
 3. Field observation, problems, and conflicts.
 4. Problems that impede Construction Schedule.
 5. Review of delivery schedules.
 6. Corrective measures and procedures to regain projected schedule.
 7. Revisions to Construction Schedule.
 8. Plan progress, schedule; expedite as required.

9. Coordination of schedules.
10. Review submittal schedules; expedite as required.
11. Maintenance of quality standards.
12. Review proposed changes for:
 - a. Effect on Construction Schedule and on completion date.
 - b. Effect on other contracts of the Project.
13. Other business.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01310

CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. After award of the Contract, prepare and submit to the ENGINEER estimated construction progress schedules demonstrating complete fulfillment of all contract requirements utilizing a Critical Path Method (hereinafter referred to as CPM) in planning, coordinating and performing the work under this contract (including all activities of subcontractors, equipment vendors and suppliers). The principles and definition CPM terms used herein shall be as set forth in the Associated General Contractors of America (AGC) publication, The Use of CPM in Construction, A Manual for General Contractors and the Construction Industry, Copyright 1976, but the provisions of this section shall govern the planning, coordinating and performance of the work.
2. Submit revised progress schedules on a monthly basis. No partial payments shall be approved until there is an approved construction progress schedule on hand.

1.02 FORM OF SCHEDULES

A. Prepare schedules in the form of a horizontal bar chart.

1. Provide separate horizontal bar for each trade or operation within each structure or item.
2. Horizontal time scale:
 - a) Show starting and completion dates for each activity in terms of the number of days after Notice to Proceed. All completion dates shown shall be within the period specified for contract completion.
 - b) Identify the first work day of each month.
3. Scale and Spacing: Sufficient to allow space for notations and future revisions.
4. Maximum Sheet Size: 11 inches x 17 inches.

B. Format of Listings: The chronological order of the start of each item of work for each structure.

- C. Identification of Listings: By major specification section numbers as applicable and by structure.

1.03 CONTENT OF SCHEDULES

- A. Construction Progress Schedule:

1. Show the complete sequence of construction by activity.
2. Show the dates for the beginning of, and completion of, each major element of construction in no more than a two-week increment scale. Specifically list, but not limit to:
 - a) Shop drawing schedule
 - b) Demolition
 - c) Site clearing
 - d) Well Drilling
 - e) Well Acidification
 - f) Site Piping
 - g) Electrical Instrumentation
 - h) Substantial Completion
 - i) Final Completion
3. Show projected percentage of completion for each item, as of the first day of each month.
4. Show projected dollar cash flow requirements for each month of construction and for each activity as indicated by the approved Schedule of Values.

- B. Submittals, Schedule for Shop Drawings, and Samples in Accordance with Section 01340. Show:

1. The dates for CONTRACTOR'S submittals.
2. The date submittals will be required for OWNER-furnished products, if applicable.
3. The dates approved submittals will be required from the OWNER and ENGINEER.

- C. A written list of all long lead items (equipment, materials, etc.).

- D. To the extent that the progress schedule or any revised progress schedule shows anything not jointly agreed upon or fails to show anything jointly agree upon, it shall not be deemed to have been approved by the OWNER and ENGINEER. Failure to include any element of work required for the performance of this Contract shall not excuse the CONTRACTOR from completing all work required within any applicable completion date, notwithstanding

the OWNER and ENGINEER'S approval of the progress schedule.

- E. Scheduling Constraints: The work within the OWNER'S property must be completed within the maximum number of days start to finish, as indicated in the Contract. Additionally, work must proceed on a continuous basis, without stoppages, except for nights and weekends. There shall be no lapses between phases of construction.

1.04 PROGRESS REVISIONS

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

1.05 SUBMISSIONS

- A. Submit initial schedules to the OWNER and ENGINEER within ten (10) days after Notice to Proceed.
 - 1. The ENGINEER will review schedules and return review copy within ten (10) days after receipt.
 - 2. If required, resubmit within seven (7) days after return of review copy.
- B. Upon approval of the initial schedule, add calendar dates to the bar chart corresponding to days from Notice to Proceed. The dates given for beginning and ending of the project shall correspond to the date of the Notice to Proceed to 180 days from the Notice to Proceed, respectively, in order to reflect the specified contract schedule duration.
- C. Submit revised monthly progress schedules with that month's application for payment. With each request for a partial payment, submit a copy of the progress schedule marked to show the activities completed and partially completed, for which payment is requested.
- D. Submit one reproducible transparency and five opaque reproductions.

1.06 DISTRIBUTION

- A. Distribute copies of the reviewed schedules to:
 - 1. ENGINEER
 - 2. Jobsite file
 - 3. Subcontractors
 - 4. Other concerned parties
 - 5. City of Venice (two copies)

- B. Instruct recipients to report promptly to the CONTRACTOR, in writing, any problems anticipated by the projections shown in the schedules.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01340

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. The CONTRACTOR shall submit to the OWNER and ENGINEER for review and exception, if any, such working drawings, shop drawings, test reports and data on materials and equipment (hereinafter in this article called data), and material samples (hereinafter in this article called samples) as are required for the proper control of work, including but not limited to those working drawings, shop drawings, data and samples for materials and equipment specified elsewhere in the Specifications and in the Contract Drawings.
2. Within thirty (30) calendar days after the Effective Date of the Agreement, the CONTRACTOR shall submit to the OWNER and ENGINEER a complete list of preliminary data on items for which Shop Drawings are to be submitted. Included in this list shall be the names of all proposed manufacturers furnishing specified items. Review of this list by the ENGINEER shall in no way expressed or implied relieve the CONTRACTOR from submitting complete Shop Drawings and providing materials, equipment, etc., fully in accordance with the Specifications. This procedure is required in order to expedite final review of Shop Drawings.
3. The CONTRACTOR is to maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the OWNER and the ENGINEER. This log should include the following items:
 - a. Submittal-Description and Number assigned.
 - b. Date to ENGINEER.
 - c. Date returned to CONTRACTOR (from ENGINEER).
 - d. Status of Submittal (Approved, Approved as Noted, Rejected- Resubmit).
 - e. Date of Resubmittal and Return (as applicable).

- f. Date material release (for fabrication).
- g. Projected date of fabrication.
- h. Projected date of delivery to site.
- i. Status of O&M manuals submittal.
- j. Specification Section.
- k. Drawings Sheet Number.

1.02 CONTRACTOR'S RESPONSIBILITY

- A. It is the duty of the CONTRACTOR to check all drawings, data and samples prepared by or for him before submitting them to the ENGINEER for review. Each and every copy of the Drawings and data shall bear CONTRACTOR's stamp showing that they have been so checked. Shop drawings submitted to the ENGINEER without the CONTRACTOR'S stamp will be returned to the CONTRACTOR for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal from requirements of the Contract Documents. If the CONTRACTOR takes exception to the specifications, the CONTRACTOR shall note the exception in the letter of transmittal to the ENGINEER.
- B. Determine and verify:
 - 1. Field measurements.
 - 2. Field construction criteria.
 - 3. Catalog numbers and similar data.
 - 4. Conformance with Specifications.
- C. The CONTRACTOR shall furnish the ENGINEER a schedule of Shop Drawings submittals fixing the respective dates for the submission of shop and working drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall indicate those that are critical to the progress schedule.
- D. The CONTRACTOR shall not begin any of the work covered by a drawing, data, or a sample returned for correction until a revision or correction thereof has been reviewed and returned to him, by the OWNER and ENGINEER, with approval.

- E. The CONTRACTOR shall submit to the ENGINEER all drawings and schedules sufficiently in advance of construction requirements to provide no less than thirty (30) calendar days for checking and appropriate action from the time the ENGINEER receives them.
- F. All submittals shall be accompanied with a transmittal letter prepared in duplicate containing the following information:
 - 1. Date.
 - 2. Project Title and Number.
 - 3. CONTRACTOR'S name and address.
 - 4. The number of each Shop Drawings, Project Data, and Sample submitted.
 - 5. Notification of Deviations from Contract Documents.
 - 6. Submittal Log Number conforming to Specification Section Numbers.
- G. The CONTRACTOR shall submit six (6) copies of descriptive or product data submittals to complement shop drawings for the ENGINEER plus the number of copies that the CONTRACTOR requires returned. All blueprint shop drawings shall be submitted with one (1) set of Mylar reproducible and four (4) sets of prints. The ENGINEER will review the blueprints and return to the CONTRACTOR the set of marked-up Mylar reproducible with appropriate review comments.
- H. The CONTRACTOR shall be responsible for and bear all costs of damages that may result from the ordering of any material or from proceeding with any part of work prior to the completion of the review by ENGINEER of the necessary Shop Drawings.
- I. The CONTRACTOR shall be fully responsible for observing the need for and making any changes in the arrangement of piping, connections, wiring, manner of installation, etc., which may be required by the materials/equipment he proposed to supply both as pertains to his own work and any work affected under other parts, headings, or divisions of drawings and specifications.

1.03 ENGINEER'S REVIEW OF SHOP DRAWINGS

- A. The ENGINEER'S review of drawings, data and samples submitted by the CONTRACTOR will cover only general conformity to the Specifications, external connections, and dimensions which affect the installation. The ENGINEER'S review and exceptions, if any, will not constitute an approval of dimensions, quantities, and details of the material, equipment, device, or item shown.

- B. The review of drawings and schedules will be general, and shall not be construed:
1. As permitting any departure from the Contract requirements;
 2. As relieving the CONTRACTOR of responsibility for any errors, including details, dimensions, and materials;
 3. As approving departures from details furnished by the ENGINEER, except as otherwise provided herein.
- C. If the drawings or schedules as submitted describe variations and show a departure from the Contract requirements which ENGINEER finds to be in the interest of the OWNER and to be so minor as not to involve a change in Contract Price or time for performance, the ENGINEER may return the reviewed drawings without noting an exception.
- D. When reviewed by the ENGINEER, each of the Shop Drawings will be identified as having received such review being so stamped and dated. Shop Drawings stamped "REVISE AND RESUBMIT" and with required corrections shown will be returned to the CONTRACTOR for correction and resubmittal.
- E. Resubmittals will be handled in the same manner as first submittals. On resubmittals, the CONTRACTOR shall direct specific attention, in writing or on resubmitted Shop Drawings, to revisions other than the corrections requested by the ENGINEER on previous submissions. The CONTRACTOR shall make any corrections required by the ENGINEER.
- F. If the CONTRACTOR considers any correction indicated on the drawings to constitute a change to the Contract Drawings or Specifications, the CONTRACTOR shall give written notice thereof to the ENGINEER.
- G. Shop drawings and submittal data shall be reviewed by the ENGINEER for each original submittal and first resubmittal; thereafter review time for subsequent resubmittals shall be charged to the CONTRACTOR in accordance with the terms of the ENGINEER's Agreement with the OWNER.
- H. When the Shop Drawings have been completed to the satisfaction of the ENGINEER, the CONTRACTOR shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the ENGINEER.
- I. No partial submittals will be reviewed. Submittals not complete will be returned to the CONTRACTOR for resubmittal. Unless otherwise specifically permitted by the ENGINEER, CONTRACTOR shall make all submittals in groups containing all associated items for:

1. Systems.
2. Processes.
3. As indicated in specific specifications sections. All drawings, schematics, manufacturer's product data, certifications and other shop drawing submittals required by a system specification shall be submitted at one time as a package to facilitate interface checking.

1.04 SHOP DRAWINGS

- A. When used in the Contract Documents, the term "Shop Drawings" shall be considered to mean CONTRACTOR'S plans for materials and equipment, which become an integral part of the Project. These drawings shall be complete and detailed. Shop Drawings shall consist of fabrication, erection and setting drawings and schedule drawings, manufacturer's scale drawings, and wiring and control diagrams. Cuts, catalogs, pamphlets, descriptive literature, and performance and test data, shall be considered only as supportive to required Shop Drawings as defined above. As used herein, the term "manufactured" applies to standard units usually mass-produced; and "fabricated" means items specifically assembled or made out of selected materials to meet individual design requirements.
- B. Manufacturer's catalog sheets, brochures, diagrams, illustrations and other standard descriptive data shall be clearly marked to identify pertinent materials, product or models. Delete information that is not applicable to the Work by striking or cross-hatching.
- C. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the ENGINEER and shall bear the CONTRACTOR'S stamp of approval as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval shall be returned to the CONTRACTOR for resubmission.
- D. Each Shop Drawing shall have a blank area 3-1/2 inches by 3-1/2 inches, located adjacent to the title block. The title block shall display the following:
 1. Project Title and Number.
 2. Name of project building or structure.
 3. Number and title of the shop drawing.
 4. Date of shop drawing or revision.
 5. Name of CONTRACTOR and subcontractor submitting drawing.

6. Supplier/manufacturer.
 7. Separate detailer when pertinent.
 8. Specification title and number.
 9. Specification section.
 10. Application Contract Drawing Number.
- E. If drawings show variations from Contract requirements because of standard shop practice or for other reasons, the CONTRACTOR shall describe such variations in his letter of transmittal. If acceptable, proper adjustment in the Contract shall be implemented where appropriate. If the CONTRACTOR fails to describe such variations, he shall not be relieved of the responsibility for executing the work in accordance with the Contract, even though such drawings have been reviewed.
- F. Data on materials and equipment include, without limitation, materials and equipment lists, catalog data sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.
- G. For all mechanical and electrical equipment furnished, the CONTRACTOR shall provide a list including the equipment name, and address and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained.
- H. All manufacturers or equipment suppliers who proposed to furnish equipment or products shall submit an installation list to the ENGINEER along with the required shop drawings. The installation list shall include at least five (5) installations where identical equipment has been installed and has been in operation for a period of at least one (1) year.
- I. Only the ENGINEER will utilize the color "red" in marking Shop Drawing submittals.

1.05 WORKING DRAWINGS

- A. When used in the Contract Documents, the term "working drawings" shall be considered to mean the CONTRACTOR's plan for temporary structures such as temporary bulkheads, support of open cut excavation, support of utilities, ground water control systems, forming and falsework; for underpinning; and for such other work as may be required for construction but does not become an integral part of the Project.

- B. Copies of working drawings as noted in paragraph 1.05 A. above, shall be submitted to the ENGINEER where required by the Contract Documents or requested by the ENGINEER, and shall be submitted at least thirty (30) calendar days (unless otherwise specified by the ENGINEER) in advance of their being required for work.
- C. Working drawings shall be signed by a registered Professional ENGINEER, currently licensed to practice in the State of Florida and shall convey, or be accompanied by, calculation or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Prior to commencing such work, working drawings must have been reviewed without specific exceptions by the ENGINEER, which review will be for general conformance and will not relieve the CONTRACTOR in any way from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error are assumed by the CONTRACTOR; the OWNER and ENGINEER shall have no responsibility therefore.

1.06 SAMPLES

- A. The CONTRACTOR shall furnish, for the approval of the OWNER and ENGINEER, samples required by the Contract Documents or requested by the OWNER and ENGINEER. Samples shall be delivered to the ENGINEER as specified or directed. The CONTRACTOR shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in work until approved by the OWNER and ENGINEER.
- B. Samples shall be of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of the product, with integrally related parts and attachment devices.
 - 2. Full range of color, texture and pattern.
 - 3. A minimum of two samples of each item shall be submitted.
- C. Each sample shall have a label indicating:
 - 1. Name of Project.
 - 2. Name of CONTRACTOR and Subcontractor.
 - 3. Material or Equipment Represented.
 - 4. Place of Origin.
 - 5. Name of Producer and Brand (if any).

6. Location in Project.

(Samples of finished materials shall have additional marking that will identify them under the finished schedules).

- D. The CONTRACTOR shall prepare a transmittal letter in triplicate for each shipment of samples containing the information required in paragraph 1.06 C. above. He shall enclose a copy of this letter with the shipment and send a copy of this letter to the ENGINEER. Approval of a sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify any Contract requirements.
- E. Approved samples not destroyed in testing shall be sent to the ENGINEER or stored at the site of the work. Approved samples of the hardware in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in work shall match the approved samples. Samples that failed testing or were not approved will be returned to the CONTRACTOR at his expense, if so requested at time of submission.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01400

GENERAL QUALITY CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. Definitions:

1. Specific quality control requirements for the work are indicated throughout the Contract Documents. In particular, quality control provisions for manufactured products are specified in individual work sections and in other related sections of Division 1; and are not repeated in this section. 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 ENGINEER's duties relating to Contract quality review and observation.

1.02 QUALITY ASSURANCE

A. General Workmanship Standards:

1. Except as more definitively specified in other sections of Division 1, comply with the recognized workmanship quality standards within the industry as applicable to each unit of work, including ANSI standards where applicable. 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.

1.03 SUBMITTALS

- ###### A.
- Refer to Section 01340 for the general submittal requirements applicable to inspection and test reports, project photographs, damage surveys, quality control samples, maintenance agreements, guaranties, warranties, and similar documentation of quality compliances as required. Refer to the applicable individual work sections of Division 2 through 16 where applicable for specific certification and submittal requirements.

Copies and Distribution: Where inspection and test reports and certifications are required by governing authorities, provide additional copies as required, and, where required, send copies directly from inspection or testing agency to governing authority.

1.04 PRODUCT DELIVERY-STORAGE-HANDLING

- A. Materials, supplies, and equipment delivered to the site shall be inspected for damage, unloaded, and stored with a minimum of handling. Delivered items shall not be stored directly on the ground. Handle, store and protect materials and products, including fabricated components, by methods and means recommended by the manufacturer that will prevent damage, deterioration and losses (and resulting delays), thereby ensuring highest quality results as the performance of the work progresses. Control delivery schedules to minimize unnecessary long-term storage at the project site prior to installation. Periodically exercise equipment stored in accordance with the manufacturer's recommendations.
- B. The OWNER and ENGINEER will refuse to accept, or sample for testing, materials, supplies, or equipment that have been improperly or unsuitably stored.
- C. Materials, supplies or equipment found defective or unfit for use shall not be incorporated in the work and shall immediately be removed from the construction or storage sites and replaced with new materials, supplies or equipment by the CONTRACTOR at no additional cost to the OWNER.
- D. If, instead of requiring removal and replacement of defective items, the OWNER (and, prior to approval of final payment, also the ENGINEER) prefers to accept the defective item(s), he may do so. In such case, if acceptance occurs prior to approval of final payment, a change order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract price; or if the acceptance occurs after approval of final payment, an appropriate amount shall be paid by the CONTRACTOR to the OWNER.

1.05 RESPONSIBILITY FOR INSPECTIONS AND TESTS

- A. CONTRACTORs Responsibility:
 - 1. It will be the CONTRACTOR's responsibility to employ and pay for the services of certified independent testing laboratories. In addition, the CONTRACTOR shall pay for all retests required due to failure to meet specifications.
 - a. The certified independent testing laboratories qualifications, test procedures, forms and quality control program shall be submitted to the ENGINEER for review and approval.
 - 2. No failure of test agencies, whether engaged by the OWNER or CONTRACTOR, to perform adequate inspections or 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 compliances 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 compliances.

B. Coordination with OWNER's Agencies:

1. Afford access and reasonable time in the construction sequence for OWNER's inspections and tests to be performed. Cooperate with agencies and provide incidental labor and services needed for the removal and delivery of test samples, and for inspections and taking measurements. Provide patching and restoration services where test samples have been removed.

C. Test Agency Responsibilities:

1. Test agencies, regardless of whether engaged by the OWNER or CONTRACTOR, are not authorized to change or negate the requirements of the Contract Documents. Each agency shall coordinate its assigned work with the construction schedule as maintained by the CONTRACTOR, and shall perform its work promptly so as not to delay the work avoidably. Observations (by agencies) having a bearing on the work shall be reported to the ENGINEER, in the most expeditious way possible, and shall be recorded in writing by the agency. Agency personnel shall not interfere with or assume the duties of the CONTRACTOR.

PART 2 - PRODUCTS

2.01 EQUIPMENT AND MATERIALS

- A. All equipment and materials furnished under these specifications shall be new and unused.

2.02 PROJECT RECORDINGS

- A. The CONTRACTOR shall provide color DVD recordings before, during and after construction begins, and will furnish the OWNER with copies before, during and after construction. The DVDs must be submitted to and approved by the City of Venice Utilities Department prior to starting construction work and after all survey stakeout is complete. For DVD recordings, the CONTRACTOR shall submit data sheets, which indicate problem areas by, index number and brief description of condition.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Pre-Installation Conferences:

1. Well in advance of the installation of every major unit of work which requires coordination with other work, meet at the project site with installers and representatives of manufacturers and fabricators who are involved in or affected by the unit of work, and in its coordination or integration with other work which has preceded or will follow. Advise ENGINEER of scheduled meeting dates. At each meeting, review the progress of other work and preparations for the particular work under consideration including, but not limited to, the requirements of the Contract Documents, options, related change orders, purchases, deliveries, shop drawings, product data, quality control samples, possible conflicts, compatibility problems, time schedules, weather limitations, temporary facilities, space and access limitations, structural limitations, governing regulations, safety, inspection and testing requirements, required performance results, recording requirements, and protection. Record the significant discussions of each conference, and the agreements and disagreements, along with the final plan of action. Distribute record of meeting promptly to everyone concerned, including the ENGINEER.
2. The CONTRACTOR shall not proceed with the work if the associated pre-installation conference cannot be concluded successfully. Instigate actions to resolve impediments to the performance of the work, and reconvene the conference at the earliest date feasible.

B. Installer's Inspection of Conditions:

1. The CONTRACTOR shall require the Installer of each major unit of work to inspect the substrate to receive the work, and the conditions under which the work will be performed, and to report (in writing to the CONTRACTOR) unsatisfactory conditions. The CONTRACTOR shall not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

3.02 INSTALLATION QUALITY CONTROL

A. Manufacturer's Instructions:

1. Where installations include manufactured products, the CONTRACTOR shall comply with the manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in the Contract Documents.

- B. The CONTRACTOR shall inspect each item of materials or equipment immediately prior to installation, and reject damaged and defective items.

1. The CONTRACTOR shall provide attachment and connection devices and methods for securing work properly as it is installed; true to line and level, and within recognized industry tolerances if not otherwise indicated. Allow for expansions and building movements. Provide uniform joint widths in exposed work, organized for best possible visual effect. Refer questionable visual effect choices to ENGINEER for final decision.
2. The CONTRACTOR shall recheck measurements and dimensions of the work, as an integral step of starting each installation.
3. The CONTRACTOR shall install work during conditions of temperature, humidity, exposure, forecasted weather, and status of project completion, which will ensure the best possible results for each unit of work, in coordination with the entire work. Isolate each unit of work from noncompatible work, as required to prevent deterioration.
4. The CONTRACTOR shall coordinate enclosure (closing-in) of work with required inspections and tests, to avoid the necessity of uncovering work for that purpose.

C. Mounting Heights:

1. Except as otherwise indicated, the CONTRACTOR shall mount individual units of work at the industry-recognized standard mounting heights, for the applications indicated. Refer questionable mounting height choices to the OWNER and ENGINEER for final decision.

- D. Adjust, clean, lubricate, restore marred finishes, and protect newly installed work, to ensure that it will remain without damage or deterioration during the remainder of the construction period.

END OF SECTION

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SECTION 01410

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. CONTRACTOR provided testing laboratory services.

1.02 SELECTION AND PAYMENT

- A. CONTRACTOR will employ and pay for services of independent testing laboratory to perform specified inspection and testing.
- B. CONTRACTOR is responsible for all costs associated with the retesting of failed portions of the work and/or additional testing required to qualify the material that does not meet contract specifications during installations.
- C. Employment of testing laboratory shall not relieve CONTRACTOR of obligation to perform Work in accordance with requirements of Contract Documents.

1.03 LABORATORY REPORTS

- A. After each inspection and test, laboratory will submit copies of laboratory report to OWNER, ENGINEER, and CONTRACTOR, including date issued, Project title and number, name of inspector, date and time of sampling or inspection, identification of product and Specifications section, location in Project, type of inspection or test, date of test, results of tests, and conformance with Contract Documents.

1.04 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
- B. Laboratory may not approve or accept any portion of Work.
- C. Laboratory may not assume duties of CONTRACTOR.
- D. Laboratory has no authority to stop Work.

1.05 CONTRACTOR RESPONSIBILITIES

- A. CONTRACTOR shall be responsible for all testing laboratory services and engineering data required for OWNER and ENGINEER's review of materials and equipment proposed to be used in the work. The results of the testing shall be certified by the testing laboratory.
- B. Deliver to laboratory at designated location adequate samples of materials proposed to be used which require testing, together with proposed mix designs.
- C. Cooperate with laboratory personnel, and provide access to Work.
- D. Provide incidental labor and facilities to provide access to work to be tested, to obtain and handle samples at site or at source of products to be tested, to facilitate tests and inspections, and for storage and curing of test samples.
- E. Notify OWNER and ENGINEER and laboratory 24 hours prior to expected time for operations requiring inspection and testing services.
- F. Provide testing per specifications for factory materials and field installation.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Water.
- B. Sanitary Facilities.
- C. Barriers.
- D. Construction Site.

1.02 WATER

- A. The CONTRACTOR shall provide the level of water service required for all construction operations.
- B. Hydrant water is available from nearby hydrants. Secure written permission for connection, flow meter, and backflow preventer installation, and use from water department. Notify fire department before obtaining water from fire hydrants. Hydrants shall be completely accessible to fire department at all times. Include costs to connect and transport water to construction site in Contract price.

1.03 SANITARY FACILITIES

- A. The CONTRACTOR shall furnish temporary sanitary facilities at the site, as provided herein, for the needs of all construction workers and others performing work or furnishing services in connection with this Contract. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically-treated type are used, at least one toilet will be furnished for every 10 employees. CONTRACTOR shall enforce the use of such sanitary facilities by all personnel at the site.

1.04 BARRIERS

- A. A temporary 6-foot high, chain-link construction fence with privacy screen shall be provided by the CONTRACTOR as required to restrict public access to work areas.
- B. Four size 36 inches by 36 inches CONSTRUCTION AHEAD signs shall be provided by the CONTRACTOR. Place in conspicuous locations near both sides of the recreational

trail and facing approaching foot traffic, approximately 200 feet north and south of the Work Site,

1.05 CONSTRUCTION SITE

- A. The CONTRACTOR shall establish and maintain a minimum construction site area as required to complete the project including clearing and grading as needed.

1.06 REMOVAL

- A. Remove temporary facilities, materials, and equipment used for construction prior to Final Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities and return area to same or better condition than originally provided.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01540

SECURITY

PART 1 – GENERAL

1.01 SECTION INCLUDES

Requirements for project site security.

1.02 SITE SECURITY

- A. Site Not Occupied by the City of Venice: The CONTRACTOR shall be fully responsible for site security until the project has been completed and accepted by the City of Venice.
- B. Facilities Partially Occupied by the City of Venice: Site security of partially occupied sites shall be joint responsibility of CONTRACTOR and the City of Venice.
 - 1. CONTRACTOR shall provide security for the following:
 - a. CONTRACTOR's and subcontractor's staging areas and storage areas.
 - b. Field offices and sheds.
 - c. New facilities under construction.
 - d. Existing facilities being renovated.
 - 2. The City of Venice shall provide security for the following:
 - a. Facilities occupied by the City of Venice.
 - b. Site areas solely occupied by the City of Venice.
 - 3. Site Entrances
 - a. Separate Entrances
 - (1) CONTRACTOR shall provide security for separate site entrances dedicated for CONTRACTOR'S and subcontractors' use, if separate entrances are provided.

- (2) The City of Venice shall provide security for separate site entrances dedicated for the City of Venice's use, if separate entrances are provided.
- b. Joint Entrances
 - (1) If site is occupied 24 hours per day by the City of Venice, the City of Venice shall provide security for entrances used by the City of Venice and CONTRACTOR.
 - (2) If site is not continuously occupied by the City of Venice, the last party leaving the site shall secure the gate, or gates.

1.03 SECURITY PROGRAM

- A. Protect work from theft, vandalism, and unauthorized entry.
- B. Maintain program throughout construction period until the City of Venice acceptance precludes the need for CONTRACTOR security.

1.04 ENTRY CONTROL

- A. Restrict entrance of persons and vehicles into Project site and existing facilities.
- B. The City of Venice will control entrance of persons and vehicles related to the City of Venice's operations.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01700

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Closeout is defined to include the general requirements near the end of the Contract Time, in preparation for final acceptance, final payment, normal termination of the Contract, occupancy by the OWNER and similar actions evidencing completion of the work.
- B. Specific requirements for individual units of work are specified in applicable sections of Division 2 through 17.

1.02 PREREQUISITES FOR SUBSTANTIAL COMPLETION

- A. Prior to requesting ENGINEER's inspection for certification of substantial completion, as required by the General Conditions (for either the entire work or portions thereof), CONTRACTOR shall complete the following and list known exceptions in request:
 - 1. Submit last progress-payment request, with sworn statement showing 100 percent completion of the work, complete with associated releases, consents and supports.
 - 2. Submit statement showing final accounting of changes to the Contract Sum.
 - 3. Submit special guarantees, warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
 - 4. Obtain and submit occupancy permits, operating certificates, final inspection/test certificates, and similar releases enabling OWNER's full and unrestricted use of the work and access to services and utilities.
 - 5. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar final record information.
 - 6. Deliver tools, spare parts, extra stocks of materials, and similar physical items to OWNER.
 - 7. Make final changeover of locks and transmit keys to OWNER, and advise OWNER's personnel of changeover in security provisions.

8. Complete start-up testing of systems, and instruction of OWNER's operating/maintenance personnel.
9. Discontinue (or change over) and remove from the project site temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.
10. Complete the final cleaning.
11. Touch-up and otherwise repair and restore marred exposed finishes.

1.03 PREREQUISITES FOR FINAL ACCEPTANCE

- A. Prior to requesting ENGINEER's final inspection for certification of final acceptance and final payment, as required by the General Conditions, CONTRACTOR shall complete the following and list known exceptions (if any) in request:
 1. Submit final payment request with final releases and supports not previously submitted and accepted.
 2. Submit updated final statement, accounting for additional changes to the Contract Sum.
 3. Submit certified copy of ENGINEER's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by the ENGINEER.
 4. Submit final meter readings for utilities and similar data as of the time of substantial completion or when OWNER took possession of and responsibility for corresponding elements of the work.

1.04 RECORD DOCUMENT SUBMITTALS

- A. Specific requirements for record documents are indicated in individual sections of these specifications. The general requirements are indicated in General Conditions. Do not use record documents for construction purposes; protect from deterioration and loss in a secure fire-resistive location; provide access to record documents for the ENGINEER's inspection during normal working hours.
- B. Record Drawings:

1. The CONTRACTOR shall maintain a white-print set (blue-line or black-line) of Contract Drawings and Shop Drawings in clean, undamaged condition, with mark-up of actual installations that vary substantially from the work as originally shown. The CONTRACTOR shall mark whichever drawings is most capable of showing the as-built condition fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at the corresponding location on the Contract Drawings. The CONTRACTOR shall mark with red erasable pencil and, where feasible, use other colors to distinguish between variations of separate categories of work. The CONTRACTOR shall mark-up new information that is recognized to be of importance to the OWNER, but was for some reason not shown on either the Contract Drawings or Shop Drawings. The CONTRACTOR shall give particular attention to concealed work, which would be difficult to measure and record at a later date. The CONTRACTOR shall note related change order numbers where applicable. The CONTRACTOR shall organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.

2. The CONTRACTOR shall be held responsible for the accuracy of such data and shall bear any costs incurred in finding utilities because of incorrect data furnished by the CONTRACTOR.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 CLOSEOUT PROCEDURE

A. General Operating/Maintenance Instructions:

1. The CONTRACTOR shall arrange for each installer of work requiring continuing maintenance (by the OWNER) or operation, to meet that the OWNER's personnel, at the project site, to provide basic instruction needed for proper operation and maintenance of the entire work. The CONTRACTOR shall include instruction by manufacturer's representatives where installers are not expert in the required procedures. The CONTRACTOR shall review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, identification system, control sequences, hazards, cleaning and similar procedures and facilities. For operational equipment, demonstrate start-up, shut-down emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, and similar operations. The CONTRACTOR shall review maintenance and operations in relation applicable guaranties, warranties, agreements to maintain, bonds, and similar continuing commitments.

3.02 FINAL CLEANING

- A. The CONTRACTOR shall provide final cleaning of the work, at the time indicated, consisting of cleaning each surface or unit of work to the normal "clean" condition expected for a first-class building cleaning and maintenance program. Comply with manufacturers' instructions for cleaning operations. The following are examples, but not by way of limitation, of the cleaning levels required:
1. Remove labels that are not required as permanent labels.
 2. Clean exposed exterior hard-surfaced finishes, including metals, concrete, painted surfaces, plastics, special coating, and similar surfaces, to a dirt-free condition, free of dust, stains, films and similar noticeable distracting substances.
 3. Wipe surfaces of mechanical and electrical equipment clean and remove excess lubrication and other substances.
 4. Clean light fixtures and lamps to function with full efficiency.
 5. Clean project site and grounds of litter and foreign substances. Sweep areas to a broom-clean condition; remove stains, petrochemical spills and other foreign deposits.
- B. Time of Final Cleaning:
1. Following the CONTRACTOR's certification of "Substantial Completion", and immediately before the ENGINEER's "Final Acceptance" inspection.
- C. Removal of Protection:
1. Except as otherwise indicated or requested by the ENGINEER, the CONTRACTOR shall remove temporary protection devices and facilities that were installed during the course of the work to protect previously completed work during the remainder of the construction period.
- D. Compliances:
1. The CONTRACTOR shall comply with safety standards and governing regulations for cleaning operations. The CONTRACTOR shall not burn waste materials at the site, or bury debris or excess materials on the OWNER's property, or discharge volatile or other harmful or dangerous materials into drainage systems; remove waste materials from the site and dispose of in a lawful manner.

2. Where extra materials of value remaining after completion of the associated work have become the OWNER's property, the CONTRACTOR shall legally dispose or store at the site as directed by the OWNER or ENGINEER.

END OF SECTION

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SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Maintain at the site for the OWNER one (1) record copy of:
 - 1. Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other modifications of the contract
 - 5. ENGINEER's Field Orders or written instructions
 - 6. Approved Shop Drawings, Working Drawings and Samples
 - 7. Field Test records
 - 8. Construction photographs
 - 9. Current As-Built Drawings

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in CONTRACTOR's field office apart from documents used for construction.
 - 1. Provide files and racks for storage of documents
 - 2. Provide locked cabinet or secure storage space for storage of samples
- B. File documents and samples in accordance with CSI format with section numbers as provided herein.
- C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by the OWNER.
- E. As a prerequisite for monthly progress payments, the CONTRACTOR is to exhibit

the currently updated "Record Documents" for review by the ENGINEER and OWNER.

1.03 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color code designated by the ENGINEER.

1.04 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.
- B. Record information concurrently with construction progress.
 - 1. Do not conceal any work until required information is recorded.
- C. Drawings: Legibly mark to record actual construction:
 - 1. Depths of various elements of foundation in relation to finish first floor datum
 - 2. All underground piping with elevations and dimensions. Changes to piping location. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Actual installed pipe material, class, etc.
 - 3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - 4. Field changes of dimension and detail
 - 5. Changes made by Field Order or by Change Order
 - 6. Details not on original contract drawings
 - 7. Equipment and piping relocations
 - 8. Major architectural and structural changes including relocation of doors, windows, etc.
 - 9. Architectural schedule changes according to CONTRACTOR's records and shop drawings.
- D. Specifications and Addenda: Legibly mark each section to record:
 - 1. Manufacturer, trade name, catalog number of Supplier of each product and

- 2. item of equipment actually installed.
- 2. Changes made by Field Order or by Change Order.
- E. Shop Drawings (after final review and approval): Provide five sets of record drawings for each process equipment, piping, electrical system and instrumentation system.

1.05 SUBMITTAL

- A. At Contract closeout, deliver Record Documents to the OWNER.
- B. Accompany submittal with transmittal letter in duplicate, containing:
 - 1. Date
 - 2. Project title and number
 - 3. CONTRACTOR's name and address
 - 4. Title and number of each Record Document
 - 5. Signature of CONTRACTOR or his authorized representative
- C. GIS deliverables will be provided at the end of the project and will be in the ESRI Geodatabase format, version 10.x or higher. Data will be projected in State Plane Florida West HARN, NAD1983 datum, linear units in feet. All valves, hydrants, fittings, blowoffs, air release valves, service connections, meter boxes, along with the top of the new water mains at 100 foot intervals, will be GPS located to sub-foot (survey) accuracy by the CONTRACTOR and provided to the ENGINEER for mapping into a shape file for delivery to the OWNER. Coordinate data will be field collected with autonomous GPS readings and subsequently differentially corrected via real time corrections. The shape files will be submitted to the OWNER on CD.

In addition to the location data parameters noted above, additional documentation data collected and provided in the database will include:

Pipe:	Facility ID number, diameter, material, manufacturer;
Fittings:	Facility ID number, type (i.e. tee, 90° bend, etc.) diameter, material, manufacturer;
Valves:	Facility ID number, diameter, type, manufacturer, function, swing tie A, swing tie B, turns to close;
Hydrants:	Facility ID number, manufacturer;
Services Saddles:	Facility ID number; size, manufacturer.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01740

WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work:
 - 1. Compile specified warranties and bonds as stated in these Specifications
 - 2. Co-execute submittals when so specified
 - 3. Review submittals to verify compliance with Contract Documents
 - 4. Submit to the ENGINEER for review and transmittal to OWNER

1.02 SUBMITTAL REQUIREMENTS

- A. Assembly warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.
- B. Number of original signed copies required: Two each
- C. Table of Contents: Neatly type, in orderly sequence. Provide complete information for each item.
 - 1. Product of work item
 - 2. Firm, with name of principal, address and telephone number
 - 3. Scope
 - 4. Date of beginning of warranty, bond or service and maintenance contract
 - 5. Duration of warranty, bond or service maintenance contract
 - 6. Provide information for OWNER'S personnel:
 - a. Proper procedure in case of failure.
 - b. Instances that might affect the validity warranty or bond.

7. CONTRACTOR, name of responsible principal, address and telephone number

1.03 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 1. Size 8-1/2 inches x 11 inches, punch sheets for standard three-post binder
 - a. Fold larger sheets to fit into binders.
 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
 - a. Title of Project.
 - b. Name of CONTRACTOR.
- C. Binders: Commercial quality, three-post binder, with durable and cleanable plastic covers and maximum post width of two inches.

1.04 WARRANTY SUBMITTALS REQUIREMENTS

- A. For all major pieces of equipment, submit a warranty from the equipment manufacturer. The manufacturer's warranty period shall be concurrent with the CONTRACTOR's for one (1) year, unless otherwise specified, commencing at the time of final acceptance by the OWNER.
- B. The CONTRACTOR shall be responsible for obtaining certificates for equipment warranty for all major equipment utilized on the project and which has at least a 1 hp motor or which lists for more than \$1,000. The OWNER and ENGINEER reserves the right to request warranties for equipment not classified as major. The CONTRACTOR shall still warrant equipment not considered to be "major" in the CONTRACTOR's one-year warranty period even though certificates of warranty may not be required.
- C. In the event that the equipment manufacturer or supplier is unwilling to provide a one-year warranty commencing at the date of substantial completion, the CONTRACTOR shall obtain from the manufacturer a two (2) year warranty commencing at the time of equipment delivery to the job site. This two-year warranty from the manufacturer shall not relieve the CONTRACTOR of the one-year warranty starting at the time of OWNER acceptance of the equipment.
- D. The OWNER shall incur no labor or equipment cost during the guarantee period.

- E. Guarantee shall cover all necessary labor, equipment and replacement parts resulting from faulty or inadequate design, improper assembly or erection, defective workmanship and materials, leakage, breakage or other failure of all equipment and components furnished by the manufacturer.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01850

COLOR AUDIO-VIDEO PRECONSTRUCTION RECORD

PART 1- GENERAL

1.01 SCOPE

- A. Prior to commencing work, the CONTRACTOR shall provide a continuous color audio-video DVD recording of the entire construction area of the Project to serve as a record of the site conditions. The CONTRACTOR shall submit one (1) copy of the pre-construction video DVD to the ENGINEER prior to submittal of the initial payment application. The CONTRACTOR shall make available to the OWNER and ENGINEER, at the site, one (1) audio-video DVD player/viewer as described herein. A copy of the preconstruction video DVD shall be kept at the site by the CONTRACTOR until completion of the work.

1.02 CONSTRUCTION SCHEDULE

- A. DVD recordings shall not be made more than 45 calendar days prior to construction. No construction shall begin prior to review and approval of the DVD covering the construction area by the OWNER and ENGINEER. The OWNER and ENGINEER shall have the authority to reject all or any portion of a DVD not conforming to specifications and order that it be redone at no additional charge. The CONTRACTOR shall reschedule unacceptable coverage within five (5) calendar days after being notified. The ENGINEER and OWNER shall designate those areas, if any, to be omitted from or added to the audiovisual coverage. All DVDs and written records shall become the property of OWNER.

1.03 PROFESSIONAL ELECTROGRAPHERS (VIDEOGRAPHERS)

- A. The CONTRACTOR shall engage the services of a professional electrographer. The color audio-video DVDs shall be prepared by a responsible commercial firm known to be skilled and regularly engaged in the business of preconstruction color audio-video DVD documentation. The electrographer shall furnish to the ENGINEER and OWNER a list of all equipment to be used for the audio-video recording, i.e., manufacturer's name, model number, specifications and other pertinent information. Additional information to be furnished by the electrographer is the names and address of two references that the electrographer has performed color audio-video recording for on projects of a similar nature one within the last 12 months.

PART 2 - PRODUCTS

2.01 GENERAL

- A. A total audio-video system and the procedures employed in its use shall be such as to produce a finished project that will fulfill the technical requirements of the project. The video portion of the recording shall produce bright sharp, clear pictures with accurate colors and shall be free from distortion or any other form of picture imperfection. All video recordings shall, by electronic means, display on the screen the time of day, the month, day and year of the recording. This time and date information must be continuously and simultaneously generated with the actual recording. The audio portion of the recording shall produce the commentary of the camera operator with proper clarity and be free from distortion.

2.02 EQUIPMENT

- A. Camera: The color video camera used in the recording shall be of Industrial Grade and shall have EIA Standard NTSC type color - 1.0V 75 OHMS. Video output from camera(s) shall be capable of horizontal resolution of 350 lines at center and utilize a minimum of 8:1 Zoom with a 2/3 Newvicon tube or CCD pick-up element for optimum color imagery plus minimum lag through one foot candle.
- B. Recorder: The recording shall be made with an Industrial Grade recorder, utilizing EIA Standard (525 lines, 60 fields) NTSC color signal, RF Modulated 72 Db.
- C. Video Tape Playback Compatibility: The recorded video DVD shall be compatible for playback with any American TV Standard DVD player.

PART 3 - EXECUTION

3.01 COVERAGE

- A. The recordings shall contain coverage of all surface features within the construction zone of influence. These features shall include, but not be limited to, all roadways, pavement, retention ponds, railroad tracks, curbs, driveways, sidewalks, culverts, headwalls, retaining walls, landscaping, trees, and fences. Of particular concern shall be the existence or non-existence of any faults, fractures or defects. Recording coverage shall be limited to one side of the street at one time and shall include all surface conditions located within the zone of influence supported by appropriate audio description. Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

3.02 AUDIO RECORDING

- A. Accompanying the video recording of each DVD shall be a corresponding and simultaneously recorded audio recording. This audio recording, exclusively containing the commentary of the camera operator shall assist in viewer orientation and in any needed identification, differentiation, clarification, or objective description of the features being shown in the video portion of the recording. The audio recording shall also be free from

any conversation between the camera operator and any other production technicians.

3.03 VIDEO DVD INDEXING

- A. All video DVDs shall be permanently labeled and shall be properly identified by video DVD number and project title.
- B. Video DVD Log: Each video DVD shall have a log of the video DVDs contents. The log shall describe the various segments of coverage contained on that video DVD in terms of the names of the streets or easements, coverage beginning and end, directions of coverage, video unit counter numbers, engineering stationing numbers when possible, and the date of recording.

3.04 TIME OF EXECUTION

- A. Visibility: All recording shall be performed during time of good visibility; no recording shall be done during periods of significant precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subject and to produce sharp, bright video recordings of those subjects.

3.05 CONTINUITY OF COVERAGE

- A. In order to insure the continuity of coverage, the coverage shall consist of a single continuous unedited recording which begins at one end of a particular construction area; however, where coverage is required in areas not accessible by conventional wheeled vehicles and smooth transport of the recording system is not possible, such coverage shall consist of an organized interrelated sequence of recordings at various positions along that proposed construction area e.g., wooded easement area. Such coverage shall be obtained by walking or by a special conveyance approved by the ENGINEER and OWNER.

3.06 COVERAGE RATES

- A. The average rate of travel during a particular segment of coverage shall be directly proportional to the number, size and value of the surface features within that construction area's zone of influence.

3.07 CAMERA OPERATION

- A. Camera Height and Stability: When conventional wheeled vehicles are used as conveyances for the recording system, the vertical distance between the camera lens and the ground shall not exceed 10 feet. The camera shall be firmly mounted such that transport of the camera during the recording process will not cause an unsteady picture.
- B. Camera Control: Camera pan, tilt, zoom-in and zoom-out rate shall be sufficiently controlled such that recorded objects shall be clearly viewed during video DVD playback. In addition, all other camera and recording system controls, such as lens focus and

aperture, video level, pedestal, chroma, white balance and electrical focus shall be properly controlled or adjusted to maximize picture quality.

- C. Viewer Orientation Techniques: The audio and video portions of the recording shall maintain viewer orientation. To this end, overall establishing views of all visible house and business addresses shall be utilized. In areas where the proposed construction location will not be readily apparent to the video DVD viewer, highly visible yellow flags shall be placed, by the CONTRACTOR, in such a fashion as to clearly indicate the proposed center line of construction.

END OF SECTION

SECTION 02010

MOBILIZATION AND SITE WORK

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Work included in this section includes all work necessary to transport all materials, equipment, personnel and prepare sites for all pipe installation, roadway improvements and stormwater improvements including but not limited to providing access and temporary facilities, as needed.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The CONTRACTOR is solely responsible for providing security for all materials stored on-site during the construction activities.

PART 3 - EXECUTION

3.01 GENERAL

- A. The CONTRACTOR shall provide 10 days notification to the ENGINEER and OWNER prior to initiating mobilization to the site and initiating work. The CONTRACTOR will also provide proof that all permits have been obtained prior to initiating work.
- B. The CONTRACTOR shall restrict his operations to the designated work area and ensure that construction activities do not disrupt normal operational activities of the City's utility services.
- C. The CONTRACTOR is responsible for visually inspecting the site to note obstructions or access difficulties.
- D. The CONTRACTOR is responsible for maintaining access to the work site to facilitate all construction, inspection and testing activities. CONTRACTOR shall provide and install limestone gravel on an as-needed basis, to maintain access for himself, ENGINEER and OWNER during the execution of the entire project.

PART 4 - PAYMENT

4.01 GENERAL

- A. Payment for all work, materials, equipment and personnel specified in this section will be included in the appropriate lump sum price amount for Mobilization as described in the Measurement and payment section of these documents.

END OF SECTION

SECTION 02050

DRILLING

1.0 GENERAL

1.01 SCOPE OF WORK

- A. Work included in this section includes all equipment, personnel and materials to complete mud rotary and reverse-air drilling operations as specified in these documents and as shown on the Drawings.
- B. The work described herein consists of drilling and testing one 12-inch diameter public supply well completed into permeable zone 3 of the intermediate aquifer system, in accordance with these specifications in the location and in the manner shown on the Drawings.
- C. The construction of the well must be performed by a State of Florida licensed Water Well CONTRACTOR, and the wells must meet all standards set by the Florida Department of Environmental Protection (FDEP), the Southwest Florida Water Management District (SWFWMD), the American Water Works Association (AWWA), Sarasota County Public Health Department (SCPHD) and City of Venice codes.
- D. The CONTRACTOR shall be responsible for providing to the OWNERS/ENGINEERS proof of all secured permits and operating licenses as required by local and state agencies. No construction may begin until such permits are obtained.

2.0 PRODUCTS

2.01 PERSONNEL

- A. The CONTRACTOR shall furnish capable personnel and equipment to construct the wells as specified. The work shall be performed with equipment that is adequate to perform all phases of well construction. The bidder shall submit with his bid information the equipment to be used in this project as requested on the Equipment Schedule. He shall also submit with the above information a statement indicating ownership or lease agreement on this equipment.
- B. If, in the opinion of the ENGINEER, the CONTRACTOR'S equipment is not capable of satisfactorily performing the work provided for in these specifications, the CONTRACTOR shall substitute equipment satisfactory to the ENGINEER.
- C. The CONTRACTOR in addition to furnishing the services of skilled and experienced drillers in the type of formations to encounter shall also furnish an adequate number of competent helpers.

- D. The CONTRACTOR shall provide suitable equipment for the specified work that shall be in good working order and operated by qualified personnel.
- E. Drilling operations will be restricted to 7:30 am to 4:00 pm Monday through Friday except as authorized by the ENGINEER.

2.02 DRILLING EQUIPMENT

- A. Provide appropriate drilling equipment capable of drilling boreholes and completing the well as specified.
- B. The CONTRACTOR shall provide use to the ENGINEER of an electric water level probe having not less than 100 feet of cable marked in increments of 0.01 feet.
- C. The CONTRACTOR shall provide and install a blowout and flow preventer temporarily on top of the casing to control any flow which might be encountered while drilling the open borehole.

2.03 DRILLING FLUIDS

- A. Any water used during the drilling operation or cementing operations must be potable water. The CONTRACTOR shall make arrangements to secure the volume of potable water required to complete the work.
- B. When drilling mud is used in drilling, only high-grade approved clays in common usage for oil field drilling shall be used in the makeup of the drilling fluid. Drilling with a mixture of water and unprocessed mud, clay, or other objectionable material will not be permitted. The drilling fluid shall possess such characteristics as are required to adequately condition the walls of the hole to prevent caving of the walls as drilling progresses.
- C. Excess water generated during drilling operations shall be collected, settled and disposed of in a manner approved by the ENGINEER.
- D. Drilling mud and cuttings shall be transported off site by the CONTRACTOR and disposed at an approved off-site facility.

3.0 EXECUTION

3.01 GENERAL

- A. The CONTRACTOR will notify the ENGINEER five days prior to initiating drilling operations.
- B. No drilling operations will be allowed until the CONTRACTOR has provided all of the necessary permits.

- C. Since the wells may be under flowing artesian conditions, the CONTRACTOR shall be able to control artesian flow of water to ground surface.
- D. The CONTRACTOR will take all necessary precautions to prevent contamination of the well during the course of drilling activities. All extraneous fluids on-site and fluids generated during drilling operations will be controlled at all times.
- E. The CONTRACTOR will maintain a drillers log on-site at all times. The log will contain description of all activities executed during the day and all material used. Drilling footage, water level measurements, and testing results will also be noted.
- F. The CONTRACTOR is responsible for filing all drilling and well completion records with the appropriate agencies.
- G. All drilling will be measured to the nearest linear foot of completed borehole depth.
- H. The CONTRACTOR shall measure and record the water level in the well to the nearest 0.01 of a foot from a permanent measuring point at the beginning and end of each shift and as directed by the ENGINEER.
- I. A set of representative formation samples shall be collected by the CONTRACTOR during drilling at 10-foot depth intervals from land surface to the total depth of the well (350 feet bls). Each sample must be representative of the actual depth to which drilling has progressed. Samples shall be approximately 1 cup in volume. Place each sample in a container (sample bag) labeled with the date, well identification, and depth interval from which the sample was collected. Submit the samples to the ENGINEER.
- J. Geophysical logging shall be conducted by the CONTRACTOR at the appropriate phase of drilling as identified in Sections 01010 SUMMARY OF WORK and Section 02150 GEOPHYSICAL LOGGING.

3.02 DRILLING

- A. Utilizing mud-rotary drilling techniques, drill a nominal 24-inch diameter borehole to approximately 110 feet bls. Condition borehole through circulation of drilling fluids in preparation for 20-inch well casing installation. A larger pit casing may be installed at the CONTRACTOR's option to facilitate drilling operations. If used, the pit casing may not be removed following completion of the work. Cost for the pit casing shall be included in the lump sum bid for the mobilization.
- B. Utilizing mud-rotary drilling techniques, drill a nominal 20-inch diameter borehole from the base of the nominal 20-inch casing to a depth ranging between approximately 230 and 250 feet bls. Condition borehole through circulation of drilling fluids to prepare for 12-inch well casing installation. Prepare the borehole for caliper and natural gamma geophysical logging operations.

- C. Utilizing reverse-air drilling techniques, drill a nominal 12-inch diameter borehole from the base of the nominal 12-inch casing to 350 feet bls.
- D. The boreholes shall be drilled so as to permit the installation of the casing, straight and plumb, to the tolerances specified in Section CASING.
- E. The CONTRACTOR may check plumbness, out-of-roundness, and straightness of the drilled hole as the drilling progresses. Such checking shall not relieve the CONTRACTOR from requirements as specified in Section CASING.

4.0 PAYMENT

4.01 GENERAL

- A. Payment for all work, materials and equipment specified in this section to drill various diameter boreholes shall be paid at the unit prices per foot as stated in the CONTRACTOR'S bid schedule and as described in the Measurement and Payment section of these technical specifications.

END OF SECTION

SECTION 02060

DEMOLITION AND MODIFICATIONS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and demolish, modify, remove and dispose of work shown on the Drawings and as specified herein.
- B. Demolition, modifications and removals that may be specified under other Sections shall conform to requirements of this Section.
- C. Demolition and modifications include:
 - 1. Removal of existing concrete slab, piping and valves, electrical panels and supports, fencing, existing 12-inch well casing to two feet below the existing grade, plugging well and capping well casing, and filling and grading site to match existing grades.
 - 2. Relocate existing communication panel to new well site.
 - 3. Salvage existing panels, piping, valves and flow meter and deliver to a site designated by the City of Venice.

1.02 SUBMITTALS

- A. Submit in accordance with the City's specifications, six (6) copies of proposed demolition schedule prior to the start of work. Include in the schedule the coordination of shutoff and continuation of utility service as required.

1.03 JOB CONDITIONS

- A. Protection –
 - 1. Execute the demolition and removal work to prevent damage or injury to adjacent structures, curbs, and adjacent physical features that might result from collecting, loading of demolished materials.
 - 2. Closing or obstructing of sidewalks and passageways adjacent to the work by the placement or storage of materials will not be permitted and all operations shall be conducted with a minimum interference to vehicular and pedestrian traffic.
- B. Notification –
 - 1. At least 48 hours prior to commencement of a demolition and /or removal work, notify the ENGINEER in writing of proposed schedule therefore.

C. Repairs to Damage –

1. Promptly repair damage caused to adjacent physical features by demolition operations. Repairs shall be made to a condition at least equal to that which existed prior to construction.

1.04 DISPOSAL OF MATERIAL

- A. All material and items demolished or removed and not designated to be salvaged and delivered to the OWNER shall become the CONTRACTOR's property and must be removed from the site.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION

3.01 GENERAL

- A. Dispose of all demolition materials, equipment, debris and all other items, off the site and in conformance with all existing applicable laws and regulations.
- B. Pollution Controls –
 1. Use water sprinkling, temporary enclosures and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to dust control.
 - a. Do not use water for dust control when it may create hazardous or objectionable conditions such as flooding and pollution.
 - b. Return adjacent areas to conditions existing prior to the start of the work.

3.02 STRUCTURAL REMOVALS

- A. Remove structures to the lines and grades shown unless otherwise directed by the ENGINEER.
- B. All concrete, brick, reinforcement, structural or miscellaneous metals, wire mesh and other items contained in or upon the structure shall be removed and taken from the site, unless otherwise approved by the OWNER and ENGINEER. Demolished items shall not be used in backfill adjacent to structures or in pipeline trenches.

3.03 CLEAN-UP

- A. Remove from the site all debris resulting from the demolition operations as it accumulates. Upon completion of the work, all materials, equipment, waste and debris of every sort shall be removed and premises shall be left clean, neat, and orderly.

END OF SECTION

SECTION 02080

CASING

1.0 GENERAL

1.1 Scope of Work

- 1.1.1 The work included in this section covers the work, materials, labor and equipment necessary for joining and installing the casing as specified.

2.0 PRODUCTS

2.1 Personnel

- 2.1.1 The CONTRACTOR shall furnish capable personnel including certified welders where required to join, install, and test the casings as specified.

2.2 Equipment

- 2.2.1 The CONTRACTOR shall provide appropriate equipment capable of joining and installing the casings as specified.

2.3 General

- 2.3.1 All casing will be new and unused casing free from defects in materials, workmanship and handling.
- 2.3.2 Mill certificates or equivalent for all casing material used shall be provided by the CONTRACTOR and approved by the ENGINEER prior to installation.

2.4 Pit Casing - Optional

- 2.4.1 Installation of pit casing is at the CONTRACTOR's option.
- 2.4.2 Use pipe of sufficient strength to hold the drilled hole open until grouting is completed. The depth of the pit casing will be dictated by site geology.
- 2.4.3 The diameter, wall thickness, and positioning of the pit casings shall be selected by the CONTRACTOR and shall in no way interfere with specified construction of the remainder of the well.

2.4.4 Pit casing shall be black steel and conform to ASTM Standard A-252 Grade 2 or equal.

2.4.5 The pit casing shall remain in place.

2.5 Surface Casing

2.5.1 All surface casing shall be of new and unused carbon steel pipe, shall be seamless, electric resistance welded, or double submerged arc welded with one longitudinal seam and shall conform with the latest revision of API 5L Grade B, ASTM A53, Grade B. Ends of plain end pipe shall be perfectly square and shall be furnished beveled for field V-notch butt welding. surface casing shall be as follows:

Diameter (Inches) <u>(I.D./ O.D.)</u>	Wall Thickness <u>(Inches)</u>	Approx. Total Length <u>(Feet)</u>
19.25/20.0	0.375	110

2.6 Final Casing

2.5.1 All final casing and couplings shall be of new and unused SDR 17 PVC or equivalent that conforms to requirements of ASTM D 1784 - *Standard Specifications for Rigid PVC Compounds and Chlorinated Compounds*, and ASTM F480 – *Standard Specifications for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios, SCH 40 and SCH 80*. The casing shall be joined by a spline-lock mechanical joining system utilizing bell joints. Final casing shall be as follows:

Diameter (Inches) <u>(O.D./ I.D./ coupling O.D.)</u>	Wall Thickness <u>(Inches)</u>	Approx.Total Length <u>(Feet)</u>
14.0*/12.1/ 16.0*	0.82*	350

* Based on SDR 17 rating

2.7 Centralizers:

2.7.1 All well casing shall be fitted with Haliburton-type centralizers or equivalent positioned at 0, 90, 180, and 270 degrees. The centralizers will be placed at 10 feet above the bottom of the casing and every 40 feet thereafter with the final centralizers placed at 10 feet below the top of the casing.

3.0 EXECUTION

3.1 General

- 3.1.1 All casing shall be installed by a method appropriate for the specified task order, as selected by the CONTRACTOR and approved by the ENGINEER.
- 3.1.2 If casing is welded, the standards of the American Welding Society shall apply. All welds shall be fully penetrating.
- 3.1.3 Casing lengths shall be joined watertight by a method appropriate to the material used, as selected by the CONTRACTOR and approved by the ENGINEER so that the resulting joint shall have the same structural integrity as the casing itself.
- 3.1.4 All casing shall be installed as near to plumb and straight as possible. Following the installation of the final casing and prior to cementing, the entire casing string will be rotated by hand to demonstrate the casing is aligned plumb within the borehole.
- 3.1.5 Any casing, which fails, collapses or separates during installation shall be removed from the hole and repaired or replaced at the CONTRACTOR's sole expense.

3.2 Straightness and Plumbness Test

- 3.2.1 If, in the opinion of the ENGINEER, there is reasonable doubt about the plumbness and/or alignment of the well, the CONTRACTOR shall perform the plumbness and alignment test described in Appendix C of AWWA A100-06 at his expense. The test for plumbness and alignment shall be made following construction of the well and before pump equipment is installed.

3.3 Straightness and Plumbness Requirements

Should the test data show that a 12-inch diameter pump cannot be set in the well to a depth of 200 feet without bending or should the well vary from plumb in excess of 2/3 the inside diameter of the 12-inch diameter casing per 100 feet of depth to a depth of 200 feet, the plumbness and straightness of the well shall be corrected by the CONTRACTOR at his sole expense. Should the CONTRACTOR fail to correct such faulty straightness or plumbness, the ENGINEER may refuse to accept the well.

PART 4.0 PAYMENT

4.1 General

- 4.1.1 Payment for the pit casing shall be included in the lump sum price stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents for Mobilization.
- 4.1.2 Installed casing will be measured in linear feet to the nearest foot of successfully installed casing.
- 4.1.3 Providing and installing all fittings and centralizers associated with casing installation shall be included in the unit prices per foot to Furnish, Install and Cement Casing as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents.
- 4.1.4 Payment for providing and installing all casings shall be made at the unit prices per foot to Furnish, Install and Cement Casing as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents

END OF SECTION

SECTION 02090

GROUT

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This section covers the work, materials, labor, and equipment necessary for furnishing and installing the grout seal complete.

1.02 PRODUCTS

- A. Personnel
 - 1. The CONTRACTOR shall furnish the services of experienced personnel to provide cementing services.
- B. Equipment
 - 1. The CONTRACTOR shall provide appropriate equipment capable of installing the grout seal as specified.
 - 2. The CONTRACTOR shall provide a standard mud balance to measure cement grout density.
- C. Cement
 - 1. All cement used on all work shall be Portland Type II sulfate resistant cement that conforms to ASTM C150 standards.
- D. Gravel
 - 1. Gravel must conform in size to SWFWMD rules, regulations, or permit conditions for well abandonment and the borehole/casing diameter. Gravel or sand shall only be used during grouting activities if pre-approved by the ENGINEER and SWFWMD.

1.03 EXECUTION

- A. Cement Grout Mix
 - 1. Portion 1 cubic foot of cement (i.e., one 94 pound sack) with 5.2 to 5.5 gallons of potable water. The CONTRACTOR shall make arrangements to secure the volume of potable water required to complete the work.

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2. The CONTRACTOR shall utilize a standard mud balance to measure and verify cement grout density as requested by the ENGINEER.

B. Placing

1. Prior to cementing the nominal 12-inch inside diameter/ 14-inch outside diameter PVC final casing, the CONTRACTOR shall use the caliper log to calculate cement requirements.
2. The CONTRACTOR shall submit a cementing plan for approval to the ENGINEER, 24 hours prior to the first stage of cementing. The cementing plan shall detail estimated cement quantities for length of casing to be grouted, the nature of the mix cement slurry including weight per unit volume (density), proposed cementing schedule, expected pressures, and description of the cementing equipment to be used by the CONTRACTOR for the cementing operation.
3. All cementing of casing shall be accomplished in the presence of the ENGINEER.
4. If cementing activities require observation by a SWFWMD and/or County Health Department representative, the CONTRACTOR shall notify and coordinate cementing activities to accommodate this requirement at no additional cost to the OWNER.
5. The pressure grout method of cement placement shall be used for the initial stage of grouting the final casing. The grouting shall be done in such a manner that shall assure the entire filling of the borehole and annular space from the casing bottom to the vertical stage height obtained. The grouting shall ensure a watertight seal around the well casing to avoid downward or upward movement of water along the casing annulus and borehole. The CONTRACTOR shall monitor casing pressure during grouting operations.
6. The annular space tremmie method is required for all subsequent cement stages. The bottom of the tremmie pipe shall initially be set within five feet of the top of the previous annular grout tag in the well, as approved by the ENGINEER. Tremmie pipe shall be withdrawn as the annulus is filled, and before the cement has begun to set.
7. Samples of each lift of cement grout installed around each of the casings shall be retained by the CONTRACTOR. These grout samples must be collected a minimum of three times for each cement batch pumped; before pumping, in the middle of the batch, and near the end of the batch. Each sample shall be labeled and forwarded to the ENGINEER.

8. The CONTRACTOR shall submit cement reports to the ENGINEER identifying the mixture and quantity of cement grout utilized for each cementing stage completed.
9. For the plugging and abandonment of existing well RO-7, the initial grouting will consist of installing a 5 to 10 feet thick cement cap atop any gravel fill to facilitate plugging of the remaining portion of the well.
10. The CONTRACTOR shall be solely responsible for any defect in the cementing work and casing deformation due to improper, or lack of, equipment, technology, personnel or experience of the CONTRACTOR. CONTRACTOR shall pay all costs necessary to correct such defects. Should CONTRACTOR fail to correct defects, the ENGINEER may refuse to accept the well.

C. Setting Time

1. No drilling operations shall be permitted until the grout has cured.
2. Minimum setting time between stages shall be at least 6 hours. After cementing is completed on a casing, casing and well must remain undisturbed for at least 12 hours for the nominal 20-inch diameter steel surface casing and at least 24 hours for the final casing for setting of the cement.

D. Tag Depth

1. The CONTRACTOR shall demonstrate the tag depths to the satisfaction of the ENGINEER and regulatory inspector prior to each grouting stage at all of the wells. The depth to the top of the existing grout or borehole shall be determined by washing out the annular space, if necessary, as approved by the ENGINEER and regulatory inspector.

1.04 PAYMENT

A. Cement

1. The cost of cement and cement **pumping** shall be paid at the unit prices per foot to Furnish, Install and Cement Casing as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents. This shall include all necessary equipment, materials, and subcontracted services required to properly cement the casing as specified herein.
2. Payment for all work, materials, and equipment specified in this section, which are required to tag the top of each grout stage shall be included in the unit prices per foot to Furnish, Install and Cement Casing as stated in the CONTRACTOR's Bid Schedule.

3. Waiting on cement to set for each grout stage shall be included in the corresponding unit prices per foot to Furnish, Install and Cement Casing as stated in the CONTRACTOR's Bid Schedule.

END OF SECTION

GROUT
02090 - 4

SECTION 02110

CLEARING, GRUBBING, AND STRIPPING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The work included in this Section consists of furnishing all necessary labor, equipment, material and transportation necessary to clear, grub, strip and prepare the project site for construction operations.

- B. DEFINITIONS
 - 1. Clearing: Clearing shall consist of removing and disposing of shrubs, brush, limbs, sticks, vegetative growth, trash, and rubbish. Clearing operations shall be conducted in such a manner as to protect trees, shrubs, vegetative growth, fencing, structures, and installations that are not designated for removal, and to provide for the safety of employees and others.
 - 2. Grubbing: Grubbing shall consist of the complete removal of all stumps, roots larger than 1-1/2 inches in diameter, matted roots, brush, timber, logs, and any other organic or metallic debris remaining after clearing which is not suitable for site grading or foundation purposes, resting on, under, or protruding through the surface of the ground to a minimum depth of 18 inches below the subgrade.
 - 3. Stripping: Stripping shall consist of the removal and disposal of all organics, sod, topsoil, grass and grass roots, and other objectionable material remaining after clearing and grubbing from the areas designated to be stripped. Grass and grass roots in areas to be excavated or filled upon shall be stripped to a minimum depth of 4 inches. In areas so designated, topsoil shall be stockpiled and protected until it is placed as specified. Any topsoil remaining after all work is in place, shall be stockpiled on site as shown on the Drawings and/or directed by the ENGINEER and OWNER.

PART 2 - MATERIALS

2.01 GENERAL

- A. Trees and Shrubbery: Existing trees, shrubbery, and other vegetative material may not be shown on the Drawings. The CONTRACTOR shall inspect the site as to the nature, location, size, and extent of vegetative material to be removed or preserved, as specified herein. The CONTRACTOR shall preserve, in place, trees that are not specifically

designated to be removed as shown on the Drawings and/or directed by the ENGINEER and OWNER.

B. Preservation of Trees, Shrubs, and Other Plant Material:

1. All plant materials (trees, shrubbery, and plants) beyond the limits of the Work shall be saved and protected from damage resulting from the Work. No filling, excavating, trenching, or stockpiling of materials will be permitted within the drip line of these plant materials. The drip line is defined as a circle drawn by extending a line vertically to the ground from the outermost branches of a plant or group of plants. To prevent soil compaction within the drip-line area, no equipment will be permitted within this area.
2. When trees are close together, entry into the area within the drip line shall be restricted by fencing. In areas where no fence is erected, the trunks of all trees 2 inches in diameter or greater shall be protected by entirely encircling the trunk with boards extending from ground level to a height of 6 feet, and held securely in place by 12-gauge wire and staples. Tree branches which affect construction operations shall be cut and removed and treated with a tree sealant.

PART 3 - EXECUTION

3.01 GENERAL

- A. Disposal of Clearing and Grubbing Debris: Dispose and/or remove all cleared and grubbed material from the work site in accordance that all federal, state, and local laws, codes, and ordinances.

END OF SECTION

SECTION 02140

DEWATERING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The work to be performed under this Section shall include furnishing all equipment and labor necessary to remove storm or subsurface waters from excavation areas in accordance with the requirements set forth and as shown on the Drawings.

1.02 QUALITY ASSURANCE

- A. The dewatering of any excavation areas and the disposal of the water shall be in strict accordance with the latest revision of federal, state, and local and rules and regulations.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 DEWATERING

- A. The CONTRACTOR shall provide adequate equipment for the removal of storm or subsurface waters that may accumulate in the excavation.
- B. If subsurface water is encountered, the CONTRACTOR shall use suitable equipment to adequately dewater the excavation so that it will be dry for the installation of the pipes and structures. A reflective wellpoint system or dewatering method shall be used, if necessary, to maintain the excavation in a dry condition.
- C. Dewatering by trench pumping will not be permitted if migration of fine grained natural material from bottom, side walls or bedding material will occur.
- D. In the event that satisfactory dewatering cannot be accomplished due to subsurface conditions or where dewatering could damage existing structures, the CONTRACTOR shall obtain the OWNER and ENGINEER's approval of wet trench construction or procedure before commencing construction.

3.02 DISPOSAL

- A. Water pumped from the trench or other excavation shall be disposed of in suitable disposal pits within the boundary of the site, locations to be approved by the OWNER and ENGINEER.
- B. The CONTRACTOR is responsible for acquiring all permits required to discharge the

water and shall protect waterways from turbidity during the operation.

- C. In areas where adequate disposal sites are not available, partially backfilled trenches may be used for water disposal only when the CONTRACTOR's plan for trench disposal is approved, in writing, by the OWNER and ENGINEER. The CONTRACTOR's plan shall include temporary culverts, barricades, and other protective measures to prevent damage to property or injury to any person or persons.
- D. No flooding of streets, roadways, driveways or private property will be permitted. Dewatering pump engines shall be equipped with residential-type mufflers. Where practical and feasible, electrical "drops" should be used in lieu of portable generators.

END OF SECTION

SECTION 02150

GEOPHYSICAL LOGGING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The work included in this section covers the work, materials, labor and equipment necessary for geophysical logging of existing well RO-7 prior to plugging and abandonment, and geophysical logging and video surveying of replacement well RO-7AW.

1.02 PRODUCTS

- A. Personnel

- 1. The CONTRACTOR shall furnish the services of an approved logging company to provide geophysical logs including a video survey. At the time he submits his bid, the CONTRACTOR must provide (for ENGINEERS approval) the name and address of the logging company that he will use.

- B. Equipment

- 1. The video camera shall have down hole (vertical) and side (horizontal) viewing capabilities for inspection of casing and bore hole walls.

1.03 EXECUTION

- A. General

- 1. The CONTRACTOR shall retain full responsibility for notifying the logging crew, as nominated within his bid submittal, of the need to conduct the geophysical logging and video surveying.
 - 2. Prior to each geophysical logging, the CONTRACTOR shall prepare the hole to ensure that it is open and can be logged and/or surveyed with a minimum of delay. During the video survey clarity of the water shall be such that the video image has good resolution. During each logging or surveying phase, the CONTRACTOR shall not charge for standby time.

3. Geophysical Logging of existing well RO-7 (DID-51)
 - a. A caliper log will be completed prior to the plugging and abandonment.
4. Geophysical Logging and Video Survey of well RO-7AW
 - a. The following geophysical logs will be completed after drilling on the nominal 20-inch diameter borehole and prior to installation of the final casing of the well:
 - i. Caliper Log
 - ii. Gamma Ray Log
 - b. The following geophysical logs will be completed after construction of the well has been completed and prior to well disinfection:
 - i. Caliper Log
 - ii. Gamma Ray Log
 - iii. Video Camera Survey

B. Reporting

1. The CONTRACTOR shall furnish two (2) high quality field copies of the geophysical logs, two (2) field copies of the video camera survey in Digital Video Disk (DVD) format, and a CD-ROM containing the digital information of the geophysical logs in both Log ASCII Standard format and Portable Document Format to the onsite Atkins representative.
2. The CONTRACTOR shall deliver six (6) final copies of the geophysical logs and video camera survey on DVD, to Atkins. All copies of logs and surveys shall be clearly labeled and sealed. Copies of poor quality will be rejected.

1.04 PAYMENT

A. General

1. Payment for each of the logging phases specified shall be included in the lump sum price in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents.

END OF SECTION

**GEOPHYSICAL LOGGING
02150-2**

SECTION 02200

PUMPING TEST

PART 1 GENERAL

1.01 WORK INCLUDED

- A. This section covers the work, materials, and equipment necessary to conduct pumping tests(s) of the well to determine its specific capacity. The estimated length of the specific capacity test(s) at the well is up to 8 hours.
- B. Various pumping rates up to an estimated 700 gallons per minute shall be utilized during the test(s). The ENGINEER shall confirm the actual pumping rates. The pump shall be left undisturbed and in place during the aquifer recovery period, approximately equal to 50 percent of the total pump test duration. However, the ENGINEER shall be the sole judge as to length of the test(s) and therefore may increase or decrease the total pumping time of the test(s).

PART 2 PRODUCTS

2.01 PERSONNEL

- A. The Contractor shall provide experienced personnel to setup and maintain the pumping test equipment.
- B. The CONTRACTOR shall provide an operator during the entire time a pump is in operation to operate the prime mover, to regulate the discharge by the throttling device, to periodically measure water levels in the pumping well, to record pumping rates, and periodically inspect the discharge line during the pumping test period.
- C. The CONTRACTOR shall provide the services of an environmental testing laboratory to measure field water quality parameters collect water samples in accordance with applicable Florida Department of Environmental Protection (FDEP) Standard Operating Procedures (SOPs) per FDEP quality Assurance Rule, 62-160.200 and .320, Florida Administrative Code (F.A.C.) and to analyze the water samples. The laboratory must be certified by the Florida Department of Health and Rehabilitative Services in accordance with Chapter 64E-1, F.A.C. At the time he submits his bid, the CONTRACTOR must provide (for ENGINEERS approval) the name, address, and certification number of the testing laboratory that he will use. The ENGINEER, at his discretion, may reject a laboratory and request other choices of laboratories.

2.02 TEST PUMP

- A. Furnish and install a test pump and driver capable of pumping up to approximately 700 gpm.
- B. Furnish and install a butterfly valve, or equal, on the discharge side of the pump for adjustment of flow rate down to 200 gpm if the test pump engine cannot be sufficiently throttled.
- C. The pumping unit prime mover, controls, and appurtenances shall be capable of being operated without interruption for a period of 8 hours.
- D. CONTRACTOR shall furnish and operate an engine-driven generator to provide power for the well pumping test(s).
- E. The pump, motor, and discharge head shall be installed such that the well can be accessed to provide access for water level measurements as required by the ENGINEER.

2.03 FLOW MEASURING DEVICE

- A. Provide both machined orifice plate(s) and flowmeter(s) capable of measuring the pump discharge within ± 5 percent of true flow for flow rates from 200 to 700 gpm.

2.04 DISCHARGE PIPING

- A. Furnish, install, maintain, and operate discharge piping for the pump unit of sufficient size to conduct pumped water to the designated discharge location as directed by the ENGINEER, (up to 300 feet from the well).
- B. The CONTRACTOR shall furnish, install, maintain, and operate a Rossum Sand Tester to measure the sand content of the discharge water during the pumping test(s).
- C. The CONTRACTOR shall install a valve and spigot along the discharge pipe within approximately three feet of the wellhead for collection of water samples for turbidity measurements and laboratory analysis.

2.05 ACCESS PIPE AND DATA RECORDERS

- A. The CONTRACTOR shall provide and install two pipes a minimum 3/4-inch ID at the pumped test production well to permit installation of a pressure transducer and electric measuring device. The pipes shall terminate approximately 2 feet above the pump bowls and be of sufficient strength to remain open for the duration of the specific capacity test.

- B. The CONTRACTOR shall provide an electric water level probes, having not less than 100 feet of electric cable, marked in increments of 0.01 foot.

PART 3 - EXECUTION

3.01 INSTALLATION OF PUMPING EQUIPMENT

- A. The pump, flow measuring device(s), discharge piping, access pipe/air-line, and other necessary appurtenances shall be installed for the well pumping test.

3.02 SPECIFIC CAPACITY TEST

- A. The pumping test shall be conducted up to 8 hours at variable rates as determined by the ENGINEER to establish the specific capacity of the well.
- B. The static water level in the well shall be recorded for a minimum of two hours prior to the start of the specific capacity test.
- C. Operate the equipment continuously at such rates of discharge and for such period of time as determined by the ENGINEER.
- D. Any pump or power malfunctions causing early termination of the test will result in repeating the entire specific capacity test to the satisfaction of the ENGINEER.
- E. The CONTRACTOR's environmental testing laboratory shall measure field water quality parameters and collect a water sample from the spigot on the discharge pipe between the 6th and 8th hour of the pumping period and transport the sample to the selected laboratory for analysis of the following parameters:
- Select primary drinking water standard listed in Chapter 62-550, F.A.C including inorganic compounds (Table 1) except for asbestos, volatile organic contaminants (Table 4), synthetic organic contaminants (Table 5) except for Dioxin, total coliform, and radionuclides (Combined radium-226 and radium-228 and Gross alpha particle activity);
 - All secondary drinking water standards (Table 6) listed in Chapter 62-550, F.A.C.;
 - Total iron; total sulfides, calcium, magnesium, total alkalinity, hardness, specific conductivity, and turbidity.

3.03 DISPOSAL OF WATER

- A. Disposal of water shall be the responsibility of the CONTRACTOR. The CONTRACTOR's method of disposal shall follow an approved route and provide for erosion control and sedimentation along the entire flow route in accordance with Section 02276 Temporary Erosion and Sedimentation Control.

- B. Water may require settling to reduce turbidity prior to disposal. ENGINEER must approve methods of settling excess turbidity prior to commencing each pumping test. CONTRACTOR is responsible for meeting turbidity requirements prior to discharge water entering receiving waters.

3.04 WATER LEVEL ACCESS

- A. Access shall be provided at the wellhead for water level measurements in the wells prior to and during the pumping test(s).

PART 4.0 - PAYMENT

4.01 PUMP SETUP

- A. Payment for setup of the pumping test(s), including furnishing, temporarily installing, and removing the pump, driver and associated discharge piping shall be made at the lump sum bid price for Pumping Test Setup as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents..

4.02 WATER QUALITY TESTING

- A. Payment for water quality testing including sampling, preservation, shipping, and laboratory services shall be made at the lump sum bid price for Water Quality Testing as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents.

4.03 HOURLY OPERATION

- A. Payment for performance of pumping test shall be made at the unit price per hour for Perform Pumping Test, as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents. The CONTRACTOR will not be paid the hourly rate for pumping during the time the equipment is not actually in use or in the event the pumping test is not performed for the full duration as directed by the ENGINEER.

END OF SECTION

SECTION 02212

FINISH GRADING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work
 - 1. Finish grade sub-soil.
 - 2. Cut out areas to receive stabilizing base course materials for paving and sidewalks.
 - 3. Place, finish grade and compact topsoil

1.02 PROTECTION

- A Prevent damage to existing fencing trees, landscaping, natural features, benchmarks, pavement and utility lines. Correct damage at no cost to the OWNER.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Topsoil: Friable loam free from subsoil, roots, grass, excessive amounts of weeds, stones, and foreign matter; acidity range (pH) of 5.5 to 7.5; containing a minimum of four (4) percent and a maximum of 25 percent organic matter. Use topsoil stockpiles on site if conforming to these requirements.

PART 3 - EXECUTION

3.01 SUB-SOIL PREPARATION

- A. Rough grade sub-soil systematically to allow for a maximum amount of natural settlement and compaction. Eliminate uneven areas and low spots. Remove debris, roots branches, stones, etc. Remove sub-soil that has been contaminated with petroleum products.
- B. Cut out areas to sub-grade elevation, which are to receive stabilizing base for paving and sidewalks.
- C. Bring sub-soil to required levels, profiles, and contours. Make changes in grade gradual. Blend slopes into level areas.
- D. Slope grade away from building minimum two (2) inches in 10 feet unless indicated otherwise on the Drawings.

- E. Cultivate sub-grade to a depth of three (3) inches, where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted sub-soil.

3.02 PLACING TOPSOIL

- A. Place topsoil in areas where seeding, sodding, and planting are to be performed. Place to the following minimum depths:
 - 1. Four (4) inches for seeded areas up to finished grade elevations.
 - 2. Two (2) inches for sodded areas up to two (2) inches below finished grade elevations.
- B. Use topsoil in relatively dry state. Place during dry weather.
- C. Fine grade topsoil eliminating rough and low areas to ensure positive drainage. Maintain levels, profiles, and contours of sub-grades.
- D. Remove stone roots, grass, weeds, debris and other foreign material while spreading.
- E. Manually spread soil around trees, plants, buildings, to prevent damage that may be caused by grading equipment.
- F. Lightly compact placed topsoil.
- G. See also requirements of Section 02920, Topsoil.

3.03 SURPLUS MATERIAL

- A. Remove surplus sub-soil and topsoil from site.
- B. Leave stockpile areas and entire job site clean and raked, ready to receive landscaping.

.

END OF SECTION

SECTION 02222

EXCAVATING, BACKFILLING, AND COMPACTING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work: The CONTRACTOR shall perform all excavating, grading and backfilling as required for construction as shown on the drawings and specified herein. The CONTRACTOR shall furnish all additional, approved fill material required in accordance with the specifications.
- B. Definitions:
1. Maximum Dry Density: Maximum dry weight in pounds per cubic foot of a specific material.
 2. Optimum Moisture: Percentage of water in a specific material at maximum dry density.
 3. Rock Excavation: Excavation of any hard natural substance that requires the use of special impact tools such as jackhammers, sledges, chisels or similar devices specifically designed for use in cutting or breaking rock, but exclusive of trench excavating machinery.
 4. Suitable Materials: Suitable materials for fills shall be a non-cohesive, non-plastic granular local sand and shall be free from vegetation, organic material, marl, clay, silt, muck and deleterious debris. Hydric soils within wetland impact areas will be considered suitable material for the top 12-inches of backfill within the wetland impact areas.
 5. Unsuitable Materials: Unsuitable materials are highly organic soil (peat or muck) classified as A-8 in accordance with AASHTO Designation M 145; clayey sands (Unified Soil Classification SC); plastic clays (United Soil Classification CL/CH); and organic debris. (This provision does not apply to the replacement of hydric soils in wetland impact areas.)
- C. Plan For Earthwork: The CONTRACTOR shall be responsible for having determined the conformation of the ground, the character and quality of the substrata, the types and quantities of materials to be encountered, the nature of the groundwater conditions, the prosecution of the work, the general and local conditions and all other matters which can in any way affect the work. Prior to commencing the excavation, the CONTRACTOR shall submit a plan of proposed operations to the ENGINEER for review. The

CONTRACTOR shall consider, and the plan for earthwork shall reflect, the equipment and methods to be employed in the excavation, backfilling and compaction operations. No claims for extras based on soil or rock sub-strata or groundwater table conditions shall be allowed.

- D. Trench Safety Act: The CONTRACTOR shall be responsible for complying with the Trench Safety Act (90-96, Florida Law) and OSHA Safety Standards for trench excavations, at a minimum.

1.02 QUALITY ASSURANCE

- A. A Testing Laboratory employed by the CONTRACTOR shall make such tests as are determined required by the OWNER. The CONTRACTOR shall schedule the work to permit a reasonable time for testing before placing succeeding lifts and shall keep the laboratory informed of the progress. Costs for soil testing shall be paid by the CONTRACTOR. Any tests that have to be repeated because of the failure of the tested material to meet specification shall also be paid for by the CONTRACTOR and the cost of any tests shall be deducted from payments due the CONTRACTOR.

1.03 PROTECTION

- A. Trench Cut Slopes: Trench cuts shall be sloped to guard against sidewall sloughing or collapse, or shall be braced in accordance with Subparagraph 1.03.B.
- B. Sheeting and Bracing:
 - 1. The CONTRACTOR shall furnish, put in place, and maintain such sheeting and bracing as may be required to support the sides of excavations and guard against sidewall sloughing or collapse to prevent any movement which could in any way diminish the width of the excavation below that necessary for proper construction, and to protect adjacent roadway structures, utilities, power poles, etc. from undermining, and to protect workers from hazardous conditions or other damage. Such support shall consist of braced steel sheet piling, braced wood lagging and soldier beams or other approved methods. If the ENGINEER is of the opinion that at any points sufficient or proper supports have not been provided, additional supports shall be installed upon the ENGINEER's order, at the expense of the CONTRACTOR. Compliance with such order shall not relieve or release the CONTRACTOR from responsibility for the sufficiency of such supports. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and compacted. Where soil cannot be properly compacted to fill a void, Class B concrete shall be used as backfill at no additional expense to the owner.
 - 2. The CONTRACTOR shall construct the sheeting outside the neat lines of the foundation unless indicated otherwise to the extent required for the method of operation. Sheeting shall be plumb and securely braced and tied in position.

Sheeting and bracing shall be adequate to withstand all pressure to which the structure or trench may be subjected. Any movement or bulging may occur shall be corrected by the CONTRACTOR at no expense to the owner to provide the necessary clearances and dimensions.

3. Where sheeting and bracing is required to support the sides of excavations, the CONTRACTOR shall engage a Professional Engineer, registered in the State of Florida, to design the sheeting and bracing. The sheeting and bracing installed shall be in conformity with the design, and certification of this shall be provided by the Professional Engineer.
4. Where, in the opinion of the ENGINEER, the installation of sheeting, particularly by driving or vibrating, may cause distress to existing structures, the CONTRACTOR shall evaluate the potential for such distress and, take all precautions to prevent distress of existing structures because of sheeting installation.
5. The CONTRACTOR shall leave in place to be embedded in the backfill all sheeting and bracing not shown on the drawings but which the ENGINEER and OWNER may direct the CONTRACTOR, in writing, to leave in place at any time during the progress of the work for the purpose of preventing injury to structures, utilities, or property, whether public or private. The ENGINEER may direct that material used for sheeting and bracing be cut off at any specified elevation.
6. All sheeting and bracing not left in place shall be carefully removed in such a manner as not to endanger the work or other structures, utilities, or property. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by compacting with tools especially adapted for that purpose, or otherwise as may be directed by the ENGINEER.
7. The right of the ENGINEER to order sheeting and bracing left in place shall not be construed as creating any obligation to issue such orders, and failure to exercise the right to do so shall not relieve the CONTRACTOR from liability for damages to persons or property occurring from or upon the work growing out of a failure on the part of the CONTRACTOR to leave in place sufficient sheeting and bracing to prevent any sidewall sloughing, collapse or moving of the ground.
8. No wood sheeting shall be withdrawn if driven below mid-diameter of any pipe, and under no circumstances shall any wood sheeting be cut off at a level lower than one (1) foot above the top of any pipe.

C. Pumping and Drainage:

1. The CONTRACTOR shall at all times during construction provide and maintain proper equipment and facilities to remove all water entering excavations as stipulated in Section 02140.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General:

1. All fill material shall be subject to the approval of the OWNER and ENGINEER.
2. All fill material shall be free of organic material, trash, deleterious debris, roots, clay balls, rubble or other objectionable material (except for hydric soils as detailed herein).
3. Excess or unsuitable material shall be removed from the job site by the CONTRACTOR at no additional cost to the OWNER.

B. Common Fill: Common fill shall be sand and shall not contain stones, rock, concrete or other rubble larger than one (1) inch in diameter. It shall have physical properties that allow it to be easily spread and compacted. Additionally, common fill shall have no more than 12 percent by weight finer than the U.S. No. 200 mesh sieve.

C. Select Fill: Select fill shall be as specified above for common fill, except that the material shall contain no stones larger than ½ inch in largest dimension, and shall be no more than 12 percent by weight finer than the U.S. No. 200 mesh sieve.

D. Crushed Stone: Crushed stone shall be FDOT #57 washed and graded stone.

PART 3 - EXECUTION

3.01 PREPARATION

A. Grubbing:

1. The CONTRACTOR shall strip and stockpile topsoil on the site at a location approved by the OWNER and ENGINEER.

3.02 EXCAVATION

A. Excavating for Utilities:

1. Excavation shall be made to such dimensions as shall give suitable room for bracing and supporting, for pumping and draining, and for all other work required.
 - a. Pipeline: Excavation shall be to the design elevation as shown on the drawings unless unsuitable subgrade materials are encountered at the bottom of the pipeline excavation, in which case these unsuitable materials shall be undercut

and removed a minimum of 12-inches below the bottom of the pipeline and shall be replaced with compacted approved select fill before placing the pipe. All organic laden sands or debris beneath the pipe bottom level shall be completely removed from beneath the pipe and replaced with compacted approved select fill.

2. The CONTRACTOR shall immediately document the location, elevation, size, material type and function of all new subsurface installations, and utilities encountered during the course of the work.
3. Excavation equipment operators and other concerned parties shall be familiar with subsurface obstructions as shown on the drawings and shall anticipate the encounter of unknown obstructions during the course of the work.
4. Encounters with subsurface obstructions shall be hand excavated and immediately brought to the attention of the ENGINEER.
5. Excavation and dewatering shall be accomplished by methods that preserve the undisturbed state of subgrade soils. Subgrade soils that become soft, loose, "quick" or otherwise unsatisfactory for support of pipes because of inadequate dewatering or other construction methods shall be removed and replaced with crushed stone as required by the ENGINEER at the CONTRACTOR's expense.
6. All pavements shall be cut prior to removal, with saws or power tools approved by the OWNER and ENGINEER.
7. Excavated material shall be stockpiled in such a manner as to prevent nuisance conditions. Surface drainage shall not be hindered.
8. All locations and elevations as required herein shall be permanently documented by the CONTRACTOR, on the as-built drawings.

3.03 UNDERCUT

- A. If the bottom of any excavation is below that shown on the drawings or specified because of CONTRACTOR error, convenience, or unsuitable natural bedding material or subgrade due the CONTRACTOR's excavation or dewatering methods, the excavation shall be refilled to the specified bottom of excavation grade with compacted approved select fill at no cost to the OWNER. Compaction method shall be as approved by the OWNER and ENGINEER.

3.04 FILL AND COMPACTION

- A. The CONTRACTOR shall compact and backfill excavations and construct embankment according to the schedule on the following page. (Proctor Requirement shall be ASTM D-1557, modified Proctor):

- B. Excavations shall be backfilled to the original grade or as indicated on the drawings. Deviation from this grade because of settling shall be corrected. Backfill operation shall be performed to comply with all laws and regulations and in such a manner that it does not create a nuisance or safety hazard. Care shall be used in operating compaction equipment to avoid damage to pipe or structures. Pipe bedding and trench backfill shall be firmly tamped under the pipe haunches along both sides of the pipe at the same time, taking care not to lift up the pipe off its bed. Backfilling shall continue by bringing the fill up equally on each side of the pipe to avoid displacing the pipe laterally.

<u>Area</u>	<u>Material</u>	<u>Compaction</u>
1. Pipe Bedding	Select Fill or Crushed Stone	95% of maximum dry density by modified Proctor method (in 12" loose lifts if additional bedding material is required).
2. Pipe Trench Backfill	Common Fill	12" loose lifts, 95% of maximum dry density by modified Proctor method (98% under roadways and drives). <u>Note:</u> Above the top of the pipe only, backfill material with a maximum fines content of 20% may be used.
3. Bedding Beneath Structures (other than pipeline) and Beneath Buried Valves	Select Fill or Crushed Stone	12" loose lifts, compacted to 98 % of maximum dry density by modified Proctor method. Fill shall not be placed over any in-place soils until those deposits have been compacted to 98% modified Proctor.
4. Backfill Around Structures	Common Fill	8" loose lifts, 98% of (other than pipeline) maximum dry density by modified Proctor method.

- C. Embankments shall be constructed true to lines, grades and cross sections shown on the drawings or ordered by the ENGINEER. Embankments shall be placed in successive layers of not more than 8 inches in thickness, loose measure, for the full width of the embankment. As far as practicable, traffic over the work during the construction phase shall be distributed to cover the maximum surface area of each layer.

- D. If the CONTRACTOR requests approval to backfill utilizing lifts and/or methods other than those specified herein, such request shall be in writing to the ENGINEER. Approval will be considered only after the CONTRACTOR has performed tests, at the CONTRACTOR's expense, to identify the material used and density achieved throughout the backfill area utilizing the method of backfill requested. The OWNER and ENGINEER's approval shall be in writing.
- E. Hydric soils stockpiled during excavation shall be replaced within the top 12-inches of wetland impact areas and in accordance with all applicable permits.

3.05 DISPOSAL

- A. The CONTRACTOR shall properly dispose of all excess or unsuitable material at no additional expense to the OWNER.

END OF SECTION

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SECTION 02250

WELLHEAD COMPLETION

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This section covers the work, materials, and equipment necessary for completing the wellhead of the well and disinfecting the well.

1.02 PRODUCTS

A. GENERAL

- 1. Provide all materials and equipment necessary for capping the well, as specified.
- 2. Provide all materials and equipment necessary for disinfecting the well, as specified.

B. CAPPING PLATE

- 1. Secure a PVC Blind Flange with nuts and bolts to flange as a means of temporarily capping the well. Nuts and bolts shall be ¾-inch stainless steel.

C. FLANGE

- 1. Install a PVC Flange meeting all the requirements of ANSI/AWWA-C115/A21.15 to the top of the 12-inch PVC casing. Flange may be secured by solvent weld or may be threaded directly to casing. Top of flange will be set 2.5 feet above graded land surface elevation.

D. DISINFECTION AND BACTERIOLOGICAL CLEARANCE

- 1. CONTRACTOR shall disinfect the well according to applicable section of AWWA standard C654-2013 including sections 5 and 6.
- 2. Chlorinated water pumped to waste from the well shall be containerized and transported by the CONTRACTOR to the Eastside Water Reclamation Facility at 3520 East Laurel Road in Venice, Florida.
- 3. Upon successful completion of the bacterial clearance, the CONTRACTOR shall provide the ENGINEER with all sampling records, including sampling time, date, collector name, and lab analyses results.

1.03 PAYMENT

A. GENERAL

1. Payment for all work and materials specified in this section for capping the production well shall be at the lump sum price for Wellhead Completion as stated in the CONTRACTOR'S bid schedule and described in the Measurement and Payment Section of these documents.
2. Payment for all work and materials specified in this section for well disinfection, laboratory analysis of total coliform water samples, and disposal of disinfection water shall be at the lump sum price for Well Disinfection as stated in the CONTRACTOR'S bid schedule and described in the Measurement and Payment Section of these documents.

END OF SECTION

SECTION 02276

TEMPORARY EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. The work specified in this section consists of designing, providing, maintaining and removing temporary erosion and sedimentation controls as necessary.
2. Temporary erosion controls include, but are not limited to, grassing, mulching, setting, watering, and reseeding on-site surfaces and spoil and borrow area surfaces and providing interceptor ditches at ends of berms and at those locations that will ensure that erosion during construction will be either eliminated or maintained within acceptable limits as established by the DEP.
3. Temporary sedimentation controls include, but are not limited to silt dams, traps, barriers, and appurtenances at the foot of sloped surfaces that will ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the OWNER.
4. CONTRACTOR is responsible for providing effective temporary erosion and sediment control measures during construction or until final controls become effective.

B. Related Work Described Elsewhere:

1. Shop Drawings: Section 01340.
2. Sodding: Section 02934.

1.02 REFERENCE DOCUMENTS

- ###### A. Standard Building Code.

PART 2 - PRODUCTS

2.01 EROSION CONTROL

- ###### A. Sodding is specified in Section 02934.
- ###### B. Netting - fabricated material acceptable to the OWNER and ENGINEER.

2.02 SEDIMENTATION CONTROL

- A. Bales - clean, seed free cereal hay type.
- B. Netting - fabricated material acceptable to OWNER.
- C. Filter stone - crushed stone conforming to Florida Department of Transportation specifications.
- D. Concrete block - hollow, non-load bearing type.
- E. Concrete - exterior grade but less than one inch thick.

PART 3 - EXECUTION

3.01 EROSION CONTROL

- A. Minimum procedures for grassing are:
 - 1. Scarify slopes to a depth of not less than six inches and remove large clods, rock, stumps, roots larger than ½-inch in diameter and debris.
 - 2. Sow seed within twenty-four (24) hours after the ground is scarified with either mechanical seed drills or rotary hand seeders.
 - 3. Apply mulch loosely and to a thickness of between ¾-inch and 1-1/2 inches.
 - 4. Apply netting over mulched areas on sloped surfaces.
 - 5. Roll and water seeded areas in a manner that will encourage sprouting of seeds and growing of grass. Reseed areas that exhibit unsatisfactory growth. Backfill and seed eroded areas.
- B. Working in or crossing waterways or water bodies:
 - 1. Construction shall be minimized in both permanent and intermittent waterways and within thirty (30) feet from top of bank of the waterways. Barriers shall be used to prevent access. Where in-channel work cannot be avoided, precautions shall be taken to stabilize the work area during construction to minimize erosion. If the channel and adjacent area are disturbed during land alteration, they shall be stabilized within three (3) working days after the in-channel work is completed.
 - 2. Turbidity barriers or other filters/siltation reduction devices shall be installed on the downstream side of the in-channel alteration activity to eliminate impacts due to increased turbidity. Wherever surface water crossings are required, properly sized

temporary culverts shall be provided by the CONTRACTOR and removed when construction is completed. The area of the crossing shall be restored to a condition as nearly as possible equal to that which existed prior to any construction activity.

3.02 SEDIMENTATION CONTROL

- A. Install and maintain silt dams, traps, barriers, and appurtenances as necessary to prevent any contaminated water from leaving the project. Hay bales which deteriorate and filter stone that is dislodged shall be replaced.

3.03 PERFORMANCE

- A. Should any of the temporary erosion and sediment control measures employed by the CONTRACTOR fail to produce results that comply with the requirements of the State of Florida Department of Environmental Protection, CONTRACTOR shall immediately take whatever steps are necessary to correct the deficiency at his own expense.

END OF SECTION

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SECTION 02300

WELL ACIDIFICATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Acidification of the OWNER replacement public supply well RO-7AW. All work performed will be in accordance with these specifications.
- B. Providing a detailed well acidification plan outlining all work and safety procedures and equipment to be utilized for approval by the ENGINEER prior to commencement of acidization.

1.02 PRODUCTS

- A. The CONTRACTOR shall **mobilize** to the site and provide all equipment, materials, and labor to accomplish the work as specified.
- B. The CONTRACTOR is **responsible** for controlling flow from the well in preparation for and during acid injection. If the CONTRACTOR discharges fluids from the injection system to reduce pressure during acid injection and post-injection monitoring, then the fluids shall be discharged to and contained within a storage tank provide by the CONTRACTOR.
- C. Acid used for the work shall be 24 to 32 percent Hydrochloric Acid (HCL) with an acid inhibitor at a concentration up to 1 percent by volume. CONTRACTOR shall provide the name of the acid manufacturer/carrier, HCL concentration and volume, and the ratio of inhibitor to acid to the ENGINEER at least two days prior to mobilization.
- D. Acid pump used for injection **shall** be capable of injecting acid at a rate up to 150 gallons per minute (gpm) with a wellhead pressure of 100 psi. Clean water shall be injected during acidification at rates up to 200 gpm under same pressure constraints.
- E. Pressure gauges supplied by the CONTRACTOR shall be a minimum of three (3) inches in diameter, have a calibrated range from 0 to 200 psi with an accuracy of 1 percent, and labeled in increments of no less than 1 psi. All pressure gauges used during the work will have been calibrated within the last six (6) months with proof of calibration submitted prior to site mobilization.
- F. Flow meters supplied by the CONTRACTOR shall be capable of accurately measuring the flow of acid and water between 0 and 200 gpm with an accuracy of 2 percent. All flow meters used during the work will have been calibrated within the last six (6) months with proof of calibration submitted prior to site mobilization. The flow meter

for the clean water source shall be installed with a backflow preventer. The clean water source must be provided by the CONTRACTOR or arranged with the OWNER.

1.03 - EXECUTION OF WORK

- A. Install acid injection pipe (diameter to accommodate up to 150 gpm injection rate) to a depth of approximately 15 feet below the bottom of the casing. CONTRACTOR shall pressure test with water all above ground piping and pumps to demonstrate that no acid leaks will occur.
- B. Pump up to 1,000 gallons of acid mixed with inhibitor at rates between approximately 20 and 150 gpm while pumping clean water into the well at rates up to 200 gpm. Clean water injection shall continue throughout the entire period of acid injection.
- C. Pump up to approximately one well volume of clean chase water through acid injection piping into well after injection of acid has been completed. Monitor casing pressure for up to 24 hours and follow with well development per **Section 02310** after a shut-in period of approximately 24 hours.

1.04 – PAYMENT

- A. Payment for providing an acidification and well development plan, furnishing, temporarily installing, and removing the acid injection system including but not limited to pumps, storage tanks, gauges, piping, valves and meters shall be made at the unit price bid for Acidization System Setup, as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents.
- B. Payment for acid, acid injection and post-acidification monitoring shall be made at the unit price bid per gallon of HCL acid injected as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents.

END OF SECTION

SECTION 02310

POST- ACIDIZATION WELL DEVELOPMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This section covers the work, materials, and equipment necessary for post-acidization development of the well by pumping and disposal of the post-acidification development water, complete.
- B. Coordinate with the OWNER and ENGINEER to dispose post-acidization development water at the OWNER's Eastside Water Reclamation Facility (WRF) at 3510 East Laurel Road in Venice, Florida.

PART 2 - PRODUCTS

2.01 PERSONNEL

- A. The CONTRACTOR shall provide experienced personnel to setup and maintain the pumping equipment.
- B. The CONTRACTOR shall provide an operator during the entire time the pump is in operation to operate the prime mover and to regulate the discharge to the storage tank by a throttling device.

2.02 PUMPING EQUIPMENT

- A. Furnish and install a test pump and driver to surge and develop the well. The test pump and drive will be used to conduct a specific capacity pumping test of the well following post-acidization development.

2.03 GENERAL EQUIPMENT

- A. CONTRACTOR shall provide and install all wellhead connections, hoses, and valves to facilitate the development of the well.
- B. CONTRACTOR shall provide a storage tank with a minimum capacity of approximately 2,500 gallons for pH adjustment and containment of the development water prior to being transported to the WRF for disposal.

- C. CONTRACTOR shall provide fresh water and / or chemicals as necessary to buffer acidic development water in the storage tank.
- D. CONTRACTOR shall provide a pH meter to monitor the pH of the development water.
- E. CONTRACTOR shall provide and operate a tanker truck to transport the pH-adjusted development water from the well to the WRF. The tanker truck can be used to provide the on-site storage identified in section 2.3.2 above if it meets the minimum storage capacity of 2,500 gallons.
- F. Furnish, install, and operate the butterfly valve or equal, power generator, flow measuring devices, discharge pipe, Rossum sand sampler, valve and spigot, access pipes, and electric water level probe for a post-acidization pumping test.

PART 3 - EXECUTION

3.01 DEVELOPMENT BY PUMPING

- A. The CONTRACTOR shall configure the pump, pipes, hoses, and fitting to ensure a development pumping flow rate up to approximately 700 gallons per minute (gpm). The CONTRACTOR shall initially pump the well until the well yields clear, sediment-free water or the capacity of the storage tank is met. All of the discharge water shall be directed to the storage tank for pH adjustment. He shall then shut off the pump and allow water in the well to return to a static condition. He shall then resume pumping until the water in the well becomes turbid at which time he shall continuously pump the well until it again yields clear sediment-free water. The CONTRACTOR shall repeat the above operations until the well no longer produces fine material when it is surged as described above, or until the ENGINEER is satisfied that development is complete.
- B. CONTRACTOR shall monitor the pH of the discharge water during development and add fresh water and/ or chemicals (soda ash) at the storage tank to raise the pH to a level between 6.0 and 8.5 Standard Units (S.U.) prior to being transported to the WRF and disposed.
- C. Following the end of well development, the well water level shall be allowed to recover to background conditions and a specific capacity pumping test shall be conducted in accordance with Section 02200-PUMPING TEST.

PART 4 - PAYMENT

- A. Payment for furnishing, installing, and removing the development/pumping test system including but not limited to pump, storage tank, gauges, valves, and meters shall be made at the lump sum price bid for Install Post-Acidization Development System as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents.

- B. Payment for well development and disposal of the development water shall be made at the CONTRACTOR's unit price bid for Post-Acidization Development and Disposal as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents.

- C. Payment for **performance** of pumping test shall be made at the unit price per hour for Perform Pumping Test, as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents. The CONTRACTOR will not be paid the hourly rate for pumping during the time the equipment is not actually in use or in the event the pumping test is not performed for the full duration as directed by the ENGINEER.

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SECTION 02350

DEMOBILIZATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This section covers the work necessary to remove from the site all personnel, supplies, equipment, and site restoration and cleanup. Demobilization shall be completed within two weeks after the completion of all other site work.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Provide all materials and equipment required to accomplish the work as specified.
- B. On all questions concerning the acceptability of materials, execution of work, determination of costs, the decision of the OWNER and ENGINEER shall be final and binding upon parties.
- C. The CONTRACTOR shall assume full responsibility for all supplies, materials, and equipment required by it for the contracted work, whether furnished by itself or other parties.

PART 3 - EXECUTION

3.01 GENERAL

- A. Accomplish all required work in accordance with the applicable portions of these Specifications and Parts or as approved by the OWNER and ENGINEER.
- B. The replacement of minor obstructions and restoration of physical features, even though not shown or specifically mentioned shall be anticipated and accomplished.
- C. Upon leaving the site at the completion of the work, the CONTRACTOR shall clean equipment and materials of surface and subsurface materials contacted at the site.

3.02 CLEANUP OF CONSTRUCTION AREAS

- A. Avoid defacing of the site area. Do not dump waste oil, fuel, rubbish, or other materials on the ground. Restore the site to condition approved by the OWNER and ENGINEER.
- B. Replace or repair any facility, equipment, buildings, fencing, etc. damaged during work. Site cleanup shall be completed to the satisfaction of the OWNER and ENGINEER.

Solid waste such as subsurface fluids shall be contained so that it shall not migrate from the site or areas designated by the OWNER and ENGINEER. This includes drill cuttings and debris such as wood, pipe, and hose. These materials shall be segregated and identified and removed and disposed of offsite, as approved by the OWNER and ENGINEER.

PART 4 - PAYMENT

4.01 GENERAL

- A. Payment for all work, materials, and equipment specified in this section shall be at the lump sum unit price as stated in the CONTRACTORs bid for demobilization. Payment shall only be made once for the site, and shall be for clean-up and removal of equipment.
- B. A project closeout meeting is mandatory at the site following CONTRACTOR's completion of Demobilization. Cost for this shall be included in the CONTRACTOR's Bid for demobilization.
- C. Production and submittal of Record Drawings shall be included in the CONTRACTOR's bid for demobilization.

END OF SECTION

SECTION 02500

STANDBY TIME

PART 1 - GENERAL

1.01 DEFINITIONS

- A. Standby time is shutdown time of the equipment and crew for any portion of the normal working day (7:00 a.m. to 7:00 p.m., Monday through Friday) when the OWNER or ENGINEER orders work to cease or when other activities at the site preclude work by the CONTRACTOR, as approved by the ENGINEER.
- B. Standby time does not include time when the ENGINEER'S representative or a regulatory agency or other authority orders work to cease because of safety, lack of proper equipment or supplies, or violation of federal, state, or local rules, regulations, or statute.

PART 2 - PAYMENT

2.01 GENERAL

- A. Payment for standby time (resulting from each cause approved by the ENGINEER) shall be at the unit price per hour, to the nearest half-hour per day, as stated in the Contractors Bid for standby time.

END OF SECTION

STANDBY TIME
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SECTION 02622

POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS (AWWA SPECIFICATIONS C-900 & C-905)

PART 1 - GENERAL

1.01 SCOPE OF WORK

The CONTRACTOR shall furnish all labor, materials, equipment and incidentals required to install the plastic piping, fittings and appurtenances complete and ready for use as specified in the Contract Documents.

1.02 DESCRIPTION OF SYSTEM

The CONTRACTOR shall install the piping in the locations as shown on the Drawings.

1.03 QUALIFICATIONS

All plastic pipe, fittings and appurtenances shall be furnished by a single manufacturer who is fully experienced, reputable, qualified and specializes in the manufacture of the items to be furnished. The pipe and fittings shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications.

1.04 SUBMITTALS

- A. The CONTRACTOR shall submit shop drawings to the OWNER and ENGINEER including, but not limited to, dimensions and technical specifications for all piping.
- B. The CONTRACTOR shall submit to the OWNER and ENGINEER, samples of all materials specified herein.
- C. The CONTRACTOR shall submit and shall comply with pipe manufacturer's recommendation for handling, storing and installing pipe and fittings.
- D. The CONTRACTOR shall submit pipe manufacturer's certification of compliance with these Specifications.

1.05 TOOLS

The CONTRACTOR shall supply special tools, solvents, lubricants, and caulking compounds required for proper installation. Compensation shall be included in the pipe bid item.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Class-Rated Polyvinyl Chloride (PVC) Pipe
1. Pressure class-rated PVC pipe and accessories four to twelve inches (4"-12") in diameter, where shown or as specified on the Drawings, shall meet the requirements of AWWA Specification C-900 "Polyvinyl Chloride (PVC) Pressure Pipe". Pipe shall be Class 150, meeting requirements of Dimension Ratio (DR) 18 and shall have the dimension of ductile iron outside diameters. Each length of pipe shall be hydrotested to four (4) times its class pressure by the manufacturer in accordance with AWWA C-900.
 2. PVC pipe 14" through 24" shall meet the requirements of AWWA Standard C-905, Polyvinyl Chloride (PVC) Water Transmission Pipe. Pipe for potable and reclaim water shall meet the requirements for dimension ratio (DR) 18. Each length of pipe shall be tested at twice the pressure rating (PR 235 psi) for a minimum dwell of 5 seconds in accordance with AWWA C-905. Eighteen inch (18") thru 36" PVC pipe for sewer force mains shall meet AWWA C-905 requirements for dimension ratio (DR) 21. Each length of pipe shall be tested at twice the pressure rating (PR 200 psi) for a minimum dwell of five seconds in accordance with AWWA C-905. Pipe shall be listed by Underwriters Laboratories. Provisions shall be made for expansion and contraction at each joint with an elastomeric ring, and shall have an integral thickened bell as part of each joint. PVC Class pipe shall be installed as recommended by the manufacturer. Pipe shall be furnished in nominal lengths of approximately 20 feet, unless otherwise directed by the ENGINEER and City Utilities Project Manager. Pipe and accessories shall bear the NSF mark indicating pipe size, manufacturer's names, AWWA and/or ASTM Specification number, working pressure, and production code.
 3. Gaskets for 16" diameter and larger pipe shall be EPDM (Ethylene-Propylene Dine Monomer).
 4. PVC pipe less than 4" in diameter may be constructed using pipe conforming to ASTM D2241 with push-on joints. Pipe shall be 200 psi pipe-SDR 21 unless otherwise specified by the ENGINEER and City Utilities Project Manager. PVC pipe shall not be used for working pressures greater than 125 psi.
 5. Pipe shall be blue for potable water mains, green for sewage force mains and purple for reclaimed water mains. All potable water pipe shall be NSF certified and copies of lab certification shall be submitted to the ENGINEER and City Utilities Project Manager.

POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

6. Where colored pipe is unavailable, white PVC color coded spiral wrapped pipe shall be installed.

B. Joints

1. The PVC joints for pipe shall be of the push-on type unless otherwise directed by the ENGINEER and City Utilities Project Manager so that the pipe and fittings may be connected on the job without the use of solvent cement or any special equipment. The push-on joint shall be a single resilient gasket joint designed to be assembled by the positioning of a continuous, molded resilient ring gasket in an annular recess in the pipe or fitting socket and the forcing of the plain end of the entering pipe into the socket, thereby compressing the gasket radially to the pipe to form a positive seal. The gasket and annular recess shall be designed and shaped so that the gasket is locked in place against displacement as the joint is assembled. The resilient ring joint shall be designed for thermal expansion or contraction with a total temperature change of at least 75 degrees F in each joint per length of pipe. The bell shall consist of an integral wall section with a solid cross section elastomeric ring that shall meet requirements of ASTM F-477. The thickened bell section shall be designed to be at least as strong as the pipe wall. Lubricant furnished for lubricating joints shall be nontoxic, shall not support the growth of bacteria, shall have no deteriorating effects on the gasket or pipe material, and shall not impart color, taste, or odor to the water. Gaskets shall be suitable for use with potable water, reclaimed water or sanitary sewer as applicable.
2. Restrained joints shall be provided at all horizontal and vertical bends and fittings, at casings under roads and railroads and at other locations shown on the Contract Drawings. PVC joints for pipe shall be restrained. Restrained joint PVC pipe shall be installed in strict accordance with the manufacturer's recommendation.
3. A continuous or fusible pipe shall be formed by butt fusing sections of pipe using manufacturer approved equipment. The fused joints shall have equal or greater tensile and hydrostatic strength than the pipe.

C. Fittings

1. Fittings for class-rated PVC potable or reclaimed water pipe shall be cast iron/ductile iron with mechanical joints and shall conform to the specifications for cast iron/ductile iron fittings, unless otherwise directed. Four inch (4") thru 8" pressure class PVC sewer force main pipe shall use DR 18 Class 150 PVC fittings meeting the requirements of AWWA C-907. Fabricated PVC fittings with a DR 18 wall thickness may be used for larger diameter force main pipe. Testing requirements for fabricated fittings shall match AWWA C-907.

2. The manufacturer of the pipe shall supply all polyvinyl chloride accessories as well as any adapters and/or specials required to perform the work as shown on the Drawings and specified herein. Standard double bell couplings will not be accepted where the pipe will slip completely through the coupling.

PART 3 - EXECUTION

3.01 INSTALLATION

The CONTRACTOR shall install the plastic pipe in strict accordance with the manufacturer's technical data and printed instructions. Direct bury pipe shall have metallic tape of the proper color placed directly above the pipe and 24" below finished grade.

3.02 INSPECTION AND TESTING

All pipelines shall remain undisturbed for 24 hours to develop complete strength at all joints. All pipelines shall be subjected to a hydrostatic pressure test for two (2) hours, at full working pressure, but not less than 150 psi. All visible leaks shall be repaired and retested for approval by the OWNER and ENGINEER. Prior to testing, the pipelines shall be supported in a manner approved by the OWNER and ENGINEER to prevent movement during tests.

3.03 DISINFECTING POTABLE WATER PIPELINES

- A. All record drawing requirements must be submitted to the ENGINEER and City Utilities Project Manager prior to starting the bacteriological testing of water lines.
- B. Prior to being placed in service, all potable water pipelines shall be chlorinated in accordance with AWWA 651, "Standard Procedure for Disinfecting Water Mains". The procedure shall be approved by the OWNER and ENGINEER. The location of the chlorination and sampling points shall be determined by the OWNER and ENGINEER in the field. Taps for chlorination and sampling shall be uncovered and backfilled by the CONTRACTOR as required.
- C. The general procedure for chlorination shall be to flush all dirty or discolored water from the lines. All water mains shall be flushed in the presence of the City representative to remove all sand and other foreign matter. The velocity of the flushing water shall be at least 4-feet per second for 12" in diameter or less. All mains over 12" shall be flushed at a minimum of 2-feet per second. Flushing shall be terminated at the direction of the ENGINEER and City Utilities Project Manager. The CONTRACTOR shall dispose of the flushing water without causing a nuisance or property damage. The City shall provide a source for the water used in flushing. After flushing, introduce chlorine in approved dosages through a tap at one end while water is being withdrawn at the other end of the line. The chlorine solution shall remain in the pipeline for 24 hours.

- D. Following the chlorination period, all treated water shall be neutralized and flushed from the lines at their extremities and replaced with water from the distribution system. Bacteriological sampling and analysis of the replacement water shall then be made by a certified testing lab in full accordance with the AWWA Manual C651. The CONTRACTOR shall be required to rechlorinate if the test fails. The CONTRACTOR shall compensate the City for the ENGINEER's time after the third test. Compensation will be made at the hourly rate of the ENGINEER. The line shall not be placed in service until the requirements of the State and Public Health Department are met.

- E. Special disinfecting procedures as per prior approval by the OWNER and ENGINEER, may be used in connections to existing mains and where the method outlined above is not practicable.

END OF SECTION

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SECTION 02640

VALVES AND ACCESSORIES

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The CONTRACTOR shall furnish and install all butterfly valves, check valves, and other special valves and piping accessories as shown on the drawings and as specified herein.

1.02 SUBMITTALS

- A. The CONTRACTOR shall submit:
 - 1. Shop drawings or manufacturer's product data on all items in PART 2.
 - 2. One (1) original certified test report and two (2) copies of the test reports. Certification shall include all test results required by AWWA. The test shall include but not be limited to the following: Hydrostatic and leakage tests conducted in accordance with AWWA C504, Section 12, to the ENGINEER and Owner for Item 2.03 BUTTERFLY VALVES.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. All valve operators shall be designed as not to require over 80 pounds pull to meet the required torque to operate the valves.
- B. All manually operated, shut-off or isolation valves, above grade, shall be furnished with handwheel or lever operators.
- C. All valves shall open by turning to the left or counter-clockwise when viewed from the stem. The operating nut shall have an arrow cast in the metal indicating the direction of opening. Each valve shall have the manufacturer's distinctive marking, pressure rating and year of manufacture cast on the body. All valves shall be tested in accordance with applicable AWWA pressure testing procedures.

2.02 BUTTERFLY VALVES

- A. Butterfly Valves (for liquid service):
 - 1. Butterfly valves shall conform to AWWA C504. Laying length of all classes shall be Table 3, short body. Valves shall be rated at 150 psi working pressure. Valves shall be bubble tight at rated pressures and shall

be satisfactory for applications involving valve operation after long periods of inactivity. Valves shall have flanged joints for above grade. Butterfly valves shall be as manufactured by Pratt, or approved alternate.

2. Valve body shall be ductile or cast iron per AWWA C-504 with integrally cast hubs for shaft bearing housing. All exterior bolts, nuts, studs, washers, etc., except mechanical joint bolting accessories shall be stainless steel.
3. The valve disc shall be of heat treated ductile iron, cast iron or of alloy cast iron per ASTM A436, Type I, Class I. All materials shall meet AWWA C-504. The disc shall rotate 90 degrees from full open to tight shut position. The CONTRACTOR shall verify clearance dimensions required for the valve disc to be compatible with the pipe.
4. Valve shaft shall be of a solid one-piece design or stub shaft. Shaft, taper pins, lockwashers and nuts shall be 18-8 Type 304 or 316 stainless steel. A shaft seal and bronze gland follower, studs and nuts shall be provided in the valve body. Shaft seals shall be in accordance with Section AWWA C-504 for Class 150B, of the o-ring or split "V" type, suitable for buried service.
5. Valve seat shall be of molded natural or synthetic rubber, recess mounted, bonded and/or mechanically secured to the valve body or disc. All mechanical securing devices shall be stainless steel. Valves may be furnished with rubber seats clamped securely to the cast iron discs and mating against stainless steel seating surfaces in the valve body. Rubber seats attached to the disc shall be adjustable and replaceable in the field. If the disc seating edge is metal, then the mating edge that contacts the valve body rubber seat shall be stainless steel or other approved corrosion resistant material.
6. Valves shall be fitted with sleeve type bearing of self-lubricating corrosion resistant material.
7. Valve operators shall be in accordance with AWWA C504 and for buried service shall be permanently lubricated with totally enclosed gearing and designed to operate indefinitely either buried or fully submerged. All operator components between the input and stop limit shall be designed to withstand, without damage, a pull of 200 pounds for handwheel or chain wheel operators and an input torque of 300 foot pounds for operating nuts. Operators shall be designed to require not over 150 foot pounds to meet the required operating torque. Operators shall be designed to hold the valve disc in any intermediate position between fully closed and fully open without creeping or fluttering.
8. All valves shall receive a protective inside coating. The coating shall be a two (2) part thermosetting epoxy protective coating and shall function as a physical, chemical and electrical barrier between the base metal to which it

VALVES AND ACCESSORIES

is applied and the surroundings. The coating shall be non-toxic and shall not impart taste to water. The coating must be formulated from materials deemed acceptable per the FOOD AND DRUG ADMINISTRATION DOCUMENT TITLE 21 of the FEDERAL REGULATIONS ON FOOD ADDITIVES, SECTION 121.2514 entitled, RESINS AND POLYMERIC COATINGS. The coating shall have a satin finish and shall be suitable for field overcoating and touch up with same coating material without sanding or special surface preparation, or application of heat in excess of room temperature. The coating shall have a successful record of performance in valves, pipe or other allied equipment for a minimum of two (2) years. The coating adhesion to the substrate shall exceed cohesion of the coating film as demonstrated by the following test:

- a. Prepare test panel and apply coating per manufacturer's recommendation.
 - b. After sample has properly cured per manufacturer's recommendation, scribe an "X" using a sharp knife or scalpel through the coating to the metal substrate.
 - c. With the point of the knife at the juncture of two (2) scribes, attempt to lift off coating. Coating should not lift off substrate or between coats readily, but should break up leaving coating material on the substrate of this damaged area.
9. A falling sand abrasion test using ASTM D-968 shall produce an abrasion coefficient of 25-30 liters/mil. As an alternative, a Taber Abrader Test should find 3.5-3.7 milligrams coating loss per 100 cycles when using a CSF 10 Wheel (1,000 gram weight).

2.03 CHECK VALVES

A. General:

1. Check valves shall be installed where shown on the drawings.

B. Rubber Flapper Check Valves:

1. Check valves shall be rubber flapper swing check valves of long pattern design (not wafer). Check valves shall have a stainless steel body and end flanges. Cover, bolts, nuts, and washers shall be 304SS; flange gaskets shall be rubber. Flapper shall be Buna-N with an O-ring seating edge, an elastic spring, molded internally, and shall be reinforced with steel. The flapper shall be easily removed from check valve without needing to remove the valve from the line. Check valves will have full pipe size flow area. Check valves shall be APCO rubber flapper swing check valves Model 106 or approved alternate.

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2.04 PVC BALL VALVES

- A. Ball valves shall be the true union types, 316 stainless steel. Conbraco – 76 Series, or approved alternate, per AWWA 507.

2.05 AIR RELEASE VALVE

- A. Air release valve shall be 3/4-inch GA Industries Figure 910, or approved alternate, per AWWA C512.

B. Valve Construction:

- 1. Air valves shall be designed to allow large quantities of air to escape out the orifice when the pump is started and close water tight when the liquid enters the valve.
- 2. The valve shall consist of a body, cover, baffle, float and seat. The baffle will be designed to protect the float from direct contact of the rushing air and water to prevent the float from closing prematurely in the valve. The seat shall be fastened into the valve cover, without distortion, and shall be easily removed, if necessary.
- 3. The entire float and baffle assembly must be shrouded with a perforated water diffuser to prevent the water column entering the valve, from slamming the float shut and eliminate water hammer in the system.
- 4. The discharge orifice shall be fitted with an adjustable throttling device to regulate the flow of air escaping to establish a pressure loading on the rising column of water to minimize shock to the pump and check valve.
- 5. The float shall be stainless steel, designed to withstand a minimum of 1000 psi. The float shall be center guided and not free floating for positive seating.
- 7. All materials of construction shall be certified in writing to conform to ASTM specification as follows:

<u>Body, Cover & Baffle</u>	<u>Cast iron</u>	<u>ASTM A126, Class B</u>
<u>Float</u>	<u>316 Stainless Steel</u>	<u>ASTM A240</u>
<u>Seat</u>	<u>Buna-N</u>	<u>.</u>
<u>Orifice</u>	<u>316 Stainless Steel</u>	<u>Commercial</u>
<u>Linkage Mechanism</u>	<u>316 Stainless Steel</u>	<u>Commercial</u>

2.06 GAUGES

- A. Gauges shall have 316 stainless steel internal parts, laminated safety glass lens, 304 stainless steel case and shall be 4-inches in diameter. Gauges shall meet the requirements of ASME B40.1 Grade A. Gauges shall be glycerin filled and shall have a selected range of 0-160 psi. Gauges shall be McDaniel Model G9 or approved alternate. All gauges must be preapproved by the ENGINEER and OWNER before CONTRACTOR orders.

PART 3 – EXECUTION (Not Used)

END OF SECTION

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SECTION 02660

PIPING - GENERAL

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The work covered by this section and the related sections following consists of providing all labor, equipment, material and supplies and performing all operations required to install the various piping, valves and accessories, as specified and shown on the drawings and as directed by the OWNER and ENGINEER.

1.02 SUBMITTALS

- A. Submittals for the various types of pipe and fittings are specified in the individual sections.
- B. Shop drawings or catalog cuts shall be submitted for all valves, boxes and restrained joints.
- C. Record drawings shall be submitted in accordance with the requirements of Section 01300 Submittals. The type of pipe used shall also be noted on the drawings.
- D. Pipe elevations shall be submitted as specified under "Installation", in this Section.
- E. The manufacturer shall furnish a sworn affidavit that the pipe, fittings and lining furnished under the CONTRACTOR Agreement comply with all applicable provisions of the ANSI and/or AWWA Standards.
- F. The CONTRACTOR shall submit reports on pressure and leakage tests.
- G. Reports on bacteriological tests shall be submitted by the CONTRACTOR.

1.03 JOB CONDITIONS

- A. Interruptions to utility service shall be minimized. The CONTRACTOR shall submit plans and schedules to the OWNER and ENGINEER for approval by the proper authority before any shutdown or any interruption in service takes place.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 INSPECTION

- A. All pipes shall be subject to inspection at the factory by the OWNER and ENGINEER. The CONTRACTOR shall provide a production schedule in sufficient time so plans can be made for in-plant inspection of the pipe or fittings during production, should it be required.
- B. Special markings shall be plainly marked on the applicable pipe indicating the weight, proper

location of the pipe or fitting in the line by reference to layout drawings and schedules, class of pipe, casting period, manufacturer's mark and year pipe was produced.

3.02 TESTS

- A. All tests shall be made in the presence of the OWNER and ENGINEER unless waived in writing. The CONTRACTOR shall notify the OWNER and ENGINEER in sufficient time when tests are being conducted to allow for travel time to the manufacturer's plant.

3.03 INSTALLATION OF ABOVE GROUND PIPING

- A. Piping shall be installed as shown on the drawings. Flanged joints shall be made up tight, care being taken to prevent undue strain upon pump nozzles, valves, and other pieces of equipment. Where stainless steel bolts are used, an anti-seize compound shall be applied on the bolt threads to prevent corrosion and galling of threads for easy disassembly, manufactured by Never-Seez Compound with Teflon, by Bostik, or approved equal. Piping within structures shall be adequately supported from floors, walls, or ceilings. Supports from the floor shall be by approved saddle stands or suitable concrete piers as shown or approved by the OWNER and ENGINEER. Pipe saddles shall be shaped to fit the pipe with which they will be used and shall be capable of screw adjustment. Concrete piers shall conform accurately to the bottom 1/3 to 1/2 of the pipe. Piping along walls shall be supported by approved wall brackets with attached pipe rolls or saddles or by wall brackets with adjustable hanger rods. For piping supported from above, approved rod hangers of a type capable of screw adjustment after erection of the piping and with suitable adjustable concrete inserts or beam clamps shall be used. Supports shall be located where shown, or specified, and in no case shall they exceed 8' on centers.
- B. Unions and Flanges:
 - 1. Unions and flanges are not, in every case, shown on the drawings but are to be provided where necessary and adjacent to all equipment installed or provided for under this Contract. Ground joint unions shall be provided on pipe sizes up to and including 2-inches. Flanged unions shall be used on all pipes larger than 2-inches. Use malleable iron on steel piping, black or galvanized as specified for piping. Unions in copper piping shall be brass.
- C. Wall Sleeves:
 - 1. Pipe through concrete or masonry walls shall be placed in wall sleeves except where wall pipe is shown on the drawings. Wall sleeves shall be standard weight, Class D, of the sizes shown on the drawings. Sleeves through walls and floors on grade shall be of sufficient length to extend through to finished surface. All sleeves shall be of adequate size to permit clearance for pipe movement and proper grading of pipe.

3.04 INSTALLATION OF UNDERGROUND PIPING

- A. Excavation, trenching and backfilling for the installation of underground piping system shall be as specified in Section 02222 Trenching, Backfilling and Compacting. Pipe shall be laid in a level trench. Irregularities shall be smoothed out or filled in with sand and tamped. Holes shall be scooped out where the bells occur leaving the entire barrel of the pipe bearing on the pipe bed. Locate tape shall be installed 18" below finished grade. It shall state "Caution, buried potable

main below" for water, "Caution, buried force main below" for force main, and "Caution, buried gravity main below" for sewer, and "Caution, buried reuse water main below" for reuse water.

- B. Laying of the pipe shall be commenced immediately after the excavation is started, and every means must be used to keep pipe laying closely behind the trenching. The ENGINEER may stop trenching when, in his opinion, the trench is open too far in advance of the pipe laying operation. Pipe may be laid in the best manner adapted to securing speed and good results. It shall, however, be in accordance with the manufacturer's instructions and recommendations. Damaged or unsound pipe or fittings will be removed and replaced by the CONTRACTOR at no additional cost to the City. Before jointing of the pipe, all lumps, blisters, excess coating material or oil shall be removed from the bell and spigot ends of the pipe. Pipelines shall be restrained to prevent movement of lines under pressure. For ductile iron pipe, restrained joints shall be installed at all bends, tees, crosses, wyes, plugs, and reducers. The number of feet of pipe with restrained joints necessary for each size pipe shall be as shown on the drawings.
- C. Where there is no adequate natural foundation upon which to construct a pipe bed, the pipe shall be constructed on a prepared stabilized subgrade or rock bedding of Class I materials as defined in ASTM D2321. Unsuitable subgrade materials shall be replaced or stabilized as described in Section 02222. Gravel or graded limerock used for pipe bedding, when ordered in writing, shall be paid for under bid item for such material. Where dewatering is required, Class I materials shall be used as described in ASTM D2321.
- D. Pipe and fittings shall be strung out for 1 day's construction along the route of construction with the spigots pointing in the direction of the flow. Pipe shall be placed where it will cause least interference with traffic. Pipe shall be handled by mechanical equipment. Before the pipe is lowered into the trench, it shall be swabbed or brushed out to insure that no dirt or foreign material gets into the finished line. Trench waters shall be kept out of the pipe and the pipe kept closed by means of a test plug whenever work is not in progress. The CONTRACTOR shall provide the means for dewatering the trench and the cost thereof shall be included in the price for installing the pipe.
- E. Deflections from a straight line or grade made necessary by vertical curves or horizontal curves or offsets shall not exceed the manufacturer's recommendations. If the specified or required alignment requires deflection in excess of those recommended, the CONTRACTOR shall either provide special bends as approved by the ENGINEER or a sufficient number of shorter lengths of pipe to provide angular deflections within the required limit.
- F. All joints shall be watertight and any leaks or defects discovered shall be immediately repaired to the satisfaction of the OWNER and ENGINEER. Any pipe which has been disturbed after being laid shall be taken up, the joints cleaned and the pipes properly relaid. Any superfluous material inside the pipe shall be flushed or removed by means of an approved follower or scraper after joints are made. Installation of fittings and pipe joints shall be in strict accordance with the manufacturer's recommendations.
- G. Where pipelines are stubbed out, the stubouts shall be restrained to the main line fittings.
- H. For the protection of exposed reinforcing any all-thread restraint methods, the CONTRACTOR shall furnish and apply two coats of Koppers Bitumastic No. 505 protective coating.

- I. Before backfilling, the CONTRACTOR shall obtain elevations on the top of the pipe barrel at 100-foot intervals along the pipeline and fittings and at any change in grade. These elevations shall be submitted to the ENGINEER.
- J. Plastic pipe shall be installed in strict accordance with the provisions of ASTM D2321-74, including those provisions in respect to compaction of bedding and haunching material. Class IV or Class V materials as defined in ASTM D2321 shall not be used for bedding, haunching or initial backfill.

3.05 CONNECTIONS TO EXISTING MAINS

- A. Where connections are required between new work and existing utility mains, the connection shall be made in a thorough and first class manner, using proper specials and fittings to suit the actual conditions. Use ductile iron mechanical joint sleeve for connection to existing utility mains. In case a connection is made to an existing fitting in the line, the CONTRACTOR shall schedule his work so that digging and locating the existing fittings can be completed prior to starting trench work on the line. Cut-ins into lines shall be done at a time approved by the ENGINEER and proper authority. The CONTRACTOR shall not make any connections or service taps into existing utility mains until their work has been tested and accepted by the OWNER and ENGINEER.

3.06 FLUSHING

- A. After the mains have been laid and pressure tested, each run of pipe shall be thoroughly flushed so as to remove all debris and foreign matter from the lines. Flushing will ordinarily be done by opening fire hydrants or blowoffs along the pipe line. Where fire hydrants or blowoffs are not available or are of insufficient capacity to permit adequate flushing, the pipe line shall be opened and flumes or piping shall be provided by the CONTRACTOR to waste the water to the nearest approved disposal point. Sufficient flushing water shall be introduced into the mains to produce a scouring velocity of not less than 3.5 feet per second to re-suspend the solids, and this rate of flow shall be continued until the discharge is clear and no evidence of silt or foreign matter is visible.
- B. In the event that the CONTRACTOR cannot obtain the flushing velocity, a poly-pig swab may be used to clean the pipeline. The CONTRACTOR shall submit pigging plan to the ENGINEER for review. The plan shall include type of pig material, water flow rate, discharge points, poly-pig detector and retrieval options. Pigs shall be manufactured by Knapp Polly Pig, Houston, Texas or approved equal.

3.07 DISINFECTION AND TESTS

- A. Disinfection of all equipment, pipelines, tanks, and other parts of the project with which water comes in contact and which have been contaminated by the CONTRACTOR 's operations shall be accomplished after completion of construction and immediately before the system or unit is placed in operation. The CONTRACTOR shall procure and pay for all water required for disinfection and tests, and shall supply all test taps and equipment necessary to complete all testing.
- B. The disinfecting agent shall be liquid chlorine or sodium hypochlorite solution conforming to

Federal Specification O-S-602b Sodium Hypochlorite, Grade D.

- C. The piping shall be disinfected by introducing the disinfecting agent into the water, which is being pumped into the system, in such manner that the entire system will be filled with water containing a minimum chlorine concentration of 50 ppm at any point. This water shall be allowed to remain in the system for a minimum contact period of twenty-four hours before the system is flushed out. The CONTRACTOR shall supply the ENGINEER with the type and quantity of chlorine to be used for disinfection.
- D. After the disinfecting agents have been permitted to remain for the specified contact periods, the structures, pipelines, pumps and valves shall be thoroughly flushed with water until the residual chlorine tests are less than 0.2 ppm for each test. The determination of the amount of residual chlorine in the system shall be made at such points and by means of an orthotolodine test set in accord with standard procedures.
- E. After any units or portions of the system have been disinfected and flushed as specified, samples of water shall be taken from several points as applicable in suitable sterilized containers by the CONTRACTOR for bacterial examination. If repeated tests of such samples show the presence of coliform organisms, the disinfection shall be repeated or continued until tests indicate the absence of pollution. Two consecutive daily samples shall be satisfactorily tested before the system is placed in service.
- F. The complete disinfection program and methods shall follow those specified. Final written approval of the bacterial samples shall be received from the City prior to the time that the system is placed into operation.

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SECTION 02678

WELL DEVELOPMENT

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This section covers the work, materials, and equipment necessary for the development of the well by airlift pumping, complete.
- B. The total development time for the well is estimated to be 20 hours. However, the ENGINEER shall be the sole judge as to when development is complete and shall, therefore, increase or decrease the total development time.

PART 2 - PRODUCTS

2.01 AIR-LIFT EQUIPMENT

- A. Provide an air line and compressor of adequate size and length to be able to surge the well with air. The airlift equipment shall be capable of pumping up to a flow rate of approximately 750 gallons per minute (gpm) from the well or at a rate approved by the ENGINEER.
- B. Furnish and install all necessary compressors, piping, tools, pumps, and any other equipment to develop the wells be airlifting to obtain a flow rate of approximately 750 gpm with air as stated above and as approved by the ENGINEER.
- C. Provide a tee with lateral outlet horizontal and all necessary piping to properly contain and measure the flow of water and dispose of it in accordance with these specifications. Provide a seal on top outlet to prevent overflowing and a tee and pipe of the same diameter as the corresponding casing.

PART 3 - EXECUTION

3.01 DISPOSAL OF WATER

- A. Disposition of well development water is the responsibility of the CONTRACTOR. All water produced shall be settled of excess solids and conveyed away from the well in an environmentally safe manner and as directed by the ENGINEER. A discharge line of sufficient length and diameter all be provided by the CONTRACTOR to convey the development water to an approved location.

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3.02 DEVELOPMENT BY AIRLIFTING

- A. The purpose of the development work is to remove effectively from the well, well walls and the formation immediately adjacent to the well, material like mud, clay, cuttings, rock fragments, and any other type of loose or potentially loose materials. The production well shall be developed by the air development method as follows:
1. Development shall be done by the utilization of a single pipe air pumping system using the casing or the borehole itself as the educator line. The compressors, air lines, hoses, fittings, etc. shall be of adequate size to pump the well by the airlift principle at a maximum flow rate of approximately 750 gpm with air. The CONTRACTOR shall initially pump the well with air until the well is developed to the point that it yields clear, sand-free water. He shall then shut off the air and allow water in the well to return to a static condition. He shall then reopen the valve and reintroduce air into the well until water is again brought to the surface by the airlift, at which time he shall close the air valve and allow the water to drop back down the well and return to a static condition. He shall repeat this lifting and dropping of the column of water until the water in the well becomes turbid at which time he shall continuously pump the well with air until it again yields clear sand-free water. The CONTRACTOR shall repeat the above operations until the well no longer produces fine material when it is surged and backwashed as described above, or until the ENGINEER is satisfied that development is complete.
 2. The bottom of the air line shall be placed at different levels in order to facilitate development of all intake areas and multiple water producing zones, and the process repeated until all zones yield water free of turbidity when surged and backwashed, as directed by the ENGINEER.

PART 4 - PAYMENT

4.01 WELL DEVELOPMENT SETUP

- A. Payment for setup of the well development system, including furnishing, temporarily installing, and removing the compressor, airline, piping, and any other equipment, shall be made at the lump sum bid price for Install Well Development System as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents.

4.02 HOURLY DEVELOPMENT

- A. Payment for development of the well by airlift pumping shall be made at the unit price per hour for Well Development by Airlift Pumping, as stated in the CONTRACTOR's bid schedule and described in the Measurement and Payment Section of these documents. The CONTRACTOR shall not be paid the hourly rate for development

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during the time the equipment is not actually in use for development of the well, or for any equipment repair, or for any time, in the opinion of the ENGINEER, that the development procedure is not being accomplished in accordance with these Specifications, its direction, or both.

END OF SECTION

DEVELOPMENT
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SECTION 02825

EXTRUDED POLYVINYLCHLORIDE (PVC) FENCING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, material, equipment and incidentals necessary for complete installation of the polyvinyl chloride fence system. The fencing shall be installed according to manufacturer's specifications unless otherwise directed or authorized by the OWNER/ENGINEER.
- B. The CONTRACTOR's security fencing is at his expense and option and is not covered in this Section.

1.02 QUALITY ASSURANCE

- A. Provide vinyl fence and gates as a complete unit produced by a single manufacturer, including, but not limited to accessories, fittings, fasteners and appurtenances complete and ready for use.
- B. Qualifications: The CONTRACTOR or approved subcontractor, must have a minimum of two years experience in similar fence installation.

1.03 SUBMITTALS

- A. Product Data: Vinyl Fences and Gates
 - 1. The CONTRACTOR shall submit for review and approval to the OWNER/ENGINEER, the manufacturer's technical data, details of fabrication, installation instructions and procedures for vinyl fences and gates. The CONTRACTOR shall be responsible for a copy of each instruction to be given to the Installer.
- B. Shop Drawings: Layout of fence and gates with dimensions, details and finishes of component accessories and post foundations.
- C. Product Data: Manufacturer's catalogue cuts indicating material compliance and specified options.
- D. Samples: Color selections for PVC. If requested, samples of materials.

1.04 SPECIAL WARRANTY

- A. Provide manufacturer's non-prorated Lifetime Warranty.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Products from qualified manufacturers having a minimum of 5 years experience manufacturing PVC fencing will be acceptable if they meet the following specifications for design, size, and fabrication. PVC Profiles, lineals & extrusions used as components must "meet or exceed" the minimum performance guidelines laid out in ASTM 964-02.

- B. PVC FENCE:

Style: Privacy Style Fence
Height: Six (6) feet

2.02 PVC FENCE:

- A. Pickets, rails, and posts fabricated from PVC extrusion. The PVC extrusions shall comply with ASTM D 1784, Class 14344B and have the following characteristics:

Specific Gravity (+/- 0.02)	1.4
Using 0.125 specimen Izod impact ft. lbs./in. notch	23.0
Tensile strength, PSI	6,500
Tensile modulus, PSI	336,000
Flexural yield strength, PSI	10,104
Flexural modulus, PSI	385,000
Deflection Temperature	67 ⁰ C

- B. Pickets: 7/8- inch x 6- inch
Rails: 1 ½ inch x 5 ½ inch (Bottom rail to include steel reinforcing insert)
Posts: 5- inch square posts
Color: white

2.03 SETTING MATERIAL

- A. Concrete: Minimum 28-day compressive strength of 3000 psi (20 MPa).

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify areas to receive fencing are completed to final grades and elevations.
- B. Ensure property lines and legal boundaries of work are clearly established.

3.02 INSTALLATION

- A. Follow individual installation instructions for the appropriate style in setting posts. Set gate posts for gate opening specified in the construction drawings. Posts shall be placed 36" in the ground and set in concrete. All gate posts, corner posts, and line posts shall be filled with concrete for additional strength.
- B. Place assembled fence sections into position and slide rails into posts. The rails are secured into posts by tabs which are notched into the rails and catch on the inside wall of the post.
- C. Check each post for vertical and top alignment, and maintain in position during placement and finishing operation.

3.03 GATE INSTALLATION

- A. Install gates plumb, level and secure using bolt-on hardware supplied by the manufacturer.
- B. Adjust hardware for smooth operation.

3.04 ACCESSORIES

- A. Install post caps and other accessories to complete fence.

3.05 CLEANING

- A. Clean up debris and unused material and remove from site.

END OF SECTION

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SECTION 02920

TOPSOIL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The work of this Section consists of furnishing all necessary labor, equipment, material and transportation necessary to furnish, place and prepare topsoil ready for planting. Topsoil shall be required in areas where unsuitable material must be removed or as required in other sections in this specification.

1.02 QUALITY ASSURANCE

- A. Certification: When requested, the CONTRACTOR shall provide the necessary certification topsoil conforms to these requirements.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Topsoil shall be material obtained from stripping or excavation free of roots, brush, stumps or other debris and suitable for or capable of supporting the growth of grass or other plant life.
- B. Topsoil shall be fertile, friable natural surface soil from well-drained sites. It shall be without admixture of subsoil and entirely free of roots, brush, stumps, or other extraneous matter and shall not be delivered while in a muddy condition.
- C. Topsoil as delivered to the site shall have an acidity range of pH 5.0 to 7.0 and shall contain not less than 5 percent organic matter. Sufficient limerock screenings shall be added to all topsoil used to bring it within a range of pH 6.0 to 7.0. Topsoil sample tests, if required, shall be made at the discretion of the ENGINEER and OWNER.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Fine Grading: After structures and pavements are completed and piping trenches backfilled, the disturbed areas of the site shall be fine graded. Any lumber, undesirable materials and rocks larger than the 2 inch size shall be removed from the surface and the surface shall be prepared for topsoil. The completed surface shall be shaped and sloped to drain water away from the structures. The completed surface shall be within 0.1 foot of

the elevations shown on the Drawings, unless otherwise approved by the ENGINEER and OWNER.

3.02 PERFORMANCE

- A. When topsoil material is available from the on-site excavation operations, the topsoil shall be placed to a depth of 4 inches in areas to be grassed or sodded in lieu of the fill material. Topsoil need not be compacted.
- B. Topsoil shall be required in all landscape areas to a depth of 4 inches and shall not be compacted. Suitable topsoil material obtained from site by stripping or excavation may be utilized.
- C. The completed surface shall be shaped and sloped to drain water away from the structures. The completed surface shall be within 0.1 foot of the elevations shown on the Drawings, unless otherwise approved by the ENGINEER and OWNER.

END OF SECTION

SECTION 02934

SODDING

PART I - GENERAL

1.01 WORK INCLUDED

- A. The work specified in this section consists of the establishing of a stand of grass, within the areas indicated on the Drawings, by the furnishing and placing of grass sod, fertilizing, watering and maintaining the sodded areas to assure a healthy stand of grass.

1.02 SUBMITTALS

- A. A certification of sod quality by the producer shall be delivered to the ENGINEER ten (10) calendar days prior to use.

PART 2 - PRODUCTS

2.01 GRASS SOD

- A. Grass sod shall be F.D.O.T. Bahia Grass and shall be well matted with grass roots. The sod shall be taken up in rectangles, preferably 12-inch by 24-inch, shall be a minimum of 2-inches in thickness and shall be live, fresh and uninjured at the time of planting. It shall be reasonably free of weeds and other grasses and shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand all necessary handling. The sod shall be planted as soon as possible after being dug and shall be shaded and kept moist until it is planted.

2.02 FERTILIZER

- A. Commercial fertilizers shall comply with the state fertilizer laws.
- B. The numerical designations for fertilizer indicate the minimum percentages (respectively) of (1) total nitrogen, (2) available phosphoric acid and (3) water soluble potash contained in the fertilizer.
- C. The chemical designation of the fertilizer shall be 12-8-8. At least 50 percent of the phosphoric acid shall be from the normal super phosphate or an equivalent source which will provide a minimum of two units of sulfur. The amount of sulfur shall be indicated on the quantitative analysis card attached to each bag or other container.

2.03 WATER FOR GRASSING

- A. The water used in the sodding operations may be obtained from any approved spring, pond, lake, stream or municipal water system. The water shall be free of excess and harmful chemicals, acids, alkalies, or any substance which might be harmful to plant growth or obnoxious to traffic. Salt water shall not be used.

PART 3 - EXECUTION

3.01 PREPARATION OF GROUND

- A. The area over which the sod is to be placed shall be scarified or loosened to a suitable depth and then raked smooth and free from rocks or stones. Where the soil is sufficiently loose, the ENGINEER, at his discretion, may authorize the elimination of ground preparation.

3.02 APPLICATION OF FERTILIZER

- A. Before applying fertilizer, the soil PH shall be brought to a minimum range of 6.0-7.0.
- B. The fertilizer shall be spread uniformly over the area to be sodded at the rate of 500 pounds per acre, by a spreading device capable of uniformly distributing the material at the specified rate. Immediately after spreading, the fertilizer shall be mixed with the soil to a depth of approximately 4-inches.
- C. 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.

3.03 PLACING SOD

- A. 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.
- B. 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.
- C. On steep slopes, the CONTRACTOR shall, if so directed by the ENGINEER, prevent the sod from sliding by means of wooden pegs driven through the sod blocks into firm earth, at suitable intervals.
- D. Sod which has been cut for more than 72 hours shall not be used unless specifically authorized by the ENGINEER after his inspection thereof. Sod which is not planted

within 24 hours after cutting shall be stacked in an approved manner and maintained and properly moistened. Any pieces of sod which, after placing, show an appearance of extreme dryness shall be removed and replaced by fresh, uninjured pieces.

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

3.04 WATERING

- A. 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 calendar days (or until final acceptance, whichever is latest).

3.05 MAINTENANCE

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

END OF SECTION

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SECTION 03010
CONCRETE WORK

PART 1 – GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract.

1.02 DESCRIPTION:

- A. The extent of cast-in-place concrete work is shown on the drawings.

1.03 QUALITY ASSURANCE:

- A. Codes and Standards: Comply with the provisions of the following codes, specifications and standards; except where more stringent requirements are shown or specified:
- B. ACI 301 "Specifications for Structural Concrete for Buildings".
- C. ACI 318 "Building Code Requirements for Reinforced Concrete".
- D. ACI 347 "Recommended Practice for Concrete Formwork".
- E. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".
- F. Workmanship: The CONTRACTOR is responsible for correction of concrete work which does not conform to the specified requirements, including strength, tolerances, and finishes. Correct deficient concrete as directed by the ENGINEER and OWNER.
- G. Concrete Testing Service: CONTRACTOR shall employ a testing laboratory for material evaluation tests and to perform sampling and testing of concrete during placement.
- H. Tests, not specifically indicated to be done at the OWNER's expense, including the retesting of rejected materials and installed work, shall be done at the CONTRACTOR's expense.
- I. Comply with the provisions of Section 01400.
- J. Quality Control Testing during Construction: Testing laboratory shall sample and test concrete for quality control during the placement of concrete as follows:

1. Sampling Fresh Concrete: ASTM C-172, except modified for slump to comply with ASTM C-94.
 2. Slump: ASTM C-143; one test for each concrete load at point of discharge; and one test for each set of compressive strength test specimens.
 3. Air Content: ASTM C-173 volumetric method for normal and lightweight concrete; one for each set of compressive strength test specimens.
 4. Compressive Test Specimen: ASTM C-31; one set of 5 standard cylinders for each compressive strength test, unless otherwise directed.
 5. Compressive Strength Tests: ASTM C-39; one set for each 50 cu. yds. or fraction thereof, of each concrete class placed in any one day or for each 5,000 sq. ft. of surface area placed; 1 specimen tested at 7 days, 2 specimens tested at 28 days, and one specimen retained in reserve for later testing if required. One additional cylinder will be cast and tested at 56 days for mixes containing flyash, as applicable.
 6. When the total quantity of a given class of concrete is less than 20 cu. yds., the strength test may be waived by the ENGINEER and OWNER if, in their judgment, adequate evidence of satisfactory strength is provided.
- K. Test results will be reported in writing to the ENGINEER and OWNER and the CONTRACTOR on the same day that tests are made.
- L. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate the specified concrete strengths and other characteristics have not been attained in the structure, as directed by the ENGINEER and OWNER. The testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C-42, or by other methods as directed. CONTRACTOR shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

1.04 SUBMITTALS:

- A. General: Submit shop drawings and product data in accordance with the provisions of Section 01300.
- B. Shop Drawings: Submit shop drawings for fabrications, bending and placement of concrete reinforcement. Comply with the ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams for bent bars, and arrangement of concrete reinforcement. Include special reinforcement required and openings through concrete structures. Shop drawings must be reviewed and marked approved by the CONTRACTOR

CONCRETE WORK

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prior to submittal to the ENGINEER and OWNER.

- C. Mix Design: Submit to ENGINEER five (4) copies of mix design for concrete at least 15 days prior to delivery of concrete to project site. CONTRACTOR must review and approve mix design prior to submitting to the ENGINEER and OWNER.
- D. Material Certificates: Provide materials certificates signed by the Manufacturer and the CONTRACTOR, certifying that each material item complies with, or exceed, the specified requirements.

PART 2 - PRODUCTS

2.01 FORM MATERIALS:

- A. Forms: Unless otherwise shown or specified, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel type materials, to provide continuous, straight, smooth, exposed surfaces.
- B. Fiber forms for Round Columns: Fiber round column forms shall be Alton sleek/tubes standard walls, Sonoco Products Sontotube regular 'A' coated or approved alternate, of size required on drawings.
- C. Form Coatings: Provide commercial formulation form coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces to be cured with water of curing compound.

2.02 REINFORCING MATERIALS:

- A. Reinforcing Bar: ASTM A-615, Grade 60 deformed.
- B. Epoxy Coated Reinforcing Bar: ASTM A-775
- C. Steel Wire: ASTM A-82, plain, cold-drawn steel.
- D. Welded Wire Fabric: ASTM A-185, flat mat welded steel wire fabric.
- E. Supports for Reinforcement: Use wire bar type supports complying with CRSI recommendations, unless otherwise indicated. Wood, brick and other devices will not be acceptable.

2.03 CONCRETE MATERIALS:

- A. Portland Cement: ASTM C-150, Type 1 unless otherwise acceptable to ENGINEER and OWNER.
- B. Normal Weight Aggregates: ASTM C-33, and as herein specified. Provide aggregates from a single source for all exposed concrete.
- C. Fine Aggregate: Clean, sharp, natural sand free from loam, clay, lumps or other deleterious substances.
- D. Maximum Aggregate Size: Not larger than 3/4", nor three-fourths of the minimum clear spacing between individual reinforcing bars or bundles of bars, except when approved otherwise by ENGINEER and OWNER. Maximum aggregate for steel-pan stair fill and thin slabs 3" thick and less, shall be 1/2".
- E. Water: Clean, fresh, potable.
- F. Air Entraining Admixture: ASTM C-260.
- G. Calcium Chloride: Calcium chloride for admixtures containing more than 0.1% chloride ions shall not be permitted.
- H. Prefomed Expansion Joint Material: W.R. Meadows "Cermar" flexible foam, closed cell or approved alternate.
- I. Membrane Forming Curing Compound: ASTM C-309, Type 1d with fugitive dye, unless other type acceptable to the ENGINEER and OWNER.
- J. Membrane Curing Compound: (For Vertical Surfaces)

2.04 PROPORTIONING AND DESIGN OF MIXES:

- A. Prepare design mixes for each type and strength of concrete in accordance with applicable provisions of ASTM C-94.
- B. Proportion mixes by either laboratory trial batch or field experience methods, using materials to be employed on the project for each class of concrete required, complying with ACI 211.1.
- C. Submit written reports to the ENGINEER and OWNER of each proposed mix for each class of concrete at least 15 days prior to start of work. Each mix design shall be identified by a number or code unique to that mix.

- D. Design mixes to provide normal weight concrete with the 28 day psi compressive strength as indicated on drawings and schedules.
- E. Admixtures: Use air entraining admixture in all exterior exposed concrete, unless otherwise indicated. Add air entraining admixture at the Manufacturer's prescribed rate to result in concrete at the point of placement having air content within the following limits: All concrete, 3% to 5% unless otherwise approved by ENGINEER and OWNER.
- F. Use admixtures for water reducing and set control (with written permission of ENGINEER and OWNER).
- G. Slump Limits: Slump range shall be 4"-6" for all structural concrete.

2.05 CONCRETE MIXING:

- A. Ready-Mix Concrete: Comply with the requirements of ASTM C-94 and as herein specified.

PART 3 - EXECUTION

3.01 GENERAL:

- A. Construct forms complying with ACI 347 to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures.
- B. Chamfer exposed corners and edges 3/4" as shown, using wood, metal PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- C. Form Ties: Factory fabricated, adjustable length, removable or snap off metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.
- D. Fiber Forms for Round Columns: Install forms in accordance with manufacturer's recommendations.

3.02 PLACING REINFORCEMENT:

- A. Accurately position, support and secure reinforcement against displacement by form work, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required. Comply with ACI 301 and 318.

3.03 JOINTS:

- A. Construction Joints: Locate and install construction joints, which are not shown on the drawings, so as not to impair the strength and appearance of the structure, as acceptable to the ENGINEER and OWNER.
- B. Isolation Joints in Slabs-On-Grade: Construct isolation joints at all points of contact between slabs on ground and vertical surfaces and as shown on the structural drawings.
- C. Control Joints in Slabs-on-Ground: Construct control joints in slabs-on-ground to form panels of patterns as shown. See typical detail on structural drawings.
- D. Saw cuts shall be made as soon as possible after final troweling without dislodging aggregate, normally 12 hours.
- E. Expansion Joints: Provide expansion joints as shown. Install premolded filler where specified.

3.04 INSTALLATION OF EMBEDDED ITEMS:

- A. General: Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of the items to be attached thereto.

3.05 PREPARATION OF FORM SURFACES:

- A. Coat the contact surfaces of forms with a non-staining form coating compound before reinforcement is placed.

3.06 CONCRETE PLACEMENT:

- A. General: Comply with ACI 304, and as herein specified. Subgrades shall be inspected and approved before concrete is placed for concrete poured on grade. Forms and reinforcing shall be inspected and approved prior to concrete placement.
- B. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with the recommended practices of ACI 309, to suite the type of concrete and project conditions. The use of vibrators or other mechanical devices to move the concrete in the forms is not permitted. Concrete shall be deposited as near its final location as practical.

- B. Hot Weather Placing: When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305.

3.07 FINISH OF FORMED SURFACES:

- A. Rough Form Finish: For formed concrete surfaces not exposed to view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having the texture imparted by the form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height chipped off, defective areas, honeycomb and tie holes filled and repaired with cement grout.
- B. Smooth Form Finish: For formed concrete surfaces exposed to view, or that are to be covered with a coating material applied directly to the concrete, or a covering material bonded to the concrete, such as waterproofing, dampproofing, painting, or other similar system, to have the as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch all defective areas including all fins, joints, concrete or mortar splatter. Projections shall be completely removed and smoothed, and all tie rod holes, stone pockets, wood grain marks, and holes shall be grouted flush and smoothed. All honeycomb cut out and patched with grout and smoothed.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise shown.
- D. Exposed Aggregate Concrete Finish: For surfaces designated on the drawings as Detectable Warning or other areas as required by the ENGINEER and OWNER. Aggregate shall be river gravel, smooth, 1/4" minimum to 3/8" maximum size, washed, color as selected by ENGINEER and OWNER. Cement, water, admixtures, etc., per this Section (03010). Wash concrete surfaces with water and scrub with stiff bristle brush and/or wet concrete surfaces with water and scrub with acid etch solution exposing aggregate. Do not expose more than 40% of aggregate surface. Prior to performing work prepare one (1) horizontal sample panel 3'-0" x 4'-0" with full aggregate color range for review by ENGINEER and OWNER.

3.08 MONOLITHIC SLAB FINISHES:

- A. General: Comply with ACI 301 for the specified finish specification and methods. The use of jitterbugs for finishing slabs will not be permitted.

3.09 TYPE OF FINISHES AND TOLERANCES:

- A. Floated Finish: For surfaces intended to receive roofing, waterproofing membranes, or sand bed pavers. Class by tolerance (5/16" in 10'-0").
- B. Troweled Finish: For floors intended as walking surfaces or for reception of floor coverings. Class by tolerance (5/16" in 10'-0", 3/8" in 20'-), and +/- 3/4" total building.
- C. Broom or Belt Finish: For sidewalks, steps, platforms, ramps, or other areas designated on the drawings. Class by tolerance (5/16" in 10'-0").

3.10 MOISTURE BARRIER:

- A. Where a moisture barrier is shown under concrete slabs on grade, install moisture barrier 3" below bottom elevation of slab, and place a 3" thick, clean, sand bed over moisture barrier for slab placement.

3.11 CONCRETE CURING, SEALING AND PROTECTION:

- A. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 72 hours.
- B. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.
- C. Curing Methods: Perform curing of concrete by moisture retaining cover curing, by membrane curing, and by combination thereof, as herein specified.
- D. Provide Moisture Cover Curing as Follows:
 - 1. Cover concrete surfaces with moisture retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing.
- E. Provide Membrane Curing to Slabs as Follows:
 - 1. Apply membrane forming curing compound to concrete surfaces as soon as final finishing operations are complete (within 2 hours). Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's directions. Recoat areas which are subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
- F. Curing Formed Surfaces: Cure formed concrete surfaces by moist curing with

forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

- G. Sealing Concrete Floors: Clean surfaces of all foreign material, oil and grease. Apply an additional coat of cure and seal material, same as used concrete surfaces to all floors not receiving other finish. Apply at rate recommended by manufacturer. Do not apply second coat to floors receiving resilient flooring.

3.12 REMOVAL OF FORMS:

- A. Comply with ACI 301 and 318 and structural notes for removal of forms.

3.13 MISCELLANEOUS CONCRETE ITEMS:

- A. Filling In: Fill in holes and openings left in concrete structures for passage of work by mechanical, electrical, plumbing, or civil specialties, or other trades unless otherwise shown or directed after work of other specialties or trades is in place.
- B. Reinforced Masonry: Provide 3,000 psi concrete for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

3.14 CONCRETE SURFACE REPAIRS:

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms.

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SECTION 16010

BASIC ELECTRICAL REQUIREMENTS/GENERAL PROVISIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 SUMMARY

- A. This Section includes general administrative and procedural requirements for electrical installations. The following administrative and procedural requirements are included in this Section:

Submittals.

Record documents.

Rough-ins.

Electrical installations.

Cutting and patching/as built/guarantees/manuals.

- A. Related Sections: The following sections contain requirements that relate to this section:
 - 1. Division 16 Section "BASIC ELECTRICAL MATERIALS AND METHODS," for materials and methods common to the remainder of Division 16.
 - 2. General Provisions - this section.

1.03 SUBMITTALS

- A. General: Follow the procedures specified in "Shop Drawings/Product Data" this section.

1.04 RECORD DOCUMENTS

- A. Prepare record documents to indicate installed conditions for:
 - 1. Major raceway systems, size and location, for both exterior and interior; location of control devices; distribution and branch electrical circuitry; and fuse and circuit breaker size and arrangements.
 - 2. Equipment locations (exposed and concealed), dimensioned from prominent building lines.

3. Approved substitutions, contract modifications, and actual equipment and materials installed.

1.05 MAINTENANCE MANUALS

- A. Provide documentation of all installed panels, transformers, and other equipment. Provide a minimum of 3 copies in ring binders of all relevant maintenance manuals.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

1.07 CONTRACT DOCUMENTS

- A. The bid along with all other contract documents bound hereinbefore shall be considered part of Division 16 - Electrical Specifications, and provisions thereof shall be as binding upon parties of the contract as if they were herein fully set forth.
- B. The CONTRACTOR shall verify that his set of documents and specifications, including all addenda is complete. Report omissions or discrepancies to the ENGINEER.

1.08 EQUIVALENTS/SUBSTITUTIONS

- A. For convenience of description and as a standard of comparison, certain equipment, materials, etc. have been specified by name of manufacturer(s). A request for a substitution must be obtained from the office of the ENGINEER ten (10) calendar days prior to bid date in order for the ENGINEER to issue a written addendum to the Contract documents. Each substitution request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, cut-sheets, performance and test data, and any other information necessary for an evaluation. ORAL OR TELEPHONE REQUESTS WILL NOT BE PERMITTED.

1.09 CONFLICT

- A. In case of conflict between drawings and specifications, or codes, the CONTRACTOR shall assume and provide the most stringent of alternatives.

1.10 SCOPE OF THE WORK

- A. The scope of the work consists of the furnishing and installing of complete electrical systems – interior/exterior - including miscellaneous systems and shall include but not be limited to the following:

1. New 120 volt lighting circuit and GFI outlets, and exterior light fixtures.
2. Electrical distribution system including main breaker, feeders, transformers, junction boxes, panelboards, branch circuits, outlets, lighting fixtures, wiring devices, ground rods, surge suppressors, control panels, mounting hardware, and concrete mounting bases. Furnish and install 480 volt, three phase Panel 7AW.
3. Power connections to equipment (pumps, motors, instruments, air conditioners, etc.).
4. New electrical feeders, as shown on drawings.
5. New fiber optic cables and conduit – new I/O cards, F/O patch panels and connectors, and new PLC controllers – by C2I Integrator.
6. Data and instrument conduit/wire – new control components – by C2I Integrator.
7. Install new control cabinet at Well 7AW – include VFD and contactors.
8. Furnish and install across line bypass conduit and wires to controller and instruments (flow/pressure).
9. Furnish and install one (1) variable frequency drive and electrical power distribution cabinet (see control cabinet details).
10. As required, furnish and install sunshields and panel mounting racks.
11. Existing Florida Power & Light service 480 volt, three phase to remain - fed from south of 7AW pump location. Add new feeder service wire as required.
12. Provide connections to flow and pressure devices to PLC's/Scada system.

1.11 STANDARDS, CODES, AND WORKMANSHIP

- A. The Electrical CONTRACTOR shall provide all supervision, labor, materials, equipment and any other items necessary to complete the systems. All items of equipment are specified in the singular; however, CONTRACTOR shall provide and install the number of items of equipment as indicated on the drawings or as are required for complete systems.
- B. It is the intention of the specifications and drawings to call for finished work, tested and ready for operation.
- C. Any apparatus, material or work not shown on drawings but mentioned in the specifications, or vice versa, or any incidental accessories necessary to make the work complete and perfect in all respects and ready for operation, even if not particularly specified, shall be furnished and installed by the CONTRACTOR without additional expense to the OWNER.

BASIC ELECTRICAL REQUIREMENTS/GENERAL PROVISIONS

- D. Minor details not usually shown or specified, but necessary for proper installation and operation, consistent with good workmanship, shall be included in the CONTRACTOR's estimate, the same as if herein specified or shown.
- E. With submission of bid, the CONTRACTOR shall give written notice to the ENGINEER of any materials or apparatus believed inadequate or unsuitable, in violation of laws, ordinances, rules and any necessary items or work omitted. To better estimate scope of work, CONTRACTOR is encouraged to visit site.
- F. The electrical contracting firm bidding this project shall be a Florida State Certified or Sarasota County Registered Electrical CONTRACTOR, and shall provide proof to ENGINEER that such firm has been in business in Florida for at least five (5) years, and has completed at least two (2) projects of comparable size and complexity.

1.12 ELECTRICAL DRAWINGS

- A. The electrical drawings are diagrammatic and indicate general arrangement of fixtures, equipment and work included in the contract. Consult the contract drawings and details and/or shop drawings for exact location of fixtures and equipment; where same are not definitely located, obtain this information from the ENGINEER or OWNER.
- B. It is the intent of the drawings and specifications to obtain a complete and satisfactory installation. An attempt has been made to separate and completely define the work of the CONTRACTOR.

1.13 CODES, PERMITS AND FEES

- A. Electrical CONTRACTOR shall give all necessary notices to electric and telephone utilities, and shall obtain necessary occupational permits and licenses and pay all required fees in order to construct all electrical systems on this contract.
- B. The CONTRACTOR shall include in the work, without extra cost to the OWNER, any labor, materials, services, apparatus, insurance, etc. (in addition to contract drawings and documents) in order to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on drawings and/or specified.
- C. Work and materials shall conform to the latest rules of the National Board of Fire Underwriters Code, regulations of the State Fire Marshal, and with applicable codes and with all prevailing rules and regulations pertaining to adequate protection and/or guarding of any moving parts, or otherwise hazardous conditions.
- D. Nothing in these specifications shall be construed to permit work not conforming to the most stringent of applicable codes.
- E. The National Electrical Code (NEC), the electrical requirements as established by State fire

BASIC ELECTRICAL REQUIREMENTS/GENERAL PROVISIONS

marshal, and rules and regulations of the power company serving the project, are hereby made part of this specification. Should any changes be necessary in the contract drawings, or specifications, to make the work comply with these requirements, the CONTRACTOR shall notify the ENGINEER and OWNER.

1.14 SHOP DRAWINGS / PRODUCT DATA

- A. Electrical CONTRACTOR shall submit six (6) copies of the product data submittals to ENGINEER for approval within (30) days after award of the general contract.
- B. Product data submittals shall be submitted on all major pieces of electrical equipment, including motor control centers, transformers, switchboards, panels, wire, and other miscellaneous systems. Submittals shall give complete information. Each submittal shall be properly labeled, indicating intended service of the material, job name, and Electrical CONTRACTOR's phone number and address.
- C. Product data submittals shall be neatly bound in six (6) sets and submitted to ENGINEER with a letter of transmittal, listing each item submitted along with the manufacturer's name.
- D. All shop drawings shall be reviewed and stamped by Electrical CONTRACTOR prior to submission to ENGINEER.
- E. Review of shop drawings/product data shall not be considered as a guarantee of measurements or building conditions, and does not in any way relieve CONTRACTOR from his responsibility of furnishing material or performing work as required by contract drawings and specifications.

1.15 COOPERATION WITH OTHER TRADES

- A. The CONTRACTOR shall give full cooperation to other trades and shall furnish in writing (or shop drawing form) any information necessary to permit the work of all trades to be installed satisfactorily and with least possible interference or delay.
- B. Where work of the CONTRACTOR will be installed in close proximity to work of other trades, or where there is evidence that work of the CONTRACTOR will interfere with the work of other trades, he shall assist in working out space conditions to make a satisfactory adjustment. If CONTRACTOR installs his work before coordinating with work of other trades, he shall make necessary changes in his work to correct condition without extra cost to the OWNER.
- C. The CONTRACTOR who offers substitutes of equivalent products of alternate manufacturers, shall be responsible for all associated changes that affect his installation and the installation and equipment of other trades without extra charge to the OWNER. All systems and their associated controls must be completely installed, connected and operating to the satisfaction of the ENGINEER prior to final acceptance and contract payment.

1.16 TEMPORARY ELECTRICAL SERVICE – Available on Site

1.17 ELECTRICAL CONNECTIONS

- A. CONTRACTOR shall provide and install power wiring (120 volts and above) to all electrical equipment complete and ready for operation including disconnect switches and fuses. Provide connections to all existing feeders and branch circuits on project.

1.18 CUTTING AND PATCHING

- A. The CONTRACTOR shall furnish sketches to the ENGINEER showing the locations and sizes of all openings and chases, and furnish and locate all sleeves and insets required for installation of the electrical work. The CONTRACTOR shall be responsible for the cost of cutting and patching where any electrical items were not installed or where incorrectly sized or located. The CONTRACTOR shall do all drilling required for the installation of his hangers.
- B. No structural members shall be cut, drilled or altered in any way without the approval of the ENGINEER, and any approved alterations shall be performed in a neat and workmanlike manner acceptable to the ENGINEER. Where fire walls are penetrated, patch openings with a U.L. approved "fire safety" type stuffing.

1.19 EXCAVATION AND BACKFILLING

- A. The Electrical CONTRACTOR shall be responsible for excavation, backfilling, tamping, shoring, bracing, pumping, driveway cuts, repairing of finished surface, and all protection for safety of persons and property as required for installing complete electrical systems.
- B. Excavation shall be made in a manner to provide a uniform bearing for conduit.
- C. After required test and inspections, backfill the ditch and tamp. The first foot above the conduit shall be hand-backfilled with rock-free clean earth. The backfill in the ditches on the exterior and interior of the building shall be tamped to 90%.

1.20 MARKINGS

- A. All equipment (controllers, switches, panels, etc.) shall be marked with permanent labels attached to the equipment with self-tapping sheet metal screws. Labels shall be engraved laminated plastic. (Plastic shall be 1/16" thickness, typical.) See Section 16195 "Electrical Identification" (this includes all panels, switchboards, control panels, and surge suppressors).

1.21 EQUIPMENT AND INSTALLATION WORKMANSHIP

- A. All equipment and material shall be new and bear manufacturer's name and trade name. Equipment and material shall be the standard product of a manufacturer regularly engaged in production of the required type of equipment and shall be manufacturer's latest approved design.
- B. The CONTRACTOR shall receive and properly store all equipment and material pertaining to the electrical work. Equipment shall be tightly covered and protected against dirt, water, mechanical injury and theft. Manufacturer's directions shall be followed completely in the storage, protection and installation of all equipment and materials.
- C. It shall be the responsibility of the CONTRACTOR to clean electrical equipment, make necessary adjustments, and place the equipment into operation before turning equipment over to the OWNER. Any paint that was scratched during installation shall be "touched-up" with factory-color paint to the satisfaction of the ENGINEER. Any items that were damaged during construction shall be replaced at no cost to the OWNER.

1.22 INSPECTION AND CERTIFICATES

- A. Upon completion of the entire installation, the approval of the ENGINEER and the OWNER shall be secured, covering the installation throughout. A final inspection shall be completed to the ENGINEER's satisfaction prior to final payment.

1.23 TESTS

- A. The right is reserved to inspect and test any portion of equipment and/or materials during the progress of its installation. CONTRACTOR shall test the entire system in the presence of the ENGINEER when the work is finally completed, to ensure that all portions are free from short circuits, opens, or grounds, and that the system is fully operational. All equipment necessary to conduct these tests shall be furnished at the CONTRACTOR's expense. All test reports shall be turned over to OWNER at completion of project.

1.24 AS BUILT DRAWINGS

- A. The CONTRACTOR shall maintain accurate records of all deviations in work as actually installed from work indicated on the drawings. Upon completion of the project, two (2) complete sets of marked-up prints shall be delivered to the ENGINEER.
- B. Show locations of all stub outs, dimensioned from building lines, location and depth of buried systems, routing of raceways, location of J-boxes and splices, data outlet markings, cable, and conduit installed.

1.25 MANUAL AND PARTS DATA

- A. CONTRACTOR shall assemble three (3) copies of complete literature (descriptive, operational and parts, wiring diagrams, and warranties) in bound form, to be turned over to the OWNER prior to final acceptance. The CONTRACTOR shall give complete instructions to OWNER's personnel concerning the proper operations of all electrical systems.

1.26 GUARANTEE

- A. CONTRACTOR shall guarantee, by his acceptance of the contract, that all work installed will be free from defects in workmanship and materials. If during the period of one year, or as otherwise specified, from date of Certification of Completion and acceptance of work, any defects in workmanship, materials, or performance appear, CONTRACTOR shall, without cost to OWNER, remedy such defects within a reasonable time to be specified in notice from the ENGINEER. In default, OWNER may have such work done and charge cost to the CONTRACTOR.

1.27 CLEAN UP

- A. Clean up all debris from around the project on a daily basis.

1.28 NOTICE

- A. These documents have been prepared based on information provided by others. The Consultant has not verified the accuracy and/or completeness of this information, and shall not be responsible for any errors or omissions that may be incorporated as a result of erroneous information provided by others

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

3.02 ELECTRICAL INSTALLATIONS

- A. General: Sequence, coordinate, and integrate the various elements of electrical systems, materials, and equipment. Comply with the following requirements:
 - 1. Coordinate electrical systems, equipment, and materials installation with other building components.

BASIC ELECTRICAL REQUIREMENTS/GENERAL PROVISIONS

2. Verify all dimensions by field measurements.
3. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for electrical installations.
4. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the Work.
5. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
6. Install systems, materials, and equipment to conform with approved submittal data, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the ENGINEER.
7. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
8. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting with minimum of interference with other installations.

END OF SECTION

SECTION 16050

BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 SUMMARY

- A. This Section includes limited scope general construction materials and methods for application with electrical installations as follows:
 - 1. Excavation for underground utilities and services, including underground raceways, vaults, and equipment.
 - 2. Miscellaneous metals for support of electrical materials and equipment.
 - 3. Wood grounds, nailers, blocking, fasteners, and anchorage for support of electrical materials and equipment.
 - 4. Joint sealers for sealing around electrical materials and equipment; and for sealing penetrations in fire and smoke barriers, floors, and foundation walls.
 - 5. Access panels and doors in walls, ceilings, and floors for access to electrical materials and equipment.

1.03 DEFINITIONS

- A. The following definitions apply to excavation operations:
 - 1. Additional Excavation: Where excavation has reached required subgrade elevations, if unsuitable bearing materials are encountered, continue excavation until suitable bearing materials are reached.
 - 2. Subbase: as used in this Section refers to the compacted soil layer used in pavement systems between the subgrade and the pavement base course material.
 - 3. Subgrade: as used in this Section refers to the compacted soil immediately below the slab or pavement system.

4. Unauthorized excavation consists of removal or materials beyond indicated subgrade elevations or dimensions without specific direction from the ENGINEER.

1.04 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract:

Product data for the following products:

Joint sealers.

- B. Shop drawings detailing fabrication and installation for metal fabrications, and wood supports and anchorage for electrical materials and equipment.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer for the installation and application joint sealers.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver joint sealer materials in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi-component materials.
- B. Store and handle joint sealer materials in compliance with the manufacturers' recommendations to prevent their deterioration and damage.

1.07 PROJECT CONDITIONS

- A. Conditions Affecting Excavations: The following project conditions apply:
 1. Maintain and protect existing building services which transit the area affected by selective demolition.
 2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining washout, and other hazards created by excavation operations.
 3. Site information: Subsurface conditions were investigated during the design of the project. Reports of these investigations are available for information only; data in the reports are not intended as representations or warranties of accuracy or continuity of conditions. The OWNER will not be responsible for interpretations or conclusions drawn from this information.

BASIC ELECTRICAL MATERIALS AND METHODS

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4. Existing utilities: Locate existing underground utilities in excavation areas. If utilities are indicated to remain, support and protect services during excavation operations.
 5. Remove existing underground utilities indicated to be removed.
 - a. Uncharted or Incorrectly Charted Utilities: Contact utility OWNER immediately for instructions.
 - b. Provide temporary utility services to affected areas. Provide minimum of 48-hour notice to ENGINEER prior to utility interruption.
 6. Use of explosives is not permitted.
- B. Environmental Conditions: Apply joint sealers under temperature and humidity conditions within the limits permitted by the joint sealer manufacturer. Do not apply joint sealers to wet substrates.

1.08 SEQUENCE AND SCHEDULING

- A. Coordinate the shut-off and disconnection of electrical service with the OWNER and the utility company.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

- A. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, or natural or crushed sand.
- B. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing a 1-1/2-inch sieve, and not more than 5 percent passing a No. 4 sieve.
- C. Backfill and Fill Materials: Materials complying with ASTM D2487 soil classification groups GW, GP, GM, SM, SW, and SP; free of clay, rock, or gravel larger than 2 inches in any dimension; debris; waste; frozen materials; and vegetable and other deleterious matter.

2.02 MISCELLANEOUS LUMBER

- A. Construction Panels: Plywood panels; APA C-D PLUGGED INT, with exterior glue; thickness as indicated, or if not indicated, not less than 3/4 inches.

2.03 JOINT SEALERS

- A. General: Joint sealers, joint fillers, and other related materials compatible with each other and with joint substrates under conditions of service and application.
- B. Colors: No color required.
- C. Fire-Resistant Joint Sealers: Two-part, foamed-in-place, silicone sealant formulated for use in through-penetration fire-stopping around cables, conduit, pipes, and duct penetrations through fire-rated walls and floors. Sealants and accessories shall have fire-resistance ratings indicated, as established by testing identical assemblies in accordance with ASTM E 814, by Underwriters' Laboratories, Inc., or other testing and inspection agency acceptable to authorities having jurisdiction.
- D. Products: Subject to compliance with requirements, provide one of the following:
 - "Dow Corning Fire Stop Foam," Dow Corning Corp.
 - "Pensil 851," General Electric Co.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting installation and application of joint sealers and access panels. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION FOR JOINT SEALERS

- A. Surface Cleaning for Joint Sealers: Clean surfaces of joints immediately before applying joint sealers to comply with recommendations of joint sealer manufacturer.
- B. Apply joint sealer primer to substrates as recommended by joint sealer manufacturer. Protect adjacent areas from spillage and migration of primers, using masking tape. Remove tape immediately after tooling without disturbing joint seal.

3.03 EXCAVATION

- A. Slope sides of excavations to comply with local codes and ordinances. Shore and brace as required for stability of excavation.
- B. Shoring and Bracing: Establish requirements for trench shoring and bracing to comply with local codes and authorities. Maintain shoring and bracing in

excavations regardless of time period excavations will be open.

1. Remove shoring and bracing when no longer required. Where sheeting is allowed to remain, cut top of sheeting at an elevation of 30 inches below finished grade elevation.
- C. Install sediment and erosion control measures in accordance with local codes and ordinances.
- D. Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.
1. Do not allow water to accumulate in excavations. Remove water to prevent softening of bearing materials. Provide and maintain dewatering system components necessary to convey water away from excavations.
 2. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey surface water to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.
- E. Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage.
1. Locate and retain soil materials away from edge of excavations. Do not store within drip-line of trees indicated to remain.
 2. Remove and legally dispose of excess excavated materials and materials not acceptable for use as backfill or fill.
- F. Trenching: Excavate trenches for electrical installations as follows:
1. Excavate trenches to the uniform width, sufficiently wide to provide ample working room and a minimum of 6 to 9 inches clearance on both sides of raceways and equipment. Minimum burial depth - 24 inches, this project.
 2. Excavate trenches to depth indicated or required.
 3. Limit the length of open trench to that in which installations can be made and the trench backfilled within the same day.
 4. Where rock is encountered, carry excavation below required elevation and backfill with a layer of crushed stone or gravel prior to installation of raceways and equipment. Provide a minimum of 6 inches of stone or gravel cushion between rock bearing surface and electrical installations.

- G. Backfilling and Filling: Place soil materials in layers to required subgrade elevations for each area classification listed below, using materials specified in Part 2 of this Section.
- H. Backfill excavations as promptly as work permits, but not until completion of the following:
 - 1. Inspection, testing, approval, and locations of underground utilities have been recorded.
 - 2. Removal of concrete formwork.
 - 3. Removal of shoring and bracing, and backfilling of voids.
 - 4. Removal of trash and debris.
- I. Placement and Compaction: Place backfill and fill materials in layers of not more than 8 inches in loose depth for material compacted by heavy equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- J. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification specified below. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
- K. Subsidence: Where subsidence occurs at electrical installation excavations during the period 12 months after Substantial Completion, remove surface treatment (i.e., pavement, lawn, or other finish), add backfill material, compact to specified conditions, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent areas.
- L. Sodding: After completion of excavation, provide Bahia sod on any areas where trenches/digging has occurred. Provide restoration of area to OWNER's satisfaction. Provide level application of sod and "roll" to bring sodded area to same grade as the surrounding grass area.

3.04 APPLICATION OF JOINT SEALERS

- A. General: Comply with joint sealer manufacturers' printed application instructions applicable to products and applications indicated, except where more stringent requirements apply.
 - 1. Comply with recommendations of ASTM C 962 for use of elastomeric joint sealants.

2. Comply with recommendations of ASTM C 790 for use of acrylic-emulsion joint sealants.
- B. Tooling: Immediately after sealant application and prior to time shinning or curing begins, tool sealants to form smooth, uniform beads; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
 - C. Installation of Fire-Stopping Sealant: Install sealant, including forming, packing, and other accessory materials, to fill openings around electrical services penetrating floors and walls to provide fire-stops with fire-resistance ratings indicated for floor or wall assembly in which penetration occurs. Comply with installation requirements established by testing and inspecting agency.

END OF SECTION

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SECTION 16110

RACEWAYS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 DESCRIPTION OF WORK

- A. Extent of raceway work is indicated by drawings and schedules.
- B. Types of raceways specified in this section include the following:
 - 1. Electrical metallic tubing (EMT) – interior dry locations – indoors only.
 - 2. Flexible metal conduit - not to exceed 6' in length.
 - 3. Intermediate metal conduit – NOT ALLOWED THIS PROJECT.
 - 4. Liquid-tight flexible metal conduit - not to exceed 6' in length - Carlon "Carflex" or Sealite.
 - 5. Rigid metal conduit.
 - 6. Rigid non-metallic conduit (to be used above and below grade) – Schedule 80 only to be used – no Schedule 40.
 - 7. Use EMT conduit in dry indoor locations.

1.03 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of raceway systems of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects with electrical raceway work similar to that required for this project.

- C. Codes and Standards:
1. NEMA Compliance: Comply with applicable requirements of NEMA Standards Publications pertaining to raceways.
 2. UL Compliance and Labeling: Comply with applicable requirements of UL safety standards pertaining to electrical raceway systems. Provide raceway products and components which have been UL-listed and labeled.
 3. NEC Compliance: Comply with applicable requirements of NEC pertaining to construction and installation of raceway systems.

PART 2 - PRODUCTS

2.01 METAL CONDUIT AND TUBING

- A. General: Provide metal conduit, tubing and fittings of types, grades, sizes and weights (wall thicknesses) for each service indicated. Where types and grades are not indicated, provide proper selection determined by Installer to fulfill wiring requirements, and comply with applicable portions of NEC for raceways.
- B. Rigid Steel Conduit: Provide RGC steel, zinc coated, threaded type. Use overhead to stub outs.
1. Provide zinc coating fused to inside and outside walls.
 2. Use Type 1 fittings for raintight connections.
- C. Flexible Metal Conduit: FS WW-C-566 and UL 1. Formed from continuous length of spirally wound interlocked zinc-coated strip steel.
- D. Liquid-Tight Flexible Metal Conduit: Provide liquid-tight flexible metal conduit; construct of single strip, flexible, continuous, interlocked, and double-wrapped steel; galvanized inside and outside; coat with liquid-tight jacket of flexible polyvinyl chloride (PVC).
- E. Rigid Metal Conduit Fittings: Cast malleable iron, galvanized or cadmium plated, conforming to FS W-F-408.
1. Use Type 1 fittings for raintight connections.
- F. Flexible Metal Conduit Fittings: Provide conduit fittings for use with flexible steel conduit of threadless hinged clamp type.

1. Straight Terminal Connectors: One piece body, female end with clamp and deep slotted machine screw for securing conduit, and male threaded end provided with locknut.
 2. 45o or 90o Terminal Angle Connectors: Two-piece body construction with removable upper section, female end with clamp and deep slotted machine screw for securing conduit, and male threaded end provided with locknut.
- G. Liquid-Tight Flexible Metal Conduit Fittings: FS W-F-406, Type 1, Class 3, Style G. Provide cadmium plated, malleable iron fittings with compression type steel ferrule and neoprene gasket sealing rings, with insulated, or non-insulated throat.
- H. Electrical Metallic Tubing (IMC): FS WW-C-563, ANSI C80.3 and UL 797 – use indoor, dry locations.
- I. EMT Fittings: FS W-F-408.
- J. Conduit Bodies: Provide galvanized cast-metal conduit bodies of types, shapes and sizes as required to fulfill job requirements and NEC requirements. Construct conduit bodies with threaded- conduit-entrance ends, removable covers, either cast or of galvanized steel, and corrosion-resistant screws.
- K. Manufacturers: Subject to compliance with requirements, provide conduit bodies of one of the following:
Appleton Electric; Div of Emerson Electric Co.
Arrow-Hart Div; Crouse-Hinds Co.
Bell Electric Div; Square D Co.
Or Approved Alternate
- L. Electrical Plastic Conduit:
1. Heavy Wall Conduit: Schedule 40, 90 C, UL-rated, construct of polyvinyl chloride and conforming to NEMA TC-2, for direct burial, or normal above ground use, UL-listed and in conformity with NEC Article 347 - not to be installed this project - use Schedule 80 only.
 2. Extra Heavy Wall Conduit: Schedule 80, UL-rated, construct of polyvinyl chloride compound C-200 PVC, and UL-listed in accordance with NEC Article 347 for direct burial - not to be installed above grade except to first disconnect - Schedule 80 to be used exclusively for this project (underground and outdoors).
- M. PVC Conduit and Tubing Fittings: NEMA TC 3, mate and match to conduit or tubing type and material.

- N. Underground PVC Plastic Utilities Duct: NEMA TC 6, Type 1 for encased burial in concrete, Type II for direct burial.
- O. PVC and ABS Plastic Utilities Duct Fittings: NEMA TC 9, mate and match to duct type and material.
- P. Conduit, and Tubing Accessories: Provide conduit, tubing and duct accessories of types, sizes, and materials, complying with manufacturers published product information, which mate and match conduit and tubing.

2.02 WIREWAYS

- A. General: Provide electrical wireways of types, grades, sizes, and number of channels for each type of service as indicated. Provide complete assembly of raceway including, but not limited to, couplings, offsets, elbows, expansion joints, adapters, hold down straps, end caps, and other components and accessories as required for complete system.
- B. Lay-in Wireways: Construct lay-in wireways with hinged covers, in accordance with UL 870 and with components UL-listed, including lengths, connectors, and fittings. Select units to allow fastening hinged cover closed without use of parts other than standard lengths, fittings and connectors. Construct units to be capable of sealing cover in closed position with sealing wire. Provide wireways with knockouts.
 - 1. Connectors: Provide wireway connectors suitable for "lay-in" conductors, with connector covers permanently attached that removal is not necessary to utilize the lay-in feature.
 - a. Finish: Protect sheet metal parts with rust inhibiting coating and baked enamel finish. Plate finish hardware to prevent corrosion. Protect screws installed toward inside of wireway with spring nuts to prevent wire insulation damage.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine areas and conditions under which raceways are to be installed, and substrate which will support raceways. Notify CONTRACTOR in writing of conditions detrimental to proper completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.02 INSTALLATION OF RACEWAYS

- B. General: Install raceways as indicated; in accordance with manufacturer's written installation instructions, and in compliance with NEC, and NECA's "Standards of

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Installation". Install units plumb and level, and maintain manufacturer's recommended clearances.

- C. Coordinate with other work including wires/cables, boxes, and panel work, as necessary to interface installation of electrical raceways and components with other work.

3.03 INSTALLATION OF CONDUITS

- A. General: Install concealed conduits in new construction work, either in walls, slabs, or above hung ceilings. Run conduits concealed in existing work where practicable. Where conduits can not be concealed in finished areas, use surface metal raceways.
 - 1. Mechanically fasten together metal conduits, enclosures, and raceways for conductors to form continuous electrical conductor. Connect to electrical boxes, fittings and cabinets to provide electrical continuity and firm mechanical assembly.
 - 2. Avoid use of dissimilar metals throughout system to eliminate possibility of electrolysis. Where dissimilar metals are in contact, coat surfaces with corrosion inhibiting compound before assembling.
 - 3. Install miscellaneous fittings such as reducers, chase nipples, 3-piece unions, split couplings, and plugs that have been specifically designed and manufactured for their particular application. Install expansion fittings in raceways every 300' linear run or wherever structural expansion joints are crossed.
 - 4. Use roughing-in dimensions of electrically operated unit furnished by supplier. Set conduit and boxes for connection to units only after receiving review of dimensions and after checking location with other trades.
 - 5. Provide nylon pull cord in all empty conduits. Test conduits required to be installed, but left empty, test with ball mandrel. Clear any conduit which rejects ball mandrel. Pay costs involved for restoration of conduit and surrounding surfaces to original condition.
 - 6. Use steel EMT conduit for branch circuits in interior Electrical/Mechanical Rooms (where applicable). Use flexible conduit in movable partitions and from outlet boxes to recessed lighting fixtures, and final 24" of connection to motors, or control items subject to movement or vibration, and in cells of precast concrete panels. Use Carflex conduit for all final connections to motors.
 - 7. Use SCH 80 PVC conduit for buried conduit systems - 24" minimum burial. PVC is also to be used above grade. Schedule 80 to be used exclusively for this project.

8. Use liquid-tight flexible conduit where subjected to one or more of the following conditions:
 - a. Exterior or interior locations subject to vibration - all pumps and motors.
 - b. Moist or humid atmosphere where condensate can be expected to accumulate.
 - c. Subjected to water spray or dripping oil, water or grease.
 - d. At any locations outdoors.
 9. Cut conduits straight, properly ream, and cut threads for heavy wall conduit deep and clean.
 10. Field-bend conduit with benders designed for purpose so as not to distort nor vary internal diameter.
 11. Size conduits to meet NEC, except no conduit smaller than 3/4 inch.
 12. Fasten conduit terminations in sheet metal enclosures by 2 locknuts, and terminate with grounding bushing. Install locknuts inside and outside enclosure.
 13. Conduits are not to cross pipe shafts, or ventilating duct openings.
 14. Keep conduits a minimum distance of 6" from parallel runs of flues, hot water pipes or other sources of heat. Wherever possible, install horizontal raceway runs above water and steam piping.
 15. Support riser conduit at each floor level with clamp hangers.
 16. Use of running threads at conduit joints and terminations is prohibited. where required, use 3-piece union or split coupling.
 17. Complete installation of electrical raceways before starting installation of cables/wires within raceways.
- B. Concealed Conduits: Metallic raceways installed underground or in floors below grade, or outside are to have conduit threads painted with corrosion inhibiting compound before couplings are assembled. Draw up coupling and conduit sufficiently tight to ensure watertightness.

- C. Install conduits as not to damage or run through structural members. Avoid horizontal or cross runs in building partitions or side walls.
- D. Exposed Conduits: Install exposed conduits and extensions from concealed conduit systems neatly, parallel with, or at right angles to walls of building.
- E. Install exposed conduit work as not to interfere with ceiling inserts, lights or ventilation ducts or outlets.
- F. Support exposed conduits by use of hangers, clamps, or clips. Support conduits on each side of bends and on spacing not to exceed following: up to 1": 6'-0"; 1-1/4" and over: 8'-0".
- G. Above requirements for exposed conduits also apply to conduits installed in space above hung ceilings, and in crawl spaces.

3.04 INSTALLATION OF RACEWAYS AND WIREWAYS

- A. General: Mechanically assemble metal enclosures, and raceways for conductors to form continuous electrical conductor, and connect to electrical boxes, fittings and cabinets as to provide effective electrical continuity and rigid mechanical assembly.
 - 1. Avoid use of dissimilar metals throughout system to eliminate possibility of electrolysis. Where dissimilar metals are in contact, coat all surfaces with corrosion inhibiting compound before assembling.
 - 2. Install expansion fittings in all raceways wherever structural expansion joints are crossed.
 - 3. Properly support and anchor raceways for their entire length by structural materials. Raceways are not to span any space unsupported.
 - 4. Use boxes as supplied by raceway manufacturer wherever junction, pull or devices boxes are required. Standard electrical "handy" boxes, etc. shall not be permitted for use with surface raceway installations.
 - 5. Install a green insulated ground wire in all conduit systems (power and lighting). Do not rely on conduit to provide ground.

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SECTION 16120

WIRES AND CABLES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 SUMMARY

- A. This Section includes wires, cables, and connectors for power, lighting, signal, control and related systems rated 600 volts and less.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 16 Section "Electrical Boxes and Fittings" for connectors for Terminating Cables in boxes and other electrical enclosures.

1.03 SUBMITTALS

- A. Product data for electrical wires, cables and connectors.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with provisions of the following code:

NFPA 70 "National Electrical Code"
- B. UL Compliance: Provide components which are listed and labeled by UL under the following standards:

UL Std. 83	Thermoplastic-Insulated Wires and Cables.
UL Std. 486A	Wire Connectors and Soldering Lugs for Use with Copper Conductors.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
 - 1. Wire and Cable:

American Insulated Wire Corp.
Carol Cable Co. Inc.
Rome Wire and Cable Co.
Southwire Company
Anaconda Company

2. Connectors for Wires and Cable Conductors:

AMP
3M Company
O-Z/Gedney Co.
Square D Company

2.02 WIRES AND CABLES

- A. General: Provide wire and cable suitable for the temperature, conditions and locations where installed.
- B. Conductors: Provide stranded conductors for power and lighting circuits.
- C. Conductor Material: Copper for all wires and cables.
- D. Insulation: Provide XHHW insulation for all conductors Size #3 and larger. For all other sizes, provide THW, THHN/THWN insulation as appropriate for the locations where installed. If THHN is used, no “down sizing” will be permitted; all wires shall be stranded.

2.03 CONNECTORS FOR CONDUCTORS

- A. Provide UL-listed factory-fabricated, solderless metal connectors of sizes, ampacity ratings, materials, types and classes for applications and for services indicated. Use connectors with temperature ratings equal to or greater than those of the wires upon which used.

PART 3 - EXECUTION

3.01 INSTALLATION OF WIRES AND CABLES

- A. General: Install electrical cables, wires, and connectors in compliance with NEC.
- B. Coordinate cable installation with other Work.
- C. Pull conductors simultaneously where more than one is being installed in same raceway. Use UL listed pulling compound or lubricant, where necessary.
- D. Use pulling means including, fish tape, cable, rope, and basket weave wire/cable

- grips which will not damage cables or raceways. Do not use rope hitches for pulling attachment to wire or cable.
- E. Conceal all cables in finished spaces.
 - F. Install exposed cable parallel and perpendicular to surfaces or exposed structural members, and follow surface contours, where possible.
 - G. Keep conductor splices to minimum.
 - H. Install splice and tap connectors which possess equivalent or better mechanical strength and insulation rating than conductors being spliced. See drawings for special tap and splice connectors.
 - I. Use splice and tap connectors which are compatible with conductor material.
 - J. Provide adequate length of conductors within electrical exposures and train the conductors to terminal points with no excess. Bundle multiple conductors, with conductors larger than no. 10 AWG cabled in individual circuits. Make terminations so there is no bare conductor at the terminal.

3.02 FIELD QUALITY CONTROL

- A. Prior to energizing, check installed wires and cables with megohm meter to determine insulation resistance levels to ensure requirements are fulfilled.
- B. Prior to energizing, check installed wires and cables with megohm meter to determine insulation resistance levels to ensure requirements are fulfilled.
- C. Subsequent to wire and cable hook-ups, energize circuitry and demonstrate proper functioning. Correct malfunctioning units, and retest to demonstrate compliance.
- D. TABLE 1: Color Coding for Phase Identification:

Color code feeders, and branch circuit conductors as follows:

<u>120/240 Volts</u>	<u>Phase</u>	<u>480/277 Volts</u>
Black	A	Brown
Blue	B	Orange
	C	Yellow
White	Neutral	Gray
Green	Ground	Green

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SECTION 16135

ELECTRICAL BOXES AND FITTINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 DESCRIPTION OF WORK

- A. Extent of electrical box and associated fitting work is indicated by drawings and schedules.
- B. Types of electrical boxes and fittings specified in this section include the following:
 - Outlet boxes.
 - Junction boxes.
 - Pull boxes.
 - Bushings.
 - Locknuts.

1.03 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of electrical boxes and fittings, of types, sizes, and capacities required, whose products have been in satisfactory use in similar service for not less than 3 years.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects utilizing electrical boxes and fittings similar to those required for this project.
- C. NEC Compliance: Comply with NEC as applicable to construction and installation of electrical wiring boxes and fittings.

1.04 SUBMITTALS (Not Used)

PART 2 - PRODUCTS

2.01 FABRICATED MATERIALS

- A. Outlet Boxes: Provide galvanized flat rolled sheet-steel outlet wiring boxes, of

shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations. Construct outlet boxes with mounting holes, and with cable and conduit-size knockout openings in bottom and sides. Provide boxes with threaded screw holes, with corrosion-resistant cover and grounding screws for fastening surface and device type box covers, and for equipment type grounding.

B. Outlet Box Accessories: Provide outlet box accessories as required for each installation, including box supports, mounting ears and brackets, wallboard hangers, box extension rings, fixture studs, cable clamps and metal straps for supporting outlet boxes.

C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering outlet boxes which may be incorporated in the work include, but are not limited to, the following:

Appleton Electric; Emerson Electric Co.
Bell Electric; Square D Company.
Eagle Electric Mfg Co., Inc.
OZ/Gedney; General Signal Co.
Pass and Seymour, Inc.
RACO Div; Harvey Hubbell Inc.
Thomas & Betts Co.

D. Junction and Pull Boxes: As shown on drawings, provide stainless steel code-gauge junction and pull boxes, with hinged lockable covers; of types, shapes and sizes, to suit each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws and washers.

E. Manufacturers: Subject to compliance with requirements, provide junction and pull boxes of one of the following:

Hoffman Enclosures
Appleton Electric; Emerson Electric Co.
Arrow-Hart Div; Crouse-Hinds Co.
Bell Electric; Square D Company.
Keystone Columbia, Inc,
OZ/Gedney Co.; General Signal Co.
Spring City Electrical Mfg Co.
Or Approved Alternate

F. Bushings, Knockout Closures and Locknuts: Provide corrosion-resistant box knockout closures, conduit locknuts and malleable iron conduit bushings, offset connectors, of types and sizes, to suit respective installation requirements and applications.

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- G. Manufacturers: Subject to compliance with requirements, provide bushings, knockout closures, locknuts and connectors of one of the following:

Arrow-Hart Div; Crouse-Hinds Co.
Appleton Electric Co.; Emerson Electric Co.
Midwest Electric; Cooper Industries Inc.
OZ/Gedney Co.; General Signal Co.
RACO Div; Harvey Hubbell Inc.
Thomas & Betts Co., Inc.
Or Approved Alternate

PART 3 - EXECUTION

3.01 INSTALLATION OF ELECTRICAL BOXES AND FITTINGS

- A. General: Install electrical boxes and fittings as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.
- B. Coordinate installation of electrical boxes and fittings with wire/cable, wiring devices, and raceway installation work.
- C. Provide weathertight outlets for interior and exterior locations exposed to weather or moisture.
- D. Provide knockout closures to cap unused knockout holes where blanks have been removed.
- E. Install electrical boxes in those locations which ensure ready accessibility to enclosed electrical wiring.
- F. Avoid installing boxes back-to-back in walls. Provide not less than 6" (150 mm) separation.
- G. Position recessed outlet boxes accurately to allow for surface finish thickness.
- H. Fasten electrical boxes firmly and rigidly to substrates, or structural surfaces to which attached, or solidly embed electrical boxes in concrete or masonry.
- I. Provide access cover (as required) by NEC Section 370-29 to access any hidden junction boxes. No extra will be given to pay for access doors on this project.

3.02 GROUNDING

- A. Upon completion of installation work, properly ground electrical boxes and demonstrate compliance with requirements. Install a green insulated ground wire in all conduit systems. Bond boxes to ground.

END OF SECTION

SECTION 16140

WIRING DEVICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 SUMMARY

- A. This Section includes the following:
 - Plugs & Connectors.
 - Receptacles.
 - Ground Fault Circuit Interrupter Receptacles.
 - Snap Switches.
 - Wall Plates.

1.03 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with provisions of the following codes:
 - NFPA 70 "National Electrical Code"
- B. UL and NEMA Compliance: Provide wiring devices which are listed and labeled by UL and comply with applicable UL and NEMA standards. All devices and switches shall be 20 amp specification grade.

1.04 SEQUENCE AND SCHEDULING

- A. Schedule installation of finish plates after the surface upon which they are installed has received final finish.

PART 2 – PRODUCTS

- 2.01 Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Crouse-Hinds Co.
Hubbell Inc.

Pass and Seymour Inc.
Slater Electric Co.
Or Approved Alternate

2.02 WIRING DEVICES

- A. General: Provide wiring devices, in types, characteristics, grades, colors, and electrical ratings for applications indicated which are UL listed and which comply with NEMA WD 1 and other applicable UL and NEMA standards. Provide nylon ivory wall plates except as otherwise indicated.
- B. Receptacles: As scheduled in Table 1 in Part 3 below. Comply with UL 498 and NEMA WD 1.
- C. Snap Switches: Quiet type AC switch as indicated in Table 2 in Part 3 below. Comply with UL 20 and NEMA WD1.

2.03 WIRING DEVICE ACCESSORIES

- A. Wall Plates: Single and combination, of types, sizes, and with ganging and cutouts as indicated. Provide plates which mate and match with wiring devices to which attached. Provide metal screws for securing plates to devices with screw heads colored to match finish of plates. Provide plates possessing the following additional construction features:

2.3.1.1 Material and Finish: Nylon, plastic (weatherproof as required).

PART 3 - EXECUTION

3.01 INSTALLATION OF WIRING DEVICES AND ACCESSORIES

- A. Install wiring devices and accessories as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and in accordance with recognized industry practices to fulfill project requirements.
- B. Coordinate with other Work, including painting, electrical boxes and wiring installations, as necessary to interface installation of wiring devices with other Work.
- C. Install wiring devices only in electrical boxes which are clean; free from excess building materials, dirt, and debris.
- D. Install wiring devices after wiring work is completed.
- E. Install wall plates after painting work is completed.

3.02 FIELD QUALITY CONTROL

- A. Testing: Prior to energizing circuits, test wiring for electrical continuity, and for short-circuits. Ensure proper polarity of connections is maintained. Subsequent to energizing, test wiring devices to demonstrate compliance with requirements, operating each operable device at least six times.

**TABLE 1
RECEPTACLES**

DESIG- NATION (1)	CURRENT RATING AMPS	VOLTAGE RATING	SINGLE/ DUPLEX	NEMA CONFIG- URATION	UL GRADE
H	20	125	DUPLEX	5-20R	HOSPITAL
WP	20	125	DUPLEX	5-20R	SPEC. GRADE WEATHERPROOF
WP GFI	20	125	DUPLEX	5-20R	SPEC. GRADE GFI (3)

All receptacles this project shall be Specification Grade, ivory color. Provide Leviton 5362-I Type Duplex Receptacles or approved alternate this project.

GFI = Leviton #6898-I regular application or approved alternate this project.

**TABLE 2
SNAP SWITCHES**

DESIG- NATION (1)	TYPICAL APPLICATION	LOAD RATING (AC)	VOLTAGE RATING	POLES	UL GRADE
S	CONTROL LIGHTS	20A	120/277	1	HEAVY DUTY
S3	CONTROL LIGHTS	20A	120/277	3-WAY	HEAVY DUTY
SD	DIMMER SWITCH	1,000 WATT	120	1	HEAVY DUTY

All switches shall be heavy duty specification grade, ivory color. Single pole switches shall be Leviton 5521 or approved alternate.

END OF SECTION

SECTION 16142

ELECTRICAL CONNECTIONS FOR EQUIPMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 DESCRIPTION OF WORK

- A. Extent of electrical connections for equipment is indicated by drawings and schedules. Electrical connections are hereby defined to include connections used for providing electrical power to equipment.
- B. Provide connections to pump, variable frequency drive, and:
 - 1. To outlets, lighting fixtures.
 - 2. To grounds including earthing connections.
 - 3. To existing panels, to new panelboards, motors, starters, motor control centers, transformers, lightning arrestors, and control panels.
 - 4. Furnish and install panel control wires. Connections in panel by pump supplier/vendor. Coordinate panel wires with supplier/vendor.
- C. Electrical connections for equipment, not furnished as integral part of equipment, specified in other Division-16 sections, are work of this section.
- D. Junction boxes and disconnect switches required for connecting motors and other electrical units of equipment are specified in applicable Division-16 sections, and are work of this section.
- E. Raceways and wires/cables required for connecting motors and other electrical units of equipment are specified in applicable Division-16 sections, and are work of this section.

1.03 QUALITY ASSURANCE

- A. Installer's Qualifications: Firms with at least 2 years of successful installation experience with projects utilizing electrical connections for equipment similar to that required for this project.
- B. NEC Compliance: Comply with applicable requirements of NEC as to type products used and installation of electrical power connections (terminals and splices), for

junction boxes, motor starters, disconnect switches, floats, and miscellaneous controls.

- C. UL Compliance: Comply with UL Std 486A, "Wire Connectors and Soldering Lugs for Use With Copper Conductors" including, but not limited to, tightening of electrical connectors to torque values indicated. Provide electrical connection products and materials which are UL-listed and -labeled.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products of one of the following (for each type of product):

AMP Incorporated.
Appleton Electric Co.
Arrow-Hart Div, Crouse-Hinds Co.
Burndy Corporation.
Eagle Electric Mfg Co., Inc.
Or Approved Alternate

2.02 MATERIALS AND COMPONENTS

- A. General: For each electrical connection indicated, provide complete assembly of materials, including but not necessarily limited to, pressure connectors, terminals (lugs), electrical insulating tape, heat-shrinkable insulating tubing, cable ties, solderless wirenuts, and other items and accessories as needed to complete splices and terminations of types indicated.

- B. Metal Conduit, Tubing and Fittings:

General: Provide metal conduit, tubing and fittings of types, grades, sizes and weights (wall thicknesses) indicated for each type service. Where types and grades are not indicated, provide proper selection as determined by Installer to fulfill wiring requirements and comply with NEC requirements for raceways. Provide products complying with Division-16 Basic Electrical Materials and Methods section "Raceways", and in accordance with the following listing of metal conduit, tubing and fittings:

Rigid steel conduit.
Rigid metal conduit fittings.
Electrical metallic tubing.
EMT fittings.
Flexible metal conduit:
Flexible metal conduit fittings.

Liquid-tight flexible metal conduit.
Liquid-tight flexible metal conduit fittings.

- C. Wires, Cables, and Connectors: Provide wires, cables and connectors complying with Division-16 Basic Electrical Materials and Methods section "Wires and Cables".
- D. Wires/Cables: Unless otherwise indicated, provide wires/cables (conductors) for electrical connections which match, including sizes and ratings, of wires/cables which are supplying electrical power. Provide copper conductors which conductivity of not less than 98% at 20 degrees C (68 degrees F).
- E. Connectors and Terminals: Provide electrical connectors and terminals which mate and match, including sizes and ratings, with equipment terminals and are recommended by equipment manufacturer for intended applications.
- F. Electrical Connection Accessories: Provide electrical insulating tape, heat-shrinkable insulating tubing and boots, electrical solder, electrical soldering flux, wirenuts and cable ties as recommended for use by accessories manufacturers for type services indicated.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect area and conditions under which electrical connections for equipment are to be installed and notify ENGINEER in writing of conditions detrimental to proper completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

3.02 INSTALLATION OF ELECTRICAL CONNECTIONS

- A. Install electrical connections as indicated, in accordance with equipment manufacturer's written instructions and with recognized industry practices, and complying with applicable requirements of UL, NEC and NECA's "Standard of Installation" to ensure that products fulfill requirements.
- B. Coordinate electrical work with OWNER if such work will result in shutdown of electrical services. Provide 72 hours advance notice to OWNER.
- C. Connect electrical power supply conductors to equipment conductors in accordance with equipment manufacturer's written instructions and wiring diagrams. Mate and match conductors of electrical connections for proper interface between electrical power supplies and installed equipment.
- D. Cover splices with electrical insulating material equivalent to, or of greater insulation resistivity rating, than electrical insulation rating of those conductors being spliced.

- E. Prepare cables and wires, by cutting and stripping covering armor, jacket, and insulation properly to ensure uniform and neat appearance where cables and wires are terminated. Exercise care to avoid cutting through tapes which will remain on conductors. Also avoid "ringing" copper conductors while skinning wire.
- F. Trim cables and wires as short as practicable and arrange routing to facilitate inspection, testing and maintenance.
- G. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturers published torque tightening values for equipment connectors. Accomplish tightening by utilizing proper torquing tools, including torque screwdriver, beam-type torque wrench, and ratchet wrench with adjustable torque settings. Where manufacturer's torquing requirements are not available, tighten connectors and terminals to comply with torquing values contained in UL's 486A.
- H. Provide flexible conduit for motor connections, and other electrical equipment connections, where subject to movement and vibration.
- I. Provide liquid-tight flexible conduit for connection of motors and other electrical equipment where subject to movement and vibration, and also where connections are subjected to one or more of the following conditions:
 - 1. Moist or humid atmosphere where condensate can be expected to accumulate.
 - 2. Water spray.
- J. Fasten tape markers to each electrical power supply wire/cable conductor. Affix markers on each terminal conductor, as close as possible to the point of connection.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of electrical connections, and after circuitry has been energized with rated power source, test connections to demonstrate capability and compliance with requirements. Ensure that direction of rotation of each motor fulfills requirement. Correct malfunctioning units at site, then retest to demonstrate compliance.

END OF SECTION

SECTION 16170

CIRCUIT AND MOTOR DISCONNECTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 SUMMARY

- A. This Section includes circuit and motor disconnects.

1.03 SUBMITTALS

- A. Submit manufacturer's data on circuit and motor disconnect switches.

1.04 QUALITY ASSURANCE

- A. Electrical Component Standards: Provide components complying with NFPA 70 "National Electrical Code" and which are listed and labeled by UL. Comply with UL Standard 98 and NEMA Standard KS 1.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products by one of the following:

- Square D
- Cutler-Hammer
- GE
- Siemens
- Or Approved Alternate

2.02 CIRCUIT AND MOTOR DISCONNECT SWITCHES

- A. General: Provide circuit and motor disconnect switches in types, sizes, duties, features, ratings, and enclosures as indicated. Provide NEMA 1 enclosure except for outdoor switches, and other indicated locations provide NEMA 4X enclosures with rain tight hubs. For motor and motor starter disconnects, provide units with horsepower ratings suitable to the loads.
- B. All switches shall be heavy duty.

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- C. Fusible Switches: Heavy duty switches, with fuses of classes and current ratings indicated. Where current limiting fuses are indicated, provide switches with non-interchangeable feature (rejection clips) suitable only for current limiting type fuses.
- D. Non-Fusible Disconnects: Heavy duty switches of classes and current ratings as indicated.

PART 3 - EXECUTION

3.01 INSTALLATION OF CIRCUIT AND MOTOR DISCONNECTS

- A. General: Provide circuit and motor disconnect switches as indicated and where required by the above Code. Comply with switch manufacturers' printed installation instructions.

3.02 FIELD QUALITY CONTROL

- A. Testing: Subsequent to completion of installation of electrical disconnect switches, energize circuits and demonstrate capability and compliance with requirements. Except as otherwise indicated, do not test switches by operating them under load. However, demonstrate switch operation through six opening/closing cycles with circuit unloaded. Open each switch enclosure for inspection of interior, mechanical and electrical connections, fuse installation, and for verification of type and rating of fuses installed. Correct deficiencies then retest to demonstrate compliance. Remove and replace defective units with new units and retest.

END OF SECTION

SECTION 16190

SUPPORTING DEVICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 DESCRIPTION OF WORK

- A. Extent of supports, anchors, sleeves and seals is indicated by drawings and schedules and/or specified in other Division-16 sections.

- B. Types of supports, anchors, sleeves and seals specified in this section include the following:

- Clevis hangers.
- Riser clamps.
- C-clamps.
- I-beam clamps.
- One-hole conduit straps.
- Two-hole conduit straps.
- Round steel rods.
- Lead expansion anchors.
- Toggle bolts.
- Wall and floor seals.

- C. Supports, anchors, sleeves and seals furnished as part of factory-fabricated equipment, are specified as part of that equipment assembly in other Division-16 sections.

1.03 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of supporting devices, of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than 3 years.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience with projects utilizing electrical supporting device work similar to that required for this project.
- C. NEC Compliance: Comply with NEC requirements as applicable to construction and installation of electrical supporting devices.

PART 2 - PRODUCTS

2.01 MANUFACTURED SUPPORTING DEVICES

- A. General: Provide supporting devices which comply with manufacturer's standard materials, design and construction in accordance with published product information, and as required for complete installation; and as herein specified. Where more than one type of supporting device meets indicated requirements, selection is Installer's option.

- B. Supports: Provide supporting devices of types, sizes and materials indicated; and having the following construction features:
 - 1. Clevis Hangers: For supporting 2" rigid metal conduit; galvanized steel; with 1/2" dia. hole for round steel rod; approximately 54 pounds per 100 units.
 - 2. C-Clamps: Black malleable iron; 1/2" rod size; approximately 70 pounds per 100 units.
 - 3. I-Beam Clamps: Black steel, 1-1/4" x 3/16" stock, 3/8" cross bolt; flange width 2"; approximately 52 pounds per 100 units.
 - 4. One-Hole Conduit Straps: For supporting 3/4" rigid metal conduit; stainless steel; approximately 7 pounds per 100 units.
 - 5. Two-Hole Conduit Straps: For supporting 3/4" rigid metal conduit, stainless steel; 3/4" strap width; and 2-1/8" between center of screw holes.
 - 6. Offset Conduit Clamps: For supporting 2" rigid metal conduit; black steel; approximately 200 lbs. per 100 units.

- C. Anchors: Provide anchors of types, sizes and materials indicated; and having the following construction features:
 - 1. Lead Expansion Anchors: 1/2", approximately 38 pounds per 100 units.
 - 2. Toggle Bolts: Springhead; 3/16" x 4"; approximately 5 pounds per 100 units.
 - 3. Manufacturer: Subject to compliance with requirements, provide anchors of one of the following:

Ideal Industries, Inc.
Joslyn Mfg and Supply Co.
McGraw Edison Co.
U.S. Expansion Bolt Co.
Or Approved Alternate

- D. U-Channel Strut Systems: Provide U-channel strut system for supporting electrical equipment, 12-gauge stainless steel, of types and sizes indicated; construct with 9/16" dia. holes, 8" o.c. on top surface, with standard green finish, and with the following stainless steel fittings which mate and match with U-channel:

- Fixture hangers.
- Channel hangers.
- End caps.
- Beam clamps.
- Wiring stud.
- Thinwall conduit clamps.
- Rigid conduit clamps.
- Conduit hangers.
- U-bolts.

- E. Manufacturers: Subject to compliance with requirements, provide channel systems of one of the following:

- Allied Tube and Conduit Corp.
- B-Line Systems, Inc.
- Greenfield Mfg Co., Inc.
- Midland-Ross Corp.
- OZ/Gedney Div.
- Unistrut Div; GTE Products Corp.
- Or Approved Alternate

PART 3 - EXECUTION

3.01 INSTALLATION OF SUPPORTING DEVICES

- A. Install hangers, anchors, sleeves and seals as indicated, in accordance with manufacturer's written instructions and with recognized industry practices to insure supporting devices comply with requirements. Comply with requirements of NECA and NEC for installation of supporting devices.
- B. Coordinate with other electrical work, including raceway and wiring work, as necessary to interface installation of supporting devices with other work.
- C. Install hangers, supports, clamps and attachments to support piping properly from building structure. Arrange for grouping of parallel runs of horizontal conduits to be supported together on trapeze type hangers where possible. Install supports with spacings indicated and in compliance with NEC requirements.

END OF SECTION

SUPPORTING DEVICES

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SECTION 16195

ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 DESCRIPTION OF WORK

- A. Extent of electrical identification work is indicated by drawings and schedules.
- B. Types of electrical identification work specified in this section include the following:
 - 1. Buried cable warnings.
 - 2. Electrical power, control and communication conductors.
 - 3. Operational instructions and warnings.
 - 4. Danger signs.
 - 5. Equipment/system identification signs.

1.03 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of electrical identification products of types required, whose products have been in satisfactory use in similar service for not less than 3 years.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience with projects utilizing electrical identification work similar to that required for this project.
- C. NEC Compliance: Comply with NEC as applicable to installation of identifying labels and markers for wiring and equipment.
- D. UL Compliance: Comply with applicable requirements of UL Std 969, "Marking and Labeling Systems", pertaining to electrical identification systems.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's data on electrical identification materials and products.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering electrical identification products which may be incorporated in the work include, but are not limited to, the following:

Alarm Supply Co., Inc.
Brady, W. H. Co.
Calpico, Inc.
Cole-Flex Corp.
Direct Safety Co.
George-Ingraham Corp.
Griffolyn Company
Ideal Industries, Inc.
Or Approved Alternate

2.02 ELECTRICAL IDENTIFICATION MATERIALS

- A. General: Except as otherwise indicated, provide manufacturer's standard products of categories and types required for each application. Where more than single type is specified for an application, selection is installer's option, but provide single selection for each application.
- B. Underground-Type Plastic Line Marker: Manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, intended for direct-burial service; not less than 6" wide x 4 mils thick. Provide tape with printing which most accurately indicates type of service of buried cable (example, 'Electric') - use on outside conduit runs, conduits to lights, control panels, motors, and disconnects.
- C. Engraved Plastic-Laminate Signs: Provide engraving stock melamine plastic laminate, complying with FS L-P-387 in sizes and thicknesses indicated, engraved with engraver's standard letter style of sizes and wording indicated, black face and white core plies (letter color) except as otherwise indicated, punched for mechanical fastening except where adhesive mounting is necessary because of substrate.
1. Thickness: 1/16", except as otherwise indicated.
 2. Fasteners: Self-tapping stainless steel screws, except contact-type permanent adhesive where screws cannot or should not penetrate substrate.

2.03 LETTERING AND GRAPHICS

- A. General: Coordinate names, abbreviations and other designations used in electrical identification work, with corresponding designations shown, specified or scheduled. Provide numbers, lettering or wording as indicated or, if not otherwise indicated, as recommended by manufacturer or as required for proper identification and operation/maintenance of electrical systems and equipment.

PART 3 - EXECUTION

3.01 APPLICATION AND INSTALLATION

- A. General Installation Requirements:

Install electrical identification products as indicated, in accordance with manufacturer's written instructions, and requirements of NEC.

- B. Coordination: Where identification is to be applied to surfaces which require finish, install identification after completion of painting.
- C. Regulations: Comply with governing regulations and requests of governing authorities for identification of electrical work.
- D. General: During back-filling/top-soiling of each exterior underground electrical, signal or communication cable, install continuous underground-type plastic line marker, located directly over buried line at 6" to 8" below finished grade. Where multiple small lines are buried in a common trench and do not exceed an overall width of 16", install a single line marker.
- E. Install line marker for every buried cable, regardless of whether direct-buried or protected in conduit.
- F. Equipment/System Identification: Install engraved plastic-laminate sign on each major unit of electrical equipment in building; including central or master unit of each electrical system including communication/control/signal systems, unless unit is specified with its own self-explanatory identification or signal system. Except as otherwise indicated, provide single line of text, 1/2" high lettering, on 1-1/2" high sign (2" high where 2 lines are required), white lettering in black field. Provide text matching terminology and numbering of the contract documents and shop drawings. Provide signs for each unit of the following categories of electrical work.
 - 1. Panelboards, control cabinets and enclosures.
 - 2. Access panel/doors to electrical facilities.

3. Major electrical switchgear - new Well 7AW, control junction boxes, control cabinets, disconnects, transformers, etc.
- G. Install signs at locations indicated, or where not otherwise indicated, at location for best convenience of viewing without interference with operation and maintenance of equipment. Secure to substrate with fasteners, except use adhesive where fasteners should not or cannot penetrate substrate.

END OF SECTION

SECTION 16452

GROUNDING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 SUMMARY

- A. Extent of electrical grounding and bonding work is indicated by drawings and schedules, and as specified herein. Grounding and bonding work is defined to encompass systems, circuits, and equipment.
- B. Types of electrical grounding and bonding work specified in this section include the following:
 - 1. Solidly grounded - WYE system.
 - 2. Install a green ground wire in all conduit runs, do not rely on conduit for ground.
 - 3. Install grounding system as shown on drawings – 1/0 bare copper halo – 24” buried.
 - 4. All grounding shall be in accordance with NEC Article No. 250.
 - 5. Install ground ‘halo’ at Well 7AW - 1/0.

PART 2 - PRODUCTS

2.01 REQUIREMENTS

- A. Ground clamps: OZ Electrical Manufacturing Company Type "CG", or equal by Steel City or Appleton.

PART 3 - EXECUTION

3.01 INSTALLATION REQUIREMENTS

A. General:

1. Clean all conductive surfaces on equipment to be grounded, to assure good electrical continuity.
2. Effectively bond all grounding conductors to grounding electrodes, equipment enclosures and ground busses.
3. Locate all grounding attachments away from areas subject to physical damage. Provide protective covering as required.
4. All PVC conduit shall have separate ground wire installed in accordance with Table 250-95 of the National Electrical Code.

B. Service Equipment/Building Ground:

1. Service equipment shall be bonded to incoming main water line with heavy duty ground clamp in accordance with Article 250-81 of National Electrical Code. Bonding conductor shall be sized in accordance with Table 250-94 of National Electrical Code and shall be insulated.
2. A grounding electrode conductor shall be run to a grounding rod system driven in ground outside foundation of building. System shall consist of four (4) 5/8" x 10' copperweld ground rods driven in ground located around the perimeter of the electrical equipment (see drawings). Size conductor as shown on drawings. Connection of each ground rod to one another shall be made using a conductor of same size. Conductors shall be insulated except in earth, where they shall be bare. Bond to ground bar in Well 7AW.
3. Building steel and nearest cold water pipe shall be connected to ground bus on main feeder with a conductor the same as specified above.
4. Grounding electrode conductors specified herein shall be installed without conduit, in general. Where exposed to potential physical damage, install the conductor in Schedule 80 PVC.

C. Feeder/Branch Circuits:

1. Feeder circuits to the following equipment shall have a separate green grounding conductor in conduit sized in accordance with Table 250-95 of the National Electrical Code:
 - a) Panelboards/switchboards, control cabinets

- b) Motors/exterior buildings
 - c) Motor disconnects
 - d) Variable frequency drive/motor loads
2. Feeder circuits shall have a separate green grounding conductor in conduit sized in accordance with Table 250-95 of the National Electrical Code.
 3. Bond the receptacle ground pin to its box using a bonding jumper, except where isolated ground receptacles are required.
 4. Flexible conduit will not be approved as a grounding means. Flexible conduit shall have a jumper wire sized to ampacity of branch breaker (see NEC Table 250.66) and connected to conduit system on both ends. This applies to fixtures, motors, controls, and other devices.

C. Transformers:

1. Ground secondary neutral of transformers to grounding conductor in primary feeder, sized in accordance with Table 250-66 of the National Electrical Code, and to building steel, grounding electrode system as indicated on the drawings cold water main, 1 1/2 inch or larger. Bond across any dielectric unions between point of connection and domestic water entrance.

D. Telephone System: (As Required)

1. Provide grounding means for the telephone system in accordance with Article 800-40 of the National Electrical Code, and the system manufacturer's recommendations.
2. Main telephone service equipment grounding means shall include but not be limited to a No. 4 AWG, green, insulated, copper grounding conductor connected to the main electrical service equipment ground bus. Terminate this conductor at the telephone equipment location with an ILSCO NB-350-42-R16 grounding bus mounted on the plywood backboard.
3. Telephone terminal boards and other remote telephone equipment grounding means shall include but not be limited to a minimum No. 6 AWG, green, insulated, copper conductor connected to the equipment ground bus in the low voltage panelboard serving the telephone equipment or branch circuits in the immediate vicinity. Terminate these conductors to an ILSCO NB-350-12-R16 grounding bus mounted on the plywood backboard.
4. Route the telephone equipment grounding conductors in 3/4 inch conduit by the most direct means from the telephone equipment ground bus to the electrical equipment grounding system.

5. Provide permanent, engraved labels at the telephone equipment ground busses identifying these as the equipment grounding means and identifying the location of connection of the grounding conductors to the electrical equipment grounding system.

E. Test

1. Ground on main service shall be tested using test equipment similar to a "Biddle" tester. Test data shall be submitted to Owner for approval and such approved test data shall become a part of the Operating and Maintenance Instruction Manual. In no event shall ground resistance exceed 25 OHMS. Additional rods or other means shall be employed when measured resistance exceeds 10 OHMS.

END OF SECTION

SECTION 16460
TRANSFORMERS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 SUMMARY

- A. This section includes general purpose and specialty dry type transformers and voltage regulators with windings rated 600V or less.
- B. Related Sections: The following Division 16 sections contain requirements that relate to this section:
 - 1. "Electrical Identification" for signs associated with transformer installations.

1.03 SUBMITTALS

- A. General: Submit the following:
 - 1. Product data for each transformer, including dimensional plans, sections, and elevations showing minimum clearances, installed devices, and materials lists.
 - 2. Wiring diagrams from manufacturer differentiating between manufacturer-installed and field-installed wiring.
 - 3. Product certificates, signed by manufacturer of transformers certifying that their products comply with the specified requirements.
 - 4. Product Test Reports: Certified copies of manufacturer's design and routine factory tests required by the referenced standards.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Member firm of NEMA who is regularly engaged in manufacturing components that comply with the requirements of these Specifications and that have been used on at least five projects of similar size and scope as this Project.
- B. Field Testing Organization Qualifications: To qualify for acceptance, an independent testing organization must demonstrate, based on evaluation of organization--submitted

criteria conforming to ASTM E 699, that it has the experience and capability to conduct satisfactorily the testing indicated.

- C. Electrical Component Standard: Components and installation shall comply with NFPA 70 "National Electrical Code."
- D. ANSI/IEEE Compliance: Comply with applicable requirements of ANSI/IEEE Standards including C2, "National Electrical Safety Code," and C57.12.80, "Terminology for Power and Distribution Transformers."
- E. UL Listing and Labeling: Items provided under this section shall be listed and labeled by UL.
- F. Nationally Recognized Testing Laboratory Compliance (NRTL): Items provided under this section shall be NRTL listed and labeled. The term "NRTL" shall be as defined in OSHA Regulation 1910.7.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:

General Electric Co.
Hevi-Duty Electric
Square D Co.
Or Approved Alternate

2.02 TRANSFORMERS, GENERAL

- A. Transformers: Factory assembled and tested, air cooled units of types specified, having characteristics and ratings as indicated. Units shall be designed for 60 Hz service.
- B. Cores: Grain oriented, non-aging silicon steel.
- C. Coils: Continuous windings without splices except for taps.
- D. Internal Coil Connections: Brazed or pressure type.

2.03 GENERAL PURPOSE, DRY-TYPE TRANSFORMERS

- A. Comply with NEMA Standard ST 20 "Dry-Type Transformers for General Applications."

- B. Windings: 2-winding type. Three phase transformers shall use one coil per phase in primary and secondary.
- C. Provide all aluminum windings.
- D. Sound Level: Minimum of 3 dB less than NEMA ST 20 standard sound levels for transformer type and size indicated when factory tested in accordance with that standard.
- E. Transformers shall have the following features and ratings:
 - 1. Enclosure: Outdoors – NEMA 3R (NOTE: XFMR1 & XFMR2 shall be equivalent to Square D MPZ (Mini Power Zone) construction – 480 volt primary, 120 volt secondary, aluminum wires, primary/secondary protection). (See Plan Sheet E-5 reference)
 - 2. Insulation Class: 185 deg C or 220 deg C class for transformers 15 KVA or smaller; 220 deg C class for transformers larger than 15 KVA.
 - 3. Insulation Temperature Rise: 150 deg C maximum rise above 40 deg C.
 - 4. Taps: For transformers 3 KVA and larger, full capacity taps in high-voltage winding as follows:
 - 5. 3 KVA through 25 KVA: Two 5 percent taps below rated high-voltage.
 - 6. 3 KVA through 10 KVA: Two 5 percent taps below rated high voltage.
 - 7. 15 KVA through 500 KVA: Six 2 1/2 percent taps, 2 above and 4 below rated high voltage.
 - 8. 750 - 1,000 KVA: Four 2 1/2 percent taps, 2 above and 2 below rated high voltage.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Arrange equipment to provide adequate spacing for cooling air circulation.
- B. Identify transformers in accordance with Division 16 Section "Electrical Identification."
- C. Tighten electrical connectors and terminals in accordance with manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.02 EQUIPMENT BASES

- A. Construct concrete equipment pads as follows:
 - 1. Coordinate size of equipment bases with actual unit sizes provided. Construct base 4 inches larger in both directions than the overall dimensions of the supported unit. Pad shall be 6" thick.
 - 2. Form concrete pads with framing lumber with form release compounds. Chamfer top edge and corners of pad.
 - 3. Provide a primary non-fused disconnect if source of power is not within 50' of transformer location.
 - 4. Install reinforcing bars, tied to frame, and place anchor bolts and sleeves to facilitate securing units.
 - 5. Place concrete and allow to cure before installation of units. Use Portland Cement conforming to ASTM C 150, 4,000 psi compressive strength, and normal weight aggregate.

3.03 GROUNDING

- A. Ground transformers and tighten connections to comply with tightening torques specified in UL Standard 486A.

3.04 ADJUSTING AND CLEANING

- A. Upon completion of installation, inspect interiors and exteriors of accessible components. Remove paint splatters and other spots, dirt, and construction debris. Touch up scratches and mars of finish to match original finish.
- B. Adjust transformer taps to provide optimum voltage conditions at utilization equipment.
- C. Adjust voltage regulators to provide optimum voltage at equipment served.

END OF SECTION

SECTION 16485

ENCLOSED ADJUSTABLE FREQUENCY DRIVES (1 – 500 HP)

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 SCOPE OF WORK

- A. This section provides specification requirements for adjustable frequency drives or variable speed drives (identified herein as AC Drives) for use with NEMA MG31 inverter-duty motors or with NEMA asynchronous Design B motors having an appropriate output filter.
- B. The manufacturer shall furnish, field test, adjust, and certify all installed AC Drives for satisfactory operation.
- C. Any exceptions or deviations to this specification shall be indicated in writing and submitted with the quotation.

1.03 SUBMITTALS

- A. Six (6) copies of the approval drawings shall be furnished for the ENGINEER's approval prior to factory assembly of the AC Drives. These drawings shall consist of elementary power and control wiring diagrams and enclosure outline drawings. The enclosure drawings shall include front and side views of the enclosures with overall dimensions and weights, conduit entrance locations, and nameplate legends.
- B. Standard catalog sheets shall be furnished for each different horsepower rated AC Drive, showing voltage, horsepower, maximum current ratings, and recommended replacement parts with part numbers.
- C. A harmonic distortion analysis shall be performed by the manufacturer based on documentation supplied by the CONTRACTOR. The engineering documentation shall consist of one-line diagrams, utility short circuit information, distribution transformer information (kVA, %Z, and X/R ratio) and emergency standby generator (kW and subtransient reactance) data if applicable. The harmonic distortion analysis report shall be part of the approval drawing process, submitted to the ENGINEER for approval.

1.04 WARRANTY

- A. An 18 month parts warranty shall be provided on materials and workmanship from the date of invoice from an authorized distributor.

1.05 QUALITY ASSURANCE

- A. The manufacturer of the AC Drive shall be a certified ISO 9001 facility.
- B. The AC Drive and all associated optional equipment shall be UL Listed according to UL 508C Power Conversion Equipment or UL 508A Industrial Control Panel. A UL label shall be attached inside each enclosure as verification.
- C. The AC Drive shall be designed, constructed, and tested in accordance with UL, CSA, NEMA, IBC, ASCE/SEI 7, and NEC standards.
- D. Every power converter shall be quality assurance tested with an AC induction motor under load conditions and subjected to a dielectric voltage-withstand test, with all enclosed devices mounted and wired, prior to shipment.
- E. Quality assurance documentation shall be furnished to verify successful completion upon written request of the ENGINEER.

PART 2 - PRODUCT

2.01 MANUFACTURERS

- A. The AC Drive shall be provided by Schneider Electric and shall be an Altivar ATV 61 (no substitutes).
- B. Alternate control techniques, other than pulse width modulated (PWM) control, are not acceptable.
- C. Complete combination VFD Drive #1 with full voltage bypass and air conditioner will be factory assembled by Schneider Electric. Provide UL 508A rating for the completed Drive #1 panel.

2.02 GENERAL DESCRIPTION

- A. The AC Drive shall convert the input AC mains power to an adjustable frequency and voltage as defined below and indicated on the drawings or motor control schedules.
 - 1. For AC Drives rated up to 500 HP, the AC Drive manufacturer shall use a 6-pulse bridge rectifier design with line reactors. The diode rectifiers shall convert fixed voltage and frequency, AC line power to fixed DC voltage. The power section shall be insensitive to phase rotation of the AC line.

2.03 CONSTRUCTION

- A. The AC Drive shall be mounted in a Type 4X, 304 Stainless Steel enclosure with an

externally operated disconnect device.

- B. A mechanical interlock shall prevent an operator from opening the AC Drive door when the disconnect is in the On position. Another mechanical interlock shall prevent an operator from placing the disconnect in the On position while the AC Drive door is open. It shall be possible for authorized personnel to defeat these interlocks.
- C. Provisions shall be made for locking all disconnects in the Off position. Provisions for additional padlocking shall be made by the customer using an approved lockout/tagout device.
- D. Provisions shall be made for accepting a padlock to lock the enclosure door.
- E. Provide Stainless Steel Air Conditioner Unit that operates on 480 VAC. Unit to be sized to maintain temperature and humidity control within operating temperature range listed below (see 2.6 Environmental Ratings).
- F. Panel to be unistrut mounted with internal dead front panel for controls.

2.04 MOTOR DATA

- A. The AC Drive shall be sized to operate the following AC motors and shall be defined to match the load schedules and the type of connections used between the motor and the load, such as a direct connection or a power transmission connection:
 - 1. Motor horsepower rating(s) – see motor control schedules.
 - 2. Motor full load ampere ratings coordinated to NEC 2005 Table 430-250.

2.05 APPLICATION DATA

- A. The AC Drive shall be sized to operate a variable torque load.
- B. The speed range shall be from a minimum speed of 0.1 Hz to a maximum speed of 60, 200 Hz.

2.06 ENVIRONMENTAL RATINGS

- A. The AC Drive shall meet IEC 60664-1 and NEMA ICS-1 Annex A standards.
- B. The AC Drive shall be designed to operate in an ambient temperature of -10 to +40 degrees C (+14 to 104 degrees F). Type 3R shall be designed to operate from -10 to +50 degrees C (+14 to 122 degrees F).
- C. The maximum relative humidity shall be 95% at 40 degrees C (104 degrees F), non-condensing with no dripping water, conforming to IEC 60068-2-3.

2.07 RATINGS

- A. The AC Drive shall be designed to operate from an input voltage of 460 VAC plus or minus 10%.
- B. The AC Drive shall operate from an input voltage frequency range of 47 – 63 Hz.
- C. The displacement power factor shall not be less than 0.95 lagging under any speed or load condition.
- D. The efficiency of the AC Drive at 100% speed and load shall typically not be less than 96%. Efficiency shall vary with the power rating of the AC Drive.
- E. The variable torque rated AC Drive overcurrent capacity shall be 110% for one minute.
- F. The output carrier frequency of the AC Drive shall be randomly modulated depending on the Drive rating for low noise operation. No AC Drive with an operable carrier frequency above 16 kHz shall be allowed. The output frequency shall be from 0.1 – 200 Hz.
- G. The AC Drive shall develop rated motor torque at 0.5 Hz (60 Hz base) in a sensorless flux vector (SVC) mode using a standard induction motor without an encoder feedback signal.

2.08 PROTECTION

- A. Upon power-up, the AC Drive shall automatically test for valid operation of memory, valid operation of option module, loss of analog reference input, loss of communication, dynamic brake failure, DC to DC power supply, control power, and the pre-charge circuit.
- B. The AC Drive shall be UL Listed according to UL 508C for use on distribution systems with 100,000 A available fault current. The AC Drive shall have a coordinated short circuit rating designed to UL 508C and listed on the nameplate. UL 508A industrial panels shall be rated per the specification of the customer.
- C. The AC Drive shall have protection against short circuits, protection between output phases and ground; and protection between the logic and analog outputs.
- D. The AC Drive shall have minimum AC undervoltage power loss ride-through of 200 milliseconds. The AC Drive shall have the user-defined option of frequency fold-back to allow motor torque production to continue to increase the duration of the power loss ride-through (excludes ATV21 S-Flex).
- E. The AC Drive shall have a selectable ride-through function that shall allow the logic to maintain control for a minimum of one second without faulting.
- F. The AC Drive shall have an auto restart function that shall provide programmable restart

attempts for a fault condition other than a ground fault, short circuit, or internal fault condition. The programmable time delay before restart attempts shall be unlimited.

- G. The AC Drive shall have a programmable deceleration mode for normal and fault conditions. The stop modes shall include freewheel stop, fast stop, and DC injection braking.
- H. Upon loss of the analog process follower reference signal, the AC Drive shall enter a tripped condition and/or operate at a user-defined speed set between software programmed low-speed and high-speed settings.
- I. The AC Drive shall have solid state I²t protection that is UL Listed and meets UL 508C as a Class 10 overload protection and meets IEC 60947. The minimum adjustment range shall be from 20 – 150% of the nominal output current rating of the AC Drive.
- J. A thermal switch with a user selectable pre-alarm shall provide the AC Drive with a minimum of 60 seconds delay before over temperature fault.
- K. The heatsink shall have bonded fin, molded, or block-milled construction for maximum heat transfer.
- L. The AC Drive shall have a fold-back function that shall automatically anticipate a controller overload condition and fold back the frequency to avoid a fault condition.
- M. The output frequency of the AC Drive shall be software enabled to fold back when the motor is overloaded.
- N. There shall be three skip frequency ranges with hysteresis adjustment that can each be programmed independently, back to back, or overlapping.

2.09 ADJUSTMENTS AND CONFIGURATIONS

- A. The AC Drive shall self-configure to the main operating supply voltage and frequency. Operator adjustments shall not be required.
- B. Upon power up, the AC Drive shall automatically send a signal to the connected motor. The stator resistance data shall be measured at rated current. The AC Drive shall automatically optimize the operating characteristics according to the stored data.
- C. The AC Drive shall be factory preset to operate most common applications.
- D. A choice of at least two types of acceleration and deceleration ramps shall be available in the AC Drive software: linear and S curve. Other product specific curves may be available.

- E. The acceleration and deceleration ramp times shall be adjustable from 0.01 to at least 3,200 seconds.
- F. The volts per hertz ratios shall be user selectable to meet variable torque loads, normal, and high-torque machine applications.

2.10 GRAPHIC DISPLAY TERMINAL INTERFACE

- A. The graphic display terminal shall provide 8 lines of 240 by 160 pixels (in English) to control, adjust, and configure the ATV61 AC Drive. All electrical values, bar charts, configuration parameters, I/O assignments, application and activity functions, faults, local control, adjustment storage, self-test, and diagnostics shall be accessible through the terminal interface. There shall be a standard selection of six additional languages built into the operating software.
- B. The AC Drive model number, torque type, software revision number, horsepower, output current, motor frequency, and motor voltage shall be listed on the drive identification display as viewed on the graphic display terminal.
- C. At a minimum, the selectable outputs shall consist of speed reference, output frequency, output current, motor torque, output power, output voltage, line voltage, DC voltage, motor thermal state, drive thermal state, elapsed time, motor speed, machine speed reference,, and machine speed.
- D. The graphic display terminal shall consist of programmable function keys. The functions shall allow both operating commands and programming options to be preset by the operator. A hardware selector switch shall lock out the graphic display terminal from unauthorized personnel.
- E. The graphic display terminal shall offer a simple to advanced user menu consisting of parameter setting, I/O map, fault history, and drive configuration. A software lock shall limit access to the main menu.
- F. The navigation scheme shall provide the ability to scroll through menus and screens, select or activate functions, or change the value of a selected parameter.
- G. An Escape key shall return a parameter to the existing value if an adjustment is not required and the value shall be displayed. The Escape function shall also return to a previous menu display.
- H. A Run key and a Stop key shall command a normal start and stop as programmed when the AC Drive is in keypad control mode. The Stop key must be active in all control modes.
- I. A user interface shall be available that is a Windows based personal computer, serial communication link, or detachable graphic display terminal.

- J. Provide keypad on door assembly.

2.11 CONTROL

- A. External pilot devices may be connected to a terminal strip for starting/stopping the AC Drive, speed control, and displaying operating status. All control inputs and outputs shall be software assignable.
- B. The 2-wire or 3-wire control strategy shall be defined within the software. The 2-wire control shall allow automatic restart of the AC Drive without operator intervention after a fault or loss of power. The 3-wire control shall require operator intervention to restart the AC Drive after a fault or loss of power.
- C. The control power for the digital inputs and outputs shall be 120VAC (see drawings).
- D. The internal power supply shall incorporate an automatic current fold-back function that protects the internal power supply if incorrectly connected or shorted. The transistor logic outputs shall be current limited to 220 mA and shall not be damaged if shorted or if excess current is pulled.
- F. All logic connections shall be furnished on pull-apart terminal strips (excludes S-Flex).
- G. There shall be two software assignable analog inputs with interference filtering. The analog inputs shall be software selectable and shall consist of user-defined configurations: x-y mA or x-y V.
- H. There shall be at least four software assignable logic inputs that shall be selected and assigned in the software. The logic input assignments shall consist of forward, reverse, jog, plus/minus speed (two inputs required), setpoint memory, preset speeds (up to eight inputs), auto/manual control, controlled stop, terminal or keypad control, output contactor (two inputs required), motor switching, and fault reset.
- I. There shall be at least one software assignable analog output with interference filtering. The analog outputs can be selected and assigned in the software. The analog output assignments shall be proportional to the following motor characteristics: frequency, current power torque, voltage, and thermal state. The output signal shall be user-defined configurations: x-y mA or x-y V.
- J. Two voltage-free Form C relay output contacts shall be provided. One of the contacts shall indicate AC Drive fault status. The other contact shall be user assignable.
- K. There shall be a hardware input/output extension module that also provides interlocking and sequencing capabilities. The module shall be fully isolated and housed in a finger-safe enclosure with pull-apart terminal strips. The module shall add four logic inputs, two analog inputs, two relay outputs, and one analog output. All of the inputs and outputs shall

be user assignable in the software as previously defined (excludes S-Flex).

- L. The combination enclosure shall have the following optional 22mm door-mounted operators:

- Power On pilot light (Green)
- Drive Run pilot light (Red)
- Drive Fault pilot light (Yellow)
- Hand-Off-Auto selector switch
- Manual speed potentiometer
- Full voltage/VFD selector switch

PART 3 - EXECUTION

3.01 TRAINING

- A. An on-site training course of one training day shall be provided by an authorized representative of the AC Drive manufacturing plant and/or maintenance personnel and quoted as a separate line item.
- B. Square D also to provide two days of start-up services for the new 50 HP VFD (Well 7AW).

END OF SECTION

SECTION 16515

INTERIOR/EXTERIOR LIGHTING FIXTURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 SUMMARY

- A. Extent, location, and details of interior/exterior lighting fixture work are indicated on drawings and in schedules.
- B. Types of interior/exterior lighting fixtures in this section include the following:
 - a. Light emitting diodes (LED's).
 - b. LED's

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instruction on each type interior/exterior building lighting fixture and component.

1.04 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of interior/exterior lighting fixtures of sizes, types and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer's Qualifications: Firms with at least 3 years of successful installation experience on projects with interior/exterior lighting fixture work similar to that required for project.
- C. Codes and Standards:
 - 1. Electrical Code Compliance: Comply with applicable local code requirements of the authority having jurisdiction and NEC Articles 220, 410, and 510 as applicable to installation, and construction of interior/exterior building lighting fixtures.
 - 2. UL Compliance: Comply with UL standards, including UL 486A and B, pertaining to interior lighting fixtures. Provide interior lighting fixtures and components which are UL-listed and labeled.
 - 3. CBM Labels: Provide LED ballasts.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver interior/exterior lighting fixtures in factory-fabricated containers or wrappings, which properly protect fixtures from damage.
- B. Store interior/exterior lighting fixtures in original packaging. Store inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, humidity, laid flat and blocked off ground.
- C. Handle interior/exterior lighting fixtures carefully to prevent damage, breaking, and scoring of finishes. Do not install damaged units or components; replace with new.

1.06 SEQUENCING AND SCHEDULING

- A. Coordinate with other work including wires/cables, electrical boxes and fittings, and raceways, to properly interface installation of interior lighting fixtures with other work.
- B. Sequence interior lighting installation with other work to minimize possibility of damage and soiling during remainder of construction.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products of one of the following (for each type of exterior lighting fixture):

Metalux
Hubbell
Cree
Or Approved Alternate

2.02 FIXTURES

- A. General: Provide lighting fixtures, of sizes, types and ratings indicated; complete with, but not limited to, housings, energy-efficient lamps, lamp holders, reflectors, energy efficient ballasts, starters and wiring. Ship fixtures factory-assembled, with those components required for a complete installation. Design fixtures with concealed hinges and catches, with metal parts grounded as common unit, and so constructed as to dampen ballast generated noise.
- B. Wiring: Provide electrical wiring within fixture suitable for connecting to branch circuit wiring as follows:

NEC Type AF for 120 volt, minimum No. 18 AWG.
NEC Type SF-2 for 277 volt, minimum No. 18 AWG.

C. Lamps:

1. Provide LED lamps of energy saving types, as indicated.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas and conditions under which lighting fixtures are to be installed, and substrate for supporting lighting fixtures. Notify CONTRACTOR in writing of conditions detrimental to proper completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.02 INSTALLATION OF INTERIOR/EXTERIOR LIGHTING FIXTURES

- A. Install interior lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, NECA's "Standard of Installation", NEMA standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.
- B. Provide fixtures and/or fixture outlet boxes with hangers to properly support fixture weight. Submit design of hangers, method of fastening, other than indicated or specified herein, for review by ENGINEER and OWNER.
- C. Install flush mounted fixtures properly to eliminate light leakage between fixture frame and finished surface.
- D. Fasten fixtures securely to indicated structural supports; and ensure that pendant fixtures are plumb and level. Provide individually mounted pendant fixtures longer than 2 feet with twin stem hangers. Provide stem hanger with ball aligners and provisions for minimum one inch vertical adjustment. Mount continuous rows of fixtures with an additional stem hanger greater than number of fixtures in the row.
- E. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Stds 486A and B, and the National Electrical Code.
- F. Support surface mounted fixtures greater than 2 feet in length at a point in addition to the outlet box fixtures stud.

3.03 FIELD QUALITY CONTROL

- A. Replace defective and burned out lamps for a period of one year following the Date of Substantial Completion.
- B. At Date of Substantial Completion, replace lamps in exterior and interior lighting fixtures which are observed to be noticeably dimmed after CONTRACTOR's use and testing, as judged by OWNER and ENGINEER.

3.04 ADJUSTING AND CLEANING

- A. Clean interior lighting fixtures of dirt and construction debris upon completion of installation. Clean fingerprints and smudges from lenses.
- B. Protect installed fixtures from damage during remainder of construction period.

3.05 GROUNDING

- A. Provide equipment grounding connections for interior lighting fixtures as indicated. Tighten connections to comply with tightening torques specified in UL Std 486A to assure permanent and effective grounds.

3.06 DEMONSTRATION

- A. Upon completion of installation of interior lighting fixtures, and after building circuitry has been energized, apply electrical energy to demonstrate capability and compliance with requirements. Where possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.

END OF SECTION

SECTION 16800

SURGE SUPPRESSION, BONDING AND GROUNDING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 SUMMARY

- A. This section describes the requirements for surge suppression devices, bonding and grounding which will be applicable to all electric and electronic systems provided as part of this contract.
- B. Surge suppression devices shall be installed on panels and services which support electrical and electronic circuits which leave the protected confines of a building. However, it is intended that the suppressors will be furnished and installed by the Electrical Contractor installing the panelboards or equipment.
- C. All surge suppression devices connected to electrical power circuits shall be listed by U.L. or CSA, or other safety agency, as appropriate, in accordance with the agency's applicable standards. This requirement is additional to those contained in this section.

1.03 REFERENCE STANDARDS AND PUBLICATIONS

- A. The following standards and specifications are referenced in this section and shall apply:
 - 1. ANSI/IEEE C62.41-1980 (Formerly IEEE 587-1980) Guide for Surge Voltages in Low-Voltage AC Power Circuits. For the purposes of this specification, Category A and B exposures shall be as described, Category C exposure shall be assumed to comprise a combination wave having an open circuit voltage of 20 KV peak with a 1.2x50 microsecond waveshape and a short-circuit current of 10 KA peak with an 8x20 microsecond waveshape.
 - 2. ANSI-IEEE C62.1-1984 Standard for Surge Arrestors for AC Power Circuits.
 - 3. ANSI/IEEE C62.45 Guide for Testing Equipment Connected to Low-Voltage AC Power Circuits.
 - 4. ANSI/IEEE C62.33-1982 Standard for Test Specifications for Varistor Surge Protective Devices.

5. ANSI/IEEE C62.31-1977 Standard Test Specifications for Gas Tube Surge Protective Devices.
6. ANSI/IEEE Standard 81-1983 Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.
7. Underwriters Laboratories, Standard for Safety, U.L. 1449, Transient Voltage Surge Suppressors.
8. ANSI/NFPA 78-1986 Lightning Protection Code.

1.04 SYSTEM PERFORMANCE CRITERIA

- A. The surge suppression, bonding and grounding required in this specification for the protection of electrical and electronic systems shall effectively protect the systems to which it is applied against transient surges caused by lightning and other causes throughout the useful life of the system. The connection of the required protective devices, bonds and grounds shall neither impair nor interrupt the normal operation of any electrical or electronic system.
- B. The chassis of all equipment in a sub-system shall be bonded to each other and to the ground terminals of the suppressors protecting the equipment by a short low-impedance connection. Connection of this bonded ground shall also be made to the electrical ground conductor (green wire) serving the equipment, to the metal frame of the building, and to any continuous metallic cold-water pipe.

1.05 SURGE SUPPRESSOR MANUFACTURER QUALIFICATIONS

- A. Surge suppressors shall be manufactured by a company normally engaged in the design, development, and manufacture of such devices, and has been in business for at least 5 years.
- B. The suppressor manufacturer shall offer factory repair service for all units, which will include replacement for non-repairable sealed units.
- C. Acceptable manufacturers:

Leviton Manufacturing Company, Little Neck, New York
Advanced Protection Technology, Clearwater, Florida
Edco Company, Ocala, Florida
Or Approved Alternate

1.06 SUBMITTALS

- A. Surge suppressors shall be submitted as an integral part of the submittal for the sub-system or equipment which they protect. Surge suppressors, their wiring, bonding, and grounding connections shall be shown the drawings by sub-system.
- B. The surge suppression submittal shall also include the following:
 - 1. Complete manufacturer's data for each suppressor indicating part numbers and rated voltages and current.
 - 2. Dimensions for each suppressor type, including mounting arrangement and required hardware.
 - 3. Conductor types, sizes, and permitted wiring arrangement.
 - 4. Manufacturer's test data certified by a Registered Professional ENGINEER showing that the proposed suppression equipment can meet or exceed the requirements of this specification.

1.07 WARRANTY

- A. Surge suppression devices and assemblies shall be guaranteed by the installing CONTRACTOR to be free of defects in materials and workmanship for a period of one year from the date of completion of the sub-system to which the suppressor is attached.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. Suppressors shall be installed at subpanels serving sensitive electronic loads at all communications closets and main communications room.
- B. Suppressors shall be installed as close as practicable to the equipment, switchboard or panelboard being protected in such a way as to minimize connecting lead length. Suppressor leads shall not extend beyond either the manufacturer's recommended length or three feet, whichever is less, without approval.
- C. Where continuity of suppressor function is necessary, the active surge suppressor elements shall be housed in easily-removed plug-in field-replaceable modules.
- D. In configurations provided with a system neutral (single phase and multi-phase wye systems), the suppressors used shall provide active elements between each phase conductor and neutral and between neutral and ground. The suppressor element

connected between neutral and ground may be omitted at points where the neutral and ground conductors are bonded (i.e. the service entrance and any separately derived power source where this bond exists).

- E. In configurations not provided with a system neutral (multi-phase delta systems), the suppressors used shall provide active elements both between phases and between each phase and ground.

2.02 SUPPRESSORS FOR BRANCH PANELS

- A. Suppressors for use at branch panels shall be as follows:
 - 1. Provide APT TE1/HP or approved alternate panel suppressor (NEMA 4X enclosure) – 120/240V, single phase, HWA 50K SPD.

2.03 SUPPRESSORS AT MAIN PANEL

- A. Suppressors for use at service entrance shall be as follows:
 - 1. Provide APT TE4/HP or approved alternate for service entrance suppressor (NEMA 4X enclosure) – 480V, three phase, HWA 120K SPD.
- B. Suppressors at flowmeter/pressure meters shall be as follows: EDCo - SLAC surge suppressor or approved alternate – 120 volts.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Surge suppressors shall be installed in accordance with all applicable national, state or local wiring codes. They shall be installed as close as practicable to the equipment to be protected. Panelboard or switchboard mounted suppressors shall be connected to the service by means of suitably rated circuit breakers or a disconnect switch. The location of surge suppressors shall be located on the same side of the panel as the circuit breaker feeding the arrestor.
- B. Where no code restrictions apply, the suppressor may be installed inside the equipment cabinet. Suppressor ground connectors should be attached to equipment chassis by conductors of #4 to #10 AWG copper wire no longer than 6 inches. Bolted connections with star washers are preferred to ensure electric continuity of connections.
- C. Bonding conductors between AC power and data-communication suppressors within any protected sub-system shall be of #4 to #10 AWG copper wire and be kept as short as

possible. Wherever practicable, all suppressors protecting a sub-system shall be located together to minimize ground-bonding conductor length.

- D. It is recommended to install suppressors serving a piece of equipment or sub-system on a common metallic ground plane. This arrangement serves as a low-impedance connection for all the surge suppressor and equipment grounds.

END OF SECTION

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SECTION 16900

SHORT-CIRCUIT/COORDINATION STUDY/ARC FLASH HAZARD ANALYSIS

PART 1 - GENERAL

1.01 SUMMARY

- A. The CONTRACTOR shall furnish short-circuit and protective device coordination studies as prepared by the electrical equipment manufacturer or an approved engineering firm.
- B. The CONTRACTOR shall furnish an Arc Flash Hazard Analysis Study per the requirements set forth in NFPA 70E-Standard for Electrical Safety in the Workplace. The arc flash hazard analysis shall be performed according to the IEEE 1584 equations that are presented in NFPA 70E-2004, Annex D.

1.02 REFERENCES

- A. Institute of Electrical and Electronics Engineers, Inc. (IEEE):
 - 1. IEEE 141 – Recommended Practice for Electric Power Distribution and Coordination of Industrial and Commercial Power Systems.
 - 2. IEEE 242 – Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems.
 - 3. IEEE 399 – Recommended Practice for Industrial and Commercial Power System Analysis.
 - 4. IEEE 241 – Recommended Practice for Electric Power Systems in Commercial Buildings.
 - 5. IEEE 1015 – Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems.
 - 6. IEEE 1584 – Guide for Performing Arc-Flash Hazard Calculations.
- B. American National Standards Institute (ANSI):
 - 1. ANSI C57.12.00 – Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers.
 - 2. ANSI C37.13 – Standard for Low Voltage AC Power Circuit Breakers Used in Enclosures.

3. ANSI C37.010 – Standard Application Guide for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis.
 4. ANSI C37.41 – Standard Design Tests for High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories.
- C. The National Fire Protection Association (NFPA):
1. NFPA 70 – National Electrical Code, latest edition.
 2. NFPA 70E – Standard for Electrical Safety in the Workplace.

1.02 SUBMITTALS FOR REVIEW/APPROVAL

- A. The short-circuit and protective device coordination studies shall be submitted to the Design ENGINEER prior to receiving final approval of the distribution equipment shop drawings and/or prior to release of equipment drawings for manufacturing. If formal completion of the studies may cause delay in equipment manufacturing, approval from the ENGINEER may be obtained for preliminary submittal of sufficient study data to ensure that the selection of device and characteristics will be satisfactory.

1.03 SUBMITTALS FOR CONSTRUCTION

- A. The results of the short-circuit, protective device coordination and arc flash hazard analysis studies shall be summarized in a final report. No more than five (5) bound copies of the complete report shall be submitted.
- B. The report shall include the following sections:
1. Executive summary.
 2. Descriptions, purpose, basis and scope of the study.
 3. Tabulations of circuit breaker, fuse and other protective device ratings versus calculated short-circuit duties.
 4. Protective device time versus current coordination curves, tabulations of relay and circuit breaker trip unit settings, fuse selection.
 5. Fault current calculations including a definition of terms and guide for interpretation of the computer printout.
 6. Details of the incident energy and flash protection boundary calculations.
 7. Recommendations for system improvements, where needed.

8. One-line diagram.
- C. Arc flash labels shall be provided in hard copy only.
- D. Electrical equipment to be studied and labeled for this project (including any other equipment deemed necessary by the ENGINEER):

New circuit breakers
New 480 volt panel – 7AW control cabinet, 480 volts
New variable frequency drive (50 HP)
Existing breakers/fuses in existing Florida Power & Light service feeders

1.04 QUALIFICATIONS

- A. The short-circuit, protective device coordination and arc flash hazard analysis studies shall be conducted under the supervision and approval of a Registered Professional Electrical Engineer skilled in performing and interpreting the power system studies.
- B. The Registered Professional Electrical Engineer shall be a full-time employee of the equipment manufacturer or an approved engineering firm.
- C. The Registered Professional Electrical Engineer shall have a minimum of five (5) years of experience in performing power system studies.
- D. The equipment manufacturer or approved engineering firm shall demonstrate experience with arc flash hazard analysis by submitting names of at least two (2) actual arc flash hazard analyses it has performed in the past year.

1.05 COMPUTER ANALYSIS SOFTWARE

- A. The studies shall be performed using the latest revision of the SKM Systems Analysis Power Tools for Windows (PTW) software program.

PART 2 - PRODUCTS

2.01 STUDIES

- A. CONTRACTOR to furnish short-circuit and protective device coordination studies as prepared by equipment manufacturer or an approved engineering firm.
- B. The CONTRACTOR shall furnish an Arc Flash Hazard Analysis Study per NFPA 70E – Standard for Electrical Safety in the Workplace, reference Article 130.3 and Annex D.

PART 3 - EXECUTION (NOT USED)

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SECTION 17000

INSTRUMENTATION AND CONTROL SYSTEM

PART 1 – GENERAL

1.01 SCOPE

- A. The CONTRACTOR shall provide, through the services of an instrumentation and control system subcontractor, all components, system installation services, as well as, all required and specified ancillary services in connection with the Instrumentation, Control, and Information System. The System includes all materials, labor, tools, fees, charges, and documentation required to furnish, install, test, and place in operation a complete and operable instrumentation, control, and information system as shown and/or specified. The system shall include all measuring elements, signal converters, transmitters, local control panels, digital hardware and software, signal and data transmission systems, interconnecting wiring and such accessories as shown, specified, and/or required to provide the functions indicated.
- B. The work to be performed under this specification shall include all of the Instrumentation and Control Systems required for a new 50 HP Submersible Well 7AW. As shown on drawings, CONTRACTOR shall install a system to interface with the City of Venice existing Scada/communications network. Control Instruments, Inc. to install new conduit/wire/instruments/VFD, and other communications/controls.
- C. The scope of the work to be performed under this Division includes but is not limited to the following:
 1. The CONTRACTOR shall, in partnership with the instrumentation subcontractor and the OWNER, retain overall responsibility for the instrumentation and control system as specified herein.
 2. The CONTRACTOR shall be responsible to configure, test, and place in operation a new upgraded RTU controller.
 3. The CONTRACTOR shall be responsible for supplying the hardware/software and instruments specified.
 4. Furnish and install as applicable, new fiber optic cables, CAT 5E cable and copper cable, as required to support communication on the PLC/RTU.
 5. Furnish and install field local control panels as shown on the site plan and installation details.

6. Furnish and install PLC and Instrument Power panels at the following location:
 - a) Well 7AW
 7. Coordinate all field communications with vendors and their respective supplied equipment, PLC's, VFD's, RVSS's, RTU's, etc. Provide connection to 50 HP Square D Altivar VFD (furnished by Square D Company – see Section 16485).
 8. Final termination and testing of all instrumentation and control system wiring, including all terminations between field instruments, local control panels, and consoles.
 9. Furnish and install analog and digital control system hardware and software as specified, and shown on the drawings. See 480 volt Drive #1 VFD control panel. Provide UL 508A listed panels (Well 7AW and existing RTU).
 10. Final termination and testing of all instrumentation and control system signal wiring and power supply wiring (conduit and wire) at all equipment furnished under this Division.
 11. Furnish, install, and terminate all special cables (instruments, printers, etc.), chart recorders, and furnish and terminate data highway network cables. Provide flow and pressure inputs/outputs to the RTU system.
 12. Furnish and install transient voltage surge suppression systems for all analog and digital equipment, local control panels and instrumentation provided under this Division, including connections to grounding system provided under Division 16.
 13. Coordinate grounding requirements with the electrical subcontractor for all analog and digital equipment, local control panels and instrumentation provided under this Division. Terminate grounding system cables at all equipment provided under this Division.
 14. Provide system testing, calibration, training, and start-up services as specified herein and as required to make all systems fully operational. Provide two day training and testing of hardware and software for this project.
- D. It is the intent of the Contract Documents to construct a complete and working installation (turnkey). Items of equipment or materials which may reasonably be assumed as necessary to accomplish this end shall be supplied whether or not they are specifically stated herein.

- E. CONTRACTOR to retain the services of C2I (Control Instruments, Inc., Smyrna, Georgia) to install and make operational the existing/new control/instrumentation RTU system as described above. Instrumentation CONTRACTOR/Integrator to install and connect the existing RTU control cabinet. Coordinate all instrumentation and control work with C2I. General CONTRACTOR to provide a bid pay item for the instrumentation and control portion of this project. Provide a complete and operational control system, integrating new and existing control devices. CONTRACTOR to install and connect the VFD Well 7AW cabinet.

1.02 GENERAL INFORMATION AND DESCRIPTION

- A. Where manufacturers are named for a particular item of equipment, it is intended as a guide to acceptable quality and performance and does not exempt such equipment from the requirements of these specifications or drawings.
- B. All control and instrumentation equipment specified on drawings shall be installed as shown. Installing CONTRACTOR shall be as follows:
 - 1. Approved System Integrator:
 - a. C2I, Smyrna, Georgia (Tele. 404/351-1085), Mr. Tony Cupolo – No Substitutes – Existing instrumentation and control installed, maintained, and updated by C2I.

Note: All new control and instrumentation additions shall be completely compatible with the existing C2I Control System on site.

- b. Instrumentation and Control CONTRACTOR to provide two days of start-up testing services for the new and existing RTU panel.

END OF SECTION

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CITY OF VENICE PROCUREMENT- FINANCE DEPARTMENT

401 W. VENICE AVE. - ROOM # 204
VENICE, FL. 34285 (941) 486-2626
FAX (941) 486-2790

ADDENDUM NO. 1

Date: April 12, 2016

To: All Prospective Bidders

Re: ITB# 3027-16 Replacement Well 7A

This addendum sets forth changes and/or information as referenced and is hereby made part of and should be attached to the subject Contract Documents. Receipt of this Addendum shall be acknowledged below and in the submitted proposal. It shall be the responsibility of each proposer, prior to submitting a proposal, to contact the City of Venice- Procurement- Finance Department to determine if addenda were issued and to make such addenda a part of their proposal.

The following is to clarify and provide additional information requested during the pre-bid meeting held March 31, 2016 at 2:00 P.M.

Summary:

Peter Boers, Procurement Manager, opened the meeting

1. **Important dates:** Bids are due April 21, 2016 at 2:00 p.m. at City Hall room #204. Bids are to be delivered to Suite 204 in City Hall. The bid opening will take place in the Community Hall (room #114).
2. The Cut-Off for questions will be April 12, 2016 at 1:00 PM
3. Mr. Boers advised the bidders to read through *Instructions to Bidders*, but made note of the following Articles.
 - Article 10 Bid Security - 5% Bid Security is required.
 - Article 11 Contract Times – time to completion is 198 days from NTP.
 - Article 12 Liquidated Damages - Mr. Boers advised that the stipulated damages for this project are \$1532 per day.

- Article 23 Contract Securities - The awarded contractor will be required to provide a Performance and Payment Bond equaling 100% of the contact amount. **EXHIBIT A**
 - Article 24 Contractors Insurance -Mr. Boers reviewed **EXHIBIT C: Insurance Requirements**.
 - General Liability -\$1,000,000 per occurrence
 - Business Auto Liability - \$1,000,000 combined single limit
 - Worker’s Comp per State Statute
 - Builders’ Risk Installation Coverage to be provided prior to Notice to Proceed
 - Article 29 Local Preference – Local preference is not applicable to this bid.
4. Mr. Boers reviewed the required forms that must be returned with each firm’s submittal. These required forms are listed in the Appendix of the bid document. Mr. Boers advised, even if a form does not pertain to said company - to still mark it with a “N/A” and return it with each submittal. Mr. Boers also advised that the *Required Forms List* could be used as a “check off” sheet for firms to use.
 5. Bidders are asked to complete and return the *Bidder’s Qualification Statement* with their bid.
 6. Mr. Peter A. Boers reviewed the SRF requirements and distributed the attached handout.

Bidders were advised to read through the FDEP Supplementary Conditions included in the bid package. Bidders are responsible for all of the requirements. **We are only outlining some of the Key Points:**

- FDEP/EPA/DOL – Access to Project Records and Project Sites
- Disadvantaged Business Enterprises: 5% Minority Business Enterprise/5% Women’s Business Enterprise
- **Must** show good faith effort: Read the Supplementary Conditions to review the efforts
- Debarment & Suspension – Certification page is included in the bid document, but will also need to check and verify all subcontractors.
- Equal Employment Opportunity – FDEP page 6-11 (MUST READ CAREFULLY) applies to Prime and all subcontractors.
- Immigration Reform and Control Act: The Contractor shall use the US Department of Homeland Security’s E-Verify
- Employment Eligibility Verification System to verify the employment eligibility of:
 - All new employees, during the term of this Agreement, to perform employment duties within the Florida; and
 - All new employees (including subcontractors and sub recipients) assignment by the Contractor to perform work pursuant to this Agreement.
- Federal Labor Standards Provisions – Davis-Bacon Act – Wage Decision – www.wdo.gov – up to 10 days prior must verify there have not been any updates and if the wage decision changes you must use the new updated wage decision. (1/8/2016 for Highway and 1/15/2016 for Heavy are the most current)

- Select DBA WD's – Select – State/County/WD Number (Highway – Heavy) Please note when using two different wage decisions that have several duplicate job classifications you will either have to submit two separate certified payrolls weekly (one for Heavy and one for Highway) or one certified payroll but use the highest rate and fringe for the job classifications. This applies to the Prime and all subcontractors. The Prime contractor is responsible to review all subcontractors certified payrolls for accuracy.
- American Iron and Steel Provisions – www.epa.gov/cwsrf/state-revolving-fund-american-iron-and-steel-aisrequirement
AIS Training Material – All manufacturing processes, including application of coatings, must take place in the US. All manufacturing processes includes processes such as melting, refining, forming, rolling, drawing, finishing, fabricating and coating must take place in the US. Primarily Iron or Steel – Listed products must be made of greater than 50% Iron and Steel, Measured by Cost.
- Appendix A: Certification of Compliance
Debarment and Suspension – Equal Employment Opportunity – Immigration Reform and Control Act – Environmental Compliance – Federal Labor Standards – American Iron and Steel

7. Mr. Kevin Dorsey, the City's consulting Engineer from Atkins, reviewed the scope of work and provided a brief overview of the project.

Mr. Boers opened the floor for bidder's questions. He advised the attendee's to follow up in writing if they do not see an answer to their question published in an addendum and to not assume a change is in effect unless published in an addendum.

QUESTIONS AND ANSWERS:

Question: E-5 shows (2) lockable 5 amp breakers one inside transformer 1 and one before transformer 1, E-1 shows only the breaker internal to transformer 1. Please clarify.

Response: Provide the lockable 5 amp M-2 Main Breaker at the tap as shown on Sheet E-5. The 5 amp breaker inside transformer 1 should be deleted.

Question: E-3 labels the Well 7AW control panel as existing. Please clarify.

Response: The RTU Control Panel on Sheet E-3 should be noted as existing. See the demolition plan on Sheet 4, note 2 indicating the existing communications panel is to be relocated to the new well site. The well 7AW Control Panel shall be a new panel provided by the contractor as detailed on Sheet E-4

REVISION:

Paragraphs 2.01, C and 2.03, E were revised to remove references to an air conditioner and replaced with a thermostatically controlled fan. A revised Section 16485 has been attached to this addendum.

Peter A. Boers
Procurement Department

Acknowledgment is requested even if you have elected not to respond to this bid. A designated management representative of your firm can sign the receipt for this addendum. Please acknowledge receipt of this addendum immediately by fax to (941) 486- 2790 or mail to the above noted address, if a fax is not possible.

Receipt Acknowledged:

Signature

Company

Date

HELPFUL LINKS:

- **American Iron and Steel (AIS)**

<http://www.epa.gov/cwsrf/state-revolving-fund-american-iron-and-steel-ais-requirement>

<http://www.epa.gov/cwsrf/american-iron-and-steel-requirement-guidance-and-questions-and-answers>
(Question and Answers)

http://www.epa.gov/sites/production/files/2015-09/documents/aiswebcast_04-30-14_final.pdf (Initial Webinar 2014)

http://www.epa.gov/sites/production/files/2015-09/documents/webcast-final-feb-2015_final-edits-for-web.pdf (Refresher Webinar 2015)

- **Wage Determinations Online**

www.wdol.gov

Selecting DBA WD's

<http://www.wdol.gov/dba.aspx>

Selection Criteria: State/County/Construction Type

- **E-Verify**

<http://www.uscis.gov/e-verify>

- **System for Award Management (SAM)**

<https://www.sam.gov/portal/SAM/#1>

Search Records

SECTION 16485

ENCLOSED ADJUSTABLE FREQUENCY DRIVES (1 – 500 HP)

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract apply to this and other sections of Division 16.

1.02 SCOPE OF WORK

- A. This section provides specification requirements for adjustable frequency drives or variable speed drives (identified herein as AC Drives) for use with NEMA MG31 inverter-duty motors or with NEMA asynchronous Design B motors having an appropriate output filter.
- B. The manufacturer shall furnish, field test, adjust, and certify all installed AC Drives for satisfactory operation.
- C. Any exceptions or deviations to this specification shall be indicated in writing and submitted with the quotation.

1.03 SUBMITTALS

- A. Six (6) copies of the approval drawings shall be furnished for the ENGINEER's approval prior to factory assembly of the AC Drives. These drawings shall consist of elementary power and control wiring diagrams and enclosure outline drawings. The enclosure drawings shall include front and side views of the enclosures with overall dimensions and weights, conduit entrance locations, and nameplate legends.
- B. Standard catalog sheets shall be furnished for each different horsepower rated AC Drive, showing voltage, horsepower, maximum current ratings, and recommended replacement parts with part numbers.
- C. A harmonic distortion analysis shall be performed by the manufacturer based on documentation supplied by the CONTRACTOR. The engineering documentation shall consist of one-line diagrams, utility short circuit information, distribution transformer information (kVA, %Z, and X/R ratio) and emergency standby generator (kW and subtransient reactance) data if applicable.

1.04 WARRANTY

- A. An 18 month parts warranty shall be provided on materials and workmanship from the date of invoice from an authorized distributor.

1.05 QUALITY ASSURANCE

- A. The manufacturer of the AC Drive shall be a certified ISO 9001 facility.
- B. The AC Drive and all associated optional equipment shall be UL Listed according to UL 508C Power Conversion Equipment or UL 508A Industrial Control Panel. A UL label shall be attached inside each enclosure as verification.
- C. The AC Drive shall be designed, constructed, and tested in accordance with UL, CSA, NEMA, IBC, ASCE/SEI 7, and NEC standards.
- D. Every power converter shall be quality assurance tested with an AC induction motor under load conditions and subjected to a dielectric voltage-withstand test, with all enclosed devices mounted and wired, prior to shipment.
- E. Quality assurance documentation shall be furnished to verify successful completion upon written request of the ENGINEER.

PART 2 - PRODUCT

2.01 MANUFACTURERS

- A. The AC Drive shall be provided by Schneider Electric and shall be an Altivar ATV 61 (no substitutes).
- B. Alternate control techniques, other than pulse width modulated (PWM) control, are not acceptable.
- C. Complete VFD #1 with full voltage bypass and cooling fan by Schneider Electric. Provide UL 508A rating for the completed VFD control cabinet.

2.02 GENERAL DESCRIPTION

- A. The AC Drive shall convert the input AC mains power to an adjustable frequency and voltage as defined below and indicated on the drawings or motor control schedules.
 - 1. For AC Drives rated up to 500 HP, the AC Drive manufacturer shall use a 6-pulse bridge rectifier design with line reactors. The diode rectifiers shall convert fixed voltage and frequency, AC line power to fixed DC voltage. The power section shall be insensitive to phase rotation of the AC line. Provide line reactors on each VFD with minimum percentage impedance or as recommended by the manufacturer.

2.03 CONSTRUCTION

- A. The AC Drive shall be mounted in a Type 4X, 304 Stainless Steel enclosure with an

externally operated disconnect device.

- B. A mechanical interlock shall prevent an operator from opening the AC Drive door when the disconnect is in the On position. Another mechanical interlock shall prevent an operator from placing the disconnect in the On position while the AC Drive door is open. It shall be possible for authorized personnel to defeat these interlocks.
- C. Provisions shall be made for locking all disconnects in the Off position. Provisions for additional padlocking shall be made by the customer using an approved lockout/tagout device.
- D. Provisions shall be made for accepting a padlock to lock the enclosure door.
- E. Provide ventilated thermostat control that operates on fan 120 volts. Unit to be sized to maintain temperature and humidity control within operating temperature range listed below (see 2.06 Environmental Ratings).
- F. Panel to be unistrut mounted with internal dead front panel for controls.

2.04 MOTOR DATA

- A. The AC Drive shall be sized to operate the following AC motors and shall be defined to match the load schedules and the type of connections used between the motor and the load, such as a direct connection or a power transmission connection:
 - 1. Motor horsepower rating(s) – see motor control schedules.
 - 2. Motor full load ampere ratings coordinated to NEC 2005 Table 430-250.

2.05 APPLICATION DATA

- A. The AC Drive shall be sized to operate a variable torque load.
- B. The speed range shall be from a minimum speed of 0.1 Hz to a maximum speed of 60, 200 Hz.

2.06 ENVIRONMENTAL RATINGS

- A. The AC Drive shall meet IEC 60664-1 and NEMA ICS-1 Annex A standards.
- B. The AC Drive shall be designed to operate in an ambient temperature of -10 to +40 degrees C (+14 to 104 degrees F). Type 3R shall be designed to operate from -10 to +50 degrees C (+14 to 122 degrees F).
- C. The maximum relative humidity shall be 95% at 40 degrees C (104 degrees F), non-condensing with no dripping water, conforming to IEC 60068-2-3.

2.07 RATINGS

- A. The AC Drive shall be designed to operate from an input voltage of 460 VAC plus or minus 10%.
- B. The AC Drive shall operate from an input voltage frequency range of 47 – 63 Hz.
- C. The displacement power factor shall not be less than 0.95 lagging under any speed or load condition.
- D. The efficiency of the AC Drive at 100% speed and load shall typically not be less than 96%. Efficiency shall vary with the power rating of the AC Drive.
- E. The variable torque rated AC Drive overcurrent capacity shall be 110% for one minute.
- F. The output carrier frequency of the AC Drive shall be randomly modulated depending on the Drive rating for low noise operation. No AC Drive with an operable carrier frequency above 16 kHz shall be allowed.
- G. The output frequency shall be from 0.1 – 200 Hz.
- H. The AC Drive shall develop rated motor torque at 0.5 Hz (60 Hz base) in a sensorless flux vector (SVC) mode using a standard induction motor without an encoder feedback signal.

2.08 PROTECTION

- A. Upon power-up, the AC Drive shall automatically test for valid operation of memory, valid operation of option module, loss of analog reference input, loss of communication, dynamic brake failure, DC to DC power supply, control power, and the pre-charge circuit.
- B. The AC Drive shall be UL Listed according to UL 508C for use on distribution systems with 100,000 A available fault current. The AC Drive shall have a coordinated short circuit rating designed to UL 508C and listed on the nameplate. UL 508A industrial panels shall be rated per the specification of the customer.
- C. The AC Drive shall have protection against short circuits, protection between output phases and ground; and protection between the logic and analog outputs.
- D. The AC Drive shall have minimum AC undervoltage power loss ride-through of 200 milliseconds. The AC Drive shall have the user-defined option of frequency fold-back to allow motor torque production to continue to increase the duration of the power loss ride-through (excludes ATV21 S-Flex).
- E. The AC Drive shall have a selectable ride-through function that shall allow the logic to maintain control for a minimum of one second without faulting.

- F. The AC Drive shall have an auto restart function that shall provide programmable restart attempts for a fault condition other than a ground fault, short circuit, or internal fault condition. The programmable time delay before restart attempts shall be unlimited.
- G. The AC Drive shall have a programmable deceleration mode for normal and fault conditions. The stop modes shall include freewheel stop, fast stop, and DC injection braking.
- H. Upon loss of the analog process follower reference signal, the AC Drive shall enter a tripped condition and/or operate at a user-defined speed set between software programmed low-speed and high-speed settings.
- I. The AC Drive shall have solid state I²t protection that is UL Listed and meets UL 508C as a Class 10 overload protection and meets IEC 60947. The minimum adjustment range shall be from 20 – 150% of the nominal output current rating of the AC Drive.
- J. A thermal switch with a user selectable pre-alarm shall provide the AC Drive with a minimum of 60 seconds delay before over temperature fault.
- K. The heatsink shall have bonded fin, molded, or block-milled construction for maximum heat transfer.
- L. The AC Drive shall have a fold-back function that shall automatically anticipate a controller overload condition and fold back the frequency to avoid a fault condition.
- M. The output frequency of the AC Drive shall be software enabled to fold back when the motor is overloaded.
- N. There shall be three skip frequency ranges with hysteresis adjustment that can each be programmed independently, back to back, or overlapping.

2.09 ADJUSTMENTS AND CONFIGURATIONS

- A. The AC Drive shall self-configure to the main operating supply voltage and frequency. Operator adjustments shall not be required.
- B. Upon power up, the AC Drive shall automatically send a signal to the connected motor. The stator resistance data shall be measured at rated current. The AC Drive shall automatically optimize the operating characteristics according to the stored data.
- C. The AC Drive shall be factory preset to operate most common applications.
- D. A choice of at least two types of acceleration and deceleration ramps shall be available in the AC Drive software: linear and S curve. Other product specific curves may be available.

- E. The acceleration and deceleration ramp times shall be adjustable from 0.01 to at least 3,200 seconds.
- F. The volts per hertz ratios shall be user selectable to meet variable torque loads, normal, and high-torque machine applications.

2.10 GRAPHIC DISPLAY TERMINAL INTERFACE

- A. The graphic display terminal shall provide 8 lines of 240 by 160 pixels (in English) to control, adjust, and configure the ATV61 AC Drive. All electrical values, bar charts, configuration parameters, I/O assignments, application and activity functions, faults, local control, adjustment storage, self-test, and diagnostics shall be accessible through the terminal interface. There shall be a standard selection of six additional languages built into the operating software.
- B. The AC Drive model number, torque type, software revision number, horsepower, output current, motor frequency, and motor voltage shall be listed on the drive identification display as viewed on the graphic display terminal.
- C. At a minimum, the selectable outputs shall consist of speed reference, output frequency, output current, motor torque, output power, output voltage, line voltage, DC voltage, motor thermal state, drive thermal state, elapsed time, motor speed, machine speed reference,, and machine speed.
- D. The graphic display terminal shall consist of programmable function keys. The functions shall allow both operating commands and programming options to be preset by the operator. A hardware selector switch shall lock out the graphic display terminal from unauthorized personnel.
- E. The graphic display terminal shall offer a simple to advanced user menu consisting of parameter setting, I/O map, fault history, and drive configuration. A software lock shall limit access to the main menu.
- F. The navigation scheme shall provide the ability to scroll through menus and screens, select or activate functions, or change the value of a selected parameter.
- G. An Escape key shall return a parameter to the existing value if an adjustment is not required and the value shall be displayed. The Escape function shall also return to a previous menu display.
- H. A Run key and a Stop key shall command a normal start and stop as programmed when the AC Drive is in keypad control mode. The Stop key must be active in all control modes.
- I. A user interface shall be available that is a Windows based personal computer, serial

communication link, or detachable graphic display terminal.

- J. Provide keypad on door assembly.

2.11 CONTROL

- A. External pilot devices may be connected to a terminal strip for starting/stopping the AC Drive, speed control, and displaying operating status. All control inputs and outputs shall be software assignable.
- B. The 2-wire or 3-wire control strategy shall be defined within the software. The 2-wire control shall allow automatic restart of the AC Drive without operator intervention after a fault or loss of power. The 3-wire control shall require operator intervention to restart the AC Drive after a fault or loss of power.
- C. The control power for the digital inputs and outputs shall be 120VAC (see drawings).
- D. The internal power supply shall incorporate an automatic current fold-back function that protects the internal power supply if incorrectly connected or shorted. The transistor logic outputs shall be current limited to 220 mA and shall not be damaged if shorted or if excess current is pulled.
- F. All logic connections shall be furnished on pull-apart terminal strips (excludes S-Flex).
- G. There shall be two software assignable analog inputs with interference filtering. The analog inputs shall be software selectable and shall consist of user-defined configurations: x-y mA or x-y V.
- H. There shall be at least four software assignable logic inputs that shall be selected and assigned in the software. The logic input assignments shall consist of forward, reverse, jog, plus/minus speed (two inputs required), setpoint memory, preset speeds (up to eight inputs), auto/manual control, controlled stop, terminal or keypad control, output contactor (two inputs required), motor switching, and fault reset.
- I. There shall be at least one software assignable analog output with interference filtering. The analog outputs can be selected and assigned in the software. The analog output assignments shall be proportional to the following motor characteristics: frequency, current power torque, voltage, and thermal state. The output signal shall be user-defined configurations: x-y mA or x-y V.
- J. Two voltage-free Form C relay output contacts shall be provided. One of the contacts shall indicate AC Drive fault status. The other contact shall be user assignable.
- K. There shall be a hardware input/output extension module that also provides interlocking and sequencing capabilities. The module shall be fully isolated and housed in a finger-safe

enclosure with pull-apart terminal strips. The module shall add four logic inputs, two analog inputs, two relay outputs, and one analog output. All of the inputs and outputs shall be user assignable in the software as previously defined (excludes S-Flex).

- L. The combination enclosure shall have the following optional 22mm door-mounted operators:

- Power On pilot light (Green)
- Drive Run pilot light (Red)
- Drive Fault pilot light (Yellow)
- Hand-Off-Auto selector switch
- Manual speed potentiometer
- Full voltage/VFD selector switch

PART 3 - EXECUTION

3.01 TRAINING

- A. An on-site training course of one training day shall be provided by an authorized representative of the AC Drive manufacturing plant and/or maintenance personnel and quoted as a separate line item.
- B. Square D also to provide two days of start-up services for the new 50 HP VFD (Well 7AW).

END OF SECTION