

SPECIFICATIONS AND CONTRACT DOCUMENTS

FOR

SABINE RIVER AUTHORITY



GULF COAST DIVISION
E. WYNN SIPHON REPLACEMENT
RFB #24-0201

Prepared by:

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INVITATION TO BIDDERS

Sealed bids addressed to the Sabine River Authority (SRA) will be received until 2:00 pm on Tuesday, October 10, 2023, for furnishing necessary materials, equipment, superintendence and labor for Sabine River Authority, Gulf Coast Division, E. Wynn Siphon Replacement generally described as the replacement of an existing inverted siphon structure known as E. Wynn Siphon. Project includes earthwork, steel pipe fabrication and installation, and structural concrete elements in a rural location.

Bids will be received at the office of the Sabine River Authority's Gulf Coast Pump Station, at 1922 I-P Way, Orange, TX 77632. The bids will be publicly opened and read at said location at the time set forth above. There will be a **mandatory** pre-bid conference with the Engineer, Owner, and Prospective Bidders at 2:00 pm on Tuesday, October 3, 2023 at the address above.

Please submit questions related to the design of the project through CivCastUSA website or to the project engineer of record at LJA Engineering, Inc. or to purchasing@sratx.org

Project Engineer
Calvin D. Prosen, PE
409/554-8978
cprosen@lja.com

The right is reserved by the SRA, as its interest may require, to accept or reject any or all bids, and to waive any informality in the bids received.

Bidding Documents are on file at www.civcastusa.com and on the SRA website at sratx.org under doing business "bid opportunities". There is no cost to view the plans and printing can be done through the website. Hard copies of Bidding Documents will not be sold. 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 available on the above terms, do so only for the purpose of obtaining Bids for the Work, and do not confer a license or grant for any other purpose.

Bid Security, only in the form of: 1) a certified or cashier's check drawn on a Texas bank and made payable to the SRA; or 2) a bond executed by a surety company authorized to do business in Texas, in the amount of not less than five (5%) percent of the total bid, must accompany each bid at the time it is submitted. Bids must be submitted in duplicate.

Contractors for this project must pay no less than the prevailing wage rates for the area established by the Owner and included in the Contract Documents.

Bids may be held by the SRA for a period not to exceed 60 days from the date of the bid opening for the purpose of reviewing the bids and investigating the bidder's qualifications prior to the contract award.

Upon award, the successful bidder will be required to furnish payment and performance bonds.

Sabine River Authority of Texas

Dates: First Publication, September 21, 2023
Second Publication, September 28, 2023

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:
- A. *Issuing Office* – Bidding Documents are on file at www.civcastusa.com. There are no costs to view the plans and printing can be done through the website. Hard copies of the Bidding Documents will not be sold. Bid Documents were prepared by LJA Engineering at 2615 Calder Avenue, Suite 500, Beaumont, Texas 77702.
 - B. *Bidder* - one who submits a Bid directly to OWNER as distinct from a sub-bidder, who submits a bid to a Bidder.
 - C. *Successful Bidder* - the lowest, responsible and responsive Bidder to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the advertisement or invitation to bid may be obtained from the Issuing Office. The deposit is non-refundable.
- 2.02 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.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as called for in the Statement of Bidder Qualifications. Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.
- 3.02 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

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

- 4.01 *Subsurface and Physical Conditions*
- A. The Supplementary Conditions identify:

1. Those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site.
 2. Those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. Copies of reports and drawings referenced in Paragraph 4.01.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified and established in Paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings. Bidder will be solely responsible for any cost related to obtaining copies of reports and drawings in 4.01B.

4.02 *Underground Facilities*

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

4.03 *Hazardous Environmental Condition*

- A. The Supplementary Conditions identify any reports and drawings known to Owner relating to a Hazardous Environmental Condition identified at the Site.
- B. Copies of reports and drawings referenced in Paragraph 4.03.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.06 of the General Conditions has been identified and established in Paragraph 4.06 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings. Bidder will be solely responsible for any cost related to obtaining copies of reports and drawings in 4.03B.

- 4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated 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.

- 4.05 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.
- 4.06 A. Reference is made to Article 7 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of contract documents (other than portions thereof related to price) for such other work.
- B. Paragraph 6.13.C of the General Conditions indicates that if an Owner safety program exists, it will be noted in the Supplementary Conditions.
- 4.07 It is the responsibility of each Bidder before submitting a Bid to:
- A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;
- B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, 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) that have been identified in Paragraph 4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in the Paragraph 4.06 of the Supplementary Conditions 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 the Bidding Documents, with respect to the effect of such information, observations, 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 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 the work 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, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

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

ARTICLE 5 – PRE-BID CONFERENCE

5.01 **A mandatory prebid conference** will be held at 2:00 PM local time on Tuesday, October 3, 2023 at the Sabine River Authority’s Gulf Coast Pump Station, at 1922 I-P Way, Orange, Texas 77632. Representatives of Owner and Engineer will be present to discuss the Project. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 – SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. 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 in the Work are to be obtained and paid for by Contractor.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in

response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received after Wednesday, October 4, 2023 will not be answered and responses from the engineer will not be given after Friday, October 6, 2023. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

- 7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price and in the form of a certified check, bank money order, or a Bid Bond issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions. Use of attached form is optional.
- 8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- 8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 - LIQUIDATED DAMAGES

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

ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

- 11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or “or-equal” items. Whenever it is specified or described in the Bidding Documents that a substitute or “or-equal” item of material or equipment may be furnished or used by Contractor if acceptable to Engineer,

application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS AND OTHERS

- 12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 12.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds *for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity* so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.
- 12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from the Issuing Office.
- 13.02 All blanks on 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, alternative, adjustment unit price item, and unit price item listed therein. In the case of optional alternatives the words "No Bid," "No Change," or "Not Applicable" may be entered.
- 13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate

seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown.

- 13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.
- 13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.06 A Bid by an individual shall show the Bidder's name and official address.
- 13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.08 All names shall be printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.10 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 - BASIS OF BID; COMPARISON OF BIDS LUMP SUM

14.01 *Lump Sum*

- A. Bidders shall submit a bid on a lump sum basis as set forth in the Bid Form.

14.02 *Unit Price*

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.
- B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

14.03 Allowances

- A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 11.02.B of the General Conditions.

14.04 Completion Time Comparisons

- A. Bid prices will be compared after adjusting for differences in the time designated by Bidders for Substantial Completion. The adjusting amount will be determined at the rate set forth in the Contract Documents for liquidated damages for failing to achieve Substantial Completion for each day before or after the desired date appearing in Article 9 above.

ARTICLE 15 - SUBMITTAL OF BID

15.01 With each copy of the bidding documents, a bidder is furnished one bound copy of the bid form, and the bid bond form. An unbound copy of the bid form is to be completed and submitted with the bid security and the following documents:

- A. Required Bid security in the form of Bid Bond or Cashier's Check in the amount of 5% of the total bid amount;
- B. Completed Bid Proposal, signed with acknowledgement of all addenda;
- C. Bid Opening Form;
- D. Vendor Compliance to State Law;
- E. Bonding Company Information Form;
- F. Non-Collusion Affidavit;
- G. Form W9;
- H. Conflict of Interest Questionnaire;
- I. Required Bidder Qualification Statement with Supporting Data;
- J. Evidence of the Bidder's qualification to do business in the State of Texas or covenant to obtain such qualification prior to the award of the contract;
- K. Any additional items requested by the bid or specifications.

15.02 Bids shall be submitted in duplicate no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is

submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed bid shall be addressed to:

David Williams, Gulf Coast Division Manager
Sabine River Authority
12777 State Highway 87
Orange, Texas 77632

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.
- 16.02 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 - OPENING OF BIDS

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

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 19 - EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.
- 19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest

in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

- 19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.
- 19.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project.

ARTICLE 20 – CONTRACT SECURITY AND INSURANCE

- 20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 21 – SIGNING OF AGREEMENT

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by six (6) 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 shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

ARTICLE 22 – SALES AND USE TAXES

- 22.01 The OWNER qualifies as an exempt agency, and is not subject to State, County, or City sales taxes only to the extent allowable by law. CONTRACTOR is advised to contact the State Comptroller's Office or other knowledgeable source in order to apprise himself of the possible impact of the current law. Only equipment and materials incorporated into the permanent project are tax exempt.

ARTICLE 23 – RETAINAGE

23.01 Provisions concerning Contractor's retainage are set forth in the Agreement.

ARTICLE 24 - EQUAL OPPORTUNITY IN EMPLOYMENT

24.01 All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, handicap, or national origin. Bidders on this work will be required to comply with the President's Executive Order No. 11246, as amended by Executive Order 11375, and as supplemented in Department of Labor regulations 41 CFR Part 60.

ARTICLE 25 - BONDING COMPANY

25.01 The bidder shall submit with his bid the name, address, and telephone number of a person, firm, or corporation who has agreed to execute the required payment and performance bonds in the event that this contract is awarded to the bidder. A form is included in these contract documents for that purpose.

25.02 Such surety company shall be authorized to operate in Texas, shall have all necessary authorization and resources required to issue payment and performance bonds required for the amount of the contract, and shall have a rating of at least A from Best's Key Rating Guide, and shall have a stable outlook or better.

ARTICLE 26 – TEXAS ETHICS COMMISSION

26.01 Texas Ethics Commission

By January 1, 2016, the commission will make available on its website a new filing application that must be used to file Form 1295. A business entity must use the application to enter the required information on Form 1295 and print a copy of the completed form, which will include a certification of filing that will contain a unique certification number. An authorized agent of the business entity must sign the printed copy of the form and have the form notarized. The completed Form 1295 with the certification of filing must be filed with the governmental body or state agency with which the business entity is entering into the contract.

The governmental entity or state agency must notify the commission, using the commission's filing application, of the receipt of the filed Form 1295 with the certification of filing not later than the 30th day after the date the contract binds all parties to the contract. The commission will post the completed Form 1295 to its website within seven business days after receiving notice from the governmental entity or state agency.

The following link has tutorials and frequently asked questions that will guide you through the process: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm.



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ORANGE, TEXAS
77631

VENDOR INFORMATION

At the Sabine River Authority of Texas, we strive to purchase goods and services that are determined to be the best value to meet our business needs. We support open, fair, and unrestricted competition in selecting products and services with equal opportunity for all vendors. All qualified firms including small, minority, and women owned businesses are encouraged to engage in our business opportunities. It is our responsibility to ensure that procurement of any expenditures is done in accordance with the laws of the State of Texas as well as SRA policies and procedures. Our purchasing department and your business contacts at SRA will be glad to assist you or direct you to the appropriate person should any questions or issues arise.

VENDOR REQUIREMENTS

- If this is your first-time doing business with SRA, you will need to be set up as a vendor and all relevant information, including but not limited to insurance requirements, W-9, and payment information. These will need to be obtained before a purchase order will be issued. If you are a returning vendor, all documentation must be up to date.
- All vendors are required to have a valid purchase order and/or service agreement from SRA prior to conducting any work on our property.
- Most on-site services require up to date proof of insurance to be on file at the Authority General Office in accordance with the stipulations set forth in this document regarding insurance requirements prior to a purchase order being issued.
- All applicable contracts must be approved and signed by an authorized SRA representative prior to performing the work.

INSURANCE REQUIREMENTS

If you are providing services on SRA property, valid proof of insurance is required to maintained on file.

- The authority should be named as **Additional Insured** on each of the required liability policies and we require a copy of the full policy.
- For workers' compensation, the authority must obtain an original Certificate of Insurance from an insurance agent (with original signature) and a copy of the declarations page of the policy reflecting inclusion of a notice of material change endorsement with a minimum of 30 days notification.
- An umbrella policy, to the extent coverage is applicable, may serve to meet the limit of liability requirements.



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- The table below has the categories of services provided and the corresponding insurance requirements. You will be notified of which category you fall into as to what your limits of liability will be.

Guidelines for Insurance Requirements

<i>SERVICES PROVIDED</i>	<i>LINE OF COVERAGE</i>	<i>LIMIT OF LIABILITY GUIDELINES</i>
<i>Administrative</i>	General Liability (Premises/Operations)	\$500,000/\$1,000,000
	Workers' Compensation	WC – Statutory Employers' Liability – \$500,000
	Automobile Liability (include Hired & Non-owned Autos)	\$500,000 Combined Single Limit
<i>Professional Services</i>	Professional Liability	\$1,000,000/\$3,000,000
	General Liability (Premises/Operations)	\$1,000,000/\$2,000,000
	Workers' Compensation	WC – Statutory Employers' Liability – \$500,000
	Automobile Liability	\$500,000 Combined Single Limit
<i>Construction (large jobs and/or high hazards)</i>	General Liability (must specifically include Premises/Operations and Completed Operations)	\$1,000,000/\$2,000,000 (Minimum)
	Workers' Compensation	WC – Statutory Employers' Liability – \$500,000
	Automobile Liability (include Hired & Non-owned Autos)	\$500,000 Combined Single Limit (Minimum)
	Umbrella Policy	\$1,000,000
<i>Construction (small jobs, low hazards)</i>	General Liability (must specifically include Premises/Operations and Completed Operations)	\$500,000/\$1,000,000 (Minimum)
	Workers' Compensation	WC – Statutory Employers' Liability – \$500,000
	Automobile Liability (include Hired & Non-owned Autos)	\$500,000 Combined Single Limit (Minimum)
<i>General Building Services</i>	General Liability (Premises/Operations and Completed Operations)	\$500,000/\$1,000,000 (Minimum)
	Workers' Compensation	WC – Statutory Employers' Liability – \$500,000



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<i>SERVICES PROVIDED</i>	<i>LINE OF COVERAGE</i>	<i>LIMIT OF LIABILITY GUIDELINES</i>
	Automobile Liability (include Hired & Non-owned Autos)	\$500,000 Combined Single Limit (Minimum)

PAYMENT OF INVOICES

Upon satisfactory receipt of goods or services by SRA, it is our intent to pay our vendors in a timely manner. The following guidelines will assist in making this process move quickly and more efficiently.

- Invoices must be submitted to the division office with whom the business was conducted.
- Invoices must reference a valid SRA purchase order number when possible, include a description of the goods or services, and include the amount being invoiced.
- Any supporting documentation for the invoiced amounts will need to be included with the invoice to verify and support payment.
- All invoices will be paid in full within forty-five (45) days after satisfactory deliver and billing or as otherwise agreed by contract.

VENDOR GUIDELINES

As a valued vendor to our operations and success, we expect adherence to established guidelines for our coordination and cooperation together for our business relationships. Below you will find our expected etiquette items:

- Please call ahead for appointments whenever possible.
- Purchase orders are awarded once the Purchasing Department has confirmed that all state, federal, and local regulations have been met. Please do not proceed with any work or supply any materials until you have received a purchase order number.
- Please quote realistic delivery dates (in calendar days)
- Please conduct your business open and frankly. As a public entity, our records are a matter of public record.
- We expect you to honor all pricing, delivery, and service agreements as quoted.
- Please make sure we have your latest product information – preferably a link to your website.
- All vendors are asked to help maintain our policy that no SRA employee accepts any gifts or favors. The best favor you can do for us is to see that SRA receives the best price, quality, and service.
- In the case of services on SRA sites and/or property, please conduct all work and actions with high regards to safety, privacy, and care.



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SABINE RIVER AUTHORITY *of /exas*

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ORANGE, TEXAS
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- Please ensure that all issues that may arise while you are working at any of our locations or in the course of doing business with SRA that they are brought to the attention of your business contact at SRA and/or the purchasing coordinator.
- You are a valued supplier. Please call us if you have any questions.

Request for Taxpayer Identification Number and Certification

**Give Form to the
requester. Do not
send to the IRS.**

▶ Go to www.irs.gov/FormW9 for instructions and the latest information.

Print or type. See Specific Instructions on page 3.	<p>1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.</p> <hr/> <p>2 Business name/disregarded entity name, if different from above</p> <hr/> <p>3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.</p> <p><input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate</p> <p><input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____</p> <p>Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.</p> <p><input type="checkbox"/> Other (see instructions) ▶ _____</p>	<p>4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):</p> <p>Exempt payee code (if any) _____</p> <p>Exemption from FATCA reporting code (if any) _____</p> <p><small>(Applies to accounts maintained outside the U.S.)</small></p>
	<p>5 Address (number, street, and apt. or suite no.) See instructions.</p> <hr/> <p>6 City, state, and ZIP code</p> <hr/> <p>7 List account number(s) here (optional)</p>	<p>Requester's name and address (optional)</p> <hr/>

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number								
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or								
Employer identification number								
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Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here	Signature of U.S. person ▶	Date ▶
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General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
 - Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
 - Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
 - Form 1099-S (proceeds from real estate transactions)
 - Form 1099-K (merchant card and third party network transactions)
 - Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
 - Form 1099-C (canceled debt)
 - Form 1099-A (acquisition or abandonment of secured property)
- Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.
- If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.*

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the instructions for Part II for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
<ul style="list-style-type: none"> Corporation 	Corporation
<ul style="list-style-type: none"> Individual Sole proprietorship, or Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes. 	Individual/sole proprietor or single-member LLC
<ul style="list-style-type: none"> LLC treated as a partnership for U.S. federal tax purposes, LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes. 	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
<ul style="list-style-type: none"> Partnership 	Partnership
<ul style="list-style-type: none"> Trust/estate 	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.SSA.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/Businesses and clicking on Employer Identification Number (EIN) under Starting a Business. Go to www.irs.gov/Forms to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to www.irs.gov/OrderForms to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABL accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor ²
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee ¹
b. So-called trust account that is not a legal or valid trust under state law	The actual owner ¹
6. Sole proprietorship or disregarded entity owned by an individual	The owner ³
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*

For this type of account:	Give name and EIN of:
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity ⁴
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee

For this type of account:	Give name and EIN of:
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

*Note: The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at spam@uce.gov or report them at www.ftc.gov/complaint. You can contact the FTC at www.ftc.gov/idtheft or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see www.IdentityTheft.gov and Pub. 5027.

Visit www.irs.gov/IdentityTheft to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

Name of Bidder: _____ Date: _____
Organized: _____
Address: _____ Date Incorporated: _____

Number of years in contracting business under present name

CONTRACTS ON HAND:

Contract: _____

Amount \$ _____ Completion Date: _____

Type of work performed by your company:

Number of years experience in this type of construction: _____

Have you ever failed to complete any work awarded to you? _____

Have you ever defaulted on a contract? _____

List at least five (5) projects of a similar nature completed by your firm in the past five (5) years (attach additional pages if necessary):

Contract: _____

Amount: \$ _____ Mo/Yr Completed: _____

Contract: _____

Amount: \$ _____ Mo/Yr Completed: _____

Contract: _____

Amount: \$ _____ Mo/Yr Completed: _____

Contract: _____

Amount: \$ _____ Mo/Yr Completed: _____

Contract: _____

Amount: \$ _____ Mo/Yr Completed: _____

Major equipment available for this contract: _____

Attach resume(s) for the principal member(s) of your organization, including the officers as well as the proposed superintendent for the project.

Credit available: \$_____ Bank reference: _____

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the _____ in verification of the recitals comprising this Statement of Bidder's Qualifications.

Executed this _____ day of _____, 20__.

By: (signature) _____

Title: _____

(Print name): _____

**SABINE RIVER AUTHORITY
GULF COAST DIVISION PUMP STATION
E. WYNN SIPHON REPLACEMENT**

SCOPE OF WORK

GENERAL

This project provides for replacement of an inverted siphon structure, known as the E. Wynn Siphon, which conveys freshwater within the SRA canal system under and across an existing drainage ditch. The existing structure is damaged and is undersized. This project will provide for the construction of two new 72" steel pipe inverted siphons and one future siphon stubout with new concrete headwalls and the realignment of the canal to the new siphon locations.

Additive alternate bid items are provided for the removal of the existing siphons and, the existing sheet piling from the canal.

This contract shall include all necessary superintendence, labor, materials, equipment, tools, piping, field jointing, cleaning, grouting, excavation, trenching, shoring, fill, grading, backfill, surface restoration, testing, clearing, hauling and disposal of trees and brush, hauling and disposal of excess select soils, and incidental items necessary for the construction of the proposed facilities as shown in the plans and documented in the specifications.

Prior to the start of construction, the Contractor shall submit a construction schedule to the Engineer detailing his anticipated activities with estimated dates for the completion of each activity and section. The Contractor shall coordinate with the SRA and provide a minimum of two (2) weeks' notice prior to the beginning of the work and prior modifying the operations of any facility, including, but not limited to canal isolation, diversion pumping, and/or temporary rerouting of the canal.

The Contractor is responsible for the restoration of all disturbed surfaces, including pavement and rock driveways. All surfaces shall be returned to original condition or better.

The Contractor shall be responsible for the startup and testing of each system embraced in this Contract. All systems shall be demonstrated to be functioning at design conditions prior to being considered complete. Where requested or required by the Engineer, the Contractor shall submit test data and certify in writing that the systems tested performed as required by the plans and specifications at design conditions.

SUMMARY OF WORK

BASE BID

1. Construct new concrete structures for each end of the new siphon structure; headwalls, wingwalls, isolation/access ways, etc.
2. Fabricate, including coating of all interior and exterior surfaces, 72" diameter steel pipe and fittings required for construction of the new siphon structure(s).
3. Install 72" diameter steel pipe siphons across existing drainage ditch.
4. Construct new canal levees to realign canal with new siphons.
5. Restore all surfaces and provide hydromulch on all disturbed earthen surfaces.

ADDITIVE ALTERNATE BID

1. Demolish, remove, and dispose of all features of the existing inverted siphon structure.
2. Excavate and regrade a section of canal embankments to allow abandoned segment of the existing canal to drain to the drainage ditch.

BID PROPOSAL

1. BASE BID ITEMS

Unit pricing established on the successful bidders bid form shall be basis for payment calculations. These prices shall be honored by the Contractor until written notice is received from the Engineer that these items are being modified by a duly executed Change Order or until final completion of the project.

2. ADDITIVE ALTERNATE BID ITEMS

Additive Alternate Bid Items have been included. These items may or may not be considered in the determination of the apparent lowest bidder. These items may or may not be awarded, at the discretion of the Owner.

RELATED CONSTRUCTION

There are no current or future projects underway at this facility. If this changes the successful bidder will be required to coordinate his schedule and use of the site with the contractor so that work may be completed without delay.

SITE ACCESS DURING CONSTRUCTION

The contractor shall be responsible for maintaining all access roads, driving areas, rock areas, and parking areas affected by his operation at the existing site during construction. The contractor shall ensure that these areas remain accessible and passable by the Owner's personnel and their condition shall not impede the existing site operations regardless of the size and type of vehicle needing access. Bid may provide allowance for contractor to provide and place limestone and/or base material to provide improved all-weather access to the construction site. Any utilization of such allowance shall be with written approval by the owner. There shall be no additional compensation for maintaining these roads and access areas. The contractor shall be responsible for closing all access gates when they enter and leave the site.

WORK SEQUENCE

It shall be the responsibility of the Contractor to coordinate all work with the Engineer, Owner, utility owners, and any other party affected by this project. Normal site operations must be diverted, and downstream flows must be maintained during the course of this project. The Contractor must coordinate all of his efforts with the Owner and the Engineer to avoid interrupting operations. At no time will the Contractor be allowed to cause any unit that is in operation to be taken out of service without the approval of the Owner and the Engineer.

Contractor must also maintain cross drainage and avoid any disruption to the drainage ditch service throughout the construction period.

The Contractor shall submit to the Engineer at least ten (10) days before beginning construction, a construction sequence in writing detailing the anticipated sequence and schedule for constructing the major portions of this project for the Engineer's approval. The Contractor shall notify the Engineer prior to deviating from this schedule. The schedule must comply with the requirements set forth in the plans, specifications, and contract documents.

CONDITIONS AT THE ROUTE

1. The proposed improvements may cross or parallel pipelines, gas lines, fiber optic telephone cables, telephone cables, and other utilities. The locations of these lines have not been shown on the plans, the location of these utilities are the sole responsibility of the Contractor. Any damage to any pipeline or utility is the responsibility of the Contractor and the owner of the damaged facility.
2. The Contractor shall coordinate with the Owner for location of various cables, conduits, water lines, injection lines, and other infrastructure at the construction site. Where the Owner is unable to locate those utilities, the Contractor shall take great care not to damage them in his operations. In the event that those utilities are damaged, the Contractor shall be responsible for repair and restoration without delay and at no additional cost to the Owner.

3. Access to the sites will be by TxDOT, County, City, and/or private roads and drives. The Contractor shall restore all pavement sections or other surfaces that are damaged by the Contractor to their original condition or better, in the opinion of the Engineer and the Owner. This shall include any base section repairs that are necessary, in the opinion of the Engineer. There shall be no additional payment for pavement replacement or surface restoration.

4. Bidders should visit the proposed project sites to acquaint themselves with the site conditions and access limitations prior to bidding on the project. Bidding on the project shall be considered the Contractor's assurance that He is familiar with the site conditions and that His bid provides for reasonable unanticipated conditions.

BID FORM

**Sabine River Authority
Gulf Coast Division
E. Wynn Siphon Replacement**

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

**SABINE RIVER AUTHORITY
ATTN: MR. DAVID WILLIAMS
1277 STATE HIGHWAY 87
ORANGE, TEXAS 77632**

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

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

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

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

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

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____

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

C. Bidder is familiar with and is satisfied as to all 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 relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data".

- E. Bidder has considered 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 the Bidding Documents, with respect to the effect of such information, observations, 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 the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that 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 required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has 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.
- 1. 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.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive 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 this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing 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 a 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; and
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):

BASE BID ITEMS

ITEM NO.	ESTIMATED QUANTITIES	DESCRIPTION	UNIT PRICE	TOTAL AMOUNT BID
1	1 L.S.	Mobilization/demobilization: including transportation, bonding, insurance, submittals, NOT TO EXCEED 10% of project total, in accordance with the plans and specifications for _____ dollars and _____ cents. Per lump sum.		
2	1,600 C.Y.	Excavation: Excavate, stockpile, and manage earthen materials for reuse in finished construction for _____ dollars and _____ cents per cubic yard.		
3	1 L.S.	Groundwater management _____ dollars and _____ cents. Per lump sum.		

ITEM NO.	ESTIMATED QUANTITIES	DESCRIPTION	UNIT PRICE	TOTAL AMOUNT BID
4	120 C.Y.	Concrete headwalls/wingwalls: form, cast, and finish per plans and specifications for _____ _____ dollars and _____ cents per cubic yard.		
5	324 L.F.	Siphon pipes: provide and install 72" diameter, 3/8" STD wall steel pipe for siphons per plans and specifications for _____ _____ dollars and _____ cents per linear foot.		
6	2 E.A.	Siphon pipe stubouts: provide and install 72" butt welded caps on the 2 pipe stubouts for the future siphon pipe per plans and specifications for _____ _____ dollars and _____ cents per each.		
7	40 TONS	Bentonite core backfill: Provide and install bentonite clay backfill around pipes through levee per plans and specifications for _____ _____ dollars and _____ cents per ton.		
8	6500 C.Y.	Backfill and embankment construction: Place and compact select materials as for backfill and embankment per plans and specifications for _____ _____ dollars and _____ cents per cubic yard.		

ITEM NO.	ESTIMATED QUANTITIES	DESCRIPTION	UNIT PRICE	TOTAL AMOUNT BID
9	230 TONS	Cement Stabilized Sand: bed and backfill siphon pipes below drainage ditch in cement stabilized sand per plans and specifications for _____ dollars and _____ cents per ton.		
10	1 L.S.	SWPPP: Establish and maintain appropriate stormwater pollution prevention plan (SWPPP) measures per plans and specification for _____ dollars and _____ cents.		
11	8000 S.Y.	Hydromulch Seeding: Reseed disturbed area to reestablish vegetative ground cover per plans and specification for _____ dollars and _____ cents per square yard.		
12	900 S.Y.	Riprap: Install Riprap at headwall structures and along levee slopes per plans and specification for _____ dollars and _____ cents per square yard.		
13	1 Acres	Clearing and Grubbing: Clear and Grubb as necessary for construction of proposed improvements per plans and specification for _____ dollars and _____ cents per acre.		

ITEM NO.	ESTIMATED QUANTITIES	DESCRIPTION	UNIT PRICE	TOTAL AMOUNT BID
14	230 L.F.	Barbed Wire Fence: provide and install barbed wire fence per plans and specifications for _____ _____ dollars and _____ cents per linear foot.		
15	2 E.A.	Fence Gate: provide and install 14' wide gate on the barbed wire fence per plans and specifications for _____ _____ dollars and _____ cents per each.		
AA-1 Additive Allowance	12,000 S.Y.	Access Road Allowance: Provide and place crushed limestone (1 1/2" size) and/or limestone base to improve designated project access route and facilitate all-weather access to construction site, 4" minimum finished thickness, for _____ _____ dollars and _____ cents per square yard. <i>Item shall only be paid with prior written approval by SRA.</i>		
AA-2 Additive Allowance	1 EA.	Pipeline/Utility Pothing: Excavation, by hydro-excavator or hand tools, to provide visual confirmation of a pipeline or utility in near proximity to the construction site for _____ _____ dollars and _____ cents per required and approved excavation. <i>Item shall only be paid with prior written approval by SRA.</i>		

TOTAL BASE BID: \$ _____

ADDITIVE ALTERNATE BID ITEMS

ITEM NO.	ESTIMATED QUANTITIES	DESCRIPTION	UNIT PRICE	TOTAL AMOUNT BID
A-1	400 L.F.	Remove and dispose of existing siphon piping (1-48" and 3-30" metal pipes) for _____ dollars and _____ cents per linear foot.		
A-2	2 EA.	Remove and dispose of existing headwall structures (timber and steel) for _____ dollars and _____ cents per each end of the existing siphon structure.		

TOTAL ADDITIVE ALTERNATE BID: \$ _____.

TOTAL BID PRICE

TOTAL BASE BID ITEMS: \$ _____.

TOTAL ADDITIVE ALTERNATE BID ITEMS: \$ _____.

TOTAL AMOUNT BID WITH ALTERNATE BID ITEMS: \$ _____.

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions. The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Amounts are to be shown in both words and figures. Discrepancies in the multiplication of units of work and unit prices shall be resolved in favor of the correct total. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

Additive Alternate Bid Items have been included. These items may or may not be considered in the determination of the apparent lowest bidder. These items may or may not be awarded, at the discretion of the Owner.

Bidder understands that the Owner reserves the rights to reject any and all bids and to waive any informalities in the bidding. Bidder acknowledges that quantities are not guaranteed and are solely for the purpose of comparison of Bids and final payment will be based on actual quantities determined as provided in the Contract Documents and Specifications, if applicable.

If the contract is to be awarded, it will be awarded to the Best Bid, the Lowest Bidder or the Bidder whose evaluation by the OWNER or whose Bid indicates to the OWNER that the award will be in the best interest of the Project.

ARTICLE 6 – TIME OF COMPLETION

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

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

- A. Required Bid security in the form of _____, and in the amount of \$_____;
- B. Required Bidder Qualification Statement with supporting data if any;
- C. Bonding Company Information Form
- D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;

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, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

9.01 This Bid is submitted by: _____

If Bidder is: _____

An Individual

Name (typed or printed): _____

By: _____

(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____

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

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

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

By: _____

(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____

Date of Qualification to do business in TEXAS is ___/___/___.

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____

(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____

(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

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

Bidder's Business Address _____

Phone No. _____ Fax No. _____

E-mail _____

SUBMITTED on _____, 20____.

State Contractor License No. _____ *[If applicable]*

BID BOND

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

Sabine River Authority
12777 State Highway 87
Orange, Texas 77632

BID

Bid Due Date: _____

Description (Project Name and Include Location):

Sabine River Authority, Gulf Coast Division, E. Wynn Siphon Replacement.

BOND

Bond Number:

Date (Not earlier than Bid due date):

Penal sum _____ \$ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

(Seal)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder who submitted a responsive Bid as determined by Owner for the work required by the Contract Documents, provided that:
 - 1.1 If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the penal sum set forth on the face of this Bond, and
 - 1.2 In no event shall Bidder's and Surety's obligation hereunder exceed the penal sum set forth on the face of this Bond.
 - 1.3 Recovery under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

BONDING COMPANY INFORMATION

The following person, firm, or corporation has agreed to execute the required payment and performance bonds in the event this contract is awarded to the bidder:

Name of Surety: _____

Mailing Address: _____

City, State, Zip: _____

Telephone Number: _____

Is surety authorized to operate in Texas? _____

Is surety aware of size of project? _____

Does surety have adequate authorization and resources to cover bonds for the amount of this contract? _____

Rating from Best's Key Rating Guide _____

Project: SABINE RIVER AUTHORITY OF TEXAS
 GULF COAST DIVISION
 E. WYNN SIPHON REPLACEMENT

Owner: Sabine River Authority of Texas

Name of Bidder

VENDOR COMPLIANCE TO STATE LAW

Chapter 2252.002, of the Texas Government Code applies to the award of government contract to non-resident bidders. This law provides that:

“A government entity may not award a governmental contract to a nonresident bidder unless the nonresident underbids the lowest bid submitted by a responsible resident bidder by an amount that is less than the greater of the amount by which a resident bidder would be required to underbid the nonresident bidder to obtain a comparable contract in the state in which the nonresident’s principal place of business is located

“Nonresident Bidder” refers to a person who is not a resident of Texas

“Resident Bidder” refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

Check the statement that is correct for Bidder.

- Non-resident bidders in _____ (give state), our principal place of business, are required to be _____ percent lower than resident bidders by state law. A copy of the statute is attached.
- Non-resident bidders in _____ (give state), our principal place of business, are not required to underbid resident bidders.
- Our principal place of business or corporate offices is in the State of Texas.

BIDDER:

By: _____

Signature: _____

Title: _____

Address: _____



CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

2 **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

Yes No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

Yes No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

6 Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

Signature of vendor doing business with the governmental entity

Date

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed;

or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

NON-COLLUSION AFFIDAVIT
FOR PRIME CONTRACTOR

State of Texas

) ss.

County of Orange

_____, being first duly sworn, deposes and says that:

(1) He is _____ of _____, the Bidder that has submitted the referenced Bid;

(2) He is fully informed respecting the preparation and contents of the referenced Bid submitted to Sabine River Authority (Owner) in connection with Gulf Coast Division E. Wynn Siphon Replacement (name of contract), and of pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other Bidder, firm, or person to submit a collusive or sham Bid in connection with such Contract, or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm, or person to fix the price or prices in the referenced Bid or in the Bid of any other bidder, or to fix an overhead, profit, or cost element of the Bid price or the Bid price of any other Bidder, or to secure through collusion, conspiracy, connivance, or unlawful agreement any advantage against the Sabine River Authority (Owner) or any person interested in the proposed Contract; and

(5) The price or prices quoted in the referenced Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit.

(Signed) _____

Title _____

Subscribed and sworn to before me by the said _____ on this ____ day of _____, 2023.

By: _____
Notary Public

_____ County, _____

[Notary Seal]

My commission expires _____, 20 ____.

NON-COLLUSION AFFIDAVIT
FOR PROPOSED SUBCONTRACTOR

State of Texas

) ss.

County of Orange

_____, being first duly sworn, deposes and says that:

(1) He is _____ of _____, hereinafter referred to as the "Subcontractor";

(2) He is fully informed respecting the preparation and contents of the subcontractor's Proposal submitted by the subcontractor to _____, the Contractor for certain work in connection with Gulf Coast Division E. Wynn Siphon Replacement (name of contract), for Sabine River Authority (Owner);

(3) Such subcontractor's Proposal is genuine and is not a collusive or sham proposal;

(4) Neither the subcontractor nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other Bidder, firm, or person to submit a collusive or sham Proposal in connection with such Contract, or to refrain from submitting a Proposal in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm, or person to fix the price or prices in said subcontractor's Proposal or any other subcontractor's proposal, or to secure through collusion, conspiracy, connivance, or unlawful agreement any advantage against the (Owner) or any person interested in the proposed Contract; and

(5) The price or prices quoted in the subcontractor's Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit.

(Signed) _____.

Title .

Subscribed and sworn to before me by the said
on this ____ day of _____, 2023.

By:

Notary Public
_____ County, _____

[Notary Seal]

My commission expires _____, 20 ____.

AGREEMENT BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

THIS AGREEMENT is by and between _____ (“Owner”) and
_____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The replacement of an existing inverted siphon structure known as Womack Siphon. Project includes earthwork, steel pipe fabrication and installation, and structural concrete elements in a rural location.

ARTICLE 2 – THE PROJECT

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

Sabine River Authority
Gulf Coast Division
E. Wynn Siphon Replacement

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by LJA Engineering, Inc., (Engineer), which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

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

4.02 *Substantial Completion and Final Payment*

A. The Work will be substantially completed within **210** calendar days after the date when Contract Times commence to run and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within **240** calendar days after the date when Contract Times commence to run.

4.02 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$500 for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$500 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment. The parties stipulate and agree that Owner's damages are difficult or incapable of estimation at the time this Agreement is made; and that the amount stated above is a reasonable forecast, based on information available to the parties at the time this Agreement is made, of what just compensation would be in the event of delay.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and 5.01.C below:

- A. For all Work other than Unit Price Work, a lump sum of: \$ _____

All specific cash allowances are included in the above price in accordance with Paragraph 11.02 of the General Conditions.

- B. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the actual quantity of that item as shown in the Bid Proposal.

Total of all Bid Prices (Unit Price Work) \$ _____

The Bid prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions.

- C. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

Total of all Bid Prices

\$ _____

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the twenty-fifth (25th) day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided 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.

Progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.

- a. 90 percent of Work completed (with the balance being retainage).
- b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

6.03 *Final Payment*

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

ARTICLE 7 – INTEREST

7.01 Interest on retainage will be paid in accordance with the provisions of Section 2252.032, Texas Government Code.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

- B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."
- E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, 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 Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to 7, inclusive).
 - 2. Performance bond
 - 3. Payment bond
 - 4. General Conditions
 - 5. Supplementary Conditions
 - 6. Specifications as listed in the table of contents of the Project Manual.
 - 7. Drawings
 - 8. Addenda
 - 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid
 - b. Documentation submitted by Contractor prior to Notice of Award
 - 10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed
 - b. Work Change Directives.
 - c. Change Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

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

10.03 *Successors and Assigns*

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

10.04 *Severability*

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

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a 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; and
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.

10.06 *Other Provisions*

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

This Agreement will be effective on _____ (which is the Effective Date of the Agreement).

OWNER:

Sabine River Authority _____

By: _____

Title: _____

Attest _____

Title: _____

Address for giving notices:

Mark Mann, Director of Engineering Services _____

12777 State Highway 87 _____

Orange, Texas 77632 _____

CONTRACTOR

By: _____

Title: _____

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

Attest: _____

Title: _____

Address for giving notices:

License No.: _____

Approve to form:

District Attorney

Date

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Sabine River Authority
12777 State Highway 87
Orange, Texas 77630

CONTRACT

Effective Date of Agreement:

Amount:

Sabine River Authority, Gulf Coast Division

Description (*Name and Location*): E. Wynn Siphon Replacement

BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.
2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
 - 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
 - 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
 - 2.3 Owner has agreed to pay the Balance of the Contract Price to:
 1. Surety in accordance with the terms of the Contract; or
 2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.
3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:
 - 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
 - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
 - 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
 2. Deny liability in whole or in part and notify Owner citing reasons therefor.

4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
 - 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
 - 5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
 - 5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.
6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.
7. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.
8. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located, and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.
10. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

11. Definitions.

- 11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
- 11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
- 11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address and Telephone)*

Surety Agency or Broker:

Owner's Representative *(Engineer or other party)*:

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Sabine River Authority
12777 State Highway 87
Orange, TX 77632

CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*): Sabine River Authority, Gulf Coast Division
E. Wynn Siphon Replacement

BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

_____(Seal)
Contractor's Name and Corporate Seal

_____(Seal)
Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2 Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
 4. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
 5. Reserved.
 6. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

7. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
8. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
9. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.
10. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
11. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
12. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
13. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
14. Definitions
 - 14.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms

“labor, materials or equipment” that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

- 14.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 14.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address, and Telephone)*

Surety Agency or Broker: Owner’s Representative *(Engineer or other)*:

Certificate of Insurance to be Inserted into Executed Agreement

**STANDARD GENERAL CONDITIONS
OF THE CONSTRUCTION CONTRACT**

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



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Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT

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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 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*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *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 1 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*—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 discussed in Paragraph 1.02.B through F 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 the 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 indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 2. a preliminary Schedule of 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 Representatives*

- 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 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 Supplier, then 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, or 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 its 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. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

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.

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 written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special

conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, 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, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner 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.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 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 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 coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - 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 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement

cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective 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 or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization

pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

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

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.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.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. 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.

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;
 - 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.
- 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 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, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors 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 specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. 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 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 or 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, if any. The Supplementary Conditions identify any 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 program 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 the indicated application, 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 Drawings 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. 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 is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- 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 extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

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

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 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, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
 - C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are 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 wrongful 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 wrongful 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 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *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 the Site.

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

- A. While at 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.D.

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.

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, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The 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, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority 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 Program*

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

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.D.

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: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

- A. If 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, as 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 Paragraphs 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. If Owner, Engineer, or other contractors 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.
- C. 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 utility owners not under the control of Owner, 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.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors 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.
- E. 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.

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 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 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 Agreement.

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations 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, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and 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: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner 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 repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and 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. 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.
- B. 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.
- C. 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 invoke any dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

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.

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the "General Conditions" and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

SC-1. **DEFINITIONS**

The terms used in these Supplementary Conditions which are defined in the "General Conditions" have the meanings assigned to them in the "General Conditions".

SC-1.01A ENGINEER - The word "ENGINEER" in these specifications shall be understood as referring to LJA Engineering, Inc., 2615 Calder Avenue, Suite 500, Beaumont, Texas 77702.

SC-1.01B OWNER - The word "OWNER" in these specifications shall be understood as referring to the Sabine River Authority, 12777 State Highway 87, Orange, Texas 77632.

SC-1.02 CONTRACT TIME

A. Working Day

A Working Day is defined as any day, in which weather or other conditions, not under the control of the CONTRACTOR, will permit construction of the principal units of the work for a period of not less than seven (7) hours between 7:00 a.m. and 6:00 p.m. Saturdays, Sundays and legal holidays will not be counted as a working day if not worked. If the Contractor works on any of these days, he will be charged a working day. Work will not be permitted on Sundays except with the approval of the Engineer.

If the Contractor intends to claim a day as a "rainout" day, one in which weather or site conditions will not permit the construction of the principal items of the project, as defined herein, he must do so before 9 a.m. of each day by notifying the Engineer. This does not pertain to weather conditions that develop after 9 a.m. and stop the progress of the work for the rest of the day. Site conditions that prevent work must be determined before 9 a.m. of each day.

B. Calendar Day

A calendar day is everyday of the week including Saturday, Sunday and legal holidays. Additional time is not normally granted for CALENDAR day contracts for weather related delays. Requests for additional time for other delays will be reviewed on a case by case

basis but only for the proceeding 30 day period. Requests for additional time should be made each month. No request for additional time will be considered for delays from previous months.

SC-2. **PRELIMINARY MATTERS**

SC-2.01 D. Texas Ethics Commission – Contractor and Owner shall complete all documentation required to conform with HB 1295 including but not limited to Form 1295 “Certificate of Interested Parties”.

E. Prohibition on Boycotting Israel – In accordance with Section 2270.002 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) Does not boycott Israel; and 2) will not boycott Israel during the term of this contract.

F. Prohibition on Boycotting Power Companies – In accordance with Section 2274.001 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) Does not boycott power companies and 2) will not boycott power companies during the term of this contract.

G. Prohibition on Companies that discriminate against firearm and ammunition industries - In accordance with Section 2274.002 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) Does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and 2) Will not discriminate during the term of the contract against a firearm entity or firearm trade association.

H. Posting of certain information at Commercial Building Construction Site Required – In accordance with Section 116.001 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) As soon as practicable after beginning construction of a commercial building project located in this state, the developer of the project shall visibly post the following information at the entrance to the construction site: a) the name and contact information of the developer; and b) a brief description of the project.

SC-2.03 COMMENCEMENT OF CONTRACT TIMES; NOTICE TO PROCEED - A Notice to Proceed will be issued for this project.

SC-2.07 Required Documentation - The following list represents the documents required of the contractor throughout the project. If the plans and specifications require a document not listed here, the contractor must still provide that document.

1. Subcontractor list - within 24 hours after the bid opening.
1. Performance and payment bonds - within 15 days after award
2. Contractor's certificate of insurance - with the required bonds
3. Submittals - within 14 days of execution of the contract
4. As built plans - prior to final payment
5. Construction Schedule - 10 days prior to start of construction

SC-3. CONTRACT DOCUMENTS

SC-3.03 Conditions of the Contract - In the event that any portions of the conditions in this Contract conflict with each other, the more strict requirements shall be followed.

SC-4. SUBSURFACE AND PHYSICAL CONDITIONS

SC-4.02 Geotechnical reports, if conducted, will be included in the Appendix.

SC-5. BONDS AND INSURANCE

SC-5.01 PERFORMANCE, PAYMENT AND OTHER BONDS - The successful bidder shall furnish a Performance Bond for the protection of the OWNER and a Payment Bond for the protection of the OWNER and persons furnishing labor and materials, in an amount equal to one hundred (100%) percent of the contract price if the contract exceeds \$50,000. Said Bonds shall remain in effect for a period of one (1) year from the date of acceptance. Bonds must be executed within fifteen (15) days of the date of the Notice of Award. Said period will be extended only upon presentation to the OWNER within said period, reasons which, in the opinion of the OWNER, justify an extension. If contract and bonds are not received by the OWNER within said period, the OWNER may proceed to have the work specified herein performed by any means at its command, and any excess cost to the OWNER will be charged against the bidder to whom award was made. If the contract award does not exceed the sum of \$50,000, no Payment and Performance Bonds will be required, but no money will be paid to the Contractor until completion and acceptance of the work.

SC-5.04 CONTRACTOR'S LIABILITY INSURANCE - As required under Section 129 of the General Conditions the Contractor's Public Liability Insurance shall provide for minimum coverages as follows:

- Contractor's Comprehensive General Liability shall include completed premises/operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of

Contractor shall have limits of not less than \$1,000,000 each occurrence and \$2,000,000 general aggregate.

- Contractor's Automobile Liability shall cover all vehicles used in the operations of the Contractor with limits of liability of not less than: Bodily injury \$1,000,000 each person, \$1,000,000 each accident; Property damage \$1,000,000 or a combined single limit of \$2,000,000 for bodily injury and property damage, such policy to be endorsed with MCS-90 when hazardous material transportation is involved and shall include Hired and Non-owned Autos.
- Umbrella or Excess Liability under Paragraph 6.03.E of the General Conditions with a minimum limit of \$1,000,000.

All policies of liability insurance shall provide for contractual indemnity coverage to insure the obligations of SC-6.20 below.

Contractor shall provide a Certificate of Insurance Form that includes names of insurance agency, Contractor and insurance companies, and policy numbers, effective dates and expiration dates before commencing any of the work and within the time otherwise specified. Contractor shall file said completed form with the Owner. Said Certificate of Insurance Form shall contain a provision that coverages afforded under the policies will not be altered, modified or cancelled unless at least thirty (30) days prior written notice has been mailed to the Owner. Contractor shall also file with the Owner valid Certificate(s) of Insurance for all Subcontractors and showing the Subcontractor(s) as the Insured. Said completed Certificate of Insurance Form(s) shall in any event be filed with Owner not more than ten (10) days after execution of this Contract.

The Contractor and the subcontractor shall name Sabine River Authority and the Engineer as Additional Insured on all insurance policies. The Contractor shall either (1) require each of his subcontractors to procure and to maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage of the type and in the same amounts as specified in the preceding paragraph, or (2) insure the activities of his subcontractors in his own policy.

SC-5.11 WORKER'S COMPENSATION INSURANCE COVERAGE

- A. Certificate of coverage ("certificate"). A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project in an amount not less than \$500,000..

Duration of the project - includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the Owner.

Persons providing services on the project ("subcontractor" in §406.096) - includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, lending companies, major carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, handling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

- B. The contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the satisfactory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.
- C. The Contractor must provide a certificate of coverage to the Owner prior to being awarded the contract.
- D. If the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project, the contractor must, prior to the end of the coverage period, file a new certificate of coverage with the Owner showing that coverage has been extended.
- E. The contractor shall obtain from each person providing services on a project, and provide to the Owner:
 - (1) a certificate of coverage, prior to that person beginning work on the project, so the Owner will have to file certificates of coverage showing coverage for all persons providing services on the project; and
 - (2) no later than seven days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

- F. The contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.
- G. The contractor shall notify the Owner in writing by certified mail or personal delivery, within 30 days after the contractor knew or should have known, of any change that materially affect the provision of coverage of any person providing services on the project.
- H. The contractor shall post on each project site a notice, in the text, for and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.
- I. The contractor shall contractually require each person with whom it contracts to provide services on a project, to:
 - (1) provide coverage, based on progress reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the satisfactory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;
 - (2) provide to the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;
 - (3) provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - (4) Obtain from each other person with whom it contracts, and provide to the contractor:
 - (a) a certificate of coverage, prior to the other person beginning work on the project; and
 - (b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage during the duration of the project;

- (5) retain all required certificates of coverage on file for the duration of the project and for the year thereafter;
 - (6) notify the Owner in writing by certified mail or personal delivery, within 30 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificate of coverage to be provided to the person for whom they are providing services.
- J. By signing this contract or providing or causing to be provided a certificate of coverage, the contractor is representing to the Owner that all employees of the contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreement will be filed with the appropriate insurance carrier of, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.
- K. The contractor's failure to comply with any of these provisions is a breach of contract by the contractor which entitles the Owner to declare the contract void if the contractor does not remedy the breach within ten days after receipt of notice of breach from the Owner.

SC-6. CONTRACTOR'S RESPONSIBILITIES

SC-6.02 LABOR REQUIREMENTS - Preference shall be given to qualified local residents in the employment of laborers and mechanics for work on the project under this contract. No person under the age of sixteen years shall be employed on the project under this contract.

The CONTRACTOR will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The CONTRACTOR will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of his non-discrimination clause.

SC-6.08 Permits -The Contractor shall be responsible for acquiring all necessary permits associated with the construction of this project except those included in the Appendices.

SC-6.13 SAFETY PLAN - Contractor shall submit a safety plan to the Engineer and Owner prior to beginning construction.

- A. The safety plan shall detail the Contractor's plan to initiate, maintain and supervise safety precautions and programs pursuant to Article 6.13 of the General Conditions.
- B. The Contractor shall designate in writing and keep on the job site at all times during its process a competent, resident, technically qualified, English speaking superintendent, acceptable to the Owner and Engineer, who shall not be replaced without written notice to the Owner and Engineer except under extraordinary circumstances. This superintendent shall be the safety representative as required by Article 6.14 of the General Conditions.
- C. The safety representative shall conduct daily safety inspections of the job site and shall provide to the Owner, through the Engineer, a weekly log of safety inspections and the results thereof.

SC-6.17 Submittals - Details and manufacturer's information on all materials in the project shall be submitted to the Engineer in six (6) copies for approval within 14 days after the execution of the contract to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. One digital copy, in PDF file format, shall also be provided to SRA at time of submittal to Engineer for review. The contractor may proceed, only at his own risk, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved and no claim, by the Contractor, for extension of the contract time shall be granted by reason of his failure in this respect.

Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time, otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.

If a shop drawing is in accordance with the contract or involves only a minor adjustment in the interest of the Locality not involving a change in contract price or time; the engineer may approve the drawing. The approval shall not relieve the contractor from his responsibility for adherence to the contract or for any error in the drawing.

SC-6.19 Warranty - Neither the final Certificate of Completion nor any provision in the contract nor partial or entire use of the improvements included in this contract shall constitute an acceptance of work not done in accordance with this contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of 12 months from the date of the Certificate of Construction Completion. Acceptance and early warranty commencement (such as at substantial completion) for any portion of the project less than the entire project is not guaranteed. It would only be made in writing and only after all testing has been completed and only at the option of the Owner.

The warranty of 12 months from the Certificate of Construction Completion shall be longer where specifically called for in the specifications, contract documents, plans, or manufacturer's printed materials for various pieces of equipment.

SC-6.20 INDEMNIFICATION

A. **THE CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS THE OWNER AND ENGINEER, THEIR AGENTS, OFFICERS, AND EMPLOYEES FROM AND AGAINST ALL CLAIMS AND LIABILITIES ARISING UNDER OR BY REASON OF THE CONTRACT OR ANY PERFORMANCE OF THE WORK. THIS INDEMNITY EXPRESSLY EXTENDS TO CLAIMS ALLEGING NEGLIGENCE BY THE OWNER ITS AGENTS, OFFICERS OR EMPLOYEES ARISING FROM ACTIONS TAKEN OR OCCURRENCES UNDER THIS CONTRACT.** SUCH INDEMNIFICATION BY THE CONTRACTOR SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

1. LIABILITY OR CLAIMS RESULTING DIRECTLY OR INDIRECTLY FROM THE NEGLIGENCE OR CARELESSNESS OF THE CONTRACTOR, ITS EMPLOYEES, OR ITS AGENTS IN THE PERFORMANCE OF THE WORK, OR IN GUARDING OR MAINTAINING THE SAME, OR FROM ANY IMPROPER MATERIALS, IMPLEMENTS, OR APPLIANCES USED IN ITS CONSTRUCTION, OR BY OR ON ACCOUNT OF ANY ACT OR OMISSION OF THE CONTRACTOR OR ITS AGENTS;

2. LIABILITY OR CLAIMS ARISING DIRECTLY OR INDIRECTLY FROM OR BASED ON THE VIOLATION OF ANY LAW, ORDINANCE, REGULATION, ORDER, OR DECREE, WHETHER BY THE CONTRACTOR OR ITS AGENTS;
 3. LIABILITY OR CLAIMS ARISING DIRECTLY OR INDIRECTLY FROM THE USE OR MANUFACTURE BY THE CONTRACTOR, ITS AGENTS, OR THE OWNER OR ENGINEER IN THE PERFORMANCE OF THIS CONTRACT OF ANY COPYRIGHTED OR UNCOPYRIGHTED COMPOSITION, SECRET PROCESS, PATENTED OR UNPATENTED INVENTION, ARTICLE, OR APPLIANCE, UNLESS OTHERWISE SPECIFICALLY STIPULATED IN THIS CONTRACT;
 4. LIABILITY OR CLAIMS RESULTING DIRECTLY OR INDIRECTLY FROM THE BREACH OF ANY WARRANTIES, WHETHER EXPRESS OR IMPLIED, MADE TO THE OWNER OR ANY OTHER PARTIES BY THE CONTRACTOR OR ITS AGENTS;
 5. LIABILITIES OR CLAIMS ARISING DIRECTLY OR INDIRECTLY FROM THE WILLFUL MISCONDUCT OF THE CONTRACTOR, ITS EMPLOYEES, OR ITS AGENTS; AND,
 6. LIABILITIES OR CLAIMS ARISING DIRECTLY OR INDIRECTLY FROM ANY BREACH OF THE OBLIGATIONS ASSUMED HEREIN BY THE CONTRACTOR.
 7. **LIABILITIES OR CLAIMS OF WHATEVER KIND OR CHARACTER, ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE BY THE CONTRACTOR OF THOSE SERVICES CONTEMPLATED BY THIS AGREEMENT, BASED UPON ALLEGATIONS OF NEGLIGENT ACTS OF CONTRACTOR, ITS OFFICERS, AGENTS, EMPLOYEES, AND EXPRESSLY INCLUDING ALLEGATIONS OF NEGLIGENCE, ACTS OR OMISSIONS OF THE OWNER, THE ENGINEER, THEIR CONSULTANTS, AGENTS, OFFICERS OR EMPLOYEES, WHEN SUCH ALLEGATIONS OF NEGLIGENCE TO THE OWNER OR ENGINEER ARISE FROM THE ACTIONS AND WORK UNDERTAKEN BY CONTRACTOR HEREUNDER.**
- B. THE CONTRACTOR SHALL REIMBURSE THE OWNER, AND THE ENGINEER FOR ALL COSTS AND EXPENSES, (INCLUDING BUT NOT LIMITED TO FEES AND CHARGES OF ARCHITECTS, ENGINEERS, ATTORNEYS, AND OTHER PROFESSIONALS AND COURT COSTS) INCURRED BY SAID OWNER, AND THE ENGINEER IN ENFORCING THE PROVISIONS OF THIS ARTICLE.
- C. THE INDEMNIFICATION OBLIGATION UNDER THIS ARTICLE SHALL NOT BE LIMITED IN ANY WAY BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR THE CONTRACTOR OR ANY SUCH SUBCONTRACTOR OR OTHER PERSON OR ORGANIZATION UNDER THE

WORKERS' COMPENSATION ACT, DISABILITY BENEFIT ACTS, OR OTHER EMPLOYEE BENEFIT ACTS.

SC-6.22 SUBCONTRACTING - The CONTRACTOR shall not award any work to a Subcontractor without prior written approval of the OWNER which approval will not be given until the CONTRACTOR submits to the OWNER a written statement concerning the proposed award to the Subcontractor, which statement shall contain such information as the OWNER may require.

The Contractor will not be permitted to assign, sell, transfer or otherwise dispose of the contract or any portion thereof, or his rights, title or interest therein without the approval of the Owner. The Contractor will not be permitted to sublet any portion of the contract without the approval of the Owner and the Engineer. No sub-contract will, in any case, relieve the Contractor of his responsibility under the contract and bond.

The Contractor shall perform with his own organization and with the assistance of workmen under his immediate superintendence, work of a value not less than 50 percent of all work embraced in the contract exclusive of items not commonly found in contracts for similar work, or which require highly specialized knowledge, craftsmanship and/or equipment not ordinarily available in the organization of Contractors performing work of the character embraced in the contract. More than 50 percent of the work may only be subcontracted to another organization with the approval of the Owner, in which case a list of all subcontractors shall be provided to the Owner prior to the effective date of the agreement and within 10 days of the bid opening or provided with the bid proposal.

SC-6.23 COMPLIANCE WITH PREVAILING WAGE RATES - State law provides for the payment of minimum wage rates on public works projects, "Pursuant to Title 10, Government Code Chapter 2258, State Purchasing and General Services Vernon's Texas Civil Statutes, Contractor shall ascertain that all wages paid are in conformance with the general prevailing wage rates in the local area in which the work is to be performed." At the request of the Engineer, the Contractor shall submit weekly or biweekly payrolls showing that all provisions of the minimum wage rate requirements have been met with regard to this project.

SC-6.24 SALES TAX - The Owner qualifies as an exempt agency, and is not subject to State, County, or City sales taxes only to the extent allowable by law. The Contractor is advised to contact the State Comptroller's Office or other knowledgeable source in order to apprise himself of the possible impact of the current law.

The Contractor performing this contract may obtain allowable tax exemptions by issuing to his supplier a re-sale certificate in lieu of the tax. The Owner will issue the Contractor an exemption certificate for his records upon request. The

Contractor shall submit a breakdown for material to be incorporated within the project and other services and the total of the two items shall equal the contract amount. The statement of materials and services should be submitted prior to any payment being made to the Contractor.

SC-6.25 PROTECTION OF AND RESTORATION OF PROPERTY - The CONTRACTOR shall be responsible for the protection of adjacent or adjoining property or properties in any way encountered, which may be damaged or seriously affected by any process of construction to be performed under this agreement; and he shall be liable for any and all claims for such damage on account of his failure to fully protect all adjoining property.

The CONTRACTOR shall not enter public or private property for any purpose related to this agreement without prior consent of the OWNER or person or entity having the right of possession thereof. The CONTRACTOR shall notify the proper representative of any public utility, corporation or entity at least 48 hours in advance of work that might interfere with the use of such utility. When entering upon public or private property, including easements appurtenant to private property, the CONTRACTOR shall exercise great care to prevent damage to trees, fences, shrubbery, plants, culverts, lawns, driveways, pavement, overhead pole lines, underground utility and other lines, and all other property or appurtenances, private or public, on or adjacent to property entered for a purpose related to this agreement.

The CONTRACTOR shall be responsible for all damage or injury to property of any character resulting from any act, omission, neglect or misconduct in the manner or method of executing the work, or due to his non-execution of the work, or at any time due to defective work or materials, and said responsibility shall not be released until the work shall have been completed and accepted. When any damage or injury is done to public or private property on account of any act, omission, neglect, or misconduct in the execution of the work or in consequence of the non-execution thereof on the part of the CONTRACTOR, he shall restore or have restored at his sole cost, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as may be directed by the ENGINEER, or he shall make payment to the property OWNER for such damage or injury. If the CONTRACTOR should fail, refuse, or neglect to repair, rebuild, or otherwise restore such property, the OWNER may, upon 48 hours written notice, under ordinary circumstances, and without notice when a nuisance or hazardous condition results, proceed to repair, rebuild or otherwise restore such property as may be determined necessary and CONTRACTOR agrees to pay the reasonable cost to ENGINEER of such restoration or, in the alternative, the cost thereof will be

deducted from any monies due or to become due to the CONTRACTOR under this contract.

The CONTRACTOR agrees to defend, indemnify, save and hold the OWNER harmless against any claim or claims for damages to adjacent or adjoining property, or to any public or private property, arising or growing out of the performance of the contract or resulting from entry upon such property by CONTRACTOR.

A copy of any agreement or memorandum of agreement between the CONTRACTOR and any property in connection with the performance of this contract shall be filed with the OWNER during the term of this contract. The CONTRACTOR shall file an affidavit with the OWNER declaring that any claim or claims for damages to adjacent or adjoining property, or to any public or private property, arising or growing out of the performance of the contract or resulting from entry upon such property by CONTRACTOR have been reported to the OWNER and the insurance carrier for CONTRACTOR.

The filing of a copy of the agreement between the CONTRACTOR and the property OWNER and the affidavit reporting claims for damages shall be a condition precedent to acceptance of final payment under the contract.

If the CONTRACTOR must use County streets in his operation, he shall observe the following basic regulations:

- (1) The CONTRACTOR, at all times, shall conduct work so as to insure the least practicable inconvenience to traffic in accordance with the special provisions of the Detailed Specifications. No street or part of a street shall be closed at any time, unless otherwise shown on the plans or except as herein provided.
- (2) The CONTRACTOR shall provide and maintain suitable warning signals, barricades, and night lights where necessary, to direct and protect traffic, and shall carry out any orders thereon which may be given by the ENGINEER. No work shall be done in the street until barricades and warning signals for day and night have been provided and placed by the CONTRACTOR. Barricades, signs and handling of traffic shall be in accordance with the "Manual on Uniform Traffic Control Devices" as adopted by the Texas Department of Transportation, all in accordance with these plans and specifications.

SC-6.26

PUBLIC SAFETY AND CONVENIENCE - The safety of the public and the convenience of traffic shall be regarded as of prime importance. Unless otherwise shown on

the plans or except as herein provided, all portions of the street shall be kept open to traffic. It shall be the entire responsibility of the CONTRACTOR to provide for traffic along and across the street as well as for ingress and egress to private property all as specified herein, as shown on the plans, or as directed by the ENGINEER.

The CONTRACTOR shall plan and execute his operations in a manner that will cause the minimum interference with traffic. The CONTRACTOR shall secure the ENGINEER's approval of his proposed plan of operation, sequence of work and methods of providing for safe passage of traffic before it is placed into operation.

If at any time during construction, the approved plan does not accomplish the intended purpose, due to weather or other conditions affecting the safe handling of traffic, the CONTRACTOR shall immediately make necessary changes therein to correct the unsatisfactory conditions.

Where the specifications require, or the ENGINEER directs, that traffic be carried over or along the proposed work, construction operations shall be so prosecuted and new material kept as placed and spread as to allow the passage of traffic in comfort and safety. At night or otherwise, all equipment not in use shall be stored in such manner and at such locations as not to interfere with the safe passage of traffic. The CONTRACTOR shall provide and maintain flagmen at such points and for such periods of time as may be required to provide for the safety and convenience of public travel and CONTRACTOR's personnel, and as directed by the ENGINEER.

SC-7 **MISCELLANEOUS**

SC-7.07 Pre-Construction Conference - A pre-construction conference will be held between the Engineer, Owner, and Contractor prior to construction. The dates, time, and place will be announced after the project has been bid.

SC-7.08 Notification - The contractor shall be responsible for notifying the Owner at least two (2) weeks prior to disruption of water service. The contact person and phone number will be given to the Contractor at the pre-construction conference. Other notification requirements are listed in the plans and the specifications.

SC-7.09 As Built Plans - The Contractor shall provide to the Engineer, prior to and as a condition of release of retainage, a clean set of "As Built" plans. Such drawings shall be in accordance with Item 120, Project Record Documents, of the Technical Specifications.

SC-17.0 Operation and Maintenance Manuals and Training

- A. The Contractor shall obtain installation, operation, and maintenance manuals from manufacturers and suppliers for equipment furnished under the contract. The Contractor shall submit one hard copy and one electronic copy of each complete manual to the Engineer within 90 days after approval of shop drawings, product data, and samples, and not later than the date of shipment of each item of equipment to the project site or storage location.

- B. Each manual is to be bound in a folder and labeled to identify the contents and project to which it applies. The manual shall contain the following applicable items:
 - (1) A listing of the manufacturer's identification, including order number, model, and serial number.
 - (2) A list of recommended stock of parts, including part number and quantity.
 - (3) Complete replacement parts list.
 - (4) Specific instructions for installation, operation, adjustment, and maintenance.
 - (5) Exploded view drawings for major equipment items.
 - (6) Operations and maintenance manuals specified herein are in addition to any operation, maintenance, or installation instructions required by the Contractor to install, test, and start-up the equipment.

 - (7) The Owner shall require the Engineer to promptly review each manual submitted, noting necessary corrections and revisions. If the Engineer rejects the manual, the Contractor shall correct and resubmit the manual until it is acceptable to Engineer as being in conformance with design concept of project and for compliance with information given in the Contract Documents. Owner may assess Contractor a charge for reviews of same items in excess of three (3) times. Such procedure shall not be considered cause for delay. Acceptance of manuals by Engineer does not relieve Contractor of any requirements or terms of the Contract.

 - (8) The Contractor shall provide the services of trained, qualified manufacturer's technicians to check final equipment installation, to assist as required in placing same in operation, and to instruct operating personnel in the proper manner of performing routine operation and maintenance of the equipment.

SC-7.11 Sanitary Facilities - The Contractor shall be required to maintain sanitary facilities for his employees and subcontractors working on this project at the project site. Sanitary facilities shall be kept clean and shall regularly be serviced by a

professional sanitary organization. The Contractor shall have these facilities promptly removed from the site when the work is completed.

SC-7.12 Field Office and Materials Yard - **The Contractor will not be required to maintain a field office in this project, however, a lockable materials yard is required in order to be eligible for payment for materials on hand.**

The materials storage area shall be of adequate size to safely store all of the materials expected to be on hand but not installed. The area shall be fenced with a minimum six (6) foot hurricane fence with two strands of barbed wire across the top and shall have a lockable gate. The fencing shall be such that it will prevent unauthorized access to stored materials. This area shall be kept locked when unattended.

The Contractor shall maintain the field office within the storage area. A complete set of plans, and specifications and contract documents shall be kept at the Contractor's office. In lieu of telephone service, the contractor's superintendent shall maintain cellular phone service.

In addition, the Contractor shall maintain a field office at the storage area for the Engineer's use. The Engineer's office shall be equipped with a desk, layout table, two chairs, a file cabinet, and air conditioning. The Engineer's office shall have a minimum of 120 square feet of floor space and shall be well lighted. Electrical service shall be paid for by the Contractor. This office may be a part of the Contractor's office but must be constructed so as to provide a separate private office.

All buildings shall be subject to the approval of the Engineer. All buildings and temporary fencing shall be removed upon completion of the project.

SC-7.13 Payment for Materials On Hand - Payment for materials on hand will only be made for those materials stored in the secured area described above.

SC-7.14 Contractor Licenses - The Contractor and his sub-contractors shall maintain all such licenses required by the State of Texas to do work within the state for public and private entities and projects.

The Contractor's electrical sub-contractor shall have a State of Texas electrical contractor's license and shall have a Master Electrician on staff and in charge of the work embraced in this contract.

Any other Contractor or sub-contractor licensing requirements by local, state, or federal agencies having jurisdiction or interest in this project is hereby incorporated into these contract documents.

SC-7.15 ORDER OF PRECEDENCE - The order of Precedence for the contract shall be as follows:

1. Drawings
2. Technical Specifications
3. Special Conditions
4. General Conditions

SC-7.16 Progress Payments – Contractor shall provide a release of lien or proof of payment for all materials on hand for which Owner has made payment(s) to the Contractor on previous months invoices.

SC-7.17 Vendor Requirements

1. Contractor will need to be set up as a vendor and all relevant information, including but not limited to insurance requirements, W-9, and payment information.
2. All vendors are required to have a valid purchase order and/or service agreement from SRA prior to conducting any work on our property.

SC-7.18 Payment of Invoices

1. Invoices must be submitted to the division office with whom the business was conducted.
2. Invoices must reference a valid SRA purchase order number when possible, include a description of the goods or services, and include the amount being invoiced.
3. Any supporting documentation for the invoiced amounts will need to be included with the invoice to verify and support payment.
4. All invoices will be paid in full within forty-five (45) days after satisfactory deliver and billing or as otherwise agreed by contract.

GENERAL CONTRACTOR'S AFFIDAVIT
OF ALL BILLS PAID AND RELEASE OF LIENS

STATE OF TEXAS

COUNTY OF ORANGE

THAT I, the undersigned, being duly sworn, do depose and say that I was contracted by Sabine River Authority to construct, alter and/or repair the public facilities improvements identified as Sabine River Authority, Gulf Coast Division, E. Wynn Siphon Replacement.

THAT these improvements have been fully and satisfactorily completed in substantial conformity with the Contract.

THAT all the materials used in said improvement, all labor performed thereon, and all fees, insurance and Permits in connection with the said improvements, which might give rise to liens, have been paid in full.

THAT the foregoing statements are true and correct, and further, I am authorized to execute this document as an officer in the firm _____.

Name:

Title:

SUBSCRIBED AND SWORN to before me this ____ day of _____, 21_____.

Typed Name of Notary

Signature

My commission expires: _____

APPENDIX A
GEOTECHNICAL INFORMATION



Geotechnical Engineering Report

**SRA Orange County Canal System Siphon Replacement
Orange County, Texas**

August 14, 2020

Terracon Project No. CF205010

Prepared for:

Sabine River Authority of Texas
Orange, Texas

Prepared by:

Terracon Consultants, Inc.
Beaumont, Texas



August 14, 2020

Sabine River Authority of Texas
12777 Highway 97 North
Orange, Texas 77632



Attn: Mr. Mark Mann, P.E.
P: (409) 746 2192
E: mmann@sratx.org

Re: Geotechnical Engineering Report
SRA Orange County Canal System Siphon Replacement
East Wynn, Garrison, and Womack Siphons
Orange County, Texas
Terracon Project No. CF205010

Dear Mr. Mann:

We have completed the Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. PCF205010 dated July 24, 2020. This report presents the findings of the subsurface exploration and provides geotechnical construction considerations for trench safety and dewatering excavations for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon Consultants, Inc.

(Texas Firm Registration No. F-3272)

Brian C. Ridley, P.E.
Senior Project Manager

William M. Martin, P.E., APMP
Senior Geotechnical Engineer



REPORT TOPICS

INTRODUCTION.....	1
SITE CONDITIONS.....	1
PROJECT DESCRIPTION.....	2
GEOTECHNICAL CHARACTERIZATION.....	2
GEOTECHNICAL OVERVIEW	4
RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION	5
GENERAL COMMENTS.....	7

Note: This report was originally delivered in a web-based format. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
SITE LOCATION AND EXPLORATION PLANS
EXPLORATION RESULTS
SUPPORTING INFORMATION

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report

SRA Orange County Canal System Siphon Replacement

East Wynn, Garrison, and Womack Siphons

Orange County, Texas

Terracon Project No. CF205010
August 14, 2020

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed Lufkin ISD Tech Building planned at the existing East Wynn, Garrison, and Womack Siphons in Orange County, Texas. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Excavation considerations
- Dewatering

The geotechnical engineering Scope of Services for this project included the advancement of six test borings to depth of approximately 20 and 30 feet below existing site grades.

Maps showing the sites and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs in the **Exploration Results** section.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	<p>The project is located at three separate siphon sites designated as East Wynn, Garrison, and Womack Siphons along Womack Road and Highway 62 in Orange County, Texas.</p> <ul style="list-style-type: none"> ■ East Wynn Siphon approximate GPS: 30.158817°, -93.86425° ■ SRA Garrison Siphon: approximate GPS: 30.140742°, -93.823094° ■ SRA Womack Siphon approximate GPS: 30.129603°, -93.814044 <p>See Site Location</p>

Item	Description
Existing Improvements	Each siphon site is developed with an existing siphon system and canal with earthen embankments.
Current Ground Cover	Grass and weeds
Existing Topography	Based on a Google Earth Pro image, the topography at each site appears to vary with up to about 15-feet of elevation change between the levee crest and the levee toe.

PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Information Provided	The project includes the replacement of three separate siphons along the existing Sabine River Authority (SRA) Canal in Orange County, Texas. We were requested to perform six soil borings, two at each of the three project sites. We were also requested to provide a report comprised of final boring logs, generalized soil profiles, and laboratory test results along with construction considerations for trench safety and dewatering for open cut excavations. Engineering analysis and recommendations for the planned structures, shoring, and sheet piling were not requested and are therefore beyond our scope of services for this project.
Project Description	The location, footprint and depth of the planned excavations were not available to us at the time of this report; however, we understand each siphon will have about 5 feet of cover under the existing drainage ditch.

GEOTECHNICAL CHARACTERIZATION

We have developed a general characterization of the subsurface soil and groundwater conditions based upon our review of the data and our understanding of the geologic setting. The following paragraphs provide a representation of the subsurface characterization. A brief summary of field and laboratory data is also included.

This geotechnical characterization forms the basis of our geotechnical evaluation of the site. As noted in **General Comments**, the characterization is based upon widely spaced exploration points across the sites, and variations are likely.

In general, the soil stratigraphy at borings B-1 and B-3 through B-5 is possible fill material consisting of lean clay with variable amounts of sand and fat clay underlain with layers of lean clay, fat clay, silty clay with sand, silty sand, and sandy silt. In general, the soil stratigraphy in borings B-2 and B-6 is layers of lean clay with variable amounts of sand, silty sand, and poorly-graded sand with silt

The samples of fill and native lean clay with variable amounts of sand, fat clay, and silty clay with sand that were tested and classified using the Atterberg limits test had plasticity indices ranging from 16 to 51, indicating a low to high potential for shrink/swell movement. The sandy silt was non-plastic. The samples of sandy lean clay with variable amounts of sand, fat clay, silty clay with sand, and sandy silt were further classified by measuring the percent fines by testing the amount of material passing the No. 200 sieve. The values measured ranged from 54 and 98 percent passing the No. 200 sieve.

The samples of silty sand and poorly-graded sand with silt were classified using the percent fines determination. The percentage of fines (material passing the No. 200 sieve) measured in those samples ranged from 8 to 44 percent. The silty sand and poorly-graded sand with silt samples were non-plastic.

The granular soils in our borings are generally considered very loose to medium dense, as indicated by SPT values ranging from 3 to 15 blows per foot. The fine-grained soils in our borings are generally considered medium stiff to hard, as indicated by SPT values ranging from 6 to 12 blows per foot, pocket penetrometer values ranging from 0.5 to greater than 4.5 tons per square foot (tsf), and unconfined compressive strength values ranging from 0.89 to 4.93 tsf.

Conditions encountered at each boring location are indicated on the individual boring logs shown in the **Exploration Results** section and are attached to this report. Stratification boundaries on the boring logs represent the approximate location of changes in native soil types; however, the in-situ transition between materials may be gradual.

Groundwater Conditions

The boreholes were observed while drilling and immediately after completion for the presence and level of groundwater. The water levels observed in the boreholes can be found on the boring logs in **Exploration Results**, and are summarized below.

Boring Number	Approximate Boring Depth (feet) ¹	Approximate Depth to Groundwater While Drilling (feet) ¹	Approximate Depth to Groundwater After Completion ¹
B-1	30	11.5	9.5 and open to 30
B-2	20	3	3 and open to 20
B-3	30	17.5	16.5 and open to 30
B-4	30	17	17 and open to 30
B-5	30	15.5	15.5 and open to 30
B-6	20	13	7.5 and open to 20

¹. Below the existing ground surface

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the boring was performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the boring log. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

GEOTECHNICAL OVERVIEW

As requested, our geotechnical services for this project were limited to providing boring logs along with trench safety and dewatering considerations for open cut excavations. Geotechnical recommendations for the planned structures or for any shoring or sheet piling could be provided under a separate cover, upon request. If geotechnical recommendations for the planned structures or for any shoring or sheet piling are requested then information related to the planned excavation depths, structure elevations or piping alignments should be provided to Terracon.

The near surface soils could become unstable with typical earthwork and construction traffic, especially after precipitation events. Effective drainage should be completed early in the construction sequence and maintained after construction to avoid potential issues. If possible, the excavations should be performed during the warmer and drier times of the year.

We drilled six borings (2 borings at each siphon replacement location) to depths of 20 and 30 feet at the project site. A summary of our findings and recommendations is provided below.

- Possible fill material was observed from the ground surface to depths of about 10 and 12 feet in Borings B-1 and B-3 through B-5, drilled through the existing levee embankment.
- Groundwater was observed in Borings B-1 through B-6 at depths that ranged from about 3 to 17.5 feet during dry drilling.

- We anticipate that excavations within the clay soils may be constructed without advanced dewatering. Seepage that may occur in the clay soils is expected to be minor and can likely be handled utilizing a system of sumps and pumps.
- Sandy/silty soils were observed in borings B-1 through B-6 at depths that ranged from about 8 to 22 feet and extending to depths ranging from 20 to 30 feet, the termination depth of borings B-1 through B-3 and B-6. Excavations that extend into or through sandy or silty soils will likely require some form of advanced dewatering such as vacuum wellpoints, depending on the groundwater conditions at the time of construction.
- A hydraulic engineer should be engaged to determine the influence of potential water seepage and hydrostatic pressure from the adjacent canal on the excavations and dewatering systems.

The **General Comments** section provides an understanding of the report limitations.

RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

The following recommendations are based upon the data obtained in our field and laboratory programs, project information provided to us, and on our experience with similar subsurface and site conditions.

Excavation Considerations

For the open cut excavations, either excavated side slopes or vertical cut excavations are feasible. For vertical cut excavations greater than 5 feet in depth, excavations will require the use of a trench box or shoring and bracing to prevent sloughing and caving of the soil into the excavation. The contractor should use a trench box or shoring and bracing as necessary to maintain a safe and clean excavation which meets Occupational Safety and Health Administration (OSHA) requirements.

In lieu of shoring, bracing, or trench boxes for excavations greater than 5 feet, OSHA standards provide recommendations for the design of temporary sloped excavations with a depth less than 20 feet. The OSHA standards provide maximum allowable slopes contingent on three designated soil types: Type A, Type B, or Type C. The Contractor's designated Competent Person (as defined by the OSHA Standard, 29 CFR Part 1926.650 to .652, Subpart P - Excavations) should determine at the time of construction if the soils in the excavation should be classified as Type B or Type C. Any submerged soil or soil from which water is freely seeping must be classified as Type C. The Competent Person must evaluate the excavations at the time of construction activity to safeguard workers.

The following excavation slopes for excavation depths less than 20 feet are recommended by OSHA, based on OSHA soil type. As stated in the OSHA standards, sloping or benching for

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SRA Orange County Canal System Siphon Replacement ■ Orange County, Texas
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excavations greater than 20 feet deep shall be designed by a registered professional engineer. Terracon should be contacted to provide additional services if sloped or benched excavations deeper than 20 feet are planned on the project. The surface slopes should be protected from deterioration and weathering if they are left open for significant periods of time.

OSHA Soil Type	Temporary Trench Excavation Slope
A	0.75H:1.0V
B	1.0H:1.0V
C	1.5H:1.0V

All excavations should meet OSHA requirements. In the areas where sand is present, open cut slopes less than 20 feet high should be formed with a slope of 1.5 horizontal to 1 vertical (1.5H:1V) or flatter. If water infiltration occurs, or sand layers and seams or slickensided clays are encountered during excavation, then flatter side slopes may be required for open cuts.

We recommend that no equipment be operated within a horizontal distance equal to the excavation depth from the edge of the excavation and no materials should be stockpiled within this distance. Excavations should not approach closer than a horizontal distance equivalent to the excavation depth from existing structures (such as the existing levee embankments) or buried utilities without some form of protection for the facilities. The maximum height of the stockpiled material should not be greater than 4 feet.

Excavations should be performed with equipment capable of providing a relatively clean bearing area. Excavating equipment should not disturb the soil beneath the design excavation bottom and should not leave loose soil in the excavation.

The bearing surface should be protected against disturbance and deterioration by completing the utility replacement and backfilling operations as quickly as possible. The excavation bottom should be properly sloped to allow water infiltrating into the excavation to be collected at a convenient location along the edge of the excavation. Proper berming or ditching should be done to divert any surface runoff away from the excavations. Water should not be allowed to stand within the bearing area.

Groundwater Control

Based on the information presented in the “**Groundwater Conditions**” section of this report, we anticipate that excavations within the clay soils may be constructed without advanced dewatering. Seepage that may occur in the clay soils is expected to be minor and can likely be handled utilizing a system of sumps and pumps, depending on the groundwater levels at the time of construction. Additionally, a hydraulic engineer should be engaged to determine the influence of potential water

seepage and hydrostatic pressure from the adjacent canal on the excavations and dewatering systems.

Excavations that extend into or through sand/silt soils will likely require some form of advanced dewatering such as vacuum wellpoints, depending on the groundwater conditions at the time of construction. Groundwater is typically controlled by the installation of vacuum wellpoints. However, vacuum wellpoints are generally less effective below a depth of about 15 feet beneath the top of the well-point. Deeper dewatering typically requires eductors or deep wells with submersible pumps or multi-stage well-point systems.

The suggested methods given above serves as a guideline for groundwater control; other appropriate means may be required for groundwater control during construction. Control of groundwater should be accomplished in a manner that will preserve the strength of the soils, will not cause instability of the excavation, and will not result in damage to existing structures, if any. If necessary the water should be lowered in advance of backfilling activities by well point, deep wells, eductors, or similar methods. Open pumping should not be permitted if it results in boils, loss of fines, softening of the subgrade, or excavation instability. Wellpoints, deep wells, and eductors should be installed with suitable screen filter so that pumping of fines does not occur.

The well system should be in operation for at least 3 to 5 days prior to excavating to the design depth. We recommend that the groundwater head be lowered at least 3 feet below the bottom of the excavation to provide a working area with increased stability. The dewatering should continue until the construction has been completed, and the dewatering system should be turned off in stages to allow groundwater to recover to its original level gradually, over a period of about 3 to 5 days.

The dewatering of loose to medium dense sands/silts might cause subsidence or compression of adjacent soils and adjacent structures, in spite of safeguards and methodology selected and used. Therefore, the dewatering operations must be performed and provided with great care to ensure caution and control of the potential subsidence resulting from the dewatering operations.

To further evaluate groundwater conditions at the time of construction, piezometers can be set just prior to construction. As an alternative, test pits may be excavated to the planned excavation depth. Based on the results, the contractor should determine effective methods of groundwater management prior to starting excavation operations.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur across the sites, between exploration point locations, or due to the modifying effects of

Geotechnical Engineering Report

SRA Orange County Canal System Siphon Replacement ■ Orange County, Texas
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construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other services should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Number of Borings	Approximate Boring Depth (feet) ¹	Boring Location
1 (B-1)	30	East Wynn Siphon Levee Crest
1 (B-2)	20	East Wynn Siphon Levee toe
1 (B-3)	30	Garrison Siphon East Levee Crest
1 (B-4)	30	Garrison Siphon West Levee Crest
1 (B-5)	30	Womack Siphon Levee Crest
1 (B-6)	20	Womack Siphon Levee Toe

1. Below ground surface.

Boring Layout and Elevations: SRA personnel provided the boring layout and marked the boring locations in the field. Coordinates were obtained using a hand-held GPS unit, and these are shown on the boring logs. The boring locations and their coordinates should be considered accurate only to the degree implied by the means and methods used to stake the borings on the ground and obtain that information. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: We advanced the borings with a track-mounted rotary drill rig using continuous flight augers (solid stem). Five samples were obtained in the upper 10 feet of the boring and at intervals of 5 feet thereafter. In the thin-walled tube sampling procedure, a thin-walled, seamless steel tube with a sharp cutting edge is pushed hydraulically into the soil to obtain a relatively undisturbed sample. Hand penetrometer tests are performed on these soil samples. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon is driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring log at the test depths. We observed and recorded groundwater levels during drilling and sampling. For safety purposes, the borings were backfilled with auger cuttings after their completion.

An automatic SPT hammer was used in advancing the split-barrel sampler in all the boring. A greater efficiency is typically achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. Published correlations between the SPT N-values and soil properties are based on the lower efficiency cathead and rope method. The higher efficiency of an automatic SPT hammer affects the SPT N-value by increasing the penetration per hammer blow over what would be obtained using the cathead and rope method. The effect of the

Geotechnical Engineering Report

SRA Orange County Canal System Siphon Replacement ■ Orange County, Texas
August 14, 2020 ■ Terracon Project No. CF205010



automatic hammer efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring log. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared a field boring log as part of the drilling operations. The field log included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. A final boring log was prepared from the field log. The final boring log represents the Geotechnical Engineer's interpretation of the field log and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM D422 Standard Test Method for Particle-Size Analysis of Soils
- ASTM D2166/D2166M Standard Test Method for Unconfined Compressive Strength of Cohesive Soil

The laboratory testing program included examination of soil samples by an engineer. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.

EXHIBIT - SITE LOCATION PLAN

SRA Orange County Canal System Siphon Replacement ■ Orange County, Texas
August 14, 2020 ■ Terracon Project No. CF205010

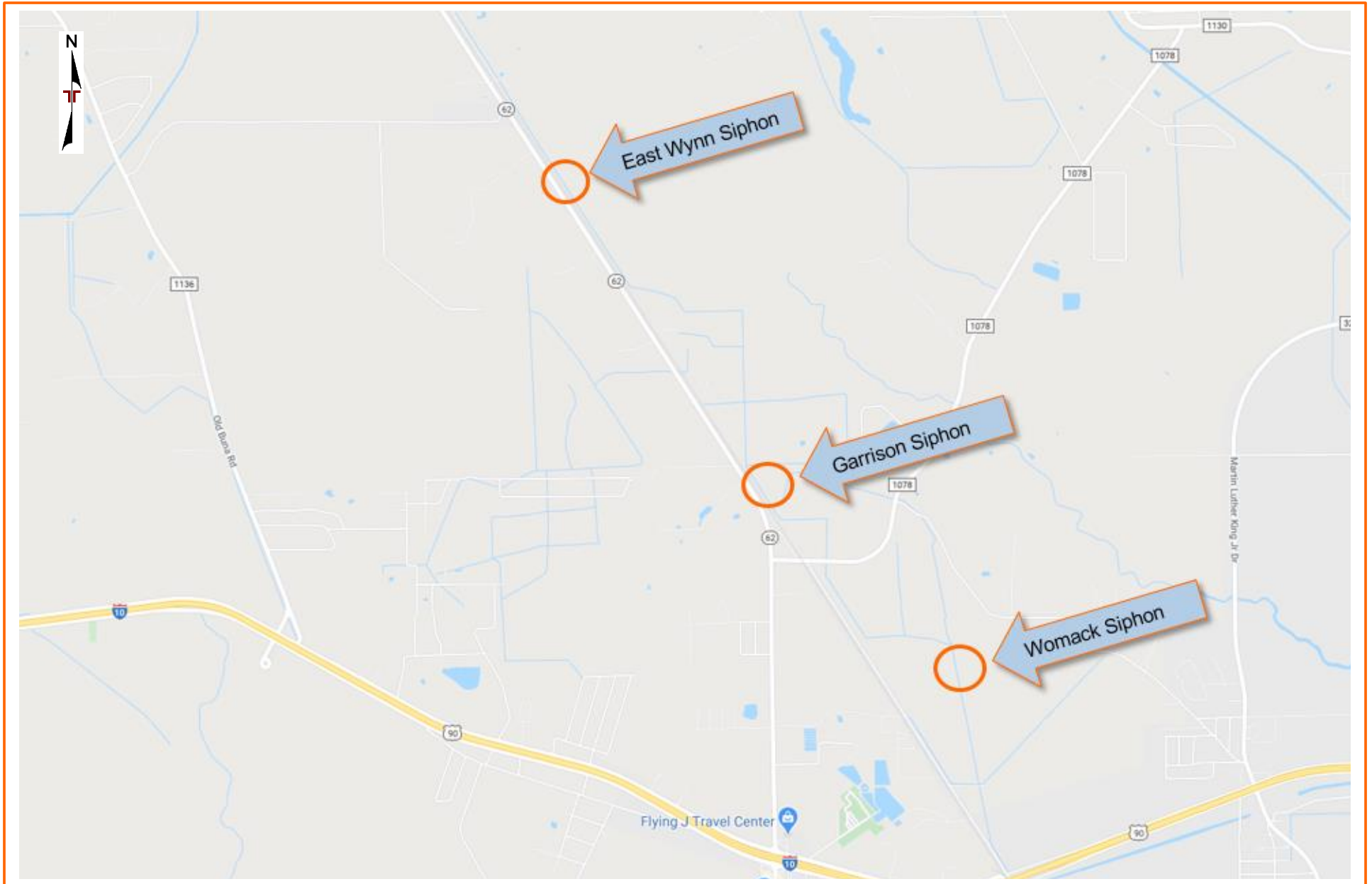


DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION
PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXHIBIT - EXPLORATION LOCATION PLAN

SRA Orange County Canal System Siphon Replacement ■ Orange County, Texas
August 14, 2020 ■ Terracon Project No. CF205010



DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION
PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY
Google Earth Pro™

EXPLORATION RESULTS

Contents:

Boring Logs (B-1 through B-6)

Note: All attachments are one page unless noted above.

BORING LOG NO. B-2

PROJECT: SRA Orange County Canal System Siphon Replacements

CLIENT: Sabine River Authority of Texas
Orange, Texas

SITE: East Wynn, Garrison and Womack Siphons
Orange County, Texas

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 30.1587° Longitude: -93.3625°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES	
						TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)					
	See Exploration Plan Latitude: 30.1587° Longitude: -93.3625°	0			1.5 (HP)				16.1		30-14-16	76	
		4.0	▽		0.5 (HP)								
		5			2.75 (HP)	1.21	9.8	19.9	108	31-15-16	54		
		8.0			2.0 (HP)								
		10		X	3-5-8 N=13								
		15		X	4-7-8 N=15			25.2	NP	8			
		20		X	5-6-9 N=15								
Boring Terminated at 20 Feet													

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Dry auger to 20 feet

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

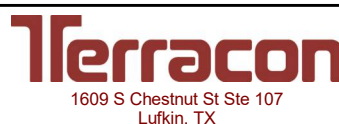
Notes:
EAST WYNN SIPHON LEVEE TOE

Abandonment Method:
Boring backfilled with auger cuttings

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

- ▽ during drilling
- ▽ after completion



Boring Started: 08-05-2020

Boring Completed: 08-05-2020

Drill Rig: Track

Driller: M. Hicks

Project No.: CF205010

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CF205010.GPJ TERRACON_DATATEMPLATE.GDT 8/14/20

BORING LOG NO. B-3

PROJECT: SRA Orange County Canal System Siphon Replacements

CLIENT: Sabine River Authority of Texas
Orange, Texas

SITE: East Wynn, Garrison and Womack Siphons
Orange County, Texas

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 30.1406° Longitude: -93.823°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
						TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)				
					2.5 (HP)							
	4.0				1.0 (HP)	1.40	8.1	22.6	100	50-15-35	94	
			5		0.5 (HP)							
					0.5 (HP)	0.91	13.2	29.8	85	49-20-29	97	
			10		1.0 (HP)							
			15		1.25 (HP)							
			20		1.75 (HP)							
			25		3-2-3 N=5				31.4		NP	59
			30		4-3-3 N=6							
			30		Boring Terminated at 30 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Dry auger to 30 feet

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

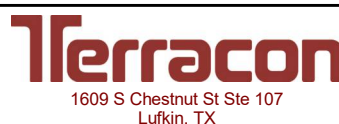
Notes:
GARRISON SIPHON EAST LEVEE CREST

Abandonment Method:
Boring backfilled with auger cuttings

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

- during drilling
- after completion



Boring Started: 08-06-2020

Boring Completed: 08-06-2020

Drill Rig: Track

Driller: M. Hicks

Project No.: CF205010

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BORING LOG NO. B-4

PROJECT: SRA Orange County Canal System Siphon Replacements

CLIENT: Sabine River Authority of Texas
Orange, Texas

SITE: East Wynn, Garrison and Womack Siphons
Orange County, Texas

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 30.1405° Longitude: -93.8231°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS		PERCENT FINES
						TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)			LL-PL-PI		
	See Exploration Plan Latitude: 30.1405° Longitude: -93.8231°	5			1.0 (HP)								
		1.5 (HP)											
		0.5 (HP)											
		1.0 (HP)				0.89	6.9	37.4	77	75-24-51	98		
		1.5 (HP)											
		2.5 (HP)				1.30	7.5	40.2	78	67-33-34	96		
		1.0 (HP)											
		2-4-5 N=9						31.0		22-16-6	70		
		3-1-2 N=3											
		Boring Terminated at 30 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Dry auger to 30 feet

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

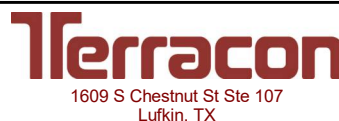
Notes:
GARRISON SIPHON WEST LEVEE CREST

Abandonment Method:
Boring backfilled with auger cuttings

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

▽ during drilling
▽ after completion



Boring Started: 08-05-2020

Boring Completed: 08-05-2020

Drill Rig: Track

Driller: M. Hicks

Project No.: CF205010

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - CF205010.GPJ TERRACON_DATATEMPLATE.GDT 8/14/20

BORING LOG NO. B-5

PROJECT: SRA Orange County Canal System Siphon Replacements

CLIENT: Sabine River Authority of Texas
Orange, Texas

SITE: East Wynn, Garrison and Womack Siphons
Orange County, Texas

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 30.1284° Longitude: -93.8076°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	
						TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)			LL-PL-PI	PERCENT FINES
	2.0	2.0		X	6-8-8 N=16			9.7		NP	92	
	5.0	5.0		X	5-4-3 N=7							
	10.0	10.0		X	3-3-3 N=6			15.7		33-15-18	88	
	15.0	15.0		X	4-6-6 N=12							
	17.0	17.0		X	0-4-4 N=8							
	20.0	20.0		X	4-5-7 N=12							
	25.0	25.0		X	3-2-5 N=7			28.1		NP	44	
	30.0	30.0		X	7-6-6 N=12							
	30.0	30.0		X	5-5-5 N=10			35.6		61-22-39	96	
	Boring Terminated at 30 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Dry auger to 30 feet

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:
WOMACK SIPHON LEVEE CREST

Abandonment Method:
Boring backfilled with auger cuttings

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

- during drilling
- after completion



Boring Started: 08-04-2020

Boring Completed: 08-04-2020

Drill Rig: Track

Driller: M. Hicks

Project No.: CF205010

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - CF205010.GPJ TERRACON_DATATEMPLATE.GDT 8/14/20

BORING LOG NO. B-6

PROJECT: SRA Orange County Canal System Siphon Replacements

CLIENT: Sabine River Authority of Texas
Orange, Texas

SITE: East Wynn, Garrison and Womack Siphons
Orange County, Texas

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 30.128° Longitude: -93.8073°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
						TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)				
LEAN CLAY (CL), gray, stiff to hard - tan below 6 feet 8.0					4.5+ (HP)							
					4.5+ (HP)	4.93	10.6	14.0	111	41-14-27	95	
			5	X	3-4-4 N=8							
				▽	2.0 (HP)	1.23	7.4	24.0	99	32-16-16	99	
					0.5 (HP)							
SILTY SAND (SM), gray, loose to medium dense 20.0												
			15	X	4-4-5 N=9			27.9		NP	15	
					4-4-6 N=10			28.6		NP	25	
Boring Terminated at 20 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Dry auger to 20 feet

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:
WOMACK SIPHON LEVEE TOE

Abandonment Method:
Boring backfilled with auger cuttings

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

- ▽ during drilling
- ▽ after completion



Boring Started: 08-04-2020

Boring Completed: 08-04-2020

Drill Rig: Track

Driller: M. Hicks

Project No.: CF205010

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CF205010.GPJ TERRACON.DATATEMPLATE.GDT 8/14/20

SUPPORTING INFORMATION

Contents:

General Notes








Unified Soil Classification System

Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SRA Orange County Canal System Siphon Replacements ■ Orange County, Texas
Terracon Project No. CF205010

SAMPLING	WATER LEVEL	FIELD TESTS
 Auger Cuttings  Shelby Tube  Standard Penetration Test	 Water Initially Encountered  Water Level After a Specified Period of Time  Water Level After a Specified Period of Time  Cave In Encountered <p>Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.</p>	<p>N Standard Penetration Test Resistance (Blows/Ft.)</p> <p>(HP) Hand Penetrometer</p> <p>(T) Torvane</p> <p>(DCP) Dynamic Cone Penetrometer</p> <p>UC Unconfined Compressive Strength</p> <p>(PID) Photo-Ionization Detector</p> <p>(OVA) Organic Vapor Analyzer</p>

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See [Exploration and Testing Procedures](#) in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS		CONSISTENCY OF FINE-GRAINED SOILS		
(More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		(50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength Qu, (tsf)	Standard Penetration or N-Value Blows/Ft.
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification		
				Group Symbol	Group Name ^B	
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3$ ^E	GW	Well-graded gravel ^F	
			$Cu < 4$ and/or $[Cc < 1 \text{ or } Cc > 3.0]$ ^E	GP	Poorly graded gravel ^F	
		Gravels with Fines: More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}	
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}	
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	$Cu \geq 6$ and $1 \leq Cc \leq 3$ ^E	SW	Well-graded sand ^I	
			$Cu < 6$ and/or $[Cc < 1 \text{ or } Cc > 3.0]$ ^E	SP	Poorly graded sand ^I	
		Sands with Fines: More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}	
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}	
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	$PI > 7$ and plots on or above "A" line	CL	Lean clay ^{K, L, M}	
			$PI < 4$ or plots below "A" line ^J	ML	Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay ^{K, L, M, N}
			Liquid limit - not dried			Organic silt ^{K, L, M, O}
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}	
			PI plots below "A" line	MH	Elastic Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay ^{K, L, M, P}
			Liquid limit - not dried			Organic silt ^{K, L, M, Q}
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat	

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

$$Cu = D_{60}/D_{10} \quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

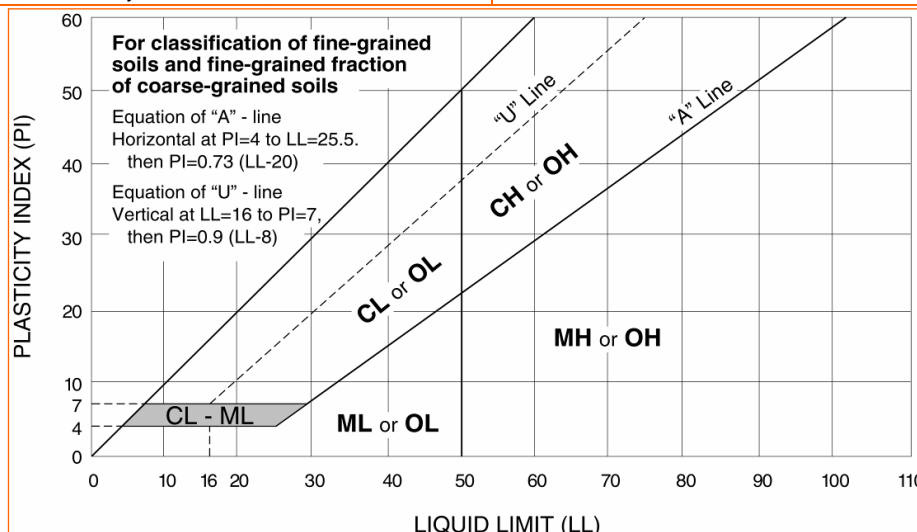
^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.



Sabine River Authority of Texas
Womack Siphon Replacement
Technical Specifications

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Item 01 57 13 - EROSION AND SEDIMENTATION CONTROLS

01-57-13.01 DESCRIPTION

This Item shall govern erosion and sedimentation control related practices which must be utilized during construction activities. General source controls for storm water pollution prevention measures are addressed in and governed by Technical Specification 01 57 23.

No clearing and grubbing, rough cutting, or grading/reshaping activities shall be permitted until erosion and sedimentation control systems are in place.

All construction operations under this Contract shall be performed in strict compliance with the erosion control practices described in this item, as a minimum. Substitute and/or additional erosion control practices or measures may be submitted for approval by the Owner; or in the case of Contractor's practices which create erosion or pollution issues, the Owner will require Contractor to implement temporary measures to control erosion at no additional cost to the Owner.

All sediment controls installed in association with this project shall be removed upon final acceptance of surface restoration.

01-57-13.02 MATERIALS

Hay Bales. Square hay bales having minimum length of 30" and weighing not less than 50 lbs each may be staked in in positions as designated on the plans to establish a sediment control (SC) boundary. Bales must be bound by wire, nylon, or polypropylene string and shall be composed entirely of vegetative matter.

Hay bales shall be embedded in the soil a minimum of 4" and securely anchored with 3/8" rebar or 2"x2" wood stakes driven through the bales. The first anchor stake should be angled toward the adjacent bale to force them together and the second anchor stake should be driven perpendicular to the top surface of the bale.

Hay bales shall be placed in rows with ends tightly abutting the adjacent bales and positioned with bindings parallel to the ground.

Sediment Control (Filter Fabric) Fence. Sediment control fence (SCF) or Filter Fabric Fence (FFF) shall be more fully defined as net-reinforced fence with woven geotextile filter fabric as specified herein.

Posts – Provide essentially straight wood or steel posts with a minimum length of 48", unless otherwise shown on the plans. Acceptable posts shall conform to the follow criteria:

- Soft wood posts not less than 3" in diameter, or
- Soft wood boards nominally 2" × 4", or
- Hardwood posts with a minimum cross-section of 1.5" × 1.5", or
- T-shaped or L-shaped steel posts with a minimum weight of 1.25 lb. per foot.

Net Reinforcement – Galvanized, welded wire mesh of at least 12.5 gauge (SWG) shall be used. Installed reinforcement shall be a minimum of 24” tall, unless otherwise specified in the plans and have a maximum opening size of 2” x 4”.

Filter Fabric – Provide a woven geotextile fabric whose primary use is for control of sediment in surface runoff water.

Staples – Provide staples with a crown at least ¾” wide and legs ½” long to secure fabric to wooden posts. Provide appropriately sized clips when utilizing steel posts to secure fabric. Staples or clips must be sufficiently secure and spaced to prevent sagging, buckling, or tear-away of fabric when subjected to flowing water and sediment containment loading.

01-57-13.03 CONSTRUCTION

The Owner has the authority to define erodible earth and the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, regrading, excavation, borrow and embankment to be proportional to the Contractor’s capability and progress in keeping the finish grading, mulching, seeding, and other permanent pollution prevention control measures current. The amount of surface area of erodible earth material exposed at one time for the construction operations shall not exceed 5 acres unless otherwise approved in writing by the Owner.

Contractor shall be responsible for implementing a storm water pollution prevention plan (SWPPP) for the project site in accordance with the plans and specifications, TPDES General Permit TXR150000, and as directed. Coordinate storm water management with all other work on the project. Contractor shall be responsible for preventing water pollution from storm water associated with construction activity from entering any surface water or private property on or adjacent to the project site

Equipment and vehicles shall be strictly prohibited by the Contractor from maneuvering on areas outside of the dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.

Erosion and Sedimentation Control. Contractor shall install and continuously maintain, to the satisfaction of the Owner, erosion and sedimentation control structures in locations designated on the Plans. No deviation from the location or alignment of said control structures is permissible without written consent from the Owner.

Not less than 10 business day prior to commencement of sediment control structure installations, Contractor shall submit his choice of material(s), including selected locations for each type of feature to the Owner for approval.

Upon completion of the project, all temporary erosion and sedimentation control structures shall be removed and the ground surface restored.

Temporary Seeding. Temporary seeding methods shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Temporary seeding shall be done according to the specification item “Seeding”, subparagraph “Broadcast

Seeding". If performed, Temporary Seeding as described herein will not be measured or paid for separately but will be considered subsidiary to pay item for "Erosion and Sedimentation Controls".

01-57-13.04 MEASUREMENT

Measurement of this Item, as specified herein and listed in the Bid, shall be by "Lump Sum". No additional measure will be made for temporary seeding, sediment control structure maintenance, or similar activity. Removal and final disposition of temporary sediment control and erosion measures shall not be measured separately.

01-57-13.05 PAYMENT

Partial payments of the lump sum bid value for this Item shall be as follows.

- A. When the initial sediment control barriers are installed and accepted, the lesser of 50% of the Erosion and Sedimentation Controls lump sum bid or 3% of the total contract amount will be eligible for payment.
- B. When 50% of the adjusted contact amount for construction items is earned, the lesser of 75% of the Erosion and Sedimentation Controls lump sum bid or 5% of the total contract amount will be eligible for payment. Any previous payment under this item will be deducted from the above amount.
- C. Upon completion and acceptance of all work under this contract, including removal of features installed in accordance with the Item and accepted surface restoration, payment for the remainder of the Erosion and Sedimentation Controls lump sum bid will be made.

Any and all sediment control structure maintenance, dust control activities, and temporary seeding shall be considered incidental to Contractor's performance of Work and will not be eligible for separate payment.

END OF SECTION 01 57 13

Item 01 57 23 - GENERAL SOURCE CONTROLS

01-57-23.01 DESCRIPTION

This Item shall govern general storm water pollution prevention measures which must be utilized during construction activities. Erosion and sedimentation control related practices are specifically addressed in and governed by Technical Specification 01 57 13.

01-57-23.02 EXECUTION

Equipment Maintenance and Repair. Maintenance and repair of construction machinery and equipment must be confined to areas specifically designated for that purpose. Such designated areas must be located and designed such that oils, gasoline, greases, solvents, and other potential pollutants cannot be washed directly into receiving streams, storm water conveyance systems, or freshwater supply canals. The maintenance and repair area(s) must be provided with adequate waste disposal receptacles for liquid as well as solid wastes. Maintenance areas should be cleaned and inspected daily. Contractor shall submit, for approval by the Owner, his plan for an equipment maintenance and repair area.

On construction sites where work on equipment in the designated area is not feasible (i.e. equipment cannot be moved to the designated area with repair in its current location) care must be taken during each individual repair or maintenance operation to prevent potential pollutants from becoming available to be washed into streams or conveyance systems.

Waste Collection and Disposal. Contractor shall formulate a plan for the collection and disposal of waste materials on the construction site. The plan must designate locations for trash and waste receptacles and establish a collection schedule. Methods for ultimate disposal of waste must be specified and carried out in accordance with local, state, and federal health and safety regulations. Special provisions must be made for collection and disposal of liquid wastes and toxic or hazardous materials.

Receptacles and other waste collection areas must be kept neat and orderly to the extent possible. Waste shall not be allowed to overflow its container or accumulate for excessively long periods of time. Trash collection points must be located where they will least likely be affected by concentrated storm water runoff.

Washing Areas. Vehicles such as concrete or dump trucks and other construction equipment must not be washed at locations where the runoff will flow directly into receiving streams, storm water conveyance systems, or freshwater supply canals. Special areas must be designated for vehicle washing. These areas should 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. Wash areas must have gravel or rock bases to minimize mud generation.

Storage of Construction Materials, Chemicals, Etc. Sites where chemicals, cements, solvents, paints, or other potential water pollutants are to be stored, must be isolated 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 the manufacturer's guidelines. Groundwater resources must be protected from leaching

by placing a plastic mat, packed clay, tar paper, or other impervious materials on any areas where toxic liquids are to be opened or stored.

Demolition Areas. Demolition projects can generate large amounts of dust with significant concentrations of heavy metals or other toxic pollutants. Dust control techniques shall be used to limit the transport of airborne pollutants. Any water or slurry used to control dust associated with demolition activities must be retained, collected, and disposed of in an approved manner, and not allowed to run directly into watercourses or water conveyance systems.

Sanitary Facilities. All construction sites must be provided with adequate sanitary facilities for workers in accordance with applicable health regulations.

Pesticides. Pesticides used during construction should be stored and used in accordance with manufactures' guidelines and with local, state, and federal regulations. Overuse should be avoided and great care taken to prevent accidental spillage. Pesticide containers must never be washed in or near watercourses or water conveyance systems.

01-57-23.03 SUBMITTALS

Contractor shall submit, for approval by the Owner, his plan for compliance with each of the subparagraphs listed in the Execution section of this Item.

01-57-23.04 MEASUREMENT

Measurement of this Item will not be made.

01-57-23.05 PAYMENT

This Item shall be considered incidental to Contractor's performance of Work and will not be eligible for separate payment.

END OF SECTION 01 57 23

Item 01 71 13 - MOBILIZATION

01-71-13.01 DESCRIPTION

This Item shall govern the mobilization of personnel, equipment, and supplies to and from the project site in preparation for beginning work and completing work on contract items. Mobilization shall include, but is not limited to, movement of personnel, equipment, materials, supplies, etc. to the project site and the establishment of office or other facilities necessary prior to beginning the work.

01-71-13.02 MEASUREMENT

Measurement of this Item, as specified herein and listed in the Bid, shall be by "Lump Sum", as the work progresses.

01-71-13.03 PAYMENT

Partial payments of the lump sum bid value for this Item shall be as follows. The adjusted contract amount for construction items as used below is defined as the total contract amount less the lump sum bid amount for Mobilization.

- A. When 1% of the adjusted contact amount for construction items is earned, the lesser of 50% of the Mobilization lump sum bid or 5% of the total contract amount will be eligible for payment.
- B. When 5% of the adjusted contact amount for construction items is earned, the lesser of 75% of the Mobilization lump sum bid or 10% of the total contract amount will be eligible for payment. Any previous payment under this item will be deducted from the above amount.
- C. When 10% of the adjusted contact amount for construction items is earned, the lesser of 90% of the Mobilization lump sum bid or 10% of the total contract amount will be eligible for payment. Any previous payment under this item will be deducted from the above amount.
- D. Upon completion and acceptance of all work under this contract, payment for the remainder of the Mobilization lump sum bid will be made.

END OF SECTION 01 71 13

Item 01 71 33 - EXISTING UTILITIES & PIPELINES

01-71-33.01 DESCRIPTION

This Item shall govern the identification and protection of aerial and subsurface pipelines and utilities within the construction area.

01-71-33.02 GENERAL

Utility and pipeline locations shown on the plans are for informational purposes only and may not represent all underground features or be shown in their exact positions. The Contractor shall be responsible for locating and protecting all aerial and underground lines within the construction area during his activities and for support and maintenance in position of all pipes, ducts, conduits or other existing feature.

The Contractor is fully responsible for identification and location of ALL pipelines and utilities in the construction area which may be affected by or impact his activities. The Contractor shall be responsible for any damage to existing pipeline and utilities and shall promptly repair same, or make arrangements for such repair with the owner of the feature involved.

01-71-33.03 ADDITIONAL INVESTIGATION

Positive visual confirmation of underground line size and location shall be required for any line marked by the facility owner within 5' of the proposed installation of any concrete or steel pile. Visual confirmation shall be by hydro-excavation. Contractor shall notify Owner of any pipelines identified with 5' radius of anticipated pile installations. Contractor shall coordinated and hire hydro-excavation services.

01-71-33.04 COORDINATION REQUIREMENTS

In all cases the Contractor shall coordinate his work with the owners of the various pipelines and utilities and shall notify their proper representative not less than forty-eight (48) hours in advance of any work in the vicinity of the line.

No pipeline or utility adjustments are anticipated in association with this contract. Any identified obstruction to installation of work in accordance with the plans shall be immediately reported to the Owner for assessment.

01-71-33.05 MEASUREMENT

Direct measurement of this Item will not be made.

01-71-33.06 PAYMENT

Contractor shall coordinate with project Owner, utility/pipeline owners, and with hydro-excavation provider as required, for the location and protection of underground utilities. Contractor shall pay for required hydro-excavation services outside of this Contract, and project Owner shall reimburse Contractor for direct cost of hydro-excavation services, plus 10% mark-up for Contractor's coordination services.

All activities related to this item, except hydro-excavation services, shall be considered incidental to pay items provided for in the Bid and Contractor's performance of Work and will not be eligible for separate payment.

END OF SECTION 01 71 33

Item 01 78 39 - PROJECT RECORD DOCUMENTS

01-78-39.01 DESCRIPTION

This Item shall govern the preparation and maintenance of record documents for the project to accurately reflect the construction "As Built." Documents must be maintained up to date on an ongoing basis. Proof of this shall be required for each monthly pay estimate. Documents must also be submitted at work completion as a condition of final acceptance.

01-78-39.02 GENERAL JOBSITE RECORD MAINTENANCE

For the duration of the project, the Contractor shall maintain, at the job site, one copy of:

1. Contract drawings.
2. As-Built drawings.
3. Specifications.
4. Addenda.
5. Reviewed shop drawings.
6. Change orders and field orders.
7. Other contract modifications.
8. Field test records.
9. Project correspondence.

Label each document "PROJECT RECORD" in neat, large, printed letters. Store record documents in an approved location apart from documents used for construction. Do not use record documents for construction purposes. Maintain orderly field files. Maintain documents in clean, dry, legible condition. Make documents and samples available at all times for inspection by the Owner.

01-78-39.03 PROJECT RECORD MAINTENANCE

All deviations from the construction plans, whether new installation or "as-found" at the site, shall be marked legibly in RED INK.

Keep record documents current. Do not permanently conceal any work until required information has been recorded.

Legibly mark contract drawings to record actual construction:

1. Alignment and profile of all pipes, including location and depth of any appurtenances.
2. Horizontal locations and vertical alignments of all piling.
3. Horizontal and vertical locations and alignments of all concrete installations whether pre-cast or cast-in-place items.
4. Location of identified, located, or uncovered pipelines, utilities and other subsurface appurtenances referenced to permanent surface improvements.
5. Field changes of dimension and detail.
6. Changes made by change order or field order.
7. Details not on original contract drawings.

Legibly mark specifications and addenda to record:

1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
2. Changes made by change order or field order.
3. Other matters not originally specified.

Legibly annotate shop drawings to record changes made after review.

01-78-39.04 SUBMITTALS

At project completion, deliver record documents to the Owner. Place all letter-sized material in a 3-ring binder, neatly indexed. Bind contract drawings and shop drawings in rolls of convenient size for ease of handling.

Accompany the SUBMITTAL with a transmittal letter in duplicate, containing:

1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Title and number of each record document.
5. Certification that each document as submitted is complete and accurate.
6. Signature of Contractor.

01-78-39.05 MEASUREMENT

Direct measurement of this Item will not be made.

01-78-39.06 PAYMENT

This Item shall be considered incidental to pay items provided for in the Bid and Contractor's performance of Work and will not be eligible for separate payment; however, proof that record documents are being continuously and accurately maintained shall be required prior to processing of each monthly pay estimate. Documents must also be submitted at work completion as a condition of final acceptance.

END OF SECTION 01 78 39

Item 02 32 00 - SUBSURFACE SOIL CONDITIONS

02-32-00.01 DESCRIPTION

This Item shall govern subsurface soil explorations and define any available data.

02-32-00.02 GENERAL

Soil borings have been conducted as part of this project. A copy of the boring logs and the soils report is included in the Appendix. The contractor is directed to carefully review the provided geotechnical information to assess likely soil stability and groundwater conditions at the construction site. The Contractor may, with the permission of the Owner, conduct his own subsurface investigation to establish the condition of the soil. Neither this specification nor any other portion of the Plans and Specifications shall be construed as being a warrant of subsurface conditions.

Bidders should visit the proposed project site to acquaint themselves with the site conditions prior to bidding on the project.

02-32-00.03 ADDITIONAL INVESTIGATION

At the Contractor's discretion and only with written approval from the Owner, the Contractor may obtain additional subsurface information for structural analysis. For consideration of approval, the Contractor shall submit, to the Owner, his plan of construction, excavation, or other subsurface exploration, including sketches and other information, covering in detail his proposed construction methods, procedures, and equipment.

Any additional investigation shall be at the sole expense of the Contractor with no additional cost to the Owner.

02-32-00.04 MEASUREMENT

No measurement for this Item will not be made.

02-32-00.05 PAYMENT

This Item is of an informative nature and shall be considered incidental to pay items provided for in the Bid and Contractor's performance of Work. Additional exploration or other data collected by the Contractor shall be at the Contractor's sole expense.

END OF SECTION 02 32 00

Item 02 41 00 - EXISTING STRUCTURE DISMANTLE AND REMOVE

02-41-00.01 DESCRIPTION

This Item shall govern the removal and disposal of existing structures or features, in whole or in part, as noted on the plans.

02-41-00.02 MATERIALS

Material utilized to fill voids created by D&R activities shall be Select Fill, conforming to and placed in accordance with technical specification Item 31 24 00 for Embankment and Fill.

02-41-00.03 SUBMITTALS

Contractor shall prepare a detailed demolition plan for approval by the Owner. The demolition plan must define the equipment and handling method(s) to be utilized in completing work under this Item. Because isolation of the existing structure and the disruption of water flow are required for demolition activities, the plan must include a detailed schedule for all D&R activities that require water flow interruptions, and plans to address delays in work while water flow is interrupted or in the event of a downstream water supply emergency requiring the reactivation of canal flows.

02-41-00.04 DEMOLITION

Contractor shall exercise extreme care to not damage, compromise, or otherwise affect any existing structure or feature which is not designated for dismantling or removal under this Project. If any feature, or part thereof, not specifically designated in the Plans for dismantling and removal under this Project is damaged, the Contractor shall IMMEDIATELY contact the Owner for direction on how to proceed. Any damages shall be restored to the satisfaction of the Owner without additional cost to the Owner. Owner, may at his discretion, chose to make necessary repairs, for which the Contractor shall be financially responsible.

Any concrete structure designated for partial removal shall be sawcut to fully separate the portion to be removed from the portion to remain. In-situ breaking or "sledging" of any concrete prior to removal shall not be permitted. Concrete may be cut into smaller, more manageable pieces for handling and removal.

Contractor shall provide not less than 3 working days notice to the Owner prior to commencement of any isolation or re-flooding activities within the canal or existing structure.

The Owner will inspect all D&R activities, prior to re-flooding and commencement of new construction in area of D&R.

02-41-00.05 REMOVAL AND DEPOSITION

Concrete, steel, and timbers removed as part of the project will immediately become the property of the Contractor. Contractor shall be responsible for removal and disposal of all materials demolished and removed as part of the project.

Any temporary storage or stock piling of materials or structure removed in conjunction with this project shall be maintained within the approved project limits and done in a neat and orderly manner. If, at any time, in the opinion of the Owner, the temporary storage is deemed a nuisance, hazard, or threat to human health or safety or to the operation of the Canal, to the adjacent property, or to the general public, then Contractor shall immediately remove any objectionable material from the construction site.

Contractor shall comply with all applicable local, State, and Federal regulations in disposal of all materials.

02-41-00.06 MEASUREMENT

Measurement of this Item, as specified herein and listed in the Bid, shall be by "Unit Price". As dismantling and removal can encompass various types of original construction, each item shall be measured in accordance with the applicable Bid Item. If no Bid Item is listed for work required by the plans, separate measurement for dismantling and removal of such items shall not be made.

Measurement of all pay items under this specification shall not exceed the limits designated on the plans without prior approval by the Owner.

Excess removal, or additional removals made necessary due to Contractor's damage to features intended to remain, shall not be considered for additional measure of any payable Item.

02-41-00.07 PAYMENT

Payment for items specified for dismantling and removal as part of this Project shall be per the Contractor's bid by "Unit Price". Items designated in the Project Plans for dismantling and removal which are not separately identified in the Bid shall be considered incidental to Contractor's performance of Work and will not be eligible for separate payment.

Partial or final payments shall be full compensation for demolition plan preparation, loading, hauling, disposal, stockpiling, removal of appurtenances, associated excavation and backfill, equipment, labor, tools, and incidentals.

No payment for repair of items not designated for D&R which are damaged by Contractor's operations regardless of if those damages occurred during D&R activities or otherwise.

END OF SECTION 02 41 00

Item 03 00 00 - GENERAL CONCRETE SPECIFICATIONS

03-00-00.01 DESCRIPTION

This Item shall govern the materials used, the storing, measuring and handling of materials, the proportioning and mixing, and the placement, protection, curing, and finishing of concrete as required on this project.

03-00-00.02 GENERAL

Concrete shall be of the class indicated in the plans and shall be composed of Portland cement, mineral filler if necessary, fine aggregate, coarse aggregate, and water proportioned and mixed as specified herein. All concrete shall conform to and be placed in accordance with the latest revision of the American Concrete Institute's Building Code Requirements for Reinforced Concrete.

03-00-00.03 MATERIALS

Cement shall be Type I Portland Cement, the composition, marking, handling and storage of which shall conform to ASTM C-150. Type III (High Early Strength) cement may be used if approved by the Owner. Cement which has become damp, lumpy or otherwise affected so as to reduce its strength shall not be used in the work.

Aggregates shall be clean, uncoated, and free of any impurities other than nominal amounts of fine clay, the limits of which are specified herein. Aggregates shall conform to ASTM C-33 except that the gradation shall be within limits specified below:

<u>FINE AGGREGATE</u>		<u>COARSE AGGREGATE</u>		
<u>Sieve Size</u>	<u>% Passing</u>	<u>Sieve Size</u>	<u>% Passing</u>	
			<u>1-1/2"</u>	<u>1"</u>
4	95-100	1-1/2"	95-100	
100	0-5	1"		90-100
		3/4"	40-70	
		1/2"		25-60
		3/8"	10-30	
		#4	0-10	0-10
Clay	3% Max	Clay	1% Max	

03-00-00.04 MISCELLANEOUS

Water shall be clean and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances.

Bar Supports (chairs) shall be plastic, plastic protected wire, stainless steel, or precast concrete supports. Precast concrete bar supports shall be wedge-shaped, not larger than 3-1/2 X 3-1/2 inches and of thickness equal to that indicated for concrete cover and shall have an embedded hooked tie wire for anchorage.

Metal Accessories shall be spacers, chairs, ties, and other approved devices necessary for properly assembling, spacing and supporting the reinforcement in place.

Expansion Joint Material shall be premolded saturated felt, or other approved material, not less than plan thickness and as wide as the slab depth.

03-00-00.05 MIXING AND PROPORTIONING

Concrete may be proportioned and mixed on the job, dry-batched for mixing on the job, or procured from a "ready mixed" concrete plant. Concrete mix designs shall be submitted to Owner prior to placement for approval.

If "ready mixed", the mixing and transportation operations shall conform to ASTM C-94. Mixing water shall not be added after a truck has left the plant. No concrete shall be used in the work which has been held longer than one hour in a mixer truck.

If dry-batching to the job site, the batching plant operation shall conform to ASTM C-94. Transportation of dry materials shall be performed in such manner as to prevent loss, segregation or contamination of the ingredients.

If job-proportioned and mixed, the aggregate shall be stockpiled separately and handled in such a manner as to prevent the inclusion of any foreign materials. Cement shall be stored in a watertight building with the floor off the ground. Except for emergency hand-mixing under approved conditions, all concrete shall be machine-mixed in an approved type mixer for a minimum period of 1-1/2 minutes in a drum rotating at the peripheral speed of about 200 feet per minute.

Aggregate shall be proportioned by weight unless a satisfactory volumetric method of measure is approved by the Owner. The use of fractional sacks of cement will not be permitted unless the cement is proportioned by weight. Free moisture content of aggregate shall be included as a portion of the mix water required.

Revamping of partially hardened concrete or mortar will not be permitted.

The concrete shall be uniform and workable. The minimum cement content, maximum allowable water content and slump, and minimum strength shall conform to the following:

CLASS OF CONCRETE	MIN. COMPRESSIVE STRENGTH @ 28 DAYS	MINIMUM FLEXURAL STRENGTH @ 7 DAYS	MIN. CEMENT CONTENT
	(P.S.I.)	(P.S.I.)	(SACKS)
A	3000	550	5.0
B	2000	375	4.0
C	3600	600	6.0
H	5000	750	7.0
K (with super Plastisizer)	3000 (24 hour)	-	7.0

CLASS OF CONCRETE	MAXIMUM AGGREGATE SIZE	MAX. WATER CEMENT RATIO	MAX. ALLOWABLE SLUMP (INCHES)	
			FOR HAND PLACEMENT	FOR MACHINE PLACEMENT
A	1-1/2"	0.6	4	2
B	1-1/2"	0.6	3	1-1/2
C	1-1/2"	0.45	4	2
H	1-1/2"	0.45	6	4
K	1"	0.4*	8	8

* MIN. WATER TO CEMENT RATIO FOR CLASS K CONCRETE IS 0.25

To conform with the requirements of these specifications, the average of all the strength tests representing each class of concrete as well as the average of any five consecutive strength tests representing each class of concrete shall be equal to or greater than the specified strength and no strength test shall be less than 80 percent of the specified strength.

03-00-00.06 TESTING

All testing shall be paid for by the Owner.

Slump Test: The contractor shall coordinate with Owner approved testing firm to perform a slump test on the concrete prior to placing. The slump shall be no greater than those provided for in this section.

Strength Tests: Concrete samples for compression testing taken for each class of concrete placed each day not less than once per day nor less than once for 80 cubic yards of concrete poured and once for each

4,000 square feet of surface area of slabs and/or walls. A minimum of four (4) samples will be taken for each batch to be tested.

Unless otherwise approved by the Owner, if total volume of concrete is such that frequency of testing required would provide less than five strength tests for a given class of concrete, tests shall be made from at least five randomly selected batches or from each batch if fewer than five batches are used.

Average strength of two cylinders from the same sample tested at 28 days or the specified earlier age is required for each test. Tests shall be made at 7, 14, and 28 days or at other frequencies agreed upon by the Owner.

Samples for strength tests shall be taken in accordance with "Method of Sampling Fresh Concrete" (ASTM C-172). Cylinders for strength tests shall be molded and laboratory cured in accordance with "Method of Making and Curing Concrete Test Specimens in the Field" (ASTM C-31) and tested in accordance with "Method of Test for Compressive Strength of Cylindrical Concrete Specimens" (ASTM C-39).

Strength level of an individual class of concrete shall be considered satisfactory if both of the following requirements are met:

- A. The average of all sets of three consecutive strength tests equal or exceed required $f'c$.
- B. No individual strength test (average of two cylinders) falls below required $f'c$ by more than 500 psi.

03-00-00.07 FORMS

General: Forms shall be so constructed that the finished concrete will conform to the shape, line, grades, and dimensions indicated on the drawings. Lumber used in the forms for exposed surfaces shall be dressed to a uniform thickness and shall be horizontal or vertical. Lumber once used in forms, or used lumber, shall be cleaned and satisfactorily reconditioned.

Design:

- (A) Forms shall be sufficiently tight to prevent the leakage of mortar. They shall be properly shored, braced, and otherwise supported so as to maintain the desired position and shape during and after placing concrete.
- (B) Bolts and rods shall be used for interval ties; they shall be so arranged that when the forms are removed, no metal shall be within one (1") inch of any surface.
- (C) If conditions are favorable, the Owner may permit the use of earth forms for trenches or footings; in which case the bottom shall be level, clean and without fill; and the sides shall be even and clean and unless otherwise shown, shall be vertical.

Molding: Suitable moldings or bevels shall be placed in the angles of forms to round or bevel the edges of the concrete on all outside corners, where such shaping is shown on the drawing, or where directed by the Owner.

Oiling: The inside of forms shall be coated with a non-staining mineral oil or other approved material. Oil shall be applied before the reinforcement is placed.

Clean-out Opening: Temporary openings shall be provided at the base of column and wall forms and at other points where necessary to facilitate cleaning and inspection immediately before depositing concrete.

Form Removal: The removal of forms shall be subject to the Owner's approval and shall not be started until the concrete has attained the necessary strength to support its own weight and any construction live loads.

03-00-00.08 DEPOSITING CONCRETE

General: No concrete shall be placed until the forms and other conditions are approved by the Owner, and until all pipes, conduits, sleeves, thimbles, hangers, flashing and other items required to be placed in the concrete have been properly installed.

Temperature: Concrete may be placed when the temperature is 45°F or more and rising, provided there is no reason to expect a drop in temperature to below 45°F within 12 hours of the placement of the pour. Concrete may not be placed when the temperature of the concrete is more than 90°F.

Cleaning: Hardened concrete and foreign materials shall be removed from the inner surfaces of mixing and conveying equipment before any concrete is mixed.

Before depositing concrete, forms shall be thoroughly wetted and all debris removed.

Removal of Water: Water shall be removed from the space to be occupied by concrete and any continuous flow of water shall be diverted to a sump or removed by pumping.

Handling: Concrete during and immediately after depositing shall be thoroughly compacted by means of suitable tools. The use of approved type of mechanical vibration is recommended and urged.

Depositing Continuously: Concrete shall be deposited continuously or in layers of such thickness that no concrete shall be deposited against concrete which has hardened. If a section cannot be placed continuously, construction joints may be located at points as provided for in the drawings or approved by the Owner. Before depositing new concrete against old, the forms shall be retightened, the hardened surfaces cleaned and covered with a coating of mortar or neat cement grout.

03-00-00.09 CURING AND PROTECTION

General: All concrete shall be cured by an approved method for the period of time given below before the concrete is subjected to any loads or until concrete has reached 95% of its design strength:

Type III Portland Cement: 3 days

Type I Portland Cement: 7 days

Immediately after placement, concrete shall be protected from premature drying, extremes in temperatures, rapid temperature changes, mechanical injury, and injury from rain and flowing water. All materials and equipment needed for adequate curing and protection shall be available and at the job site

prior to start of concrete placement. Concrete shall be protected from the damaging effects of rain for 12 hours, flowing water for 14 days and direct rays of the sun for 3 days. All concrete shall be adequately protected from damage. No fire nor excessive heat shall be permitted near nor in direct contact with concrete at any time.

Moist Curing: Concrete moist-cured shall be maintained continuously (not periodically) wet for the entire curing period. If water or curing materials used stain or discolor concrete surfaces which are to be permanently exposed, they shall be cleaned as required by the Owner. When wooden form sheathing is left in place during curing, the sheathing shall be kept wet at all times.

Horizontal surfaces shall be cured by ponding, by covering with a minimum uniform thickness of two (2") inches continuously saturated sand, or by covering with saturated non-staining burlap or cotton mats or sealed impervious sheet materials. The following exceptions are permitted:

1. Horizontal construction joints may be allowed to dry for twelve (12) hours immediately prior to placing of the following lift.
2. Where insulation is approved for cold weather protection, all joints in the insulation shall be sealed to prevent moisture loss and maintained sealed throughout curing period.

Membrane Curing: Any surface to which concrete, paint, sack rubbed finish or any subsequent treatment that depends on adhesion or bonding to the concrete shall not be cured with curing compound. Curing compound shall be of an approved pigmented or non-pigmented type. On surfaces permanently exposed to view, the non-pigmented type containing a fugitive dye shall be shaded from direct rays of the sun for the first seven days of the curing period.

The curing compound shall be applied to formed surfaces immediately after the forms are removed and prior to any patching or other surface treatment except the cleaning of loose sand, mortar, and debris from the surface. The surfaces shall be thoroughly moistened with water and curing compound applied to unformed surfaces as soon as free water has disappeared. Curing compound shall be applied per manufacturer's recommendations. Concrete surfaces on which the curing compound has been applied shall be adequately protected for the duration of the entire curing period from pedestrian and vehicular traffic and from any other cause which will disrupt the continuity of the curing membrane.

03-00-00.10 FINISHED EXPOSED SURFACES

The type of surface finish shall be one of the three types herein described as called for on the plans or in the special provisions. Where the plans do not specify the type of surface finish, Type I Surface Finish shall be used.

Type I Surface Finish: All walls, railing, curbs, the underside of overhanging beams, the outside and bottom beams, and all portions of piers, columns, bents, abutments, retaining walls, and culverts which are exposed to view after backfill and embankments are placed shall be surface finished with a first and second rubbing as hereinafter described. The "exposed to view" interior portion of any culverts, including the sidewalls and underside of the top slab, shall be defined as one-third (1/3) the culvert height but not less than eighteen (18) inches from the end of the culvert.

Forms for all surfaces that are to be finished as specified above shall be face lined with a lining material such as masonite or plywood.

Type II Surface Finish: All concrete portions of railing and the top and roadway faces of all curbs, including wing walls on bridges and culverts shall be surface finished with a first and second rubbing as hereinafter described.

The following concrete surfaces, while not required to be rubbed, shall be made of smooth and uniform texture by face lining the forms with a lining material such as masonite or plywood; the outside vertical face of curbs and slabs, the underside of overhanging slabs, and all portions of piers, columns, bents, abutments, culverts, and retaining walls which are exposed to view after backfill.

Type III Surface Finish: All concrete portions of railing and top roadway faces of all curbs on bridges and culverts, shall be surface finished with a first rubbing only as hereinafter described. No other rubbing will be required except as hereinafter specified for patching and correcting defective surfaces. No face lining of forms will be required with Type III Surface Finish.

The first rubbings shall be performed as follows: as soon as forms are removed, all necessary pointing shall be done. When the pointing has set sufficiently to permit it, all surfaces requiring surface finish shall be wet with a brush and given a first surface rubbing with No. 16 Carborundum Stone or an abrasive of equal quality. The rubbings shall be continued sufficiently to bring the surface to a paste, to remove all form marks and projections and to produce a smooth dense surface without pits or irregularities. The use of cement to form a surface paste will not be permitted.

Where a second rubbing is not specified, chamfered corners shall be rubbed in the first rubbing and the material which has been ground to a paste in the rubbing process shall be spread uniformly over all rubbed surfaces by striping with a brush and the mortar on the surface shall be allowed to take a re-set. The surface shall be left with a clean, neat, and uniform appearance and shall be uniform in color.

Where a second rubbing is to follow the first rubbing, the material ground into a paste during the first rubbing shall be carefully spread or brushed uniformly over the surface and allowed to take a re-set, but washing down following this first rubbing will not be required. Also, chamfered corners generally shall not be rubbed in the first rubbing if a second rubbing is to follow.

The second rubbing, when required, shall be performed as follows: during the process of conditioning the complete structure for final acceptance, the surfaces of the entire structure requiring finish shall be given a final finish with a No. 30 Carborundum Stone or an abrasive of equal quality. On completion of this rubbing, the surface shall be neatly striped with a brush, and the mortar on the surface shall be allowed to take a re-set. The surface shall then be washed down with clean water. The entire structure shall be left with a clean, neat and uniform appearing finish and shall be uniform in color. The surface of concrete roadway and sidewalk slabs shall be finished by floating, screening and belting.

Rubbing of surfaces other than those herein specified will not be required, unless such surfaces are not true or have porous spots or honeycombed areas. In case these defects occur, the areas immediately affected shall be given a first surface rubbing. Such rubbing shall extend over a sufficient area around the blemished portions to blend the rubbed area into the surrounding unfinished surface, but this shall not be construed to require the rubbing of large areas of unblemished surfaces of the portion of the structure in question.

03-00-00.11 PATCHING

The Contractor shall remove any form ties, projections, or concrete fins. All exposed surfaces having voids, stone pockets, tie holes, honeycombs, or defective areas shall be patched. The patching mortar shall be sand cement grout with sufficient white Portland cement added to effect a match with the concrete surfaces. Areas to be patched shall be clean, free of loose material and dampened before applying grout. The patched areas shall be rubbed before the grout is set hard to blend into the adjacent areas. Rub finish exposed surfaces from 6 inches below ground surface or from 6 inches below normal water level to top, except for small structures which extend less than 12 inches above finished grade.

03-00-00.12 DEFECTIVE WORK

The following defects shall be cause for rejection of placed concrete:

1. Voids, rock pockets, honeycombing, and spalled areas which, in the opinion of the Owner, cannot be satisfactorily repaired, will affect the strength of the structure materially, or will limit the life of the reinforcement.
2. Uneven or bulged surfaces resulting from shifting of the forms during placement or curing.
3. Concrete found structurally inadequate after thorough investigation according to section 030000.06, above.

Upon discovery of any of these defects, the Owner may declare the structure defective and require the Contractor to remove and replace the portion of the structure affected, at the Contractor's expense.

03-00-00.13 MEASUREMENT

Measurement of this Item, as specified herein and listed in the Bid, shall be by "Unit Price", measured per the unit listed in the bid document and further defined in the specification for those items.

03-00-00.14 PAYMENT

Payment for concrete in place shall be per the Contractor's bid by "Unit Price". Concrete items are identified under several bid items. Items not specifically identified in the bid document are considered incidental to other pay items and are not eligible for additional compensation.

Partial or final payments shall be full compensation for furnishing, forming, pouring, providing and installing reinforcing steel, finishing, and curing.

END OF SECTION 03 00 00

Item 03 20 00 - REINFORCING STEEL

03-20-00.01 DESCRIPTION

This Item shall govern reinforcing steel utilized in structural concrete and in concrete pavement, lining, or riprap placed as part of this Contact.

03-20-00.02 MATERIALS

Approved reinforcing steel shall be:

1. deformed billet steel bars conforming to ASTM A-615, Grade 60; or
2. welded steel wire fabric conforming to ASTM A-185, as designated on the Plans.

All steel reinforcement shall be provided in new condition. No reinforcement shall be placed without verification that it is free from scale, heavy rust, mud, and other coating that would reduce the bond. Any deleterious condition shall be corrected or the reinforcing steel replaced prior to placement of concrete and permanent incorporation into the Work.

03-20-00.03 CONSTRUCTION

In general, reinforcement shall be fabricated, placed, spliced, located, etc., in accordance with the latest revision of the American Concrete Institute's Building Code Requirements for Reinforced Concrete (ACI 318, latest revision).

Reinforcement shall be accurately formed to the dimensions indicated on the drawings. All bars shall be bent cold and shall not be straightened in a manner that will injure the metal.

Reinforcement shall be accurately positioned and unless otherwise shown or specified, shall be secured against displacement by using, at intersections, annealed iron tie wire of not less than #18 gauge or suitable metal clamps and supported by metal or plastic chairs, spacers, or hangers.

Reinforcement in floors over earth shall be supported by masonry blocking of suitable height to hold the reinforcement at the proper level.

All spacing of bars shall be as shown on the drawings.

03-20-00.04 MEASUREMENT

Direct measurement of this Item will not be made.

03-20-00.05 PAYMENT

This Item shall be considered incidental to pay items provided for in the Bid and Contractor's performance of Work. Reinforcing steel will not be eligible for separate payment.

END OF SECTION 03 20 00

Item 03 31 00 - CAST-IN-PLACE CONCRETE (STRUCTURAL)

03-31-00.01 DESCRIPTION

This Item shall govern the preparation and installation of cast-in-place structural concrete as required on this project. Refer to Item 03 00 00 for general structural concrete information.

03-31-00.02 GENERAL

All materials, proportioning, mixing, forming, and testing of cast-in-place structural concrete shall conform to the requirements of the General Concrete Specification.

Furnish all cast-in-place concrete in accordance with the details, reinforcement and dimensions indicated on the plans.

03-31-00.03 CURING

Standard Curing:

- a. Concrete (other than high-early-strength) shall be maintained above 50°F and in a moist condition for at least the first seven (7) days after placement, except when cured in accordance with the Accelerated Curing method described below.
- b. High-early strength concrete shall be maintained above 50°F and in a moist condition for at least the first three (3) days, except when cured in accordance with 200.06.3.

Accelerated Curing:

- a. Curing by high pressure steam, steam at atmospheric pressure, heat and moisture, or other accepted process, may be employed to accelerate strength gain and reduce time of curing, with prior approval of the Owner.
- b. Accelerated curing shall provide a compressive strength of the concrete at the load stage considered at least equal to required design strength at that load stage.
- c. Curing process shall be such as to produce concrete with a curability at least equivalent to the curing method previously described for standard and high-early strength concrete not subjected to accelerated curing.
- d. Supplementary strength tests may be required to assure that curing is satisfactory. The Owner may require strength tests of cylinders cured under field conditions to check adequacy of curing and protection of concrete in the structure.

Cold Weather Requirements:

- a. Adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near-freezing weather.
- b. All concrete materials and all reinforcement, forms fillers, and ground with which concrete is to come in contact shall be free from frost.
- c. Frozen materials or materials containing ice shall not be used.
- d. Temperature of concrete at time of placement shall not be less than 50⁰ F.

Hot Weather Requirements:

- a. During hot weather, proper attention shall be given to ingredients, production methods, handling, placing, protection, and curing to prevent excessive concrete temperatures or water evaporation that may impair required strength or serviceability of the member or structure.
- b. Temperature of concrete at time of placement shall not be more than 90⁰ F.

03-31-00.04 INSTALLATION

Formwork Design:

- a. Forms shall result in a final structure that conforms to shapes, lines, and dimensions of the members as required by the design drawings and specifications.
- b. Forms shall be properly braced or tied together to maintain position and shape.
- c. Forms and their supports shall be designed so as not to damage previously placed structure.
- d. Design of formwork shall include consideration of the following factors:
 - Rate and method of placing concrete;
 - Construction loads, including vertical, horizontal, and impact loads;
 - Special form requirements for construction of shells, folded plates, domes, architectural concrete, or similar types of elements.

Removal of Forms:

- a. No construction loads shall be supported on, nor any shoring removed from any part of the structure under construction except when that portion of the structure (in combination with remaining forming and shoring system) has sufficient strength to support safely its weight and loads placed thereon.

Sufficient strength may be demonstrated by field-cured test cylinders and by a structural analysis considering proposed loads in relation to field-cured cylinder strengths and strength of the forming and shoring system. Such analysis and strength test data shall be furnished by the Contractor to the Owner when so required.

- b. Forms shall be removed in such manner as not to impair safety and serviceability of the structure. All concrete to be exposed by form removal shall have sufficient strength not to be damaged thereby.
- c. Forms will remain in place a minimum of 72 hours for all conditions except in the following case:

Concrete subject to high bending stress and wholly (or almost wholly) reliant on forms for vertical support. Examples: Roof or floor slabs and beams; undersides of sloping surfaces (flatter than 1:1); walkways and platforms; bridge decks and girders. In such locations, forms will remain in place a minimum of 4-1/2 days in those areas where no immediate superimposed loading will occur and a minimum of 10 days at all other areas.
- d. The early removal of forms (except as noted above) to facilitate the normal progress of work will be permitted only by approval of the Owner, and in no case less than 24 hours.

Construction Joints:

- a. Where a construction joint is to be made, the surface of concrete shall be thoroughly cleaned and all laitance and standing water removed.
- b. Vertical construction joints shall be thoroughly wetted and coated with neat cement grout immediately before new concrete placement.
- c. Construction joints not indicated on the design drawings shall be so made and located as not to impair significantly the strength of the structure and shall be approved by the Owner.
- d. Construction joints in floors shall be located near the middle of spans of slabs, beams, or girders, unless a beam intersects a girder at the middle location, in which case joints in the girders shall be offset a distance equal to twice the width of the beam. Provision shall be made for transfer of shear and other forces through construction joints.
- e. Beams, girders, or slabs supported by columns or walls shall not be cast or erected until concrete in the vertical support members is no longer plastic.
- f. Beams, girders, column capitals, and haunches shall be considered as part of a slab system and shall be placed monolithically therewith.
- g. Structures containing liquids shall have all exterior walls and bottom slab joints constructed with water stops and/or seals. When prevention of contamination and/or control of leakage is necessary at exterior or interior wall/slab, water stops and/or seals shall be provided at joints.
- h. Horizontal joints in walls less than twelve feet high are not to be located for contraction or expansion, but for construction only. Such horizontal wall joints shall be minimal and as approved by the Owner only.
- i. Vertical joints in walls shall be located at points of no shear. Joints shall be constructed with water-stops and fillet seals where control of leakage is required.
- j. Where slabs are cast in two separate lifts, joints are to be staggered. All joints shall be located at positions of no shear.

- k. Longitudinal keys at least one and one-half (1-1/2") inches deep shall be provided in all joints in walls and between walls and slabs or footings.
- l. When joints are not indicated on plans, Contractor shall supply shop drawings clearly indicating all joints in any part of the structures, sequence of pours and time lapse for control of shrinking, for approval by the Owner. No intermediate joints will be allowed other than those on the approved shop drawings without the expressed approval of the Owner.

PATCHING: After forms are removed, the Contractor shall patch any exposed surface flaws in accordance with section 030000.11 of the General Concrete technical specification.

SURFACE FINISH: Rub-Finish exposed vertical and battered surfaces from 12-inches below ground surface or from 6-inches below normal water level to top.

03-31-00.05 MEASUREMENT

Cast-in-place structural concrete will be measured by the cubic yard, completed and accepted in place. When the Contractor elects to pour concrete thicker than indicated on plans and or deeper than required to meet the specified dimensions, no measurement will be made on that portion in excess of the design.

03-31-00.06 PAYMENT

Payment for this Item shall be per the Contractor's bid by "Unit Price".

Partial or final payments shall be full compensation for furnishing all labor, materials, forms, finishes, equipment, and incidentals required to complete the work as specified.

END OF SECTION 03 31 00

Item 31 11 00 - CLEARING AND GRUBBING

31-11-00.01 DESCRIPTION

This Item shall govern the removal and disposal of trees, stumps, brush, roots, vegetation, logs, rubbish and other objectionable matter.

31-11-00.02 CONSTRUCTION

As designated by the Owner, protect specific features on the right of way and prune trees and shrubs as directed. Do not park equipment, service equipment, store materials, or disturb the root area under the branches of trees designated for preservation. Treat cuts on trees with an approved tree wound dressing within 20 min. of making a pruning cut or otherwise causing damage to the tree when shown on the plans.

Clear areas shown on the plans of all trees, shrubbery, and woody vegetation. Removal of live utility facilities or pipelines is not included in this Item and should be protected from damage while removing trees.

Notify the Owner in writing when items not shown on the plans and not reasonably detectable (buried with no obvious indication of presence) are encountered.

Remove obstructions not designated for preservation to natural ground in areas receiving embankment. Remove obstructions to the excavation level in areas to be excavated. Remove obstructions to natural ground in all other areas. Cut trees and stumps to grade. Backfill, compact, and restore areas where obstructions have been removed unless otherwise directed. Use approved material for backfilling.

Accept ownership, unless otherwise directed, and dispose of removed materials and debris at locations off the right of way in accordance with local, state, and federal requirements.

Burning of removed vegetation or other debris is not permissible on the project site.

Vegetative debris may be mulched and left in place.

31-11-00.03 MEASUREMENT

Measurement of this Item, as specified herein and listed in the Bid, shall be by "Lump Sum", regardless of the width of the right of way.

31-11-00.04 PAYMENT

No partial payments of the lump sum bid value for this Item shall be considered.

Work performed in accordance with this Item shall be considered eligible for payment upon completion and acceptance of the task. The bid price shall be full compensation for pruning and protecting designated

trees and shrubs; removal and disposal of tree, structures and obstructions; and furnishing all labor, materials, equipment, tools, supplies and incidentals necessary to perform the work as specified.

Total payment of this Item will not exceed 5% of the original contract amount until final acceptance.

END OF SECTION 31 11 00

Item 31 22 00 - SURFACE GRADING AND SHAPING

31-22-00.01 DESCRIPTION

This Item shall govern the grading and reshaping of uneven, rough, or excessively steep terrain to facilitate access, travel, and drainage. No excavation or placement of fill materials shall be performed under this Item.

31-22-00.02 MATERIALS

In-situ material may be graded, bladed, and reshaped to provide improved access for personnel and equipment into construction area.

Contractor shall exercise extreme caution to not interfere with or impair drainage across the site at any time during the construction.

31-22-00.03 CONSTRUCTION

Contractor may, at his discretion, utilize excess excavated materials in the grading and reshaping of the construction area to facilitate access over and across the site, provided his activities are in strict compliance with the all requirements set forth as a part of this Project.

31-22-00.04 MEASUREMENT

Measurement of this Item will not be made.

31-22-00.05 PAYMENT

This Item shall be considered incidental to Contractor's performance of Work and will not be eligible for separate payment.

END OF SECTION 31 22 00

Item 31 23 19 – CANAL DEWATERING

31-23-19.01 DESCRIPTION

This Item shall govern the canal dewatering activities.

31-23-19.02 CONSTRUCTION

This Item shall involve various phases of dewatering activities necessary for the construction of a new structure while maintaining service to downstream customers.

Short-term dewatering: The initial dewatering activities will isolate the existing structure and temporarily stop water flow in the canal to allow for limited headwall demolition and/or to establish the bypass measures. The duration of this isolation is critical to the continuous safe operation of the canal system and critical water intakes downstream of the construction site. Once any temporary coffer dams are installed, dewatering of the area between the dams must be completed in no more than 60 minutes. Water removed from between the dams must be discharged to the downside of the downstream dam. Isolation of the canal must be closely coordinated with Owner and with all activities required between the dams during the period of isolation.

Construction period dewatering: Sheet piling, earthen dams, or water bladder may be utilized to provide selective isolation of portions of the canal for construction of the new structure and removal of the existing structure. Contractor shall maintain the integrity of the coffer dam structure and provide daily inspections of the excavation and shoring by competent personnel prior to entry for work each day and after any work stoppage for rain events.

Re-flooding: Re-flood the construction zone by pumping water into the area prior to dam extraction. Water levels on each side of the coffer dam must be equalized to prevent excessive scour as the coffer dam removal begins. The coffer dams shall be extracted from the center of the canal first with removal progressing toward the canal banks.

31-23-19.03 MEASUREMENT

Direct measurement of this Item will not be made.

31-23-19.04 PAYMENT

This Item shall be considered incidental to pay items provided for in the Bid and Contractor's performance of Work and will not be eligible for separate payment.

END OF SECTION 31 23 19

Item 31 23 33 - EARTHEN (BENTONITE) LEVEE CORE

31-23-33.01 DESCRIPTION

This Item shall govern the selection and placement of material for the construction of a watertight clay core around penetrations through the earthen levee.

31-23-33.02 MATERIALS

All clay core material shall be pure bentonite clay mined, processed, graded, and blended to achieve the following sieve analysis:

- Max 1% retained on 3/4" mesh
- 60% (+/- 2%) retained on 3/8" mesh
- 25% (+/- 2%) retained on 1/4" mesh
- 15% retained on #12 mesh
- Max 2% passing #12 mesh

Bentonite clay blend shall be delivered dry with a maximum moisture content not exceeding 12%. No large lumps or clods will be permitted, and material should be friable. Clumped material shall not be accepted.

31-23-33.03 CONSTRUCTION

After the pipe structure is constructed and the levees restored, a core in the center of the levee shall be excavated by hydro-excavation 30" wide, not less than 24" beyond the edge of the new pipes and to a depth of 18" below the bottom of the new pipes. The dry bentonite blend shall be poured into the dry hole at a maximum rate of 10 cf/minute. Contractor shall ensure bentonite is completely filling voids below the pipes and shall make adjustments as necessary to placement of fill to prevent bridging or entrapment of air pockets within the clay core.

Bentonite clay blend shall be placed to a minimum depth of 24" above the tops of the pipes. Remaining depth of levee may be filled, recompact, and capped with topsoil per technical specification for Embankment and Fill.

31-23-33.04 MEASUREMENT

Measurement of this Item, as specified herein and listed in the Bid, shall be by "Unit Price", measured per ton, actual quantity, in place. Measurement shall be limited to the theoretical section specified or otherwise agreed to by written change order. Wasting of excess materials or additional fill required due to larger than specified excavation, unless preapproved by Owner, shall not be considered for additional payment under this Item.

31-23-33.05 PAYMENT

Payment for this Item shall be per the Contractor's bid by "Unit Price".

Partial or final payments shall be full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work as specified.

END OF SECTION 31 23 33

Item 31 23 34 CEMENT STABILIZED SAND BACKFILL

31-23-34.01 DESCRIPTION

This Item shall govern the selection and placement of material for the construction of cement-sand as bedding and backfill material around pipes and various structures as required in the plans; and for backfill in pavement sections.

31-23-34.02 MATERIALS

Sand - Provide sand from an approved source free from clay lumps, organic or other deleterious material and having a plasticity index of 4 or less.

Portland Cement - Furnish Portland cement to conform with ASTM C 150, Type I.

Water - Water shall be reasonably clean and free from injurious amounts of oil, acid, salt, organic matter, or other deleterious material.

PROPORTIONING AND MIXING:

Add not less than 1.5 sacks of Portland cement per yard of sand mixture. Add required amount of water and mix thoroughly in an approved pug mill type mixer. Stamp batch ticket with the time of loading. Material will be rejected if not in place within 1-1/2 hours after loading or if the mixture has dried out.

31-23-34.03 CONSTRUCTION

Pipe Bedding and Backfill Procedures:

- A. Place cement-stabilized sand in a trench or excavation prepared for pipe to the depth shown on the drawings.
- B. After bedding material is in place, set pipes in position to grade.
- C. Add additional cement-sand material around pipe, filling to at least the spring line of the pipe, or as otherwise shown on drawings. Place cement-sand material at optimum moisture content and in layers not to exceed 12 inches measured loose.
- D. Compact with mechanical hand tamps to at least 95 percent of AASHTO density, Test Method T-99-74

Foundations:

Use cement-sand for stabilizing the foundation for manholes, inlets or concrete structures, if required

31-23-34.04 MEASUREMENT

Measurement of this Item, as specified herein and listed in the Bid, shall be by "Unit Price", measured per ton, actual quantity, in place. Measurement shall be limited to the theoretical section specified or otherwise agreed to by written change order. Wasting of excess materials or additional fill required due to larger than specified excavation, unless preapproved by Owner, shall not be considered for additional payment under this Item.

31-23-34.05 PAYMENT

Payment for this Item shall be per the Contractor's bid by "Unit Price".

Partial or final payments shall be full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work as specified.

END OF SECTION 31 23 34

Item 31 24 00 - EMBANKMENT AND FILL

31-24-00.01 DESCRIPTION

This Item shall govern the placement and compaction of all materials obtained from local excavation and purchased material for utilization in the construction of ditch embankments, levees, dykes, structural subgrade, and all other areas or items which require fill.

31-24-00.02 MATERIALS

All fill material shall be free from all humus or organic debris, inorganic silt, and gravel larger than three (3") inches. The select fill material shall not contain highly expansive or compressible clays, highly plastic soils, very loose sand and silts, or other poorly drained soils. No large lumps or clods will be permitted, and material should be friable. Very moist or dry material shall not be used until the material has been reworked to proper moisture content.

Trees, stumps, roots, and other vegetation shall not be placed in fills and embankments.

Select Fill - Unless otherwise required by the plans, select fill material shall be composed of native material or material obtained from borrow, channel, or structural excavations as approved by the Owner.

Reuse of Excavated Materials - In areas of levee excavations, the vegetation and topsoil should be stripped from the levee and all other excavated material stockpiled for reuse in levee reconstruction. Excavated soil from the levee area shall be segregated and for reuse as embankment construction material. Excavated soils from adjacent natural ground or from the area with the drainage way shall be separately stockpiled and used only for reconstruction of the ditch banks.

Structural Fill - The selected materials shall be composed of graded sand and gravel with clay binder. The maximum size of the granular portion should be limited to 1.5". The clay binder shall have a Plastic Index less than 10 (PI<10) and a Liquid Limit less than 40 (LL<40). The selected soil shall conform to AASHTO Classification Group A4. The selected soil (clayey sand soil) should be 50% to 70% sand with 30% to 50% clay. The sand particles shall 100% pass a Standard Sieve #10 and the clay particles shall 100% be retained between a sieve #200 and #270. The selected material shall be free of any organic material (OH), Clay with high plasticity (CH), silt with high compressibility (MH), peat materials (PT). The material shall be free of vegetation, debris, and clay lumps.

Sand Cushion Under Structures – The top layer of fill underneath a slab shall consist of clean sand or clean bank sand free from clay, clay lumps, shale, loam, organic matter, or excessive amounts of silt or other deleterious materials. The fine particle should be limited to 5% by weight of the soil and should have a maximum Plasticity Index of seven percent (7%).

Granular Fill Under Structures – Except in areas of structures within levees or other elevated embankments intended to contain water, the Contractor shall provide an 18" to 24" thick layer of granular fill under the entire footing of a structure. The Contractor shall over excavate the structure by 18 to 24 inches and compact the subgrade before installing granular material. Granular fill shall be installed in 8-inch lifts and shall be compacted to 95% of its maximum density confirmed by Standard Proctor

Compaction Test. Granular material shall be a mix of well graded sand and gravel with a maximum particle size of one inch (1"). The fine portion of the soil shall be less than 5% by weight.

31-24-00.03 CONSTRUCTION

Preparation and Scarifying - Fill and embankment shall not be placed until stripping and/or clearing and grubbing has been completed for the excavation sources and for the proposed fill areas. Stump holes or other small excavations in the limits of the embankment shall be backfilled with select fill and thoroughly tamped by approved methods before commencing embankment or other fill construction. The surface of the ground, including plowed, loosened ground, or surface roughened by small washes or otherwise, shall be restored to approximately its original slope by blading or other methods. Where indicated on plans or required by the Owner, the ground surface thus prepared shall be compacted by sprinkling and rolling.

Where embankments are to be placed adjacent to or over existing roadbeds, or levees, the existing slopes shall be plowed or scarified to a depth of not less than four (4") inches and the embankment built up in successive layers. The top of the old bed shall be scarified and re-compacted with the next layer of the new embankment. The loosened material shall be recompactd with the new embankment as hereinafter specified.

Other areas shall be scarified to the satisfaction of the Owner before placing any fill material.

Layer Construction - Unless otherwise required by the plans, all fill shall be constructed in layers approximately parallel to finished grade, covering the full length and width of the fill area. Layers of embankment for roadbeds, levees, or similar purposes shall have a uniform slope of one-fourth (1/4") inch per foot from the centerline of the levee to the outside unless otherwise indicated on the plans.

Fill in levees, under structures, and under roads shall be placed in eight (8") inch maximum layers (measured loose). Where fill to subgrade is less than six (6") inches, the ground shall be scarified to a depth of six (6") inches and compacted as specified. All fill to be covered by a structure or road shall be placed to subgrade elevation without addition of topsoil. Fill for unpaved earthen levees shall be placed within four (4") inches of finish grade unless otherwise specified by the plans. Such levees shall be capped with four (4") inches of topsoil within limits shown on plans.

Fill not within a levee or covered by structures or roads shall be placed in ten (10") inch maximum layers (measured loose). This fill shall be placed within four (4") inches of finish grade unless otherwise specified by the plans. Four (4") inches of topsoil shall be placed over these fill areas within limits shown on plans, unless otherwise indicated.

Regardless of the fill location, fill shall be placed in six (6") inch maximum layers (measured loose) when pneumatic tire rollers are used for compaction.

Spreading, Sprinkling, and Compaction. Layers of fill may be placed by equipment which will spread the material as it is dumped; or the material may be dumped in piles or windrows, then spread evenly by blading or other acceptable method.

Each layer of fill shall be uniform as to material, density, and moisture content before beginning compaction. Where layers of unlike materials abut each other, each layer shall be feather-edged or the material shall be so mixed as to prevent abrupt change in the soil. No material placed in the fill area by dumping in a pile or windrow shall be incorporated in a layer in that position, but all such piles or windrows shall be moved by blading or similar methods.

Clods or lumps shall be broken and the fill material mixed by blading, harrowing, or similar methods, so that a uniform material of uniform density is secured in each layer. All fill shall be compacted at or near optimum moisture. Water needed to bring the material to this moisture level shall be evenly applied, and the Contractor shall secure a uniform moisture content throughout the layer by such methods as may be necessary. In order to facilitate uniform wetting of the fill material, the Contractor may apply water at the material source if the sequence and methods used are such as not to cause an undue waste of water. Such procedure shall be subject to the approval of the Owner.

Each layer of fill shall be compacted until there is no evidence of further compaction. The material shall be kept leveled with suitable equipment to ensure uniform compaction over the entire layer.

Where the placement method above is impractical, such as fill placed against buildings, retaining walls, or structural walls, the material shall be compacted with mechanical tampers. Layers shall not exceed six (6") inches in depth, and moisture content must be suitable for effective compaction by this method.

Shaping. Fill areas and embankments shall be constructed to the rough and final grade established by the Engineer. Completed embankments shall correspond to the general shape of the typical sections shown on the plans, and each section of the embankment shall correspond to the detailed section of slopes established by the Engineer. After completion of the earthwork, the embankment shall be continuously maintained to its finished section and grade until the project is accepted.

Compaction Requirements. Contractor shall place fill in lifts and compact to a minimum density of ninety-five (95%) percent standard Proctor (Maximum Density - Optimum Moisture), as per ASTM D698. This requirement shall also apply to undisturbed native soil that will directly support load bearing members. Should the subgrade, due to any reason or cause, lose the required stability, density or finish before the new structure is placed or levee is reconstructed, it shall be recompacted and refinished at the sole expense of the Contractor. Excessive loss of moisture in the subgrade shall be prevented by sprinkling, sealing or covering with a subsequent layer of granular material. Excessive loss of moisture shall be construed to exist when the subgrade soil moisture content is more than 4 percent below the optimum of compaction ratio density.

Testing. At request of Owner, the Contractor shall have all necessary laboratory testing performed at the Owner's expense by a commercial laboratory acceptable to the Owner.

Required material tests prior to fill placement are as follows:

- a. At least one (1) Proctor needle plasticity test for each material type to be used in fill areas.
- b. At least one (1) Atterberg limit test per 500 cu. yds. of material.

Required density tests following compaction are as follows:

- a. At least one test per lift per 400 sq. ft. under structures.
- b. At least one test per lift per 1000 sq. ft under driving areas and parking lots.
- c. At least one test per lift per 5000 sq. ft in other areas not under concrete or other structural units.
- d. At least one test per 150 linear ft. in levee and roadway areas.

Waste Materials. The Contractor shall waste stripped materials from areas so indicated on the plans. Waste material shall be spread over designated areas as directed by the Owner, dressed by blading, and sloped to provide drainage.

Final Cleanup and Dressing. Washes, ruts, depressions, and mounds shall be leveled to give the site a smooth finish.

31-24-00.04 MEASUREMENT

Measurement of this Item, as specified herein and listed in the Bid, shall be by "Unit Price", measured per cubic yard, actual quantity, compacted and in place. Measurement shall be limited to the theoretical section specified or otherwise agreed to by written change order. Wasting of excess excavation materials in a wider than designed section shall not be considered for additional payment under this Item.

31-24-00.05 PAYMENT

Payment for this Item shall be per the Contractor's bid by "Unit Price".

Partial or final payments shall be full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work as specified.

END OF SECTION 31 24 00

Item 31 40 00 - EXCAVATION SAFETY AND TRENCH SHORING SYSTEMS

31-40-00.01 DESCRIPTION

This Item shall govern the trench safety and excavation supporting systems to protect the safety of workers, provide a suitable means for the installation of subsurface features and buried piping, and to protect public and private property, including any nearby structures, pipelines, and utilities. A trench shall be defined as any excavation 5 feet or greater below the highest adjacent soil surface

31-40-00.02 CONSTRUCTION

Where existing buildings, utilities, pipes, streets, railroads, or other structures are in close proximity to the trench, adequate protection shall be provided by the use of sheeting or shoring to protect the adjacent feature from possible damage. In all cases, it shall be the responsibility of the Contractor to protect public and private property and any person or persons who might, as a result of the Contractor's work, be injured.

All trench excavations shall be accomplished in accordance with the detailed specifications set out in the provisions for Excavations, Trenching, and Shoring as published by the Federal Occupational Safety and Health Administration (OSHA), 29 CFR, Part 1926, Subpart P, Sections 1926.650 - 1926.653. These sections are hereby incorporated, by reference into these specifications. Whatever method or option the Contractor may select, a request in writing must be submitted to the Owner for approval before work can start.

REVIEW AND APPROVAL OF METHOD, EQUIPMENT, AND PLANS BY THE OWNER OR ENGINEER WILL BE ONLY FOR GENERAL CONFORMANCE WITH OSHA SAFETY STANDARDS, AND IN NO CASE WILL REVIEW AND APPROVAL RELIEVE THE CONTRACTOR OF SOLE AND COMPLETE RESPONSIBILITY AND LIABILITY FOR ANY PROPERTY DAMAGE OR BODILY INJURY WHICH MAY RESULT FROM HIS CONSTRUCTION OPERATIONS.

Contractor shall make daily inspections of the Trench Safety Systems to ensure that the systems meet OSHA requirements. Daily inspection is to be made by a "competent person" provided by the Contractor. If evidence of possible cave-ins or failures is apparent, all work in the trench shall cease until the necessary precautions have been taken by the Contractor to safeguard personnel entering the trench. It is the sole duty, responsibility, and prerogative of the Contractor, not the Owner or the Engineer, to determine the specific applicability of the designed trench safety systems to each field condition encountered on the project. The Contractor shall maintain a permanent record of daily inspections and provide Owner with copies of records upon request.

31-40-00.03 INDEMNIFICATION

The Contractor shall indemnify and hold harmless the Engineer, and Owner, their employees and agents, from any and all damages, costs (including, without limitation, legal fees, court costs, and the cost of

investigation), judgments or claims by anyone for injury or death of persons resulting from the failure of trenches constructed under this contract.

The Engineer and Owner acknowledged and agree that this indemnity provision provides indemnity for the Owner and Engineer in case either is negligent either by act or omission in providing trench safety, including, but not limited to, inspections, failure to issue stop work orders and the hiring of the Contractor.

31-40-00.04 MEASUREMENT

Measurement of this Item will not be made.

31-40-00.05 PAYMENT

A lump sum payment for this Item shall made to the Contractor. Payment shall be full compensation for all planning, engineering, materials, equipment, fabrications, installations, recovery, and all incidental work required.

END OF SECTION 31 40 00

Item 31 41 16 - STEEL SHEET PILING

31-41-16.01 DESCRIPTION

This Item shall govern steel sheet piling utilized to provide backfill retention and a temporary barrier for selective dewatering of a portion of the canal.

31-41-16.02 MATERIALS

Furnish steel that meets ASTM A328, ASTM A690, or ASTM A572 Grade 50 for hot-rolled sheet piling.

Furnish steel that meets ASTM A690 or ASTM A572 Grade 50 for cold- rolled sheet piling.

Supply sheets in the section and of length as shown in the plans. Steel sheet piling may be substituted with a section modulus and minimum thickness of material equal to or greater than that of the section specified. Substitutions with a reduction in pile length or penetration will not be considered. If a hot-rolled section is specified, the substitute section must also be hot-rolled.

Except as indicated on the plans, the sheet piles will be a temporary installation. Coating, in accordance with Technical Specification 334215, shall be required on both side of the top 15' of all permanent steel sheet piles; however, coatings will not be required on temporary piling. Excess length above the water surface will be permitted for any sheets to be removed upon completion of the project and Contractor will not be required to cut-off tops of piles.

Sheet piling utilized in this project shall have a section modulus (Z) of not less than 15 in³/ft.

Contractor shall submit to a complete data sheet on the piling he intends to use to the Owner for approval prior to installation.

Protective Coating: All steel piling to be incorporated permanently in the project shall be delivered to the project construction site with finished protective coatings in accordance with the specification titled "Protective Coatings".

31-41-16.03 CONSTRUCTION

All sheet piles installed for the retention of backfill soils or for use as a dewatering barrier shall be driven to the finished bottom elevation that attains a minimum penetration of not less than 1.5 times the exposed face, or 10' below the mud line of the canal, whichever is greater.

If Contractor cannot achieve the specified minimum penetration of piles below the mud line, he shall immediately notify the Owner for evaluation and direction on how to proceed.

Interlocks shall be fully engaged for the entire length of the sheets. Interlock tear-out must be evaluated and may be cause for rejection.

31-41-16.04 MEASUREMENT

Steel sheet piling will be measured by the plan quantity linear wall foot (straight line distance in the horizontal plane) of acceptable piling in place.

31-41-16.05 PAYMENT

Payment for all work and materials required by these Items will be included in the unit prices bid for “Steel Sheet Piling-Temporary” and “Steel Sheet Piling-Permanent” corresponding to locations indicated on the plans.

Permanent Sheet Piling shall eligible for full payment, subject to all terms of the contract, upon acceptance of installation. Payment for permanent sheet piling shall be considered full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work as specified.

Partial payments of the lump sum bid value for Temporary Sheet Piling shall be as follows:

- A. When temporary piles are installed and acceptable to the Owner, 80% of the value for the accepted measure of temporary piling will be eligible for payment.

- B. Upon removal of temporary piling and restoration of canal banks/levees is acceptable to the Owner, the remainder of the value for the accepted measure of temporary piling will be eligible for payment.

END OF SECTION 31 41 16

Item 32 92 00 - HYDROMULCH SEEDING

32-92-00.01 DESCRIPTION

This Item shall govern activities directed toward establishment of desired grasses and ground cover to control erosion of soils. It shall include ground surface preparation, seed selection and sowing, protection of sown seeds and other management practices, and shall apply to the establishment of both temporary and permanent erosion control vegetative ground cover.

32-92-00.02 MATERIALS

Seed. All seed must meet the requirements of the Texas Seed Law including the labeling requirements for showing pure live seed (P.S. = purity x germination), name and type of seed. Seed furnished shall be of the previous season's crop and the date of analysis shown on each bag shall be within nine months of the time of use on the project. Each variety of seed shall be furnished and delivered in separate bags or containers. A sample of each variety of seed shall be furnished for analysis and testing when directed by the Owner.

Acceptable varieties of seed shall include:

<u>Common Name</u>	<u>Scientific Name</u>
Bermuda and Giant Bermuda Grass (Hulled or Unhulled)	Cynodon dactylon
Annual Rye	Lolium multiflorum
German Foxtail Millet	Setaria italica

Fertilizer. All fertilizers used shall be delivered in bags or containers clearly labeled showing the analysis. The fertilizer is subject to testing in accordance with the Texas Fertilizer Law. A pallette or granulated fertilizer shall be used with an analysis of 13-13-13 or having the analysis shown on the plans. The figures in the analysis represent the percent of nitrogen, phosphoric acid, and potash nutrients respectively as determined by the methods of the Association of Official Agricultural Chemists.

The fertilizer shall be dry and in good physical condition. Fertilizer that is powdered or caked will be rejected.

Soil Stabilizer/Tacking Agent. Soil stabilizer for hydro-mulch seeding shall be of a commercially available type approved by the Owner and shall be applied at a rate of 40 Lbs./acre unless otherwise specified.

32-92-00.03 CONSTRUCTION

Seed Selection. Seed mixture and amount of seed sown per acre shall be time dependent as follows:

<u>Application Date</u>	<u>Variety</u>	<u>Application Rate (lbs/acre)</u>
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April 1 - September 30	Bermuda/Giant Bermuda Grass (Hulled)	20
	German Foxtail Millet	40
October 1 – March 31	Bermuda/Giant Bermuda Grass (Hulled)	20
	Bermuda/Giant Bermuda Grass (Unhulled)	20
	Annual Rye	40

Fertilizer. Palette or granulated fertilizer shall be applied uniformly over the area specified to be seeded. Distribution of fertilizer for the particular item of work shall meet the approval of the Owner. In the event it is necessary to substitute a fertilizer of a different analysis than as previously specified, it shall be a palette or granulated fertilizer with a lower concentration, but the total amount of nutrients furnished and applied per acre shall equal or exceed that specified for each nutrient.

Unless otherwise indicated in the plans or specifications, fertilizer shall be applied uniformly at the average rate of 600 pounds per acre for all types of "Seeding."

Seeding. At completion of ground surface disturbance activities, as needed for temporary erosion control, or at the written direction of the Owner, seeding shall be performed in accordance with the requirements hereinafter described. All areas to be seeded shall be cultivated to a depth of at least four (4") inches, unless otherwise directed by the Owner. The seed bed shall be cultivated sufficiently to reduce the soil to a state of good tilth when the soil particles on the surface are small enough and lie closely enough together to prevent the seed from being covered too deep for optimum germination. Cultivation of the seed bed will not be required in loose sand where depth of sand is four (4") inches or more.

The ground surface contours previously established shall be maintained throughout the process of cultivation and any necessary reshaping shall be done prior to any planting of seed.

The Contractor shall use hydro-mulch seeding on all disturbed surfaces unless otherwise directed by Owner.

Hydro-Mulch Seeding – The seed or seed mixture, in the quantity specified, shall be mixed in an approved mixer/distributor with fertilizer and Cellulose Fiber Mulch at the specified rates. Mixing and distributing shall be in such a manner so that thoroughly wet mulch material will be distributed at a uniform rate to provide the coverages specified. Soil stabilizer/tacking agent shall be added to the mixture at the specified rates. Application rate for mulch in HYDRO MULCH SEEDING shall be 2000 lbs/acre.

32-92-00.04 MEASUREMENT

Measurement of this Item, as specified herein and listed in the Bid, shall be by "Unit Price", measured per acre or per square yard (as noted in the bid document), actual final quantity, accepted and in place. No measurement will be made for temporary seeding, replacement work due to failure of seed to acceptably germinate, or restoration of areas of Contractor disturbance beyond the designated limits of the construction zone.

Germination and establishment of a good stand of Bermuda grass will be required in order to qualify any Seeding as "Acceptable Work." Substantial bare spots and ruts designed by the Owner will be reseeded and fertilized as required to achieve germination. Isolated bare spots measuring 2 ft. in diameter or less will be considered as acceptable work. These requirements will be adhered to assuming normal weather conditions. In the event of abnormal flooding conditions, these requirements will be applied to areas above measured high-water marks.

32-92-00.05 PAYMENT

Payment for this Item shall be per the Contractor's bid by "Unit Price".

Work and accepted materials, as prescribed for this Item, will be based on a per acre measurement. Partial or final payments shall be full compensation for furnishing all measurable (as defined above) materials, installation, excavation, loading, hauling, stockpiling, placing, sprinkling, and rolling and for furnishing all labor, equipment, tools, supplies and incidentals required to complete the work as specified.

Any activities or materials deemed not eligible for measurement in the previous sections be considered incidental to Contractor's performance of Work and will not be considered for separate or additional payment under this Item.

END OF SECTION 32 92 00

Item 33 42 13 - STEEL PIPE (SIPHON)

33-42-13.01 DESCRIPTION

This Item shall govern for furnishing and installing the steel pipes utilized for the construction of the freshwater supply pipe structure crossing a drainage way.

33-42-13.02 MATERIALS

The pipes shall be of the size, strengths and dimensions shown on the plans and shall include all appurtenances and jointing materials as may be required to complete the work.

Provide the types and grades of steel listed in this Section unless otherwise shown on the plans.

Carbon Steel. Meet ASTM A36.

Low-Alloy Steel. Meet the requirements of one of the following standards:

- ASTM A252 Grade 2 or 3;
- ASTM A529 Grade 50;
- ASTM A572 Grade 50 or 55;
- ASTM A588;
- ASTM A709 Grade 50, 50S, 50W, or HPS 50W; or
- ASTM A992.

33-42-13.03 FABRICATION

All pipe of a given size, provided and utilized in this project, shall be of the same fabrication and acquired from a single supplier. Seamless pipe shall be utilized for all pipe having a nominal size equal to or less than 24" diameter. Larger pipe, utilized strictly for the construction of the siphon, may be seamless, spiral welded, or fabricated of rolled plate with longitudinal seams.

If the siphon pipe is fabricated of rolled plate, thinning may not result in a loss of thickness exceeding 5% of the nominal design wall thickness. Any longitudinal seams shall be offset by 1/3 the circumference of the pipe at each successive circumferential weld.

Joints: Full penetration butt welds shall be used for all joints and seems unless otherwise shown on plans or approved in writing by the Owner. Welding shall be completed in accordance with specification titled "Structural Welding (Pipe)".

Protective Coating: All pipe shall be delivered to the project construction site with finished interior and exterior coatings in accordance with the specification titled "Protective Coatings".

33-42-13.04 HANDLING AND STORAGE

Pipe shall be handled in a manner to protect the pipe and coating system from damage during loading, unloading, and shipping. All pipe shall be equipped with internal braces to maintain roundness of $\pm 1\%$ during shipping and handling. Pipe shall be handled with nylon slings and spreader bars to protect pipe. Pipe shall be transported and stored on padded bunks or dunnage to protect the exterior surface. Prior to installation, the pipe shall not be stored directly on the ground surface or dragged, skidded, or rolled on the ground surface during handling.

Pipe shall be inspected upon delivery to the site and pipe defects or damaged coating noted. All damaged areas shall be repaired or replaced per the applicable specifications at no additional charge to the Owner.

Contractor shall avoid contact of pipe surface with heavy objects and avoid foot traffic on the pipe surfaces except as required for installation. Pipe surfaces shall be cleaned and prepared for coating repairs and field coating of field weld joints in accordance with the specification for "Protective Coatings".

33-42-13.05 INSTALLATION

Installation below drainage ditch: Support pipe to distribute loads evenly on bedding material. Temporary timber supports may be utilized to support pipe for field welding. If pipe is supported on steel or concrete cribbing, place $\frac{1}{2}$ " thick rubber gasket/bearing pad between pipe and support to protect surface of pipe and prevent damage to the coating.

Installation in levee: Pipe penetration through elevated embankments (above adjacent natural ground) shall be set and bedded in accordance with the specifications for "Embankment and Fill". Once the pipe is bedded in the levee and the levee reconstructed, a bentonite clay core shall be installed around the pipes in accordance with the specification for "Earthen Levee Core".

33-42-13.06 MEASUREMENT

Measurement of the Item, "Steel Pipe" will be measured per pipe by the linear foot unless otherwise noted on the plans or general notes.

33-42-13.07 PAYMENT

The work performed in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Steel Pipe" of the diameter specified. This price shall be full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work as specified.

END OF SECTION 33 42 13

Item 33 42 14 - STRUCTURAL WELDING (PIPE)

33-42-14.01 DESCRIPTION

This Item shall govern for structural welding (shop and field service) associated with the fabrication, joining, and installing the steel pipes utilized for the construction of the freshwater supply structure using metal arc or flux cored arc welding processes.

33-42-14.02 MATERIALS

Provide electrodes for shielded metal arc welding (SMAW) conforming to the requirements of the latest edition of ANSI/AWS A5.1 or ANSI/AWS A5.5.

Provide electrodes for flux cored arc welding (FCAW) conforming to the requirements of the latest edition of ANSI/AWS A5.20 or ANSI/AWS A5.29.

Table 1 shows the classes of electrodes required. Use electrodes with the type of current, with the polarity, and in the positions permitted by AWS A5.1 and A5.5 for SMAW. AWS A5.20 and A5.29 specifications govern for FCAW. Obtain approval for electrode use on steel not listed in Table 1.

Table 1
Classification of Electrodes
Permitted

Type of Steel (ASTM Standards)	Electrode Specification	Process	Filler Metal Requirements
Steel piling	AWS A5.1 or A5.5	SMAW	E60XX E70XX or E70XX-X
Armor joints A500 A501	AWS A5.20 or A5.29	FCAW	E6XTX-X E7XTX-X (except -2, -3,10, -GS)
A36 A572 Gr. 50 A588	AWS A5.1 or A5.5	SMAW	E7016 E7018 E7028
A242 A709 Gr. 36, 50, or 50S A50 Gr. 50	AWS A5.20 or A5.29	FCAW	E7XT-1 E7XT-5 E7XT-6 E7XT-8
A709 Gr. HPS 70W	AWS A5.5	SMAW	E9018-M-H8R

Note—Low-hydrogen electrodes applicable to the lower strength base metal may be used in joints involving base metals of different yield points or strengths.

E7010 and E8010 electrodes may be used when welding the root passes if the requirements of Section 33-42-14.03.09.01, "High-Cellulose Electrodes for Root Passes," are met.

Use gas or gas mixtures that are welding grade and have a dew point of -40°F or lower for gas-shielded FCAW. Furnish certification to the Owner that the gas or gas mixture is suitable for the intended application and will meet the dew point requirements.

33-42-14.03 CONSTRUCTION

33-42-14.03.01 Electrode Drying & Storage: Provide electrode drying and storing ovens that can maintain the required temperatures specified in Section 33-42-14.03.05, "Electrode Condition." Each oven must have a door that is sealed and can be latched. Each oven must have a small port that may be opened briefly to insert a thermometer or the oven must be equipped with a thermometer that allows for direct reading of temperature inside the oven without opening the oven. Provide equipment able to preheat and maintain the temperature of the base metal as required and as shown on the plans. Provide approved equipment (e.g., temperature indicator sticks or infrared thermometer) for checking preheat and interpass temperatures at all times while welding is in progress.

33-42-14.03.02 Welding Equipment: Provide welding equipment meeting the requirements of the approved welding procedure specifications (WPS), if required, and capable of making high-quality welds.

33-42-14.03.03 Procedure Qualification: Use the proper classification and size of electrode, arc length, voltage, and amperage for the thickness of the material, type of groove, welding positions, and other circumstances of the work. Submit WPSs for FCAW, qualified in accordance with AWS D1.5 for approval before any field welding on a project.

33-42-14.03.04 Welder Qualification: Provide certification papers for each welder and for each welding process to be used before welding. Welder certification tests must be administered by an approved laboratory and welding observed by laboratory personnel. Submit 2 copies of the certification issued by the laboratory, all accompanying test papers, and the radiographic films to the project Owner for review. A welder must also demonstrate a thorough knowledge of the required welding procedures together with the ability and desire to follow them and make welds of sound quality and good appearance. The certification issued by an approved laboratory is accepted for 6 mo. from the time of certification, during which time the welder may work on the project if the work is satisfactory. Acceptance of the certification may be cancelled at any time if the welder's work is not acceptable.

For SMAW, a welder certified using EXX18 electrodes is qualified to weld with all approved SMAW electrodes up to E90XX to join metals with a maximum specified yield strength of 65 ksi.

33-42-14.03.05 Electrode Condition:

SMAW - For electrodes with low-hydrogen coverings in conformance with AWS A5.1, dry to the manufacturer's written drying instructions or dry for at least 2 hours between 450°F and 500°F. For electrodes with low-hydrogen coverings conforming to AWS A5.5, dry for at least 1 hour between 700°F and 800°F or as specified by the electrode manufacturer. If using electrodes from a newly opened undamaged hermetically sealed container, drying is not required. Store electrodes in ovens held at a temperature of at least 250°F immediately after drying or removal from hermetically sealed container. Elapsed time permitted between removal of an electrode from the storage oven or hermetically sealed container and use of the electrode is given in Table 2. If the electrodes have the moisture resistance designator "R" and are being used on steel with minimum specified yield strength of 50 ksi or less, exposure time may be increased up to 9 hr.

Table 2

SMAW Electrode Exposure Limits

Electrode Type	Exposure Time (hr.)
E70	4
E80	2
E90	1

Leave electrodes in the holding oven for at least 4 hr. at 250°F before reusing if they are placed back in it before the times given in Table 2 have lapsed. The Owner may reduce times allowed for use without re-drying in humid atmospheres. Do not redry electrodes more than once. Do not use electrodes with flux that has been wet, cracked, or otherwise damaged.

FCAW - Protect or store welding wire coils removed from the original package to keep their characteristics or welding properties intact. Do not use coils or portions of coils that are rusty.

Special Applications - Dry electrodes when welding steel not shown in Table 1 in accordance with the manufacturer's specifications and AWS D1.5.

33-42-14.03.06 Environmental Conditions: Do not weld when the air temperature is lower than 20°F; when surfaces are wet or exposed to rain, snow, or wind; or when operators are exposed to inclement conditions. Provide wind breaks to protect welding operations from winds greater than 5 mph.

33-42-14.03.07 Assembly and Fitup: Verify that ends of members to be welded are prepared in accordance with the welded joint detail specified. See Figure 1 for proper end preparation and weld details of butt splices.

Bring the parts to be joined by fillet welds into as close contact as possible, not separated more than 3/16 in. Increase the leg of the fillet weld by the amount of the separation if the separation is 1/16 in. or more. Keep the separation between faying surfaces of lap joints and of butt joints landing on backing strips to no more than 1/16 in.

Make suitable allowance for shrinkage, and never restrain the joint on both sides in any welding process.

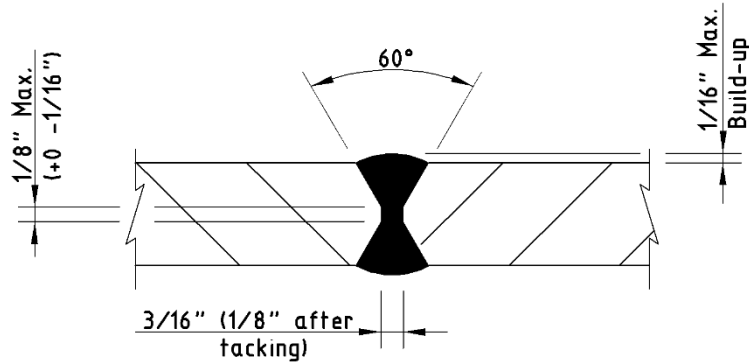


Figure 1
Butt Splice Detail

33-42-14.03.08 Preheat: Preheat ahead of welding both groove and fillet welds (including tack welding) to the temperatures shown in Table 3. Keep preheat and interpass temperatures high enough to prevent cracks. The preheat temperatures shown in Table 3 are minimums, and higher preheats may be necessary in highly restrained welds. Preheat the base metal when it is below the required temperature so that parts being welded are not cooler than the specified temperature within 3 in. of the point of welding.

Measure preheat temperature on the side opposite to which the heat is applied at points approximately 3 in. away from the joint.

Completely weld a joint before allowing it to cool below the specified temperature. Always deposit enough weld to prevent cracking before allowing a joint to cool. Do not allow preheat and interpass temperatures to exceed 400°F for thickness up to 1-1/2 in. and 450°F for greater thicknesses.

Table 3
Minimum Preheat and Interpass Temperature for
Welding with Low-Hydrogen Electrodes

Thickest Part at Point of Welding	Temperature
Up to 3/4 in., inclusive	50°F
More than 3/4 in. up to 1-1/2 in., inclusive	70°F
More than 1-1/2 in. up to 2-1/2 in., inclusive	150°F
More than 2-1/2 in.	225°F

Preheat the material in accordance with Table 4 when E7010 or E8010 electrodes are used for tacking or temporary root pass.

Table 4
Minimum Preheat Temperature for Welding with
E7010 or E8010 Electrodes

Thickest Part at Point of Welding	Temperature
1/2 in. and less	150°F
9/16 in. through 3/4 in.	200°F
13/16 in. through 1-1/2 in.	300°F
More than 1-1/2 in.	400°F

Use preheat and interpass temperatures for the thicker plate thickness when joining steels of different thickness.

Preheat base metal to at least 70°F when the base metal temperature is below 32°F and maintain this minimum temperature during welding. Preheat base metal to 200°F before starting to weld if it is moist.

33-42-14.03.09 Welding Practice: Use an approved procedure to control shrinkage and distortion. Weld FCAW in accordance with an approved WPS. Weld as required by the Contract or erection drawings. Do not change the location or size of welds without approval. Do not make temporary welds for transportation, erection, or other purposes on main members except as shown on the plans or approved. Use a crayon, paint, or other approved method to mark each groove weld to identify the welder who performed the work.

Use the stringer-bead technique where possible for groove welds. Progress upward in vertical welding passes using a back-step sequence keeping the end of the low-hydrogen electrode contained within the molten metal and shield of flux unless the electrode manufacturer's specifications indicate otherwise.

Begin and terminate groove welds at the ends of a joint on extension bars. Make edge preparation and thickness of extension bars the same as that of the member being welded but extending at least 2 in. beyond the joint. Remove extension bars with a cutting torch or arc-air gouging, and grind the flange edges smooth after the weld is completed and cooled. Clean any defects exposed by the grinding, fill them with weld metal, and regrind them to a uniform finish. Grind so that grind marks are parallel to the flange, and avoid excess grinding of the parent metal. Clean and fuse tack welds thoroughly with the final weld. Remove defective, cracked, or broken tack welds.

Gouge, chip, or otherwise remove the root of the initial weld to sound metal for all groove welds, before welding is started on the second side. Clean the back side thoroughly before placing the backup pass. Fuse the weld metal thoroughly with the backing, and use backing that is continuous for the full length of the weld. Make a continuous length of backing by welding shorter sections together only under the following conditions:

- All splices in the backing are complete joint penetration (CJP) groove welds made with the same controls as similar CJP groove welds in the structure.

- All welding and testing of the backing is complete before the backing is used to make the structural weld.

33-42-14.03.09.01 High-Cellulose Electrodes for Root Passes - E7010 and E8010 electrodes may be used when welding the root passes if the work is preheated in accordance with Table 4. Remove the E7010 or E8010 electrode pass completely by arc-air gouging, and replace it using a low-hydrogen electrode after the root passes are backed up.

33-42-14.03.09.02 Welding Sequence - Alternate welds to prevent heat buildup along bevel edge. Arrange the passes to maintain balance and symmetry.

Remove all slag for each layer, bead, and the crater area, and clean the weld and adjacent base metal before welding over previously deposited metal. Avoid arc strikes, and if they occur, grind resulting cracks and blemishes out to a smooth contour, checking them visually to ensure soundness.

33-42-14.03.09.03 Electrode Size & Weld Layer Thickness

SMAW -

Electrode Size: Use electrodes with the following maximum size:

- 1/4 in. for all welds made in the flat position except root passes,
- 1/4 in. for horizontal fillet welds,
- 1/4 in. for root passes of fillet welds made in the flat position and of groove welds made in the flat position with backing and with a root opening of 1/4 in. or more,
- 5/32 in. for welds made with low-hydrogen electrodes in the vertical and overhead positions, and
- 3/16 in. for all other welds.

Weld Size and Layer Thickness: Make the root pass large enough to prevent cracking.

Make layers subsequent to the root pass in fillet welds and all layers in groove welds of the following maximum thickness:

- 1/4 in. for root passes of groove welds;
- 1/8 in. for subsequent layers of welds made in the flat position; and
- 3/16 in. for subsequent layers of welds made in the vertical, overhead, and horizontal positions.

Make fillet welds passes using no larger than:

- 3/8 in. in the flat position,
- 5/16 in. in the horizontal or overhead positions, and
- 1/2 in. in the vertical position.

FCAW -

Electrode Size. Use electrodes with the following maximum size:

- 5/32 in. for the flat and horizontal positions,
- 3/32 in. for the vertical position, and
- 5/64 in. for the overhead position.

Weld Size and Layer Thickness: Make weld layers, except root and surface layers, no thicker than 1/4 in. Use a multiple-pass split-layer technique when the root opening of a groove weld is 1/2 in. or wider. Use the split-layer technique to make all multiple-pass welds when the width of the layer exceeds 5/8 in.

Ensure each pass has complete fusion with adjacent base metal and weld metal and that there is no overlap, excessive porosity, or undercutting.

Do not use FCAW with external gas shielding in a draft or wind. Furnish an approved shelter of material and shape to reduce wind velocity near the welding to a maximum of 5 mph.

Make fillet weld passes using no larger than:

- 1/2 in. in the flat position,
- 3/8 in. in the horizontal or overhead positions, and
- 5/16 in. in the vertical position.

33-42-14.04 WELD QUALITY

Provide welds that are sound throughout with no cracks in the weld metal or weld pass. Completely fuse the weld metal and the base metal and each subsequent pass. Keep welds free from overlap, and keep the base metal free from undercut more than 1/100 in. deep when the direction of undercut is transverse to the primary stress in the part that is undercut. Fill all craters to the full cross-section of the welds.

TESTING - Contractor shall perform liquid penetrant examination ("dye penetrant testing") for all welds, in full compliance with ASTM E165 "Practice for Liquid Penetrant Examination for General Industry". Contractor may utilize visible or fluorescent liquid penetrant testing using the water-washable process pursuant to ASTM E1418 or ASTM E1209, respectively. Contractor shall provide all testing and observation equipment necessary during the acceptance tests.

Contractor shall notify Owner and project inspector a minimum of 72 hours before he is ready to begin the final testing for acceptance. All acceptance tests shall be witnessed by the project Owner and/or the project inspector.

All defects identified with liquid penetrant testing shall be gouged out and replaced at no additional expense to the project Owner.

33-42-14.05 CORRECTIONS

When welding is unsatisfactory or indicates inferior workmanship, the Owner will require corrective measures and approve the subsequent corrections.

Use oxygen gouging or arc-air gouging when required to remove part of the weld or base metal. Back-gouge or cut out defective welds using arc-air gouging by a qualified welder.

Slope the sides of the area to be welded enough to permit depositing new metal were corrections require depositing additional weld metal.

Use a smaller electrode than that used for the original weld where corrections require depositing additional weld metal. Clean surfaces thoroughly before re-welding.

Remove cracked welds completely and repair. Remove the weld metal for the length of the crack if crack length is less than half the length of the weld plus 2 in. beyond each end of the crack, and repair.

Restore the original conditions where work performed after making a deficient weld has made the weld inaccessible or has caused new conditions making the correction of the deficiency dangerous or ineffectual by removing welds, members, or both before making the necessary corrections; otherwise, compensate for the deficiency by performing additional work according to a revised and approved design.

Cut apart and re-weld improperly fitted or misaligned parts.

Straighten members distorted by the heat of welding using mechanical means or the carefully supervised application of a limited amount of localized heat. Do not let heated areas exceed 1,200°F as measured by temperature-indicating crayons or other approved methods for steel up to 65,000-psi yield strength. Do not let heated areas exceed 1,100°F for higher-strength steels. Keep parts to be heat-straightened substantially free of stress from external forces except when mechanical means are used with the application of heat. Before straightening, submit a straightening procedure to the Owner for approval.

Correct defective or unsound welds either by removing and replacing the entire weld or as follows:

Excessive Convexity. Reduce to size by grinding off the excess weld metal, leaving a smooth profile.

Shrinkage Cracks, Cracks in Base Metal, Craters, and Excessive Porosity. Remove defective portions of base and weld metal down to sound metal, and replace with additional sound weld metal.

Undercut, Undersize, and Excessive Concavity. Clean and deposit additional weld metal.

Overlap and Incomplete Fusion. Remove and replace the defective portion of weld.

Slag Inclusions. Remove the parts of the weld containing slag, and replace them with sound weld metal.

Removal of Base Metal during Welding. Clean and form full size by depositing additional weld metal using stringer beads.

33-42-14.06 MEASUREMENT

Direct measurement of this Item will not be made.

33-42-14.07 PAYMENT

This Item shall be considered incidental to pay items provided for in the Bid and Contractor's performance of Work. Structural welding will not be eligible for separate payment.

END OF SECTION 33 42 14

Item 33 42 15 - PROTECTIVE COATINGS (STEEL PIPE)

33-42-15.01 DESCRIPTION

This Item shall govern the preparation of surfaces, performance, and completion of painting and finishing of all exterior and interior surfaces as required and specified herein, and environmental protection systems as required on this project.

33-42-15.02 GENERAL

All materials delivered to the job site shall be in original sealed and labeled containers of the paint manufacturer.

Coatings shall be shop applied during optimal painting conditions. Air and surface temperatures shall be within limits prescribed by the manufacturer for the coating being applied, and work areas shall be reasonably free of airborne dust at the time of application and while the coating is drying. Special attention to environmental conditions and substrate preparation shall be required for any field repairs to shop applied coatings and to areas coated in the field after field welding joints during installation.

33-42-15.03 MATERIALS

These technical specifications name the required paint systems for the interior and exterior surfaces. Any deviation from the herein pre-approved products must be approved in writing by the Owner prior to commencement of surface preparation activities.

1. All paint for this project shall be supplied by **TNEMEC** or **Carboline** as specified herein unless expressly approved in writing by the Owner prior to contract bid. No request for an “approved equal” product will be considered that would decrease film thickness or number of coats, or offers a change in the general type of coating specified.
2. It is the Contractor’s responsibility to investigate and verify the paint supplied by an “approved equal” manufacturer meets all of the requirements of these technical specifications.
3. Contractor must select paints and paint materials which will conform to all federal, state and local air, ground, and water pollution control agencies. This precludes the use of any materials which would not comply with the present pollution control regulations. The Contractor will, if required by the Owner, furnish written certification by the manufacturer that these materials do, at the time of bidding, meet these regulatory agencies’ requirements.
4. Colors, where not specified, shall be selected by the Owner.
5. Contractor shall obtain all components, including primers, undercoat materials, thinners, and coatings from the same manufacturer, or as recommended by the manufacturer, for each type of

coating or lining system specified to ensure compatibility, and proper chemical and mechanical bond.

33-42-15.04 SUBMITTALS

After award of the contract, and before delivery of any paint materials to the job site, the Contractor shall submit to the Owner a complete list of all materials proposed to be furnished and installed under this portion of the work.

Submittals presented by the Contractor shall in no way be construed as permitting substitution of materials for those specified or approved for this work by the Owner.

When required by the Owner, the Contractor shall prepare and deliver to the Owner two (2) identical sets of samples of the selected colors painted onto 8 ½ inch x 11 inch pieces of material.

Contractor shall submit manufacturer's technical data, MSDS, and product literature indicating that the products comply with the specified requirements.

Contractor shall submit documentation for the coating system application equipment to be used.

33-42-15.05 QUALIFICATION OF CONTRACTOR

The Contractor must meet the following requirements:

1. The Contractor shall engage only qualified applicator who has successfully completed applications using specified materials or equal on projects of similar scope with a satisfactory record.
2. Bidder should include references for similar projects utilizing the types of coating systems specified herein, including name address and phone number on the bidder's qualifications statement sheet.

33-42-15.06 COATING SYSTEMS

Application of all protective coatings must meet all applicable requirements of SSPC, NACE, the coating system manufacturer, and local, state and federal regulations.

The interior of pipes, exterior of the pipes, and sheet piling to be permanently incorporated into the project shall receive protective coatings in accordance with this specification.

33-42-15.07 ENVIRONMENTAL PROTECTION SYSTEMS

Contractor shall strictly observe and comply with all applicable environmental protection regulations associated with his activities on this project. All environmental protection measures, including but not limited to debris containment and disposal, ground and surface water protection shall be the sole responsibility of the Contractor.

Contractor shall take care to use all protective measures meeting latest EPA and OSHA requirements.

33-42-15.08 SURFACE PREPARATION

Prior to abrasive blasting steel, surface should be clean, dry, and contaminant free. Surface of steel should be at least 5°F above the dew point to prevent flash rusting.

The grade of abrasive used shall be one which will produce, without exceeding the minimum DFT of the first full prime coat, an anchor profile depth and shape which will give optimum adhesion between the steel substrate and first full prime coat and an anchor pattern which will be completely covered by the prime coat selected by the Contractor.

Blasting shall be done with clean sand, or approval equal. The abrasive material shall be clean, dry, and free of clay particles and other extraneous matter. "Recycling" of blast material will not be permitted.

The compressed air used for blasting shall be free of detrimental amounts of water and oil. Adequate traps and separators shall be provided at the compressor.

All traces of blast products and dust must be removed from surfaces to receive primer, as well as all adjacent areas which have been previously coated before application of the initial or successive protective coats.

Where existing defects (such as weld splatter, etc.) are present, the Contractor must either remove these existing defects or must pre-coat these areas.

All blast cleaned surfaces shall be fully prime coated within six (6) hours after blasting or prior to flash rusting, whichever occurs first. Areas which are not coated within six (6) hours or before flash rusting occurs will be re-blasted.

Abrasive blast all steel surfaces to be coated, to a "near-white" grade of surface preparation in strict accordance with SSPC-SP10. Refer to appropriate system and application requirements below for required surface profile.

33-42-15.09 PIPE COATING SYSTEM & APPLICATION REQUIREMENTS – INTERIOR AND EXTERIOR

The coating system for all segments of pipe, interior and exterior, shall be applied utilizing a two (2) coat, high-build, coal tar epoxy system, as specified herein. Complete coating system shall be supplied from a single manufacturer.

All coatings shall be shop applied whenever possible. Prepare surface by blast cleaning to a “Near-White” (SSPC SP-10) finish with a 3-mil profile.

- Stripe Coat: Stripe coat all crevices, welds and sharp angles with Tnemec “Tneme-Tar” (46H-413) or Carboline “Bitumastic 300M” high-build polyamide epoxy coal tar coating, or prior approved equal.
- 1st Coat: Tnemec “Tneme-Tar” (46H-413) or Carboline “Bitumastic 300M” high-build, polyamide epoxy coal tar coating, or prior approved equal. Required DFT Range: 8-10 mils.
- 2nd Coat: Tnemec “Tneme-Tar” (46H-413) or Carboline “Bitumastic 300M” high-build, polyamide epoxy coal tar coating, or prior approved equal. Required DFT Range: 8-10 mils.

33-42-15.10 GENERAL COATING SYSTEM APPLICATION REQUIREMENTS

Application of each coat shall be in strict accordance with the manufacturer’s recommendations.

Prior to application of each successive coat of paint, Contractor will wash down all surfaces.

Contractor should note the “spot” holiday testing required prior to the application of the last coat as specified below.

After the final coat has cured to the extent that it can be handled or walked on without damage, the lining will again be checked for holidays as specified below.

Contractor is not required to apply any of the coating systems in only the minimum number of full coats. He may, if he so chooses, apply each full coat in multiple applications in order to achieve the minimum DFT required for that particular coat. Contractor will not be allowed to build up any low mils of the coating system by applying an “extra heavy” last full coat.

33-42-15.11 REPAIR OF DAMAGED & DEFECTIVE AREAS

Contractor will repair all painted areas damaged due to his operations and all areas rejected by the OWNER due to the Contractor’s unsatisfactory paint application by removing the damaged or defective paint by re-blasting and re-painting as originally specified.

Scratches, abraded or burned areas, as well as premature failures like rusting, peeling, or blistering, along with heavy runs, sags, delamination, debris embedded in the paint, drips, over spray, and other similar conditions shall all be considered unsatisfactory and require correction prior to acceptance.

Repairs of small damaged spots and along the edges of large damaged areas will be feather-edged by hand or power sanding the adjacent areas to provide a smooth and continuous surface texture and to be invisible after the final coat is applied.

33-42-15.12 CERTIFICATION

Contractor shall provide the coating applicator's certification and verification that the coating system was applied in strict conformance with the specifications and manufacturer's recommendations.

33-42-15.13 CONTRACTOR QUALITY CONTROL PROGRAM

Contractor must implement and carry out his own surface preparation and painting quality control procedures under the direct supervision of the Contractor's Quality Control Supervisor.

The Contractor's QC Supervisor is responsible for ensuring quality work each day and providing documentation that both workmanship and materials are in accordance with this specification.

Contractor will monitor and keep written and accurate documentation of the following information:

1. Material quality assurance
2. Surface preparation
3. Coating application
4. Temperatures
5. Humidity and dew point
6. Testing (WFT, DFT, holiday detection, etc.)

33-42-15.14 PAINT APPLICATION – GENERAL

All surfaces, just prior to and during application of paint, shall be free from all dirt, dust, overspray, blast products, mud, oil, grease, rust, mill scale, contamination from power stage air motor exhausts, and any other objectionable substances. Particular attention must be addressed to all "hard to reach" surfaces.

Contractor must comply with all recommendations of the paint manufacturer in regard to drying time for each coat, technique of application, ventilation, thinning, safety precautions, etc. It will be the Contractor's responsibility to fully inform himself and all members of his field crew of these recommendations and to comply with them in all respects.

No paint shall be applied to any surface under any of the following weather conditions:

1. Ambient temperature below 50° F.
2. Steel surface temperature below 50° F.
3. When substrate surface temperature is less than 5° F above the dew point.
4. When the relative humidity is above 85%, or as specified by the coating manufacturer.
5. During wet, damp, or foggy weather.

Exceptions to the above must be approved by the Owner for each separate incident.

No paint shall be applied to any surface when there is a possibility that windblown dust, dirt, debris, or insects will collect on freshly applied paint or when high winds will adversely affect the painting operations.

Care must be taken to avoid dry overspray. Dry overspray must be removed by hand sanding prior to coating application to the satisfaction of the Owner.

All coating materials, blast material, and all equipment used in surface preparation and painting shall be subject to inspection at all times by the OWNER.

Air compressors, blasting and painting equipment must be equipped with moisture traps, gages, regulators, etc. Blast hoses shall be equipped with automatic safety control devices (i.e. "dead-man" switches) at the nozzles.

All paint for field touch-ups shall be delivered to the jobsite in originally labeled and unopened containers, shall be stored inside, and shall be protected against freezing. No adulterant, unauthorized thinner, or other material not included in the paint formulation shall be added, unless approved in writing by the paint manufacturer and the Owner.

Paint shall be thoroughly mixed by means of mechanical agitation only. The mixing and use of partial units will not be permitted.

The first full coat must cover the anchor pattern completely with no peaks exposed after normal drying time.

Contractor will carefully observe the minimum and maximum re-coat times as specified by the paint manufacturer. Any coating which has set past the maximum re-coat time shall be prepared for top-coating in strict accordance with the recommendations of the paint manufacturer.

Do not paint over any surfaces not fully blasted or cleaned. Dust and blast products shall be removed from all surfaces prior to coating by blowing, brushing, and/or water washing with potable water only. Care must be taken to prevent blown dust particles from settling back on the surfaces to be coated. When using water to remove blast products and dust from painted surfaces, ample time will be allowed for drying before starting the next coat. Should the painted surfaces become contaminated by any foreign materials prior to the application of the next coat, the Contractor will be required to remove the contaminants.

33-42-15.15 VENTILATION & CURE

Contractor must be aware that adequate ventilation during the curing period of each coating system is critical to the curing mechanisms of the coating materials. The ventilation system must be in accordance with the coating manufacturer's recommendations and designed to completely eliminate any "dead" areas on the surface.

33-42-15.16 SPECIAL PRECAUTIONS

Non-paintable surfaces such as galvanized parts, insulation, valve stems, gauges, safety devices, lights, control panels, etc. shall be protected against damage.

The Contractor is not to cut or burn holes in or weld any temporary attachments to any component or part unless approved in writing by the Owner prior to the cutting or welding operation.

33-42-15.17 SAFETY

It is the Contractor's sole responsibility and duty to ensure that all OSHA, Federal, State, City and local safety rules, regulations and general industry safety practices are fully complied with at all times by his employees, his sub-contractors, or anyone else at the jobsite under the control or direction of the Contractor.

33-42-15.18 WARRANTY

Contractor shall warranty paint application for a period not less than one (1) year. Warranty shall provide for full coverage of all parts and labor for on-site repair of any failed areas detected within the warranty period.

33-42-15.19 MEASUREMENT

Direct measurement of this Item will not be made.

33-42-15.20 PAYMENT

Work related to protective coating of pipes will not be paid for separately but shall be considered subsidiary to pay item for supply and installation of the steel pipes.

END OF SECTION 33 42 15