



**San Jacinto River Authority
Purchasing Department
1577 Dam Site Road
Conroe, Texas 77304**

**REQUEST FOR COMPETITIVE SEALED PROPOSALS
CSP NO. 19-0074**

**WOODLANDS DIVISON
ELEVATED STORAGE TANK NO. 2 REHABILITATION**

Date Issued: August 9, 2019

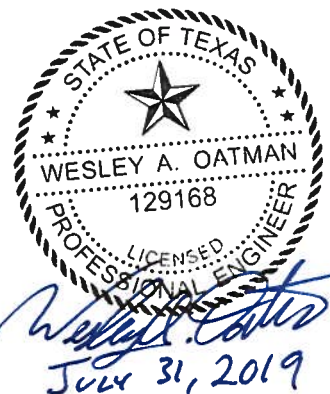
**Response Due Date & Time: September 6, 2019 at 11:00 AM CST
Location for Delivery: as stated above**

**SJRA PROJECT NO. WDP0102.1002.2N001
COMPETITIVE SEALED PROPOSAL NO. 19-0074
CONTRACT NO. 19-0074**

DUNHAM ENGINEERING, INC., TEXAS REGISTRATION NO. F-2253

NIGP CLASS and ITEM

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Disclosure Requirements

Chapter 176 of the Texas Local Government Code mandates the public disclosure of certain information concerning persons doing business or seeking to do business with the San Jacinto River Authority, including affiliations and business and financial relationships such persons may have with San Jacinto River Authority officers. An explanation of the requirements of Chapter 176, applicable forms and a complete text of the new law are available at: <http://www.sjra.net>. If you are unable to obtain such information online, please contact the San Jacinto River Authority Purchasing Department, 1577 Dam Site Road, Conroe, Texas 77304 or call (936) 588-3111.

BY DOING BUSINESS OR SEEKING TO DO BUSINESS WITH THE SAN JACINTO RIVER AUTHORITY, YOU ACKNOWLEDGE THAT YOU HAVE BEEN NOTIFIED OF THE REQUIREMENTS OF CHAPTER 176 OF THE TEXAS LOCAL GOVERNMENT CODE AND THAT YOU ARE SOLELY RESPONSIBLE FOR COMPLYING WITH THEM.

Doc.

No.

Document Title

Doc. Date

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INVITATION TO SUBMIT PROPOSALS

GENERAL NOTICE

The San Jacinto River Authority is requesting Competitive Sealed Proposals (CSP) for the Construction of the following project in Montgomery County, Texas:

CSP No. 19-0074 – *Elevated Storage Tank No. 2 Rehabilitation*

PROJECT DESCRIPTION

Replace interior and exterior protective coatings and make miscellaneous repairs to a 1.0MG fluted-column style elevated water storage tank and replace the drain valve of a composite style elevated storage tank.

Competitive Sealed Proposals must be delivered to the San Jacinto River Authority, G&A Building, 3rd Floor Receptionist, 1577 Dam Site Road, Conroe, TX 77304 no later than 11:00 AM (CST) on September 6, 2019. Proposals will be publicly opened and read aloud at this time. Address proposals to:

Elton D. Brock, MBA, CTPM, CTCM, CPSM, C.P.M.
Purchasing Manager
San Jacinto River Authority
Purchasing Department
1577 Dam Site Road
Conroe, TX 77304

A MANDATORY Pre-Submittal Conference will be held at Woodlands Division, 2436 Sawdust Rd, The Woodlands, Texas 77380, at 10:00 AM on August 21, 2019. Proposals will not be accepted from Offering Firms which fail to attend the Pre-Submittal Conference.

A complete set of (CSP) Documents may be accessed via a link from the SJRA Website (<http://www.sjra.net/purchasing/bidopportunities/>), Purchasing Tab, Bid Opportunities.

Attendance at the Pre-Submittal Conference may be the only opportunity for Offerors to see the existing conditions of the site prior to Proposal due date.

The SJRA reserves the right to reject any or all Proposals and to waive informalities and irregularities.

END OF SECTION

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SECTION 00 21 13.02CN

INSTRUCTIONS TO OFFERORS

(COMPETITIVE SEALED PROPOSALS)

1. Overview of Competitive Sealed Proposal Process.

The objective of the Competitive Sealed Proposal (CSP) process is to competitively procure goods and services with the firm whose Proposal provides the best value for the Owner (SJRA). Proposals will be received, publically opened, and the names and monetary Proposals of Offerors read aloud. Subsequently, the Proposals will be ranked according to the criteria described in this CSP Document. Both cost and non-cost factors will be evaluated and scored. One or more Offerors may be invited back for discussions or to present their Proposal to the SJRA before the final rankings are made.

The SJRA may enter into contract negotiations with the highest ranked firm for the completion of the Work. If the negotiations with the highest ranked firm are unsuccessful, the SJRA will formally close negotiations with this firm and initiate contract negotiations with the next highest ranked firm. Upon Standard Form of Agreement between both parties, a Contractor-executed Contract may be recommended for approval by the SJRA Board of Directors or the SJRA General Manager, as applicable. Upon approval, the Contract will be executed by the General Manager of the SJRA.

2. Defined Terms.

- 2.1. Definitions for the following terms used in these Instructions do not replace definitions for similar terms that may be contained within other sections of the Contract Documents.
- 2.2. Certain additional terms used in these Instructions to Offerors have the meanings indicated below and are applicable to both the singular and plural thereof.
 - 2.2.1. Addendum or Addenda- Additions, deletions, and/or changes to any part of the CSP issued in writing by the Owner prior to Proposal due date and time.
 - 2.2.2. Apparent Best Value Offeror- the Offering Firm whose Proposal for completion of the Work provides the best value for the Owner as defined by the ranking detailed in Article 11 of Instructions to Offerors.
 - 2.2.3. Board of Directors – The governing body of the SJRA comprised of seven (7) directors appointed to six (6) year terms by the Governor of the state of Texas.
 - 2.2.4. Contract Negotiations- Discussions which take place between the Owner and the Apparent Best Value Offeror in an effort to reach Standard Form of Agreement on contract scope of work, price, time and other contractual requirements.

- 2.2.5. Contractor – The successful Offeror to this CSP who enters into a contractual relationship with the Owner for completion of the Work, following any contract approval by the SJRA Board of Directors or the SJRA General Manager, as applicable.
- 2.2.6. CSP Document- Abbreviation of the Competitive Sealed Proposals Document, the document used to request Competitive Sealed Proposals for the procurement of goods and services as authorized under Government Code Chapter 2269, Subchapter D.
- 2.2.7. Engineer's Opinion of Probable Construction Cost – Engineer's opinion of project construction cost to owner developed by the Principal Architect/Engineer. Actual contract amount may vary significantly.
- 2.2.8. Issuing Office - The location from which the CSP Documents are issued. For this project the issuing office is San Jacinto River Authority, 1577 Dam Site Road Conroe, Texas 77304.
- 2.2.9. Offeror, Offering Firm- Firm which responds to a CSP by submitting a Proposal directly to Owner. Offeror and Offering Firm shall have the same meaning in the Instructions to Offerors.
- 2.2.10. Owner - The San Jacinto River Authority (SJRA).
- 2.2.11. Proposal- Offeror's submittal which conforms to the requirements set forth in this CSP.
- 2.2.12. Proposal Form- As detailed in the requirements of this CSP, contains unit pricing for all parts of the Work and their aggregate as detailed and affirmed on the Proposal Form and may include additional forms supplied by Offeror and/or the Owner that relate to the Offeror's proposed cost for completing the Work.
- 2.2.13. SJRA- San Jacinto River Authority, a government agency whose mission is to develop, conserve, and protect the water resources of the San Jacinto River basin.
- 2.2.14. Statement of Qualifications, (SOQ) - Offeror submitted documents which describe the Offering Firm's qualifications for performing the Work and contain no pricing or cost data. Requirements for the Statement of Qualifications (SOQ) are set forth in Article 8 and Article 10 of the Instructions to Offerors (this CSP).
- 2.2.15. Subcontractor - Any contractor hired by the Contractor to furnish services, or goods and services, specified in this CSP.
- 2.2.16. Successful Offeror - The Firm who has completed negotiations with the Owner and, following any approval by the SJRA Board of Directors or the SJRA General Manager, as applicable, is selected to enter into a Contract with the Owner to complete the Work.
- 2.2.17. Supplier- Any supplier of materials and/or equipment to Contractor for the Project.

3. Schedule.

CSP Documents Posted on Website:	August 9, 2019
Legal Advertisements:	August 9, 2019
	August 16, 2019
Pre-Proposal Conference (Mandatory):	August 21, 2019
Deadline for Questions and Inquiries:	August 23, 2019
Proposal Submission Deadline:	September 6, 2019
Anticipated Construction Start:	November, 2019

4. Competitive Sealed Proposal Documents/Copies.

4.1. This Request for Competitive Sealed Proposals (CSP) consists of the following documents:

- 4.1.1. Invitation to Submit Proposals (00 11 13);
- 4.1.2. Instructions to Offerors (00 21 13.02);
- 4.1.3. Proposal Form (00 41 00.02), Contractor shall also complete and submit the provided Microsoft Excel spreadsheet of the Proposal Form;
- 4.1.4. Statement of Qualifications (00 21 13.03);
- 4.1.5. All Contract Documents referenced in this CSP;
- 4.1.6. Addenda to this CSP issued by the SJRA Purchasing Department;
- 4.1.7. Any attached forms; and
- 4.1.8. Proposal Security (Offeror's Bond)

4.2. A complete set of CSP Documents may be accessed may be viewed and accessed via a link from the SJRA Website (<http://www.sjra.net/purchasing/bidopportunities/>) Purchasing Tab (Bid Opportunities).

4.3. Complete sets of CSP Documents must be used in preparing Proposals; neither Owner nor Principal Architect/Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of CSP Documents.

4.4. Owner and Principal Architect/Engineer, in making copies of CSP Documents available on the above terms, do so only for the purpose of obtaining Proposals for the Work and do not confer a license or grant for any other use.

5. Competitive Sealed Proposal Process\Contract Documents.

5.1. All questions about the Competitive Sealed Proposal Process or the meaning or intent of the Contract Documents are to be directed to the SJRA Purchasing Department.

Contact:

Elton D. Brock, MBA, CTPM, CTCM, CPSM, C.P.M.
Email: ebrock@sjra.net
Purchasing Manager
San Jacinto River Authority
Purchasing Department
1577 Dam Site Road
Conroe, TX 77304

- 5.2. All questions shall be submitted to the buyer referenced above via email.
- 5.3. Interpretations or clarifications considered necessary by Owner in response to such questions will be issued by Addenda and posted via link a link from the SJRA Website (<http://www.sjra.net/purchasing/bidopportunities/>) Purchasing Tab (Bid Opportunities).

6. Pre-Submittal Conference.

- 6.1. A single MANDATORY Pre-Submittal Conference will be conducted at the offices of the San Jacinto River Authority, Woodlands Division, 2436 Sawdust Rd, The Woodlands, Texas 77380, at 10:00 AM August 21, 2019. Representatives of Owner and Principal Architect/Engineer will be present to discuss the project. Proposals will not be accepted from offering firms who fail to attend the pre-submittal conference.
- 6.2. All questions about the meaning or intent of the Competitive Sealed Proposal and Contract Documents are to be directed to the SJRA Purchasing Department. The SJRA Purchasing Department will address all questions as Owner considers necessary in response to inquiries arising at the conference through written Addenda and posted via link a link from the SJRA Website (<http://www.sjra.net/purchasing/bidopportunities/>) Purchasing Tab (Bid Opportunities). Oral statements may not be relied upon and will not be binding or legally effective.

7. Estimated Budget.

- 7.1. An Engineer's Opinion of Probable Construction Cost (project cost estimate) has been generated by the Principal Architect/Engineer. If an award is made, the actual contract amount may vary.
- 7.2. The Engineer's Opinion of Probable Construction Cost for this project is \$1,000,000.

8. Basis for Ranking of Proposals.

- 8.1 The Owner will consider the qualifications (Statement of Qualifications) of the Offerors and their respective proposed Contract Price (Proposal Form) when evaluating Proposals to determine which Offeror, in the sole opinion of the Owner,

will provide the best value to the Owner. All procurements shall conform to Chapter 2269 of the State of Texas Government Code. The Proposals will be evaluated using the following criteria and weighting:

- 8.1.1. Proposed Project Cost: The Offeror's Proposed Cost of Performing the Work shall be indicated in the Proposal Form (Section 00 41 00.02). The Owner has established an internal budget for this Project. The Owner will evaluate the Total Proposal Price and/or as many of the Alternates (if identified) that the Owner can award with their available budget at the time Contract is negotiated. Attach the Proposal Form and all information/documents required to be submitted with the Proposal.
- 8.1.2. Experience/Past Performance of Offeror with Similar Projects: Experience should include, as a minimum, the satisfactory completion of at least 5 (five) rehabilitations of 500,000 gallons or larger capacity elevated storage tank Projects for proposed key personnel. A higher point score will be given to Offerors having the given minimum experience on Projects for which the Work was performed with the coating system as specified in this project. An even higher point score will be given to Offerors whose proposed key personnel have obtained the given minimum experience within the last 5 (five) years.

Offeror must demonstrate experience in the construction of Projects of similar construction cost and/or techniques and describe how they intend to provide the needed experience and expertise.

Submit descriptions of Projects on which proposed key personnel have experience by submitting completed copies of Table 12, with at least one Project for each of the key individuals.

If Offeror does not have specific experience with Projects of this type and magnitude, the Offeror may describe its proposed approach and how its experience with other Projects enhances their capability to successfully complete this Project. Offeror may submit photographs, Project descriptive narratives, letters of recommendation, Project awards, and references to demonstrate experience in constructing a Project which meets the Owner's expectations for a quality Project constructed on time and within budget. This attachment is not to exceed 1 (one) page in length for each Project listed in Table 12.

- 8.1.3. Experience and Qualifications of Proposed Key Personnel with Similar Projects: Provide information on the managerial structure and the key personnel that will be actively working on this Project in Tables 6 through 10 and Table 12. Key personnel include the Project Manager, Project Superintendent, Safety Manager, and Quality Control Manager. If more

than one of these key roles are to be filled by one individual, this information is to be provided with the list of proposed individuals. The Offeror is to provide a list of individuals from which the individual for any given position may be selected if the Offeror is not able to commit to one individual for the Project at the time the Proposal is submitted. Qualifications of these individuals will be considered in evaluating the qualifications of the Offeror. The Proposal must provide the services of the proposed key personnel for the life of the Project as a condition of qualification. Failure to provide the proposed key Personnel may result in the disqualification of the Offeror and may void the award of the Contract.

Provide the resumes (not to exceed one page for each) of proposed key personnel with the SOQ describing their education and experience in Table 6. Include more detailed information on Projects on which they have had significant involvement in the last five (5) years, or that demonstrate their experience with similar Projects. This list is to include the name and a current telephone number for references of each of these Project assignments. Offerors are to include a list of the current Project assignments for each of the individuals proposed, the anticipated completion date for this assignment and the percentage of the time they will have available to devote to this Project. The Project Superintendent must be dedicated to this Project full time for the duration of the Project.

8.1.4. Approach: The Offeror shall include a brief write-up, not to exceed two (2) pages, that summaries the Offeror's approach

1. Completion of specified repair items.
2. Replacement of protective coating systems including surface preparation method and coating system to be applied.
3. Field quality control.
4. Control and reduction of nuisances (noise, traffic, etc.) to neighboring property owners.

Include write-up as part of Table 14 or as a separate document attached thereto.

8.1.5. Financial Management (Stability): Provide the past two (2) years of available financial statements, preferably audited, with this Proposal. Provide financial statements showing the name and address of the firm preparing the financial statements and the date of preparation. Offerors may choose to report on the financial stability of their Organization to demonstrate that they have the ability to complete the Project in a manner that will not impose undue efforts on the part of the Owner to evoke bonds to complete the Project or meet financial obligations. Describe the Offeror's systems and philosophy for financial management of the Project. Describe Offeror's systems and philosophy for contracting with Subcontractors and Suppliers

and managing payments and retainage. Provide other information if desired to demonstrate solid financial management practices that will enhance completion of the Project. This narrative is not to exceed two (2) pages in length.

This is a Pass or Fail. Any Offeror receiving a score of “Fail”, will be automatically disqualified.

8.1.6. Other Factors: The Owner will consider other factors in evaluating Proposals, including the following (narratives in this Section shall not exceed five (5) pages total in length):

8.1.6.1. Safety: Demonstrated success in the implementation of a Project site safety program. This may be demonstrated by documentation of the Offeror’s safety program, and statement regarding their commitment to safety. Indicators such as the EMR (Experience Modification Ratio) may be used to demonstrate the effectiveness of the safety program.

8.1.6.2. Claims Experience and Litigation History: List all claims or litigation involving construction Project Owners that have been filed within the last five (5) years, or that are currently outstanding. Provide a brief description of the nature of each suit and when it is anticipated that the suit will be resolved.

8.2. Table of criteria and weighting for the ranking of Offeror’s Proposals.

Rating Category	Description	Weighting Points
8.1.1	Proposed Project Cost	50
8.1.2	Experience/Past Performance of Offeror with Similar Projects	15
8.1.3	Experience and Qualifications of Proposed Key Personnel with Similar Projects	10
8.1.4	Approach	15
8.1.5	Financial Management (Stability)	Pass/Fail
8.1.6	Other Factors	10
Total		100

9. Proposal Form.

9.1. A Proposal Form (00 41 00.02) is included with the CSP Documents; additional copies may be obtained at (<http://www.sjra.net/purchasing/bidopportunities/>)(Purchasing Tab).

- 9.2. All blanks on the Proposal Form must be completed in ink, by hand, or electronically printed.
- 9.3. Contractor shall also complete and submit the provided Microsoft Excel spreadsheet of the Proposal Form. Template may be obtained via the SJRA website (<http://www.sjra.net/purchasing/bidopportunities/>) (Purchasing Tab).
- 9.4. The Proposal price shall include such amount as the Offeror deems proper for overhead and profit.

10. Offering Firm's Statement of Qualifications (SOQ).

- 10.1. SOQs shall not exceed fifteen (15) pages, including transmittal letters and narratives, and excluding completed SOQ tables and attachments, covers and plain section dividers. SOQs shall be printed on single side 8 ½" by 11" pages with not less than 1 inch margins, not less than 1.25 line spacing and not less than 11 point font.
- 10.2. The SOQ must be submitted with the Proposal and include, as a minimum, the information as described in Article 8, Basis for Ranking of Proposals. Failure to submit the required information in the SOQ may result in the Owner considering the Proposal non-responsive and result in rejection of the Proposal by Owner. Offerors may be required to provide supplemental information if requested by the Owner to clarify, enhance or supplement the information provided in the SOQ.
- 10.3. Offerors must provide requested SOQ information using the tables provided in specification section 00 21 13.03 - Statement of Qualifications. A copy of these tables will be made available in Microsoft Word to assist with the preparation of the SOQ. Information in these tables must be provided completely and in detail. The information in these tables will be used to make direct comparisons with the information provided by other Offerors. Failure to include the information completely and clearly may result in lower scores in the evaluations. Information that cannot be totally incorporated in the table may be included in an appendix to the table. Appendices must be clearly referenced by appendix number in the table, and the appended material must include the appendix number on every sheet of the appendix. Each appendix must include only the information that responds to the question or item number to which the appended information applies. The required tables are listed below:

Table 1	General Information
Table 2	Organizational Experience
Table 3	Organizational Structure
Table 4	Project Experience and Resources

Table 5	Current Projects and Projects Completed within the last 5 Years
Table 6	Proposed Key Personnel
Table 7	Proposed Project Managers
Table 8	Proposed Project Superintendent
Table 9	Proposed Project Safety Manager
Table 10	Proposed Quality Control Manager
Table 11	Subcontractors and Suppliers
Table 12	Project information for Key Personnel
Table 13	Demonstration of Budget Performance
Table 14	Demonstration of On-time Performance

- 10.4. Offerors may provide supplemental information to the SOQs using AIA, AGC or other industry standard SOQ tables and / or Offerors may submit additional information such as organizational brochures or other marketing information to help demonstrate their ability to provide best value to the Owner. This information may not be submitted as a substitute to the information specifically requested in this Section, or in the SOQ tables. If this information is to be included as an appendix to the information requested in Article 10.3. (above), the appendix must specify the paragraph or section to which the appendix applies and the paragraph or section must accurately reference the appendix.

11. Ranking of Offeror's Proposals.

- 11.1. The Owner will consider the qualifications (Statement of Qualifications) of the Offerors and Offeror's proposed Subcontractors, Suppliers and consultants, in addition to the proposed cost(s) (Proposal Form) when evaluating Proposals to determine which Proposal offers the best value to the Owner. Owner will rank each of the Offeror's Proposals based on the criteria and criteria weighting described in Article 8, Basis for Ranking of Proposals.
- 11.2. Evaluation and ranking of the Proposals will be completed no later than the 45th Calendar day after the date of Proposal opening. Offerors are requested not to withdraw their Proposals within ninety (90) Calendar days from the date on which Proposals are opened. Proposal Security of the highest ranking firms will be held by the Owner until contract negotiations are finalized.
- 11.3. In evaluating Proposals, Owner will consider the selection criteria set forth in Article 8 of these Instructions to Offerors and whether or not the Proposals comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested by Owner.

- 11.4. Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the General Conditions. Owner may also consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to recommendation of award to Owner's Board of Directors or its General Manager, as applicable.
- 11.5. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Proposal and to establish the responsibility, qualifications and financial ability of Offerors, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.
- 11.6. The Owner, at its discretion, may also choose to conduct interviews with the top ranking Offerors to provide Offerors a better opportunity to demonstrate they can provide the best value to the Owner for this Project. Should the Owner choose to conduct interviews with the top ranking Offerors, they will be notified of:
- 11.6.1. The time and place for the interview.
 - 11.6.2. Interview format and agenda.
 - 11.6.3. Questions to prepare for the interview.
 - 11.6.4. Individuals that are expected to participate in the interview.

Failure to participate in the interview may result in disqualification from consideration for the Project.

12. Award of Contract.

- 12.1. It is the intent of the San Jacinto River Authority to award this contract to the Offering Firm whose Proposal for completion of the Work provides the best value for the Owner after consideration of the relative importance of costs and other evaluation factors described in the Basis for Ranking Proposals set forth in Article 8 of these Instructions to Offerors.
- 12.2. The Owner reserves the right to adopt the most advantageous interpretation of the Proposals submitted in the case of ambiguity or lack of clearness in stating Proposal Prices, to reject any or all Proposals, and/or to waive informalities.
- 12.3. Owner reserves the right to reject any or all Proposals, including without limitation the rights to reject any or all nonconforming, nonresponsive,

unbalanced, or conditional Proposals and to reject the Proposal of any Offeror if Owner determines that an award to that Offeror would not provide the best value for the Owner, whether because the Proposal is not responsive or the Offeror is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner.

- 12.4. 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 Apparent Best Value Offeror. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- 12.5. The qualifications of a firm shall not deprive the Owner of the right to accept a Proposal, which in its judgment offers the best value to the Owner. In addition, the Owner reserves the right to reject any Proposal where circumstances and developments have, in the opinion of the Owner, changed the qualifications or responsibility of the firm.
- 12.6. Material misstatements in the information submitted for evaluation may be ground for rejection of Offeror's Proposal. Any such misstatement, if discovered after award of the contract to such firm, may be grounds for immediate termination of the contract. Additionally, the Offeror will be liable to the Owner for any costs or damages to the Owner resulting from such misstatements, including costs and attorneys' fees for collecting such costs and damages.
- 12.7. If the Contract is to be awarded, it will be awarded to the Apparent Best Value Offeror following successful Contract Negotiations and following any required approval by the SJRA Board of Directors or the SJRA General Manager, as applicable.
- 12.8. If Contract Negotiations with the Apparent Best Value Offeror are unsuccessful, The Owner will formally close Contract Negotiations with this Firm and attempt to open Contract Negotiations with the next highest-ranked firm according to the selection criteria set forth in Article 8 of these Instructions to Offerors.
- 12.9. If the Contract is to be awarded, Owner will notify Successful Offeror of intent to submit contract for approval by SJRA's Board of Directors within ninety (90) Calendar days after the day of the Proposal opening. Following approval by the SJRA Board of Directors or the SJRA General Manager, as applicable, the General Manager of the SJRA may execute the contract.
- 12.10. The Offeror may submit exceptions or alternatives not in accordance with the terms and conditions of the Contract Documents, or for Work that is not in strict

compliance with the Contract Documents. In such event, Offeror must describe the intent and substance of the changes in the Proposal in adequate detail so they are clearly identifiable and understandable. Alternates will not be considered in the ranking and evaluation of the Proposals. Upon selection of the Proposal that offers the best value to the Owner, the Owner and Principal Architect/Engineer may consider proposed alternates in negotiating a final Contract scope, time/schedule and price.

- 12.11. Addenda may be issued to clarify, correct, or change the Contract Documents, prior Addenda or the related supplemental data as deemed advisable by Owner or Principal Architect/Engineer.

13. Interpretation and Addenda.

- 13.1. All questions about the meaning or intent of the Competitive Sealed Proposal and Contract Documents are to be directed to the SJRA Purchasing Department in writing. Interpretations or clarifications considered necessary by Owner's Representative in response to such questions will be issued by written Addenda and posted via a link from the SJRA website (<http://www.sjra.net/purchasing/bidopportunities/>) Purchasing Tab (Bid Opportunities).

Contact:

Elton D. Brock, MBA, CTPM, CTCM, CPSM, C.P.M.
Email: ebrocks@sjra.net
Purchasing Manager
San Jacinto River Authority
Purchasing Department
1577 Dam Site Road
Conroe, TX 77304

- 13.2. To properly qualify their Proposal, each Offeror shall, prior to submitting their Proposal, check the receipt of all Addenda and acknowledge such receipt on the Proposal Form and on the acknowledgement line of the Addendum Cover page. Proposals submitted without such acknowledgment of all issued Addenda and letters of clarification may cause Proposal to be considered non-responsive. Such Addenda and letters of clarification shall become a part of the executed contract and modify the contract documents accordingly.
- 13.3. Questions received after the deadline for Questions and Inquiries may not be answered.
- 13.4. Only questions answered by formal written Addenda issued by Owner will be binding. Oral and other interpretations or clarifications will be without legal effect.

- 13.5. Addenda may be issued to clarify, correct, or change the Contract Documents, Addenda or the related supplemental data as deemed advisable by Owner or Principal Architect/Engineer. Addenda may also be issued to modify the CSP Documents as deemed advisable by Owner or Principal Architect/Engineer.
- 13.6. Notification of Addenda will be by default via the SJRA Purchasing Department.
- 13.7. The Owner will not be responsible or liable for any failure. Offerors are encouraged to visit the SJRA webpage where the CSP Documents are issued until the legal limit for filing addenda (48 hours prior to Proposal due date and time) has passed to ensure receipt of all addenda.

14. Confidentiality of Proposal Information.

All materials submitted to the SJRA and upon receipt by the SJRA become public property and are subject to the Texas Public Information Act, Government Code Chapter 552. If an Offeror does not desire proprietary Information in the SOQ to be disclosed, each page must be identified and marked proprietary at the time of submittal. The SJRA will, to the extent provided by law, endeavor to protect such information from disclosure. The final decision as to what information must be disclosed, however, lies with the Texas Attorney General. Failure to identify proprietary information will result in all unmarked sections being deemed non-proprietary and available to the public upon request. Proposers shall not be permitted to mark entire Proposal as proprietary.

15. Examination of Contract Documents and Site.

- 15.1. It is the responsibility of each Offeror before submitting a Proposal:
 - 15.1.1. To examine thoroughly the Contract Documents and other related data identified in the CSP Documents (including "technical data" referred to below);
 - 15.1.2. To visit the site to become familiar with and satisfy Offeror as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work;
 - 15.1.3. To consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work;
 - 15.1.4. To study and carefully correlate Offeror's knowledge and observations with the Contract Documents and such other related data; and
 - 15.1.5. To promptly notify The SJRA Purchasing Department of all conflicts, errors, ambiguities or discrepancies which Offeror has discovered in or between the Contract Documents and such other related documents.

- 15.2. Reference is made to the General Conditions Article 4 and Contract Specification Section 00 31 19 – Existing Condition Information for identification of:
- 15.2.1. Reports of explorations and tests of subsurface conditions at or contiguous to the site which have been utilized by Principal Architect/Engineer in preparation of the Contract Documents. While such reports are intended to be an accurate record of the conditions at the specific boring locations on the date taken, it is not a guarantee of specific Site conditions which may vary between boring locations and over time, and Offerors may not rely upon the general accuracy of the "technical data" contained in such reports and upon other data, interpretations, opinions or information contained in such reports or otherwise relating to the subsurface conditions at the site, nor upon the completeness thereof for the purposes of preparing a Proposal for construction.
- 15.2.2. Copies of such reports will be made available by Owner to any Offeror on request. Such reports are not part of the Contract Documents. Offeror is responsible for any interpretation or conclusion drawn from any "technical data" or any such data, interpretations, opinions or information. Offeror acknowledges that Owner and Principal Architect/Engineer disclaim any responsibility for the accuracy, correctness, completeness, suitability, and sufficiency of such reports and for Offeror's interpretation of such reports.
- 15.3. Information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site are based upon information and data furnished to Owner and Principal Architect/Engineer by owners of such Underground Facilities or others, and Owner and Principal Architect/Engineer do not assume and expressly disclaim responsibility for the accuracy or completeness thereof or for Offeror's interpretation of such information and data. The Contractor is advised to coordinate closely with Owner, Principal Architect/Engineer and Utility Operator(s) prior to the commencement of any underground construction activities.
- 15.4. Provisions concerning responsibilities for the adequacy of data furnished to prospective Offerors with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Contract Documents due to differing or unanticipated conditions appear in Article 6 of the Standard Form of Agreement and Article 4.2 of the General Conditions.
- 15.5. Before submitting a Proposal, each Offeror will be responsible for obtaining such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and underground facilities) at or contiguous to the site or otherwise, which may affect cost,

progress, performance or furnishing of the Work, or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Offeror and safety precautions and programs incident thereto or which Offeror deems necessary to determine its Proposal for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

- 15.6. On request, the SJRA Purchasing Department may provide each Offeror access to the site to conduct such examinations, investigations, explorations, tests and studies, as each Offeror deems necessary for submission of a Proposal. Offeror must fill any resultant holes and clean up and restore the site to its former condition upon completion of such explorations, investigations, tests and studies.
- 15.7. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents.
- 15.8. Reference is made to Specification Section 01 11 13 - Work Covered By Contract Documents for the identification of the general nature of Work that is to be performed at the site by the Owner or others (such as utilities and other prime Contractors) that relates to the Work for which a Proposal is to be submitted. On request, Owner may provide to each Offeror for examination access to or copies of Contract Documents (other than portions thereof related to price) for such Work.
- 15.9. The submission of a Proposal will constitute an incontrovertible representation by Offeror that Offeror has complied with every requirement of this Article 15, that without exception the Proposal is premised upon performing and furnishing the Work required by the Contract Documents and applying the specific means, methods, techniques, sequences or procedures of construction (if any) that may be shown or indicated or expressly required by the Contract Documents, that Offeror has given Owner or Principal Architect/Engineer written notice of all conflicts, errors, ambiguities and discrepancies that Offeror has discovered in the Contract Documents and the written resolutions thereof by Principal Architect/Engineer are acceptable to Offeror, and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

- 15.10. The provisions of 15.1 through 15.9, inclusive, do not apply to Asbestos, Polychlorinated biphenyls (PCBs), Petroleum, Hazardous Waste or Radioactive Material covered by Article 4.4 Hazardous Conditions of the General Conditions.

16. Proposal Security.

- 16.1. Each Proposal must be accompanied by Proposal Security made payable to the Owner in the amount not less than five percent (5%) of the total Proposal Amount, including any Cash Allowances and Alternates, and shall be in the form of a cashier's check or Offeror's Bond.
- 16.2. Offeror's Bond must be on the form provided within the Contract Documents (CSP) and must bear the impressed seal of the Surety, and be signed by the Offeror and an authorized individual of the Surety. Bonds will only be accepted from Sureties authorized to issue bonds in accordance with state law.
- 16.3. The Proposal Security of Successful Offeror will be retained until such Offeror has executed the Standard Form of Agreement, furnished the required contract securities and met the other conditions contained in Specification Section 00 41 00.02 – Proposal Form, whereupon the Proposal Security will be returned. If the Offeror fails to execute and deliver the Standard Form of Agreement and furnish the required contract security within ten (10) Calendar days after the SJRA Board of Directors has approved a contract award, Owner may annul its award and the Proposal Security of that Offeror will be forfeited. The Proposal Security of other Offerors whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the Effective Date of the Standard Form of Agreement or the ninety-first day after the Proposal opening, whereupon Proposal Security furnished by such Offerors will be returned. Proposal Security, if submitted in the form of cashier's check, submitted with Proposals which are not competitive will be returned within ten (10) Calendar days after the Proposal opening.

17. Contract Times.

The number of Calendar days within which, or the dates by which, the Work is to reach Substantial and Final Completion are set forth in Specification Section 00 52 00 – Standard Form of Standard Form of Agreement between Owner and Contractor.

18. Substitutes and "Or-Equal" Items.

The Contract, if awarded, will be on the basis of goods and services described in the Drawings or specified in the Specifications with consideration for possible substitute or "or equivalent" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal"/"or equivalent" item of material or equipment may be furnished or used by Contractor if acceptable to Principal Architect/Engineer and Owner, application for such acceptance may be made prior to

Contract award in accordance with Texas Government Code 2269.155. See section 6.02.5 in the General Conditions of the Contract for more information.

19. Subcontractors, Suppliers and Others.

- 19.1. If the Owner requests the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of material and equipment) to be submitted to Owner, Apparent Best Value Offeror, and any other Offerors so requested, shall within five (5) Calendar days from request submit to Owner a list of all such Subcontractors, Suppliers or other persons or organizations proposed for those portions of the Work for which such identification is requested. 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, person or organization if requested by Owner. If the Owner or Principal Architect/Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, Owner may, before giving notice of its intent to recommend award to Owner's Board of Directors, request that Apparent Best Value Offeror submit an acceptable substitute without an increase in price.

If Apparent Best Value Offeror declines to make any such substitution, Owner may formally close contract negotiations with Offeror and enter into contract negotiations with the next most highly-ranked Offeror that proposes to use acceptable Subcontractors, Suppliers and other persons and organizations. The declining to make requested substitutions will not constitute grounds for sacrificing the Proposal Security of any Offeror. Any Subcontractor, Supplier, other person or organization listed and to whom Owner or Principal Architect/Engineer does not make written objection prior to giving notice of its intent to recommend Award to Owner's Board of Directors will be deemed acceptable to Owner and Principal Architect/Engineer, subject to revocation of such acceptance after the Effective Date of the Standard Form of Agreement as provided in Article 6.04 of the General Conditions.

- 19.2. No Contractor shall be required to employ any Subcontractor, Supplier, other person or organization against whom Contractor has reasonable objection.

20. Preparation of Proposals.

- 20.1. Prepare one (2) unbound originals of the complete Proposal Package, including the completed Proposal Form 00 41 00.02. Clearly mark this package with the word "Original". Prepare one (1) bound copy with original signatures, and one (1) electronic copy on a flash drive (in .pdf format) with a completed Proposal with original signatures, Statement of Qualifications 00 21 13.03, and a full set of Financials.

- 20.2. An Original Proposal is the Proposal containing the Original Signature of a person authorized to sign on behalf of the Offering Firm.
- 20.3. Proposals shall be enclosed in an opaque sealed Envelope (or Package), marked with CSP No. 19-0074 – Elevated Storage Tank No. 2 Rehabilitation and name and address of Offering Firm.
- 20.4. Each Original Proposal submitted by an Offeror shall contain the following:
 - 20.4.1. Offerors Statement of Qualifications (SOQ; 00 21 13.03);
 - 20.4.2. Completed Proposal Form (00 41 00.02);
 - 20.4.3. Completed Certification of Proposal (00 41 00.02), Contractor shall also complete and submit the provided Microsoft Excel spreadsheet of the Proposal Form;
 - 20.4.4. Form of Business (00 45 20);
 - 20.4.5. Proposal Security (Offeror's Bond 00 43 13);
 - 20.4.6. Resolution of Contractor (00 45 43);
 - 20.4.7. Conflict of interest Forms (Form CIQ; 00 45 10) shall be submitted under a separate cover and not included in the sealed Proposal;
 - 20.4.8. One (1) flash drive with a Completed Proposal with Original signatures, Statement of Qualifications (SOQ) and a full set of Financials; and
 - 20.4.9. Any other Documentation required by the terms of this Competitive Sealed Proposal.
- 20.5. Conflict of Interest Questionnaire, Specification Section 00 45 10 of Contract shall be submitted under separate cover. If Offering Firm affirms that there are no Conflicts of Interest, Offeror shall indicate so by writing name of firm and "No Conflicts" on CIQ form and signing form.
- 20.6. Proposals submitted by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.
- 20.7. Submitted Proposals by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.
- 20.8. All names must be typed or printed in ink below the signature.
- 20.9. The Proposal shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Proposal Form).
- 20.10. The address and telephone number for communications regarding the Proposal must be shown.

- 20.11. Evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed shall be provided in accordance with Specification Section 00 41 00.02 – Proposal Form. State Contractor license number, if any, must also be shown.

21. Submission of Proposals.

- 21.1. Proposals shall be submitted at the time and place indicated in the Invitation to Submit Proposals (00 11 13) and accompanied by the Proposal Security and other required documents.
- 21.2. If the Proposal is sent through the mail or other delivery system the sealed envelope shall be enclosed in a separate envelope with the notation "SEALED PROPOSAL ENCLOSED" on the face of it. Proposals not received by the time or at the location specified will be returned unopened to the Offeror.
- 21.3. The clock used by the Owner at the place used for receiving Proposals shall conclusively determine the time that Proposals are received.
- 21.4. Proposals sent by facsimile or electronic mail or delivered to any other location other than the address provided in the Invitation to Offerors will NOT be accepted.

22. Modification and Withdrawal of Proposals.

- 22.1. Proposals may be modified or withdrawn by a document duly executed (in the same manner that a Proposal must be executed) and delivered to the place where Proposals are to be submitted prior to the date and time for the opening of Proposals.
- 22.2. If, within twenty-four (24) hours after Proposals are opened, any Offeror files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material or substantial mistake in the preparation of its Proposal, that Offeror may withdraw its Proposal. The Proposal Security may be retained by the Owner if Offeror cannot clearly demonstrate to the Owner evidence of a material or substantial mistake in its Proposal. Thereafter, that Offeror may be disqualified from responding to a reissued CSP for the Work to be furnished under these Contract Documents.

23. Opening of Proposals.

Proposals will be opened and (unless obviously non-responsive) the names and Monetary Proposals of Offering Firms read aloud at a public opening. An abstract of the Proposals will be made available no later than the seventh day after the Contract is

awarded.

24. Proposals to Remain Subject to Acceptance.

All Proposals will remain subject to acceptance for ninety (90) Calendar days after the date of the opening, but Owner may, in its sole discretion, release any Proposal and return the Proposal Security prior to that date.

25. Prevailing Wage Rates.

Contractors for this Project must pay no less than the prevailing wage rates for the area established by the San Jacinto River Authority and included in Specification Section – 00 73 43 – Wage Scale for Construction.

26. Liquidated Damages or Economic Disincentives.

Provisions for liquidated damages or economic disincentives are set forth in Specification Section 00 52 00 -Standard Form of Standard Form of Agreement between Owner and Contractor and Specification Section 00 72 00 – General Conditions of the Contract.

27. Contract Security and Insurance.

Article 5 of the General Conditions sets forth Owner's requirements as to insurance and Performance and Payment Bonds. When the Successful Offeror delivers the original, hard copy executed Standard Form of Agreement to Owner, it must be accompanied by evidence of insurance and unsigned Performance and Payment Bonds as required by Article 5 of the General Conditions, unless prior written approval of Contractor's evidence of insurance and unsigned performance and payment Bond forms has been received from the SJRA Purchasing Department. Such evidence of insurance shall include, without limitation, all required certificates and endorsements, evidencing all required coverages, limits of liability, additional insured status, waivers of subrogation and other insurance requirements.

28. Conflict of Interest and Disclosure of Interested Parties.

28.1 Chapter 176 of the Texas Local Government Code mandates the public disclosure of certain information concerning persons doing business or seeking to do business with the San Jacinto River Authority, including affiliations and business and financial relationships such persons may have with San Jacinto River Authority officers. An explanation of the requirements of Chapter 176, applicable forms and a complete text of the law are available at: <http://www.ethics.state.tx.us/forms/CIQ.pdf>.

BY DOING BUSINESS OR SEEKING TO DO BUSINESS WITH THE SAN

JACINTO RIVER AUTHORITY, YOU ACKNOWLEDGE THAT YOU HAVE BEEN NOTIFIED OF THE REQUIREMENTS OF CHAPTER 176 OF THE TEXAS LOCAL GOVERNMENT CODE AND THAT YOU ARE RESPONSIBLE FOR COMPLYING WITH THEM.

- 28.2 Texas Government Code Section 2252.908 requires persons who enter into a contract with a government entity to submit a disclosure of interested parties (Form 1295) to the government entity or state agency at the time business entity submits the signed contract to the government entity or state agency. Use the following link to access filing instructions:
https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm.

29. Taxes.

Owner is exempt from payment of sales and use taxes of the State of Texas and of cities and counties thereof, on all goods and services to be incorporated into the Work. Said taxes shall not be included in the Proposal.

- 29.1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of goods to be incorporated into the Work.
- 29.2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to goods not incorporated into the Work, except to the extent the exemption referred to in paragraph 18.4 applies to the Project to exempt taxes on any such items.
- 29.3. If the Project is construction of a water or wastewater system certified by the Texas Commission on Environmental Quality as a regional system, equipment, services and supplies used solely to construct the Project are exempted from taxes imposed by Chapter 151, Limited Sales, Excise and Use Tax, Texas Tax Code. Said taxes shall not be included in the Proposal. Owner will furnish any required certificates of tax exemption to Contractor.

30. Verification Company Does Not Boycott Israel

Pursuant to Section 2270.002 of the Texas Government Code, the Contractor shall be required to execute contemporaneous with its execution of the Standard Form of Agreement a verification that Contractor does not Boycott Israel and Contractor will not Boycott Israel during the term of this Standard Form of Agreement. "Boycott Israel" as used herein means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes.

31. Signing of Standard Form of Agreement.

SJRA's Purchasing Department will transmit to the Successful Offeror the required number of unsigned counterparts of the Standard Form of Agreement with all other written Contract Documents attached. Contractor shall deliver original, hard copies of the required number of counterparts of the Standard Form of Agreement and written Contract Documents signed by Contractor, unsigned Bond forms, evidence of insurance as set out in Section 27 above, signed disclosure of interested parties (Form 1295), signed Conflict of interest Questionnaire, and signed and notarized Verification Company Does Not Boycott Israel, to SJRA Purchasing Department ten (10) Calendar days prior to the SJRA Board of Directors Meeting for which a contract award is anticipated. Notwithstanding the foregoing, the Standard Form of Agreement may be executed using electronic signatures at the option and in the discretion of Owner, and, in such event, the provisions of the Uniform Electronic Transaction Act, Chapter 332, Texas Business and Commerce Code, as amended, and any applicable policies and procedures of Owner regarding electronic signatures shall apply. However, the requirements of this Section 31 apply regardless of whether or not the Standard Form of Agreement is also executed using electronic signatures or transmitted electronically. Following and subject to award, the Owner shall deliver one (1) fully signed counterpart of the Standard Form of Agreement to Contractor. Within three (3) Calendar days of Contractor's receipt of the fully executed Standard Form of Agreement, the Contractor shall deliver the original, hard copy fully executed Bonds to SJRA Purchasing Department.

END OF SECTION

TABLE 1 – GENERAL INFORMATION			
Organization Doing Business As:			
Business Address of Principle Office:			
Main Telephone Number:			
Fax Number:			
Web Site Address:			
Form of Business (check one):	<input type="checkbox"/> Corporation	<input type="checkbox"/> Partnership	<input type="checkbox"/> Individual <input type="checkbox"/> Joint Venture
IF A CORPORATION			
Date of Incorporation:			
State of Incorporation:			
Chief Executive Manager's Name:			
President's Name:			
Vice President's Name(s):			
Secretary's Name:			
Treasurer's Name:			
IF A PARTNERSHIP			
Date of Organization:			
General or Limited Partnership?:			
IF AN INDIVIDUAL			
Name:			
Business Address:			
IF A JOINT VENTURE			
Name of Lead Joint Venture Manager:			
Name of Firm:			
Joint Venture Partner Manager(s):			
Name of Firm(s):			
Individuals Not Listed Above Having Significant Business Control:			
Indicators of Organization Size:			
Current Number Full Time Employees:		Estimate of Current Year's Revenue:	
Average Number of Projects per Year:		Average Project Construction Cost:	

TABLE 2 – ORGANIZATIONAL EXPERIENCE			
Organization Doing Business As:			
Business Address of Principle Office:			
Main Telephone Number:			
Fax Number:			
Web Site Address:			
Organization Doing Business As:			
ORGANIZATIONAL HISTORY			
List of names that this organization has operated under over the history of the organization, including the names of related companies presently doing business:			
Names of Organization:	From Date	To Date	
List of companies, firms or organizations that own any part of the organization.			
Name of Companies, Firms or Organization:		Percent Ownership	
CONSTRUCTION EXPERIENCE			
1.	Years experience in projects similar to the proposed project:		
	As a General Contractor:		As a Joint Venture Partner:
2.	Has this or a predecessor organization ever defaulted on a project or failed to complete any work awarded to it? If yes provide full details in a separate attachment. (Attachment #_____)		
3.	Has this or a predecessor organization been released from a bid or proposal in the past ten years? If yes provide full details in a separate attachment. (Attachment #_____)		
4.	Has this or a predecessor organization ever been disqualification as a bidder or Offeror by any local, state, or federal agency within the last five (5) years? If yes provide full details in a separate attachment. (Attachment #_____)		
5.	Is this organization or your proposed surety currently in any litigation or contemplating litigation? If yes provide full details in a separate attachment. (Attachment #_____)		
6.	Has this or a predecessor organization ever refused to construct or refused to provide materials defined in the contract documents? If yes provide full details in a separate attachment. (Attachment #_____)		

TABLE 3 – ORGANIZATIONAL STRUCTURE	
Organization Doing Business As:	
PROPOSED PROJECT ORGANIZATION	
1. Provide a brief description of the managerial structure of the organization and illustrate with an organizational chart. Include the title and names of key personnel. Include this chart as an attachment to this description. (Attachment No. _____)	
2. Provide a brief description of the experience and qualifications of the organization's management team, including officers that will be directly involved in the project. Describe the individuals that are authorized to execute Contract Documents, Change Orders or receive payment for the organization. Include a copy of a board resolution or other documentation as appropriate for the structure of the company authorizing these individuals to conduct business on behalf of the organization. (Attachment No. _____)	
SURETY REFERENCES	

Organization Doing Business As:				
PROJECTS				
1. Provide a list of major projects that are currently underway, or have been completed within the last five (5) years on Table 5, using additional copies as required. Identify those projects which specifically illustrate the organizations capability to provide best value to the Owner for this project.				
Provide a narrative description (not to exceed 10 pages) of your organizations approach to completing this project to provide best value for the Owner. Including a description of your approach in the following areas: 1. Contract administration 2. Management of subcontractor and suppliers 3. Time management 4. Cost control 5. Quality management 6. Project site safety 7. Managing changes to the project 8. Managing equipment				
EQUIPMENT				
2. Provide a list of major equipment proposed for use on this project. Attach additional information if necessary.				
Equipment item	Primary use on project	Own	Will buy	Lease
DIVISION OF WORK BETWEEN ORGANIZATION AND SUBCONTRACTOR				
3. What work will the organization complete using its own resources?				
4. What work does the organization propose to subcontract on this project?				

TABLE 5 – CURRENT PROJECTS AND PROJECTS COMPLETED WITHIN THE LAST 5 YEARS									
1 Project Owner:		Project Name:							
General Description of Project:									
Project Cost:				Date Project Completed:					
Key Project Personnel:		Project Manager		Project Superintendent		Safety Manager		Quality Control Manager	
Name:									
Reference contact information (listing names indicates approval to contacting the names individuals as a reference)									
Name		Title/Position		Organization		Telephone		E-mail	
Owner:									
Designer:									
Construction Manager:									
2 Project Owner:		Project Name:							
General Description of Project:									
Project Cost:				Date Project Completed:					
Key Project Personnel:		Project Manager		Project Superintendent		Safety Manager		Quality Control Manager	
Name:									
Reference contact information (listing names indicates approval to contacting the names individuals as a reference)									
Name		Title/Position		Organization		Telephone		E-mail	
Owner:									
Designer:									
Construction Manager:									
3 Project Owner:		Project Name:							
General Description of Project:									
Project Cost:				Date Project Completed:					
Key Project Personnel:		Project Manager		Project Superintendent		Safety Manager		Quality Control Manager	
Name:									
Reference contact information (listing names indicates approval to contacting the names individuals as a reference)									
Name		Title/Position		Organization		Telephone		E-mail	
Owner:									
Designer:									
Construction Manager:									

TABLE 6 – PROPOSED KEY PERSONNEL		
Organization Doing Business As: _____		
PROPOSED PROJECT ORGANIZATION		
1. Provide a brief description of the managerial structure of the organization and illustrate with an organizational chart. Include the title and names of key personnel. Include this chart as an attachment to this description. See attachment No.		
2. Provide a brief description of the managerial structure proposed for this project and illustrate with an organizational chart. Include the title and names of proposed key personnel and alternates. Include this chart as an attachment to this description. See attachment No.		
EXPERIENCE OF KEY PERSONNEL		
3. Provide information on the key personnel proposed for this project that will provide the following key functions. Provide information for candidates for each of these positions on the pages for each of these key personnel. Also provide biographical information for each primary and alternate candidate as an attachment. The biographical information must include the following as a minimum: technical experience, managerial experience, education and formal training, work history which describes project experience, including the roles and responsibilities for each assignment, and primary language. Additional information highlighting experience which makes them the best candidate for the assignment should also be included.		
Role	Primary candidate	Alternate candidate
Project Manager		
Project Superintendent		
Project Safety Manager		
Quality Control Manager		
4. If key personnel are to fulfill more than one of the roles listed above, provide a written narrative describing how much time will be devoted to each function, their qualifications to fulfill each role and the percentage of their time that will be devoted to each role. If the individual is not to be devoted solely to this project, indicate how time it to be divided between this project and their other assignments.		

TABLE 7 – PROPOSED PROJECT MANAGERS			
Organization Doing Business As:			
PRIMARY CANDIDATE			
1.	Name of Individual:		
	Years of Experience as Project Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	
ALTERNATE CANDIDATE			
3.	Name of Individual:		
	Years of Experience as Project Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

TABLE 8 – PROPOSED PROJECT SUPERINTENDENT			
Organization Doing Business As:			
PRIMARY CANDIDATE			
1.	Name of Individual:		
	Years of Experience as Project Superintendent:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Superintendent:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	
ALTERNATE CANDIDATE			
3.	Name of Individual:		
	Years of Experience as Project Superintendent:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Superintendent:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate Role on Project:	

TABLE 9 – PROPOSED PROJECT SAFETY MANAGER			
Organization Doing Business As:			
PRIMARY CANDIDATE			
1.	Name of Individual:		
	Years of Experience as Project Safety Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Safety Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	
ALTERNATE CANDIDATE			
3.	Name of Individual:		
	Years of Experience as Project Safety Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Safety Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

TABLE 10 – PROPOSED QUALITY CONTROL MANAGER			
Organization Doing Business As:			
PRIMARY CANDIDATE			
1.	Name of Individual:		
	Years of Experience as Quality Control Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Quality Control Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	
ALTERNATE CANDIDATE			
3.	Name of Individual:		
	Years of Experience as Quality Control Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Quality Control Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

Organization Doing Business As:

1. Provide a list of subcontractors that will provide more than 10 percent of the work (based on contract amounts)

2. Provide information on the proposed key personnel, project experience and a description of past relationship and work experience for each subcontractor listed above using the Project Information forms.

3. Provide a list of major equipment or materials proposed for use on this project. Attach additional information if necessary.

Standard Specification
Contract No. 19-0074

TABLE 12 – PROJECT INFORMATION FOR KEY PERSONNEL									
Project Owner:		Project Name:							
General Description of Project:									
PROJECT BUDGET AND SCHEDULE PERFORMANCE									
Budget history		Schedule performance							
	Amount	% of Bid Amount					Date	Days	
Bid :			Notice to Proceed:						
Change Orders			Contract Substantial Completion Date at Notice to Proceed:						
Owner Enhancements:			Contract Final Completion Date at Notice to Proceed:						
Unforeseen Conditions:			Change Order Authorized Substantial Completion Date:						
Design Issues:			Change Order authorized Final Completion Date:						
Total:			Actual / Estimated Substantial Completion Date:						
Final Cost:			Actual / Estimated Final completion Date:						
KEY PROJECT PERSONNEL									
		Project Manager		Project Superintendent		Safety Manager		Quality Control Manager	
Name:									
Percentage of Time Devoted to The project:									
Proposed for This Project:									
Did Individual Start and Complete The Project?:									
If Not, Who Started or Completed the Project in Their Place:									
Reason for Change:									
Reference Contract information (Listing names indicates approval to contact the named individuals as a reference)									
Name	Title/ Position	Organization		Telephone		E-mail			
Owner:									
Designer:									
Construction Manager:									
Surety:									
ISSUES / DISPUTES RESOLVED OR PENDING RESOLUTION BY ARBITRATION, LITIGATION OR DISPUTE REVIEW BOARDS:									
Number of Issues Resolved:	Total Amount Involved in Resolved Issues:	Number of Issues Pending:		Total Amount Involved in Resolved Issues:					

Standard Specification
Contract No. 19-0074

Standard Specification
Contract No. 19-0074

Affidavits

One of the following four affidavits shall be executed and provided with this information. The individual signing the affidavit shall attach evidence of their authority to bind the Organization to an agreement.

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AFFIDAVIT FOR CORPORATION

State _____ §

County of _____ §

_____, being duly sworn deposes and says
(Name)

That he is _____ of the Corporation submitting the
(Title)

foregoing qualification form and related information; that he has read such documents; and that such documents are true and correct and contain no material misrepresentations; and that he is authorized to make this affidavit on behalf of the Corporation.

Signature

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

Notary Public

My commission expires: _____

AFFIDAVIT FOR PARTNERSHIP

State _____ §

County of _____ §

_____, being duly sworn deposes and says
(Name)

That he is _____ of the Company submitting the
(Title)

foregoing qualification form and related information; that he has read such documents; and that such documents are true and correct and contain no material misrepresentations; and that he is authorized to make this affidavit on behalf of the Partnership.

Signature

Signed and sworn to me before this _____ day of _____, 20__

Notary Public

My commission expires: _____

AFFIDAVIT FOR INDIVIDUAL

State _____ §

County of _____ §

(Name) _____, being duly sworn deposes and says

That he is _____ of the company submitting the
(Title)

foregoing qualification form and related information; that he has read such documents; and that such documents are true and correct and contain no material misrepresentations.

Signature

Signed and sworn to me before this _____ day of _____, 20__

Notary Public

My commission expires: _____

AFFIDAVIT FOR JOINT VENTURE STATEMENT

We the undersigned do hereby give notice to our agreement to bid as a joint venture on the Project.

Name of Joint Venture

Name of firm

Signature

Signed and sworn to me before this _____ day of _____, 20__

Notary Public

My commission expires: _____

Name of firm

Signature

Signed and sworn to me before this _____ day of _____, 20__

Notary Public

My commission expires: _____

END OF SECTION

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SECTION 00 31 19

EXISTING CONDITION INFORMATION

1.1 SUMMARY

A. Section Includes:

1. Subsurface Investigation Report
2. Underground Facilities Reports
3. Existing Structures
4. Offeror Responsibilities

1.2 MEASUREMENT AND PAYMENT (NOT USED)

1.3 SUBMITTALS (NOT USED)

1.4 SUBSURFACE INVESTIGATION REPORT (NOT USED)

1.5 UNDERGROUND FACILITIES REPORTS (NOT USED)

1.6 EXISTING STRUCTURES

- A. Contract Documents indicate physical conditions in or relating to existing surface and subsurface structures which are at or contiguous to the site that were known to, and have been used by, the SJRA and Principal Architect/Engineer in preparation of Contract documents.
- B. Report of Inspection, prepared by Dunham Engineering, Inc., entitled Elevated Storage Tank No. 2, prepared on December 18, 2013, consisting of 56 pages with addendum dated March 14, 2019, consisting of 56 pages.

1.7 OFFEROR RESPONSIBILITIES

- A. Offeror shall have full responsibility for reviewing and verifying information and data, for locating underground facilities and existing structures shown or indicated in the Contract Documents, and for coordination of the Work with the owners of such underground facilities and existing structures during construction.

END OF SECTION

SECTION 00 41 00.02

PROPOSAL FORM

To: The San Jacinto River Authority
1577 Dam Site Road
G & A Building, 3rd Floor Receptionist
Conroe, Texas 77304

Project: Elevated Storage Tank No. 2 Rehabilitation
CSP No.: 19-0074
Project No.: SJRA Project No. WDPR0102.1002.2N001
Offeror: _____

(Print or type full name of proprietorship, partnership, corporation, or joint venture)

1.0 OFFER

- A. Total Proposal Price:** The undersigned Offeror proposes and agrees, if this Proposal is accepted, to enter into an Agreement with Owner in the form included in the Contract Documents to perform all Work as specified or indicated in Contract Documents for the Contract Amount indicated in this Proposal or as modified by a Change Order or Change Directive.
- B. Proposal Security:** Included with the Proposal is a Proposal Security in the amount of 5 percent of the Total Proposal Price subject to terms described in Specification Section 00 21 13.02 – Instructions to Offerors.
- C. Period for Proposal Acceptance:** Offeror accepts all of the terms and conditions of the Request for Proposals and Instructions to Offerors, including without limitation those dealing with the disposition of required Bonds. This offer shall remain open to acceptance and is irrevocable for 90 days after Proposal Date (opening). That period may be extended by mutual written agreement of the SJRA and Offeror.
- D. Liquidated Damages:** Offeror accepts the provisions of the Agreement as to liquidated damages in the event of its failure to complete Work in accordance with the schedule set forth in the Agreement.
- E. Addenda:** Offeror hereby acknowledges it has received, examined and carefully studied all Addenda and all Addenda have been considered and all related costs are included in the Total Proposal Price. Offeror hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum Date	Signature Acknowledging Receipt

F. Proposal Supplements: The following documents shall be provided with the proposal:

- Offeror's Statement of Qualifications (SOQ).
- Completed Certification of Proposal
- Form of Business 00 45 20
- Proposal Security (Offeror's Bond 00 43 13)
- Resolution of Contractor 00 45 43
- One (1) flash drive with a Completed Proposal with Original signatures, Statement of Qualifications (SOQ) and a full set of Financials.

G. Conflict of Interest Forms:

Conflict of Interest Forms (Form CIQ) shall be submitted with sealed proposal.

2.0 CONTRACT TIME

- A. If Proposal is accepted, Contractor shall achieve Substantial Completion of the Work within 120 calendar days after the date when the Contract Time Requirements commence to run as provided in Article 2.3 of the General Conditions, and Contractor shall achieve Final Completion within 30 calendar days after the date required for Substantial Completion of the Work, subject to adjustments of Contract Time Requirements as provided in the Contract.

3.0 OFFEROR REPRESENTATIONS

- A. Offeror is familiar with and is satisfied as to all federal, state and local laws and regulations that may affect cost, progress, performance and furnishing of the Work.
- B. Offeror has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, performance and furnishing of the Work.
- C. Offeror has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site and (2) Hazardous Conditions identified in reports and drawings provided to Offeror or available for Offeror review. Offeror

understands that neither Owner nor Principal Architect/Engineer is responsible for the accuracy of these documents and they are not part of the Contract Documents.

- D. Offeror has obtained and carefully studied all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions including surface, subsurface and Underground Improvements at or contiguous to the Site which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Offeror, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents to be employed by Offeror, and safety precautions and programs incident thereto.
- E. Offeror does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Proposal for performance of the Work at the Contract Amount proposed, within the Contract Time Requirements proposed and in accordance with the terms and conditions of the Contract Documents. Offeror shall make no claims against the Owner and shall bear all risk of losses, if any, resulting on account of the amount and character of the Work, or because the conditions under which the Work must be done vary or differ from conditions or information contained in the Contract Documents, or are different from what were estimated or anticipated by it.
- F. Offeror 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.
- G. Offeror has correlated the information known to Offeror, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- H. Offeror has given Owner or Principal Architect/Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Offeror has discovered in the Contract Documents, and the written resolution thereof by Principal Architect/Engineer are acceptable to Offeror.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Proposal is submitted.
- J. Laws to be Observed: In the performance of the Contract, the Contractor must comply with all applicable federal, state, and local laws, ordinances and

regulations, including but not limited to laws concerned with labor, safety, minimum wages, and the environment. The Contractor will make himself familiar with and shall at all times observe and comply with all federal, state, and local laws, ordinances and regulations which in any manner affect the conduct of the work, and shall Indemnify and save harmless the Owner, and its representatives against any claim arising from violation of any such law, ordinance or regulation by himself or by his subcontractor or by his employees.

K. Review by Owner:

(a) The Owner and authorized representatives, agents and employees of the Owner shall at all times have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, books and accounting records, subcontracts, purchase orders, and all other relevant data, documents and records pertaining to this Contract.

L. Offeror will submit written evidence of its authority to do business in the state where the Project is located with its Proposal, form 00 45 20 – Form of Business.

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

4.0 DEFINED TERMS:

A. Terms defined in this Proposal, if any, shall be for the purposes of this Proposal. Terms with initial capital letters not defined herein shall have the meaning assigned to them in the other Bid Documents or Contract Documents.

5.0 TOTAL PROPOSAL PRICE HAS BEEN CALCULATED BY OFFEROR, USING THE FOLLOWING COMPONENT PRICES AND PROCESS (PRINT OR TYPE NUMERICAL AMOUNTS):

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SAN JACINTO RIVER AUTHORITY Elevated Storage Tank No. 2 Rehabilitation PROPOSAL FORM						
A. BASE ITEMS						
Item No.	Spec. Reference	Description	Qty.	Unit	Unit Price (this column controls)	Proposal Price
1	01 71 13	Mobilization	1	LS	[Insert Amount, 5% of Construction Cost - \$500,000 max]	\$ _____
2	13 02 00	Disconnect/Reconnect elevated communications equipment	1	LS	\$ _____	\$ _____
3	13 02 00	Provide & install new gaskets and hardware	1	LS	\$ _____	\$ _____
4	13 02 00	Replace existing flap valve with new flap valve and counter weight	1	LS	\$ _____	\$ _____
5	13 02 00	Replace existing valves at base of the tank	1	LS	\$ _____	\$ _____
6	13 02 00	Repair existing concrete pipe support at base of tank	1	LS	\$ _____	\$ _____
7	13 02 00	Replace existing altitude valve with motor operated butterfly valve	1	LS	\$ _____	\$ _____
8	13 02 00	Replace existing pedestrian entry door	1	LS	\$ _____	\$ _____
9	13 02 00	Remove mounting hardware from top of interior dry ladder	1	LS	\$ _____	\$ _____
10	13 02 00	Install cable tray mounts to access tube	1	LS	\$ _____	\$ _____
11	13 02 00	Replace roof vent screen	1	LS	\$ _____	\$ _____
12	13 02 00	Replace existing roof hatch covers	2	EA	\$ _____	\$ _____
13	13 02 00	Replace roof navigation light with LED equivalent	1	LS	\$ _____	\$ _____
14	13 02 00	Replace interior existing interior lighting with LED fixtures	1	LS	\$ _____	\$ _____
15	13 02 00	Install new ten foot radius handrail to roof of tank with four antenna mounts	1	LS	\$ _____	\$ _____

16	13 02 00	Extend navigation light pole to be seen over new handrail	1	LS	\$ _____	\$ _____
17	13 02 00	Remove cathodic protection system and close all access openings in roof	1	LS	\$ _____	\$ _____
18	13 02 00	Replace interior overflow pipe support braces	1	LS	\$ _____	\$ _____
19	13 02 00	Remove interior wet ladder safety climb system	1	LS	\$ _____	\$ _____
20	13 02 00	Perform interior-dry-area pressure wash and coating repairs	1	LS	\$ _____	\$ _____
21	13 02 00	Provide and install epoxy pit filler to shallow pits	2	GAL	\$ _____	\$ _____
22	13 02 00	Repair deep pits via welding	200	EA	\$ _____	\$ _____
23	13 02 00	Pressure wash interior-wet-area of EST #2 to remove salt contamination if required	1	LS	\$ _____	\$ _____
24	13 02 00	Interior protective coating replacement with zinc/epoxy/epoxy coating system	1	LS	\$ _____	\$ _____
25	13 20 00	Provide and maintain containment to prevent emissions and nuisance, remove existing and new superfluous welded lugs and clips	1	LS	\$ _____	\$ _____
26	13 02 00	Exterior protective coating replacement with zinc/epoxy/urethane/fluoropolymer coating system	1	LS	\$ _____	\$ _____
27	13 02 00	Provide & install logos	1	LS	\$ _____	\$ _____
28	13 02 00	Cleanup, disinfection, and demobilization	1	LS	\$ _____	\$ _____
29	13 02 00	Remove and replace existing drain valve at EST 5 with owner provided valve	1	LS	\$ _____	\$ _____

A. Total Base Items:	\$ _____
-----------------------------	----------

B. TOTAL PROPOSAL PRICE: (Add Totals for Items Above)	\$ _____
--	----------

C. Indicate coating system to be used: TNEMEC, Sherwin-Williams, Induron or other if previously approved.	_____
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6.0 SIGNATURES: By signing this Document, I agree that I have received and reviewed all Bid Documents, Contract Documents and Addenda and considered all costs associated with the Bid Documents, Contract Documents and Addenda in calculating the Total Proposal Price.

Offeror: _____
(Print or type full name of your proprietorship, partnership, corporation, or joint venture.*)

** By: _____
Signature Date

Name: _____
(Print or type name) Title

Doing Business as: _____

Business Address: _____
(Mailing)

(Street, if different)

Telephone and Fax Number: _____
(Print or type numbers)

* If Proposal is a joint venture, add additional Proposal Form signature sheets for each member of the joint venture.

** Offeror certifies that the only person or parties interested in this offer as principals are those named above. Offeror has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive Proposing.

Note: This document constitutes a Governmental record, as defined by § 37.01 of the Texas Penal Code. Submission of a false Governmental record is a criminal offense as provided in § 37.10 of the Texas Penal Code.

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7.0 CERTIFICATION OF PROPOSAL

The undersigned affirms that they are duly authorized to execute this Proposal, that this Proposal has not been prepared in collusion with any other Offeror, and that the contents of this Proposal have not been communicated to any other Offeror prior to the official opening of this Proposal. Additionally, the undersigned affirms that the Offeror is willing to sign the attached SJRA Agreement (if applicable).

Signed By: _____ Title: _____

Typed Name: _____ Company Name: _____

Phone No.: _____ Fax No.: _____

Email: _____

Proposal Address: _____
P.O. Box or Street City State Zip

Order Address: _____
P.O. Box or Street City State Zip

Remit to Address: _____
P.O. Box or Street City State Zip

Federal Tax ID No.: _____

Date: _____

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SECTION 00 43 13

OFFEROR'S BOND

THAT WE, _____, as Principal,
(Offeror)
("Offeror"), and the other subscriber hereto, _____, as Surety, do hereby
acknowledge ourselves to be held and firmly bound to the San Jacinto River Authority, a political sub-division of the
State of Texas, in the sum of _____ Dollars
(\$ _____) (an amount equal to five (5) percent of the Total Bid Price, including Cash Allowances and
Alternates, if any, for the payment of which sum, well and truly to be made to the San Jacinto River Authority and its
successors, the Offeror and Surety do bind themselves, their heirs, executors, administrators, successors, and
assigns, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Offeror has submitted on or about this day a proposal offering to perform the following:

(Project Name, Location and Number)
in accordance with the Drawings, Specifications, and terms and conditions related thereto to which reference is
hereby made.

NOW, THEREFORE, if the Offeror's offer as stated in the Section 00 41 00.02 – Proposal Form is accepted
by the San Jacinto River Authority, and the Offeror executes and returns to the San Jacinto River Authority Section
00 52 00 – Standard Form of Agreement between Owner and Contractor, required by the San Jacinto River Authority,
on the forms prepared by the San Jacinto River Authority, for the Work and also executes and returns the same
number of the Performance, Payment and Maintenance Bonds (such bonds to be executed by a Corporate Surety
authorized by the State Board of Insurance to conduct insurance business in the State of Texas, and having an
underwriting limitation in at least the amount of the bond) and other submittals as required, in connection with the
Work, within the Contract Time, then this obligation shall become null and void; otherwise it is to remain in full force
and effect.

If Offeror is unable to or fails to perform the obligations undertaken herein, the undersigned Offeror and
Surety shall be liable to the San Jacinto River Authority for the full amount of this obligation which is hereby
acknowledged as the amount of damages which will be suffered by the San Jacinto River Authority on account of the
failure of such Offeror to perform such obligations, the actual amount of such damages being difficult to ascertain.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually
received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle,
with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the
address prescribed in the Contract documents, or at such other address as the receiving Party may hereafter
prescribe by written notice to the sending Party.

IN WITNESS THEREOF, the Offeror and Surety have signed and sealed this instrument on the respective
dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)

WITNESS: (if not a corporation)

(Name of Offeror)

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS: (SEAL)

(Full Name of Surety)

(Address of Surety for Notice)

(Telephone Number of Surety)

By: _____
Name:
Title:
Date:

By: _____
Name:
Title:
Date:

END OF SECTION

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SECTION 00 45 10

CONFLICT OF INTEREST QUESTIONNAIRE

Local Government Code Chapter 176 requires Offerors with the San Jacinto River Authority ("SJRA") to file a Conflict of Interest Questionnaire with the SJRA.

The Conflict of Interest Questionnaire is available for downloading on the Texas Ethics Commission's website at: <http://www.ethics.state.tx.us/forms/CIQ.pdf>. The completed Conflict of Interest Questionnaire will be posted on the SJRA website. Also you will find a list of the SJRA Local Government Officers on the SJRA website.

For your convenience the CIQ form is attached as part of this document. Although the SJRA has provided this document for the Offeror's convenience, it is the Offeror's responsibility to submit the latest version of the CIQ form as promulgated by the Texas Ethics Commission.

The Failure of any Offeror to comply with this law is a Class C misdemeanor.

END OF SECTION

CONFLICT OF INTEREST QUESTIONNAIRE -

FORM CIQ

For vendor or other person doing business with local governmental entity

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 government 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.

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 in this section is being disclosed.

Name of Officer

This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section 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 named in this section AND the taxable income is not received from the local governmental entity?
☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?
☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4 ☐ I have no Conflict of Interest to disclose.

5

Signature of vendor doing business with the governmental entity

Date

SECTION 00 45 20
FORM OF BUSINESS

Please mark the box describing your firm's form of business, fill in the requested information, and include the relevant attachments.

☐ **Corporation**

Corporate Name: _____
State of Incorporation: _____
Mailing Address: _____
Type of Corporation: _____

Certificate of Assumed Name, if operating under a name different than that on the corporate charter (the Certificate must have been issued within the past 10 years to be valid)

*Certificate of Good Standing

*Certificate of Existence (if non-Texas corporation, Certificate of Authority)

☐ **Partnership/Joint Venture**

Partnership/Joint Venture Name: _____
Mailing Address: _____
Type of Partnership/Joint Venture: _____

Copy of the Partnership or Joint Venture Agreement, **or**
Affidavit with the name of the partnership or joint venture, the names of the individual partners or participants in the joint venture, and a statement that the partnership or joint venture is in existence

Certificate of Assumed Name, (the Certificate must have been issued within the past 10 years to be valid)

If firm is a limited partnership, the Certificate of Limited Partnership

If any partner or joint venturer is a corporation, the above information relating to corporation must be included as to each sum partner or joint venturer.

☐ **Sole Proprietorship**

Name: _____
Mailing Address: _____

Certificate of Assumed Name, if operating under a name different than that of the sole proprietor (the Certificate must have been issued within the past 10 years to be valid)

** Must be furnished upon request of the SJRA and must be less than 90 days old.*

END OF SECTION

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SECTION 00 45 43
RESOLUTION OF CONTRACTOR

_____, (“Contractor”),
(Name of Contractor, e.g., “Biz. Inc.”, “Biz LLP”)

is a _____,
(Type of Organization, e.g.: Corporation, Limited Partnership, Limited Liability Partnership, Limited Liability Company, etc.)

which is bound by acts of _____,
(Name and Form of Governing Entity, e.g., “Biz Inc. Board of Directors”, “Bill Smith, GP”, etc.)

(“Governing Entity”).

On the _____ day of _____, 20____, the Governing Entity resolved, in accordance with all documents, rules, and laws applicable to the Contractor, that

_____, is authorized to act as the
(Contractor’s Representative)

Contractor’s Representative in all business transactions (initial one) _____ conducted in the State of Texas OR _____ related to this Contract; and

The Governing Entity warrants that the above resolution (a) was entered into without dissent or reservation by the Governing Entity, (b) has not been rescinded or amended, and (c) is now in full force and effect; and

**PART 1 - IN AUTHENTICATION OF THE ADOPTION OF THIS RESOLUTION, I
SUBSCRIBE MY NAME ON THIS _____ DAY OF _____, 20____.**

(Authorized Signature for Governing Entity)

(Print or Type Name and Title of Authorized Signatory)

SWORN AND SUBSCRIBED before me on _____
Date

Notary Public in and for the State of Texas

My Commission Expires: _____
Expiration Date

Print or Type Name of Notary Public

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SECTION 00 52 00

STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT is dated as of _____ by and between **the San Jacinto River Authority** (hereinafter called "**OWNER**") and _____ (hereinafter called "**CONTRACTOR**").

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

Article 1. WORK.

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

Construction of **ELEVATED STORAGE TANK NO. 2 REHABILITATION**

Article 2. PRINCIPAL ARCHITECT/ENGINEER AND OWNER'S REPRESENTATIVE.

The project has been designed by Dunham Engineering Inc., 6102 Imperial Loop, College Station, TX 77845, who is hereinafter called "PRINCIPAL ARCHITECT/ENGINEER" and who assumes all duties and responsibilities and has the rights and authority assigned to PRINCIPAL ARCHITECT/ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents. OWNER'S Representative shall be San Jacinto River Authority.

Article 3. CONTRACT TIMES.

The Work will be Substantially Completed within 120 **calendar days** after the date when the Contract Time Requirements commence to run as provided in Article 2.3 of the General Conditions, and CONTRACTOR shall achieve Final Completion within 30 **calendar days** of the date required for Substantial Completion.

OWNER and CONTRACTOR recognize that **time is of the essence** of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in the above paragraph, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving 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) and, as a reasonable estimate of such damages, CONTRACTOR shall pay OWNER three hundred Dollars (\$300.00) for each and every day of delay in CONTRACTOR achieving Substantial Completion of the Work and readiness for final payment beyond the times specified in the above paragraph. OWNER shall have the option of deducting the amount of any liquidated damages from any monies that may be owed to CONTRACTOR or to recover such amount from the CONTRACTOR or its sureties, at CONTRACTOR'S expense.

Article 4. CONTRACT AMOUNT.

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 to be due and owing pursuant to the Proposal and any subsequent Change Orders and Change Directives thereto.

Article 5. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by OWNER'S Representative or PRINCIPAL ARCHITECT/ENGINEER as determined by the OWNER and as provided in the General Conditions and Supplemental Conditions, if any.

OWNER shall make progress payments on account of the Contract Amount on the basis of CONTRACTOR'S Applications for Payment as recommended by OWNER'S Representative or PRINCIPAL ARCHITECT/ENGINEER and in conformance with the procedures described in the General Conditions. All such payments will be measured by the schedule of values established in Article 2.4.2.07 of the General Conditions (and on the number of units of each Unit Price item completed, if unit price contract). Upon final completion and acceptance of the Work in accordance with Article 14.11 of the General Conditions, OWNER shall pay the remainder of the Contract Amount as recommended by OWNER'S Representative as provided in said Article 14.11.

The 10 percent retainage withheld pursuant to Article 14.01.5 of the General Conditions shall be deposited in an interest-bearing account, and the interest earned on such retainage shall be paid to CONTRACTOR on completion of the contract.

Article 6. CONTRACTOR'S REPRESENTATIONS.

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

CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda listed in Article 7) and the other related data identified in the Proposal Documents.

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, performance, or furnishing of the Work.

CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Legal Requirements that may affect cost, progress, performance, and furnishing of the Work.

CONTRACTOR has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents, are not warranted or represented in any manner by Owner to accurately show the conditions at the Site, and may not be complete for CONTRACTOR'S purposes. CONTRACTOR acknowledges that OWNER and PRINCIPAL ARCHITECT/ENGINEER do not assume and expressly disclaim any responsibility for the accuracy or completeness of the

Elevated Storage Tank No. 2 Rehabilitation **STANDARD FORM OF AGREEMENT**
SJRA Project No. WDPR0102.1002.2N001 **BETWEEN OWNER AND CONTRACTOR**

information and data shown or indicated in the Contract Documents with respect to subsurface conditions or Underground Facilities at or contiguous to the Site or CONTRACTOR'S interpretation of such information and data. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary research, examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site or otherwise which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the performance and furnishing of the Work at the Contract Amount, within the Contract Time Requirements and in accordance with the other terms and conditions of the Contract Documents.

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.

CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports, and Drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

CONTRACTOR has given PRINCIPAL ARCHITECT/ENGINEER through the OWNER or OWNER'S Representative written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by PRINCIPAL ARCHITECT/ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Pursuant to Section 2270.002 of the Texas Government Code, contemporaneous with CONTRACTOR's execution of this Agreement, CONTRACTOR shall execute the Verification Company Does Not Boycott Israel, attached hereto and incorporated herein.

Article 7. CONTRACT DOCUMENTS.

The Contract Documents are comprised of the following:

1. This Agreement.
2. Exhibits to this Agreement: Verification Company Does Not Boycott Israel

Document	Title	Date	Page(s)
Contract Documents, Plans & Specifications	EST No. 2 Rehabilitation	July 31, 2019	ALL

3. Performance, Payment, Maintenance, and Surface Correction Bonds.
4. General Conditions of the Contract.
5. Supplemental Conditions, if any.

Elevated Storage Tank No. 2 Rehabilitation **STANDARD FORM OF AGREEMENT**
SJRA Project No. WDPR0102.1002.2N001 **BETWEEN OWNER AND CONTRACTOR**

6. Specifications 01 00 00 through 40 20 26, prepared by Wesley Oatman, P.E. and sealed on July 31, 2019.
7. Drawings.
8. Addenda:

Addendum No.	Addendum Date	Signature Acknowledging Receipt

9. CONTRACTOR'S Proposal Form pursuant to Competitive Sealed Proposal No.19-0074.
10. Prevailing Wage Rates.
11. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached thereto: All written Change Orders or Change Directives pursuant to Article 3.3 of the General Conditions.

There are no Contract Documents other than those listed in this Article. The Contract Documents may only be amended, modified, or supplemented as provided in Article 3.3 of the General Conditions.

Article 8. INDEMNITY PROVISIONS.

THE GENERAL, SPECIAL, AND SUPPLEMENTAL CONDITIONS, IF ANY, INCORPORATED INTO THIS AGREEMENT CONTAIN PROVISIONS THAT MAY RELIEVE ONE PARTY FOR RESPONSIBILITY IT WOULD OTHERWISE HAVE UNDER THE LAW FOR DAMAGES OR OTHER LIABILITY ARISING OUT OF THE WORK.

EACH OF THE PARTIES HERETO SPECIFICALLY AGREES THAT IT HAS A DUTY TO READ THIS AGREEMENT, THE GENERAL, SPECIAL, AND SUPPLEMENTAL CONDITIONS, IF ANY, AND ALL OTHER CONTRACT DOCUMENTS AND AGREES THAT IT IS CHARGED WITH NOTICE AND KNOWLEDGE OF THE TERMS OF THIS AGREEMENT AND ALL CONTRACT DOCUMENTS; THAT IT HAS IN FACT READ THIS AGREEMENT AND ALL CONTRACT DOCUMENTS AND IS FULLY INFORMED AND HAS FULL NOTICE AND KNOWLEDGE OF THE TERMS, CONDITIONS AND EFFECTS OF THIS AGREEMENT; THAT IT HAS HAD THE OPPORTUNITY TO BE REPRESENTED BY INDEPENDENT LEGAL COUNSEL OF ITS CHOICE PRECEDING ITS EXECUTION OF THIS AGREEMENT AND HAS RECEIVED OR VOLUNTARILY CHOSEN NOT TO RECEIVE THE ADVICE OF ITS ATTORNEY IN ENTERING INTO THIS AGREEMENT; AND THAT IT RECOGNIZES THAT CERTAIN TERMS OF THIS AGREEMENT AND THE CONTRACT DOCUMENTS RESULT IN ONE PARTY ASSUMING THE LIABILITY INHERENT IN SOME ASPECTS OF THE TRANSACTION AND RELIEVING THE OTHER PARTY OF ITS RESPONSIBILITY FOR SUCH LIABILITY. EACH PARTY HERETO AGREES AND COVENANTS THAT IT WILL NOT CONTEST THE VALIDITY OR ENFORCEMENT OF ANY EXCULPATORY PROVISION OF THIS AGREEMENT ON THE BASIS THAT THE PARTY HAD NO NOTICE OR

KNOWLEDGE OF SUCH PROVISION OR THAT THE PROVISION IS NOT "CONSPICUOUS".

Article 9. MISCELLANEOUS.

Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

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 Article 9:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the proposal process or in the Contract execution;
2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the proposal process or the execution of the Contract to the detriment of OWNER, (b) to establish Proposal or Contract prices at artificial noncompetitive 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 Proposers, with or without the knowledge of OWNER, a purpose of which is to establish Proposal 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 proposal process or affect the execution of the Contract.

No assignment by a party hereto of any rights 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.

OWNER and CONTRACTOR each binds itself, its officers, directors, shareholders, partners, members, successors, assigns, and legal representatives to the other party hereto, its officers, directors, shareholders, partners, members, successors, assigns and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

Any provision or part thereof of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions or parts thereof 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 or part thereof.

Elevated Storage Tank No. 2 Rehabilitation **STANDARD FORM OF AGREEMENT**
SJRA Project No. WDPR0102.1002.2N001 **BETWEEN OWNER AND CONTRACTOR**

This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement. A signed copy of this Agreement delivered by facsimile, email, or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy of this Agreement. Duplicate copies of duly executed and delivered counterparts of this Agreement shall be deemed to have the same full force and effect as originals and may be relied upon as such. Notwithstanding the foregoing, OWNER and CONTRACTOR agree that this Agreement may be executed using electronic signatures at the option and in the discretion of OWNER, and, in such event, the provisions of the Uniform Electronic Transaction Act, Chapter 332, Texas Business and Commerce Code, as amended, and any applicable policies and procedures of OWNER regarding electronic signatures shall apply.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement.

This Agreement will be effective on _____, (which is the effective date of the Agreement).

OWNER: San Jacinto River Authority

By: _____

Attest: _____

Address for giving notices:

CONTRACTOR:

By: _____

(CORPORATE SEAL)

Attest: _____

Address for giving notices:

License No. _____

Agent for service of process: _____

END OF SECTION

VERIFICATION COMPANY DOES NOT BOYCOTT ISRAEL

BEFORE ME, the undersigned authority, on this day personally appeared _____ [name], _____ [title] of _____ [Contractor], and, upon oath, after first being duly sworn, deposed and stated:

"My name is _____ and I am the _____ [title] of _____ [Contractor], hereinafter referred to in this verification as 'Contractor'. The facts set forth herein are within my personal knowledge and are true and correct, and I am competent and authorized to make this verification on behalf of Contractor.

Contractor does not Boycott Israel; and

Contractor will not Boycott Israel during the term of this Agreement; and

'Boycott Israel' as used herein means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes."

Contractor: _____

By: _____
[Signature of Affiant]

Printed Name: _____

Title: _____

SUBSCRIBED AND SWORN TO before me on this ____ day of _____, 201_, by _____ [title] of _____ [Contractor], known to me or proved through photo identification.

Notary Public in and for the State of Texas
My commission expires: _____

TGC 2252.152 CERTIFICATION FORM

CONTRACTS WITH COMPANIES ENGAGED IN BUSINESS WITH IRAN, SUDAN, OR FOREIGN TERRORIST ORGANIZATIONS PROHIBITED - CERTIFICATION

I, _____, the undersigned representative of _____ (Company or business name) being an adult over the age of eighteen (18) years of age, pursuant to Texas Government Code, Chapter 2252, Section 2252.152 and Section 2252.153, certify that the company named above is not listed on the website of the Comptroller of the State of Texas concerning the listing of companies that are identified under Section 806.051, Section 807.051 or Section 2253.153. I further certify that should the above-named company enter into a contract that is on said listing of companies on the website of the Comptroller of the State of Texas which do business with Iran, Sudan or any Foreign Terrorist Organization, I will immediately notify the San Jacinto River Authority's Purchasing Division.

Name of Company Representative (Print)

Signature of Company Representative

Date

VENDOR INFORMATION FORM



San Jacinto River Authority
General & Administrative
1577 Dam Site Road
Conroe, TX 77304

VENDOR INFORMATION FORM

Company Name: _____

PO MAILING / PHYSICAL ADDRESS

ACCOUNTS RECEIVABLE ADDRESS

_____	_____
_____	_____
_____	_____

Contact
Name: _____

A/R Contact
Name: _____

Title: _____

A/R Telephone: _____

Telephone: _____
Emergency/
After Hrs #: _____

A/R Fax: _____

Fax: _____

Accepts Procurement Card: Yes ☐ No ☐

E-Mail: _____

Web Site: _____

NATURE OF BUSINESS

Wholesale Dealer	Sales	<input type="checkbox"/> Manufacturer	Service (repairs, etc.)
Construction	Factory Rep.	Retail Dealer	Professional Services
Govt. Agency			

Please notify the San Jacinto River Authority Purchasing Department immediately of any changes, such as company name, address, telephone number, fax number, email address or change in insurance.

I have reviewed and understand the Insurance Requirements (if applicable) as listed on the following page.

Signature

Please attach a completed W-9 Form and return it with this Vendor Information Form.

Elevated Storage Tank No. 2 Rehabilitation STANDARD FORM OF AGREEMENT
SJRA Project No. WDPR0102.1002.2N001 BETWEEN OWNER AND CONTRACTOR

Form W-9 (Rev. December 2014) Department of the Treasury Internal Revenue Service	Request for Taxpayer Identification Number and Certification	Give Form to the requester. Do not send to the IRS.
Print or type See Specific instructions on page 2.	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
	2 Business name/disregarded entity name, if different from above	
	3 Check appropriate box for federal tax classification; check only one of the following seven boxes: <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 <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) + _____ Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner. <input type="checkbox"/> Other (see instructions) + _____	
	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ (Applies to accounts maintained outside the U.S.)	
	5 Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
	6 City, state, and ZIP code	
	7 List account number(s) here (optional)	
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 Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see <i>How to get a TIN</i> on page 3. Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.		
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 on page 3.		
Sign Here	Signature of U.S. person + _____	Date + _____
General Instructions Section references are to the Internal Revenue Code unless otherwise noted. Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/w9 . 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? on page 2. By signing the filed-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 <i>What is FATCA reporting?</i> on page 2 for further information.		

Cat. No. 10231X

Form **W-9** (Rev. 12-2014)

SECTION 00 60 20

MONTHLY SUBCONTRACTOR PAYMENT REPORTING FORM

Legal Project Name: _____

SJRA Project No.: _____

Contractor's Company Name: _____

Address: _____

CERTIFICATION

BEFORE ME, the undersigned authority, on this day personally appeared _____,
_____ [title] of _____ [Contractor], and, upon oath, after first being duly
sworn, deposed and stated:

"My name is _____ and I am the _____ [title] of
_____ [Contractor], hereinafter referred to in this affidavit as "Contractor". The facts set
forth herein are within my personal knowledge and are true and correct, and I am competent and authorized to
make this affidavit on behalf of Contractor.

Contractor has paid each and all of its Subcontractors, laborers, suppliers, vendors and
materialmen, if any, in full, for all work, labor, materials, equipment and/or services provided to Contractor
for incorporation in or use or work on the Project, through the period ending _____ *[end date
of last paid pay period]* (the "Pay Period"), except to the extent of any contractual retainage withheld by
Contractor, or other amounts withheld by Contractor for defective work or otherwise in accordance with its
contract with any Subcontractor, laborer, supplier, vendor or materialman and identified in the Payment
Notifications described below.

Contractor acknowledges that SJRA is relying on Contractor's statements and representations
herein in making payment for Work performed on the Project. Contractor agrees to indemnify SJRA from
any and all loss, cost or expense, including but not limited to attorneys' fees incurred, resulting from any
false or incorrect information contained in this affidavit."

EXCEPTION: Contractor sent Payment Notifications to the following Subcontractors, laborers, suppliers,
vendors or materialmen explaining why Contractor withheld payment, copies of which are attached:

Name: _____	Name: _____
-------------	-------------

Street Address: _____	Street Address: _____
-----------------------	-----------------------

City, State, and Zip Code: _____	City, State, and Zip Code: _____
----------------------------------	----------------------------------

Amount of Payment Withheld: _____	Amount of Payment Withheld: _____
-----------------------------------	-----------------------------------

Date Payment First Withheld:

Date Payment First Withheld:

Description of Good Faith

Description of Good Faith

Reason:

Reason:

(Signature of Contractor's Representative)

(Print or Type Name of Contractor's Representative)

SWORN TO AND SUBSCRIBED before me on:

Date

Notary Public in and for the State of Texas

My Commission Expires:

Expiration Date

Print or Type name of Notary Public

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4839-5211-5282, v. 1

SECTION 00 61 13.13

PERFORMANCE BOND

STATE OF TEXAS

COUNTY OF _____

KNOW ALL MEN BY THESE PRESENTS: That _____ (Contractor) of the City of _____, County of _____, and State of Texas, as Principal, and _____ authorized under the Laws of the State of Texas to act as surety on bonds for principals, as Surety, are held and firmly bound unto San Jacinto River Authority (Owner), in the penal sum of _____ Dollars (\$_____) for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the _____ day of _____, 20____, for construction of: _____ (the "Contract"), which Contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform said Contract and shall in all respects duly and faithfully observe and perform all and singular the covenants, conditions and agreements in and by said Contract agreed and covenanted by the Principal to be observed and performed, within the time provided therein and any extensions thereof that may be granted by the Owner, and during the life of any guarantees or warranties contained in or required under said Contract, and shall also well and truly perform all the undertakings, covenants, terms, conditions and agreements of any and all modifications of said Contract that may hereafter be made, then this obligation shall be void; otherwise to remain in full force and effect;

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code as amended and all liabilities on this bond shall be determined in accordance with the provisions of said statute to the same extent as if it were copied at length herein.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to work performed thereunder, or the plans, specifications, or drawings, accompanying the same, shall in anyway affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument on the _____ day of _____, 20__.

Principal

BY:_____

TITLE:_____

ADDRESS:

Surety

BY:_____

TITLE:_____

PHYSICAL ADDRESS:

MAILING ADDRESS FOR NOTICE OF
CLAIMS:

TELEPHONE:_____

LOCAL RECORDING AGENT
PERSONAL IDENTIFICATION
NUMBER:

The name and address of the Resident Agent of Surety is:

END OF SECTION

SECTION 00 61 13.16
STATUTORY PAYMENT BOND

STATE OF TEXAS

COUNTY OF _____

KNOW ALL MEN BY THESE PRESENTS: That _____ (Contractor)
of the City of _____, County of _____, and State
of Texas, as Principal, and _____
authorized under the Laws of the State of Texas to act as surety on bonds for principals,
as Surety, are held and firmly bound unto San Jacinto River Authority (Owner), in the
penal sum of _____ Dollars
(\$ _____) for the payment whereof, the said Principal and Surety bind
themselves, and their heirs, administrators, executors, successors and assigns, jointly
and severally, by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner,
dated the _____ day of _____, 20____, for construction of: _____

(the "Contract").

which Contract is hereby referred to and make a part hereof as fully and to the same
extent as if copied at length herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION IS SUCH, that if the
said Principal shall pay all claimants supplying labor and material to him or a Sub-
Contractor in the prosecution of the work provided for in said Contract, then, this
obligation shall be void; otherwise to remain in full force and effect;

PROVIDED, HOWEVER, That this bond is executed pursuant to the provisions of
Chapter 2253 of the Texas Government Code as amended and all liabilities on this
bond shall be determined in accordance with the provisions of said statute to the same
extent as if it were copied at length herein.

Surety, for value received, stipulates and agrees that no change, extension of time,
alteration or addition to the terms of the Contract, or to work performed thereunder, or
the plans, specifications, or drawings, accompanying the same, shall in anyway affect
its obligation on this bond, and it does hereby waive notice of any such change,
extension of time, alteration or addition to the terms of the Contract, or the work to be
performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument on the _____ day of _____, 20__.

Principal

BY:_____

TITLE:_____

ADDRESS:

Surety

BY:_____

TITLE:_____

PHYSICAL ADDRESS:

MAILING ADDRESS FOR NOTICE OF
CLAIM:

TELEPHONE:_____

LOCAL RECORDING AGENT
PERSONAL IDENTIFICATION
NUMBER:

The name and address of the Resident Agent of Surety is:

END OF SECTION

4825-7140-3858, v. 1

SECTION 00 61 19

ONE-YEAR MAINTENANCE BOND

THAT WE, _____,
_____, as Principal, hereinafter called Contractor, and the other
subscriber hereto, _____,
as Surety, do hereby acknowledge ourselves to be held and firmly bound to the San
Jacinto River Authority ("SJRA") in the sum of \$ _____,
_____ , for the payment of which sum to be made to the SJRA
and its successors, Contractor and Surety do bind themselves, their successors, jointly
and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a Contract in writing
with the SJRA for _____,
all of such work to be done as set out in full in said Contract Documents therein referred
to and adopted by the SJRA, all of which are made a part of this instrument as fully and
completely as if set out in full herein.

NOW THEREFORE, if the said Contractor shall comply with the provisions of
Paragraph 13.7.1 of the General Conditions, and correct work not in accordance with the
Contract documents discovered within the established one-year period, then this
obligation shall become null and void, and shall be of no further force and effect;
otherwise, the same is to remain in full force and effect.

Notices required or permitted hereunder shall be in writing and shall be deemed
delivered when given in accordance with the definition of Written Notice in the General
Conditions of the Contract.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed
this instrument on the respective dates written below their signatures and Surety has
attached its current Power of Attorney.

ATTEST, SEAL: (if a corporation)

WITNESS: (if not a corporation)

Name of Contractor

By: _____

Name:

Title:

By: _____

Name:

Title:

Date:

ATTEST/SURETY WITNESS:

(SEAL)

Full Name of Surety

Address of Surety for Notice

Telephone Number of Surety

By: _____

Name:

Title:

Date:

By: _____

Name:

Title: Attorney-in-Fact

Date:

END OF SECTION

4843-6617-2242, V. 1

SECTION 00 61 20

ONE-YEAR SURFACE CORRECTION BOND

THAT WE, _____,
_____, as Principal, hereinafter called Contractor, and the other
subscriber hereto, _____,
as Surety, do hereby acknowledge ourselves to be held and firmly bound to the San
Jacinto River Authority ("SJRA") in the sum of \$_____ such sum being equal to four
percent of the Original Contract Price, for the payment of which sum to be made to the
SJRA and its successors, Contractor and Surety do bind themselves, their successors,
jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has entered into a Contract in writing with the SJRA
dated of even date herewith, for _____,
all of such work to be done in accordance with the Contract documents therein referred
to, and adopted by the SJRA.

NOW THEREFORE, if the Contractor shall comply with the provisions of
Paragraph 13.7.1 of the General Conditions, and repair, replace, restore, and correct
surface work associated with backfill operations of subsurface work not in accordance
with the Contract documents discovered within one year from the date that the One-
year Maintenance Bond has expired, then this obligation shall become null and void,
and shall be of no further force and effect; otherwise, the same is to remain in full force
and effect.

Notices required or permitted hereunder shall be in writing and shall be deemed
delivered when actually received or, if earlier, on the third day following deposit in a
United States Postal Service post office or receptacle, with proper postage affixed
(certified mail, return receipt requested), addressed to the respective other party at the
address prescribed in the Contract documents, or at such other address as the
receiving party may hereafter prescribe by written notice to the sending party.

IN WITNESS THEREOF, the said Principal and Surety have signed and sealed this instrument on the respective dates written below their signatures.

ATTEST, SEAL: (if a corporation)

WITNESS: (if not a corporation)

By: _____

Name:

Title:

Name of Contractor

By: _____

Name:

Title:

Date:

ATTEST/SURETY WITNESS:

(SEAL)

Full Name of Surety

Address of Surety for Notice

Telephone Number of Surety

By: _____

Name:

Title:

Date:

By: _____

Name:

Title: Attorney-in-Fact

Date:

END OF SECTION

SECTION 00 62 04

HISTORY OF OSHA ACTIONS AND LIST OF ON-THE-JOB INJURIES

Prior to award of the Contract, Successful Offeror will be required to file the following with the San Jacinto River Authority:

1. A history of all OSHA actions, advisories, etc., Contractor has received on all jobs worked in any capacity, prime or subcontractor. The history shall be for the two-year period preceding the Bid Date of the Project.
2. A list of all on-the-job injuries, accidents, and fatalities suffered by any present or former employees of Contractor during the same two-year period.
3. If less than the two-year period, give the date Contractor started doing business.
4. Provide the company Experience Modification Rate (EMR) for the three-year period preceding the Proposal Submission Date of the Project.

An officer of the company must certify in a notarized statement that the information submitted is true and correct.

END OF SECTION

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SECTION 00 62 07

**CERTIFICATION REGARDING DEBARMENT,
SUSPENSION, AND OTHER RESPONSIBILITY MATTERS**

Contractor certifies to the best of its knowledge and belief that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State, or local department or agency;
2. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction: violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; and
4. Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award.

Company:

Typed Name & Title of Authorized Representative

Signature of Authorized Representative

Date

☐ I am unable to certify the above statements. My explanation is attached.

END OF SECTION

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SECTION 00 62 10

NAME AND QUALIFICATIONS OF PROPOSED SUPERINTENDENT (FOR FILING)

Prior to award of the Contract, Offeror selected will be required to file the following with the San Jacinto River Authority:

1. The name and qualifications of the Superintendent being proposed to supervise the Project.

This information must be submitted to the SJRA within the time period stated in within 10 days of written notification of contract award. An officer of the company must certify in a statement that the information submitted is true and correct.

END OF SECTION

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SECTION 00 62 16
AFFIDAVIT OF INSURANCE

BEFORE ME, the undersigned authority, on this day personally appeared

_____,
Affiant
who being by me duly sworn on his oath stated that he/she is _____
Title
of _____,
Contractor's Company Name

the Contractor named and referred to within the Contract Documents; that he/she is fully competent and authorized to give this affidavit on behalf of Contractor, and that the attached original insurance certificate truly and accurately reflects the insurance coverage that is now in effect and will be in effect during the periods required by the Contract.

Affiant's Signature
SWORN AND SUBSCRIBED before me on _____
Date

Notary Public in and for the State of TEXAS

Print or type Notary Public name

My Commission Expires: _____
Expiration Date

END OF SECTION

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4827-0155-8354, V. 1

**SECTION 00 65 16
CERTIFICATE OF SUBSTANTIAL COMPLETION**

		Date of Substantial Completion:	
Project Name:		Project Number:	
Project Location:		Contract Number:	
Contractor:		Notice To Proceed Date:	
Engineer / Architect:		Contracted Amount:	
Construction Manager:		Amount at Completion:	
Inspector:		Time to Complete:	Days
Punch List Correction Period:	Days	Date of Inspection:	

Description of Substantially Complete Work:
<p>Issuance and execution of this Certificate of Substantial Completion by the San Jacinto River Authority (SJRA), shall denote that the described Work for the referenced Project has been inspected for compliance to the Project's Contract Documents and the described Work was found to be Substantially Complete. Therefore, the Date of Substantial Completion is established as indicated above.</p> <p>Items having no impact on the intended and proper implementation, operation, or utilization of the described Work which have been determined as requiring correction or incomplete, are documented on the attached Substantial Completion Punch List. All such items shall be completed within the above stated Punch List Correction Period.</p> <p>Punch List omissions of Contract Work does not relieve the Contractor of its responsibility to complete the Project Work in accordance with the Contract Documents.</p> <p>Contract required warranties and guarantee periods shall commence on the Date of Substantial Completion.</p> <p>Final insurance(s) shall remain in effect until the Project's Date of Final Completion of the Work is established.</p>

Construction Manager:		Date:	
	Print	Signature	
Company:			
Principal Arch./Engineer:		Date:	
	Print	Signature	
Company:			
Contractor:		Date:	
	Print	Signature	
Company:			
SJRA Division Manager:		Date:	
	Print	Signature	
SJRA Deputy General Manager:		Date:	
	Print	Signature	

SUBSTANTIAL COMPLETION INSPECTION PUNCH LIST				
PREPARATION DATE:				
PROJECT NAME:		PROJECT NUMBER:		
PROJECT LOCATION:		PREPARED BY:		
CONTRACTOR:		INSPECTION DATE:		
WORK PORTION:				
INSPECTION ATTENDEES:				
NAME	COMPANY	E-MAIL	TELEPHONE	
SJRA FIELD REPRESENTATIVE:		DATE:		
PRINTED		SIGNATURE		
CONTRACTOR (ACKNOWLEDGE RECEIPT):		DATE:		
PRINTED		SIGNATURE		
SUBSTANTIAL COMPLETION INSPECTION PUNCH LIST				
DESCRIPTION:	DATE COMPLETE:	SIGNED BY:		
PREPARATION DATE:				

CERTIFICATION OF SUBSTANTIAL COMPLETION

[illegible]

Standard Specification
Contract No. 19-0074

SECTION 00 65 16.23

CERTIFICATE OF PARTIAL SUBSTANTIAL COMPLETION

		Date of Partial Substantial	
Project Name:		Project Number:	
Project Location:		Contract Number:	
Contractor:		Notice To Proceed Date:	
Engineer / Architect:		Contracted Amount:	
Construction Manager:		Amount at Completion:	
Inspector:		Time to Complete:	Days
Punch List Correction Period:	Days	Date of Inspection:	

Description of Substantially Complete Work:

Issuance and execution of this Certificate of Partial Substantial Completion by the San Jacinto River Authority (SJRA), shall denote that the described Work for the referenced Project has been inspected for compliance to the Project's Contract Documents and the described Work was found to be Substantially Complete. Therefore, the Date of Partial Substantial Completion is established as indicated above.

Items having no impact on the intended and proper implementation, operation, or utilization of the described Work which have been determined as requiring correction or incomplete, are documented on the attached Partial Substantial Completion Punch List. All such items shall be completed within the above stated Punch List Correction Period.

Punch List omissions of Contract Work does not relieve the Contractor of its responsibility to complete the Project Work in accordance with the Contract Documents.

Contract required warranties and guarantee periods shall commence on the Date of Partial Substantial Completion.

Final insurance(s) shall remain in effect until the Project's Date of Final Completion of the Work is established.

Construction Manager:		Date:	
	Print	Signature	
Company:			
Principal Arch./Engineer:		Date:	
	Print	Signature	
Company:			
Contractor:		Date:	
	Print	Signature	
Company:			
SJRA Division Manager:		Date:	
	Print	Signature	
SJRA Deputy General Manager		Date:	
	Print	Signature	

[illegible]

[illegible]

- End of Punch List -

SECTION 00 65 19.13
AFFIDAVIT OF BILLS PAID

STATE OF TEXAS

COUNTY OF _____

BEFORE ME, the undersigned authority, on this day personally appeared _____, party to that certain Contract entered into on the ____ day of _____, 20__, between **San Jacinto River Authority** (Owner) and _____ for the erection, construction, and completion of certain improvements and/or additions upon the following described premises, to wit:
ELEVATED STORAKGE TANK NO. 2 REHABILITATION, CSP NO. 19-0074

Said party being by me duly sworn states upon oath that the said improvements have been erected and completed in full compliance with the above referred to Contract and the agreed plans and specifications therefore.

Deponent further states that he has paid all bills and claims for materials furnished and labor performed on said Contract and that there are no outstanding unpaid bills or legal claims for labor performed or materials furnished upon said job.

This affidavit is being made by the undersigned realizing that it is in reliance upon the truthfulness of the statements contained therein that final and full settlement of the balance due on said Contract is being made, and in consideration of the disbursement of funds San Jacinto River Authority, deponent expressly waives and releases all liens, claims and rights to assert a lien on said premises and agrees to indemnify and hold Owner safe and harmless from and against all losses, damages, costs and expenses of any character whatsoever specifically including court costs, bonding fees and attorney fees, arising out of or in any way relating to claims for unpaid labor or material used or associated with construction of improvements on the above-described premises.

By: _____

Subscribed and sworn to before me, the undersigned authority, on this the _____ day of _____, 20__.

Notary Public in and for _____ County, Texas.

END OF SECTION

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SECTION 00 65 19

CONTRACTOR'S CERTIFICATION OF FINAL COMPLETION

CERTIFICATE OF FINAL COMPLETION OF: Elevated Storage Tank No. 2 Rehabilitation

Project No.: WDPR0102.1002.2N001

Contract Dated: August 9, 2019

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared _____ who, being by me duly sworn, on his oath says that he or she represents _____, the Contractor who has performed a contract with the San Jacinto River Authority ("SJRA") for the construction of the Work described above, and is duly authorized to make this affidavit; that he or she has personally examined the Work described above as required by the Contract documents; that said Work and all items thereof have been completed and all known defects made good; that all surplus material, refuse, dirt and rubbish have been cleaned up and removed or disposed of as directed by the SJRA; that all parts of Work are in a neat, tidy, finished condition and ready in all respects for acceptance by the SJRA; that all gravel or shell roadway surfaces removed during the course of the Work have been replaced in accordance with the Specifications, that rates of pay for all labor employed on said Work have not been below the minimum set out in "Labor Classification and Minimum Wage Scale" in the Contract documents and that within the knowledge of affiant all just bills for labor and material and for the rental or use of any equipment or apparatus, used in, on, or in connection with the Work have been paid in full by the Contractor.

Affiant's Signature

SWORN AND SUBSCRIBED before me on
PART 1 -

DATE

Notary Public in and for the State of TEXAS

Print or type name

My Commission Expires: _____
Expiration Date

THIS IS TO CERTIFY that I have thoroughly inspected the Work performed by the above named Contractor on the above described Contract and find all things in accordance with the Contract documents governing this Work.

Inspector

[Project Manager or Construction Manager]

Approved:

[Title of Approval Authority], [Contracting Department]

END OF SECTION

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SECTION 00 65 19.23

CERTIFICATE OF FINAL COMPLETION

		Date of Final Completion:	
Project Name:		Project Number:	
Project Location:		Contract Number:	
Contractor:		Notice To Proceed Date:	
Engineer / Architect:		Contracted Amount:	
Construction Manager:		Amount at Completion:	
Inspector:		Time to Complete:	Days
Punch List Correction Period:	Days	Date of Inspection:	

Description of Finally Complete Work:

--

Issuance and execution of this Certificate of Final Completion by the San Jacinto River Authority (SJRA), shall denote that the described Work of the referenced Project have been inspected for compliance to the Project's contract documents and are Finally Complete. The date of Final Completion is therefore established as indicated above.

SJRA Deputy General Manager signature indicates final acceptance of the Work and responsibility for the security, maintenance, damage to the Works, and insurance except for those items as provided by the Contract Documents (i.e., extended warranties).

Punch List omissions of Contract Work does not relieve the Contractor of its responsibility to complete the Project Work in accordance with the Contract Documents.

Construction Manager:		Date:	
	Print	Signature	
Company:			
Principal Arch./Engineer:		Date:	
	Print	Signature	
Company:			
Contractor:		Date:	
	Print	Signature	
Company:			
SJRA Division Manager:		Date:	
	Print	Signature	
SJRA Deputy General Manager:		Date:	
	Print	Signature	

PREPARATION DATE:PRINTED

SIGNATURE

PRINTED

SIGNATURE

DESCRIPTION:

DATE COMPLETE:

SIGNED BY:

Standard Specification
Contract No. 19-0074

- End of Punch List -

**Section 00 72 00
GENERAL CONDITIONS OF THE CONTRACT**

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ARTICLE 1 – DEFINITIONS

UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS, WORDS WHICH HAVE WELL-KNOWN TECHNICAL OR CONSTRUCTION INDUSTRY MEANINGS ARE USED IN THE CONTRACT DOCUMENTS IN ACCORDANCE WITH SUCH RECOGNIZED MEANINGS.

Whenever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

- 1.001 Addendum:** Written instruments issued by the Contract Awarding Authority which clarify, correct or change the bidding requirements or the Contract Documents prior to the Due Date. "Addenda" is the plural form of Addendum.
- 1.002 Agreement:** Document signed by the Parties and binding the Parties, containing the name of Contractor, title and location of the Project, original Contract Time Requirements, Original Contract Amount, enumeration of documents included in the Contract and other provisions.
- 1.003 Allowance:** A not-to-exceed amount which is established between the Owner and the Contractor as part of the Contractor's Bid/Proposal when the precise scope of a particular line item has not been defined to a level which is adequate for the Contractor to provide definitive line item pricing for that particular scope of Work. The use of any Allowances by the Contractor in any Bid/Proposal will be subject to the Owner's sole approval. Additional Allowances or adjustments can be added to any Bid/Proposal upon the agreement of the Owner and Contractor.
- 1.004 Alternative Dispute Resolution:** The process by which a disputed Claim may be settled if the Owner and the Contractor cannot reach an agreement between themselves, as an alternative to litigation.
- 1.005 Application for Payment:** Is the Contractor's monthly pay application, the form of which must be acceptable to the Owner.
- 1.006 Bid/Proposal:** A complete, properly signed response to an Invitation for Bid/Proposal that, if accepted, would bind the Bidder/Offeror to perform the resultant Contract.
- 1.007 Bidder/Offeror:** A person, firm, or entity that submits a Bid/Proposal in response to an Invitation for Bids/Proposals. Any Bidder/Offeror may be represented by an agent after submitting evidence reasonably satisfactory to Owner demonstrating the agent's authority to bind the Bidder/Offeror. The agent cannot certify as to his own agency status.
- 1.008 Bid/Proposal Documents:** The Advertisement or Invitation for Bids/Proposals, Instructions to Bidders/Offerors, the Bid/Proposal Form, the Contract Documents and Addenda.
- 1.009 Bonds:** Performance Bond, Payment Bond, Maintenance Bond, and other Surety instruments executed by Surety. When in singular form the term refers to an individual instrument.
- 1.010 Calendar Day:** Any day of the week; no days being excepted. Work on Saturdays, Sundays, and/or Legal Holidays shall be as approved by and coordinated with Owner.
- 1.011 Change Directive:** A written directive to Contractor, signed by Owner, ordering a change in the Work that is within the general scope of the Contract and consisting of additions, deletions, or other revisions and stating a proposed basis for adjustment, if any, in the Contract Amount or Contract Time Requirements, or both. A Change Directive may be used in the absence of total agreement on the terms of a Change Order. A Change Directive can change the Contract Amount or Contract Time Requirements, and the parties may reasonably expect that the

change directed or documented by a Change Directive will be incorporated in a subsequently issued Change Order.

- 1.012 Change Orders:** Written agreements entered into between Contractor and Owner authorizing an addition, deletion, or revision to the Contract, issued on or after the Execution Date of the Contract.
- 1.013 CMT Consultant:** Owner's consultant responsible for the testing of construction materials engineering, and the verification testing services necessary for acceptance of the Work by the Owner as required by Section 2267.058(a) of the Texas Government Code.
- 1.014 Claim:** A written demand or written assertion by the Owner or the Contractor seeking, as a matter of right, an adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The Party making the Claim has the responsibility to substantiate the Claim.
- 1.015 Commissioning:** This is the process of verification, preliminary testing, starting up and functional operations testing of all equipment and systems which are part of the Project. The term "commissioning" shall specifically include the drafting, review and verification of all test plans and test reports for all equipment and systems which are part of the Project.
- 1.016 Construction Documents:** Means the Plans or Drawings and the Specifications and such other documents incorporated into the Contract Documents that set out the Contractor's scope of work to be performed under the Contract and/or the technical requirements for the design and construction of the Work.
- 1.017 Contractor:** Means the individual, firm, corporation, or other business entity identified as such in the Agreement, including its successors and its authorized representatives, with whom Owner has entered into the Contract for performance of the Work. The Contractor may also be referred to as the "Bidder" or "Offeror" in the Contract Documents, both of which will be understood to mean the "Contractor" as identified in the Agreement.
- 1.018 Construction Phase:** Means the implementation and execution of the Work required by the Contract Documents, commencing with the Notice to Proceed for the Work.
- 1.019 Contract:** The binding legal agreement between the Owner and the Contractor including all documents that have been incorporated into the agreement between Owner and Contractor for performance of the Work, as evidenced by the Contract Documents, and into which these General Conditions of the Contract (General Conditions) have been incorporated.
- 1.020 Contract Amount:** The monetary amount stated in the Agreement as it may be adjusted by Change Order or Change Directive, payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents.
- 1.021 Contract Awarding Authority:** The SJRA Board of Directors. When authorized by the SJRA Board of Directors, the SJRA General Manager may enter into Contracts on behalf of the SJRA.
- 1.022 Contract Documents:** Those items so designated in the Agreement. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of physical subsurface, geotechnical or environmental conditions are not Contract Documents.
- 1.023 Contract Time Requirements:** Means those requirements for the timely performance of the Work as set forth in the Agreement, including Milestones and the required dates for Mechanical Completion, Substantial Completion and Final Completion.
- 1.024 Cost of the Work:** Has the meaning set forth in Article 11.5.

- 1.025 Critical Path:** The longest series of tasks that runs consecutively from the beginning to the end of the Work, as determined by duration and workflow sequence. This longest path determines how quickly the Work can be completed, given appropriate resources.
- 1.026 Day:** Means that twenty-four hour period measured from midnight to the next midnight. When any period is referred to in days, it will be computed to exclude the first and include the last day of such period.
- 1.027 Defective:** Means with respect to any Work, failing to conform in any respect to any one or more requirements of the Contract Documents.
- 1.028 Delay:** Means a delay, disruption, hindrance, interference, acceleration, recovery effort, or loss of productivity or efficiency, or any other impact whatsoever with respect to the Critical Path of the Work.
- 1.029 Discrepancies:** Means any error, omission, conflict, inconsistency, discrepancy, or lack of clarity in the Contract Documents discovered by the Contractor or that should reasonably have been discovered by the Contractor in fulfilling its obligations arising from the Contract and based upon its applicable standard of care as a Contractor and not as a design professional. The Discrepancy must be determinable by the Contractor through an evaluation of one or more drawings or specifications which are part of the Construction Documents, the above-grade Site conditions, geotechnical reports, surveys or other information provided to Contractor by Owner or any combination thereof.
- 1.030 Division 01:** Means the General Requirements (Division One) of the Specifications made a part of the Construction Documents, whether such Specifications are set out in a separate document or are part of the Project Manual.
- 1.031 Document Control:** This is the process of generating, transmitting, receiving, recording, filing and distributing documents and records generated by the Project Team Members and others during the execution of the Project. The process may utilize an electronic or paper format, or both.
- 1.032 Drawings:** Those portions of the Contract Documents which are graphic and pictorial representations of the scope, extent and character of the Work to be furnished and performed by Contractor and which have been approved by Owner. Drawings may include plans, elevations, sections, details, schedules and diagrams. Shop Drawings are not Drawings.
- 1.033 Due Date:** The date and time specified for receipt of Bids/Proposals or any other required submittal from the Contractor.
- 1.034 Equal:** The terms "equal" or "approved equal" shall have the same meaning.
- 1.035 Execution Date:** Date of last signature of the parties to the Agreement.
- 1.036 Field Order:** A written authorization by the Owner for a minor variation in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Amount or Contract Time Requirements and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
- 1.037 Final Completion:** The point in time when Owner determines that all Work has been completed and the Contract fully performed except for those obligations that survive final payment.
- 1.038 Force Account:** A basis of payment for the direct performance of Work with payment based on the Cost of the Work and consideration for overhead and profit, as set forth in Section 11.5.
- 1.039 Force Majeure:** For purposes of this Contract, events of "force majeure" shall consist of the following, to the extent that they are beyond the reasonable control of Contractor and also cause Delay to the Critical Path of the Project: acts of God, acts of war, terrorist acts, civil unrest, riots, labor disputes (excluding

disputes with laborers on the Project), unavoidable material shortages, fire or other casualty loss (not attributable to the acts or omissions of Contractor or any Subcontractor of any tier), newly announced or enacted governmental restrictions, or acts or inactions of governmental agencies other than the Owner and outside of the Owner's responsibility and control.

1.040 Hazardous Conditions: Are any materials, wastes, substances, and chemicals deemed to be hazardous under applicable Legal Requirements or the handling, storage, remediation, or disposal of which are regulated by applicable Legal Requirements.

1.041 Not used.

1.042 Legal Requirements: Are all applicable federal, state, and local laws, codes, ordinances, rules, regulations, orders, and decrees of any governmental or quasi-governmental entity having jurisdiction over the Project or Site, the practices involved in the Project or Site or any Work.

1.043 Legal Holidays:

.1 The following are recognized by the Owner:

<u>Holiday Observed</u>	<u>Date</u>
New Year's Day	January 1
Martin Luther King Day	Third Monday in January
Presidents' Day	Third Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4
Labor Day	First Monday in September
Veterans Day	November 11
Thanksgiving Day	Fourth Thursday in November
Friday after Thanksgiving	Friday after Thanksgiving
Christmas Eve	December 24
Christmas Day	December 25

.2 If a Legal Holiday falls on Saturday, it will be observed on the preceding Friday. If a Legal Holiday falls on Sunday, it will be observed on the following Monday.

1.044 Major Subcontractor: Means a Subcontractor of the Contractor whose Subcontract amount with the Contractor exceeds or is reasonably expected to exceed the sum of \$50,000.00.

1.045 Manufacturer: An individual or entity who produces goods, materials, or equipment for use or sale and has a direct contract with Contractor or Supplier or any Subcontractor or Sub-Subcontractor to furnish materials or equipment to be incorporated in the Work.

1.046 Master Project Schedule: Is the most recent version of the Contractor's Project Schedule which has been formally accepted by the Owner.

1.047 Mechanical Completion: Means when the specified Work has been delivered, constructed, installed, and Contractor has successfully completed all required local functional testing, obtained Manufacturers' certificates of proper installation, and completed operations readiness testing such that all improvements and equipment are ready for performance testing.

1.048 Milestones: Means a significant event specified in the Owner's Project Schedule or the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

1.049 Modification: Means a written amendment to the Contract, including but not limited to (1) a Change Order, or (2) a Change Directive.

- 1.050 Notice to Proceed:** A Written Notice given by Owner to Contractor fixing the date on which the Contract Time Requirements will commence to run by establishing Date of Commencement of the Work covered by the Written Notice and on which Contractor shall start to perform Contractor's obligations under the Contract Documents for such Work.
- 1.051 Owner:** The San Jacinto River Authority (the "SJRA" or the "Owner"), a public entity, organized and existing under the laws of the State of Texas, acting through the SJRA Board of Directors, the SJRA General Manager or his/her designee, officers, agents or employees to administer design and construction of the Project.
- 1.052 Owner's Independent Contractor:** A contractor who has been employed separately by the Owner and is not a Subcontractor of the Contractor.
- 1.053 Owner's Project Schedule:** Means the dates indicated in the Instructions to Bidders/Offerors and all Contract Time Requirements.
- 1.054 Owner's Representative:** The designated representative or representatives of the Owner. Owner's Representative may be designated from the Owner's staff, the Principal Architect/Engineer, an Owner's Independent Contractor(s), or an Owner's consultant(s) employed for the purpose of representing the Owner on a given Project or Projects.
- 1.055 Partial Occupancy or Use:** Use by Owner of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work, provided Owner and Contractor have, with respect to such part of the Work, accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, utilities, corrective work, insurance and warranties.
- 1.056 Pre-construction Conference:** Is the required meeting between the Owner and the Contractor before Work can be initiated in the field. Contractor will have made all of the required submittals prior to the date of the Pre-construction Conference in accordance with Section 2.4.2.
- 1.057 Preliminary Project Schedule:** Is the initial Contractor's Schedule for the Work required under Section 2.4.2 and must conform to and be integrated with the Milestones contained in the Owner's Project Schedule for the Work and is subject to Owner's approval.
- 1.058 Principal Architect/Engineer (Engineer):** The Owner's design professional identified as such in the Contract. The terms "Principal Architect/Engineer" and "Engineer", as indicated with initial capital letters, mean the same entity, as defined in the Agreement. References to Principal Architect/Engineer in these General Conditions shall refer to the Owner's Principal Architect/Engineer (Engineer), except as otherwise expressly provided herein. Nothing contained in the Contract Documents shall create any contractual or agency relationship between the respective Principal Architect/Engineer and Contractor. References can be singular or plural and will apply to all of the Principal Architects or Engineers as may be applicable.
- 1.059 Project:** Total construction, of which the Work performed under Contract may be the whole or part, and which may include construction by the Owner or by Owner's Independent Contractors.
- 1.060 Project Manual:** That portion of the Contract Documents which may include the following: introductory information; bidding requirements, Contract forms, Agreement, General Conditions, Supplemental General Conditions; General Requirements; Specifications; Drawings; Project Safety Manual; and Addenda.
- 1.061 Project Schedule:** Is the Contractor's most recent schedule submitted to the Owner.

- 1.062 Project Team:** Means the Owner, the Owner's Representative, the Contractor, the Principal Architect/Engineer, any consultants of the Principal Architect/Engineer designated by the Owner, any Owner's Independent Contractors, and any Owner's consultants employed for the purpose of programming, design, and construction of the Project. The constitution of the Project Team may vary at different stages of the Work. The Project Team will be designated by Owner and may be modified from time to time by Owner.
- 1.063 Not used.**
- 1.064 Recovery Schedule:** Means a short duration schedule implemented to bring the Work back on schedule to achieve the Contract Time Requirements for the Project.
- 1.065 Rental Rate Blue Book:** Is the document published by EquipmentWatch which identifies the rental rates for equipment in the construction industry.
- 1.066 Resident Project Representative:** The authorized representative of the Owner's staff, the Principal Architect/Engineer, or an Owner's consultant who may be assigned to the Site or any part thereof. Not all Projects will utilize a Resident Project Representative.
- 1.067 Schedule of Values:** Is a schedule, prepared and maintained by the Contractor, allocating portions of the Contract Amount to various portions of the Work, including a tabulation of all of the costs of the various Subcontracts and materials which in the aggregate make up the Contract Amount. The Schedule of Values shall be subject to Owner's approval and, after such approval, be used as the basis for reviewing the Contractor's Applications For Payment.
- 1.068 Scope of Work:** Is the entire Work which is included within the Contract for this Project. This term can also be used to describe the subset of Work which is included within a particular Trade Subcontract.
- 1.069 Shop Drawings:** All drawings, diagrams, illustrations, schedules and other data or information which are specifically prepared or assembled for the Work by or for Contractor, subcontractor or supplier and submitted by Contractor as required by the Contract Documents.
- 1.070 Site:** Is the land or premises on which the Project is located.
- 1.071 Specifications:** Those portions of the Contract Documents furnished by Owner through its respective Principal Architects/Engineers consisting of written technical descriptions as applied to the Work, which set forth to Contractor, in detail, the requirements which must be met by all materials, equipment, construction, systems, standards, workmanship, and services as applied to the Work and certain administrative requirements and procedural matters.
- 1.072 Start-Up:** This is the subset of Commissioning at which time the Project equipment and / or systems are placed in full operation in preparation for the operational testing phase of the Project.
- 1.073 Stipulated Sum:** Single lump sum amount stated for the completion of the Work or a portion thereof required by this Contract.
- 1.074 Substantial Completion:** The stage in the progress of the Work when the Work, or designated portion thereof, is sufficiently complete in accordance with the Contract Documents so Owner can occupy or utilize the Work for its intended use, as evidenced by a Certificate of Substantial Completion approved by Owner, as further defined in Article 14.07.
- 1.075 Subcontractor (or Trade Subcontractor):** An individual, firm, corporation, or other business entity having a direct contract with the Contractor for the performance of a portion of the Work under the Contract. A Subcontractor includes a supplier of tools, equipment or materials as well as an individual or entity renting tools or equipment to the Contractor. For purposes of this

- Contract, unless designated otherwise, the term "Subcontractor" shall include all Sub-Subcontractors and Suppliers in contractual privity to the Subcontractor.
- 1.076 Sub-Subcontractor:** An individual, firm, corporation, or other business entity who has a direct or indirect contract with a Subcontractor of any tier to perform a portion of the Work, to furnish tools, equipment or materials, or to rent tools or equipment. For purposes of this Contract, unless designated otherwise, the term "Sub-Subcontractor" shall include all lower tier subcontractors and Suppliers in contractual privity to the Sub-Subcontractor.
- 1.077 Superintendent:** The representative of Contractor authorized in writing to receive and fulfill instructions from the Owner's Representative, and who shall supervise and direct construction of the Work.
- 1.078 Supplemental General Conditions:** The part of the Contract Documents which amends or supplements the General Conditions, but only to the extent provided therein. Not all Projects will utilize Supplemental General Conditions. All General Conditions which are not so amended or supplemented remain in full force and effect.
- 1.079 Supplier:** An individual or entity having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment or products, or services to be incorporated in the Work by Contractor or any Subcontractor.
- 1.080 Surety:** Corporate entity that is bound by one or more Bonds, and is responsible for the completion of the Work, including during the correction period, and for payment of debts incurred by Contractor or Subcontractors for work, services, labor, materials or equipment provided in connection with the Work. Surety shall include any co-surety or reinsurer, as applicable.
- 1.081 Underground Improvements:** Is defined in Section 4.2.3 of these General Conditions.
- 1.082 Unit Price:** An amount stated in the Contract for an individual, measurable item of work, which, when multiplied by actual quantity incorporated into the Work, amounts to full compensation for completion of the item, including work incidental to it.
- 1.083 Unit Price Quantities:** Quantities indicated in the Contract that are approximations made by the Owner for contracting purposes.
- 1.084 Unit Price Work:** Is any Work which is to be executed based upon a Unit Price for that Work which has been agreed upon in advance between the Parties in accordance with Section 11.6 of these General Conditions.
- 1.085 Unusual Inclement Weather:** Is defined in Section 12.2 of these General Conditions.
- 1.086 Value Analysis:** Means the systematic application of recognized techniques by a multi-disciplined team to identify the function of a product or service, establish a worth for that function, generate alternatives through the use of creative thinking, and provide the needed functions to accomplish the original purpose of the Project, reliably, without sacrificing safety, necessary quality, or environmental attributes of the Project.
- 1.087 Work:** The entire completed construction, or the various separately identifiable parts thereof, required to be furnished under the Contract Documents, including all labor, products, equipment, material, supervision, insurance, temporary facilities and services provided by Contractor to fulfill Contractor's obligations. The Work may constitute the whole or a portion of the Project.
- 1.088 Working Day:** Any day of the week, not including Saturdays, Sundays, or Legal Holidays in which conditions under the Contractor's control will permit work for a continuous period of not less than seven (7) hours during Working Hours. Upon agreement with Owner, work on Saturdays, Sundays and/or Legal Holidays may be allowed and will be considered a Working Day.

- 1.089 Working Hours:** Those hours in which the Work shall be performed. Except as otherwise authorized in writing by Owner's, all Work shall be done between 7:00 a.m. and 6:00 p.m. However, emergency work may be done without prior permission as indicated in Section 6.11.07. Night Work may be revoked at any time by Owner if Contractor fails to maintain adequate equipment and supervision for the prosecution and control of the night Work.
- 1.090 Written Notice:** Written communication between Owner and Contractor. Written Notice shall be deemed to have been duly served if delivered in person to Owner's Representative or Contractor's duly authorized representative, or if delivered at or sent by registered or certified mail with proper postage affixed to the attention of Owner's Representative or Contractor's duly authorized representative at the last business address known to the party giving notice, or by facsimile to the facsimile number known to the party giving notice, provided any notice delivered by facsimile after 5:00PM shall be deemed delivered on the next business day.

ARTICLE 2 - PRELIMINARY MATTERS

- 2.1 Delivery of Contract, Bonds, Insurance, etc.:** After written notification to Contractor of anticipated award of Contract, and at least ten (10) days prior to the SJRA Board of Directors Meeting at which a contract award is anticipated, Contractor shall deliver to Owner original, hard copies of the signed Agreement, unsigned Bond forms, required evidence of insurance, including without limitation, all certificates of insurance and endorsements, signed disclosure of interested parties (Form 1295), signed Conflict of interest Questionnaire, and signed and notarized Verification Company Does Not Boycott Israel, as identified in the Bid/Proposal Documents. Within three (3) days of Contractor's receipt of the fully executed Agreement, the Contractor shall deliver the original, hard copy fully executed Bonds to Owner. The requirements of this Section 2.1 apply regardless of whether or not the Agreement is also executed using electronic signatures or transmitted electronically. Any violation of this Section 2.1 by Contractor shall render the Contract voidable by Owner.
- 2.2 Copies of Documents:** Owner shall furnish to Contractor up to ten (10) copies of the Contract Documents unless otherwise specified. Additional copies will be furnished, upon request, at a cost to be specified by the Owner.
- 2.3 Commencement of Contract Time Requirements; Notice to Proceed:** The applicable Contract Time Requirements will begin to run on the day indicated in the Notice to Proceed for the Work covered in such Notice.
- 2.4 Before Starting Construction:**
- 2.4.1** No Work shall be done at the Project Site prior to the Pre-construction Conference without Owner's written approval. Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents to check and verify pertinent figures shown thereon and compare them accurately to all applicable field measurements and conditions and other information known to Contractor and other information made available to Contractor by Owner. Contractor shall promptly report in writing to Owner's Representative any conflict, error, ambiguity or Discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Owner's Representative before proceeding with any Work affected thereby. Contractor shall be liable to Owner for failure to report any conflict, error, ambiguity or

Discrepancy in the Contract Documents about which Contractor knew or reasonably should have known.

2.4.2 Successful completion of the Work within the applicable Contract Time Requirements is of primary importance. **Time is of the essence to this Contract.** Therefore, the Contractor hereby agrees to submit to the Owner's Representative for review and approval, or acceptance, as appropriate, all information required by this section, including a Preliminary Project Schedule for the Work within thirty (30) days from date of the Owner's issuance of the Notice To Proceed with the Work or at the scheduled Pre-construction Conference, whichever is later. The Owner's Representative will schedule the Pre-construction Conference upon the timely submittal of the required documents, unless the allowable time for providing the required submittals is extended by written mutual agreement. Prior to the date scheduled for the Pre-construction Conference, the Contractor will submit the following to the Owner:

- .01** A proposed Preliminary Project Schedule (the "Preliminary Project Schedule") for the Work developed using the scheduling software authorized in Section 6.03 of the General Conditions, unless otherwise approved by Owner, to confirm that all Work will be completed within the respective Contract Time Requirements. The Preliminary Project Schedule must satisfy the requirements of Section 6.03 of these General Conditions and must be prepared in accordance with Division 01 - Section 01 32 16, Construction Progress Schedules. Such Preliminary Project Schedule shall also conform to the Owner's Project Schedule. This Preliminary Project Schedule must contain sufficient detail to indicate that the Contractor has properly identified required Work elements and tasks, has provided for a sufficient and proper workforce and integration of Subcontractors and Suppliers, has provided sufficient resources and has considered the proper sequencing of the Work required to result in a successful Project that can be completed within the Contract Time Requirements. The Project Schedule and Schedule of Values shall be developed together to permit the Work progress to be accurately reflected in the Contractor's Applications for Payment.
- .02** An organizational chart showing the principals and management personnel who will be involved with the Work, including each one's responsibilities for the Work;
- .03** A complete listing of the Contractor's key employees proposed for the Work. List each one by name and job title, and show length of employment with Contractor.
- .04** Emergency contact telephone numbers for the Project Manager and the project Superintendent.
- .05** A discussion and confirmation of the Contractor's commitment to health, safety and environment by providing a copy of its Health, Safety and Environmental Policies, employee's safety handbook and the safety records for the past three years of Contractor's proposed project manager and Superintendent;
- .06** A preliminary schedule of Shop Drawings and sample submittals;
- .07** A preliminary Schedule of Values for all of the Work, subdivided into component parts in sufficient detail to serve as the basis for progress payments during construction. At a minimum, the schedule of values

shall be broken out by trade and split between materials and labor as commented on and accepted by Owner. Such prices will include overhead and profit applicable to each item of Work;

- .08** A letter designating Contractor's Superintendent and project manager, and a confirmation of past project experience for the Contractor's Superintendent and project manager specifically applicable to the Work;
- .09** A letter designating the "Competent Person(s)" on general safety and excavation safety measures along with certifications or other documentation of the safety representative's qualifications;
- .10** If applicable, an excavation safety system plan;
- .11** If applicable, a plan illustrating proposed locations of temporary facilities;
- .12** A letter designating the Texas Registered Professional Land Surveyor for layout of the Work, if the Work requires the services of a licensed surveyor.

2.4.3 Neither the rejection, acceptance, comment on nor the approval of any of the submittals required in Section 2.4.2, above, will constitute either the adoption, affirmation, or direction of the Contractor's means and methods of the performance of the Work which remain the sole responsibility of the Contractor. Owner shall not be responsible for, and will not have control or charge of, construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and shall not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. Owner shall not be responsible for or have control or charge over the acts or omissions of Contractor, Subcontractors or any of their agents or employees or any other persons performing any of the Work.

2.5 Pre-construction Conference: Prior to commencement of Work at the Site, Contractor must attend a Pre-construction Conference with Owner's Representative and others required by Owner, and participate in an inspection of the Project Site if required by Owner.

2.6 Initially Acceptable Schedules: Unless otherwise provided in the Contract Documents, Contractor shall obtain approval of Owner of the Preliminary Project Schedule submitted in accordance with Section 2.4.2.01 before the first progress payment will be made to Contractor. The Preliminary Project Schedule must provide for an orderly progression of the designated portion of the Work to completion within the Contract Time Requirements, including any specified Milestones, and shall permit the Work progress to be accurately reflected in the Contractor's Applications for Payment. Approval of the Preliminary Project Schedule by Owner will not impose on Owner responsibility or liability for the sequencing, scheduling or progress of the Work, nor shall it constitute interference with, nor shall it relieve Contractor from Contractor's full responsibility for the Work. Contractor's schedule of Shop Drawings and sample submissions shall provide adequate time, in Owner's opinion, for properly reviewing and processing the required submittals. Contractor's Schedule of Values must conform to the requirements set forth in the Contract. The process of approving Preliminary Project Schedule and updates to the Master Project Schedule shall not constitute a warranty by the Owner that any non-Contractor milestones or activities will occur as set out on the Preliminary Project Schedule or the Master Project Schedule, or approval of the logic set out in the Preliminary Project Schedule

or Master Project Schedule. Approval of the Preliminary Project Schedule, the Master Project Schedule or any updates thereto does not constitute a warranty by the Owner to furnish any Owner-furnished information or services any earlier than Owner would otherwise be obligated to furnish that information or services under the Contract Documents. Failure of the Work to proceed in the sequence scheduled by Contractor shall not serve as any basis for a Claim for additional compensation or adjustment of the Contract Time Requirements.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.1 Intent: The intent of the Contract Documents is to include all information necessary for the proper execution and timely completion of the Work by Contractor. The Contractor will execute the Work described in and reasonably inferable from the Contract Documents as necessary to produce the results intended by the Contract Documents.

3.1.1 The Contract Documents are complementary in nature, and what is shown in one location on the Drawings or Specifications shall be construed to apply to all other similar locations of the Drawings and Specifications. In the event of any internal inconsistency in either the Drawings or Specifications, or with each other, the Owner shall resolve such inconsistency and Contractor shall perform in accordance with the Owner's determination. In the determination of the Contract Amount, the Contractor has provided for such further development consistent with the Contract Documents and reasonably inferable therefrom. It is the intent and understanding of Contractor that the Contract Amount includes the construction of completed and tested Work by the Contractor, including all devices, fasteners, materials or other work not shown in the Drawings and Specifications but which are reasonably inferable therefrom and any and all incidental accessories necessary to make the Work complete and operable in all respects (even if not specified in the description of the Work, but necessary for proper installation and operation of the Work under the Drawings and Specifications), all of which shall be included in the Contract Amount.

3.1.2 The expression "reasonably inferable" and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a contractor familiar with the Project and exercising the care, skill and diligence of the Contractor required by the Contract Documents. Such further development does not include such things as changes in scope, systems, kinds and quality of materials, finishes or equipment, all of which, if required, shall be incorporated by Change Order or Change Directive. The Contract Documents shall be interpreted with the understanding that a common sense approach will be utilized as necessary so that the Contract Documents produce the intended results for the benefit of the Owner as follows:

- .1** The Contract Documents are intended to be complimentary and interpreted in harmony so as to avoid conflict. Words and phrases will be interpreted in a manner consistent with construction and design industry standards. What is required by any Contract Document shall be required by all of them;
- .2** In the event of any inconsistency, conflict or ambiguity between or among the Contract Documents that cannot be harmonized so as to avoid conflict, the Contract Documents shall take precedence in the

following order: Modifications, documents amending, modifying or supplementing the Contract Documents pursuant to Article 3.3 of the General Conditions, the Agreement, Exhibits to the Agreement, the Supplemental Conditions (if any), the General Conditions, Instructions to Bidders/Offerors, Notice to Proceed, Addenda, Specifications, Drawings, Contractor's Bid/Proposal, Documentation submitted by Contractor prior to Notice of Award and attached to the Agreement, Performance, Payment and Maintenance Bonds; and

- .3** The definitions of terms herein shall apply equally to the singular and plural forms of the terms defined. Whenever the context may require, any pronoun shall include the corresponding masculine, feminine and neuter forms. The words "include", "includes" and "including" shall be deemed to be followed by the phrase "without limitation". Unless the context requires otherwise (a) any definition of or reference to any agreement, instrument or other document herein shall be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein), (b) any reference herein to any Party shall be construed to include such Party's successors and assigns (subject to the restrictions contained herein), and (c) the words "herein", "hereof" and "hereunder", and words of similar import, shall be construed to refer to the entirety of the Contract Documents and not to any particular provision, unless the context clearly dictates otherwise. No provision of this Agreement shall be interpreted or construed against any Party because such Party or its legal representative drafted such provision.

3.1.3 Standards, Specifications, Codes, Laws, and Regulations

- .1** Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Legal Requirements, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Legal Requirements in effect at the time of opening of Bids/Proposals (or on the Effective Date of the Agreement if there were no Bids/Proposals) and as amended, modified, codified or reenacted, in whole or in part, and in effect from time to time, 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, or the Principal Architect/Engineer, or any of their related entities 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.

3.2 Reporting and Resolving Discrepancies: If, during the performance of the Work, Contractor discovers any Discrepancy within the Contract Documents or

between the Contract Documents and any provisions of any Legal Requirements or of any such standard, specification, manual or code or instructions of any Supplier, Contractor shall report it to Owner's Representative in writing at once, and Contractor shall not proceed with the Work affected thereby until a clarification, an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Section 3.3.1 or Section 3.3.2 below. Contractor shall be liable to Owner for failure to report any such Discrepancy that Contractor knew about or should reasonably have discovered in fulfilling its obligations arising from the Contract.

3.3 Clarifying, Amending and Supplementing Contract Documents:

3.3.1 The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

- .1** Change Order.
- .2** Change Directive.

3.3.2 In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work that do not affect the Contract Amount or Contract Time Requirements may be authorized, in one or more of the following ways:

- .1** Field Order.
- .2** Shop Drawing or sample approved in accordance with the Contract Documents.
- .3** Written interpretation or clarification issued in accordance with the Contract Documents.

3.4 Reuse of Documents Prohibited: Contractor and any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with Owner: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of Principal Architect/Engineer or Principal Architect/Engineer's consultant, and (ii) shall not reuse any of such Drawings, Specifications, other documents or copies on extensions of the Project or any other project without written consent of Owner and Principal Architect/Engineer. Contractor may retain one (1) set of such documents for its records.

3.5 Not Used.

3.6 Electronic Data: Owner utilizes Microsoft SharePoint or similar document management software (the "Program") for its projects. Contractor will be provided access to the Program solely for purposes of Contractor's performance of its obligations under the Contract, at no cost to Contractor. The Program may be used to handle management, distribution and submission of all Project documents (including without limitation drawings, specifications, submittals, RFIs, schedules, etc.). Contractor must access the Program for all such Project documents, unless otherwise directed in writing by Owner. Contractor is responsible for all of the content contained in the Program related to the Project, including but not limited to all periodic updates, revisions and additions to the Project documents contained therein. All Project documents contained in the Program shall be deemed delivered to Contractor. Contractor is responsible for ensuring and maintaining compatibility of

Contractor's computer systems with the Program. Contractor shall take all necessary precautions to prevent any unauthorized access to the Program and the Project documents contained therein, and to prevent any virus or malware infiltration of the Program. **CONTRACTOR SHALL COMPLY WITH ALL MICROSOFT OR OTHER SIMILAR DOCUMENT MANAGEMENT SOFTWARE VENDOR TERMS AND CONDITIONS APPLICABLE TO CONTRACTOR'S USE OF THE PROGRAM, AND SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS OWNER FROM AND AGAINST ANY AND ALL CLAIMS, DAMAGES, LIABILITY, LOSS, COST AND EXPENSE, INCLUDING BUT NOT LIMITED TO ATTORNEYS' FEES, INCURRED AS A RESULT OF ANY CONTRACTOR BREACH OF SUCH TERMS AND CONDITIONS (COLLECTIVELY "CLAIMS" AS USED IN THIS SECTION 3.6), EVEN IF SUCH CLAIMS ARE CAUSED IN PART BY, BUT NOT TO THE EXTENT CAUSED BY, THE NEGLIGENCE OR FAULT, THE BREACH OR VIOLATION OF A STATUTE, ORDINANCE, GOVERNMENTAL REGULATION, STANDARD, OR RULE, OR THE BREACH OF CONTRACT OF OWNER, ITS AGENT OR EMPLOYEE, OR ANY THIRD PARTY UNDER THE CONTROL OR SUPERVISION OF OWNER, OTHER THAN CONTRACTOR OR ITS AGENT, EMPLOYEE OR SUBCONTRACTOR OF ANY TIER.** Any use, interpretation, conclusion or information obtained or derived from such Program information and documents will be at the user's sole risk. If there is a conflict or inconsistency between the Program information or documents and any hard copies furnished to Contractor, Contractor shall promptly notify Owner and Principal Architect/Engineer in writing, and shall not rely upon such Program information or documents or the hard copies furnished to Contractor until such conflict or inconsistency is resolved in writing by Owner or Principal Architect/Engineer. When distributing documents in electronic media format, Owner makes no representations as to compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those which are used by Owner or the data's creator.

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

4.1 Availability of Lands: The Owner will provide access to all land and interests in land required for the Work and will notify Contractor of any known restrictions in such access. Contractor may make a Claim if, after having received seventy-two hours' prior written notice, the Owner fails to provide timely access to the Work. Contractor is solely responsible for and must obtain any additional temporary construction facilities, stockpiling or storage sites not otherwise provided by the Owner.

4.1.1 In the event that Owner has agreed to provide any special licenses or easement(s) relating to the Work and in the event that Delays in the Work that are the responsibility of the Contractor cause the Work to be Delayed to the point that the ending date of such a license or easement has been exceeded, the Contractor shall reimburse the Owner for any additional costs and/or expenses incurred by Owner (including but not limited to reasonable attorneys' fees) in endeavoring to extend or renew the duration of any such license or easement in order to facilitate the completion of the Work.

4.2 Subsurface and Physical Conditions:

- 4.2.1** Contractor specifically represents that it has carefully examined the plans, the geotechnical report, if any, and the Site of the proposed Work and is thoroughly familiar with all of the conditions surrounding construction of the Project, having had the opportunity to conduct any and all additional inquiry, tests and investigation that he/she deems necessary and proper, to satisfy itself as to conditions, including but not limited to subsurface conditions, at the Site of the Work, and to inform itself by its independent research, tests and investigations of the difficulties to be encountered and to judge for itself the accessibility of the Work and all attending circumstances affecting the cost of doing the Work or time required for its completion. Contractor acknowledges the receipt of the geotechnical report, if any, and agrees that the report is not a guarantee of specific Site conditions which may vary between boring locations and over time, and is not a Contract Document. Contractor may not rely upon or make any Claim against Owner with respect to any Contractor interpretation of or conclusion drawn from any data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings. Contractor shall make no claims against the Owner and shall bear all risk of losses, if any, resulting on account of the amount and character of the Work, or because the conditions under which the Work must be done vary or differ from conditions or information contained in the Contract Documents, or are different from what were estimated or anticipated by it.
- 4.2.2** Except as provided in Section 4.2.5 below, Contractor must notify Owner in writing as soon as reasonably possible, but no later than three (3) calendar days, if unforeseen conditions are encountered at the Site which are (i) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or other information provided by Owner to Contractor or (ii) unknown physical conditions of an unusual nature, that differ materially from those normally encountered in the type of Work being performed under this Contract. Contractor may not disturb the conditions until Owner conducts an investigation of such conditions. Upon receipt of notice from the Contractor, the Owner's Representative will promptly investigate such conditions with the Principal Architect/Engineer.
- 4.2.3** Notwithstanding any other provision of this Contract, Contractor is solely responsible for the location and protection of any and all underground utilities, pipelines, facilities and improvements, whether public or private, and whether utility_distribution, supply or collection systems, or lines connecting customers to utility distribution, supply or collection systems, and including but not limited to all electric, telecommunication, gas, water, storm sewer and sanitary sewer lines, and all pipes, conduits, cables, wires, manholes, vaults, tanks, and tunnels (collectively "Underground Improvements"). Contractor shall notify "One Call" and shall retain a private underground locator service, and shall exercise due care to locate, mark, uncover and otherwise protect all Underground Improvements in the construction zone and any of Contractor's Work or storage areas. Contractor's responsibility for the location and protection of Underground Improvements is primary and non-delegable. **Contractor shall defend and indemnify Owner from and against any losses, Claims, expenses, costs or penalties (including fines that may be levied against Owner) that may result from damage to any Underground Improvements in the Work area.** Owner reserves the right to repair any damage Contractor causes to such Underground Improvements

at Contractor's expense or to offset the cost of such repairs against funds then or thereafter due Contractor pursuant to the Contract. If any Underground Improvements are damaged by Contractor, Contractor shall give verbal notice to the Owner's Representative within one (1) hour and written notice within twenty-four (24) hours after such damage occurs.

4.2.4 Contractor shall take reasonable precaution to avoid disturbing primitive records and antiquities of archaeological, paleontological or historical significance. No objects of this nature shall be disturbed without written permission of Owner and Archeology Division, Texas Historical Commission. When such objects are uncovered unexpectedly, Contractor shall stop all Work in close proximity and immediately notify the Owner's Representative and Archeology Division, Texas Historical Commission of their presence. Contractor shall reference Texas Water Development Board Emergency Conditions for cultural resources in the event of accidental discoveries. Contractor shall not disturb them until written permission and permit to do so is granted by the governing authorities and Owner. All primitive rights to antiquities uncovered on Owner's property shall remain property of State of Texas, Archeology Division, Texas Historical Commission in accordance with the Texas Natural Resources Code. If it is determined by Owner, in consultation with Archeology Division, Texas Historical Commission, that exploration or excavation of primitive records or antiquities on Project Site is necessary to avoid loss, Contractor shall cooperate in salvage work attendant to preservation. If the Work stoppage or salvage work causes an increase in Contractor's cost of, or time required for, performance of the Work, the Contract Amount and/or Contract Time Requirements will be equitably adjusted.

4.2.5 Environmental Conditions: Contractor shall immediately stop all Work and must notify Owner in writing as soon as reasonably possible, but no later than one (1) calendar day after any significant environmental conditions are encountered at the Site which are or may be subject to any Legal Requirements. Contractor shall reference Texas Water Development Board Emergency Conditions for threatened and endangered species in the event of accidental discoveries. Contractor shall not disturb the conditions until Owner conducts an investigation. Owner's Representative and Principal Architect/Engineer will promptly investigate such conditions. If it is determined that such conditions are subject to Legal Requirements, did not result from any Hazardous Conditions brought to the Site by Contractor or any Subcontractor, and cause an increase or decrease in the Contractor's cost of or time required for performance of any part of the Work, Owner's Representative will recommend an equitable adjustment in the Contract Amount or Contract Time Requirements, or both. If it is determined that such conditions are not subject to Legal Requirements or resulted from any Hazardous Conditions brought to the Site by Contractor or any Subcontractor, Owner's Representative will notify Contractor in writing of such findings and the Contract Amount and Contract Time Requirements will not be adjusted. Contractor may dispute such a determination in accordance with Article 16.

4.3 Reference Points: Unless otherwise specified, primary control lines and bench marks suitable for use in layout will be furnished by Owner. Lay out of the Work shall be performed in accordance with the requirements of Division 01. Controls, bench marks and property boundary markers shall be carefully preserved by

Contractor by use of flags, staffs or other visible devices and in case of destruction or removal by Contractor, any Subcontractor or their employees, such controls and bench marks shall be replaced by a Texas Registered Professional Land Surveyor at Contractor's expense. Any SJRA survey monuments damaged by Contractor will be reestablished by Owner at Contractor's expense.

4.4 Hazardous Conditions:

4.4.1 Contractor shall not be responsible for any Hazardous Conditions uncovered or revealed at the Site which were not shown, indicated or identified in the Contract Documents to be within the scope of the Work, and which were not brought onto the Site by the Contractor or the Subcontractors. Contractor shall immediately notify Owner's Representative of any such suspected Hazardous Conditions encountered at the Site before or during performance of the Work, and shall stop Work immediately in the affected area, and take all necessary precautions to avoid disturbance of the Hazardous Conditions.

4.4.2 Contractor shall be responsible for any Hazardous Conditions brought to the Site by Contractor, Subcontractor, Suppliers or anyone else for whom Contractor is responsible.

4.4.3 No asbestos-containing materials or lead-based paint shall be incorporated into the Work or brought on the Project Site without prior written approval of Owner. The Contractor shall not knowingly use, specify, request or approve for use any asbestos containing materials or lead-based paint without the Owner's written approval. When a specific product is specified, the Contractor shall endeavor to verify that the product does not include asbestos containing material or lead-based paint.

4.4.4 Refer to Section 1.040 Hazardous Conditions definitions and to Division 01 for procedures related thereto.

- .1** Not used.
- .2** Upon receiving notice of the presence of suspected Hazardous Conditions, Owner shall take the necessary measures required to ensure that the Hazardous Conditions are remediated or rendered harmless. Such necessary measures shall include Owner retaining qualified independent consultants to (i) ascertain whether Hazardous Conditions have actually been encountered, and, if they have been encountered, (ii) prescribe the remedial measures that Owner must take either to remove the Hazardous Conditions or render the Hazardous Conditions harmless.
- .3** Contractor shall be obligated to resume Work at the affected area of the Project only after Owner or its qualified independent consultant provides written certification that (i) the Hazardous Conditions have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site. The Contractor shall be responsible for continuing the Work in the unaffected portion of the Project and Site.
- .4** Contractor will be entitled, in accordance with these General Conditions, to an adjustment in its Contract Amount and/or Contract Time Requirements to the extent Contractor's cost of performance is

actually increased and/or the Critical Path of the Work has been delayed by the presence of Hazardous Conditions discovered at the Site.

- .5** Notwithstanding anything in the Contract Documents to the contrary, Owner, its officers, directors, agents and employees, and the Owner's Representative, the Principal Architect/Engineer, the Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees and agents are not responsible for Hazardous Conditions introduced to the Site by Contractor, Subcontractors or anyone for whose acts they may be liable. Contractor shall be responsible for use, storage and remediation of any Hazardous Conditions brought to the Site by Contractor, Subcontractors, Suppliers or anyone else for whom Contractor is responsible. **Contractor shall defend, indemnify and hold harmless Owner and Owner's officers, directors, employees and agents and the Owner's Representative, the Principal Architect/Engineer, the Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees and agents from and against any and all claims, losses, damages, liabilities and expenses, including attorneys' fees and court costs, arising out of or resulting from Hazardous Conditions introduced to the Site by Contractor, Subcontractors or anyone for whose acts they may be liable. Notwithstanding the foregoing, if Subchapter C of Chapter 151 of the Texas Insurance Code applies to the Contract, the obligation to defend, indemnify and hold harmless set forth in this Section 4.4.4.5 shall not apply to the extent prohibited by Subchapter C of Chapter 151 of the Texas Insurance Code.**

ARTICLE 5 - BONDS AND INSURANCE

- 5.1 Surety and Insurance Companies:** All Bonds and insurance required by the Contract Documents shall be obtained from solvent surety or insurance companies that are duly admitted and licensed by the State of Texas and authorized to issue bonds or insurance policies for the limits and coverages required by the Contract Documents. Bonds shall be in a form acceptable to Owner and shall be issued by a surety which complies with the requirements of Chapter 3503 of the Texas Insurance Code. The Surety must obtain reinsurance for any portion of the risk that exceeds 10% of the Surety's capital and surplus. For bonds exceeding \$100,000, the Surety must also hold a certificate of authority from the U.S. Secretary of the Treasury or have obtained reinsurance from a reinsurer that is authorized as a reinsurer in Texas and holds a certificate of authority from the U.S. Secretary of the Treasury and has an A.M. Best rating of A-, X or better.

5.2 Workers' Compensation Insurance Coverage:

5.2.1 Definitions:

- .1** Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the

division, or a coverage agreement (DWC Form-81, DWC Form-82, DWC Form-83, or DWC Form-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on the Project, for the duration of the Project.

- .2** 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 Owner.
- .3** Persons providing services on the Project 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, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project.
- .4** Services include, without limitation, providing, hauling, 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.

5.2.2 Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory 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.

5.2.3 Contractor must provide a certificate of coverage to Owner prior to being awarded the Contract.

5.2.4 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 Owner showing that coverage has been extended.

5.2.5 Contractor shall obtain from each person providing services on the Project, and provide to Owner:

- .1** A certificate of coverage, prior to that person beginning Work on the Project, so Owner will have on file certificates of coverage showing coverage for all persons providing services on the Project; and
- .2** No later than seven (7) days after receipt by 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.

5.2.6 Contractor shall retain all required certificates of coverage for the Duration of the Project and for one (1) year thereafter.

5.2.7 Contractor shall notify Owner in writing by certified mail or personal delivery, within ten (10) days after Contractor knew or should have known,

of any change that materially affects the provision of coverage of any person providing services on the Project.

- 5.2.8** Contractor shall post on each Project Site a notice, in the text, form and manner prescribed by the Texas Department of Insurance, Division of Workers' Compensation, 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.
- 5.2.9** Contractor shall contractually require each person with whom it contracts to provide services on the Project, to:
- .1** Provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory 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 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 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 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 ends during the Duration of the Project;
 - .5** Retain all required certificates of coverage on file for the Duration of the Project and for one (1) year thereafter;
 - .6** Notify Owner in writing by certified mail or personal delivery, within ten (10) 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
 - .7** Contractually require each person with whom it contracts, to perform as required by these Section 5.2.9.1 through Section 5.2.9.7, with the certificates of coverage to be provided to the person for whom they are providing services.
- 5.2.10** By signing this Contract or providing or causing to be provided a certificate of coverage, Contractor is representing to 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 agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the division. Providing false or misleading information may subject Contractor to administrative penalties, criminal penalties, civil penalties or other civil actions.

- 5.2.11** Contractor's failure to comply with any of these provisions is a breach of the Contract by Contractor which entitles Owner to declare the Contract void if Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from Owner.

5.3 Additional Insurance Requirements:

5.3.1 Contractor And Subcontractor Provided Insurance: Contractor and Subcontractors shall obtain and maintain insurance coverages described in Sections 5.3.1.01 through 5.3.1.08 and, to the extent applicable, Sections 5.3.1.09 through 5.3.1.11 through the end of the warranty period (with the exception of Builders' Risk, which is required to remain in effect at least until final payment) or such longer periods of time as may be set forth herein; except that Subcontractors' limits of coverage for Commercial General Liability shall be no less than \$1,000,000 per occurrence and \$2,000,000 in the aggregate, Subcontractors shall not be required to maintain separate Builder's Risk Insurance, Subcontractors shall not be required to maintain Environmental Impairment Liability or Pollution Liability Insurance unless their Scope of Work involves Hazardous Conditions in which event such Subcontractors shall maintain such insurance with limits of coverage not less than \$1,000,000 per occurrence and \$2,000,000 in the aggregate, Subcontractors shall not be required to maintain Professional Liability coverage unless their Scope of Work includes professional services in which event such Subcontractors shall maintain such insurance with limits of coverage not less than \$1,000,000 per occurrence and in the aggregate, and Subcontractors' limits of coverage for Umbrella Liability shall be no less than \$3,000,000. All insurance secured by Contractor, Subcontractors and Sub-Subcontractors pursuant to Owner's requirements under this provision shall be in accordance with Article 5 of the General Conditions and Section 5.3.1.01 as follows.

5.3.1.01 General Requirements.

- .01** Contractor shall carry insurance in the types and amounts indicated below for the Duration of the Project or such longer periods of time set forth below, and shall include coverage for items owned by Owner in the care, custody and control of Contractor prior to and during construction and the warranty period.
- .02** Contractor shall forward Certificates of Insurance evidencing the coverage and limits of insurance required herein to Owner with copies to each additional insured and loss payee listed in the Supplemental Conditions (if any), before the Contract is executed. Contractor shall also provide copies of policy endorsements and excerpts from policies to evidence the required coverages. Contractor shall not commence Work until the required insurance is obtained and until such insurance has been reviewed and approved by Owner. Approval of insurance by Owner shall not relieve or decrease the liability of Contractor hereunder and shall not be construed to be a limitation of liability on the part of Contractor. Contractor must also forward new Certificates of Insurance to Owner whenever a previously identified policy period has expired as verification of continuing coverage.
- .03** Contractor's insurance coverage is to be written by companies licensed to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of A-, X or

better, except for pollution liability or environmental impairment liability insurance which shall be written by companies with A.M. Best ratings of A- or better.

- .04** All endorsements naming the Owner as an additional insured, waivers of subrogation in favor of Owner, and notices of cancellation endorsements as well as the Certificates of Insurance shall specify Owner's name and address as: the San Jacinto River Authority, 1577 Dam Site Road, Conroe, Texas 77304.
- .05** The "other" insurance clause shall not apply to the Owner where the Owner is an additional insured shown on any policy. Insurance policies required by the Contract shall be primary and non-contributing with respect to any other insurance coverage maintained by or available to the Owner and/or other additional insureds. The policies shall be endorsed to provide severability of interests.
- .06** If underlying insurance policies are not written with coverage limits for at least the amounts specified below, Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of the primary coverage and have the same inception and termination dates as the primary coverage.
- .07** Owner shall be entitled, upon request and without expense, to receive certified copies of policies and endorsements thereto and may make any reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions except where policy provisions are established by law or regulations binding upon either of the parties hereto or the underwriter on any such policies. Failure of Contractor to provide certified copies, as requested, is a material breach of the Contract.
- .08** Owner reserves the right to review the insurance requirements set forth during the effective period of this Contract and to make reasonable adjustments to insurance coverage, limits, and exclusions when deemed necessary and prudent by Owner based upon changes in statutory law, court decisions, the claims history of the industry or financial condition of the insurance company as well as Contractor.
- .09** All insurance policies required to be maintained will contain a provision or endorsement stating that the coverage afforded will not be cancelled until at least 30 days' prior written notice has been provided to the Contractor and to the Owner. Contractor shall not cause any insurance to be canceled nor permit any insurance to lapse during the term of the Contract or as required in the Contract.
- .10** Contractor shall be responsible for premiums, deductibles and self-insured retentions, if any, stated in policies. The amounts of all deductibles or self-insured retentions shall be disclosed on the Certificates of Insurance. Any deductible or self-insured retention in excess of \$25,000 is subject to the written approval of Owner.
- .11** Contractor shall provide Owner thirty (30) days written notice of erosion of the aggregate limits below occurrence limits for all applicable coverages required by the Contract.
- .12** If Owner-owned property is being transported or stored off-site by Contractor, then the appropriate property policy will be endorsed for transit and storage in an amount sufficient to protect Owner's property.

- .13** The insurance coverages required under this contract are required minimums and are not intended to limit the responsibility or liability of Contractor. The inclusion of required minimum insurance limits in this Contract shall not be construed as limiting the Owner's or other additional insured's rights under any policy with higher limits. The minimum insurance limits set forth in this Contract shall be deemed to be amended to any higher limits actually contained in Contractor's insurance policies.
- .14** The Contractor hereby waives its rights of recovery from the Owner, its officers, directors, agents and employees, and the Owner's Representative, the Principal Architect/Engineer, the Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees and agents with regard to all causes of property and/or liability loss covered by insurance required by this Contract, and shall cause a waiver of subrogation endorsement to be provided in favor of the Owner, its officers, directors, agents and employees, and the Owner's Representative, the Principal Architect/Engineer, the Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees and agents on all insurance coverage carried by the Contractor, whether required herein or not.
- .15** Failure to obtain and maintain the required insurance shall constitute a material breach of, and default under, this Contract. If Contractor shall fail to remedy such breach, Contractor will be liable for any and all costs, liabilities, damages and penalties resulting to Owner from such breach, unless a written waiver of the specific insurance requirement(s) is provided to Contractor by Owner. In the event of any failure by Contractor to comply with the provisions of this Contract, Owner may, without in any way compromising or waiving any right or remedy at law or in equity, on notice to Contractor, purchase such insurance, at Contractor's expense, provided that Owner shall have no obligation to do so and if Owner shall do so, Contractor shall not be relieved of or excused from the obligation to obtain and maintain such insurance amounts and coverages.
- .16** Additional insured status shall be provided in favor of the Owner, its officers, directors, agents and employees, and the Owner's Representative, the Principal Architect/Engineer, the Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees and agents on all insurance policies other than Workers' Compensation, Professional Liability and Builder's Risk, on ISO forms CG 20 10 10 01 and CG 20 37 10 01 or their combined equivalent. It is the intent of the parties to this Contract that this Additional Insured status shall include coverage for completed operations and for the additional insureds' concurrent and sole negligence. Notwithstanding the foregoing, if Subchapter C of Chapter 151 of the Texas Insurance Code applies to the Contract, this additional insured obligation shall not require or provide coverage the scope of which is prohibited under Subchapter C of Chapter 151 of the Texas Insurance Code.
- .17** Contractor's obligations under this Contract to defend, indemnify and/or hold harmless Owner or other parties shall not be limited in any way by any insurance required of Contractor by this Contract or otherwise provided or maintained by

Contractor. Any insurance obligations of Contractor under this Contract are independent from Contractor's obligations under this Contract to defend, indemnify and/or hold harmless Owner or other parties.

5.3.1.02 Business Automobile Liability Insurance: Provide coverage for all owned, non-owned and hired vehicles. The policy shall provide coverage in the following types and amounts:

- .1 A minimum combined single limit of \$1,000,000 per occurrence for bodily injury and property damage.
- .2 A minimum combined single limit of \$1,000,000 minimum per occurrence for bodily injury and property damage.
- .3 The policy shall contain the following endorsements in favor of Owner:
 - .a Waiver of Subrogation endorsement; and
 - .b 30 day Notice of Cancellation endorsement; and
 - .c Additional Insured endorsement.

5.3.1.03 Workers' Compensation And Employers' Liability Insurance: Coverage shall meet or exceed statutory limits and all other benefits outlined in the Texas Workers' Compensation Act (Section 401). The minimum policy limits for Employers' Liability Insurance coverage shall be \$500,000 bodily injury per accident, \$500,000 bodily injury by disease policy limit and \$500,000 bodily injury by disease each employee.

- .1 Contractor's policy shall cover all States in which Work is performed and apply to the State of Texas and shall include these endorsements in favor of Owner:
 - .a Waiver of Subrogation; and
 - .b 30 day Notice of Cancellation.

5.3.1.04 Commercial General Liability Insurance: Provide coverages with minimum limits as follows: combined bodily injury and property damage limit of \$2,000,000 minimum per occurrence and \$5,000,000 aggregate. The Contractor's policy shall include coverage for:

- .1 Blanket contractual liability coverage for liability assumed under the Contract and all contracts relative to this Project; and
- .2 Completed Operations/Products Liability for at least three years after Substantial Completion; and
- .3 Explosion, Collapse and Underground (X, C & U) coverage; and
- .4 Independent Contractors coverage; and
- .5 Aggregate limits of insurance per project; and
- .6 Additional insureds as required in 5.3.1.01.16; and
- .7 30 day notice of cancellation in favor of Owner; and
- .8 Waiver of Transfer of Recovery Against Others in favor of all required additional insureds; and
- .9 Primary and non-contributing endorsement.

5.3.1.05 Builder's Risk Insurance: Contractor shall maintain Builder's Risk Insurance or Installation Insurance on an all-risk physical loss form in the Contract Amount plus the value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Work at the site on a replacement cost basis without optional

deductibles. Coverage shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, explosion, tornado, malicious mischief, collapse, earthquake, flood, surface water, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements and shall cover reasonable compensation for Principal Architect/Engineer's and Contractor's services and expenses required as a result of any insured loss. Coverage shall continue until final payment for the Work is made by the Owner. Coverage shall allow for partial occupancy/use by the Owner. Owner shall be an additional named insured on the policy. Policy must include expenses incurred in the repair or replacement of any insured property, including but not limited to fees and charges of the Principal Architect/Engineer and any other engineers and architects and their respective subconsultants. If off-site storage is permitted by the Owner, coverage shall include materials in transit and storage in an amount sufficient to protect property being transported or stored. Any losses covered by the Builder's Risk or Installation Insurance shall be adjusted by the Owner.

5.3.1.06 Environmental Impairment Liability or Pollution Liability Insurance:

Contractor shall comply with the following insurance requirements in addition to those specified above:

- .1** Provide an Environmental Impairment Liability policy with minimum limits of \$2,000,000 each occurrence and \$5,000,000 aggregate. Coverage shall contain a "per project" aggregate, 30 day notice of cancellation to Owner and waiver of subrogation in favor of Owner. Coverage to include non-owned disposal sites. Coverage shall include clean-up costs, bodily injury, property damage and defense costs.
- .2** Policy shall contain proper endorsement wording to comply with Federal or TCEQ requirements. Policy will also cover vessels and marine operations. Contractor shall submit complete copies of the policy providing pollution liability coverage to Owner.

5.3.1.07 Professional Liability Insurance: For Work which requires professional engineering or architectural or professional survey services to meet the requirements of the Contract, including but not limited to excavation safety systems, traffic control plans, and construction surveying, the Contractor or Subcontractors, responsible for performing the professional services shall provide Professional Liability Insurance with a minimum limit of \$1,000,000 each occurrence and \$3,000,000 aggregate to pay on behalf of the assured all sums which the assured shall become legally obligated to pay as damages by reason of any negligent act, error, or omission committed in connection with professional services provided for or in connection with the Work of this Contract.

5.3.1.08 Umbrella Liability: Umbrella Liability with a limit of \$5,000,000, with the Owner as an additional insured and with waiver of subrogation and 30 day notice of cancellation. The Umbrella Liability policy shall follow form, be excess over and be no less broad than all coverages described above (with the exception of Workers' Compensation, Professional

Liability and Pollution Liability), shall include a drop-down provision and contain a per job aggregate. This policy shall have the same inception and expiration dates as the Commercial General Liability insurance required above. Contractor shall maintain such insurance in identical coverage, form and amount, including required endorsements, for at least three (3) years following Date of Substantial Completion of the Work to be performed under the Contract.

5.3.1.09 Protection and Indemnity: Protection and Indemnity coverage for any over water operations, vessels, barges, divers. This policy shall have limits of \$1,000,000 each occurrence, \$2,000,000 aggregate and policy endorsed to provide

5.3.1.10 Excess P&I: Excess P&I in the amount of \$20,000,000 each occurrence with additional insured, waiver of subrogation and 30 day notice of cancellation to the Owner.

5.3.1.11 Marine: Contractor and/or any Subcontractors shall have appropriate workers compensation insurance to provide coverage for USL&H and Jones Act exposures.

5.3.2 Waiver of Rights

5.3.2.1 All policies purchased in accordance with Section 5.3.1.05 shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional named insureds thereunder. Owner and Contractor waive all rights of recovery for damages against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, the Principal Architect/Engineer, the Principal Architect/Engineers Consultants and Subconsultants and Owner's Representative and any named insured or additional named insured or loss payee to the extent (a) of 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 (b) that such losses and damages are actually paid by such policies or other property insurance applicable to the Work. 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 adjuster or recipient thereof or otherwise payable under any such policy.

5.3.3 Receipt and Application of Insurance Proceeds

5.3.3.1 Any insured loss under the policies of insurance required by Section 5.3.1.05 will be adjusted with Owner and made payable to Owner for the named insureds, additional named insureds, and loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Section 5.3.3.2. Owner shall deposit 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, to the extent of loss payments received, covered by an appropriate Change Order.

5.3.3.2 Owner shall have power to adjust and settle any loss with the builder's risk or other property insurers.

5.3.4 Partial Utilization, Acknowledgment of Property Insurer:

5.3.4.1 If Owner desires to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Section 14.08, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Section 5.3.1.05 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, and the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

5.4 Bonds:

5.4.1 General:

- .1** Contractor shall furnish performance, payment, and one-year maintenance Bonds, each in an amount at least equal to the Contract Amount as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents, as well as a second year maintenance Bond, in an amount equal to ten percent (10%) of the Contract Amount. The one-year maintenance Bond shall remain in effect until completion of the correction period specified in Section 13.7.1. The second year maintenance Bond shall remain in effect until 2-years from the date of Substantial Completion. Contractor shall also furnish such other Bonds as are required by the Contract Documents.
- .2** Bonds shall be executed on forms furnished by Owner, as included in the Specifications. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each Bond.
- .3** If the Surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Texas or it is placed into receivership, Contractor shall within ten (10) days thereafter substitute other Bonds and Surety, each of which must be acceptable to Owner.
- .4** The Performance Bond and Payment Bond shall be issued in an amount of one hundred percent (100%) of the Contract Amount as security for the faithful performance and/or payment of all Contractor's obligations under the Contract Documents. All Bonds, including but not limited to the Performance Bond and Payment Bond shall be issued by a solvent corporate surety company authorized to do business in the State of Texas, and shall meet any other requirements established by law or by Owner pursuant to applicable law. Any surety duly authorized to do business in Texas may write Performance and Payment Bonds on a project without reinsurance to the limit of ten percent (10%) of its capital and surplus. Such a surety must reinsure any obligations over the ten percent (10%) limit.

5.4.2 Performance Bond:

- .1 Contractor shall furnish Owner with a Performance Bond in the form set out in the Contract Documents.
- .2 The Performance Bond shall include the one (1) year warranty correction period obligation from the date of Substantial Completion of the Work.

5.4.3 Payment Bond:

- .1 Contractor shall furnish Owner with a Payment Bond in the form set out in the Contract Documents.

5.4.4 One-Year Maintenance Bond:

- .1 Contractor shall furnish Owner with a One-Year Maintenance Bond in the form set out in the Contract Documents.

5.4.5 Second-Year Maintenance Bond:

- .1 Contractor shall furnish Owner with a Second-Year Maintenance Bond in the form set out in the Contract Documents.
- .2 The Second-Year Maintenance Bond shall be in an amount equal to ten percent (10%) of the Contract Amount, and shall remain in effect until 2-years from the date of Substantial Completion.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 Supervision and Superintendence:

6.01.1 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 be responsible to see that the completed Work strictly complies with the Contract Documents.

6.01.2 Contractor shall have an English-speaking, competent Superintendent on the Work at all times that Work is in progress. The Superintendent will be Contractor's representative on the Site and shall have the authority to act on the behalf of Contractor. All communications given to the Superintendent shall be as binding as if given to Contractor. Contractor's Superintendent and Project Manager shall provide cellular telephone numbers and emergency and home telephone number(s) at which one or the other may be reached if necessary when Work is not in progress. Telephone or cellular phone number(s) shall be to a live person having responsible authority for the Work and not an answering machine or answering service. The Superintendent must be an employee of the Contractor, unless such requirement is waived in advance in writing by the Owner. If the Contractor proposes a management structure with a Project Manager supervising, directing, and managing construction of the Work in addition to or in substitution of a Superintendent, the requirements of these

Construction Documents with respect to the Superintendent shall likewise apply to any such Project Manager:

- .1 Contractor shall present the resume of the proposed Superintendent to the Owner's Representative showing evidence of experience and successful superintendence and direction of Work of a similar scale and complexity. If, in the opinion of the Owner, the proposed Superintendent does not have sufficient experience in line with the Work, he/she will not be allowed to be the designated Superintendent for the Work.
- .2 The Superintendent shall not be replaced without prior Written Notice to Owner's Representative. If Contractor deems it necessary to replace the Superintendent, Contractor shall provide the necessary information for approval, as stated above, on the proposed new Superintendent.
- .3 A qualified substitute Superintendent may be designated in the event that the designated Superintendent is temporarily away from the Work, but not to exceed a time limit acceptable to the Owner's Representative.
- .4 Contractor shall replace the Superintendent upon Owner's request in the event the Superintendent is unable to perform to Owner's satisfaction.

6.02 Labor, Materials and Equipment:

6.02.1 Contractor shall maintain a work force adequate to accomplish the Work within the Contract Time Requirements. Contractor agrees to employ only orderly and competent workers, skillful in performance of the type of Work required under this Contract. Contractor, Subcontractors, Sub-Subcontractors, and their employees may not use or possess any alcoholic or other intoxicating beverages, illegal drugs or controlled substances while on the job or on Owner's property, nor may such workers be intoxicated, or under the influence of alcohol or drugs, on the job. Subject to the applicable provisions of Texas law, Contractor, Subcontractors, Sub-Subcontractors, and their employees may not use or possess any firearms or other weapons while on the job or on Owner's property. If Owner or Owner's Representative notifies Contractor that any worker or representative of Contractor is incompetent, disorderly, abusive, or disobedient, has knowingly or repeatedly violated safety regulations, has possessed any firearms in contravention of the applicable provisions of Texas law or this Contract, or has possessed or was under the influence of alcohol or drugs on the job, Contractor shall immediately remove such worker or representative, including any officer or owner of Contractor, from performing Contract Work, and may not employ such worker or representative again on Contract Work without Owner's prior written consent. Contractor shall at all times maintain good discipline and order on or off the Site in all matters pertaining to the Project. Contractor shall pay workers no less than the applicable wage rates established for the Contract, and maintain weekly payroll reports as evidence thereof, in accordance with the requirements of Chapter 2258 of the Texas Government Code.

6.02.2 Except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular Working Days and regular Working Hours.

Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without the Owner's prior written consent given after the Contractor has provided 48-hour advanced written notice to the Owner's Representative.

6.02.3 Unless otherwise specified in Division 01, Contractor shall provide and pay for all 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 furnishing, performance, testing, start-up and completion of the Work, provided the Owner's CMT Consultant shall provide certain inspection services, the Owner shall provide testing of construction materials engineering and the verification testing services necessary for acceptance of the Work by Owner, as required by Section 2267.058(a) of the Texas Government Code.

6.02.4 All materials and equipment shall be of good quality and new (including new products made of recycled materials, pursuant to Section 361.426 of the Texas Health & Safety Code), except as otherwise provided in the Contract Documents. If required by Owner's Representative, Contractor shall furnish satisfactory evidence (reports of required tests, Manufacturer's certificates of compliance with material requirements, mill reports, etc.) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with instructions of the applicable Manufacturer or Supplier, except as otherwise provided in the Contract Documents.

6.02.5 Substitutes and "Approved Equal" Items:

.1 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 Manufacturer or Supplier, the specification or description is intended to establish the type, function and quality required. Unless the specification or description contains words reading that no like, equivalent or "approved equal" item or no substitution is permitted, other items of material or equipment of other Manufacturers or Suppliers may be submitted by Contractor, at Contractor's sole risk, including potential impacts and disruptions to the Critical Path of the Project Schedule, to Principal Architect/Engineer for their review and approval through Owner's Representative under the following circumstances:

(a) "Approved Equal": If in Principal Architect/Engineer's and Owner's sole discretion an item of material or equipment proposed by Contractor is functionally equal and of equivalent type and quality to that named, and sufficiently similar so that no change in related Work, time of performance or Contract Amount will be required, it may be approved by Principal Architect/Engineer and Owner through the submittal process as an "approved equal" item. Contractor shall provide Principal Architect/Engineer and Owner with all necessary documentation required for Principal Architect/Engineer and Owner to make their evaluation, and shall identify the item of material or

equipment proposed by Contractor as a variation in accordance with Section 6.20.5.

- (b) **Substitute Items:** Contractor may submit an item of material or equipment which does not qualify as an "approved equal" item under Subsection 6.02.5.1(a), or may resubmit an item of material or equipment proposed by Contractor and rejected by Principal Architect/Engineer or Owner as an "approved equal" item under Subsection 6.02.5.1(a), as a proposed substitute item. All of Contractor's requests for substitutions must be clearly identified as a **"Request For Substitution"** on the face of the document. Contractor shall submit sufficient information as provided in Division 01 to allow Principal Architect/Engineer and Owner to evaluate the item of material or equipment proposed as a substitute for the item named.
- .2 **Substitute Construction Methods and Procedures:** If a specific means, method, technique, sequence or procedure of construction is shown or indicated in and expressly required by the Contract Documents, Contractor may, at Contractor's sole risk, including potential impacts and disruptions to the Critical Path of the Project Schedule, with prior approval of Principal Architect/Engineer, furnish or utilize a substitute means, method, technique, sequence, or procedure of construction. All such proposed substitutions must be clearly identified as being a **"Substitution"** in all of the Contractor's submittals. Contractor shall submit sufficient information to Owner's Representative to allow Principal Architect/Engineer's, in Principal Architect/Engineer's sole discretion, evaluation of the proposed substitute as an equivalent to that method or procedure expressly called for by the Contract Documents. The procedure for review by Principal Architect/Engineer will be same as that provided for substitute items in Division 01.
- .3 **Principal Architect/Engineer's Evaluation:** Principal Architect/Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Subsections 6.02.5.1(a), 6.02.5.1(b), and 6.02.5.2. Principal Architect/Engineer and Owner will be the judge of acceptability. No "approved equal" or substitute shall be ordered, installed, or utilized until Principal Architect/Engineer's and Owner's review is complete, and any "approved equal" is approved through the submittal process, or any approved substitute is evidenced by either a Change Order, or a Change Directive. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety Bond with respect to any approved substitute. Owner shall not be responsible for any Delay due to review time for any "approved equal" or substitute.
- .4 **Contractor's Expense:** All data and documentation to be provided by Contractor in support of any proposed "approved equal" or substitute item will be at Contractor's expense.
- .5 **The approval of the Principal Architect/Engineer and/or Owner will not relieve the Contractor from primary responsibility and liability for the suitability and performance of any proposed substitute item, method or procedure and will not relieve Contractor from its primary responsibility and liability for curing Defective Work and performing warranty work, which the Contractor shall cure and perform,**

regardless of any claim the Contractor may choose to advance against the Owner, the Principal Architect/Engineer or Manufacturer.

- .6** Notwithstanding the foregoing, it is agreed and understood that the Contract Amount shall not be adjusted as a result of the Contractor's use of the cost of any possible substitute or "approved equal" items in calculating its Bid/Proposal price.

6.02.6 Contractor agrees to assign and hereby assigns to Owner any rights it may have to bring antitrust suits against its Manufacturers or Suppliers for overcharges on materials incorporated in the Project growing out of illegal price fixing agreements. Contractor further agrees to cooperate with Owner should Owner wish to prosecute suits against Manufacturers or Suppliers for illegal price fixing.

6.03 Project Schedule Requirements: Unless otherwise provided in Division 01, Contractor shall adhere to the Owner's Project Schedule as provided by the Owner, which shall be further developed by the Contractor to become first the Contractor's Preliminary Project Schedule and then, upon acceptance by the Owner, become the Master Project Schedule, as it may be adjusted from time to time as provided below:

6.03.1 Preliminary Project Schedule: Within thirty (30) days from the issuance of a Notice To Proceed by the Owner, the Contractor shall submit to the Owner's Representative a Preliminary Project Schedule to be used as the Contractor's baseline schedule for the Project. This Preliminary Project Schedule shall be initially based on and shall include and be consistent with all of the Milestones contained in Division 01, Work Covered By Contract Documents Specification, and shall be presented in a form reasonably acceptable to the Owner. The Preliminary Project Schedule shall be a Critical Path Method (CPM) schedule depicting all significant activities which will occur on the Project; the durations for all major items of Work to be performed; the start and finish dates of such activities; the Contract Time Requirements as set out in the Contract Documents; and the precedence logic of such activities. The Contractor's Preliminary Project Schedule shall include, at a minimum:

- .1** Duration and milestone dates for all equipment, materials delivery, and operations efforts that may affect the timely completion of the Project.
- .2** Duration and milestone dates for each anticipated construction activity.
- .3** Pre-purchase of materials and equipment with a "long lead" time.
- .4** Permitting and regulatory milestones.
- .5** Dates associated with the activities leading to delivery milestones from others including for offsite roadways and utilities.

6.03.2 The Contractor shall coordinate the Preliminary Project Schedule with the Contractor's Submittal Schedules for Shop Drawings and Samples as required by Division 01 of the Project Manual. The Contractor's Submittal Schedule must provide an adequate duration for reviewing and processing the required Submittals acceptable to Owner and the Principal Architect/Engineer.

6.03.3 The Contractor shall provide Owner with an electronic version (by disk or CD) of the Preliminary Project Schedule and of each subsequent Master

Project Schedule, including all subsequent electronic schedule revisions and updates, created without password protection, in latest version of Microsoft Project (.MPT, .MPX or .MPD suffix) or a format approved by Owner. Failure to furnish Owner, Owner's Representative, and Principal Architect/Engineer with a revised Project Schedule in one of the above formats within ten (10) days of receipt of a written request shall constitute a breach of the Contract by Contractor, and shall be considered to be adequate cause for termination of the Contractor by Owner.

6.03.4 Master Project Schedule: Once the Contractor's Preliminary Project Schedule has been accepted by Owner, it shall become the Master Project Schedule (Baseline Schedule) for the Project. The Contractor shall update the Master Project Schedule monthly or more often by the submission of a revised Master Project Schedule or when circumstances develop which make it beneficial to the Project, or as may be required by Owner. Once the most recently revised Master Project Schedule has been accepted by Owner, the Master Project Schedule shall be considered to have been updated. The updated Master Project Schedule shall then be distributed by the Contractor to Owner's staff, the Principal Architect/Engineer, each consultant, and other appropriate parties. The Master Project Schedule shall be reviewed at the monthly team meeting at a summary level, including for a three month look-ahead and anticipated Project completion.

6.03.5 Changes to the Master Project Schedule: A copy of the accepted Master Schedule shall be maintained unaltered. The Contractor shall thereafter submit to Owner's Representative an updated Project Schedule each month with its Application for Payment, to reflect actual progress that has been made and to forecast future progress of the Work. The monthly Project Schedule update shall be based upon the accepted Master Project Schedule. Contractor shall submit to Owner's Representative for review and acceptance by Owner any proposed changes or adjustments in its monthly Project Schedule that modify either the Master Project Schedule or the previous month's approved Project Schedule. Any such proposed adjustments must be substantiated with a written narrative containing an explanation of any changes to the underlying logic of the subject schedule. Contractor's proposed changes to the schedule must show how the Contractor will consistently advance the progress of the Work in accordance with the Critical Path of the Work and the Contract Time Requirements, including all required contractual Milestones. Such adjustments will conform generally to the Master or monthly Project Schedule then in effect and additionally will comply with any provisions of Division 01 applicable thereto.

6.03.6 Proposed adjustments indicated by the Project Schedule that will change the Contract Time Requirements, including Milestones, shall be submitted in accordance with the requirements of Article 12. Any such proposed adjustments must be substantiated with documentation of any changes to the underlying logic of the Master Project Schedule. Such adjustments may only be made by a Change Order or Change Directive in accordance with Article 12.

6.03.7 Contractor shall keep a current schedule of submittals that coordinates with the Master Project Schedule, and shall submit the initial schedule of

submittals to Owner's Representative for acceptance along with the Preliminary Project Schedule.

6.04 Concerning Subcontractors, Suppliers and Others:

6.04.1 Assignment: Contractor shall retain direct control of and give direct attention to the fulfillment of this Contract. Contractor shall not assign, transfer, or convey this Contract or any portion thereof, or any right, title or interest in, to or under same, or any causes of action or claims for damages arising under this Contract or any breach thereof, without the prior written consent of Owner. In addition, without Owner's written consent, the Contractor will not subcontract the performance of the entire Work or the supervision and direction of the Work.

6.04.2 Award of Subcontracts for Portions of the Work: Contractor shall not employ any Subcontractor, Supplier or other person or organization, whether initially or as a substitute, against whom Owner may have reasonable objection. Owner will communicate such objections by Written Notice. If Owner requires a change without good cause of any Subcontractor, person or organization previously accepted by Owner, the Contract Amount shall be increased or decreased by the difference in the cost caused by any such change, and an appropriate Change Order shall be issued. Contractor shall not substitute any Subcontractor, person or organization that has been accepted by Owner, unless the substitute has been accepted in writing by Owner. No acceptance by Owner of any Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of Owner to reject Defective Work. Contractor shall comply with the applicable requirements set forth in the Bid/Proposal Documents and Contract Documents with respect to Subcontractors and the subcontracting process.

6.04.3 Contractor shall enter into written agreements with all Subcontractors and Suppliers which specifically bind the Subcontractors, Manufacturers and Suppliers to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Principal Architect/Engineer. The Owner reserves the right to specify that certain requirements shall be adhered to by all Subcontractors, Manufacturers and Suppliers as indicated in other portions of the Contract Documents and these requirements shall be made a part of the agreements between Contractor and Subcontractors, Manufacturers and Suppliers.

6.04.4 Contractor shall be fully responsible to Owner for all acts and omissions of the Subcontractors, Manufacturers, or Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with Contractor just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Manufacturer, or Supplier or other person or organization any contractual relationship between Owner and any such Subcontractor, Supplier, Manufacturer or other person or organization, nor shall it create any obligation on the part of Owner or Principal Architect/Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Manufacturer, or Supplier or other

person or organization except as may otherwise be required by laws and regulations.

- 6.04.5** Contractor shall be solely responsible for efficiently scheduling and coordinating the Work of Subcontractors, Manufacturers, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with Contractor in order to avoid any Delays or inefficiencies in the prosecution of the Work. Contractor shall require all Subcontractors, Manufacturers, Suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with Owner's Representative through Contractor.
- 6.04.6** The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing or delineating the Work to be performed by any specific trade.
- 6.04.7** Contractor shall pay each Subcontractor, Manufacturer and Supplier their appropriate share of payments made to Contractor not later than ten (10) Calendar Days from Contractor's receipt of payment from Owner.
- 6.04.8** To the extent allowed by Texas law, the Owner shall be deemed to be a third party beneficiary to each subcontract and may, if Owner elects, following a termination of the Contractor, require that the Subcontractor(s) perform all or a portion of unperformed duties and obligations under its subcontract(s) for the benefit of the Owner, rather than the Contractor; however, if the Owner requires any such performance by a Subcontractor for the Owner's direct benefit, then the Owner shall be bound and obligated to pay such Subcontractor the reasonable value for all Work performed by such Subcontractor to the date of the termination of the Contractor, less previous payments to Contractor for such Subcontractor's work, and for all Work performed by Subcontractor thereafter. In the event that the Owner elects to invoke its right under this section, Owner will provide written notice of such election to the terminated Contractor and the affected Subcontractor(s).

6.05 Patent Fees and Royalties:

- 6.05.1** Contractor shall be responsible at all times for compliance with applicable patents or copyrights encompassing, in whole or in part, any design, device, material, or process utilized, directly or indirectly, in the performance of the Work or the formulation or presentation of its Bid/Proposal.
- 6.05.2** Contractor shall pay all royalties and license fees and shall provide, prior to commencement of Work hereunder and at all times during the performance of same, for lawful use of any design, device, material or process covered by letters patent or copyright, suitable legal agreement with the patentee, copyright holder, or their duly authorized representative, whether or not a particular design, device, material, or process is specified by Owner.
- 6.05.3** Contractor shall defend Owner in all suits or claims for infringement of any patent or copyright and shall indemnify and save Owner harmless from any loss or liability, direct or indirect, arising with respect to Contractor's process in the formulation of its Bid/Proposal or the performance of the

Work or otherwise arising in connection therewith, with the exception that the Contractor will not be responsible to defend or indemnify the Owner for such loss or liability when a particular design, process or product of a particular Manufacturer or Manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Principal Architect/Engineer, unless Contractor knew or reasonably should have known of the patent or copyright violation and failed to notify Owner of same. Owner reserves the right to provide its own defense to any suit or claim of infringement of any patent or copyright in which event Contractor shall, to the extent provided in this Subsection, indemnify and save harmless Owner from all costs and expenses of such defense as well as satisfaction of all judgments entered against Owner.

6.05.4 Owner shall have the right to stop the Work and/or terminate this Contract at any time in the event Owner discovers that Contractor's work methodology includes the use of any infringing design, device, material or process.

6.06 Permits, Fees: Contractor shall obtain and pay for all construction permits, licenses and fees required for prosecution of the Work. However, Owner or Owner's Representative will obtain and pay for the following permits, licenses and/or fees:

- .1 Site Development Permit; and
- .2 Initial Corp of Engineer Permits (404, Letter of Permission only, if applicable).

6.07 Laws and Regulations:

6.07.1 Contractor shall give all notices and comply with all Legal Requirements applicable to furnishing and performing the Work, including arranging for and obtaining any required inspections, tests, approvals or certifications from any governmental entity or public body having jurisdiction over the Work or any part thereof. Except where otherwise expressly required by applicable laws and regulations, neither Owner, Owner's Representative, nor Principal Architect/Engineer shall be responsible for monitoring Contractor's compliance with any Legal Requirements.

6.07.2 Maintaining clean water, air and earth or improving thereon shall be regarded as of prime importance. Contractor shall plan and execute its operations in compliance with all applicable Legal Requirements concerning control and abatement of water pollution and prevention and control of air pollution.

6.07.3 If Contractor performs any Work knowing or having reason to know that it is contrary to applicable Legal Requirements, Contractor shall bear all claims, costs, losses and damages arising therefrom; however, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with all Legal Requirements, but this does not relieve Contractor of the Contractor's obligations under the terms of the Contract.

- 6.07.4** This Work is subject to the Texas Pollution Discharge Elimination System (TPDES) permitting requirements for the installation and maintenance of temporary and permanent erosion and sediment controls and storm water pollution prevention measures throughout the construction period.

Contractor's responsibilities are as follows.

- .01** Contractor must prepare a Storm Water Pollution Prevention Plan (SWPPP), or make modifications if SWPPP is already completed and as required, prior to filing the NOI form.
- .02** Contractor must file a Notice of Intent (NOI) form with the TCEQ at least two (2) days prior to start of construction activity and pay for the permit. The required NOI form is available from the Internet at <https://www.tceq.texas.gov/assets/public/permitting/waterquality/forms/20022.pdf>.
The form shall be mailed or submitted online to the TCEQ. If submitting online, the web address is <https://www3.tceq.texas.gov/steers/>. If Contractor has not already registered to use the TCEQ online application submittal service, it will take up to ten (10) working days to receive a user name and password. Contractor shall take this timeframe into consideration if applying online. A Time Extension shall not be granted for this timeframe. The mailing address is:

Texas Commission on Environmental Quality
Stormwater Processing Center (MC-228)
P.O. Box 13087
Austin, TX 78711-3087

For overnight mail: Stormwater Processing Center (MC-228)
12100 Park 35 Circle
Austin, TX 78753

- .03** Contractor must mail a copy of the completed Notice of Intent (NOI) form to the local Municipal Separate Storm Sewer Systems (MS4) representative.
- .04** Contractor must obtain a signed certification statement from all Subcontractors responsible for implementing the erosion and sediment control measures. This statement shall indicate that the Subcontractor understands the permit requirements. The certified statement forms shall be attached to and become part of the SWPPP.
- .05** Contractor must post a notice near the main entrance of the Work with the following information.
 - .1** The TPDES permit number for the Work or a copy of the NOI if a permit number has not yet been assigned,
 - .2** The name and telephone number of a local contact person,
 - .3** A brief description of the Work, and
 - .4** The location of the SWPPP if the Site is inactive or does not have an on-site location to store the plan.
 - .5** If posting this information near a main entrance is infeasible due to safety concerns, the notice must be posted in a local public building. If the Work is linear (pipeline, highway, etc.), the notice must be placed in a publicly accessible location near

where construction is actively underway and moved as necessary. For linear Work, multiple postings of the information may be required by Owner (e.g. postings at both ends of the Work).

- .06** Contractor must maintain all erosion and sediment control measures and other protective measures identified in the SWPPP in effective operating condition.
- .07** Contractor must retain weekly inspection reports and be available for audit by the Owner, the TCEQ or the EPA.
- .08** Contractor must perform inspections every seven (7) calendar days and after every ½ inch rainfall event, noting the following observations on an inspection form provided by Owner:
 - .1** Locations of discharges of sediment or other pollutants from the Site.
 - .2** Locations of storm water / erosion / sedimentation controls that are in need of maintenance.
 - .3** Locations of storm water / erosion / sedimentation controls that are not performing, failing to operate, or are inadequate.
 - .4** Locations where additional storm water / erosion / sedimentation controls are needed.
- .09** Contractor must maintain at Work Site at all times a copy of the SWPPP (with all updates, as described below) and inspection reports.
- .10** Contractor must update the SWPPP as necessary to comply with TPDES permitting requirements, which includes noting changes in erosion / sedimentation controls and other best management practices that are part of the SWPPP and which may be necessary due to the results of inspection reports.
- .11** Contractor must file a Notice of Termination with the TCEQ within thirty (30) days of final stabilization on all portions of the Work Site. Form is available from Owner or on the Internet at:
<https://www.tceq.texas.gov/assets/public/permitting/waterquality/forms/10443.docx>.
The notice shall be mailed to:
Texas Commission on Environmental Quality
Storm Water & General Permits Team;
- .12** Upon completion of the Work, the Contractor must provide copies of all TPDES records to Owner.

6.07.6 Contractor shall abide by all Legal Requirements including, but not limited to, the Endangered Species Act.

6.07.7 Contractor warrants and represents that: (i) Contractor does not have any contracts with and does not provide supplies or services to any organization designated as a foreign terrorist organization by the United States secretary of state as authorized by 8 U.S.C. Section 1189 (a "Foreign Terrorist Organization"); or (ii) the United States government has affirmatively declared Contractor to be excluded from its federal sanctions regime relating to Sudan, its federal sanctions regime relating to Iran, or any federal sanctions regime relating to a Foreign Terrorist Organization.

6.08 Taxes:

- 6.08.1** Contractor shall pay only those sales, consumer, use and other similar taxes required to be paid by Contractor in accordance with the laws and regulations of the State of Texas in the performance of this public works contract.
- 6.08.2** Owner is an exempt organization as defined by Chapter 11 of the Property Tax Code of Texas and is thereby exempt from payment of Sales Tax under Chapter 151, Limited Use Sales, Excise and Use Tax, Texas Tax Code, and Article 1066 (C), Local Sales and Use Tax Act, Revised Civil Statutes of Texas.
- 6.08.3** In addition, if the Project is construction of a water or wastewater system certified by the Texas Commission on Environmental Quality as a regional system, equipment, services and supplies used solely to construct the Project are exempted from taxes imposed by Chapter 151, Limited Sales, Excise and Use Tax, Texas Tax Code.

6.09 Use of Premises:

- 6.09.1** Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by laws and regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. Contractor assumes 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. Should any claim be made by any such owner or occupant because of or in connection with 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. Any such settlement shall not include any admission of liability on the part of Owner and shall be subject to Owner's approval, which approval shall not be unreasonably withheld.
- 6.09.2** Contractor shall defend, indemnify and hold harmless the Owner, the Owner's Representative, the Principal Architect/Engineer, Principal Architect/Engineer's Consultants and anyone directly or indirectly employed by any of them from and against all claims, costs, losses and damages (including court costs and reasonable attorneys' fees) arising out of or resulting from any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Owner's Representative, Principal Architect/Engineer or any other party indemnified hereunder arising out of the Work except to the extent such claims, costs, losses or damages are caused by negligence or fault, breach or violation of a statute, ordinance, governmental regulation, standard or rule or breach of contract of the Owner, the Owner's Representative, the Principal Architect/Engineer, Principal Architect/Engineer's Consultants or any third party under the control or supervision of them other than Contractor or its agent or employee or Subcontractors of any tier.
- 6.09.3** During the progress of the Work and on a daily basis, Contractor shall keep the premises free from any accumulations of waste materials, rubbish and

other debris resulting from the Work. Contractor shall provide such personnel, waste containers and or equipment necessary to maintain an orderly, clean and safe work site. Contractor shall keep all streets, access streets, driveways, and areas of public access, walkways, and other designated areas clean and open at all times. At the completion of the Work, Contractor shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials. Contractor shall have the Site clean and ready for occupancy by Owner at Substantial Completion of the Work. Contractor shall, at a minimum, restore to original condition all property not designated for alteration by the Contract Documents. If the Contractor fails to clean up or restore at the completion of the Work, Owner may do so and the cost thereof will be charged against the Contractor.

6.09.4 Contractor shall not load or 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.

6.10 Record Documents: Contractor shall maintain in a safe place at the Site, or other location acceptable to Owner, one (1) record copy of all red line Record Drawings, Specifications, Addenda, Change Orders, Change Directives, Field Orders and written interpretations and clarifications in good order and annotated to show all changes made during construction. These record documents together with all final samples and all final Shop Drawings and submittals will be available to Owner, Owner Representative, and Principal Architect/Engineer for reference during performance of the Work. Upon Substantial Completion of the Work, these record documents, samples, Shop Drawings and submittals shall become the property of the Owner and shall be neatly labeled and organized per the Owner's direction and promptly delivered in containers acceptable to the Owner, to Owner's Representative. Record drawings must also include an electronic format that is either ".dwg" or ".dxf".

6.11 Safety and Protection:

6.11.01 Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Prior to commencement of the Work, Contractor shall submit a site security plan for approval by Owner. By reviewing the plan or making recommendations or comments, Owner will not assume liability nor will Contractor be relieved of liability for damage, injury or loss. 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 Work 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, but not limited to, trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Improvements not designated for removal, relocation or replacement in the course of construction.

6.11.02 The Contractor will provide a Safety Manager for this Project. The Safety Manager will be responsible for the safety of the entire Work and the prevention of accidents in connection with the Work. The Safety Manager shall be competent and qualified to perform his/her duties, including but not limited to having received all appropriate Occupational Safety and Health Act of 1970, as amended ("OSHA") and other safety training, and experienced in managing safety programs on construction projects comparable in scope and complexity.

6.11.03 Specific Duties of the Contractor's Safety Manager: This person will ensure compliance with all provisions of the Contract Documents, OSHA, other governmental agencies, industry safety requirements and standards. The Contractor Safety Manager will prepare and enforce a site-specific safety plan for the Work.

.1 Additional duties of the Contractor's Safety Manager shall include the following:

- (a)** Be responsible for safety over-sight of the entire Work.
- (b)** Review and direct immediate action to correct all substandard safety conditions.
- (c)** Be responsible for providing any necessary additional safety personnel with support in carrying out the duties and responsibilities of that position.
- (d)** Conduct regular supervisory safety meetings, including the discussion of observed unsafe work practices or conditions, a review of accidents experienced and corrective actions, and encouragement of safety suggestions from employees.
- (e)** Investigate all accidents and implement immediate corrective action.
- (f)** Cooperate with the insurance carrier(s) and Owner's safety personnel.
- (g)** Provide timely reports in writing of any observed unsafe conditions or practices, or violations of job security regarding safety issues and take corrective actions.
- (h)** Report all injuries and accidents in a timely manner to the Contractor and safety personnel in accordance with Contract Documents, federal, state and local laws and regulations.
- (j)** Ensure that the necessary competent safety persons are on Site as required in the Contract.
- (k)** Comply with insurance carriers requirements in all accident investigation and reporting procedures.
- (m)** Coordinate safety activities with insurance carriers, and take necessary steps to promptly implement safety recommendations or directives issued thereby.
- (n)** Be responsible for the availability and proper use of all necessary safety equipment including personal protective equipment and apparel for the employees.

- (p)** Ensure that adequate first-aid supplies are available at the Work Site and that personnel are qualified and identified to administer first-aid as required.
 - (r)** Be on the Site at all times while Work is in progress. If the Safety Manager has to leave the Site, the Contractor is required to provide an alternate competent and qualified Safety Manager.
- .2** The Contractor Safety Manager shall stop Work as necessary in the event of imminent danger or in situations where they deem necessary to protect a person from injury or prevent property damage.

6.11.04 Contractor shall comply with all applicable Legal Requirements, including but not limited to all laws and regulations of any governmental entity or public body having jurisdiction for safety of persons or property or to protect them 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 Improvements, and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by Contractor or any Subcontractor, Supplier or any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except to the extent of damage or loss attributable to errors or omissions in the Drawings or Specifications, or to the acts or omissions of Owner, the Owner's Representative, or the Principal Architect/Engineer, or Principal Architect/Engineer's Consultant or anyone employed by any of them or anyone for whose acts any of them may be liable other than Contractor or its agent, or employee, or Subcontractors of any tier). Contractor's duties and responsibilities for safety and protection of the Work shall continue until such time as all the Work is completed and Owner's Representative has issued a notice to Owner and Contractor in accordance with Article 14 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion). Without limitation, Contractor shall comply with the following specific provisions:

- .1** It shall be the duty and responsibility of Contractor and all of its Subcontractors to be familiar with and comply with 29 USC Section 651, et seq., the Occupational Safety and Health Act of 1970, as amended ("OSHA") and to enforce and comply with all provisions of this Act.
- .2** The Contractor and all of its Subcontractors shall comply with all applicable requirements of Subpart P of Part 1926 of 29 C.F.R, OSHA Safety and Health Standards, Texas Health and Safety Code Section 756.023, as amended, and shall submit a unit price for the particular excavation safety systems to be utilized by the Contractor for all excavations which exceed a depth of five feet (5').

6.11.05 Before commencing any excavation which will exceed a depth of five feet (5'), the Contractor shall prepare and employ detailed drawings and specifications regarding the safety systems to be utilized. Said plans and specifications shall include a certification from a registered Texas professional engineer indicating full compliance with the OSHA provisions cited above.

6.11.06 Hazard Communication Programs: 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 applicable laws and regulations.

6.11.07 Emergencies:

- .1** In emergencies affecting the safety or protection of persons or the Work at the Site or adjacent thereto, Contractor, without special instruction or authorization from Owner, Owner Representative, or Principal Architect/Engineer, is obligated to act reasonably to prevent threatened damage, injury or loss and to mitigate damage or loss to the Work. Contractor shall give Owner's Representative telephone notification as soon as reasonably practical and a prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If Owner determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Change Directive or Change Order will be issued to document the consequences of such action.
- .2** Authorized agents of Contractor shall respond immediately to call-out at any time of any day or night when circumstances warrant the presence on Project Site of Contractor or his agent to protect the Work or adjacent property from damage, injury or loss, or to take such action or measures pertaining to the Work as may be necessary to provide for the safety of the public. Should Contractor and/or its agent fail to respond and take action to alleviate such an emergency situation, Owner may direct other forces to take action as necessary to remedy the emergency condition, and Owner will deduct any cost of such remedial action from the funds due Contractor under this Contract, or Contractor shall reimburse Owner for same on demand.
- .3** In the event there is an accident involving injury to any individual or damage to any property on or near the Work, Contractor shall provide to Owner's Representative verbal notification within one (1) hour and written notification within twenty-four (24) hours of the event and shall be responsible for recording the location of the event and the circumstances surrounding the event through photographs, interviewing witnesses, obtaining medical reports, police accident reports and other documentation that describes the event. Copies of such documentation shall be provided to Owner's Representative, for Owner's and Principal Architect/Engineer's records, within forty-eight (48) hours of the event. Contractor shall cooperate with Owner on any Owner investigation of any such incident.

6.12 Continuing the Work: Contractor shall carry on the Work and adhere to the Project Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as Owner and Contractor may otherwise agree in writing.

6.13 Contractor's General Warranty and Guarantee:

6.13.1 Contractor warrants and guarantees to Owner that all Work will conform to the drawings and specifications, be performed in a good and workmanlike manner in accordance with the Contract Documents and will not be Defective and that the whole and entire Work will function and operate as expressed or required by the Contract Documents. This warranty will survive the termination or expiration of the Contract. 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 or Suppliers; or
- .2 normal wear and tear under normal usage.

6.13.2 Nothing in this warranty is intended to limit any Manufacturer's warranty which provides Owner with greater warranty rights than set forth in this Section or the Contract Documents. Further, nothing in this warranty shall be limited by the Contractor's obligation to cure defects within any specific corrective or warranty period as required in the Contract Documents, including Section 13.7 below.

6.13.3 Contractor's obligation to perform and complete the Work in a good and workmanlike manner 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 Owner's Representative, Owner's CMT Consultant, and/or Principal Architect/Engineer;
- .2 recommendation of any progress or final payment by Owner's Representative;
- .3 the issuance of a certificate of Substantial Completion or any payment by Owner to Contractor under the Contract Documents;
- .4 use or occupancy of the Work or any part thereof by Owner;
- .5 any acceptance by Owner or any failure to do so;
- .6 any review of a Shop Drawing or sample submittal;
- .7 any inspection, test or approval by others;
- .8 any correction of Defective Work by Owner; or
- .9 progress payments or final payment by Owner.

6.13.4 Except as otherwise agreed in writing by the Parties, partial occupancy or use of some or all of the Work or any part thereof shall not commence the corrective period under Section 13.7 below.

6.13.5 Independent from Contractor's warranty and corrective work obligations, Contractor shall be responsible for maintenance of the Work prior to Owner's occupancy or use of same, such that the Work shall be capable of being started-up and operated as designed without any additional

maintenance, or any repair or replacement of, or additional work or services on, the equipment, materials or systems.

6.13.6 Not used.

6.14 INDEMNIFICATION BY CONTRACTOR:

6.14.1 Contractor shall defend, indemnify and hold harmless (collectively, "Indemnify") Owner, the Owner's Representative, the Principal Architect/Engineer, Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees, agents and other Consultants (the "INDEMNIFIED PARTIES") from and against all claims, costs, losses, demands, injuries, liabilities, damages, causes of action and expenses (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court or other dispute resolution costs) arising out of or resulting from the Work, provided that any such claim, cost, loss, demand, injury, liability, damage or cause of action:

- .1** Is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and
- .2** Is caused in whole or in part by any negligent act or omission of Contractor, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, even if caused in part by any negligence or omission of one or more of the INDEMNIFIED PARTIES; save and except that Contractor's obligation to Indemnify shall not apply to the extent such claims, costs, losses, demands, injuries, liabilities, damages, causes of action or expenses are caused by negligence or fault, breach or violation of a statute, ordinance, governmental regulation, standard or rule or breach of contract of an Indemnified Party or any third party under the control or supervision of an Indemnified Party other than Contractor or its agent or employee or Subcontractors of any tier.

6.14.2 Notwithstanding Subsection 6.14.1, **CONTRACTOR AGREES TO AND SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS (COLLECTIVELY "INDEMNIFY") OWNER, THE OWNER'S REPRESENTATIVE, THE PRINCIPAL ARCHITECT/ENGINEER, PRINCIPAL ARCHITECT/ENGINEER'S CONSULTANTS AND SUBCONSULTANTS AND THEIR RESPECTIVE OFFICERS, DIRECTORS, PARTNERS, MEMBERS, EMPLOYEES, AGENTS AND OTHER CONSULTANTS (COLLECTIVELY THE "INDEMNIFIED PARTIES" OR INDIVIDUALLY AN "INDEMNIFIED PARTY") FROM AND AGAINST ANY AND ALL CLAIMS, COSTS, LOSSES, DEMANDS, INJURIES, LIABILITIES, DAMAGES, AND CAUSES OF ACTION, INCLUDING BUT NOT LIMITED TO ALL EXPENSES OF LITIGATION, COURT COSTS AND ATTORNEYS' FEES (COLLECTIVELY, IN THIS SUBSECTION 6.14.2, "EMPLOYEE CLAIMS"), FOR BODILY INJURY OR DEATH OF ANY EMPLOYEE OF CONTRACTOR, ITS AGENTS, OR ITS SUBCONTRACTORS OF ANY TIER**

(COLLECTIVELY "EMPLOYEE" FOR THE PURPOSE OF THIS SECTION 6.14.2), ACTUALLY OR ALLEGEDLY OCCASIONED BY, CONTRIBUTED TO OR ARISING OUT OF, IN WHOLE OR IN PART, THE WORK OR THIS CONTRACT, INCLUDING BUT NOT LIMITED TO CLAIMS DUE TO NEGLIGENCE, GROSS NEGLIGENCE, BREACH OF WARRANTY, BREACH OF CONTRACT, VIOLATION OF ANY STATUTE, RULE OR REGULATION OR OTHER ACT OR OMISSION BY CONTRACTOR, ITS EMPLOYEES, AGENTS OR ANY SUBCONTRACTOR OF CONTRACTOR OF ANY TIER, OR THEIR RESPECTIVE AGENTS OR EMPLOYEES, OR ANY OTHER PARTY FOR WHOSE ACTS CONTRACTOR IS LIABLE. CONTRACTOR'S OBLIGATION TO INDEMNIFY SHALL APPLY EVEN IF SUCH EMPLOYEE CLAIMS ARE ACTUALLY OR ALLEGEDLY CAUSED IN WHOLE OR IN PART BY THE ACTS, OMISSIONS, OR NEGLIGENCE OF AN INDEMNIFIED PARTY, EVEN IF SUCH NEGLIGENCE OR OTHER ACTS OR OMISSIONS ARE ACTIVE OR PASSIVE, DIRECT OR INDIRECT, SOLE OR CONCURRENT. THIS INDEMNITY AGREEMENT IS INTENDED TO INDEMNIFY THE INDEMNIFIED PARTIES FROM THE CONSEQUENCES OF THEIR OWN NEGLIGENCE, AS PROVIDED ABOVE.

- 6.14.3** The indemnification obligation under Section 6.14.1 and 6.14.2 shall not be limited in any way by any insurance required by or provided in connection with this Contract or otherwise, or by any limitation on the amount or type of damages, or compensation or benefits payable by or for Contractor or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.
- 6.14.4** Notwithstanding anything in Section 6.14.1 or 6.14.2 to the contrary, the obligations of Contractor under Section 6.14.1 and 6.14.2 shall not extend to the liability of a registered architect, a licensed engineer, or an agent, servant or employee of a registered architect or a licensed engineer, for damage that is caused by or results from defects in plans, designs or specifications prepared, approved or used by the architect or engineer, or negligence of the architect or engineer in the rendition or conduct of professional duties called for or arising out of the construction contract and the plans, designs or specifications that are a part of the construction contract; and arises from personal injury or death, property injury, or any other expense that arises from personal injury, death, or property injury.
- 6.14.5** In the event Contractor fails to follow Owner's directives concerning use of the Site, scheduling or course of construction, or engages in other conduct which results in damage to property based on inverse condemnation or otherwise, then and in that event, Contractor shall indemnify Owner against all costs and claims resulting therefrom except to the extent such costs or claims are caused by negligence or fault, breach or violation of a statute, ordinance, governmental regulation, standard or rule or breach of contract of Owner or any third party under the control or supervision of Owner other than Contractor or its agent or employee or Subcontractors of any tier.
- 6.14.6** Subject to the limitation as set out in Section 6.14.4, in the event Contractor's negligence or breach of contract results in Delay in the progress of the Work or the performance of services being done by others

on the Site or otherwise with regard to the Project (including Owner's separate contractors, design professionals, and consultants) so as to result in loss for which Owner becomes liable to such others, then Contractor shall indemnify Owner from and reimburse Owner for such loss, except to the extent such loss is caused by negligence or fault, breach or violation of a statute, ordinance, governmental regulation, standard or rule or breach of contract of Owner or any third party under the control or supervision of Owner other than Contractor or its agent or employee or Subcontractors of any tier.

6.15 Not used.

6.16 Not used.

6.17 Notice of Claim: Should Contractor suffer injury or damage to person or property because of any error, omission or act of Owner or of any of Owner's employees or agents or others for whose acts Owner is liable, a Claim must be made to Owner within five (5) calendar days of the event giving rise to such injury or damage. The provisions of this Section 6.17 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or statute of repose.

6.18 Liquidated Damages or Economic Disincentives: Contractor and its Surety shall be liable for liquidated damages or economic disincentives as provided in the Contract for the failure of the Contractor to timely complete the Work within the Contract Time Requirements.

6.19 Commissioning: The Contractor will be responsible to provide all of the required commissioning of the mechanical, electrical, instrumentation, and proprietary equipment and systems for the Project. This is the process of verification, preliminary testing, starting up and functional operations testing of all such equipment and systems which are part of the Project. The term "commissioning" shall specifically include the drafting, review and verification of all test plans and test reports for all equipment and systems which are part of the Project. The verification, testing, start-up and commissioning of the mechanical, electrical, instrumentation, and proprietary equipment and systems for the Project can be performed by the Contractor's personnel or it can be part of a subcontract work package with the Contractor managing and supervising that Scope of Work.

6.19.1 At least ninety (90) days prior to the planned dates for the initiation of the preliminary testing of any mechanical, electrical, instrumentation, and proprietary equipment and systems for the Project, or within a time-frame agreed upon at the Pre-Construction Meeting, the Contractor shall prepare and submit an overall Project Testing and Commissioning Program for Owner, Owner's Representative, and Principal Architect/Engineers' review and approval.

6.19.2 Project Testing and Commissioning Program: The Project Testing and Commissioning Program shall cover all aspects of the Project and shall contain as a minimum, all of the following information:

.1 Equipment Test Plans: An individual Equipment Test Plan configured for each piece of mechanical, electrical, instrumentation, and

proprietary equipment and items on the entire Project that identifies how each piece of such equipment or item is to be verified, tested and commissioned including what functional elements must be demonstrated and precisely how those functional elements will be demonstrated to be operational to the Owner, Owner's Representative, and the Principal Architects/Engineers.

6.20 Shop Drawings & Submittals: The Contractor shall be required to provide submittals, samples and Shop Drawings to the Owner's Representative for transmittal to the Principal Architect/Engineer for approval in accordance with the Schedule of Submittals and section 01 33 00 of Division 01 Submittals.

6.20.1 Each submittal shall be identified in a format and in quantities as may be required by the Owner and section 01 33 00 of Division 01 Submittals. Contractor shall utilize Owner's standard forms unless otherwise approved in writing by the Owner.

6.20.2 Where a Shop Drawing or sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Principal Architect/Engineer's review and approval of the pertinent submittal will be at the sole risk and expense of Contractor.

6.20.3 Before submitting each Shop Drawing or sample, Contractor shall have:

- .1** reviewed and coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents;
- .2** determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
- .3** 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
- .4** 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.

6.20.4 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 preparation, review and approval of that submittal.

6.20.5 With each submittal, Contractor shall give Principal Architect / 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 Principal Architect / Engineer for review and approval of each such variation.

- 6.20.6** Principal Architect/Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Principal Architect/Engineer. Engineer's review and approval will be only to evaluate whether the items covered by the submittals appear that they 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.
- 6.20.7** Principal Architect/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.
- 6.20.8** Principal Architect/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 Section 6.20.5 and Principal Architect/Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or sample. Principal Architect / Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Section 6.20.3.
- 6.20.9** Contractor shall make corrections required by Principal Architect / 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 Principal Architect/Engineer on previous submittals.
- 6.21 Operation & Maintenance Manuals:** The Contractor shall be required to provide Operations & Maintenance Manuals for all mechanical, electrical, instrumentation, and proprietary equipment and items being installed as part of the Work. The Contractor must compile all specified instructions, maintenance manuals and operating data as defined under this section and in the Specifications. The compilation and assembly of the Operations & Maintenance Manuals for the Work can be performed by the Contractor's personnel or it can be part of a subcontract work package with the Contractor managing and supervising that Scope of Work. The Contractor shall strictly adhere to all of the requirements for the assembly, formatting and printing of the O&M Manuals as more thoroughly defined in the Contract Documents.
- 6.22 Training of Owner's Personnel:** The Contractor shall be required to provide training of the Owner's designated personnel for all mechanical, electrical, instrumentation, and proprietary equipment and items being installed on the Project. The Contractor must provide this training as defined under this section, Division 01 and the Specifications. The training of the Owner's designated personnel for all mechanical, electrical, instrumentation, and proprietary equipment and items being installed on the Project can be performed by the Contractor's personnel or it can be part of a subcontract work package with the Contractor managing and supervising that Scope of Work.

ARTICLE 7 - OTHER WORK

- 7.1** Owner may perform other work related to the Project at the Site by Owner's own forces, or let other contracts for the other work, or have other work performed by utility owners. Contractor and Owner agree to and shall use best efforts to cooperate and coordinate the Work with others performing work and other work related to the Project in order to avoid conflicts and Delays in the Work.
- 7.2** Contractor shall afford Owner's Independent Contractors and each utility owner (and Owner, if Owner is performing the additional work with Owner's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly connect and coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, Contractor shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the advance written consent of Owner's Representative and the other contractors whose work will be affected. Unless expressly so consented to by such parties, Contractor shall promptly remedy damage caused by Contractor to completed or partially completed construction or to property of the Owner or separate contractors.
- 7.3** If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Owner's Representative 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 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.
- 7.4** Owner shall provide for coordination of the activities of the Owner's own forces and of Owner's Independent Contractors with the Work of Contractor, who shall cooperate with them. Contractor shall participate with Owner's Independent Contractors and Owner's Representative in reviewing their construction schedules when directed to do so. On the basis of such review, Contractor shall make any revisions to the Project Schedule agreed upon as necessary after a joint review. The agreed upon construction sequences shall then constitute the Project Schedules to be used by Contractor, separate contractors and Owner until subsequently revised.
- 7.5** Contractor shall coordinate the activities of all Subcontractors. If Owner performs other work on the Project or at the Site with Owner's Independent Contractors, Contractor agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

- 8.1** Prior to the start of construction, Owner will designate in writing a person or entity to act as Owner's Representative during construction. The Owner shall retain the right

to communicate directly with the Contractor. However, except as otherwise provided in these General Conditions, the Owner shall issue communications to Contractor through the Owner's Representative. Owner's Representative will be responsible for providing Owner-supplied information and approvals. Owner's Representative will also endeavor to provide Contractor with prompt notice if it observes a failure on the part of the Contractor to fulfill its contractual obligations, including any errors, omissions or defects in the performance of the Work; however, failure of the Owner's Representative to provide Contractor with such notice shall not relieve Contractor of any of its responsibilities under the Contract Documents.

8.2 Owner and Owner's Representative 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. Owner and Owner's Representative are not responsible for any failure of Contractor to comply with Legal Requirements applicable to furnishing or performing the Work. Owner and Owner's Representative are not responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents. Failure or omission of Owner or Owner's Representative to discover, or object to or condemn any Defective Work or material shall not relieve Contractor from the obligation to properly and fully perform the Contract.

8.3 Owner and Owner's Representative are not responsible for the acts or omissions of Contractor, or of any Subcontractor, any Manufacturer or Supplier, or of any other person or organization performing or furnishing any of the Work. Contractor acknowledges and agrees that Owner's or Owner's Representative's direction to perform Work in accordance with the approved Master Project Schedule is not a demand for acceleration or a dictation of Contractor's means or methods.

8.4 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness. The Owner or Owner's Representative shall have a reasonable amount of time to investigate Site conditions, review submittals, analyze requests for changes, and to make other decisions in the orderly administration of the Contract. Contractor must notify the Owner and/or Owner's Representative in writing, if the time for the investigation, review, analysis of any submittals, required for changes or otherwise required for Owner's decision, impacts in any way the Critical Path of the approved Master Project Schedule.

8.5 Furnishing of Services and Information

8.5.1 Owner may provide, at its own cost and expense, for Contractor's information and use, any of the following, all of which are not binding on Owner, are not Contract Documents, are not warranted or represented in any manner to accurately show the conditions at the Site of the Work, and shall not be the basis for any Claim for damages, additional compensation or extension of time should the actual conditions in the course of the Work vary or differ from conditions or information contained in or inferable from them:

- .1** Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

- .2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;
- .3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the Project and enable Contractor to perform the Work;
- .4 A legal description of the Site;
- .5 As-built and record drawings of any existing structures at the Site; and
- .6 Environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, known by the Owner to be in existence at the Site.

ARTICLE 9 – PRINCIPAL ARCHITECT/ENGINEER'S STATUS DURING CONSTRUCTION

9.1 Principal Architect/Engineer's Authority and Responsibilities:

- 9.1.1** The duties and responsibilities and the limitations of authority of Principal Architect/Engineer during construction, as set forth in the Contract Documents, may be assigned or assumed by the Owner, but shall not be extended without written consent of Owner and/or Principal Architect/Engineer. The assignment of any authority, duties or responsibilities to Principal Architect/Engineer under the Contract Documents, or under any agreement between Owner and Principal Architect/Engineer, or any undertaking, exercise or performance thereof by Principal Architect/Engineer, is intended to be for the sole and exclusive benefit of Owner and not for the benefit of Contractor, Subcontractor, Supplier, or any other person or organization, or for any surety or employee or agent of any of them.
- 9.1.2** Principal Architect/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. Principal Architect/Engineer is not responsible for any failure of Contractor to comply with Legal Requirements applicable to the furnishing or performing the Work. Principal Architect/Engineer is not responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents. Failure or omission of Principal Architect/Engineer to discover, or object to or condemn any Defective Work or material shall not relieve Contractor from the obligation to properly and fully perform the Contract.
- 9.1.3** Principal Architect/Engineer is not responsible for the acts or omissions of Contractor, or of any Subcontractor, any Manufacturer or Supplier, or of any other person or organization performing or furnishing any of the Work.
- 9.1.4** If Owner and Principal Architect/Engineer agree, Principal Architect/Engineer will review the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds and certificates of inspection, tests and approvals and other documentation required to be delivered by Article 14, but only to determine generally that their content appears to

comply 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.

9.1.5 The limitations upon authority and responsibility set forth in this Section 9.1 shall also apply to Principal Architect/Engineer's Consultants, Resident Project Representative and assistants.

9.2 Visits to Site: If Owner and Principal Architect/Engineer agree, Principal Architect/Engineer will make visits to the Site at intervals appropriate to the various stages of construction as requested by the Owner or the Owner's Representative and as Principal Architect/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, Principal Architect/Engineer will endeavor for the benefit of Owner to determine, in general, if the Work is proceeding in accordance with the Contract Documents. Principal Architect/Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. Principal Architect/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 on-site observations, Principal Architect/Engineer will keep Owner and Owner's Representative informed of the progress of the Work and will endeavor to guard Owner against Defective Work. Principal Architect/Engineer's visits and on-site observations are subject to all the limitations on Principal Architect/Engineer's authority and responsibility set forth in Section 9.1 above.

9.3 Resident Project Representative: If Owner and Principal Architect/Engineer agree, Principal Architect/Engineer may furnish a Resident Project Representative to assist Principal Architect/Engineer in providing more continuous observation of the Work. Owner may designate another representative or agent to represent Owner at the Site who is not a Principal Architect/Engineer, Principal Architect/Engineer's consultant, agent or employee.

9.4 Clarifications and Interpretations: Principal Architect/Engineer may determine that written clarifications or interpretations of the requirements of the Contract Documents (in the form of drawings or otherwise) are necessary. Such written clarifications or interpretations will be consistent with the intent of and reasonably inferable from the Contract Documents, will be issued by the Principal Architect/Engineer after consultation with the Owner, and the Contractor will comply with same. If Contractor believes that a written clarification or interpretation alters the Scope of Work and justifies an adjustment in the Contract Amount or the Contract Time Requirements, Contractor may make a Claim as provided in Article 11 or 12.

9.5 Rejecting Defective Work: Principal Architect/Engineer will recommend that Owner disapprove or reject Work which Principal Architect/Engineer believes fails to conform to a requirement of the Contract Documents or believes will not produce a completed Project that conforms to the Contract Documents, or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

- 9.6** The Principal Architect/Engineer shall not have the authority to issue changes in the field without the express written approval of the Owner.
- 9.7 Shop Drawings:** Refer to Division 01 for Principal Architect/Engineer's authority concerning Shop Drawings.

ARTICLE 10 - CHANGES IN THE WORK

10.1 Changes:

- 10.1.1** Without invalidating the Contract and without providing notice to any Surety, Owner may, at any time or from time to time, order additions, deletions or revisions in the Work. Such changes in the Work will be authorized by Change Order, Change Directive or Field Order. In the event that the Owner and the Contractor are unable to negotiate the terms of a Change Order for the performance of additional Work, the Owner may, at its election, perform such additional Work with its own forces or an Independent Contractor and such work will be considered "Other Work" in accordance with Article 7 or issue a Change Directive.
- 10.1.2** Changes in the Work shall be performed under applicable provisions of the Contract Documents, and Contractor shall proceed promptly, unless otherwise provided in the Change Order, Change Directive or Field Order. Contractor's proposals for changes in the Contract Amount and/or Contract Time Requirements shall be submitted within ten (10) Calendar Days as requested by the Owner, including estimated impacts to the approved Master Project Schedule if any. Owner will review each proposal and promptly respond to Contractor. After initial review of Contractor's proposal by Owner, Contractor shall provide any supporting data requested by Owner, including but not limited to any Subcontractor or Supplier proposal, within seven (7) Calendar Days, unless Owner grants an extension.
- 10.1.3** Contractor shall not be entitled to an increase in the Contract Amount or an extension of the Contract Time Requirements with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in Sections 3.3.1 and 3.3.2, except in the case of an emergency as provided in Section 6.11.15 or in the case of uncovering Work as provided in Section 13.4.
- 10.1.4** Except in the case of an emergency as provided in Section 6.11.15, a Change Order or Change Directive is required before Contractor commences any activities associated with a change in the Work which, in Contractor's opinion, will result in a change in the Contract Amount and/or Contract Time Requirements. Any Work performed prior to Contractor's receipt of a Change Order or Change Directive, will be at Contractor's sole risk and expense, including potential cost impacts and any Delay to the Critical Path of the Master Project Schedule.
- 10.1.5** Not used.
- 10.1.6** Contractor shall provide to the Owner's Representative's all Contractor documentation/records deemed necessary by Owner or Owner's Representative to evaluate the Contractor's Claim including, but not limited

to certified payroll, receipts, bills of lading, invoices, schedules, contractor daily reports, and equipment logs. Other documents, if any, shall be provided pursuant to the Contract Documents.

10.2 Change Orders:

10.2.1 Owner and Contractor shall execute appropriate written Change Orders covering:

- .1 a change in the Work, subject to limitations in Article 10 and elsewhere in the Contract;
- .2 the amount of the adjustment in the Contract Amount, if any; and
- .3 the extent of the adjustment in the Contract Time Requirements, if any.

10.2.2 An executed Change Order shall constitute a settlement of and represent the complete, equitable, and final amount of adjustment in the Contract Amount and/or Contract Time Requirements owed to Contractor or Owner as a result of the occurrence or event causing the change in the Work encompassed by the Change Order.

10.3 Change Directives:

10.3.1 Owner may, by written Change Directive, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Amount and Contract Time Requirements being adjusted as the Owner may deem necessary. A Change Directive may be used in the absence of complete and prompt agreement on the terms of a Change Order, or as otherwise may be deemed to be necessary by the Owner. Where practicable, any items or elements of changed Work that may be agreed upon, prior to the performance of Work under this Article, will be included in a separate Change Order.

10.3.2 If the Change Directive provides for an adjustment to the Contract Amount, the adjustment shall be based on one of the methods provided in Article 11.4.1.

10.3.3 A Change Directive signed by Contractor indicates the agreement of Contractor with the proposed basis of adjustment in the Contract Amount and Contract Time Requirements as described within that Change Directive. Such agreement shall be effective immediately and shall be recorded later by preparation and execution of an appropriate Change Order.

10.3.4 The Contractor is not obligated to execute a Change Directive, but that Change Directive still constitutes valid direction to the Contractor from the Owner. The refusal by the Contractor to accept the terms incorporated within a Change Directive does not invalidate the content of the Change Directive or undermine in any manner the Owner's right to provide the directive contained within that Change Directive. Upon receipt of a Change Directive, Contractor shall promptly proceed with the change in the Work involved, provided, prior to the commencement of any Work under this section, the Contractor must submit its proposed Work plan, anticipated schedule, and a list of its work force and equipment proposed to be used in

such Work for Owner's approval. Upon such approval, Contractor must promptly commence and make continuous progress in the Change Directive Work. The Owner reserves the right to withhold payment for low production or lack of progress.

- 10.3.5** The Owner will allow the Contractor to bill for all portions of a Change Directive for which the Work has been successfully completed, if and to the extent the Change Directive provides for an adjustment to the Contract Amount.

10.4 Field Order:

- 10.4.1** Owner may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Amount or the Contract Time Requirements and are compatible with the design concept of the completed Project as a functioning whole as intended by the Contract Documents. These minor variations shall be accomplished by written Field Order and shall be binding on Owner and on Contractor who shall perform the Work involved promptly. Contractor shall promptly acknowledge in writing the receipt of a Field Order.

- 10.4.2** If Contractor believes that a Field Order justifies an adjustment in the Contract Amount and/or Contract Time Requirements, Contractor shall make a prompt written request to Owner for a Change Order or Change Directive. Any request by Contractor for an adjustment in Contract Amount and/or Contract Time Requirements must be made in writing prior to the Contractor or the Contractor's Subcontractors beginning the Work covered by the Field Order.

10.5 Limitation on Damages for Delay:

- 10.5.1** Contractor shall receive no compensation or damages for Delays except when, and only to the extent that, Contractor demonstrates to the reasonable satisfaction of Owner that direct and unavoidable extra cost to Contractor is caused by: (a) Change Orders or Change Directives (not attributable to Contractor's failure to comply with the Contract Documents or other fault or negligence) that Delay the Work; or (b) specific orders given by Owner to stop or suspend Work (not attributable to Contractor's failure to comply with the Contract Documents or other fault or negligence) that Delay the Work; or (c) failure of Owner to:

- .1** provide permits or material, which is to be furnished by Owner, or
- .2** provide access to the Work,

and only to the extent that such circumstances continue after the Contractor furnishes Owner with written notice of such failure, such circumstances are not attributable to Contractor's failure to comply with the Contract Documents or other fault or negligence, and such failure causes Delay;
(a "Compensable Delay").

- 10.5.2** When extra compensation or damages are claimed for a Compensable Delay, Written Notice and support shall be delivered to the Owner as Provided in Section 12.1.1, and a written statement thereof shall be

presented by Contractor to Owner's Representative for Owner's Representative and Owner's review and consideration. Contractor's application for extra compensation or damages shall, however, be subject to review and approval by the Owner. In no event other than a Compensable Delay shall the Contractor be entitled to any compensation or recovery of any damages in connection with any Delays, including without limitation: consequential damages, lost opportunity costs, lost profits, unabsorbed home office overhead or other similar damages, and Contractor hereby expressly waives and releases any and all rights to claim or recover any such compensation or damages. The Owner's exercise of any of its rights or remedies under the Contract Documents (including without limitation ordering changes in the Work, or directing suspension, rescheduling, or correction of the Work), regardless of the extent or frequency of the Owner's exercise of such rights or remedies, shall not be construed as active interference in the Contractor's performance of the Work.

10.5.3 In the event of a Compensable Delay, Contractor's sole and exclusive remedy (other than as provided in Section 10.5.4) shall be recovery of Contractor's General Conditions Costs for the period of time during any Working Day that Contractor is prevented from performing Work on the Critical Path, and Contractor hereby expressly waives and releases any and all rights to claim or recover any other compensation or damages arising out of or related to a Compensable Delay. "General Conditions Costs" consist only of actual and direct costs necessarily incurred by the Contractor and which Contractor was unable to mitigate despite the exercise of reasonable diligence, for standby costs of facilities, machinery, and equipment on Site ("Standby Equipment Costs"), and "Jobsite Overhead" as defined below, calculated as follows:

- .1** Standby Equipment Costs will not be claimable, due or paid for periods when the facilities, machinery or equipment would have otherwise been idle. Claims for Standby Equipment Costs time are limited to no more than eight (8) hours per twenty-four (24) hour day, forty (40) hours per week, and one hundred seventy-six (176) hours per month. Standby Equipment Costs will be payable at 50 percent (50%) of the applicable Blue Book Rental Rates and calculated by dividing the monthly rate by one hundred seventy-six (176), multiplying the result by the number of standby hours, and multiplying that number by the regional adjustment factor and the rate adjustment factor contained in the Blue Book. Operating costs will not be claimable or payable.
- .2** Jobsite Overhead will be claimable and payable based on actual costs that the Contractor will be required to document. "Jobsite Overhead" is defined as the wages or salaries of the Contractor's on-Site administrative and supervisory personnel (when unable to perform other services for Contractor), and reasonable office expenses incurred at the Site office, and will not include any element of home office labor, employees or overhead expenses.

10.5.4 Except as otherwise provided in this Section 10.5, an extension of the Contract Time Requirements, to the extent permitted under Article 12, shall be the sole remedy of the Contractor for any claimed Delays, or loss, costs, expenses or damages incurred as a result of same.

- 10.5.5** This Section 10.5 is intended as a limitation on damages available to Contractor and as a defense in favor of Owner against damages not compensable in accordance with its terms, in both cases pursuant to Section 271.155 of Subchapter I of Chapter 271 of the Texas Local Government Code. Contractor and Owner agree that such limitation and defense shall apply even if Owner is found to have breached the Contract.

ARTICLE 11 - CHANGE OF CONTRACT AMOUNT

- 11.1** The Contract Amount is stated in the Contract and, including authorized adjustments, is the total amount payable by Owner to Contractor for performance of the Work in accordance with the Contract Documents.
- 11.2** Contractor agrees and acknowledges that, unless otherwise permitted by law, the original Contract Amount may not be increased by more than twenty-five percent (25%).
- 11.3** The Contract Amount shall only be changed by a Change Order or Change Directive. Any Claim by Contractor for an adjustment in the Contract Amount shall be made by Written Notice delivered to Owner promptly (but in no event later than fifteen (15) calendar days) after the start of the occurrence or event giving rise to the Claim and stating the general nature of the Claim. Notice of the amount of the Claim with supporting data shall be delivered within thirty (30) calendar days after Written Notice of Claim is delivered by Contractor, and shall represent that the adjustment claimed covers all known amounts to which Contractor is entitled as a result of said occurrence or event. If Owner and Contractor cannot otherwise agree, all Claims by Contractor for adjustment in the Contract Amount shall be determined as set out in Article 16.
- 11.4 Determination of Value of Change Order or Change Directive Work:**
- 11.4.1** The value of any Work covered by a Change Order or Change Directive for an adjustment in the Contract Amount will be determined by one of the following methods:
- .1** by application of unit prices contained in the Contract Documents or subsequently agreed upon to the quantities of the items involved.
 - .2** by a mutually agreed lump sum properly itemized and supported by sufficient substantiating data to permit evaluation.
 - .3** by a cost which has been determined in a manner agreed upon by the Parties and mutually acceptable fixed or percentage fee; or
 - .4** as provided in Subsection 11.5.
- 11.4.2** No cost will be included in the Change Order or Change Directive for the Contractor's time spent preparing the Change Order or responding to the Change Directive, nor will costs be included for the time to negotiate the Change Order or Change Directive costs for machinery, tools, or equipment as described in Subsection 11.5.3.
- 11.4.3** Before using the method described in Section 11.4.1.4, Owner and Contractor agree to attempt to negotiate a Change Order or Change Directive using the methods identified in Sections 11.4.1.1 through

11.4.1.3, as appropriate, to determine the adjustment in the Contract Amount.

11.5 Determination of Value of Change Order or Change Directive Work When No Agreement: If none of the methods defined in Sections 11.4.1.1, 11.4.1.2 or 11.4.1.3 can be agreed upon before a change in the Work is commenced which will result in an adjustment in the Contract Amount, then the change in the Work will be performed by Change Directive, and the appropriate adjustment determined using the Force Account method set forth below in Subsections 11.5.1 through 11.5.6. The "Cost of the Work" consists only of those items specified in Subsections 11.5.1 through 11.5.5, below.

11.5.1 For all personnel, Contractor or Subcontractors will be entitled to reimbursement for wages or salaries and employee benefit costs for extra Work performed using the employees' actual wages or salaries and a forty percent (40%) burden rate. No charge for additional superintendence will be permitted unless considered necessary and ordered by Owner;

11.5.2 Contractor will be entitled to the actual cost, including freight charges, of the materials used and installed on such Work. In case material invoices indicate a discount may be taken, the actual cost will be the invoice price minus the discount;

11.5.3 For machinery, trucks, power tools, or other similar equipment (the "equipment") agreed to be necessary by Owner and Contractor, Contractor will be entitled to reimbursement for actual rental costs;

11.5.4 Contractor will be entitled to the actual cost of Contractor's premiums for Bond(s) and insurance on the extra Work, based on invoices from Surety and insurance carriers. Contractor shall provide Owner's Representative or Owner with invoices from Surety and insurance carriers indicating such cost when requested by Owner's Representative or Owner;

11.5.5 Contractor will be entitled to reimbursement for actual, direct additional General Conditions Costs, but without duplication of any costs otherwise recoverable under this Subsection 11.5, reasonably and necessarily incurred by Contractor in the performance of the extra Work and which can be reasonably demonstrated to the Owner to be necessary to implement the changed Work; and

11.5.6 Contractor will be entitled to allowances for overhead and profit as stated below.

.1 The maximum allowance for overhead and profit on increases due to Change Orders and Change Directives:

	Overhead	Profit
To Contractor for change in the Work performed by Subcontractors:	10 percent	0 percent
To first tier Subcontractors for change in the Work performed by its Subcontractors:	10 percent	0 percent

To Contractor and Subcontractor for change in the Work performed by their respective firms: 10 percent 5 percent

- .2** For changes in the Work performed by Contractor and Subcontractors, allowance for overhead and profit will be applied to an amount equal to cost of all additions less cost of all deletions to the Work. Allowance for overhead to Contractor and first tier Subcontractors on changes performed by Sub-Subcontractors are applied to an amount equal to the sum of all increases to the Work by applicable Sub-Subcontractors, less any decreases in such Sub-subcontractors' Work.

11.5.7 If Owner deletes Work or makes a change which results in a net decrease in the Contract Amount, the Owner is entitled to a credit calculated in accordance with Subsections 11.4.1.1 through 11.4.1.4.

11.5.8 The compensation, as herein provided for, shall be received by Contractor and any affected Subcontractor as payment in full for Work done by Change Directive and will include use of small tools, and total overhead expense and profit. Contractor shall maintain in accordance with generally accepted accounting principles a documented, itemized accounting, evidencing the expenses and savings, including overhead and profit, associated with such changes, both for expenses and savings, in the performance of the Work resulting from the change. Contractor shall submit to Owner's Representative records of Work done by Change Directive at the end of each day, which records will be made upon forms provided for this purpose by Owner, and Contractor shall request that Contractor and Owner's Representative compare records of Work done by Change Directive at the end of each day. Any record of such comparison shall be signed by both Owner's Representative and Contractor, with one copy being retained by Owner and one by Contractor. Refusal by Contractor to sign these records within two (2) working days of presentation does not invalidate the accuracy of the record.

11.6 Unit Price Work:

11.6.1 The following Sections 11.6.1 through 11.6.7 apply only to those elements of the Work which are identified in the Contract Documents as being "Unit Price Work".

11.6.2 Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Amount will be deemed to include 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 estimated quantity of each item as set forth in the Bid/Proposal. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids/Proposals and determining an initial Contract Amount. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Owner's Representative. Owner's Representative will review with Contractor the determinations on such matters before rendering a written decision thereon (by recommendation of payment on an Application for Payment or otherwise).

- 11.6.3** When "plan quantity" is indicated for a Bid/Proposal item, Contractor shall be paid the amount specified in the Contract Documents without any measurements.
- 11.6.4** Contractor agrees each Unit Price includes amounts for all overhead and profit associated with performing the units of Work for which the Unit Prices applies.
- 11.6.5** A Major Item is any individual Bid/Proposal item in the Bid/Proposal that has a total cost equal to or greater than five percent (5%) of the original Contract Amount or \$50,000, whichever is greater, computed on the basis of Bid/Proposal quantities and Contract Unit Prices.
- 11.6.6** Owner or Contractor may make a Claim for an adjustment in the Contract Amount in accordance with Article 11 if:
- .1** the actual quantity of any Major Item should become as much as twenty five percent (25%) more than or twenty five percent (25%) less than that in the Bid/Proposal; or
 - .2** Contractor presents documentation contesting accuracy of a "plan quantity" and Owner verifies actual quantity and determines the "plan quantity" is in error by five percent (5%) or more;
- 11.6.7** Provided, however, in the event a Major Item is reduced by twenty-five percent (25%) or more relative to the quantity amount in the Bid/Proposal, no additional Article 11.5.6 profit or overhead will be added, if, due to other additions in the Work, the net value of the Contract Amount is not reduced.

ARTICLE 12 - CHANGE OF CONTRACT TIMES

12.1 Requisites for Changes in Contract Time Requirements:

- 12.1.1** The Contract Time Requirements (including Milestones) may only be changed by Change Order duly executed by both Contractor and Owner or by Change Directive. Any Claim for an adjustment of the Contract Time Requirements (including Milestones) or adjustment of the Contract Amount due to any Compensable Delay as provided in Section 10.5 shall be made by Written Notice delivered by the party making the Claim to the other party promptly (but in no event later than five (5) calendar days after the start of the occurrence or event giving rise to the Delay) and stating the general nature of the Delay. Notice of the extent of the Delay and any requested adjustment of the Contract Amount due to any Compensable Delay as provided in Section 10.5, with supporting data, shall be delivered within thirty (30) calendar days after Written Notice of Claim is delivered by claimant, and shall represent that the adjustment claimed is the entire adjustment to which claimant is entitled as a result of said occurrence or event. If Owner and Contractor cannot otherwise agree, all Claims for adjustment in the Contract Time Requirements (including Milestones) and/or adjustment of the Contract Amount due to any Compensable Delay as provided in Section 10.5 shall be determined in accordance with and

subject to the requirements of Article 16. Notwithstanding anything in the Contract Documents to the contrary, no Claim for an adjustment in the Contract Time Requirements (including Milestones) and/or adjustment of the Contract Amount due to any Compensable Delay as provided in Section 10.5 will be valid if not submitted in accordance with the requirements of this Article.

12.1.2 When Contractor is at fault and Owner stops the Work so that corrections in the Work can be made by Contractor, no extensions of time will be allowed.

12.1.3 In the event of a Delay attributable to Force Majeure, an extension of the Contract Time Requirements (including Milestones) in an amount equal to the time lost due to such Delay shall be Contractor's sole and exclusive remedy for such Delay. "Force Majeure" is circumstances beyond the control of both Owner and Contractor, and not attributable to the fault or negligence of Contractor, any Subcontractor or any other party for whose acts Contractor is liable, and includes an Act of God, war, riot, terrorism, civil commotion, sovereign conduct, industry-wide delays or disruptions in manufacture or delivery of materials or equipment required for the Work, and Unusual Inclement Weather and the direct effects thereof such as standing water or loss of Site power. In such an event, Contractor shall take all commercially reasonable action to mitigate the Delay, and Owner and Contractor will meet no later than three (3) business days after cessation of the event to establish a proposed new Project Schedule for the Project. Any claimed Force Majeure Delay attributable to industry-wide delays or disruptions in manufacture or delivery of materials or equipment required for the Work shall be supported by the following documentation:

- (a)** By copies of purchase orders for Delayed item(s) indicating date ordered by Contractor/Subcontractor and date of purchase order receipt by Supplier;
- (b)** If item(s) require Shop Drawings or other submittal information in accordance with the Contract Documents, by providing records of dates Contractor forwarded submittal(s) to Owner's Representative, dates Owner or Principal Architect/Engineer returned submittal(s) to Contractor, and dates submittal(s) were forwarded to Manufacturer or Supplier;
- (c)** By copies of document(s) from Manufacturer or Supplier, on Manufacturer's or Supplier's letterhead, indicating date(s) item(s) would be ready for shipment and/or actual shipment date(s);
- (d)** By copies of correspondence between Contractor / Subcontractor and Manufacturer or Supplier indicating Contractor / Subcontractor's efforts to expedite item(s); and
- (e)** If item(s) are being purchased by a Subcontractor, by providing correspondence, meeting notes, etc., that reflect Contractor's efforts with the Subcontractor to expedite delivery of the item(s).

12.1.4 The Contractor will only be entitled to an extension of time for Delays that can be demonstrated by the Contractor through critical path analysis as causing Delay, and only for any Delay caused by Force Majeure, Changes ordered in the Work by the Owner through Change Order or Change Directive which justify additional time, or other Delays as described in Section 10.5. No extension of time shall relieve Contractor or Surety on its performance Bond from all of

Contractor's obligations hereunder which shall remain in full force and effect.

12.2 Weather Delays:

12.2.1 Contractor may be granted an extension of time because of "Unusual Inclement Weather", as defined below. However, the Contractor will not be granted an extension of time for "Normal Rain Days", as defined below.

12.2.2 "Unusual Inclement Weather" is defined as a rain event, or extreme temperatures, high winds, hail or lightning, which occurs at the Site and is of sufficient magnitude to prevent Contractor from performing units of Work critical to maintaining the Master Project Schedule on a day when Work is scheduled to be performed and is otherwise capable of being performed, and which is beyond the Normal Rain Days as defined in Section 12.2.3 below.

12.2.3 Baseline Rain Day Determination. "Normal Rain Days" are based on U.S. Weather Bureau Records available for the most immediate area of the Site of the Work, and are included in Owner's Project Schedule, are not a justification for an extension of time, and are broken down by the number of calendar days in each month as follows:

January	7 days	July	6 days
February	6 days	August	7 days
March	7 days	September	6 days
April	7 days	October	7 days
May	8 days	November	6 days
June	8 days	December	6 days

12.2.4 Not used.

12.2.5 Rainfall will be measured with the Owner's Representative's approval at the Site using an approved rain gauge or with the Owner's Representative's approval at the nearest operational public weather data collection facility to the Site.

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

13.1 Notice of Defects: All Defective Work may be rejected, corrected or accepted as provided in Article 13. Contractor must give Owner, Owner's Representative, and Principal Architect/Engineer prompt notice of any Defective Work of which Contractor has actual knowledge. Prompt notice of all Defective Work of which Owner, Owner's Representative, Owner's CMT Consultant, or Principal Architect/Engineer has actual knowledge may be given to Contractor. Payment may be withheld by the Owner for identified Defective Work until such time as the Owner, Owner's Representative, or

Principal Architect/Engineer has determined the Defective Work has been corrected such that it complies with all applicable Contract requirements.

13.2 Access to Work: Owner, Owner's Representative, Owner's CMT Consultant, Principal Architect/Engineer, Principal Architect/Engineer's Consultants, other representatives and personnel of Owner, independent testing laboratories and governmental agencies having jurisdiction will have access to the Work at reasonable times for observing, inspecting and testing. Contractor shall provide them proper and safe conditions for such access, and advise them of Contractor's site safety procedures and programs so that they may comply therewith as applicable.

13.3 Tests and Inspections:

13.3.1 Contractor shall give at least twenty-four (24) hours advance notice of readiness of the Work for all required inspections, tests or approvals, and shall coordinate and cooperate with inspection and testing personnel to facilitate the required inspections or tests.

13.3.2 Owner shall employ and pay for 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 Section 13.3.3 and 13.3.4 below;
- .2** for costs incurred with tests or inspections conducted pursuant to Section 13.4.3 below shall be paid as provided in Section 13.4.3;
- .3** for reinspecting or retesting Defective Work; and
- .4** as otherwise specifically provided in the Contract Documents.

All testing laboratories shall meet the requirements of ASTM E-329.

13.3.3 If Legal Requirements require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of any governmental entity or public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith and furnish Owner's Representative the required certificates of inspection or approval.

13.3.4 Contractor shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for Owner's, Owner's CMT Consultant's, Owner's Representative's, and Principal Architect/Engineer's review of materials or equipment to be incorporated in the Work, or of materials, mix designs or equipment submitted for review prior to Contractor's purchase thereof for incorporation in the Work.

13.4 Uncovering Work:

13.4.1 If any Work that is to be inspected, tested or approved is covered by Contractor without prior written concurrence of Owner's Representative, or if any Work is covered contrary to the written request of Owner's Representative, Contractor must, if requested by Owner's Representative,

uncover and recover the Work at Contractor's expense, except as provided in Section 13.4.2.

13.4.2 Uncovering Work as provided in Section 13.4.1 shall be at Contractor's expense unless Contractor has given Owner's Representative timely notice of Contractor's intention to cover the same and Owner's Representative has not acted within five (5) working days of receipt of such notice.

13.4.3 If Owner's Representative considers it necessary or advisable that permissibly covered Work be observed, inspected or tested, Contractor shall uncover, expose or otherwise make available for observation, inspection or testing that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is Defective, Contractor shall pay or otherwise bear all claims, costs, losses and damages arising out of or resulting from such uncovering, exposure, observation, inspection and testing and satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others). If, however, such Work is not found to be Defective, Contractor shall, subject to Section 13.4.1, be allowed an increase in the Contract Amount or an extension of the Contract Time Requirements (including Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement and reconstruction.

13.5 Owner May Stop the Work:

13.5.1 If the Work is Defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or 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 or obligation on the part of Owner to exercise this right for the benefit of Contractor or any Surety or other party.

13.5.2 If Contractor fails to correct Defective Work or submit a plan that is satisfactory to Owner for taking corrective action, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated, or Owner may take any other action permitted by this Contract. A notice to stop the Work, based on defects, shall not stop Calendar or Working Days charged against the Contract Time Requirements.

13.6 Correction or Removal of Defective Work: If required by Owner, Contractor shall promptly, as directed, either correct all Defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by Owner or Owner's Representative, remove it from the Site and replace it with Work that is not defective. Contractor shall correct or remove and replace Defective Work, or submit a plan of action detailing how the deficiency will be corrected, within the time frame identified in the notice of Defective Work. Contractor shall pay all claims, costs, losses and damages arising out of or resulting from such correction or removal (including but not limited to all costs of repair or replacement of Work of others, and all costs of reinspecting and/or retesting such Defective Work).

13.7 Corrective period:

13.7.1 If within one (1) year after the date of Substantial Completion or such longer period of time as may be prescribed by Legal Requirements or by the terms of any applicable special guarantee or express warranty required by the Contract Documents or by any specific provision of the Contract Documents (including but not limited to Section 14.11.2), any Work, including Work performed after the Substantial Completion date, is found to be Defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

- (a)** correct such Defective Work, or, if it has been rejected by Owner, remove it from the Site and replace it with Work that is not Defective, and
- (b)** satisfactorily correct or remove and replace any damage to other Work or the work of others, or damage to other property, whether personal or real property, resulting from the correction, removal or replacement of such Defective Work.

Such one (1) year or longer period will renew and recommence for Work requiring correction upon the completion of correction of such Work.

13.7.2 If Contractor does not promptly comply with the terms of Owner's corrective action instructions, or in an emergency where Delay would result in unreasonable risk of loss or damage, Owner may have the Defective Work corrected or the rejected Work removed and replaced, and all claims, costs, losses and damages arising out of or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid or otherwise borne by Contractor.

13.7.3 In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the corrective period for that item will still start to run from the date of Substantial Completion of the Work.

13.7.4 If correction of Defective Work will affect the function or use of the facility, Contractor shall not proceed with correction of Defective Work without prior coordination with and approval of Owner.

13.7.5 The obligations of the Contractor to perform warranty and corrective work will survive the acceptance of the Work and any termination of the Contract.

13.7.6 Owner will utilize the "Warranty Item Form" a copy of which is attached hereto for the purpose of providing written notice of defects discovered during the corrective period. Contractor will acknowledge receipt of the notice by dating, signing, completing and returning the form to Owner when the defect is corrected, including such information on or attached to the form to describe the nature of the repairs or corrections that were made. If the defect cannot be corrected within seven (7) Calendar Days of receipt of notice, Contractor shall promptly provide a written explanation to Owner (or Owner's Representative) describing the repairs or other correction needed and the time required to complete the repairs or other correction.

- 13.7.7** Establishment of the required period for correction of Work as described in Subsection 13.7.1 above relates only to the specific obligation of the Contractor to correct defects in Work discovered during the corrective period, and has no relationship to the time within which any obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to any failure by Contractor to have complied with its obligations under the Contract Documents.
- 13.7.8** All Manufacturer and extended Manufacturer warranties shall be assigned to Owner as a condition of Final Completion.
- 13.8 Acceptance of Defective Work:** If, instead of requiring correction or removal and replacement of Defective Work, Owner decides to accept it, Owner may do so. Contractor shall pay or otherwise bear all claims, costs, losses and damages attributable to Owner's evaluation of and determination to accept such Defective Work. If any such acceptance occurs prior to recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents and compensating Owner for the diminished value of the Defective Work. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner after a calculation by Owner of the diminution in value of the Defective Work.
- 13.9 Owner May Correct Defective Work:** If Contractor fails within a reasonable time after Written Notice of Owner to correct Defective Work, or to remove and replace rejected Work, 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 (7) calendar days' Written Notice to Contractor, correct any such deficiency. If, in the sole discretion of the Owner, significant progress has not been made by Contractor during this seven (7) calendar day period to correct the deficiency, the Owner may exercise any actions necessary to remedy the deficiency. In exercising the rights and remedies under this paragraph, Owner may 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, 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, its agents and employees, Owner's other contractors, Principal Architect/Engineer and Principal Architect/Engineer's consultants access to the Site or any such offsite storage facility to enable Owner to exercise the rights and remedies under this paragraph. All claims, costs, losses and damages incurred or sustained by Owner in exercising such rights and remedies will be paid or otherwise borne by Contractor and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work. 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. Contractor shall not be allowed an extension of the Contract Time Requirements (including Milestones), or entitled to make any claim for damages resulting from any Delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies hereunder.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Application for Progress Payment:

- 14.01.1** No more often than once a month, Contractor shall submit to Owner or if directed by Owner, to Owner's Representative, for review an Application for Payment, in a form acceptable to Owner, filled out and signed by Contractor covering the Work completed as of the last day of the month for which an Application for Payment is being made. Application for Payment shall be accompanied by such supporting documentation as is required by the Contract Documents. The Application for Payment shall constitute Contractor's representation that the Work has been performed in accordance with the Contract Documents, has progressed to the point represented in the Application for Payment, and that title to all Work has passed or will pass to Owner free and clear of all claims, encumbrances, and security interests upon the incorporation of the Work into the Project, or upon Contractor's receipt of payment, whichever occurs earlier.
- 14.01.2** Such applications shall not include requests for payment on account of changes in the Work which have been properly authorized by Change Directives, if the Change Directive does not provide for an adjustment to the Contract Amount, or if the changes in the Work are not yet included in Change Orders.
- 14.01.3** Such applications shall not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or Manufacturer or Supplier because of a dispute or other reason.
- 14.01.4** If payment is requested on the basis of materials or 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 be accompanied by such bills of sale, data and other information satisfactory to Owner and Owner's Representative substantiating Owner's title to such materials or equipment or otherwise protecting Owner's interests therein. Payment on account of such materials or equipment will not include any amount for Contractor's overhead or profit or relieve Contractor of its obligation to protect and install such materials or equipment in accordance with the requirements of the Contract and to correct or restore damaged or Defective Work and shall in no event exceed eighty five percent (85%) of the line item valuation for such materials or equipment in the Schedule of Values. If materials or equipment are stored at another location, at the direction of the Owner they shall be stored in a bonded and insured facility, accessible to Owner's Representative and Principal Architect/Engineer, CMT Consultant, and Owner, and shall be clearly marked as property of Owner. Contractor shall insure such materials and equipment while so stored and in transit to the Site. Title to materials delivered to the Site of the Work or a staging area will pass to Owner upon payment by Owner without the necessity for further documentation. Risk of loss for all such materials and equipment will not pass to Owner until final payment.
- 14.01.5** In making progress payments, ten percent (10%) of the approved amount shall be retained until final completion and acceptance of the Contract Work. However, if the Owner at any time after fifty percent (50%) of the

work has been completed finds that satisfactory progress is being made, Owner may authorize any of the remaining progress payments to be made in full. Also, if the Contractor has achieved Substantial Completion of the Work and the Owner finds the amount retained to be in excess of the amount adequate for the protection of the Owner, Owner, at its sole discretion, may release to the Contractor all or a portion of such excess amount. The Owner is not obligated to pay interest on amounts retained except as provided in the Agreement. The interest rate to be paid on such retainage shall be the rate of interest paid by the Owner's depository bank on interest bearing accounts of similar amounts during the period of time interest accrues as provided herein.

14.01.6 Applications for Payment shall include the following documentation:

- .1 an updated Project Schedule and narrative;
- .2 an Affidavit of all bills paid to Subcontractors and Suppliers in the Monthly Subcontractor Payment Reporting Form included in the Specifications;
- .3 conditional waivers and releases from Contractor upon progress and final payments, in the forms included in the Specifications; and
- .4 a Contractor's Monthly Report;

14.02 Contractor's Warranty of Title: 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 free and clear of all claims no later than the time of payment to Contractor.

14.03 Review of Applications for Progress Payment:

14.03.1 Contractor shall submit its Application for Payment to the Owner's Representative not later than three (3) days after the first day of each month. The Owner's Representative will, within seven (7) calendar days after receipt of each Application for Payment, either indicate a recommendation for payment and forward the Application for Payment for processing by Owner, or return the Application for Payment to Contractor indicating Owner's Representative's reasons for refusing to recommend payment. In the latter case, Contractor shall make the necessary corrections and resubmit the Application for Payment.

14.03.2 Owner's Representative's recommendation of any payment requested in an Application for Payment will constitute a representation by Owner's Representative, based upon Owner's Representative's on-site observations of the executed Work and on Owner's Representative's review of the Application for Payment and the accompanying schedules and other information, that to the best of Owner's Representative's knowledge, information and belief:

- .1 the Work has progressed to the point indicated; and
- .2 the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for unit price Work, and to any other qualifications stated in the recommendation).

14.03.3 By recommending any such payment, Owner's Representative will not be deemed to have represented that:

- .1 exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work;
- .2 examination has been made to ascertain how or for what purpose Contractor has used money previously paid on account of the Contract Amount;
- .3 Contractor's construction means, methods, techniques, sequences or procedures have been reviewed; or
- .4 that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment from Contractor.

14.04 Decisions to Withhold Payment:

14.04.1 Owner may withhold or nullify the whole or part of any payment to such extent as may be necessary on account of:

- .01 Defective Work not remedied;
- .02 third party Claims filed or reasonable evidence indicating probable filing of such Claims;
- .03 failure of Contractor to timely or properly make payments to Subcontractors or for labor, materials or equipment;
- .04 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Amount;
- .05 damage to Owner or another contractor for which Contractor is responsible;
- .06 reasonable evidence that the Work will not be completed within the Contract Time Requirements, and that the unpaid balance would not be adequate to cover actual or liquidated damages or economic disincentives for the anticipated Delay;
- .07 failure of Contractor to submit a Schedule of Values in accordance with the Contract Documents;
- .08 failure of Contractor to submit a submittal schedule in accordance with the Contract Documents;
- .09 failure of Contractor to submit and update the construction Project Schedule in accordance with the Contract Documents;
- .10 failure of Contractor to maintain a record of changes on drawings and documents;
- .11 failure of Contractor to maintain weekly payroll reports and, as applicable, provide copies of reports in a timely manner upon request of Owner;
- .12 Contractor's neglect or unsatisfactory prosecution of the Work, including failure to clean up;
- .13 property damage claims that are the responsibility of the Contractor; or
- .14 failure of Contractor to comply with any provision of the Contract Documents.

14.04.2 When the above reasons for withholding payment are remedied or no longer exist, Contractor shall resubmit a statement for withheld amounts. Payment will be made within forty-five (45) calendar days of receipt by

the Owner of an approved Application for Payment, subject to Article 14.05 and Government Code, Section 2251.025(b).

14.05 Delayed Payments: Owner shall endeavor to, but shall not be obligated to, make payment to Contractor within thirty (30) calendar days of receipt of an Application for Payment in acceptable form, including all supporting documents and information required. However, Contractor agrees that should Owner fail to make payment to Contractor of the sum due on any such Application for Payment within forty-five (45) calendar days after the day on which Owner received the Application for Payment, then Owner will pay to Contractor, in addition to the sum due on such Application for Payment, interest thereon at the rate specified in Government Code, Section 2251.025(b) from date due until fully paid, which shall fully liquidate and shall be Contractor's sole and exclusive remedy for any injury to or damages incurred by Contractor arising out of such delay in payment.

14.06 Arrears: No money shall be paid by Owner upon any claim, debt, demand or account whatsoever, to any person, firm or corporation who is in arrears to the Owner for taxes; and the Owner shall be entitled to counterclaim and automatically offset against any such debt, claim, demand or account in the amount of taxes so in arrears and no assignment or transfer of such debt, claim, demand or account after said taxes are due, shall affect the right of Owner to so offset said taxes, and associated penalties and interest if applicable, against the same.

14.07 Substantial Completion:

14.07.1 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify Owner's Representative and request a determination as to whether the Work or designated portion thereof is substantially complete. If Owner, Owner's Representative or the Principal Architect/Engineer does not consider the Work substantially complete, Owner's Representative will notify Contractor giving reasons for that position. After performing any required Work, Contractor shall then submit another request for Owner's Representative to determine Substantial Completion. If Owner considers the Work substantially complete, Owner's Representative will prepare and deliver a certificate of Substantial Completion which shall establish the date of Substantial Completion, shall include a punch list of items to be completed or corrected before final payment, shall establish the time within which Contractor shall complete or correct the punch list items, and shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work, warranties, corrective periods, and insurance.

Failure to include an item on the punch list does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents. If a Certificate of Occupancy or Certificate of Compliance is required by governmental entities or public authorities having jurisdiction over the Work, said certificate shall be issued before the Work or any portion thereof is considered to have achieved Substantial Completion. The certificate of Substantial Completion shall be signed by Owner and Contractor to evidence acceptance of the responsibilities assigned to them in such certificate.

- .1** For water and wastewater lines construction, Substantial Completion means, in addition to the definition at Section 1.072, that the Work, including all testing and disinfection, have been completed and accepted and the line(s) placed into service. A certificate of Substantial Completion may not be issued. Work that remains after Substantial Completion could include the final pavement of roadways, adjustment of structures to final grade and re-vegetation. Owner's Representative will issue a notice specifying what portion of the Work is partially completed for the purpose of payment and what Work remains to be done on the portion being accepted as having achieved Substantial Completion.
- .2** For water and wastewater lines construction that includes roadway construction and/or reconstruction, a certificate of partial Project Substantial Completion may be given for the Work described and deemed substantially complete per Article 14.07.1.1, exclusive of any Project roadway construction and/or reconstruction. Having received a certificate of partial Substantial Completion on the water and wastewater lines construction, a certificate of Substantial Completion of the entire or balance of the Project may be given when the roadway construction and/or reconstruction is found to be substantially complete as per Article 14.07.1.3. The requirements of Article 14.08 Partial Utilization, shall also apply.
- .3** For roadway construction and/or reconstruction, Substantial Completion means, in addition to the definition at Section 1.072, that the Work, including the final surface course, all permanent traffic control devices (pavement markings, signs, etc.), punch list items, and final cleanup has been completed, accepted, and placed into service, and, any street lighting conduit that has been installed, lowered or relocated must be inspected for usability by, and must have received written approval from, the Owner as well as having been completed, accepted, and placed into service. A certificate of Substantial Completion may not be issued. Work that remains after Substantial Completion could include final clean up. The Owner's Representative will issue a notice specifying what portion of the Work is partially completed for the purpose of payment and what Work remains to be done on the portion being accepted as having achieved Substantial Completion.
- .4** Substantial Completion shall also comprise the completion of Work associated with the Project so that the utilities, systems, equipment, and/or facilities are operating properly and functioning per their intended use, as designed. Work that can be completed between Substantial Completion and Final Completion includes finish work such as cleanup, finish painting, landscape repairs, and final documentation. However, Contractor shall provide all Owner required equipment and system operation and maintenance training and Manufacturer certifications, and shall submit all spare parts and final O&M Data in order for Substantial Completion to be deemed achieved.

14.07.2 Owner shall have the right to exclude Contractor from the Work after the date of Substantial Completion, but Owner will allow Contractor

reasonable access to complete or correct items on the punch list and perform and complete warranty or corrective work.

14.07.3 Unless otherwise provided in the Contract Documents, for all periods prior to the issuance of a Certificate of Substantial Completion for the Project or for any designated area within the Project, the Contractor shall be responsible for the cost of all temporary and permanent utility charges necessary to maintain the progress and quality of the construction Work which is under the Contractor's control.

14.07.4 Unless otherwise provided in the Contract Documents, for all periods prior to the issuance of a Certificate of Substantial Completion for the Project or for any designated area within the Project, the Contractor shall be responsible for the cost of all temporary structural support systems necessary for the safe execution of the Work. Such systems shall be the sole responsibility of the Contractor.

14.08 Partial Utilization: Use by Owner, at Owner's option, of any substantially completed part of the Work which: (i) has specifically been identified in the Contract Documents, or (ii) Owner and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work in accordance with the following:

14.08.1 Owner at any time may request Contractor to permit Owner to use any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If Contractor agrees that such part of the Work is substantially complete, Contractor shall certify to Owner's Representative that such part of the Work is substantially complete and request Owner's Representative to issue a notice specifying what portion of the Work is substantially complete for the purpose of payment and what Work remains to be done on the portion being accepted. Contractor at any time may notify Owner's Representative that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Owner's Representative to issue a notice specifying what portion of the Work is substantially complete for the purpose of payment and what Work remains to be done on the portion being accepted. The provisions of Sections 14.7.1 and 14.7.2 will apply with respect to notice specifying what portion of the Work is substantially complete for the purpose of payment and what Work remains to be done on the portion being accepted.

14.08.2 Such partial utilization must be authorized to the extent required by any governmental entities or public authorities having jurisdiction over the Work.

14.08.3 Warranty and corrective period requirements for such partial utilization shall be in accordance with Section 13.7.3 above.

14.09 Final Inspection: Upon Written Notice from Contractor that the entire Work or an agreed portion thereof is complete, Owner will make a final inspection with Contractor and provide Written Notice 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. Owner's Representative, Principal Architect/Engineer, CMT Consultant and other third party consultants and any other governmental entity or public authority with jurisdiction over the Project may assist Owner in the inspection and testing of the Work and Contractor agrees to and shall cooperate with any such consultants or authorities with respect to any such inspections and tests.

14.10 Final Application for Payment: Contractor may make application for final payment following the procedure for progress payments after Contractor has completed all such corrections to the satisfaction of Owner (and Owner's Representative) and delivered the following documents:

- 14.10.01** Affidavit by Contractor certifying the payment of all debts and claims;
- 14.10.02** Architect's/Engineer's Certificate of Completion;
- 14.10.03** Three (3) complete final operating and maintenance manuals, each containing maintenance and operating instructions, schedules, guarantees, and other documentation required by the Contract Documents;
- 14.10.04** Record documents (as provided in Section 6.10);
- 14.10.05** Complete releases or waivers (satisfactory to Owner) of all claims arising out of or filed in connection with the Work;
- 14.10.06** Certificate evidencing that insurance required by the Contract, if any, will remain in force after final payment and through the warranty and corrective periods and any longer period of time required by the Contract;
- 14.10.07** Non-Use of Asbestos Affidavit (After Construction) and lead based paints;
- 14.10.08** TPDES records in accordance with Section 6.07.4;
- 14.10.09** Consent of Surety, if any, to final payment; and
- 14.10.10** Any other documentation required by the Contract Documents.

14.11 Final Payment and Acceptance:

- 14.11.1** If, on the basis of observation of the Work during construction, final inspection, and review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Owner's Representative and Owner are satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled and there are no outstanding claims, Owner's Representative will recommend the final Application for Payment and thereby notify the Owner, who, if it accepts such recommendation, will pay to Contractor the balance due Contractor under the terms of the Contract. If the sole remaining unfinished item

to complete the Work is the reestablishment of vegetation, Owner has the right to require Contractor to execute and deliver to Owner a re-vegetation letter with a reasonable fiscal amount posted via an irrevocable, callable on demand letter of credit issued by a financial institution acceptable to Owner and at no cost to Owner to ensure completion of this item, as a condition of final payment. This Work must be accomplished within one hundred twenty (120) Calendar Days of the date of Final Completion of the Work. When the permanent erosion control has been established, Owner will initiate an inspection for final acceptance of the erosion controls. If the re-vegetation is not completed within the one hundred twenty (120) Calendar Days, Owner, at its option, may draw upon and complete the Work using the proceeds of the posted re-vegetation letter of credit.

14.11.2 Owner will issue a certificate of Final Completion to Contractor which establishes the Final Completion date. If the sole remaining unfinished item to complete the Work is the reestablishment of vegetation, and Contractor has executed the above-described re-vegetation letter of credit to ensure completion of this item, the Owner will issue a certificate of conditional acceptance to Contractor which establishes the Final Completion date.

14.11.3 Final payment is considered to have taken place when Contractor or any of its representatives negotiates Owner's final payment check, whether labeled final or not, for cash or deposits the check in any financial institution for its monetary return.

14.12 Waiver of Claims by Contractor: The making and acceptance of final payment will constitute A waiver of all claims by Contractor against Owner other than those previously made in writing and still unsettled at the time of the final payment.

14.13 Contractor's Payment Obligations Contractor will pay the Subcontractors, in accordance with its contractual obligations to such parties, all the amounts Contractor has received from Owner on account of their work. Contractor will impose similar requirements on the Subcontractors to pay those parties with whom they have contracted. Contractor will defend and indemnify Owner from and against any claims for payment by any such parties.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.1 Owner May Suspend Work Without Cause: At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than one hundred twenty (120) calendar days by Written Notice to Contractor, or such longer period of time as agreed to in writing by Owner and Contractor. Contractor shall promptly resume the Work upon Owner's written direction to proceed. Contractor shall be allowed an adjustment in the Contract Amount or an extension of the Contract Time Requirements, or both, directly attributable to any such suspension if Contractor makes an approved Claim therefor as provided in Articles 10.5 and 12.1.

15.2 Owner May Terminate Without Cause: Upon seven (7) calendar days' Written Notice to Contractor, Owner may, without cause and without prejudice to any right

or remedy of Owner, elect to terminate the Contract. In such case, Contractor shall be paid (without duplication of any items):

- 15.2.1** for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination;
- 15.2.2** for reasonable demobilization costs;
- 15.2.3** for reasonably anticipated profits on completed and accepted Work not previously paid and not included in separate pay items calculated to date of termination but not for anticipated profit on unperformed Work or unabsorbed overhead, or lost opportunity; and
- 15.2.4** for all costs reasonably incurred in settlement of terminated contracts with Subcontractors, Manufacturers, Suppliers and others, including for reasonably anticipated profits on completed and accepted Work not previously paid and not included in separate pay items calculated to date of termination but not for anticipated profit on unperformed Work or unabsorbed overhead, or lost opportunity. Contractor agrees to negotiate in good faith with Subcontractors, Manufacturers, Suppliers and others to mitigate its and Owner's costs.

15.3 Owner May Terminate With Cause:

- 15.3.1** Upon the occurrence of any one or more of the following events (each, a "default"):
 - .1** if Contractor persistently fails to perform the Work in accordance with the Contract Documents;
 - .2** if Contractor disregards Legal Requirements;
 - .3** if Contractor disregards the authority of Owner or Owner's Representative;
 - .4** if Contractor makes fraudulent statements;
 - .5** if Contractor fails to maintain a work force adequate to accomplish the Work within the Contract Time Requirements;
 - .6** if Contractor fails to make adequate progress and endangers successful completion of the Contract; or
 - .7** if Contractor otherwise breaches any provision of the Contract Documents;

Owner may, after giving Contractor (and the performance bond Surety, if any) seven (7) calendar days Written Notice, terminate in whole or in part the Contract or the Contractor's right to perform Work. Owner, at its option, may proceed with negotiation with Surety for completion of the Work. Alternatively, Owner may exclude Contractor from the Site and take possession of the Work (without liability to Contractor for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and finish the Work as Owner may deem expedient. In such case Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Amount exceeds all claims, costs, losses and damages sustained by Owner arising out of or resulting from the Contractor's default and Owner's completion of the Work,

including attorneys' fees and other expenses and additional Owner's Architect/Engineer fees and other expenses in connection with such completion, Owner shall pay Contractor only for the value of unpaid, conforming Work performed by Contractor prior to such termination up to but not more than such excess. If such claims, costs, losses and damages exceed such unpaid balance, Contractor or Surety shall pay the difference to Owner upon demand. In the event that a termination for cause is found to be wrongful, the termination shall be deemed converted to a termination without cause as set forth in Section 15.2 and Contractor's remedy for wrongful termination shall be exclusively limited to the recovery of the payments permitted for termination without cause as set forth in Section 15.2.

15.3.2 Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor and Surety then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

15.4 Contractor May Stop Work or Terminate: If through no act or fault of Contractor, the Work is suspended for a period of more than one hundred and twenty (120) calendar days by Owner or under an order of court or other governmental entity or public authority, or such longer period of time as agreed to in writing by Owner and Contractor, or (except during disputes) Owner's Representative fails to forward to Owner for processing any properly prepared and submitted Application for Payment within seven (7) calendar days after it is submitted, or (except during disputes) Owner fails for forty-five (45) calendar days after it is submitted to pay Contractor any sum finally determined by Owner to be due, then Contractor may, upon forty-five (45) calendar days' Written Notice to Owner, and provided Owner does not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Section 15.2. The provisions of this Section 15.4 are not intended to preclude Contractor from making a Claim under Articles 11 and 12 for an increase in Contract Amount or Contract Time Requirements or otherwise for expenses or damage directly attributable to Contractor's stopping Work pursuant to this Section.

15.5 Discretionary Notice to Cure: In its sole discretion, Owner may, but is not required to, provide a Notice to Cure to Contractor and its Surety to cure an event of default described in Section 15.3.1 above and/or an anticipatory breach of contract and, if required by Owner, the Contractor and Surety shall attend a meeting with Owner, regarding the Notice to Cure, the event of default, and/or the anticipatory breach of contract. If issued, the Notice to Cure will set forth the time limit by which the cure is to be completed or commenced and diligently prosecuted. Upon receipt of any Notice to Cure, Contractor shall prepare a report describing its program and measures to accomplish the cure of the event of default and/or anticipatory breach of contract within the time required by the Notice to Cure. The Contractor's report must be delivered to Owner at least three (3) days prior to any requested meeting with the Owner and Surety.

15.6 Bankruptcy: If Contractor declares bankruptcy or is adjudged bankrupt or makes an assignment for the benefit of creditors or if a receiver is appointed for the benefit of creditors or if a receiver is appointed by reason of Contractor's insolvency, Contractor may be unable to perform this Contract in accordance with the Contract

requirements. In such an event, Owner may demand Contractor or its successor in interest provide Owner with adequate assurance of Contractor's ability to perform in accordance with the terms and conditions of the Contract. If Contractor fails to provide adequate assurance of performance to Owner's reasonable satisfaction within ten (10) days of such a request, Owner may terminate the Contract or the Contractor's right to perform Work for cause or without cause, pursuant to Sections 15.2 or 15.3 above. If Contractor fails to provide timely adequate assurance of its performance and actual performance, Owner may prosecute the Work with its own forces or with other contractors on a time and material or other appropriate basis and the cost of which will be charged against the Contract balance or otherwise borne by Contractor.

15.7 Duty to Mitigate: In the event of any termination or suspension under this Contract, the Contractor agrees to and shall take all reasonable actions to mitigate its damages and any and all claims for damages which may be asserted against the Owner.

15.8 Responsibility during Demobilization: While demobilizing, the Contractor will take all necessary and reasonable actions to preserve and protect the Work, the Site and other property of the Owner or others at the Site.

ARTICLE 16 - DISPUTE RESOLUTION

16.1 Filing of Claims:

16.1.1 All Claims by Contractor shall be made by Written Notice delivered to Owner within fifteen (15) calendar days after the start of the occurrence or event giving rise to the Claim and stating the general nature of the Claim. Notice of the amount of the Claim with supporting data shall be delivered in writing within thirty (30) calendar days after Written Notice of Claim is delivered by Contractor and shall represent that the adjustment claimed covers all known monetary amounts and/or extensions of time to which Contractor is entitled.

16.1.2 Within thirty (30) calendar days of receipt of notice of the amounts and/or time extensions sought by the Claim with supporting data, Owner's Representative and Contractor shall meet to discuss the Claim, after which a written offer of settlement or written notification of no settlement offer may be made to Contractor. If Contractor is not satisfied with any proposal presented, Contractor shall have thirty (30) calendar days in which to: (i) submit additional supporting data requested by the other party along with a written request to re-evaluate the Claim; (ii) modify the initial Claim; or (iii) request Alternative Dispute Resolution.

16.2 Alternative Dispute Resolution:

16.2.1 If a dispute exists concerning a Claim, the parties agree to use the following procedure prior to pursuing any other available remedies except that nothing herein shall preclude the Owner from seeking injunctive or other extraordinary relief in a court of competent jurisdiction prior to the completion of the following procedure. Owner reserves the right to include the Owner's Representative, Principal Architect/Engineer and/or the CMT Consultant as a party. Similarly, Contractor agrees to participate at its own

cost in similar dispute resolution procedures for any dispute between Owner and any such other parties, and Contractor agrees to require its Subcontractors to participate in the following procedures in any dispute between Owner and Contractor, upon Owner's written request, if in Owner's sole discretion the participation of Contractor and/or any Subcontractor is necessary to the resolution of any such dispute.

16.2.2 Negotiating with Previously Uninvolved Personnel: Either party may make a written request for a meeting to be held between representatives of each party within fourteen (14) Calendar Days of the request or such later period that the parties may agree to. Each party shall endeavor to include, at a minimum, one (1) previously uninvolved senior level decision maker (an owner, officer, or employee of each organization) with the authority to negotiate and settle the dispute on behalf of their organization. If a previously involved senior level decision maker is unavailable due to the size of the Contractor's organization or any other reason, the Contractor shall nonetheless provide an appropriate senior level decision maker for the meeting. The purpose of this and any subsequent meetings will be good faith negotiations and resolution of the matters constituting the dispute. Negotiations shall be concluded within thirty (30) Calendar Days of the first meeting, unless mutually agreed otherwise. This step may be waived by a written agreement signed by both parties, in which event the parties may proceed directly to mediation as described below.

16.2.3 Mediation:

- .1** If the procedure described in 16.2.2 proves unsuccessful or is waived pursuant to its terms, the parties shall initiate the mediation process. Owner and Contractor agree to select within thirty (30) calendar days a mediator trained in mediation skills, and experienced in the mediation of construction disputes, to assist with resolution of the dispute. Owner and Contractor agree to act in good faith in the selection of the mediator and to give all due consideration to qualified individuals nominated to act as mediator. Should the parties fail to agree on a mediator within thirty (30) calendar days of initiation of the mediation process, the parties agree to ask the American Arbitration Association to select a qualified individual, which selection shall be binding on the parties. If the dispute is technical in nature, the mediator appointed by the American Arbitration Association shall be qualified by at least ten (10) years' experience in construction, engineering, and/or public works projects. If a party refuses to participate in the selection of a mediator or refuses to attend a scheduled mediation, the other party may pursue other remedies available to it.
- .2** Mediation is a forum in which an impartial person, the mediator, facilitates communication between parties to promote reconciliation, settlement, or understanding among them. The parties hereby agree that mediation, at a minimum, shall provide for (i) conducting an on-site investigation, if appropriate, by the mediator for fact gathering purposes, (ii) a meeting of all parties for the exchange of points of view and (iii) separate meetings between the mediator and each party to the dispute for the formulation of resolution alternatives. The parties agree to participate in mediation in good faith for up to thirty

(30) calendar days after the date of the first mediation session, unless mutually agreed otherwise. Should the parties fail to reach a resolution of the dispute through mediation, then the parties may pursue other remedies available to them.

ARTICLE 17 – MISCELLANEOUS

- 17.1 Computation of Times:** When any period of time is measured in the Contract Documents in 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 legal holiday, such day will be omitted from the computation.
- 17.2 Venue; Choice of Law:** Venue for any suit at law or in equity involving the Contract or the parties' relationship created by it shall lie exclusively in Montgomery County, Texas. The Contract and any disputes arising out of it shall be construed in accordance with and governed by the laws of the State of Texas, without regard to its conflict of laws principles. Any claims or causes of action arising under or in conjunction with this Contract shall be brought in a court of competent jurisdiction in Montgomery County, Texas. In the event of litigation relating to this Contract or the performance or nonperformance of Work hereunder, the Contractor and the Owner voluntarily and irrevocably consent to the jurisdiction of the applicable courts in Montgomery County, Texas, and hereby waive any argument that such a forum is inconvenient.
- 17.3 Extent of Contract:** This Contract represents the entire and integrated agreement between the Owner and Contractor with respect to the subject matter hereof and supersedes all prior and contemporaneous negotiations, representations or agreements, whether written or oral, and each party disclaims any reliance upon any such prior or contemporaneous negotiation, representation or agreement.
- 17.4 Remedies Cumulative:** Except as limited by this Contract, remedies provided for herein are cumulative, and in addition to and not in lieu of those provided by law or available in equity.
- 17.5 Severability:** If any word, phrase, clause, sentence or provision of the Contract, or the application of same to any person or set of circumstances is for any reason held to be unconstitutional, void, invalid or unenforceable, then such word, phrase, clause, sentence or provision shall be deemed severed herefrom and the remainder of this Contract shall remain in full force and effect.
- 17.6 Independent Contractor:** The Contract shall not be construed as creating an employer/employee relationship, a partnership, or a joint venture. Contractor is an independent contractor and Contractor's work and services shall be those of an independent contractor. Without limiting the generality of the foregoing, Contractor agrees and understands that the Contract does not grant any rights or privileges to any employee of Contractor, its Subcontractors or Suppliers which are established for employees of Owner.
- 17.7 Prohibition of Gratuities:** Owner may, by Written Notice to Contractor, terminate the Contract without liability if Owner determines that gratuities were offered or given by Contractor or any agent or representative of Contractor to any officer or employee of Owner with a view toward securing the Contract or securing

favorable treatment with respect to the awarding or amending or the making of any determinations with respect to the performing of such Contract. In the event the Contract is terminated by Owner pursuant to this provision, Owner shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by Contractor in providing such gratuities, to the extent Contractor attempted to charge Owner for same or included any such costs in the Contract Amount.

17.8 Prohibition Against Personal Interest in Contracts: No officer, employee, independent consultant, or elected official of Owner who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation. Any violation of this provision shall render the Contract voidable by Owner.

17.9 Owner's Right to Audit:

17.9.1 "Records" means all records generated by or on behalf of Contractor and each Subcontractor and Supplier of Contractor, whether paper, electronic, or other media, which are in any way related to performance of or compliance with this Contract, including, without limitation:

- .01** accounting records;
- .02** written policies and procedures, contractor daily diaries, and pay reports;
- .03** subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.);
- .04** original estimates and estimating work sheets;
- .05** correspondence;
- .06** Change Order files (including documentation covering negotiated settlements);
- .07** back charge logs and supporting documentation;
- .08** general ledger entries detailing cash and trade discounts earned, insurance rebates and dividends;
- .09** subcontracts, purchase orders or other agreements between Contractor and any Subcontractor or Manufacturer, or Supplier;
- .10** records necessary to evaluate Contract compliance, Change Order pricing, and any Claim submitted by Contractor or any of its payees;
- .11** SWP3 Documentation;
- .12** job cost reports; and
- .13** any other Contractor record that may substantiate any charge or claim related to this Contract.

17.9.2 Contractor shall allow Owner's agent or its authorized representative to inspect, audit, and/or reproduce, or all three, all Records generated by or on behalf of Contractor and each Subcontractor and Manufacturer or Supplier, upon Owner's written request. Further, Contractor shall allow Owner's agent or authorized representative to interview any of Contractor's employees, all Subcontractors and all Manufacturers and Suppliers, and any of their respective employees.

17.9.3 Contractor shall retain all its Records, and require all its Subcontractors and Manufacturers and Suppliers to retain their respective Records, during the

performance of this Contract and for three (3) years after final payment or any termination, until all audit and litigation matters that Owner has brought to the attention of Contractor are resolved, or as otherwise required by law, whichever is longer. Owner's right to inspect, audit or reproduce Records, or interview employees of Contractor or its respective Subcontractors or Manufacturers and Suppliers exists during the performance of this Contract, and for three (3) years after final payment or any termination, until all audit and litigation matters that Owner has brought to Contractor's attention are resolved, or as otherwise required by law, whichever is longer, and at no cost to Owner.

- 17.9.4** Contractor must provide sufficient and accessible facilities during its normal business hours for Owner to inspect, audit or reproduce Records, or all three, and to interview any person about the Records.
- 17.9.5** Contractor shall insert these requirements in each written contract between Contractor and any Subcontractor, Manufacturer or Supplier and require each Subcontractor, Manufacturer and Supplier to comply with these provisions.
- 17.10 Survival of Obligations:** All representations, indemnifications, warranties and guarantees made in, required by or provided pursuant to the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the Work and termination or completion of the Contract.
- 17.11 No Waiver:** The waiver of any provision of this Contract will not be deemed to be a waiver of any other provision of this Contract. No provision of this Contract will be deemed waived whatsoever unless expressly provided in writing, nor will a waiver of any default be deemed a waiver of any subsequent defaults of the same type. The failure at any time to enforce this Contract, whether the default is known or not, shall not constitute a waiver of or estoppel against the right to do so.
- 17.12 Condition Precedent to Right to Sue:** Notwithstanding anything in the Contract Documents to the contrary, the Contractor must have provided at least 90 days prior written notice of a claim for damages as a condition precedent to the right to sue on the Contract.
- 17.13 WAIVER OF THE RIGHT TO JURY TRIAL. OWNER AND CONTRACTOR HEREBY, KNOWINGLY, IRREVOCABLY AND INTENTIONALLY WAIVE ANY RIGHTS EITHER PARTY MAY HAVE TO A TRIAL BY JURY IN RESPECT TO ANY CLAIM, CAUSE OF ACTION, PROCEEDING OR COUNTER CLAIM BASED UPON THE CONTRACT DOCUMENTS, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH THE CONSTRUCTION OF THE WORK OR ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER VERBAL OR WRITTEN) OR ACTIONS OF ANY PARTY. HOWEVER, THIS WAIVER OF JURY TRIAL SHALL NOT APPLY TO LITIGATION WHICH MAY BE INITIATED BY ANY THIRD PARTIES.**
- 17.14 Attorneys' Fees and Costs.** If Contractor brings any suit against Owner and Contractor does not prevail in such suit, Contractor shall be liable for all attorneys' fees and costs incurred by Owner as a result of such suit.

"Prevail" as used in this Section 17.14 means the Contractor recovers a judgment against Owner for at least eighty percent (80%) of all relief sought by Contractor in Claims against Owner in the Written Notice(s) as provided in Section 16.1.1 above, and the judgment is greater than any relief offered to Contractor by Owner in any written settlement offer.

END OF GENERAL CONDITIONS TERMS

WARRANTY ITEM NO. _____
(PROJECT NAME)

The General Conditions of the Contract require that Defects be corrected within seven (7) days after written notice is received.

TO: _____
name/ address / telephone / fax / email

ATTENTION OF: _____

FROM: _____
project manager name / address / telephone / fax / email

PROJECT: _____
name / location / CIP ID number

END DATE OF WARRANTY OR CORRECTIVE PERIOD: _____

SUBJECT: _____

[] If checked, the defect requires immediate attention. The Contractor has been called.

[] If checked, the Owner has been asked to consult with the Contractor on the defect.

PLEASE CORRECT THE FOLLOWING ITEM(S):

DATE OF REQUEST _____ **SIGNATURE** _____
Project Manager

[] _____ Phone No. _____

[] _____ Phone No. _____

[] _____ Phone No. _____

RESPONSE FROM Contractor: DATE CORRECTION WAS MADE: _____

The Contractor must endeavor to correct the defect within seven (7) calendar days after written notice is received. If the defect cannot be corrected by that time, Contractor shall provide a written explanation to the Owner describing the repairs or other correction needed and the time required to complete the repairs or corrections.

Description of corrections made:

DATE OF REPLY: _____ **SIGNATURE:** _____

PRINTED NAME: _____

When the repair/correction is complete, the contractor should return a copy to each of the following:

[] _____ Phone No. _____

[] _____ Phone No. _____

[] _____ Phone No. _____

END OF SECTION

4812-4844-0915, v. 1-6602-9900, v. 4-6602-9900, v. 3-6602-9900, v. 2

SECTION 00 73 43
WAGE SCALE FOR CONSTRUCTION

- 1.1 Contractor and its Subcontractors must pay the general prevailing wage rates for building construction for each craft or type of worker or mechanic employed in the execution of any building construction or repair under the Contract in accordance with Chapter 2258 of the Texas Government Code. The San Jacinto River Authority ("SJRA") has determined the prevailing wage rate in the locality in which the work is being performed, which is set forth in Exhibit "A".
- 1.2 In bidding, Contractor warrants and represents that it has carefully examined the classifications for each craft or type of worker needed to execute the Contract and determined that such classifications in Exhibit "A" include all necessary categories to perform the work under the Contract.
- 1.3 If Contractor believes that an additional classification for a particular craft or type of worker is necessary to perform work under the Contract, it must submit with its bid a request to the San Jacinto River Authority to use an additional labor classification not listed in Exhibit "A" and specify the proposed new classification. The SJRA shall determine whether a proposed classification is already covered in Exhibit "A", and, if it is, specify which classification is appropriate. The SJRA's decision is conclusive. If the SJRA decides that a new classification is necessary, it will determine the appropriate prevailing wage rate for any resurveyed, amended, new, or additional craft or type of worker not covered by Exhibit "A". Such determination must be decided in accordance with procedures established by the SJRA, and in compliance with Chapter 2258 of the Texas Government Code.
- 1.4 Contractor must not use any labor classification not covered by Exhibit "A" until such classification is established and approved for use by the SJRA.

A Contractor or Subcontractor who violates Chapter 2258 of the Texas Government Code must pay to the SJRA \$60 per each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates set forth in Exhibit "A".

- 1.5 The SJRA may withhold money required to be withheld under Chapter 2258 of the Texas Government Code from the final payment to Contractor or earlier payments if the SJRA makes a determination that there is good cause to believe that Contractor has not complied with these provisions and Chapter 2258 of the

Government Code, in which case the SJRA may withhold the money at any time subsequent to the finding by the SJRA.

- 1.6 Contractor and Subcontractors must keep records as required by Chapter 2258 of the Government Code, and specifying:
- (1) the name and classification of each worker employed under the Contract; and
 - (2) the actual per diem wages paid to each worker, and the applicable hourly rate.
- The records must be open at all reasonable hours for inspection by the officers and agents of the SJRA.
- 1.7 The prevailing wage rate does not prohibit the payment of more than the rates stated.
- 1.8 The hourly cost of salary for non-exempt workers for labor in excess of 40 hours per worker per week, shall be calculated at 1.5 times the worker's base pay, plus 1.0 times fringe benefits, for the applicable craft and level.

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EXHIBIT "A"

LABOR CLASSIFICATIONS AND PREVAILING WAGE RATES
FOR
CONSTRUCTION
2019

Heavy Construction Projects

County Name: Montgomery and Waller Counties

Wages based on DOL General Decision: TX1900063 01/04/2019 TX63

CLASSIFICATION	RATE	FRINGES
Sprinkler Fitter (Fire Sprinklers)	\$29.03	\$15.84
Carpenter	\$14.38	
Ironworker, reinforcing	\$11.29	
Laborers:		
Common Montgomery County	\$8.83	\$0.94
Common Waller County	\$8.97	\$0.88
Landscape	\$7.35	
Mason Tender Cement	\$9.96	
Pipelayer Montgomery County	\$10.04	
Pipelayer Waller County	\$10.07	
Cement Mason / Concrete Finisher	\$11.37	\$1.13
Electrician	\$18.40	\$1.34
Formbuilder / Formsetter	\$13.35	\$1.17
Pipefitter	\$17.00	\$0.04
Power Equipment Operator:		
Backhoe	\$13.25	
Bulldozer Montgomery County	\$13.12	
Bulldozer Waller County	\$12.46	
Crane	\$14.91	\$0.58
Excavator	\$16.74	
Front End Loader Montgomery County	\$12.30	\$0.57
Front End Loader Waller County	11.75	\$0.92
Grader	\$12.20	\$1.48
Tractor	\$12.38	\$1.51
Truck Driver Montgomery County	\$11.82	\$0.92
Truck Driver Waller County	12.28	\$0.98
Welders – Receive rate prescribed for craft performing operation to which welding is incidental.		

Heavy Construction Projects- Flood Control Only

County Name: Montgomery and Waller Counties

Wages based on DOL General Decision: TX190046 01/04/2019 TX46

CLASSIFICATION	RATE	FRINGES
Asphalt Distributer	\$9.47	
Asphalt Paving Machine	\$10.05	
Asphalt Raker	\$8.28	
Asphalt Shoveler	\$7.45	
Batching Plant Weigher	\$11.11	
Broom or Sweeper Operator	\$8.01	
Bulldozer	\$9.91	
Carpenter	\$10.35	
Concrete Curbing Mach.	\$8.80	
Concrete Finisher-Paving	\$9.87	
Concrete Finisher-Structures	\$9.86	
Concrete Finishing Machine	\$11.79	
Concrete Joint Sealer	\$10.50	
Concrete Paving Float	\$9.30	
Concrete Paving Saw	\$10.01	
Concrete Paving Spreader	\$9.32	
Concrete Rubber	\$9.00	
Crane, Clamshell, Backhoe, Derrick, Dragline, Shovel	\$11.35	
Crusher or Screening Plant Operator	\$11.00	
Electrician	\$16.15	
Flagger	\$7.25	
Form Builder (Structures)	\$9.96	
Form Liner – Paving & Curb	\$9.03	
Form Setter (Paving/Curb)	\$8.86	
Form Setter – Structures	\$9.05	
Foundation Drill Operator, Crawler Mounted	\$12.59	
Foundation Drill Operator, Truck Mounted	\$12.73	
Front End Loader	\$9.29	
Labor Common	\$7.45	
Labor – Utility	\$8.53	
Lineperson	\$7.50	
Manhole Builder (Brick)	\$8.49	
Mechanic	\$11.38	
Milling Machine Operator	\$10.43	
Mixer	\$7.94	
Motor Grader:		
Fine Grade	\$11.11	
Other	\$10.67	
Oiler	\$9.56	

Painter - Structures	\$14.00	
Pavement Marking Machine	\$7.45	
Piledriver	\$10.96	
Pipe Layer	\$8.49	
Reinforcing Steel Setter Paving	\$12.50	
Reinforcing Steel Setter Structures	\$12.47	
Roller, Pneumatic, Self Propelled	\$7.96	
Roller, Steel Wheel Other Flatwheel or Tamping	\$7.61	
Roller, Steel Wheel Plant Mix Pavements	\$9.25	
Scraper	\$8.69	
Servicer	\$9.51	
Sign Erector	\$10.06	
Sign Installer	\$7.45	
Slipform Machine Operator	\$9.20	
Spreader Box Operator	\$9.08	
Steelworker Structural	\$10.35	
Tractor – Crawler Type	\$10.12	
Tractor – Pneumatic	\$8.99	
Traveling Mixer	\$9.35	
Trenching Machine, Heavy	\$13.56	
Trenching Machine, Light	\$10.50	
Truck Driver Lowboy Float	\$11.29	
Truck Driver Single Axle Heavy	\$8.76	
Truck Driver Single Axle, Light	\$8.15	
Truck Driver Tandem Axle Semi-Trailer	\$8.00	
Wagon Drill, Boring Machine	\$10.15	
Welder	\$10.43	
Work Zone Barricade	\$7.45	
Welders – Receive rate prescribed for craft performing operation to which welding is incidental.		

END OF SECTION

SECTION 01 11 13
WORK COVERED BY CONTRACT DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Definitions.
 - 2. Work Covered by Contract Documents.
 - 3. Cash Allowances.
 - 4. Owner-Furnished Products.
 - 5. Document Management Software
 - 6. Work Sequence.
 - 7. Work Guidelines.
 - 8. Coordination of Work.
 - 9. Contractors Use of Premises.
 - 10. Contract Clarification.
 - 11. Alternate Construction Methods.
 - 12. Utility Lines.
 - 13. Warranty.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT (NOT USED)

1.3 SUBMITTALS (NOT USED)

1.4 DEFINITIONS

- A. Mobilization Area: For Work at facilities, an area, defined on the Contract Drawings, for Contractor staging and storage of construction equipment, tools, products, and spare parts.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

- A. The San Jacinto River Authority (SJRA) has a 1.0MG elevated storage tank (EST #2) that is to be rehabilitated and repainted and replacing a drain valve at

another elevated storage tank (EST #5) under the terms of this contract. General information on the tank is provided in the Engineer's Report of Inspection dated December 18, 2013, and amended March 14, 2019. Generally, the interior wet and exterior coatings will be replaced and miscellaneous piping and structural steel repairs will be made. The interior dry coating will be pressure washed and spot repairs will be made. The specific repairs and repainting required are outlined in Section 13 02 00.

- B. EST #2 is located at 1100 Lake Front Cir, The Woodlands, Texas (30°10'18.25"N, 95°27'20.05"W). Containment (i.e. shrouding) is required during the exterior abrasive blasting operations to prevent a nuisance. The existing protective coating systems contain less than 1% lead by weight. A laboratory analysis of the coatings is provided at the end of this document in the Report of Inspection.
- C. It shall be the responsibility of the bidders to carefully inspect the site and all pertinent parts and devices on the tank to ascertain the quantity of surface preparation, necessary repairs, and painting required to clean the tank properly, paint, repair and place the tank back into operation in accordance with these contract specifications. The information on the tank provided in the Engineer's Report of Inspection is general in nature and should not be relied upon to determine bid quantities or other bidding factors.

1.6 CASH ALLOWANCES

- A. Include the following specific Allowances in the Contract Price:
 - 1. Cash Allowances Not Used
- B. Contractor's cost for administering services, overhead, profit and other expenses contemplated for the allowance shall be included in the Contract Price and not in the allowance.
- C. Whenever costs are more or less than the stipulated allowance, the Contract Price shall be adjusted accordingly via Change Order, see Specification Section 01 26 63 – Change Orders. The amount of the Change Order shall be the difference between actual costs and the amount of the allowance stated in the Bid or Proposal.

1.7 OWNER-FURNISHED PRODUCTS

- A. Items furnished by the Owner for installation and final connection by Contractor:
 - 1. The Owner will provide warning stickers, decals and/or medallions as required for proposed utility line markers, flushing hydrants, and project signs.
 - 2. NO ADDITIONAL ITEMS
- B. Contractor's Responsibilities:
 - 1. Arrange and pay for product delivery to site.

2. Receive and unload products at site; jointly with Owner's Representative, inspect for completeness or damage.
3. Handle, store, install, and finish products.
4. Repair or replace damaged items.

1.8 DOCUMENT MANAGEMENT SOFTWARE

- A. Contractor and the Owner's Representative shall be given the applicable number of Document Management System user names and passwords.
- B. Contractor shall use the Owner's internet based document management system to transmit its documents to the Owner's Representative, including but not limited to Requests for Information (RFIs), shop drawing submittals, applications for payment, and letters of correspondence. Refer to Specification Section 01 33 00 – Submittals. The document management software should be able to automatically notify all team members of a submittal upload regardless of the originator, i.e. contractor, Principal Architect/Engineer, Owner's Representative, or Owner. Notification of new uploads should go to all team members regardless if they are the Principal Architect/Engineer or not, i.e. sub-consultants for construction management & inspection, but are not tasked as the Principal Architect/Engineer.
- C. A minimum of one (1) and a maximum of three (3) accounts on the document management system will be provided by the Owner. Additional accounts may be requested by the Contractor.
- D. Each account will allow one (1) user to access the document management system. Training on the document management system will be provided by the Owner as requested by the Contractor at a mutually agreed upon date and location.

1.9 WORK SEQUENCE

- A. Construct Work in phases during the construction period. Coordinate construction schedule and operations with the Owner's Representative. Subcontractors shall coordinate its activities and operations with the Contractor.
- B. Construction of this project may require using multiple crews working concurrently in order to complete the project within the specified Contract Time. At no time will multiple crews be allowed to work in consecutive traffic control phases during construction.
- C. Due to overall project complexity and numerous active utility interface requirements, submit a sequence of construction for review by the Owner's Representative. Proposed sequence of construction shall address proposed method and timing of all major construction activities to be undertaken.

- D. Data for all facilities and utilities shown were taken from available plans, record drawings, and/or utility maps made available from several sources. Actual field locations of facilities and utilities may vary from that shown on the Drawings. Contractor shall make a complete and independent verification of utility locations prior to submittal of subsequent shop drawings. Unless otherwise approved by the Owner's Representative, work shall not continue at locations where there is a conflict with existing utilities.
- E. Construction disturbing traffic shall be conducted during off-peak hours, 9:00 a.m. to 4:00 p.m. weekdays and/or weekends 7:00 p.m. Friday to 4:00 a.m. Monday, dependent upon provisions of Texas Department of Transportation. Exception to these times, if necessary, shall be sought during the permit application process. Continue work in areas using same construction schedule during following, consecutive days and/or weekends until work is completed.

1.10 WORK GUIDELINES

- A. Maintain local driveway access to public schools, residential and commercial properties adjacent to work areas at all times. Provide temporary driveway access in accordance with Specification Sections 01 14 19 – Use of Premises. Coordinate work and schedule with impacted business owners, schools, and residents in conjunction with the Owner, well in advance of commencing the Work in the area(s) of the impacted entities.
- B. Contractor shall adhere to each privately owned and operated utility company's construction guidelines when constructing the proposed Work adjacent-to or across each such entities wet or dry utility.
- C. Contractor shall coordinate its Work with the respective pipeline companies' at all proposed utility crossings. See appropriate Contract Drawings for additional and /or related information.
- D. Obtain right-of-entry agreement(s), insurance, crossing permit(s), and other documentation as required or deemed necessary by each utility or pipeline company or other such entity at no additional cost to the Owner.
- E. Contractor shall coordinate its Work schedule with those utility companies who require a representative of their company to be present (onsite) during the construction adjacent-to or across their wet or dry utility.
- F. Site restoration at all crossings shall be performed immediately upon completion of the Work. Restoration shall be performed in accordance with all applicable Specification Sections and utility company requirements.
- G. Hand dig within one (1) foot of underground service lines (public or private).
- H. Contractor shall bear the sole responsibility for damage to existing traffic cables resulting from its construction activities. The Contractor shall be responsible for the repair of damaged traffic cables including the re-cabling of the entire intersection if required, at no additional cost to the Owner.

- I. Work associated with hydrostatic testing, disinfection, flushing, or cleaning of the new facility shall not begin without prior approval from the Owner's Representative.

1.11 COORDINATION OF WORK

- A. Coordinate activity schedule and extend full cooperation to other Contractors who have responsibilities either concurrent with, proceeding, or following this project's duration along the work site. Ensure availability of access to selected portions of this project area to others and provide appropriate information for planning purposes to other Contractors. No compensation or time extension will be allowed as a result of conflicting construction activities.
- B. Comply with coordination requirements outlined in Specification Section 01 14 19 – Use of Premises.
- C. Dial 811 to contact Texas 811 One-Call all two (2) One-Call centers in the state of Texas a minimum of seventy-two (72) hours prior to construction within twenty-five (25) feet of a private pipeline.

Contact numbers for such centers are as follows:

1. TESS (Texas) One Call (800) 344-8377
2. Texas One-Call (800) 245-4545

- D. Existing structures adjacent to the proposed alignment shall be closely monitored prior to, during, and for a one year length of time after construction is complete in all areas. Several conditions including, but not limited to, soil type, construction methods, weather conditions, surrounding construction, personnel experience, and supervision may impact the amount of ground movement within and surrounding the alignment. Contractor shall survey and adequately document the condition and elevation of existing structures adjacent to the proposed alignment. Monitoring program for proposed trenchless construction operations should be developed in accordance with trenchless construction Specification Sections.
- E. All work shall be performed to the lines, grades, elevations, and locations shown on the Drawings.
- F. Prevent overstress or damage of any structure and any part or member of it during construction. This applies to new and existing facilities, utilities, and structures affected by construction operations. Contractor shall monitor and record the effect of its construction operations on new and existing facilities, utilities and structures and provide engineered temporary supports and connections as required to assure the safety and stability of the same to prevent overstress of any part

- G. Prior to commencing any Work involving state or local agencies, agency stipulated notifications shall be made by the Contractor. The Woodlands Township, The Woodlands Development Corporation, The Woodlands Joint Powers Agency, and the Woodlands Division of the San Jacinto River Authority.
- H. Work shall include the restoration of existing drainage swale systems within TXDOT rights-of-way. Contractor shall restore ground cover to areas damaged during construction. Within residential areas, provide block sod. Perform block sodding or hydro-mulch per Specification Sections.
- I. Contractor Work performed within all rights-of-way shall be performed in accordance with the respective entities' standards.

1.12 CONTRACTOR USE OF PREMISES

- A. Comply with all requirements outlined in Specification Section 01 14 19 – Use of Premises.

1.13 CONTRACT CLARIFICATION

- A. Should clarification of the Contract Documents be requested, request clarification before proceeding with Work by submitting a Request for Information (RFI). Such requests shall be preceded by a diligent investigation of the Contract Documents. Include evidence of such investigation(s) in all requests for clarification.

1.14 ALTERNATE CONSTRUCTION METHODS – NOT USED

1.15 UTILITY LINES

- A. All utilities represented on the Drawings are shown as an approximate location and are based on the best information available during project design. Contractor shall field-verify the exact location of all utilities prior to commencing construction. The Contractor shall be responsible for any and all damage to these utilities, caused or resulting from their failure to locate, protect and/or maintain these utilities during construction.

1.16 WARRANTY

- A. Comply with the warranty requirements stipulated in Contract Document General Conditions and the warranty requirements of the various specification sections of this project manual.

PART 2 - PRODUCTS

2.1 SEE SECTION 13 02 00 – ELEVATED STORAGE TANK REHABILITATION

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 14 19

USE OF PREMISES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for:
 - a. Contractor Responsibilities
 - b. Temporary Utilities
 - c. Limits of Construction
 - d. Storage Sheds and Buildings
 - e. Working Times
 - f. Site Access Times
 - g. Notification to Adjacent Occupants
 - h. Safety Requirements
 - i. First Aid Equipment
 - j. Fire Protection
 - k. Security Measures
 - l. Protection of Utilities, Pipelines, and Property
 - m. Surface Restoration
 - n. Traffic Control and Use of Public Rights of Way
 - o. Contractor's Roads and Parking
 - p. Coordination with Facility Owner's Operations
 - q. Contractor's Field Office
 - r. Principal Architect/Engineer's Field Office
 - s. Project Photographs
 - t. Special Considerations Related to Adjacent Properties and Facilities
 - u. Historical and Archaeological Sites

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Proposing Requirements, Contract Forms, and General Conditions of the Contract.

- 2. Division 01 – General Requirements.
- 3. Specification Section 31 21 33 – Trenching, Backfilling, and Compacting for Utilities.

1.2 MEASUREMENT AND PAYMENT

- A. Unit Price. No separate payment will be made for this item. Include the cost in associated items for this project.
- B. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS

- A. See Specification Section 01 33 00 – Submittals for the requirements for the mechanics and administration of the submittal process.
- B. Contractors Safety Program.
- C. All proposed notifications to adjacent occupants.
- D. Planning requests for temporary Owner's facility shutdowns.

1.4 CONTRACTOR RESPONSIBILITIES

- A. Comply with applicable requirements specified in other sections of Project Specifications.
- B. Comply with procedures for access to the site and Contractor's use of rights-of-way.
- C. Maintain and operate temporary construction facilities and temporary systems to assure continuous service of Owner's and other adjacent existing facilities.
- D. Modify and extend temporary systems as Work progress requires.
- E. Completely remove materials and equipment when no longer required.
- F. Restore existing facilities used for temporary services to original or better condition, or as specified.
- G. Prior to installation of material, equipment and/or other work, verify with subcontractors, material or equipment manufacturers, and installers that the substrate or surface to which those materials will attach is acceptable for installation of those materials or equipment. (Substrate is defined as any building or construction surfaces to which materials or equipment are attached to, or required prior to installation i.e., floors, walls, ceilings, soils, utilities, site grading, and backfill etc.).
- H. Correct unacceptable substrate until acceptable for installation of equipment or materials.

1.5 TEMPORARY UTILITIES

A. Obtaining Temporary Service:

1. Make arrangements with utility service companies for temporary services, unless provided by Owner.
2. Abide by rules and regulations of utility service companies and/or authorities/agencies/entities having jurisdiction.
3. Be responsible for utility service costs and permits until Work is substantially complete, and de-mobilization from site. Included services are fuel, power, light, heat, and any other utility services necessary for execution, completion, testing, and initial operation of Work.
4. Be responsible for providing approved metering devices, as necessary, for any temporary utilities.

B. Water:

1. Owner to provide water required for and in connection with Work to be performed and for specified tests of piping, equipment, devices, or for other use as required for proper completion of Work. **If tests fail, Contractor shall be responsible for all additional water and waste.**
2. Provide and maintain adequate supply of potable water for domestic consumption by Contractor personnel and Owner's Construction Management and Inspection (CM&I) Consultant or Construction Manager at Risk (CMAR) representative.

C. Electricity and Lighting:

1. Provide electrical service required for Work, including testing of Work. Provide power for lighting, operation of equipment, and other use as necessary.
2. For projects on existing sites, electric power service to be provided includes temporary power service or generator(s) to maintain Owner's operations during scheduled shutdown(s). Coordinate all temporary shutdowns with Owner and Owner's Representative(s).
3. Minimum lighting level shall be ten (10) foot-candles for open areas; twenty (20) foot-candles for stairs and shops. Provide minimum of one (1) 300 watt lamp for each 200 square feet of work area.

D. Heat and Ventilation:

1. Provide temporary heat as necessary for protection or completion of Work.
2. Provide temporary heat and ventilation to assure safe working conditions. Maintain enclosed areas at minimum of 50°F.

E. Telephone:

1. Provide emergency telephone service (including call waiting and call forwarding) at Project Site for use by Contractor personnel, Owner, Owner's Representative, and others performing work or furnishing services at the site.

F. Sanitary Facilities:

1. Provide and maintain sanitary facilities for persons on job site. Comply with regulations of State and local departments of health.
2. Enforce use of sanitary facilities by construction personnel at job site. Enclose sanitary facilities. Pit-type toilets will not be permitted. No discharge will be allowed from these facilities. Collect and store sewage and waste so as not to cause nuisance or health problem. Haul sewage and waste off-site and properly dispose of in accordance with all applicable regulations.
3. Locate toilets near Work site, within 500 feet of working activities for line work projects and secluded from view as best as possible. Keep toilets clean and supplied throughout course of Work. Locate toilets a minimum of 100 feet from all water wells.

1.6 LIMITS OF CONSTRUCTION

- A. Construction operations and storage areas are limited to Owner's property, permanent easements, temporary construction easements (TCE), and/or the Limits of Construction or Construction Limits as indicated on the Contract Drawings.
- B. Unauthorized use of areas, or trespassing on land outside of defined limits, is not permitted.
- C. Make arrangements, at no cost to the Owner, for Contractor's temporary use of any private properties which may be needed by Contractor for performance of Work. Contractor and Contractor's surety shall indemnify and hold harmless the Owner and Owner's Representatives against claims or demands arising from use of properties outside the Limits of Construction. Submit notarized copy of any separately negotiated agreement(s) between private property owner(s) and Contractor prior to use of area.
- D. Where Limits of Construction are shown on Contract Drawings to extend to a property or Right-of-Way line, keep equipment, materials, and stockpiles a minimum of 5 feet from boundary, or existing fence lines.
- E. Where utility alignment is within an esplanade and Limits of Construction are shown to extend to edge of the esplanade, keep equipment, materials, and stockpiles a minimum of 5 feet from back of curb.
- F. There are unique terms and conditions associated with the various public and private easements, rights-of-entry, encroachment and crossing documents

(collectively, the easement documents) which may be site specific. Contractor shall familiarize itself with all easement Documents. Easement documents are available from the Owner on a case by case basis upon request.

- G. The Contractor, at its sole expense, shall be responsible for complying with all terms and conditions of all easement documents and the easement rights described therein for this project.
- H. Contractor shall safely, properly, and adequately assume and perform all of the duties, indemnities, responsibilities, and liabilities of the Owner under the easement documents.
- I. Contractor, at its cost, shall provide all insurance required by the easement documents. All land included within the tracts covered by the easement documents and easements described herein shall be restored to its original condition prior to Substantial Completion of the construction (including, without limitation, repair or replacement of pavement, concrete, signs, fencing, trees, sidewalks, landscaping, shrubbery, and grass) unless otherwise specified in the Contract Documents.

1.7 STORAGE SHEDS AND BUILDINGS

- A. Provide adequately ventilated, watertight storage facilities with floor above ground level for protection of materials and equipment susceptible to weather damage.
- B. Store materials in neat and orderly manner. Store materials and equipment to permit easy access for identification, inspection, and inventory.
- C. Storage of materials not susceptible to weather damage may be on blocks off ground.
- D. Storage of all fuels and chemicals shall be in designated areas by Contractor.
- E. Refer to Specification Section 01 65 50 – Product Delivery, Storage, and Handling for additional requirements.
- F. Fill and grade site for temporary structures to provide positive drainage away from Work area, but not to impact adjacent property owners.
- G. Restrict total length of distributed materials along route of construction up to {1,000} linear feet as approved in writing by Owner's Representative.
- H. Avoid obstructing drainage ditches or inlets. When obstruction is unavoidable due to requirements of Work, provide grading and temporary drainage structures to maintain unimpeded drainage flow. Failure of the Contractor to maintain proper site drainage shall prohibit it from making a claim against the Owner for monetary or time damages due to drainage impacts.

1.8 WORKING TIMES

- A. Construction shall be conducted during working hours as indicated in Specification Section 00 72 00 – General Conditions of the Contract, unless otherwise amended by a supplemental specification or agreement to the General Conditions of the Contract, and approved by Owner.

1.9 SITE ACCESS TIMES

- A. Contractor to coordinate all site access, including deliveries, outside of working hours with Owner's Representative. Neither Owner nor Owner's Representatives shall sign for any Contractor deliveries. Refer to Specification Section 01 65 50 – Product Delivery, Storage, and Handling.
- B. Contractor shall coordinate with Owner to not interfere with Owner's facility operations.

1.10 NOTIFICATION OF ADJACENT OCCUPANTS

- A. Notify individual occupants in areas to be affected by Work of proposed construction activities and schedule using a standardized notification form letter and/or door hanger. Notification shall be made not less than 72 hours or more than 2 weeks prior to performance of work within 200 feet of homes or businesses. Coordinate all notifications with Owner's Representative.
- B. Include in notification the names and telephone numbers of two Contractor representatives for resident contact available on 24-hour call. Describe precautions that Contractor will take to protect private property and identify potential inconveniences and disruptions to resident's access and utilities.
- C. For Contractor's convenience, Owner's Representative will provide an example notice at the pre-construction meeting. In addition to other requirements of this specification regarding notification to adjacent occupants, Contractor's notice is generally to follow the form and content of the example notice.
- D. Submit proposed notification(s) to Owner for approval prior to distribution. Provide notice(s) in languages as appropriate (i.e., double sided notice. Notice on one side shall be written in English and flip side shall be written in Spanish).

1.11 SAFETY REQUIREMENTS

- A. Beware of overhead power lines existing in area and in close proximity to project. When 10 feet of clearance between energized overhead power line and construction-related activity cannot be maintained, submit a request to the appropriate utility provider to de-energize or move conflicting overhead power line(s).
- B. Submit Contractor's Safety Program in accordance with Specification Section 01 33 00 – Submittals. Include Site Safety and Site Security in accordance with Specification Section 00 72 00 – General Conditions of the Contract.

Include documented response to trench safety requirements as specified in Specification Section 00 31 32.10 – Trench Safety Geotechnical Information.

- C. Conduct operations in strict accordance with the Contractor's Safety Program, in accordance with applicable Federal, State, and local safety codes and statutes, and with good construction practice. Establish and maintain procedures for safety of all work, personnel, and equipment involved in Project.
- D. Observe and comply with Texas Occupational Safety Act (Art. 5182a, V.C.S.) and with all safety and health standards promulgated by Secretary of Labor under Section 107 of Contract Work Hours and Standards Act, published in 29 CFR Part 1926 and adopted by Secretary of Labor as occupational safety and health standards under Williams-Steiger Occupational Safety and Health Act of 1970, and to other legislation enacted for safety and health of Contractor employees. Safety and health standards apply to subcontractors and their employees as well as to Contractor and its employees.
- E. Observance of and compliance with regulations is solely and without qualification responsibility of Contractor without reliance or superintendence of or direction by the Owner or Owner's Representative. Immediately advise Owner's Representative of investigation or inspection by Federal Safety and Health Inspectors of Contractor or subcontractor's work or place of work on job site under this Contract, and after investigation or inspection, advise Owner's Representative of results. Submit one copy of accident reports to Owner's Representative within 10 days of occurrence.
- F. Protect areas occupied by workmen using best available devices for detection of lethal and combustible gases. Test devices frequently to assure functional capability. Constantly observe infiltration of liquids into Work area for visual or odor evidences of contamination, and immediately take appropriate steps to seal off entry of contaminated liquids into Work area.
- G. Implement safety measures, including but not limited to safety personnel, first-aid equipment, ventilating equipment, and other safety equipment, as specified or detailed on the Contract Drawings.
- H. Maintain required coordination with Police and Fire Departments during entire period covered by Contract.
- I. In safety plan, include project safety analysis. Itemize major tasks and potential safety hazards. Plan to eliminate hazards or protect workers and public from each hazard.

1.12 FIRST AID EQUIPMENT

- A. Provide first aid kit throughout construction period. List telephone numbers for hospitals, and ambulance services in each first aid kit.
- B. Have at least one person thoroughly trained in first aid and cardiopulmonary

resuscitation (CPR) procedures present on site whenever Work is in progress. Contractor to conform to protocols and requirements for training and protection against "blood borne pathogens."

1.13 FIRE PROTECTION

- A. Conform to specified fire protection and prevention requirements established by Federal, State, or local governmental agencies and as provided in Contractor's Safety Program.

1.14 SECURITY MEASURES

- A. Protect all Work materials, equipment, and property from loss, theft, damage, and vandalism. Perform duty to protect property of the Owner used in connection with performance of Work.
- B. If existing fencing or barriers are breached or removed for purposes of construction, provide and maintain temporary security fencing equal to existing.

1.15 PROTECTION OF UTILITIES, PIPELINES, AND PROPERTY

- A. Utilize Utility Coordinating Committee One Call System (telephone number, (713) 223-4567), which must be called 48 hours in advance to locate utilities. Toll free telephone number is 1-800-669-8344, Texas (Lone Star) One Call System.
- B. Notify Woodlands Joint Powers Association (WJPA) a minimum of 72 hours in advance of any field activities. Telephone number 281-367-1271.
- C. Prevent damage to existing utilities during construction. Utilities shown on Drawings are at approximate locations. Pre-locate, by whatever means may be required (metal detection equipment, probes, excavation, survey), underground utilities before excavating in accordance with the Critical Locations investigation described in Specification Section 31 21 33 – Trenching, Backfilling and Compacting for Utilities. Perform investigative work and repairs required after investigation. Contractor is responsible for damages caused by failure to locate and preserve these underground utilities. Give owners of utilities a minimum of five (5) days' notice before commencing Work in area, for locating utilities during construction and for making adjustments or relocation of utilities when they conflict with proposed Work. Include cost for temporary relocation of utilities necessary to accommodate construction in unit costs for utility construction unless otherwise noted on Drawings. Bypassing of sanitary waste to storm drainage facilities is not allowed. Utility service laterals are not shown on Drawings. Contractor shall anticipate that service lines exist and repair them when damaged due to construction activity. No separate payment will be made for repair work. Include payment in unit prices for work in appropriate sections.
- D. Contractor shall adhere to each privately owned and operated utility company's

construction guidelines when working adjacent-to or across each such entities wet or dry utility.

- E. Prior to abandonment of any utility indicated on the Drawings, make arrangements with Owner's Representative and utility owner to terminate service, remove meters, valves, appurtenances, transformers, and/or poles, as required.
- F. Utility Outages and Shutdowns: Provide a notification to the Owner's Representative and private utility companies (when applicable) a minimum of 48 hours, excluding weekends and holidays, in advance of required utility shutdown. Shutdown planning and coordination activities shall commence a minimum of 2-weeks prior to scheduled shutdown. Coordinate all work as required.
- G. Protect and prevent damage to existing crossing, parallel, and adjacent pipelines during construction in accordance with Specification Section 01 11 13 – Work Covered by Contract Documents.
- H. When excavating near product pipelines and prior to start of excavation, request that representative of pipeline company come to the construction site(s) to meet representatives of Contractor and Owner's Representative to discuss actual procedures that will be used. Request that pipeline company's representative probe and locate pipelines in at least three locations: one at each side of proposed excavation and one at centerline of proposed Work. Representative of the pipeline company and Owner's Representative must be present to observe activities of Contractor at all times when excavation is being conducted within 15 feet of existing pipelines.
- I. Protection of the Work, and Public and Private Property
 - 1. Take precautions, provide programs, and take actions necessary to protect the Work, and public and private property from damage.
 - 2. Do not alter condition of properties adjacent to and along Limits of Construction.
 - 3. Do not use ways, means, methods, techniques, sequences, or procedures that result in damage to adjacent properties or improvements.
 - 4. Restore properties damaged by Contractor outside of designated Limits of Construction at no cost to Owner.
 - 5. Take action to prevent damage, injury, or loss, including, but not limited to, the following:
 - a. Store materials, supplies, and equipment in orderly, safe manner that will not interfere with progress of Work or work of others.
 - b. Provide suitable storage for materials subject to damage by exposure to

- weather, theft, breakage, or otherwise.
- c. Place upon Work or any part thereof only safe loads.
 - d. Frequently clean up refuse, rubbish, scrap materials, and debris created by construction operations, keeping Project site safe and orderly.
 - e. Provide safe barricades and guard rails to protect pedestrian and vehicular traffic around openings, scaffolding, temporary stairs and ramps, excavations, elevated walkways, and other hazardous areas.
6. Assume full responsibility for preservation of public and private property on or adjacent to the Limits of Construction. When direct or indirect damage is done by or on account of any act, omission, neglect, or misconduct in execution of Work by Contractor, restore to condition equal to or better than that existing before damage was done.
 7. Perform daily clean up in affected construction areas in order to restore site to existing or better conditions. Areas should be free of debris, scrap material, dirt, mud, and other items identified by Owner's Representative. Do not leave buildings, roads, streets, or other construction areas unclean. If deemed necessary by the Owner's Representative, Contractor shall employ street sweeping/cleaning equipment to maintain area streets.
- J. Barricades and Warning Signals:
1. Where Work is performed on or adjacent to any roadway, right-of-way, or public place, furnish and erect barricades, fences, lights, warning signs, and danger signals, and take other precautionary measures, for protection of persons or property and of the Work.
 2. Paint barricades to be visible at night. From sunset to sunrise, furnish and maintain at least one light at each barricade.
 3. Erect sufficient barricades to keep vehicles and pedestrians from entering the area under construction.
 4. Maintain barricades, signs, lights and provide watchmen until Project is accepted by the Owner or the site has been completely restored to its preconstruction condition.
 5. Whenever Work creates encroachment on public roadways, station flagmen to manage traffic flow in accordance with approved traffic control plan. Refer to Specification Section 01 55 26 – Traffic Control.
- K. Protection of Existing Structures:
1. Underground Structures:
 - a. Underground structures are defined to include, but not be limited to, sewer, water, gas, and other piping, manholes, boxes, chambers,

- electrical signal and communication conduits, tunnels, and other existing subsurface installations located within or adjacent to limits of Work.
- b. Known underground structures including water, sewer, electric, and telecommunication services are shown on Contract Drawings. This information is not guaranteed to be correct or complete.
 - c. Explore ahead of trenching and excavation work and sufficiently uncover obstructing underground structures to determine their location, to prevent damage to them, and to prevent interruption of utility services. Restore underground structures to original conditions at no additional cost if damaged during construction.
 - d. Locate and protect private lawn sprinkler systems which may exist within site. Repair or replace damaged systems to condition existing at start of Work, or better.
 - e. Necessary changes in location of Work may be made by the Owner to avoid unanticipated underground structures.
 - f. If permanent relocation of underground structures or other subsurface installations is required and not otherwise provided in Contract, the Owner will direct Contractor in writing to perform Work, which is paid for under provisions for changes as described in Specification Section 00 72 00 - General Conditions of the Contract.
2. **Surface Structures:** Surface structures are defined as existing buildings, structures and other constructed installations above ground surface. Included with structures are their foundations and any extensions below the surface. Surface structures include, but are not limited to buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks, guard cables, fencing, and other facilities visible above ground surface.
 3. **Existing Condition Survey:** Contractor shall survey and adequately document the condition and elevation of existing structures adjacent to the proposed alignment.
 4. **Protection of Underground and Surface Structures:**
 - a. Support in place and protect from direct or indirect damage underground and surface structures located within or adjacent to limits of Work.
 - b. Prevent overstress or damage to any structure and any part or member of structures during construction. This applies to new and existing facilities, utilities, and structures affected by construction operations. Contractor shall monitor and record the effect of its construction operations on new and existing facilities, utilities, and structures, and shall provide engineered temporary supports and connections as

required to assure the safety and stability of the structures and prevent overstress of any part. Employ a registered Professional Engineer licensed in the State of Texas to design temporary supports to assure safety and integrity of structures and facilities.

- c. Install temporary supports carefully and as required by party owning or controlling structure. Before installing structure supports, satisfy Owner's Representative that methods and procedures have been approved by owner of structure.
- d. Avoid moving or changing property of public utilities or private corporations without prior written consent of responsible official of that service or public utility. Representatives of these utilities reserve the right to enter within limits of this Project for purpose of maintaining their properties, or of making changes or repairs to their property that may be considered necessary by performance of this Contract.
- e. Notify owners and/or operators of utilities and pipelines adjacent to the Work of the nature of construction operations and dates when operations will be performed. When construction operations are required in immediate vicinity of existing structures, pipelines, or utilities, give minimum of 5 working days advance notice. Probe and flag location of underground utilities prior to commencement of excavation. Keep flags in place until construction operation reaches and uncovers utility.
- f. Assume risks attending presence or proximity of underground and surface structures within or adjacent to Work including but not limited to damage and expense for direct or indirect damage caused by Contractor's Work to structure. Immediately repair damage.

L. Protection of Installed Products:

- 1. Provide protection of installed products to prevent damage from subsequent operations. Remove protection facilities when no longer needed, prior to final completion of Work.
- 2. Control traffic to prevent damage to equipment, materials, and surfaces.
- 3. Provide coverings to protect equipment and materials from damage. Cover projections, wall corners, jambs, sills, and exposed sides of openings in areas used for traffic and passage of materials in subsequent work.

1.16 SURFACE RESTORATION

- A. Restore site to the condition which existed before construction in accordance with Specification Section 01 74 23 – Restoration of Site, unless otherwise noted in Contract Documents.
- B. For projects not having well defined phases, the total linear footage of project rights-of-way and/or easements that may be disturbed at any given time, shall

be limited to no more than fifty (50) percent of the total project linear footage or {1,000 linear feet}, whichever is less. Accordingly, disturbed areas shall be restored in accordance with Specification Section 01 74 23 – Restoration of Site prior to proceeding with Work that would exceed the fifty (50) percent total project disturbed length or 1,000 linear feet, whichever is less.

1.17 TRAFFIC CONTROL AND USE OF PUBLIC RIGHTS OF WAY

- A. Comply with traffic regulation in accordance with Specification Section 01 55 26 - Traffic Control, and approved traffic control plan(s).
- B. Provide barricades and signs in accordance with Section VI of the State of Texas Manual on Uniform Traffic Control Devices.
- C. Obtain necessary permits and Owner's approval when the nature of Work requires closing an entire street. Obtaining permits required for street closure are the Contractor's responsibility. Avoid unnecessary inconvenience to abutting property owners. Avoid closing more than two (2) consecutive intersections at one time, except by permission of Owner.
- D. Notify Owner's Representative at least 48 hours prior to closing a street or street crossing. It is the Contractor's responsibility to obtain all required permits for street closures in advance.
- E. Maintain 10-foot-wide minimum access lane for emergency vehicles, including access to fire hydrants, at all times.
- F. Remove surplus materials and debris and open each 500 lineal foot length of roadway for public use when work within that length is complete.
- G. Contractor shall provide and install signs indicating entrances to businesses whose normal entry is impaired or detoured as a result of construction. Proposed signs shall be submitted to the Owner's Representative for approval prior to manufacture and installation.
- H. Final acceptance of any portion of Work is not based on return of roadway to public use.
- I. Avoid obstructing driveways or entrances to private property.
- J. Provide temporary access or complete excavation and backfill in one continuous operation to minimize duration of obstruction when excavation is required across drives or entrances.
- K. Contractor shall bear the sole responsibility for damage to existing traffic cables resulting from its construction activities. The Contractor shall be responsible for the repair of damaged traffic cables including the re-cabling of the entire intersection if required, at no additional cost to the Owner.
- L. Construct and maintain temporary detours, ramps, and/or roads to provide for normal public traffic flow when use of public roads or streets is closed by

necessities of Work. Contractor shall obtain all required roadway closure or detour permits in advance of commencing the proposed temporary detour, ramps, and/or roadway Work.

- M. Provide mats or other means to prevent overloading or damage to existing roadways from tracked equipment, large tandem axle trucks or equipment that will damage existing roadway surface. Contractor shall repair or replace damaged roadway not scheduled for removal and/or replacement at no additional cost to the Owner. Repairs or replacement shall be in conformance with the roadway owner's requirements.
- N. Provide daily sweeping of hard-surface roadways to remove soils tracked onto public roadways.

1.18 CONTRACTORS ROADS AND PARKING

- A. Prevent interference with traffic on existing roads.
- B. Construct and maintain temporary access roads and parking areas.
- C. Designate temporary parking areas to accommodate Contractor's and Owner's Representative personnel. When site space is not adequate, provide additional off-site parking. Locate as approved by Owner's Representative.
- D. Minimize use by construction traffic of existing streets and driveways.
- E. Do not allow heavy vehicles or construction equipment in existing parking areas.
- F. Do not inhibit the ability of the Owner's personnel to access, operate, and maintain existing facilities during construction.

1.19 COORDINATION WITH FACILITY OWNER'S OPERATIONS

- A. Definition: A "shutdown" is when a portion of the normal operation of Owner's facility, whether equipment, systems, piping, or conduit, has to be temporarily suspended or taken out of service to perform the Work.
- B. Work that may interrupt normal operations shall be accomplished at times convenient to, and approved by Owner.
- C. Except for necessary shutdowns, perform the Work such that Owner's facilities remain in continuous satisfactory operation during the Project. Schedule and conduct the Work such that the Work does not:
 - 1. Impede Owner's production or processes,
 - 2. Create potential hazards to public health or wellbeing,
 - 3. Create potential hazards to operating equipment and personnel,
 - 4. Reduce the quality of Owner's facilities' product(s) or effluent, or
 - 5. Cause odors or other nuisances.

- D. Coordinate shutdowns with Owner. When possible, combine activities into a single shutdown to minimize impacts on Owner's operations and processes.
- E. Submit a shutdown plan to the Owner and Principal Architect/Engineer a minimum of {30 days} prior to a planned shutdown. Shutdown plan shall consist of the following:
 - 1. For each shutdown, submit an inventory of labor and materials required to perform the shutdown and activities, an estimate of time required to accomplish the complete shutdown including time for Owner to take down and start up existing equipment, systems, or conduits, and written description of steps required to complete the Work associated with the shutdown.
- F. Work that requires shutdown of a ground storage tank at a facility, or any other Work that requires a shutdown of more than 4 hours, shall be closely coordinated with owner.
- G. After acceptance of shutdown planning submittal and prior to starting the shutdown, provide written notification to Owner of date and time each shutdown is to start. Provide written notification submitted to the Owner's Representative at least 72 hours in advance of each shutdown.
- H. Furnish at the Site, in close proximity to the shutdown and tie-in work areas, tools, equipment, spare parts and materials, both temporary and permanent, necessary to successfully complete the shutdown. Complete to the extent possible, prefabrication of piping and other assemblies prior to the associated shutdown. Demonstrate to Owner's satisfaction that Contractor has complied with these requirements before commencing the shutdown.
- I. If Contractor's operations cause an unscheduled interruption of Owner's operations, immediately re-establish satisfactory operation for Owner.
- J. Unscheduled shutdowns or interruptions of continued safe and satisfactory operation of Owner's facilities that result in fines or penalties by authorities having jurisdiction shall be paid solely by Contractor.
- K. Shutdowns of Electrical Systems: Comply with Laws and Regulations, including the National Electric Code. Contractor shall lock out and tag circuit breakers and switches operated by Owner and shall verify that affected cables and wires are de-energized to ground potential before shutdown Work is started. Upon completion of shutdown Work, remove the locks and tags and notify Owner that facilities are available for use.

1.20 CONTRACTOR'S FIELD OFFICE

NOT USED

1.21 PRINCIPAL ARCHITECT/ENGINEER'S FIELD OFFICE

NOT USED

1.22 PROJECT PHOTOGRAPHS

A. Refer to Specification Section 01 32 36.01 – Project Photographs

1.23 SPECIAL CONSIDERATIONS RELATED TO ADJACENT PROPERTIES AND FACILITIES

- A. Contractor shall be responsible for negotiations of any waivers or alternate arrangements required to enable transportation of materials to the site.
- B. Maintain conditions of access road to site such that access is not hindered as the result of construction related deterioration.
 - 1. Provide daily sweeping of hard-surface roadways to remove soils tracked onto roadway.

1.24 HISTORICAL AND ARCHAEOLOGICAL SITES

- A. If, during the course of construction, evidence of deposits of historical or archeological interest are found, the Contractor shall cease operations affecting the find and shall notify Owner.
 - 1. No further disturbance of the deposits shall ensue until the Contractor has been notified by Owner that Contractor may proceed.
 - 2. Owner will issue a notice to proceed after appropriate authorities have surveyed the find and made a determination to Owner.
 - 3. Compensation to the Contractor, if any, for lost time or changes in construction resulting from the find shall be determined in accordance with changed or extra work provisions of the Contract Documents.
- B. Refer to Specification Section 00 72 00 – General Conditions of the Contract including paragraph 4.2.4.

1.25 WARRANTY (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 MAINTENANCE

- A. Maintain temporary facilities in a clean, neat, and orderly manner including maintenance of all-weather surface driveway and parking areas, buildings and furnishings, and equipment or materials furnished and supplied as part of any temporary field office or storage yard for duration of Contract.

- B. Provide regular janitorial services for any temporary field office for duration of Contract. Janitorial services consist of twice weekly sweeping and mopping of floors and trash removal, weekly cleaning of restrooms, and weekly dusting of furniture and equipment.
- C. Provide soap and water, paper towels, toilet paper, cleansers, and other necessary consumables to properly maintain any temporary field office and all temporary toilet facilities.
- D. At this office, maintain complete field file of Shop Drawings, posted Drawings and Specifications, and other files of field operations including provisions for maintaining "As Built Drawings."
- E. Immediately repair damage, leaks, or defective service.
- F. Remove any field office provided under this contract from site upon acceptance of the entire work by the Owner.

3.2 OWNER TRAINING (NOT USED)

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Authority
 - 2. Unit Quantities Specified
 - 3. Measurement
 - 4. Payment Plus Conditions
 - 5. Nonconformance Assessment
 - 6. Nonpayment for Rejected Products
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Measurement:
 - 1. Measurement by Weight: Reinforcing steel, rolled or formed steel or other metal shapes are measured by CRSI or AISC Manual of Steel Construction weights. Welded assemblies are measured by CRSI or AISC Manual of Steel Construction or scale weights.
 - 2. Measurement by Volume:
 - a. Stockpiles: Measured by cubic dimension using mean length, width, and height or thickness.
 - b. Excavation and Embankment Materials: Measured by cubic dimension using average end area method.
 - 3. Measurement by Area: Measured by square dimension using mean length and width or radius.
 - 4. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
 - 5. Stipulated Price Measurement: By unit designated in Agreement.
 - 6. Other: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of Work.
 - 7. Measurement by Each: Measured by each instance or item provided.

8. Measurement by Lump Sum: Measure includes all associated work.

B. Payment:

1. Payment Includes: Full compensation for required supervision, labor, products, tools, equipment, plant, transportation, services, and incidentals; and erection, application or installation of an item of Work; and Contractor's overhead and profit.
2. Total compensation for required Unit Price Work shall be included in Unit Price provided in Proposal. Claims for payment as Unit Price Work, but not specifically covered in list of unit prices contained in Proposal, will not be accepted.
3. Interim payments for stored materials will be made only for materials to be incorporated under items covered in unit prices, unless disallowed in Supplementary Conditions.
4. Progress payments will be based on Owner's Representative's observations and evaluations of quantities incorporated in Work multiplied by unit price.
5. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities determined by Owner's Representative multiplied by unit price for Work which is incorporated in or made necessary by the Work.

1.3 SUBMITTALS (NOT USED)

1.4 AUTHORITY

- A. Measurement methods delineated in Specification sections are intended to complement criteria of this section. In event of conflict, the order of governance is: General Conditions, Individual Specifications, 01 22 00 – Unit Prices.
- B. Owner's Representative will take measurements and compute quantities accordingly.
- C. Assist by providing necessary equipment, workers, and survey personnel.

1.5 UNIT QUANTITIES SPECIFIED

- A. Quantity and measurement estimates stated in Agreement are for contract purposes only. Quantities and measurements supplied or placed in Work and verified by Owner's Representative (GCs 11.6.2) shall determine payment as stated in Specifications Section 00 72 00 - General Conditions of the Contract.
- B. When actual Work requires greater or lesser quantities than those quantities indicated in Proposal, provide required quantities at unit prices contracted as stated in Specifications Section 00 72 00 – General Conditions of the Contract.

1.6 NONCONFORMANCE ASSESSMENT

- A. Remove and replace Work, or portions of Work, not conforming to Contract Documents.

- B. When not practical to remove and replace Work, Owner's Representative will direct one of the following remedies:
 - 1. Nonconforming Work will remain as is, but Unit Price will be adjusted lower at discretion of Owner's Representative.
 - 2. Nonconforming Work will be modified as authorized by Owner's Representative, and Unit Price will be adjusted lower at discretion of Owner's Representative, when modified Work is deemed less suitable than specified.
- C. Specification sections may modify above remedies or may identify a specific formula or percentage price reduction.
- D. Authority of Owner's Representative to assess nonconforming work and identify payment adjustment is final.

1.7 NONPAYMENT FOR REJECTED PRODUCTS

- A. Payment will not be made for the following:
 - 1. Products wasted or disposed of in unacceptable manner.
 - 2. Products determined as nonconforming before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels of required Work.
 - 5. Products remaining on hand after completion of Work, unless specified otherwise.
 - 6. Loading, hauling, and disposing of rejected products.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 25 13

PRODUCT SUBSTITUTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. The procedure for requesting the approval of substitution of a product that is not equivalent to a product which is specified by descriptive or performance criteria or defined by reference to one or more of the following:
 - a. Name of manufacturer.
 - b. Name of vendor.
 - c. Trade name.
 - d. Catalog number.
2. Substitutions are not "or-equals".
3. This Specification Section does not address substitutions for major equipment. Major Equipment is defined in Section 01 61 05.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.

C. Request for Substitution – General:

1. Base all bids on materials, equipment, and procedures specified.
2. Certain types of equipment and kinds of material are described in specifications by means of references to names of manufacturers and vendors, trade names, or catalog numbers.
 - a. When this method of specifying is used, it is not intended to exclude from consideration other products bearing other manufacturer's or vendor's names, trade names, or catalog

numbers, provided said products are "or-equals," as determined by Owner's Representative.

3. Other types of equipment and kinds of material may be acceptable substitutions under the following conditions:
 - a. Or-equals are unavailable due to strike, discontinued production of products meeting specified requirements, or other factors beyond control of Contractor; or,
 - b. Contractor proposes a cost and/or time reduction incentive to the Owner.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS (NOT USED)

1.4 QUALITY ASSURANCE

- A. In making request for substitution or in using an approved product, Contractor represents Contractor:
 1. Has investigated proposed product, and has determined that it is adequate or superior in all respects to that specified, and that it will perform function for which it is intended.
 2. Will provide same guarantee for substitute item as for product specified.
 3. Will coordinate installation of accepted substitution into Work, to include building modifications if necessary, making such changes as may be required for Work to be complete in all respects.
 4. Waives all claims for additional costs related to substitution which subsequently arise.

1.5 DEFINITIONS

- A. Product: Manufactured material or equipment.

1.6 PROCEDURE FOR REQUESTING SUBSTITUTION

- A. Substitution shall be considered only:
 1. After award of Contract.
 2. Under the conditions stated herein.
- B. Written request through Contractor only.
- C. Transmittal Mechanics:
 1. Follow the transmittal mechanics prescribed for Shop Drawings in Specification Section 01 33 00 – Submittals.

- a. Product substitution will be treated in a manner similar to "deviations," as described in Specification Section 01 33 00 – Submittals.
- b. List the letter describing the deviation and justifications on the transmittal form in the space provided under the column with the heading DESCRIPTION.
 - 1) Include in the transmittal letter, either directly or as a clearly marked attachment, the items listed in the following paragraph below.

D. Transmittal Contents:

1. Product identification:
 - a. Manufacturer's name.
 - b. Telephone number and representative contact name.
 - c. Specification Section or Drawing reference of originally specified product, including discrete name or tag number assigned to original product in the Contract Documents.
2. Manufacturer's literature clearly marked to show compliance of proposed product with Contract Documents.
3. Itemized comparison of original and proposed product addressing product characteristics including but not necessarily limited to:
 - a. Size.
 - b. Composition or materials of construction.
 - c. Weight.
 - d. Electrical or mechanical requirements.
4. Product experience:
 - a. Location of past projects utilizing product.
 - b. Name and telephone number of persons associated with referenced projects knowledgeable concerning proposed product.
 - c. Available field data and reports associated with proposed product.
5. Data relating to changes in construction schedule.
6. Data relating to changes in cost.
7. Samples:
 - a. At request of Owner's Representative.
 - b. Full size if requested by Owner's Representative.
 - c. Held until substantial completion.

- d. Owner's Representative not responsible for loss or damage to samples.

1.7 APPROVAL OR REJECTION

- A. Written approval or rejection of substitution given by the Owner's Representative, Principal Architect/Engineer, and the Owner.
- B. Owner's Representative reserves the right to require proposed product to comply with color and pattern of specified product if necessary to secure design intent.
- C. In the event the substitution is approved, the resulting cost and/or time reduction will be documented by Change Order in accordance with the General Conditions.
- D. Substitution will be rejected if:
 - 1. Submittal is not through the Contractor with his stamp of approval.
 - 2. Request is not made in accordance with this Specification Section.
 - 3. In Owner's Representative opinion, acceptance will require substantial revision of the original design.
 - 4. In the Owner's Representative opinion, substitution will not perform adequately the function consistent with the design intent.
- E. Contractor shall reimburse Owner for the cost of the Owner's Representative evaluation whether or not substitution is approved.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 26 63
CHANGE ORDERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

Procedures for processing Change Orders, including:

1. Quality Assurance.
2. Responsible Individual.
3. Documentation of Change in Contract Price and Contract Time.
4. Change Procedures.
5. Proposals and Contract Modifications.
6. Work Change Directive.
7. Change Order.
8. Execution of Change Documentation.
9. Correlation of Contractor Submittals.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Introductory Information, Proposing Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT (NOT USED)

1.3 SUBMITTALS (NOT USED)

1.4 QUALITY ASSURANCE

A. Reference Standards:

1. Equipment Rental Rates: equipmentwatch.com. Rental Rate is defined as full unadjusted base rental rate for appropriate item of construction equipment.

1.5 RESPONSIBLE INDIVIDUAL

- A. Provide letter to the Owner's Representative indicating name, title, address and contact information of individual authorized to execute change documents and who is responsible for informing others in Contractor's employ and Subcontractors of changes to the Work. Information should be provided at the

Preconstruction Conference but, no later than 10 calendar days following the Preconstruction Conference.

1.6 DOCUMENTATION OF CHANGE IN CONTRACT PRICE AND CONTRACT TIME

- A. Maintain detailed records of changes in Work. Provide full information required for identification and evaluation of proposed changes, and substantiate costs of changes in Work.
- B. Document each proposal for change in cost or time with sufficient data to allow evaluation of proposal. Provide additional information upon request of the Owner or the Owner's Representative.
- C. Proposals shall include the following minimum information:
 - 1. Quantities of items in original Proposal with additions, reductions, deletions, and substitutions.
 - 2. Quantities and cost of items in original schedule of values with additions, reductions, deletions, and substitutions.
 - 3. Provide unit prices for items not included in original Proposal with supporting information when absent from original Proposal Work.
 - 4. Justification for changes in Contract Time.
 - 5. Additional data upon request.
- D. For changes in Work performed on a time-and-materials basis, provide the following additional information:
 - 1. Quantities and description of products and equipment.
 - 2. Taxes, insurance and bonds.
 - 3. Overhead and profit as noted in Document 00 72 00 - General Conditions, Article 11.5.
 - 4. Dates, times, and by whom work was performed.
 - 5. Time records and certified copies of applicable payrolls.
 - 6. Invoices, receipts for products, rented equipment, and subcontracts, similarly documented.
- E. For changes in Work performed on a time-and-materials basis, payment for rental equipment will be as follows:
 - 1. Actual invoice cost for duration required to complete extra work without markup for overhead and profit. When extra work comprises only a portion of rental invoice where equipment would otherwise be on site, compute

- hourly equipment rate by dividing the actual monthly invoice by 176. (One day equals 8 hours and 1 week equals 40 hours.)
2. Do not exceed estimated operating costs given on equipmentwatch.com website for items of equipment. Overhead and profit will be allowed on operating cost.
- F. For changes in Work performed on a time-and-materials basis using Contractor-owned equipment, use equipmentwatch.com rates as follows:
1. Contractor-owned equipment will be paid at Rental Rate for duration of time required to complete extra work without markup for overhead and profit. Utilize lowest cost combination of hourly, daily, weekly, or monthly rates. Use 150 percent of Rental Rate for double shifts (one extra shift per day) and 200 percent of Rental Rate for more than two shifts per day. Standby rates shall be 50 percent of appropriate Rental Rate shown on equipmentwatch.com website. No other rate adjustments apply.
 2. Do not exceed estimated operating costs given on equipmentwatch.com. Overhead and profit will be allowed on operating cost. Operating costs will not be allowed for equipment on standby.

1.7 CHANGE PROCEDURES

- A. Changes to Contract Price or Contract Time can only be made by issuance of Change Order. Issuance of Work Change Directive will be formalized into a Change Order. Changes will be in accordance with requirements of the General Conditions.
- B. The Owner's Representative will advise of minor changes in Work not involving an adjustment to Contract Price or Contract Time as authorized by the General Conditions by issuing supplemental instructions.
- C. Request clarification of Drawings, Specifications, Contract Documents, or other information by using Request for Information. Response by the Owner's Representative to Requests for Information does not authorize Contractor to perform tasks outside scope of Work. Changes must be authorized as described in this section.

1.8 PROPOSALS AND CONTRACT MODIFICATIONS

- A. The Owner or the Owner's Representative may issue a Request for Proposal (RFP), which includes detailed description of proposed change with supplementary or revised Drawings and Specifications. The Owner or the Owner's Representative may also request a proposal in response to a Request for Information. Prepare and submit proposal within 7 days or as specified in the request.
- B. Submit request for Contractor changes to Owner's Representative describing proposed change and its full effect on Work, with a statement describing reason

for change and effect on Contract Price and Contract Time including full documentation.

C. The Owner may use the Principal Architect/Engineer to review Change Orders.

1.9 WORK CHANGE DIRECTIVE

- A. The Owner may issue a signed Work Change Directive instructing Contractor to proceed with a change in Work. Work Change Directive will subsequently be incorporated in Change Order.
- B. Document will describe changes in Work and designate method of determining change in Contract Price or Contract Time.
- C. Proceed promptly to execute changes in Work in accordance with Work Change Directive.

1.10 CHANGE ORDER

- A. Stipulated Price Change Order
 - 1. Stipulated Price Change Order will be based on accepted proposal.
- B. Unit Price Change Order
 - 1. Where Unit Prices for affected items of Work are included in Proposal, unit price Change Order will be based on unit prices, subject to the General Conditions.
 - 2. Where unit prices of Work are not pre-determined in Proposal, Work Change Directive or accepted proposal will specify unit prices to be used.
- C. Time-and-Material Change Order
 - 1. Provide itemized account and supporting data after completion of change, within time limits indicated for claims in the General Conditions.
 - 2. The Owner will determine change allowable in Contract Price and Contract Time as provided in the General Conditions.
 - 3. Maintain detailed records of work done on time-and-material basis as specified in paragraph 1.4, Documentation of Change in Contract Price and Contract Time.
 - 4. Provide full information required for evaluation of changes and substantiate costs for changes in Work.

1.11 EXECUTION OF CHANGE DOCUMENTATION

- A. The Owner or the Owner's Representative will issue Change Orders, Work Change Directives, or accepted proposal for signatures of parties as described in the General Conditions.

1.12 CORRELATION OF CONTRACTOR SUBMITTALS

- A. For Stipulated Price Contracts, promptly revise Schedule of Values and Application for Payment forms to record authorized Change Orders as separate line item.

- B. For Unit Price Contracts, next monthly estimate of Work after acceptance of a Change Order will be revised to include new items not previously included and appropriate unit rates.
- C. Promptly revise progress schedules to reflect change in Contract Time, and to adjust time for other items of work affected by change, and resubmit for review.
- D. Promptly enter changes to on-site and record copies of Drawings, Specifications, or Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 29 73
SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Measurement and Payment
 - 2. Definition
 - 3. Preparation
 - 4. Submittal
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Introductory Information, Proposing Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS

- A. Submit Schedule of Values in accordance with requirements of Section 01 33 00 – Submittals. Submit at least 10 days prior to submitting first application for progress payment. Submit via SharePoint.
- B. Revise Schedule of Values and resubmit for items affected by contract modifications, Change Orders, and Work Change Directives. After changes are reviewed without exception by Authority's Principal Architect/Engineer, make submittal at least 10 days prior to submitting next application for progress payment.

1.4 DEFINITIONS

- A. Schedule of Values: Is a schedule, prepared and maintained by the Contractor, allocating portions of the Contract Amount to various portions of the Work, including a tabulation of all of the costs of the various Subcontracts and materials which in the aggregate make up the Cost of the Work. The Schedule of Values shall be subject to Owner's approval and, after such approval, be used as the basis for reviewing the Contractor's Application For Payment.
- B. Break down costs to list major products or operations for each line item which has an installed value of more than \$5000.

1.5 PREPARATION

- A. For stipulated price contracts, subdivide Schedule of Values into logical portions of Work, such as major work items or work in contiguous geographic areas.
- B. Schedule and Schedule of Values shall be developed together. At a minimum, the Schedule of Values shall be broken out by trade and split between materials and labor as approved by the Owner. Such Prices will include overhead and profit applicable to each item of work.
- C. For lump sum equipment items where submittal of operation/maintenance data and testing are required, include separate item for equipment operation and maintenance data submittal valued at 5 percent of lump sum amount for each equipment item and separate item for testing and adjusting valued at 5 percent of lump sum amount for each equipment item.
- D. Round off figures for each listed item to nearest \$100 except for value of one item, when necessary, to make total of items in Schedule of Values equal Contract Price for stipulated price contracts or lump sum amount in Schedule of Unit Price Work.
- E. Submit Schedule of Values in approved electronic spreadsheet, formatted to print on 11" x 17" paper, to the Owner's Document Management System.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Specific requirements for the preparation, submittal, updating, status reporting and management of the construction Progress Schedule.
- B. Provide Construction Schedules for Work included in Contract in accordance with requirements in this Section. Create Construction Schedule using Critical Path Method (CPM) computer software capable of mathematical analysis of Precedence Diagramming Method (PDM) plans. Provide printed activity listings and bar charts in formats described in this Section.
- C. Combine activity listings and bar charts with narrative report to form Construction Schedule submittal for Owner and the Owner's Representatives.
- D. Related Specification Sections include, but are not necessarily limited to:
 - 1. Division 00 - Bidding Requirements, Contract Forms and Conditions of the Contract.
 - 2. Division 01 - General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for this item. Include the cost of construction scheduling in overhead cost for this project.

1.3 SCHEDULING STAFF

- A. Employ or retain services of individual experienced in critical path scheduling for duration of Contract. Individual shall cooperate with Owner's Representative and shall update schedule (Progress Schedule) monthly as required by the Contract's General Conditions, to indicate current status of Work.

1.4 QUALITY ASSURANCE

- A. The person preparing and revising the construction Progress Schedule shall be experienced in the preparation of schedules of similar complexity.
- B. Within five (5) days from award of the Contract, Contractor shall submit to Owner's Representative the name of the person responsible for the preparation, maintenance, updating and revision of all schedules.
 - 1. Qualifications necessary:
 - a. At least five (5) years verifiable experience in the preparation and updating of complex construction schedules for projects of similar type, size and complexity.

- b. Proficient in the use of Microsoft® Project® 2007.

1.5 DEFINITIONS

A. The following definitions shall apply to this Specification Section:

1. **BASELINE SCHEDULE:** The initial as-bid, detailed, cost and resource loaded Progress Schedule prepared by the Contractor to define its plan for constructing the Project as required by the Contract Documents, and accepted by the Owner or Owner's Representative as meeting the requirements of the Contract Documents for specified constraints, sequences, milestones and completion dates.
2. **PROGRESS SCHEDULE:** The initially accepted Baseline Schedule, or subsequently approved Revised Baseline Schedules, updated each month to reflect actual start and finish dates of schedule activities and all time impact events whether caused by Contractor or Owner or factors beyond the control of either party.
3. **REVISED BASELINE SCHEDULE:** The initially accepted Baseline Schedule revised to reflect only approved changes.
4. **WORKING SCHEDULE:** A schedule developed from the Progress Schedule, utilizing scheduling software features not allowed for Baseline and Progress Schedules at the Contractor's sole discretion, to indicate the Contractor's plan for executing the Work, and providing for schedule recovery when approved time extensions are not sufficient to provide for timely completion due to Contractor inefficiencies beyond the control of the Owner or outside the risks accepted by the Owner.

1.6 SUBMITTALS

A. Shop Drawings:

1. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
2. Scheduler qualifications.
3. Baseline Schedule: Submitted within 30 days after Effective Date of Agreement.
4. Monthly Progress Schedules.
5. Revised Baseline Schedules.
6. Working Schedules.
7. Look-Ahead Schedules.

1.7 GENERAL REQUIREMENTS

- A. Contractor shall prepare and submit Baseline and Progress Schedules and updates and revisions to them as specified herein.
1. All scheduling to be performed in Microsoft® Project® 2007.

2. The Baseline and Progress Schedules shall be a calendar day-based and cost-loaded Critical Path Method (CPM) network diagram with supporting data.

B. Disallowed Scheduling Software Features:

1. The following specific features are not allowed to be applied in the Baseline and Progress Schedules:
 - a. Resource leveling.
 - b. Activity or event constraints, other than those specified by the Contract Documents.
 - c. Leads and lags:
 - 1) Create specific activities with specific durations in-lieu-of leads and lags.
 - 2) Durations shall have positive values.
 - d. Default progress data:
 - 1) Start and finish dates shall not be automatically updated.
 - 2) Update with actual start and finish dates documented from field reports.
 - 3) Work activities shall be updated by actual Work progression, not cash flow driven.
 - 4) Updating of activity percent complete and remaining duration shall be independent functions, not one parameter calculated from the other.
 - 5) Out-of-sequence progress shall be accounted for through retained logic, not a default option of progress override.
 - e. Multiple calendars.
2. Any float suppression techniques or other software features that corrupts the pure mathematical model calculating the critical path.
 - a. The following CPM schedule outputs will be rejected without further review:
 - 1) Schedules indicating the start of the critical path at a date point or activity beyond the date of Notice to Proceed, or schedules indicating a discontinuous critical path from Notice to Proceed to Contract completion.
 - 2) Schedules defining critical activities as those on a path or paths having some minimum value of float.
 - 3) Schedules with multiple critical paths.
 - 4) Schedules indicating a completion date beyond the contractual completion date.

3. Contractor, at Contractor's sole discretion, may employ the disallowed scheduling software features for Contractor's exclusive use in preparing a Working Schedule.
- C. Float Time:
 1. Neither the Owner nor the Contractor owns the float; the project owns the float.
 2. As such, liability for delay of the project completion date rests with the party actually causing delay to the project completion date.
- D. By preparing and submitting the Baseline Schedule, the Contractor represents that it can and intends to execute the Work and portions thereof within the specified times and constraints and that its bid covers the costs associated with the execution of the Work in accordance with the Construction Schedule.
- E. Contractor shall provide an electronic copy on CD media for the Baseline Schedule and Progress Schedule and all monthly updates of both to accompany hard copies of the schedules and tabular reports.
 1. Electronic submittal shall be in a format compatible with Microsoft® Project® 2007.
 2. Contractor shall provide with the schedules, a procedural outline of the system shut-downs and proposed tie-ins, and the Owner's O&M staff, which shall be subject to approval of the Owner.

1.8 SUBMITTAL PACKAGES

- A. Baseline Schedule:
 1. CPM time-scaled network diagram:
 - a. Three (3) prints of each sheet.
 - b. Minimum sheet size: 11 IN x 17 IN.
 - c. Provide electronic format (CD-ROM).
 2. Supporting data:
 - a. Three (3) sets of a list of project activities including the following:
 - 1) Holidays that will be observed during construction.
 - 2) Number of planned working days and shifts per week.
- B. Monthly updates that include the following:
 1. Narrative Schedule Report.
 2. Revised Baseline Schedule as appropriate.
 - a. Update to reflect approved Change Orders occurring since the prior update.

- b. If no new approved Change Orders since prior update, provide a narrative report indicating such, and acknowledging the pertinence of the previously approved Baseline Schedule.
 3. Updated Progress Schedule.
 4. Explanation of changes in logic, duration of activities.
 5. The number of opaque reproductions which Contractor requires, plus three (3) copies which will be distributed by the Owner's Representative.
 - a. Do not submit fewer than three (3) copies.
 6. Provide electronic format (CD-ROM).
- C. Look-Ahead Rolling Schedule:
 1. A four-week rolling schedule shall be provided by the Contractor at each progress meeting.
 - a. The schedule shall provide an accurate representation of the work performed the previous week and work planned for the current week and subsequent two (2) weeks.
 2. The schedule shall be provided in a tabular format with bars representing work duration.
 - a. The schedule shall refer to activity ID numbers on the Baseline and Progress Schedules.
 - b. Activities that are on the critical path and activities that are behind schedule shall be noted by color, highlight, or underscore.
 3. Derived from the Working Schedule, if applicable.
- D. Narrative Schedule Report:
 1. Schedule reports for Initial Baseline and Revised Baseline Schedules shall include the following minimum data for each activity:
 - a. Preceding and succeeding activities.
 - b. Activity description and number.
 - c. Durations of activities:
 - 1) Original durations.
 - 2) Remaining durations.
 - d. Earliest start date (by calendar date).
 - e. Earliest finish date (by calendar date).
 - f. Actual start date (by calendar date).
 - g. Actual finish date (by calendar date).
 - h. Latest start date (by calendar date).
 - i. Latest finish date (by calendar date).

- j. Float.
- k. Percentage of activity completed.
- l. Activity constraints specified by the Contract Documents.
- m. Type of Tabulation (Initial or Updated).
- n. Project Duration.
- o. Project Contractual Completion Date.
- p. The date of commencement of the Work as stated in the Notice to Proceed.
- q. If an updated (revised) schedule, cite the new project completion date and project status and date of revision.
- 2. Shall be organized in the following sequence with all applicable documents included:
 - a. Contractor's transmittal letter.
 - b. Work completed during the period.
 - c. Identification of unusual conditions or restrictions regarding labor, equipment or material.
 - d. Description of the current critical path.
 - e. Changes to the critical path and scheduled completion date since the last schedule submittal.
 - f. Description of problem areas.
 - g. Current and anticipated delays:
 - 1) Cause of delay.
 - 2) Impact of delay on other activities, milestones and completion dates.
 - 3) Corrective action and schedule adjustments to correct the delay.
 - h. Pending items and status thereof:
 - 1) Permits.
 - 2) Change orders.
 - 3) Time adjustments.
 - 4) Non-compliance notices.
 - i. Reasons for an early or late scheduled completion date in comparison to the contract completion date.

1.9 START-UP, DEMONSTRATION, TRAINING, AND FINAL COMPLETION

- A. The Baseline Schedule must include broad-based activities for start-up, operator training, and final completion.

1. The Baseline Schedule may not necessarily contain sufficient detail on all activities listed in Specification Section 01 75 00 – Facility Start Up for start-up and demonstration.
2. At least 90 days prior to any activities, submit a detailed schedule in conformance with the requirements of Specification Section 01 75 00 – Facility Start Up:
 - a. Identify task for the substantial completion notification.
 - b. Pre-demonstration period:
 - 1) Identify equipment start-up for all major equipment.
 - 2) Identify all operator trainings required by individual Specification Sections.
 - 3) Complete submission of all required submittals.
 - c. Demonstration period: Identify the demonstration period for each project classified system.

1.10 SCHEDULING CONFERENCE

- A. Contractor shall schedule and Owner's Representative will conduct a scheduling conference with Contractor's project manager and construction scheduler.
 1. Conference must take place within 10 business days after the Preconstruction Conference.
 2. Owner's Representative will review the requirements of this Specification Section and other specified scheduling and sequencing requirements with Contractor.
 3. Baseline Construction Schedule:
 - a. Provide five (5) copies of a Baseline Schedule in the form of an arrow or precedence diagram covering the following project phases and activities:
 - 1) Schedule of Submittals of Shop Drawings and schedule dates for fabrication and delivery of key and long lead time items.
 - 2) Contractor's submittal information shall show intended submittal dates and shall include, as a minimum, the maximum allowable review period.
 - 3) The information shall provide sufficient durations for reasonable administration of re-submittals, fabrication and transportation to produce realistic delivery dates for those procurement items.
 4. Owner's Representative shall review the schedule and provide comments.
 5. Provide approval of the schedule or request a meeting to review the schedule with Contractor within seven (7) days of receipt of the schedule.

6. If requested, Contractor shall participate in a review and evaluation of the schedule with Owner's Representative.
7. Any revisions necessary as a result of this review shall be resubmitted for review by Owner's Representative within five (5) business days.
- B. Contractor shall submit a general time-scaled logic diagram displaying the major activities and sequence of planned operations.
 1. Contractor shall be prepared to discuss the proposed work plan and schedule methodology that comply with the Contract requirements.
 2. If Contractor proposes deviations to specified construction staging of the project, then the general time-scaled logic diagram shall also display the deviations and resulting time impacts.
 3. Contractor shall be prepared to discuss the proposal.
- C. Contractor shall provide the Preliminary Schedule of Values for the work to be performed.
 1. This document must match the total quantities and costs associated with the scheduled tasks.
- D. Owner's Representative will review the logic diagram, WBS coding structure, and activity identification system, and provide required Baseline Schedule changes to Contractor for implementation within seven (7) days following the Conference.
- E. Scheduling Conference (are required on a weekly basis until agreement to the Baseline Schedule is reached).
 1. Contractor to provide copies of the revised schedule.
 2. Contractor to address specific comments from the previous meeting.
 3. Contractor to revise the narrative as required.

1.11 BASELINE SCHEDULE

- A. Schedule shall include, but not be limited to, activities that show the following that are applicable to the project:
 1. Project characteristics, salient features, or interfaces, including those with outside entities that could affect time of completion.
 2. Project start date, scheduled completion date and other milestones.
 3. Work performed by Contractor, subcontractors and suppliers.
 4. Submittal development, delivery, review and approval, including those from Contractor, subcontractors and suppliers.
 5. Procurement, delivery, installation and testing of materials, plants and equipment.
 6. Testing and settlement periods.

7. Utility notification and relocation.
 8. Erection and removal of falsework and shoring.
 9. Finish work and final cleanup.
 10. Project float as the predecessor activity to the scheduled completion date.
- B. Schedule shall have not less than 50 (fifty) activities, unless otherwise authorized by the Owner's Representative.
1. The number of activities shall be sufficient to assure adequate planning of the project, to permit monitoring and evaluation of progress, and to do an analysis of time impacts.
 2. Schedule activities shall include the following:
 - a. A clear and legible description.
 - b. Start and finish dates.
 - c. A duration of not less than one (1) working day, except for event activities, and not more than 20 (twenty) working days, unless otherwise authorized by the Owner's Representative.
 - d. At least one (1) predecessor and one (1) successor activity, except for project start and finish milestones.
 - e. Required constraints: Only contractually required constraints may be inserted into the Baseline Schedule.
 - f. Codes for responsibility, stage, work shifts, location and contract pay item numbers.
- C. Early Completion Time:
1. Contractor may show early completion time on any schedule provided that the requirements of the contract are met.
 2. Contractor may increase early completion time by improving production, reallocating resources to be more efficient, performing sequential activities concurrently or by completing activities earlier than planned.
- D. Working durations shall be planned to incorporate the effects of normal weather impacts. See General Conditions Article 12.2 for the "Baseline Rain Day Determination".

1.12 PROGRESS SCHEDULE

- A. Develop Progress Schedule based on approved Baseline and Revised Baseline Schedules.
1. All restrictions on use of constraints, leads and lags, resource leveling, etc., shall also apply to Progress Schedules.
- B. The Progress Schedule will be updated once per month for monitoring progress.

1. Contractor may submit one (1) additional update per month for its own convenience.
- C. Indicate progress by making entries on the most recently accepted version of the network diagram and supporting data to show:
 1. Activities completed.
 2. Activities started.
 3. Remaining duration for each activity started but not yet completed.
 4. Percent complete based on value of work in place and value of equipment or material delivered and properly stored.
 5. Status of activity due to be completed by the next scheduled progress meeting.
- D. Computerized Progress Schedule and percent completion of Work shall be used to verify Contractor's payment requests.
 1. Progress payments will not be processed by the Owner's Representative unless the updated Progress Schedule has been submitted concurrently with a pay request and found acceptable by the Owner's Representative.

1.13 REVISIONS TO PROGRESS SCHEDULE

- A. Contractor shall submit data for a revised Progress Schedule within five (5) days of the occurrence of any of the following:
 1. When contractor-caused delay in completion of any activity or group of activities indicates an overrun of the Contract Time or Control Dates by 30 (thirty) working days or 10 (ten) percent of the remaining duration, whichever is less.
 2. When delays in submittals, deliveries, or work stoppages are encountered making necessary the replanning or rescheduling of the Work.
 3. When the schedule does not represent the actual progress of the Work.
 4. When a change order significantly affects the contract completion date.
- B. The revised Progress Schedule shall be the basis of a Working Schedule showing:
 1. How Contractor intends to return to schedule.
 2. How Contractor intends to avoid falling behind schedule on future activities.
- C. Show changes on the network diagram and supporting data including:
 1. New activities and their duration.
 2. Modifications to existing activities.
- D. Provide written narrative report as needed to define:
 1. Problem areas, anticipated delays, and impact on the current schedule.

2. Corrective action recommended, and its effect.
 3. Major changes in scope.
 4. Revised projections of progress and completion.
- E. Except as provided in the following subparagraphs 1 and 2, the cost of revisions to the Progress Schedule resulting from changes in the Work shall be included in the cost for the change in the Work, and shall be based on the complexity of the revision or Change Order, man-hours expended in analyzing the change, and the total cost of the change.
1. The cost of revision to the Construction Schedule not resulting from authorized changes in the Work shall be the responsibility of the Contractor.
 2. The cost of revision to the Construction Schedule for the Contractor's convenience shall be the responsibility of the Contractor.
- F. The revised network diagram and supporting data for the Progress Schedule shall be submitted to the Owner's Representative upon completion of the revisions, but not later than the next progress meeting.
- G. Revisions to the Progress Schedule for the Contractor's convenience:
1. Must be approved by the Owner's Representative before Contractor changes the sequence of Work.

1.14 TIME IMPACT ANALYSIS (TIA)

- A. The accepted initial Baseline Schedule or subsequently accepted Revised Baseline Schedule shall be used for TIA.
- B. Contractor shall submit a written TIA to the Owner's Representative with each request for adjustment of Contract Time, or when Contractor or Owner's Representative consider that an approved or anticipated change may impact the critical path or contract progress.
1. The TIA must be attached to any change order prior to approval of any change to time or cost.
- C. The TIA shall illustrate the impacts of each change or delay on the current scheduled completion date or internal milestone, as appropriate.
1. The analysis shall use the Baseline or Revised Baseline Schedule (accepted Baseline Schedule) that has a data date closest to and prior to the event.
 2. If the Owner's Representative determines that the accepted Baseline Schedule used does not appropriately represent the conditions prior to the event, the accepted Baseline Schedule shall be updated to the day before the event being analyzed.
 3. The TIA shall include an impact schedule developed from incorporating the event into the accepted Baseline Schedule by adding or deleting activities, or by changing durations or logic of existing activities as appropriate to the nature of the change event.

4. If the impact schedule shows that incorporating the event modifies the critical path and scheduled completion date of the accepted Baseline Schedule, the difference between scheduled completion dates of the two (2) schedules shall be equal to the adjustment of Contract Time.
- D. Contractor shall submit a TIA in duplicate within 15 working days of receiving a written request for a TIA from the Owner's Representative.
 1. Contractor shall allow the Owner's Representative two (2) weeks after receipt to approve or reject the submitted TIA.
 2. All approved TIA schedule changes shall be shown on the next update schedule.
- E. In the event of a TIA rejection:
 1. If a TIA submitted by the Contractor is rejected by the Owner's Representative, the Contractor shall meet with the Owner's Representative to discuss and resolve issues related to the TIA.
 2. If agreement is not reached, the Contractor will be allowed 15 days from the meeting with the Owner's Representative to give notice.
 3. Contractor shall only show actual as-built work, not unapproved changes related to the TIA, in subsequent update schedules.
 4. If agreement is reached at a later date, approved TIA schedule changes shall be shown on the next update schedule.
 5. Owner's Representative will withhold remaining payment on the schedule contract item if a TIA is requested by Owner's Representative and not submitted by Contractor within 15 working days.
 6. The schedule item payment will resume on the next estimate after the requested TIA is submitted.
 - a. No other contract payment will be retained regarding TIA submittals.

1.15 NARRATIVE SCHEDULE REPORT

- A. Narrative Schedule Report shall list Activities Started This Month; Activities Completed This Month; Activities Continued This Month; Activities Scheduled To Start or Complete Next Month; Problems Encountered This Month; Actions Taken to Solve These Problems.
- B. Narrative Schedule Report shall describe changes made to Construction Schedule Logic (i.e., changes in Predecessors and Lags); Activities Added to Schedule; Activities Deleted from Schedule; any other changes made to Schedule other than addition of Actual Start Dates and Actual Finish Dates and changes of Data Date and Remaining Durations for recalculation of mathematical analysis.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 32 36.01

PROJECT PHOTOGRAPHS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Technical and submittal requirements for project photographs, including:
 - a. Measurement and Payment
 - b. Project photographs for facility and pipeline projects. Facility projects may have one or more distinct sites. Pipeline projects may have more than one segment but are usually linear in nature, such as waterline or wastewater line projects.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 - General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 DEFINITIONS:

1. Pre-construction Photographs: Photographs taken, in sufficient numbers and detail, prior to beginning field activities, to show original construction site conditions.

1.4 SUBMITTALS:

1. Refer to Section 01 33 00 – Submittals.
2. Format and Media. Digital photography shall be used for Preconstruction Photographs. Submit digital Joint Photographic Experts Group (JPEG) images for electronic submittals.
 - a. Media
 - 1) Digital Photography. Use at least 6.0 megapixel density for photographs. Submit digital photographic files on USB flash drives in JPEG format. Mark flash drives with project name and dates of photos.
3. Submittal Quantities and Frequencies
 - a. Preconstruction photographs: Submit one set of photo prints and one set of digital images.

- 1) For Facility Projects, multiple photographs shall be taken of the project site to document existing facilities, parking areas, driveways, surface features such as building, trees and other vegetation or landscaping. This shall be accomplished through the use of a 100 foot interval grid (50 foot grid for sites less than 1 acre) imposed on the site with photos taken at each node point along the grid lines (4 photos per node) or by other means as approved by the Owner's Representative.
- 2) For Pipeline Projects, Contractor shall provide photos to document the existing conditions of the site. For water line and wastewater line projects, Contractor shall take photos at approximately 200 foot intervals (plus or minus 25 feet) along the center line of the project. No survey or staking is required to establish stationing as GPS coordinates are provided. One photo shall be taken looking in the direction of increasing stationing, one photo looking to the right (90°R) from the first photo, one photo looking to the left (90°L), one photo looking in the direction of decreasing stationing (180° from the increasing stationing direction). Where the project is to be constructed in or near active traffic lanes offset the location of the photos such that the photographs are taken from the sidewalk or shoulder or median and not from the active traffic pavement. In addition to the centerline photographs, Contractor shall document with photographs all features such as mailboxes, signs, traffic and light poles, driveways, culverts, inlets, and landscaping along the pipeline route which could be damaged by the Contractor's operations. Preconstruction Photo prints submittals shall progress from the lowest station to the highest station along the centerline. Progress Photographs
- 3) For Water Plant Projects, Contractor shall provide photos to document existing equipment and materials attached to the elevated water storage tank. Contractor shall document all features such as antennas, amplifiers, cables, connections of any above mentioned, and any and/or all mechanical support devices stabilizing such features prior to removal. The data should provide adequate information for proper re-installment of equipment and material upon completion of work(s) performed.
4. Hand-deliver or transmit Completed Project Photo prints in standard photographic mailers marked "Photographs - Do Not Bend."
5. Photographic prints, negatives, photographic files and disks become the property of the Owner with all rights of reproduction to the Owner. Do not publish photographs without written consent by the Owner.

B. Quality Assurance:

1. Contractor shall be responsible for the quality of and timely execution and submittal of photographs.

2. Contractor shall schedule and coordinate photographer with Owner's Representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Mechanics and administration of the submittal process for:
 - a. Shop Drawings.
 - b. Samples.
 - c. Miscellaneous submittals.
 - d. Operation and Maintenance Manuals.
2. General content requirements for Shop Drawings.
3. Content requirements for Operation and Maintenance Manuals.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 - General Requirements.
3. Sections in Divisions 02 through 48 identifying required submittals.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS (NOT USED)

1.4 DEFINITIONS

A. Shop Drawings:

1. See General Conditions.
2. Product data and samples are Shop Drawing information.

B. Operation and Maintenance (O&M) Manuals:

1. Contain the information required for proper installation and maintenance of building materials and finishes.
2. Contain the technical information required for proper installation, operation and maintenance of process, electrical and mechanical equipment and systems.

C. Miscellaneous Submittals:

1. Submittals other than Shop Drawings and O&M Manuals.

2. Representative types of miscellaneous submittal items include but are not limited to:
 - a. Construction schedule.
 - b. Facility Shutdown Plan(s)
 - c. HVAC test and balance reports.
 - d. Installed equipment and systems performance test reports.
 - e. Manufacturer's installation certification letters.
 - f. Instrumentation and control commissioning reports.
 - g. Warranties.
 - h. Service agreements.
 - i. Construction photographs.
 - j. Record Documents.
 - k. Cost breakdown (Schedule of Values).
 - l. Safety Plan(s).

1.5 SUBMITTAL SCHEDULE

- A. Schedule of Shop Drawings:
 1. Submitted and approved within 20 (twenty) days of receipt of Notice to Proceed.
 2. Account for multiple transmittals under any specification section where partial submittals will be transmitted.
- B. Shop Drawings: Submittal and approval prior to 50 (fifty) percent completion.
- C. Operation and Maintenance Manuals and Completed Equipment Record Sheets: Initial submittal within 60 (sixty) days after date Shop Drawings are approved.

1.6 PREPARATION OF SUBMITTALS

- A. General:
 1. All submittals and all pages of all copies of a submittal shall be completely legible.
 2. Submittals which, in the Owner's Representative's or Principal Architect/Engineer's sole opinion, are illegible will be returned without review.
- B. Shop Drawings:
 1. Scope of any submittal and shop drawing transmittal:
 - a. Submit shop drawings utilizing Owner's standard Submittal Transmittal Form.

- b. Limited to one (1) Specification Section.
- c. Do not submit under any Specification Section entitled (in part) "Basic Requirements" unless the product or material submitted is specified, in total, in a "Basic Requirements" Section.
- 2. Numbering letter of transmittal:
 - a. Include a series number, "xx", beginning with "01" and increasing sequentially with each additional transmittal.
 - b. Assign consecutive series numbers to subsequent transmittals.
- 3. Describing transmittal contents:
 - a. Provide listing of each component or item in submittal capable of receiving an independent review action.
 - b. Identify for each item:
 - 1) Manufacturer and Manufacturer's Drawing or data number.
 - 2) Contract Document tag number(s).
 - 3) Unique page numbers for each page of each separate item.
 - 4) Use divider sheets with labeled tabs to separate independent items within a single submittal.
 - c. When submitting "or-equal" items that are not the products of named manufacturers, include the words "or-equal" in the item description.
- 4. Contractor stamping:
 - a. General:
 - 1) Contractor's review and approval stamp shall be applied either to the letter of transmittal or a separate sheet preceding each independent item in the submittal.
 - a) Contractor's signature and date shall be wet ink signature. Is an electronic signature acceptable as most submittals are uploaded to SharePoint as a .PDF electronic document?
 - b) Shop Drawing submittal stamp shall read "(Contractor's Name) has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval as stipulated under General Conditions Paragraph 6.20.4."
 - 2) Submittals containing multiple independent items shall be prepared with an index sheet for each item listing the discrete page numbers for each page of that item, which shall be stamped with the Contractor's review and approval stamp.
 - a) Individual pages or sheets of independent items shall be numbered in a manner that permits Contractor's review and

approval stamp to be associated with the entire contents of a particular item.

- b) Use divider sheets with labeled tabs to separate independent items within a single submittal.

b. Electronic stamps:

- 1) Contractor may electronically embed Contractor's review and approval stamp to either the Submittal Transmittal Form or a separate index sheet preceding each independent item in the submittal.
- 2) Contractor's signature and date on electronically applied stamps shall be wet ink signature. Is an electronic signature acceptable as most submittals are uploaded to SharePoint as a PDF electronic document?

5. Resubmittals:

- a. Number with original root number and a suffix letter starting with "A" on a new Submittal Transmittal Form.
- b. Do not increase the scope of any prior transmittal.
- c. Account for all components of prior transmittal.
 - 1) If items in prior transmittal received "A" or "B" Action code, list them and indicate "A" or "B" as appropriate (See also 1.6, this Section).
 - a) Do not include submittal information for items listed with prior "A" or "B" in resubmittal.
 - 2) Indicate items to be resubmitted "at a later date" for any prior "C" or "D" Action item not included in resubmittal.
 - a) Obtain Principal Architect/Engineer's approval to exclude items.

6. For 8-1/2 x 11 In, 8-1/2 x 14 In, and 11 x 17 In hard copy size sheets, provide three (3) copies of each page for Principal Architect/Engineer's plus the number required by the Contractor. In today's electronic environment, is subsection No. 6 necessary to be included in the contract documents?

- a. The number of copies required by the Contractor will be defined at the Preconstruction Conference, but shall not exceed four (4) hard copies.
- b. All other hard copy size sheets:
 - 1) Submit one (1) reproducible transparency or high resolution print and one (1) additional print of each Drawing until approval is obtained.
 - 2) Utilize mailing tube; do not fold.
 - 3) The Principal Architect/Engineer will mark and return the reproducible to the Contractor through the Owner's Representative for his reproduction and distribution.

7. Electronic submittals utilizing web based document management system (SharePoint®):

- a. Shop drawing submittals shall be produced (scanned) in Adobe Acrobat's Portable Document Format (PDF) Version 5.0 or higher.
- b. Do not password protect and/or lock the PDF document.
- c. Create one (1) PDF document (PDF file) for each submittal.
- d. Drawings or other graphics must be converted to PDF format and made part of the single (one [1]) PDF document.
 - 1) Scanning to be used only where actual file conversion is not possible.
- e. Limit PDF document size to 5MB.
- f. Rotate pages that must be viewed in landscape to the appropriate position for easy reading.
- g. Images only shall be scanned at a resolution of 300 dpi or greater.
 - 1) Perform Optical Character Recognition (OCR) capture on all images.
 - 2) Achieve OCR with the "original image with hidden text" option.
 - 3) Word searches of the PDF document must operate successfully to demonstrate OCR compliance.
- h. Create bookmarks in the navigation frame, for each entry in the Table of Contents/Index.
 - 1) Normally three (3) levels deep (i.e., "Chapter," "Section," "Sub-section").
- i. Thumbnails must be generated for each PDF file.
- j. Set the opening view for PDF files as follows:
 - 1) Initial view: Bookmarks and Page.
 - 2) Magnification: Fit in Window.
 - 3) Page layout: Single page.
 - 4) Set the file to open to the cover page of the submittal with bookmarks to the left, and the first bookmark linked to the cover page.
- k. All PDF documents shall be set with the option "Fast Web View" to open the first pages of the document for the viewer while the rest of the document continues to load.
- l. File naming conventions:
 - 1) File names shall use a "nine dot three" convention (XXXXXX-YY-Z.PDF) where XXXXXX is the Specification Section number, YY is the Shop Drawing Root series number and Z is an ID number used to designate the associated volume.
 - a) Example 1:

- (1) Two (2) pumps submitted as separate Shop Drawings under the same Specification Section:
 - (a) Pump 1 = 43 21 21-01-1.pdf.
 - (b) Pump 2 = 43 21 21-02-1.pdf.
 - b) Example 2:
 - (1) Control system submitted as one (1) Shop Drawing but separated into two (2) shop drawing submittals:
 - (a) Volume 1 = 40 90 00-01-1.pdf.
 - (b) Volume 2 = 40 90 00-01-2.pdf.
- 8. Provide clear space (3 In Sq) for Principal Architect/Engineer stamping of each component defined in the PREPARATION OF SUBMITTALS Article – Contractor Stamping.
- 9. Contractor shall not use red color for marks on transmittals.
 - a. Duplicate all marks on all copies transmitted, and ensure marks are photocopy reproducible.
 - b. Outline Contractor marks on reproducible transparencies with a rectangular box.
- 10. Transmittal contents:
 - a. Coordinate and identify Shop Drawing contents so that all items can be easily verified by the Owner's Representative and the Principal Architect/Engineer.
 - b. Identify equipment or material use, tag number, Drawing detail reference, weight, and other Project specific information.
 - c. Provide sufficient information together with technical cuts and technical data to allow an evaluation to be made to determine that the item submitted is in compliance with the Contract Documents.
 - d. Submit items such as equipment brochures, cuts of fixtures, product data sheets or catalog sheets on 8-1/2 x 11 In pages.
 - 1) Clearly mark (indicate) exact item or model and all options proposed.
 - e. When a Shop Drawing submittal is called for in any Specification Section, include as appropriate, scaled details, sizes, dimensions, performance characteristics, capacities, test data, anchoring details, installation instructions, storage and handling instructions, color charts, layout Drawings, rough-in diagrams, wiring diagrams, controls, weights and other pertinent data in addition to information specifically stipulated in the Specification Section.
 - 1) Arrange data and performance information in format similar to that provided in Contract Documents.

- 2) Provide, at minimum, the detail specified in the Contract Documents.
 - f. Provide warranty information.
 - g. If proposed equipment or materials deviate from the Contract Drawings or Specifications in any way, clearly note the deviation and justify the said deviation in detail in a separate letter immediately following transmittal sheet.
11. Samples:
- a. Identification:
 - 1) Identify sample as to transmittal number, manufacturer, item, use, type, project designation, tag number, standard Specification Section or Drawing detail reference, color, range, texture, finish and other pertinent data.
 - 2) If identifying information cannot be marked directly on sample without defacing or adversely altering samples, provide a durable tag with identifying information securely attached to the sample.
 - b. Include application specific brochures, and installation instructions.
 - c. Provide Contractor's stamp of approval on samples or transmittal form as indication of Contractor's checking and verification of dimensions and coordination with interrelated work.
 - d. Resubmit samples of rejected items.
- C. Miscellaneous Submittals:
1. Prepare in the format and detail specified in Specification requiring the miscellaneous submittal.
- D. Operation and Maintenance Manuals:
1. Owner's use of manufacturer's Operation and Maintenance materials:
 - a. Materials are provided for Owner's use, reproduction and distribution as training and reference materials within Owner's organization.
 - 1) Applicable to hard copy or electronic media.
 - 2) Applicable to materials containing copyright notice as well as those with no copyright notice.
 - b. Notify manufacturer of this intended use of materials provided under the Contract.
 2. Number each Operation and Maintenance Manual transmittal with the original root number of the associated Shop Drawing.
 - a. Identify resubmittals with the original number plus a suffix letter starting with "A."
 3. Submittal format:

- a. Interim submittals: Submit two (2) paper copies until manual is approved.
- b. Final submittals:
 - 1) Within 30 days of receipt of approval, submit one (1) additional paper copy and two (2) electronic copies to the Owner's Document Management System (SharePoint) in Portable Document Format (PDF).
 - a) Compact discs to be secured in jewel cases.
 - 2) Electronic copies will be reviewed for conformance with the approved paper copy and the electronic copy (PDF) requirements of this Specification.
 - 3) Non-conforming CDs will be returned with comments.
 - a) Provide final CDs within 30 days of receipt of comments.
- 4. Paper copy submittals:
 - a. Submit Operation and Maintenance Manuals printed on 8-1/2 x 11 In size heavy first quality paper with standard three-hole punching and bound in appropriately sized three-ring (or post) vinyl view binders with clear overlays front, spine and back.
 - 1) Provide binders with titles inserted under clear overlay on front and on spine of each binder.
 - a) As space allows, binder titles shall include, but not necessarily be limited to, Project Name, related Specification Number, Equipment Name(s) and Project Equipment Tag Numbers.
 - 2) Provide a Cover Page for each manual with the following information:
 - a) Manufacturer(s).
 - b) Date.
 - c) Project Owner and Project Name.
 - d) Specification Section.
 - e) Project Equipment Tag Numbers.
 - f) Model Numbers.
 - g) Principal Architect/Engineer.
 - h) Contractor.
 - 3) Provide a Table of Contents or Index for each manual.
 - 4) Use plastic-coated dividers to tab each section of each manual per the manual's Table of Contents/Index for easy reference.
 - 5) Provide plastic sheet lifters prior to first page and following last page.

- b. Reduce Drawings or diagrams bound in manuals to an 8-1/2 x 11 In or 11 x 17 In size.
 - 1) Where reduction is not practical to ensure readability, fold larger Drawings separately and place in vinyl envelopes which are bound into the binder.
 - 2) Identify vinyl envelopes with Drawing numbers.
- c. Mark each sheet to clearly identify specific products and component parts and data applicable to the installation for the Project.
 - 1) Delete or cross out information that does not specifically apply to the Project.
- 5. Electronic copy submittals:
 - a. Electronic copies of the approved paper copy Operation and Maintenance Manuals are to be produced in Adobe Acrobat's Portable Document Format (PDF) Version 5.0 or higher.
 - b. Do not password protect and/or lock the PDF document.
 - c. Create one (1) PDF document (PDF file) for each equipment O&M Manual.
 - d. Drawings or other graphics must be converted to PDF format and made part of the one (1) PDF document.
 - 1) Scanning to be used only where actual file conversion is not possible.
 - e. Rotate pages that must be viewed in landscape to the appropriate position for easy reading.
 - f. Images only shall be scanned at a resolution of 300 dpi or greater.
 - 1) Perform Optical Character Recognition (OCR) capture on all images.
 - 2) Achieve OCR with the "original image with hidden text" option.
 - 3) Word searches of the PDF document must operate successfully to demonstrate OCR compliance.
 - g. Create bookmarks in the navigation frame, for each entry in the Table of Contents/Index.
 - 1) Normally three (3) levels deep (i.e., "Chapter," "Section," "Sub-section").
 - h. Thumbnails must be generated for each PDF file.
 - i. Set the opening view for PDF files as follows:
 - 1) Initial view: Bookmarks and Page.
 - 2) Magnification: Fit in Window.
 - 3) Page layout: Single page.

- 4) Set the file to open to the cover page of the manual with bookmarks to the left, and the first bookmark linked to the cover page.
- j. All PDF documents shall be set with the option "Fast Web View" to open the first pages of the document for the viewer while the rest of the document continues to load.
- k. File naming conventions:
 - 1) File names shall use a "ten dot three" convention (XXXXXX-YY-Z.PDF) where XXXXXX is the Specification Section number, YY is the Shop Drawing Root number and Z is an ID number used to designate the associated volume.
 - a) Example 1:
 - (1) Two (2) pumps submitted as separate Shop Drawings under the same Specification Section:
 - (a) Pump 1 = 43 21 21-01-1.pdf.
 - (b) Pump 2 = 43 21 21-02-1.pdf.
 - b) Example 2:
 - (1) Control system submitted as one (1) Shop Drawing but separated into two (2) O&M volumes:
 - (a) Volume 1 = 40 90 00-01-1.pdf.
 - (b) Volume 2 = 40 90 00-01-2.pdf.
 - l. Labeling:
 - 1) As a minimum, include the following labeling on all CD-ROM discs and jewel cases:
 - a) Project Name.
 - b) Equipment Name and Project Tag Number.
 - c) Project Specification Section.
 - d) Manufacturer Name.
 - e) Vendor Name.
 - m. Binding:
 - 1) Include labeled CD(s) in labeled jewel case(s).
 - a) Bind jewel cases in standard three-ring binder Jewel Case Page(s), inserted at the front of the Final paper copy submittal.
 - b) Jewel Case Page(s) to have means for securing Jewel Case(s) to prevent loss (e.g., flap and strap).

6. Operation and Maintenance Manuals for Materials and Finishes:

 - a. Building Products, Applied Materials and Finishes:

- 1) Include product data, with catalog number, size, composition and color and texture designations.
- 2) Provide information for re-ordering custom manufactured products.
- b. Instructions for Care and Maintenance:
 - 1) Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods and recommended schedule for cleaning and maintenance.
- c. Moisture Protection and Weather Exposed Products:
 - 1) Include product data listing, applicable reference standards, chemical composition, and details of installation.
 - 2) Provide recommendations for inspections, maintenance and repair.
- d. Additional requirements as specified in individual product specifications.
7. Operation and Maintenance Manuals for Equipment and Systems:
 - a. Submission of Operation and Maintenance Manuals for equipment and systems is applicable but not necessarily limited to:
 - 1) Major equipment.
 - 2) Equipment powered by electrical, pneumatic or hydraulic systems.
 - 3) Specialized equipment and systems including instrumentation and control systems and system components for HVAC process system control.
 - 4) Valves and water control gates.
 - b. Equipment and Systems Operation and Maintenance Manuals shall include, but not necessarily be limited to, the following completed forms and detailed information, as applicable:
 - 1) Fully completed type-written copies of the associated Equipment Record(s), Exhibits A1, A2 and A3, shall be included under the first tab following the Table of Contents of each Operation and Maintenance Manual.
 - a) Each section of the Equipment Record must be completed in detail.
 - (1) Simply referencing the related manual for nameplate, maintenance, spare parts or lubricant information is not acceptable.
 - b) For equipment items involving components or subunits, a fully completed Equipment Record Form is required for each operating component or subunit.
 - c) Submittals that do not include the associated Equipment Record(s) will be rejected without further content review.

- d) Electronic copies of the Exhibits may be obtained by contacting the Project Manager.
- 2) Equipment function, normal operating characteristics, limiting operations.
- 3) Assembly, disassembly, installation, alignment, adjustment, and checking instructions.
- 4) Operating instructions for start-up, normal operation, control, shutdown, and emergency conditions.
- 5) Lubrication and maintenance instructions.
- 6) Troubleshooting guide.
- 7) Parts lists:
 - a) Comprehensive parts and parts price lists.
 - b) A list of recommended spare parts.
 - c) List of spare parts provided as specified in the associated Specification Section.
- 8) Outline, cross-section, and assembly Drawings; engineering data; and electrical diagrams, including elementary diagrams, wiring diagrams, connection diagrams, word description of wiring diagrams and interconnection diagrams.
- 9) Test data and performance curves.
- 10) As-constructed fabrication or layout Drawings and wiring diagrams.
- 11) Instrumentation or tag numbers assigned to the equipment by the Contract Documents are to be used to identify equipment and system components.
- 12) Additional information as specified in the associated equipment or system Specification Section.

1.7 TRANSMITTAL OF SUBMITTALS

A. Shop Drawings, Samples and Operation and Maintenance Manuals:

- 1. Transmit all submittals via Owner's Document Management System (SharePoint).
- 2. Utilize SJRA Standard Submittal Transmittal Form (to be provided by Owner) to transmit all Shop Drawings, Samples and Operation and Maintenance Manuals.
- 3. All submittals must be from Contractor.
 - a. Submittals will not be received from or returned to subcontractors.
 - b. Operation and Maintenance Manual submittal stamp may be Contractor's standard approval stamp.

4. Provide submittal information defining specific equipment or materials utilized on the Project.
 - a. Generalized product information, not clearly defining specific equipment or materials to be provided, will be rejected.
- B. Miscellaneous Submittals:
 1. Transmit under Contractor's standard Submittal Transmittal Form or letterhead.
 2. Submit in triplicate or as specified in individual Specification Section.
 3. Provide copy of Submittal Transmittal without attachments to Owner's Representative.
- C. Expedited Return Delivery:
 1. Include prepaid express envelope or airbill in submittal transmittal package for any submittals Contractor expects or requires express return mail.
 2. Inclusion of prepaid express envelope or airbill does not obligate Owner's Representative or Principal Architect/Engineer to conduct expedited review of submittal.
- D. Fax Transmittals:
 1. Permitted on a case-by-case basis to expedite review when approved by Principal Architect/Engineer.
 2. Requires hard copy transmittal to immediately follow.
 - a. Principal Architect/Engineer will proceed with review of fax transmittal.
 - b. Principal Architect/Engineer's approval or rejection comments will be recorded and returned on hard copy transmittal.
 3. Provisions apply to both:
 - a. Initial transmittal contents.
 - b. Supplemental information required to make initial transmittal contents complete.

1.8 PRINCIPAL ARCHITECT/ENGINEER 'S REVIEW ACTION

- A. Shop Drawings and Samples:
 1. Items within transmittals will be reviewed for overall design intent and will receive one of the following actions:
 - a. NO EXCEPTION.
 - b. EXCEPTIONS AS NOTED.
 - c. REVISE & RESUBMIT
 - d. REJECTED - RESUBMIT.
 - e. ACKNOWLEDGE RECEIPT.

- f. FOR INFORMATION PURPOSES ONLY.
 - g. SUPPLEMENTARY INFORMATION.
- 2. Submittals received will be initially reviewed to ascertain inclusion of Contractor's approval stamp.
 - a. Submittals not stamped by the Contractor or stamped with a stamp containing language other than that specified herein will not be reviewed for technical content and will be returned without any action.
- 3. In relying on the representation on the Contractor's review and approval stamp, Owner and Principal Architect/Engineer reserve the right to review and process poorly organized and poorly described submittals as follows:
 - a. Submittals transmitted with a description identifying a single item and found to contain multiple independent items:
 - 1) Review and approval will be limited to the single item described on the transmittal letter.
 - 2) Other items identified in the submittal will:
 - a) Not be logged as received by the Principal Architect/Engineer.
 - b) Be removed from the submittal package and returned without review and comment to the Contractor for coordination, description and stamping.
 - c) Be submitted by the Contractor as a new series number, not as a re-submittal number.
 - b. Principal Architect/Engineer, at Principal Architect/Engineer's discretion, may revise the transmittal letter item list and descriptions, and conduct review.
 - 1) Unless Contractor notifies Principal Architect/Engineer in writing that the Principal Architect/Engineer's revision of the Submittal Transmittal Form item list and descriptions was in error, Contractor's review and approval stamp will be deemed to have applied to the entire contents of the submittal package.
- 4. Submittals returned with Action "A" or "B" are considered ready for fabrication and installation.
 - a. If for any reason a submittal that has an "A" or "B" Action is resubmitted, it must be accompanied by a letter defining the changes that have been made and the reason for the resubmittal.
 - b. Destroy or conspicuously mark "SUPERSEDED" all documents having previously received "A" or "B" Action that are superseded by a resubmittal.

5. Submittals with Action "A" or "B" combined with Action "C" (Revise and Resubmit) or "D" (Rejected) will be individually analyzed giving consideration as follows:
 - a. The portion of the submittal given "C" or "D" will not be distributed (unless previously agreed to otherwise at the Preconstruction Conference).
 - 1) One (1) copy or the one (1) transparency of the "C" or "D" Drawings will be marked up and returned to the Contractor.
 - a) Correct and resubmit items so marked.
 - b. Items marked "A" or "B" will be fully distributed.
 - c. If a portion of the items or system proposed are acceptable, however, the major part of the individual Drawings or documents are incomplete or require revision, the entire submittal may be given "C" or "D" Action.
 - 1) This is at the sole discretion of the Principal Architect/Engineer.
 - 2) In this case, some Drawings may contain relatively few or no comments or the statement, "Resubmit to maintain a complete package."
 - 3) Distribution to the Owner and field will not be made (unless previously agreed to otherwise).
6. Failure to include any specific information specified under the submittal paragraphs of the Specifications will result in the submittal being returned to the Contractor with "C" or "D" Action.
7. Calculations: Requirements for the submittal of calculations in the individual Specification Sections shall be satisfied through the submittal of a certification sealed by the Principal Architect/Engineer that the calculations have been performed. Certification will be received for information purposes only and will be returned stamped "D. ACKNOWLEDGE RECEIPT".
8. Transmittals of submittals which the Principal Architect/Engineer considers as "Not Required" submittal information, which is supplemental to but not essential to prior submitted information, or items of information in a transmittal which have been reviewed and received "A" or "B" Action in a prior submittal, will be returned with Action "E. Acknowledge Receipt" (Principal Architect/Engineer's Review Not Required).
9. Samples may be retained for comparison purposes.
 - a. Remove samples when directed.
 - b. Include in bid all costs of furnishing and removing samples.
10. Approved samples submitted or constructed, constitute criteria for judging completed work.
 - a. Finished work or items not equal to samples will be rejected.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

Equipment Data and Spare Parts Summary

Standard Specification
Contract No. 19-0074

EXHIBIT A2
Equipment Record

Recommended Maintenance Summary

Equipment Description	Project Equip. Tag No(s).						
RECOMMENDED BREAK-IN MAINTENANCE (FIRST OIL CHANGES, ETC.)	INITIAL COMPLETION * FOLLOWING START-UP						
	D	W	M	Q	S	A	Hours
RECOMMENDED PREVENTIVE MAINTENANCE	PM TASK INTERVAL *						
	D	W	M	Q	S	A	Hours
* D = Daily W = Weekly M = Monthly Q = Quarterly S = Semiannual A = Annual Hours							

EXHIBIT A3
Equipment Record

Lubrication Summary

Equipment Description		Project Equip. Tag No(s).				
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					

END OF SECTION

SECTION 01 35 05

ENVIRONMENTAL PROTECTION AND SPECIAL CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Addresses:

1. Minimizing the pollution of air, water, or land; control of noise, the disposal of solid waste materials, and protection of deposits of historical or archaeological interest.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

A. Unit Prices. No separate payment will be made for this item. Include the cost of same in associated items for this project.

B. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS

A. Shop Drawings:

1. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
2. Prior to the start of any construction activities submit:
 - a. A detailed proposal of all methods of control and preventive measures to be utilized for environmental protection.
 - b. A drawing of the work area, haul routes, storage areas, access routes and current land conditions including trees and vegetation.
 - c. Submit manufacturer's catalog sheets and other product data on dispensing equipment, pump, and aboveground fuel storage tanks, indicating capacity and dimensions of tank.
 - d. Submit drawings to show location of tank protection area and driveway. Indicate nearest inlet or channelized flow area. Clearly dimension distances and measurements.
 - e. Submit list of spill containment equipment, and quantities thereof, located at fueling area.

1.4 ENVIRONMENTAL CONTROLS

- A. Provide and maintain methods, equipment, and temporary construction as necessary for controls over environmental conditions at construction site and adjacent areas.
- B. Work to minimize impact to surrounding environment. Adopt construction procedures that do not cause unnecessary excavation and filling of terrain, indiscriminate destruction of vegetation, air or stream pollution, nor harassment or destruction of wildlife.
- C. Recognize and adhere to environmental requirements of Project. Limit disturbed areas to boundaries established by Contract. Avoid pollution of “on-site” streams, sewers, wells, or other water sources.
- D. Burning of rubbish, debris, or waste materials is not permitted.

1.5 POLLUTION CONTROL

- A. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by discharge of noxious substances from construction operations.
- B. Provide equipment and personnel to perform required emergency measures to contain spillage, and to remove contaminated soils or liquids. Excavate and dispose of contaminated earth off-site, and replace with suitable compacted fill and topsoil.
- C. Provide systems for control of atmospheric pollutants.
 - 1. Prevent toxic concentrations of chemicals.
 - 2. Prevent harmful dispersal of pollutants into atmosphere.
- D. Use equipment that conforms to current Federal, State, and local laws and regulations.
- E. Install or otherwise implement positive controls to prevent hazardous materials migrating from Work area.

1.6 PEST AND RODENT CONTROL

- A. Provide rodent and pest control as necessary to prevent infestation of construction or storage areas.
- B. Employ methods and use materials which will not adversely affect conditions at site or on adjoining properties.

1.7 NOISE CONTROL

- 1. Montgomery has no official noise limit, but is governed by state regulations that dictate a maximum level of 85 decibels at any time of the day or night. Local municipal noise limits may be more restrictive and shall be followed as required.

- B. Provide vehicles, equipment, and construction activities that minimize noise to greatest degree practicable. Conform noise levels to latest OSHA standards. Do not permit noise levels to interfere with Work or create nuisance in surrounding areas.
- C. Conduct construction operations during daylight hours except as approved by Owner's Representative.
- D. Select construction equipment to operate with minimum noise and vibration. When in opinion of Owner's Representative, objectionable noise or vibration is produced by equipment, rectify conditions without additional cost to Owner. Sound Power Level (PWL) of equipment shall not exceed 85 dbA (re: 10-12 watts) measured 5 feet from piece of equipment. Explicit equipment noise requirements are specified with equipment specifications.

1.8 DUST CONTROL

- A. Control objectionable dust caused by operation of vehicles and equipment. Apply water or use other methods, subject to approval of Owner's Representative, to control amount of dust generated.

1.9 WATER RUNOFF AND EROSION CONTROL

- A. Comply with Texas Pollutant Discharge Elimination System (TPDES) permit when required.
- B. In addition to TPDES requirements:
 - 1. Provide methods to control surface water, runoff, subsurface water, and water from excavations and structures to prevent damage to Work, site, or adjoining properties.
 - 2. Control fill, grading and ditching to direct water away from excavations, pits, tunnels, and other construction areas; and to direct drainage to proper runoff courses so as to prevent erosion, sedimentation or damage.
 - 3. Provide, operate, and maintain equipment and facilities of adequate size to control surface water.
 - 4. Dispose of drainage water in manner to prevent flooding, erosion, or other damage to portion of site or to adjoining areas and in conformance with environmental requirements.
 - 5. Retain existing drainage patterns external to construction site by constructing temporary earth berms, sedimentation basins, retaining areas, and temporary ground cover as needed to control conditions.
 - 6. Plan and execute construction and earth work by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.
 - a. Minimize area of bare soil exposed at one time.
 - b. Provide temporary control measures, as berms, dikes, and drains.

7. Construct fills and waste areas by selective placement to eliminate erosion of surface silts or clays.
8. Inspect earthwork periodically to detect evidence of start of erosion. Apply corrective measures as required to control erosion.

1.10 QUALITY ASSURANCE

- A. Person conducting visual examination for pollutant shall be fully knowledgeable about the TPDES Construction General Permit, detecting sources of storm water contaminants, inspection of aboveground storage tank and appurtenances for leakage, and the day-to-day operations that may cause unexpected pollutant releases.

PART 2 - PRODUCTS

2.1 ABOVEGROUND FUEL STORAGE TANK

- A. Tank Assembly: Must be listed with UL 1709 and UL 2085.
- B. Inner Steel Storage Tank: Follow UL 142, with minimum thickness of 1/8-inch welded construction.
- C. Tank Encasement: Either concrete or steel to provide minimum of 110 percent containment of inner tank capacity. Provide 5-gallon overspill containment pan for tank refueling.
- D. Dispenser Pump: For submersible pump, UL listed emergency shut-off valve to be installed at each dispenser. For suction pump, UL listed vacuum-activated shut-off valve, with shear section, is to be installed at each dispenser. Fuel may not be dispensed from tank by gravity flow or by pressurization of tank. Means must be provided to prevent release of fuel by siphon flow.
- E. Representative Manufacturers: Convault, Fireguard, Ecovault, SuperVault, or equal.

2.2 CONCRETE

- A. Provide concrete with minimum strength of 4,000 psi at 28 days.

2.3 AGGREGATES

- A. Coarse aggregate shall consist of crushed stone, gravel, crushed blast furnace slag, or combination of these materials. Aggregate shall be composed of clean, hard, durable materials, free from adherent coatings, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic and injurious matter.

B. Coarse aggregates shall conform to following gradation requirements.

Sieve Size	Percent Retained
<u>(Square Mesh)</u>	<u>(By Weight)</u>
2-1/2"	0
2"	0 - 20
1-1/2"	15 - 50
3/4"	60 - 80
No. 4	95 - 100

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Employ and utilize environmental protection methods, obtain all necessary permits, and fully observe all local, state, and federal regulations.
- B. No clearing and grubbing or rough cutting permitted until erosion and sediment control systems are in place, other than site Work specifically directed by Owner's Representative to allow soil testing and surveying.
- C. Prohibit equipment and vehicles from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Immediately repair damage caused by construction traffic to erosion and sediment control systems.
- D. Maintain existing erosion and sediment control systems located within project site until acceptance of Project or until directed by Owner's Representative to remove and discard existing system.
- E. Regularly inspect and repair or replace damaged components of erosion and sediment control systems as specified in this Section. Unless otherwise directed, maintain erosion and sediment control systems until project area stabilization is accepted by the Owner. Remove erosion and sediment control systems promptly when directed by Owner's Representative. Discard removed materials off site.
- F. Remove and dispose sediment deposits at designated spoil site for Project. If a project spoil site is not designated on Drawings, dispose of sediment off site at location not in or adjacent to stream or flood plain. Assume responsibility for off-site disposal. Spread sediment evenly throughout site, compacted and stabilized. Prevent sediment from flushing into a stream or drainage way. If sediment has been contaminated, dispose of in accordance with existing federal, state, and local rules and regulations.
- G. Assume responsibility for collecting, storing, hauling, and disposing of spoil, silt, and waste materials as specified in this or other Specifications and in compliance with applicable federal, state, and local rules and regulations.

- H. Employ protective measures to avoid damage to existing trees to be retained on project site. Conduct construction operations under this Contract in conformance with erosion control practices described in Drawings and this or other Specifications.
- I. Prepare spill response and containment procedures to be implemented in event of significant materials spill. Significant materials include but are not limited to: raw materials; fuels; materials such as solvent, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of CERCLA; chemical required to be reported pursuant to Section 313 of Title III of SARA; fertilizers; pesticides, and waste products such as slag, ashes and sludge that have potential to be released with storm water discharges. Spill containment procedures shall be kept on-site or in construction field office.
- J. Spill containment equipment appropriate to size of operation is to be located in close proximity of fueling area. Such equipment includes, but not limited to, suitable waste containers for significant materials, drip pans, booms, inlet covers, or absorbent.
- K. Properly label significant materials or waste containers used for construction activities and stored on-site overnight.
- L. Install, maintain, and inspect erosion, sediment control measures and practices as specified in Drawings and in this or other Specifications
- M. Land Protection:
 - 1. Except for any work or storage area and access routes specifically assigned for the use of the Contractor, the land areas outside the limits of construction shall be preserved in their present condition.
 - a. Contractor shall confine his construction activities to areas defined for work within the Contract Documents.
 - 2. Manage and control all borrow areas, work or storage areas, access routes and embankments to prevent sediment from entering nearby water or land adjacent to the work site.
 - 3. Restore all disturbed areas including borrow and haul areas and establish permanent type of locally adaptable vegetative cover.
 - 4. Unless earthwork is immediately paved or surfaced, protect all side slopes and backslopes immediately upon completion of final grading.
 - 5. Plan and execute earthwork in a manner to minimize duration of exposure of unprotected soils.
 - 6. Except for areas designated by the Contract Documents to be cleared and grubbed, the Contractor shall not deface, injure or destroy trees and vegetation, nor remove, cut, or disturb them without approval of the Owner's Representative.

- a. Any damage caused by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense.
 7. Utilize, as necessary, erosion control methods to protect side and backslopes, minimize and the discharge of sediment to the surface water leaving the construction site as soon as rough grading is complete.
 - a. These controls shall be maintained until the site is ready for final grading and landscaping or until they are no longer warranted and concurrence is received from the Owner's Representative.
 - b. Physically retard the rate and volume of run-on and runoff by:
 - 1) Implementing structural practices such as diversion swales, terraces, straw bales, silt fences, berms, storm drain inlet protection, rocked outlet protection, sediment traps and temporary basins.
 - 2) Implementing vegetative practices such as temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffers, hydroseeding, anchored erosion control blankets, sodding, vegetated swales or a combination of these methods.
 - 3) Providing Construction sites with graveled or rocked access entrance and exit drives and parking areas to reduce the tracking of sediment onto public or private roads.
 8. Discharges from the construction site shall not contain pollutants at concentrations that produce objectionable films, colors, turbidity, deposits or noxious odors in the receiving stream or waterway.
- N. Solid Waste Disposal:
1. Collect solid waste on a daily basis.
 2. Provide disposal of degradable solid waste to an approved solid waste disposal site.
 3. Provide disposal of nondegradable solid waste to an approved solid waste disposal site or in an alternate manner approved by Owner's Representative and regulatory agencies.
 4. No building materials wastes or unused building materials shall be buried, dumped, or disposed of on the site.
- O. Fuel and Chemical Handling:
1. Store and dispose of chemical wastes in a manner approved by regulatory agencies.
 2. Take special measures to prevent chemicals, fuels, oils, greases, herbicides, and insecticides from entering drainage ways.
 3. Do not allow water used in onsite material processing, concrete curing, cleanup, and other waste waters to enter a drainage way(s) or stream.

4. The Contractor shall provide containment around fueling and chemical storage areas to ensure that spills in these areas do not reach waters of the state.

P. Control of Dust:

1. The control of dust shall mean that no construction activity shall take place without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne so that it remains visible beyond the limits of construction.
 - a. Reasonable measures may include paving, frequent road cleaning, planting vegetative groundcover, application of water or application of chemical dust suppressants.
 - b. The use of chemical agents such as calcium chloride must be approved by the State of Texas DOT.
2. Utilize methods and practices of construction to eliminate dust in full observance of agency regulations.
3. The Owner's Representative will determine the effectiveness of the dust control program and may request the Contractor to provide additional measures, at no additional cost to Owner.

Q. Burning:

1. Do not burn material on the site.
2. If the Contractor elects to dispose of waste materials by burning, make arrangements for an off-site burning area and conform to all agency regulations.

R. Control of Noise:

1. Control noise by fitting equipment with appropriate mufflers.

S. Completion of Work:

1. Upon completion of work, leave area in a clean, natural looking condition.
2. Ensure all signs of temporary construction and activities incidental to construction of required permanent work are removed.

T. Historical Protection:

1. If during the course of construction, evidence of deposits of historical or archaeological interests is found, cease work affecting find and notify Owner's Representative.
 - a. Do not disturb deposits until written notice from Owner's Representative is given to proceed.
2. The Contractor will be compensated for lost time or changes in construction to avoid the find based upon normal change order procedures.

3.2 TOPSOIL PLACEMENT FOR EROSION AND SEDIMENT CONTROL SYSTEMS

- A. When topsoil is specified as a component of another Specification, conduct erosion control practices described in this Specification during topsoil placement operations.
- B. When placing topsoil, maintain erosion and sediment control systems consisting of swales, grade stabilization structures, berms, dikes, waterways, and sediment basins.
- C. Maintain grades which have been previously established on areas to receive topsoil.
- D. After areas to receive topsoil have been brought to grade, and immediately prior to dumping and spreading topsoil, loosen subgrade by discing or by scarifying to a depth of at least 2 inches to permit bonding of topsoil to subsoil. Compact by passing bulldozer up and down slope, tracking over entire surface area of slope to create horizontal erosion control slots.
- E. No sod or seed shall be placed on soil which has been treated with soil sterilants until sufficient time has elapsed to permit dissipation of toxic materials.

3.3 DUST CONTROL

- A. Implement dust control methods to control dust creation and movement on construction sites and roads and to prevent airborne sediment from reaching receiving streams or storm water conveyance systems, to reduce on-site and off-site damage, to prevent health hazards, and to improve traffic safety.
- B. Control blowing dust by using one or more of following methods:
 - 1. Mulches bound with chemical binders such as Carasol, Terratack, or equal.
 - 2. Temporary vegetative cover.
 - 3. Spray-on adhesives on mineral soils when not used by traffic.
 - 4. Tillage to roughen surface and bring clods to surface.
 - 5. Irrigation by water sprinkling.
 - 6. Barriers using solid board fences, snow fences, burlap fences, crate walls, bales of hay, or similar materials.
- C. Implement dust control methods immediately whenever dust can be observed blowing on project site.

3.4 KEEPING STREETS CLEAN

- A. Keep streets clean of construction debris and mud carried by construction vehicles and equipment. If necessary, install stabilized construction exits at construction, staging, storage, and disposal areas. Vehicle/equipment wash area (stabilized with coarse aggregate) may be installed adjacent to stabilized construction exit, as needed. Release wash water into a drainage swale or inlet protected by erosion and sediment control measures. Construction exit specified in Section 01 57 13.02 - Stabilized Construction Access.

- B. In addition to stabilized construction exits, shovel or sweep pavement to extent necessary to keep street clean. Water hosing or sweeping of debris and mud off of street into adjacent areas is not allowed.

3.5 EQUIPMENT MAINTENANCE AND REPAIR

- A. Confine maintenance and repair of construction machinery and equipment to areas specifically designated for that purpose. Locate areas so that oils, gasoline, grease, solvents, and other potential pollutants cannot be washed directly into receiving streams or storm water conveyance systems. Provide these areas with adequate waste disposal receptacles for liquid as well as solid waste. Clean and inspect maintenance areas daily.
- B. On construction site where designated equipment maintenance areas are not feasible, take precautions during each individual repair or maintenance operation to prevent potential pollutants from washing into streams or conveyance systems. Provide temporary waste disposal receptacles.

3.6 WASTE COLLECTION AND DISPOSAL

- A. Formulate and implement a plan for collection and disposal of waste materials on construction site. In plan, designate locations for trash and waste receptacles and establish a collection schedule. Specify and carry out methods for ultimate disposal of waste in accordance with applicable local, state, and federal health and safety regulations. Make special provisions for collection and disposal of liquid wastes and toxic or hazardous materials.
- B. Keep receptacles and waste collection areas neat and orderly to extent possible. Waste shall not be allowed to overflow its container or accumulate from day-to-day. Locate trash collection points where they shall least likely be affected by concentrated storm water runoff.

3.7 WASHING AREAS

- A. Avoid washing concrete delivery trucks or dump trucks and other construction equipment at locations where runoff shall flow directly into a watercourse or storm water conveyance system. Designate special areas for washing vehicles. Locate these areas where wash water shall spread out and evaporate or infiltrate directly into ground, or where runoff can be collected in temporary holding or seepage basin. Beneath wash areas construct a gravel or rock base to minimize mud production.

3.8 STORAGE OF CONSTRUCTION MATERIALS AND CHEMICALS

- A. Isolate sites where chemicals, cements, solvents, paints, or other potential water pollutants are stored in areas where they shall not cause runoff pollution.
- B. Store toxic chemicals, materials, pesticides, paints, and acids in accordance with manufacturers' guidelines. Protect groundwater resources from leaching by placing a plastic mat, packed clay, tar paper, or other impervious materials on areas where toxic liquids are to be opened and stored.

3.9 DEMOLITION AREAS

- A. Demolition activities which create large amounts of dust with significant concentrations of heavy metals or other toxic pollutants shall use dust control techniques to limit transport of airborne pollutants. However, retain water or slurry used to control dust contaminated with heavy metals or toxic pollutants on site, and prevent runoff directly into watercourses or storm water conveyance systems. Carry out methods of ultimate disposal of these materials in accordance with applicable local, state, and federal health and safety regulations.

3.10 SANITARY FACILITIES

- A. Provide construction sites with adequate portable toilets for workers in accordance with applicable health regulations.

3.11 PESTICIDES

- A. Use and store pesticides during construction in accordance with manufacturers' guidelines and with local, state, and federal regulations. Avoid overuse of pesticides which could produce contaminated runoff. Take great care to prevent accidental spillage. Never wash pesticide containers in or near flowing streams or storm water conveyance systems.

3.12 CONSTRUCTION METHODS

- A. Provide fuel tank protection area and driveway as shown on Drawings.
- B. Do not locate fueling area in or near channelized flow area or close to storm sewer conveyance system. Provide sufficient space to allow installation of other erosion and sediment controls to protect those areas.
- C. Clear and grub fueling area to remove unsuitable materials. Place geotextile fabric as permeable separator to prevent mixing of coarse aggregate with underlying soil. Overlap fabric minimum of 6 inches. Place coarse aggregate on top of geotextile fabric to minimum depth of 8 inches.
- D. Grade protection area and driveway to provide sufficient drainage away from stabilized areas. Use sandbags, gravel, boards, or similar methods to prevent sediment from entering public right-of-way, receiving stream or storm water conveyance system. Provide driveway to fuel tank area with minimum width of 15 feet for one-way traffic and 30 feet for two-way traffic.
- E. Place aboveground storage tank on top of cast-in-place or pre-cast foundation. Base size and thickness of foundation on size and weight of tank to be used, with minimum thickness of 6 inches. Enclose concrete foundation by 5-inch by 5-inch concrete curb and extend minimum of 1 foot beyond tank and dispenser assemblies, so that leak and drip can be contained within concrete foundation.
- F. Slope concrete foundation minimum of 1 percent toward 6-inch wide by 12-inch long by 4-inch deep sump pit. Install minimum of 2-inch pipe inside sump pit with valve on outside of curb to allow draining of concrete foundation.

- G. Install portable concrete Jersey Barrier around concrete foundation. Provide minimum clearance of 2 feet from edge of foundation. In lieu of Jersey barrier, install 4-inch diameter steel pipe bollards around foundation. Bury bollards minimum of 3 feet deep, 3 feet above ground, and 4 feet on center, encased in 12-inch wide concrete foundation.

3.13 MAINTENANCE

- A. Inspections shall be conducted by designated health and safety officer qualified to conduct health and safety inspections.
- B. Inspect stabilized areas after every storm event and at least once a week. Provide periodic top dressing with additional coarse aggregate to maintain required depth. Repair and clean out damaged control measures used to trap sediment.
- C. Inspect fuel tank foundation's bermed area after every storm event and at least once a week. Visually examine storm water contained in tank's bermed foundation area for oil sheen or other obvious indicators of storm water pollution. Properly dispose of storm water when pollutant is present. Record visual examination of storm water discharge in Report noting date and time of examination, name of examiner, observations of water quality, and volume of storm water discharged from bermed area. Keep Report with other storm water pollution control inspection reports on site, in readily accessible location.

3.14 TEMPORARY FUELING AREA CLOSURE

- A. Dispose of temporary vehicle and equipment fueling area by removal of sediment and erosion controls properly off site. Owner's Representative will inspect top soils in fueling area and immediate vicinity for evidence of fuel leaks. If Owner's Representative determines that sufficient pollutants have been released, remove soil and properly dispose off site. Other remediation methods may be required.

END OF SECTION

SECTION 01 45 16.32
CONTRACTOR'S QUALITY CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Measurement and Payment
 - 2. Quality Assurance/Control of Installation
 - 3. References
 - 4. Manufacturer's Field Services and Reports
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS (NOT USED)

1.4 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality at no additional cost to the Owner.
- B. Comply fully with manufacturers' installation instructions, including each step in sequence.
- C. Request clarification Owner's Representative before proceeding when manufacturers' instructions conflict with Contract.
- D. Comply with specified standards as minimum requirements for Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce specified level of workmanship.

1.5 REFERENCES

- A. Obtain copies of standards and maintain at job site when required by individual Specification sections.

1.6 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual Specification sections or as required by Owner's Representative, provide material or product suppliers' or manufacturers' technical representative to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, operator training, test, adjust and balance of equipment as applicable and to initiate operation, as required. Conform to minimum time requirements for start-up operations and operator training when defined in Specification sections.
- B. At Owner's Representative's request, submit qualifications of manufacturers' representative to Owner's Representative 15 days in advance of required representatives' services. Representative is subject to approval by Owner's Representative.
- C. A manufacturers' representative is to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to a manufacturer's written instructions. Submit report within 14 days of observation to Owner's Representative for review.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 45 29
TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Testing laboratory services
2. Requirements of this section apply to testing laboratories employed by the Contractor for approval of manufactured products, materials, including mix designs and quality control of materials
3. Requirements of this section also apply to testing laboratories employed by the Owner for approval of materials and the constructed Work on site.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 QUALITY ASSURANCE

A. Reference Standards

1. ASTM C 1077 – Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
2. ASTM D 3666 – Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials.
3. ASTM D 3740 – Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
4. ASTM E 329 – Standard Specification for Minimum Requirements for Agencies Engaged the Testing and/or Inspection of Materials Used in Construction.
5. ISO/IEC 17025 – General Requirements for the Competence of Calibration and Testing Laboratories.

1.4 RELATED REQUIREMENTS

A. To test products and materials and provide certifications as identified in Part 2

- Products, in the individual Specification sections, the Contractor shall either
1. Select, employ and pay for services of an independent testing laboratory or laboratories, or
 2. Cause its suppliers to perform required inspection and testing using an independent testing laboratory or a qualified in-house laboratory.
- B. Owner's Representative may, at its option, observe or witness any and all testing of materials and products which are to be utilized in the construction of the Work as they are being tested by the Contractor's laboratories.
- C. Owner will select, employ, and pay for services of an independent testing laboratory to perform inspection and testing identified in Part 3 of individual Specification sections.
- D. Employ and pay for services of independent testing laboratory or laboratories to perform inspection and testing identified in Part 2 of individual Specification sections.
- E. Employment of testing laboratory by Owner does not relieve the Contractor of obligation to perform the Work in accordance with requirements of Contract Documents.
- F. Owner's Representative schedules and monitors Owner's testing laboratory. Provide minimum 24 hours notice of testing to Owner's Representative to avoid delay of the Work.

1.5 QUALIFICATION OF LABORATORY

- A. Meet laboratory qualification requirements of ASTM E 329 and applicable requirements of ASTM C 1077, ASTM D 3666, and ASTM D 3740.
- B. Meet ISO/IEC 17025 conditions for accreditation by the American Association for Laboratory Accreditation (A2LA) in specific fields of testing required in individual Specification sections.
- C. If laboratory subcontracts are part of testing services, such work will be placed with laboratory complying with requirements of this Section.

1.6 LABORATORY

- A. Owner's testing laboratory will provide and distribute copies of laboratory reports to the distribution list provided by Owner's Representative at the preconstruction conference. Distribution will include download to the Owner's electronic document management system (Sharepoint) for the Project.
- B. Keep one copy of each laboratory report at site field office for duration of project.
- C. Contractor's testing laboratory will provide and distribute copies of laboratory test reports for materials to be incorporated into this Work to the distribution list provided by Owner's Representative at the preconstruction conference.

Distribution will include download to the Owners electronic document management system (Sharepoint) for the Project

- D. Laboratories will email material supplier, Contractor, and Owner's Representative no later than close of business on working day following test completion and review, reports which indicate failing test results.

1.7 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke, alter, or enlarge requirements of Contract.
- B. Laboratory may not approve or accept any portion of the Work.
- C. Laboratory may not assume duties of Contractor or the Owner
- D. Laboratory has no authority to stop the Work.

1.8 SUBMITTALS (NOT USED)

1.9 CONTRACTOR RESPONSIBILITIES

- A. Provide safe access to the Work and to manufacturer's facilities for Owner's Representative, and for testing laboratory personnel.
- B. Provide testing laboratory with copy of construction schedule and copy of each update to construction schedule.
- C. Notify Owner's Representative and testing laboratory during normal working hours of the day previous to expected time for operations requiring inspection and testing services. When Contractor fails to make timely prior notification, then do not proceed with operations requiring inspection and testing services.
- D. Notify Owner's Representative 24 hours in advance when Specification requires presence of Owner's Representative for sampling or testing.
- E. Request and monitor testing as required to provide timely results and avoid delay to the Work. Where specified, provide samples to laboratory in sufficient time to allow required test to be performed in accordance with specified test methods before intended use of material.
- F. Cooperate with laboratory personnel in collecting samples on site. Provide incidental labor and facilities for safe access to the Work to be tested; to obtain and handle samples at site or at source of products to be tested; and to facilitate tests and inspections including storage and curing of test samples.
- G. Arrange with laboratory through Owner's Representative. Payment for additional testing will be made in accordance with Document 00 72 00 - General Conditions of the Contract:
 - 1. Retesting required for failed tests
 - 2. Retesting for nonconforming Work
 - 3. Additional sampling and tests requested beyond specified requirements
 - 4. Insufficient notification of cancellation of tests for Work scheduled but not performed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CONDUCTING TESTING

- A. Conform laboratory sampling and testing specified in individual Specification sections to latest issues of ASTM standards, TxDOT methods, or other recognized test standards as approved by Owner's Representative.
- B. Requirements of this section also apply to those tests for approval of materials, for mix designs and for quality control of materials as performed by employed testing laboratories.

END OF SECTION

SECTION 01 51 36.01

PROCEDURE FOR WATER VALVE ASSISTANCE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

Operation of valves. Owner employees will operate existing valves. Contractor's employees may operate new valves included in the Project prior to acceptance by the Owner.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements

1.2 MEASUREMENT AND PAYMENT

A. No separate payment will be made for this item. Include the cost of valve operation and valve assistance in Unit Price bid for valves and water mains.

1.3 PROCEDURE

- A. Contractor to coordinate with Owner's Representative for valve assistance.
- B. Contractor shall provide Owner at least 48 hours notice, not including weekends or holidays, to operate valves, equipment or drain tanks.

1.4 SUBMITTALS

A. Submit request for work order planning meetings in accordance with Section 01 33 00 – Submittals.

1.5 CANCELLATION

A. The Owner may cancel a scheduled valve assistance appointment at no extra cost to either party. Cancellation may be caused by bad weather, preparation work taking longer than anticipated or unforeseen delays by one or more of the three parties.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 65 50

PRODUCT DELIVERY, STORAGE, AND HANDLING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for product delivery, storage and handling.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 - General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS

- A. Provide Owner project Log Book.

1.4 TRANSPORTATION

- A. Make arrangements for transportation, delivery, and handling of equipment and materials required for timely completion of Work.
- B. Transport and handle products in accordance with instructions.
- C. Consign and address shipping documents to proper party giving name of Project, street number, and city. Shipments shall be delivered to Contractor.

1.5 DELIVERY

- A. Scheduling: Schedule delivery of products or equipment as required to allow timely inspection and installation, and to avoid prolonged storage, overburdening of limited storage space, conflicts with other contractors on site. Confirm availability of equipment and personnel for handling products prior to delivery.
- B. Packaging: Deliver products or equipment in manufacturer's original unopened and unbroken cartons or other containers designed and constructed to protect the contents from physical or environmental damage.
- C. Identification: Clearly and fully mark and identify as to manufacturer, item, and installation location.
- D. Protection and Handling: Provide manufacturer's instructions for storage and handling.

PART 2 - PRODUCTS

- A. Products: Means material, equipment, or systems forming Work. Does not include machinery and equipment used for preparation, fabrication, conveying, and erection of Work. Products may also include existing materials or components designated for reuse.
- B. For material and equipment specifically indicated or specified to be reused in the work:
 - 1. Use special care in removal, handling, storage and reinstallation, to assure proper function in completed work.
 - 2. Arrange for transportation, storage and handling of products which require offsite storage, restoration or renovation. Pay all costs for such work.
- C. When contract documents require that installation of work comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in installation, including two copies to Owner's Representative. Maintain one set of complete instructions at job site during installation until completion.
- D. Provide equipment and components from fewest number of manufacturers as practical, in order to simplify spare parts inventory and allow for maximum interchangeability of components. For multiple components of same size, type, or application, use same make and model of component throughout Project.

PART 3 - EXECUTION

3.1 PROTECTION, STORAGE AND HANDLING

- A. Protection:
 - 1. Protect materials in accordance with manufacturer's recommendations and requirements of these Specifications.
 - a. Store products or equipment in location to avoid loss or physical damage to items while in storage.
 - 2. Protect equipment from exposure to elements and keep thoroughly dry.
 - 3. When space heaters are provided in equipment, connect and operate heaters during storage until equipment is placed in service.
- B. Storage:
 - 1. Store materials in accordance with manufacturer's recommendations and requirements of these Specifications.
 - 2. Make necessary provisions for safe storage of materials and equipment. Place loose soil materials, and materials to be incorporated into Work to prevent damage to any part of Work or existing facilities and to maintain free access at all times to all parts of Work and to utility service company installations in vicinity of Work. Keep materials and equipment neatly and compactly stored in locations that will cause minimum inconvenience to

other contractors, public travel, adjoining owners, tenants, and occupants. Arrange storage to provide easy access for inspection.

3. Restrict storage to areas available on construction site for storage of material and equipment as shown on Drawings or approved by Owner's Representative.
4. Provide off-site storage and protection when on-site storage is not adequate. Provide addresses of and access to off-site storage locations for inspection by Owner's Representative.
5. Do not use lawns, grass plots, or other private property for storage purposes without written permission of owner or other person in possession or control of premises.
6. Store in manufacturers' unopened containers.
7. Neatly, safely, and compactly stack materials delivered and stored along line of Work to avoid inconvenience and damage to property owners and general public, and maintain at least 3 feet from fire hydrant. Keep public, private driveways, and street crossings open.
8. Repair or replace damaged lawns, sidewalks, streets, or other improvements to satisfaction of Owner's Representative. Total length which materials may be distributed along route of construction at one time is 1,000 linear feet, unless otherwise approved in writing by Owner's Representative.

C. Handling:

1. Handle materials in accordance with manufacturer's recommendations and requirements of these Specifications.
2. Coordinate off-loading of materials and equipment delivered to job site. If necessary to move stored materials and equipment during construction, relocate materials and equipment at no additional cost to Owner. Do not allow the off-loading of materials in those parking areas used for crew's personal vehicles.
3. Provide equipment and personnel necessary to handle products by methods to prevent damage to products or packaging.
4. Provide additional protection during handling as necessary to prevent breaking, scraping, marring, or otherwise damaging products or surrounding areas.
5. Handle products by methods to prevent over bending or over stressing.
6. Lift heavy components only at designated lifting points.
7. Do not drop, roll, or skid products off delivery vehicles. Hand carry or use suitable materials handling equipment.

3.2 STORAGE FACILITIES

A. Temporary Storage Building (if required):

1. Provide a weatherproof temporary storage building specifically for the purpose of providing for protection of products and equipment.
 - a. Size building to accommodate anticipated storage items.
2. Equip building with lockable doors and lighting, and provide electrical service for equipment space heaters and heating or ventilation as necessary to provide storage environments acceptable to specified manufacturers.
3. Provide methods of storage of products and equipment off the ground.
4. Provide this structure within 60 days after Notice to Proceed.
 - a. Locate building on-site where shown on the Drawings or in location approved by the Owner's Representative.
 - b. Remove building from site prior to startup and demonstration period.

3.3 FIELD QUALITY CONTROL

A. Inspect Deliveries:

1. Inspect all products or equipment delivered to the site prior to unloading.
 - a. Reject all products or equipment that are damaged, used, or in any other way unsatisfactory for use on Project.

B. Monitor Storage Area: Monitor storage area to ensure suitable temperature and moisture conditions are maintained as required by manufacturer or as appropriate for particular items.

END OF SECTION

SECTION 01 71 13

MOBILIZATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for mobilization.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Measurement for mobilization is on lump sum basis.
- B. Mobilization payments will be included in periodic progress payment upon written application subject to following provisions:
 - 1. Authorization for payment of 50 percent of Contract Price for mobilization will be made upon receipt and approval by Owner's Representative of the following items, as applicable:
 - a. Schedule of Values submittal in accordance with Section 01 29 73 – Schedule of Values
 - b. Safety Program/Plan submittal in accordance with the Trench Safety Program/Plan in accordance with Section 31 41 00 – Trench Safety System.
 - c. Construction Schedule submittal in accordance with Section 01 32 16 – Construction Progress Schedule
 - d. Preconstruction photographs in accordance with Section 01 32 36.01 – Project Photographs
 - 2. Authorization for payment of remaining 50 percent of Contract Price for mobilization will be made upon completion of Work amounting to 5 percent of Contract Price less mobilization unit price.
- C. Mobilization payments will be subject to retainage amounts stipulated in Specification Section 00 72 00 – General Conditions of the Contract.
- D. A reduction of 10 percent of mobilization amount bid in Schedule for Unit Price Work will be applied to each Payment Application when Field Office is not properly maintained. Proper maintenance consists of operational plumbing and sanitary facilities, adequate potable water supply, operational telephone and facsimile machine and functional temperature control.

1.3 SUBMITTALS (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 73 20

OPENINGS AND PENETRATIONS IN CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for installing and sealing openings and penetrations in construction.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT (NOT USED)

1.3 QUALITY ASSURANCE

- A. Referenced Standards:
 - 1. American Concrete Institute (ACI):
 - a. 318 – Building Code Requirements for Structural Concrete.
 - 2. ASTM International (ASTM):
 - a. A36 – Standard Specification for Carbon Structural Steel.
 - b. A53 – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - 3. National Fire Protection Association (NFPA):
 - a. 70 – National Electrical Code (NEC).
 - b. 90A – Standard for Installation of Air Conditioning and Ventilating Systems.
 - 4. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA).
- B. Obtain prior approval from Principal Architect/Engineer when any opening larger than 100 SQ IN must be made in existing or newly completed construction.

1.4 DEFINITIONS

- A. Hazardous Areas: Areas shown in the Contract Documents as having Class I or Class II area classifications.
- B. Washdown Areas: Areas having floor drains or hose bibs.

1.5 SUBMITTALS

- A. Shop Drawings:

1. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
2. For each structure provide dimensioned or scaled (minimum 1/8 IN = 1 FT) plan view drawings containing the following information:
 - a. Vertical and horizontal location of all required openings and penetrations.
 - b. Size of all openings and penetrations.
 - c. Opening type.
 - d. Seal type.
3. Manufacturer's installation instructions for standard manufactured products.

1.6 SITE CONDITIONS (NOT USED)

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Submit request for substitution in accordance with Specification Section 01 25 13 – Product Substitutions.

2.2 MATERIALS

- A. Pipe Sleeves: Steel, ASTM A53, Schedule 40, black.
- B. Pipe Sleeves Penetrating into Corrosive Areas: Stainless steel, 1/4 IN minimum thickness.
- C. Modular Mechanical Seals:
 1. Acceptable manufacturers:
 - a. Link-Seal.
 - b. Approved equal.
 2. 316 stainless steel bolts, nuts and washers.
- D. Sheet Metal Sleeves: Steel, ASTM A36, 12 GA.
- E. Commercial Wall Castings:
 1. For unclassified areas both sides of penetration:
 - a. Ductile iron, class equal to connecting piping system.
 2. For wet/corrosive areas either side of penetration:
 - a. Stainless steel, 304L.

PART 3 - EXECUTION

3.1 INSTALLATION AND APPLICATION

- A. Perform HVAC penetrations in accordance with NFPA 90A.

- B. Perform electrical penetrations in accordance with NFPA 70, Article 501.
- C. Install sleeves and castings in accordance with ACI 318, Chapter #6.
- D. When mechanical or electrical work cannot be installed as structure is being erected, provide and arrange for building-in of boxes, sleeves, insets, fixtures or devices necessary to permit installation later.
 - 1. Lay out chases, holes or other openings which must be provided in masonry, concrete or other work.
- E. Where pipes, conduits or ducts pass through floors in washdown areas, install sleeves with top 3 IN above finish floors.
 - 1. In non-washdown areas, install sleeves with ends flush with finished surfaces.
- F. Size sleeves, blockouts and cutouts which will receive sealant seal such that free area to receive sealant is minimized and seal integrity may be obtained.
- G. For insulated piping and ducts, size sleeves, blockouts and cutouts large enough to accommodate full thickness of insulation.
- H. Do not cut into or core drill any beams, joists, or columns.
- I. Do not install sleeves in beams, joists, or columns.
- J. Do not install recesses in beams, joists, columns, or slabs.
- K. Field Cutting and Coring:
 - 1. Saw or core drill with non-impact type equipment.
 - 2. Mark opening and drill small 3/4 In or less holes through structure following opening outline.
 - 3. Sawcut opening outline on both surfaces.
 - a. Knock out within sawcuts using impact type equipment.
 - b. Do not chip or spall face of surface to remain intact.
 - c. Do not allow any overcut with saw kerf.
- L. Precast-Prestressed Concrete Construction:
 - 1. Do not cut openings nor core drill vertically or horizontally through stems of members.
 - 2. Do not locate or install sleeves or recess sleeves vertically or horizontally through or in stems of members.
 - 3. Cast openings and sleeves into flanges of units.
 - 4. Cast openings larger than 6 In in diameter or 6 In maximum dimension in units at time of manufacture.
 - 5. Cast openings smaller than 6 In in diameter or 6 In maximum dimensions in flanges of units at time of manufacture or field cut.

- M. Where alterations are necessary or where new and old work join, restore adjacent surfaces to their condition existing prior to start of work.
- N. Provide waterstop plate/anchor flange for piping, ducts, castings and sleeves cast-in-place in concrete.
 - 1. For fabricated units, weld plate to sleeve, pipe, or ductwork.
 - 2. For commercial castings, cast water stop/anchor with wall pipe.
 - 3. Plate is to be same thickness as sleeve, pipe, casting or ductwork.
 - 4. For fabricated units, diameter of plate or flange to be 4 In larger than outside diameter of sleeve, pipe or ductwork.
 - 5. For commercial castings, waterstop/anchor size to be manufacturer standard.
 - 6. Provide continuous around entire circumference of sleeve, pipe, or ductwork.
- O. Where area is blocked out to receive sheet metal sleeve at later date:
 - 1. If blockout size is sufficient to allow placement, utilize dowels for interface of initially placed concrete and sleeve encasement concrete which is placed later.
 - a. Size blockout based on sleeve size required plus 4 to 6 In each side of sleeve for concrete encasement.
 - b. Provide #4 dowels at 12 In spacing along each side of blockout with minimum of two (2) dowels required per side.
 - 2. If blockout size is not sufficient to allow placement of dowels, provide keyway along all sides of blockout.
 - a. Size blockout based on sleeve size required plus 2 to 4 In each side of sleeve for concrete encasement.
- P. For interior wall applications where backer rod and sealant are specified, provide backer rod and sealant at each side of wall.
- Q. Refer to Drawings for location of fire-rated walls, floors, and ceilings.
- R. Use full depth expanding foam sealant for seal applications where single or multiple pipes, conduits, etc., pass through a single sleeve.
- S. Do not make duct or conduit penetrations below high water levels when entering or leaving tankage, wet wells, or other water holding structures.
- T. Modular Mechanical Seals:
 - 1. Utilize one (1) seal for concrete thickness less than 8 In and two (2) seals for concrete, 8 In thick or greater.
 - 2. Utilize two (2) seals for piping 16 In diameter and larger if concrete thickness permits.

3. Install seals such that bolt heads are located on the most accessible side of the penetration.

U. Backer Rod and Sealant:

1. Provide backer rod and sealant for modular mechanical seal applications.
 - a. Apply on top side of slab penetrations and on interior, dry side wall penetrations.

3.2 SCHEDULES

A. General Schedule of Penetrations through Floors, Roofs, Foundation Base Slabs, Foundation Walls, Foundation Footings, Partitions and Walls for Ductwork, Piping, and Conduit:

1. Provide the following opening and penetration types:
 - a. Type A - Block out 2 IN larger than outside dimensions of duct, pipe, or conduits.
 - b. Type B - Saw cut or line-drill opening. Place new concrete with integrally cast sheet metal or pipe sleeve.
 - c. Type C - Fabricated sheet metal sleeve or pipe sleeve cast-in-place. Provide pipe sleeve with water ring for wet and/or washdown areas.
 - d. Type D - Commercial type casting or fabrication.
 - e. Type E - Saw cut or line-drill opening. Place new concrete with integrally cast pipe, duct or conduit spools.
 - f. Type F - Integrally cast pipe, duct or conduit.
 - g. Type G - Saw cut or line-drill and remove area 1 IN larger than outside dimensions of duct, pipe or conduit.
 - h. Type H - Core drill.
 - i. Type I - Block out area. At later date, place new concrete with integrally cast sheet metal or pipe sleeve.
2. Provide seals of material and method described as follows.
 - a. Category 1 - Modular Mechanical Seal.
 - b. Category 2 - Roof curb and flashing according to SMACNA specifications unless otherwise noted on Drawings. Refer to Specification Section 07 62 00 and roofing Specification Sections for additional requirements.
 - c. Category 3 - 12 GA sheet metal drip sleeve set in bed of silicon sealant with backing rod and sealant used in sleeve annulus.
 - d. Category 4 - Backer rod and sealant.
 - e. Category 5 - Full depth compressible sealant with escutcheons on both sides of opening.

- f. Category 6 - Full depth compressible sealant and flanges on both sides of opening. Flanges constructed of same material as duct, fastened to duct and minimum 1/2 IN larger than opening.
 - g. Category 7 - Full depth compressible sealant and finish sealant or full depth expanding foam sealant depending on application.
- 3. Furnish openings and sealing materials through new floors, roofs, partitions and walls in accordance with Schedule A, Openings and Penetrations for New Construction.
- 4. Furnish openings and sealing materials through existing floors, roofs, partitions and walls in accordance with Schedule B, Openings and Penetrations for Existing Construction.

**SCHEDULE A. OPENINGS AND PENETRATIONS SCHEDULE
 FOR NEW CONSTRUCTION**

APPLICATIONS	DUCTS		PIPING		CONDUIT	
	OPENING TYPE	SEAL CATEGORY	OPENING TYPE	SEAL CATEGORY	OPENING TYPE	SEAL CATEGORY
Through floors with bottom side a hazardous location	C F I	7 Not Req 7	D F I ⁽¹⁾	Not Req Not Req 7	C F	7 Not Req
Through floors on grade above water table	C F I	4 Not Req 4	C F I ⁽¹⁾	7 Not Req 7	C F I ⁽¹⁾	4 Not Req 7
Through slab on grade below water table	F	Not Req	F	Not Req	F	Not Req
Through floors in washdown areas	C I	4 4	C H ⁽²⁾ I ⁽¹⁾	4 3 4	F H ⁽²⁾ I ⁽¹⁾	Not Req 3 7
Through walls where one side is a hazardous area	C F I	7 Not Req 7	D F I ⁽¹⁾	Not Req Not Req 7	C F	7 Not Req
Through exterior wall below grade above water table	C F I	7 Not Req 7	C D F I ⁽¹⁾	1 Not Req Not Req 1	F I ⁽¹⁾	Not Req 7
Through wall from tankage or wet well (above high water level) to dry well or dry area	C F I	7 Not Req 7	C D F H ⁽²⁾	1 Not Req Not Req 1	C F H ⁽²⁾ I ⁽¹⁾	7 Not Req 7 7
Through wall from tankage or wet well (below high water level) to dry well or dry area	F	Not Req	F	Not Req	F	Not Req

Through exterior wall above grade	A B C	6 6 6	A B D H ⁽²⁾	5 5 Not Req 5	C H ⁽²⁾	5 4
Roof penetrations	A	2	A	2	A	2
Through interior walls and slabs not covered by the above applications	A C	4 4	A C	4 4	A C F	4 4 Not Req

**SCHEDULE B. OPENINGS AND PENETRATIONS SCHEDULE
 FOR EXISTING CONSTRUCTION**

APPLICATIONS	DUCTS		PIPING		CONDUIT	
	OPENING TYPE	SEAL CATEGORY	OPENING TYPE	SEAL CATEGORY	OPENING TYPE	SEAL CATEGORY
Through floors with bottom side a hazardous location	B E	7 Not Req	B ⁽¹⁾ E ⁽³⁾ H ⁽²⁾	7 Not Req 7	B ⁽¹⁾ E ⁽³⁾ H ⁽²⁾	7 Not Req 7
Through floors on grade above water table	B	7	B	7	B	7
Through slab on grade below water table	E	Not Req	E	Not Req	E	Not Req
Through floors in washdown areas	G	3	G H ⁽²⁾	3 3	G H ⁽²⁾	3 3
Through walls where one side is a hazardous area	B E	7 Not Req	B ⁽¹⁾ B ⁽³⁾ E H ⁽²⁾	7 1 Not Req 7	B ⁽¹⁾ ⁽³⁾ E H ⁽²⁾	7 Not Req 7
Through exterior wall below grade above water table	B	7	B ⁽¹⁾ B ⁽³⁾ H ⁽²⁾	7 1 7	B ⁽¹⁾ ⁽³⁾ H ⁽²⁾	7 7
Through wall from tankage or wet well (above high water level) to dry well or dry area	B E	7 Not Req	B E H ⁽²⁾	1 Not Req 1	B ⁽¹⁾ ⁽³⁾ E H ⁽²⁾	7 Not Req 7
Through wall from tankage or wet well (below high water level) to dry well or dry	E	Not Req	E	Not Req	E	Not Req

area						
Through exterior wall above grade	G	6	G ^{(1) (3)} H ⁽²⁾	5 5	G ^{(1) (3)} H ⁽²⁾	5 7
Roof penetrations	G	2	G ^{(1) (3)} H ⁽²⁾	2	G	2
Through interior walls and slabs not covered by the above applications	G	4	G ^{(1) (3)} H ⁽²⁾	4 4	G ^{(1) (3)} H ⁽²⁾	4 4

- (1) Multiple piping 3 IN and smaller or multiple conduits.
 (2) Single pipe 3 IN and smaller or single conduit.
 (3) Single pipe or conduit larger than 3 IN.

END OF SECTION

SECTION 01 73 29
DEMOLITION, CUTTING, AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes demolition, cutting and patching of existing construction where shown on Drawings, or as required to accommodate new work shown or specified.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS

- A. Shop Drawings:
 - 1. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
 - 2. Indicating manufacturer and type of:
 - a. Proposed nonshrink grout.
 - b. Epoxy bonding adhesive.
 - c. Proposed materials and methods to be used for matching and repairing existing construction.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. General:
 - 1. Salvage items, designated for Owner's salvage, as a functional unit.
 - 2. Clean, list and tag for storage.
 - 3. Protect from damage and deliver to location designated.
 - 4. Salvage each item with auxiliary or associated equipment required for operation.

1.5 SITE CONDITIONS

- A. Perform preliminary investigations as required to ascertain extent of work.

1.6 SEQUENCING AND SCHEDULING

- A. Coordinate and reschedule work as required to preclude interference with other operations.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the following products and manufacturers are acceptable:
 - 1. Nonshrink grout:
 - a. Supreme Grout by Gifford Hill.
 - b. Masterflow 713 Plus by BASF Building Systems.
 - c. Sika Grout 212 by Sika.
 - 2. Epoxy bonding adhesive:
 - a. Euco No.452 MV by Euclid Chemical Co.
 - b. Sikadur 32, Hi-Mod by Sika Corporation.
- B. Submit request for substitution in accordance with Specification Section 01 25 13 – Product Substitutions.

2.2 MATERIALS

- A. Temporary Partitions:
 - 1. Plywood: 1/2 IN minimum for interior or exterior use.
 - 2. Paneling: 1/4 IN minimum for interior use.
- B. Nonshrink Grout:
 - 1. Nonmetallic, noncorrosive and nonstaining.
 - 2. Premixed with only water to be added in accordance with manufacturer's instructions at jobsite.
 - 3. Grout to produce a positive but controlled expansion.
 - a. Mass expansion not to be created by gas liberation or by other means.
 - 4. Minimum compressive strength at 28 days to be 6500 psi.
 - 5. Coat exposed edges of grout with a cure/seal compound recommended by grout manufacturer.

C. Epoxy Bonding Adhesive:

1. Two-component, moisture insensitive adhesive manufactured for the purpose of bonding fresh concrete to hardened concrete.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Provide temporary partitions as required in public areas.
 1. Construct partitions of braced plywood in exterior areas.
 2. Adequately braced paneling may be used in interior areas.
- B. Provide covered passageways where necessary to ensure safe passage of persons in or near areas of work.
- C. Provide substantial barricades and safety lights as required.
- D. Provide temporary dustproof partitions where indicated or necessary.
 1. Prevent infiltration of dust into occupied areas.
- E. Provide temporary weather protection as necessary.

3.2 INSTALLATION

- A. Cutting and Removal:
 1. Remove existing work indicated to be removed, or as necessary for installation of new work.
 2. Neatly cut and remove materials, and prepare all openings to receive new work.
 3. Remove masonry or concrete in small sections.
- B. Modification of Existing Concrete:
 1. Where indicated, remove existing concrete and finish remaining surfaces.
 - a. Protect remaining concrete from damage.
 - b. Make openings by sawing through the existing concrete.
 - c. Concrete may be broken out after initial saw cuts in the event concrete thickness prevents cutting through.
 - d. Where sawing is not possible, make openings by drilling holes around perimeter of opening and then chipping out the concrete.
 - 1) Holes shall be sufficient in number to prevent damage to remaining concrete.
 - 2) Oversize required openings in existing concrete 1 IN on all sides and build back to required opening size by means of nonshrink grout epoxy bonded to the existing concrete.

- 3) Where oversized openings cannot be made, remove the concrete to the required opening size and cut back exposed reinforcing 1 IN from face of concrete and fill resulting holes with nonshrink grout.
- C. Removal of Existing Anchor Bolts or Other Protruding Elements:
1. Removal within a distance of 8 FT above finished floor or operating level elevation.
 2. Removed to a depth of 1/2 IN from finished surface.
 3. Fill void with non-shrink grout.
- D. Matching and Patching:
1. Walls, ceilings, floors or partitions:
 - a. Repair abutting walls, ceilings, floors or partitions disturbed by removal.
 - b. Match and patch existing construction disturbed during installation of new work.
 2. Methods and materials:
 - a. Similar in appearance, and equal in quality to adjacent areas for areas or surfaces being repaired.
 - b. Subject to review of Principal Architect/Engineer.
- E. Salvaged Items:
1. Thoroughly dry and clean all metal surfaces.
 2. Clean and lubricate motors and other moving parts.
 3. Brace motors attached to flexible mountings until reinstallation.
 4. Dispose of items or materials not designated for Owner's salvage or reuse. Promptly remove from site.
 5. Do not store or sell Contractor salvaged items or materials on site.
- F. Clean Up: Transport debris and legally dispose of offsite.

END OF SECTION

SECTION 01 73 33

TESTING STRUCTURES FOR WATERTIGHTNESS

PART 1 - GENERAL

1.1 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services, for all testing of concrete structures for watertightness as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

B. Related Specification Sections include but not necessarily limited to:

1. Division 01 – General Requirements
2. Division 03 – Concrete

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.
- B. Contractor shall pay all costs required for testing, retesting, patching and repair as required to meet watertightness requirements specified or indicated.

1.3 QUALITY ASSURANCE

A. American Concrete Institute:

1. ACI 350.1 – Testing Reinforced Concrete Structures for Watertightness.

B. Testing:

1. Provide watertightness testing for all water bearing structures in accordance with the indicated criteria:

Structure	Water Elevation at Commencement of Final 24 HR Test Period	Maximum Water Leakage Allowed in Final 24 HR Test Period (Percent of Test Volume)
All tanks, basins, chambers, boxes, etc.	Normal Operating Level	0.075
All channels and open conveyance structures	1-FT below top of concrete	0.075

- C. Perform a watertightness test on all water containing structures. Testing to conform to requirements of this Section with allowable for evaporation, leakage and other criteria as established by Owner's Representative.

1.4 DEFINITIONS

- A. Visible leakage: The presence of liquid water flowing or seeping with a visible water surface sheen. Surface dampness as evidenced by discoloration of the concrete without a visible water sheen will not constitute visible leakage.

1.5 SUBMITTALS

- A. See Section 01 33 00 – Submittals.
- B. Submit to Owner's Representative results of watertightness testing indicating the following:
1. Level of water in structure and in evaporation pan at commencement and end of final 24 HR test period.
 2. Net leakage in percent of total volume for each structure during final 24 HR test period (gross leakage minus that due to evaporation).
 3. Photographs of all visible leaks and damp areas. Include distant photos and close-ups to document conditions.
 4. Areas, methods and materials of patching to correct leakage.
 5. Results of retesting required due to leakage exceeding percentages allowed.
- C. Testing for watertightness with accompanying results to be witnessed by Owner's Representative.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with Contract Documents, the following manufacturers are acceptable:

1. Nonshrink grout: See Section 03 31 30 – Concrete Materials and Proportioning.
2. Epoxy grout and adhesive: See Section 03 31 30 – Concrete Materials and Proportioning.
3. Instant Setting Waterstop:
 - a. Sikaset plug by Sika Corporation.
 - b. Sikafix HH by Sika Corporation.
4. Injectable polyurethane sealant:
 - a. As manufactured by DeNeef, or approved equal.

PART 3 - EXECUTION

3.1 PREPARATION BEFORE TESTING

A. General.

1. Testing to be performed prior to placement of exterior backfill soil.
 - a. Contractor is responsible for phasing construction to minimize the impact of leak testing.
 - b. Contractor to furnish all necessary materials (such as flange cover plates).
2. Testing to be performed prior to application of waterproofing, if required.

B. Cleaning.

1. Thoroughly clean interior of structure to be tested of all debris and dirt and hose down surfaces of all walls and slabs.

C. Patching.

1. Completely fill tie holes with nonshrink grout.
2. Fill voids and honeycombed areas with patching grout.
3. Cracks suspected to cause leakage to be filled with epoxy adhesive or injected with sedant.
 - a. Patching to be performed after concrete defective area is cleaned of all loose material to surface of sound concrete.
4. Prior to patching activities, Contractor to submit patching materials and procedures for review by Owner's Representative.
5. Method of patching and materials subject to approval by Owner's Representative.

3.2 TESTING FOR LEAKAGE

- A. Fill structure to water elevation specified or indicated. Water for test to be non-potable water. Final 24 HR test period shall commence after water has been in structure for a minimum period of 96 HRS or extended period to allow for water absorption into concrete and complete curing of strip-type waterstops.
- B. Record level of water in structure at commencement of the final 24 HR test period. The final 24 HR test period to be free of any form of precipitation.
- C. Just prior to beginning the final 24 HR test, place an evaporation pan next to the structure being tested. Evaporation pan to be 4 FT 0 IN in diameter, and 10 IN deep made of galvanized steel or plastic. Float pan on surface of basin test water and place water to within 2 IN of top of pan. Record level of water in pan at commencement of test. Amount of water lost due to evaporation in the structure in IN shall be equal to the decrease in water depth (noted in inches) in the evaporation pan during the final 24 HR test period.
- D. During testing period, inspect structure for areas indicating leakage. Any areas evidencing running water and/or visible leakage to be repaired and patched to a stop-leak condition. Repair and patch in accord with requirements of paragraph 3.1.C of this Section and manufacturer's instructions.
- E. At the end of the final 24 HR test period, record level of water surface in the structure. Water leakage from the structure during the final 24 HR test period shall be the resulting net leakage after deducting the leakage due to evaporation from the total leakage.
- F. If leakage is greater than that allowed in this Section, repair and patch areas suspected of causing the leakage. Repair and patch in accord with requirements of paragraph 3.1.C of this Section. Re-test structure with water until leakage is equal to or less than that allowed.
- G. Dispose of water used for testing to an area which will not damage new or existing construction and will not interfere with construction operations or plant operations. Point of disposal to be approved by Owner's Representative.

END OF SECTION

SECTION 01 74 13

CLEANING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes intermediate and final cleaning of Work, not including special cleaning of closed systems specified elsewhere.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS (NOT USED)

1.4 STORAGE AND HANDLING

- A. Store cleaning products and cleaning wastes in containers specifically designed for those materials.

1.5 SCHEDULING

- A. Schedule cleaning operations so that dust and other contaminants disturbed by cleaning process will not fall on newly painted surfaces.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents:
 - 1. Compatible with surface being cleaned.
 - 2. New and uncontaminated.
 - 3. For Manufactured Surfaces: Material recommended by manufacturer.

PART 3 - EXECUTION

3.1 CLEANING - GENERAL

- A. Prevent accumulation of wastes that create hazardous conditions.
- B. Conduct cleaning and disposal operations to comply with laws and safety orders of governing authorities.

- C. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains or sewers.
- D. Dispose of degradable debris at an approved solid waste disposal site.
- E. Dispose of nondegradable debris at an approved solid waste disposal site or in an alternate manner approved by regulatory agencies.
- F. Handle materials in a controlled manner with as few handlings as possible.
- G. Do not drop or throw materials from heights greater than 4 FT or less than 4 FT if conditions warrant greater care.
- H. On completion of work, leave area in a clean, natural looking condition.
 - 1. Remove all signs of temporary construction and activities incidental to construction of required permanent Work.
- I. Do not burn on-site.

3.2 INTERIOR CLEANING

A. Cleaning During Construction:

- 1. Keep work areas clean so as not to hinder health, safety or convenience of personnel in existing facility operations.
- 2. At maximum weekly intervals, dispose of waste materials, debris, and rubbish.
- 3. Vacuum clean interior areas when ready to receive finish painting.
 - a. Continue vacuum cleaning on an as-needed basis, until Substantial Completion.

B. Final Cleaning:

- 1. Complete immediately prior to Demonstration Period.
- 2. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed surfaces.
- 3. Wipe all lighting fixture reflectors, lenses, lamps and trims clean.
- 4. Wash and shine glazing and mirrors.
- 5. Polish glossy surfaces to a clear shine.
- 6. Ventilating systems:
 - a. Clean permanent filters and replace disposable filters if units were operated during construction.

- b. Clean ducts, blowers and coils if units were operated without filters during construction.
- 7. Replace all burned out lamps with appropriate CFL bulbs.
- 8. Broom clean process area floors.
- 9. Mop office and control room floors.

3.3 EXTERIOR (SITE) CLEANING

A. Cleaning During Construction:

- 1. Construction debris:
 - a. Confine in strategically located container(s):
 - 1) Cover to prevent blowing by wind.
 - 2) Store debris away from construction or operational activities.
 - 3) Haul from site minimum once a week.
 - b. Remove from work area to container daily.
 - c. Site clean-up prior to storm events. Thoroughly clean site of all loose or unsecured items which may become airborne or transported by flowing water during storm events.
- 2. Vegetation: Keep weeds and other vegetation trimmed to 3 IN maximum height.
 - a. The use of chemical weed control substances should be avoided unless prior Owner approval is received.
- 3. Soils, sand, and gravel deposited on paved areas and walks:
 - a. Remove as required to prevent muddy or dusty conditions.
 - b. Do not flush into storm sewer system.

B. Final Cleaning:

- 1. Remove trash and debris containers from site.
 - a. Repair areas disturbed by location of trash and debris containers to Owner's satisfaction including but not limited to re-seeding, sod placement, pavement repair, asphalt repair, sidewalk repair, and rut removal and/or fill placement.
- 2. Clean paved roadways.

3.4 FIELD QUALITY CONTROL

- A. Immediately prior to Demonstration Period, conduct an inspection with Owner's Representative to verify condition of all work areas.

END OF SECTION

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SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for construction waste management and disposal.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for waste material disposal under this Section. Include payment in unit price for related sections.

1.3 SUBMITTALS

- A. Conform to requirements of Section 01 33 00 – Submittals.
- B. Obtain and submit disposal permits for proposed disposal sites if required by local ordinances. Submit a copy of all disposal permits to the Owner's Representative.
- C. Submit copy of written permission from property owner(s) outside limits of Project, with description of property, prior to disposal of excess material. Submit written and signed release from property owner upon completion of disposal work. Copies of the permission and release documents are to be submitted to the Owner's Representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SALVAGEABLE MATERIAL

- A. Excavated Material: When indicated on Drawings, load, haul, and deposit excavated material at location or locations shown on Drawings outside limits of Project.
- B. Other Salvageable Materials: Conform to requirements of individual Specification Sections.
- C. Coordinate with the Owner's Representative the loading of salvageable material.

3.2 EXCESS MATERIAL

- A. Remove and legally dispose of vegetation, rubble, broken concrete, debris, asphaltic concrete pavement, excess soil, and other materials not designated for salvage from job site.
- B. Excess soil may be deposited on private property outside the Project limits when written permission is obtained from property owner. See Paragraph 1.3C above.
- C. Verify flood plain status of any proposed disposal site. Do not dispose of excavated materials in area designated as within 100-year Flood Hazard Area unless the proper permit has been obtained. Remove excess material placed in "100-year Flood Hazard Area" at no additional cost to the Owner.
- D. Remove waste materials from site daily, in order to maintain site in neat and orderly condition, unless otherwise authorized by the Owner.

END OF SECTION

SECTION 01 77 19
CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for closeout of a construction project.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Introductory Information, Proposing Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS (NOT USED)

1.4 SUBSTANTIAL COMPLETION

- A. Comply with Document 00 72 00 – General Conditions of the Contract regarding Substantial Completion when Contractor considers the Work, or portion thereof designated by Owner's Representative, to be substantially complete.
- B. Insure the following items have been completed when included in the Work, prior to presenting a list of items to be inspected by Owner's Representative for issuance of a Certificate of Substantial Completion:
 - 1. Cutting, plugging, and abandoning of water, wastewater, and storm sewer lines, as required by specifications for each item;
 - 2. Construction of, and repairs to, pavement, driveways, sidewalks, culverts, headwalls and curbs and gutters;
 - 3. Sodding and hydromulch seeding, unless waived by the Owner in writing;
 - 4. General clean up including signage, lighting, pavement markings, transfer of services, successful testing and landscape;
 - 5. Installation of all bid items included in Document 00 41 00.02 – Proposal Form and approved Contract Document changes.
- C. Assist Owner's Representative with inspection of Contractor's list of items and complete or correct the items, including items added by Owner's Representative, within a time period of 30 days or as mutually agreed.
- D. Should Owner's Representative's inspection show failure of Contractor to comply with substantial completion requirements, including those items in

Paragraph 1.2B of this specification, Contractor shall complete or correct the items, before requesting another inspection by Owner's Representative.

1.5 CLOSEOUT PROCEDURES

- A. Comply with Document 00 72 00 – General Conditions of the Contract regarding Final Inspection and Final Payment when Work is complete and ready for Owner's Representative's final inspection.
- B. Provide Project Record Documents in accordance with Section 01 78 39 – Project Record Documents.
- C. Complete or correct items on punch list, with no new items added. Address new items during warranty period.
- D. Owner will occupy portions of Work as specified in other Sections.

1.6 FINAL CLEANING

- A. Execute final cleaning prior to Final Inspection.
- B. For facilities, clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to sanitary condition.
- D. Clean or replace filters of operating equipment.
- E. Clean debris from roofs, gutters, down spouts, and drainage systems.
- F. Clean site; sweep paved areas, rake landscaped surfaces clean.
- G. Remove waste and surplus materials, rubbish, and temporary construction facilities from site following final test of utilities and completion of Work.

1.7 ADJUSTING

- A. Adjust operating equipment to ensure smooth and unhindered operation in accordance with manufacturer's written instructions. Value of this testing and adjusting is five (5) percent of Lump Sum Amount in Schedule of Values for item being tested.

1.8 OPERATION AND MAINTENANCE DATA

- A. Submit operations and maintenance data as noted in Section 01 33 00 – Submittals.
- B. Five (5) percent of Lump Sum Amount of each piece of equipment as indicated in Schedule of Unit Price Work or Schedule of Values shall be paid after required O&M data submissions are received and approved by Owner's Representative.

1.9 WARRANTIES

- A. Provide one original and two copies of each warranty from subcontractors, suppliers, and manufacturers.
- B. Provide Table of Contents and assemble warranties in three-ring/D binder with durable plastic cover.
- C. Submit warranties prior to final progress payment.
- D. Warranties shall commence in accordance with requirements in Document 00 72 00 – General Conditions of the Contract.

1.10 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance, and extra materials in quantities specified in individual Specification sections.
- B. Deliver to location as directed by Owner's Representative; obtain receipt prior to final Payment Application.

1.11 TEXAS DEPARTMENT OF LICENSING AND REGULATION (TDLR) INSPECTION

- A. Contact TDLR's Houston Regional Office, 5425 Polk Street, Houston, Texas, 77023, telephone 713-924-6303, fax 713-921-3106, to schedule an inspection for ADA compliance prior to final completion.
- B. Provide results of TDLR's inspection to Owner's Representative prior to final inspection.

1.12 FINAL PHOTOS

- A. Provide per Specification Section 01 32 36.01 – Project Photographs.

1.13 PROJECT RECORD DOCUMENTS

- A. Provide per Specification Section 01 78 39 – Project Record Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Maintenance and Submittal.
 - 2. Recording.
 - 3. Submittals.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Maintain one record copy of documents at site in accordance with Document 00 72 00 – General Conditions of the Contract.
- B. Store Record Documents and samples in field office when field office is required by Contract, or in secure location. Provide files, racks, and secure storage for Record Documents and samples.
- C. Label each document "PROJECT RECORD" in neat, large, printed letters.
- D. Maintain Record Documents in clean dry and legible condition. Do not use Record Documents for construction purposes.
- E. Keep Record Documents and Samples available for inspection by Owner's Representative.
- F. Bring Record Drawings to progress review meetings for viewing by Owner's Representative.

1.3 RECORDING

- A. Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- B. Contract Drawings: Legibly mark each item to record actual construction, or "as built" conditions, including:
 - 1. Measured depths of elements of foundation in relation to finish first floor datum.
 - 2. Measured horizontal locations and elevations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Elevations of underground utilities referenced to bench mark utilized for Project.
 4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
 5. Field changes of dimension and detail.
 6. Modifications made by Change Order.
 7. Details not on original Contract Drawings.
 8. References to related shop drawings and modifications.
- C. Maintain on site at all times an instrument for accurately measuring elevations. Survey every joint of water main at time of construction and record on drawings water main invert elevation, including elevation top of manway and centerline horizontal location relative to baseline.
- D. Record information with red marking on set of drawings and specifications.
- E. Legibly mark Record Drawings 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.
- F. Legibly annotate shop drawings to record changes made after review.

1.4 SUBMITTALS

- A. At Contract closeout, deliver Project Record Documents to Owner's Representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 02 41 13.13

REMOVING EXISTING PAVEMENTS AND STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Removing concrete pavement, asphaltic concrete pavement, brick pavement, and base courses.
2. Removing concrete curbs, concrete curbs and gutters, sidewalks, and driveways.
3. Removing pipe culverts, sewers, and sewer leads.
4. Removing existing inlets and manholes.
5. Removing and disposing of pre-stressed concrete beams and drill shafts.
6. Removing miscellaneous structures of concrete or masonry.
7. Removing existing bridge.
8. Regulatory Requirements

B. Related Specifications Sections include but are not necessarily limited to:

1. Division 00 – Bidding Requirements Contract Forms and Conditions of the Contract
2. Division 01 – General Requirements

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum).** If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS (NOT USED)

1.4 WORK INCLUDED

- A.** Furnish labor, materials, equipment and incidentals necessary for every type of required demolition.
- B.** Furnish equipment of every type required to demolish and transport construction debris away from the Site.

1.5 STANDARDS

- A.** Work shall be performed in accordance with the codes and ordinances of the agency having jurisdiction over the Place of Record.
- B.** Coordinate removal work with utility companies.

- C. Occupational Safety and Health Association (OSHA), 29CFR Parts 1010 and 1926, "Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite", 40 CFR Part 61 - "National Emission Standard for Hazardous Air Pollutants"

1.6 DELIVERY AND STORAGE

- A. Stockpile construction debris at the Site only as long as necessary to haul to a disposal site. Stack materials neatly and handle in an orderly manner until removed from the Site.

1.7 JOB CONDITIONS

- A. Contractor shall visit the Site and determine the extent of demolition required and the Site conditions that might affect his proposal. Include costs of covering all aspects of the demolition as part of the proposal.
- B. The Drawings shall be carefully reviewed to determine the extent of necessary demolition and to identify elements of the existing construction which are to remain in place. Report any discrepancies to Owner and Engineer before disturbing existing conditions. Property lines and limits of demolition shall be accurately located prior to beginning site demolition. Start of demolition activities shall represent confirmation by Contractor that existing conditions are as presented in the Contract Documents. Demolition outside the limits indicated on the Drawings, or outside the property lines shall not be performed.
- C. For electrical demolition, verify field measurements and circuiting arrangements are as shown on the Drawings. Verify that existing wiring and equipment serve only abandoned facilities.
- D. Material removed during demolition, and any equipment not otherwise designated to remain the property of the Owner, shall become the property of the Contractor and shall be promptly removed from the Site.
- E. Equipment and material designated as remaining the property of the Owner shall be removed from the structure and transported to a designated location on the Site and stored for the Owner's use. Store on wood runners raised above the surrounding grade and cover with weather resistant covering that is tied securely in place.
- F. Take necessary precautions in removing Owner designated property to prevent damage during the demolition process. Equipment shall be removed in one piece. Loose components may be removed separately. Controls and electrical equipment may be removed from the equipment and handled separately. Large units, such as motor driven pumps, may be dismantled and motors handled separately. Do not use a cutting torch to separate the Owner's equipment or material. Salvaged piping shall be taken apart at flanges or fittings and removed in sections.
- G. The Owner's designated property shall include:

1. Any item to remain as part of the existing building and removed and reinstalled within the building as part of the renovated structure.
2. Motors, starters, relays, disconnect switches, panelboards and breakers.
3. Light fixtures.
4. Control devices of every description.
5. Valves, piping accessories, and other major piping components.
6. Flush valves and fixture trim from plumbing fixtures.
7. Motorized dampers and operators.
8. Exhaust fans, air handling units, unit heaters and air devices (grilles).
9. Piping
10. Equipment
11. Furniture.
12. Cabinets and Millwork.
13. Lavatories, Sinks, Trim and Fittings.

1.8 HAZARDOUS MATERIALS

- A. Hazardous materials will be removed by Owner before start of the Work.
 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Hazardous materials will be removed by Owner under a separate contract.
 2. Hazardous Materials: Hazardous materials are present in buildings and structures to be demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
 3. Hazardous material remediation is specified elsewhere in the Contract Documents.
 4. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
 5. Owner will provide material safety data sheets for materials that are known to be present in buildings and structures to be demolished because of building operations or processes performed there.

1.9 WARRANTY (NOT USED)

PART 2 - PRODUCTS

- A. New materials and equipment for patching and extending work shall meet the requirements of the individual Sections in these Contract Documents. For materials not addressed in these documents, materials used shall meet or exceed the dimensions and quality of the existing work.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Obtain advance approval from Owner's Representative for dimensions and limits of removal work.
- B. Contractor shall be responsible for obtaining location of underground utilities at the Site and stake and flag locations. Known existing underground utilities as shown in Construction Drawings are based on best available information at the time of preparation of these construction documents. Arrange for all applicable utility companies to accurately locate underground piping and set color-coded flags along the project limits. Investigate utility company's records to ascertain depths and sizes of piping and other ancillary features.
 - 1. In the event that exact location of utility cannot be obtained, dig test holes as necessary to establish location of utility. Contractor shall not use mechanical digging machines within 6 feet of any active buried utility. For a distance of 4 feet on either side of buried utility, all digging shall be by hand excavation. If the utility is not active, or is to be abandoned or removed, any form of excavation may be used.

3.2 PROTECTION

- A. Protect following from damage or displacement:
 - 1. Adjacent public and private property.
 - 2. Trees, plants, and other landscape features designated to remain.
 - 3. Utilities designated to remain.
 - 4. Pavement and utility structures designated to remain.
 - 5. Bench marks, monuments, and existing structures designated to remain.

3.3 REMOVALS

- A. Remove pavements and structures by methods that will not damage underground utilities. Do not use drop hammer near existing underground utilities.
- B. Minimize amount of earth loaded during removal operations.

- C. Where existing pavement is to remain, make straight saw cuts in existing pavement to provide clean breaks prior to removal. Do not break concrete pavement or base with drop hammer unless concrete or base has been saw cut to minimum depth of 2 inches.
- D. Unless otherwise shown and detailed on the plans, when street and driveway saw cut location is greater than one-half of a pavement lane width, remove pavement for full lane width or to nearest longitudinal joint as directed by Owner's Representative.
- E. Remove sidewalks and curbs to nearest existing dummy, expansion, or construction joint.

3.4 BACKFILL

- A. Backfill cavities resulting from demolition. Fill cavities occurring within the limits of buildings, structures, or pavements in accordance with the requirements. Backfill and compact cavities outside the construction limits to the same density as the surrounding earth. No testing is required for backfill outside the limits of new construction.

3.5 DISPOSAL

- A. Disposal shall be in accordance with requirements of Section 01 74 19 – Construction Waste Management and Disposal.
- B. Remove from site, debris resulting from work under this section in accordance with requirements of Specification Section 01 74 19 – Construction Waste Management and Disposal.

3.6 OWNER TRAINING (NOT USED)

END OF SECTION

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SECTION 13 02 00

ELEVATED STORAGE TANK REHABILITATION

PART 1 - GENERAL

1. Coating repairs and replacement.
 2. Structural repairs and replacement.
 3. Disinfection and cleanup.
- B. Related Specification Sections include, but are not limited to:
1. Division 00 – Bidding Requirements, Contract Forms and Conditions of the Contract
 2. Division 01 – General Requirements
- C. Water wells and generators onsite may be in use by Owner if operationally required. It shall be the responsibility of the Contractor to coordinate with Owner should this use interfere with Contractor's execution of the Work.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price. Price for each section of work will be stipulated on the Proposal as follows:
1. Mobilization
 2. Disconnect/Reconnect elevated communications equipment.
 3. Provide & install new gaskets and hardware.
 4. Replace existing flap valve with new flap valve and counter weight.
 5. Replace existing valves at base of the tank.
 6. Repair existing concrete pipe support at base of tank.
 7. Replace existing altitude valve with motor operated valve.
 8. Replace existing pedestrian entry door.
 9. Remove mounting hardware from top of interior dry ladder.
 10. Install cable tray mounts to access tube.
 11. Replace roof vent screen.
 12. Replace existing roof hatch covers.
 13. Replace roof navigation light with LED equivalent.
 14. Replace interior existing interior lighting with LED fixtures.
 15. Install new ten foot radius handrail to roof of tank with four antenna mounts.

16. Extend navigation light pole to be seen over new handrail.
17. Remove cathodic protection system and close all access openings in roof.
18. Replace interior overflow pipe support braces.
19. Remove interior wet ladder safety climb system.
20. Perform interior-dry-area pressure wash and coating repairs.
21. Provide and install epoxy pit filler to shallow pits.
22. Repair deep pits via welding.
23. Pressure wash interior-wet-area to remove salt contamination if required
24. Interior Protective Coating Replacement with zinc/epoxy/epoxy coating system.
25. Provide and maintain containment to prevent emissions and nuisance, remove existing and new superfluous welded lugs and clips.
26. Exterior Protective Coating Replacement with zinc/epoxy/urethane/fluoropolymer coating system
27. Provide & install Logos
28. Cleanup, Disinfection and Demobilization
29. Remove and replace existing drain valve at EST 5 with new valve provided by owner.

1.3 QUALITY ASSURANCE

- A. The Owner's Representative will perform quality assurance inspections of the Contractor's work on a hold-point basis. The Contractor is required to perform his own quality control.
- B. No work will progress beyond the designated hold-point until approved by Owner's Representative.
- C. The following hold-points are designated:
 1. All welding repairs completed prior to painting.
 2. Reinforcement and forms properly installed prior to placing concrete.
 3. Containment erection completed.
 4. Prior to blasting or pressure washing, all communications, monitoring and SCADA equipment is to be protected. Protection to be approved by owner. SCADA equipment to remain covered and sealed during entire project. If equipment is damaged without prior approval of protective measures, contractor shall replace at their own cost.
 5. Surface contaminants removed (if required)

6. Blast profile obtained and degree of blast completed.
 7. Prime coat completed.
 8. Stripe coat completed.
 9. Intermediate coat completed.
 10. Finish coat completed.
 11. Holiday detection test of interior completed.
 12. Cure test of interior completed.
- D. The Contractor is required to coordinate with the inspector and to provide 24 (twenty-four) hour notice to request a hold-point inspection. Hold-point inspections shall not be scheduled during weekends or Federal Holidays.
- E. The Contractor shall submit daily weather and progress reports, including anticipated work schedule for the next 7 (seven) days, to Engineer & Owner's Representatives via SharePoint.
- F. The Contractor is responsible for providing safe rigging to gain access to all work areas to be inspected. All rigging must conform to OSHA Standard 1910.
- G. The Contractor is responsible for providing recommended lighting per SSPC Technology Guide 12 (See Guide in Appendix) to illuminate the work and inspection areas.
- H. If the Contractor does not provide adequate lighting or safe rigging to properly inspect the work, the inspection will be postponed until such time as the Engineer can schedule an inspection to determine if the work may progress beyond the hold-point.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. The Contractor shall use the materials specified or materials of another manufacturer that are deemed equal in the opinion of the Engineer to the materials specified. The quality of the specified materials shall be the Standard of Quality specified. All interior paint shall conform to Standard 61 of the National Sanitation Foundation (NSF) and will be on the NSF approved list of inside finish materials. In the event the Contractor desires to substitute the products of another manufacturer, he shall apply to the Engineer in writing at least fourteen (14) days prior to the proposal date requesting substitution, and shall furnish with his request complete descriptive materials on the products along with NSF Certification plus full manufacturer's recommendations of surface preparation and application.
- B. All exterior abrasive material used in the removal of protective coating systems shall be silica free and low dust producing. Materials such as copper slag and Green Diamond are permitted. Traditional sand may be used for interior surface preparation. Steel and other metallic abrasive may NOT be used for interior surface preparation. Abrasives derived

from coal or petroleum products that leave an oily residue on the surface of the steel are also NOT permitted. Submit abrasive selection for approval.

- C. All paints, thinners and associated products used in the application of the protective coating systems will be provided by the same manufacturer. Approved manufacturers and systems are provided below. **The coating system and manufacturer to be used MUST be indicated in the Project Approach specified in Section 00 21 13.02 Article 8.1.4. and on the Proposal Form.** Project will be awarded based on best value to the Owner. Considerations for best value determination include, but are not limited to: price, expected coating life, coating color and gloss retention, coating warranty, coating performance in salt fog, adhesion, humidity, and other objective tests under ASTM or comparable standards, and historical performance of coatings in similar service.
- D. In the event the Contractor desires to substitute the products of another manufacturer, he shall apply to the Engineer in writing at least 14 (fourteen) days prior to the bid date requesting substitution and shall furnish with his request complete descriptive materials on the products along with NSF Certification plus manufacturer's recommendations of surface preparation and application.

PART 3 - EXECUTION

3.1 REPAIR ITEMS OF WORK

- A. All welding repairs must be completed before any paint is applied to the structure. All interior and exterior surfaces must be blasted and primed, and any additive repairs made before any intermediate or finish coats may be applied to the structure. All appurtenances, supports and steel members shall be constructed of A36 mild carbon steel unless otherwise specified, and be in accordance with AWWA D100, AISC 13th Edition, and TCEQ Chapter 290. All welding shall be in accordance with AWS Structural Welding Code D1.1 and these Specifications.
- B. Elevated Storage Tank No. 2:
1. Protect essential communications and monitoring equipment during all blasting and painting operations. Some equipment may have to be relocated on tank by Contractor and/or 3rd parties to successfully complete the project. This shall be closely coordinated with Owner and Engineer's Field Representative. Contractor shall provide properly trained personnel to assist with disconnecting, lowering, raising and reconnecting elevated communications equipment. Contractor shall also provide photos to document existing equipment and materials attached to the elevated water storage tank and all connections of such attachments. The photos shall provide adequate information for proper re-installment of equipment and material upon completion of work (s) performed. Please reference Section 01 32 36.01 Project Photographs. Owner will provide trained personnel for all ground level work.

2. Provide and install new gaskets and triple dipped galvanized nuts and bolts in manways after all painting is complete and properly cured. Ensure all manways are watertight.
3. Replace existing gasket of overflow flap valve. Ensure valve closes completely.
4. Remove and replace four (4) existing valves at base of tank with new valves of similar make. Newest existing valve to remain. Product information to be submitted for approval.
5. Repair or replace existing concrete pipe support at base of tank. New support must be designed and constructed in accordance with ACI 318. Product information to be submitted for approval.
6. Remove and replace existing 12" altitude valve with a new DeZurik BOS-CL on-center resilient seated butterfly valve, a Rotork IQT 1000 FA12 Open-Close Actuator, or equal, and associated wiring, communication and control equipment to ensure proper pressure regulation. Replace adjacent damaged concrete pipe supports to ensure valve and piping are properly supported. Valve, actuator and associated mechanical and electrical equipment shall be installed in accordance with the Detail in the Drawings Section and Sections 33 and 40 of these specifications. Product information to be submitted for approval.
7. Replace existing walkthrough door and doorframe at base of tank with new door and doorframe of same make as produced by Chem-Pruf®. Product information to be submitted for approval.
8. Remove existing mounting hardware from the top of the interior dry ladder.
9. Provide and install new cable tray mounts to the interior access tube.
10. All conduit and lines will need to be moved away from the handrails and attached at the newly installed cable tray mounts to ensure safe climbing access.
11. After new coatings have cured, install new TCEQ compliant fiberglass screen and bands.
12. Remove and replace existing 30 inch diameter roof hatch covers with new steel hatch covers. Hatches to be as designed in drawings section
13. Replace existing roof navigation light with new LED equivalent.
14. Replace existing interior lighting with new LED fixtures and bulbs. Product information to be submitted for approval.
15. Provide and install new roof handrail rolled to 10 foot radius, centered on the roof access hatch. Handrail to be as designed in drawings section. Four of the mounts attached to the handrail are to be attached facing North, South, East and West as best as allowable. Mounts designed for Hurricane Category 3 wind rating (129 mph).

16. Extend new navigation light pole to a height of 6 feet above the roof, so as to be seen above the new handrail.
17. Remove impressed current cathodic protection (CP) system rectifier and all associated wiring and accessories. Close all anode access openings in roof by welding 3/16" thick 6" diameter plate over each opening.
18. Remove and replace existing interior overflow pipe supports with new 2"x2" angle support brackets.
19. Remove interior wet ladder safety climb assembly.
20. After abrasive blasting, install new non-shrink grout to junction between the base of the tank and the foundation. Submit grout material for approval.
21. Remove all superfluous welded lugs on structure, including old ladder lugs, old rigging clips and shroud clips. New shroud clips shall be removed by grinding, blasted and painted per the exterior coating specification after containment has been removed. All grinding shall result in a smooth finish without sharp edges or corners.
22. All interior dry surfaces shall be pressure washed per SSPC SP-1 (minimum 3,000psi) prior to paint application. Rusted areas are to be power tool cleaned per SSPC SP-11 and apply intermediate coat specified for interior coating system.
23. Optional Work Item: At contractor's own expense, holes may be cut in tank's roof (above HWL) to provide rigging ports for interior of tank. If holes are cut, weld one 2" diameter threaded pipe coupling in each hole. Blast and paint couplings as part of exterior work. Close holes at end of job with galvanized threadolet plugs. Submit number of holes proposed and methods to cut and close to Engineer for approval.

C. Repair of Pits and Prior Corrosion Damage

1. After abrasive blast cleaning, Owner's Representative will inspect the steel surface to determine the repair procedure. The repairs may be made by using epoxy paste or by welding as directed by the Owner's Representative. Those pits deeper than 1/8" will be repaired by welding. Pits less than 1/8" deep will be repaired with epoxy paste. Epoxy paste shall be applied after the zinc-rich primer has been applied per the appropriate coating specification in this Section.
2. Repair deep pits by welding pit flush with surface of tank. Average size of deep pits is 1" diameter x 1/8" deep. Repair all shallow pits by filling with 100% solids epoxy TNEMEC pit filler. Average size of shallow pits is 1" diameter x less than 1/8" deep. Assume 100 deep pits to be repaired by welding and 2 gallons of epoxy pit filler to repair shallow pits in base bid.
3. It is estimated that after abrasive blast cleaning; each tank will require repair by welding approximately 50 pits, holes or other corrosion damaged areas up to 6" in diameter. Large pits (greater than 2" diameter or multiple pits clustered closely

together) shall be repaired by welding 1/4" steel plates to the tank per AWS D1.1 (3/16" thickness is acceptable above the HWL). Blast and prime entire area affected by repairs according to the appropriate coating specification in this document.

D. Elevated Storage Tank No. 5:

1. Remove and replace existing drain valve with new motor operated valve and actuator provided by owner. Review of Engineer's Report of Inspection dated 3/14/2019 recommended. Installation procedure, including proposed lift plan, to be submitted for approval.

3.2 PROTECTIVE COATING REPLACEMENT

A. General

1. All coating operations shall be performed in accordance with SSPC PA-1, SSPC PA-2, AWWA D102 and these specifications.
2. All paint materials shall be evenly spread without runs, sags, skips, or other faults. Finished surfaces shall be uniform in gloss, finish and color and shall be free from brush marks, runs, drips and sags. All lines of demarcation between paints of different colors of shades shall be carefully drawn so as to be true and free from blurred edges.
3. All sharp edges, weld seams and other items difficult to coat shall receive a brush applied coat of the intermediate coating thinned as much as allowable in accordance with the manufacturer's directions, liberally worked in after the prime coat and prior to the finish coat of paint. All stainless steel in the interior wet area shall be coated. Stainless steel in the interior dry area shall be coated only if specifically directed by Engineer's Field Representative.
4. Each coat shall be sprayed on in accordance with manufacturer's recommendations. Rolling interior paint is not permitted. The type of spray nozzle, the fluid pressure at the gun, the distance from the gun to the surface being painted and the speed of travel of the gun shall be as recommended by the manufacturer. Thinning shall be done as recommended. All paint in the fluid pot and lines shall be cleaned out with thinner before application of the paint is begun. The thinner may be used also for cleaning the painting equipment at the end of each day's operations.
5. Each coat shall be dry to the touch before the next coat is applied. Follow the manufacturer's directions explicitly.
6. The Contractor is cautioned that small amounts of paint are intoxicating and large amounts tend to be toxic. The Contractor shall make provisions to keep the tank well ventilated during the spraying and drying operations to protect the personnel and to facilitate drying to the coating by solvent evaporation. During the actual

spraying operations, all personnel within the tank shall be furnished with either an appropriate respirator or source of external air such as a compressed air line to a sandblasting helmet. At least two men shall be in the tank during spraying operations.

B. Interior Surface Preparation and Coating Application

1. General

- a. The work covered by this part of the specification includes painting the entire interior surface area of the structure. This includes but is not limited to all ladders, condensate floors and interior piping (see note below regarding interior dry area). The Contractor shall furnish all materials required for the painting and shall install them in accordance with the manufacturer's written directions and these specifications.

2. Surface Preparation

- a. Abrasive blast clean all areas to SSPC SP-6 Commercial Blast Standard. A suitable angular anchor profile of at least 2.0 mils as determined by Testex strips shall be established.
- b. Remove all blast debris from tank and inspect the interior surface area for pit and soluble salt contamination. Soluble iron salt concentration and chloride concentration shall be sampled via a Chlor*Test SCAT Kit with latex sleeve and tested with a chloride titrator tube and ferrous ion test strips in accordance with SSPC Guide 15 and the manufacturer's instructions. If alternate method is to be used, submit to Engineer for approval.
- c. After proper surface sampling via SCAT kit, test collected sample in latex sleeve with chloride titrator tube and ferrous ion test strips. If ferrous ion salt content or chloride ion content is above $10 \mu\text{g}/\text{cm}^2$ (equal to 10 ppm when SCAT test is used), pressure wash per SSPC SP-1 all blast cleaned areas to reduce soluble salt content to less than the above limits.
- d. When soluble salt concentrations are below the limits set above, install desiccant dehumidification equipment and abrasive blast clean all interior surfaces including areas above HWL to near-white standard per SSPC SP-10. Dehumidification equipment must remain operational and running from the time the near-white blast commences and run 24 (twenty-four) hours per day until five days after the final coat of paint is applied. The unit must control the environment to keep the air inside tank and riser at less than 50% relative humidity at all times. Minimum desiccant dehumidification equipment required is an HC-4500 GA desiccant with 20kW generator as supplied by DH Technologies or equal.

3. Coating Application

- a. Apply NSF approved three coat system of zinc-rich primer top coated with two coats of polyamide epoxy to all interior surfaces.

- 1) Coating System No. 1. – TNEMEC
 - a) **Prime Coat:** TNEMEC Series 94-H2O Hydro-Zinc at 2.5-3.5 mils DFT.
 - b) **Stripe Coat:** TNEMEC Series 20 or N140 thinned as much as allowable and brushed into all welds and along all edges.
 - c) **Intermediate and Finish Coats:** TNEMEC Series 20 or N140 applied at 4.0-6.0 mils DFT each coat.
 - d) **Seam Sealer and Pit Filler:** Apply TNEMEC Series FC22 Epoxoline, 100% solids to all interior unwelded seams (use Sikaflex above the HWL). Fill shallow pits with TNEMEC Series FC22 or Series 215.
- 2) Coating System No. 2 – Sherwin-Williams
 - a) **Prime Coat:** Sherwin-Williams Corothane I Galvapac Zinc applied at 2.5-3.5 mils DFT.
 - b) **Stripe Coat:** Sherwin-Williams Macropoxy 646 PW thinned as much as allowable and brushed into all welds and along all edges.
 - c) **Intermediate and Finish Coats:** Sherwin-Williams Macropoxy 646 PW applied at 4.0-6.0 mils DFT each coat.
 - d) **Seam Sealer and Pit Filler:** Apply Sherwin-Williams Steel Seam FT 910, 100% solids to all interior unwelded seams (use Sikaflex above the HWL). Same product shall be used for shallow pit repair.
- 3) Coating System No. 3 – Induron
 - a) **Prime Coat:** Induron Indurazinc MC 67 applied at 2.5-3.5 mils DFT.
 - b) **Stripe Coat:** Induron PE 70 thinned as much as allowable and brushed into all welds and along all edges.
 - c) **Intermediate and Finish Coats:** Induron PE 70 applied at 4.0-6.0 mils DFT each coat.
 - d) **Seam Sealer and Pit Filler:** Apply Induron Aquatapoxy A-6, 100% solids to all interior unwelded seams (us Sikaflex above the HWL). Same product shall be used for shallow pit repair.
- 4) **Minimum thickness required for the total system is 12.0 mils DFT.** Each succeeding coat of paint will vary from the preceding in color so as to be able to verify coverage. Color of finish coat of paint shall be Tank White.
- 5) **Note: Zinc-rich prime coat and holiday detection is not required for interior dry areas. Power washing and coating repair will be performed as indicated in repair items. All interior dry surfaces shall be pressure washed per SSPC SP-1 (minimum 3,000psi) prior to paint application.**

4. Holiday Testing

- a. After the paint thickness meets these specifications and has cured for at least 5 (five) days, the Contractor shall test the entire surface of the paint system, including above the HWL, for holidays with a low voltage wet sponge detector in accordance with NACE SP0188. Holidays shall be marked and reworked until no further holidays appear. After all holiday checking is complete, the point of ground connection shall be carefully coated.

C. Exterior Surface Preparation and Coating Application

1. General

- a. The work covered by this part of the specification includes painting the entire exterior surface area of the tank. It also includes painting any steel outside the tank such as vents, hatches, steel retaining rings, exposed yard piping and all other items outside the tank. Data plates shall not be painted over. The Contractor shall furnish all materials and equipment required for the painting and shall install them in accordance with the manufacturer's written direction and these specifications. Stainless steel shall be coated only if specifically directed by Engineer's Field Representative.

2. Containment

- a. The existing exterior coating system contains less the 1% lead by weight. Containment is required during the exterior abrasive blasting and coating operations to prevent visible emissions and nuisance.
- b. Sufficient outriggers must be mounted on the tank to allow a fully operational shroud system in winds of up to 25 (twenty-five) miles per hour. Containment plan must be submitted to Engineer for approval.
- c. Shroud exterior of tank with Class 2A shroud including top cap per SSPC Guide 6 (CON). Visual verification of negative pressure is required during all blasting operations. See Table A in Drawings Section for specifics of shroud system. Vacuum blasting or automatic blasting machines such as BlastTrac may be used in lieu of complete containment. If BlastTrac or similar is utilized, partial containment of inaccessible areas is required to prevent visible emissions. Submit containment plan.

3. Surface Preparation

- a. Abrasive blast clean the entire exterior surface area to SSPC SP-6 Commercial Blast Standard. A suitable angular anchor profile of at least 2.0 mils as determined by Testex strips shall be established. All areas shall be pressure washed with clean water per SSPC SP-1 prior to blasting to prevent embedment of contaminants from existing coating.

4. Coating Application

- a. Apply four coat zinc-rich primer/epoxy/polyurethane/fluoropolymer system:

- 1) Coating System No. 1 – TNEMEC
 - a) **Prime Coat:** TNEMEC Series 94-H20 Hydro-Zinc applied at 2.5-3.5 mils DFT.
 - b) **Stripe Coat:** TNEMEC Series 20 or N140 polyamide epoxy thinned as much as allowable and brushed into all weld seams.
 - c) **1st Intermediate Coat:** TNEMEC Series 20 or N140 polyamide epoxy applied at 4.0-6.0 mils DFT.
 - d) **2nd Intermediate Coat:** TNEMEC Series 1075 polyurethane applied at 2.0-3.0 mils DFT.
 - e) **Finish Coat:** TNEMEC Series 700 Hydroflon fluoropolymer applied at 2.0-3.0 mils DFT.
 - f) **Pit Filler:** TNEMEC Series FC22 or Series 215, 100% epoxy shall be used for shallow pit repair.
- 2) Coating System No. 2 – Sherwin-Williams
 - a) **Prime Coat:** Sherwin-Williams Corothane I Galvapak Zinc applied at 2.5-3.5 mils DFT.
 - b) **Stripe Coat:** Sherwin-Williams Macropoxy 646 PW thinned as much as allowable and brushed into all weld seams.
 - c) **1st Intermediate Coat:** Sherwin-Williams Macropoxy 646 PW applied at 4.0-6.0 mils DFT.
 - d) **2nd Intermediate Coat:** Sherwin-Williams Hi-Solids polyurethane applied at 2.0-3.0 mils DFT.
 - e) **Finish Coat:** Sherwin-Williams Fluorokem fluoropolymer applied at 2.0-3.0 mils DFT.
 - Pit Filler:** Sherwin-Williams Steel Seam FT 910, 100% epoxy shall be used for shallow pit repair.
- 3) Coating System No. 3 – Induron
 - a) **Prime Coat:** Induron MC 67 zinc-rich primer applied at 2.5-3.5 mils DFT.
 - b) **Stripe Coat:** Induron PE 70 epoxy thinned as much as allowable and brushed into all weld seams.
 - c) **1st Intermediate Coat:** Induron PE 70 epoxy applied at 4.0-6.0 mils DFT.
 - d) **2nd Intermediate Coat:** Induron Indurethane 6600 Plus polyurethane applied at 2.0-3.0 mils DFT.
 - e) **Finish Coat:** Induron Perma-Gloss Fluorourethane fluoropolymer applied at 2.0-3.0 mils DFT.
 - f) **Pit Filler:** Induron Aquatapoxy A-6, 100% epoxy shall be used for shallow pit repair.
- 4) **Total system thickness must be 12.0 mils DFT minimum.** Each succeeding coat of paint will vary from the preceding in color so as to be able to verify coverage. Color of finish coat shall be Cloud – 57BR.

- b. After all exterior painting is complete, install 2 logos similar to existing, at same locations as existing. Mark existing location prior to blasting exterior logos, collect photos and measurements of existing logos. Use specified finish coat for logos. All dimensions to be field verified by Contractor prior to ordering pounce patterns. Contractor shall use DuPont Tyvek pounce patterns, or equal, as provided by TankLogos.com of Nashville, TN. Phone (615) 473-0272. Submit logo detail.

D. Cleaning

1. The tanks will be drained and the Contractor will be responsible for cleaning any accumulated sand and silt prior to the start of work. All material used in the blasting operations, sediment in the tank, rust, paint and scale accumulated from the cleaning operations and all other material in the tank shall be removed from the tank by the Contractor and properly disposed of.

E. Disinfection

1. The disinfection of the tank is the responsibility of the Contractor. The Contractor shall use chlorination methods as specified in AWWA C652. The Owner will fill the tank and perform bacteriological testing. The Contractor shall ensure the tank is watertight and perform any maintenance necessary to make the tank watertight and in compliance with all TCEQ Chapter 290 Rules and Regulations prior to vacating the site. **If the BAC-T sample fails, the Contractor will disinfect the tank again, and Contractor shall be responsible for all additional costs for water and waste.** Job is not substantially complete until tank passes bacteriological testing and is in compliance with TCEQ Chapter 290.

F. Guarantee and Cleanup

1. The Express Warranty (Corrective) period is specified in Paragraph 13.7 of Sections 00 72 00 – General Conditions of the Contract.
2. In addition, it shall be the responsibility of the Contractor to schedule and meet with the Engineer and inspect the tanks 11 ½ (eleven and one-half) months from the date of the final acceptance to determine whether the tank is still in a serviceable condition and then correct all deficiencies under the warranty.
3. Upon completion of all work, the Contractor shall remove all surface materials and rubbish and dispose of in accordance with directions of the Engineer. He shall repair all damage caused by his work and shall leave the premise in a clean and orderly condition equal to that of when he found it.

END OF SECTION

SECTION 33 12 17
BUTTERFLY VALVES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Butterfly valves.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Proposing Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.
 - 3. Section 09 91 00 – Painting and Protective Coatings
 - 4. Section 31 21 33 – Trenching, Backfilling, and Compacting for Utilities.
 - 5. Section 33 05 16 – Precast Manhole Structures.
 - 6. Section 33 11 13.04 – Hydrostatic Testing of Pipelines.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 QUALITY ASSURANCE

- A. Referenced Standards:
 - 1. American Society of Mechanical Engineers (ASME):
 - a. B16.1 – Cast Iron Pipe Flanges and Flanged Fittings.
 - 2. ASTM International (ASTM):
 - a. A126 – Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
 - 3. American Water Works Association (AWWA):
 - a. C504 – Standard for Rubber-Seated Butterfly Valves.
 - b. C550 – Standard for Protective Interior Coatings for Valves and Hydrants.

1.4 SUBMITTALS

- A. Conform to requirements of Section 01 33 00 – Submittals.
- B. Submit manufacturer's product data for proposed valves and actuators for approval.

- C. Submit manufacturer's affidavit for proposed valves and actuators certifying compliance with specifications.
- D. Submit manufacturer's affidavit that butterfly valves were manufactured in the United States, and conform to applicable requirements of AWWA C504 and that they have been satisfactorily tested in the United States in accordance with AWWA C504 using test pressure of 225 psi in both directions. Submit Proof-of-Design and hydrostatic testing procedure in accordance with AWWA C504.
- E. Submit manufacturer's affidavit that coating for interior surfaces of valves conform to applicable requirements of AWWA C550. Submit results of holiday test and thickness measurements of coatings.
- F. Furnish, at time of delivery, affidavit of compliance, as specified in Section 6.3 of AWWA C504 certifying compliance with applicable portion of AWWA C 504 and modification or supplements herein. Furnish certified drawings and material test records by manufacturer covering items included in Section 4.3 of AWWA C504, for review. Furnish certified copies of test reports covering items in Sections 4.5.8.5.5, 4.5.8.5.8, and 5.2.1 through 5.2.4.3 of AWWA C504 for review.
- G. Submit data indicating maximum torque required to open valve, maximum torsional strength of shaft and torque output of actuator.
- H. Include number of turns to operate valves to fully open/closed.

1.5 QUALITY CONTROL

- A. Perform valve leakage tests in both directions at 225 psi in factory and field. Hydrostatic field tests of 225 psi shall be made against dished head plug or similar arrangement.
- B. For purposes of interpreting referenced AWWA tests, the following shall apply: Shutoff pressure is 225 psi; cycle consists of rotating disc from fully opened to fully closed position, for valves larger than 72 inches, proof of design shall require 1,000 cycles and shall be performed on valve greater than 72 inches of like design and construction. When proof of design tests are performed on valve delivered to job site, replace disc, bushing, shaft and seals with new and unused items, and test and certify as described above.
- C. Hydrostatic Testing by Manufacturer:
 - 1. Hydrostatic testing to be performed prior to shipment of valves. Provide minimum 4 weeks notice to Owner's Representative for optional witness testing. When possible, maximize number of valves to be tested during a plant visit. Expenses for visits by Owner's Representative for defective valves, improper scheduling, or valve failures are to be paid by Contractor. Witness of hydrostatic testing by Owner's Representative will only be in regards to compliance with this specification and will not constitute approval by Owner's Representative nor relieve Contractor of obligations to comply with contract documents.

2. Document serial number on valve at time of testing and reflect in certified test records furnished to Owner's Representative. Identification plate must be permanently affixed to valve and actuator prior to hydrostatic testing.
3. Hydrostatic testing to conform to AWWA C504 except as modified below:
 - a. Install actuator prior to hydrostatic testing. Test actuator to verify actual number of turns match manufacturer's published number of turns. Verify valve stops are in correct positions.
 - b. Fully open and close valve prior to performing shell test and prior to each leakage test.
 - c. Perform shell test first.
 - d. When tested with water, adequately dry seat and disc.
 - e. When tested with air, fill top of valve with water to aid in viewing possible leakage.
 - f. Pressure Gauges: Calibrated within past 12 months; 0-500 psi range in increments of 5 psi, present calibration certificates prior to hydrostatic testing.
 - g. If seat adjustment is required during hydrostatic testing, perform valve leakage test again in both directions. Once seat adjustment is made, fully open and fully close valve three (3) times, and repeat leakage test.
4. Field Testing
 - a. When valve arrives at the job site, Contractor is to operate valve fully open and closed twice in presence of Owner's Representative. Document number of turns to open and close each time.
 - b. Install operator nut plum.
 - c. After valve is installed, repeat the operation test and document number of turns in presence of Owner's Representative.
 - d. Manufacturer's representative must be present to witness the operation test again at the substantial walk thru. Verify valve operate fully open/closed twice at the appropriate number of turns.

1.6 WARRANTY (NOT USED)

PART 2 - PRODUCTS

2.1 VALVES AND ACTUATORS

- A. Butterfly Valves and Actuators: Conform to AWWA C504, except as modified or supplemented herein.

- B. If type of valve is not indicated on Drawings, use butterfly valves for line valve sizes 24-inch and larger. When type of valve is specified on Drawings, no substitute will be allowed, unless otherwise approved by Owner's Representative.
- C. Butterfly valves shall be short-body, flanged design, and installed at locations as shown on Drawings.
- D. Valves shall open counter clockwise.
- E. Provide flanged joints when valve is connected to steel or PCCP.
- F. Butterfly Valves and Actuators (Additional Requirements for Large Diameter Water Lines):
 - 1. Provide all valves for single project, from same manufacturer.
 - 2. Valves larger than 72-inches in diameter design: Allowable stresses at rated pressure not to exceed one-third of yield strength or one-fifth of ultimate strength of material used.
 - 3. Provide manual actuators for single project, from same manufacturer.
 - 4. Shaft connecting actuator to valve body must be fully enclosed. Bonnet and extension to be fully enclosed and watertight.

2.2 VALVE CONSTRUCTION

- A. Valves: AWWA C504, Class 150B or 250B to match pressure class of adjacent piping. Body: Cast iron, ASTM A126, Class B. Flanges: ASME B16.1, Class 150 lb. or as required to match adjacent piping.
- B. Discs for Butterfly Valves: Either cast iron or ductile iron. Valves greater than 54" in. diameter must utilize flow through disc.
- C. Seats: Buna-N or neoprene, and may be applied to disc or body. Seats shall be mechanically secured and may not rely solely on adhesive properties of epoxy or similar bonding agent to attach seat to body. Seats on disc shall be mechanically retained by stainless steel (18-8) retaining ring held in place by stainless steel (18-8) cap screws that pass through rubber seat for added retention. When seat is on disc, seat shall be retained in position by shoulders located on both disc and stainless-steel retaining ring. Mating surfaces for seats: Type 304, stainless steel and secured to disc by mechanical means. Sprayed-on or plated mating surfaces will not be allowed. Seat must be replaceable in field for valves greater than 30 inches in diameter. Valves with segmented retaining rings will not be accepted.
- D. Coat interior wetted ferrous surfaces of valve, including disc, with epoxy suitable for potable water conditions. Epoxy, surface preparation, and epoxy application: In accordance with AWWA C550 and coating manufacturer's recommendations. Provide three coats of two component, high-build epoxy with minimum dry film thickness of 12 mils. Provide approved epoxy coating. Coatings shall be holiday tested and measured for thickness.

- E. Valve shaft and keys: 24 inches in diameter and greater valves require a minimum of two (2) taper pins used for attaching valve shaft to valve disc, use of torque plug for purposes of attaching valve shaft to valve disc is not permitted. Shaft: Type 304 stainless steel. Shaft Bearings: Stainless steel, bronze, nylon, or Teflon (supported by fiberglass mat or backing material with proven record of preventing Teflon flow under load) in accordance with AWWA C504. Sinter stainless steel bearing material. Design valve shaft to withstand 3 times amount of torque necessary to open valve.
- F. Packing: Self adjusting and wear compensating, full or split ring V-type, and replaceable without removing actuator assembly.
- G. Retaining Hardware for Seats: Type 304 stainless steel. Nuts and screws used with clamps and discs for rubber seats shall be held securely with locktight, or other approved method, to prevent loosening by vibration or cavitational effects.
- H. Valve disc shall seat in position at 90 degrees to pipe axis and shall rotate 90 degrees between full-open and tight-closed position. Install valves with valve shafts horizontal and convex side of disc facing anticipated direction of flow, except where shown otherwise on Drawings.
- I. For valves utilizing retaining rings, tighten bolts to a uniform torque. Measure torque prior to testing valve.

2.3 VALVE ACTUATOR CONSTRUCTION

- A. Provide actuators for valves with size based on line velocity of 12 feet per second and uni-directional service, and, unless otherwise shown on Drawings, equip with geared manual actuators. Provide fully enclosed and traveling-nut type, rack-and-pinion type, or worm-gear type for valves 20 inches and smaller. Provide worm-gear type for valves 24 inches and larger.
- B. Provide actuator designed for installation with valve shaft horizontal unless otherwise indicated on Drawings.
- C. Provide bonnet extensions, as required, between valve body and actuator. Space between actuator housing and valve body shall be completely enclosed so that no moving parts are exposed to soil or elements.
- D. Provide oil-tight and watertight actuator housings for valves, specifically designed for buried service or submerged service when located in valve vaults, and factory packed with suitable grease.
- E. Install valve position indicator on each actuator housing located above ground or in valve vaults. Valves shall be equipped with 2-inch actuator nut only.
- F. Indicate direction of opening of valve on exposed visible part of assembly and cast direction of open on 2 inch nut on top of valve operator extension. Paint 2 inch actuator nut and extension shaft black when counter clockwise open and red when clockwise to open.

- G. Design worm-gear or traveling-nut actuators to be self-locking and designed to transmit twice the required actuator torque, without damage to faces of gear teeth or contact faces of screw or nut. Valve stops shall be capable of withstanding a 450 ft.-lb. torque against the stop without damage to either the stop or the gear teeth.

2.4 VALVE BOXES

- A. Provide Standard Type "A" valve boxes.

2.5 VALVE SERVICE MANHOLES

- A. For large diameter water lines, provide manholes to dimensions shown on Drawings conforming to requirements of Section 33 05 16 – Precast Manhole Structures.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Conform to applicable provisions of Section 31 21 33 – Trenching, Backfilling, and Compacting for Utilities.

3.2 SETTING VALVES AND VALVE BOXES

- A. Prior to Hydrostatic testing of water line and valve:
 - 1. Test valve by opening and closing valve a minimum of two times to verify valve seats properly.
 - 2. Verify number of turns from fully open to fully closed position is same as identified in manufacturer's submittal.
 - 3. Adjust valve as required if number of turns do not match.
 - 4. Remove foreign matter from within valves.
- B. Install valves where shown on Drawings or as located by Owner's Representative. Use valve boxes for 16 inch and 24 inch valves. Set valves plumb and as detailed. Center valve boxes on valves. Carefully tamp earth around each valve box for minimum radius of 4 feet, or to undisturbed trench face when less than 4 feet.
- C. Avoid disturbing or overstressing valve body when installing valves. Perform field adjustment of valves under pressure to ensure shutoff occurs in number of rotations as described in valves operation and maintenance manual.
- D. Attach two four (4) foot lengths of pipe to each side of valve prior to installation in line.

- E. Submit certification that large diameter valve was installed, adjusted, and exercised in accordance with manufacturer's instructions. Manufacturer's certification shall state that all performance characteristics of large diameter valves, as installed, have been met. Adjustments made to valve, for any reason, must be made by manufacturer's representative.

3.3 DISINFECTION AND TESTING

- A. Contractor to disinfect valves and appurtenances and test as required by Section 33 11 13.04 – Hydrostatic Testing of Pipelines. Do not use valves for throttling without prior approval of manufacturer.

3.4 PAINTING OF VALVES

- A. Paint valves in accordance with Section 09 91 00 – Painting and Protective Coatings

3.5 OWNER TRAINING (NOT USED)

END OF SECTION

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SECTION 40 05 23

VALVES: BASIC REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Valving, actuators, and valving appurtenances.
 - 2. Specification Section is applicable to valves referenced in 13 02 00.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Proposing Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.
 - 3. Section 09 91 00 – Painting and Protective Coatings.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 QUALITY ASSURANCE

- A. Referenced Standards:
 - 1. American Society of Mechanical Engineers (ASME):
 - a. B1.20.1, Pipe Threads, General Purpose.
 - b. B16.1, Cast Iron Pipe Flanges and Flanged Fittings.
 - c. B16.18, Cast Copper Alloy Solder Joint Pressure Fittings.
 - d. B16.34, Valves-Flanged, Threaded and Welding End.
 - 2. ASTM International (ASTM):
 - a. A126, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
 - b. D256, Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.
 - c. D638, Standard Test Method for Tensile Properties of Plastics.
 - d. D648, Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.
 - e. D695, Standard Test Method for Compressive Properties of Rigid Plastics.
 - f. D2240, Standard Test Method for Rubber Property-Durometer Hardness.

3. American Water Works Association (AWWA):
 - a. C207, Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 IN through 144 IN.
 - b. C500, Standard for Metal-Seated Gate Valves for Water Supply Service.
 - c. C504, Standard for Rubber-Seated Butterfly Valves.
 - d. C507, Standard for Ball Valves, 6 IN through 48 IN (150 MM through 1200 MM).
 - e. C509, Standard for Resilient-Seated Gate Valves for Water Supply Service.
 - f. C541 Hydraulic and Pneumatic Cylinder and Vane-Type Actuators for Valves and Slide Gates
 - g. C542, Standard for Electric Motor Actuators for Valves and Slide Gates.
 - h. C515, Standard for Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service.
 - i. C550, Standard for Protective Coatings for Valves and Hydrants.
 - j. C606, Standard for Grooved and Shouldered Joints.
4. American Water Works Association/American National Standards Institute (AWWA/ANSI):
 - a. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. National Electrical Manufacturers Association (NEMA):
 - a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).
 - b. MG 1, Motors and Generators.

1.4 DEFINITIONS

- A. The following are definitions of abbreviations used in this Specification Section or one (1) of the individual valve sections:
 1. CWP: Cold water working pressure.
 2. SWP: Steam working pressure.
 3. WOG: Water, oil, gas working pressure.
 4. WWP: Water working pressure.

1.5 SUBMITTALS

- A. Shop Drawings:
 1. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
 2. Product technical data including:

- a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Manufacturer's installation instructions.
 - c. Valve pressure and temperature rating.
 - d. Valve material of construction.
 - e. Special linings.
 - f. Valve dimensions and weight.
 - g. Valve flow coefficient.
 - h. Project specific wiring and control diagrams for electric or cylinder actuators. Wiring diagrams shall clearly identify terminations for power, control, and instrumentation field wiring. Refer to plans for specific requirements.
 - i. Motor data – duty rating, insulation class, HP, full load amps, voltage, opening/closing times, etc.
3. Test reports.
- B. Operation and Maintenance Manuals:
1. See Specification Section 01 33 00 – Submittals for requirements for:
 - a. The mechanics and administration of the submittal process.
 - b. The content of Operation and Maintenance Manuals.
- C. Miscellaneous Submittals:
1. Verification from valve actuator manufacturer that actuators have been installed properly, that all limit switches and position potentiometers have been properly adjusted, and that the valve actuator responds correctly to the valve position command.

1.6 WARRANTY (NOT USED)

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with the Contract Documents, refer to individual valve Specification Sections for acceptable manufacturers.
- B. Submit request for substitution in accordance with Specification Section 01 25 13 – Product Substitutions.

2.2 MATERIALS

- A. Refer to individual valve Specification Sections.

2.3 VALVE ACTUATORS

A. Valve Actuators - General:

1. Provide actuators as shown on Drawings or specified.
2. Counter clockwise opening as viewed from the top.
3. Direction of opening and the word OPEN to be cast in handwheel or valve bonnet.
4. Size actuator to produce required torque with a maximum pull of 80 LB at the maximum pressure rating of the valve provided and withstand without damage a pull of 200 LB on handwheel or chainwheel or 300 foot-pounds torque on the operating nut.
5. Unless otherwise specified, actuators for valves to be buried, submerged or installed in vaults or manholes shall be sealed to withstand at least 20 FT of submergence.
6. Extension stem:
 - a. Install where shown or specified.
 - b. Solid steel with actuator key and nut, diameter not less than stem of valve actuator shaft.
 - c. Pin all stem connections.
 - d. Center in valve box or grating opening band with guide bushing.
 - e. Connect stem to valve actuator with single universal joint with greased sealed bearings.

B. Buried Valve Actuators:

1. Provide screw or slide type adjustable cast iron valve box, 5 IN minimum diameter, 3/16 IN minimum thickness, and identifying cast iron cover rated for traffic load.
2. Box base to enclose buried valve gear box or bonnet.
3. Provide 2 IN standard actuator nuts complying with AWWA C500, Section 3.16.
4. Provide at least two (2) tee handle keys for actuator nuts, with 5 FT extension between key and handle.
5. Extension stem:
 - a. Provide for buried valves greater than 4 FT below finish grade.
 - b. Extend to within 6 IN of finish grade.
6. Provide concrete pad encasement of valve box as shown for all buried valves unless shown otherwise.

C. Plastic Valve Vault:

1. Provide in non-traffic areas only on valve applications 3-1/2 IN and less.
 2. Nominal 7-1/2 IN DIA top section.
 3. Design unit for screw type extension section having nominal 9 IN DIA bell.
 4. Cast iron ring and lid.
 5. Constructed of injection molded polyolefin compound with fibrous inorganic component reinforcing and UV stabilization.
 6. Armor Access Boxes.
- D. Exposed Valve Manual Actuators:
1. Provide for all exposed valves not having electric or cylinder actuators.
 2. Provide handwheels for gate and globe valves.
 - a. Size handwheels for valves in accordance with AWWA C500.
 3. Provide lever actuators for plug valves, butterfly valves and ball valves 3 IN DIA and smaller.
 - a. Lever actuators for butterfly valves shall have a minimum of 5 intermediate lock positions between full open and full close.
 - b. Provide at least two (2) levers for each type and size of valve furnished.
 4. Gear actuators required for plug valves, butterfly valves, and ball valves 4 IN DIA and larger.
 5. Provide gearing for gate valves 20 IN and larger in accordance with AWWA C500.
 6. Gear actuators to be totally enclosed, permanently lubricated and with sealed bearings.
 7. Provide chain actuators for valves 6 FT or higher from finish floor to valve centerline.
 - a. Cadmium-plated chain looped to within 3 FT of finish floor.
 - b. Equip chain wheels with chain guides to permit rapid operation with reasonable side pull without "gagging" the wheel.
 8. Provide cast iron floor stands where shown on Drawings.
 - a. Stands to be furnished by valve manufacturer with actuator.
 - b. Stands or actuator to include thrust bearings for valve operation and weight of accessories.
- E. Submerged Actuators:
1. Mount the valve actuator on top of an extension bonnet 3 FT above any adjacent personnel access.
 2. The valve and bonnet connection shall be flanged and watertight.

3. Provide a top brace support for the bonnet.
 - a. Mount the brace 6 IN below the top of the wall as shown.
4. Materials:
 - a. Extension bonnet: Cast iron ASTM A126 or steel.
 - b. Brace and anchor bolts: Type 304 stainless steel.
- F. Electric Actuators (480 V, 3 PH):
 1. Approved Manufacturers
 - a. Rotork IQ series
 - b. Limitorque MX series
 - c. EIM TEC2000
 2. Provide electric valve actuators with integral control devices and a remote pushbutton station.
 3. Furnish electric actuator integral with valve consisting of:
 - a. Motor.
 - b. Gearing.
 - c. Handwheel.
 - d. Limit and torque switches.
 - e. Lubricants.
 - f. Heating elements.
 - g. Wiring.
 - h. Terminals for motor power and controls.
 - i. Drive nut.
 4. Housing/enclosure:
 - a. Provide cast iron gear housing and cast iron load bearing enclosure.
 - b. Non load bearing enclosure and housing: Aluminum or cast iron.
 - c. Rated for area classification shown on Drawings.
 - d. Provide O-ring seals for covers and entries.
 - e. Terminal and limit switch compartment covers are to be fastened to gear housing by stainless steel fasteners with capture device to prevent loss.
 - f. The motor and all other internal electrical elements of the actuator shall be protected from ingress of moisture and dust when the terminal cover is removed for site for cabling, the terminal compartment having the same ingress protection rating as the actuator with the terminal cover removed
 5. Motors:

- a. Provide motors that are totally enclosed, high torque design made expressly for valve actuator service and capable of operating the valve under full differential pressure for complete open-close and reverse cycle of travel at least twice in immediate succession without overheating.
 - b. Produce 2.0 times the required torque.
 - c. Design motors in accordance with NEMA MG 1 standards, with Class H insulation with a Class B rise, and to operate successfully at any voltage within 10 percent above or below rated voltage. Motor shall be 30 minute duty rating.
 - d. Provide positive method to ensure motor bearings are permanently lubricated.
 - e. Provide three (3) thermal switches imbedded in windings:
 - 1) 120 degrees apart.
 - 2) Provide motor shutdown at high temperature.
 - f. Motor housing:
 - 1) Aluminum or cast iron.
 - 2) Totally enclosed non-ventilated with cooling fins.
 - g. Provide motor capable of operating in any position.
 - h. Provide motor sealed from gearcase to allow any mounting position.
 - i. Provide motors suitable for 480 V, 3 PH, 60 Hz.
6. Gearing:
- a. Provide power gearing consisting of heat treated steel helical gears, carburized and hardened alloy steel worm, and alloy bronze worm gear, all grease or oil bath lubricated, designed for 100 percent overload, and effectively sealed against entrance of foreign matter.
 - b. Provide gearing mechanism constructed to permit field changes of reduction gear ratio.
 - c. Design actuators so that motor comes up to speed before stem load is encountered in either opening or closing operation.
 - d. Limit switch gearings and feedback device reduction gearing:
 - 1) Steel or bronze.
 - e. Support rotating shafts with anti-friction bearings.
 - f. Provide separate drive nut/thrust bearing assembly:
 - 1) Mounted to base of actuator.
 - 2) High tensile bronze.
 - 3) Quarter turn actuator: Provide 90 degree mounting intervals.

- 4) Provide grease fitting on drive assembly.
- 7. Handwheel:
 - a. Permanently attached for manual operation.
 - b. Positive declutch mechanism to engage and disengage handwheel.
 - c. Handwheel shall not rotate during motor operation.
 - d. Inoperable motor shall not prevent manual operation.
- 8. Limit torque and thrust loads in both closing and opening directions by torque limit switches.
 - a. Provide torque switches with micrometer adjustment and reference setting indicator.
 - 1) Assure adjustment variation of approximately 40 percent in torque setting.
 - b. Provide switches having rating of not less than 6 A at 120 Vac and 2.2 A at 115 Vdc.
 - c. Limit and torque switches shall have totally sealed contacts.
- 9. Furnish electric actuator with two (2) geared limit switch assemblies with each switch assembly having four (4) separate limit switches:
 - a. Assure each limit switch assembly is geared to driving mechanism and is independently adjustable to trip at any point at and between the fully open and fully closed valve position.
 - b. Provide minimum of two (2) normally open contacts and two (2) normally closed contacts at each end of valve travel.
 - c. Provide switches with inductive contact rating of not less than 6 A at 120 Vac, 3 A at 240 Vac, 1.5 A at 480 Vac, 2.2 A at 115 Vdc and 1.1 A at 230 Vdc.
 - d. Limit switches shall be fully adjustable when power is applied to actuator.
 - e. Refer to plans for actual number of limit switches required.
- 10. Battery
 - a. While settings, position of actuator and data log are saved to EEPROM memory, a battery is required to:
 - 1) Allow set-up of actuator, access to settings and diagnostics when power is not available
 - 2) Allow position indication and alarms to the PLC/DCS when power is not available
- 11. Provide space heating elements sized to prevent condensation in both motor and geared limit switch compartment(s).

- a. Furnish heating elements rated at 120 Vac with heaters continuously energized.
12. Open-close actuator controls:
- a. Provide control assembly with necessary holding relays, reversing starter, control transformers of sufficient capacity to provide control power, space heating element power and valve position transmitter.
 - b. Provide control assembly in an enclosure rated for the defined area classification.
 - c. Controls for open/close actuator:
 - 1) Provide remote pushbutton station with enclosure rated for area classification shown on Drawings with:
 - a) Open pushbutton.
 - b) Close pushbutton.
 - c) Stop pushbutton.
 - d) Hand/Off/Auto switch.
 - e) Full open light.
 - f) Full close light.
 - g) Open and close relays as required.
 - h) Valve percent open.
 - 2) Provide control enclosure to accept:
 - a) Remote open/close switches.
 - 3) Provide contacts in control enclosure:
 - a) Hand/Off/Auto contact.
 - b) Full open contact.
 - c) Full close contact.
 - d) As required per plans.
 - 4) Wire all components to an internal terminal strip and include mounted wiring diagram inside enclosure.
 - 5) Actuator shall communicate Modbus RTU as shown on the plans.
 - 6) Valve percent open.
13. Additional requirements for modulating valve actuators:
- a. Proportional position servo-amplifier mounted integral with the actuator control compartment.

- b. Positioning of valve shall be proportional to a 4-20 mA signal input to the position servo-amplifier when remote control has been selected.
 - c. Servo-amplifier adjustments shall include zero, span, gain, and dead-band.
 - d. Provide 4-20 mA signal position control as shown on the Drawings that interfaces with the position control/position feedback instrumentation wiring to and from applicable PLC.
 - e. Actuator shall communicate Modbus RTU as shown on the plans.
- G. Electric Actuators (120 V, 1 PH):
- 1. Approved Manufacturers
 - a. Rotork IQS series
 - b. Limitorque L120 series
 - c. EIM TEC2000
 - 2. General:
 - a. Self contained including motor, gearing, torque switch, limit switches and cast housing.
 - b. Electrical enclosure: NEMA 4 or NEMA 7 to comply with area rating classification shown on Drawings.
 - c. Factory assembled requiring only field connection of power and control wires.
 - d. Comply with Specification Section 40 05 05.
 - 3. Motors:
 - a. Produce 2.0 times the required torque.
 - b. Sized for two (2) complete open-close cycles without overheating.
 - c. One (1) fully closed to fully open cycle to occur within 60 SEC.
 - d. Class F insulation.
 - e. Operate at plus or minus 10 percent voltage.
 - f. 120 Volt, single phase, 60 Hz.
 - g. Provide thermal cutout switch and internal heater for actuator enclosure.
 - h. Control wiring as shown on Drawing control diagrams.
 - 4. Remote pushbutton station:
 - a. Enclosure: NEMA 4 stainless steel.
 - b. Control relays shall include:
 - 1) Open relay.

- 2) Closed relay.
 - 3) PLC interface relay.
 - c. Push-to-test indicating lights shall include:
 - 1) Open.
 - 2) Closed.
 - 3) Remote.
 - d. Selector switches shall include:
 - 1) Local-Remote.
 - 2) Open-Close.
 - e. Space heater for enclosure.
 - f. Control wiring as shown on control diagrams.
 - g. Wire all components to an internal terminal strip and include mounted wiring diagram inside enclosure.
- H. Cylinder Actuators:
- 1. General:
 - a. Self-contained unit including actuator and controls.
 - b. Specifier: Note requirement for information on Drawings in following Section.
 - c. Electrical enclosure to meet area classification shown on Drawings.
 - d. Specifier: Typically NEMA VII Class 1, Group D.
 - e. Factory assembled requiring field supply connection and control wires.
 - 2. Cylinders:
 - a. Conform to AWWA C541 cylinders.
 - b. Cylinder barrel: Bronze or Suitable non-metallic material.
 - c. Heads and caps: Bronze or Suitable non-metallic material.
 - d. Cylinder pistons: Bronze or Suitable non-metallic material.
 - e. Double acting and operate on 60 psig water or air supply.
 - f. Cylinder rated for 150 psig.
 - g. Any hoses between control and cylinder to be oil resistant and arranged to avoid sharp bending from hose weight.
 - h. Provide supply filter.
 - i. Position cylinder above or to side of valve.

- j. For pneumatically operated pump check service provide air-oil tandem cylinder actuator with speed control valves on oil cylinder.
- 3. Controls:
 - a. Provide pre-piped, pre-wired control:
 - 1) Pipe with corrosion-resistant metal.
 - 2) Provide four-way, two-position, 110 V solenoid valve in weatherproof enclosure.
 - 3) Provide open-closed signal limit switches.
 - 4) Speed control valves, to independently control opening and closing speed between 10 and 60 SEC.
 - 5) Manual-automatic selector valve on supply to solenoid.
 - 6) For modulating valves, provide a positioner, input signal 4-20 mA, including signal converter.
 - 7) For modulating valves, provide valve position transmitter, 4-20 mA, including signal converter, where shown.
 - 8) For pump check valves, provide additional two-way solenoid valve with speed control to allow rapid close on loss of electric power.
- I. Portable Valve Operator
 - 1. Provide portable valve operator when required in drawings.
 - 2. Approved Manufacturers
 - a. EH Wachs or equal
 - 3. Provide handheld, 110 V, 1 Phase electric valve operator.
 - 4. Capable of operating valves from 6 inches to 60 inches.
 - 5. Provide adjustable torque control with a peak torque of 800 ft/lbs, with two stage reduction, planetary aluminum gearbox.
 - 6. Manufacturer to provide telescoping valve key with 4'-9' range. Also provide 3' extensions. All valve keys to be rated at 850 ft/lbs.
 - 7. Motor control to have the following options:
 - a. 2 speed gear box
 - b. Overload reset button
 - c. On/off, forward/reverse and neutral options
 - d. GFI (ground fault interrupter) with test and reset
 - 8. Provide built-in digital revolution counter with push button reset counts.
 - 9. Contractor responsible for providing portable cart mounted gas powered electric generator for use with valve operator.

2.4 FABRICATION

A. End Connections:

1. Provide the type of end connections for valves as required in the Piping Schedules presented in Specification Section 40 05 13 or as shown on the Drawings.
2. Comply with the following standards:
 - a. Threaded: ASME B1.20.1.
 - b. Flanged: ASME B16.1 Class 125 unless otherwise noted or AWWA C207.
 - c. Bell and spigot or mechanical (gland) type: AWWA/ANSI C111/A21.11.
 - d. Soldered: ASME B16.18.
 - e. Grooved: Rigid joints per Table 5 of AWWA C606.

B. Refer to individual valve Specification Sections for specifications of each type of valve used on Project.

C. Nuts, Bolts, and Washers:

1. Wetted or internal to be bronze or stainless steel.
 - a. Exposed to be zinc or cadmium plated.

D. On Insulated Piping: Provide valves with extended stems to permit proper insulation application without interference from handle.

E. Epoxy Interior Coating: Provide epoxy interior coating for all ferrous surfaces in accordance with AWWA C550.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Painting Requirements: Comply with Specification Section 09 91 00 – Painting and Protective Coatings for painting and protective coatings.

C. Setting Buried Valves:

1. Locate valves installed in pipe trenches where buried pipe indicated on Drawings.
2. Set valves and valve boxes plumb.
3. Place valve boxes directly over valves with top of box being brought to surface of finished grade.
4. Install in closed position.

5. Place valve on firm footing in trench to prevent settling and excessive strain on connection to pipe.
6. After installation, backfill up to top of box for a minimum distance of 4 FT on each side of box.
- D. Support exposed valves and piping adjacent to valves independently to eliminate pipe loads being transferred to valve and valve loads being transferred to the piping.
- E. For grooved coupling valves, install rigid type couplings.
- F. Install electric or cylinder actuators above or horizontally adjacent to valve and gear box to optimize access to controls and external handwheel.
- G. For threaded valves, provide union on one (1) side within 2 FT of valve to allow valve removal.
- H. Install valves accessible for operation, inspection, and maintenance.

3.2 ADJUSTMENT

- A. Adjust valves, actuators and appurtenant equipment to comply with Specification Section 01 75 00 – Facility-Start Up.
 1. Operate valve, open and close at system pressures.
- B. For all 120 Vac and 480 Vac electric actuators, employ and pay for services of valve actuator manufacturer's field service representative to:
 1. Inspect valve actuators covered by this Specification Section.
 2. Supervise adjustments and installation checks:
 - a. Open and close valves electrically under local manual and demonstrate that all limit switches are properly adjusted and that switch contacts are functioning properly by verifying the inputs are received at the remote input/output (RIO) panels or local control panel as appropriate.
 - b. Position modulating valves electrically under local manual control and demonstrate that the valve position feedback potentiometer is properly adjusted and that the feedback signal is received at the RIO panels or local control panel as appropriate.
 - c. Simulate a valve position command signal at the RIO panel or local control panel as appropriate and demonstrate that the valve is controlled to the desired position without excessive hunting.
 3. Provide Owner with a written statement that the valve actuator manufacturer has verified that the actuators have been installed properly, that all limit switches and position potentiometers have been properly adjusted and that the valve actuator responds correctly to the valve position command.

3.3 SPARE PARTS

- A. Provide a minimum of one spare actuator for each size of actuator provided.

3.4 SCHEDULES

- A. Valves less than 4 IN are not scheduled but type and size are defined on Drawings in plan, section, or schematic.
- B. Legend of abbreviations

Connections

FLG	Flanged
MJ	Mechanical Joint
VIC	Victaulic
PO	Push-On
SW	Socket Solvent Weld
T	Threaded

Actuator

CW	Chain Wheel
HW	Handwheel
L	Lever
M	Motor
PNEU	Pneumatic
HYD	Hydraulic
N	2" Nut

Buried/Exposed

B	Buried
E	Exposed

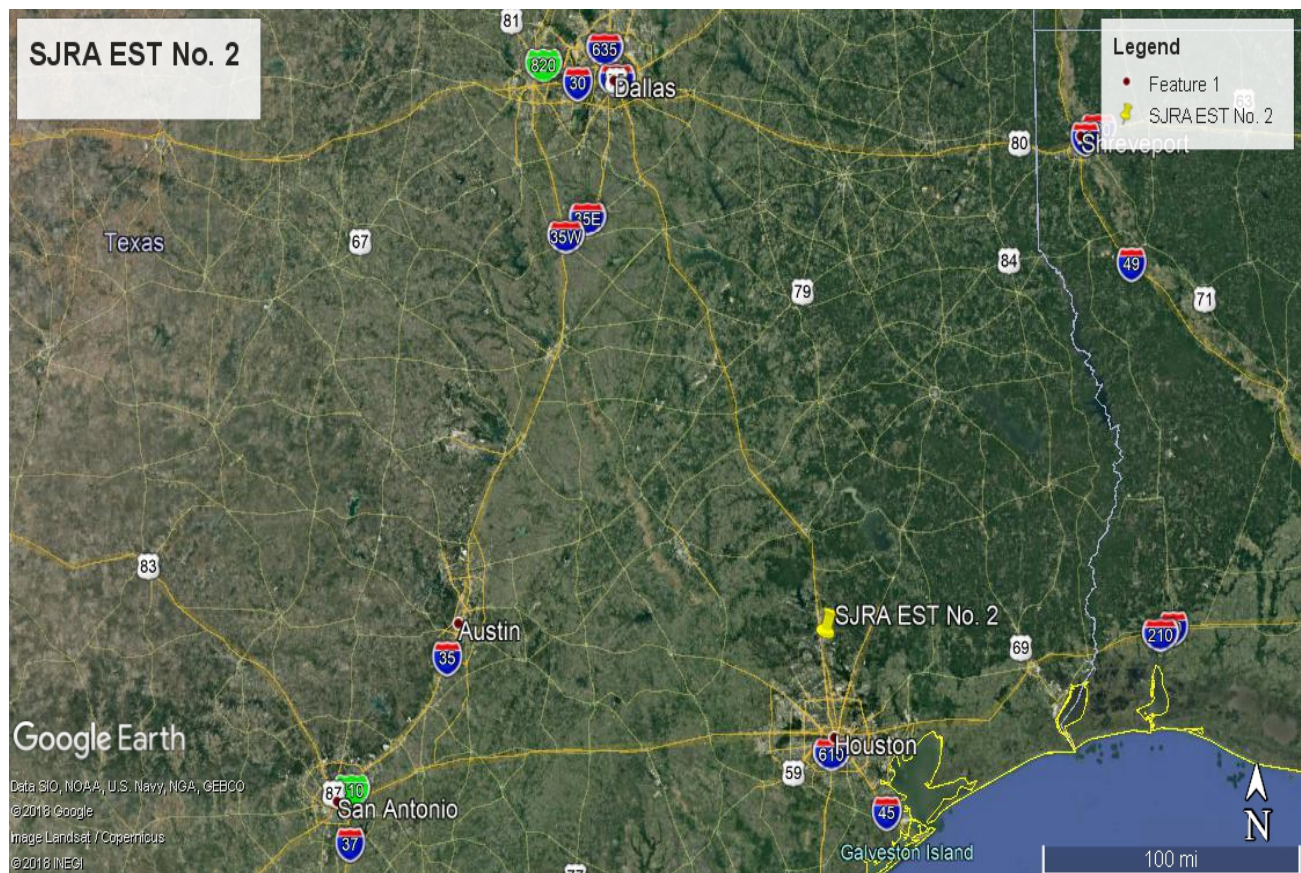
3.5 OWNER TRAINING (NOT USED)

END OF SECTION

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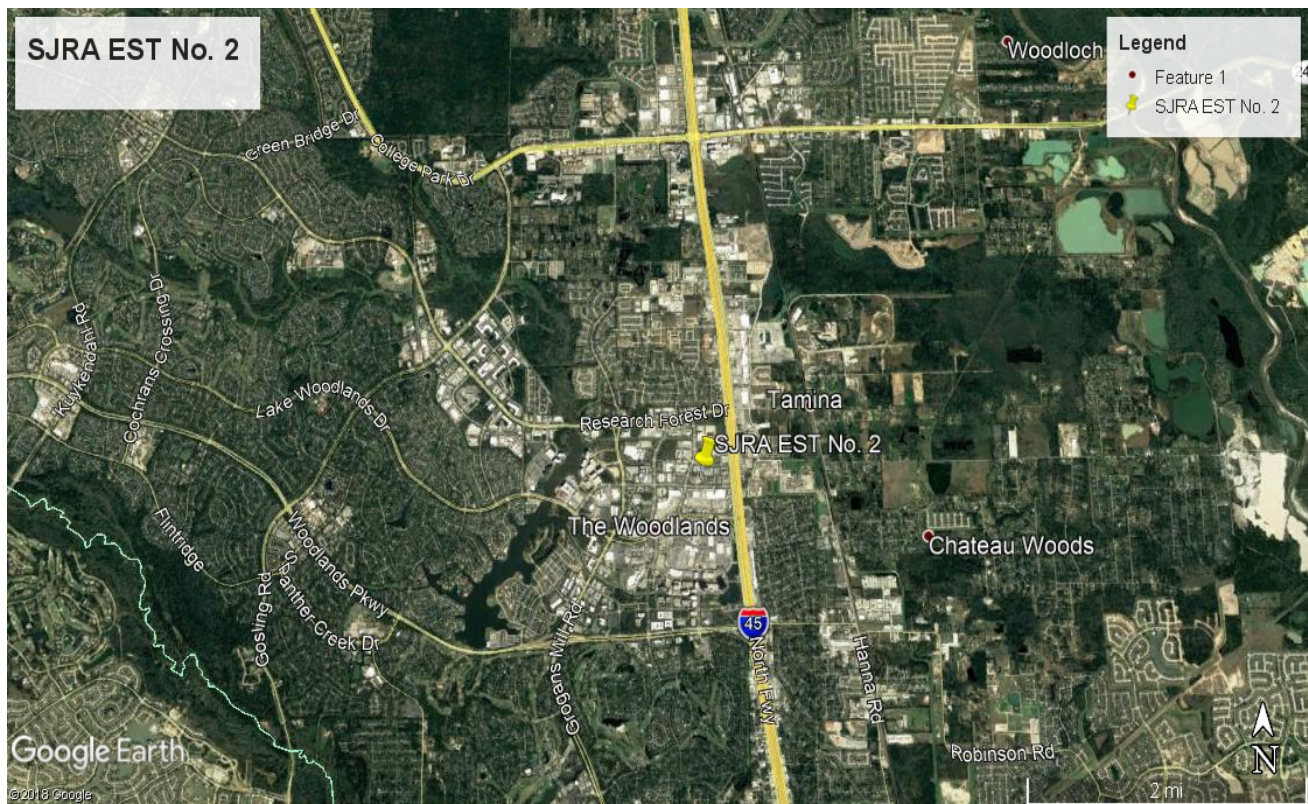
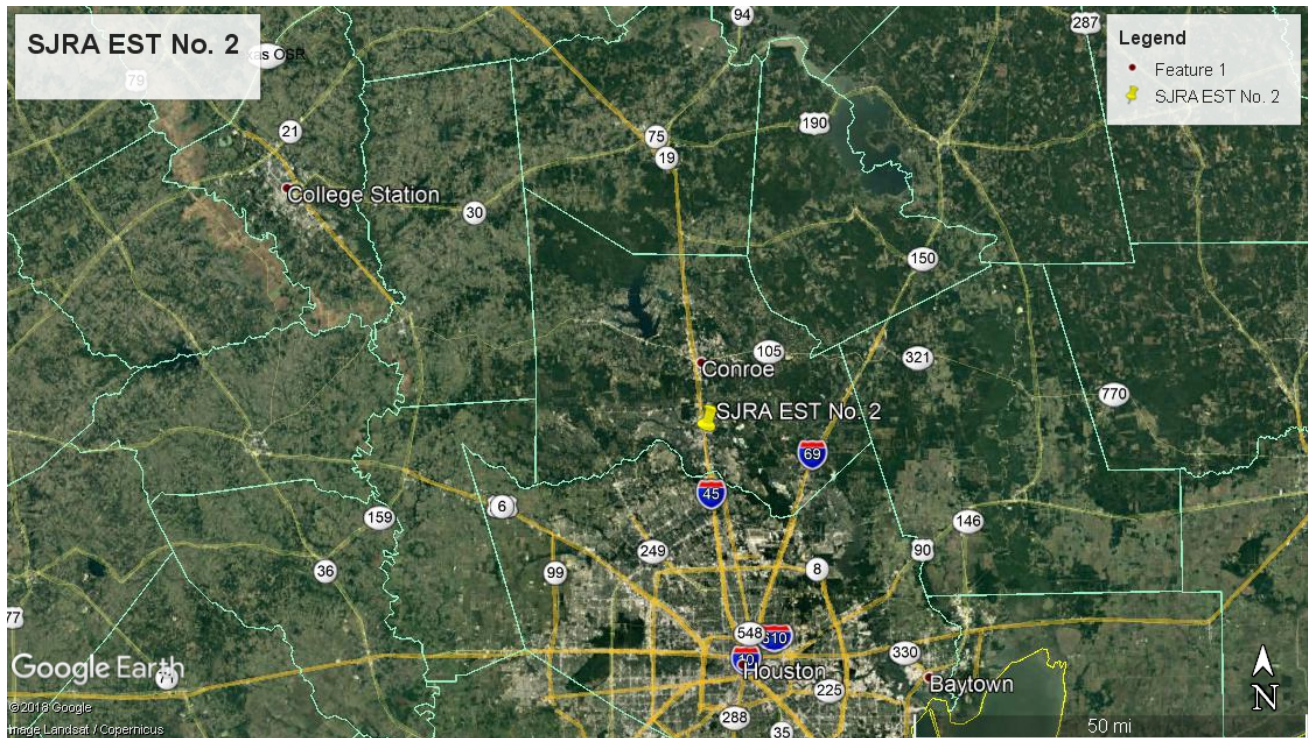
1) APPENDIX I

MAPS TO SITE



Tank is located at the 1100 Lake Front Cir, The Woodlands, TX 77380.
Coordinates: (30°10'18.25"N, 95°27'20.05"W)

EST No. 5 is located at 8581 Woodlands Parkway The Woodlands, TX 77380



APPENDIX II
ENGINEER'S REPORT OF INSPECTION



DUNHAM ENGINEERING, INC.

www.DunhamEngineering.com

Texas Registration Number: F- 002253

12815 FM 2154, Suite 150, College Station, Texas 77845

Phone: (979) 690-6555 Fax: (979) 690-7034

Report of Inspection
Elevated Water Storage Tank #2
1100 Lake Front Circle, The Woodlands, Texas
San Jacinto River Authority

Conducted by Travis C. Tatum, P.E.; and Jimmy D. Dunham, P. E.
Date of Inspection: December 18, 2013

1. INSPECTION METHOD

Dunham Engineering performed a professional evaluation per AWWA M-42, TCEQ Chapter 290, and other applicable standards, for the 1.0MG Hydropillar or Fluted Column Elevated Tank (FCET). A completed TCEQ Water Tank Inspection Form along with maps, pictures, and a Field Inspection Report are attached.

Prior to the inspection, reports from previous inspections were reviewed. Previous inspections were performed by Corrpro and reports were provided by Owner. Corrpro's reports were far more cursory, but the findings were generally consistent with the findings in this report.

2. TANK CONSTRUCTION & ENVIRONMENT

The 1.0MG Hydropillar or Fluted Column Elevated Tank (FCET) was constructed by PDM in 1982. The steel tank is supported by a fluted steel column. The base of the pedestal is approximately 52' diameter. The fluted steel column has a personnel and truck door that are in good condition.

The height to low water level is approximately 110' and the head range of the tank is approximately 40'. The overall height of the structure is approximately 150'. The diameter of the steel tank is approximately 74'.

The tank site is secured by a TCEQ compliant chain-link fence. The area around the tank is well maintained. The tank contains potable water.

3. FOUNDATION

The concrete foundation is below grade and appears to be in good condition. The fluted steel column is plumb and in good condition. No evidence of uneven settlement was observed.

4. **SUPPORTING TOWER**

The overall condition of the fluted steel column supporting the steel tank is in good condition. No cracked weld seams were observed. The steel support column is plumb in all principal directions. Accessible welds were visually inspected and appear to be in compliance with AWS D1.1 Structural Steel Welding Code.

5. **CONTAINER**

The container is in condition. No leaks were observed. No cracked weld seams or holes were observed. Accessible welds were visually inspected and appear to be in compliance with AWS D1.1 Structural Steel Welding Code.

6. **PROTECTIVE COATINGS**

The exterior epoxy/urethane exterior coating system appears to be approximately 15 years old and is in fair condition. The coating system is aged but adequately adhered to the steel. The prime coat is tightly adhered but the top coat is cracked and peeling in several areas. The system will not support an over-coat. The coatings are continuing to provide adequate corrosion protection. Less than 1% of the exterior steel surface area is rusting. The average dry film thickness (DFT) of the coating system is approximately 10 mils.

The interior dry area epoxy coating system appears to be the original coating and is approximately 30 years old and is in good condition. The average dry film thickness (DFT) is 8 mils.

The interior wet area epoxy coating system appears to be approximately 15 years old and is in fair condition above and below the HWL. Osmotic blisters are present on the interior ladder. Approximately 1% of the interior steel is rusting, almost all of which is above the HWL. The coatings are providing adequate corrosion protection. The average DFT of the coating system is approximately 12 mils.

The protective coatings contain less than 1% lead by weight. Lead abatement for environmental protection is not required when the tank is rehabilitated. Containment for nuisance dust is required.

7. **SANITARY CONDITIONS**

No water quality defects were noted. The tank was drained for the inspection. No evidence of birds or insects was observed. Approximately 2 cubic yards of sediment was observed on the tank floor (less than 2" - 4" in area around riser pipe).

8. **VENT & OVERFLOW**

The 24" diameter vent is centered on the roof, properly screened and in fair condition with corrosion present. The four, approximately 12" diameter perimeter roof vents are located near the edge of the roof and appear to be properly screened. Access is not possible without extensive rigging.

The carbon steel overflow pipe runs from the HWL to ground level and ends in a functional flap valve. The pipe is supported at the top by two steel channel braces that are rusting.

9. **ROOF**

The roof is properly sloped to prevent water from ponding. No cracks or holes were noted in the weld seams. The steel rafters supporting the roof are in good structural condition with no delamination observed. One of rafters has a splice in the center but appears to be original construction. All of the rafter edges are rusting. The center rafter support ring is in good condition but also rusting.

There is no handrail on the roof. A single bolted antennae mount is located on the roof and supports a single antennae. The bolted mount appears to be in good condition with no evidence of excess wear. Additional antennas should NOT be attached to the mount.

10. **CATHODIC PROTECTION**

The CORRPRO impressed current system was installed no earlier than 2005 and appears to be in good condition. The automatic rectifier is in good condition with all gauges operational. The system is reportedly calibrated annually. The tank was drained during the inspection; the in service tank-to-water potential could not be determined (AWWA D104 Criteria for Protection is -0.850V to -1.05V).

The interior-wet-area wiring appears to be in good condition. There are approximately 22 hand holes on the roof and only half are utilized in the current system. One of the hand hole cover plates is missing resulting in a 3" hole in the roof.

11. **MECHANICAL**

The fill and supply pipes are carbon steel pipe with protective coatings. Each pipe is plumb and appears to be in good condition as are the protective coatings.

The pressure gauges and SCADA device appear to be functioning properly. The SCADA device is antiquated and in need of replacement. The yard piping, pumps, emergency generator, and other associated mechanical components appear to be in good condition with no fluid leaks or other visual defects noted.

12 ELECTRICAL

The lighting inside the dry area is functional. The obstruction light appears to be functional. The conduit is generally in good condition.

13. HATCHES & OPENINGS

The tank is equipped with a roof access hatch and an access hatch into the water compartment. The access hatches are latched. The pedestal personnel door and overhead door are both locked.

The two bowl manways are in good condition with no leaks noted.

14. LADDERS

The ladders on the interior dry area are in good condition and equipped with functional rail slide type safety climb devices (SCDs).

The upper 20' of the interior bowl access ladder in the wet-area is severely corroded (see photo). The upper 20' of the ladder should be replaced within 12 months to ensure continued safe access to the tank floor. The ladder is equipped with a cable style safety climb that was painted in a previous rehabilitation project and is not functional.

15. APPURTENANCES

The conditions and dimensions of other appurtenances are described in the Field Inspection Report.

16. CONCLUSIONS & RECOMMENDATIONS

- a. The hydopillar or fluted column elevated tank (FCET) was constructed in 1982 and is in good condition.
- b. The coating systems are currently providing adequate corrosion protection but are aged and deteriorating. Protective coatings should be replaced within five (5) years or NLT 2018.
- c. The four roof vents located on the edge of the roof should be removed and the resultant holes plated over with steel. An additional vent should be installed opposite the existing center roof vent. This will allow safely maintaining the screens.

- d. Half of the approximately 22 CP hand holes are not being utilized. These should be plated over with steel. **One of the CP cover plates is missing resulting in a 3" hole in the roof.**

- e. The upper 20' of the interior ladder in the wet-area is severely corroded. **The upper 20' of the ladder should be replaced within 12 months to ensure continued safe access to the tank floor.**

- f. Recommended budget estimate for the tank rehabilitation, including engineering and inspection fees is \$1.0M. An approximate cost breakdown is provided below. Cost estimate is based on the following scope of work:
 - i. Replace interior-wet-area coating with a three coat zinc/epoxy/epoxy coating system. Includes use of dehumidification equipment. Expected coating life is 12-15 years.

 - ii. Replace exterior coating with a four coat zinc/epoxy/polyurethane/fluoropolymer coating system to provide best value and longest coating life. Expected coating life is 15-20 years. Life can often be extended if touch-up and/or overcoat is performed between years 12-15.

 - iii. Over-coat the interior-dry-area with a two coat epoxy coating system. Expected coating life is 12-15 years.

 - iv. Budget includes engineering, inspection and contingency as detailed on the following page. Estimate is in 2013 dollars.

EST Rehabilitation Cost Estimate	
SJRA EST #2 (Fluted-Column EST)	
Capacity (Gallons)	1,000,000
Int. wet \$/S.F.	7
Ext. \$/S.F.	11
Int. Dry \$/SF	4
Int. Wet S.F.	19850
Ext. S.F.	33250
Int. Dry SF	31850
Cost for Int. wet	\$138,950
Cost for int. dry	\$127,400
Cost for Ext.	\$365,750
DH	\$20,000
Disposal	\$20,000
Piping - Run fill pipe to HWL	\$10,000
Hatches	\$5,000
Vent replacement and seal old vent holes	\$10,000
Other corrosion damage repair	\$25,000
Lead Testing	\$0
Containment	\$100,000
Subtotal	\$822,100
Eng. & Insp.	\$80,000
Contingency	\$80,000
Total	\$982,100
Budget Estimate +5% / -20% Accuracy	\$1,000,000

POTABLE WATER STORAGE TANK Inspection Form

30 TAC 290.46(m)(1) of the Texas Commission on Environmental Quality's Rules and Regulations for Public Water Systems requires documentation of annual ground, elevated, and pressure storage tank maintenance inspections.

Location: 1100 Lake Front Circle, The Woodlands, Texas	
Description: 1.0MG Fluted-Column Elevated Tank – SJRA EST #2	
Date: Approximately 1998	Material of Exterior Coating System: Epoxy/Urethane
Date: Approximately 1998	Material of Interior Coating System: Epoxy

Exterior of Tank

O.K.	Problem	N/A	Description
X			Foundation: settling, cracks, deterioration
X			Protective Coating: rust, pitting, corrosion, leaks
X			Liquid Level Indicator: operable, cable access opening protected
X			Overflow Pipe: flap valve cover accessible, operable, sealed
X			Access Ladder: loose bolts or rungs
X			Roof: low spots for ponding water, holes along seams, rust
X			Air Vents: proper design, screened, sealed edges and seams
	X		Cathodic Protection Anode Plates: secured and sealed
X			Roof Hatch: proper design, locked, hinged bolts secured, gasket
		X	Pressure Tank Operational Status: pressure release device, pressure gauge, air water volume device

Interior of Tank

O.K.	Problem	N/A	Description
X			Water Quality: insects, floating debris, sediment on the bottom
X			Protective Coating: rust, corrosion, scaling

Last inspection of pressure tank interior	Date: N/A
--	------------------

Comments

One CP plate is missing. Coatings are aged and deteriorating, but continuing to provide adequate corrosion protection. Protective coatings should be budgeted for replacement no later than 2018, to prevent costly corrosion damage.

Name of Inspector or Water System Staff: Travis Tatum– Dunham Engineering, Inc.

Date of Inspection: December 18, 2013



Field Inspection Report
Dunham Engineering, Inc. TX F-2253
Phone: (979) 690-6555

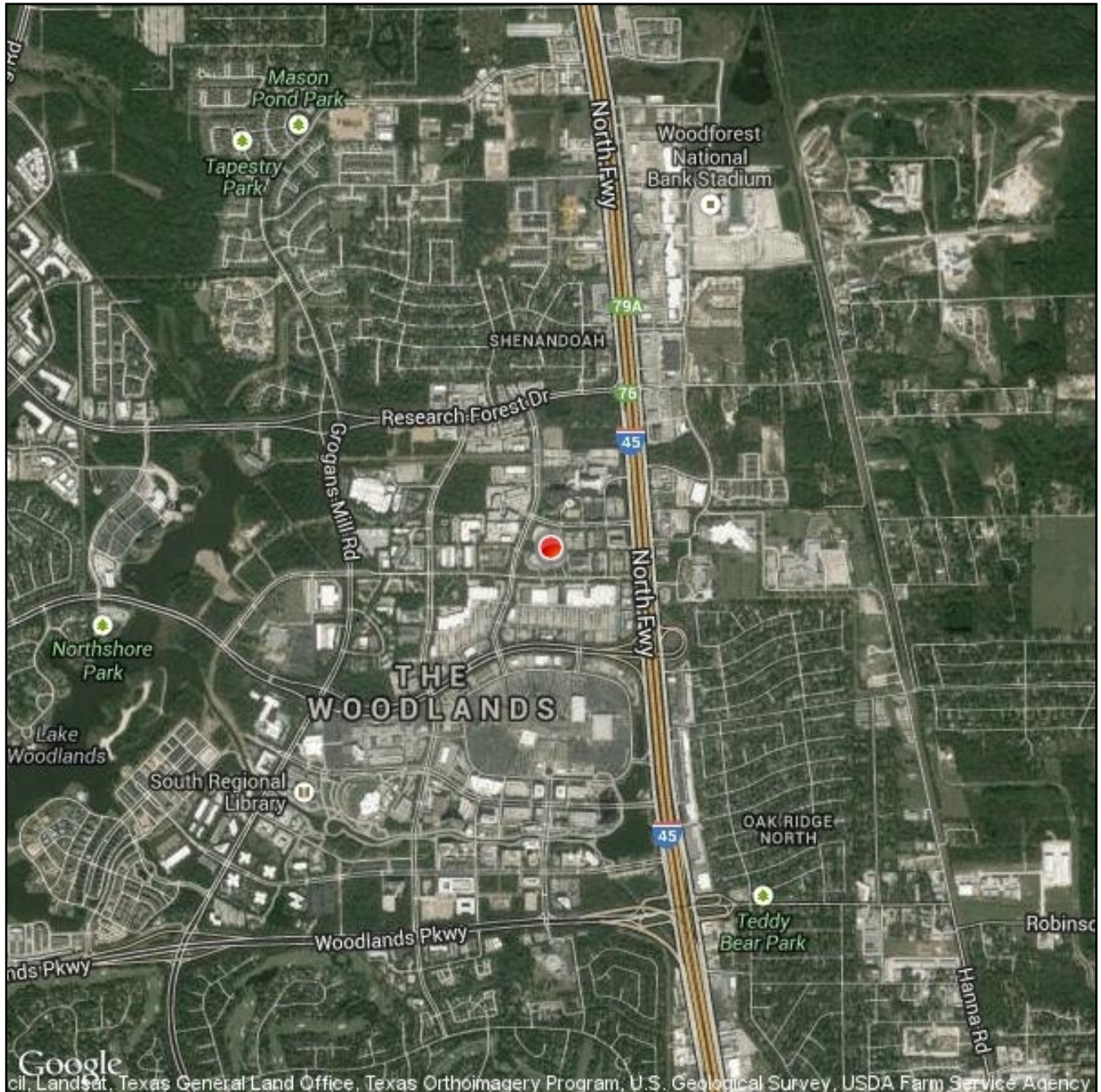
Tank ID: SJRA EST #2 - 1.0MG Fluted Column

Owner: SJRA

Inspector: DEI - Tatum, Oatman

Date of Inspection: 12/18/2013

Overview Map





Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Exterior
Condition /Notes and Dimensions	Good



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Exterior
Condition /Notes and Dimensions	Good. Two logos



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Overflow and foundation
Condition /Notes and Dimensions	Good. 12" diameter overflow pipe, closes properly.



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Exterior Coating
Condition /Notes and Dimensions	Good. 10 mils avg exterior DFT



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Exterior Coating
Condition /Notes and Dimensions	Damaged coating



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Exterior Coating
Condition /Notes and Dimensions	Damaged coating



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Exterior Coating
Condition /Notes and Dimensions	Good. Minor coating damage



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Exterior Coating
Condition /Notes and Dimensions	Typical isolated coating damage



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Exterior Coating
Condition /Notes and Dimensions	Minor coating damage



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Pedestal Access
Condition /Notes and Dimensions	Good. Overhead door and perssonel door are both kept locked.



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Data Plate
Condition /Notes and Dimensions	1.0MG Hydropillar constructed 1982



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Exterior Coating
Condition /Notes and Dimensions	Damaged coating



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Yard generator
Condition /Notes and Dimensions	Appeas functional. No leaks



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Cathodic Protection
Condition /Notes and Dimensions	Appeas functional. Tank is drained.



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	SCADA
Condition /Notes and Dimensions	Appears functional. Antiquated technology



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Piping and mechanical in base of pedestal
Condition /Notes and Dimensions	Good. 12" vertical piping. 8" drain reduction



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Piping and mechanical in base of pedestal
Condition /Notes and Dimensions	Good



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior dry area
Condition /Notes and Dimensions	Good



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior dry area and access ladder
Condition /Notes and Dimensions	Good



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior dry area
Condition /Notes and Dimensions	Good



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Bowl manway
Condition /Notes and Dimensions	Good



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Painters access hatch
Condition /Notes and Dimensions	Good



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Access tube and walkway
Condition /Notes and Dimensions	Good



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Access tube with second bowl manway
Condition /Notes and Dimensions	Good. Minor coating damage



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Access tube
Condition /Notes and Dimensions	Previous coating touch up. Good condition



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Access tube
Condition /Notes and Dimensions	Previous access welded closed. Minor coating damage



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Vent
Condition /Notes and Dimensions	Fair. Properly screened



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Roof. No handrail. 1 of 4 circumference vents. Approximately 12" diameter properly screened.
Condition /Notes and Dimensions	Roof is in good condition. Vents in fair due to corrosion damage



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Roof.
Condition /Notes and Dimensions	vent properly screened. Antenna bracket is bolted. No evidence of wear. 24" diameter center roof vent



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Roof and top hatch
Condition /Notes and Dimensions	Hatch in fair condition. Closed with a latch.



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Roof – Typical CP hand hole plate
Condition /Notes and Dimensions	Good. Minor coating damage



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Roof
Condition /Notes and Dimensions	Prior coating repairs



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	22 CP plates. One completely missing



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Overflow inlet
Condition /Notes and Dimensions	Fair



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Spliced Rafter
Condition /Notes and Dimensions	Good



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Rust in rafters
Condition /Notes and Dimensions	Fair



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	Good. Minor sediment



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	Platform supports are corroded. Top 20 ft of ladder severely corroded. SCD unusable



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	2"-4" of sediment in bottom of bowl



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	Manway and fill drain pipe. Recommend extending fill line to base of platform to improve water quality.



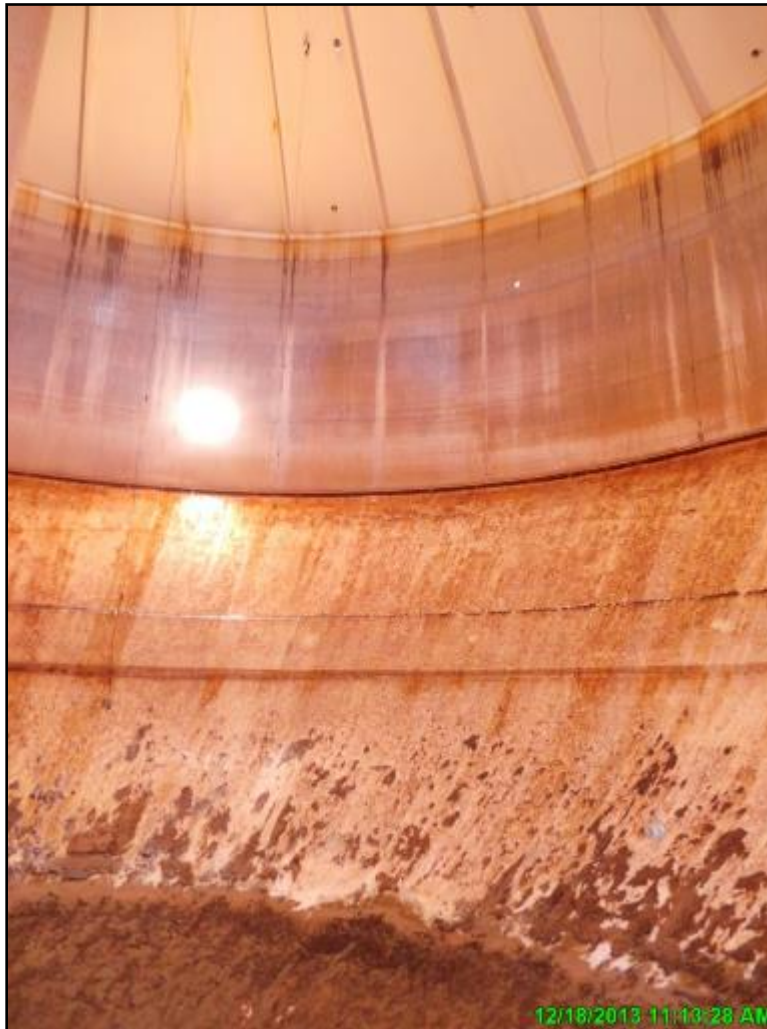
Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior ceiling
Condition /Notes and Dimensions	CP cover plate missing.



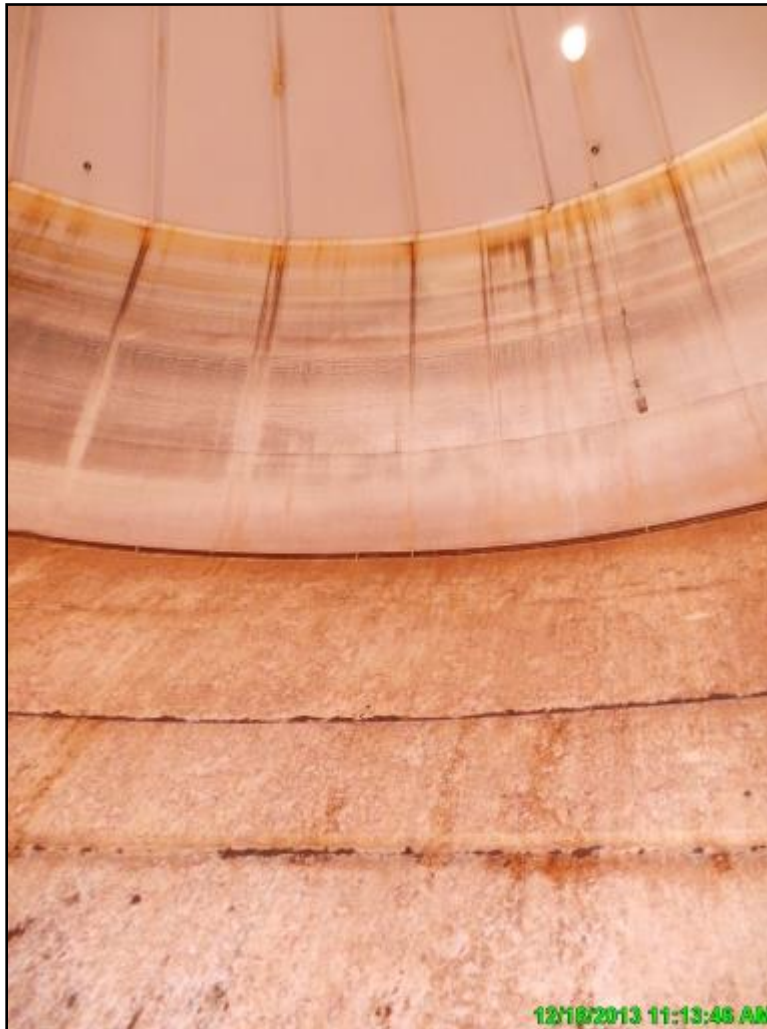
Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	Coating is in good condition. Averages 12 mils DFT. Less than 1% rust below HWL. Approximately 1% above HWL.



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior Ceiling
Condition /Notes and Dimensions	CP cover plate missing



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	Good



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	Good



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	Blistered coating on ladder. Less than 1% of coating is blistered.



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	Corrosion noted



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	Corrosion noted



Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Interior
Condition /Notes and Dimensions	Two brackets holding overflow pipe are corroded.



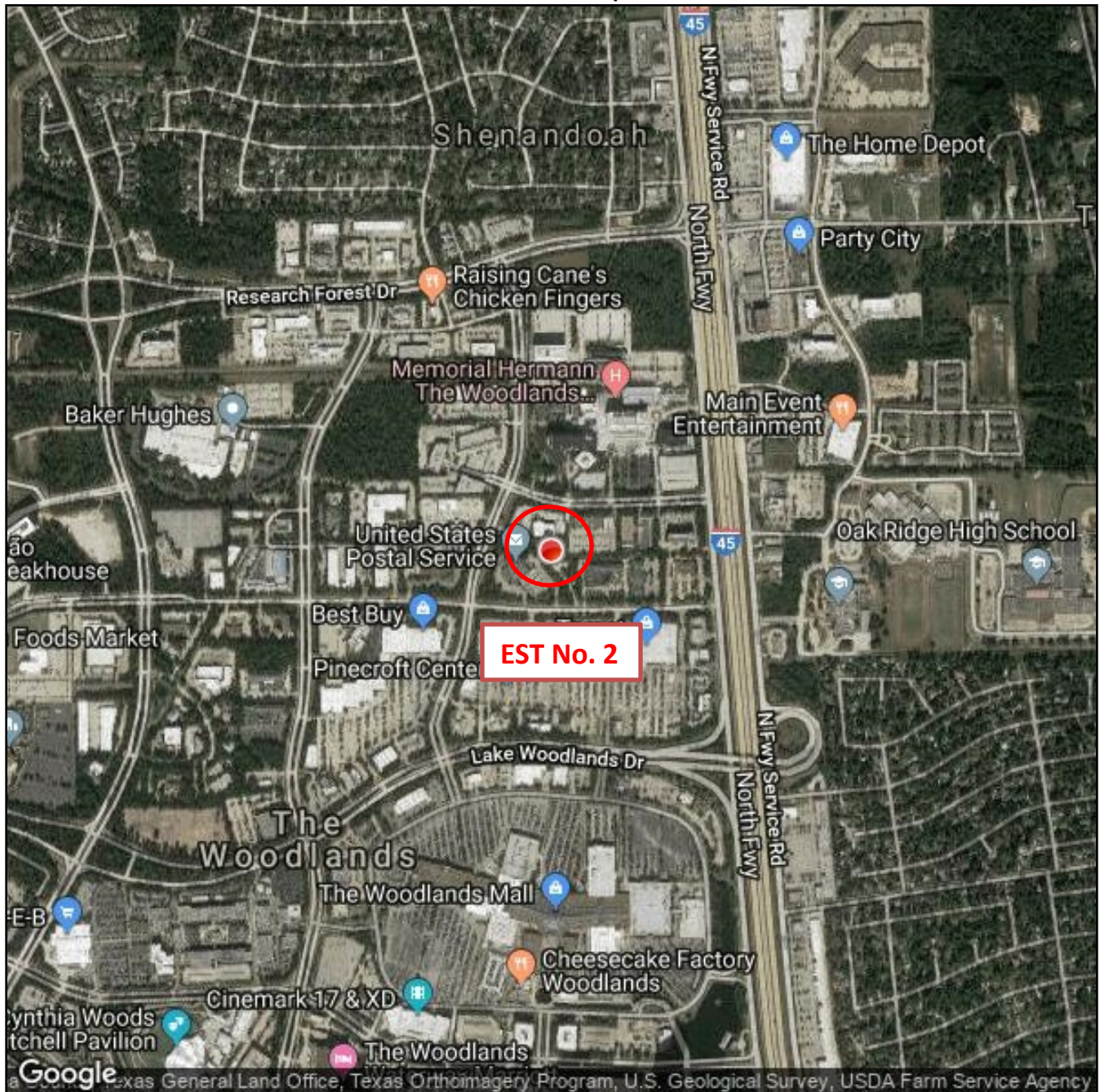
Attributes	
Title	SJRA EST #2
Description	1.0 MG Hydropillar
Inspection item	Top hatch
Condition /Notes and Dimensions	Top hatch secured with u bolt. Access tube hatch secured with snap link. Access doors at base of pedestal are locked.



Field Inspection Report
Dunham Engineering, Inc. TX F-2253
(979) 690-6555

Tank ID: EST No. 2 Pre Rehabilitation Evaluation
Owner: SJRA
Inspector: Brad McCrea and Jeremy White
Date of Inspection: (03/14/2019)
Tank Description: 1 Million Gallon Hydropillar

Overview Map





Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Pre-Rehabilitation inspection of 1 million gallon Hydropillar that was constructed by Hydrostorage in 1982. Referred to as EST No. 2.
Condition	<p>The tower is in overall good structural condition. The interior wet, exterior and interior dry coatings are in generally fair condition with localized corrosion present.</p> <p>Element conditions represented in report as follows:</p> <p>Good - Element performs intended function with high degree of reliability</p> <p>Fair - Element performs intended function with small reduction in reliability</p> <p>Poor - Element performs intended function with significant reduction in reliability</p> <p>Critical - Element does not perform intended function with any degree of reliability & emergency action required</p>
Notes/Dimensions	<p>Summary of items to be addressed during rehabilitation as mentioned below in report:</p> <ul style="list-style-type: none"> • Interior wet coating is in poor condition above the high water line and the entire interior wet coating is to be replaced • Exterior coating is not recommended for overcoating due to local delamination and thickness of existing coating. • Recommend replacing interior and exterior coating in same project for best value. • Recommend power washing and coating touch up of interior dry area. • Generator on site will need to be protected during the construction process. • The electrical control panel on the exterior will need to be protected or moved (if able) during the construction process. Existing meter and service disconnect to be painted to match new coating system. • The electrical control panel on the interior will need to be protected or moved (if able) during the construction process.

Attributes	
	<ul style="list-style-type: none"> • The existing interior lighting at the base of the tank appears to be fluorescent and will be upgraded to LED. LED Model # to be provided by owner. All other lighting to be replaced with LED equivalents • Replace the existing 12" clay valve at the base of the tank interior with a motor operated valve. Replace the adjacent dresser coupling and connected pipe with a new spool. • The concrete pipe support at the base of the tank interior is to be replaced with new concrete. • Replace the control piping for gauges and pressure sensors with stainless steel piping and valves. Include gauges and spigots. • Replace existing flap valve with new flap valve and counter weight • Replace existing personnel door with new door as desired by owner. • There is an old piece of mounting hardware on the interior dry area ladder that needs to be removed at the 2nd to top rung. • Recommend installing cable tray mounts to interior dry access tube to attach existing conduit to. • Recommend contractor replace both top hatch covers with steel covers. • Remove the existing CP system and plate associated holes closed. • Replace obstruction photo cell and fixture with LED equivalent. • Install new roof handrails with antenna mounts. • Replace overflow support braces. • Recommend removal of interior wet ladder cable safety climb. • Owner to remove all pressure transmitters during construction process.
Inspector	Jeremy White, CWI and Brad McCrea, NACE III



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Site and Fencing
Condition	Fair
Notes/Dimensions	Facing north roughly 50ft to fence, the area is fairly clear for containment installation.
Inspector	Jeremy White and Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Site and Fencing
Condition	Fair
Notes/Dimensions	Approximately 30 feet to fence west side, the area is fairly clear for containment installation.
Inspector	Jeremy White and Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Site and Fencing
Condition	Fair
Notes/Dimensions	South approximately 30 feet to fence, the area is fairly clear for containment installation.
Inspector	Jeremy White and Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Site and Fencing
Condition	Fair
Notes/Dimensions	East side, the area is fairly clear for containment installation.
Inspector	Jeremy White and Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Exterior Coating at Base of Pedestal
Condition	Poor, severe oxidation and moderate localized corrosion are present. There is severe localized cracking and delamination present.
Notes/Dimensions	<p>An ASTM D3359 X cut adhesion test was performed. Test showed a tightly adhered coating. However adjacent to the test area there is an area that delaminated from the substrate. The area for the adhesion test was cleaned with solvent and a dark rag. The residue on the rag is the paint oxidation. Ten randomly located dry film readings were taken and the results were an average of 28 mils with a high reading of 42 and a low of 19.</p> <p>With the thickness of coating and the localized delamination, overcoating is not recommended.</p>
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Bay Door & Exterior Lighting
Condition	Fair
Notes/Dimensions	Localized corrosion noted on the door threshold.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Genset Generator
Condition	Fair
Notes/Dimensions	This will have to be protected during construction.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Electrical Panels Exterior
Condition	Fair
Notes/Dimensions	The electrical control panel on the exterior will have to be protected from abrasive dust and coatings. Existing meter and service disconnect to be painted to match new coating system.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Electrical Panels Interior
Condition	Fair
Notes/Dimensions	The electrical control panel on the interior will have to be protected from abrasive dust and coatings during construction. Contractor will also have to clean all abrasive and dust from all surfaces on the interior dry stem.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior electrical panels
Condition	Good
Notes/Dimensions	The electrical control panel on the interior will have to be protected from abrasive dust and coatings during construction. Contractor will also have to clean all abrasive and dust from all surfaces on the interior dry stem.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior lighting
Condition	Fair
Notes/Dimensions	The existing lighting appears to be fluorescent and should be upgraded to LED. LED Model # to be provided by owner.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Access Ladder Dry Area
Condition	Fair
Notes/Dimensions	The ladder is properly designed and equipped with a T-Rail safety climb device. Ladder lighting to be replaced with LED
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior Dry Coating
Condition	Fair
Notes/Dimensions	An adhesion test was performed on the interior dry coating and the results showed a well adhered coating. Dry film thickness readings were taken of the coating and the average of ten readings was 13.4 mils with 15 mils for a high, and 11mils for the low.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior Dry Coating
Condition	Fair
Notes/Dimensions	The coating is in fair condition, recommend that the contractor be responsible to clean all dust and debris from the stem and wind rings.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior dry ladder
Condition	Good
Notes/Dimensions	The ladder is properly designed and equipped with a T-Rail safety climb device. The lighting is to be replaced with LED equivalents.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior piping
Condition	Fair
Notes/Dimensions	All valves pictured to be replaced except for newer red valve in rear of picture. The drain valve connects the fill/service line to the overflow at this location.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior piping
Condition	Fair
Notes/Dimensions	Replace the 12" clay valve with a motor operated valve. Replace the dresser coupling and pipe on the left with a new spool. The pipe spools may be reused if they are in fair condition. The concrete pipe support is to be replaced with new concrete. Replace the control piping for gauges and pressure sensors with stainless steel piping and valves. Include gauges and spigots.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Controls Piping
Condition	Fair
Notes/Dimensions	Replace the control piping for gauges and pressure sensors with stainless steel piping and valves. Include gauges and spigots.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Control Piping
Condition	Fair
Notes/Dimensions	Replace the control piping for gauges and pressure sensors with stainless steel piping and valves. Owner to remove all pressure transmitters during construction process.
Inspector	Brad McCrea



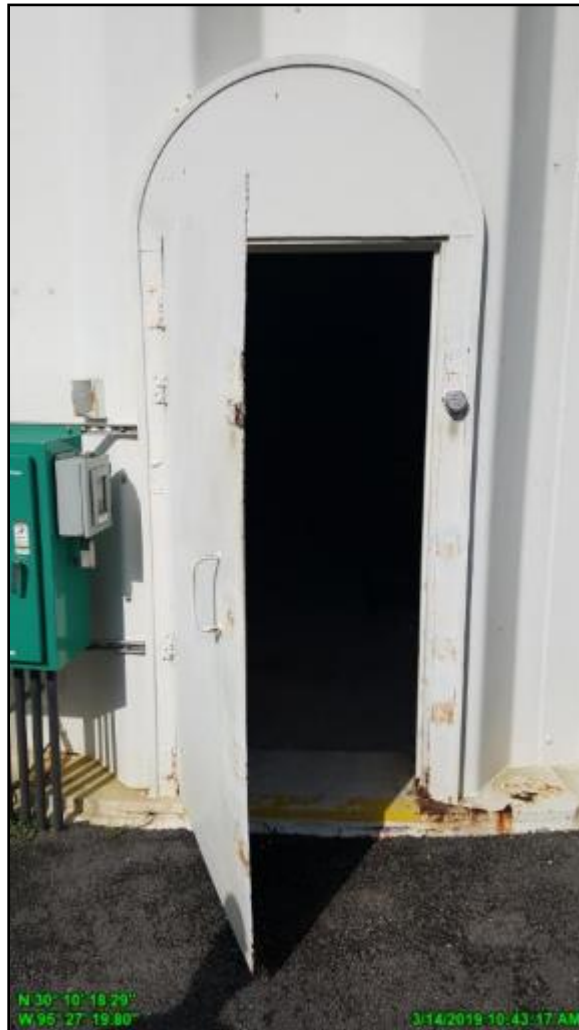
Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Overflow Pipe and Flap Valve
Condition	Fair
Notes/Dimensions	12" diameter. Flap valve to be replaced with new flap valve and counter weight.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Exterior Coating
Condition	Fair
Notes/Dimensions	West Side
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Data Plate
Condition	Fair
Notes/Dimensions	This is a 1 Million-gallon Hydropillar that was constructed by Hydrostorage in 1982.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Personnel Door
Condition	Replace
Notes/Dimensions	37.5"x81" metal door size door size.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Personnel Door
Condition	Poor
Notes/Dimensions	40"x82" Metal frame measured from the interior. Replace completely.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Catwalk Below Bowl
Condition	Fair
Notes/Dimensions	The catwalk is in fair condition and is equipped with safety chains. Lighting to be replaced with LED equivalents.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Catwalk to Access Tube
Condition	Fair
Notes/Dimensions	Clear and illuminated, recommend power washing.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Ladder to Painters Access
Condition	Fair
Notes/Dimensions	The ladder is properly designed and equipped with the T-Rail safety climb device. The painter's access is a nominal 24" manway and the cover is securely closed. There is an old piece of mounting hardware that needs to be removed from the ladder, 2 nd to top rung.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior Dry Coating
Condition	Fair
Notes/Dimensions	Minor localized corrosion is present on the 4" cleanout and on some welds.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Dry stem ladder
Condition	Poor
Notes/Dimensions	Communications cables are mounted to the ladder rails. OSHA requires a 3" minimum clearance. Recommend adding cable tray mounts for coax to be moved to in order to allow for 3" clearance.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Roof Hatch to Water Compartment
Condition	Poor
Notes/Dimensions	Nom. 30" dia. Recommend contractor replace cover and salvage the ring. There was no lock present. The interior ladder is new.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Air Vent
Condition	Good
Notes/Dimensions	The air vent is 24" in diameter and properly screened.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Cathodic Protection Ports
Condition	Poor
Notes/Dimensions	Remove and scrap the CP system and plate the holes Closed.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Obstruction Light
Condition	Good
Notes/Dimensions	Appears operational. Replace photo cell and fixture with LED equivalents.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Obstruction Light and Air Vent #2
Condition	Good
Notes/Dimensions	Appears operational. Replace photo cell and fixture with LED equivalents. The air vent is in good condition.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Access Tube Manway
Condition	Fair
Notes/Dimensions	Aluminum cover is in fair condition there was no lock present. 30" dia. Note the antenna's and brackets. Install roof top handrails with antenna mounts.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Antennas
Condition	Fair
Notes/Dimensions	Surrounding the access tube access.
Inspector	Brad McCrea

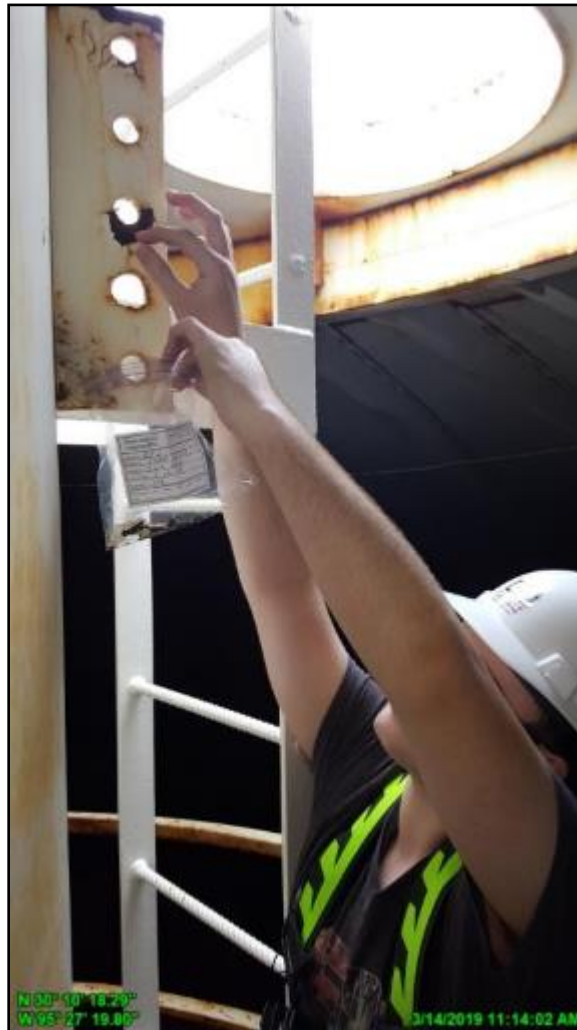


The color seen

Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior Coating
Condition	Fair
Notes/Dimensions	Overflow pipe, no significant areas of corrosion noted. The angle braces should be replaced.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior Coating
Condition	Fair
Notes/Dimensions	Sediment in bowl and on transition, no signs of corrosion nodules causing pitting were noted.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior Coating Sample
Condition	Fair
Notes/Dimensions	Coating being sampled for lead analysis.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior Coating Ceiling
Condition	Fair
Notes/Dimensions	The ceiling and rafters are in fair condition with general and localized corrosion present.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	CP Port
Condition	Poor
Notes/Dimensions	Not sealed, Remove CP equipment and plate the ports closed.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Access to Bowl
Condition	Good
Notes/Dimensions	The ladder is new and in good condition. The safety climb is a different style than the other interior ladders, recommend removal.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Access Platform
Condition	Fair
Notes/Dimensions	Moderate corrosion is noted on the toe board.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Access Platform
Condition	Fair
Notes/Dimensions	Moderate corrosion is noted on the toe board
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior Coating
Condition	Fair
Notes/Dimensions	Sediment in bowl and on transition, no signs of corrosion nodules causing pitting were noted.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior Coating
Condition	Fair
Notes/Dimensions	Sediment in bowl and on transition, no signs of corrosion nodules causing pitting were noted.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior Coating
Condition	Fair
Notes/Dimensions	Ceiling, rafters, shell and transition. No signs of corrosion nodules causing pitting were noted.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Wet compartment ladder safety cable
Condition	Poor
Notes/Dimensions	The ladder is new and in good condition. The safety climb is a different style than the other interior ladders, recommend removal.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Rafters and Compression Ring
Condition	Fair
Notes/Dimensions	The rafter to compression ring connections appear intact with moderate localized corrosion present on the bolts.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Compression Ring
Condition	Fair
Notes/Dimensions	Moderate corrosion on hex nuts.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Compression Ring
Condition	Fair
Notes/Dimensions	Moderate corrosion on bolt heads.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Interior Coating
Condition	Fair
Notes/Dimensions	Average mil thickness 15.5 out of 10 readings. The high was 17.7 the low was 13.2.
Inspector	Brad McCrea



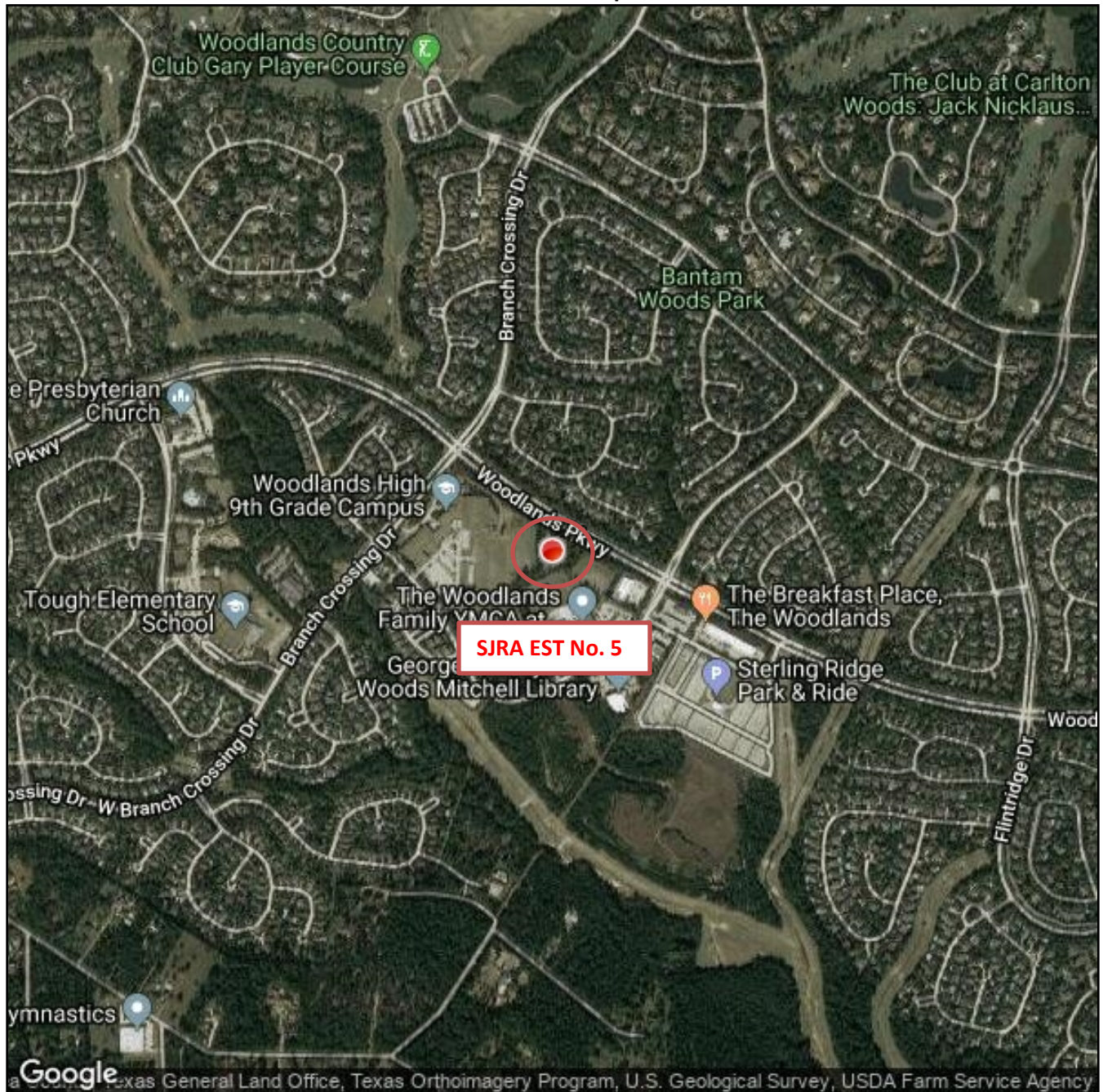
Attributes	
Title	SJRA EST No. 2 Pre Rehabilitation Evaluation
Inspection Item	Roof Stiffener
Condition	Repaired
Notes/Dimensions	One stiffener has been repaired and braced. Evaluate after abrasive blasting.
Inspector	Brad McCrea



Field Inspection Report
Dunham Engineering, Inc. TX F-2253
(979) 690-6555

Tank ID: EST No.5
Owner: SJRA
Inspector: Brad McCrea and Jeremy White
Date of Inspection: (03/14/2019)
Tank Description: EST No.5

Overview Map





Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Existing Drain Valve
Condition	Good
Notes/Dimensions	<p>This is a 6" gate valve that is manually operated. It has a flange to flange connection on the left side closest to the pipe support hanger. The other side appears to be a flange to a compression gland. The valve is in a horizontal line that connects the supply line to the overflow.</p> <p>This valve is to be replaced with a new valve and electric actuator.</p>
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Existing Drain Valve
Condition	Good
Notes/Dimensions	Looking up from the catwalk. The new actuator valve can be installed with the stem vertical.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Existing Drain Valve
Condition	Good
Notes/Dimensions	Clearance from the catwalk brace is approximately 2".
Inspector	Brad McCrea



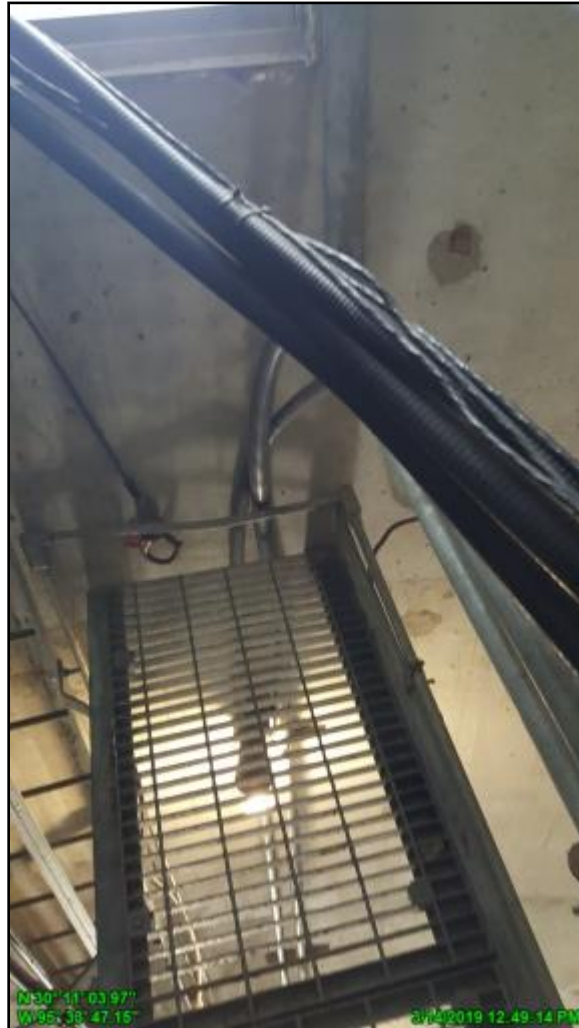
Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Existing Drain Valve
Condition	Good
Notes/Dimensions	Clearance from the catwalk brace is approximately 2".
Inspector	Brad McCrea



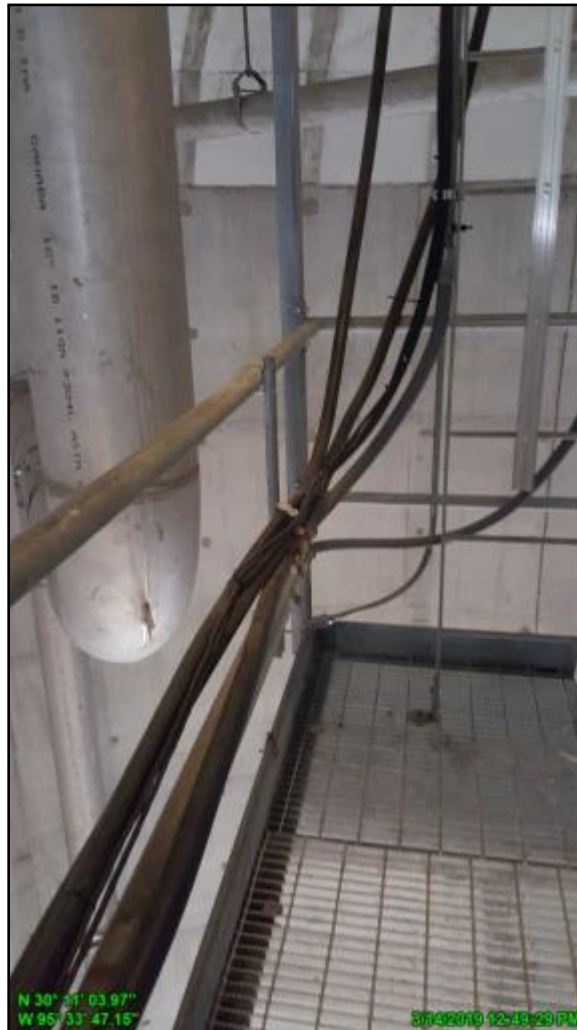
Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Existing Drain Valve
Condition	Good
Notes/Dimensions	Flange to catwalk, clearance is 3 to 3.5 inches.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Existing Drain Valve
Condition	Good
Notes/Dimensions	View looking down from the access tube ladder.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Electrical Conduits
Condition	Good
Notes/Dimensions	There is a 0.5" conduit that is present from the Cathodic control box. The Cathodics are not in use and have been removed from the other towers. This would be a good circuit for the new valve. The conduit is on the toe plate of the catwalk. The conduit is properly secured to the catwalk.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Electrical Conduits
Condition	Properly secured to the catwalk.
Notes/Dimensions	There are 3 conduits present but the best candidate is the 0.5" from the cathodics.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Electrical Conduits
Condition	Properly secured to the catwalk.
Notes/Dimensions	All electrical is routed along the interior of catwalk.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Electrical Conduits
Condition	Good
Notes/Dimensions	There is room on the Unistruts if a new conduit has to be added.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Electrical Conduits
Condition	Present
Notes/Dimensions	0.5", 1" and 1½ "sizes
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	New Actuator & Valve
Condition	Good
Notes/Dimensions	<p>The valve and actuator can be separated and hoisted in 2 pieces. This will make for a lighter load and easier installation. I contacted Flowserve and this actuator can be mounted in all orientations. Mounted in the horizontal orientation as the existing will allow for manual operation if needed.</p> <p>The valve can be hoisted to the catwalk by using the existing hand line lift point near the catwalk. The valve pieces can then be put in place by rigging from the pipe hanger. The gaskets or the entire flange/compression coupling will need replaced to ensure a water tight seal. Contractor should submit an installation procedure for approval.</p>
Inspector	Brad McCrea

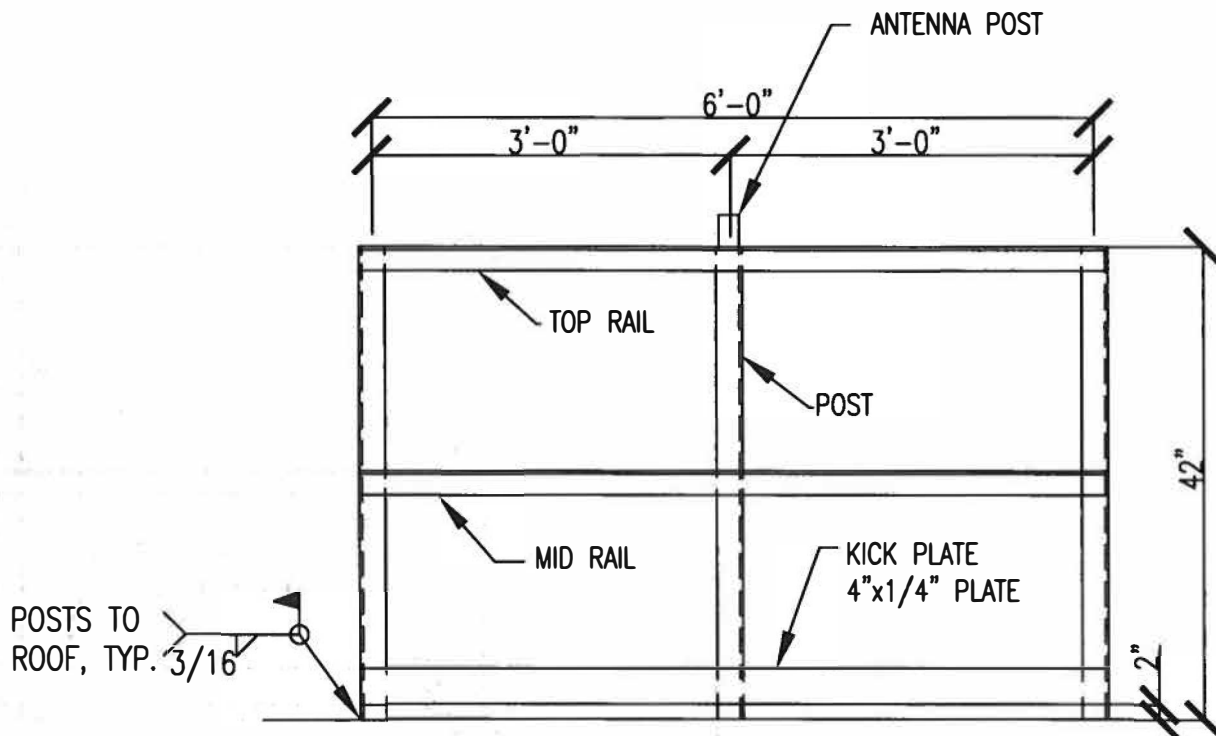


Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	New Actuator & Valve
Condition	Good
Notes/Dimensions	The valve and actuator can be separated and hoisted in 2 pieces. This will make for a lighter load and easier installation.
Inspector	Brad McCrea



Attributes	
Title	SJRA EST No.5 Valve
Inspection Item	Actuator Data
Condition	New
Notes/Dimensions	Single Phase,100 to 140 volts, 60Hz.
Inspector	Brad McCrea

APPENDIX III
DRAWINGS

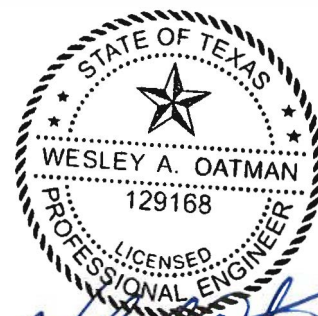


HANDRAIL NOTES:

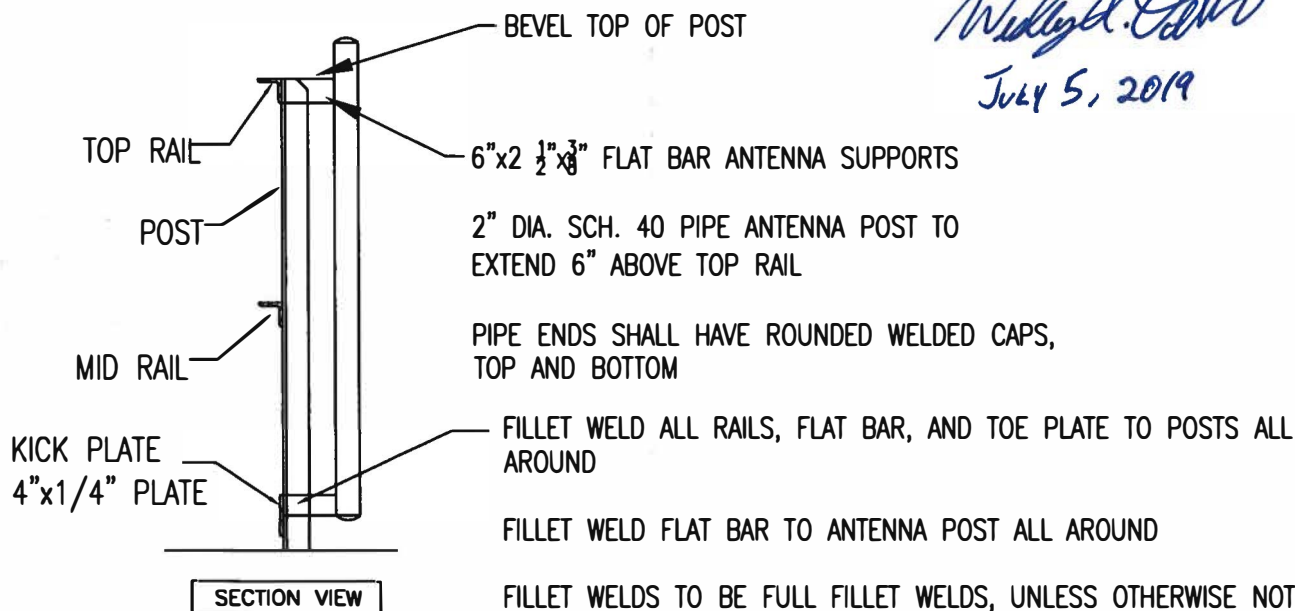
1. POSTS, TOP AND MID RAIL 3" X 3" X $\frac{1}{4}$ " ANGLE
2. HANDRAIL TO BE ROLLED AT 10' RADIUS

EST HANDRAIL DETAIL

NOT TO SCALE



Wesley A. Oatman
July 5, 2019



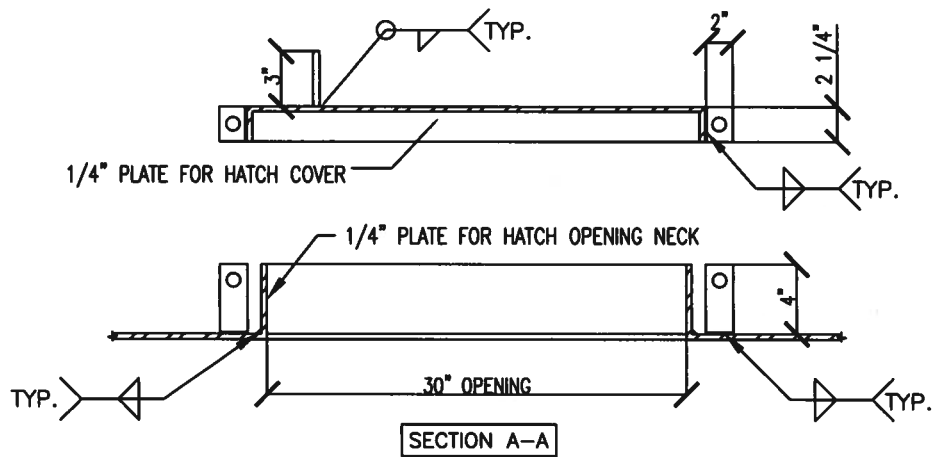
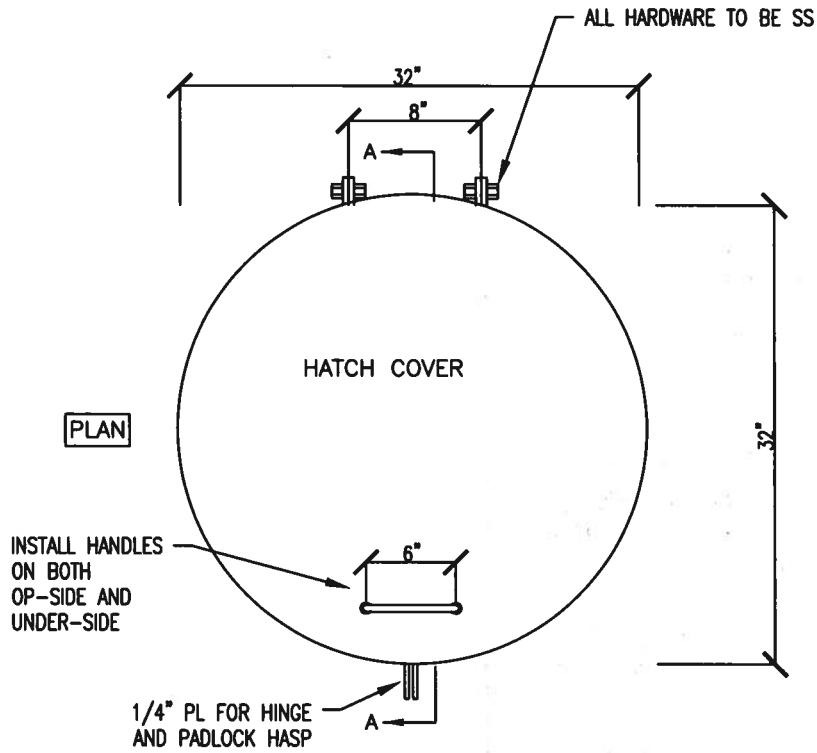
HANDRAIL
SJRA EST #2
THE WOODLANDS, TX

EUNHAM
ENGINEERING
INSPECTION.DESIGN.RESULTS.
TX FIRM NO. 2253

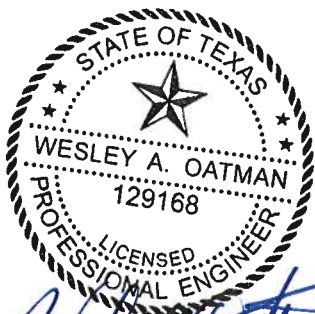
DRAWN SD

DATE 7/1/2019

SHEET 1 OF 1



EST HATCH DETAIL
NOT TO SCALE



Wesley A. Oatman
July 5, 2019

ROOF HATCH
SJRA EST #2
THE WOODLANDS, TX

DUNHAM
ENGINEERING
INSPECTION.DESIGN.RESULTS.
TX FIRM NO. 2253

DRAWN SD

DATE 7/1/2019

SHEET 1 OF 1

ROTORK IQT 1000
FA12 OPEN-CLOSE

1/4" NPT 90° SS FITTING
MALE TO TUBING FITTING

1/4" SWAGelok SS
BRAIDED HOSE

WELDED 1" NPT BUNG &
1/2" 316SS FULL-PORT BALL VALVE
(SAME ON BOTH SIDES)

12" DEZURIK BOS-CL
ON-CENTER RESILIENT
SEATED BFF VALVE

1. ALL FITTINGS WILL BE SS SWAGelok TUBING FITTINGS
2. ALL HARDWARE WILL BE SS UNLESS OTHERWISE NOTED
3. YOKAGAWA TRANSMITTER
EJA110E-JVS5J-U17EB/FU1/D1 TO BE MOUNTED VERTICALLY (AS SHOWN)
4. TRANSMITTER MOUNTED DIRECTLY IN FRONT OF BUNG WITH THE DIAPHRAGM LEVEL WITH BUNG HEIGHT
5. COMMUNICATIONS PROTOCOL - IP68 - OPENING TIME: 30 SECONDS
6. ALL HARDWARE SHALL BE 316 SS
7. 120V/1PH/60Hz ELECTRIC MOTOR OPERATOR WITH MODBUS

SAN JACINTO RIVER AUTHORITY
WOODLANDS DIVISION



DUNHAM
ENGINEERING
INSPECTION DESIGN RESULTS

**STRUCTURAL
ENGINEERING
DIVISION**

6102 IMPERIAL LOOP DR.
COLLEGE STATION,
TEXAS 77845
PHONE 979-890-8555

TX FIRM NO. 2253

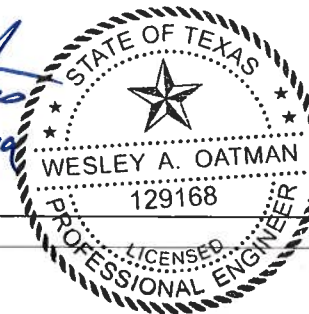
DP TRANSMITTER
INSTALLATION DETAIL

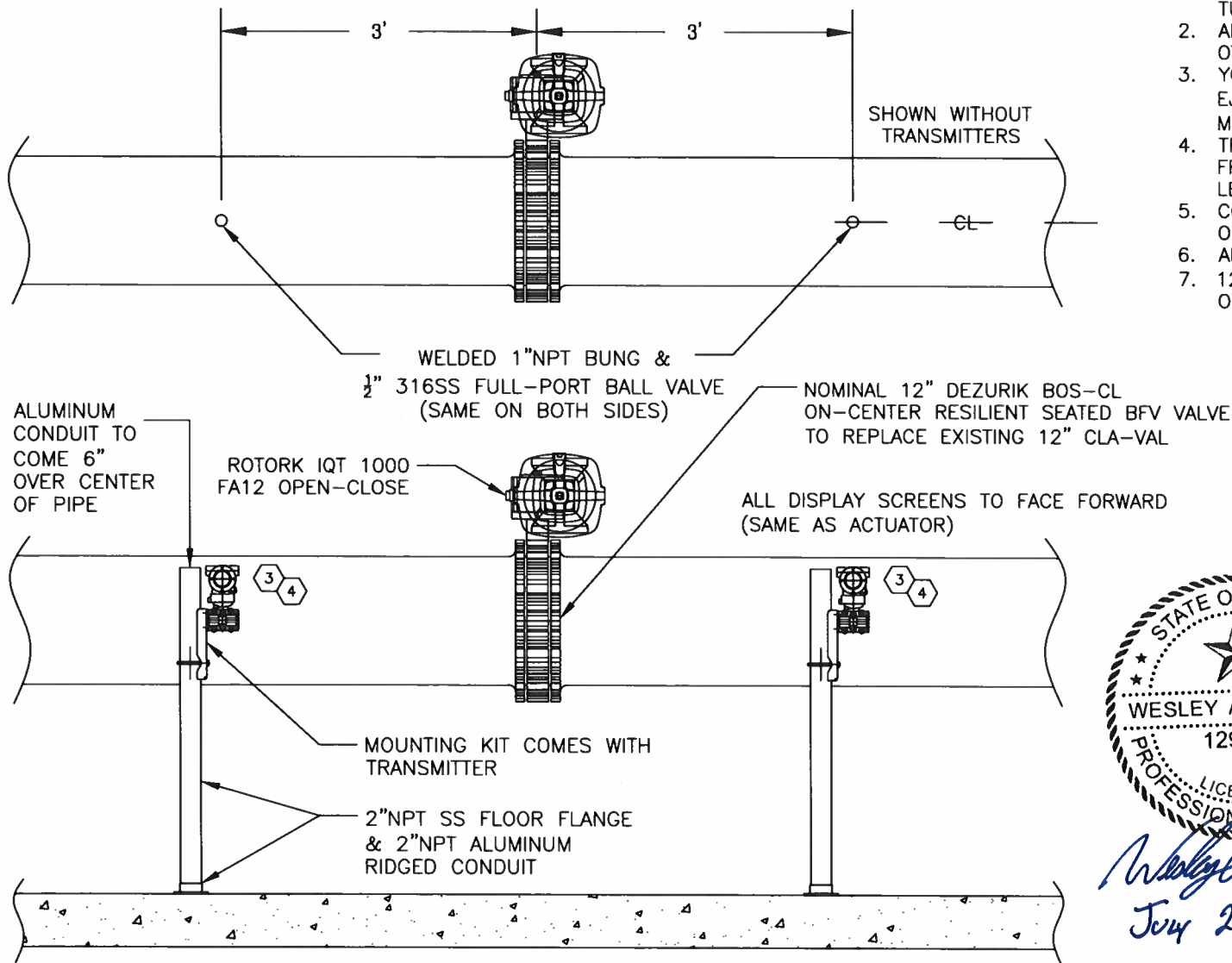
TRANSMITTER DETAIL

Revision	DATE	DESCRIPTION
01	7/19	INITIAL SUBMISSION

SHEET 002 OF 002

Wesley A. Oatman
July 25, 2019





1. ALL FITTINGS WILL BE SS SWAGelok TUBING FITTINGS
2. ALL HARDWARE WILL BE SS UNLESS OTHERWISE NOTED
3. YOKAGAWA TRANSMITTER EJA110E-JVS5J-U17EB/FU1/D1 TO BE MOUNTED VERTICALLY (AS SHOWN)
4. TRANSMITTER MOUNTED DIRECTLY IN FRONT OF BUNG WITH THE DIAPHRAGM LEVEL WITH BUNG HEIGHT
5. COMMUNICATIONS PROTOCOL - IP68 - OPENING TIME: 30 SECONDS
6. ALL HARDWARE SHALL BE 316 SS
7. 120V/IPH/60Hz ELECTRIC MOTOR OPERATOR WITH MODBUS

SAN JACINTO RIVER AUTHORITY
WOODLANDS DIVISION



DUNHAM
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6102 IMPERIAL LOOP DR.
COLLEGE STATION,
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PHONE 979-890-6555

TX FIRM NO. 2253

DP TRANSMITTER
INSTALLATION DETAIL
BUNG AND TRANSMITTER
LOCATIONS

Revision	DATE	DESCRIPTION
BC	7/19	INITIAL SUBMISSION

SURA PROJECT NO.

FILE NAME: DP Transmitter Installation Detail

DRAWN BY: BACOOOPER

CHECKED BY:

SCALE: 1"=1'-0" AS SHOWN

SHEET 001 OF 002



Wesley A. Oatman
July 25, 2019