

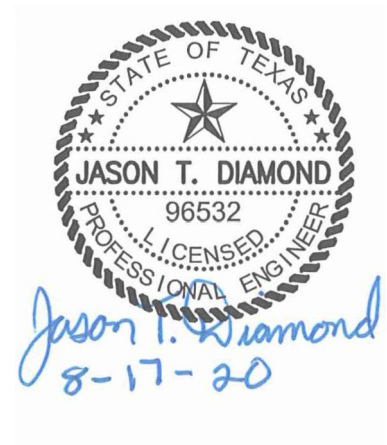


# **CONTRACT DOCUMENTS**

## **W-1 LEON CREEK: HWY 151 TO HWY 90 UPPER SEGMENT**

**SAWS JOB NO. 19-4528  
SOLICITATION NO. CO-00351**

**August 2020**



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REQUEST FOR COMPETITIVE SEALED PROPOSALS  
(RFCSP)

Solicitation No. **CO-00351**

Sealed proposals are requested by the San Antonio Water System for the construction of **W-1 Leon Creek: Hwy 151 to Hwy 90 Upper Segment**, SAWS Job No. **19-4528**. The project will replace and upsize approximately 1.5 miles of 42-inch gravity sewer main with an 84-inch Fiberglass Reinforced Pipe (FRP) gravity sanitary sewer main, 174 LF of 8-inch and 12-inch sanitary sewer side connectors, bypass pumping, pavement repairs, and traffic control for the W-1 Leon Creek: Hwy 151 to Hwy 90 Upper Segment.

To view additional project information, as well as obtain the plans and specifications for this project, visit our website located at [www.saws.org](http://www.saws.org) and click on the Business Center. Then select Bidder, Consultant, and Vendor Registration, which is located on the left-hand side of the screen. Select the Register Now button and proceed with registration.

For difficulties downloading plans and specifications, contact the Contracting Department at 210-233-3341.

A **non-mandatory** pre-proposal meeting will be held at **10:00 AM (CT) on Monday, August 31, 2020** via [WebEx](#).

For questions regarding this solicitation, technical questions or additional information, please contact **Roxanne Lockhart**, Contract Administrator, in writing via email to: [Roxanne.Lockhart@saws.org](mailto:Roxanne.Lockhart@saws.org) or by fax to (210) 233-5351 until **2:00 PM (CT) on September 9, 2020**. Answers to the questions will be posted to the web site by **2:00 PM (CT) on September 16, 2020** as a separate document or included as part of an addendum. Be advised that firms responding to this RFCSP (Respondents) are prohibited from communicating with any other SAWS staff, the Consultant, the Developer, or COSA officials regarding this RFCSP up until the contract is awarded as outlined in the Instructions to Respondents.

**Due to the COVID-19 emergency and to protect the health of the public, SAWS is implementing new procedures for the submission of bids. Proposals will be received electronically only, until 2:00 PM (CDT), October 5, 2020.** Electronic bids will be received via the secure SAWS FTP site. See the Electronic Bid Opening Instructions attachment for additional information regarding an electronic bid submittal. Electronic bids shall be accompanied by a bid bond in an amount not less than five percent of the total bid price. Bids will then be publicly opened and read aloud by Contract Administration via [WebEx](#).

To submit proposals electronically, Respondents will need to submit a request by **October 2, 2020 at 2:00 PM (CDT)** to receive access to the File Transfer Protocol (FTP) site via email to [Roxanne.Lockhart@saws.org](mailto:Roxanne.Lockhart@saws.org). Respondent's email requesting access to the FTP site shall provide the legal name of Respondent's company and the intended recipient's email address and phone number. No requests for FTP site access will be accepted after **October 2, 2020 at 2:00 PM**.



**W-1 LEON CREEK: HWY 151 TO HWY 90 UPPER SEGMENT**  
**Solicitation Number: CO-00351**

**ELECTRONIC PROPOSAL OPENING INSTRUCTIONS**  
**OCTOBER 5, 2020 AT 2:00 PM (CDT)**

**FTP BID PROPOSAL UPLOAD**

In order to receive electronic proposals for this project, SAWS will utilize a SAWS secured File Transfer Protocol (FTP) site. Only Respondents bidding as Prime Contractors will need to submit their request prior to **October 2, 2020 at 2:00 PM (CDT)** to receive access to the FTP site via email to [roxanne.lockhart@saws.org](mailto:roxanne.lockhart@saws.org). Respondent's email shall provide the legal name of the Respondent's company and the intended recipient's email address and phone number. No requests for FTP site access will be accepted after **October 2, 2020 at 2:00 PM (CDT)**. Once a Respondent is approved for access, an email with a hyperlink to the FTP site and a unique password for the Respondent will be provided to the Respondent's email recipient.

Once access is received, Respondents may upload the required documents per the Respondent Proposal Checklist any time before **October 5, 2020 at 2:00 PM (CDT)**. Please ensure Respondent allows sufficient time should Respondent's experience technical difficulties in uploading the required documents. No changes to the Proposal nor proposal price can be made once the Proposal has been submitted.

**Respondents shall comply with the following:**

- 1) Limit files to three (3) pdf files that includes all requested documents, per the Respondent's Proposal Checklist. **ONLY THREE PDFs WILL BE ACCEPTED PER REQUEST.** Do not upload any zip files.
- 2) Ensure that the itemized List of Bid Items is (are) the first page(s) of your file.
- 3) Respondents may protect the documents from editing by adding a password. However, the documents must be accessible for viewing by SAWS without requiring a password.
- 4) Files shall be named as indicated on the Respondent's Proposal Checklist.
- 5) **DO NOT SHARE ACCESS AND/OR PASSWORD WITH OTHER PARTIES OUTSIDE YOUR COMPANY.**
- 6) **ENSURE THE PROPOSAL (3 pdfs) ARE SENT NO LATER THAN THE DUE DATE AND TIME. PROPOSALS SUBMITTED AFTER THE PROPOSAL OPENING DEADLINE WILL NOT BE ACCEPTED.**

If Respondent is in need of help, contact the SAWS Contract Administrator, **Roxanne Lockhart**, at **210-233-3095** or view troubleshooting tips at <http://www.Serv-U.com/sharefiles>

**WEBEX PROPOSAL OPENING MEETING**

The WebEx meeting details are below if you would like to view the public opening of the proposals.

When it's time, start or join the WebEx meeting from [here](#).

*Access Information*

Meeting Number: **146 547 7642**

Meeting Password: **faWHCFa36X3**

Audio Connection: +1-469-210-7159 United States Toll (Dallas)  
+1-408-418-9388 United States Toll

If you have any questions or concerns, please feel free to contact me.

Thank you,

**Roxanne Lockhart**

Contract Administrator

2800 U.S. Highway 281 North, Ste. 171 | San Antonio, TX 78212

Office | 210-233-3095

Email | [roxanne.lockhart@saws.org](mailto:roxanne.lockhart@saws.org)

## INSTRUCTIONS TO RESPONDENTS

1. Proposals will be submitted in accordance with the following:
  - a. **Three (3) separate files in pdf format**, as indicated on the Respondent's Proposal Checklist, clearly titled, signed in blue ink uploaded to the FTP site provided by SAWS until the time specified in the RFCSP.
  - b. All sealed proposals errantly submitted or delivered to a location other than the exact location stated above may be returned unopened.
  - c. **Electronic proposals will be received by Contract Administration in the SAWS secured File Transfer Protocol (FTP) site.** All proposals will be received until the date and time specified in the Request for Competitive Sealed Proposals.
  - d. All electronic or sealed proposals received after the exact time set for the proposal opening in the Request for Competitive Sealed Proposals will be returned/ deleted and unopened.
  - e. The San Antonio Water System Contracting Office may, at its sole discretion, without waiver of rights or authority, in equity or at law, return or delete any unopened proposals not meeting the exact requirements as stated above.
  
2. Proposals will be opened in accordance with the following:
  - a. Proposals will be opened **in a public WebEx meeting** and the names of the offerors and all prices stated on each price proposal will be read aloud by a Contract Administration representative. Instructions on how to participate in this public WebEx meeting can be found in the Electronic Proposal Opening Instructions.”
  - b. Not later than the 45<sup>th</sup> day after the date of the opening of the proposals, SAWS will evaluate the responses based on the selection criteria set out herein and on its ranking evaluation.
  - c. SAWS will first attempt to negotiate a contract with the selected offeror. SAWS and its engineers or architects may discuss with the selected offeror options for a scope or time modification and any price change associated with the modification. If SAWS is unable to negotiate a contract with the selected offeror, SAWS shall, formerly and in writing, end negotiations with that offeror and proceed to the next offeror in the order of selection ranking until a contract is reached or all proposals are rejected.
  - d. SAWS will select the offeror that offers the best value for SAWS. In determining best value, SAWS is not restricted to consider price alone, but will consider the other factors stated in the evaluation criteria set out in the request for sealed proposals. Respondent shall print or type their name and manually sign the schedule and each continuation sheet on which each entry is made.
  - e. No proposal may be withdrawn after the solicitation deadline without the written consent of a Contract Administration representative.

3. All proposals must be accompanied by Certified or Cashier's Check or an approved Bid Bond in the amount of not less than five percent (5%) of the total offer, payable without recourse to the San Antonio Water System. Surety shall provide a copy of the Power of Attorney authorizing the Executing Agent the authority to execute the bid bond documents and bind the Surety to the bid bond conditions. The bid bond shall have a corporate Surety that is licensed to conduct business in the State of Texas and authorized to underwrite bonds in the amount of the bid bond. Submission of an individual surety is not acceptable for purposes of bonding a bid bond. Bid bonds, Certified or Cashier's checks will be retained for the first, second, and third lowest bidders until the contract is executed. Proposals without bond Security will not be considered.
4. **Electronic** proposals must be submitted with the original price proposal form attached herein and shall be submitted through the SAWS FTP site and shall be titled as indicated in the Respondent Proposal Checklist.
5. Proposals will be prepared in accordance with the following:
  - a. The Respondent shall thoroughly examine the drawings, specifications, schedule, instructions and all other documents.
  - b. Respondents shall make all investigations necessary to inform themselves thoroughly regarding plant and facilities for delivery of material and equipment as required by the project conditions. Respondents shall determine for themselves by examination at the site of the Work the conditions which exist and under which they will be expected to perform their work. Prior to presenting their sealed proposals, Respondents are encouraged to take their own representative samples of existing coating systems; e.g., exterior, interior and piping coating systems, test samples in a state certified laboratory for total lead, chromium and cadmium, and use their best judgment in determining their construction method, labor hazard protection, equipment and materials to perform the scope of work in full compliance with EPA, TCEQ, and OSHA Regulations. SAWS will presume that the necessary examination, samples, and testing have been conducted prior to Respondents submitting their offer for consideration. No plea of ignorance by the Respondent of conditions that exist, or that may hereafter exist as a result of failure or omission on the part of the Respondent to make the necessary examinations and investigations to fulfill in every detail the requirements of the contract documents, will be accepted as the basis for varying the requirements of the San Antonio Water System or the compensation to the Contractor.
  - c. The Respondent is required to submit a Contractor's Qualification Statement formatted as directed in the Supplementary Instructions to Respondents.
  - d. The Respondent shall furnish all information required by the price proposal form, including the Proposal Certification page. The Respondent shall print or type their name and manually sign the Price Proposal in the required area of the document.
  - e. The Respondent is required to submit a Good Faith Effort Plan and all SMWVB Certification Certificates for the Respondent and all subcontractors as part of the proposal. Respondents and/or their agents may contact the SMWVB Program Manager at 210-233-3420 for assistance or clarification with issues specifically related to the Small, Minority, Woman Business and Veteran-owned (SMWVB) Program policy and/or completion of the

Good Faith Effort Plan form.

- f. The Respondent is required to submit a Conflict of Interest Questionnaire (CIQ Form). Effective January 1, 2006, Chapter 176 of the Texas Local Government Code requires that persons, or their agents, who seek to contract for the sale or purchase of property, goods, or services with SAWS shall file a completed Conflict of Interest Questionnaire (CIQ) with SAWS. The CIQ will be submitted as part of the proposal. Form is available from the Texas Ethics Commission at [www.ethics.state.tx.us](http://www.ethics.state.tx.us). Please consult your own legal advisor if you have questions regarding the statute or form. To report suspected ethics violations impacting The San Antonio Water System, please call 1-800-687-1918.
  - g. The Respondent is required to submit as part of the proposal a letter from the insurance provider stating provider's commitment to insure the Contractor for the types of coverage's as or an Insurance Certificate to be in conformance with the types of coverage specified in the General Conditions Section 5.7 – Contractor's Insurance Requirements, if awarded the contract.
  - h. Pursuant to Section 151.311 of the Texas Tax Code, as amended, in order for the San Antonio Water System to continue to benefit from its status as a State Sales and Use Tax Exempt Organization, construction contracts must be awarded on a "separated contract" basis. A "separated contract" is one that distinguishes the value of the tangible personal property (materials such as pipe, bricks, lumber, concrete, paint, etc.) to be incorporated into the project from the total contract price. Under the "separated contract" format, the contractor in effect becomes a "seller" to the San Antonio Water System of materials that are to be physically incorporated into the project realty. As a "seller", the contractor will issue a "Texas Certificate of Resale" to the supplier in lieu of paying the sales tax on materials at the time of purchase. The contractor will also issue a "Certificate of Exemption" to the supplier demonstrating that the personal property is being purchased for resale and that the resale is to a department of the City of San Antonio, Texas, which is a sales tax exempt entity. Contractors should be careful to consult the most recent guidelines of the State Comptroller of Public Accounts regarding the sales tax status of supplies and equipment that are used and consumed during project work but that are not physically incorporated into the project realty. Contractors that have questions about this law are asked to inquire with the State Comptroller of Public Accounts, Tax Administration Division, State of Texas, Austin, Texas 78774 (512) 463-4600. Respondents will not include any federal taxes in offered prices since the San Antonio Water System is exempt from payment of such taxes. "Texas Certificates of Exemption", "Texas Certificates of Resale" and "Texas Sales Tax Permits" are forms available to the contractor through the regional offices of the State Comptroller of Public Accounts.
6. Respondents should adhere to the following restrictions in communication:
- a. Respondents or their representatives are prohibited from communicating with any City of San Antonio officials regarding this solicitation from the time it is released until it has been acted upon by the Board of Trustees, which includes:
    - City Council members (as defined by the City of San Antonio Ethics Code),
    - City Council member's staff, and
    - San Antonio Water System (SAWS) Board of Trustees.

- b. Respondents or their representatives are prohibited from communicating with SAWS employees regarding this RFCSP, except as provided under “Technical Questions” to the point of contact identified within the Invitation to Competitive Sealed Proposals, from the time the solicitation is released until the contract is awarded.
  - c. Respondents or their representatives are prohibited from communicating with the Consultant, Developer, or any contract staff who were or are involved in the development of this RFCSP, regarding this RFSCP, from the time the solicitation is released until the contract is awarded.
  - d. Communication includes “thank you” letters, phone calls, emails, and any contact that results in direct or indirect discussion of the IFB and/or bid submitted.
  - e. If it is determined that a Bidder violates this provision, SAWS may disqualify the bid from consideration.
7. Any catalogue or manufacturer's reference used in describing an item is merely descriptive, and not restrictive unless otherwise noted, and is used only to indicate type and quality of material. When items proposed differ in any way from those specified, Respondents are required to state exactly what they intend to furnish. Otherwise, they shall be required to furnish the items as specified.
8. The work shall be done and completed in accordance with the following Contract Documents as furnished by the San Antonio Water System:
- a. The Invitation for Competitive Sealed Proposals
  - b. The Instructions to Respondents
  - c. The Supplementary Instructions to Respondents
  - d. The Price Proposal
  - e. The Payment Bond
  - f. The Performance Bond
  - g. The General Conditions of the Contract
  - h. The Supplemental Conditions of the Contract
  - i. The Special Conditions of the Contract
  - j. The Construction Specifications
  - k. The Standard Drawings
  - l. Addenda
  - m. Change Orders
  - n. Good Faith Effort Plan
  - o. Conflict of Interest Questionnaire
9. The successful Respondent will be required to execute the standard San Antonio Water System Contract Agreement, Performance and Payment Bonds as outlined in the General Conditions. These forms will be prepared and furnished by the San Antonio Water System. As part of the contract requirements:
- a. Surety shall provide a copy of the Power of Attorney authorizing the Executing Agent the authority to execute the bond documents and bind the Surety to the bond conditions.



Surety shall also provide evidence that the Surety is authorized to provide service in the State of Texas at the amount on the Bond. Contractor agrees that all Performance and Payment Bonds required shall be submitted in accordance with General Conditions, Sections 3.5 & 3.6.

- b. Contractor agrees that, unless i) it is a sole proprietorship or ii) it is a company with fewer than 10 full-time employees and the value of this Contract is less than \$100,000, it does not boycott Israel and will not do so during the term of this Contract. This provision is in compliance with §2270.001 of the Texas Government Code. SAWS agrees to comply with the United States and Texas Constitutions in consideration of whether to enforce this provision.
10. Where there is an error in the extension, the San Antonio Water System Contracting Office will extend the written unit price and make any corrections necessary. Any error will be corrected, and the correct amount will be the basis for determining the offer position.
11. Respondents are advised that estimated quantities of anticipated requirements during the contract period are not calculated with certainty. It is the policy of the Board, however, as a matter of prudent buying and contracting, to establish in advance of actual purchase or performance of the work, the price of the work which is anticipated, and the price on certain items calculated on the maximum number of a particular item which it might need during a contract period. Respondents are advised that during such period, the Board may determine not to purchase any of the items or may delete any or all of the work listed in a price proposal form or invitation. Under such a contract, the Board's only commitment is to purchase the items from or proceed with the work by the successful Respondent at the price proposed if the Board should, in fact, decide to purchase such items during the contract period or proceed with such work as proposed. On all proposals, the Board reserves the right to reject a proposal, which in the Board's judgment contains a price proposal that is "unbalanced." An "unbalanced price proposal" is defined as one in which a particular item or a class of items is offered at a figure sufficiently less than or higher than either general market price or Respondent's cost, so as to make the Respondent low on the overall price proposal but high on a significant number of other items. The Board reserves the right to exercise its judgment and reject such proposal as unqualified. If the Board nevertheless accepts such an unbalanced price proposal and the contract is awarded, the Board reserves the right to delete any or all of such items from the purchases to be made or work to be done.
12. SAWS will provide all necessary easements for the project.
13. No owner, stockholder, partner, officer, or employee of the Respondent, or any person who has a financial interest in this contract in any way, whether direct or indirect, shall be an officer or employee of the San Antonio Water System or the City of San Antonio at the time of submitting a proposal on this contract, or during the life of this contract. Any violations of this provision will render the proposal or contract void.
14. The Contractor will establish a San Antonio address and telephone number and file that information with the Contracting Officer prior to starting work. The Contractor's local address and telephone number will be maintained until the work is completed and accepted by the owner.
15. In case of ambiguity, duplication or obscurity in the proposals, the San Antonio Water System Contracting Office reserves the right to construe and apply the meaning thereof. The San Antonio

Water System Contracting Department reserves the right to reject any and all proposals and to waive formalities.

16. The San Antonio Water System Contracting Office reserves the right, subject to the Contractor's approval, to extend any annual contract for an additional period of not more than one year, subject to the same terms and conditions as enumerated in the invitation and instruction to Respondents and at a price or prices not to exceed the prices quoted.
17. It is anticipated that the contract will be awarded within 90 days after the solicitation deadline to the Respondent whose proposal, conforming to the invitation for competitive sealed proposals, offers the best value to SAWS. SAWS reserves the right to take whichever action as may, in the judgment of the SAWS, to be in its best interest as follows:
  - (1) Reject all offers.
  - (2) Award the contract to the Offeror that offers the best value based on the selection criteria.
  - (3) Reserve the right to negotiate with the selected Offeror.

Respondents are advised that the awarding of contracts is a matter solely within the jurisdiction of the Board of Trustees. SAWS reserves the right to accept any items or groups of items in this RFCSP.

18. San Antonio Water System Contracting Office may reject the Proposal when: (a) the Respondent misstates or conceals any material fact in the proposal, or if (b) the proposal does not strictly conform with the law or the requirements of this RFCSP, or if (c) the proposal is conditional, or if (d) the price proposal is unbalanced, or if (e) the Respondent fails to acknowledge in the final price of the price proposal any and all addendums issued on the bid proposal prior to the solicitation deadline, or if (f) the Respondent fails to follow the restriction from communication outlined in the Instructions to Respondents.

It will be the full responsibility of each Respondent to visit the SAWS website to verify the existence of and acknowledge with their proposal, any and all addendums issued by the San Antonio Water System. The San Antonio Water System Contracting Office reserves the right to reject any and all proposals, to accept any proposals, or parts thereof, considered by the San Antonio Water System to be in its best interest, and to waive formalities or irregularities.

19. Before submitting a proposal, the Respondent should carefully examine the Price Proposal, Plans, Specifications, Special Conditions, General Conditions, and the form of the contract to be entered into for the work contemplated. Respondents shall examine the site of the work and satisfy themselves as to the conditions that will be encountered relating to the character, quality and quantity of work to be performed and materials to be furnished. Such examinations shall include the arrangement and condition of existing structures and facilities, the procedure necessary for maintenance of uninterrupted operation of existing facilities, the availability and cost of labor, and facilities for transportation, handling and storage of materials and equipment.

The submission of a proposal by the Respondent shall be conclusive evidence that he has complied with these requirements. The borings, profiles, existing underground utilities, and water elevations shown on the plans were obtained for the use of the San Antonio Water System in the preparation of the plans, and the Respondent is hereby cautioned that the San Antonio

Water System neither assumes nor implies any responsibility for the accuracy of this data.

20. The Respondent in preparing their offer, shall take cognizance of the difficulty of distinguishing between boulders and ledge rock, the difficulty of accurately classifying all material encountered in making the subsurface investigations, the possible erosion of stream channels and banks after survey data has been obtained, and the unreliability of water elevations other than those for the date recorded. Claims for additional compensation due to variations between conditions actually encountered in a construction and as indicated in the plans will not be allowed.
21. All contracts in excess of \$10,000 with contractors or suppliers having 15 or more employees will include the clauses listed below:
  - (a) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, pregnancy, sexual orientation, national origin, political belief or affiliation, age, disability or genetic information. The Contractor will assure that employees or applicants for employment are treated in a fair and equitable manner in such actions which shall include but not be limited to the following: Employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. The Contractor will post in conspicuous places for the benefit of the employee and applicants for employment notices setting forth the provisions of this nondiscrimination clause. Upon request, the Contractor will furnish to the San Antonio Water System all information and reports and will permit access to the books, records, and accounts for the purposes of an investigation to ascertain compliance with rules and regulations set forth by this organization.
  - (b) If a Contractor is found not to be in compliance with the nondiscrimination clause of this contract, the contract may be canceled, terminated, or suspended in all or in part and the Contractor may be debarred from further contracts with the San Antonio Water System.
  - (c) All Respondents or prospective Contractors or Subcontractors will be required to submit a statement in writing signed by an authorized official or agent in behalf of the company to the effect that the signer's practices and policies do not discriminate on the grounds of race, color, religion, sex, or national origin.

The Contractor shall comply with all provisions of Executive Order 11246, Equal Employment Opportunity, dated 24 September 1965 or as amended and with Section 3 of the Housing and Urban Development Act of 1968 covering opportunities for business and lower financed HUD assisted projects.

#### **Statement on President's Executive Orders**

Has your firm previously performed work subject to the President's Executive Orders Numbers 11246 and 11375 or any preceding similar executive orders (Numbers 10925 and 11114)?  Yes  No

Contractors/Consultants/Vendors on work paid by federal funds will be required to comply

with the president's executive order no. 11246, "Equal Employment Opportunity," as amended by executive order no. 11375, "amending executive order 11246 relating to equal employment opportunity," and as supplemented by regulations at 41 CFR part 60, Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department Of Labor.

22. Approval of Plans and/or Specifications by an employee of SAWS shall not constitute an assumption of liability by the San Antonio Water System or such employee for any inaccuracy of computation or deficiency of design therein.
23. Bidder shall not offer, confer, or agree to confer any benefit or gift to any San Antonio Water System Employee, Officer, or Trustee of the Board of the San Antonio Water System and Water System employees are prohibited from soliciting, accepting or agreeing to accept any gifts from outside sources; please see Section M. – Gifts or Benefits of the Water System's Code of Ethical Standards. Section M of the Water System's Code of Ethical Standards regarding Gifts or Benefits is available on the SAWS Business Center website.
24. In 2015, and made effective as of January 1, 2016, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that a governmental entity or state agency may not enter into certain contracts with a business entity unless the business entity submits a disclosure of interested parties (Form 1295) to the governmental entity or state agency at the time the business entity submits the signed contract to the governmental entity or state agency. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission. The online filing application is available on the Texas Ethics Commission (TEC)'s website. A copy of the completed form, which will include a certification of filing that with a unique certification number, will be required with the signed contract. For additional information, Bidders may go to the Texas Ethics Commission website at the following link:  
  
[https://ethics.state.tx.us/whatsnew/elf\\_info\\_form1295.htm](https://ethics.state.tx.us/whatsnew/elf_info_form1295.htm)
25. For information only, the following "WORKERS COMPENSATION INSURANCE COVERAGE REQUIREMENTS", has been added at the end of this section. Refer to Section 5.7 CONTRACTOR'S INSURANCE REQUIREMENTS of the General Conditions for further clarification.
26. To the extent this contract has a stated expenditure of or results in an expenditure of at least \$1 million in public funds, then pursuant to Texas Government Code §552.372, Contractor will preserve all contracting information, as defined by §552.003, related to the contract for the duration of the contract; promptly provide to SAWS any such contracting information related to the contract that is in its custody or possession of SAWS on request of SAWS; and on completion of the contract, either: a) provide at no cost to SAWS all such contracting information related to the contract that is in its custody or possession or b) preserve such contracting information related to the contract as provided by the records retention requirements applicable to SAWS.

The Contractor agrees that the contract can be terminated if the Contractor knowingly or intentionally fails to comply with a requirement of Subchapter J, Chapter 552, of the Texas Government Code.

## SUPPLEMENTARY INSTRUCTIONS TO RESPONDENTS

The San Antonio Water System (SAWS) Board of Trustees and/or its designated representative have determined that the Competitive Sealed Proposals method of procurement will provide the best value for SAWS for this project. This procurement shall conform to Section 2269 of the Texas Government Code.

This document provides general information about the requirements and evaluation for this Request for Competitive Sealed Proposals (RFCSP).

### **A. EVALUATION OF PROPOSALS**

1. SAWS will conduct a comprehensive, fair and impartial evaluation of all Competitive Sealed Proposals received in response to this request within 45 days of receipt of the proposals. SAWS will appoint a selection committee to perform the evaluation. SAWS will evaluate and rank each proposal in relation to the following selection criteria:

<b>Team Qualifications and Experience</b>	<b>15%</b>
<b>Quality, Reputation, and Ability to Deliver Projects on Schedule and within Budget</b>	<b>25%</b>
<b>Project Approach including Delivery Schedule</b>	<b>15%</b>
<b>Price Proposal</b>	<b>35%</b>
<b>Small, Minority, and Women-owned Business Participation</b>	<b><u>10%</u></b>
<b>Total:</b>	<b>100%</b>

2. During the evaluation and ranking of Respondents' proposals, SAWS reserves the right to consider the following:
  - a. Whether the Respondent can perform the contract within the specified time. In making this determination SAWS may take into account Respondent's existing commitments and whether in SAWS' sole discretion those commitments will adversely impact Respondent's ability to complete the work in the scheduled time.
  - b. The quality and punctuality of performance on any current or previous contacts.
  - c. SAWS may contact references provided by the Respondent, as well as any other references to verify qualifications, experience and performance. In making this determination, SAWS may take into account work performed by the Respondent on any project, including but not limited to SAWS' projects, projects that the Respondent provides as references and any other projects that SAWS has knowledge of.
  - d. Respondent's previous and existing compliance with the applicable laws, ordinances, permits, and regulations.
  - e. Respondent's financial resources and ability to perform the contract.

3. If Respondent fails to provide a response to any of the Evaluation Criteria identified

within this RFCSP, points may be deducted or the proposal may be considered non-responsive and ineligible for consideration.

## **B. SUMMARY OF WORK**

This Summary of Work is being provided to Respondents to better assist them in determining which projects are reasonably comparable to include as part of their proposal to this RFCSP. The work consists of the following:

- a. Construction of 84-inch gravity sanitary sewer installation at depths of up to 35 feet via open cut and trenchless methods (pipe jacking, tunneling with liner plate) installation.
- b. Installation of large diameter gravity sewer within the 5-yr and 100-yr floodplain.
- c. Careful planning and sequencing of construction activities to tie into existing sewer infrastructure.
- d. Set-up, operation, and monitoring of large diameter sewer bypass pumping, defined as 24-inch diameter pipe or larger (approximately 72 million gallons per day or greater).
- e. Close coordination with several key stakeholders including but not limited to: Texas Department of Transportation (TXDOT), City of San Antonio (COSA) - Transportation and Capital Improvements Department, COSA Arborist, CPS Energy, private property owners, and business owners.
- f. Limited access to project site from Commerce Street, Pinn Road, and Hwy 151.

**Respondents should reference the Contract Documents prior to submitting a proposal for this RFCSP to fully understand the entire scope of work for this Project.**

**The decision of “comparability” when evaluating the Respondent’s proposal is at the complete discretion of SAWS.**

## **C. REQUIRED EXPERIENCE**

Respondents submitting a proposal for this RFCSP should demonstrate, completely and sufficiently, that large diameter wastewater pipeline installations are a primary business focus and service, and such services have been successfully provided for at least five (5) continuous years.

## **D. DEFINITIONS**

1. Personnel for the purpose of this RFCSP is defined as employees of the Prime Contractor, or any subcontractor(s), affiliates, joint venture partners, or team members, and consultants engaged by any of those entities.
2. The personnel specified below are considered by SAWS to be essential to the work being performed under this Contract, and as such are defined as Key Personnel. Key Personnel include the Project Manager, Construction Manager, Quality Assurance and Quality Control Lead, Project Scheduler, Project Superintendent, Open Cut

Superintendent, and Pipe Jacking / Tunneling Superintendent. Key Personnel shall be dedicated exclusively to this Project and shall be assigned as full-time employees for the duration of the Project. Prior to diverting any of the specified individuals to other projects, the contractor shall notify the Owner reasonably in advance and shall submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on the project. No diversion shall be made by the contractor without the written consent of the Owner.

3. Subcontractor is defined in Article I, Contract Definitions of the General Conditions of the Contract Documents. Respondents should reference this definition prior to submitting a proposal in response to this Request for Competitive Sealed Proposals (“RFCSP”).
4. Key Subcontractors are defined as subcontractors that are responsible for executing a significant portion of the work, and as such are deemed to be essential to the work being performed under this Contract. The Key Subcontractor roles could include pipe jacking, tunneling, hand mining, large diameter open cut pipe installation, and large diameter sanitary sewer bypass.

## **E. RESPONSE FORMAT**

### **1. Team Qualifications and Experience (15 Points)**

#### **a. Organizational Structure and Key Information of the Prime Contractor**

- i. Provide current business organizational structure, type of business structure, and stability of organization.
- ii. Provide total number of employees and annual company revenues as of December 31, 2019.
- iii. Provide Debarment history for the company for the last ten (10) years.
- iv. Provide any litigation, arbitration, and claims history for the last three (3) years and any litigation, arbitration, and claims history with SAWS regardless of the year they occurred.
- v. Indicate the number of years performing contracting/construction work under current legal business name and/or previous legal business name(s).
- vi. Provide a clear description of the proposed team identifying Key Subcontractor(s), their role on the project, and teaming history. If the Prime Contractor has not worked previously with proposed Key Subcontractor(s), describe the proposed approach for ensuring successful completion of the project in accordance with Contract Documents.
- vii. Provide a 1-page organizational chart that describes the composition of the team for this project. The chart shall include proposed Key Personnel for the Prime Contractor and Key Subcontractor(s). The chart shall also include percent availability (as percentage of total individual's workload) for Key Personnel (Prime and Key Subcontractor(s)) and their proposed role for the duration of the Project.
- viii. Provide a clear description of the proposed team’s Key Personnel roles and responsibilities, including Key Personnel from Key Subcontractor(s).

- ix. Provide a financial statement prepared within the last twelve (12) months by an independent Certified Public Accountant.
- Respondent must clearly indicate the entity being proposed to enter into the Contract. In order to supplement the financial strength of the entity being proposed to enter into the Contract, the Respondent may, but is not required to, propose a guarantor who will guaranty the Contractor's obligations under the Contract through a separately executed guaranty Contract in favor of SAWS. Only the financial information of (1) the entity being proposed to enter into the Contract, and (2) a guarantor, if proposed, will be considered in the financial evaluation of the RFCSP.
  - SAWS in its sole discretion may reject any Respondent that does not possess the financial strength and capacity to undertake this project and the obligations and liabilities thereof. Subject to the complete review and finding of acceptability of the submitted financial information, Respondents demonstrating an ability to provide the required performance and payment bonds and the ability to maintain a minimum aggregate net worth sufficient to undertake this project, as measured by either the Respondent or a proposed Guarantor, shall be deemed to have the financial strength and capacity to undertake the project.
  - The Respondent shall submit the financial information set forth below for the entity being proposed to enter into the Contract and any proposed guarantor. If Respondent is not a public company and believes any of its financial information is exempt from disclosure to third parties under the Texas Public Information Act in Chapter 552 of the Texas Government Code, the Respondent must clearly label the specific portions sought to be kept confidential and specify the exemption that the Respondent is relying upon. However, SAWS does not represent or guarantee in any way that Respondent's financial statements will be protected from disclosure, even if identified by Respondent as confidential or proprietary, in the event of a Public Information Request under Texas Government Code Chapter 552. SAWS will notify the Respondent of any public information requests relating to financial information marked as confidential by the Respondent, and the Respondent shall be responsible for defending its basis for exemption from disclosure in accordance with the Act.
    - If Respondent is organized as a corporation, partnership, LLP, LLC or joint venture, submit complete financial statements, including a Balance Sheet, Income Statement and Statement of Cash Flows, prepared in accordance with generally accepted accounting principles, for the most recent three complete fiscal years. Footnote disclosures must accompany the submitted year to date financial statements. If available, financial statements audited or certified by an independent



certified public accountant should be submitted; otherwise, a notarized statement certifying the accuracy of the financial information and signed by an officer of the proposing entity must accompany the financial information. If any entity has been in existence less than three (3) years, the information shall be provided for the period of existence.

- If Respondent intends to organize as a partnership, LLP, LLC, or joint venture, then the above-referenced financial information of each partner, LLC/LLP member or joint-venture member must be submitted.
- SAWS reserves the right to obtain a Dun and Bradstreet financial report, or other credit report, at its own cost, and all members of your Team, responding to this RFCSP agrees to allow SAWS to obtain such report(s) on your Team members and all partners, affiliates and sub-consultants, if any, to facilitate SAWS' financial evaluation of the Respondent.

**b. Qualifications and Experience of Key Personnel Proposed for this Project**

- i. On separate 8 ½" x 11" sheets, provide resumes, one per person and not to exceed one (1) page, for Key Personnel for the Prime Contractor and Key Subcontractor(s) identified on the organizational chart with the Project Manager's resume being first. Key Personnel resumes should include the following information:
  - Name, title, education
  - Number of years of total professional experience
  - Number of years/months with current firm
  - Number of years/months of experience in proposed role for this project
  - Description of professional qualifications (to include degrees, licenses, certifications, and associations)
  - Brief overview of professional experience
  - Detailed description of capabilities and experience relevant to this Project
  - List of all other active projects the team member is assigned to for the duration of the Project, to include the phase and percentage of time allocated to each of the other projects. For each project included in each resume, please clearly identify whether the project is with current firm or part of the person's past professional experience.

**2. Quality, Reputation, and Ability to Deliver Projects on Schedule and within Budget (25 Points)**

**a. Prime Contractor On-time Completion on Similar Projects in the Past Ten (10) Years**

- i. List and describe five (5) completed projects within the last ten (10) years of similar size, scope, and complexity to the work described in the Contract

Documents for this Project. Respondents should provide references with contact information to include a valid, recently verified email and telephone number for each project listed.

**Each project should include the following information (using the evaluation forms provided):**

- Project name.
  - Utility/Owner name and contact information to include a valid, recently verified email and telephone number for Project Manager.
  - List any Key Personnel also proposed on the W-1 project and the roles served by the proposed Key Personnel on the past project.
  - Project is within the last ten (10) years.
  - Project has similar size, scope, and complexity to the work described in the Contract Documents.
  - Project description and why it is comparable to the size, scope, and complexity for this item.
  - Original (bid/price) and final construction in place costs.
  - Total costs for all change orders, as well as explanation regarding the reason for specific change orders.
  - Construction Contract Notice to Proceed (NTP) Date.
  - Original Contract Duration (Specify Calendar Days or Working Days).
  - Original Contract Completion Date and Actual Completion Date.
  - Actual number of days beyond the original contract. If Contract time extensions were added, provide a short explanation of each.
  - The recovery schedule/plan and implementation of such, if it was required. If a recovery schedule/plan was implemented, describe whether the project was successfully brought back on schedule. Please discuss, as necessary and deemed appropriate.
  - Describe any project specific challenges and how they were overcome.
- ii. A minimum of two (2) of the five (5) projects listed must have been performed by the proposed Key Personnel (Project Manager, Construction Manager, Quality Assurance and Quality Control Lead, Project Scheduler, Project Superintendent, Open Cut Superintendent, and Pipe Jacking / Tunneling Superintendent) for this Project.
- If Respondent has SAWS experience, at a minimum, one (1) SAWS project of similar size, scope, and complexity must be included in the list of five (5) projects provided, and
- iii. The Respondent shall also list all current and recently completed large diameter (54-inch and larger) gravity sanitary sewer pipeline projects performed in the last five (5) years for all Utility Owners in the State of Texas. Respondent shall provide the following information for each project:
- Project name.
  - Utility/Owner name.
  - Date of Notice to Proceed.

- Project description and how it satisfies the large diameter (54-inch and larger) gravity sanitary sewer requirement for this section.
- Original Contract Time (Specify Calendar Days or Working Days).
- Original Contract Completion Date and Actual Completion Date. If project is not complete at the time of submission, Respondent shall provide the current % Complete based on contract time.
- Original (bid/price) and final construction in place costs. If project is not complete at the time of submission, Respondent shall provide the current % Complete based on contract value as of the most recent application for payment.
- Identify whether the project was completed on-time and within budget, as applicable.

**b. Key Subcontractor(s) Performance on Similar Projects in the Past Ten (10) Years**

The scope of this Project includes mostly open cut installation of sewer pipe. For the purposes of this RFCSP, pipe jacking, tunneling with liner plate, large diameter open cut pipe installation, and large diameter sanitary sewer bypass, are examples of Key Subcontractor's roles.

- i. Provide a list of two (2) projects that the identified Key Subcontractors' Project Manager and/or Project Superintendent(s) participated in that were of similar size, scope, and complexity to the work described in the Contract Documents that have been completed within the last ten (10) years. Describe the role served by the proposed staff on those projects.
- ii. If Prime Contractor is planning to self-perform the Work in accordance with the Contract Documents and no Key Subcontractor(s) have been identified in the Response, Respondent shall provide a list of two (2) additional projects that were of similar scope to the Work that would have been performed by a Key Subcontractor and that have been completed within the last ten (10) years. Prime Contractor's Key Personnel shall have participated in at least one (1) of the two (2) projects listed. Describe the role served by the proposed staff on those projects.

**Each project should include the following information:**

- Project name.
- Identify if the Project was performed by **Sub-Contractor** or if Prime Contractor **Self-Performed**
- Utility/Owner name and contact information to include a valid, recently verified email and telephone number for Utility/Owner Project Manager.
- List any Key Personnel also proposed on the W-1 project and the roles served by the proposed Key Personnel on the past project.
- Key Sub-Contractor's Project team(s) involved in this Project were identified on the organizational chart.
- Project is within the last ten (10) years.
- Project has similar size, scope, and complexity to the work described in the Contract Documents.

- Project description and why it is comparable to the size, scope, and complexity for this item.
- Original (bid/price) and final construction in place costs.
- Total costs for all change orders, as well as explanation regarding the reason for specific change orders.
- Construction Contract Notice to Proceed (NTP) Date.
- Original Contract Duration (Specify Calendar Days or Working Days).
- Original Contract Completion Date and Actual Completion Date.
- Actual number of days beyond the original contract. If Contract time extensions were added, provide a short explanation of each.
- The recovery schedule/plan and implementation of such, if it was required. If a recovery schedule/plan was implemented, describe whether the project was successfully brought back on schedule. Please discuss, as necessary and deemed appropriate.
- Describe any project specific challenges and how they were overcome.

**If valid contact information is not provided, the project may not be considered and the Respondent's score for this criteria may be reduced and/or Respondent's proposal may be deemed non-responsive.**

### **3. Project Approach including Delivery Schedule (15 Points)**

#### **a. Project Approach**

- i. Provide a narrative of the project approach describing how the Respondent will complete this project. Include key milestones, specific critical processes and critical path items, phases and/or sequencing, permits, approvals, coordination with stakeholders, and procurements anticipated to complete the project work. Identify potential risks and describe proposed mitigation measures to ensure on-time completion of the Project.
- ii. Describe availability of equipment and facilities that will be specifically utilized for this Project.
- iii. Explain how Respondent will contact and coordinate with key stakeholders throughout the Project. Describe how the Respondent will coordinate with property owners and business owners being impacted by the Project. Describe the Respondent's approach for securing permits (e.g., ROW, SWPPP, etc.) and/or complying with permit requirements for which SAWS is the permit holder (TXDOT including traffic control, COSA Tree Permit, COSA Floodplain, USACE, etc.).
- iv. Provide any innovative ideas for cost savings (due to method or duration) for this project.
- v. Provide a quality management plan describing how the Prime Contractor will ensure that the necessary steps, safeguards, subcontractor oversight, Quality Assurance/Quality Control processes, and document controls will be implemented in a rigorous manner as to ensure the completeness, workmanship, accuracy, and successful completion of the Project.

**b. Project Schedule, Procurement of Long-Lead Items, and Unforeseen Conditions**

- i. Provide a detailed, precedence style critical path method (CPM) baseline schedule in Primavera or Microsoft Project. The baseline schedule must encompass the entire contract duration from Notice to Proceed to the Contract End Date. The baseline schedule must show a completion date (or early completion date) that corresponds to the Contract End Date. The baseline schedule must be inclusive of all work necessary to complete the project including sufficient time necessary for submission and review of submittals, permits, etc. The schedule shall take into consideration sequencing and contractual limitations as described within the Contract Documents. The anticipated notice to proceed (NTP) for this Project is January 4, 2021. Respondent shall use this date for developing the proposed project schedule.
- ii. Provide a description of the project approach for procuring long-lead items, as well as for ensuring critical path items will be addressed adequately.
- iii. List and describe any instances in which the Contractor has encountered unforeseen conditions.
  - Identify whether a recovery plan was required.
  - Describe the nature of the issue and whether it was promptly resolved or resulted in the Respondent being asked to demobilize.
- iv. Describe the Respondent's approach towards mitigating and managing unforeseen conditions should they be encountered during the construction of this Project.

**4. Safety Information for Prime Contractor and Key Subcontractor(s) (Pass/Fail)**

- i. Provide records showing Total Recordable Incident Rate (TRIR) for each year for the past five (5) years for the Prime Contractor and Key Subcontractor(s).
- ii. Provide records showing the company's Experience Modification Rate (EMR) for the past three years for the Prime Contractor and Key Subcontractor(s).
- iii. List any fatalities in the company's safety history for the Prime Contractor and Key Subcontractor(s).

**5. Price Proposal (35 Points)**

The Proposal with the lowest total price will receive thirty-five (35) points. Proposals will receive a percentage of the thirty-five (35) points based on a comparison with the lowest total price proposal as described below.

Computation Steps:

- i. Step 1. Determine lowest total price and award 35 points for price.
- ii. Step 2. Calculate the ratio between the lowest total price and each proposal. Multiply the ratio by 35 to obtain the points earned.

Proposal	Price	Calculation	Points Earned
A	\$22,995,000	$(12,875,000/22,995,000) \times 35$	19.60
B	\$19,875,000	$(12,875,000/19,875,000) \times 35$	22.67
C	\$16,625,000	$(12,875,000/16,625,000) \times 35$	27.11
D	\$12,875,000	$(12,875,000/12,875,000) \times 35$	35.00
E	\$15,250,000	$(12,875,000/15,250,000) \times 35$	29.55

## 6. Small, Minority, Woman, and Veteran-Owned Business Participation

- a. Equal Employment Opportunity Requirements - SAWS highly encourages Respondents to implement Affirmative Action practices in their employment programs. This means Respondents should not discriminate against any employee or applicant for employment because of race, color, religion, sex, pregnancy, sexual orientation, national origin, political belief or affiliation, age, disability or genetic information.

The SAWS Board of Trustees has adopted a Small, Minority, Woman, and Veteran-owned Business (SMWVB) Policy to establish and oversee a program that will support the inclusion of local small, minority, woman, and veteran-owned businesses (SMWVB). It is the policy of SAWS that it will ensure that local small, minority, woman, and veteran-owned businesses have an equal opportunity to compete for, receive and participate in SAWS contracts. It is our policy to:

- Ensure nondiscrimination in the award and administration of SAWS contracts;
- Create a level playing field on which SMWBs can compete fairly for SAWS contracts;
- Ensure that only firms that attempt to meet small, minority, and woman-owned business good faith efforts are considered for contract awards.

Respondent's commitment to SAWS SMWB policy will be based on meeting or exceeding the minimum aspirational SMWB goal of 20%. The minimum goal is based on the total contract value. Points will be awarded based on the following tiered scales.

Please note that as of 1/1/2017, an updated SMWVB Policy and scoring methodology are being implemented by San Antonio Water System. Veteran-owned Business Enterprises (VBEs), are tracked for statistical purposes, but are not eligible for points. **The maximum number of Small, Minority, and Woman-owned Business (SMWB) points to be earned is 10 points.** Self-performance and subconsulting may be used to achieve the aspirational goals and earn points. **SMWB Respondents and/or subconsultants must be certified by the South Central Texas Regional Certification Agency. Eligible firms (including MBEs and WBEs) must also be certified as a Small Business Enterprise (SBE), must perform a commercially-useful function on the project, and must have a local presence in the San Antonio Metropolitan Statistical Area in order to be counted for SMWB points.** Please see

the Good Faith Effort Plan for definitions of terms. All Respondents, whether SMWB or not, may earn the **maximum number of SMWB points (10)** by adhering to any combination of the following point structures when attempting to meet the aspirational goals:

A. M/WBE Scoring Method: Up to 10 Points (By percentage). <b>20.00% M/WBE Goal:</b>
• MBE Participation Percentage between 1% and 4.99%: 1 Point
• MBE Participation Percentage between 5% and 9.99%: 2 Points
• MBE Participation Percentage between 10% and 14.99%: 4 Points
• MBE Participation Percentage between 15% and 16.99%: 5 Points
• MBE Participation Percentage between 17% and 19.99%: 8 Points
• MBE Participation Percentage meeting or exceeding 20.00%: 10 Points
B. SBE (Non-M/WBE) Scoring Method (for participation of firms whose sole certification is “SBE”): Up to 5 Points (By percentage). <b>5% SBE Participation:</b>
• SBE Participation Percentage between 1% and 1.99%: 1 Point
• SBE Participation Percentage between 2% and 2.99%: 2 Points
• SBE Participation Percentage between 3% and 3.99%: 3 Points
• SBE Participation Percentage between 4% and 4.99%: 4 Points
• SBE Participation Percentage meeting or exceeding 5.00%: 5 Points
C. <b>Optional:</b> Prior subcontractors/supplier utilization compliance averages for the past 2 years may be considered when totaling the SMWB score, based upon data from the Subcontractor Payment & Utilization Reporting (SPUR) System. This applies to SMWB and Non-SMWB Prime Contractors' utilization of their SMWB subcontractors/suppliers. Up to 3 points may be deducted from the SMWB score for discrepancies between the pledged SMWB goal, and the current/ongoing actual utilization of SMWB subcontractors/suppliers on recent SAWS projects. This option does not apply to work order/unspecified contracts.
• Total SMWB Subconsultant compliance discrepancy between 3% - 4%: Deduct 1 Point
• Total SMWB Subconsultant compliance discrepancy between 4% - 5%: Deduct 2 Points
• Total SMWB Subconsultant compliance discrepancy greater than 5%: Deduct 3 Points

b. All firms submitted as SMWVB must provide a copy of their certification certificate.

c. The SMWB goal is expressed as a percentage of the total dollar amount of the contract going to SMWBs for those areas which the Respondent has subcontracted or anticipates to subcontract, including any future change orders. The goal shall also apply to change orders that require work beyond the scope of services originally required to accomplish the project.

- d. The Respondent agrees to employ good faith efforts to carry out this policy through award of subcontracts to SMWVBs to the fullest extent possible.
- e. The SAWS Good Faith Effort Plan (GFEP) will be used for scoring purposes based upon SMWB participation. However, **all subcontractors and/or suppliers, whether SMWVB-certified or not, must be listed in the GFEP**, because the information provided in the GFEP will be utilized in the development of the final contract/agreement. The GFEP format is attached as Exhibit "B." This form is required and considered part of the response to the RFCSP. Should the Good Faith Effort Plan not be submitted, the proposal may be considered non-responsive.
- f. The S.P.U.R. System is accessed through a link on SAWS' "Business Center" web page. The Respondent and all subcontractors will be provided a unique login credential and password to access the SAWS subcontractor payment reporting system. The link may be accessed through the following internet address: <https://saws.smwbe.com/>.

Training on the use of the system will be provided by SAWS. After the Respondent receives payment from SAWS, electronic submittals will require data entry of the amount paid to each subcontractor listed on the Contractor's Good Faith Effort Plan.

- g. Please contact the SMWVB program manager, Marisol V. Robles, at 210-233-3420 or [marisol.robles@saws.org](mailto:marisol.robles@saws.org) for any questions pertaining to the Good Faith Effort Plan or the SMWVB Program.

## **F. FORMAT OF PROPOSALS**

1. Proposals shall be prepared simply and economically, providing a straightforward, concise description of the Respondent's ability to meet the requirements of this RFCSP. Emphasis shall be on the quality, completeness, clarity of content, responsiveness to the requirements, responsiveness to the evaluation criteria, and an understanding of SAWS needs.
2. Respondents shall utilize the fillable evaluation criteria forms provided by SAWS to prepare their response to the RFCSP and should reference the Required Documents Matrix, which identifies which documents are required and won't count toward the page limit. Proposals shall be a **MAXIMUM OF TWENTY-FIVE (25) PRINTED PAGES**, for those pages that do count towards the page limit. Respondents shall respond to each section fully, but are not obligated to use every page set by the limit and are allowed the flexibility to use this page limit as they see fit.
3. Proposals shall be submitted in three (3) pdf files electronically. Respondents should reference the revised Respondent's Proposal Checklist to ensure all required items are included.



4. Respondents shall carefully read the information contained in this RFCSP and submit a complete response to all requirements and questions as directed. Incomplete Proposals will be considered non-responsive and subject to rejection.
5. Proposals and any other information submitted by Respondents in response to this RFCSP shall become the property of SAWS.
6. Proposals shall be prepared using letter-size 8-1/2" x 11" pages. The project schedule and Team Organizational Chart can be prepared using tabloid-size 11" x 17" pages.
7. Respondents shall utilize the Respondent's Proposal Checklist provided in this RFCSP and must provide page numbers for all pages of the proposal.
8. Separate and identify each evaluation criteria response of this RFCSP by use of a divider sheet for ready reference in the order indicated within the Respondent's Proposal Checklist.
9. The pdf of the Respondent's Original proposal shall contain the entire proposal package as submitted, excluding the financial statement, Good Faith Effort Plan, and Price Proposal.

## REQUIRED DOCUMENT MATRIX

Proposal Packet Items	Ref. Page(s)	Ref. Section	Included in Overall Page Limit <u>25 Pages Total</u> (Yes/No)	Forms Provided in RFCSP
<b>Cover Letter, Tabs, Proposal Table of Contents, etc.</b>			NO	Cover letter (optional); all others Respondent to provide
<b>Bid Bond/Cashier's Check</b>	IR-2 to IR-5		NO	Respondent to provide
<b>Statement on President's Executive Order</b>	IR-8		NO	Statement on President's Executive Order Acknowledgement
<b>Proposal Checklist</b>	CH - 1		NO	Proposal Checklist Form
<b>Team Qualifications and Experience</b>				
Team Info.	SIR-3	E.1.a.i - vi	YES	Evaluation Criteria Form
Organizational Chart	SIR-3	E.1.a.vii	YES	1 page limit (size 8.5"x11" or 11"x17")
Key Personnel Roles	SIR-3 to SIR-4	E.1.a.i.viii	YES	Evaluation Criteria Form
Financial Statement	SIR-4 to SIR-5	E.1.a.ix	NO	Evaluation Criteria Form
Team Resumes	SIR-5	E.1.b	NO	1 page per person (size 8.5" x 11")
<b>Quality, Reputation, and Ability to Deliver Projects on Schedule and within Budget</b>				
Prime Contractor Past Projects	SIR-5 to SIR-6	E.2.a.i - ii	YES	Evaluation Criteria Form
Current and Recently	SIR-6 to SIR-7	E.2.a.iii	NO	Evaluation Criteria Form
Key Subcontractor(s) Projects	SIR-7 to SIR-8	E.2.b.i - ii	YES	Evaluation Criteria Form
<b>Project Approach including Delivery Schedule</b>				
Approach	SIR-8 to SIR-9	E.3.a	YES	Evaluation Criteria Form
Schedule	SIR-9	E.3.b	YES	Evaluation Criteria Form
<b>Team Safety Info</b>	SIR-9		YES	Evaluation Criteria Form
<b>Respondent Questionnaire</b>	RQ-1 to RQ-3		NO	Respondent Questionnaire Form
<b>Price Proposal</b>	PP		NO	Price Proposal Form
<b>Proposal Certification</b>	PC-1		NO	Proposal Certification Form
<b>Good Faith Effort Plan (GFEP)</b>	GFEP-1		NO	Good Faith Effort Plan Form
<b>SMWVB Certifications</b>	SIR-10 to SIR-12		NO	Optional; if including Respondent to provide
<b>Conflict of Interest Questionnaire (CIQ)</b>	Form CIQ		NO	Conflict of Interest Questionnaire Form
<b>W-9</b>	Form W-9		NO	W-9 Form
<b>Proof of Insurability</b>	WC1 to WC2 and ICS		NO	Respondent to provide

**Notes:**

1. Respondent shall check the SAWS website to verify the number of Addendums and ensure the correct version of the forms are being utilized prior to submitting their proposal.
2. For sections where no page limit applies as indicated on this matrix, an appendix may be used if desired.

## **EVALUATION CRITERIA FORM**

*The intent of this document is to provide Respondents a structure for their responses. While there are page limits for this solicitation, there are no character limitations.*

*Respondents should provide answers to the questions below in the order and spaces provided to ensure continuity between Respondent's submissions.*

*When responding to the questions below, Respondents should use the space provided in this form, unless otherwise indicated.*

**If all fields are not completed, the proposal may be deemed non-responsive.**

### **1. Team Qualifications and Experience (15 Points)**

#### **a. Organizational Structure and Key Information of the Prime Contractor**

***Prior to responding to this section, refer to the Supplementary Instructions to Respondents for definitions and other requirements.***

- i. Provide current business organizational structure, type of business structure, and stability of organization.
- ii. Provide total number of employees and annual company revenues as of December 31, 2019.
- iii. Provide the Debarment history for the company for the last ten (10) years.
- iv. Provide any litigation, arbitration, and claims history for the last three (3) years and any litigation, arbitration, and claims history with SAWS regardless of the year they occurred.
- v. Indicate the number of years performing contracting/construction work under current legal business name and/or previous legal business name(s).
- vi. Provide a clear description of the proposed team identifying Key Subcontractor(s), their role on the project, and teaming history. If the Prime Contractor has not worked previously with proposed Key Subcontractor(s), describe the proposed approach for ensuring successful completion of the project in accordance with Contract Documents.

- vii. Provide a 1-page organizational chart that describes the composition of the team for this project. The chart shall include proposed Key Personnel for the Prime Contractor and Key Subcontractor(s). The chart shall also include percent availability (as percentage of total individual's workload) for Key Personnel (Prime and Key Subcontractor(s)) and their proposed role for the duration of the Project.
- viii. Provide a clear description of the proposed team's Key Personnel roles and responsibilities, including Key Personnel from Key Subcontractor(s).

**b. Qualifications and Experience of Key Personnel Proposed for this Project**

*Prior to responding to this section, refer to the Supplementary Instructions to Respondents for definitions and other requirements.*

- i. *Using separate 8 ½" x 11" sheets, titled "Team Qualifications and Experience – Resume" inserted immediately following this Section:*

Provide resumes for Key Personnel for the Prime Contractor and Key Subcontractor(s) identified on the organizational chart, one per person, not to exceed one (1) page each with the Project Manager's resume being first.

*As part of this criteria, use the check boxes below as a checklist to help ensure the information above is understood and information provided follows the guidelines listed above.*

- Project Manager's resume is first
- Resumes for all Key Personnel for the Prime Contractor have been included
- Resumes for all Key Personnel for the Prime Contractor have been identified on the organizational chart
- Resumes for all Key Personnel for the Prime Contractor do not exceed one (1) page each
- Resumes for all Key Personnel for the Subcontractors have been included
- Resumes for all Key Personnel for the Subcontractors have been identified on the organizational chart
- Resumes for all Key Personnel for the Subcontractors do not exceed one (1) page each
- All resumes provided include the following information:
  - o Name, title, education
  - o Number of years of total professional experience
  - o Number of years/months with current firm
  - o Number of years/months of experience in proposed role for this project
  - o Description of professional qualifications (to include licenses, certifications, and associations)

- Brief overview of professional experience.
- Detailed description of capabilities and experience relevant to this Project.
- List of all other active projects the team member is assigned to for the duration of the Project, to include the phase and percentage of time allocated to each of the other projects. For each project included in each resume, please clearly identify whether the project is with current firm or part of the person's past professional experience.

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***END OF TEAM QUALIFICATIONS AND EXPERIENCE CRITERIA***

**2. Quality, Reputation, and Ability to Deliver Projects on Schedule and within Budget (25 Points)**

**a. Prime Contractor On-time Completion on Similar Projects in the Past Ten (10) Years**

i. *Using the tables provided:*

List and describe five (5) completed projects within the last ten (10) years of similar size, scope, and complexity to the work described in the Contract Documents for this Project. Respondents should provide references with contact information to include a valid, recently verified, email and telephone number for each project listed.

ii. A minimum of two (2) of the five (5) projects listed must have been performed by the proposed Key Personnel (Project Manager, Construction Manager, Quality Assurance and Quality Control Lead, Project Scheduler, Project Superintendent, Open Cut Superintendent, and Pipe Jacking / Tunneling Superintendent) for this Project.

- If Respondent has SAWS experience, at a minimum, one (1) SAWS project of similar size, scope, and complexity must be included in the list of five (5) projects provided, and

**If valid contact information is not provided, the project will not be considered and the Respondent's score for this criteria may be reduced and/or Respondent's proposal may be deemed non-responsive.**

**Project #1**

<b>Project Name:</b>	
Utility/Owner name and contact information to include a valid, recently verified email and telephone number for Project Manager:	
Role served by the proposed Key Personnel on the project	
Project is within the last ten (10) years:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project has similar size, scope, and complexity to the work described in the Contract Documents:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project description and why it is comparable to the size, scope and/or complexity for this item:	
Original bid/price and final construction in place costs:	
Total costs for all change orders, as well as an explanation regarding the reason for specific change orders:	
Construction Contract Notice to Proceed (NTP) Date:	
Original Contract Time (specify Calendar Days or Working Days):	
Original Contract Completion Date and Actual Completion Date:	
Actual number of days beyond the original contract. If Contract time extensions were added, provide a short explanation of each:	
The recovery schedule/plan and implementation of such, if it was required. If a recovery/plan schedule was implemented, describe whether the project was successfully brought back on schedule. Please discuss, as necessary and deemed appropriate.	
Describe any project specific challenges and how they were overcome.	

**Project #2**

<b>Project Name:</b>	
Utility/Owner name and contact information to include a valid, recently verified email and telephone number for Project Manager:	
Role served by the proposed Key Personnel on the project	
Project is within the last ten (10) years:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project has similar size, scope, and complexity to the work described in the Contract Documents:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project description and why it is comparable to the size, scope and/or complexity for this item:	
Original bid/price and final construction in place costs:	
Total costs for all change orders, as well as an explanation regarding the reason for specific change orders:	
Construction Contract Notice to Proceed (NTP) Date:	
Original Contract Time (specify Calendar Days or Working Days):	
Original Contract Completion Date and Actual Completion Date:	
Actual number of days beyond the original contract. If Contract time extensions were added, provide a short explanation of each:	
The recovery schedule/plan and implementation of such, if it was required. If a recovery/plan schedule was implemented, describe whether the project was successfully brought back on schedule. Please discuss, as necessary and deemed appropriate.	
Describe any project specific challenges and how they were overcome.	



**Project #3**

<b>Project Name:</b>	
Utility/Owner name and contact information to include a valid, recently verified email and telephone number for Project Manager:	
Role served by the proposed Key Personnel on the project	
Project is within the last ten (10) years:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project has similar size, scope, and complexity to the work described in the Contract Documents:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project description and why it is comparable to the size, scope and/or complexity for this item:	
Original bid/price and final construction in place costs:	
Total costs for all change orders, as well as an explanation regarding the reason for specific change orders:	
Construction Contract Notice to Proceed (NTP) Date:	
Original Contract Time (specify Calendar Days or Working Days):	
Original Contract Completion Date and Actual Completion Date:	
Actual number of days beyond the original contract. If Contract time extensions were added, provide a short explanation of each:	
The recovery schedule/plan and implementation of such, if it was required. If a recovery/plan schedule was implemented, describe whether the project was successfully brought back on schedule. Please discuss, as necessary and deemed appropriate.	
Describe any project specific challenges and how they were overcome.	

**Project #4**

<b>Project Name:</b>	
Utility/Owner name and contact information to include a valid, recently verified email and telephone number for Project Manager:	
Role served by the proposed Key Personnel on the project	
Project is within the last ten (10) years:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project has similar size, scope, and complexity to the work described in the Contract Documents:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project description and why it is comparable to the size, scope and/or complexity for this item:	
Original bid/price and final construction in place costs:	
Total costs for all change orders, as well as an explanation regarding the reason for specific change orders:	
Construction Contract Notice to Proceed (NTP) Date:	
Original Contract Time (specify Calendar Days or Working Days):	
Original Contract Completion Date and Actual Completion Date:	
Actual number of days beyond the original contract. If Contract time extensions were added, provide a short explanation of each:	
The recovery schedule/plan and implementation of such, if it was required. If a recovery/plan schedule was implemented, describe whether the project was successfully brought back on schedule. Please discuss, as necessary and deemed appropriate.	
Describe any project specific challenges and how they were overcome.	

**Project #5**

<b>Project Name:</b>	
Utility/Owner name and contact information to include a valid, recently verified email and telephone number for Project Manager:	
Role served by the proposed Key Personnel on the project	
Project is within the last ten (10) years:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project has similar size, scope, and complexity to the work described in the Contract Documents:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project description and why it is comparable to the size, scope and/or complexity for this item:	
Original bid/price and final construction in place costs:	
Total costs for all change orders, as well as an explanation regarding the reason for specific change orders:	
Construction Contract Notice to Proceed (NTP) Date:	
Original Contract Time (specify Calendar Days or Working Days):	
Original Contract Completion Date and Actual Completion Date:	
Actual number of days beyond the original contract. If Contract time extensions were added, provide a short explanation of each:	
The recovery schedule/plan and implementation of such, if it was required. If a recovery/plan schedule was implemented, describe whether the project was successfully brought back on schedule. Please discuss, as necessary and deemed appropriate.	
Describe any project specific challenges and how they were overcome.	

- iii. The Respondent shall also list all current and recently completed large diameter (54-inch and larger) gravity sanitary sewer pipeline projects performed in the last five (5) years for all Utility Owners in the State of Texas. Respondent shall provide the following information for each project:

***Project #1***

Project Name:	
Utility / Owner Name:	
Date of Notice to Proceed:	
Brief description on how this satisfies the $\geq 54$ -inch gravity sewer requirement for this section	
Original Contract Time (specify calendar days or working days):	
Original Contract Completion Date:	
Actual Contract Completion Date (if not complete, provide % complete based on Contract Time):	
Original Bid Price / Price Proposal:	
Final Construction In-Place Cost (if not complete, provide % complete based on Contract Value as of the most recent application for payment):	
Was the project completed on-time?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Was the project completed within budget?	<input type="checkbox"/> Yes <input type="checkbox"/> No

***Project #2***

Project Name:	
Utility / Owner Name:	
Date of Notice to Proceed:	
Brief description on how this satisfies the $\geq 54$ -inch gravity sewer requirement for this section	
Original Contract Time (specify calendar days or working days):	
Original Contract Completion Date:	
Actual Contract Completion Date (if not complete, provide % complete based on Contract Time):	
Original Bid Price / Price Proposal:	
Final Construction In-Place Cost (if not complete, provide % complete based on Contract Value as of the most recent application for payment):	
Was the project completed on-time?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Was the project completed within budget?	<input type="checkbox"/> Yes <input type="checkbox"/> No

**Project #3**

Project Name:	
Utility / Owner Name:	
Date of Notice to Proceed:	
Brief description on how this satisfies the $\geq 54$ -inch gravity sewer requirement for this section	
Original Contract Time (specify calendar days or working days):	
Original Contract Completion Date:	
Actual Contract Completion Date (if not complete, provide % complete based on Contract Time):	
Original Bid Price / Price Proposal:	
Final Construction In-Place Cost (if not complete, provide % complete based on Contract Value as of the most recent application for payment):	
Was the project completed on-time?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Was the project completed within budget?	<input type="checkbox"/> Yes <input type="checkbox"/> No

**Project #4**

Project Name:	
Utility / Owner Name:	
Date of Notice to Proceed:	
Brief description on how this satisfies the $\geq 54$ -inch gravity sewer requirement for this section	
Original Contract Time (specify calendar days or working days):	
Original Contract Completion Date:	
Actual Contract Completion Date (if not complete, provide % complete based on Contract Time):	
Original Bid Price / Price Proposal:	
Final Construction In-Place Cost (if not complete, provide % complete based on Contract Value as of the most recent application for payment):	
Was the project completed on-time?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Was the project completed within budget?	<input type="checkbox"/> Yes <input type="checkbox"/> No

**Project #5**

Project Name:	
Utility / Owner Name:	
Date of Notice to Proceed:	
Brief description on how this satisfies the $\geq 54$ -inch gravity sewer requirement for this section	
Original Contract Time (specify calendar days or working days):	
Original Contract Completion Date:	
Actual Contract Completion Date (if not complete, provide % complete based on Contract Time):	
Original Bid Price / Price Proposal:	
Final Construction In-Place Cost (if not complete, provide % complete based on Contract Value as of the most recent application for payment):	
Was the project completed on-time?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Was the project completed within budget?	<input type="checkbox"/> Yes <input type="checkbox"/> No

**b. Key Subcontractors Performance on Similar Projects in the Past Ten (10) Years**

The scope of this Project includes mostly open cut installation of sewer pipe. For the purposes of this RFCSP, pipe jacking, tunneling with liner plate, large diameter open cut pipe installation, and large diameter sanitary sewer bypass, are examples of Key Subcontractor’s roles.

*Using the tables provided below:*

- i. Provide a list of two (2) projects that the identified Key Subcontractors’ Project Manager and/or Project Superintendent(s) participated in that were of similar size, scope, and complexity to the work described in the Contract Documents that have been completed within the last ten (10) years. Describe the role served by the proposed staff on those projects.
  
- ii. If Prime Contractor is planning to self-perform the Work in accordance with the Contract Documents and no Key Subcontractor(s) have been identified in the Response, Respondent shall provide a list of two (2) additional projects that were of similar scope to the Work that would have been performed by a Key Subcontractor and that have been completed within the last ten (10) years. Prime Contractor’s Key Personnel shall have participated in at least one (1) of the two (2) projects listed. Describe the role served by the proposed staff on those projects.

**If valid contact information is not provided, the project will not be considered and the Respondent’s score for this criteria may be reduced and/or Respondent’s proposal may be deemed non-responsive.**

**Key Sub-Contractor Performance Project #1**

<b>Project Name:</b>	
Identify if the Project was performed by <b>Sub-Contractor</b> or if Prime Contractor <b>Self-Performed</b>	
Utility/Owner name and contact information to include a valid, recently verified email and telephone number for Utility/Owner Project Manager:	
Role served by the proposed Key Personnel on the Project:	
Project is within the last ten (10) years:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Key Sub-Contractor's Project team(s) involved in this Project were identified on the organizational chart:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project has similar size, scope, and complexity to the work described in the Contract Documents:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project description and why it is comparable to the size, scope and/or complexity for this item:	
Original bid/price and final construction in place costs:	
Total costs for all change orders, as well as an explanation regarding the reason for specific change orders:	
Construction Contract Notice to Proceed (NTP) Date:	
Original Contract Time (specify Calendar Days or Working Days):	
Original Contract Completion Date and Actual Completion Date:	
Actual number of days beyond the original contract. If Contract time extensions were added, provide a short explanation of each.	
The recovery schedule/plan and implementation of such, if it was required. If a recovery/plan schedule was implemented, describe whether the project was successfully brought back on schedule. Please discuss, as necessary and deemed appropriate.	
Describe any project specific challenges and how they were overcome.	

**Key Sub-Contractor Performance Project #2**

<b>Project Name:</b>	
Identify if the Project was performed by <b>Sub-Contractor</b> or if Prime Contractor <b>Self-Performed</b>	
Utility/Owner name and contact information to include a valid, recently verified email and telephone number for Utility/Owner Project Manager:	
Role served by the proposed Key Personnel on the Project:	
Project is within the last ten (10) years:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Key Sub-Contractor's Project team(s) involved in this Project were identified on the organizational chart:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project has similar size, scope, and complexity to the work described in the Contract Documents:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Project description and why it is comparable to the size, scope and/or complexity for this item:	
Original bid/price and final construction in place costs:	
Total costs for all change orders, as well as an explanation regarding the reason for specific change orders:	
Construction Contract Notice to Proceed (NTP) Date:	
Original Contract Time (specify Calendar Days or Working Days):	
Original Contract Completion Date and Actual Completion Date:	
Actual number of days beyond the original contract. If Contract time extensions were added, provide a short explanation of each.	
The recovery schedule/plan and implementation of such, if it was required. If a recovery/plan schedule was implemented, describe whether the project was successfully brought back on schedule. Please discuss, as necessary and deemed appropriate.	
Describe any project specific challenges and how they were overcome.	

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**END OF QUALITY, REPUTATION, AND ABILITY TO DELIVER PROJECTS ON SCHEDULE AND WITHIN BUDGET CRITERIA**



### **3. Project Approach including Delivery Schedule (15 Points)**

#### **a. Project Approach**

- i. Provide a narrative of the project approach describing how Respondent will complete this Project. Include key milestones, specific critical processes and critical path items, phases and/or sequencing, permits, approvals, coordination with stakeholders, and procurements anticipated to complete the project work. Identify potential risks and describe proposed mitigation measures to ensure on-time completion of the Project.
- ii. Describe availability of equipment and facilities that will be specifically utilized for this Project.
- iii. Explain how Respondent will contact and coordinate with key stakeholders throughout the Project. Describe how the Respondent will coordinate with property owners and business owners being impacted by the Project. Describe the Respondent's approach for securing permits (e.g., ROW, SWPPP, etc.) and/or complying with permit requirements for which the System is the permit holder (TXDOT including traffic control, COSA Tree Permit, COSA Floodplain, USACE, etc.).
- iv. Provide any innovative ideas for cost savings (due to method or duration) for this project.
- v. Provide a quality management plan describing how the Prime Contractor will ensure that the necessary steps, safeguards, subcontractor oversight, Quality Assurance/Quality Control processes, and document controls will be implemented in a rigorous manner as to ensure the completeness, workmanship, accuracy, and successful completion of the Project.

#### **b. Project Schedule, Procurement of Long-Lead Items, and Unforeseen Conditions**

***Prior to responding to this section, refer to the Supplementary Instructions to Respondents for definitions and other requirements.***

- i. Provide a detailed, precedence style critical path method (CPM) baseline schedule in Primavera or Microsoft Project. The baseline schedule must encompass the entire contract duration from Notice to Proceed to the Contract End Date. The baseline schedule must show a completion date that corresponds to the Contract End Date. The baseline schedule must be inclusive of all work necessary to complete the project including sufficient time necessary for submission and review of submittals, permits, etc. The schedule shall take into consideration sequencing

and contractual limitations as described within the Contract Documents. The anticipated notice to proceed (NTP) for this Project is January 4, 2021. Respondent shall use this date for developing the proposed project schedule. *Use separate sheet(s), title "Project Approach including Delivery Schedule – CPM Milestone Schedule" inserted immediately following this Section. 11" x 17" paper is permitted.*

- ii. Provide a description of the project approach for procuring long-lead items, as well as ensuring critical path items will be addressed adequately.
  
- iii. List and describe any instances in which the Contractor has encountered unforeseen conditions.

*As part of the criteria, use the check boxes below as a checklist to help ensure guidelines are met.*

Was a recovery plan required?

Yes  No

Describe the nature of the issue and whether it was promptly resolved or resulted in the Respondent being asked to demobilize.

- iv. Describe the Respondent's approach towards mitigating and managing unforeseen conditions should they be encountered during the construction of this Project.

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***END OF PROJECT APPROACH INCLUDING DELIVERY SCHEDULE CRITERIA***

## Workers' Compensation Insurance Coverage

### A. Definitions:

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 a project, for the duration of the project.

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

Persons providing services on the project ("subcontractor" in §406.096) - includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, 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. "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.

- B. The contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the 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.
- C. The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.
- D. If the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project, the contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.
- E. The contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

- (1) a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and
  - (2) no later than seven days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.
- F. The contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.
- G. The contractor shall notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.
- H. The contractor shall post on each project site a notice, in the text, form and manner prescribed by the 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.
- I. The contractor shall contractually require each person with whom it contracts to provide services on a 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 the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;
  - (3) provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
  - (4) obtain from each other person with whom it contracts, and provide to the contractor:

- (a) a certificate of coverage, prior to the other person beginning work on the project; and
    - (b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage 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 year thereafter;
  - (6) notify the governmental entity in writing by certified mail or personal delivery, within 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 paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.
- J. By signing this contract or providing or causing to be provided a certificate of coverage, the contractor is representing to the governmental entity 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 the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.
- K. The contractor's failure to comply with any of these provisions is a breach of contract by the contractor which entitles the governmental entity to declare the contract void if the contractor does not remedy the breach within ten days after receipt of notice of breach from the governmental entity.

**RESPONDENT'S PROPOSAL CHECKLIST**

Project Name: **W-1 Leon Creek: Hwy 151 to Hwy 90 - Upper Segment**

SAWS Job No. **19-4528**

SAWS Solicitation Number: **CO-00351**

**FILE 1**

**Titled: PROPOSAL\_CO00351\_FIRM NAME**

- Signed Price Proposal/Acknowledgement of Addenda (BP-1)
- General Price Proposal Items (latest versions)
- Signed Proposal Certification Page (PC-1)
- Bid Bond\*
- Financial Statement

\*If proposal is submitted electronically without Bid Bond, SAWS will require check within 24 hour of bid opening

- Cashier's Check or Certified Check

**FILE 2**

**Titled: ORIGINAL PROPOSAL\_CO00351\_FIRM NAME**

- Proposal Checklist
- Statement on President's Executive Orders – Page IR - 8
- Good Faith Effort Plan
- Conflict of Interest Questionnaire – Form CIQ (*Rev. 11/30/2015*)
- W-9
- Proof of Insurability (Letter from Insurer or Sample Certificate of Insurance)
- Respondent Questionnaire
- Evaluation Criteria Form
  - Team Qualifications and Experience with Resumes and Organizational Chart
  - Quality, Reputation, and Ability to Deliver Projects on Schedule and within Budget
  - Project Approach including Delivery Schedule
  - Safety Information for Prime Contractor and Key Subcontractor(s)

**FILE 3**

**Titled: COPY\_CO00351\_FIRM NAME**  
**(Excludes Price Proposal and Financial Statement)**

- Proposal Checklist
- Respondent Questionnaire
- Evaluation Criteria Form
  - Team Qualifications and Experience with Resumes and Organizational Chart
  - Quality, Reputation, and Ability to Deliver Projects on Schedule and within Budget
  - Project Approach including Delivery Schedule
  - Safety Information for Prime Contractor and Key Subcontractor(s)

I certify that the proposal packet submitted includes the items as indicated above.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Firm Name



**Respondent Questionnaire**

Rev. 5/7/18

**PROJECT NAME:** W-1 Leon Creek: Hwy 151 to Hwy 90 Upper Segment

**Instructions:** The Respondent Questionnaire is a required questionnaire. Complete the questionnaire by inserting the requested information. Do not modify or delete the questions.

**GENERAL INFORMATION**

1. **Respondent Information:** Provide the following information regarding the Respondent.  
(NOTE: Co-Respondents are two or more entities proposing as a team or joint venture with each signing the Agreement, if awarded. Sub-contractors are not Co-Respondents and should not be identified here. If this submittal includes Co-Respondents, provide the required information in this Item #1 for each Co-Respondent by copying and inserting an additional block(s) before Item #2.)

Respondent Name: \_\_\_\_\_

(NOTE: Give exact legal name as it will appear on the Agreement, if awarded.)

Principal Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone No. \_\_\_\_\_ Fax No: \_\_\_\_\_

Social Security Number or Federal Employer Identification Number: \_\_\_\_\_

2. **Contact Information:** List the one person who SAWS may contact concerning your submittal or setting dates for meetings.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone No. \_\_\_\_\_ Fax \_\_\_\_\_ No: \_\_\_\_\_

\_\_\_\_\_ Email: \_\_\_\_\_

3. Identify the principal contact person authorized to commit the Respondent to a contractual agreement.

\_\_\_\_\_  
\_\_\_\_\_

(Note: If a Respondent is a Joint Venture entity that currently exists and has the financial capability of completing this project solely based on the assets of the Joint Venture, then questions 4,5,6,7,8,9, and 10 would pertain only to the joint venture entity. If the Joint Venture entity is being created for this project, then those questions pertain to the co-respondent members.)

4. Does Respondent anticipate any mergers, transfer of organization ownership, management reorganization, or departure of key personnel within the next twelve (12) months?

Yes  No

5. Is Respondent authorized and/or licensed to do business in Texas?

Yes  No  If "Yes", list authorizations/licenses.

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6. **Affirmative Action** - Respondent agrees to adhere to the EEO requirements contained in the RFQ section IV, subsection "C." paragraph 10.a.

Yes  No  If "No", state reason.

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7. **Debarment/Suspension Information:** Has the Respondent or any of its principals been debarred or suspended from contracting with any public entity?

Yes  No  If "Yes", identify the public entity and the name and current phone number of a representative of the public entity familiar with the debarment or suspension, and state the reason for or circumstances surrounding the debarment or suspension, including but not limited to the period of time for such debarment or suspension.

8. **Bankruptcy Information:** Has the Respondent ever been declared bankrupt or filed for protection from creditors under state or federal proceedings?

Yes  No  If "Yes", state the date, court, jurisdiction, cause number, amount of liabilities and amount of assets.

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9. Provide any other names under which Respondent has operated within the last 10 years.

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10. **Litigation Disclosure:** Respond to each of the questions below by checking the appropriate box. Failure to fully and truthfully disclose the information required in the Litigation Disclosure questions may result in the disqualification of your submittal from consideration or termination of the Agreement, once awarded.

a. Have you or any member of your Firm or Team to be assigned to this project ever been indicted or convicted of a felony or misdemeanor greater than a Class C in the last five (5) years?

Yes  No

b. Have you or any member of your Firm or Team to be assigned to this project been terminated (for cause or otherwise) from any work being performed for the San Antonio Water System or any other Federal, State or Local Government, or Private Entity?

Yes  No



- c. Have you or any member of your Firm or Team to be assigned to this project been involved in any claim or litigation with the San Antonio Water System or any other Federal, State or Local Government, or Private Entity during the last ten (10) years?

Yes  No

If you have answered "Yes" to any of the above questions, please indicate the name(s) of the person(s), the nature, and the status and/or outcome of the information, indictment, conviction, termination, claim or litigation, as applicable. Any such information should be provided on a separate page, attached to this form and submitted with your submittal.

**11. Compliance Agreement:**

Nondisclosure. No information obtained by Respondent from SAWS shall be disclosed by Respondent to any third party. In the event Respondent is subject to the Texas Public Information Act, upon receipt of a request for any information obtained by Respondent, Respondent shall provide notice to SAWS of the request along with a copy of the request, and give SAWS the opportunity to respond to the request prior to its release by Respondent.

No Lobbying and Compliance with Law. During the selection process for the project named in this RFQ, Respondent agrees to comply with all applicable laws and regulations, including but not limited to restrictions against direct or indirect lobbying of public officials. Respondent agrees not to make or permit to be made any improper payments, or to perform any unlawful acts.

This agreement shall be construed to be enforceable to the maximum extent permitted by law.

Failure to complete this question or comply with its terms may subject this firm to elimination from the selection process at any time.

Does the Respondent agree to the above?

Yes  No

- 12. Security Procedures:** Respondent acknowledges having read the security procedures in Exhibit "E" and understands the requirements. Respondent is prepared to perform at their own expense background security checks on their employees, or the employees of their consultants or sub-consultants if requested by SAWS.

Yes  No

- 13. Addendums:** Each Respondent is required to acknowledge receipt of all addendums.

None  Yes  If "Yes", Identify.

---

The information provided above is true and accurate to the best of my knowledge. Furthermore, we understand that failure to complete the Respondent Questionnaire may subject this firm to elimination from the selection process.

---

Signature

---

Date

---

Printed Name

---

Title

PRICE PROPOSAL

PROPOSAL OF \_\_\_\_\_, a corporation  
a partnership consisting of \_\_\_\_\_  
an individual doing business as \_\_\_\_\_

THE SAN ANTONIO WATER SYSTEM:

Pursuant to Instructions and Invitation for Competitive Sealed Proposals, the undersigned proposes to furnish all labor and materials as specified and perform the work required for the project as specified, in accordance with the Plans and Specifications for the following prices in the bid proposal to wit:

**PLEASE SEE ATTACHED LIST OF PRICE PROPOSAL ITEMS.**

\_\_\_\_\_  
RESPONDENT'S SIGNATURE & TITLE

\_\_\_\_\_  
FIRM'S NAME (TYPE OR PRINT)

\_\_\_\_\_  
FIRM'S ADDRESS

\_\_\_\_\_  
FIRM'S PHONE NO. /FAX NO.

\_\_\_\_\_  
FIRM'S EMAIL ADDRESS

The Contractor herein acknowledges receipt of the following:  
Addendum Nos. \_\_\_\_\_

OWNER RESERVES THE RIGHT TO ACCEPT THE OVERALL MOST RESPONSIBLE PROPOSAL.

**PROPOSAL**

The Respondent offers to construct the Project in accordance with the Contract Documents for the contract price, and to complete the Project within **563** calendar days after the start date, as set forth in the Authorization to Proceed. **The Respondent understands and accepts the provisions of the contract Documents relating to liquidated damages of the project if not completed on time.**

Complete the additional requirements of the Proposal which are included on the following pages.

Price Proposal  
SAWS Job No. 19-4528  
W-1 Leon Creek: Hwy 151 to Hwy 90 - Upper Segment  
Solicitation No. CO-00351

Line No	Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	202.1	PRIME COAT	GAL	588	\$	\$
2	203.1	TACK COAT	GAL	708	\$	\$
3	205.2	HOTMIX ASPHALT PAVEMENT TYPE B - 10 INCHES PAVEMENT THICKNESS	SY	1,654	\$	\$
4	205.3	HOTMIX ASPHALT PAVEMENT TYPE D - 3 INCHES PAVEMENT THICKNESS	SY	1,200	\$	\$
5	205.4	HOTMIX ASPHALT PAVEMENT TYPE D - 2 INCHES PAVEMENT THICKNESS	SY	5,856	\$	\$
6	208.1	SALVAGING, HAULING & STOCKPILING RECLAIMABLE ASPHALT PAVEMENT (2 INCHES DEPTH)	SY	5,856	\$	\$
7	208.1	SALVAGING, HAULING & STOCKPILING RECLAIMABLE ASPHALT PAVEMENT (3 INCHES DEPTH)	SY	1,200	\$	\$
8	500.1	CONCRETE CURB	LF	64	\$	\$
9	502.1	CONCRETE SIDEWALKS	SY	12	\$	\$
10	503.1	PORTLAND CEMENT CONCRETE DRIVEWAYS	SY	57	\$	\$
11	505.1	CONCRETE RIPRAP (6" THICK)	SY	61	\$	\$
12	103.4	REMOVE MISC. CONCRETE	SF	420	\$	\$
13	SP-13	BYPASS PUMPING PAD 10'x10' WITH 4"-6" (D50) RIPRAP (COMPLETE)	LS	1	\$	\$
14	511.1	REPLACING WITH FLEXIBLE BASE & PAVEMENT (12" COMPACTED DEPTH)	SY	16	\$	\$
15	522.1	SIDEWALK PIPE RAILING	LF	44	\$	\$
16	536.1	4" WIDE YELLOW LINE	LF	480	\$	\$
17	536.2	4" WIDE WHITE LINE	LF	480	\$	\$
18	814	24" DI WATERLINE (OPEN CUT)	LF	85	\$	\$
19	836	PIPE FITTINGS (ALL TYPES & SIZES)	TN	1.55	\$	\$
20	840	24" WATER TIE-INS	EA	2	\$	\$
21	841	HYDROSTATIC TESTING	EA	1	\$	\$
22	844.4	4" BLOW-OFF, TEMPORARY	EA	1	\$	\$
23	110/820	36" CSC RECYCLED WATER MAIN, RESTRAINED	LF	61	\$	\$
24	110	30" MANWAY	EA	1	\$	\$
25	846	2" AIR RELEASE VALVE	EA	1	\$	\$
26	3100	TEMOPORARY WATER MAIN (12" HDPE)	LS	1	\$	\$
27	507.1	TEMPORARY CONSTRUCTION FENCE (4 FEET HIGH)	LF	111	\$	\$
28	530	BARRICADES, SIGNS & TRAFFIC HANDLING	LS	1	\$	\$
29	SPTS 540	TEMPORARY EROSION, SEDIMENTATION AND WATER POLLUTION PREVENTION AND CONTROL	LS	1	\$	\$
30	550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	6,979	\$	\$
31	848A	8" PVC SDR 26 (OPEN CUT 0'-10')	LF	106	\$	\$
32	848A	12" PVC SDR 26 (OPEN CUT 10'-20')	LF	67	\$	\$
33	848B	TESTING AND ACCEPTANCE OF PVC SDR 26 PIPE (ALL DEPTHS)	LS	1	\$	\$
34	852A	EXTRA DEPTH MANHOLE	VF	13	\$	\$
35	852A	4 FEET SANITARY SEWER MANHOLE	EA	1	\$	\$
36	852A	REMOVE & REPLACE 4' SANITARY SEWER MANHOLE	EA	2	\$	\$
37	852B	TESTING AND ACCEPTANCE OF SANITARY SEWER MANHOLES (ALL TYPES)	LS	1	\$	\$
38	853	EXTRA DEPTH TEE BASE MANHOLE	VF	206	\$	\$
39	853A	TEE BASE FIBERGLASS MANHOLE	EA	3	\$	\$
40	853A	TEE BASE FIBERGLASS MANHOLE, MITER	EA	9	\$	\$
41	853A	TEE BASE FIBERGLASS MANHOLE, MITER W/ SUMP	EA	1	\$	\$

Price Proposal  
SAWS Job No. 19-4528  
W-1 Leon Creek: Hwy 151 to Hwy 90 - Upper Segment  
Solicitation No. CO-00351

Line No	Item No.	Description	Unit	Quantity	Unit Price	Total Price
42	853A	TEE BASE FIBERGLASS DROP MANHOLE	EA	2	\$	\$
43	853A	TEE BASE FIBERGLASS DROP MANHOLE, MITER	EA	1	\$	\$
44	853B	TESTING AND ACCEPTANCE OF FRP MANHOLES (ALL TYPES)	LS	1	\$	\$
45	SS 2426	CARRIER PIPE IN TUNNELS - 84" FRP (ASTM D-3262)(SN 72)	LF	1,196	\$	\$
46	SS2610/SS2314	102" STEEL CASING PIPE (0.5" THICKNESS) / 108" STEEL LINER PLATE	LF	550	\$	\$
47	SS2441/SS2314	PIPE-JACKED TUNNEL/TUNNELING WITH LINER PLATE	LF	550	\$	\$
48	SS2610	102" STEEL CASING PIPE (0.5" THICKNESS)	LF	89	\$	\$
49	SS2441	PIPE-JACKED TUNNEL	LF	89	\$	\$
50	SS2314	108" STEEL LINER PLATE	LF	557	\$	\$
51	SS2314	TUNNELING WITH LINER PLATE	LF	557	\$	\$
52	857A	24" FRP (ASTM D-3262)(SN 72)(OPEN CUT 5'-10')	LF	43	\$	\$
53	857A	66" FRP (ASTM D-3262)(SN 72)(OPEN CUT 15'-20')	LF	67	\$	\$
54	857A	84" FRP (ASTM D-3262)(SN 72)(OPEN CUT 10'-15')	LF	1,075	\$	\$
55	857A	84" FRP (ASTM D-3262)(SN 72)(OPEN CUT 15'-20')	LF	4,940	\$	\$
56	857A	84" FRP (ASTM D-3262)(SN 72)(OPEN CUT 20'-25')	LF	525	\$	\$
57	857B	TESTING AND ACCEPTANCE OF FRP GRAVITY SEWER (ALL SIZES AND DEPTHS)	LS	1	\$	\$
58	SP-13	EXISTING PAD RESTORATION	LS	1	\$	\$
59	858	CONCRETE ENCASEMENT (MIN STRENGTH, 2,000 PSI)	CY	4,126	\$	\$
60	413	FLOWABLE FILL	CY	351	\$	\$
61	862	ABANDON EXISTING SEWER MAIN (>15-INCH DIAMETER)	LF	7,706	\$	\$
62	862	ABANDON EXISTING SEWER MAIN (<15-INCH DIAMETER)	LF	70	\$	\$
63	864-S1	BYPASS PUMPING SMALL DIAMETER (<24")	LS	1	\$	\$
64	SP 864-S2	BYPASS PUMPING LARGE DIAMETER (>24")	LS	1	\$	\$
65	866	SEWER MAIN TV INSPECTION (ALL SIZES)	LF	8,080	\$	\$
66	866	SEWER MAIN TV INSPECTION (PRE-ABANDONMENT)	LF	7,776	\$	\$
67	910	MANHOLE REHABILITATION	SF	692	\$	\$
68	TP7-TP10	DRILL SEEDING (WITH NATIVE SEED MIXTURE)	SY	630,506	\$	\$
<b>SUBTOTAL (ITEMS 1-68)</b>					<b>\$</b>	<b>\$</b>
69	SS 804A	ENVIRONMENTAL SERVICES, INCLUSIVE OF AIR MONITORING, WASTE CHARACTERIZATION, SAMPLING (LABOR, LAB, OTHER DIRECT COSTS), REPORTING, AND ENVIRONMENTAL OVERSIGHT	LS	1	\$	\$
70	SS 804A	CLASS 1 SOIL WASTE DISPOSAL INCLUSIVE OF REMOVING, MANAGING, CHARACTERIZING, MANIFESTING, TRANSPORTING AND DISPOSING AT A PERMITTED LANDFILL	TON	156	\$	\$
71	SS 804A	CLASS 2 SOIL WASTE DISPOSAL INCLUSIVE OF REMOVING, MANAGING, CHARACTERIZING, MANIFESTING, TRANSPORTING AND DISPOSING AT A PERMITTED LANDFILL	TON	1,440	\$	\$
72	SPTS 100A	INTERMEDIATE DEMOBILIZATION/REMOBILIZATION (OPEN-CUT CONSTRUCTION)	EA	2	\$	\$
73	SPTS 100B	INTERMEDIATE DEMOBILIZATION/REMOBILIZATION (TUNNEL CONSTRUCTION)	EA	2	\$	\$
74	864-S1.3	BYPASS PUMPING DURING DEMOBILIZATION (SMALL DIAMETER) INTERMEDIATE DEMOBILIZATION BYPASS PUMPING EQUIPMENT RENTAL	DAY	30	\$	\$
75	864-S1.4	INTERMEDIATE DEMOBILIZATION BYPASS PUMPING FUEL	DAY	30	\$	\$
76	864-S1.5	INTERMEDIATE DEMOBILIZATION BYPASS PUMPING MONITORING	DAY	30	\$	\$
77	864-SP-S2.3	BYPASS PUMPING DURING DEMOBILIZATION (LARGE DIAMETER) INTERMEDIATE DEMOBILIZATION BYPASS PUMPING EQUIPMENT RENTAL	DAY	30	\$	\$
78	864-SP-S2.4	INTERMEDIATE DEMOBILIZATION BYPASS PUMPING FUEL	DAY	30	\$	\$

**Price Proposal**  
**SAWS Job No. 19-4528**  
**W-1 Leon Creek: Hwy 151 to Hwy 90 - Upper Segment**  
**Solicitation No. CO-00351**

Line No	Item No.	Description	Unit	Quantity	Unit Price	Total Price
79	864-SP-S2.5	INTERMEDIATE DEMOBILIZATION BYPASS PUMPING MONITORING	DAY	30	\$	\$
80	100	MOBILIZATION (MAXIMUM 8% OF ITEMS 1-68)	LS	1	\$	\$
81	101	PREPARATION OF RIGHT-OF-WAY (MAXIMUM 4% OF ITEMS 1-68)	LS	1	\$	\$
<b>TOTAL PRICE PROPOSAL</b>						
<b>(TO INCLUDE LINE ITEMS 1-68 AND 69-81)</b>					\$	

MOBILIZATION AND PREP OF ROW SHALL BE LIMITED TO THE MAXIMUM PERCENTAGE SHOWN. IF THE PERCENTAGE EXCEEDS THE ALLOWABLE MAXIMUM STATED FOR MOBILIZATION AND OR PREPARATION OF ROW, SAWS RESERVES THE RIGHT TO CAP THE AMOUNT AT THE PERCENTAGES SHOWN AND ADJUST THE EXTENSIONS OF THE BID ITEMS ACCORDINGLY.

## PROPOSAL CERTIFICATION

Accompanying this proposal is a Bid Bond or Certified or Cashier's Check payable to the Order of the San Antonio Water System for \_\_\_\_\_ dollars (\$\_\_\_\_\_), which amount represents five percent (5%) of the total bid price. Said bond or check is to be returned to the bidder unless the proposal is accepted and the bidder fails to execute and file a contract within **10** calendar days after the award of the Contract, in which case the check shall become the property of said San Antonio Water System, and shall be considered as payment for damages due to delay and other inconveniences suffered by said San Antonio Water System due to the failure of the bidder to execute the contract. The San Antonio Water System reserves the right to reject any and all bids.

It is anticipated that the Owner will act on this proposal within **90** calendar days after the bid opening. Upon acceptance and award of the contract to the undersigned by the Owner, the undersigned shall execute standard San Antonio Water System Contract Documents and make Performance and Payment Bonds for the full amount of the contract within **10** calendar days after the award of the Contract to secure proper compliance with the terms and provisions of the contract, to insure and guarantee the work until final completion and acceptance, and the guarantee period stipulated, and to guarantee payment of all lawful claims for labor performed and materials furnished in the fulfillment of the contract.

It is anticipated that the Owner will provide written Authorization to Proceed within **60** days after the award of the Contract.

The work called for in this Contract shall commence on the date indicated in the SAWS written Authorization to Proceed Under no circumstances shall the work commence prior to the date provided for in the SAWS issued, written Authorization to Proceed. Work shall be completed in full within **563** consecutive calendar days.

The undersigned further acknowledges compliance with "Wage and Labor Standard Provisions" of this contract and the use of the Blue Book rental rates for establishment of equipment rental rates whether owned or leased during the course of this Contract.

In completing the work contained in this proposal the undersigned certifies that bidder's practices and policies do not discriminate on the grounds of race, color, religion, sex or national origin and that the bidder will affirmatively cooperate in the implementation of these policies and practices.

Signed: \_\_\_\_\_  
Company Representative

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
\_\_\_\_\_  
Address

Please return bidder's check to:

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
\_\_\_\_\_  
Address



**Good Faith Effort Plan for Construction SUBCONTRACTS for:**

NAME OF PROJECT: W-1 Leon Creek: Hwy 151 to Hwy 90 Upper Segment

**SECTION A - PRIME CONTRACTOR INFORMATION**

Legal Name of Firm, including "doing business as" if applicable: \_\_\_\_\_

Address of Office to Perform Project Work: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Email Address: \_\_\_\_\_

Is your firm  
Certified as an SMWVB? Yes: \_\_\_\_\_ No: \_\_\_\_\_

If "Yes", was your firm certified by the South Central Texas Regional Certification Agency (SCTRCA) or the Texas Comptroller's Office (HUB)? Only SCTRCA or HUB certifications granted to "local" firms are recognized. Please see the Good Faith Effort Plan Definition for "Local":

Yes: \_\_\_\_\_ No: \_\_\_\_\_

Type/s of Certification: SBE: \_\_\_\_\_ MBE: \_\_\_\_\_ VBE: \_\_\_\_\_ WBE: \_\_\_\_\_

Prime Contractor's Percentage of Participation: (Ex: 100% is the total value of the contract.) \_\_\_\_\_%

Describe your firm's participation to be performed on this Project: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

1. List ALL SUBCONTRACTORS/SUPPLIERS that will be utilized on this project/contract. (SMWVB AND Non-SMWVB)

	Legal Name of Subcontractor/Supplier (including "doing business as", if applicable).	Address of Office Location to Perform Project Work or Provide Supplies. (Only Local firms will be counted for SMWVB credit):	Scope of Work/Supplies to be Performed/Provided by Firm:	Estimated Contract (dollar) Amount on this Project:	Certification Type & Agency. (Only SCTRCA or HUB certifications are recognized):
1					
2					
3					
4					
5					

**SECTION B. – SMWB COMMITMENTS**

The SMWVB goal on this project is 20%

1. The undersigned proposer has satisfied the requirements of the BID specification in the following manner (please check the appropriate space):

\_\_\_\_\_ The proposer is committed to a minimum of 20 % SMWVB utilization on this contract.

\_\_\_\_\_ The proposer, (if unable to meet the SMWVB goal of 20%), is committed to a minimum of \_\_\_\_\_% SMWVB utilization on this contract. (If unable to meet the goal, please fill out Section C and submit documentation demonstrating good faith efforts).

2. Name and phone number of person appointed to coordinate and administer the SMWVB requirements on this project.

Name:

\_\_\_\_\_

Title:

\_\_\_\_\_

Phone Number:

\_\_\_\_\_

Email Address:

\_\_\_\_\_

IF THE SMWB GOAL WAS MET, PROCEED TO AFFIRMATION AND SIGN THE GFEP. IF GOAL WAS NOT MET, PROCEED TO SECTION C.

**SECTION C – GOOD FAITH EFFORTS (Fill out only if the SMWVB goal was not achieved).**

1. On a separate sheet of paper, list and attach to this Good Faith Effort Plan written, posted, or published notification to all firms you contacted with subcontracting/supply opportunities for this project that will not be utilized for the contract by choice of the proposer, subcontractor, or supplier. Notices to firms contacted by the proposer for specific scopes of work identified for subcontracting/supply opportunities must be provided to subcontractor/supplier ***not less than five (5) business days prior to bid/proposal due date***. This information is required for all firms that were contacted of subcontracting/supply opportunities.

Copies of said notices must be provided to the SMWVB Program Manager at the time the response is due. Such notices shall include information on the plans, specifications, and scope of work.

2. Did you attend the pre-bid conference scheduled for this project? \_\_\_\_\_Yes\_\_\_\_\_No

3. List all SMWVB listings or directories, contractor associations, and/or any other associations utilized to solicit SMWB Subcontractors/suppliers:

\_\_\_\_\_

4. Discuss efforts made to identify elements of the work to be performed by SMWVBs in order to increase the likelihood of achieving the goal:

\_\_\_\_\_

\_\_\_\_\_

5. Indicate advertisement mediums used for soliciting bids from SMWVBs. (Please attach a copy of the advertisement(s):

\_\_\_\_\_

\_\_\_\_\_

**AFFIRMATION**

I hereby affirm that the above information is true and complete to the best of my knowledge. I further understand and agree that, this document shall be attached thereto and become a binding part of the contract.

**Name and Title of Authorized Official:**

Name:

\_\_\_\_\_

Title:

\_\_\_\_\_

Signature:

\_\_\_\_\_

Date:

\_\_\_\_\_

**NOTE:**

This Good Faith Effort Plan is reviewed by SAWS Contracting Department. For questions and/or clarifications, please contact Marisol V. Robles, SMWVB Program Manager, at 210-233-3420.



## **DEFINITIONS**

**Note:** To be eligible for participation in the SAWS Small, Minority, Woman, and Veteran-owned Business Program, a firm must be local, and must be certified as a Small Business Enterprise (SBE). This includes firms certified as Minority and/or Woman-owned Business Enterprises (MBEs and WBEs). SAWS tracks Veteran-owned Business Enterprises (VBEs) for statistical purposes, but does not award points for VBE participation.

**Local:** A business located in the San Antonio Metropolitan Statistical Area (SAMSA) , which includes the counties of Atascosa, Bandera, Bexar, Comal, Frio, Guadalupe, Kendall, Kerr, McMullen, Medina, Uvalde and Wilson. A business's presence in the SAMSA that consists solely of a P.O. box, a mail drop, or a telephone message center does not count as being local.

**Prime Consultant/Contractor:** Any person, firm partnership, corporation, association or joint venture which has been awarded a San Antonio Water System contract.

**Subconsultants/contractor:** Any named person, firm partnership, corporation, association or joint venture identified as providing work, labor, services, supplies, equipment, materials or any combination of the foregoing under contract with a prime consultant/contractor on a San Antonio Water System contract.

**Small, Minority and Woman Business (SMWB):** All business structures Certified by the Texas Comptroller's Office (HUB), or the South Central Texas Regional Certification Agency that are 51% owned, operated, and controlled by a Small Business Enterprise, a Minority Business Enterprise, or a Woman-owned Business Enterprise.

**Small Business Enterprise (SBE):** A business structure that is Certified by the Texas Comptroller's Office (HUB), or the South Central Texas Regional Certification Agency as being 51% owned, operated and controlled by someone who is legally residing in or a citizen of the United States, and the business structure meets the U.S. Small Business Administration's (SBA) size standard for a small business within the appropriate industry category.

**Minority Business Enterprise (MBE):** A business structure that is Certified by the Texas Comptroller's Office (HUB) or the South Central Texas Regional Certification Agency as being 51% owned, operated, and controlled by an ethnic minority group member(s) who is legally residing in or a citizen of the United States. For purposes of the SMWB program, the following are recognized as minority groups:

- a. **African American** – Persons having origins in any of the black racial groups of Africa.
- b. **Hispanic American** – Persons of Mexican, Puerto Rican, Cuban, Spanish or Central or South American origin.
- c. **Asian-Pacific American** – Persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands.
- d. **Asian-Indian American** – Persons whose origins are from India, Pakistan, Bangladesh or Sri Lanka.
- e. **American Indian/Native American** – Persons having no less than 1/16 percentage origin in any of the American Indian Tribes, as recognized by the U.S. Department of the Interior's Bureau of Indian Affairs and as demonstrated by possession of personal tribal role documents.

**Women Business Enterprise (WBE):** A business structure that is Certified by the Texas Comptroller's Office (HUB), or the South Central Texas Regional Certification Agency as being 51% owned, operated and controlled by a woman or women who are legally residing in or citizens of the United States.

**African American Business Enterprise (AABE):** A business structure that is Certified by the Texas Comptroller's Office (HUB), or the South Central Texas Regional Certification Agency as being 51% owned, operated and controlled by African American minority group member(s) who are legally residing in or are citizens of the United States.

**Joint Venture:** A limited association of two or more persons to carry out a single business enterprise for profit, for which purpose they combine their property, money, efforts, skills and knowledge.

**Veteran-Owned Business Enterprise (VBE):** A business structure that is at least 51% owned, operated and controlled by an individual who served in the United States Armed Forces, and who was discharged or released under conditions other than dishonorable. Please note: This certification type should not be confused with the Service Disabled Veteran designation available through the Small Business Administration.

**Web Submittal of Subcontractor Payment Reports:**

The Contractor will be required to electronically report the actual payments to all subcontractors, utilizing the Subcontractor Payment and Utilization Reporting (S.P.U.R.) System, beginning with the first SAWS payment for services under the contract, and with every payment thereafter (for the duration of the contract). Electronic submittal of monthly subcontractor payment information will be accessed through a link on SAWS' "Business Center" web page. This information will be utilized for subcontractor participation tracking purposes. Any unjustified failure to comply with the committed SMWB levels may be considered breach of contract.

The Contractor and all subcontractors will be provided a unique log-in credential and password to access the SAWS subcontractor payment reporting system. The link may also be accessed through the following internet address: <https://saws.smwbe.com/>

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

**FORM CIQ**

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

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

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

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

**OFFICE USE ONLY**

Date Received

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

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

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

\_\_\_\_\_  
Name of Officer

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

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

Yes       No

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

Yes       No

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

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

**7**

\_\_\_\_\_  
Signature of vendor doing business with the governmental entity

\_\_\_\_\_  
Date

## **CONFLICT OF INTEREST QUESTIONNAIRE**

### **For vendor doing business with local governmental entity**

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

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

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

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

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

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(2) the vendor:

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

- (i) a contract between the local governmental entity and vendor has been executed;
- or
- (ii) the local governmental entity is considering entering into a contract with the vendor;

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

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

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

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

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

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

(1) the date that the vendor:

- (A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
- (B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

- (A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
- (B) that the vendor has given one or more gifts described by Subsection (a); or
- (C) of a family relationship with a local government officer.

"General Decision Number: TX20200007 01/03/2020

Superseded General Decision Number: TX20190007

State: Texas

Construction Types: Heavy and Highway

Counties: Atascosa, Bandera, Bastrop, Bell, Bexar, Brazos, Burleson, Caldwell, Comal, Coryell, Guadalupe, Hays, Kendall, Lampasas, McLennan, Medina, Robertson, Travis, Williamson and Wilson Counties in Texas.

HEAVY (excluding tunnels and dams, not to be used for work on Sewage or Water Treatment Plants or Lift / Pump Stations in Bell, Coryell, McClellon and Williamson Counties) and HIGHWAY Construction Projects

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a

classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/03/2020

\* SUTX2011-006 08/03/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving and Structures).....	\$ 12.56	
ELECTRICIAN.....	\$ 26.35	
FORM BUILDER/FORM SETTER Paving & Curb.....	\$ 12.94	
Structures.....	\$ 12.87	
LABORER		

Asphalt Raker.....\$ 12.12  
 Flagger.....\$ 9.45  
 Laborer, Common.....\$ 10.50  
 Laborer, Utility.....\$ 12.27  
 Pipelayer.....\$ 12.79  
 Work Zone Barricade  
 Servicer.....\$ 11.85

PAINTER (Structures).....\$ 18.34

POWER EQUIPMENT OPERATOR:

Agricultural Tractor.....\$ 12.69  
 Asphalt Distributor.....\$ 15.55  
 Asphalt Paving Machine.....\$ 14.36  
 Boom Truck.....\$ 18.36  
 Broom or Sweeper.....\$ 11.04  
 Concrete Pavement  
 Finishing Machine.....\$ 15.48  
 Crane, Hydraulic 80 tons  
 or less.....\$ 18.36  
 Crane, Lattice Boom 80  
 tons or less.....\$ 15.87  
 Crane, Lattice Boom over  
 80 tons.....\$ 19.38  
 Crawler Tractor.....\$ 15.67  
 Directional Drilling  
 Locator.....\$ 11.67  
 Directional Drilling  
 Operator.....\$ 17.24  
 Excavator 50,000 lbs or  
 Less.....\$ 12.88  
 Excavator over 50,000 lbs...\$ 17.71  
 Foundation Drill, Truck  
 Mounted.....\$ 16.93  
 Front End Loader, 3 CY or  
 Less.....\$ 13.04  
 Front End Loader, Over 3 CY.\$ 13.21

Loader/Backhoe.....\$ 14.12  
 Mechanic.....\$ 17.10  
 Milling Machine.....\$ 14.18  
 Motor Grader, Fine Grade....\$ 18.51  
 Motor Grader, Rough.....\$ 14.63  
 Pavement Marking Machine....\$ 19.17  
 Reclaimer/Pulverizer.....\$ 12.88  
 Roller, Asphalt.....\$ 12.78  
 Roller, Other.....\$ 10.50  
 Scraper.....\$ 12.27  
 Spreader Box.....\$ 14.04  
 Trenching Machine, Heavy....\$ 18.48

Servicer.....\$ 14.51

Steel Worker

Reinforcing.....\$ 14.00  
 Structural.....\$ 19.29

TRAFFIC SIGNAL INSTALLER

Traffic Signal/Light Pole  
 Worker.....\$ 16.00

TRUCK DRIVER

Lowboy-Float.....\$ 15.66  
 Off Road Hauler.....\$ 11.88  
 Single Axle.....\$ 11.79  
 Single or Tandem Axle Dump  
 Truck.....\$ 11.68  
 Tandem Axle Tractor w/Semi  
 Trailer.....\$ 12.81

WELDER.....\$ 15.97

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



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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

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

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

(weighted union average rate).

#### Union Rate Identifiers

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

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

#### Survey Rate Identifiers

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

date for the classifications and rates under that identifier.

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

#### Union Average Rate Identifiers

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

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

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#### WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

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

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

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

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

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

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END OF GENERAL DECISION

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"General Decision Number: TX20200055 01/03/2020

Superseded General Decision Number: TX20190055

State: Texas

Construction Type: Heavy Tunnel

Counties: Bell, Bexar, Bowie, Brazoria, Brazos, Cameron, Collin, Comal, Coryell, Dallas, Denton, Ector, El Paso, Ellis, Fort Bend, Galveston, Grayson, Gregg, Guadalupe, Hardin, Harris, Harrison, Hays, Hidalgo, Jefferson, Johnson, Kaufman, Liberty, Lubbock, McLennan, Midland, Montgomery, Nueces, Orange, Parker, Potter, Randall, Rockwall, San Patricio, Smith, Tarrant, Taylor, Tom Green, Travis, Victoria, Waller, Webb, Wichita and Williamson Counties in Texas.

TUNNEL CONSTRUCTION PROJECTS (BORED, 48" IN DIAMETER OR MORE)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar

year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/03/2020

\* SUTX1992-010 01/15/1992

	Rates	Fringes
CARPENTER (Including Form Setting - Wood Forms ONLY).....	\$ 10.67	.92
ELECTRICIAN.....	\$ 12.21	.92
IRONWORKER, REINFORCING (Shaft Collar & Surface ONLY)....	\$ 12.03	4.09
Laborers:		
Miner.....	\$ 11.77	1.28

Surface.....\$ 7.53  
 Tunnel.....\$ 9.24

MECHANIC (Maintenance and  
 repair on trucks and power  
 equipment).....\$ 11.77 .92

Oiler (Services trucks and  
 power equipment).....\$ 9.69 1.50

Power equipment operators:

Backhoe Operator (1 1/2 CY  
 or more).....\$ 11.40 1.50

Backhoe Operator (Less  
 than 1 1/2 CY).....\$ 10.68

Bulldozer.....\$ 13.00

Crane (1 1/2 CY or more)....\$ 12.82 1.50

Crane (Less than 1 1/2 CY)..\$ 11.89

Front End Loader (2 1/2 CY  
 or more).....\$ 12.17

Front End Loader (less  
 than 2 1/2 CY).....\$ 10.16

Locomotive Operator.....\$ 9.00 1.50

Road Head Operator.....\$ 14.12 1.21

Tunnel/Boring Machine  
 Operator.....\$ 13.61

Truck drivers:

Semi.....\$ 7.25 1.05

Single Axle, Light.....\$ 7.55

WELDER.....\$ 11.58

LABORER CLASSIFICATIONS

SURFACE - Air Tool Operator (Surface Only), Batch Plant  
 Laborer, Changehouseman, Dumpman (Outside, Tool Man).



TUNNEL - Air Tool Operator (Tunnel Only), Bull Gang  
 (Muckers/Trackmen), Cabledender, Concrete Crew  
 (Rodders/Spreaders), Concrete Finisher in Tunnel, Concrete  
 Screed Man, Conveyor Operator, Headerman, High Pressure  
 Nozzleman, Hoist Operator, Jumbo Man, Loading/Unloading  
 Agitator Cars, Nipper, Nozzleman-Slice Line, Pot Tender,  
 Primer Man, Reboundman, Shaft/Raise Work (Below Ground),  
 Shotcrete Man, Slusher Operator, Steel Form  
 Raisers/Setters, (metal forms only) Swamper  
 (Brakeman/Switchman), Timberman, Troweling/Grout Machine  
 Operator, Tugger, Vibratorman, Jack Hammer, Pneumatic Tools  
 (Except Driller), Vibratorman, Pavement Breakers.

MINER - Drill Doctor, Bit Sharpener, Bit Grinder, Rebar  
 (Tunnel Only), Jack Leg Miner, Shaft Drill Operator

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

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 Note: Executive Order (EO) 13706, Establishing Paid Sick Leave  
 for Federal Contractors applies to all contracts subject to the  
 Davis-Bacon Act for which the contract is awarded (and any  
 solicitation was issued) on or after January 1, 2017. If this  
 contract is covered by the EO, the contractor must provide  
 employees with 1 hour of paid sick leave for every 30 hours  
 they work, up to 56 hours of paid sick leave each year.  
 Employees must be permitted to use paid sick leave for their  
 own illness, injury or other health-related needs, including  
 preventive care; to assist a family member (or person who is  
 like family to the employee) who is ill, injured, or has other  
 health-related needs, including preventive care; or for reasons  
 resulting from, or to assist a family member (or person who is  
 like family to the employee) who is a victim of, domestic

violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

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

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

#### Union Rate Identifiers

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

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

#### Survey Rate Identifiers

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

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#### Union Average Rate Identifiers

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

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

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WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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



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

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

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

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

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

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

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END OF GENERAL DECISION

"



"General Decision Number: TX20200033 01/03/2020

Superseded General Decision Number: TX20190033

State: Texas

Construction Types: Heavy

PIPELINE - ON-SHORE PIPELINE CONSTRUCTION:

Counties: Texas Statewide.

PIPELINE - ON-SHORE CONSTRUCTION

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum

wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/03/2020

SUTX1997-002 01/01/1997

	Rates	Fringes
Laborers:		
Drillers.....	\$ 16.08	2.01
Hot Pay.....	\$ 15.58	2.01
Jackhammermen.....	\$ 15.58	2.01
Loaders.....	\$ 16.08	2.01
Powderman, blasters & shooters.....	\$ 16.58	2.01
Unskilled.....	\$ 15.08	2.01
Pipefitter.....	\$ 36.49	7.45
Power equipment operators:		
Group 1.....	\$ 22.95	6.05
Group 2.....	\$ 17.54	4.80
Group 3.....	\$ 12.37	3.55

Truck drivers:

Group 1.....	\$ 18.82	a
Group 2.....	\$ 18.82	a
Group 3.....	\$ 16.81	a
Group 4.....	\$ 16.04	a
Group 5.....	\$ 15.71	a

## FOOTNOTE

a - \$2.52 PER HOUR PLUS \$41.00 PER WEEK

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

## TRUCK DRIVER CLASSIFICATIONS

GROUP 1 - Truck Mechanics

GROUP 2 - Lowboy, rollagon or similar type equipment

GROUP 3 - A-Frame, Gin pole, Tandem float (4 & 5 axle) , rubber-tired tractor, fork lift, winch truck, track truck equipment, stringing truck

GROUP 4 - Single axle float (3 axle), flat bed truck (3 axle) dump truck (3 axle), skid truck (3 axle), hot pass (2 axle), Flat bed truck (2 axle) dump truck (2 axle), skid truck (2 axle) water truck (2 axle), pick up, bus jeep, station wagon, swamp buggy or similar type equipment.

GROUP 5 - Stringer bead & hot pass (2 axle, flat bed truck (2 axle), dump truck (2 axle), skid truck (2 axle), water truck (2 axle), pick-up, bus jeep, station wagon, swamp buggy or similar type equipment.

## POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1 - Backhoe, dragline, clam, crane, ditching machine, side booms (except those in



GROUP 2), mechanic, operator on dredges, bulldozer, cleaning machine, coating machine, back filler, motor grader, end loader (3 yd. & over), blending machine, wate-kote machine, equipment welder, track tractor

GROUP 2 - Pipe dream, gin truck or winch truck with poles when used for hoisting, side boom (cradling rock drill), tow tractor,, farm tractor, road boring machine, end loader (under 3 y.d), fork lift (industrial type), pot fireman (power agitated); straightening machine, boring machine, bombardier (track or tow rig), mobile lubrication & service engineer, hydrostatic testing operator, rollagon or similar type equipment

GROUP 3 Fuel man, oiler or swamper (on trenching machine or shovel- type equipment)

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

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic

violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

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

#### Survey Rate Identifiers

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

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

#### Union Average Rate Identifiers

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

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

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WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

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

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

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

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

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

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END OF GENERAL DECISION

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**SAN ANTONIO WATER SYSTEM**

**GENERAL CONDITIONS  
(Revised June 2015)**

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# SAN ANTONIO WATER SYSTEM

## GENERAL CONDITIONS

### ARTICLE I. CONTRACT DEFINITIONS:

Wherever in these General Conditions or in other parts of the Contract Documents, the following terms, or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

1. ACPA - American Concrete Pipe Association.
2. ANSI - American National Standards Institute.
3. ASTM - American Society for Testing Materials.
4. AUTHORIZATION TO PROCEED - (Work Project Authorization) A written notice given by Owner to Contractor establishing the date on which the Contract Time will commence to run and on which Contractor shall start to perform Contractor's obligations under the Contract Documents.
5. AWWA - American Water Works Association.
6. BIDDER - An individual, partnership, corporation, joint venture, etc., submitting a proposal.
7. BOARD - Board of Trustees of the San Antonio Water System.
8. CHANGE ORDER - A written order issued by the Owner to the Contractor authorizing additions, deletions, or revisions to the Work to be performed by the Contractor within the scope of construction services outlined in the Contract Documents. This includes changes in price and/or changes in time.
9. CITY- The City of San Antonio, Texas (COSA)
10. CITY COUNCIL - The duly elected members of the council of the City of San Antonio, Texas.
11. CLAIM - A written demand seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract.
12. COMPETENT PERSON - Employee of prime Contractor who has the industry knowledge of construction safety practices and is well versed with construction practices and procedures.
13. CONDITIONAL LETTER OF ACCEPTANCE - The date certified in writing by the Owner when the Construction of the entire Project or any completed portions thereof as defined by SAWS is completed in accordance with the Contract Documents.
14. CONSTRUCTION OBSERVER/INSPECTOR (COI) - The Owners assigned authorized representative who observes, inspects, and may accept any or all parts of the Project and the materials to be used therein.
15. CONSULTANT - A person registered as a professional engineer pursuant to Texas Occupations Code, Title 6, Chapter 1001, employed to provide professional engineering services and having overall responsibility for the design of a project or a significant portion thereof, together with administrative supervision of any subconsultants the Consultant may retain. The term "Consultant", unless the context clearly indicates otherwise, means an engineer in private practice retained for a specific project under a contractual agreement with the Owner.
16. CONTRACT - The signatory Agreement (Standard Form) between the SAWS and the Contractor governing the furnishing of material and performance of the Work. The Contract will include all Contract Documents.

17. CONTRACT DOCUMENTS - The Contract Documents consist of Bidding or Proposal Documents (Invitation to Bidder's or Invitation for Competitive Sealed Proposals, the Instructions to Bidders or the Instructions to Respondents, the Supplementary Instructions to Respondents, the Contractor's completed Bid Proposal or Price Proposal form, the Addenda), the Contract, the Conditions of the Contract (General, Supplemental and Special Conditions), the Standard Drawings, the Construction Specifications, the Change Orders, the Payment and Performance Bonds, and the Good Faith Effort Plan. The Contract Documents form the complete CONTRACT, which represents the entire and integrated agreement between the Owner and the Contractor and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract Documents shall not be construed to create a contractual relationship of any kind between:
  - (1) Design Consultant and Contractor;
  - (2) Owner and Subcontractor or Subcontractor; or
  - (3) Any person or entities other than Owner and Contractor.
18. CONTRACTOR - The individual, partnership, corporation, joint venture, or other entity contracting with the SAWS to complete the Work. The Contractor is directly responsible for the Subcontractors and Vendors that they select to complete the Work.
19. CONTRACT SUM - The total compensation payable to the Contractor for performing the Work as originally contracted or as subsequently adjusted by Change Orders.
20. CONTRACT TIME - The total time allowed the Contractor for completion of the Work. Contract Time will commence as per Article 8.1 and shall include the number of days set forth in the Contract plus any extended days granted under the provisions of Article 6.
21. ENGINEER - A Professional Engineer licensed by the State of Texas and duly authorized as a representative of the San Antonio Water System to provide professional engineering services on public works projects. Equivalent terms may include Engineer of Record, Program Engineer, Project Engineer, and/or Design Engineer.
22. FORCE ACCOUNT - a basis of payment for the direct performance of Work with payment based on the actual cost of the labor, equipment and materials furnished and consideration for overhead and profit as specifically provided for in Section 6.5.3 herein.
23. HAZARDOUS MATERIAL(S)/SUBSTANCE - Pursuant to Section 26.263 of the Water Code hazardous material means any substance or material designated as such by the administrator of the Environmental Protection Agency pursuant to the Comprehensive Environmental Response Compensation and Liability Act (42 U.S.C. Sec. 9601 et seq.), regulated pursuant to Section 311 of the Federal Clean Water Act (33 U.S.C. Sec. 1321 et seq.), or designated by the Commission and shall also include but not be limited to:
  - (1) any substance that, whether by its nature or its use, is subject to regulation or requires environmental investigation, monitoring, or remediation under any federal, state, or local environmental laws, rules, or regulations;
  - (2) any underground storage tanks, as defined in 42 U.S.C. Section 6991(1)(A)(I) (including those defined by Section 9001(1) of the 1984 Hazardous and Solid Waste Amendments to the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901 et seq.;
  - (3) the Texas Water Code Annotated Section 26.344; and Title 30 of the Texas Administrative Code Sections 334.3 and 334.4), whether empty, filled or partially filled with any substance; and
  - (4) any other hazardous material, hazardous waste, hazardous substance, solid waste, and toxic substance as those or similar terms are defined under any federal, state, or local environmental laws, rules, or regulations.
24. INSTRUCTIONS TO BIDDERS - Owner Instructions of a general nature outlining the duties and responsibilities of a prospective bidder.



25. LABORATORY - The testing laboratories of the Owner or any other testing laboratory that may be designated or approved in writing by the Owner.
26. LABOR BURDEN – The cost paid by an employer for employing individuals above the salary actually paid and reflected in their payroll. These are limited to the following:
- Payroll Taxes – both Federal and State (FICA, FUTA, SUTA)
  - Paid Holidays, Vacation Leave and Sick Leave
  - Retirement/Pension Costs (401K, etc.)
  - Health Care
  - Life/AD&D Insurance
  - Workers Compensation Insurance
  - Long-Term Disability Insurance
  - Short-Term Disability Insurance
  - Bonuses, if paid to all employees regardless of company’s financial performance
  - Safety Training and Personal Protective Equipment (PPE) given to all employees
27. LUMP SUM– Price of an entire group of services, where no breakdown is given for individual items.
28. MAJOR BID ITEM - Any individual bid item submitted by Contractor whose total cost, as determined by multiplying the bid schedule line item quantity for that bid item by the Contract unit price also provided in that bid schedule line item, is equal to or greater than 5 percent of the original contract total amount. The preceding criteria notwithstanding, the Owner and Consultant **reserve the right** to identify or exclude specific bid items as being "Major" in the Special Conditions for each Project.
29. MINORITY BUSINESS ENTERPRISE - A business structure that is certified by the Small Business Administration, Texas State Comptroller’s Office or the South Central Texas Regional Certification Agency as being 51% owned, operated, and controlled by an ethnic minority group member(s) who is legally residing in or a citizen of the United States. The ethnic minority group members recognized by SAWS are African Americans, Hispanic Americans, Asian Americans, and Native Americans.
30. MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) - A conveyance or system of conveyances (including roads with drainage systems, municipal streets catch basins, curbs, gutters, ditches, man-made channels or storm drains:
- .1 Owned or operated by a State, City, town, borough, county, district association or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial waters, storm water or other wastes including special districts under State law such as a sewer district, flood control district or drainage district or similar entity or a designated and approved management agency under Section 208 of the Clean Water Act that discharges to water of the United States;
  - .2 Designated or used for collection or conveying storm water.
  - .3 That is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.
31. NEMA - National Electrical Manufacturers Association.
32. NFPA - National Fire Protection Association.
33. NON-HAZARDOUS MATERIAL(s)/SUBSTANCES - Any material(s)/substance(s) which is not designated as hazardous pursuant to Article I. 23 herein and the continued presence of such on the site is determined by the Owner's representative not to be detrimental to the completion of the Project.
34. NOTICE OF NON COMPLIANCE – Neglect of compliance; failure to comply.
35. OWNER - The San Antonio Water System (SAWS).
36. OWNER'S REPRESENTATIVE - The Owner’s duly authorized representative of the System.

37. PAYMENT BOND – In accordance with Chapter 2253 of the Texas Government Code as amended, the security furnished by the Contractor through the Surety in the full amount of the Contract Sum for the protection of all persons supplying labor and material in the prosecution of the Work who properly follow statutory requirements for perfecting claims against such security. If the Contract amount does not exceed \$25,000, a Payment Bond may not be required.
38. PERFORMANCE BOND - In accordance with Chapter 2253 of the Texas Government Code as amended, the security furnished by the Contractor through the Surety in the full amount of the Contract Sum as a guaranty that the Work will be faithfully performed and completed and that the Owner will be saved harmless from all costs and damages which the Owner may suffer by reason of the Contractor's default or failure to perform the Work. If the Contract amount does not exceed \$25,000, a Performance Bond may not be required.
39. PIPELINE PROJECT - Work site and Work elements related to a sanitary sewer, water, or recycle water pipeline with all appurtenances and construction to be performed thereon under the Contract.
40. PLANS - The Plans, drawings, details and supplemental drawings, or reproductions thereof, produced and sealed by the Consultant and/or Engineer and approved by the Owner, showing the location, character, dimensions and details of the Work and which are a part of the Contract. Plans include standard details issued and sealed by the Consultant and/or Engineer or his representative.
41. PROJECT – The total design and construction of Work performed under the Contract Documents and may be the whole or a part of the Project and which may include construction by Owner or by separate Contractors. All references in these General Conditions to or concerning the Work or the Site of the Work will use and or related to the term “Project,”(including Pipeline Projects) notwithstanding that the Work only may be a part of the Project.
42. PROPOSAL - The offer of the bidder, made out on the prescribed forms, giving prices for performing the work described in the Plans and Specifications.
43. PUNCH LIST – List of Work remaining to be completed before final acceptance of the Project.
44. REQUEST FOR INFORMATION (RFI) – Document submitted by Contractor requesting clarification on a particular bid item, scope of work or intent of the Contract.
45. REQUEST FOR PROPOSAL (RFP) - Document submitted by Contractor to SAWS or document submitted by SAWS to Contractor requesting changes to the Contract Document.
46. SAMPLES - Physical examples furnished by the Contractor to Owner to illustrate intended or anticipated materials, equipment or workmanship, and to assist Owner and Consultant in the establishment of workmanship and quality standards by which the Work will be judged.
47. SAN ANTONIO WATER SYSTEM - San Antonio Water System (SAWS) shall mean the San Antonio Water System Board of Trustees as established pursuant to Article 1115, Texas Revised Civil Statutes Annotated, and City of San Antonio Ordinance No. 75686. Whenever used in this Contract the term SAWS or Owner shall be, unless indicated otherwise, understood to mean the San Antonio Water System Board of Trustees, or its successors or any person or persons acting lawfully in an official capacity on behalf of the SAWS at such time and within the power and authority specifically delegated to him or them by this Contract.
48. SEQUENCE OF CONSTRUCTION - The logical and proper order in which the Contractor shall accomplish the Work as provided by Article 5.14 as directed by the Owner in stages and phases, as shown in the Contract Documents, unless Owner orders otherwise by a properly executed Change Order as provided herein.
49. SHOP DRAWINGS - Drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are furnished by the Contractor and prepared by Contractor, first-tier or sub-tier subcontractors, manufacturer, supplier or distributor, and which illustrates and details some portion of the Work. Shop Drawings shall be furnished to the Owner as submittals.

50. SMALL BUSINESS ENTERPRISE – A business structure that is Certified by the Small Business Administration, Texas State Comptroller’s Office or the South Central Texas Regional Certification Agency as being 51% owned, operated and controlled by someone who is legally residing in or a citizen of the United States, and the business structure meets the U.S. Small Business Administration’s (SBA) size standard for a small business within the appropriate industry category.
51. SMALL, MINORITY, AND WOMAN-OWNED BUSINESS - Hereinafter referred to as “SMWB”, includes all business structures Certified by the Small Business Administration, Texas State Comptroller’s Office, or the South Central Texas Regional Certification Agency that are 51% owned, operated, and controlled by a SMALL BUSINESS ENTERPRISE, a MINORITY BUSINESS ENTERPRISE, or WOMAN-OWNED BUSINESS ENTERPRISE
52. SPECIAL CONDITIONS – The part of the Contract Documents which add special requirements that apply to a specific project as defined in Article XI herein.
53. SPECIFICATIONS - The specific instructions to the Contractor that are provided in the Contract Document as to the requirements for materials, equipment, certain construction procedures, standards and quality of workmanship for the Work and performance of related services and other technical requirements and forming a part of the Contract.
54. SUBCONTRACTOR - The individual, firm, equipment vendor, or corporation, having a first tier subcontract with the prime or general Contractor, subject to the review of qualifications by the Consultant and the Owner's Representative, for the performance of a part of the Work. Sub-tier subcontractors must be identified by the subcontractors and be similarly subject to the review of qualifications by the Consultant and the Owner's Representative for the performance of a part of the Work.
55. SUBSTANTIAL COMPLETION - When construction of the project or a specified part thereof is sufficiently completed in accordance with the Contract Documents so that the Project, or specified part thereof could be utilized for the Owner's purposes for which it is intended.
56. SUPERINTENDENT - The Contractor’s onsite project representative whom the Contractor has authorized to communicate with the SAWS COI, pursuant to the terms of the Contract and as provided for in Section 5.4 herein.
57. SUPPLEMENTARY CONDITIONS - Shall be as defined in Article XI herein.
58. SURETY - The corporate body licensed to conduct business in the State of Texas that provides assurance that the Contractor, or his substitute will faithfully perform the Work covered by the Contract and make payment of any due, unpaid, eligible labor and supply claims arising there under and is in compliance with the provisions contained in Articles 3.4 and 3.5 herein.
59. UNDERGROUND FACILITIES - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments and appurtenances thereto, and any encasement containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, sewage and drainage removal, traffic or other control systems.
60. UNIT PRICE WORK - Work to be paid for by Owner on the basis of Contractor quoted unit prices in the Bid Proposal based upon Owner estimated quantities.
61. WOMAN BUSINESS ENTERPRISE – A business structure that is Certified by the Small Business Administration, Texas State Comptroller’s Office or the South Central Texas Regional Certification Agency as being 51% owned, operated and controlled by a woman or women who are legally residing in or citizens of the United States

62. WORK - The entire completed construction or the various separately identifiable parts thereof required necessary, proper or incidental and required or reasonably inferable, to produce, construct and fully complete the construction project in strict accordance with the requirements of the Contract Documents. Work is the result of Contractor performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.
63. WORK CHANGE DIRECTIVE – Shall be as defined in Article VI herein. Document utilized to memorialize minor changes in work as described in 6.2.2.
64. WRITTEN NOTICE – Any notice, payment, statement or demand required or permitted to be given under this Contract by either party to the other may be effected by personal delivery in writing or by facsimile transmission, email or by mail, postage prepaid, or by overnight delivery to an officer, management level employee or other designated representative of either party. Mailed or email notices shall be addressed to the parties at an address designated by each party, but each party may change its address by written notice in accordance with this section. Mailed notices shall be deemed received as of three (3) calendar days after mailing.

## **ARTICLE II. LEGAL RELATIONSHIPS AND RESPONSIBILITIES:**

- 2.1 LEGAL RESPONSIBILITIES - The Contractor in the performance of the Work shall comply with all pertinent Ordinances of the City of San Antonio (COSA), Regulations of the San Antonio Water System (SAWS), Laws of the State of Texas, and of the United States, including but not limited to Rules and Regulations of the United States Department of Labor, pertaining to Occupational Safety and Health Administration standards as presently existing or as may hereinafter be modified or amended.
  - .1 Where construction projects cross or run along state highways, the Contractor shall at a minimum comply with governing Texas Department of Transportation Regulations as outlined in State Permits for each crossing. In cases where State Regulations do not apply, City Regulations shall be binding.
  - .2 Where construction projects cross or run along county roads, the Contractor shall at a minimum comply with governing Bexar County Public Works Regulations as outlined in the County Permit for each crossing.
- 2.2 GENERAL UNDERSTANDING - Contractor at his own cost and expense shall furnish all supervision, tools, implements, machinery, labor, materials and accessories, such as are necessary and proper for the purpose, and secure all required permits and licenses, and shall at his own cost and expense construct, build and complete, in a good, first class, substantial and workmanlike manner, the structures, work and improvements herein described and/or referred to in the Contract Documents.
- 2.3 INDEMNIFICATION - Contractor shall protect the public, SAWS, and COSA fully by taking reasonable precaution to safeguard persons from death or bodily injury and to safeguard property of any nature whatsoever from damage. Where any dangerous condition or nuisance exists in and around construction sites, equipment and supply storage areas and other areas in any way connected with the performance of this contract, the Contractor shall provide and maintain reasonable warning of such danger or nuisance. The Contractor shall not create an excavation, obstruction, or any dangerous condition or nuisance of any nature whatsoever in connection with the performance of this Contract unless necessary to its performance, and in that event the Contractor shall provide and maintain at all times any and all reasonable means of warning of any danger or nuisance created. The duties of the Contractor in this section shall be nondelegable, and the Contractor's compliance with the specific recommendations and requirements of the San Antonio Water System or the City of San Antonio as to the means of warning shall not excuse the Contractor from the faithful performance of these duties should such recommendations and requirements not be adequate or reasonable under the circumstances.

In order to protect SAWS and COSA the Contractor's failure to perform any of the foregoing duties or any of the terms of this Contract, the Contractor shall indemnify and save harmless SAWS, COSA and their agents and employees from all losses, damages, judgments, decrees, and expenses, liens, claims, demands, causes of action, or costs of any nature whatsoever, and/or any other liability, damage, fine or penalty (except where reimbursement for fines or penalties is prohibited by law), including all costs of

defense, attorneys fees, and settlement arising out of or in any way connected with any claims or actions at law or in equity, brought against SAWS, COSA and their agents and employees for the death or injury to persons or for damage to property caused, or allegedly caused, by any willful acts, negligence, nuisance, or breach of any term or condition of this Contract in connection with work to be performed pursuant to said Contract, by the Contractor, his agents, subcontractors, or employees. The Contractor shall furthermore indemnify and save harmless SAWS and COSA and their agents and employees from all demands of subcontractors, workmen, material men, or suppliers of machinery and parts thereof, equipment, power tools, and supplies incurred in connection with work to be performed under this Contract. Property of any description, including but not limited to property of SAWS and COSA, which shall be damaged in the performance of this Contract by the Contractor, his agents, employees, subcontractors or their employees and subcontractors shall be restored to its condition prior to damage by the Contractor at the Contractor's expense.

SUCH INDEMNITY SHALL APPLY WHERE THE CLAIMS, LOSSES, DAMAGES, CAUSES OF ACTION, SUITS, JUDGEMENTS, DECREES, OR LIABILITY ARISE IN PART FROM THE NEGLIGENCE OF SAWS OR COSA. IT IS THE EXPRESSED INTENTION OF THE CONTRACTOR, SAWS AND COSA THAT THE INDEMNITY PROVIDED FOR IN THIS PARAGRAPH IS INDEMNITY BY CONTRACTOR, TO INDEMNIFY AND PROTECT SAWS AND COSA FROM THE CONSEQUENCES OF THEIR OWN NEGLIGENCE, WHERE THE NEGLIGENCE IS A CONCURRING CAUSE OF THE INJURY, DEATH, OR DAMAGE. FURTHERMORE, THE INDEMNITY PROVIDED FOR IN THIS PARAGRAPH SHALL HAVE NO APPLICATION TO ANY CLAIM, LOSS, DEATH OR DAMAGE RESULTS FROM THE SOLE NEGLIGENCE OF SAWS AND COSA UNMIXED WITH THE FAULT OF ANY PERSON OR ENTITY. The obligations of Contractor hereunder shall survive termination of this Contract for any reason. The foregoing notwithstanding, it is agreed that with respect to any statutory restrictions affecting the validity or enforceability of the indemnification obligation herein, it shall be subject to such restrictions, and the indemnification obligation herein shall be deemed to be amended to the minimum extent necessary to conform therewith, and shall otherwise continue in full force and effect.

In any claims against SAWS or COSA or their agents or employees by Contractor, any employee of Contractor, any subcontractor, anyone directly or indirectly employed by Contractor, or any subcontractor or anyone for whose acts any of them may be liable, the indemnification obligation under this Article shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under workers' compensation acts, disability benefit acts of other employer's benefit acts.

- 2.4 ROYALTIES AND PATENTS - The Contractor shall pay all royalties and license fees, and defend all suits or claim for infringement of any patent rights and shall indemnify and as provided under Article 2.3 save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such royalties and license fees and loss when a particular design or process, or the product of a particular manufacturer or manufacturers is specified by Owners Contract Document; provided, however, if the Contractor has reason to believe the design, process or product specified constitutes an infringement of a patent, he shall be responsible for such royalties, license fees and loss unless he promptly gives such information to the Owner.
- 2.5 NO WAIVER OF SAWS RIGHTS - Unless specifically and unambiguously set out in the Contract Documents at the time of bid or proposal opening, no observation/inspection or approval by said Owner or any COI, officer or employee of the Owner, or any order, measurement or certificate by said Owner, or any estimate or payment by the Owner for any part of said Work, or material or method or equipment, or any extension of time, or any possession of the Work, at any time shall operate as a waiver of any provision or obligation of this Contract or any right or power herein given or reserved to said Owner, or of any right to claim any indemnity or damages for patent or latent defects in the work or otherwise as herein provided for; nor shall any Owner waiver of any Contractor breach of this Contract be deemed as a waiver of any other or subsequent Contractor breach; and every Owner right or remedy under the Contract Documents shall be cumulative, and in addition to all other Owner rights and remedies.
- 2.6 INTEREST IN SAWS CONTRACT PROHIBITED - No officer or employee of the Owner shall have a financial interest, direct or indirect, in any Contract with the SAWS, or shall be financially interested, directly, in the sale to the SAWS of any land, materials, supplies or service, except on behalf of the SAWS as an officer or employee. This prohibition extends to the City Public Service Board, City of San

Antonio, and City boards and commissions other than those, which are purely advisory.

- 2.7 EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS/NONDISCRIMINATION CLAUSE  
The San Antonio Water System highly encourages Contractors to implement Affirmative Action practices in their employment programs. This means Contractor should not discriminate against any employee or applicant for employment because of race, color, religion, sex, pregnancy, sexual orientation, political belief or affiliation, age, disability or genetic information.
- 2.8 SMALL, MINORITY, AND WOMEN BUSINESS PROGRAM (SMWBP) REQUIREMENTS -The San Antonio Water System highly encourages contractors to form joint ventures and/or provide subcontracting opportunities to small, minority and woman-owned business (SMWB) firms. The San Antonio Water System's Good Faith Effort Plan (GFEP) is **required and must be submitted** as part of the bid package to report all small, minority, and woman-owned firm participation for this project. The GFEP must reflect all information requested as part of the total construction Contract Documents.
- 2.9 STATE SALES TAX - The Owner qualifies for exemption from state and local sales tax and will upon request by the Contractor, furnish the Contractor with a tax exemption certificate. It is the Contractor's responsibility to claim exemption from payment of applicable state and local sales taxes by complying with such procedures as may be prescribed by the State Comptroller of Public Accounts. The Contract separates the cost of materials and tangible equipment from skill, labor and other associated costs of construction. This is in accordance with the Texas Tax Code to allow tax exemption on the Contract price for materials. Certain construction equipment that is owned or rented by the CONTRACTOR may be subject to State and Local Sales Tax. The Contractor will not include in the Contract Sum or any modification thereto any amount for sales, use or similar taxes for which Owner is exempt.
- 2.10 PREVAILING WAGE RATE AND LABOR STANDARD PROVISIONS. The Provisions of Chapter 2258 of the Texas Government Code, and the "Wage and Labor Standard Provisions" amended in City of San Antonio Ordinance 2008-11-20-1045, expressly are made a part of this Contract and are incorporated herein by reference (the "PWRLSP"). In accordance therewith, a schedule of the general prevailing rate of per diem wages in this locality for each craft or type of worker needed to perform this Contract is included as part of the Bidding Document that are part of the Contract Documents. In accordance with the PWRLSP, the Contractor shall forfeit, as a penalty to Owner, sixty dollars (**\$60.00**) for each laborer, workman or mechanic employed for each calendar day, or portion thereof, in which such laborer, workman or mechanic is paid less than the stipulated prevailing wage rates for any work done under this Contract by the Contractor or any Subcontractor employed on the project. The establishment of prevailing wage rates, pursuant to Chapter 2258 of the Texas Government Code, shall not be construed to relieve Contractor from its obligation under any federal or state law, regarding the wages to be paid to or hours worked by laborers, workmen or mechanics, insofar as applicable to the work to be performed hereunder. Contractor, in the execution of this Project, agrees it shall not discriminate in its employment practices against any person because of race, color, religion, sex, pregnancy, sexual orientation, political belief or affiliation, age, disability or genetic information. Contractor agrees it will not engage in employment practices which have the effect of discriminating against employees or prospective employees because race, color, religion, sex, pregnancy, sexual orientation, political belief or affiliation, age, disability or genetic information. This Contract provision shall be included in its entirety in all Subcontractor agreement(s) entered into by the Contractor or any Subcontractor employed on the project.
- .1 LCP Tracker - Each contractor and every lower-tier subcontractor will be required to submit certified payrolls and labor compliance documentation electronically utilizing the LCP Tracker web-based application as of the first Certified Payroll Report (CPR) and with every CPR thereafter. Electronic submittal of CPRs will be accessed through a link on SAWS' "Business Center" web page. Each contractor and subcontractor will be provided a Logon identification and password to access the SAWS LCP Tracker reporting system. Electronic submittals will require data entry of weekly payroll information including: employee identification, labor classification, total hours worked and hours worked on this project, and wage and benefit rates paid. This electronic submission requirement also applies to every lower-tier subcontractor required to provide labor compliance documentation.

Additional information on the LCP Tracker System can be found on: [www.lcptracker.com](http://www.lcptracker.com).

- 2.11 ETHICS. To report suspected ethics violations impacting The San Antonio Water System, please call 1-800-687-1918.

### **ARTICLE III. CONTRACT DOCUMENTS & BONDS:**

- 3.1 PLANS AND SPECIFICATIONS - The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated and intended results. In cases of discrepancy between any drawing and the dimension figures written thereon, the dimension figures shall govern over scaled dimensions; Detailed Drawings and accompanying notations shall govern over general Drawings; Specifications shall govern over Drawings and Special Conditions shall govern over Supplemental Conditions, Specifications, Drawings and these General Conditions.

- .1 For the purposes of clarification, the most recently issued Document takes precedence over previous issues of the same document. The order of precedence for the Contract Document is as follows with the highest authority listed as "1."

1. Contract Modifications signed by Contractor and Owner.
2. Addenda, with those of later date having precedence over those of earlier date.
3. Special Conditions
4. Supplementary Conditions.
5. General Conditions
6. Specifications
7. Drawings

- 3.2 INTENT OF THE CONTRACT DOCUMENTS is to describe a functionally complete Project (or integral component part thereof) to be constructed in accordance with the Contract Documents. Any work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied by Contractor whether or not specifically called for by SAWS or its Consultant. When words which have a well-known technical or trade meaning are used to describe work, materials or equipment such words shall be interpreted in accordance with that meaning. Where phrases such as "directed by", "ordered by" or "to the satisfaction of", "the Consultant", "the SAWS COI" or "the Owner's Representative" occur, it is to be understood that the directions, orders, or instructions to which they relate are within the scope of, and authorized by the Contract Documents. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or Laws or Regulations in effect at the time of opening of Bids except as may be otherwise specifically stated in writing.

DISCREPANCY IN CONTRACT DOCUMENTS - If, during the performance of the Work, Contractor finds a conflict, error or discrepancy in the Contract Documents, Contractor shall so report to Consultant or Owner in writing immediately and before proceeding with the Work affected thereby and shall obtain a prompt written interpretation or clarification from SAWS or Consultant; however, Contractor shall not be liable to SAWS or Consultant for failure to report any conflict, error or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof or should reasonably have known thereof.

- 3.3 PLANS AND SPECIFICATIONS AT THE WORK SITE - The Contractor shall maintain at the Work site at least one copy of the most recent and complete set of Contract Documents to include, but not limited to, Plans, Specifications, Addenda, approved Shop Drawings and Change Orders, in good order and marked to record all changes to the Plans and/or existing physical conditions made during construction.

- .1 RECORD DRAWINGS - Each month as the Work progresses the Consultant shall formally submit to SAWS, along with the monthly payment application, a set of red line drawings noting work completed during that period. Red Line drawings should also reflect any and all variations to the Plans and reflect all actual dimensions necessary for the development of as built drawings. As a condition precedent to any progress payment of final payment the Contractor shall have a

duty to submit, and coordinate with Consultant, Contractor's properly marked drawings. Prior to final payment to the Contractor, the Contractor who has control of the Work and is in a position to know how the Project was constructed, shall formally submit to SAWS Consultant, at the final walk through the set of clearly marked red line drawings and related documents noting work completed and any variations from the original plan and specifications for Consultant's use in preparing Owner's final "Record Drawings" for the SAWS permanent file.

- 3.4 PERFORMANCE BOND - CONTRACTOR shall furnish a Performance Bond in favor of SAWS in an amount equal to 100% of the total construction cost under this Contract. Total construction cost are defined as the entire cost of materials and their installation, and include, but are not limited to, the cost of labor, equipment, supplies, materials and additional construction costs. The Performance Bond shall: (1) guarantee the completion of the entire construction herein identified in conformity with the Plans and Specification approved by SAWS, and (2) guarantee the Work against defects in workmanship and materials for a period of twenty four (24) months after acceptance of the work by the San Antonio Water System. The bond shall be in accordance with Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code and shall have corporate Sureties that are licensed to conduct business in Texas. The Contractor agrees that the following shall apply to bonds provided by a Surety:

If any bond is in an amount in excess of ten (10%) percent of the Surety company's capital and surplus, the San Antonio Water System shall require, as a condition to accepting the bond, written certification that the surety company has reinsured the portion of the risk that exceeds ten (10%) percent of the surety company's capital and surplus with one or more reinsurers who are duly authorized, accredited, or trusted to do business in this state. The amount reinsured by any reinsurer may not exceed ten (10%) percent of the reinsurer's capital and surplus.

If the amount of the bond exceeds \$100,000, the surety must also:

- (1) hold a certificate of authority from the United States secretary of the treasury to qualify as a surety on obligations permitted or required under federal law; or
- (2) have obtained reinsurance for any liability in excess of \$100,000 from a reinsurer that is authorized and admitted as a reinsurer in this state and is the holder of a certificate of authority from the United States secretary of the treasury to qualify as a surety or reinsurer on obligations permitted or required under federal law.

If the Surety on any bond furnished by the Contractor to the Board is declared bankrupt or becomes insolvent, or has its right to do business revoked in the State of Texas, then the CONTRACTOR will have ten (10) days to substitute another bond and surety there for which shall be acceptable to SAWS and which shall be at the expense of the Contractor.

- 3.5 PAYMENT BOND - Contractor shall furnish Payment Bond in favor of SAWS in an amount equal to 100% of the total construction cost under this Contract. Total construction costs are defined as the entire cost of materials and their installation, and include, but are not limited to, the cost of labor, equipment, supplies, materials and additional construction costs. The Payment Bond shall be security for the payment of all persons supplying labor and material in the prosecution of the Work provided for in the Contract Documents. The Contractor agrees that the following shall apply to Bonds provided by a Surety:

If any Bond is in an amount in excess of ten (10%) percent of the Surety company's capital and surplus, the San Antonio Water System shall require, as a condition to accepting the Bond, written certification that the surety company has reinsured the portion of the risk that exceeds ten (10%) percent of the surety company's capital and surplus with one or more reinsurers who are duly authorized, accredited, or trusted to do business in this state. The amount reinsured by any reinsurer may not exceed ten (10%) percent of the reinsurer's capital and surplus.

If the amount of the bond exceeds \$100,000, the Surety must also:

- (1) hold a certificate of authority from the United States secretary of the treasury to qualify as a surety on obligations permitted or required under federal law; or
- (2) have obtained reinsurance for any liability in excess of \$100,000 from a reinsurer that is authorized and admitted as a reinsurer in this state and is the holder of a certificate of authority



from the United States secretary of the treasury to qualify as a surety or reinsurer on obligations permitted or required under federal law.

The bonds shall have corporate Sureties that are licensed to conduct business in Texas. If the Surety on any Bond furnished by the Contractor to the Board is declared bankrupt or becomes insolvent, or has its right to do business revoked in the State of Texas, then the CONTRACTOR will have ten (10) days to substitute another Bond and Surety therefore which shall be acceptable to SAWS and which shall be at the expense of the Contractor.

- 3.6 CONTRACTOR AND SURETIES STILL BOUND - No assignment, transfer or subletting, without the written consent of SAWS, and no order of SAWS for or approval of any alterations or modifications in said Specifications, Plans, or Work, and no change in the requirements or order for extra work made by the SAWS as provided in this Contract, shall ever in any manner release or diminish the responsibility of Contractor or any Surety on any bond of Contractor, but on the contrary, such responsibility shall extend to and comprehend all such changes and other matters. If any Surety upon any bond furnished in connection with the Contract becomes insolvent, or otherwise not authorized to do business in this State, the Contractor shall within ten (10) days furnish equivalent substitute forms of security while seeking substitute bonding, to protect the interests of the SAWS and of persons supplying labor or materials in the prosecution of the Work contemplated by the Contract, or may be liable for breach of Contract and default termination.
- 3.7 CONTRACTS LESS THAN \$25,000 - If the Contract Sum is less than or equal to \$25,000, Owner and Contractor may agree (at Owner's discretion) to Contractor not providing Performance and Payment Bonds; provided that in such event, no money will be paid by Owner to Contractor until Final Completion and acceptance of all Work by the Owner. If Contractor elects to provide Performance and Payment Bonds, the Contract Sum shall be payable to Contractor through progress payments in accordance with these General Conditions.

#### **ARTICLE IV. CONTRACT ADMINISTRATION:**

##### **4.1 GENERAL ADMINISTRATION**

- .1 PLANS AND SPECIFICATIONS BY CONSULTANT -The Consultant will provide general administration of the Contract during construction in accordance with the Consultant's scope of work as defined in the Consultant's Contract with the SAWS.

- .1 The Consultant has the authority to act on behalf of the Owner to the extent provided in the Construction Contract Documents. The Consultant will advise and consult with the Owner. The Owner's instruction to the Contractor may be issued through the Consultant but the Owner reserves the right to issue instructions directly to the Contractor through other designated SAWS representatives. Contractor understands that SAWS may modify the authority of such Consultant as provided in the terms of its contract relationship with the Consultant, and the Owner shall, in such event, be vested with powers formerly exercised by such Consultant, provided written notice of such modification shall be immediately served on the Contractor. Nothing herein shall authorize independent agreements between Contractor and such Consultant, nor shall the Consultant be deemed to have a legal relationship with the Contractor.
- .2 Any and all oral instructions shall be confirmed expeditiously in writing with copies furnished to the Consultant, the Owner's designated representatives, and the Contractor by the party issuing the oral instruction.
- .3 Upon the Consultant's written recommendation, the Owner's Representative shall have the final authority to reject Work performed by the Contractor which does not meet the requirements of the Contract, and to order such Work repaired, removed, or replaced in accordance with Article 5.10. Rejected Work will be documented and all payments related to the rejected Work will be suspended until the Work is accepted by the Owner.

##### **.2 PLANS AND SPECIFICATIONS BY SAWS ENGINEER**

- .1 The Engineer shall confirm all oral instructions to the Contractor expeditiously in writing.

- .2 Any other provision contained herein notwithstanding, the Engineer shall have the authority to reject Work performed by the Contractor which does not meet the requirements of the Contract, and to order such Work repaired, removed, or replaced in accordance with Article 5.10. Rejected Work will be documented and all payments related to the rejected Work will be suspended until the Work is accepted by the Owner.

#### 4.2 ACCESS TO AND OBSERVATION/INSPECTION OF THE WORK

- .1 PLANS AND SPECIFICATIONS BY CONSULTANT - The Contractor shall provide sufficient, safe, and proper facilities at all reasonable times for the observation and/or inspection of the Work by any duly authorized representative of the Owner. The Consultant and the Owner will make visits to the site at intervals appropriate to the various stages of construction to observe the progress of the executed Work and to determine if the Work is proceeding in accordance with the Contract Documents.

- .1 On the basis of such visits and on-site observations as an experienced and qualified design professional, Consultant will keep Owner informed of the progress of the Work and will guard Owner against defects and deficiencies in the Work which are the responsibility of the Contractor to prevent and/or cure.
- .2 No approval of any phase of the construction Project by any of the Owner's representatives or observer/inspectors shall relieve the Contractor from full compliance with the Contract Documents regarding the ultimate Work product. Any additional cost, damages, or delays occasioned by patent or latent defects in the Work, and/or failure to meet the requirements of the Contract Documents, at any Project phase, shall be borne by the Contractor.

- .2 PLANS AND SPECIFICATIONS BY SAWS ENGINEER - The Contractor shall provide sufficient, safe and proper facilities at all reasonable times for the observation/inspection of the Work by the duly authorized representative of the Owner. The Engineer will make visits to the site at intervals appropriate to the various stages of construction to observe the progress of the executed Work and to determine if the Work is proceeding in accordance with the Contract Documents.

- .1 No approval of any phase of the construction Project by any of the Owner's observer and/or inspectors shall relieve the Contractor from full compliance with the Contract Documents regarding the ultimate Work product. Any additional cost, damages, or delays occasioned by patent or latent defects in the Work, and/or failure to meet the requirements of the Contract Documents, at any Project phase, shall be borne by the Contractor.

- 4.3 ASSIGNMENTS AND SUBLETTING - Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this Contract, or any portion thereof, or any right, title or interest in, to or under the same, without the previous written consent of the Owner. Contractor shall not assign by power of attorney or otherwise any of the monies or other considerations to become due and payable by the Owner under this Contract, without the previous written consent of the Owner. The Contractor shall notify the Owner, by written notification by certified mail to the Owner, that such assignment, transfer, conveyance or subletting, or other disposition of this Contract or any portion thereof, or any right, title or interest, in, to or under the same, is contemplated. If the Contractor does not receive written approval of such contemplated action from the Owner within thirty days of receipt of such initial request by the Contractor, such contemplated assignment, transfer, conveyance or subletting, or other disposition of this contract or any portion thereof, or any right, title or interest in, to, or under the same, shall be deemed disapproved. In no event shall the Owner be liable in excess of the consideration of this Contract in the case of any such assignment, transfer, conveyance or subletting of the Work or performance which is subject hereof.

- .1 The Owner reserves the right to withhold any monthly payment hereafter provided for in the event of an assignment or subletting of a portion of the work without the previous consent and knowledge of the Owner and by reserving such right, the Owner shall not be deemed to have waived its right to declare a full breach of this Contract for Contractor's failure to comply with provisions hereof, such remedy being alternative only and exercisable at the option of the Owner.

4.4 SUBCONTRACTORS - The Contractor shall upon executing the Contract, notify the Owner in writing of the names of all proposed first tier Subcontractors for the Work. This should include the SMWBs identified in the Good Faith Effort Plan.

- .1 SUBCONTRACTUAL RELATIONS - By an appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner. Said agreement shall preserve and protect the rights of the Owner under the Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with his Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this paragraph and identify to the Subcontractor any terms and conditions of the proposed Subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Documents available to his Sub-subcontractor.

4.5 SEPARATE CONTRACTS

- .1 The Owner reserves the right to let other Contracts in connection with this Work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his Work with their work.
- .2 When separate Contracts are awarded for different portions of the Project, "the Contractor" in the Contract Documents in each case shall be the Contractor who executes each separate Contract. This Contractor shall properly connect and coordinate his Work with the work of other Contractors. If any part of this Contractor's Work depends for proper execution or proper results on the work of any other separate Contractor, this Contractor shall inspect and promptly report in writing to the Consultant and SAWS COI any discrepancies or defects he may find in the work of any separate Contractor that render it unsuitable to achieve proper connection, execution and results. Failure of this Contractor to so inspect and report obvious discrepancies or defects shall constitute an acceptance of the other Contractor's work as fit and proper to receive this Contractor's Work, except as to defects which may develop in the other separate contractor's work after the execution of this Contractor's work.
- .3 Any other provision contained herein notwithstanding, should this Contractor negligently cause damage to the work or property of any separate Contractor on the Project, this Contractor shall, upon due notice, endeavor to settle with such other Contractor by agreement. A reciprocal clause shall be placed in the Contract Documents between the SAWS and the separate Contractor if involving other SAWS work. If such separate Contractor sues the SAWS and/or its agents on account of any damage alleged to have been so sustained, the SAWS and/or its agents shall notify this Contractor who shall defend the SAWS and/or its agents' interests and Contractor's own interests in such proceedings and pay all attorney fees, and costs in connection therewith, and if any judgment against the SAWS results there from, this Contractor shall pay or satisfy that judgment.

4.6 CONTRACT TERMINATION

- .1 TERMINATION BY CONTRACTOR - If the Work is stopped by SAWS for a period of ninety (90) consecutive days under an order of any court or other public authority having jurisdiction, or as a result of an act of a higher governmental authority, such as a declaration of a national emergency making materials unavailable, through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing any of the Work under a Contract with the Contractor, then the Contractor may upon ten (10) additional days written notice after first providing a complete and detailed written explanation of the event that constitutes an allowable termination under this provision to SAWS and the Consultant, at which

time SAWS will promptly provide a written determination whether in its sole discretion the event detailed by the Contractor constitutes an acceptable Contract termination event, pursuant to this provision; then the Contractor may terminate the Contract and recover from the Owner payment for all Work performed as of the date that Contractor gives written notice of termination pursuant to this paragraph. Owner shall not be liable for the payment of any lost or anticipated profit on Work not performed or for any consequential damages on termination of this Contract. If the Work is recommenced during the ten (10) day notice period, the Contractor may not terminate the Contract.

- .2 TERMINATION BY OWNER - If the Contractor is adjudged as bankrupt, or if he makes a general assignment for the benefit of his creditors, without the consent of the SAWS or if a receiver is appointed on account of his insolvency, or if he persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction pertaining to the Work, or otherwise is guilty of a substantial violation of a provision of the Contract Documents warranting Owner default of Contractor, then the Owner may, without prejudice to any right or remedy and after giving the Contractor and Contractor's Surety, if any, ten (10) days written notice, terminate the employment of the Contractor and/or take possession of the site and of all materials, and may upon order of a court of competent jurisdiction take possession of equipment, tools, construction equipment and machinery thereon owned by the Contractor. Should the Surety fail to pursue completion of the Work with reasonable speed, the Owner may arrange for completion of the Work and deduct the cost thereof from the unpaid Contract sum remaining, including the cost of additional Owner administration and Consultant services made necessary by such default or neglect, in which event no further payment shall then be made by the Owner until all Cost of completing the Work shall have been paid. If the unpaid balance of the Contract sum exceeds all the costs of finishing the Work, including direct and indirect consequential costs, attorney's fees and compensation for the Consultant's additional services made necessary thereby, such excess sum shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor or his surety shall pay the difference to the Owner. This obligation for payment shall survive the termination of the Contract
- .1 TERMINATION FOR CONVENIENCE - The right to terminate this Contract for the convenience of Owner (including, but not limited to, non-appropriation of funding) expressly is retained by Owner. In the event of a termination for convenience by Owner, Owner shall, at least ten (10) calendar days in advance, deliver written notice of the termination for convenience to Contractor. Upon Contractor's receipt of such written notice, Contractor immediately shall cease the performance of the Work and shall take reasonable and appropriate action to secure and protect the Work then in place. Contractor shall then be paid by Owner, in accordance with the terms and provisions of the Contract Documents, an amount not to exceed the actual labor costs incurred, the actual cost of all materials installed and the actual cost of all materials stored at the Project site or away from the Project site, as approved in writing by Owner but not yet paid for and which cannot be returned, and actual, reasonable and documented demobilization costs, if any, paid by Contractor and approved by Owner in connection with the Work in place which is completed as of the date of termination by Owner and that is in conformance with the Contract Documents, less all amounts previously paid for the Work. No amount ever shall be owed or paid to Contractor for lost or anticipated profits on any part of the Work not performed or for consequential damages of any kind.
- .2 In the event that Owner shall be prevented from completing performance of its obligations under this Contract by an act of God or other occurrence whatsoever which is beyond the control of Owner, then Owner shall be excused from any further performance of its obligation and undertakings.
- .3 Contractor may not recover from Owner any lost or anticipated profit on Work not performed or consequential damages of any kind on or for termination of this Contract by Owner or Contractor or for any breach of this Contract by Owner.

#### 4.7 CONTRACTOR BID SUSPENSION POLICY

- .1 INTRODUCTION - SAWS through its Board of Trustees routinely contracts with private businesses to build, maintain and repair SAWS structures, vehicles, equipment, property and other assets. SAWS desires to receive quality service and performance at a fair price for each construction services, material, supply, and equipment Contract awarded under Section V of SAWS Purchasing and Contracting Policy.

On occasion, SAWS finds that the quality of service or performance required by the Contract Documents is not provided. Therefore SAWS requires a policy and a process to address nonperformance by contractors and, if necessary, to suspend certain contractors from further contract awards for a period of time.

The purpose of this policy is to establish a procedural framework to suspend a contractor from consideration for award of future Contracts with SAWS, based on a determination that the Contractor has not met the performance standards as outlined in Article 4.7.4, Reasons for Contractor Suspension.

Staff will implement procedures consistent with this Article 4.7 to address service quality and performance issues. These procedures will include adequate safeguards, reviews and appeals to insure that Contractors being considered for suspension are provided ample opportunity for discussion, communication, and corrective actions prior to being suspended.

The term "Contractor" as used in this Article herein means a construction Contractor, subcontractor, vendor, supplier, materialman and any other person or entity supplying labor and/or material to SAWS on a contract basis.

"SAWS Management Officials" means SAWS personnel who are at the Manager level or above and who are involved in the supervision, review or acceptance of services, work or materials provided by Contractors under Contract with SAWS.

Any provision contained herein notwithstanding, SAWS reserves the right to not award a Contract to any Contractor who SAWS determines has failed to perform work to the quality of satisfaction required by SAWS and is therefore not a responsible bidder. In cases where SAWS determines that a Contractor is not a responsible bidder on a Contract due to Contractor's failure to provide quality and satisfactory work, SAWS will first give notice to the Contractor, prior to making the ultimate determination as to Contractor being a non-responsive bidder, of the reasons for SAWS determination. The Contractor will then have an opportunity to respond to SAWS determination. At that time SAWS shall in its sole discretion make a final determination, as to whether Contractor is a responsible bidder on a given Contract.

- .2 CREATION OF CONTRACTING COMMITTEE - There shall be a standing Contracting Committee comprised of SAWS staff appointed by the President/Chief Executive Officer of SAWS. At least one Committee member will be a Vice President of SAWS and all other Committee members will be Managers or higher. The members of the Committee hearing the complaint will be SAWS Management Officials not directly involved with the Contractor being considered for bid suspension. If a standing Contracting Committee member has been involved in the day-to-day administration or supervision of a Contract with a Contractor being reviewed by the Committee, such Committee member will not serve on the Committee with regard to a complaint or appeal affecting that Contractor. The President/CEO may either appoint a substitute or the Committee may proceed with fewer members, but in no event will there be less than three members available at any Committee meeting to hear information presented.
- .3 ADMINISTRATIVE PROCEDURES - Subject to applicable laws, regulations and this policy, SAWS legal department will develop the Administrative and Operational Procedures for Contractor Bid Suspension Hearings and Appeals as outlined in "**Exhibit B**" of these General Conditions. The Contracting Committee may recommend changes to the Administrative and Operational Procedures. Changes to the Administrative and Operational Procedures must be approved by the President/CEO.

.4 REASONS FOR CONTRACTOR SUSPENSION:

The Contracting Committee may suspend a Contractor for any of the following reasons:

- .1 Contractor's failure to satisfy Contract obligations;
- .2 Contractor's unsatisfactory safety performance;
- .3 Contractor's failure to meet schedules or deadlines established in a Contract with SAWS;
- .4 Contractor's failure to meet specifications or plan requirements;
- .5 Contractor's failure to staff a project as specified in Contract Documents;
- .6 Contractor's provision of inaccurate information in bid documents;
- .7 Contractor's failure to provide change order documentation specified in Contract Documents;
- .8 Contractor's failure to comply with warranty obligations;
- .9 Contractor's failure to satisfy all Contract obligations to subcontractors, material men and laborers on SAWS projects as specified in Contract Documents;
- .10 Contractor's failure to correct valid customer or public complaints as provided for in the Contract specifications, city ordinance, or applicable law;
- .11 Conviction of a principal, owner, manager or corporate officer of the Contractor of a criminal offense;
- .12 Relevant documented information from other parties with whom a contractor has contracted which are negative in nature and reflective of any of the foregoing reasons.

.5 COMPLAINT AND HEARING PROCEDURES - A SAWS Management Official may submit a complaint to the Chief Operating Officer recommending that a particular Contractor be suspended from consideration for award of Contracts with SAWS. The Chief Operating Officer will determine whether the complaint is in accordance with the Administrative and Operating Procedures. Upon such a determination, the Chief Operating Officer will convene the Contracting Committee in a Hearing on Contractor Bid Suspension. The standing Contracting Committee will consider all relevant information and decide whether the Contractor will be suspended from bidding on SAWS Contracts.

.6 NOTICE OF SUSPENSION BY CONTRACTING COMMITTEE - If the Contracting Committee decides to suspend the Contractor, the Chief Operating Officer will send written notice as described in Article 4.7 Contractor Bid Suspension Policy. This notice will be sent by certified mail, return receipt requested.

.7 SUSPENSION PERIOD - If the Contractor has not been previously suspended pursuant to this policy, the term of the suspension will be for one (1) year from the date of issuance of the notice of suspension.

If the Contractor has been previously suspended pursuant to this policy, the term of the suspension will be for two (2) years from the date of issuance of the notice of suspension.

.8 APPEALS PROCESS - The Contractor may request review of the decision by the President/Chief Executive Officer of SAWS by filing a written request for review with the President/CEO within ten (10) days of the date of the notice of the result of the appeal hearing. The suspension will stay in effect throughout the appeal process.

.9 SEVERABILITY - Should any section, part, paragraph, sentence, phrase, clause or word of this policy, for any reason, be held illegal, inoperative or invalid, or if any exception to or limitation

upon any general provision herein contained be held to be unconstitutional or invalid or ineffective, the remainder shall, nevertheless, stand effective and valid as if it had been enacted without the portion held to be unconstitutional or invalid or ineffective.

- .10 ADMINISTRATIVE LIABILITY - No officer, attorney, agent or employee of SAWS renders himself or herself personally liable for any damage that may accrue to persons or property as a result of any act required or permitted and performed in good faith in the discharge of his or her duties under this policy so long as such officer, attorney, agent or employee is acting within the scope of his or her official capacity. Any suit brought against an officer, attorney, agent or employee of SAWS acting within his or her official capacity and scope, as a result of any act required or permitted and performed in good faith in the discharge of duties under this policy, will be defended by SAWS legal counsel until the final determination of the proceeding therein.

#### 4.8 SUSPENSION OF WORK BY OWNER

- .1 The Owner may suspend said Work either partially or totally by his written order whenever in his opinion the interests of SAWS require the suspension of such Work. In the event that the Owner suspends Project Work, the Contractor hereby acknowledges and agrees that so long as the total suspension(s) is (are) for a period not to exceed ten (10) cumulative days accruing throughout the entire Contract Time, that the Contractor is not entitled to request a negotiated adjustment of the Contract Sum nor an extension of the Contract Time. Such right to suspend Project Work for periods not to exceed ten (10) cumulative days accruing throughout the entire Contract Time without compensation to the Contractor, is expressly reserved by SAWS.
- .2 Any total suspension of Project Work by the Owner that extends beyond ten (10) cumulative days accrued throughout the entire Contract Time, may entitle the Contractor to request either a negotiated adjustment of Contract Sum or an extension of Contract Time, or both, as directly attributable to such extended total suspension of Project Work, Provided:
  - .1 Any equitable extension of the Contract Time shall not exceed the actual delay caused by the temporary suspension, as determined by Owner, and Engineer and or Consultant;
  - .2 Any equitable adjustment to the Contract Sum shall be for the actual, necessary and reasonable costs of properly protecting any Work finished or partially finished during the period of the temporary suspension; provided, however, that no payment of profit and/or overhead shall be allowed on top of these costs; and
  - .3 If it becomes necessary to move equipment from the Project and then return it to the Project when the Work is ordered to be resumed, an equitable adjustment to the Contract Sum for the actual, necessary and reasonable cost of these moves; provided, however, that no adjustment to the Contract Sum shall be due if said equipment is moved to another Project of Owner.
- .3 Any partial suspension of the Work by the Owner that extends beyond the mutually determined point in time when the ten (10) cumulative days accruing throughout the entire Contract Time, are effectively exceeded, may entitle the Contractor to request either a negotiated adjustment of Contract Sum or an extension of Contract Time, or both, as directly attributable to such extended partial suspension of Project Work.
  - .1 In the event that the Owner partially suspends the Work in such a manner that some work is able to continue, the Contractor and SAWS hereby agree to discuss the impact of the partial suspensions upon dependent Contract Work, and to mutually determine when the ten (10) cumulative days accruing throughout the entire Contract Time and expressly reserved by the SAWS without compensation to the Contractor, would effectively be exceeded.
  - .2 The SAWS COI shall have the right to stop the Work whenever such stoppage may be necessary to ensure proper execution of the Contract. Such temporary stoppage shall be followed by a Written Order as outlined in Article 4.8.1

- .4 The Owner and the SAWS COI shall at any time during the Contract Time have the right to suspend or stop the Work under Article 4.8.1 or Article 4.8.3.2 when the SAWS COI or any other authorized representative of the Owner reasonably believes that there exists any dangerous condition, nuisance or safety risk to workers, the general public or property on the site or on property adjacent thereto or otherwise violates a term or condition of the Contract Documents. Notwithstanding the foregoing provisions of Article 4.8, the Contractor shall not be entitled to any adjustment of the Contract Sum or extension of the Contract Time relating to any suspension of the Work by the Owner or the SAWS COI for any reasons under this Article 4.8.4. and the Owner shall have no other liability of any kind to the Contractor with respect to any suspension of the Work for reasons under this Article 4.8.4.
- .5 The Owner and the SAWS COI shall at any time during the Contract Time have the right to suspend or stop the Work under Article 4.8.1 or Article 4.8.3.2 when the SAWS COI or any other authorized representative of the Owner reasonably believes that there exists on the site any environmental condition which could reasonably be expected to result in any liability, costs or expense to the Owner or the Contractor arising under any laws, statutes, ordinances, rules and regulations of any governmental, quasi-governmental or regulatory authority which include but are not limited to the transportation, storage, placement, handling, treatment, discharge, generation, production, removal, or disposal (collectively, "Treatment") of any waste, petroleum product (including without limitation, gasoline and diesel fuel), waste products, or any other substance, the Treatment of which is regulated by any Laws (collectively, "Waste"), or any other environmental condition that would cause the Work to be in violation of any laws, statutes, ordinances, rules and regulations ("Laws") of any governmental, quasi-governmental or regulatory authority . Notwithstanding the foregoing provisions of Article 4.8, the Contractor shall not be entitled to any adjustment of the Contract Sum or extension of the Contract Time relating to any suspension of the Work by the Owner or the SAWS COI for environmental reasons under this Article 4.8.5., and the Owner shall have no other liability of any kind to the Contractor with respect to any suspension of the Work for environmental reasons under this Article 4.8.5. At all times during the performance of the work by the Contractor under this Contract, the Contractor will comply with all Laws. The Contractor agrees to (a) give notice to the owner immediately upon Contractor's acquiring knowledge of the existence of any Waste or other environmental condition on the site with a full description thereof, (b) promptly comply with any Laws applicable to the Contractor or the site requiring the removal, treatment or disposal of such Waste or proper treatment of the environmental condition as required by Law and provide Owner with satisfactory evidence with such compliance and (c) provide Owner within thirty (30) days after demand by Owner with a bond, letter of credit or similar financial assurance evidencing to the Owner's satisfaction that adequate funds are available to pay the costs of removing, treating and disposing of such Waste or proper treatment of the environmental condition as required by Law.
- 4.9 PROTECTION OF PRIVATE PROPERTY - The SAWS has secured right-of-way and easements, as shown on the plans, to be occupied by the finished construction, with only such additional temporary construction easements as shown for use by the Contractor in carrying out his Work. The Contractor shall take proper measures to protect all property within all construction easements, and adjacent or adjoining property which might be injured by any process of construction; and, in case of any injury or damage, he shall restore at his own expense the damaged property to a condition equal to or better than that existing before such injury or damage was done, or he shall make good such injury or damage in a manner acceptable to the owner and/or private or public owner.
- .1 The Contractor shall immediately correct customer complaints for such items as, but not limited to, driveway access, mailboxes, privacy fences, public safety hazards, public nuisances, water and sewer services as directed by the SAWS COI.
- .2 The Contractor shall not, except upon procuring written consent from proper private parties, enter or occupy with men, tools, materials, or equipment, any privately owned land except for those on easements provided herein by SAWS. Contractor must submit a copy of the easement agreement to SAWS.
- .3 No permit shall be removed outside the permanent easement, except where expressly authorized in writing by the Owner and City of San Antonio. Any tree not authorized for removal shall be adequately protected against damage from construction operations. Contractor shall be



responsible for any damage, destruction or other harm including but not limited to all costs, fees, or other expenses attributable thereto, caused to trees not authorized for removal that is due to or arise out of Contractor's Work at the Project.

**ARTICLE V. CONTRACT RESPONSIBILITIES:**

- 5.1 OWNER-CONTRACTOR OBLIGATIONS - The Owner and the Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. The Contractor shall not assign the Contract or sublet it as a whole without the prior written consent of the Owner, nor shall the Contractor assign any monies due or to become due to him hereunder, without the prior written consent of the Owner and in the manner established in Article 4.3 herein.
- 5.2 OWNER'S RESPONSIBILITY - Projects Contracted through other outside entities and containing utility work by SAWS shall be managed by the other entity with support by SAWS personnel. Contractor shall report directly to the other entity. Utility projects contracted through SAWS, which contain secondary street work, shall be managed by SAWS with support by other entity personnel. Contractor shall report directly to SAWS.
- .1 The design of this Project was performed by a professionally licensed Engineer who is an authorized representative of the Owner, who will exercise the authority and functions of the Owner as the project Consultant in the following respects:
- .1 Provide Contractor with benchmarks.
  - .2 Checking of shop drawings furnished by the Contractor in compliance with Article 5.12 herein.
  - .3 Consultation and advice during construction and rendering those decisions requiring interpretation of the Plans and Specifications.
  - .4 Make visits to the Site at intervals appropriate to the various stages of construction operations to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, and to endeavor to guard the Owner against defects and the Work.
  - .5 Assist in the Substantial Completion inspection.
  - .6 Assist in the final inspection.
  - .7 Assist in the preparation of the monthly and final quantity and pay estimates.
  - .8 Any terms and conditions of the consultant's Contract with the Owner shall be cumulative of the above.
- .2 Unless otherwise provided or ordered, all resident observation and inspection on all SAWS contracted projects will be performed by the SAWS COI, who will exercise the authority and functions of the Owner in the following respects:
- .1 Review laboratory, mill and shop tests of materials and equipment for general compliance with the Plans and Specifications.
  - .2 Observation and inspection of the authorized Work, and administration for the Owner, and review of all Work performed for general compliance with the Plans and Specifications.
  - .3 Stop the Work or any portion of the Work if Contractor fails to carry out the Work in accordance with the Contract, or fails to correct Work which is not in accordance with requirements of the Contract. However, the right of the SAWS to stop the Work as provided for in Article 4.8, will not give rise to a Claim for delay or to a duty on the part

of the SAWS to exercise this right for the benefit of Contractor or any other person or entity. SAWS will provide the Contractor with a written explanation and detail for the stoppage of work.

- .4 Review monthly and final quantity and pay estimates.
  - .5 Conduct substantial completion observation and inspection.
  - .6 Conduct final observation and inspection.
  - .7 Determine acceptability of the finally completed Work.
- .3 Quality Assurance Random sampling and testing of materials, inspection of laboratory testing processes and procedures for Quality Assurance purposes beyond those required to be performed at the expense of the Contractor under their Quality Control program in full compliance with 5.3 herein, may be performed by SAWS, at the expense of SAWS, in a certified commercial testing laboratory approved and designated by SAWS. The Contractor at their expense shall furnish assistance in obtaining and providing samples for SAWS Quality Assurance purposes.

### 5.3 CONTRACTOR'S RESPONSIBILITIES

- .1 Quality Control - The Contractor agrees and understands that the Contractor is responsible for performing Quality Control inspection and testing services to assure Project compliance with Contract Documents. Sampling and testing of materials, laboratory inspection of materials and processes for quality control purposes shall be performed at the expense of the Contractor or Supplier by an independent commercial laboratory approved by the SAWS COI. All test reports and shop drawings shall be signed and sealed by a Texas Registered Professional Engineer and submitted to the SAWS COI. All structural members shall be marked or stamped individually with an identifying number for the purpose of cross-referencing all reports. All test reports and vendors' certifications for materials incorporated into the project shall be submitted in accordance to the latest revision of the International Building Code, as required by City Building Permit, with sufficient time in advance as to allow the Owner, Owner's representative, Consultant, Owner's Third Party Inspection Agency and City Building Officials to review and approve materials, installation and placement prior to next stage of the project. Approval does not constitute or relieve the Contractor's obligation under this contract to fully comply with the specifications and building permit requirements.
- .2 The Contractor shall supervise and direct the Work using the best skill and attention. Any provision contained herein notwithstanding, the Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures, and for the implementation of safety precautions and for coordinating all portions of the Work under this Contract.
- .3 The Contractor shall give the SAWS COI reasonable advanced notice of the readiness of any Work for observation/inspection, and when practicable, twenty-four (24) hours notice. If any underground Work is performed without the proper prior notification to the COI, it shall be uncovered for observation/inspection and properly restored at the Contractor's expense.
- .4 If the Contractor, in the course of the Work, finds any discrepancies between the Plans and the physical conditions of the locality, or any errors or omissions in the Plans or the layout as given by survey points and instructions, he shall immediately inform the SAWS COI and Consultant, with a RFI, and the Consultant and/or Engineer shall promptly investigate the same. Any Work impacted by the discrepancy performed by Contractor after such discovery, until authorized, will be done at the Contractor's risk and/or expense.
- .5 Contractor's Risk and Inventory - Contractor shall be responsible for the complete, timely, performance of the Work under this Contract and compliance with the Contract Documents. Contractor shall be responsible for the safe storage and inventory control of all materials paid by SAWS as "materials on site", on the project site and/or within off site bonded/insured storage facilities either owned or leased by the Contractor. Contractor shall allow full access, seven days a week, 24 hours, to storage facilities, whether on site or off site, as requested by SAWS COI. Contractor shall protect materials and Work from all theft, loss, vandalism, or damage from any

cause whatsoever until final Project completion by Contractor and acceptance by Owner; and shall deliver said Work and improvements to the SAWS in a completed and acceptable condition in accordance with the Contract Documents.

- .6 It is the intention of the SAWS to be sensitive to the needs and concerns of the citizenry. It is the Contractor's responsibility to adhere to this policy to the best of his ability. The Contractor, subcontractor and his employees should, whenever possible, address citizen inquiries about the project, provide names and numbers of SAWS personnel, relay citizen complaints, and provide continuous access to the citizen's property.
- .7 Permits - Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, including review fees, inspections, and licenses. Owner shall reasonably assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay any and all charges, fees and costs necessary for obtaining permits for the prosecution of the Work. The contractor shall be responsible for all costs associated with registering with the City of San Antonio Right of Way Office (COSA ROW), applying and obtaining COSA ROW Street cut permit(s) as required for the project and shall keep the permit active during the course of the work. Contractor is also responsible for the initial permit, permit renewals, expedited permits and any and all costs inclusive of but not limited to COSA ROW inspection fees, penalties and/or any and all fees associated with the permit. To register the contractor should contact the COSA ROW office at 210-207-6949.
- .8 Project Sign – Each Project Specification will contain a detailed requirement for Project signage that identifies the site and Work to general citizenry.
- .9 Pre-Construction and Post-Construction Videos – The Contractor shall provide pre-construction videos prior to commencement of the project in accordance with standard specification for construction Item No. 1114, Pre-Construction Videos. The video shall identify the condition of all existing surface features within the project limits. The Contractor shall submit two copies of the completed video prior to request for mobilization. The Contractor shall also submit two copies of the completed post-construction video of all surface features within the project limits within ten (10) days following the date of substantial completion.
- .10 Large Water Main Shut Downs: Projects that include a Large Water Main (16-inches and larger), will require advance coordination from the Contractor with Owner, with a minimum of two weeks' notice to Owner prior to the desired shut down date. The Contractor is to have all material and equipment on site and have the necessary prep work done in order to minimize the shutdown period required for the tie in Work. Mains Larger than 16-inches that will be required to be shutdown throughout the year may (as solely determined by Owner) require a temporary water main, valves and other appurtenances to keep the water main in service. The size of the temporary water main will be determined by Owner and shown on the plans by the Consultant or as Directed by Owner.
- .11 Water and Sewer Service to Customers – the Contractor shall maintain uninterrupted service to SAWS customers at all times.
- .12 Contractor will abide by all applicable policies and regulations of Owner with respect to conduct, including smoking, parking of vehicles, security regulations and entry to adjacent facilities owned by the Owner.
- .13 Independent Contractor - In performing the Work under this Contract, the relationship between Owner and Contractor is that of an independent Contractor. Contractor shall exercise independent judgment in performing the Work and solely is responsible for setting working hours, scheduling and/or prioritizing the Work flow and determining the means and methods of performing the Work, subject only to the requirements of the Contract Documents. No term or provision of this Contract shall be construed as making Contractor an agent, servant or employee of Owner or making Contractor or any of Contractor's employees, agents or servants eligible for the fringe benefits, such as retirement, insurance and worker's compensation which Owner provides to its employees.

- 5.4 SUPERINTENDENT - The Contractor shall keep on-site for the Project during its progress a competent Superintendent, able to communicate fluently in English, and any necessary assistants, all satisfactory to the Owner. A Superintendent shall be identified in writing to the Owner at the pre-construction meeting. The Superintendent shall represent the Contractor and all directions given to the Superintendent shall be binding on the Contractor. Oral directions from the SAWS representatives involving critical situations or Work elements shall be immediately (as may be reasonable under the circumstances and in accordance with the Contract Documents), confirmed in writing by Owner to the Contractor. The Contractor's Superintendent shall provide full-time on-site supervision to any Work ongoing at the site by its own forces or subcontractors, using the best industry skill and attention. The Contractor's Superintendent shall not be replaced without first providing written notice to the Owner. The written notice provided to the Owner shall contain the credentials for their proposed replacement Superintendent. The Owner will review the credentials supplied and if in the Owners discretion they are appropriate for the work, approve the proposed replacement Superintendent. The Superintendent may not be employed on any other project prior to Final Completion of the Work, without the approval of the Owner, which approval will not be unreasonably withheld.
- 5.5 INCIDENTAL WORK, CONNECTIONS AND PASSAGEWAYS - The Contractor shall perform all incidental Work necessary to complete this Contract, including, but not by way of limitation, the following: Contractor shall make and provide all suitable reconnections with existing improvements as are necessarily incidental to the proper completion of the Project; Contractor shall provide passageways or leave open such thoroughfares in the Work area as may be reasonably required by SAWS and shall protect and guard same at Contractor's own risk, and shall continuously maintain the Work area in a clean, safe and workmanlike manner.
- 5.6 CONDITIONS AT SITE
- .1 Contractor declares that prior to the submission of the Bid Proposal on this Contract, the Contractor has thoroughly examined the location(s) of the Work to be performed, has become familiar through their own investigation with any and all conditions, including but not limited to typical local geophysical conditions at or near this Project, and has read and has thoroughly understood the "Contract Documents" and any other document made available prior to the bid opening, as they may relate to the physical conditions prevalent or likely to be encountered in the performance of the Work at such location(s). Any testing, boring, soil profiles and water elevations shown on Contract Documents, or otherwise provided, were obtained solely for the use of SAWS in the preparations of its plans and the Contractor is cautioned, and SAWS MAKES NO WARRANTY OR REPRESENTATION, AS REGARDING THE ACCURACY OF SUCH DATA AND THE CONTRACTOR SHOULD MAKE NO RELIANCE THEREON IN DETERMINING CONTRACTOR'S MEANS AND METHODS OF CONSTRUCTION. Contractor, by the performance of the above, hereby generally acknowledges that such "Contract Documents" are not obviously deficient and will enable the Contractor to accomplish the proper performance of the Work at the Project site.
  - .2 The Contractor shall immediately, and before such discovered conditions and/or structures are disturbed, notify the Owner with a RFI of (1) subsurface or latent physical and/or structural conditions at the site differing materially from those indicated in the Plans, Specifications, and other Contract Documents or (2) newly discovered, unknown physical conditions at the site of an unusual nature differing materially from those geophysical conditions typically encountered in the type Work being performed and generally being recognized as not indigenous to the Texas environs and are not indicative of otherwise disclaimed in the plans, Specifications, and Contract Documents. The Owner, or designated representative, shall promptly investigate the reported physical and/or structural conditions, and shall determine whether or not the physical and/or structural conditions do materially so differ and whether they cause an increase or decrease in the Contractor's cost of, and/or the time required for performance of any part of the Work under this Contract. In the event that the Owner in its reasonable determination finds that the physical and/or structural conditions do materially so differ from the provisions of the Contract Documents, a negotiated, equitable, adjustment may be made to either the Contract Time or Contract Sum, or both as in the Owner's determination is reasonable, and a Contract Change Order shall be issued in writing accordingly.

- .1 No claim of the Contractor under this Article shall be allowed unless the Contractor has given the written notice called for above, prior to disturbing the discovered conditions and/or structures.
- .2 Any other provision contained herein notwithstanding, no claim by the Contractor for an equitable adjustment to the Contract Time or Contract Sum, or both, shall be allowed if claimed by the Contractor after Final Payment as defined in Article 7.3 herein has been made by the SAWS to the Contractor under the terms of this Contract.

5.7 CONTRACTOR'S STANDARD COMMERCIAL INSURANCE SPECIFICATIONS AND CERTIFICATE OF LIABILITY INSURANCE REQUIREMENTS

.1 Commercial Insurance Specifications ("Insurance Specifications"):

.1 Commencing on the date of this Contract, the Contractor shall, at his own expense, purchase, maintain and keep in force such lines of insurance coverage as will protect him and the San Antonio Water System ("SAWS") and the City of San Antonio ("the City") and their employees and agents from claims, which may arise out of or result from his operations under this Contract, whether such operations are by himself, by any sub-contractor, supplier or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable, including, without limitation, the following lines of insurance coverage:

- .1 Workers' Compensation (WC) insurance that will protect the Contractor, SAWS and the City from claims under statutory Workers' Compensation laws, disability laws or such other employee benefit laws and that will fulfill the requirements of the jurisdiction in which the work is to be performed.

This line of insurance coverage shall be endorsed to provide a Waiver of Subrogation in favor of SAWS and the City of San Antonio with respect to both this insurance coverage and the Employers' Liability (EL) insurance (as specified immediately below in Article 1.1.2).

- .2 Employers' Liability (EL) insurance (Part 2 under the standard Workers' Compensation insurance policy) that will protect the Contractor, SAWS and the City for damages because of bodily injury, sickness, disease of vendor's employees apart from that imposed by Workers' Compensation laws.

The EL line of insurance coverage shall have minimum policy limits of liability of not less than:

\$1,000,000.00 Bodily Injury by Accident  
 \$1,000,000.00 Bodily Injury by Disease - Each Employee  
 \$1,000,000.00 Bodily Injury by Disease - Policy Limit

- .3 Commercial General Liability (CGL) insurance that will protect the Contractor, SAWS and the City from claims for damages because of bodily injury, personal injury, sickness, disease or death and insurance that will protect the Contractor, SAWS and the City from claims for damages to or destruction of tangible property of others, including loss of use thereof.

This line of insurance coverage shall:

- Cover independent Contractors;
- Not include any exclusions relating to blasting, explosion, collapse of buildings or damage to underground property;
- The GENERAL AGGREGATE limit shall apply per Project;

- Afford coverage for Products Liability and/or Completed Operations and, Contractual Liability.

The minimum policy limits of liability for this line of insurance coverage shall be:

\$1,000,000.00 Occurrence Limit  
 \$2,000,000.00 General Aggregate  
 \$2,000,000.00 Products/Completed Operations Aggregate  
 \$1,000,000.00 Personal and Advertising Injury  
 \$1,000,000.00 Contractual Liability

This line of insurance coverage shall be endorsed:

- Additional Insured - The Commercial General Liability policy shall be endorsed naming the SAWS and the City of San Antonio as an Additional Insured for both ongoing and completed operations, and
- Waiver of Subrogation - The Commercial General Liability policy shall be endorsed with the Waiver of Subrogation in favor of SAWS and the City of San Antonio.

OR

- .4 Owner and Contractor Protective Liability (OCP) Insurance policy which insures SAWS and the CITY and their agents and employees with the same coverage specified in Article 5.7.1.1.3 above unless the CGL policy specified in Article 5.7.1.1.3 above includes the Endorsement CG2503 - per project general aggregate limit applies.
- .5 Commercial/Business Automobile Liability (AL) insurance that will protect the Contractor, SAWS and the City from claims for damages arising out of the maintenance, operation, or use of any owned, non-owned or hired vehicles.

Minimum policy limits of liability for this line of insurance coverage for bodily injury and property damage combined shall be not less than \$1,000,000.00 per each occurrence.

This line of insurance coverage shall be endorsed:

- Additional Insured - The Commercial/Business Automobile Liability policy shall be endorsed naming the SAWS and the City of San Antonio as an Additional Insured; and
  - Waiver of Subrogation - The Commercial/Business Automobile Liability policy shall be endorsed with the Waiver of Subrogation in favor of SAWS and the City of San Antonio.
- .6 Excess/Umbrella Liability (UL) insurance shall have minimum policy limits of \$2,000,000 per occurrence and \$2,000,000 in the aggregate. This policy shall be of an "Occurrence" type and the limit of liability shall be concurrent with (following form) and in excess of the EL, CGL, and AL lines of insurance coverage as described in Articles 5.7.1.1.2, 5.7.1.1.3, and 5.7.1.1.5 listed above.

NOTE - For the Excess/Umbrella Liability policy, describe in the Description of Operations section of the Certificate of Liability Insurance ("Certificate"), the coverage form under which this line of coverage is written – either:

- Umbrella liability form; or

- Excess Liability form.

This line of insurance coverage shall be endorsed:

- Additional Insured - The Commercial General Liability policy shall be endorsed naming the SAWS and the City of San Antonio as an Additional Insured for both ongoing and completed operations.
- Waiver of Subrogation - The Commercial General Liability policy shall be endorsed with the Waiver of Subrogation in favor of SAWS and the City of San Antonio.

- .7 Contractor's Pollution Liability Insurance with limits of \$2,000,000 per claim/occurrence/\$2,000,000 in the aggregate.

The policy shall provide either a "claims made" or an "occurrence based" coverage for all claims, liabilities, damages, costs, fees, and expenses of any kind or character arising out of any Pollution Condition(s) (as defined below) that is in any way related to Contractor's operations, actions or inactions, and completed operations associated with any work performed by Contractor, its subcontractors, or any of their respective employees, agents, representatives, or officers under this Contract.

If the Policy is "claims made" based, coverage must be maintained for a minimum of twenty-four (24) months after the date that a Conditional Letter of Acceptance is issued, or if the Contract is terminated for any reason, for a minimum of twenty-four (24) months following the date of termination.

The "claims made" policy retroactive date will be no later than the Contract effective date or the project commencement date, whichever is earliest.

If the Policy is "occurrence based", no policy retroactive date is required and, the twenty-four (24) months extension of coverage after the date that a Certificate of Completion is issued, or if the Contract is terminated for any reason, is not required.

Any exceptions to the above cited coverage forms must be reviewed and approved by SAWS Risk Manager.

Pollution Condition(s) means the discharge, dispersal, release or escape of any solid, liquid, gaseous or thermal irritant or contaminant, including, but not limited to, smoke, sewage, vapors, soot, fumes, acids, alkalis, toxic chemicals, medical waste and waste materials into or upon land, the atmosphere or any watercourse or body of water, including groundwater, provided such conditions are not naturally present in the environment in the amounts or concentrations discovered.

The Contractor's Pollution Liability Insurance will pay on behalf of the Contractor, SAWS and the City all claims, demands, damages, liabilities, costs, fees, and expenses of any kind or character for bodily injury or death, property damage, environmental or natural resource damage, and any fines, fees, assessments or penalties of any kind assessed by any governmental department, agency or commission that result from or are related to a Pollution Condition(s). Coverage will include all subcontractors hired by Contractor to perform any work on the Project or under this Contract.

The policy shall also include the following coverage provisions:

- .1 Provide for bodily injury to include physical injury, sickness, disease, mental anguish and emotional distress sustained by any person, including death;

- .2 All costs that are related to or that arise out of or from the investigation or adjustment of any claim or in connection with any court, arbitration, mediation, state administrative hearing, or other proceeding of any kind, including attorneys fees, expert witness fees, costs, charges and expenses of any kind or character, that arise out of or that are related to a Pollution Condition(s);
- .3 Coverage shall be Primary and in addition to any other valid and collectible insurance carried by SAWS and the CITY as respects to this Contract;
- .4 Coverage for Natural Resource Damages and any fines, fees penalties or assessments by any governmental agency, commission or department related to any Pollution Condition(s);
- .5 Insured versus Insured exclusion, if found in the policy, shall not apply to a claim by an Insured who qualifies as a Client of the Named Insured under the policy;
- .6 If Non-Owned Disposal sites are used for disposal of wastes, these sites shall be specifically included under the Contractors Pollution Liability Insurance policy; and
- .7 Coverage for punitive, exemplary, and multiple damages.

Commercial/Business Automobile Liability policy of the CONTRACTOR hauling excavated spoil shall either be endorsed to provide coverage under the CA-9948 endorsement or the Contractor's Pollution Liability Insurance policy shall be endorsed to provide transportation coverage beyond the boundaries of the job site.

NOTE - For the Contractor's Pollution Liability, declare on the Certificate of Liability Insurance ("Certificate") the coverage form under which this line of insurance is written – either:

- Claims-made form - if the coverage form declared on the Certificate is the Claims-made form, also include on the Certificate the "Retroactive-date" when this line of coverage was first written or started, or the Contract date or the project commencement date, whichever is earliest; or
- Occurrence based form – no additional wording required.

- .8 All Risk Builders' Risk (*if applicable*) - In the event, the project contracted for herein requires the building of structures or facilities used for storage, housing equipment or the occupancy of personnel, the Contractor shall provide Physical Damage Insurance on Builder's Risk Form which insures SAWS and the City for damages to all Property Purchased for, or Assigned to, the Project commencing on the start date through completion. Policy limits shall be in an amount equal to the total construction cost contracted herewith. The policy form shall be an All Risk Builders' Risk form and shall include the flood and earthquake endorsements.
- .2 Contractor shall require all Sub-contractors to carry lines of insurance coverage appropriate to their Scope of Work performed.
  - .3 Contractor agrees that with respect to the above required lines of insurance, all insurance policies are to contain or be endorsed to the extent, not inconsistent with the requirements of the issuing insurance carrier, to provide for an endorsement that the "other insurance" clause shall not apply where SAWS and the City are an Additional Insured shown on the policy if such endorsement is permitted by law and regulations.



- .4 Contractor shall, upon request of SAWS, provide copies of all insurance policies and endorsements required under Contract.
- .5 Contractor is responsible for the deductibles under all lines of insurance coverage required by these Insurance Specifications.
- .6 The stated policy limits of each line of insurance coverage required by these Specifications are MINIMUM ONLY and it shall be the Contractor's responsibility to determine what policy limits are adequate and the length of time each line of insurance coverage shall be maintained; insurance policy limits are not a limit of the Contractor's liability.
- .7 These minimum limits required of each line of insurance coverage may be either basic policy limits of the WC, EL, CGL and AL or any combination of basic limits or umbrella (Umbrella liability form) or excess (Excess Liability form) limits. SAWS acceptance of Certificate(s) that in any respect, do not comply with these Insurance Specifications, does not release the Contractor from compliance herewith.
- .8 Each line of insurance coverage that is required under these Insurance Specifications shall be so written so as to provide SAWS and the City thirty (30) calendar days advance written notice directly of any suspension, cancellation or non-renewal or material change in coverage, and not less than ten (10) calendar days advance written notice for nonpayment of premium.
- .9 Within five (5) calendar days of a suspension, cancellation or non-renewal of any required line of insurance coverage, the Contractor shall provide SAWS a replacement Certificate with all applicable endorsements included. SAWS shall have the option to suspend the Contractor's performance should there be a lapse in coverage at any time during this Contract.
- .10 Failure to provide and to maintain the required lines of insurance coverage shall constitute a material breach of this Contract.
- .11 In addition to any other remedies, SAWS may have, upon the Contractor's failure to provide and maintain any insurance or policy endorsements to the extent and within the time herein required, SAWS shall have the right to order the Contractor to stop performing services hereunder and/or withhold any payment(s) which become due to the Contractor hereunder until the Contractor demonstrates compliance with the Insurance Specifications hereof.
- .12 Nothing herein contained shall be construed as limiting, in any way, the extent to which the Contractor may be held responsible for payments for damages to persons or property resulting from the Contractor 's or its sub-contractors' performance of the services covered under this Contract.
- .13 It is agreed that the Contractor's insurance shall be deemed primary and non-contributory with respect to any insurance or self insurance carried by SAWS, the City and their employees and agents for liability arising out of operations under this Contract.
- .14 Contractor agrees that all lines of insurance coverage required by these Insurance Specifications shall be with insurance companies, firms or entities that have an A.M. Best rating of "A- ("A"- minus)" and a Financial Size Category of a "VII" or better. All lines of insurance coverage shall be of an "Occurrence" type except for the Contractor's Pollution Liability line of insurance coverage.

SAWS will accept worker's compensation insurance coverage written by the Texas Workers Compensation Insurance Fund.

- .15 SAWS reserves the right to review the above stated Insurance Specifications during the effective period of this Contract and any extension or renewal hereof and to request modification of lines of insurance coverage and their respective liability limits when deemed necessary and prudent by SAWS' Risk Manager and Legal Department based upon changes

in statutory law, court decisions, or circumstances surrounding this Contract.

In no instance will SAWS and the City allow modification whereupon SAWS and the City may incur increased risk exposure.

.2 Certificate(s) of Liability Insurance (“Certificate”) Requirements

Prior to the commencement of any Services under this Contract and once notified by SAWS Contracting Official that your Company has been selected as the apparent successful Contractor pursuant to a competitive bid selection process, pending Board final approval, and, a request is made for you to submit your Company’s Certificate of Liability Insurance, that Certificate must meet all of the following requirements:

- .1 The Contractor shall have completed by its insurance agent(s), and submitted to SAWS Contracting Department within 5 business days, a Certificate(s) of Liability Insurance (“Certificate(s)”) providing evidence of the lines of insurance coverage pursuant to Articles 5.7.1.1 through 5.7.1.5 above.
- .2 The original Certificate(s) or form must include the agent's original signature, including the signer's company affiliation, mailing address, Office and FAX phone numbers, email address, and contact person’s name; and, be mailed, with copies of all applicable endorsements, directly from the insurer's authorized representative in strictly compliance with Articles 5.7.2.1.6 (Certificate Holder) and Articles 5.7.2.1.7 (Distribution of Completed Certificates) below.
- .3 SAWS will not accept Memorandum of Insurance or Binders as proof of insurance.
- .4 SAWS shall have no duty to pay or perform under this construction Contract until such certificate(s) and applicable endorsements have been received, reviewed and deemed 100% compliant with the CONTRACTOR’S STANDARD COMMERCIAL INSURANCE SPECIFICATIONS AND CERTIFICATE OF LIABILITY INSURANCE REQUIREMENTS as contained in the Bid Document by SAWS’ Risk Management/Contract Services Department. No one other than SAWS Risk Manager shall have authority to waive any part of these requirements.
- .5 The SAWS Project/Contract number(s) along with its Project Name must be included in the Description of Operations section located in the bottom half of the standard ACORD Certificate forms.
- .6 Certificate Holder - SAWS shall be shown as the Certificate Holder in the Certificate Holder section located in the bottom half of the standard ACORD Certificate forms and formatted as follows:

San Antonio Water System  
c/o Ebix BPO  
PO Box 100085-ZD  
Ref. # (SAWS Contract/Project #)\*  
Duluth, GA 30096

*\*SAWS Contracting Official will include in the above address, the correct, complete Ref# in the written confirmation of your selection as a CONTRACTOR pending final Board approval.*

**DO NOT BEGIN THE DISTRIBUTION OF ANY CERTIFICATE(S) BEFORE RECEIVING AND INSERTING THE COMPLETE REFERENCE NUMBER INTO THE CERTIFICATE HOLDER ADDRESS SHOWN ABOVE.**

- .7 Distribution of Completed Certificates - Completed Certificates shall be distributed by the Contractor as follows:

.1 Send Original:

.1 By Mail:

San Antonio Water System  
C/O Ebix BPO  
P.O. Box 100085-ZD  
Ref. # (SAWS Contract/Project #)  
Duluth, GA 30096

.2 By Fax: 1-770-325-6502

.3 By E-Mail: [saws@ebix.com](mailto:saws@ebix.com)

.2 Send Copy to:

San Antonio Water System  
Attention: Contract Administration  
P.O. Box 2449  
San Antonio, TX 78298-2449

.8 Contractor shall be responsible for obtaining Certificates of Insurance from the first tier Sub-contractor, and upon request furnish copies to SAWS.

.3 SURVIVAL

Any and all representations, conditions and warranties made by Contractor under this Contract including, without limitation, the provisions of Articles 5.7.1.1.2, 5.7.1.1.3 and 5.7.1.1.4 of these COMMERCIAL INSURANCE SPECIFICATIONS AND CERTIFICATES OF LIABILITY INSURANCE REQUIREMENTS are of the essence of this Contract and shall survive the execution and delivery of it, and all statements contained in any document required by SAWS whether delivered at the time of the execution, or at a later date, shall constitute representations and warranties hereunder.

5.8 MATERIALS & WORKMANSHIP

- .1 MATERIALS - Unless otherwise specified, all materials incorporated in the permanent Work shall be new, and both workmanship and materials shall be of good quality in accordance with Specifications. The Contractor shall, if required, furnish satisfactory evidence as to the supply or manufacture, and quality of materials supplied. All materials that come in direct or indirect contact with potable water must conform to ANSI/NSF Standard 60 for direct additives and ANSI/NSF 61 for indirect additives and must be in full compliance with all current regulations of the TCEQ and any other applicable regulatory requirements.
- .2 USE OF MATERIALS WITHIN THE RIGHT-OF-WAY - The Contractor, with the approval of the SAWS COI, may use in the Work any suitable stone, gravel, or sand found in the excavation that otherwise meets or exceeds Contract Specifications. The Contractor shall not over excavate any material from within the right-of-way, which is not within the excavation limits as required under the plans and specifications. Any over excavation will be at the contractor expense. No recycled concrete shall be used.
- .3 SALVAGEABLE MATERIAL - Salvageable material, as stated by the Contract documents, shall remain the property of the Owner and shall be relocated and stored at the job site by the Contractor unless the Contract Document provide for storage elsewhere.
- .4 DISPOSAL OF NON-HAZARDOUS WASTE MATERIAL/SUBSTANCES - The Contractor shall be responsible for disposing of all Non-Hazardous Material as the term is defined in Article I herein including old concrete or any other non-hazardous material which is required to be removed from the project. Such material shall not be deposited in any sanitary sewer, creek, river, watercourse or MS4, (unless a written exception is approved by Owner) as the term is defined herein.

- .5 **DISPOSAL OF HAZARDOUS MATERIAL/SUBSTANCES** - The Contractor shall be responsible for disposing of all hazardous materials/substances, as that term is defined in Article I herein in accordance with all applicable Federal, State and local laws, rules, regulations or ordinances, and in accordance with any specific instructions set out in the Plans and Specification herein.
- .6 **RECLAMATION OF LOW AREAS** - The Contractor may undertake the reclamation of low areas with the prior approval of the Owner.
- .7 **BLOCKAGE OF THE MS4** - The Contractor shall comply with the provisions of the appropriate City Ordinances. In no event shall the Contractor block any portion of the MS4 with fill. Should any blockage occur the Contractor shall remove such fill, at contractor's expense, as directed by the SAWS COI.
- 5.9 **TESTING** - The Owner or the Consultant may require special inspection, testing or approval of material or Work for determining compliance with the requirements of the Contract Documents. Upon Owner-authorized direction of the Consultant, the Contractor shall promptly arrange for such special testing, inspection or approval procedure. Should the material or Work fail to comply with the requirements of the Contract Documents, the Contractor shall bear all costs of the special testing, inspection or approval as well as the cost of replacement of any unsatisfactory material or Work as provided by Article 5.10, otherwise, should the Work prove not defective, the Owner shall bear such costs and an appropriate Change Order shall be issued.
- 5.10 **REMOVAL OF DEFECTIVE WORK** - If any materials furnished under this Contract fails to perform in the manner such material is expected to perform in accordance with intended usage, the Contractor shall proceed to remove from the Project at his sole expense all such materials, whether worked or unworked, and to remove all portions of the condemned Work.
- 5.11 **EQUAL MATERIALS** - It is not the intent of the Specifications to unreasonably limit materials to the product of any particular manufacturer or supplier. Where definite materials, equipment and/or fixtures have been specified by name, manufacturer or catalog number, it has been done so as to set a definite standard and/or a reference for comparison as to quality, application, physical conformity, and other characteristics. It is not the intention to discriminate against or prevent any dealer, jobber or manufacturer from furnishing materials, equipment, and/or fixtures that meet or exceed the characteristics of the specified items. Unless otherwise provided for in the Specifications, Contractor's substitution of materials, equipment and/or fixtures shall not be made without prior written approval from the Consultant, and the Owner Request for substitutions will not be accepted from anyone except the Contractor, and such requests will not be accepted (if appropriate) until after the Contract has been awarded.
- 5.12 **SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**
- .1 Shop Drawings, Product Data, Samples and similar submittals are not part of the Contract. The purpose of their submittal is to demonstrate, for those portions of the Work for which submittals are required by the Contract Documents, the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.
- .2 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Engineer/Consultant Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor will be returned by the Engineer/Consultant without action. Contractor shall submit to Engineer/Consultant for review and approval or for other appropriate action, five (5) hard copies and/or electronic copies, if requested by COI, of all Shop Drawings, Product Data, Samples or similar submittals bearing a stamp or specific written indication that Contractor has satisfied the Contractor's responsibilities under the Contract Documents with respect to his review of his submission. All Shop Drawings, Product Data, Samples and similar submittals in regards to Pipeline Projects shall be provided to the Engineer/Consultant during pre-construction meeting.

- .1 By approving and submitting Shop Drawings, Product Data, Samples and similar Submittals, the Contractor represents that the Contractor has determined and verified materials, quantities, specified performance criteria, installation requirements, catalog numbers, field measurements and filed construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.
- .2 Contractor shall give Engineer/Consultant specific written notice of each variation that the Shop Drawings, Product Data, Samples and similar submittals may have from the requirements of the Contract Documents, and, in addition, shall cause a specific Contractor notation to be made on each Shop Drawing, Product Data, Sample and similar submittals submitted to Consultant for review, approval, or other appropriate action highlighting each such variation.
- .3 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Engineer/Consultant. The Engineer/Consultant will review and return such submittals within twenty (20) calendar days or within a reasonable period so as to not delay the project.
- .4 Engineer/Consultant's review, approval, or other appropriate action regarding Contractor's submissions will be only to check conformity with the design concept of the Project and for compliance with the information contained in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate component item will not indicate approval of the assembly into which the item is functionally integrated. Contractor shall make corrections required by Engineer/Consultant, and shall return the required number of corrected copies of Shop Drawings, Product Data, Samples or similar submittals to the Contractor. Contractor may be required to resubmit as required revised Shop Drawings, Product Data, Samples or similar submittals for further review and approval. Contractor shall direct specific attention in writing to any new revisions not specified by Contractor on previous Contractor submissions.
- .3 The Work shall be in accordance with approved submittals, except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Engineer/Consultant's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Engineer/Consultant in writing of such deviation at the time of submittal and (1) the Engineer/Consultant has given written approval regarding the specific deviation as a minor change in the Work, or (2) a Change Order or Field Work Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Engineer/Consultant's approval thereof.
- .4 Where Engineer/Consultant requires by written request an approved Contractor Shop Drawing, Product Data, Sample, or similar submittals any related Work performed by Contractor prior to Consultant's review and approval of the affected submission will be at the sole risk of Contractor.
- .5 The Contractor shall not be required to provide professional services which constitute the practice of architecture or Engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Engineer/Consultant will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal

shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Engineer/Consultant. The Owner and the Engineer/Consultant shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided the Owner and Engineer/Consultant have specified to the Contractor all performance and design criteria that such services must satisfy. The Engineer/Consultant will review, approve or take other appropriate action on submittals only for the limited purpose of checking of conformance with information given and the design concept expressed in the Contract Documents.

### 5.13 CONTRACTOR'S WORK PROGRESS SCHEDULE

- .1 The "Work Progress Schedule" and successive updates or revisions thereof are for the Contractor's use in managing the Work. The Work Progress Schedule is for the information of the Owner and to demonstrate that the Contractor has complied with requirements for planning the Work. The Owner's acceptance of a schedule and schedule updates or revisions constitutes the Owner's agreement to coordinate its own activities with the Contractor's activities as shown on the schedule. The Contractor shall provide a Work Progress Schedule to the Owner within ten (10) calendar days after receipt of the Authorization to Proceed.
  - .1 Acceptance of the Work Progress Schedule, or update and/or revision thereto, does not indicate any approval of the Contractor's proposed sequences and duration.
  - .2 Acceptance of a Work Progress Schedule update or revision indicating early or late completion does not constitute the Owner's consent to any changes, alter the terms of the Contract, waive either the Contractor's responsibility for timely completion, or waive the Owner's right to damages for the Contractor's failure to do so.
- .2 The Contractor's scheduled dates for completion of any activity or of the entire Work do not constitute a change in terms of the Contract. Change Orders are the only method of modifying the completion date(s) and Contract Times.
- .3 Submittal of a schedule, schedule revision or schedule update constitutes the Contractor's representation to the Owner, as of the date of the submittal; of the accurate depiction of all progress to date and that the Contractor will follow the schedule as submitted in performing the Work.
- .4 The Contractor shall provide a Work Progress Schedule to the Owner within ten (10) calendar days after receipt of the Authorization to Proceed. The schedule shall show the order in which the Contractor proposes to carry out the Work and the anticipated start and completion dates of each phase of the Work.
- .5 The Work Progress Schedule must indicate the times (number of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents or "Hold Points" designated by the Owner during the review process, identify the "Critical Path" for completing the Work, identify when all Subcontractors will be utilized, and take into consideration any limitations on Working Hours. This Work Progress Schedule, a copy of which shall be made available at the job site(s), 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, 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. Contractor's submitted Work schedule shall be in a detailed, precedence-style critical path management Microsoft Project or Primavera format, satisfactory to the Owner and the Engineer/Consultant.
- .6 Schedule Updates - The Work Progress Schedule and the Submittal Schedule shall be updated monthly, as a minimum, to reflect progress to date and current plans for completing the Work. A paper and an electronic copy of the update shall be submitted to the Engineer/Consultant as directed. The Owner has no duty to make progress payments unless accompanied by the updated

Work Progress Schedule. The anticipated date of Substantial Completion shall show all extensions of time granted through Change Order(s) as of the date of the update. The Contractor, after coordination and consultation with the Owner, may revise the Work Progress Schedule logic only with the Owner's concurrence, which will not be unreasonably withheld, when, in the Contractor's judgment, it becomes necessary for the management of the Work. The Contractor shall identify all proposed changes to schedule logic to Owner and to the Engineer/Consultant via an Executive Summary accompanying the updated schedule for review prior to implementation of any revisions. If the Contractor's operations are materially affected by changes in the Plans or in the amount of Work, or if he has failed to comply with the anticipated progress, the Contractor shall submit a revised schedule reflecting the change in progress, within five (5) calendar days of the occurrence of such event. The schedule may also be revised by the Contractor in response to the reasonable request of the Owner.

- .1 Each schedule shall segregate the Work into a sufficient number of activities to facilitate the efficient use of critical path method scheduling by the Contractor, Owner, and Engineer/Consultant. Each schedule activity shall be assigned a cost value consistent with the Schedule of Values so as to allow the Owner and Contractor to project cash flow for the Project.
- .2 Each schedule shall include activities representing manufacturing, fabrication, or ordering lead time for materials, equipment, or other items for which the Engineer/Consultant is required to review submittals, shop drawings, product data, or samples.
- .3 Each schedule, other than the initial schedule, shall indicate the activities, or portions thereof, which have been completed; shall reflect the actual time for completion of such activities; and shall reflect any changes to the sequence or planned duration of all activities.
- .4 If any updated schedule exceeds the time limits set forth in the Contract Documents for Substantial Completion of the Work, the Contractor shall include with the updated schedule a statement of the reasons for the anticipated delay in Substantial Completion of the Work and the Contractor's planned course of action for completing the Work within the time limits set forth in the Contract Documents. If the Contractor asserts that the failure of the Owner or the Engineer/Consultant to provide information to the Contractor is the reason for anticipated delay in completion, the Contractor shall also specify what information is required from the Owner or Engineer/Consultant.
- .5 Neither the Owner nor the Contractor shall have exclusive ownership of float time in the schedule, and all float time (if any) shall inure to the benefit of the project. The Contractor agrees to use its best efforts not to sequence the Work or assign activity duration so as to produce a schedule in which more than one-fourth of the remaining activities have no float time.
- .7 Submission of any schedule under this Contract constitutes a representation by the Contractor that as of the date of the submittal: (1) the schedule represents the sequence in which the Contractor intends to prosecute the remaining Work; (2) the schedule represents the actual sequence and duration used to prosecute the completed Work; (3) that to the best of its knowledge and belief the Contractor is able to complete the remaining Work in the sequence and time indicated; and, (4) that the Contractor intends to complete the remaining work in the sequence and time indicated.
- .8 The Contractor shall submit in conjunction with his monthly request for payment, a copy of the current adjusted Work Progress Schedule showing the progress of the Work to date. If it is determined by Owner that the Contractor is not maintaining his anticipated progress, then the Owner may withhold approval of the monthly progress payment as provided in Article 7.2.

#### 5.14 SEQUENCE OF CONSTRUCTION

- .1 PHASES OF CONSTRUCTION - The Contractor shall perform the Work as provided in the "Special Conditions" or as shown on the Contract Documents. The Contractor may submit to Owner a revised Contractor Phasing Plan prior to start of construction for review and approval by the Owner. If the Owner determines that the revised Contractor's Phasing Plan is not acceptable

as being in the best interest of the Owner, then the Contractor shall proceed with the Work in accordance with the Owner's Phasing Plan at no additional cost to the Owner.

- .2 **DETOUR ROUTES** - A detour route for through traffic (the means and methods of which as to be determined by the Contractor) must be provided by the contractor where the proposed construction is located within the limits of a street designated as "Collector", "Secondary" or Primary". The detour route must be approved by the ROW owner, such approval to be obtained by Contractor prior to construction. The Contractor shall not begin construction of the Project or close any streets until adequate barricades, detour signs and electronic message boards (if needed) have been provided, erected and maintained in accordance with the detour route and details shown on the Plans or as shown on the approved traffic control plan. The Contractor shall notify the SAWS COI forty-eight (48) hours in advance of closing any street to through traffic. Local traffic shall be permitted the use of streets under construction where feasible.

5.15 **CONSTRUCTION STAKES** - The Contractor shall hire a licensed surveyor, at his expense, for field staking and any other surveying requirements pertinent to the project.

5.16 **PUBLIC UTILITIES**

.1 **Owner's Responsibility:**

1. The Owner shall cause to be sent a set of Plans to utilities listed on the plans. The Owner shall request that the utilities review such Plans and Specifications to determine and/or verify the location of any utilities within the project site. The utility shall further be requested to communicate in writing the results of such review to the Contractor.

.2 **Contractor's Responsibility:**

- .1 The Contractor is hereby required to become familiar with all the existing utility structures, lines and mains that are known to exist and may be encountered within and/or adjacent to the limits of the work covered by the Contract. While the existence and location of underground utilities indicated on the Plans are taken from the most current utility records available to the Consultant and/or Engineer, the Contractor understands and acknowledges that the notation of such underground utilities on the Plans does not constitute a warranty, representation or guarantee by the Owner or Consultant regarding those Underground Facilities. In addition, Contractor further understands and acknowledges that Owner and Consultant are under no obligation to indicate the location of any private service lines on the Plans.
- .2 The Contractor shall go to the Project site, locate, and verify depth of any utilities indicated on the Plans prior to the Commencement of Work. The Contractor shall further investigate the possible location of any private service lines prior to the Commencement of Work as defined under Article 8. To facilitate this obligation on the part of Contractor, the Contractor shall communicate with the utilities listed on the plans, call for locations and subsequently visit the project site with a qualified utility representative of each utility listed on the plans, prior to the Commencement of Work. The information resulting from such on-site investigations shall govern over the information notated on the Plans, when and if a conflict between such information arises. In the event such investigations on the part of Contractor result in a utility location adjustment, Contractor shall not commence work until the completion of such adjustment has been completed.
- .3 The Contractor acknowledges and agrees that maintaining continuity of utility service to utility customers is critical, including but not limited to the need for temporary water services.
- .4 The Contractor shall be responsible for protecting the integrity of all utilities (public or private) either shown on the Plans or discovered during the Contractor investigations required in Article 5.16.2.2 herein. Such method of protection shall first be reviewed and approved by the affected utility.
- .5 The Contractor shall be responsible for any damages to any utilities (public or private)



either shown on the Plans or discovered during Contractor investigations acquired in Article 5.16.2.2 herein. Any existing utilities shown on the plans or discovered during Contractor investigations set out herein which cannot be relocated shall be protected by the Contractor as part of the original Bid Proposal Price submitted by Contractor. The Contractor shall pay for temporary relocation of utilities for the Contractor's convenience.

- .6 Contractor shall be responsible for damage to utilities not shown on the Plans and not discovered during Contractor's investigations required in Article 5.16.2.2 herein when the existence of such a utility or the suspected existence of such a utility should have been anticipated and investigated by the Contractor, based upon certain physical manifestations observed during the course of construction or other tangible evidence which constitutes common knowledge in the construction industry of the probable existence of a utility. A Contractor shall not be responsible for damages to utilities not shown on the Plans and not discovered during Contractor's investigation required herein when in accordance with the common knowledge in the construction industry; the existence of such utility could not reasonably be anticipated.
  - .3 Temporary clearance of high voltage (600 volts and above) and overhead electrical lines is required prior to the operation of equipment within 10 feet of such lines (Texas Health and Safety Code, sections 752.003 and 752.006). The Contractor shall bear the expense to obtain the necessary temporary clearance from the high voltage line operator or utility company. Temporary clearance shall be a temporary barrier separating and preventing contact of material, equipment, persons, communications with high voltage electrical lines, or temporary de-energization and grounding or temporary relocation, or raising of the lines; as approved by the utility company.
  - .4 In the case of sewer, water, gas, electric, telephone, cablevision cable, or any other utility shown on the Plans and/or discovered during the Contractor's investigations required in Article 5.16.2.2 herein, the Contractor will use care in excavating over, under and around such lines and will provide all necessary temporary bridging during construction so as to maintain continuous service of the utility line. The Contractor shall backfill around the main and complete his construction operations in such a manner as to leave the utility line firmly and securely bedded in its original position without damage to any protective coatings.
  - .5 In instances where gas or water mains are exposed during construction, the utility company owning or operating the service shall be given at least a twenty-four (24) hour notice by the Contractor prior to backfilling in order that the protective coating on the mains may be inspected and/or repaired by utility company.
  - .6 BRACING AND SUPPORTING - In areas where utilities are known to be near the Project site, and could be damaged by soil movement, slips or cave-ins, the Contractor shall take all precautions necessary to protect such utilities from damage and shall pay for the repair of any such damages caused by Contractor's failure to properly protect the utility.
- 5.17 **SUBSURFACE CONDITIONS** - Reports of explorations and tests of subsurface conditions at the construction site, where applicable, may be available for review. These reports if available were procured by SAWS in order to generally forecast soil conditions at various depths to assist the Consultant in designing the Project. The logs and descriptive data are **NOT PART OF THE CONTRACT DOCUMENTS** but are made available for the general information of bidders and SAWS SPECIFICALLY DISCLAIMS ANY AND ALL WARRANTY (INCLUDING WITHOUT LIMITATION AND IMPLIED WARRANTIES OF MERCHANTABILITY) OR GUARANTEE AS TO SUITABILITY OF FITNESS OF THE REPORTS, DATA OR INFORMATION FOR ANY PARTICULAR PURPOSE and neither the SAWS nor the Consultant assumes any obligation or responsibility, either specific or implied, for the accuracy or completeness of any information contained therein. Sub-surface conditions along and across the Project site may vary significantly from those shown on the test reports. All excavations shall be unclassified (as provided in the specifications) and shall include all materials encountered regardless of their nature or the manner in which they are removed.

- 5.18 WORKING HOURS - No Work, with the exception of such items as curing of concrete, maintenance of barricades, etc., will be allowed by the Owner between the hours of 5:00 p.m. and 8:00 a.m. of the following day, unless directed by Owner or requested in writing by Contractor and approved by Owner and the ROW Owner. In addition to no work being permitted on Sundays or holidays, no work shall occur on Saturdays without specific, written permission of the Owner's representative forty-eight (48) hours in advance of intent to perform Work.
- 5.19 USE OF STREETS RIGHT OF WAY - The Contractor shall confine the movements of all steel tracked equipment to the limits of the Project and any such equipment will not be allowed to use City, Public or Private streets unless being transported on pneumatic tired vehicles. Any damage to existing City streets caused by the Contractor's equipment shall be repaired by Contractor at his own expense upon direction, and in the manner prescribed by City's or other appropriate entities specifications and the SAWS COI.
- 5.20 DAMAGES TO STREETS caused by the Contractor, within the limits of the Project but not within the current phase being constructed, shall be repaired by the Contractor at his own expense upon direction by the SAWS COI.
- 5.21 DUST CONTROL - The Contractor will apply appropriate amounts of water (or other appropriate substance), to the area under construction and on detours as required to maintain sufficient moisture content in the surface layer for dust control.
- 5.22 SANITARY PROVISIONS - The Contractor shall provide and maintain in a neat, sanitary condition, rest room facilities for the use of his employees and authorized on-site visitors as may be necessary to comply with the requirements and regulations of the City Health Department and of the State Department of Health.
- 5.23 USE OF EXPLOSIVES - the use of explosives of any kind for this project is strictly prohibited.
- 5.24 WATER - the responsibility shall be upon the Contractor to provide and maintain an adequate supply of water for construction and on-site domestic consumption. Any connections and piping that the Contractor deems necessary for providing and maintaining an adequate water supply to the jobsite shall be installed at his expense and at locations approved by the SAWS COI. A fire hydrant meter is required. Before final Project acceptance, all temporary connections and piping installed by the Contractor in accordance with this paragraph shall be removed in a manner satisfactory to the SAWS COI.
- 5.25 ELECTRICITY - All electric current required by the Contractor at the jobsite shall be procured by Contractor. All necessary meters, switches, connections and wiring shall be installed at locations approved by the SAWS COI. Before final acceptance, all meters, switches, connections and wiring installed by the Contractor pursuant to this paragraph shall be removed in a manner satisfactory to the SAWS COI.
- 5.26 CLEANING
- .1 The Contractor shall at all times keep the Project premises safe and free from accumulation of waste materials or rubbish caused by the Work under this Contract. This includes the maintenance of grass, shrubbery, and trees within the ROW.
  - .2 Upon completion of the Work, and prior to the Owner's final inspection, the Contractor shall present the premises in a neat and clean condition, prepared for acceptance by Owner.
  - .3 Prior to final acceptance of the Work, Contractor shall reasonably restore the Project site to its pre-project condition (accounting for such restoration concerns as cosmetic appearance, landscaping, drainage gradients, accessibility, etc.) to the extent permitted by the Project improvements. All of this incidental Work to be performed by Contractor to the satisfaction of the SAWS COI.
- 5.27 ACCESS REQUIREMENTS - The Contractor shall provide access to residents and businesses affected by the construction of this Project to the greatest extent possible.
- 5.28 SAFETY PRECAUTIONS AND PROGRAMS
- .1 In the performance of this Contract the Contractor shall protect the public, SAWS and the City of

San Antonio by taking reasonable precaution to safeguard persons from death or bodily injury and to safeguard property of any nature whatsoever from damage. Where any dangerous condition or nuisance exists in and around construction sites, equipment and supply storage that are in any manner connected with or arise from the performance of this Contract, the Contractor shall provide and maintain reasonable warning of such danger or nuisance. The Contractor shall not create any dangerous condition or nuisance of any nature whatsoever in connection with the performance of this Contract including, but not limited to, excavations and obstructions, unless necessary to its performance, and in that event the Contractor shall provide and maintain at all times a reasonable means of warning of any danger or nuisance so created. The duties of the Contractor in this paragraph shall be nondelegable and the Contractor's compliance with the specific recommendation and requirements of SAWS as to the means of warning shall not excuse the Contractor from the faithful performance of these duties should such recommendations and requirements not be adequate or reasonable under the circumstances. The Contractor shall take reasonable precautions for the safety of and shall provide protection to prevent damage, injury, or loss to:

- .1 All employees on the Work, and all other persons who may reasonably be foreseen to be affected by the Work.
  - .2 All the Work and all materials to be incorporated at street crossings, along proposed detour routes, and at material stockpiles. Where directed by the Owner or his duly authorized representative, the Contractor shall provide and maintain suitable warning signs, barricades and lights, in accordance with the details included in the Contract Documents, to direct traffic around the Work in progress and to assure the safety of the public. The Contractor shall provide adequate warning signs, barricades, and lights and, where necessary, flagmen for the Project or portions of the Project within which operations are being prosecuted in any one day or which will be closed overnight.
  - .3 Other property at the site or adjacent thereto including but not limited to, trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- .2 The Contractor shall comply with the U.S. Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (Public Law 91-596 and all subsequent amendments) and under Section 107 of the Contract Work Hours and Safety Standards Act (Public Law 91-54 and all subsequent amendments). This project is subject to all of the Safety and Health Regulations (CFR 29, Part 1926 and all subsequent amendments) as promulgated by the U.S. Department of Labor on June 24, 1974 and CFR 29, Part 1910 and all subsequent amendments, General Industry Safety and Health Regulations Identified as Applicable to Construction. Contractors shall be knowledgeable with the requirements of these regulations and any amendments thereto.
  - .3 On trench excavation that exceeds a depth of five (5) feet, trench excavation protection shall be accomplished as required by the most current provisions of part 1926 subpart P - Excavations, of the Occupational Safety and Health's Standards and interpretations and as further defined in the note(s) on the Plans and other Contract Documents.
  - .4 In any emergency affecting the safety of persons or property, the Contractor shall act to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor resulting from emergency Work shall be considered by Owner in accordance with Articles VI and VIII for Completion Time.
  - .5 The Contractor shall provide, at the site, such equipment and medical facilities as are necessary to supply first aid service to anyone who may be injured in connection with the Work. Such equipment shall comply with the most current regulations of the Occupational Safety and Health Administration of the United States Department of Labor.
  - .6 The Contractor must promptly report in writing to the Owner all accidents whatsoever arising out of, or in connection with, the performance of the Work whether on or adjacent to the site which caused death, personal injury, or property damage, giving full details and any statements of witnesses. In addition, if death, serious injury, or serious damage is caused, the accident then

shall be reported immediately by telephone or messenger to the Owner.

- .7 SAWS requires all Contractor job sites shall be immediately accessible to appropriate local, State and Federal agency safety officials.

## **ARTICLE VI. CONTRACT CHANGES:**

- 6.1 **CHANGE ORDERS** - The Contract Sum and/or the Contract Time may be increased or decreased only by written Change Order. A Change Order signed by the Contractor indicates his acceptance and approval thereof including the adjustment in the Contract Sum and/or the Contract Time. Any compensation paid in conjunction with the terms of a Change Order shall comprise the total compensation due the Contractor for the work or the change defined in the Change Order. By signing the Change Order, the Contractor acknowledges that the stipulated compensation includes payment for the Work of Change plus all payment for the interruption of schedules, stop work orders, extended overhead, delay, or any other impact, claim or ripple effect, and by such signing specifically waives any reservation or claim for additional compensation in respect to the subject of the Change Order. Except as modified by Change Order, all Work performed under a Change Order shall be completed in accordance with these Contract Documents. Each Change Order shall be specific and final as to prices and extensions of time with no reservations or other provisions allowing for future additional money or time as a result of the particular changes identified and fully compensated in the change order.
- 6.2 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract and applicable law consisting of additions, deletions or other revisions and the Contract Sum and/or the Contract Time will be adjusted accordingly. All such changes in the Work shall be authorized by written Change Order and shall be performed by Contractor under the applicable provisions of the Contract Documents as provided herein.
  - .1 **MAJOR CHANGES IN THE WORK** - any significant change in a Major Bid Item constitutes a major change in the Work and shall be implemented by a Change Order that shall be binding on the Owner and Contractor. A significant change that constitutes a Major Change in the Work shall be defined as follows:
    - .1 An increase or decrease of five percent (5%) or more in the number of units (not price) for a Major Bid Item as included in the Consultant's estimated quantities included in the Bid Documents; or
    - .2 An increase or decrease of five percent (5%) or more in the dollar value of a lump sum, Major Bid Item.
    - .3 Any change in the Contract Sum resulting from a Major Change in the Work, which reflects among other things, quantity changes, market price changes, and any quantity or volume discounts that might apply, shall be determined as specified in Article 6.5.
  - .2 **MINOR CHANGES IN THE WORK** - The SAWS COI will have authority to order such minor changes in the Work not involving an adjustment in the Contract Sum or Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be implemented by a written directive (a "Work Change Directive") and shall be binding on the Owner and Contractor. The Contractor shall carry out any written directive promptly.
    - .1 If the Contractor does not agree with the SAWS COI that a Minor Change in the work is minor and will result in no adjustment in Contract Sum or Contract Time, he must so notify the Owner in writing, within seven (7) calendar days of issuance of the written directive and prior to beginning any disputed work. If the Contractor fails to file such written notification as provided for above, he shall waive and forever forfeit his rights to file a claim for additional compensation or Time for the Work under this section.
    - .3 In the event there is a Major Change In The Work as provided for in Article 6.2.1, that causes an increase in the number of units for a Major Bid item, Owner may consider a price increase for the Major Bid item for those additional units. In any event the Contractor shall not be entitled to an adjustment of price due to a decrease in a Major Bid Item.

- 6.3 Contractor proposals, along with the supporting data including impact to the critical path, for the proposals as specified in item 6.5.4 shall be submitted no later than seven (7) calendar days after the owner's issuance of an RFP request by Owner's Representative, unless Owner's Representative grants an extension. Failure of contractor to provide the complete and proper proposal including all support will not be cause for delay or additional time.
- 6.4 The entire cost of extra Work resulting from Change Orders including the incremental cost of extra Work resulting from any prior Change Orders, modifications, or additions so ordered, shall not cumulatively exceed twenty-five percent (25%) of the original Contract Sum, in accordance with Texas Local Government Code, Chapter 252 and provided further that the price is agreed upon in writing by Owner and Contractor before materials are furnished or the Work is done. Contractor shall be responsible for keeping records that track the Contractor's cumulative total for Change Orders and Contractor, by entering this Contract, approves, understands and agrees that no Work is approved, no payment will be made, and no Change Order is authorized, that exceed the statutory limit provided herein and any Work undertaken or performed by the Contractor in excess of this amount is at the Contractors sole risk and expense
- 6.5 Changes or Credits for the Work covered by an approved Change Order shall be determined by one or a combination of the following methods:
- .1 UNIT PRICE - Submitted by the Contractor in the original Contractor Bid Proposal as part of the base bid or as a designated additive or deductive alternate, and if agreed to by the Contractor and the Owner, appropriately adjusted either upward or downward to reflect any increases or decreases in the amount of labor, material or equipment as they relate to Major Bid Items.
  - .2 AGREED CONTRACT CHANGES - Lump Sum Agreement between Owner and Contractor as to the price, quantity and time for changes in the Work. The Contractor shall submit an itemized, estimated cost breakdown together with supporting data. This itemized breakdown shall be in accordance with the requirements established in Article 6.5.4 and 6.5.5.
  - .3 FORCE ACCOUNT - If no Agreed Contract Change or unit price can be reached after good faith negotiations between the SAWS and Contractor, the Owner may direct the Work be performed by the Contractor on a Force Account basis, and payment by the SAWS shall be upon the basis of Actual Cost of the Work as specified in Article 6.5.4 plus the participation allowances as specified in Article 6.5.5.
  - .4 ACTUAL COST OF THE WORK – The “Actual Cost” incurred by the Contractor to perform the additional Work. Contractor shall provide a complete breakdown of the Actual Costs to the Owner on a daily basis as follows:
    - .1 Labor including Foremen
    - .2 Labor burden shall be allowed at a maximum of 35%. Any burden in excess of the percentage shown shall be submitted for review and approval by the Owner and will be subjected to audit.
    - .3 Materials comprising the Work
    - .4 The Contractor's actual incremental ownership or rental cost of equipment during the time of use on the extra Work. (Rental cost shall be based on current Southwest Regional AGC, Association of Equipment Distributors regional computations or equivalent).

For Contractor-owned machinery, trucks, power tools or other equipment, necessary for use on Change Order work, the Rental Rate Blue Book for Construction Equipment (hereafter referred to as “Blue Book”) rate, as modified by the following, will be used to establish Contractor's allowable hourly rental rates. Equipment used shall be at the rates in effect for each section of the Blue Book at the time of use. The following formula shall be used to compute the hourly rates:

$$H = \frac{M \times R1 \times R2}{176} + OP$$

176

Where H = Hourly Rate

M = Monthly Rate

R1 = Rate Adjustment Factor

R2 = Regional Adjustment Factor

OP = Operating Costs

If Contractor-owned machinery and/or equipment is not available and equipment is rented from an outside source, the hourly rate shall be established by dividing the actual invoice cost by the actual number of hours the equipment is involved in the Work. Owner reserves the right to limit the hourly rate to comparable Blue Book rates. When the invoice specifies that the rental rate does not include fuel, lubricants, repairs and servicing, the Blue Book hourly operating cost shall be allowed to be added for each hour the equipment operates. The allowable equipment hourly rates shall be paid for each hour that the equipment is involved in the Work and an additional maximum of fifteen percent (15%) may be added as compensation.

- .5 Power and consumable supplies for the operation of power equipment.
- .6 Insurance and any extra bond premiums shall be allowed at a maximum of two (2%) percent of the total change order cost. Any insurance and extra bond premiums in excess of the percentage shown shall be submitted for review and approval by the Owner and will be subjected to audit.

#### .5 PARTICIPATION ALLOWANCE

- .1 For Contractor's proposals covering both increases and decreases in the amount of the Contract, the application of overhead and profit percentages (as provided in the following tables) shall be on the net increase in the Actual Cost for the Contractor or Subcontractor performing the Work. However, where the Contractor or first tier Subcontractor receives proposals for additive and deductive amounts from separate sub tier subcontractors, the commission shall be allowed on the added amounts prior to subtraction of the credit amounts. The cost of such extra Work shall be added to the Contract Sum by a Written Change Order as specified in Article 6.1. The following tables provide further explanation of the application of the provisions in this Article:

ALLOWABLE MARK UPS	Work performed by PC		Work performed by Sub A		Work performed by Sub B	
	O & P	Comm.	O & P	Comm.	O & P	Comm.
Prime Contractor (PC)	20%	---	---	5%	---	5%
Subcontractor A (Sub A)	---	---	20%	---	---	5%
Subcontractor B (Sub B)	---	---	---	---	20%	---
Subcontractor C (Sub C)	SAWS Does Not Allow Mark Up On Sub C					

DEFINITIONS	
<b>Prime Contractor</b>	Owns the contract with SAWS
<b>Subcontractor A</b>	Works directly for Prime Contractor
<b>Subcontractor B</b>	Works directly for Subcontractor A
<b>Subcontractor C</b>	Works directly for Subcontractor B
<b>O &amp; P</b>	Overhead & Profit
<b>Comm.</b>	Commission

EXAMPLE	Sub B change order for \$1,000		
	Work performed by Sub B		
	O & P	Comm.	
Prime Contractor	---	\$63.00	
Subcontractor A	---	\$60.00	
Subcontractor B	\$200.00	---	
Subcontractor C	---	---	
<b>Summary</b>	CO	Mark Up	CO Total
	\$ 1,000.00	\$323.00	<b>\$1,323.00</b>

6.6 **DELETION OF WORK** - The Owner may, pursuant to Texas Local Government Code, Chapter 252, or as otherwise may be provide by law, order the Contractor to omit up to twenty five percent (25%) of the original Contract Sum and associated Work, as specified in Article 6.4, without the consent of the Contractor.

6.7 **CLAIMS FOR ADDITIONAL COSTS**

- .1 If the Contractor pursues a claim for an increase in the Contract Sum and or time prior to final acceptance, he shall give the Owner written notice thereof with a simultaneous information copy to the Consultant, within thirty (30) days after the Contractor knows, or should have known, of the events giving rise to such Contractor claim. This notice shall be presented in writing to the Owner and Consultant by the Contractor and contractor shall not proceed with work until directed by Owner, except in an emergency endangering life or property in which case the Contractor shall proceed in accordance with Article 5.28.4. No such Contractor claim shall be valid unless the Contractor follows the notice procedure outlined herein, and failure to follow the notice procedure provided above shall cause the Contractor to waive and forever forfeit the right to seek additional amounts on the Contract in regards to the claim. If the Owner and the Contractor cannot agree on the amount of the adjustment in the Contract Sum, if any, it shall be determined by administrative procedures as provided to Article X. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.
- .2 If the Contractor claims that additional cost will be incurred because of: (1) any written Owner or Consultant interpretation of the Contract Documents, (2) any order by the Owner to stop the Work pursuant to Article 4.8 where the Contractor was not at fault, or (3) any written order involving a perceived minor change in the Work issued pursuant to Article 6.2.2, the Contractor shall make such claim as provided in Article 6.7.1.

6.8 **NO DAMAGES FOR DELAY CLAUSE** - Notwithstanding anything to the contrary in the Contract Documents, an extension in the Contract Time, to the extent permitted under Article 6., shall be the sole remedy of the Contractor for any (i) delay in commencement, prosecution, or completion of Work, (ii) hindrance, interference, suspension or obstruction in the performance of Work, (iii) loss of productivity, or (iv) other similar claims (items (i) through (iv) herein collectively referred to in this Article 6.8 as "Delays") whether or not such Delays are foreseeable, unless a Delay is caused by the acts of the Owner constituting intentional interference with Contractor's performance of the Work, and only to the extent such act continues after the Contractor furnishes Owner with written notice of such interference. In no event shall the Contractor be entitled to any compensation or recovery of any damages, in connection with any Delay, including, without limitation, consequential damages, lost opportunity costs, impact

damages, or other similar remunerations. For purposes of interpreting this provision, the Owner's exercise of any of its rights or remedies under the Contract Documents (including without limitation, ordering changes in Work, or directing suspension, rescheduling, or correction of the Work), regardless of the intent or frequency of the Owner's exercise of such rights or remedies, shall not be construed as intentional interference with the Contractor's performance of the Work.

6.9 SUBCONTRACTOR PASS-THROUGH CLAIMS - In the event that any Subcontractor of Contractor asserts a claim to Contractor that Contractor seeks to pass through to Owner under the Contract Documents, any entitlement to submit and assert the claim as to Owner shall be subject to:

- .1 The requirements herein of these General Conditions; and
- .2 The following additional three (3) requirements listed below, all three (3) of said additional requirements shall be conditions precedent to the entitlement of Contractor to seek and assert such Claim against Owner:
  - (1) Contractor shall:
    - (a) have direct legal liability as a matter of Contract, common law, or statutory law to Subcontractor for the claim that Subcontractor is asserting; or
    - (b) have entered into a written liquidating agreement with Subcontractor, prior to the Claim's occurrence, under which Contractor has agreed to be legally responsible to the Subcontractor for pursuing the assertion of such Claim against Owner under said Contract and for paying to Subcontractor any amount that may be recovered, less Contractor's included markup (subject to the limits in the Contract Documents for any markup). The relationship, liability or responsibilities shall be identified in writing by Contractor to Owner at the time such Claim is submitted to Owner and a copy of any liquidating agreement shall be included by Contractor in the Claim submittal materials.
  - (2) Contractor shall have reviewed the Claim of the Subcontractor prior to its submittal to Owner and independently shall have evaluated such Claim in good faith to determine the extent to which the Claim is believed in good faith to be valid. Contractor shall inform Owner that Contractor has made a review, evaluation, and determination that the Claim is made in good faith and is believed to be valid.
  - (3) Subcontractor making the Claim to Contractor shall certify to both Contractor and Owner that it has compiled, reviewed and evaluated the merits of such Claim and that the Claim is believed in good faith by Subcontractor to be valid. A copy of the certification by Subcontractor shall be included by Contractor in the Claim submittal materials.
- .3 Any failure of Contractor to comply with any of the foregoing requirements and conditions precedent with regard to any such Claim shall constitute a waiver of any entitlement to submit or pursue such Claim.

6.10 TIME REQUIRED TO PROCESS CHANGE ORDERS - All Change Orders require written approval by either Owner or Owners Representative or, where authorized by the State. The approval process requires a minimum of forty-five (45) calendar days **after submission** to Owner in final form with all supporting data. Receipt of a submission by Owner does not constitute acceptance or approval of a proposal, nor does it constitute a warranty that the proposal will be authorized by Owner. **THE TIME REQUIRED FOR THE APPROVAL PROCESS SHALL NOT BE CONSIDERED A DELAY AND NO EXTENSIONS TO THE CONTRACT TIME OR INCREASE IN THE CONTRACT SUM WILL BE CONSIDERED OR GRANTED AS A RESULT OF THIS PROCESS.** Pending the approval of a Change Order as described above, Contractor will proceed with the work under a pending Change Order only if directed in writing to do so by Owner.



## ARTICLE VII. CONTRACT PAYMENTS:

- 7.1 INTERNET-BASED PROJECT MANAGEMENT SYSTEM. SAWS shall administer its services through an Internet-Based Project Management System (hereafter referred to as "CPMS"). In such case, Contractor shall conduct communication through CPMS and perform all Project-related functions utilizing CPMS, with the exception of Sub-Contractor payment monitoring activities, which shall be through the S.P.U.R. system. This includes any and all correspondence, submittals, requests for information, vouchers, compensation requests and processing, amendment, change orders and other administrative activities as may be required in the Contract. SAWS shall administer the CPMS software, shall provide CPMS training to Project Team members and shall make the software accessible via the Internet to all necessary Project Team members. All invoices shall be submitted through the CPMS.

Monthly payments for work performed shall be reviewed by SAWS upon Contractor entering itemized invoices, with all required back-up, within CPMS. The invoice shall indicate the value of the work performed to date.

- 7.2 ESTIMATED QUANTITIES AND MEASUREMENT - The estimated quantities of the various elements of Work to be done and material to be furnished are approximate only and are provided by Consultant and Owner as a basis for Owner comparison of proposals and award of Contract. It is expressly understood and agreed by Owner and Contractor that the actual amounts of Work to be done and material to be furnished may differ somewhat from these estimated quantities. The quantities of Work actually performed by Contractor will be computed on the basis of measurements taken by the Owner's representatives, and these measurements shall be final and binding on Contractor.

PROGRESS PAYMENTS - During the latter part of each month as the Work progresses on all SAWS Contracts regardless of Contract Sum, said Owner, or his designated representatives and Contractor shall determine either the cost of the labor and materials or quantities incorporated into the Work during that month and actual invoiced cost of Contractor acquired materials stored on the Project site, and/or within off-site local storage facilities either owned or leased by the Contractor. Upon receipt of a complete and mathematically accurate Construction Payment Estimate Form from the Contractor, the SAWS shall make payment to Contractor within thirty (30) calendar days of receipt. Contracts totaling four hundred thousand (\$400,000.00) dollars or less, based upon such cost determination and at the Contract unit prices in a sum equivalent to ninety percent (90%) of each such invoice. The remaining ten percent (10%) retainage shall be held by the SAWS until the final Contract Settlement. However, where the Contract amount exceeds four hundred thousand dollars (\$400,000.00), installments shall be paid to Contractor at the rate of ninety-five percent (95%) of each monthly invoice within thirty (30) calendar days of Owner receipt of an approved and mathematically accurate Construction Payment Estimate Form from the Contractor, and the retainage held until final Contract Settlement shall be five percent (5%). In either case, should the Construction Payment Estimate Form submitted by the contractor be incorrect, the Construction Payment Estimate Form will be rejected and returned to the contractor for correction. Upon receipt of the corrected Construction Payment Estimate form, the timeline stated above for payment will apply.

- .1 Contractor's Payment to Sub-Contractors: The contractor will be required to report the actual payments to all subcontractors, utilizing the Sub-contracting Payment and Utilization Reporting (S.P.U.R.) System, in the time intervals and format prescribed by SAWS. This information will be utilized for SMWB participation tracking purposes. Any unjustified failure to comply with the committed SWMB levels may be considered breach of Contract.
- .2 Web Submittal of Subcontractor Payment Reports: The Contractor is required to electronically submit monthly subcontractor payment information utilizing the Sub-contracting Payment and Utilization Reporting (S.P.U.R.) System, beginning with the first SAWS payment for services under the Contract, and with every payment thereafter (for the duration of the contract).

Electronic submittal of monthly subcontractor payment information will be accessed through a link on SAWS' "Business Center" web page. The Contractor and all subcontractors will be provided a unique log-in credential and password to access the SAWS subcontractor payment reporting system. The link may also be accessed through the following internet address: <https://saws.smwbe.com/>

Training on the use of the system will be provided by SAWS. After the prime receives payment from SAWS, electronic submittals will require data entry of the amount paid to each subcontractor listed on the Contractor's Good Faith Effort Plan.

Owner's payment of installments shall not in any way be deemed to be a final acceptance of any part of the Work by Owner, and will not prejudice Owner in the final settlement of Contract account nor relieve the Contractor from completion of the Work as herein provided.

7.3 WITHHOLDING OF PAYMENT - In the event that the Owner discovers evidence of Contractor and/or Work noncompliance with the Contract Documents subsequent to approval of the Construction Estimate Certification Forms, the Owner may revoke or otherwise amend that part of any Construction Estimate Certification Form to such extent as may be necessary to withhold monies to protect the Owner from loss on account of:

- .1 Defective Work not remedied by Contractor.
- .2 Persistent and uncured Contractor non-compliance with the administrative provisions of the Contract Documents including, but not limited to, failure to electronically submit monthly subcontractor payment information utilizing the Sub-contracting Payment and Utilization Reporting (S.P.U.R.) System.
- .3 Damage to Work of another Contractor.
- .4 Liquidated Damages assessed by Owner for Contractor failure to maintain scheduled progress in accordance with the most recent applicable construction schedule, if any are specified in the Contract Documents, and/or Contractor failure to meet final completion date.
- .5 Receipt of written notice by the Owner of Contractor's unpaid bills, as stipulated in Chapter 53, Texas Property Code, if the Contractor has not provided a payment bond and only if the Contract Sum does not exceed \$25,000.00. Any funds so withheld by Owner shall be released to the Contractor if he furnishes either a special indemnity bond to Owner securing release of lien as provided in Chapter 53, Texas Property Code, or Contractor proof of payment of disputed bills.
- .6 "Indemnification" as provided for in Article 2.3.

When the above Contractor deficiencies are cured, Owner will make payment for amounts withheld because of the deficiencies within (30) thirty calendar days.

7.4 FINAL PAYMENT - Contractor shall not be entitled to receive payment of any sum in excess of the cumulative amounts paid upon such monthly invoices as outlined above until after the Owner transmittal of the Letter of Conditional Approval and in accordance to Article 9 project completion and acceptance and not before all the stipulations, requirements and provisions of this Contract are faithfully performed and complied with by Contractor, and unless and until said structures, Work and improvements shall be entirely completed, and delivered to, and accepted by the SAWS in accordance with the Contract Documents. Completion, delivery and acceptance of the Work is evidenced by the Final Certificate of Acceptance issued in accordance to Article 9.1 by the Owner and such Certificate of Acceptance is approved by the Owner. The Owner shall prepare the final invoice as the basis for final Contract settlement. Owner may deduct from the amount of such final invoice and retain any and all sums which are to be deducted by SAWS or paid or allowed by Contractor to SAWS, or which are to be retained by Owner for reasons stemming from any/all fines, fees, or penalties, in addition to those previously stated in Article 7.2.

- .1 NOTARIZED AFFIDAVIT - Before and as a condition precedent to Final Payment for the work by the Owner, the Contractor shall submit to the Owner a notarized affidavit in duplicate stating under oath that all subcontractors, vendors, and other persons or firms who have furnished or performed labor or furnished materials for the work have been fully paid or satisfactorily secured. Such affidavit shall bear or be accompanied by a statement, signed by the surety company who provided the Payment Bond for the work, to the effect that said surety company consents to Final Payment to the Contractor being made by the Owner.

7.5 OWNER TO FINALLY DETERMINE ALL AMOUNTS PAYABLE OR CHARGEABLE - It is expressly understood and agreed by Contractor that subject only to the prices, terms and provisions specifically set forth in the Contract Documents including Change Orders, the written estimates and Certificates of the Owner shall be final in fixing and determining amounts payable or chargeable hereunder to Contractor by SAWS as required by the other terms and conditions hereof. Also, in case of controversy, the monthly construction estimates and Certificates of Final Acceptance shall be final in fixing and determining all sums to be deducted and retained by SAWS for reasons as stated in Article 7.2, out of any funds otherwise estimated as payable to Contractor by SAWS.

7.6 CLAIMS BY THIRD PARTIES FOR LABOR OR MATERIALS

- .1 Contractor hereby agrees to promptly pay all persons supplying labor, services and materials in the prosecution of the Work provided for in this Contract and any and all duly authorized modifications or Change Orders of said Contract that may hereafter be made, and shall fully indemnify and hold harmless the SAWS and its agents against any and all claims, liens, suits or actions asserted by any person, persons, firm or corporation on account of labor, materials or services furnished such Contractor during the prosecution of the Work herein undertaken. Contractor shall execute a payment bond in accordance with other sections governing same herein for this purpose. Before the SAWS shall be obligated to pay any amount to Contractor on final Contract settlement, Contractor shall execute a sworn, written and notarized statement on an affidavit form to be supplied by the Owner along with a "consent of surety" letter endorsing Final Payment to Contractor, evidencing that all labor employed and all equipment and materials incorporated into the Construction of the Work have been either fully paid for by Contractor and Subcontractors, or that any pending disputes over payment are being properly addressed by the surety as provided for in 7.3.1 herein.
- .2 Suppliers, any subcontractors, and persons claiming to have performed any labor, or to have supplied any equipment and materials toward the performance of this Contract, and who claim not to have received proper compensation from the Contractor or Subcontractors for same, shall be instructed by Owner and Contractor that written and documented claims must be sent directly to the Contractor and his Surety in accordance with Chapter 2253, Texas Government Code. The Owner will furnish to claimants, in accordance with such Chapter 2255, Texas Government Code, a copy of the Contractor's Payment Bond and Contract as provided therein upon claimant's written request. **The Owner shall further furnish a statement to claimants that claimants are cautioned that no legal or equitable lien exists on the SAWS funds yet unpaid to the Contractor, and that reliance on notices sent only to the Owner may result in loss of claimant's rights to timely perfect recovery against the Contractor and/or his Surety. The Owner is not responsible in any manner to a claimant for collection of unpaid bills, and accepts no such responsibility because of any unauthorized representation by any agent or employee of Owner to the contrary.**

**ARTICLE VIII. CONTRACT COMPLETION TIME:**

- 8.1 COMMENCEMENT OF WORK - The Work called for in this Contract shall commence on the date indicated in the SAWS written Authorization to Proceed. Under no circumstances shall the Work commence prior to the Contractor's receipt of SAWS issued, written Authorization to Proceed.
- 8.2 COMPLETION OF WORK - After commencement of Work as outlined in Article 8.1, the Contractor shall prosecute the Work continuously, diligently and uninterruptedly throughout the Contract Time period, during which period of time Contractor, all subcontractors and suppliers are bound and obligated at all times to employ sufficient Work force and supervisory diligence to complete said structures, Work and improvements, and to deliver same over to the SAWS in a timely acceptable, completed, undamaged and clean condition. THE TIME OF BEGINNING, RATE OF PROGRESS AND TIME OF COMPLETION OF SAID WORK ARE HEREBY DECLARED BY OWNER AND UNDERSTOOD BY CONTRACTOR TO BE "OF THE ESSENCE" TO THIS CONTRACT. By executing this Contract, Contractor confirms that the Contract Time is a reasonable period for performing the Work. Any other provision contained herein notwithstanding, the Owner may suspend said Work either partially or totally as provided for in Article 4.6 and 4.7.

- 8.3 CALENDAR DAY CONTRACT – Unless otherwise specifically provided in Supplemental or Special Conditions to the Contract, all Contracts shall be Calendar Day Contracts and “Day” as used in the Contract Documents shall mean a calendar day which are days of 24 hours each from midnight to the next consecutive midnight. Work on Sundays or SAWS Designated Holidays will not be permitted except in cases of extreme emergency, and then only with the written permission of the Owner. If Sunday or SAWS Designated Holiday Work is permitted, the COI's average salary costs at time and one half will be charged to the Contractor. This amount shall be deducted from Contractor’s monthly payment application by Owner. Nothing in this Paragraph shall be construed as prohibiting the Contractor from working on Saturdays if so desired provided they give Owner at least the prerequisite forty-eight (48) hours written notice (and receive subsequent approval by the Owner) of intent to perform Work on Saturday so that Owner's representatives may be scheduled to observe/inspect said Work.
- 8.4 FAILURE TO COMPLETE WORK ON TIME - If the Contractor fails to complete the Contract in the time specified by Owner in the Contract Documents and agreed to by Contractor through execution of this Contract, Contract Time charges will continue to be made for each Calendar Day thereafter. THE TIME SET FORTH IN THE CONTRACT FOR THE COMPLETION OF THE WORK IS AN ESSENTIAL ELEMENT OF THE CONTRACT. For each Calendar Day that any Work shall not be complete, after the expiration of the Calendar Days specified in the Contract, (to include Calendar Days charged for correction of Contractor deficiencies found during the final inspection), plus, any extended days allowed by Owner, the amount of liquidated damages assessed per day as stipulated in the Contract will be deducted from the money owed or to become due to the Contractor, not as a penalty but as liquidated damages owed to SAWS for extended expenses, loss and public inconvenience resulting from Contractor's failure to complete said Work within the Contract Time that the Contractor agreed to by execution of this Contract. Contractor and SAWS agree that such liquidated damages as are set prior to the Contract execution are for projected reasonable costs that are otherwise difficult for either Party to forecast and will be incurred by the SAWS due to Contractor completion beyond the number of Calendar Days calculated herein by the SAWS.
- .1 The Contract Time may only be changed by a Change Order duly executed by both Contractor and Owner.
  - .2 Should progress of the Work fall behind the construction schedule except for reasons stated in 8.4.1, Contactor shall promptly submit at the request of Owner or Authorized Representative an updated Construction schedule to Owner or Authorized Representative for approval. Contractor shall take any and all action necessary to restore progress by working the hours, and lawful overtime operations as necessary to achieve Contract Time.
- 8.5 WEATHER DELAY CLAUSE - SAWS includes weather delay days when determining the total number of days allowed for each Contract. Any additional days beyond those specified in 8.5.3 must be formally requested in writing with the next monthly payment invoice and justified by the contractor with daily logs or NO ADDITIONAL DAYS WILL BE GRANTED.
- .1 Pursuant to the Contract, Contractor may be granted an extension of time because of unusual inclement weather, including but not limited to unusual rainfall events, which are beyond the Normal Rainfall recorded and expected for San Antonio, Texas. However, the Contractor will not be granted an extension of time for “Normal Rainfall”, as described in 8.5.3.
  - .2 "Unusual Inclement Weather" is defined as a rain event or other weather related event which occurs at the site and is of sufficient magnitude, as determined by the COI, to prevent Contractor from performing work critical to maintaining the Progress Schedule. If rain is the basis for the Unusual Inclement Weather event it must at a minimum exceed the Normal Rainfall as defined herein.
  - .3 Baseline Rain Day Determination. “Normal Rainfall”, based on the National Oceanic and Atmospheric Administration (NOAA) or similar data for San Antonio, Texas, is considered a part of the Calendar Day Contract, and is not a justification for an extension of time. Listed below are the number of days in each month for which no compensatory days for rainfall events (“Rain

Days”) in such months may be claimed:

January.....	2 days
February.....	3 days
March.....	4 days
April.....	3 days
May.....	4 days
June.....	6 days
July.....	3 days
August.....	4 days
September.....	5 days
October.....	5 days
November.....	5 days
December.....	3 days

“Rain Days” in addition to the baseline “Rain Day” determination described above will be measured (with the Owner’s Representative’s approval) at the jobsite or at a location as agreed in writing by the parties.

- .4 Contractor may receive credit in any month for Unusual Inclement Weather, and specifically for any Rain Days in that month which exceed the number of Rain Days allocated to that month, if a Claim is made in accordance with paragraph 8.5.1 and the weather event meets the definition for "Unusual Inclement Weather", and as applicable, “Rain Day” and such claimed day is a day on which Work critical to maintaining the Progress Schedule is scheduled to be performed and is otherwise capable of being performed.

- 8.6 Liquidated Damages for Failure to Complete on Time – The Contractor agrees that **Time Is Of Essence** of this Contract and that for each day of delay beyond the number of days herein agreed upon for the completion of work herein specified and contracted for, after due allowance for such extension of time as is provided for under the provisions herein, the Owner may withhold permanently for the Contractor's total compensation, not as a penalty but as liquidated damages, the sum per day in accordance to the Supplemental Conditions of the Contract.

**ARTICLE IX. PROJECT COMPLETION AND ACCEPTANCE:**

- 9.1 FINAL ACCEPTANCE of the Project will be considered only after all stipulations, requirements and provisions of this Contract are faithfully completed and the Project is delivered to the SAWS by Contractor in an acceptable condition for the intended use by Owner. In the event that all major Contract pay items are complete and only minor clean-up operations remain for Contract completion, the Owner has the discretionary authority to issue a Conditional Letter of Acceptance. Should the Owner’s Conditional Letter of Acceptance contain conditions for the Final Acceptance of the Work, Contract Time will continue to be charged against the Contractor until such conditions have been corrected to the satisfaction of the Owner.

- .1 Final Release of Retainage - Contractor shall be entitled to receive payment of all retainage within forty-five (45) calendar days of completion, receipt and acceptance of all required "completion items" as stipulated below:
  - .1 The “Semi-Final Pay Request” indicating that no additional monthly invoices will be submitted by the Contractor for payment.
  - .2 The “Conditional Letter of Acceptance” with all “Punch List Items” completed indicating that Owner is approving the Release of Retainage.
  - .3 When applicable, the “Recapitulation Change Order” reconciling all Pay Item Quantities. Recapitulation Change Orders exceeding \$100,000 positive or negative are subject to formal Board of Trustee approval.
  - .4 The “Contractor Certification” provided for herein indicating that all subcontractors and suppliers have been paid.

- .5 The "Consent of Surety" provided for herein indicating the Bonding Agent's approval to remit all retainage directly to the Contractor.
  - .6 When applicable, the "TWDB Certificate of Approval & Release of Retainage" letter indicating Texas Water Development Board's approval to remit all retainage directly to the Contractor.
- 9.2 PARTIAL ACCEPTANCE by Owner for beneficial occupancy of any completed part of the Work, which has specifically been identified in the Contract Documents as being eligible for early Owner Acceptance, or which Owner, Engineer and/or Consultant and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner without significant interference with Contractor's performance of the remainder of the Work, may be accomplished prior to completion of the total Work identified in the Contract Documents, subject to the following:
- .1 Owner may at any time request Contractor in writing to permit Owner to beneficially occupy any such part of the Work which Owner believes to be ready for its intended use. If Contractor agrees, Contractor will certify to Owner and Consultant that said part of the Work is substantially complete and request the Owner to issue a Conditional Letter of Acceptance, for only that part of the Work. Within a reasonable time after such request, Owner, Contractor, Engineer and/or Consultant shall make an inspection of the said part of the Work to determine its status of completion. Warranties (as provided under Article 9.3) on that part of the Work beneficially occupied by Owner will commence upon issuance of the Conditional Letter of Acceptance. Any Work items remaining to be completed as defined in the Conditional Letter of Acceptance for the said part of the Work will have warranty commencement upon completion and Final Acceptance by Owner.
  - .2 Owner may at any time request Contractor in writing to permit Owner to take over operation of any such part of the Work although it is not Substantially Complete. A copy of such request will be sent to the Engineer and within a reasonable time thereafter, Owner, Contractor, and Engineer and/or Consultant, shall make an inspection of that part of the Work affected by the request to determine its status of completion and will jointly prepare a list of the items remaining to be completed or corrected issuance of a Conditional Letter of Acceptance. If Contractor does not agree that said part of the Work is ready for separate operation by Owner or that separate operation by Owner will not significantly interfere with Contractor's remaining operations, the Contractor must submit their objections and appropriate justifications in writing to the Owner and Engineer and/or Consultant within 5 days of the request by the Owner. Once any objections have been addressed or if there are no objections, the Owner will finalize a list of items to be completed or corrected and will deliver such list to Contractor together with a written recommendation as to the division of responsibilities pending issuance of the Conditional Letter of Acceptance with respect to security, operation, safety, maintenance, warranties, utilities, insurance, and retainage for that part of the Work taken over for operation by Owner. During such operation, Owner shall allow Contractor reasonable access to complete or correct items on said list and to complete other related Work.
- 9.3 Correction Period/Warranty - During a period of twenty four (24) months from and after the date of the Conditional Letter of Acceptance, the Contractor shall make all needed repairs arising out of defective workmanship or materials, or both, which in the judgment of the Owner shall become necessary during such period. The Owner shall notify and submit a "Performance Claim Form", which will be completed by the Owner and details the location and nature of needed repairs, to the Contractor. The Contractor shall submit a schedule for inspection and completion of said repairs within three (3) days after the notification of the warranty repairs to be approved by the Owner. If within three (3) days after the receipt of a notice in writing from the Owner, the Contractor shall neglect to make or to undertake with due diligence the aforesaid repairs, the Owner is hereby authorized to make demand of performance from the company issuing the Performance Bond. If the Contractor fails to complete the repairs within the approved schedule, the Owner is hereby authorized to make demand of performance from the company issuing the Performance Bond. In case of an emergency where, in the judgment of the Owner, delay would cause a serious loss or damage, repairs may be made without notice being sent to the Contractor, and the Contractor shall pay the cost thereof.

**ARTICLE X. DISPUTES:**

- 10.1 GENERAL - Prior to any anticipated litigation between the Owner and the Contractor, both hereby agree that disputed matters shall first be submitted to Owner administrative appellate procedures as described below:
- .1 Except as otherwise provided in this Contract, any dispute concerning a question of fact arising under this Contract which is not disposed of by mutual agreement shall be initially decided by the Owner (as represented by the decision of the Owner) who shall reduce his decision to writing and promptly mail or otherwise furnish a copy thereof to the Contractor. The decision of the Owner shall be final and conclusive unless within thirty (30) calendar days from the date of issuance of such decision by Owner the Contractor mails or otherwise furnishes to the Owner a written notice of appeal addressed to the SAWS President/C.E.O., whose appellate decision on behalf of the SAWS shall be the final and conclusive SAWS decision. In connection with any appeal under this Article, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of the appeal to persons to be promptly appointed by the SAWS President/C.E.O. to review such disputed matters. The SAWS department sponsoring the Project or any other Owner's representative will also be allowed to present information supporting Owner's position.
  - .2 Pending final President/C.E.O. decision after a dispute hearing, the Contractor shall proceed diligently with the performance of the Contract and in accordance with the President/C.E.O. decision. Neither the SAWS nor the Contractor is precluded from resorting to litigation or other remedy at law nor in equity to perfect a legal filing prior to the expiration of an applicable statute of limitations or after this Owner administrative review process is completed.
- 10.2 PREVAILING PARTY. In any dispute arising under this Agreement, the following shall apply in the determination of which party is the prevailing party. If a party claiming a right to payment of an amount in dispute is awarded all or substantially all of such disputed amount, then such claiming party shall be the prevailing party. If a party defending against such claim is found to be not liable to pay all or substantially all of the disputed amounts claimed by the claiming party, then the party so defending against such claim shall be the prevailing party. If both Parties prevail with respect to different claims by each of them, then the party who is prevailing with respect to the substantially greater monetary sum shall be deemed the prevailing party; otherwise, if both Parties prevail with respect to monetary sums on different claims, neither of which sums is substantially greater than the other, the tribunal having jurisdiction over the controversy, claims or actions shall in rendering the award determine in its discretion whether and to what extent either party should be entitled to recover any portion of its attorney fees. The Prevailing Party shall be entitled to recover reasonable attorney fees and costs.

**ARTICLE XI. SUPPLEMENTAL AND SPECIAL CONDITIONS:**

- 11.1 GENERAL - When the Work contemplated by the Owner is of such a character that the foregoing Standard General Conditions of the Contract cannot adequately cover necessary and additional contractual provisions, the Contract Documents may include Supplemental and Special Conditions as described below:
- .1 SUPPLEMENTAL CONDITIONS shall describe any additional procedures and requirements of Contract administration to be followed by the Contractor, Owner, and Owner representatives. Supplemental Conditions may expand upon matters covered by the Standard General Conditions, where necessary.
  - .2 SPECIAL CONDITIONS shall relate to terms, conditions and procedures related to a specific project and that are unique to that project.
- 11.2 ARCHAEOLOGICAL - "Unidentified Archaeological Sites": If the Contractor should encounter archaeological deposits during construction operations, the Contractor must stop excavation immediately and contact the Owner, who will then contact appropriate agencies for an archaeological investigation. The Contractor cannot begin excavation again in this area without written permission from the Owner.

- 11.3 FUNDED PROJECTS - On State or Federally funded projects, the Owner may waive, suspend, or modify any Article in these General Conditions which conflicts with any State or Federal statute, rule, regulation or procedure, where such waiver, suspension, or modification is essential to receipt by the Owner of such State or Federal funds for the Project. In the case of any project financed in whole or in part by State or Federal funds, any Contract standards or provisions required by the enabling State or Federal statute, or any State or Federal rules, regulations or procedures adopted pursuant thereto that conflict with, or preempt these local Standard General Conditions, shall be controlling.

**ARTICLE XII. RIGHT TO AUDIT CLAUSE:**

- 12.1 By execution of the Construction Contract, the Contractor grants the Owner the right to audit, at the Owner's election, all of the Contractor's records and billings relating to the performance of the Work under the Contract Documents. The Contractor agrees to retain its Project records for a minimum of three (3) years following completion of the Work. The Owner agrees that it will exercise the right to audit only at reasonable hours. Any payment, settlement, satisfaction, or release provided under this Contract shall be subject to the Owner's rights as may be disclosed by any audit.

**ARTICLE XIII. VENUE:**

This Contract is performed in Bexar County, Texas, and if legal action is necessary to enforce this Contract, exclusive venue shall lie in Bexar County, Texas.

- END -



# CONTRACT

CO-00351

Job No. 19-4528

STATE OF TEXAS §  
COUNTY OF BEXAR §

## KNOW ALL MEN BY THESE PRESENTS:

That this Agreement made and entered into this «Board Date» day of «Board Month», A.D.,«Board Year», by and between **THE SAN ANTONIO WATER SYSTEM BOARD OF TRUSTEES**, hereinafter called **THE SAN ANTONIO WATER SYSTEM, COUNTY OF BEXAR, STATE OF TEXAS**, Acting through its Contracting Officer, First Party, hereinafter termed the Owner, and «Company Name», of the City of «City», County of «County», State of «State », Second Party, hereinafter termed the Contractor.

**WITNESSETH:** That for and in consideration of the payments and agreements hereinafter mentioned to be made and performed by said First Party, (Owner), the said Second Party, (Contractor), hereby agrees with the First Party to commence and complete the construction of certain improvements in the amount of «Written Contract Amt» Dollars «Formatted Price», for the San Antonio Water System Job No. 19-4528, dated «Bid Opening Date», the same being designated as San Antonio Water System Project W-1 Leon Creek: Hwy 151 to Hwy 90 Upper Segment.

The Contractor shall perform all work shown on the Plans and described Specifications and shall meet all requirements of this Agreement, The General and Special Conditions of the Agreement; and such Orders and Agreements for Extra Work as may subsequently be entered by the above-named parties to this Agreement.

The Contractor shall not offer, confer, or agree to confer any benefit or gift to any San Antonio Water System employee and Water System employees are prohibited from soliciting, accepting or agreeing to accept any gifts from outside sources; please see Section M. – Gifts or Benefits of the Water System’s Code of Ethical Standards. Section M of the Water System’s Code of Ethical Standards regarding Gifts or Benefits is available on the SAWS Business Center website.

The Contractor hereby agrees to commence work under this Contract on the date indicated in the SAWS written Authorization to Proceed. Under no circumstances shall the work commence prior to the Contractor's receipt of SAWS issued, written Authorization to Proceed. Computation of Contract Time will begin on the construction start date as indicated on the written Authorization to Proceed. All work specified in these Contract Documents shall be completed within «Calendar Days» calendar days from the construction start date **or until funds are exhausted, whichever comes first (delete if not applicable)** indicated on the written Authorization to Proceed.

It is agreed and understood by the Owner and the Contractor that the provisions of Chapter 252, Texas Local Government Code, and/or Chapter 2269, Texas Government Code (as amended) apply to this contract. As applicable, the terms of the aforementioned state law are incorporated herein by reference. Contractor and Owner agree that pursuant to state law, Owner authorizes its duly designated administrative officer (Contracting Officer) to negotiate change orders up to and including the amount of \$100,000.00. It is also agreed and understood that any change orders which increase the cost of the work provided under the contract in excess of 25% of the original contract price are prohibited. The cost of the work provided under the contract may be decreased over 25% of the original contract price with the consent of the Contractor.

The Owner agrees to pay the Contractor in current funds, and to make payments on account, for the performance of the work in accordance with the Contract, at the prices set forth in the Contractor's Proposal, subject to additions and deductions, all as provided in the General Conditions of the Agreement.

The following documents, together with this Contract, comprise the Agreement, and they are as fully a part thereof as if herein repeated in full:

- The Invitation for Competitive Sealed Proposals
- The Instructions to Respondents
- The Supplementary Instructions to Respondents
- The Price Proposal
- The Payment Bond
- The Performance Bond
- The General Conditions of the Contract
- The Special Conditions of the Contract
- The Supplemental Conditions of the Contract
- The Construction Specifications
- The Standard Drawings
- Addenda
- Change Orders
- Good Faith Effort Plan

The Plans, designated San Antonio Water System Project SAWS Job No. 19-4528; W-1 Leon Creek: Hwy 151 to Hwy 90 Upper Segment.

In witness thereof of the Parties of these presents have executed this Agreement in the year and day of first above written.

The individuals executing this Contract each represent and warrant to the other party that he/she has full authority to execute this Contract on behalf of his/her respective party.

**SAN ANTONIO WATER SYSTEM BOARD  
OF TRUSTEES, OWNER**

By \_\_\_\_\_  
**Robert R. Puente**  
CEO/President

Date: \_\_\_\_\_

By \_\_\_\_\_  
*Contractor*

By \_\_\_\_\_  
*(Signature)*

\_\_\_\_\_  
*(Print/Type Name)*

Title \_\_\_\_\_

Date: \_\_\_\_\_

**STATUTORY PERFORMANCE BOND**  
**Pursuant to Vernon's Texas Government Code**  
**Title 10, Chapter 2253, as amended**

**Bond No.** \_\_\_\_\_

(Penalty of this Bond must be 100% of Contract Award)

KNOW ALL MEN BY THESE PRESENTS:

That «Company Name» «Street Address» «City and State» «Zip Code» (hereinafter called "Principal"), as Principal, and «Surety Name», a Corporation organized and existing under the laws of the State of «Suretys State », with its principal office in the City of «City of Suretys Principal Office», and authorized under the laws of the State of Texas to act as surety on bonds for principals (hereinafter called "Surety"), are held and firmly bound unto THE SAN ANTONIO WATER SYSTEM BOARD OF TRUSTEES, San Antonio, Bexar County, Texas (hereinafter called "Owner/Obligee"), in the amount of «Written Contract Amt». Dollars «Formatted Price», for the payment whereof, Principal and Surety firmly bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS, Principal has entered into a certain written contract with the Owner/Obligee, dated the «Board Date» day of «Board Month», «Board Year», consisting of SAWS Job No. 19-4528; W-1 Leon Creek: Hwy 151 to Hwy 90 Upper Segment (hereinafter called "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 Principal shall faithfully perform the work in accordance with the plans, specifications and Contract Documents, then this obligation shall be void; otherwise to remain in full force and effect.

**NOW, THEREFORE**, if Principal shall repair any and all defects in said work occasioned by and resulting from defect in materials furnished by, or workmanship of, Principal in performance of the work covered by the Contract, occurring during a period of within 24 months from the date of the Contract Completion Certification, therein this obligation shall be null and void; otherwise to remain in full force and effect.

**PROVIDED, HOWEVER**, that this bond is executed pursuant to the provisions of Title 10, Chapter 2253, as amended, of the Texas Government Code, and all liabilities on this bond shall be determined in accordance with the provisions of this Chapter, 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, or other waiver or amendment of the terms of the Contract or to the work to be performed thereunder, nor any change in the method nor any change in the method or amount of payments stipulated to be made by Owner/Obligee under the Contract, shall relieve Surety of its obligations hereunder, and Surety hereby waives notice of any such change, extension of time, waiver or amendment of the terms of the Contract or to the work to be performed thereunder. The bond shall be automatically extended in time, without formal and separate amendment, to cover full and faithful performance of the Contract in the event of modification of the Contract, regardless of the length of time involved.

**IN WITNESS THEREOF**, Principal and Surety have signed and sealed this instrument on \_\_\_\_\_ day of \_\_\_\_\_, 2018.

**Principal**

**Surety**

By \_\_\_\_\_  
Title \_\_\_\_\_  
Address \_\_\_\_\_

By \_\_\_\_\_  
Title \_\_\_\_\_  
Address \_\_\_\_\_

**Name, Address and Telephone Number of Resident Agent of Surety:**

---

**STATUTORY PAYMENT BOND**  
**Pursuant to Vernon's Texas Government Code**  
**Title 10, Chapter 2253, as amended**

**Bond No.** \_\_\_\_\_

(Penalty of this Bond must be 100% of Contract Award)

KNOW ALL MEN BY THESE PRESENTS:

That «Company Name»«Street Address»«City and State»«Zip Code» (hereinafter called "Principal"), as Principal, and «Surety Name», a corporation organized and existing under the laws of the State of «Suretys State », with its principal office in the City of «City of Suretys Principal Office», and authorized under the laws of the State of Texas to act as surety on bonds for principals (hereinafter called "Surety"), are held and firmly bound unto THE SAN ANTONIO WATER SYSTEM BOARD OF TRUSTEES, San Antonio, Bexar County, Texas (hereinafter called "Owner/Obligee"), in the amount «Written Contract Amt» Dollars «Formatted Price», for the payment whereof, Principal and Surety firmly bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS, Principal has entered into a certain written contract with the Owner/Obligee, dated the «Board Date» day of «Board Month», «Board Year» consisting of SAWS Job No. 19-4528; W-1 Leon Creek: Hwy 151 to Hwy 90 Upper Segment (hereinafter called "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 Principal shall faithfully pay in full all claimants supplying labor and material to Principal or to a subcontractor in the prosecution of the work provided for in the terms of the Contract Documents, 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 Title 10, Chapter 2253, as amended, of the Texas Government Code, and all liabilities on this bond shall be determined in accordance with the provisions of this Chapter, 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, or other waiver or amendment of the terms of the Contract or to the work thereunder, nor any change in the method nor any change in the method or amount of payments stipulated to be made by Owner/Obligee under the Contract, shall relieve Surety of its obligations hereunder, and Surety hereby waives notice of any such change, extension of time, waiver or amendment of the terms of the Contract or to the work thereunder. The bond shall be automatically extended in time, without formal and separate amendment, to cover full and faithful performance of the Contract in the event of modification of the Contract, regardless of the length of time involved.

**IN WITNESS THEREOF**, Principal and Surety have signed and sealed this instrument on the \_\_\_\_\_ day of \_\_\_\_\_, 2018.

**Principal**

**Surety**

By \_\_\_\_\_  
Title \_\_\_\_\_  
Address \_\_\_\_\_

By \_\_\_\_\_  
Title \_\_\_\_\_  
Address \_\_\_\_\_

**Name, Address and Telephone Number of Resident Agent of Surety:**

\_\_\_\_\_

## EXHIBIT B

### **ADMINISTRATIVE AND OPERATIONAL PROCEDURES FOR CONTRACTOR BID SUSPENSION HEARINGS AND APPEALS**

#### I. SCOPE

These Administrative and Operational Procedures for Contractor Bid Suspension Hearings and Appeals apply to all contractors awarded contracts with SAWS.

The term “contractor” as used in these Procedures means a construction contractor, subcontractor, vendor, supplier, materialman or any other person or entity supplying labor or material to SAWS on a contract basis.

"SAWS Management Officials" means SAWS personnel who are at the Manager level or above and who are involved in the supervision, review or acceptance of services, work or materials provided by contractors under contract with SAWS.

#### II. GENERAL PROCEDURES

A. If a SAWS Management Official determines that a particular contractor’s responsiveness, capabilities or performance under one or more SAWS contracts is unsatisfactory, the SAWS Management Official may file a complaint with the Chief Operating Officer recommending that the particular contractor be suspended from consideration for award of contracts with SAWS. A complaint may not be filed unless:

- 1) SAWS has sent the contractor at least three letters advising that the contractor is in non-compliance with a contract with SAWS, and the letters each include a warning that further defaults or breaches may lead to a suspension; or
- 2) the contractor has had a previous contract with SAWS terminated for contractor default; or
- 3) either the City of San Antonio or the State of Texas has suspended the contractor.

B. A SAWS Management Official filing a complaint will provide the Contracting Committee with any information he or she may have relating to the Reasons for Contractor Suspension as described in Section 4.9, Contractor Bid Suspension Policy of the General Conditions.

- C. SAWS will maintain the materials relating to any and all complaints filed against a particular contractor in a “complaint file” pertaining to the contractor.
- D. A contractor may be suspended if the contractor is determined by the Contracting Committee to be not sufficiently responsible to warrant consideration for award of contracts with SAWS.

### III. RIGHTS AT HEARING

A hearing on a complaint will be held before a Contracting Committee which will review the evidence presented at the hearing and make a determination as to whether the contractor should be suspended. The Committee will select a chair to preside at the hearing. At the hearing, SAWS and the contractor will each have the following rights and opportunities:

- A. to be heard before an impartial committee;
- B. to be represented by an attorney or a representative of choice;
- C. to hear the witnesses and other evidence presented by the opposing party;
- D. to cross-examine adverse witnesses;
- E. to testify on one’s own behalf;
- F. to present witnesses and other evidence on one's own behalf;
- G. to have a record of the hearing made, by transcript, tape, or otherwise;
- H. to have all testimony presented under oath.

### IV. COMMITTEE PROCESS

- A. The President/Chief Executive Officer of SAWS shall appoint a standing Contracting Committee comprising of SAWS staff. At least one Committee member will be a Vice President of SAWS and all other Committee members will be Managers or higher. If a standing Contracting Committee member has been involved in the day-to-day administration or supervision of a contract with a contractor being reviewed by the Committee, such Committee member will not serve on the Committee with regard to a complaint or appeal affecting that contractor. The President/CEO may either appoint a substitute or the Committee may proceed with fewer members, but in no event will there be less than three members available at any Committee meeting to hear evidence or take action on a complaint or appeal. The members of the Committee

hearing the complaint will be SAWS Management Officials not directly involved with the contractor being considered for bid suspension.

- B. When a SAWS Management Official submits a complaint to the Chief Operating Officer, the Chief Operating Officer will review the complaint to determine whether to convene the Contracting Committee to hear and act on the complaint. The Committee will be convened on a case-by-case basis.
- C. The Contracting Committee will review evidence, obtain testimony from witnesses, deliberate and vote on the matters brought before the Committee. The Committee will consider (i) all evidence in the complaint file pertaining to the contractor and any previously filed complaints and (ii) any other relevant evidence pertaining to the contractor, including evidence presented by SAWS Management Officials familiar with the contractor's performance.
- D. After considering all relevant evidence, the Contracting Committee will either:
  - 1) take no action other than sending a written warning notice by certified mail, return receipt requested, to the contractor (i) indicating that pursuant to these procedures, the Committee has received a complaint regarding the contractor, (ii) indicating that after reviewing the complaint and related evidence, the Committee has decided, at this time, to take no action regarding the contractor, and (iii) including any other information that the Committee, in its discretion, deems appropriate; or
  - 2) pursuant to these procedures, suspend the contractor from consideration for awards of contracts with SAWS.
- E. If the Contracting Committee decides to suspend the contractor, the Committee will send written notice as described in General Conditions, Section 4.7, Contractor Bid Suspension Policy, indicating the following:
  - 1) that, pursuant to these procedures, the contractor has been suspended from consideration for award of contracts with SAWS;
  - 2) in general terms, the reasons for the suspension;
  - 3) that the suspension commences upon issuance of the notice of suspension;
  - 4) the length of time and other relevant terms of the suspension as delineated in these procedures;

- 5) that bids or proposals will not be accepted or solicited from the contractor, and if they are received, they will not be opened and considered for award during the suspension period; and
- 6) the Contractor's right to appeal the suspension pursuant to these procedures.

## V. PROCEDURE AT HEARING

The procedure described below will be followed in a general sense. The Contracting Committee may vary these procedures when necessary because of circumstances.

### A. Copies of Exhibits

Whenever possible, the party wishing to introduce exhibits should make sufficient copies ahead of time. This will prevent interruptions and delays of the proceedings. Generally, in addition to those to be used by the party and the witness, copies will be made available to each of the Committee members, one for the official record and one for the representative of the other party.

### B. Order of Presentation

- After the beginning formalities, each party will be allowed an opportunity to make a brief introductory statement.
- Initially, SAWS will present the evidence it believes warrants the suspension. As each witness is called, the contractor or the contractor's attorney/representative will have the right to cross-examine the witness after the witness has testified and before the next witness is called. The contractor or the contractor's attorney/representative may object to testimony and exhibits.
- After the presentation of SAWS' evidence, the contractor may present evidence, including his or her own testimony and that of others. As each witness is called, SAWS will have the right to cross-examine each witness after the witness has testified and before the next witness is called. A SAWS Management Official may object to testimony and exhibits.
- After the contractor has presented his/her case, SAWS may recall witnesses and present additional witnesses or evidence, again subject to cross-examination and objections. After this, the contractor may recall witnesses and present additional witnesses or evidence, also subject to cross-examination and objections.
- Each party may be allowed additional time to present further rebuttal evidence.



- After the presentation of the evidence, and before the close of the hearing, each party will have the opportunity to give a brief closing argument or summary of his/her position. The Committee may limit the time available to each of the parties depending on the amount of evidence, issues, or other circumstances the Committee deems appropriate.
- The Committee will ensure the orderly and efficient presentation of the evidence.
- The Committee will rule on any objection to testimony or other evidence.
- The Committee will have the right to prevent any threatening or abusive language or conduct and to exclude witnesses who engage in conduct that is disruptive of the proceedings.
- Stipulations (i.e., agreements between all affected parties) which expedite the proceedings are highly favored. Therefore, both SAWS and the contractor are encouraged to reach agreements regarding the admissibility of documents and the proposed testimony of witnesses. Where both SAWS and the contractor (or his/her attorney/representative) have agreed in writing or “on the record,” affidavits of absent witnesses may be introduced.
- All testimony will be under oath. The Committee chair or his/her designee will administer the oaths.
- In its discretion, the Committee may limit or exclude testimony that is superfluous or irrelevant.
- The Committee will utilize its discretion regarding the amount of time allowed for each proceeding and will have the authority to make decisions that will expedite the proceedings.
- In the Committee's discretion, Committee members may ask questions of any witness or party when they believe clarification or further information is needed.
- Unless testifying as an expert, no witness may testify unless he or she has personal knowledge regarding the issues, events, and matters relevant to the hearing.
- The Committee may exclude or limit witnesses who do not have personal knowledge regarding the issues, events, and matters relevant to the hearing.
- The Committee may take other appropriate action when the contractor fails to attend the hearing.

## VI. POSTPONEMENTS

Postponements are not favored. However, where emergency circumstances are beyond the control of the contractor, the Contracting Committee will consider postponing the hearing. There will be no guarantee that a second postponement will be granted.

## VII. SUSPENSIONS

- A. If the contractor has not been previously suspended pursuant to these procedures, the term of the suspension will be for one year from the date of issuance of the notice of suspension.
- B. If the contractor has been previously suspended pursuant to these procedures, the term of the suspension will be for two years from the date of issuance of the notice of suspension.
- C. After the suspension period is over, the contractor may resume submitting bids for SAWS contracts, provided, however, that initially SAWS will award no more than one contract to the suspended contractor. Only after the satisfactory completion of such contract will SAWS resume considering the award of multiple contracts to the contractor. The period of time after the suspension period is over but before SAWS will consider awarding multiple contracts to the contractor is referred to as the “post-suspension period.” The purpose of the post-suspension period is to provide SAWS an opportunity to confirm that the contractor has demonstrated a satisfactory level of responsibility to warrant the award of further SAWS contracts.
- D. Unless the Contracting Committee, in its sole discretion, decides otherwise, during the suspension period and the post-suspension period the contractor may not provide SAWS with labor or materials as a contractor or a subcontractor through another contractor. (This provision does not apply to the single contract that may be awarded to the contractor by SAWS during the post-suspension period or to any contracts or subcontracts in effect prior to the issuance of the notice of suspension.)
- E. If another contractor (“other contractor”) hires a suspended contractor to provide labor or material on a SAWS project while the contractor is suspended from SAWS work, SAWS may notify the other contractor that he or she has 30 days in which to remove the suspended contractor from the SAWS project. If the other contractor does not remove the suspended contractor from the SAWS project within thirty (30) days, SAWS may either (i) reject the portion of the other contractor’s work performed by the suspended contractor because it was performed by a suspended contractor, or (ii) immediately terminate the other contractor’s contract for the project.

Continued use of a suspended contractor after the thirty (30) day notice and cure period will be an event of default under any contract the other contractor has with SAWS under which the suspended contractor provides labor and/or materials.

- F. Notwithstanding the foregoing, a suspended contractor may provide equipment to SAWS as a subcontractor through another contractor, unless the Contracting Committee, in its sole discretion, decides otherwise. In addition, any contractor may hire employees of a suspended contractor as its employees and use them on a SAWS project.
- G. Unless the Contracting Committee, in its sole discretion, decides otherwise, if one or more of the former principal officers or owners of a suspended contractor forms a new business entity or joins a different business entity, or if the suspended contractor is reconstituted as or made a part of a new or different business entity by any means, the terms of the suspension will apply to the new or different business entity as if the new or different business entity were one and the same as the suspended contractor.
- H. All bids for contracts submitted to SAWS by the contractor prior to the issuance of the notice of suspension and all contracts existing between SAWS and the contractor prior to the issuance of the notice of suspension will remain valid and effective on their own accord regardless of the suspension. Notwithstanding the suspension, both SAWS and the contractor will remain obligated to perform all duties owed one another pursuant to any contracts or subcontracts in effect prior to the issuance of the notice of suspension.

## VIII. APPEALS

- A. A suspended contractor may request an appeal hearing regarding the suspension, provided such request is received in writing by the Contracting Committee within ten (10) days after the contractor has received notice of the suspension. If no written request for an appeal hearing is received by the Committee within such ten (10) day period, then the decision to suspend will be final and conclusive.
- B. If an appeal hearing is requested, the Contracting Committee will schedule the appeal hearing to be held within ten (10) days after it receives the written request. The Committee will send the contractor written notice by certified mail, return receipt requested, of the time and place of the hearing.
- C. Both SAWS and the contractor will be allowed to request only one postponement of the appeal hearing. Any such request must be in writing and received by the other party at least five days before the originally scheduled date of the appeal hearing. In the event of a postponement, the Contracting Committee will reschedule the appeal hearing to be held within ten (10) days

of the date that the request for postponement was received. The Committee will send the contractor written notice by certified mail, return receipt requested, of the time and place of the rescheduled hearing.

- D. Appeal hearings will be as informal as reasonable and appropriate under the circumstances. Appeal hearings are intended to be a forum for the contractor to express to the Contracting Committee why the contractor should not be suspended and they are not to be adversarial in nature. A verbatim record is not required.
- E. The contractor may be represented by counsel at the appeal hearing.
- F. Within ten (10) days of the appeal hearing, the Contracting Committee will send the contractor written notice by certified mail, return receipt requested, of its final decision on the matter.
- G. If the Contracting Committee upholds the suspension, the contractor may request review of the decision by the President/Chief Executive Officer of SAWS by filing a written request for review with the President/CEO within ten (10) days of the date of the notice of the result of the appeal hearing. The President/CEO will review the material available from the appeal and meet with the contractor and the Committee either separately or jointly as he or she elects. The President/CEO will then send written notice of his/her decision on the suspension by certified mail, return receipt requested, to the contractor within fifteen (15) days of the date of receiving the request for review by the President/CEO.
- H. Only if the contractor has pursued both appeals and the Contracting Committee and the President/CEO have both upheld the suspension may the contractor seek further recourse by filing suit in an appropriate court of law. Any such suit must be filed within 180 days after the contractor has received notice of the President/CEO's final determination upholding the suspension. After such 180 day limitation period has elapsed, the contractor will be barred from seeking recourse in a court of law regarding the suspension. Such 180 day limitation period is necessary for SAWS to effectively administer the contracts to which it is a party. The 180 day limitation period applies only to the contractor's appeal of suspension and will not affect the obligations or rights of any party under a contract with regard to contract obligations and rights.
- I. The suspension and all other relevant provisions herein will remain in effect throughout any appeals process.
- J. For purposes of determining time periods, notices of appeal and requests for review by the President/CEO will be deemed filed when received by SAWS, and notices of decisions will be deemed given when deposited in the U.S.

Mail, certified mail, return receipt requested, addressed to the contractor at the address given on the notice of appeal or the contractor's last contract with SAWS.

## SECURITY PROCEDURES

If work will be conducted on SAWS property, on a SAWS customer's property, involve any SAWS networks or any SAWS facility, the Contractor shall ensure a Prime Contractor Data Form (PCDF) and a Background Screening Letter (provided by SAWS Security) is properly completed for all employees performing work under this Agreement and is on file with SAWS Security prior to work commencement. Any person found to have an unacceptable background check will not be allowed to perform work under this Agreement (A waiver may be given by SAWS Security for an unacceptable finding but must be signed off by the Director of SAWS Security). Sub-Contractors performing work must be listed on the PCDF and the Background Screening Letter. Contractor shall be responsible for the accuracy of information on the PCDF and the Background Screening Letter, and for obtaining any and all required items (badges and parking tags) necessary to fulfilling the work under this Agreement. The PCDF and Background Screening Letter must be sent electronically to [securitygroup@saws.org](mailto:securitygroup@saws.org). Contractor shall advise the SAWS Project Manager/Inspector of any employee terminations or changes to personnel performing work under this Agreement and the Contractor shall immediately turn in any and all badges and/or parking tags of employees who are terminated or no longer performing work under this Agreement. If there are any changes in the information contained in the PCDF or the Background Screening Letters, Contractor shall immediately notify the SAWS Project Manager/Inspector and provide updated PCDF and Background Screening Letters, with copies to [securitygroup@saws.org](mailto:securitygroup@saws.org).

Contractor, its employees, and agents shall obtain a SAWS photo identification badge (Contractor's Badge) and parking tag, prior to any work on SAWS property, which shall be used only for purposes necessary to perform the work under this Agreement. SAWS Badge Office hours are Monday, Wednesday and Friday 9:00am to 12:00pm excluding SAWS holidays (hours are subject to change). Security staff can be contacted at (210) 233-3177 or (210) 233-3338. A replacement fee may be charged for lost or damaged badges or parking tags. As a condition of final payment, Contractor shall return all badges and parking tags to the Security Office. In the event Contractor fails to return all security badges and parking tags, in addition to any other rights or remedies to which SAWS may be entitled at law or in equity, SAWS may withhold from payment to the Contractor the sum of \$500.00 dollars per badge or parking tag as liquidated damages. Contractor agrees that the actual amount of damages for failure to return the badges and/or parking tags are difficult to determine, and the liquidated damages herein are not a penalty, but are a reasonable estimate of the costs and expenses that may be incurred by SAWS for failure to return the badges or parking tags.

SAWS facilities require a SAWS employee to physically escort Contractor at all times. SAWS may, in its sole discretion, waive the escort requirements if the PCDF and a "clean" Background Screening Letter, signed by an authorized representative of Contractor are approved by SAWS Security.

Sub-Contractors must always be under escort of the Contractor while performing work on any SAWS property. Sub-Contractors must display either a company photo badge, with name, or a valid driver's license at all times while working on any SAWS property. Contractor is solely responsible for the actions of its employees, agents, sub contractors and Contractors.

Contractor MUST be prepared for additional security requirements at its expense if violations of SAWS Security procedures are noted. Some examples of additional requirements include hiring of SAWS approved security guards, temporary fencing, mobile Closed Circuit Television Monitoring trailer(s), or extra lighting. Notwithstanding anything herein to the contrary, any provisions in these Security Procedures that may appear to give SAWS the right to direct Contractor as to details of doing any work under this Agreement or to exercise a measure of control over any security measures or such work shall be deemed to mean that Contractor shall follow the desires of SAWS in the **results** of the work or security measures only.

Advance coordination by Contractor with SAWS Security for these security requirements is necessary to ensure no delays with timely performance of the work. In the event Contractor fails to comply with SAWS Security requirements, SAWS may, with no penalty or claim against SAWS:

- Issue a Work Stoppage Order until the security violation (s) are remedied
- Ask any unidentified or improperly identified person or equipment to leave SAWS site immediately and not return until items are remedied.

# Request for Taxpayer Identification Number and Certification

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

<b>Print or type See Specific Instructions on page 2.</b>	<b>1</b> Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
	<b>2</b> Business name/disregarded entity name, if different from above	
	<b>3</b> Check appropriate box for federal tax classification; check only <b>one</b> 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) ▶ _____ <b>Note.</b> 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) ▶	
	<b>4</b> 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) _____ <i>(Applies to accounts maintained outside the U.S.)</i>	
	<b>5</b> Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
	<b>6</b> City, state, and ZIP code	
	<b>7</b> 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 *How to get a TIN* on page 3.

<b>Social security number</b>									
-				-					
<b>or</b>									
<b>Employer identification number</b>									
-									

**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.

<b>Sign Here</b>	Signature of U.S. person ▶	Date ▶
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## General Instructions

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

**Future developments.** Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at [www.irs.gov/fw9](http://www.irs.gov/fw9).

### 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 filled-out form, you:

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

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

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

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

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

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

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

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

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

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

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

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

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

## Backup Withholding

**What is backup withholding?** Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

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

**Payments you receive will be subject to backup withholding if:**

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code* on page 3 and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships* above.

## What is FATCA reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code* on page 3 and the Instructions for the Requester of Form W-9 for more information.

## Updating Your Information

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

## Penalties

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

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

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

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

## Specific Instructions

### Line 1

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

If this Form W-9 is for a joint account, list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9.

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

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

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

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

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

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



**Line 2**

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

**Line 3**

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

**Limited Liability Company (LLC).** If the name on line 1 is an LLC treated as a partnership for U.S. federal tax purposes, check the "Limited Liability Company" box and enter "P" in the space provided. If the LLC has filed Form 8832 or 2553 to be taxed as a corporation, check the "Limited Liability Company" box and in the space provided enter "C" for C corporation or "S" for S corporation. If it is a single-member LLC that is a disregarded entity, do not check the "Limited Liability Company" box; instead check the first box in line 3 "Individual/sole proprietor or single-member LLC."

**Line 4, Exemptions**

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

**Exempt payee code.**

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

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

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

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

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

<sup>1</sup> See Form 1099-MISC, Miscellaneous Income, and its instructions.

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

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

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

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

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

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

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

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

G—A real estate investment trust

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

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

J—A bank as defined in section 581

K—A broker

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

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

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

**Line 5**

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns.

**Line 6**

Enter your city, state, and ZIP code.

**Part I. Taxpayer Identification Number (TIN)**

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

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

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

**Note.** See the chart on page 4 for further clarification of name and TIN combinations.

**How to get a TIN.** If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at [www.ssa.gov](http://www.ssa.gov). You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at [www.irs.gov/businesses](http://www.irs.gov/businesses) and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting [IRS.gov](http://IRS.gov) or by calling 1-800-TAX-FORM (1-800-829-3676).

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

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

**Caution:** A disregarded U.S. entity that has a foreign owner must use the

**Part II. Certification**

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

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

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

- 1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983.** You must give your correct TIN, but you do not have to sign the certification.
- 2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983.** You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.
- 3. Real estate transactions.** You must sign the certification. You may cross out item 2 of the certification.
- 4. Other payments.** You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).
- 5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions.** You must give your correct TIN, but you do not have to sign the certification.

**What Name and Number To Give the Requester**

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account <sup>1</sup>
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor <sup>2</sup>
4. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The grantor-trustee <sup>1</sup> The actual owner <sup>1</sup>
5. Sole proprietorship or disregarded entity owned by an individual	The owner <sup>3</sup>
6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	Give name and EIN of:
7. Disregarded entity not owned by an individual	The owner
8. A valid trust, estate, or pension trust	Legal entity <sup>4</sup>
9. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
10. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
11. Partnership or multi-member LLC	The partnership
12. A broker or registered nominee	The broker or nominee
13. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
14. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

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

<sup>2</sup> Circle the minor's name and furnish the minor's SSN.

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

<sup>4</sup> List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 2.

\*Note. Grantor also must provide a Form W-9 to trustee of trust.

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

**Secure Your Tax Records from Identity Theft**

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

To reduce your risk:

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

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

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

For more information, see Publication 4535, Identity Theft Prevention and Victim Assistance.

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

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

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

If you receive an unsolicited email claiming to be from the IRS, forward this message to [phishing@irs.gov](mailto:phishing@irs.gov). You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: [spam@uce.gov](mailto:spam@uce.gov) or contact them at [www.ftc.gov/idtheft](http://www.ftc.gov/idtheft) or 1-877-IDTHEFT (1-877-438-4338).

Visit [IRS.gov](http://IRS.gov) to learn more about identity theft and how to reduce your risk.

**Privacy Act Notice**

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

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(Form – ACORD 25 [Version: 2016/03])

1. **DATE (MM/DD/YYYY)** – this is the date the Certificate is generated;
  
2. **PRODUCER** – insert the complete name and address of the insurance agency or broker issuing this Certificate; in the adjacent cell (located just to the right of the PRODUCER cell) include CONTACT PERSON’s name, office phone, Fax number(s) and e-mail address.
  
3. **INSURED** – enter the complete legal name and address of the Consulting Firm, the Contractor’s Company or the Supplier’s Company (to include any dba used);

**4. INSURERS AFFORDING COVERAGE**

- a. **INSURER A** through **E** – enter the insurance carrier’s complete Operating Company name; **or**
- b. **NAIC #** - enter National Association of Insurance Commissioners (5 – digit) insurance carrier ID number.

**NOTE:**

If the name of the Insurer used cannot be located in the A.M. Best Directory, then the NAIC # will be required.

**5. CERTIFICATE NUMBER/REVISION NUMBER**

These two data fields, if utilized by the insurance agency or insurance broker, could be used as a quick reference number; SAWS does not require this to be used.

**6. COVERAGES**

- a. **INSURER Letter (INSR/LTR)** column - place the corresponding letter of the insurance carrier affording coverage by each respective type of insurance coverage;
  
- b. **TYPE OF INSURANCE:**
  - 1) **GENERAL LIABILITY:**
    - a) **COMMERCIAL GENERAL LIABILITY** – place an “X” in the space provided;
  
    - b) **OCCUR** (Occurrence based form) - place an “X” in the space provided;

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c) **GEN'L AGGREGATE LIMIT APPLIES PER:**

- For *Construction Contracts* - place an "X" in the box right in front of the word **PROJECT**; or
- For all *Other Contracts* - an "X" in the box right in front of either the word **POLICY** or **LOCATION** is acceptable.

d) **ADDL INSR and SUBR WVD** columns:

The two columns labeled **ADDL INSR** and **SUBR WVD** are provided to indicate by a check mark or an "X" whether this line of insurance coverage is endorsed with both the Additional Insured and the Waiver of Subrogation.

The use of these two columns **alone** does not meet SAWS Insurance Specifications.

SAWS requires the following specific endorsement wording for the Additional Insured and Waiver of Subrogation endorsements, to be inserted into the **DESCRIPTION OF OPERATIONS** section of the Certificate:

**Additional Insured:**

*Either use:*

"The Automobile Liability, **Commercial General Liability** and Umbrella Liability policies include a blanket automatic Additional Insured endorsement that provides additional insured status to the Certificate Holder (SAWS) and the City of San Antonio only when there is a written contract between the named Insured and the Certificate Holder that requires such status."

*Or use:*

"The Automobile Liability, **Commercial General Liability** and Umbrella Liability policies are endorsed naming the San Antonio Water System and the City of San Antonio as an Additional Insured."

**Waiver of Subrogation:**

*Either use:*

The Automobile Liability, **Commercial General Liability** and Workers' Compensation and Umbrella Liability policies include a blanket, automatic Waiver of Subrogation endorsement that provides this feature only when there is a written contract between the named Insured, the Certificate Holder (SAWS) and the City of

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San Antonio that requires such status.

***Or use:***

“The Automobile Liability, **Commercial General Liability**, Workers’ Compensation and Umbrella Liability policies are endorsed with the Waiver of Subrogation in favor of the San Antonio Water System and the City of San Antonio.”

- e) Enter complete **POLICY NUMBER, POLICY EFFECTIVE DATE (MM/DD/YYYY),** and **POLICY EXPIRATION DATE (MM/DD/YYYY)**;
  
- f) The minimum policy **LIMITS** for the Commercial General Liability coverage are as follows:
  - \$ 1,000,000.00            Occurrence Limit
  - 2,000,000.00            General Aggregate
  - 1,000,000.00            Products/Completed Operations Aggregate (See **NOTE** below)
  - 1,000,000.00            Personal and Advertising Injury

**NOTE:**

The above limits for Products/Completed Operations Aggregate for all Construction Contracts is \$2 million.

2) **AUTOMOBILE LIABILITY:**

- a) Place an “X” in the box in front of each appropriate auto category for which coverage applies.
  
- b) **ADDL INSR and SUBR WVD** columns:

The two columns labeled **ADDL INSR** and **SUBR WVD** are provided to indicate by a check mark or an “X” whether this line of insurance coverage is endorsed with both the Additional Insured and the Waiver of Subrogation.

The use of these two columns **alone** does not meet SAWS Insurance Specifications.

SAWS requires the following specific endorsement wording for the Additional Insured and Waiver of Subrogation endorsements, to be inserted into the **DESCRIPTION OF OPERATIONS** section of the Certificate:

**Additional Insured:**

***Either use:***

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“The **Automobile Liability**, Commercial General Liability and Umbrella Liability policies include a blanket automatic Additional Insured endorsement that provides additional insured status to the Certificate Holder (SAWS) and the City of San Antonio only when there is a written contract between the named Insured and the Certificate Holder that requires such status.”

***Or use:***

“The **Automobile Liability**, Commercial General Liability and Umbrella Liability policies are endorsed naming the San Antonio Water System and the City of San Antonio as an Additional Insured.”

**Waiver of Subrogation:**

***Either use:***

The **Automobile Liability**, Commercial General Liability and Workers’ Compensation and Umbrella Liability policies include a blanket, automatic Waiver of Subrogation endorsement that provides this feature only when there is a written contract between the named Insured, the Certificate Holder (SAWS) and the City of San Antonio that requires such status.

***Or use:***

“The **Automobile Liability**, Commercial General Liability, Workers’ Compensation and Umbrella Liability policies are endorsed with the Waiver of Subrogation in favor of the San Antonio Water System and the City of San Antonio.”

- c) Enter complete **POLICY NUMBER, POLICY EFFECTIVE DATE (MM/DD/YYYY)**, and **POLICY EXPIRATION DATE (MM/DD/YYYY)**.
- d) The typical minimum limits of liability for bodily injury and property damage **combined** for this line of insurance coverage shall be not less than \$1,000,000.00 each accident.

**NOTE:**

If the Contractor’s Pollution Liability policy is required and the Contractor’s Pollution Liability policy **is not endorsed** to provide transportation coverage beyond the boundaries of the job site the Commercial/Business Automobile Liability policy must have the CA9948 endorsement (“**Pollution Liability – Broadened Coverage for Covered Autos – Business Auto, Motor Carrier and Truckers Coverage**” forms) - the following statement noting this endorsement shall be placed either in the blank area just below the **NON OWNED AUTOS** wording on the Certificate **or** in the **DESCRIPTION OF OPERATIONS** section of the Certificate:

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*“Contractor’s Commercial/Business Automobile Liability insurance coverage is endorsed with the CA9948 endorsement to provide transportation coverage beyond the boundaries of the job site.”*

Policy must also be endorsed with MCS90 endorsement when hazardous material(s) are being transported.

3) **EXCESS/UMBRELLA LIABILITY** (where applicable):

- a) Coverage form used - place an “X” in the appropriate box that identifies the coverage form under which this Policy is written: **UMBRELLA LIAB** or **EXCESS LIAB**; and
- b) Occurrence or Claims-Made basis - SAWS requires an “X” be placed in the box right in front of the word **OCCUR**;
- c) **ADDL INSR and SUBR WVD** columns:

The two columns labeled **ADDL INSR** and **SUBR WVD** are provided to indicate by a check mark or an “X” whether this line of insurance coverage is endorsed with both the Additional Insured and the Waiver of Subrogation.

The use of these two columns **alone** does not meet SAWS Insurance Specifications.

SAWS requires the following specific endorsement wording for the Additional Insured and Waiver of Subrogation endorsements, to be inserted into the **DESCRIPTION OF OPERATIONS** section of the Certificate:

**Additional Insured:**

***Either use:***

“The Automobile Liability, Commercial General Liability and **Umbrella Liability** policies include a blanket automatic Additional Insured endorsement that provides additional insured status to the Certificate Holder (SAWS) and the City of San Antonio only when there is a written contract between the named Insured and the Certificate Holder that requires such status.”

***Or use:***

“The Automobile Liability, Commercial General Liability and **Umbrella Liability** policies are endorsed naming the San Antonio Water System and the City of San Antonio as an Additional Insured.”

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**Waiver of Subrogation:**

*Either use:*

The Automobile Liability, Commercial General Liability and Workers' Compensation and **Umbrella Liability** policies include a blanket, automatic Waiver of Subrogation endorsement that provides this feature only when there is a written contract between the named Insured, the Certificate Holder (SAWS) and the City of San Antonio that requires such status.

*Or use:*

“The Automobile Liability, Commercial General Liability, Workers' Compensation and **Umbrella Liability** policies are endorsed with the Waiver of Subrogation in favor of the San Antonio Water System and the City of San Antonio.”

d) Enter complete **POLICY NUMBER, POLICY EFFECTIVE DATE (MM/DD/YYYY),** and **POLICY EXPIRATION DATE (MM/DD/YYYY).**

e) The minimum limits\* of liability for this line of insurance coverage shall be:

\$ 2,000,000.00	Occurrence Limit
2,000,000.00	General Aggregate

\*The above limits may vary from \$5 million to \$50 million depending on the degree of and potential for greater liability exposure to SAWS. Check the General Conditions – Special Conditions section of the Bid document for the increased coverage limits.

4) **WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY:**

a) Answer the Question: ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below.

b) **ADDL INSR and SUBR WVD** columns:

The two columns labeled **ADDL INSR** and **SUBR WVD** are provided to indicate by a check mark or an “X” whether this line of insurance coverage is endorsed with both the Additional Insured (which is not required by SAWS) and the Waiver of Subrogation. With this line of coverage “N/A” is already placed in the Additional Insured column on the form.

The use of the Waiver of Subrogation column **alone** does not meet SAWS Insurance Specifications.



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SAWS requires the following specific endorsement wording for only the Waiver of Subrogation endorsement, to be inserted into the **DESCRIPTION OF OPERATIONS** section of the Certificate:

**Waiver of Subrogation:**

*Either use:*

The Automobile Liability, Commercial General Liability and **Workers' Compensation** and Umbrella Liability policies include a blanket, automatic Waiver of Subrogation endorsement that provides this feature only when there is a written contract between the named Insured, the Certificate Holder (SAWS) and the City of San Antonio that requires such status.

*Or use:*

“The Automobile Liability, Commercial General Liability, **Workers' Compensation** and Umbrella Liability policies are endorsed with the Waiver of Subrogation in favor of the San Antonio Water System and the City of San Antonio.”

- c) Enter complete **POLICY NUMBER, POLICY EFFECTIVE DATE (MM/DD/YYYY),** and **POLICY EXPIRATION DATE (MM/DD/YYYY).**

- d) **WORKERS' COMPENSATION (“WC”):**

SAWS requires having an “X” entered in the box right in front of the words **WC STATUTORY LIMITS.**

- d) **EMPLOYERS' LIABILITY (“E.L.”):**

The minimum policy limits of liability shall not be less than:

\$ 1,000,000.00	E.L. each Accident
1,000,000.00	E.L. Disease - Each Employee
1,000,000.00	E.L. Disease - Policy Limit

- 5) **Row of blank cells** located immediately below the **WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** row:

- a) This empty slot of spaces is typically used for such lines of coverage as **PROFESSIONAL (Engineer's & Architect's E&O) LIABILITY, CONTRACTOR'S POLLUTION LIABILITY, COMMERCIAL CRIME** and/or **BUILDER'S RISK** lines of insurance coverage.

- b) **ADDL INSR and SUBR WVD** columns:

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The two columns labeled **ADDL INSR** and **SUBR WVD** are provided to indicate by a check mark or an “X” whether this line of insurance coverage is endorsed with both the Additional Insured and the Waiver of Subrogation.

Since SAWS does not require the PROFESSIONAL (Engineer’s & Architect’s E&O) LIABILITY, CONTRACTOR’S POLLUTION LIABILITY, COMMERCIAL CRIME and/or BUILDER’S RISK lines of insurance coverage to be endorsed with either of the Additional Insured or the Waiver of Subrogation endorsements, do not place anything in either of the **ADDL INSR** or **SUBR WVD** columns.

- c) Enter complete **POLICY NUMBER, POLICY EFFECTIVE DATE** (MM/DD/YYYY), and **POLICY EXPIRATION DATE** (MM/DD/YYYY).
- d) The minimum limits (the per occurrence/claims-reported limit as well as the policy aggregate limit) for whichever TYPE OF INSURANCE coverage you are declaring in this OTHER space must match with or exceed limits stated in the Insurance Specifications/Requirements contained in the respective Construction Bid, RFP or RFQ document.

**NOTE:**

- 1. If the line of insurance coverage is either for Professional Liability or Contractor’s Pollution Liability, identify in the **DESCRIPTION OF OPERATIONS** section of the Certificate the coverage form under which the respective line of coverage is written – either:
  - a. Claims-made form; **or**
  - b. Occurrence basis.
- 2. In instances where the coverage form used is Claims-made include the “Retro- Active date” according to the following:
  - a. For all contracts requiring Professional Liability and/or Contractor’s Pollution Liability coverage, the “**Retro-Active date**” shall be the Project start date or earlier and must be identified in the **DESCRIPTION OF OPERATIONS** section of the Certificate.
  - b. That date must be maintained (carried forward) as the “**Retro-Active date**” throughout the life of the Project/Contract to include the two-year warranty period (if required) following the close out of the Project/Contract.
- 3. If the Occurrence based coverage form is declared, no further information is required; and

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4. If the Contractor’s Pollution Liability insurance coverage is required, the policy shall be endorsed to provide transportation coverage beyond the boundaries of the job site—the following statement noting this endorsement shall be placed in the **DESCRIPTION OF OPERATIONS** section of the Certificate;

*“Contractor’s Pollution Liability insurance coverage is endorsed to provide transportation coverage beyond the boundaries of the job site.”*

If the Contractor’s Pollution Liability policy is **not endorsed** to provide transportation coverage beyond the boundaries of the job site then the Commercial/Business Automobile Liability policy must have the CA9948 endorsement (“**Pollution Liability – Broadened Coverage for Covered Autos – Business Auto, Motor Carrier and Truckers Coverage**” forms) - the following statement noting this endorsement shall be placed either in the blank area just below the NON\_OWNED AUTOS wording on the Certificate **or** in the **DESCRIPTION OF OPERATIONS** section of the Certificate:

*“Contractor’s Commercial/Business Automobile Liability insurance coverage is endorsed with the CA9948 endorsement to provide transportation coverage beyond the boundaries of the job site.”*

Policy must also be endorsed with MCS90 endorsement when hazardous material(s) are being transported.

**7. DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS  
ADDED BY ENDORSEMENT/SPECIAL PROVISIONS**

a. **DESCRIPTION OF OPERATIONS:**

- 1) Enter in this space the SAWS’ Job, Contract and/or Project number such as 09-1111 **or** P-09-011-MR;
- 2) The Project or Contract name may be included but is not required - such as “42” Water Main replacement Maltsberger from Loop 410 to U.S. 281 at Isom Road Engineering Design Project **or** Construct 1 MG Composite Potable Water Elevated Storage Tank.

b. Where applicable or as needed, enter into this section, the **DESCRIPTIONS of LOCATIONS, VEHICLES and/or EXCLUSIONS ADDED BY ENDORSEMENT.**

c. **DESCRIPTION OF SPECIAL PROVISIONS:**

SPECIAL PROVISIONS to SAWS would include the wording for the Additional Insured and

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Waiver of Subrogation endorsements, declaring the type of policy coverage under which the Professional and Contractor’s Pollution Liability policies are written, 30-day Notice of Cancellation, and other miscellaneous information that may be required; the wording may require a second page to complete.

**Special ENDORSEMENT’s** wording required on the Certificate:

**Additional Insured:**

*Either use:*

“The Automobile Liability, Commercial General Liability and **Umbrella Liability** policies include a blanket automatic Additional Insured endorsement that provides additional insured status to the Certificate Holder (SAWS) and the City of San Antonio only when there is a written contract between the named Insured and the Certificate Holder that requires such status.”

*Or use:*

“The Automobile Liability, Commercial General Liability and **Umbrella Liability** policies are endorsed naming the San Antonio Water System and the City of San Antonio as an Additional Insured.”

**Waiver of Subrogation:**

*Either use:*

The Automobile Liability, Commercial General Liability and Workers’ Compensation and **Umbrella Liability** policies include a blanket, automatic Waiver of Subrogation endorsement that provides this feature only when there is a written contract between the named Insured, the Certificate Holder (SAWS) and the City of San Antonio that requires such status.

*Or use:*

“The Automobile Liability, Commercial General Liability, Workers’ Compensation and **Umbrella Liability** policies are endorsed with the Waiver of Subrogation in favor of the San Antonio Water System and the City of San Antonio.”

**30-day Notice of Cancellation:**

“Each of the above described policies is so endorsed requiring SAWS and the City of San Antonio to be provided thirty (30) calendar days, advance written notice of cancellation or non-renewal, and not less than ten (10) calendar days advance written notice for nonpayment of premium.”

**Instructions for Completing the ACORD  
Certificate of Liability Insurance  
(Form – ACORD 25 [Version: 2016/03])**

**8. CERTIFICATE HOLDER**

SAWS shall be shown as the Certificate Holder in the Certificate Holder section located in the bottom half of the standard ACORD Certificate forms as follows:

**San Antonio Water System  
c/o Ebix BPO  
PO Box 100085-ZD  
Ref. (SAWS Contract ID/Bid/Project #)  
Duluth, GA 30096**

**9. CANCELLATION**

Despite the wording in this section of the Certificate SAWS requires the following wording to be inserted into the **DESCRIPTION OF OPERATIONS** section of the Certificate:

**30-day Notice of Cancellation:**

“Each of the above described policies is so endorsed requiring SAWS and the City of San Antonio to be provided thirty (30) calendar days, advance written notice of cancellation or non-renewal, and not less than ten (10) calendar days advance written notice for nonpayment of premium.”

**10. AUTHORIZED REPRESENTATIVE**

The original certificate(s) or form must include at least one of the below acceptable names/signatures:

- a. Agency’s Authorized person’s (wet or stamped) signature;
- b. Agent's (wet or stamped) signature; or
- c. Agent's typed in name.



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:		FAX (A/C, No):
	PHONE (A/C, No, Ext):	E-MAIL ADDRESS:	
INSURED	INSURER(S) AFFORDING COVERAGE		NAIC #
	INSURER A :		
	INSURER B :		
	INSURER C :		
	INSURER D :		
	INSURER E :		

**COVERAGES**

CERTIFICATE NUMBER:

REVISION NUMBER:

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	<b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE   <input type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC <input type="checkbox"/> OTHER:						EACH OCCURRENCE	\$
	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident)	\$
	<b>UMBRELLA LIAB</b>   <input type="checkbox"/> OCCUR <b>EXCESS LIAB</b>   <input checked="" type="checkbox"/> CLAIMS-MADE DED   RETENTION \$						EACH OCCURRENCE	\$
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A				PER STATUTE   OTH-ER	\$
							E.L. EACH ACCIDENT	\$
							E.L. DISEASE - EA EMPLOYEE	\$
							E.L. DISEASE - POLICY LIMIT	\$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

**CERTIFICATE HOLDER****CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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ACORD 25 (2016/03)

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# Supplemental Conditions

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## ARTICLE IV- CONTRACT ADMINISTRATION

Section 4.4 of the general conditions shall be amended to add the following:

**CONTRACTORS** – The Contractor shall perform the Work with its own organization on at least 40% of the total original contract price to be confirmed by the Bidder on page 1 of the Good Faith Effort Plan.

The term to “perform the Work with its own organization” is defined herein as utilizing only:

- Workers employed and paid directly by the Contractor or a wholly owned subsidiary of the contractor.
- Equipment owned by the contractor or its wholly owned subsidiary.
- Rented or leased equipment operated by the Contractor’s, or its wholly owned subsidiaries, employees.
- For purposes of determining the value of the Work self-performed, the amount shall include all materials incorporated into the Work where the majority of the value of the Work involved in incorporating the material is performed by the Contractor’s own Organization, including wholly owned subsidiary; and
- Labor provided by staff leasing firms licensed under Chapter 91 of the Texas Labor code for non-supervisory personnel if the contractor or wholly owned subsidiary maintains direct control over the labor.

Remove Section 4.6.2.1 in its entirety and replace with the following:

**TERMINATION FOR CONVENIENCE** - The right to terminate this Contract for the convenience of Owner (including, but not limited to, non-appropriation of funding) expressly is retained by Owner. In the event of a termination for convenience by Owner, Owner shall, at least ten (10) calendar days in advance, deliver written notice of the termination for convenience to Contractor. Upon Contractor’s receipt of such written notice, Contractor immediately shall cease the performance of the Work and shall take reasonable and appropriate action to secure and protect the Work then in place. Contractor shall then be paid by Owner, in accordance with the terms and provisions of the Contract Documents, an amount not to exceed the actual labor costs incurred, the actual cost of all materials installed and the actual cost of all materials stored at the Project site or away from the Project site, as approved in writing by Owner, but not yet paid for and which cannot be returned; and actual, reasonable and documented demobilization costs, if any, paid by Contractor and approved by Owner in connection with the Work in place which is completed as of the date of termination by Owner and that is in conformance with the Contract Documents, less all amounts previously paid for the Work. No amount ever shall be owed or paid to Contractor for lost or anticipated profits on any part of the Work not performed or for consequential damages of any kind or unabsorbed overhead, opportunity costs or other damages as a result of a termination for convenience under this section. In addition, any amount payable to the Contractor pursuant to this section shall be reduced in the amount of (1) any claim Owner may have against the Contractor under this Contract, and (2) the fair value, as determined by Owner, of property which is

destroyed, lost, stolen or damaged so as to become undeliverable to Owner, excluding normal spoilage and except to the extent that Owner shall have otherwise expressly assumed the risk of loss with respect to such property hereunder.

Remove Section 4.9.2 of the general conditions and replace with the following:

The Contractor shall not, except upon procuring written consent from proper private parties, enter or occupy with men, tools, materials, or equipment, any privately owned land except for those on easements or rights of entry provided herein by SAWS. Contractor must submit a copy of the written consent from the land owner to SAWS.

The remaining sections of Article IV shall remain the same.

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## **ARTICLE V – CONTRACT RESPONSIBILITIES**

Remove Section 5.7.1.1.7.8 in its entirety and replace with the following:

Installation Floater - Physical Damage Insurance which insures SAWS and the City for damages to all Property Purchased for, or Assigned to, the Project commencing on the start date through completion. Policy limits shall be in an amount equal to the total contract cost contracted herewith. The policy form shall be an All Risk form and shall include coverage for both during transit and while stored at the work site.

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## **ARTICLE VI – CONTRACT CHANGES**

6.4 Delete section 6.4 in its entirety.

6.6 Delete section 6.6 in its entirety.

The remaining sections of Article VI shall remain the same.

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## **ARTICLE VIII. - CONTRACT COMPLETION TIME**

Section 8.6 Liquidated Damages for Failure to Complete on Time: of the General Conditions shall be amended as follows:

Add the following to the end of the paragraph:

Liquidated Damages, for the purpose of this contract, will be assessed at \$1,850 per day.

The remaining sections of Article VIII shall remain the same.

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## Special Conditions

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SC1. A Geotechnical Data Report dated January 21, 2019 has been developed for SAWS on this project and has been made available for Contractors for informational purposes only. SAWS will require the execution of a SAWS disclaimer form by the Contractor as a condition of and prior to the release of the report. To complete the disclaimer form and obtain the report, please go to the following link on SAWS website: [http://www.saws.org/business\\_center/ContractSol/](http://www.saws.org/business_center/ContractSol/).

Find this project, select “More”, then “Geotechnical Data Report.”

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### SC2. **Consent Decree Notice Provision**

The San Antonio Water System (“SAWS”), the United States of America and the State of Texas have entered into a Consent Decree in Civil Action No. 5:13-cv-00666- DAE, United States of America and State of Texas v. San Antonio Water System, in the United States District Court for the Western District of Texas, San Antonio Division (the “Consent Decree”). A copy of the Consent Decree is available at

<http://www.saws.org/Infrastructure/EPA/download.cfm>

Work performed pursuant to this contract is work that SAWS is required to perform pursuant to the terms of the Consent Decree. In the event of any conflict between the terms and provisions of this Consent Decree Notice Provision and any other terms and provisions of this Contract or the Contract Documents, the terms and provisions of this Consent Decree Notice Provision shall prevail.

#### A. Retention of documents

Contractor shall retain and preserve all non-identical copies of all documents, reports, research, analytical or other data, records or other information of any kind or character (including documents, records, or other information in electronic form including, but not limited to e-mails) in its or its sub-contractors’ or agents’ possession or control, or that come into its or its sub-contractors’ or agents’ possession or control, and that relate in any manner to this contract, or the performance of any work described in this contract (the “Information”). This retention requirement shall apply regardless of any contrary corporate or institutional policy or procedure or legal requirement. Contractor, Contractor’s sub-contractors and agents shall retain and shall not destroy any of the Information until such time as Contractor has received written approval from the General Counsel of SAWS that the Information or any part of the Information may be destroyed. Contractor shall, within 30 days after receipt of a written request by SAWS, deliver the Information to SAWS. Contractor shall instruct and require its agents and sub-

contractors performing any part of the work described in this contract to comply with the requirements of this paragraph.

B. Notification of events that may cause delay.

If any event occurs that may delay performance by Contractor, or Contractor's agents or sub-contractors of any work or obligation of any kind under this contract, Contractor shall provide notice in accordance with the Notice Provisions of this contract to SAWS within two (2) business days of the date Contractor or Contractor's agents or sub-contractors first knew that the event might cause a delay. Contractor shall provide a written explanation and description of the reasons for the delay, the anticipated duration of the delay, all actions taken or to be taken to prevent or minimize the delay, and a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay. **TIME IS OF THE ESSENCE** in the performance of the requirements of this paragraph and of any work to be performed by the Contractor in this contract.

C. Liability for stipulated penalties.

The Consent Decree provides that the United States of America, the United States Environmental Protection Agency and the State of Texas may assess stipulated penalties against SAWS upon the occurrence of certain events. To the extent that Contractor or Contractor's agents or sub-contractors cause or contribute to, in whole or in part, the assessment of any stipulated penalty against SAWS, Contractor agrees that it shall pay to SAWS the full amount of any stipulated penalty assessed against and paid by SAWS that is caused or contributed to in whole or in part by any action, failure to act, or failure to act within the time required by any provision of this contract. Contractor shall also pay to SAWS all costs, attorney fees, expert witness fees and all other fees and expenses incurred by SAWS in connection with the assessment or payment of any such stipulated penalties, or in contesting the assessment or payment of any such stipulated penalties. In addition to any and all other remedies to which SAWS may be entitled at law or in equity, Contractor expressly authorizes SAWS to withhold all amounts assessed and paid as stipulated penalties, and all associated costs, fees, or expenses from any amount unpaid to Contractor under the terms of this contract, or from any retainage provided in the contract.

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SC3. The Contractor shall notify the SAWS Inspector and the Engineer of Record of anticipated work within TxDOT right-of-way at least two (2) weeks prior to any work within that TxDOT right-of-way.

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SC4. Migratory Bird Nests

- A. Schedule construction activities as needed to meet the following requirement:
1. In accordance with the Migratory Bird Treaty Act (MBTA) construction activities and vegetation clearing should be conducted by the Contractor outside peak-nesting seasons (March – August) to avoid any adverse effects to the migratory birds and their habitat. Should construction and vegetation clearing occur from March through August, active bird nest surveys should be conducted by a biologist no more than 5 days prior to the planned construction.
- 
- 

SC5. Timber Rattlesnake:

- A. Prior to start of construction, Contractor, Contractor personnel and Subconsultants shall attend training provided by a biologist on snake identification, handling and avoidance to minimize potential impacts to this species.
- 

SC6. USACE 404 permit

- A. Per the General Conditions of the authorized USACE NWP permit (SWF-2018-00184), the contractor shall have a qualified Biologist or Geologist monitor for Karst voids and Karst species during all excavation activities. If any Karst features or Karst species are identified, construction in the area will stop and the USACE and the USFWS will be notified.

It is assumed that the UFWS will make the determination if indeed the Karst feature is endangered invertebrate species habitat.

TCEQ requires a professional geologist familiar with karst, hydrology, and Edwards aquifer zone literature to perform these construction monitoring activities.

The Contractor shall have a qualified Biologist or Geologist monitor for Karst voids and Karst species during all excavation activities. If any Karst features or Karst species are identified , construction in the area will stop and the USACE and the U.S. Fish and Wildlife Service will be notified.

When procuring for this task, make sure that a professional geologist (PG) is performing the construction monitoring. Additionally, make sure the consulting company has the required Section 10(a)(1)(A) scientific permit to perform Karst Invertebrate surveys per USFWS guidance (just in case). Reference links below.

[https://www.tceq.texas.gov/assets/public/compliance/field\\_ops/eapp/F-0585\\_geologic\\_assessment\\_instructions.pdf](https://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/F-0585_geologic_assessment_instructions.pdf)

Karst invertebrate survey procedures

[https://www.tceq.texas.gov/assets/public/compliance/field\\_ops/eapp/F-0585\\_geologic\\_assessment\\_instructions.pdf](https://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/F-0585_geologic_assessment_instructions.pdf)

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#### SC7. Rock Excavation

- A. Soil borings completed for this project are widely spaced and therefore subsurface materials and conditions can, and likely will vary between borings. Marl and Shale bedrock were encountered in our borings at relatively shallow depths; thus, the need of rock excavation equipment should be anticipated for construction at this site. Contractors bidding this project should be required to provide costs for hard rock excavation in the event these conditions are encountered.
- 

#### SC8. 36-Inch CSC Recycled Water Main

- A. As-built Drawings for the 36-inch CSC Recycled Water Main (Sheet C-25) are available for viewing by prospective Respondents and has been made available for informational purposes only. SAWS will require the execution of a SAWS disclaimer form by the potential Respondents as a condition of and prior to the release of the drawings. To complete the disclaimer form and obtain the drawings, please go to the following link on SAWS website: [https://www.saws.org/business\\_center/ContractSol/](https://www.saws.org/business_center/ContractSol/)

For this project, select “More”, then As-builts Drawings.

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#### SC9. Monitoring for Karst Species

- A. Monitoring for Karst species will occur periodically during construction by a qualified biologist/geologist. If any Karst species are identified during monitoring, construction in the area will stop and the USACE and USFWS will be notified.
-

## **SPECIAL PROVISIONS TO SPECIFICATIONS**

SPTS 100A – Mobilization (Open Cut Construction)

SPTS 100B – Mobilization (Trenchless Construction)

SPTS 540 – Temporary Erosion, Sedimentation, and Water Pollution Prevention and Control

SPTS 804-01 – Excavation, Trenching and Backfill (Modification)

SPTS 848 – Sanitary Sewers

SPTS 852 – Sanitary Sewer Manholes

SPTS 853 – Glass-Fiber Reinforced Polyester (RFP) Manholes

SPTS 857 – Fiberglass Reinforced Pipe for Large Diameter Gravity Sanitary Sewer

SPTS 862 – Abandonment of Sewer Mains and Manholes

SPTS 864-S2 – Bypass Pumping – Large Diameter Sanitary Sewers

SPTS 866 – Sewer Main Television Inspection

**REVISION TO STANDARD SPECIFICATION ITEM NO. 100**  
**(MOBILIZATION)**

**100.1 DESCRIPTION**

ADD the following section:

2. Intermediate Demobilization and Remobilization: This item includes all the Contractor's expenses for an Owner-directed intermediate project demobilization of personnel and equipment that occurs after the contract Notice to Proceed has been given and Work has commenced, and the subsequent remobilization of personnel and equipment to complete the Project. Each Intermediate Demobilization and Remobilization shall only be authorized upon a written directive from the Owner. Related Work shall include furnishing all labor, materials, tools, equipment and incidentals required to demobilize for the W-1 Leon Creek: Hwy 151 to Hwy 90 Upper Segment, in accordance with the Contract Documents, complete in place. This item shall include bypass pumping, in accordance with Item 864-S1 and/or Item No. 864-S2, during an intermediate demobilization.

**100.2 MEASUREMENT**

1. Measurement of the Item, Mobilization, as specified herein, shall be Lump Sum as the Work progresses.
2. Measurement of the Item, Intermediate Demobilization and Remobilization, as specified herein, except for Intermediate Demobilization Bypass Pumping Items, shall be by the Each as the Work progresses.
3. Measurement of the Item, Intermediate Demobilization Bypass Pumping Equipment Rental, as specified herein and in Item No. 864-S1 and/or 864-S2 shall be by the Day. For multi-bypass pumping setups at any given Project Site, payment shall be proportional to the overall amount established bid line item.
4. Measurement of the Item, Intermediate Demobilization Bypass Pumping Fuel, as specified herein and in Item No. 864-S1 and/or 864-S2 shall be by the Day. For multi-bypass pumping setups at any given Project Site, payment shall be proportional to the overall amount established bid line item.
5. Measurement of the Item, Intermediate Demobilization Bypass Pump Watching, as specified herein and in Item No. 864-S1 and/or 864-S2 shall be by the Day. For multi-bypass pumping setups at any given Project Site, payment shall be proportional to the overall amount established bid line item.

**100.3 PAYMENTS**

ADD the following section:

7. Intermediate Demobilization and Remobilization: this bid item will only be paid if prior authorized in writing by Owner. This bid item is limited to delays outside of the

Contractor's control that are not otherwise provided for in the General Conditions. Examples of these types of delays would be Owner easement acquisition, permitting issues (only those permits not controlled by the Contractor), or other Owner activities. Any other provision contained herein notwithstanding Contractor will not be entitled to compensation under this bid item for work suspended during the 10 cumulative days allowed for by the Contract in the General Conditions, Article IV, Paragraph 4.8 Suspension of Work by Owner. For purpose of clarification, if a demobilization is requested by Owner in accordance with this bid item, Contractor will be compensated for the bypass equipment rental, fuel, and manning the bypass pumps from the time of demobilization to the remobilizations under the other appropriate bid items. Intermediate Demobilization and remobilization will be paid for by the Each.

Payment for Intermediate Demobilization Bypass Pumping Equipment Rental shall only be made if prior authorized in writing by the Owner, shall be made at the Contract Unit Price by the Day, and shall be full compensation for all bypass pumping equipment rental including pumps, suction and discharge hoses, headers, plugs, equipment delivery, setup and removal, hose installation, maintenance and removal, manhole cone removal, pavement removal and restoration, excavation and backfilling, and other ancillary items required for bypass pumping, except fuel and pump watch items, complete in place. Associated payment shall be made under item 864-S1.1 and / or 864-S2.1.

Payment for Intermediate Demobilization Bypass Pumping Watch shall only be made if prior authorized in writing by the Owner, shall be made at the Contract Unit Price by the Day, and shall be full compensation for all bypass pumping watching including labor, supervision, and other ancillary items required to provide continuous operation of bypass pumping during intermediate demobilization. Associated payment shall be made under item 864-S1.3 and / or 864-S2.2

Payment for Intermediate Demobilization Bypass Pumping Fuel shall only be made if prior authorized in writing by the Owner, shall be made at the Contract Unit Price by the Day, and shall be full compensation for all bypass fuel including delivery and other ancillary items required to provide continuous operation of bypass pumping during intermediate demobilization. Associated payment shall be made under Item 864-S1.3 and /or 864-S2.2.

All other language in specification 100 shall remain in full force.

**END OF SECTION**

**REVISION TO STANDARD SPECIFICATION ITEM NO. 100**  
**(MOBILIZATION)**

**100.1 DESCRIPTION**

ADD the following section:

1. Intermediate Demobilization and Remobilization of all associated work with trenchless construction regardless of method: This item includes all the Contractor's expenses for an Owner-directed intermediate project demobilization of personnel and equipment that occurs after the contract Notice to Proceed has been given and work has commenced, and the subsequent remobilization of personnel and equipment to complete the Project. These demobilization and remobilizations shall only be authorized upon a written directive from the Owner. Work shall include furnishing all labor, materials, tools, equipment and incidentals required to demobilize and remobilize for the W-1 Leon Creek: Hwy 151 to Hwy 90 Upper Segment, in accordance with the Contract Documents, complete in place.

**100.2 MEASUREMENT**

No change

**100.3 PAYMENTS**

ADD the following section:

7. Intermediate Demobilization and Remobilization: This bid item will only be paid if prior authorized in writing by Owner, and shall be paid for by "each" occurrence of demobilization and remobilization. This bid item is limited to delays outside of the Contractor's control that are not otherwise provided in the General Conditions. Examples of these types of delays would be Owner easement acquisition, permitting issues (only those permits not controlled by the Contractor), or other Owner activities. Any other provision contained herein notwithstanding Contractor will not be entitled to compensation under this bid item for work suspended during the 10 cumulative days allowed for by the Contract in the General Conditions, Article IV, Paragraph 4.8 Suspension of Work by Owner. For purpose of clarification, if a demobilization is requested by the Owner in accordance with this bid item, the Contractor will be compensated for the bypass equipment rental, fuel, and manning the bypass pumps from the time of demobilization to remobilization under the other appropriate bid items, in a per Man Day (MD) basis.

All other language in specification 100 shall remain in full force.

**END OF SECTION**



**SPECIAL PROVISION**

**ITEM 540**

**REVISION TO CITY OF SAN ANTONIO STANDARD SPECIFICATION ITEM NO. 540**  
**TEMPORARY EROSION, SEDIMENTATION, AND**  
**WATER POLLUTION PREVENTION AND CONTROL**

540.4 Construction: Delete the first sentence of this section 540.4(A)(1):

***SW3P.** Implement the City’s Storm Water Pollution Prevention Plan (SW3P) for the project site in accordance with the specific or general storm water permit requirements.*

And replace the deleted first sentence with:

***SW3P.** Prepare and implement the City’s Storm Water Pollution Prevention Plan (SW3P) for the project site in accordance with the specific or general storm water permit requirements.*

540.4 Construction: Add the following at the end of section 540.4(A)(2), following subsection (b):

***(c) Stormwater Pollution Prevention Plan (SWPPP).** Contractor shall prepare and submit a Stormwater Pollution Prevention Plan with all documents designed and signed by either a Licensed Engineer (Texas), Certified Professional in Erosion and Sedimentation Control (CPESC) or Licensed Landscape Architect. The Contractor’s SWPPP shall reflect the Contractor’s planned sequencing of work, selected construction methods, staging area(s), etc.*

Add the following at the end of section 540.4(B)(3):

*Erosion control best management practice inspections can only be performed by Licensed Engineers, CPESC, Certified Erosion, Sediment and Stormwater Inspector (CESSWI) or Certified Inspector of Sediment and Erosion Control (CISEC).*

540.5 Measurement: Delete the portion of this section beginning with the paragraph that starts:

*When the need for control measures can not be attributed to....*

And proceeding to the end of this section, and replace the deleted portion of this section with:

*Temporary erosion, sedimentation, and water pollution prevention and control will be measured by the “Lump Sum” for the entire project, inclusive of all items identified in the plans and in this specification. Payment will be made after satisfactory completion of the work.*

540.6 Payment: Replace the content of this section in its entirety with the following:

*This item will be paid for at the contract “Lump Sum” price for the entire project, which price shall be full compensation for the work herein specified, including furnishing of all materials, equipment, tools, labor, and incidentals necessary to complete the work in compliance with the plans and specifications.*

540.7 Bid Item: Replace the content of this section in its entirety with the following:

*Item 540.1 - Temporary Erosion, Sedimentation, and Water Pollution Prevention and Control*

All other language in specification 540 shall remain in full force.

**END OF SECTION**

**SPECIFICATION MODIFICATION ITEM NO. 804-01**  
**EXCAVATION, TRENCHING AND BACKFILL**

For this project, Item No. 804, “Excavation, Trenching and Backfill,” of the SAWS Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Specification are waived or changed hereby.

**Article 804.1 Description.** End of the first paragraph, add the following:

“Maximum length of open trench shall not exceed 400 feet. This length shall include open excavation, pipe laying, backfilling, and appurtenant construction and backfill.”

**Article 804.5. Backfilling Sanitary Sewer Trenches.**

Paragraph 4.2, add the following:

“e. Controlled Low Strength Material (Flowable Fill): Flowable fill is a low strength concrete material suitable as a backfill for utility trenches, abandoned pipes, manholes and valves. It is a heavy material and will exert a high fluid pressure against any forms, embankment or wall used to contain the flowable fill.

1) Materials shall conform to:

Cement – ASTM C150, Type II

Fly Ash – ASTM C618, Class C or Class F

Water – ASTM C94

Fine Aggregates – Natural or manufactured sand or a combination thereof, free from injurious amount of salt, alkali, vegetation material, debris, or other objectionable material. It is intended that the fine aggregate be fine enough to stay in suspension in the mortar to the extent required for proper flow. The fine aggregate shall conform to the following gradation:

<u>SIEVE SIZE</u>	<u>% PASSING</u>
3/4 Inch	100
No. 200	0 – 5

2) Mix Design: The 28-day design unconfined compressive strength shall be minimum 200 psi, while 3-day strength must exceed 25 psi. Adjustments can be made to the mix design to meet the unconfined compressive strength range. The quantities of dry material per cubic yard are as follows:

<u>WITH FLY ASH</u>		<u>WITHOUT FLY ASH</u>	
Cement	70 lbs.	Cement	141 lbs.
Fly Ash	250 lbs.	Fine Aggregate	2,800 lbs.
Fine Aggregate	2,910 lbs.	Water	50 gals.
Water	60 gals.		

3) Flowable fill may be covered when it adequately supports the weight of construction equipment, no less than 24 hours after completion of placement. Flowable fill shall be required in confined areas where backfill compaction requirements cannot be obtained.”

**Article 804.8 Quality Control.**

At the end of Section 3, add the following paragraph:

“Contractor shall submit a gradation test for each type of material proposed for bedding and initial backfill, per Section 804.6.1. Additional Proctor and gradation tests shall be submitted whenever the source characteristics or quality of the material changes.”

All other language in specification 804 shall remain in full force.

**SPECIAL PROVISION TO STANDARD SPECIFICATION ITEM NO. 848  
SANITARY SEWERS**

**848.6 PAYMENT**

The statement to be replaced currently reads as follows:

- 1. Sewer pipe will be paid for at the contract bid price per linear foot complete in place for the types, size and depth constructed. Said price shall be full compensation for furnishing all materials, including pipe, couplings, trenching, pumping, concrete, plugs, laying and jointing, backfilling, select bedding and initial backfill material, tamping, water, labor, tools, equipment, and other incidentals necessary to complete the work.*

The above statement is to be replaced with the following:

- 1. Sewer pipe will be paid for at the contract bid price per linear foot, at two milestones:*

*848A: Pipe Installation - Sewer pipe will be paid for at the contract bid price per linear foot, that has been installed in accordance with project plans and specifications, and that has successfully passed joint testing requirements. Said price shall be full compensation for furnishing all materials including pipe, couplings, trenching, pumping, concrete, plugs, laying and jointing, backfilling, select bedding and initial backfill material, tamping, water, labor, tools, equipment, and other incidentals necessary to complete the work.*

*848B: Pipe Testing & Acceptance - Sewer pipe testing will be paid for at the contract lump sum bid price, for sewer pipe installed in accordance with project plans and specifications, and that has successfully passed all testing requirements. Said price shall be full compensation for furnishing all materials including pipe, couplings, trenching, pumping, concrete, plugs, laying and jointing, backfilling, select bedding and initial backfill material, tamping, water, labor, tools, equipment, and other incidentals necessary to complete the work.*

All other language in specification 848 remains in full force.

**END OF SECTION**

**SPECIAL PROVISION TO STANDARD SPECIFICATION ITEM NO. 852**  
**SANITARY SEWER MANHOLES**

**852.5 CONSTRUCTION**

The statement to be replaced currently reads as follows:

*2. i) No more than 4 throat rings may be used on any new manhole or no more than 21 inches from the top of the cone to the top of the ring and cover.*

The above statement is to be replaced with the following:

*2. i) No more than 4 throat rings may be used on any new manhole.*

**852.7 PAYMENT**

The statement to be replaced currently reads as follows:

*1. All manholes shall be paid at the contract unit price bid for each such manhole, which price shall be full compensation for all precast sections or throat rings, UV stabilized polyethylene liner, cones, bases, rings and covers, manhole ring, approved sewer coating, encasement, concrete, flowable fill, mortar, drop pipes, saws cutting of surfaces, and fittings, labor, tools, equipment, all testing, tees, wyes, and incidentals necessary to complete the work.*

The above statement is to be replaced with the following:

*1. All manholes will be paid for at the contract unit price, at two milestones:*

*852A: Manhole Installation - Manholes shall be paid at the contract unit price bid for each such manhole, which price shall be full compensation for all manhole sections or throat rings, UV stabilized polyethylene liner, cones, bases, rings and covers, manhole ring, approved sewer coating, encasement, concrete, flowable fill, mortar, drop pipes, saw cutting of surfaces, and fittings, labor, tools, equipment, tees, wyes, and incidentals necessary to complete the work.*

*852B: Manhole Testing & Acceptance – Manhole testing shall be paid for the lump sum contract unit price bid for this item, which price shall be full compensation for all manhole sections or throat rings, UV stabilized polyethylene liner, cones, bases, rings and covers, manhole ring, approved sewer coating, encasement, concrete, flowable fill, mortar, drop pipes, saw cutting of surfaces, and fittings, labor, tools, equipment, tees, wyes, and incidentals necessary to complete the work upon successfully passing all required test requirements for the manhole any associated components.*

All other language in specification 852 shall remain in full force.

**END OF SECTION**

**SPECIAL PROVISION TO STANDARD SPECIFICATION ITEM NO. 853  
GLASS-FIBER REINFORCED POLYESTER (FRP) MANHOLES**

**853.6 PAYMENT**

The statement to be replaced currently reads as follows:

2. *All manholes shall be paid at the contract unit price bid for each such manhole, which price shall be full compensation for all precast sections or throat rings, UV stabilized polyethylene liner, cones, bases, rings and covers, manhole ring, approved sewer coating, encasement, concrete, flowable fill, mortar, drop pipes, saws cutting of surfaces, and fittings, labor, tools, equipment, all testing, tees, wyes, and incidentals necessary to complete the work.*

The above statement is to be replaced with the following:

2. *All manholes will be paid for at the contract unit price, at two milestones:*

*853A: Manhole Installation - Manholes shall be paid at the contract unit price bid for each such manhole, which price shall be full compensation for all manhole sections or throat rings, stiffner rings, UV stabilized polyethylene liner, cones, bases, rings and covers, manhole ring, approved sewer coating, encasement, concrete, flowable fill, mortar, drop pipes, saw cutting of surfaces, and fittings, labor, tools, equipment, tees, wyes, and incidentals necessary to complete the work.*

*853B: Manhole Testing & Acceptance - Manhole testing shall be paid for the lump sum contract unit price bid for this item, which price shall be full compensation for all manhole sections or throat rings, UV stabilized polyethylene liner, cones, bases, rings and covers, manhole ring, approved sewer coating, encasement, concrete, flowable fill, mortar, drop pipes, saw cutting of surfaces, and fittings, labor, tools, equipment, tees, wyes, and incidentals necessary to complete the work upon successfully passing all required test requirements for the manhole any associated components.*

All other language in specification 853 remains in full force.

**END OF SECTION**

**SPECIAL PROVISION TO STANDARD SPECIFICATION ITEM NO. 857**  
**FIBERGLASS REINFORCED PIPE FOR LARGE DIAMETER GRAVITY SANITARY SEWER**

**857.4 MATERIALS**

The Statement to be replaced currently reads as follows:

- 2.a.1) *Design in accordance with ASTM D3262 including the appendix and subsequent specifications, and in accordance with SAWS specifications. Depths shall comply with requirement of ASTM D3681.*

The above statement is to be replaced with the following:

- 2.a.1) *Design in accordance with ASTM D3262 including the appendix and subsequent specifications, and in accordance with SAWS specifications.*

The Statement to be replaced currently reads as follows:

- 2.a.5) *Stiffness (SN) class that satisfies design requirement on the Plans, or not less than 115 psi when used in direct bury operations.*

The above statement is to be replaced with the following:

- 2.a.5) *Stiffness (SN) class that satisfies design requirement on the Plans.*

The Statement to be replaced currently reads as follows:

- 2.a.8) *Pipe markings shall meet the minimum requirements of ASTM 3236. Minimum pipe markings shall be as follows:*
- i. Manufacturer*
  - ii. Manufacturer Number- (identifies factory, location, date manufactured, shift and sequence)*
  - iii. Nominal diameter*
  - iv. Beam load*
  - v. Laying length*
  - vi. ASTM designation*

The above statement is to be replaced with the following:

- 2.a.8) *Pipe markings shall meet the minimum requirements of ASTM 3262. Minimum pipe markings shall be as follows:*
- i. Manufacturer*
  - ii. Manufacturer Number- (identifies factory, location, date manufactured, shift and sequence)*
  - iii. Nominal diameter*
  - iv. Pipe Stiffness*
  - v. Laying length*
  - vi. ASTM designation*



The Statement to be replaced currently reads as follows:

- 4.a. *Joints for pipe and fitting shall conform to the material and performance requirements of ASTM D4161. Depths shall comply with requirements of ASTM D3681.*

The above statement is to be replaced with the following:

- 4.a. *Joints for pipe and fitting shall conform to the material and performance requirements of ASTM D4161.*

### **857.8 PAYMENT**

The statement to be replaced currently reads as follows:

1. *Sewer Pipe will be paid for at the contract bid price per linear foot complete in place for types, size and depth constructed. Said price shall be full compensation for furnishing all materials, including pipe, stalling, temporary cap(s) or closures, protective measures, couplings, trenching, pumping, concrete, plugs, laying and jointing, backfilling, select bedding and initial backfill material, tamping, water, labor, tools, equipment, testing, temporary all weather surface in accordance with Specification Item No. 804 and other incidentals necessary to complete the work.*

The above statement is to be replaced with the following:

1. *Sewer pipe will be paid for at the contract bid price per linear foot, at two milestones:*  
  
*857A: Pipe Installation - Sewer pipe will be paid for at the contract bid price per linear foot, that has been installed in accordance with project plans and specifications, and that has successfully passed joint testing requirements. Said price shall be full compensation for furnishing all materials including pipe, couplings, trenching, pumping, concrete, plugs, laying and jointing, backfilling, select bedding and initial backfill material, tamping, water, labor, tools, equipment, and other incidentals necessary to complete the work.*  
  
*857B: Pipe Testing & Acceptance - Sewer pipe testing will be paid for at the contract lump sum bid price, for sewer pipe installed in accordance with project plans and specifications, and that has successfully passed all testing requirements. Said price shall be full compensation for furnishing all materials including pipe, couplings, trenching, pumping, concrete, plugs, laying and jointing, backfilling, select bedding and initial backfill material, tamping, water, labor, tools, equipment, and other incidentals necessary to complete the work.*

All other language in specification 857 remains in full force.

**END OF SECTION**

**SPECIAL PROVISION TO STANDARD SPECIFICATION ITEM NO. 862**  
**ABANDONMENT OF SEWER MAINS AND MANHOLES**

**862.2 MEASUREMENT**

The statement to be replaced currently reads as follows:

*Grouting of abandoned sewer lines shall be measured by the linear foot. Grouting of abandoned manholes shall be measured on the basis of each one, complete in place.*

The above statement is to be replaced with the following:

*Grouting of abandoned sewer lines and manholes shall be measured by the linear foot of abandoned sewer main.*

**862.3 PAYMENT**

The statement to be replaced currently reads as follows:

*Payment for abandoning sewer lines shall be made on the contract unit price per linear foot complete in place. Said price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work. Unless otherwise shown in the contract documents, abandonment/grouting of manholes will not be a separate pay item.*

The above statement is to be replaced with the following:

*Payment for abandoning sewer lines shall be made on the contract unit price per linear foot complete in place. Said price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the work. Unless otherwise shown in the contract documents, abandonment/grouting of manholes will not be a separate pay item. Debris and build-up accumulated within existing sanitary sewer siphons and other segments of pipeline shall be removed as necessary to complete abandonment of sanitary sewer line and any cost associated with the removal of debris and build-up shall be subsidiary to item 862.*

All other language in specification 862 shall remain in full force.

**END OF SECTION**

**SPECIAL PROVISION TO STANDARD SPECIFICATION ITEM NO. 864-S2**  
**BYPASS PUMPING – LARGE DIAMETER SANITARY SEWERS**  
**REPLACE IN ITS ENTIRETY**

**864.1 DESCRIPTION**

The work covered by this item consists of bypass pumping operations for existing sanitary sewers 24-inches and larger in diameter in order to temporarily reroute sanitary sewer flows to prevent a sanitary sewage overflow (SSO) and to provide adequate and reliable sanitary sewer flow at all times during construction, while the tasked scope of work is executed. The work also covered in this item is for the use of inflatable and mechanical pipe plugs. The use of inflatable / mechanical plugs in the water and sewer industry is the standard method to temporarily plug a pipe where permanent flow control devices are not available or are not operating as designed. An inherent danger exists with all inflatable products.

This item includes all requirements for implementing a temporary bypass pumping system for the purpose of diverting sanitary sewage flow around any construction-related activity to an approved reintroduction point within the sanitary sewer system. The Contractor shall minimize the health, safety, and regulatory risks by taking all reasonable measures to avoid an SSO. Therefore, Contractor shall manage the flow of wastewater in a planned and proactive manner. Contractor shall be fully responsible for all damages and costs related to the installation, modification of existing manholes/structures, operation, and maintenance of Contractor's bypass pumping operations including damages, clean up, fines, penalties, and other related costs.

Bypass pumping systems shall be stationary systems consisting of portable pumps, piping, and appurtenances unless a flow diversion bypass system is allowed on the suggested Bypass Pumping Plan (BPP) as shown in the Contract Documents. Flow diversion bypass systems can use temporary gravity sewers (installed and removed by Contractor) to divert flows into an existing manhole identified in the Contract Documents. Where flow diversion bypass systems are allowed the Contractor may elect to submit using a flow diversion bypass system for these locations or to use a stationary bypass system. All bypass systems shall comply with all the requirements of this section unless specifically noted otherwise.

The Contractor shall be responsible for the design of Contractor's bypass pumping plan and system. Contractor's bypass pumping system design shall be developed based upon the data and requirements of the Contract Documents. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction. Owner will furnish data on the BPP sheet supplied in the Contract Documents, which will include:

1. Average daily flows
2. Maximum peak flow

Contractor may rely upon the data provided in the Contract Documents for designing Contractor's bypass pumping system. Contractor to include an emergency response plan in the submittal. Bypass Pumping Plan shall be designed to meet the Maximum Peak Wet Weather Flow as provided in the Contract Documents. If a Peak Wet Weather Flow is not provided, the Contractor shall assume a full pipe flow for all influent sewer lines. Pumps, included in the proposed plan,

shall not be selected that are operating at their max flow rate. A standby pump, with a capacity equal to the largest pump provided for bypass pumping, shall be onsite at all times and available for use.

**864.2 REFERENCE STANDARDS**

Not Applicable.

**864.3 SUBMITTALS**

1. All submittals shall be in accordance with Owner’s requirements and shall be acknowledged by Owner prior to delivery.
2. For all projects requiring bypass pumping, the Contractor shall prepare and submit a BPP. The BPP shall be submitted a minimum of a minimum of eight (8) weeks prior to commencing any portion of the proposed scope of work and shall be acknowledged as accepted by Owner prior to beginning Work. The BPP shall be signed and sealed by a professional engineer licensed in the State of Texas (Contractor’s Engineer).
3. Contractor shall submit manufacturer’s product data, instructions, recommendations, shop drawings, and necessary certifications in order for the proposed Bypass Pumping Plan (BPP) to be reviewed and acknowledged.
4. The following shall be submitted as part of the BPP:
  - a. A cover letter containing the following information:
    - i. The project name and job number.
    - ii. The name and address of the Contractor.
    - iii. Contact information of the Contractor’s project manager, superintendent, foreman/supervisor, safety professional, etc.
    - iv. Qualifications for each responsible and qualified person who will be operating, inspecting, and maintaining the bypass pumping system. Each such person must have a minimum of five (5) years of experience in operating, inspecting, and maintaining a bypass system. Each responsible and qualified person shall have completed the successful bypass pumping of a minimum of two (2) projects of similar size and flowrate as this project.
    - v. Qualifications for each additional attendant who will be aiding in operating, inspecting, and maintaining the bypass system. Each such person must have a minimum of two (2) years of experience in operating, inspecting, and maintaining a bypass system. Each attendant shall have completed the successful bypass pumping of a minimum of one (1) projects of similar size and flowrate as this project.

- vi. A description and location of the planned bypass pumping work to be performed; include data for stationary and flow diversion bypass systems as applicable.
  - vii. Weather Monitoring Plan including a weather prediction service provided for construction contractors for the sub-basin of the project. The plan shall include monitoring of the project sub-basin from Notice to Proceed through the bypass pumping process. This information shall be used by the Contractor to track the weather patterns and understand the implications of those weather patterns on the contributing sewershed and sewer flows observed within the limits of the proposed bypass plan.
- b. Emergency (“24/7”) contact information for the bypass pumping sub-contractor, if applicable, the Contractor, and all responsible and qualified personnel operating, inspecting, and maintaining the bypass system. Make sure to include the name, cell phone number, title, and affiliation of the person(s) onsite responsible for the bypass pumping operation.
  - c. The name, phone number, title, affiliation, and license number of the Contractor’s registered professional engineer, licensed in the State of Texas, preparing the BPP.
  - d. Copies of permits or other documents showing the Contractor has obtained all clearances necessary for installation and operation of the BPP.
  - e. If flow diversion to existing sewers is proposed by Contractor all diversion flows shall be contained within pipes, use of excavated trenches are not allowable for diverting sanitary sewer flows.
  - f. If allowed by the Contract Documents and Contractor plans to use a combination of stationary bypass pumping and flow diversion for the bypass system, Contractor’s BPP shall identify the quantity of flows that will be pumped and flows diverted for each type of bypass system along with the points where flows will be removed and reintroduced into the sanitary sewer system.
  - g. Certificate of Compliance that the BPP complies with all SAWS and regulatory requirements and that all components have been designed by a professional engineer licensed in the State of Texas. The Contractor’s Engineer shall review all components of the submitted BPP for adequacy to the design flow conditions and insure that all bypass pumping system components are of adequate capacity and meet the reliability criteria specified herein.
  - h. A description of the maximum amount of sanitary sewer flows to be bypassed by the Contractor’s bypass pumping system and how the flow conditions will be monitored during system operations, including all flow measurement devices, calculations, flows, pressures, equipment, or other sources of how data was obtained.
  - i. Location of level sensors installed at least one manhole upstream of the proposed suction location on each influent sanitary sewer to monitor levels and flows.

- j. Descriptions of all proposed bypass pumping components to be used. If applicable, describe all different bypass pumping phases. Include bypass pump(s) size(s) and capacity, as well as the size(s) and capacity of the suction/discharge piping. The description shall also include manhole(s)/structure(s) depth(s) and size(s) that will be used during the bypass pumping operation, sanitary sewer plugging method and type of plugs to be used, flowmeter installation locations, and other relevant information. For all plugs, submit a Plug Use Plan (PUP) in accordance with the requirements as defined herein. Contractor shall provide Owner with adequate advance notification (at least 48 hours) to allow Owner to witness installation and removal of all plugs.
- k. Description of procedure for locating and recovering any lost plug using the required radio transmitter and receiver system.
- l. Description of minimum equipment on hand should an emergency plan be implemented. For example, Contractor shall provide information regarding the availability of spare pump(s), emergency generator(s), additional HDPE pipe for suction and discharge, and other relevant system components.
- m. A schedule for the bypass pumping operations including the dates for setup, testing, and starting the bypass pumping and the planned duration of the bypass pumping. Contractor shall include notifications to the Owner for testing and startup of the bypass pumping in the schedule.
- n. For intermittent bypass pumping, indicate if bypass pumping will take place outside normal work hours, which are between 8 am to 5 pm Monday through Friday with the exception of SAWS observed holidays for SAWS informational purposes.
- o. The pump curves, showing operating range. This shall include the proposed system curve, addressing the pump operation in relation to the suction/discharge piping's alignment including any hydraulic restrictions (e.g., fittings, valves and other appurtenances that impact system hydraulics and proposed suction and discharge elevations).
- p. Pumps shall not be selected that are operating at their max flow rate to meet the flow rates provided in the Contract Documents. Pumps shall be operating within 80-120% of the best efficiency point for the required flow rate to allow for variations in flow.
- q. Suction, discharge, and diversion piping material(s) and capacity to be used for the bypass pumping operation, including the material(s) for any bend(s), manifolds, and/or valve(s) that will be used.
- r. An exhibit showing the location of the pump(s) and the route of the suction, discharge, and diversion piping. If Contractor elects to use locations outside of the easements or Joint Use Agreements obtained by Owner or locations that are not indicated for use on the BPP plan sheet, Contractor shall be solely responsible for obtaining the required permission and written documentation required for access and use of these locations. A copy shall be provided to Owner prior to Contractor's use.

- s. An exhibit detailing proposed restoration of the suction and discharge points if the contractor proposes to make openings in the existing pipes or structures.
- t. If different than shown in Contract Documents, the new exhibit shall be dimensioned and all-inclusive showing all SAWS manhole numbers that will be used for suction and discharge operations. If any other structure will be used for suction and/or discharge operations, then the nearest manhole(s) shall be labeled. The exhibit shall include the name of any streets and/or major intersections in the area. All features (driveways, vehicular traffic) and buildings (residential, commercial, and industrial) possibly affected by the alignment of the BPP and its components shall likewise be addressed. Contractor shall be required to coordinate all bypass pumping operations and access to bypass pumping operations with any impacted private property owners and/or businesses to ensure approval is granted prior to commencing work.
- u. Clear photographs of the manhole(s) interior that will be used for the bypass pumping operation, including pole camera photographs of pipes where plugs will be installed. All photographs will be labeled with the manhole number, date, and intended use of the manhole by the Contractor's BPP.
- v. A Traffic Control Plan that pertains solely to the bypass pumping operations. This may differ from the Project's traffic control plan for the overall scope of work. The Traffic Control Plan shall include all required permits including street cut permits. Contractor shall maintain pedestrian and vehicular traffic and comply with the Americans with Disabilities Act (ADA) regulations for access to all residential and commercial property unless written approval is otherwise obtained from the property owner allowing for reduced access.
- w. An Emergency Plan detailing procedures to be followed in the event any portion of the bypass operation fails and causes either surcharging or an actual SSO. Contractor is herein advised that:
  - i. The existing sanitary sewer system may surcharge during certain storm events. The Contractor's BPP must recognize this potential and accommodate it with sufficient bypass capacity, restoration of flow through the sanitary sewer system, or other measures acceptable to Owner during these flow events. These measures shall be included in the submitted BPP.
  - ii. The Contractor's BPP cannot cause any excess surcharging (beyond that normally occurring within the existing sanitary sewer system at that flow event) that results in damage or SSOs. The Contractor shall be responsible for ensuring that no SSO occurs as a result of their work and shall follow the requirements included in the General Notes of the Contract Documents should an SSO occur.
  - iii. Any damage or SSOs during bypass pumping operations resulting from Contractor's bypass system shall be deemed a failure of the BPP, and the Contractor shall submit a revised proposal to their BPP addressing any observed deficiencies for review and acknowledgment. A sanitary sewer surcharge is herein defined as any flows entering the manhole or structure

above the crown of the pipe. Excessive sanitary sewer surcharges are higher than normally occurring levels of surcharge levels resulting from the Contractor's BPP that result in damage or SSOs. Contractor shall be fully responsible for all damages and costs related to the installation, operation, and maintenance of Contractor's bypass pumping operations including damages, clean up, fines, penalties, and other related costs.

- x. Where bypass piping is installed within the floodplain of waterways subject to flooding, the Contractor shall submit an anchorage plan and calculations to ensure that piping is properly anchored. Flow diversion pipes shall have watertight seals at inlet and outlet connections with existing manholes or structures. The pipe shall be capable of remaining in place during a 100-year storm event. Anchorage plan and calculations shall be designed and sealed by a professional engineer licensed in the State of Texas (Contractor's Engineer).
  - y. In the event, pumps are required to be placed below the natural ground elevation, to facilitate suction, the contractor shall include this information in the exhibits and plans and provide details of how the pumps will be secured, protected, and shored to protect the bypass pumping operations.
  - z. Fill and submit the "Bypass Pumping Plan Submittal Checklist" found at the end of this specification confirming that all items required by this section are included in the BPP submittal.
5. For all projects requiring the use of pipe plugs on pipes the Contractor shall furnish a submittal containing manufacturer's product data, instructions, recommendations and a project Plug Use Plan (PUP). The PUP shall be submitted a minimum of two (2) weeks prior to commencing any portion of the proposed scope of work.

The following shall be submitted with the PUP:

- a. A cover letter containing the following information;
  - i. The project name and job number;
  - ii. The name and address of the Contractor;
  - iii. Contact information of the Contractor's project manager, superintendent, foreman/supervisor, safety professional, etc.;
  - iv. Emergency (24/7) contact information for the staff responsible for operating and maintaining the plug. Include the name, phone number, email address and the person(s) onsite who is responsible for the project.
  - v. The name and contact information for the PUP preparer.
- b. Plug Plan
  - i. The plan shall show where on the project site the contractor intends to use



pipe plugs, including:

- manhole numbers;
- the upstream and downstream pipe diameters and pipe materials;
- pipe slopes;
- pipe depth;
- pipe flow direction;
- known peak or surcharge flow data;
- types of plugs to be used;
- types of restraint used; and
- type of radio transmitting device.

c. Calculations

- i. Provide calculations of the maximum anticipated head pressure on the plug and the resultant tensile force required to restrain the plug prior to plug inflation and during plug removal.
- ii. Provide calculations of the required inflation pressure of the plug.
- iii. Calculations shall be sealed and signed by a professional engineer licensed in the state of Texas.

d. Plug selection

- i. Detail the plug selection for each installation including given conditions, pipe size and anticipated pressure requirements. Include in this plan whether sleeves will be used.

e. Plug inspection

- i. Provide an inspection form detailing manufacturer's recommendations for plug inspection of plug condition before and after use; form to be signed by Contractor's staff responsible for plug installation prior to and after plug installation.

f. Monitoring plan

- i. Provide a monitoring plan for observing the plug inflation pressure gauge and hoses. Monitoring shall be for 24-hours per day during the plug use duration.
- ii. Provide a written response plan for when the plug loses pressure.
- iii. Provide a plug retrieval plan.

g. Plug restraint details

- i. Provide means and methods for anchoring, supporting and bracing appropriate for anticipated operating pressure conditions.

- ii. Size restraint (cable or chain) based on calculated loads using a safety factor of 4.
- iii. Provide multiple tie-off locations for chain or wire cable restraint.
- iv. Rope of any kind is not an acceptable material for plug restraint.
- h. Manufacturer's Literature
  - i. Provide manufacturer's literature on proper plug use and safety precautions, including available on-line training.

#### **864.4 EQUIPMENT AND MATERIALS**

The Contractor shall provide all necessary pumping equipment, piping and all other necessary appurtenances in order to maintain adequate and reliable sanitary sewer flow in the sanitary sewer system (including any temporary manholes) at all times during construction for stationary pumping and flow diversion bypass pumping systems. All materials, equipment, and bypass system components, must be in good working condition, and should not have visible damage such as cracks, holes, foreign material, blisters, or evidence of physical damage, which may impede proper operation of the system.

##### **1. Plugs**

Plugs must be selected and installed according to the size of the line to be plugged. Plugs shall be adequately secured and anchored to prevent plug movement or escape into the adjoining sanitary sewers should the plug fail. All plugs shall be equipped with a radio transmitter that will be used to locate any plug that has escaped in the adjacent system. The radio transmitter shall be designed for environment that it will be installed. The Contractor shall also provide and keep on site the matching radio receiver that will be used to locate any plug that is lost in the associated sewer system.

An additional plug (for each size of plug used) must be onsite and ready to be installed in the event a plug fails or becomes dislodged. Plug(s) will be inspected by the SAWS Inspector and/or Engineer for defects that might lead to failure prior to being installed. Contractor shall immediately locate and remove any plug that has shifted its position, slipped within the pipe, dislodged, moved, or otherwise provided an indication that its suitability for use in plugging may be suspect or compromised. Contractor shall notify Owner of any plug that has provided an indication that its suitability for use in plugging may be suspect or compromised and allow Owner to observe plug removal and replacement. It is also imperative that the Contractor notify the Inspector at the completion of the work in order to verify that all plugs have been removed from the system.

- a. The Contractor shall provide all necessary equipment, plugs, hoses, gauges and necessary appurtenances to install the plug, maintain the plug during use and remove the plug at completion.

- b. All plugs must be in good condition, and shall not have visible damage such as cracks, holes, tears, cuts, punctures, abrasions, loose or damaged fittings, cracks in castings and excessive wear.
- c. All plugs 15-inches and larger shall have an air release valve for rupture protection.
- d. All plugs shall be equipped with a radio transmitter locating device that is activated by the plug losing air pressure. The locating transmitter device shall be effective to a depth of 65 feet and have a battery life of 1,000 hours when operated in pulse mode after activation.
- e. All plugs 24-inches in diameter and larger shall have a protective sleeve.
- f. If the plug is damaged, do not use the plug and remove it from the job site.

## 2. Stationary Bypass Pumping System

- a. High-Density Polyethylene (HDPE) is the required pipe material for all bypass piping. HDPE shall be used when bypass discharge pipe will be going through streams, storm water culverts, the Edward's Aquifer Recharge Zone, environmentally sensitive areas, and all other locations.
- b. HDPE pipe must be assembled and joined using couplings, flanges or fusion welding in order to avoid joint leakage. Owner shall be notified in sufficient time to allow them to inspect the pipe joints during assembly. Owner shall be notified a minimum of 48 hours in advance of all fusing/joining operations.
- c. HDPE fusion welding must be performed by personnel certified as fusion technician(s) by the manufacturer of HDPE pipe and/or fusing equipment. Owner shall examine welds prior to use in BPP operation.
- d. BPP shall indicate the proposed DR of the pipe to be used.
- e. Any hoses or pipes that leak shall be removed and replaced with non-leaking hoses or pipes.
- f. Neither "Irrigation type" pipe nor glued PVC pipe will be permitted.
- g. Disinfect and drain the entire BPP system in accordance with approved submittal.
- h. Pumps must be fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps to prime the system. No electric pumps will be allowed; all pumps must be diesel powered. Contractor shall provide suitable spill control and containment measures to avoid environmental contamination by pumps, fuels, or lubricants. All pumps shall be open impeller solids handling type pumps, capable of passing a minimum of 3" diameter solids. Contractor shall have one backup pump, equal in capacity to the largest pump in the system, connected into the bypass pumping system, and ready for operation in case any of the primary pumps fail. The backup pump shall not be used in Contractor's calculations for determining the pumping

capacity requirements for the stated flow conditions above. Sound-attenuated pump enclosures shall be required on all projects where the bypass pumps are located within 50 feet of any residence, business, park, or other presence of people. Contractor shall provide sufficient sound attention measures to comply with City of San Antonio noise limitation requirements.

#### **864.5 CONSTRUCTION**

During construction, it will be the Contractor's responsibility to maintain a safe and secure environment at all times. All provisions and/or requirements of the BPP must be followed throughout the course of any bypass flow operations. When working inside manhole or force main, the Contractor shall exercise caution and comply with OSHA requirements when working in the presence of sewer gases, combustible or oxygen-deficient atmospheres, and confined spaces. Contractor shall notify the SAWS Construction Management 72 hours prior to commencing the bypass pumping operations. The Contractor shall insure that the temporary bypass pumping system is properly maintained and a responsible operator shall be on site at all times when pumps are operating.

1. A responsible operator shall be considered a person with a minimum of five (5) years of experience operating and maintaining bypass pumping operations of similar size and complexity. The responsible person shall be employed by the Contractor, if self-performing, or the Contractor's bypass pumping subcontractor and shall have a complete understanding of the system operation, emergency alarms, and have the capability to shut down the operation in the event of a failure.
2. The Contractor shall have full time (24-hour), onsite qualified pump personnel including supervision for monitoring the entire bypass installation while it is in operation. This will require at a minimum two (2) full time personnel to operate the bypass pumping system with the potential for two more attendants depending on the length of the discharge piping. One responsible operator shall be located at the pump at all times during bypass pumping operations. The entire length of bypass piping shall be walked and inspected hourly by the responsible operator to monitor for leaks. High-level alarm notification to cell phones shall not eliminate this requirement. Where bypass pumping systems exceed 1,500 feet in length or cannot be completely observed from the bypass pump location, at least one attendant shall be assigned to the pump operation in addition to the responsible operator, and one additional attendant shall be assigned to walk and monitor the pipeline continuously to observe for leaks or failures.
3. Prior to installing any plugs, the Contractor and Owner shall inspect the existing pipe using a pole camera, for imperfections that might cause damage to the plug, cause the plug to not seal and function properly, or compromise the integrity of the pipe when the plug is inflated. The results of this inspection shall directly impact the planned plugging location(s). Afford Owner an opportunity to confirm that the location of plug(s) is acceptable.
4. After installation of the plug, the Contractor shall monitor on daily basis the radio transmitter battery and radio signal strengths. If either are found to be below the manufacturer's requirements the radio transmitter shall be immediately replaced.
5. Lines inserted into any manholes or structures shall be constructed with elbows, or be

otherwise angled, to direct discharge along the most efficient path for entry into the downstream line without causing unnecessary turbulence of flow. The termination point of the discharge piping shall extend to the crown of the pipe housed within the manhole or structure receiving the bypassed flows.

6. Contractor shall provide continuous supply on-site fuel storage sufficient for 24-hour operation of the bypass pumping installation.
7. Contractor shall protect all components of the bypass operations from vandalism and vehicular damage by making the site secure.
8. Contractor shall minimize sanitary sewer odors by using lids, shroud covers, or any method accepted by the SAWS Inspector or Engineer.
9. Contractor shall be fully responsible for all damages and costs related to the installation, operation, and maintenance of Contractor's bypass pumping operations including damages, clean up, fines, penalties, and other related costs.
10. Once all work is completed and the bypass pumping operation is no longer required, the Contractor must drain the bypass pumping system (pipes, pumps, equipment) into an existing SAWS sanitary sewer manhole prior to disassembly and removal of the system from the construction site. The intent is to prevent spillage of sewage.
11. Contractor shall coordinate with CoSA, Bexar County, TxDOT, and any other agencies having jurisdiction over the project location to assure Contractor's proposed BPP is acceptable. Contractor shall be responsible for all traffic control measures that might be required by CoSA, Bexar County, TxDOT, or any other public entity having jurisdiction of the project location.
12. Flow Tracking
  - a. Logs shall be downloaded from the SAWS website (saws.org) in order to continuously track all flows being bypassed.
13. Weather Monitoring
  - a. The contractor shall be responsible for monitoring the weather utilizing a weather prediction service provided for construction contractors for the sub-basin of the project from NTP thru completion of all bypass pumping on the project. Weather shall be monitored for the entire sub-basin for which the project is located within. Contractor shall notify Owner of any weather conditions that may occur that could negatively impact the bypass operation.
  - b. In the event inclement weather is anticipated during the period of proposed bypass, the Contractor shall submit their plan for monitoring the bypass, notify Owner of the potential impacts to the bypass, and the plan to cancel bypass pumping if weather is deemed to negatively impact the bypass pumping operations. Contractor shall reschedule the bypass pumping for a period of time that is agreed to by both the Owner and the Contractor.

#### 14. Plug Installation

##### a. Safety

- i. The Contractor shall be solely responsible for the safe and effective use of plugs, including the proper combination of inflatable/mechanical plugs to block the sewer flow at both the upstream and downstream ends of a sewer bypass.
- ii. Inflatable plugs should be used only after receiving training as recommended by the manufacturer.
- iii. An inherent danger exists with all inflatable products. If any conditions with this equipment exist that may jeopardize the safety of workers or others corrective actions should be taken prior to the equipment use.

##### b. Plugs

- i. Plugs must be selected and installed in accordance with the manufacturer's recommendations.
- ii. Plugs must also be selected and installed according to the size of the line to be plugged.
- iii. Spare plugs – Provide spare plugs on-site ready to be installed in the event a plug fails or becomes dislodged.
- iv. Plugs will be in good condition and reviewed by the Contractor for defects that might lead to failure prior to being installed. The Contractor shall sign the Plug Inspection form.
- v. Plugs must be removed from the system upon completion of the work.
- vi. Damages – The Contractor will be responsible for damages due to plugs being left in place or dislodged, including but not limited to:
  1. Damages to SAWS infrastructure or private property.
  2. Costs associated with sanitary sewer overflows including: regulatory fines; sewage and debris cleanup; debris disposal at an appropriate landfill; disinfection of all surfaces which have come in contact with the sewage.
  3. Costs associated with locating and retrieving lost or dislodged plugs.
  4. If the plug is damaged, it shall be immediately removed from the job-site.

#### **864.6 TESTING AND QUALITY CONTROL**

Testing and quality control will be required for all bypass pumping systems, stationary pumping and flow diversion systems, as indicated below. Contractor shall obtain and keep copies of all

required permits on site prior to beginning Testing and throughout performance of the Work.

1. Contractor must prove to the Owner that the equipment, materials and all operational aspects and/or appurtenances related to the BPP are in good working condition prior to commencing the bypass pumping operation. Failure to do so will result in the Contractor not being permitted to continue with any construction work requiring bypass pumping operations. Contractor must notify SAWS Construction Management 48 hours prior to commencing any testing. Any flows excessively surcharging the sanitary sewer system during the test and/or during actual bypass periods will deem the BPP to be unacceptable and must be revised and resubmitted for approval. There will be no separate pay item if this condition occurs during the timeframe in which bypass pumping test and/or operations are underway during the project. No testing of the bypass pumping operation shall be conducted between Thursday and Sunday, unless approved in advance by Owner. If bypass pump testing will take place outside normal work hours, which are between 8 am to 5 pm Monday through Friday, with the exception of SAWS observed holidays, Contractor shall reimburse Owner for the overtime costs required by the bypass pumping testing outside of SAWS normal work hours.
2. Discharge piping, joints and all accessories will be required to be hydrostatic tested. All piping, joints, and accessories shall be able to withstand at least twice the maximum system pressure or a minimum of 50 psi, whichever is greater.
3. For any bypass operations proposed a 24-hour test run must be satisfactorily performed prior to commencing any construction work. The Inspector must provide acknowledgment first. Contractor shall provide both a strobe light type high level alarm, as well as alarm notification to their cell phones, as well as other appointed personnel to be identified by Owner, and insure adequate alarm notification is attained prior to actual startup of the test period.
4. Prior to Testing the Contractor shall install a Float Monitoring System in the upstream manhole and/or pipe to confirm that the bypass pumping flow data shown in their BPP remains applicable. The float monitoring system shall remain in the manhole and/or pipe for the duration of the bypass operation. The data collected during the test and duration of the bypass operation shall be provided to Owner for evaluation and recording. It will be required of the Contractor to have personnel remain onsite at the flow monitoring system in order to continuously record (every 30 minutes) the flows during both the test and actual bypass pumping periods. Contractor shall submit a copy of Testing Float Monitoring System Data log to Owner upon successful completion of test. Data log shall be in column format with each line entry indicating the time, elapsed time of test, level of flow indicated in manholes, total flow being pumped by the BPP system, and any comments pertaining to the test.

Any failure of equipment, or activities associated with the bypass pumping operations contributing to either an excessive surcharge or SSO, shall be deemed a failed test. The test shall then be stopped and any necessary cleanup or reporting efforts performed. The BPP will need to be revised, resubmitted and acknowledged prior to the test initiating again. Any effort by Owner or other third parties to mitigate damages resulting from any surcharging or SSOs shall be the direct and sole responsibility of the Contractor. This includes any related fines, penalties, or damages.

5. Plug Testing

- a. Plugs shall be tested prior to use. The inflatable plug shall be placed inside of a structurally sound pipe or conduit and inflated to its operating pressure and monitored for 24 hours to observe it holds the required pressure. This testing shall be performed in accordance with the manufacturer's recommendations. Inflating a plug when it is not constrained or overinflating the plug creates a risk of being injured by pieces of the plug exploding if it fails.

**864.7 MEASUREMENT AND PAYMENT**

1. Measurement for the work specified herein will be by lump sum and as required by the Contract Documents. Any effort required for multiple set-ups and operations shall be included in the lump sum price. Payment of the "Lump Sum" bid for Bypass Pumping shall be in accordance with the following:
2. When initial set-up and operation of the bypass pumping system begins (including a successful test), 20% of the "Lump Sum" cost will be paid as applicable to stationary bypass pumping to include flow diversion if applicable.
3. 60% of the "Lump Sum" cost will be paid over equal monthly payments (estimated from the BPP or other documentation approved by the SAWS Inspector) during the course of the bypass pumping operation as applicable to stationary bypass pumping to include flow diversion if used.
4. 20% of the remaining "Lump Sum" cost will be paid upon an acceptable removal and/or disassembly of all components of the BPP, including site cleanup as applicable to stationary bypass pumping to include flow diversion if applicable.
5. For multi-bypass pumping setups, payment will be proportional to the overall amount of the established bid line item.
6. Any damages, repairs, etc., to private or public property will not be considered for any additional payment.
7. Measurement of the work for pipe plugs and transmitter shall be incidental to the work and will not have a separate pay item.

**END OF SECTION**



**BYPASS PUMPING PLAN SUBMITTAL CHECKLIST**

- Cover Letter with required information
- Certificate of Compliance signed and sealed by Contractor's Engineer
- Contractor's Engineer's PE Seal and Contact Information
- Qualifications of responsible person(s), operators, and attendants
- Manufacturer's product data, instructions, recommendations, shop drawings and certifications
- Sanitary Sewer Flow Management Description and Calculations
- Weather Monitoring Plan
- Bypass Pumping Description (including Plug Use Plan)
- Bypass Pumping Schedule
- Pump and System Curve Information
- Non-corrosive/non-plastic name plated permanently attached to both ends of the plug
- Piping Information
- Plug Submittal including Inspection Form and Testing Certification
- System Exhibit
- Manhole and Pole Camera Photographs
- Traffic Control Plan (if necessary)
- Emergency Spill Response Plan
- Anchorage Design for Piping in Floodplain (if necessary)
- Plug Monitoring Plan
- Floodplain Permits (if necessary)
- Street Cut Permits (if necessary)
- Other Permits (Contractor shall list as required)
- Anchorage Design for Piping in Floodplain (if necessary)
- Required Notifications (Contractor shall list as required)
- Contact List with Contact Information (Contractor shall list as required)
- Emergency (24/7) Contact Information including Contact of responsible person(s)
- Daily Flow Monitoring Data
- Testing Float Monitoring System Data Log

**REVISION TO STANDARD SPECIFICATION ITEM NO. 866**  
**SEWER MAIN TELEVISION INSPECTION**

**866.1 DESCRIPTION**

The statement to be replaced currently reads as follows:

*The Contractor shall furnish all labor, materials, equipment, and incidentals to provide the televising and a NASSCO-(PACP) standard video, recorded in MPEG-1 format and written to DVD video, of sewer main and manholes utilizing a color, closed-circuit television inspection unit to determine their condition. The video shall include an inclinometer, visible on the video being viewed, noting the slope of the main being televised.*

The above statement is to be replaced with the following:

*The Contractor shall furnish all labor, materials, equipment, and incidentals to provide the closed-circuit televising. All inspections shall be in accordance with NASSCO PACP requirements and a NASSCO PACP database shall be submitted. All digital video files shall be color, closed-circuit TV in MPEG-1 format. The video shall include an inclinometer, visible on the video being viewed, noting the slope of the main being televised. The contractor shall provide all inspection data of mains and manholes written to a single storage device.*

General Clarification: All references to DVD should be replaced with a single data storage device.

**866.2 GENERAL**

The statement to be replaced currently reads as follows:

*After completion of the work specified in the contract documents, and prior to placement of the final course of asphalt or other final surface, the newly constructed or rehabilitated sanitary sewer main shall be televised immediately upon cleaning. Televising shall be observed by the Inspector or Engineer and Contractor, as the camera is run through the system. Any abnormalities such as, but not limited to, misaligned joints, cracked/defected pipe, rolled gaskets, shall be repaired by the Contractor solely at his expense. Sections requiring repair shall be re-televised to verify condition of repair. No additional compensation shall be provided for all needed repairs, re-cleaning, or re-televising efforts.*

The above statement is to be replaced with the following:

*Before abandonment and grouting of the existing sanitary sewer main, the main shall be televised to locate laterals, observe existing conditions and immediately upon cleaning or clearing of the existing main. The Contractor shall furnish all labor, equipment, appliances, and materials necessary for cleaning the sewer system including the removal of all debris, solids, sand, grease, grit, etc. from the sewer and manholes to facilitate television inspection. Televising shall be observed by the Inspector or Engineer and contractor as the camera is run through the system and shall be in accordance with NASSCO PACP guidelines. No additional compensation shall be provided for cleaning, clearing, or re-televising.*

*After construction of the sanitary sewer main and prior to placement of the final course of asphalt or other final surface, the newly constructed sanitary sewer shall be televised immediately upon cleaning. Televising shall be observed by the Inspector or Engineer, and contractor as the camera is run through the system. Any abnormalities such as, but not limited to, misaligned joints, cracked/defected pipe, rolled gaskets, shall be repaired by the Contractor solely at his expense. Sections requiring repair shall be re-televised to verify condition of repair. No additional compensation shall be provided for all needed repairs, re-cleaning, or re-televising efforts.*

### **866.3 EXECUTION**

The statement to be replaced currently reads as follows:

*The television unit shall also have the capability of displaying in color, on DVD, pipe inspection observations such as pipe defects, sags, points of root intrusion, offset joints, service connection locations, and any other relevant physical attributes. Each DVD shall be permanently labeled with the following:*

1. *Project name / SAWS Job # / Work Order #;*
2. *Date of television inspection;*
3. *Station to station location and size of sanitary sewer;*
4. *Street/easement location;*
5. *Name of Contractor;*
6. *Date DVD submitted;*
7. *DVD number;*
8. *SAWS Inspector Name.*

The above statement is to be replaced with the following:

*The television unit shall also have the capability of displaying in color, on videos, pipe inspection observations such as pipe defects, sags, points of root intrusion, offset joints, service connection locations, and any other relevant physical attributes. Each video shall be permanently labeled at the beginning of the video with the following:*

1. *Project name / SAWS Job # / Work Order #;*
2. *Date of television inspection;*
3. *Manhole UNITIDs (as labeled on plans) and size of sanitary sewer;*
4. *Street/easement location;*
5. *Name of Contractor;*

*Each video shall be submitted with the following information:*

1. *Project name / SAWS Job # / Work Order #;*
2. *Date of television inspection;*
3. *Manhole UNITIDs (as labeled on plans and size of sanitary sewer;*
4. *Street/easement location;*
5. *Name of Contractor;*
6. *Date video submitted;*
7. *Data storage device number;*
8. *SAWS Inspector Name.*

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**SECTION SPTS 866**  
**Revision to Standard Spec**  
**Sewer Main Television Inspection**

All other language in this specification 866 remains in full force.

**END OF SECTION**

## **SUPPLEMENTAL SPECIFICATIONS**

SS 804A – Contaminated Soil and Water Control

SS 910 – Manhole Rehabilitation

SS 1050 – Survey Controls

SS 2140 – Control of Ground and Surface Water

SS 2218 – Low Density Cellular Grout Fill

SS 2242 – Water Control for Shaft Tunnel Construction

SS 2314 – Tunneling with Steel Liner Plate

SS 2315 – Portal Stabilization

SS 2400 – Tunnel Shafts

SS 2426 – Carrier Pipe in Tunnels

SS 2441 – Pipe-Jacked Tunnels

SS 2442 – Direct Pipe-Jacked Tunnels

SS 2445 – Settlement Monitoring

SS 2610 – Steel Casing Pipe

SS 3100 – Temporary Water Main (12"HDPE), including all necessary Trenching, Trench Repair, Piping,  
Fittings, Valves, Service Connections, Tie-ins and Testing

SS 3300 – Private Lateral (4"-8")

SS 3360 – Contact Grouting

**SUPPLEMENTAL SPECIFICATION ITEM NO. 804A**  
**CONTAMINATED SOIL AND WATER CONTROL**

**PART 1 - GENERAL**

**1.01 REQUIREMENTS**

- A. This section is a supplement to Item No. 804 Excavation, Trenching and Backfill of SAWS Specification for Water and Sanitary Sewer Construction.
- B. This Section describes the requirements for control of contaminated soil or contaminated water, if encountered during the Work and shall include monitoring, characterization by sampling and testing, segregation and temporary storage, removal, transportation and ultimate disposal of contaminated soil or water in accordance with all applicable federal, state and local regulations.
- C. The Contractor shall notify SAWS and all required federal, state, and local agencies if contaminated materials including soils or water are encountered in concentrations over reporting limits. The Contractor shall comply with all federal, state, and local licensing and certification requirements, as applicable, and obtain all necessary permits, approvals, and manifests in conjunction with contaminated waste material hauling and disposition as may be required.
- D. The Contractor shall dispose of contaminated soil or contaminated water only at facilities that are licensed, permitted, or approved by the State of Texas to accommodate such waste and in compliance with 30 TAC 334 or 335 requirements, and with 40 CFR, Part 261, Subpart D.
- E. The Contractor shall retain the services of an Environmental Consultant (Contractor's Consultant) to assist with and oversee the collection, segregation, classification and disposal of contaminated materials. An Environmental Consultant will provide onsite environmental observation and quality assurance of the Contractor and Contractor's Consultant on behalf of SAWS to observe that all tasks with an environmental component are successfully completed.
- F. The Contractor shall provide offsite transportation and disposal of all waste generated during the removal of municipal solid waste and waste mixed with soil during construction. The Engineer shall provide pre-approval for disposal at offsite facilities prior to removal.
  - 1. The Contractor shall transport and dispose of solid wastes at Engineer approved offsite facilities.
  - 2. The Contractor and their subcontractors shall not litter either intentionally or unintentionally while on roadways traveling to and from the Site or while on the Site. All waste shall be properly secured within the vehicle to prevent any loss of waste during transport. The waste shall be stored in a container that does not allow for the release of any water or seepage from the waste/soil.
  - 3. The Contractor shall strictly obey all posted speed limits while traveling to and from the Site.

4. The Contractor shall perform inspections of each vehicle before the vehicle leaves the Site to ensure all materials are secured, no material is overtopping the top of the vehicle or container, no waste is visible on the vehicle and all debris and dirt on the vehicle is removed.
5. The Contractor shall be responsible for coordinating waste hauling with site work schedules and acceptance of loads at the disposal facility.
6. The Contractor shall be responsible for measuring and surveying all waste designated for offsite disposal.

## **1.02 REFERENCE STANDARDS**

A. This section includes references to the following standards. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements affording the greatest protection to SAWS shall apply, as determined by the Engineer.

1. Department of Labor Regulations.
  - a. 29 CFR Part 1910 - Occupational Safety and Health Standards
  - b. 29 CFR Part 1518 - Safety and Health Regulations for Construction
2. United States Environmental Protection Agency (EPA) Publications
  - a. 40 CFR 257 - Criteria for Development of Solid Waste Disposal Facilities
  - b. 40 CFR 258 - Criterion for Municipal Solid Waste Landfills
  - c. 40 CFR 260 - Hazardous Waste Management System: General
  - d. 40 CFR 261 - Identification and Listing of Hazardous Waste
  - e. 40 CFR 263 - Transporters of Hazardous Waste
  - f. 40 CFR 264 - SAWS and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
  - g. 40 CFR 265 - Interim Status Standards for SAWS and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
  - h. EPA/SW 846 - Test Methods for Evaluating Solid Waste Physical/Chemical Methods, latest revision
  - i. EPA 600/4-79/20 - Methods for Chemical Analysis of Water and Wastes, latest revision
  - j. EPA 600/4-79-019 - Handbook for Analytical Quality Control in Water and Wastewater Laboratories

- k. EPA 600/4-84-076 - Characterization of Hazardous Waste Sites - A Methods Manual: Volume 11, Available Sampling Methods, latest edition.
3. Department of Transportation (DOT)
  - a. 49 CFR 172 - Transportation of Hazardous Materials
4. Texas Commission on Environmental Quality (TCEQ)
  - a. 30 TAC 335 - Industrial Solid Waste and Municipal Hazardous Waste.
- B. Other sections, not referenced herein, may be related to the proper performance of the Work. It is the Contractor's responsibility to perform all the Work required by the Contract Documents.
- C. The Contractor will be responsible for all the requirements pertaining to TPDES permitting and compliance. Any contamination as a result of noncompliance will be addressed by the Contractor at their own expense, and corrective measures must be implemented within 24 hours of discovery.

### **1.03 SUBMITTALS**

- A. Prior to transportation of any waste from the Site, the Contractor shall submit permits, approvals and any other information required by Engineer of the waste, recycling, or disposal facilities or entities for Engineer's review.
- B. Contractor's Environmental Consultant qualifications, project manager's contact information, and field personnel contact information.
- C. If contaminated soil or contaminated water is encountered, submit the following prior to beginning screening, sampling, testing, removal, segregation, transportation, or ultimate disposal.
  1. Submit copies of all notifications required by TCEQ, EPA, and other agencies prior to commencing work for the record.
  2. Submit Contractor, transporter, and disposal facility certifications, permits, or approvals for proper handling, transporting and disposal of contaminated materials.
  3. Submit name and location of soil disposal facility and ultimate disposal location.
- D. The Contractor shall comply with the provisions of 30 TAC 334, including procedures associated with storage, transportation, and disposal of contaminated materials encountered:
  1. Temporary Storage and Disposal of Petroleum Substance Wastes.



2. Temporary Storage and Disposal of Class 1, Class 2 (non-hazardous), or Hazardous Wastes.
  - E. Refer to the Project Work Plan documenting the handling of contaminated soil or contaminated water, if encountered during the Work.
  - F. The Contractor shall coordinate with SAWS's Environmental Consultant for all sampling requirements included in the Project Work Plan. The Contractor shall provide all assistance required of SAWS's Environmental Consultant for obtaining proper samples.
  - G. Submit Product Data for:
    1. Geosynthetic Membrane Liner or plastic sheeting or tarp
    2. Detection Devices
  - H. All manifests and related documentation associated with classification, coding, shipping and disposal of contaminated soil and water shall be submitted on a weekly basis to SAWS' Contract & Project Management System (CPMS) so the documents are kept with the project.
  - I. Submit Contractor's Summary Report and Certification (as described in Part 3 of this Specification).
  - J. The Contractor shall submit and follow the Contaminated Water Handling Plan (as described in Part 3 of this Specification).

#### **1.04 QUALITY CONTROL**

- A. The services of a qualified independent environmental laboratory will be engaged by the Contractor or Contractor's Consultant as described in the Project Work Plan. The laboratory shall have a minimum of five years of experience in providing testing services associated with water and soils contaminated with petrochemicals. The laboratory must be approved by the State of Texas under the accredited National Environmental Laboratory Accreditation Program (NELAP).
- B. Qualified personnel shall perform sampling and have qualified with a minimum of 2 years of experience collecting hazardous waste samples with the applicable methods and procedures.

monitoring, or remedial activities undertaken to investigate the extent of, and to remediate contamination.

## **PART 2 – PRODUCTS**

### **2.01 MATERIALS**

- A. A liner such as a Geosynthetic Membrane Liner, plastic sheeting, or plastic tarp shall be provided by the Contractor to isolate contaminated soil from the surrounding environment. Liner shall have a minimum thickness of 10 mils.
- B. The Contractor or Contractor's Consultant shall provide detection devices which include: photo-ionization detector (PID), flame ionization detector, or organic vapor analyzer/meter (OVM).

## **PART 3 – EXECUTION**

### **3.01 GENERAL REQUIREMENTS**

- A. The Contractor and Contractor's Consultant shall monitor all excavations and dewatering performed for this Work for the possible presence of contaminated soil or contaminated water and monitor trenches for the presence of petroleum vapors, methane, and potential hazardous atmospheres. Potentially contaminated soil or water shall be identified by odor, stain, discoloration from native earth materials and by utilizing field detection devices:
  - 1. Observe for visual, olfactory, or texture indications of contamination. These indications may include, but are not limited to: petroleum, oil, fuel, or gasoline odor, other unusual odors, mottled or gray appearance, unusual color, sheen, staining, debris, or other non- native material. Record observations in daily report.
  - 2. Perform headspace measurement using an accepted PID or OVM on a representative soil sample every 250 cubic yards of excavated soil. Record observations in daily report.
  - 3. Monitor for petroleum vapors and potential hazardous atmosphere in trenches where workers are present.
- B. If contaminated soil or contaminated water is encountered, the Contractor shall stop work in the area and notify SAWS. The Contractor's Consultant shall provide documentation of the test results of the soil and water to SAWS and SAWS's Environmental Consultant for review. No work shall proceed until the Contractor's Consultant and SAWS's Environmental Consultant are onsite to visually inspect the soils and oversee the segregation of the soils. The Contractor's Consultant shall determine the classification of the soils and determine in conjunction with SAWS's Environmental Consultant the proper classification of the waste. SAWS's Environmental Consultant shall have final determination on the classification of the waste based on visual inspection and the test results provided by the Contractor's Consultant.

### **3.02 SAMPLING CONTAMINATED SOILS**

- A. The Contractor's Consultant shall collect samples and perform the required testing to properly classify waste materials before disposal activities are initiated.
- B. All sampling data shall be recorded by the Contractor's Consultant and include the following minimum information:
  - 1. Date and time of sampling
  - 2. Date and time of excavation
  - 3. Sample identification and location, including station
  - 4. Stockpile or water volume
  - 5. Sample depth
  - 6. Visual description of material sampled
  - 7. Description of sampling methods and equipment used
  - 8. Description of sample handling techniques (containers, preservation, chain of custody)
  - 9. Field instrumentation readings
  - 10. Weather conditions
  - 11. Printed name of sampling personnel
- C. Potentially contaminated soil shall be sampled in accordance with the following schedule:
  - 1. Total Petroleum Hydrocarbon (TPH), laboratory analytical method TX1005, Volatile Organic Compounds (VOCs), laboratory analytical method SW8260D, Semivolatile Organic Compounds (SVOCs), laboratory analytical method SW8270E, and RCRA 11 Metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), laboratory analytical method SW6020B/SW7471B plus antimony, beryllium, and nickel testing - One sample shall be collected at a maximum of every 1000 cubic yards of excavated materials or as required by the landfill. Other tests performed at other frequencies may be required by the landfill for characterization.
  - 2. Toxicity Characteristic Leaching Procedure (TCLP) for benzene and RCRA 11 metals - Samples shall be collected as required for landfill disposal.
  - 3. Groundwater seepage or surface water inflow that collects into known or suspected areas of contamination in quantities large enough to require its removal must be sampled at a frequency equal to one per 21,000 gallons (volume of a frac tank) unless otherwise indicated by SAWS or required by the disposal facility.

- D. Contractor and Contractor's Consultant shall notify SAWS' Environmental Consultant, 24 hrs. in advance to provide SAWS' Consultants the opportunity to observe and/or split samples.
- E. Rinsate water used in washing equipment used in known or suspected contaminated areas shall be collected, sampled, and analyzed for characterization and disposal. Sampling and testing frequency shall be equal to that specified for groundwater seepage or surface water inflow.
- F. All sampling equipment shall be cleaned immediately prior to use with a laboratory grade non-phosphate detergent solution followed by rinses with distilled de-ionized water. Sampling tools shall consist of stainless-steel trowels or other sampling devices consistent with the required analysis.
- G. Excavated soils shall be sampled in the stockpiles or containers to obtain a representative coverage of all the materials for the full depth of the stockpiles or containers. Water samples shall be collected with a stainless steel or Teflon<sup>®</sup> bailer, dipper, pond sampler, or similar device.
- H. Care shall be exercised to capture any observed water with a sheen to collect representative samples. Each sample container shall be clearly identified with a label that shows the field sample number, date/time of sampling, sample location, and names of sampling personnel. All information shown on the label must be written in indelible ink.
- I. Samples shall be placed in zip-lock bags and stored in an iced cooler. The samples must remain in a refrigerated condition at all times, including transportation. Field and trip blanks shall be included in accordance with the Sampling and Analysis Plan procedures. Chain of custody documentation shall accompany each sample group or shipment.

### **3.03 TEMPORARY STORAGE OF CONTAMINATED SOILS**

- A. The Contractor or Contractor's Consultant shall establish the location and security measures for an exclusion zone to prevent unauthorized entrance to stockpiled or contained soils suspected of contamination.
- B. Soils suspected to be contaminated shall be stockpiled or contained in areas of sufficient size to permit and facilitate sorting and staging, as well as sampling and waste classification activities.
- C. Stockpiles of suspected contaminated soils shall be isolated from the environment using impervious geosynthetic membrane liners or plastic tarps or sheeting beneath and over the contaminated soil and rock. Berms shall also be constructed around the stockpiles to contain the soils and to prevent contamination of storm water runoff that may flow adjacent to the site.
- D. No soils shall be stockpiled within the 100-year floodplain.
- E. Contamination shall be confirmed and characterized prior to removal and disposal activities. Soils identified as being contaminated shall be separated from uncontaminated soils. If stockpiles are not properly protected and separated, any materials potentially contaminated by contact or runoff from contaminated soils shall be removed and properly disposed of at the Contractor's expense.

- F. Soil and inorganic landfill material free of waste excavated from the site can be used as secondary backfill provided that the soil meets the requirements of SAWS Item 804. Native uncontaminated and unregulated soil from other portions of the pipeline project may also be used as secondary backfill as needed.

### **3.04 TRANSPORT OF CONTAMINATED SOILS**

- A. The Contractor or Contractor's Consultant shall utilize appropriate vehicles and operating practices to prevent spillage of contaminated or hazardous soils during loading and hauling. All operations for loading and hauling shall be in accordance with appropriate U.S. Department of Transportation regulations and TCEQ regulations and any local ordinances, as appropriate.
- B. The Contractor or Contractor's Consultant will sign each manifest for contaminated soils as well as any other landfill related material removed from the site during construction on SAWS' behalf. The Contractor shall immediately notify SAWS of any problems completing shipment and disposal. Copies of all manifests and documents relating to the shipment and transportation of contaminated soils shall be provided to SAWS for record as described in Part 1.03 of this Specification.

### **3.05 CONTAMINATED WATER HANDLING PLAN**

- A. Handling of wastewater produced during the removal of waste shall be the full responsibility of the Contractor or Contractor's Consultant and must be in accordance with all rules and regulations for handling and disposing of contaminated water and as approved by the Engineer.
- B. The Contractor's Consultant shall prepare a Contaminated Water Handling Plan which shall include:
  - 1. Descriptions of proposed groundwater and surface water control facilities including, but not limited to, calculated dewatering flowrates; equipment; methods; standby equipment and power supply; pollution control facilities; discharge locations to be utilized; and provisions for immediate temporary water supply as required by this Section.
  - 2. The plan shall provide complete containment of all produced groundwater or surface runoff that contacts potentially contaminated soil. No contaminated water shall be allowed to drain to the surrounding soils.
  - 3. Drawings showing locations, dimensions, and relationships of elements of each system.
  - 4. Contractor shall not assume that any contaminated water can be disposed of in a SAWS sanitary sewer.
- C. If system is modified during installation or operation the Contractor's Consultant shall revise or amend and resubmit the Contaminated Water Handling Plan.
- D. The Contractor shall continuously control water during course of construction, including weekends and holidays and during periods of work stoppages, and provide adequate

backup systems to maintain control of water. Every effort shall be made to avoid accumulation of storm water in the trench excavations including but not limited to: temporarily backfilling excavations, providing a system of berms to prevent surface water runoff from surrounding areas from entering the excavations, and covering trenches with tarps or plastic sheeting.

- E. For other portions of the Project: remove and control water during periods when necessary to properly accomplish work.
- F. Surface Water Controls shall be constructed in accordance with the approved Contaminated Water Handling Plan. Remove surface runoff controls when no longer needed.

### **3.06 DEWATERING SYSTEMS**

- A. Provide, operate, and maintain dewatering systems of sufficient size and capacity to permit excavation and subsequent construction in dry conditions and to lower and maintain the groundwater level as outlined in Supplemental Specification Item No. 2140 Control of Ground and Surface Water and Supplemental Specification Item No. 2242 Water Control for Shaft Tunnel Construction.
- B. Monitor volume of potentially contaminated water pumped per calendar day from excavations, as Work progresses. Also, monitor volume of water introduced each day into excavations for performance of Work. Contractor shall submit a means for monitoring flows for review and approval by SAWS and SAWS's Representative.

### **3.07 DISPOSAL OF CONTAMINATED WATER**

- A. The Contractor shall plan for disposal of all contaminated water at a proper disposal facility for bidding purposes.
- B. The Contractor shall coordinate the disposal of the contaminated water with a proper disposal facility. The Contractor shall receive approvals and prepare schedules in advance with appropriate personnel and meeting all the requirements of the disposal facility.
- C. All contaminated water shall be collected in 21,000-gallon portable tanks (frac tanks) and shall be strategically located throughout the project site. Tanks shall be Flat Top Corrugated Wall Tank as manufactured by Wester Oilfields Supply company (Rain for Rent) or approved equal.
- D. The Contractor shall be responsible for all handling, temporary storage, and transportation of the wastewater to the commercial recycling facility or wastewater treatment plant and for obtaining approval and scheduling in advance with the appropriate personnel. Pretreatment of the water to remove solids may be required depending on the collection and disposal methods used.

### **3.08 DISPOSAL OF UNCONTAMINATED WATER**

- A. Contractor is responsible for obtaining required storm water discharge permits, posting required notices, and for preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) for the Project in accordance with federal, state, and local requirements.

The Contractor is responsible for terminating discharge permits obtained specifically for the Project once the Project is completed. The SWPPP and associated notices of intent or applications to the appropriate agency(ies) will be submitted to the Engineer no later than 10 calendar days prior to start of work.

- B. Treat water collected by dewatering operations as required by regulatory agencies prior to discharge, if needed.
- C. Discharge water as required by discharge permit and in a manner that will not cause erosion or flooding, or otherwise damage existing facilities, completed Work, or adjacent property.
- D. Remove solids from treatment facilities and perform other maintenance of treatment facilities as necessary to maintain their efficiency.

### **3.09 REPORTING AND CERTIFICATION REQUIREMENTS**

- A. The Contractor shall prepare a written summary report documenting the handling of the contaminated soil or water during the completion of the Work. This report, as a minimum, shall contain the following information:
  - 1. Field notes documenting the date of removal and volume of soil or water. Notes must include documentation indicating concurrence of SAWS regarding the quantities that were measured.
  - 2. Labeled photographs that document monitoring, sampling, excavation, and disposal.
  - 3. Copies of all manifests and chain of custody documents.
- B. Upon completion of the Work, the Contractor shall submit a Contractor Certification to SAWS. The Certification shall include the following minimum information:
  - 1. Written certification, signed by the Contractor, that all contaminated soil and water encountered during installation of the Work were removed from the site as specified and in accordance with all applicable rules and regulations.
  - 2. The shipper's certification that the soil or water was transported in accordance with all rules and regulations and under the proper federal, state, and local transportation permits.
  - 3. Written certification from the facility receiving the contaminated soil or water that it is licensed, permitted, or approved by the State of Texas to accommodate such waste.
  - 4. Compilation of completed manifests documenting signatures by the generator, transporter, and disposal facility.

### **3.10 SOIL COVER PLACEMENT**

- A. Soil fill will be required for cover placement and to bring portions of the Site to final grade elevation.
- B. Soil fill and soil cover material will not be placed, spread, or compacted during

unfavorable weather conditions.

- C. When the work is interrupted by rain, operations will not be resumed until the Contractor's Consultant, in coordination with SAWS, indicates conditions are acceptable to continue work. The Contractor shall notify SAWS and SAWS's representative when work has resumed.
- D. Backfill compaction shall meet the requirements of SAWS Standard Specifications for Construction – Item 804 "Excavation, Trenching and Backfill".

### **3.11 LANDFILL AND UNDESIRABLE DEBRIS**

- A. If refuse other than inert landfill debris is uncovered during the performance of the cutting actions, activities will be immediately stopped and the Engineer notified.
- B. If tires or transite (asbestos containing) pipe is encountered they shall be segregated from other materials. They will be profiled as Special Waste with the receiving disposal facility prior to transportation and disposal.

## **PART 4 –PAYMENT**

### **4.01 MEASUREMENT FOR PAYMENT**

- A. Environmental Services
  - 1. Measurement for payment shall be on a per lump sum basis. Environmental services provided by an environmental consultant(s) for air monitoring, waste characterization, reporting, and environmental oversight for construction within landfill locations.  
Contractor shall prepare a Health and Safety Plan that complies with all Federal and State safety requirements to ensure that jobsite conditions meet State, Federal, company and industry standards and provide a safe working environment for personnel to complete the work. Bid price shall be full compensation for environmental services as specified in this specification and the Work Plan. Bid item shall include all costs for required equipment, supplies, and labor to perform the Work.
- B. Contaminated Waste Classification, Transportation, and Disposal (Class I)
  - 1. Measurement for payment shall be on a per cubic yard basis for a Class I waste as specified in the Project Work Plan. Bid item includes all equipment, labor, fuel, incidentals, temporary storage, and materials necessary to remove, manage, handle, characterize, sort, manifest, transport, and dispose of the waste material. This item includes landfill disposal fees.
- C. Contaminated Waste Classification, Transportation, and Disposal (Class II)
  - 1. Measurement for payment shall be on a per cubic yard basis for a Class II waste as specified in the Project Work Plan. Bid item includes all equipment, labor, fuel, incidentals, temporary storage, and materials necessary to remove, manage, handle, characterize, sort, manifest, transport, and dispose of the waste material. This item includes landfill disposal fees.
- D. Contaminated Waste Classification, Transportation, and Disposal (Special Waste)



1. Measurement for payment shall be on a per cubic yard basis for a Special Waste as specified in the Project Work Plan. Bid item includes all equipment, labor, fuel, incidentals, temporary storage, and materials necessary to remove, manage, handle, characterize, sort, manifest, transport, and dispose of the waste material. This item includes landfill disposal fees.

E. Water Storage

1. Measurement for payment shall be on a per each tank basis for tanks delivered to the site. This item includes portable storage tanks required to store groundwater and potentially contaminated runoff water and all equipment, labor, fuel, pumping, incidentals, materials necessary to remove, manage, handle, and characterize the potentially contaminated water.

F. Contaminated Water Disposal (Recycling/Disposal Center)

1. Measurement for payment shall be on a per ton basis. This item includes all equipment, labor, fuel, incidentals, transport, characterization, manifests, and disposal fees.

**END OF SECTION**

**910.1 DESCRIPTION**

This item shall govern rehabilitation of manholes complete and in place and the materials used therein, including cleaning, interior surface restoration, priming the prepared surface and coating (including bench and invert of the manhole). It shall also include all required by-pass pumping necessary to complete the work.

**910.2 CERTIFICATION**

Manufacturer shall certify that Applicator has been trained and approved in the handling, mixing and application of the products to be used. Equipment to be used for applying the products by the Applicator shall be certified and approved by the Manufacturer. At least five (5) recent references of Applicator indicating successful application of proposed liner on project of similar size and scope shall be submitted by Contractor. *Only manhole rehabilitation products approved by the SAWS Standards Committee shall be used. All contractors doing this work must have a minimum of 15,000 vertical feet installed within the State of Texas.*

The Contractor shall submit descriptive information including technical data sheets and ASTM test results on each product proposed indicating that the product conforms to and it is suitable for its intended use per these specifications. *All required submittals must be satisfactory to SAWS.*

**910.3 SURFACE PREPARATION**

Proper surface preparation procedures must be followed to ensure adequate bond strength to any surface to be coated. Applicator shall inspect all surfaces specified to receive a liner prior to surface preparation. Applicator shall notify Owner of any noticeable disparity in the surfaces which may interfere with the proper preparation or application of the repair mortar and/or liner(s). Concrete that is not sound or has been damaged by chemical exposure shall be removed to a sound, concrete surface. All contaminants including: all oils, grease, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, or other contaminants shall be removed. Surface preparation methods(s) should be based upon the conditions of the substrate and the requirements of the liner to be applied.

Surface to receive liner shall be cleaned and abraded to produce a sound concrete surface with adequate profile and porosity to provide a strong bond between the protective coating and substrate. High pressure cleaning with a minimum of 4,000 psi, and 4 gallons per minute using a rotating pencil nozzle, shall be used to clean and free all foreign material within the manhole. Detergent water and cleaning or muratic acid shall be used when grease and oil are present. All materials resulting from the cleaning of the manhole shall be removed prior to application of coating.

Active water infiltration shall be stopped by using a cementitious water plug or hydroactive grout such as Strong-Seal Strong-Plug, Quadex Hydra-Plug or approved equal, which is compatible with the specified coating. Prepared surfaces should be tested after cleaning but prior to application of the coating, if a specific pH or

moisture content of the concrete is required according to manufacturer's recommendations.

#### **910.4 PRODUCT HANDLING**

Protective-coating materials are to be handled according to their material safety data sheets. Materials are to be kept dry, protected from weather and stored under cover.

*Repair/under-coat materials must be accepted and approved by the protective coating manufacturer* for compatibility with the specified liner and shall be used to fill voids, structurally reinforce and/or rebuild surfaces, etc. as determined necessary by the engineer and liner applicator.

#### **910.5 MATERIALS AND COMPONENTS**

- (1) Concrete: Concrete shall conform to City of San Antonio (CoSA) Standard Specifications for Public Works Constructed dated October 1995. Item 300-Concrete (concrete class "A").
- (2) Mortar shall be composed of one part Portland Cement, one part masonry cement (or ¼ part hydrated lime) and masonry sand equal to 2-1/2 to 3 times the sum of the volumes of the cements and lime used.
- (3) Unless otherwise specified, all grouting shall be done with non-shrinking grout. Non-shrinking Grout: Non-shrinking grout shall be furnished factory premixed so only water is added at the job site. Grout shall be mixed in a mechanical mixer. No more water shall be used than is necessary to produce a flowable grout. All proportioning and mixing of the components shall be in accordance with manufacturer's recommendations.
- (4) Reinforcement: Reinforcing steel shall conform to the requirements of COSA Item 301- Reinforcing Steel.
- (5) Brick: Replacement brick for ring adjustment courses shall be of first quality, sound, kiln fired, new unbroken brick.
- (6) For rehabilitation of existing manholes, apply a combination of cementitious coating and epoxy coating, with the cementitious coating first, followed by the epoxy coating. Lafarge SewperCoat PG applied at the required one inch thick application, are the only product approved which do not require a subsequent epoxy coating. Other approved materials are as follows:

Cementitious coating: With required one inch thick application.

- Permaform CR-
- 5000 Strong - Seal  
MS-2C
- Standard Cement Material Inc. Reliner
- Quadex Aluminaliner
- ConShield Biotech  
Armor

Epoxy coating: With specified thickness application.

- Carboline Plasite 4500: Required Thickness – 125 mils

#### **910.6 LINER APPLICATION**

Application procedures shall conform to the recommendations of the liner manufacturer, including material handling, mixing, environmental controls during application, safety, and equipment. The liner application equipment shall be specifically designed to accurately apply the specified liner materials and shall be regularly maintained and proper working order. The liner material must be applied by a Certified Applicator of the liner manufacturer. The liner shall be applied to minimum thickness or as specified by the Engineer according to the Owner's requirements and manufacturer's recommendations. Temperature of the surface to be coated shall be maintained between 40 deg F and 120 deg F during application. Prior to and during application, care should be taken to avoid exposure of direct sunlight or other intense heat source to the structure being coated. Where varying surface temperatures do exist, care should be taken to apply the liner when the temperature is falling versus rising (later afternoon into evening versus early morning into afternoon).

#### **910.7 MEASUREMENT**

Manhole Rehabilitation shall be measured by vertical feet of manhole depth. Sewer Structure Rehabilitation (Noncircular Manholes, and Manholes Greater than 4 ft. in Diameter) shall be measured by the square feet of area to be rehabilitated.

The bench area of the manhole or manhole structure is considered to be subsidiary to the measurement of the rehabilitated manhole or manhole structure, and, shall be rehabilitated as necessary.

#### **910.8 TESTING**

Contractor shall perform testing for manhole rehabilitation in accordance with the following:

A. Leakage Testing:

All rehabilitated manholes must pass a leakage test prior to coating. The

contractor shall test each manhole (after assembly and backfilling) for leakage, separate and independent of all other sanitary sewer piping, by means of hydrostatic testing, vacuum testing, or other methods approved by the Engineer.

1. **Hydrostatic Testing:** Hydrostatic testing shall be conducted by utilizing approved plugs to seal all influent and effluent pipes in the manhole and filling the manhole to the top of the cone with water. Additional water may be added over a 24 hour period to compensate for absorption and evaporation losses. At the conclusion of the 24 hour saturation period, the manhole shall be filled to the top of the cone and observed for one hour. A loss greater than 0.025 gallons per foot diameter per foot of manhole depth per hour shall be considered an unsuccessful test. If the test is unsuccessful, the Contractor shall then assess the needed repairs, perform such repairs (subject to the approval of the Engineer), and notify the Inspector when the retest can be performed.

All effort, materials, retesting or other costs shall be solely at the Contractor's expense.

2. **Vacuum Testing:**
  - a. **General:** Manholes shall be tested after construction/installation and backfilling with all connections (existing and/or proposed) in place. Lift holes and any other voids shall be plugged with an approved non-shrink grout prior to testing. Drop- connections and gas sealing connections shall be installed prior to testing.
  - b. **Test Procedure:** The lines entering the manhole shall be temporarily plugged with the plugs braced to prevent them from being drawn into the manhole. The plugs shall be installed in the lines beyond drop connections, gas sealing connections, etc. Contractor shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure the test cover to the top of the manhole. The test head shall be inflated in accordance with the manufacturer's recommendations. A vacuum of 10 inches of mercury shall be drawn, and the vacuum pump will be turned off. With the valve closed, the level vacuum shall be read after the required test time. If the drop in the level is less than 1 inch of mercury (final vacuum greater than 9 inches of mercury), the manhole will have passed the vacuum test. The required test time is 2 minutes.
  - c. **Acceptance:** Manholes will be accepted with relation to vacuum test requirements, if they meet the criteria above. Any manhole which fails the initial test must be repaired with a non-shrink grout or other suitable material that is compatible with the material of which the manhole is constructed. The manhole shall be retested as described above until a successful test is attained. After a successful test, the temporary plugs will be removed. To

insure that the plugs have been removed, Contractor shall do so in the presence of the Inspector.

- d. **Repairs to Existing Manholes:** Any existing manhole which fails to pass the vacuum test shall be closely examined by the Inspector and the Contractor to determine if the manhole can be repaired. Thereafter, the Contractor shall either repair or remove and replace the manhole as directed. The manhole shall then be retested and coated with a SAWS-approved sewer structural coating as stated above. The Owner may elect to simply remove and replace the existing manhole with a new one. Any manhole excavated for repairs or excavated for tie in shall be backfilled with flowable fill up to 1 foot below the top of the cone. The Contractor also has the option of backfilling with approved secondary materials, subject to the provisions of Item No. 804, "Excavation, Trenching and Backfill."

**B. Holiday Testing:**

Inspect each manhole that is rehabilitated using high-voltage holiday detection equipment. All detected holidays shall be marked and repaired by abrading the coating surface with grit disk paper or other hand tooling method. After abrading and cleaning, additional protective coating material shall be applied to the repair area. All touch-up repair procedures shall follow the protective coating manufacturer's recommendations.

If a manhole fails to pass one of the above tests, it shall be repaired in accordance with the manufacturer's recommendation and re-tested. It shall not be accepted until it passes all tests. All repairs and re-testing shall be at no additional cost to SAWS.

For manholes located within the Edwards Aquifer Recharge Zone (EARZ), under no circumstances shall flows be released in the system until all testing has been approved by SAWS.

**910.9 WARRANTY**

Contractor shall warrant all work against defects in materials and workmanship for a period of two (2) years, unless otherwise noted, from the date of final acceptance of the projects. Applicator shall, within a reasonable time after receipt of written notice thereof, repair defects in material or workmanship which may develop during said two (2) year period, and any damage to other work caused by such defects or the repairing of same, at their own expense and without cost to the Owner.

**910.10 PAYMENT**

This item shall be paid for by square foot at the unit price bid or by the vertical foot of depth for the unit price bid for "Manhole Rehabilitation." Payment shall be full compensation for materials, labor, equipment, tools, testing, and any incidentals

necessary to complete the work including the bench, invert, and all interior surfaces of the manhole. Payment will be made under the following:

- Pay Item (910.1): Manhole Rehabilitation (Standard Manholes 4 ft diameter) per Vertical Feet.
- Pay Item (910.2): Sewer Structure Rehabilitation (Noncircular Manholes, and Manholes Greater than 4 ft. in Diameter) – per Square Feet.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.01 SURVEY CONTROLS**

- A. Contractor shall use a qualifications-based selection process consistent with the Professional Services Procurement Act, Chapter 2254.004 of the Texas Government Code, when securing the services of a Professional Engineer or Registered Professional Land Surveyor. It is a violation of State Law to solicit bids for the services of a Professional Engineer or Registered Professional Land Surveyor. All survey work will be performed under the direct supervision of a Registered Professional Land Surveyor (RPLS) licensed in the State of Texas.

### **1.02 CONSTRUCTION STAKING**

- A. All references in this section to Contractor and requirements of Contractor related to survey shall be understood to require a RPLS to perform the work and provide a signed and sealed report or documentation as indicated.
- B. Prior to start of construction the Contractor shall locate and verify all project survey control monuments shown on the Contract Documents to ensure that they have not been disturbed or destroyed. The Contractor shall notify SAWS and Engineer of any control that cannot be located or that appears to be unusable. The Engineer will have a Registered Public Land Surveyor (RPLS) reset the control in a timely manner.
- C. Once Contractor verifies control monuments, Contractor shall protect all monuments for the duration of construction. Contractor may set additional reference points or control points as needed.
- D. SAWS will not be responsible for any staking associated with the construction of the project.
- E. Contractor shall submit certified cut sheets to SAWS and Engineer within (24) hours of performing contract staking. All stakes shall be set on an offset that will be clear of the excavation of the intended infrastructure. All cut sheets shall identify benchmarks and control points used, elevations of these points, actual stake elevations, proposed elevations, and cut elevations.
- F. Contractor shall submit construction staking layout sheets sealed by a Professional Engineer or Registered Professional Land Surveyor licensed in the State of Texas.
- G. Contractor shall promptly submit any and all information associated with the cut elevation that may result in elevations that differ from those shown in the Contract Documents, such as, over excavation, embedment depths, and flow line elevations. Contractor shall obtain concurrence from SAWS and Engineer prior to performing any work that may be impacted by such differing elevations.



- H. Line and grade stakes shall be set every 25 feet for the first 100 feet out of the downstream manhole, and every 100 feet throughout the project. Stakes shall be set based on the centerline stationing.
- I. The Contractor shall place grade stakes and submit construction staking layout sheets. The Contractor shall allow a minimum of ten (10) days after submission to SAWS and Engineer for review of construction staking layout sheets. Construction staking layout sheets shall include, at a minimum, the information contained in the form included at the end of this section. No work shall be performed without Engineer's review and return to Contractor of construction staking layout sheets.
- J. The Contractor is required to provide a sealed statement from the RPLS retained for the project that the controls are correct and the site layout has been completed by their professional staff.
- K. Any re-staking required of the contractor to meet the above requirements shall be at the Contractor's expense.

### **1.03 LINE AND GRADE VERIFICATION**

- A. Surveying will be coordinated between SAWS and Contractor in a manner convenient to all parties.
- B. The Contractor's RPLS shall verify line and grade of every manhole constructed within the project scope. The survey of the pipe flowline shall be completed immediately once the manhole has been set and once initial backfill has begun. The flowline of each pipe (in and out) within the manhole shall be surveyed, documented, and immediately submitted to SAWS for review. The contractor shall not continue with any additional pipe installation beyond the first joint upstream of the manhole until the manhole elevation has been certified by the Contractor's RPLS and such certification has been submitted to and acknowledged by SAWS.
- C. The Contractor shall neatly and legibly record the information in a field book during construction and provide copies of the surveyed elevation as well as all manhole elevation reports from the RPLS on a monthly basis with each pay application.
- D. If the line and grade of the pipe differs from that shown on the Contract Documents, the Contractor shall immediately notify SAWS and Engineer of the discrepancy and highlight the discrepancy in the field book.
- E. In the event the line or grade of the pipe deviate beyond the allowed tolerances, the contractor shall remove and reinstall the manhole and pipe in accordance with the Contract Documents, at no additional cost to SAWS or Engineer. A time extension to the Contract will not be granted.
- F. The horizontal tolerances shall never exceed six (6) inches from the centerline station unless prior approval is provided by SAWS and/or Engineer. No deflection between two joints of pipe shall exceed one half of the manufacturer's specifications. Corrections to the

horizontal alignment to regain centerline control shall meet the deflection specifications of the pipe manufacturer. If horizontal deflections are made, the contractor shall submit a plan for how the Contractor plans to complete and correct the deflection. All deflections shall be glassed and sealed by a representative of the pipe manufacturer authorized to complete the glassing.

- G. The vertical tolerances for pipe installation shall not exceed the elevations shown in the Contract Documents while also maintaining a positive, downstream flow. The vertical tolerance shall never exceed a maximum of 1.5 inches (or 0.125 ft) if all other conditions are met and such tolerances will only be allowed if all other conditions are met.
- H. The maximum tolerances provided are based on an average and shall not be considered an allowable continuous tolerance over the length of the pipe.
- I. The following requirements take precedence over the specified tolerances:
  - a. Meeting the Texas Commission on Environmental Quality (TCEQ) minimum and maximum slope requirements and velocity requirements.
  - b. Maintaining elevations for proper connections to existing utilities including downstream and upstream manhole connections and lateral connections.
  - c. Maintaining elevations for proper connections to proposed infrastructure shown to be constructed “by others” in the Contract Documents.
  - d. Maintaining elevations for proper connections to proposed infrastructure to be installed by the Contractor such as bores, tunnels, and lateral stubouts.
- J. No direct payment shall be made for costs associated with the quality control measures required of the Contractor to maintain line and grade through the entirety of construction.

## **PART 2 – MEASUREMENT AND PAYMENT**

Survey controls shall be considered subsidiary to the work as a whole.



## **PART 1 - GENERAL**

### 1.01 SUMMARY

- A. This section provides for furnishing all labor, materials, equipment, power, and incidentals for performing all operations necessary to dewater, depressurize, drain, and maintain excavations as described herein and as necessary to operate pumps, installation of pipeline and appurtenances. Included are installing, maintaining, operating and work removing dewatering systems, and all work necessary to control, handle, and dispose of groundwater and surface water during the construction of open cut trench and shaft excavations, directional drilling, pipelines and appurtenances, and protecting Work against rising waters and repair of any resulting damage at no additional cost to SAWS.
- B. Work includes reduction of hydrostatic pressure and control of groundwater and perched groundwater in open cut trench and shaft excavations to provide dry and stable subgrade for construction. The work also includes the design, procurement, and installation of facilities to satisfactorily treat water, if required, for discharge to drainage system.
- C. Protecting work against surface runoff and rising flood water.
- D. Conformance to SWPPP.

### 1.02 Contractor's responsibility

- A. It is the sole responsibility of the Contractor to identify groundwater and surface water conditions and to provide any and all labor, material, equipment, techniques, and methods to lower, control and handle groundwater and surface water as necessary for the Contractor's construction methods and to monitor the effectiveness of this installed system and its effect on adjacent facilities.
- B. Operate, maintain, and modify the system(s) as required to conform to these Specifications. Upon completion of the construction, Contractor shall remove the system(s). The development, drilling and abandonment of all wells used in the dewatering system shall comply with Texas Commission on Environmental Quality regulations and Texas Water Well Drillers Association.
- C. Assume sole responsibility for dewatering systems and for all loss or damage resulting from partial or complete failure of protective measures and any settlement or resultant damage caused by the dewatering operations. Modify groundwater control systems or operations if they cause or threaten to cause damage to new construction, existing site improvements, adjacent property, or adjacent wells.

Repair damage caused by the dewatering system or resulting from failure of the system to protect property as required.

- D. Provide an adequate number of piezometers installed at the proper locations and depths as required to provide meaningful observations of the conditions affecting the excavation adjacent structures, and wells.

### 1.03 definitions

- A. Ground water control system: system used to dewater and depressurize water-bearing soil layers.
  - 1. Dewatering: lowering the water table and intercepting seepage that would otherwise emerge from slopes or bottoms of excavations, or into tunnels and shafts; and disposing of removed water. Intent of dewatering is to increase stability of tunnel excavations and excavated slopes; prevent dislocation of material from slopes or bottoms of excavations, reduce lateral loads on sheeting and bracing, improve excavating and hauling characteristics of excavated material, prevent failure or heaving of bottom of excavations, and to provide suitable conditions for placement of backfill materials and construction of structures and other installations.
  - 2. Depressurization: includes reduction in piezometric pressure within strata not controlled by dewatering alone, necessary to prevent failure or heaving of excavation bottom or instability of tunnel excavations.
- B. Excavation drainage: includes keeping excavations free of surface and seepage water.
- C. Surface drainage: includes use of temporary drainage ditches and dikes and installation of temporary culverts and sump pumps with discharge lines necessary to protect Work from any source of surface water.
- D. Monitoring facilities for groundwater control system: includes piezometers, monitoring wells and flow meters for observing and recording flow rates.

### 1.04 DESIGN CRITERIA

- A. Geotechnical data and anticipated groundwater conditions are described in the Geotechnical Data Report prepared by Raba-Kistner, Inc., dated January 21, 2019. The Contractor shall be responsible for dewatering design and selection of methods and equipment for the dewatering system. The design shall be performed and stamped by a professional engineer registered in the State of Texas and specialized

in hydrogeology or geotechnical engineering. Design shall include the monitoring and recording system.

- B. Dewatering systems shall be designed to satisfy the following objectives:
1. Effectively reduce hydrostatic pressures, lower groundwater levels, and intercept perched groundwater to provide a dry and stable subgrade for the execution of subsequent operations.
  2. Not result in damage to existing adjacent properties, buildings, structures, utilities, and other work.
  3. Assure that after 12 hours of initial pumping, no soil particles will be present in the discharge water.
  4. Comply with requirements for sanitary sewer discharge as described in Paragraph 3.08 of this Section.
  5. Maintain stability of sides and bottom of excavations.
- C. Required methods may include sump pumping, single-stage or multiple-stage well point systems, eductor and ejector-type well systems, deep wells, and combinations thereof. Groundwater cutoffs are also acceptable provided groundwater inflows at hydrostatic pressures are controlled so that the Work can be performed in the dry and so that there is no seepage or loss of ground.
- D. Locate dewatering facilities within the proposed and temporary easements, JUAs, and only where they will not interfere with utilities, traffic, pedestrians, or construction work to be done by others.
- E. Contractor shall modify dewatering or groundwater control procedures that cause or threaten to cause damage to new or existing facilities, so as to prevent further damage. The Contractor shall be responsible for determining and making the modifications at no additional cost to SAWS.
- F. Dewatering facilities, monitoring wells, and piezometers shall be made accessible to the Engineer at any time for monitoring purposes.
- G. Additional monitoring wells and piezometers may be requested by the Engineer or SAWS to be installed by the Contractor, at no additional cost to SAWS. Monitoring wells and piezometers shall be accessible to SAWS at all times.
- H. Dewatering and monitoring wells shall be installed and abandoned per Texas Commission on Environmental Quality Rules and Regulations.

- I. Provide ditches, berms, pumps and other methods necessary to divert and drain surface water from excavation and other work areas.

#### 1.05 QUALITY REQUIREMENTS

- A. Provide for the arrangement, locations and depths of the dewatering system to accomplish the Work and satisfy the requirements specified herein. Provide sumps, well points, and deep wells with suitable filters and well screens of adequate size and screen opening to prevent removal of fines from the soils. Make available equipment, machinery and piping, including standby power and pumps in good working condition and of adequate capacity to continue dewatering operations in an emergency.
- B. Provide dewatering and/or groundwater control as required and as specified until the pipe or structure under construction has been completed.
- C. Dispose of water in closed conduits, do not to damage public or private property or create a nuisance or health hazard. Contractor to shall not use existing sanitary sewer system for discharge of groundwater and/or surface water flow.

#### 1.06 SUBMITTALS

- A. Prior to the installation of the dewatering system and any excavation where groundwater is anticipated to be encountered, submit a Groundwater and Surface Water Control Plan for review by SAWS and Engineer prior to start of any fieldwork. The Plan shall be signed by a Professional Engineer registered in the State of Texas. Submit a plan to include the following:
  1. Results of any subsurface investigation and description of the extent and characteristics of water bearing layers subject to groundwater control.
  2. Design data, and descriptions of proposed groundwater and surface water control facilities for each location where these facilities are required.
  3. The proposed type of dewatering or groundwater control system including a description of the methods, equipment, standby equipment and power supply, observation wells and/or piezometers, pollution control facilities, and discharge locations to be utilized.
  4. Arrangement, location and depth of the components of the proposed system. A complete description of the equipment to be used with associated installation, operation, and maintenance procedures.

5. Location and size of wells, berms, dikes, sediment pits, and discharge lines, including their relation to existing drainage facilities.
  6. Excavation drainage methods including typical drainage layers, sump pump application and other means.
  7. Surface water control and drainage installations.
  8. Proposed methods and location for disposing of removed water.
  9. A schedule for the installation of the system.
  10. Working Drawings and supporting calculations demonstrating the adequacy of the proposed system and equipment prepared by a professional engineer registered in the State of Texas and specialized in hydrogeology or geotechnical engineering.
  11. Include QA/QC process that ensures the Contractor's management of groundwater and surface water control does not impede construction or existing infrastructure.
  12. The submittal of dewatering and groundwater control systems shall be made at least 45 days from the Contractor's notice to proceed. The Contractor shall resubmit if the system is modified during installation or operation.
- B. Submit the following records upon completion of initial installation:
1. Installation and development reports for well points, eductors, and deep wells.
  2. Installation reports and baseline readings for piezometers and monitoring wells shall be provided monthly.
  3. Baseline analytical test data of water from monitoring wells.
  4. Initial flow rates.
- C. Submit the following records weekly during control of ground and surface water operations:
1. Records of flow rates and piezometric elevations obtained during monitoring of dewatering and depressurization. Refer to Paragraph 3.04, Requirements of Eductor, Well Points, or Deep Wells.



2. Maintenance records for groundwater control installations, piezometers and monitoring wells.

#### 1.07 SITE CONDITIONS

- A. The Contractor shall be responsible for the continuous control of water and safety of excavations at all times during the course of construction, including weekends and holidays and during periods of work stoppages, and shall provide adequate backup systems to accomplish control of water. The method of control, handling, and disposal of groundwater and surface water shall be by whatever means are necessary and in conformance with this section to obtain satisfactory working conditions and maintain the progress of the work. All applicable legislative statutes, judiciary decisions, and regulations shall be followed including those pertaining to the use of drilled wells for dewatering.
- B. All required drainage, pumping, and disposal shall be done without damage to adjacent property or structures, and without interference with the operations of other contractors, or the rights of public or private owners, or pedestrian and vehicular traffic. The Contractor shall modify the water control system at no cost to SAWS if, after installation and while in operation, it causes or threatens to cause damage to adjacent property or to existing buildings, structures, or utilities.
- C. Repair, subject to the Engineer's acceptance, any damage, disruption, or interference resulting directly or indirectly from dewatering operations at no additional cost to SAWS.
- D. Comply with requirements of agencies having jurisdiction.
- E. Comply with Texas Commission on Environmental Quality regulations and Texas Water Well Drillers Association for development, drilling, and abandonment of wells used in dewatering system.
- F. Obtain permit from TCEQ under the Texas Pollutant Discharge Elimination System (TPDES), for storm water discharge from construction sites.
- G. Obtain all necessary permits from agencies with jurisdiction over use of groundwater matters affecting well installation, water discharge, and use of existing storm drains and natural water sources. Since review and permitting process may be lengthy, take early action to obtain required approvals.
- H. Groundwater conditions are described in the Geotechnical Data Report prepared by Raba-Kistner, Inc. dated January 21, 2019.

- I. All dewatering operations shall be set up and operated within the construction limits shown, or within public rights-of-way unless written approval is received by the Contractor from the private property owner.
- J. Dewatering systems shall not interfere with areas required for vehicular and pedestrian traffic.
- K. Select equipment and materials necessary to achieve desired results for dewatering. Selected equipment and materials are subject to review by SAWS and Engineer through submittals required in Paragraph 1.06, Submittals.
- L. Use experienced contractors, regularly engaged in groundwater control system design, installation, and operation, to furnish and install and operate educators, well points, or deep wells, when needed.
- M. Maintain equipment in good repair and operating condition. Ensure pumps are properly cleaned and maintained to ensure pump performance.
- N. Keep sufficient standby equipment and materials available to ensure continuous operation, as required. Pumps need to be properly cleaned and maintained to ensure pump performance.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Dewatering systems: The design of the dewatering systems, and the selection of equipment and materials for the dewatering systems shall be the Contractor's responsibility and conform to the following:
  - 1. Where vertical shoring systems are used, wells shall be used and located outside of the shoring system.
  - 2. Equipment and materials determined by the Engineer to be unsound, inadequate, or unsuitable for the intended purpose shall be removed from the site and replaced with other approved items.
  - 3. Install observation wells and/or piezometers as required to demonstrate that dewatering system design requirements have been achieved.
- B. Pumps and dewatering wells shall be provided with totalizing flow meters to accurately determine flow rates and the quantity of water pumped. Flow meters shall be installed no closer than 4 feet from any bend in the discharge pipe.

## **PART 3 - EXECUTION**

### **3.01 SURFACE DRAINAGE**

- A. Surface drainage shall be intercepted and diverted away from the Work sites by the use of dikes, curbswalls, ditches, sumps (with pumps), or other means. Surface drainage systems shall be designed so that they do not cause erosion on or off the site. Surface runoff shall be controlled to prevent entry of water into excavations. Drainage systems shall be removed when no longer needed.
- B. Divert surface water and seepage water into sumps and pump it into drainage channels or storm drains, when approved by agencies having jurisdiction. Provide settling basins when required by agencies.
- C. Water collected from surface drainage system shall be managed in a manner that prevents releasing hazardous substances to surface or subsurface soil or groundwater, except as specifically authorized by any applicable discharge permit.

### **3.02 GROUNDWATER CONTROL IN SHAFT AND TRENCH EXCAVATIONS**

- A. Perform necessary subsurface investigation to identify water bearing layers, piezometric pressures and soil parameters for design and installation of ground water control systems. Perform pump tests, if necessary to determine draw down characteristics. Present results in the Ground Water and Surface Water Control Plan submittal. Contractor shall expedite subsurface investigations in order to include information in the Ground Water and Surface Water Control Plan.
- B. Provide labor, material, equipment, techniques and methods to lower, control and handle ground water in a manner compatible with construction methods and site conditions. Monitor effectiveness of installed systems and their effect on adjacent property.
- C. Install, operate, and maintain ground water control systems in accordance with the Ground Water and Surface Water Control Plan. Notify SAWS and Engineer in writing of changes made to accommodate field conditions and changes to Work. Provided revised drawings and calculations with notification.
- D. Provide continuous system operation, including nights, weekends, and holidays, as required. Arrange appropriate backup if electrical power is primary energy source for dewatering system.
- E. Monitor operations to verify systems lower ground water piezometric levels at rate required to maintain dry excavation resulting in stable subgrade for subsequent construction operations.

- F. Continue dewater in all required areas, until the involved Work is completed, including the placing and compaction of backfill materials in dry conditions and in accordance with the Contract Documents.
- G. Depressurize zones where hydrostatic pressures in confined water bearing layers exist below excavations to eliminate risk of uplift or other instability of excavation or installed works. Define allowable piezometric elevations in the Ground Water and Surface Water Control Plan.
- H. Provide a uniform diameter for each pipe drain run constructed for dewatering. Remove the pipe drain when it has served its purpose. If removal of the pipe is impractical, provide grout connections at 50-foot intervals, and fill the pipe with cement-bentonite grout or cement and sand grout when the pipe has served its purpose.
- I. Removal of ground water control installations.
- J. Remove pumping system components and piping when ground water control is no longer required.
- K. Remove monitoring wells when directed by SAWS.
- L. Grout abandoned well and piezometer holes. Fill piping that is not removed with cement-bentonite grout or cement-sand grout.
- M. During backfilling, maintain water level a minimum of 5 feet below prevailing level of backfill. Do not allow the water level to cause uplift pressures in excess of 80 percent of downward pressure produced by weight of structure of backfill in place. Do not allow water levels to rise into cement-stabilized sand until at least 48 hours after placement.
- N. Compact backfill to not less than 98 percent of maximum dry density in accordance with SAWS Specifications.
- O. The Contractor shall monitor and record, on a daily basis, the volume of water pumped per calendar day from shaft and trench excavations, using flow measuring devices approved by the Engineer. In addition, the Contractor shall observe and record any occurrences of water in the tunnel. The record shall be provided to the Engineer on a daily basis.

### **3.03 DEWATERING TRENCH**

- A. No pipeline shall be laid in a trench in the presence of water. All water shall be removed from the trench sufficiently ahead of the pipeline placing operation. The

Contractor shall ensure dewatering of the trench to ensure a dry, firm bed on which to place the pipeline. As a minimum, water levels shall be maintained at least 2 feet below the pipe invert. Trench shall continue to be dewatered until trench backfilling operations have been completed.

- B. Removal of water may be accomplished by pumping or pumping in connection with well point installation as the particular situation may warrant.
- C. If the soils encountered at the trench grade are suitable for the passage of water, without destroying the sides or utility foundation of the trench, sumps may be provided at intervals at the side of the main trench excavation. Pumps shall be used to lower the water level by taking their suction from said sumps.
- D. In cohesive soils where seepage is usually low, groundwater is generally managed by collection in trench bottom sumps for pumped disposal. Care should be taken to have a redundant pumping system that allows for overnight pumping. Water must not be allowed to pond in the trench bottoms.
- E. Recommend a pre-construction survey of nearby structures be performed prior to construction.

### **3.04 REQUIREMENTS FOR EDUCTOR, WELL POINTS, OR DEEP WELLS**

- A. Install sufficient piezometers or monitoring wells to show that trench or shaft excavations in water bearing materials are pre-drained prior to excavation. Provide separate piezometers for monitoring of dewatering and for monitoring of depressurization. Install piezometers and monitoring wells for tunneling as appropriate for selected method of work.
- B. Install piezometers or monitoring wells at least one week in advance of the start of associated excavation.
- C. Dewatering may be omitted for portions of under drains or other excavations, where auger borings and piezometers or monitoring wells show that soil is pre-drained by existing systems and that ground water control plan criteria are satisfied.
- D. Replace installations that produce noticeable amounts of sediments after development.
- E. Provide additional ground water control installations, or change method of control if, ground water control plan does not provide satisfactory results based on the performance criteria defined by plan and by the Contract Documents. Submit revised plan according to Paragraph 1.06 B.

### **3.05 DISPOSAL OF WATER**

- A. All water removed from the construction site(s) shall be discharged through pipes. The conveying of water in open ditches or trenches will not be allowed. Do not discharge pumped drainage water into the sanitary sewer system or inhibit pedestrian or vehicular traffic with the ground water control system.
- B. The Contractor shall secure all applicable permits for groundwater discharged to storm water system that drain directly to waterways.
- C. Appropriate extraction well design and construction, settling basins, filter fabric structures, or other means may be used to reduce the concentration of suspended solids to allowable limits, prior to discharge. Discharge from settling basins, if used by the Contractor, shall not cause siltation or flooding in any stream, storm sewer, or on adjacent properties. Settling basins, if used by the Contractor, shall be cleaned of solids as necessary to maintain their efficiency.
- D. Permission to use any storm sewers or drains for water disposal purpose shall be obtained from SAWS. All requirements and costs for such use shall be the responsibility of the Contractor. The Contractor shall not cause flooding by overloading or blocking the flow in the drainage facilities, and it shall leave the facilities unrestricted and as clean as originally found.
- E. Dewatering effluent shall be managed in a manner that prevents releasing hazardous substances to surface or subsurface soil or groundwater.
- F. Discharge of pumped surface water to the ground surface around the work sites is not permitted.

### **3.06 WELL ABANDONMENT**

- A. Upon completion of the Contract, Contractor shall abandon all existing and new observation wells and piezometers in accordance with TCEQ rules and regulations. The well and piezometer vaults and well covers shall be removed completely and disposed of and the surface restored to preconstruction conditions.
- B. Surface restoration in paved areas shall match existing material types and thicknesses as necessary to restore the surface to its original condition. In other areas, restore ground surface by backfilling with topsoil, sod, or other materials as required to match original conditions.

3.07 maintenance and observation

- A. Maintenance and observation of piezometers or observation well is the responsibility of the Contractor and shall consist of keeping them in good condition and observing and recording the elevation of the water level daily, as long as the dewatering system is in operation, and weekly thereafter until the work is completed or the piezometers or wells are removed.
- B. Submit a record of the water level to SAWS and the Engineer weekly, as well as with monthly pay applications.
- C. Replace damaged and destroyed piezometers or observation wells, unless otherwise accepted by SAWS and the Engineer, with new piezometers or wells within 48 hours, at no additional cost to SAWS.
- D. Cut off piezometers or observation wells in excavation areas, where exposed, as excavation proceeds, and continue to maintain and make observations in other wells as specified.
- E. Remove backfill or grout piezometers or observation wells inside or outside the excavation area, following backfill of trenching or tunnel grouting as approved by SAWS and the Engineer.

3.08 repair of damage

- A. Contractor to assume full responsibility for all loss and damage due to flooding, rising water, or seepage resulting from dewatering operations in any part of the work. Contractor to repair any damage to partially completed work from these or other causes, and performance of any other work necessitated by lack of adequate dewatering or drainage facilities.

**PART 4 – PAYMENT**

**4.01 MEASUREMENT FOR PAYMENT**

- A. This item is considered subsidiary to the installation of the FRP sewer main and no separate payment will be made to the Contractor for the work.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.01 SECTION INCLUDES**

Furnishing and placing of grout into the annular space between steel casing pipe installed by trenchless methods and the sanitary sewer pipe.

### **1.02 REFERENCES**

ASTM C 109	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-inch or 50-mm Cube Specimens)
ASTM C 138	Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete
ASTM C 144	Standard Specification for Masonry Mortar
ASTM C 150	Standard Specification for Portland Cement
ASTM C 403	Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance
ASTM C 495	Test Method for Compressive Strength of Lightweight Insulating Concrete
ASTM C 618	Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete
CRD C 621	Specification for Non-shrink Grout

### **1.03 SUBMITTALS**

- A. At least 30 days prior to grouting, submit information on equipment, grout mixes and procedures in accordance with the Contract Documents. Shop drawings and product data shall include but not be limited to the following:
1. Detailed descriptions of equipment and operational procedures to accomplish the annular grouting operation, including mixing and pumping schedule, grouting pressures, rates of pumping, and methods for monitoring the effectiveness of the grouting.
  2. Detailed descriptions and drawings indicating proposed locations, of surface mixing equipment, subsurface injection points, flow lines, waste grout recovery, grout pressure limiting equipment, bulkheads, and venting system. Show details of bulkhead design.
  3. Grout mix design and trial mix tests, with set time, compressive strength and density test results.
  4. Submit anticipated volumes of grout to be pumped for each application and reach grouted. Submit details of each grouting stage if multiple lifts are required to avoid flotation of the pipe or collapse of the foam structure of the grout mix.
  5. Submit buoyant force calculations for the carrier pipe during grouting and measures to prevent flotation.



6. Contractor's grouting plan shall include a description of methods and devices to prevent buckling of carrier pipe during grouting of annular space.
  7. Qualifications and experience of grout mix applicator.
- B. During pressure grouting operations, maintain and submit daily logs of grouting operations including pressure, grout volume pumped, and such other data as may be required by the Engineer.

#### **1.04 PERFORMANCE REQUIREMENTS**

- A. Design grout mix to be pumped through a 2-inch-diameter hose for a distance of 2,000 feet, with a maximum allowable pressure at point of placement of 5 psi. The cast density shall be 55 pcf plus or minus 5 pcf. Minimum penetration resistance after 24 hours shall be 100 psi in accordance with ASTM C 403. The minimum compressive strength at 28 days shall be 200 psi in accordance with ASTM C 495. Grout mix shall have less than 1 percent shrinkage by volume.
- B. Provide adequate retardation, to completely fill the annular space in accordance with the Contractor's submitted grouting procedures.
- C. The Contractor shall grout the annular space in stages if necessary to prevent damage to the carrier pipe or collapse of the foam structure of the LDCG mix.
- D. The application system shall have sufficient gauges, monitoring devices and tests to determine the efficiency and effectiveness of the grouting work and provide a means of accurately determining the amount of grout injected. Contractor shall be prepared to modify the operation should grouting not perform as proposed. Such modifications and changes shall be done in a timely manner to avoid unnecessary delay in completion of the Project.
- E. No deleterious amounts of toxic or other poisonous substances shall be included in the grout mix nor otherwise injected underground.

### **PART 2 – PRODUCTS**

#### **2.01 MANUFACTURER/APPLICATORS**

The applicator of the grout mix shall be certified by the grout mix manufacturer and approved by the Engineer. The certified applicator shall be regularly engaged in the placement of grout, including completion of pipeline grouting installations having at least 1000 cubic yards in the past 3 years.

#### **2.02 MATERIALS**

- A. Cement: Comply with ASTM C 150. Pozzolans and other cementitious materials are permitted.
- B. Fly Ash: Comply with ASTM C 618; either Type C or Type F shall be used.

- C. Sand, if provided, shall conform to ASTM C 144, except as modified below:

<u>U.S. Standard Sieve Size</u>	<u>Percent Passing by Weight</u>
No. 16	100
No. 30	60 – 85
No. 50	10 – 35
No. 100	05 – 25
No. 200	00 – 10

- D. Water: Use potable water free from deleterious amounts of alkali, acid, and organic materials which would adversely affect the setting time or strength of the sliplining grout.
- E. Admixtures: Admixtures shall be selected by the sliplining grout manufacturer to meet performance requirements, improve pumpability, control set time and reduce segregation.
- F. Low Density Cellular Grout Fill
1. To be manufactured at jobsite by mixing cement-sand slurry with a preformed foam. A foam generator will be used to produce the foam by mixing the concentrate with water and compressed air through a foam-making nozzle. The foam is then injected into the mixer and blended with the cement-sand slurry to produce the low-density cellular grout which has high flowability and pumpability to permit filling of voids. Except where otherwise specified, use one-part cement, three parts sand, and four parts foam, by volume, complying with the following:
    - a. Cement: ASTM C-150, Type I or Type II.
    - b. Sand: ASTM C-33.
    - c. Foam Concentrate: ASTM C-869.

### **PART 3 – EXECUTION**

#### **3.01 PREPARATION**

- A. Notify SAWS at least 24 hours in advance of grouting operations.
- B. Select and operate grouting equipment and carry out procedures with sufficient safety and care to avoid damage to existing underground utilities and structures.

#### **3.02 EQUIPMENT**

- A. Mixers and Pumps: System shall mix the grout to a homogeneous consistency. Deliver grout to the injection point at a steady pressure with a non-pulsating centrifugal or triplex pump at the mix tank. Provide ways to increase or decrease the water-cement ratio and accurately measure grout component quantities, pumping pressures, and volumes pumped.

B. Pressure Gauges:

1. Pressure gauges shall be equipped with diaphragm seals, have a working range between 1.5 to 2.0 times the design grout pressure and have an accuracy within 0.5 percent of full range.
2. Provide one pressure gauge at the point of injection and one pressure gauge at the grout pump.
3. Grouting shall not proceed without appropriate gauges in place and in working order.

**3.03 GROUTING**

- A. Place grout in the existing pipe where indicated in project plans. Completely fill the annular space without deflecting the pipe. Test grout equipment and procedures in accordance with approved submittals. Perform testing on the first pipeline segment to be grouted; testing must be performed under observation by SAWS. If the grout does not totally fill the pipeline, adjust the procedure or the mix, and rerun the test on the first pipeline segment.
1. Mixing of Grout: The material shall be mixed in equipment of sufficient size to provide the desired amount of grout material for each stage in a single operation.
  2. Grout temperature to be monitored and recorded at the following increments: At pour, and at 4 hours, 8 hours and 24 hours after pour.
  3. Backfill Annular Space with Grout: After the installation of the carrier pipe, the remaining space (all voids) between the casing and the carrier shall be filled with LDCG so all surfaces of the exterior carrier pipe wall and casing interior are in contact with the grout.
  4. Once grouting operations begin, grouting shall proceed uninterrupted, unless grouting procedures require multiple stages. Grout placements shall not be terminated until the estimated annular volume of grout has been injected.
  5. Place grout for a given pipeline segment between bulkheads. Place bulkheads at the ends of each pipeline segment to seal from sewer flow. Do not remove bulkheads until after grout has set.
  6. Remove or control standing or running water in annular spaces to maintain the correct water ratio of the grout mixture. Grout the annular space by injecting grout from one end of the pipeline segment, allowing it to flow toward the other end.
  7. Limit pressure on the annular space to prevent damage to the pipe; do not exceed 5 psi. Regardless of the pressure, Contractor shall be solely responsible for any damage or distortion to carrier pipe due to grouting. At the bulkhead opposite to the point of grouting, provide and monitor an open-ended high point tap or equivalent vent.
  8. Pump grout until grout within 0.3 pounds per gallon of specified grout injection density

discharges from the end opposite the injection point. This procedure is intended to ensure that the grout is not diluted by extraneous water.

9. The drilling of additional injection holes from the surface to facilitate grouting may be allowed if approved by SAWS.

### **3.04 DEWATERING SYSTEM OPERATION**

- A. Operate dewatering systems until the grouting of carrier pipe is complete.

### **3.05 TESTING**

- A. Density: During placement of grout, measure density in accordance with ASTM C 138 at least twice per hour. Adjust the mix as required to obtain the specified cast density.
- B. Sampling:
  1. Take 4 test specimens for each 500 cubic yards of grout, or for each 4 hours of placing.
  2. Test in accordance with ASTM C 495 except:
    - a. Specimens shall be 3-inch by 6-inch cylinders covered after casting to prevent damage and loss of moisture. Moist-cure specimens for at least the first 7 days; perform at least one compressive strength test of each set of samples at 28 days.
    - b. Do not over-dry specimens to be tested. Specimens may be tested at any age to monitor compressive strength. The material may require special handling and testing techniques.

## **PART 4 – MEASUREMENT AND PAYMENT**

### **4.01 MEASUREMENT FOR PAYMENT**

- A. This item is considered subsidiary to the installation of the FRP sewer main and no separate payment will be made to the Contractor for the work.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.01 SCOPE OF WORK**

- A. This section is intended to supplement SAWS Item 856 – Jacking, Boring or Tunneling Pipe. No modifications to Item 856 are proposed.
- B. This section covers work necessary to control groundwater, surface water, runoff, and nuisance water that may be encountered, as required for performance of the trenchless work.
- C. This Section covers the control and disposal of water that may enter shaft and tunnel excavations. In areas where lowering of existing groundwater is necessary for completing shaft and tunneling work, such dewatering shall be completed in accordance with SAWS Item 804 – Excavation, Trenching and Backfill, as well as provisions of this Section.

### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. SS 02400 – Tunnel Shafts
- B. SS 02314 – Tunneling with Steel Liner Plate
- C. SS 02341 – Pipe-Jacked Tunnels
- D. SAWS 804 – Excavation, Trenching, and Backfill

### **1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS**

- A. The publications listed below form a part of this Specification to the extent referenced. Where conflicts between these Specifications and the referenced specification, code or standard occur, the more restrictive specification shall govern. The publications are referenced in the text by basic designation only. Where a date is given for referenced standards, that edition shall be used. Where no date is given for referenced standards, the latest edition available on the date of issue of Contract Documents shall be used.
- B. San Antonio Water System (SAWS)
  - 1. Specifications for Water and Sanitary Sewer Construction – latest version
  - 2. Materials Specifications

### **1.04 DESIGN CRITERIA**

- A. Provide continuous control of surface water runoff and water in shafts and tunnels at all times during the course of construction, including weekends and holidays, and during periods of work stoppages.

- B. Design, furnish, install, operate, and maintain all machinery, appliances, power, and equipment necessary to remove water from tunnels and shafts during construction. Dewater, treat, and dispose of water so as not to cause injury to public or private property or to cause a nuisance or a menace to the public and in accordance with all applicable permit requirements.
- C. Have on hand at all times sufficient pumping equipment and machinery in good working condition for all ordinary emergencies, including power outages and flooding, and have available at all times competent workers for the continuous and successful operation of the water control and monitoring systems.
- D. The Contractor shall obtain all permits and other documentation necessary to properly treat (where required), discharge or dispose of collected water.
- E. Remove all dewatering equipment when construction is completed.

#### **1.05 SUBMITTALS**

- A. Submittals shall be made in accordance with SAWS's requirements. Review and acceptance of the Contractor's submittals by the Consultant shall not be construed in any way as relieving the Contractor of its responsibilities under this Contract.
- B. Control of Ground and Surface Water Plan: Submit methods and equipment proposed to be utilized to prevent excessive groundwater from entering shafts and tunnels, and to remove and dispose of the water that does enter.
- C. Submit drawings indicating location and configuration of water control facilities including, but not limited to, water control barriers, monitor wells, sumps, discharge lines, storage tanks or basins, and discharge points or disposal methods.
- D. Submit detailed description of water control schedule, operation, maintenance, and abandonment procedures.
- E. Submit drawings and details of any required treatment facilities to be used in treating water that collects within the shafts.
- F. Submit a copy of all applicable permits required for discharge of collected water or documentation of proper offsite disposal plans. Confirm that disposal plan is in compliance with all permit requirements.

#### **PART 2 – EXECUTION**

##### **2.01 GENERAL**

- A. Modify water control system after installation and while in operation if it causes or threatens to cause damage to adjacent property or to existing buildings, structures, or utilities.

- B. Take reasonable precautions necessary to ensure successful operation of water control systems.
- C. Dispose of water under terms, requirements, and restrictions of applicable permits.

## **2.02 SURFACE DRAINAGE**

- A. Intercept and divert surface drainage away from the work by use of dikes, curb walls, ditches, sumps, or other means, in accordance with the approved plan.
- B. Design surface drainage system so as not to cause erosion on or off the site and to prevent impacts to the water quality of existing surface water. Surface runoff shall be controlled to prevent entry of water into excavations and shafts, water bodies, sanitary, or storm sewers, unless written permission is provided by the facility Owner allowing discharge.

## **2.03 WATER CONTROL IN UNDERGROUND WORKS**

- A. Use water control methods that are appropriate to the ground conditions, described in the Geotechnical Data Report, the planned construction operations, and requirements of these Contract Documents.
- B. If a large amount of subsurface water drains into an excavation, take immediate steps to control water inflow. Large amounts of inflow requiring immediate control shall be defined as that which adversely affects the work and/or threatens damage to adjacent structures or facilities.
- C. Design and operate water control system to prevent removal of in situ soils or loosening or softening of in situ soils surrounding the excavation.
- D. Water shall be removed during periods when concrete is being placed, during tunneling operations, when pipe is being installed, during shaft excavation, and at such other times as is necessary for efficient and safe execution of the work.
- E. If a concrete tremie plug or work slab for shaft construction is required, the plug shall not be subjected to unbalanced hydrostatic pressures until it has obtained compressive strength sufficient to resist uplift pressure.

## **2.04 TREATMENT AND DISPOSAL OF WATER**

- A. Obtain necessary permits from the authority having jurisdiction to use any sanitary sewers, storm sewers, drains, or waterways for water disposal purposes.
- B. Discharge water removed from the site through pipes, tanks, or by truck and as required by the Contractor's discharge permit. Water shall be discharged in a manner that will not cause soil erosion at discharge point.
- C. Treat water collected in shafts as required by regulatory agencies prior to discharge.

**2.05 SYSTEM REMOVAL**

- A. Facilities shall be removed and wells abandoned at the completion of the work in conformance with regulatory requirements and Contractor's permit.

**PART 3 – PAYMENT**

**3.01 MEASUREMENT FOR PAYMENT**

- A. This item is considered subsidiary to the work and no separate payment will be made to the Contractor for the work.

**END OF SECTION**



## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This Section includes the minimum requirements for the installation of temporary tunnel support using a tunneling shield and steel liner plate, for the subsequent installation of gravity sewer pipe at the locations shown on the Contract Documents. Carrier pipe shall be provided in accordance with the applicable Specification Section and installed in accordance with Section SS 02426 – Carrier Pipe in Tunnels. The Contractor shall furnish all labor, equipment, power, and materials necessary for tunneling, spoil removal and disposal, tunnel support installation, contact grouting behind tunnel supports, and other associated Work.
- B. A tunneling shield is required at all locations where liner plate tunnel is allowed, unless specifically noted otherwise on the Contract Documents.
- C. Certain locations require lowering of existing groundwater to below the tunnel invert elevation prior to tunneling work. Perform all dewatering work in accordance with SAWS and Section SPST 804 – Excavation, Trenching, and Backfill, Section SS 02140 – Control of Ground and Surface Water, and Section SS 02242 – Water Control for Shaft Tunnel Construction.

### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. SAWS and Section SPTS 804 – Excavation, Trenching, and Backfill
- B. Section SS 02218 – Low Density Cellular Grout Fill
- C. Section SS 02140 – Control of Ground and Surface Water
- D. Section SS 02242 - Water Control for Shaft Tunnel Construction
- E. Section SS 02400 – Tunnel Shafts
- F. Section SS 02315 – Portal Stabilization
- G. Section SS 02441 – Pipe-Jacked Tunnels
- H. Section SS 02426 – Carrier Pipe in Tunnels
- I. Section SS 02445 - Settlement Instrumentation and Monitoring
- J. Section SS 03360 - Contact Grouting

### **1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS**

- A. The publications listed below form a part of this Specification to the extent referenced. Where conflicts between these Specifications and the referenced specification, code, or standard occur, the more restrictive specification shall govern. The publications are referenced in the text by basic designation only. Where a date is given for referenced standards, that edition shall be used. Where no date is given for referenced standards, the latest edition available on the date of issue of Contract Documents shall be used.
1. San Antonio Water System (SAWS)
    - a. Specifications for Water and Sanitary Sewer Construction – latest version
  2. Commercial Standards:
    - a. AASHTO HB-17 “Standard Specifications for Highway Bridges”, Section 15
    - b. ASTM A-36: “Structural Steel”
    - c. ASTM A-123: “Zinc (Hot Dipped Galvanized) Coatings on Iron and Steel Products”
    - d. ASTM A-153: “Zinc Coating (Hot Dip) on Iron and Steel Hardware”
    - e. ASTM A-307: “Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength”
    - f. ASTM A-449: “Standard Specification for Hex Cap Screws, Bolts, and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use”
    - g. ASTM A-1011: “Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength”
  3. Safety Codes:
    - a. Occupational Safety and Health Administration (OSHA) Regulations, 29 CFR Part 1926 Subpart P – Excavations, and Subpart S – Underground Construction
  4. Geotechnical Reports:
    - a. “Geotechnical Data Report: SAWS W-1 Leon Creek: Highway 151 to Hwy 90 Lower Segment – San Antonio, Texas”, Raba-Kistner, Inc., January 21, 2019.

### **1.04 DEFINITIONS**

- A. Carrier Pipe: Permanent pipe for operational use that is used to convey flows. Carrier pipes may be installed inside a casing pipe or liner plate tunnel.

- B. Grout Port: A port located within the primary tunnel liner segments for injection of contact grout into the annular space between the excavated ground and the primary tunnel liner. Grout ports with the liner are threaded to accept grout fittings and plugs, to be inserted once grouting is complete.
- C. Open-Shield Tunneling: Open-shield tunneling is a technique for installing a primary tunnel liner between a launch shaft, and a receiving shaft, where face of heading or tunnel is unsupported during excavation. Soil/rock excavation is carried out within a tunneling shield or TBM at the front of the tunnel excavation, using hand mining or mechanical methods such as a rotary TBM, roadheader, or digger-boom. The excavation method should be chosen to be compatible with the anticipated ground conditions. The shield is steerable using hydraulic or mechanical jacks to orient an articulated section, and guidance is provided using a laser or theodolite system. The shield has a tail section that allows for the safe erection of the primary tunnel liner, and a propulsion system that advances the shield by pushing against the previously installed tunnel liner section.
- D. Primary Tunnel Liner: Elements designed, fabricated, furnished, installed, monitored, and maintained in the tunnel by the Contractor for initial ground support to provide excavation stability and safety during construction. The primary liner provides temporary ground support to allow for the installation of the final gravity sewer pipe and annular space grout which serve as the final lining system.
- E. Tunnel Boring Machine (TBM): Mechanized and fully shield excavation equipment that is articulated and steerable, guided, and with man entry.
- F. Tunneling Work Plan: A written description, together with supporting documentation, that defines the Contractor's plans and procedures for the tunneling operations.
- G. Tunneling Shield: Fabricated ground support, circular in section, providing a 360-degree protection to those working within it. The tunneling shield has a cutting edge, and is equipped with independently operated hydraulic propulsion rams, allowing it to be steered. The shield typically has a hood protrusion at the crown (except in the case of a rotary TBM), and face breasting equipment. Liner plate is erected within a tail attached to the back of the shield. The shield is propelled forward by pushing against the previously installed primary tunnel liner.

## **1.05 DESIGN CRITERIA**

- A. Tunnel Liner Plate:
  - 1. The liner plate tunnel support system shall be designed by a Professional Engineer engaged by the Contractor, who is licensed in the State of Texas.
  - 2. Design Tunnel Liner Plate in accordance with the methods and criteria as specified in AASHTO HB-17.
  - 3. Design of the liner plate shall account for all installation and service loads including: external groundwater and earth loads; applicable live loads (H-20, E-80, etc.); practical

consideration for shipping, handling, installation, contact grouting, and other construction operations; loads imposed by the tunnel shield or TBM thrust jacks; any other live or dead loads reasonably anticipated.

4. Soil parameters used for liner plate design shall be consistent with the ground conditions described in the Geotechnical Data Report, and the conditions anticipated by the Contractor.
5. Thickness of liner plates shall be sufficient to support the dead and live loads above and around the tunnel with allowable deflections not to exceed three (3%) percent of the nominal OD at any point measured diametrically.
6. The minimum thickness gauge, joint strength, and wall buckling strength shall meet or exceed the values tabulated in Section 2, which are calculated by the design methods of AASHTO HB- 17. The Contractor may provide either 2-flange continuous corrugation plates, or 4-flange partial corrugation plates.
7. The design and shape of liner plates shall be such that erection and assembly can be accomplished entirely from inside the tunnel shield.
8. A sufficient number of liner plate segments shall be provided with grout ports for contact grouting between the liner and the surrounding ground. Grout ports shall be a minimum of 2 inches in diameter. Ports and fittings shall be located generally in the center of plate sections and attached to the liner plate in a manner that will not materially affect the strength of the system nor interfere with installation of carrier pipe. Threaded plugs for sealing the fittings shall be provided by the Contractor and shall be capable of withstanding all external and internal pressures and loads without leaking.
9. Liner plates with grout ports shall be installed such that there will be one line of ports on each side of the tunnel below spring-line, and one line at the crown; the elevation of the lower line of ports on each side shall be not more than 18 inches above the tunnel invert. The ports in each line shall not be more than 9 feet apart and, unless otherwise approved, shall be staggered evenly.
10. Liner plate shall be provided with clear inside diameter sufficient to allow efficient installation of the carrier pipe, including required supports and clearances as Specified in 02426 – Carrier Pipe in Tunnels, and as necessary for the Contractor’s planned means and methods. Determination of the primary tunnel liner size and section shall be the sole responsibility of the Contractor, to match methods and equipment described in the submitted Tunneling Work Plan.
11. For gravity sewer carrier pipe installations where the annular space will be completely filled with grout, galvanized or coated liner plates and galvanized hardware are not required.

**B. Tunnel Shield:**

1. The Contractor shall conduct all tunnel excavation work from within a shield that provides adequate protection for workers.
  - a. In certain locations specifically called out on the Contract Documents the shield requirement may be waived if stable ground conditions are anticipated. See the Contract Documents for locations where a tunnel shield is not required.
2. The Contractor shall be responsible for selection of tunneling equipment which, based on the past experience, has proven to be satisfactory for excavation and support of the ground conditions described in the Geotechnical Data Report, and the conditions anticipated by the Contractor. The tunneling equipment shall be capable of handling the various ground conditions anticipated and shall minimize loss of ground ahead of the face.
3. The shield shall be designed to support all ground loads which may be imposed upon it, as well any loads imposed by the thrust jacks, steering mechanisms, or other appurtenances.
4. The tunneling shield or TBM shall conform to the shape of the tunnel with a uniform perimeter that is free of projections that could produce over-excavation or voids.
5. The tunneling shield shall be capable of full-face closure or shall permit ready installation of breasting boards, sand shelves, or closeable flood doors, and shall be designed to handle adverse ground conditions including groundwater ingress. The upper half of the tunnel heading shall be supported whenever ground conditions indicate potential raveling of the crown. The tunnel heading shall be completely closed off whenever tunneling work is not being performed.
6. If a rotary-type TBM is used, the cutterhead shall have a reversible drive system so that it can rotate in either direction or have other suitable provisions to minimize rotation or roll of the shield during operation.
7. The tunneling shield shall include the capability to efficiently excavate and operate in competent full-face rock conditions, as may be encountered along the tunnel reaches. In certain locations a rotary TBM is not considered appropriate due to anticipate mixed-face conditions of soft ground overlying bedrock and is therefore not allowed for certain reaches.
8. The tunneling shield shall maintain the face of the excavation to allow the minimum of void space outside the liner plate.
  - a. Maintain a maximum of 1/2" radial overcut between the outside of the shield O.D. and the excavation.

- b. In no case shall the excavated tunnel diameter be greater than 4" larger than the tunnel liner O.D., or greater than that recommended by the liner plate manufacturer.
  9. The shield shall be capable of full directional guidance, shall be equipped with visual display to show the operator actual position of the shield relative to the design line and grade reference, and shall be capable of correcting roll. The Contractor shall control the drift of any heading to maintain design line and grade.
  10. The guidance system used for tunneling work shall be designed to function at the maximum required drive length without loss of accuracy or reliability of function.
  11. The tunneling shield shall have a tail section long enough to enable installation of liner plate rings within the shield, while still providing at least 12 inches of overlap beyond the last installed support elements when the thrusting jacks are at maximum extension.
  12. The tunneling shield shall have a propulsion system capable of steering and moving the shield forward while maintaining the construction tolerances with respect to line and grade. The propulsion system shall include a thrust ring or other provision for distributing the jacking forces uniformly around the tunnel perimeter to avoid damaging or distorting the tunnel liner. The propulsion system shall be designed so that in the event of failure of any element of the system there will be no backward movement and no overstressing or distortion of the tunnel liner.
  13. The spoil conveyance system shall be designed for the full range of ground conditions as described in the Geotechnical Data Report, and as anticipated by the Contractor.
- C. Methods and equipment used shall control surface settlement and heave above the tunnel to prevent damage to existing utilities, facilities, and improvements. Any ground movements (settlement/heave) shall be limited to values that shall not cause damage to adjacent utilities and facilities. In no case shall settlements exceed the applicable values listed in Section 02445, Settlement Monitoring. The Contractor shall repair any damage caused by ground movements at no cost to SAWS.
- D. All space between the tunnel liner and the surrounding ground shall be filled with grout forced under low pressure. Grouting shall closely follow the liner plate installation, since it is extremely important that firm contact exist between the liner plates and surrounding ground. At a minimum, contact grouting shall take place once per working shift to backfill the annular space between all liner sections outside of the tunnel shield. If necessary, grout stops shall be placed at the end of the lining to permit grouting to or near the forward end of the erected liner plate tunnel.
- E. A secondary liner shall be required with this system. The secondary liner will be the FRP gravity sewer carrier pipe combined with low density cellular grout in the annular space.
- F. The tunnel excavations shall begin at the approximate locations shown on the Drawings, or as approved in writing by the designed SAWS' Representative.

- G. Shaft excavations for liner plate tunneling operations shall only be located in the approximate areas shown on the Drawings. Additional shaft excavations, or alternate shaft locations shall only be allowed with the written approval of SAWS' Representative.

#### **1.06 QUALITY ASSURANCE**

- A. Failure to meet the qualification requirements is failure to fulfill the Contract and the Contractor will be required to obtain a subcontractor that meets the qualification requirements.
- B. All tunneling work shall be performed by an experienced Contractor who has at least five (5) years of experience in performing tunneling work using liner plate support and has completed at least five (5) projects of similar diameter in similar ground conditions.
  - 1. At least one individual tunneled length shall have been equal to or greater in length than the longest tunnel on this Project.
  - 2. At least one tunnel shall have been completed in full-face rock conditions.
  - 3. At least one tunnel shall have been completed in mixed-face conditions of soil overlying bedrock.
  - 4. At least two tunnels shall have been completed using a shield to support the ground at the tunnel face.
  - 5. The Contractor shall submit details of referenced projects including SAWS's name and contact information, and project superintendent.
- C. The project superintendent shall have at least five (5) years of experience supervising tunneling construction using liner plate support. The Contractor shall submit details of referenced projects including SAWS' name and contact information, and project superintendent.
- D. All contractor personnel who will work within the shaft excavations or within the tunnel shall have completed training in excavation safety and confined space work.
- E. The site safety representative and personnel responsible for air quality monitoring shall be experienced in tunnel construction and shall have current certification by OSHA.
- F. The surveyor responsible for line-and-grade control shall be a Licensed Surveyor registered in the State of Texas who has prior experience on tunnel projects.
- G. The Contractor shall provide written notice to SAWS at least 72 hours in advance of the planned launch of tunneling operations. All Work by the Contractor shall be done in the presence of SAWS unless SAWS grants prior written approval to perform such Work in SAWS's absence.

- H. The Contractor shall allow access to SAWS' Representative and shall furnish necessary assistance and cooperation to aid SAWS' Representative in observations, measurements, data, and sample collection, including, but not limited to the following:
1. SAWS' Representative shall have full access to the tunnel and shield prior to, during, and following all tunneling operations. This shall include, but not be limited to, visual inspection of installed pipes and verification of line and grade.
  2. SAWS' Representative shall have full access to the tunneling shafts prior to, during, and following all tunneling operations. The Contractor shall provide safe access in accordance with all safety regulations.
  3. SAWS' Representative shall have full access to spoils removed from the tunnel excavation prior to, during, and following all tunneling operations. SAWS shall be allowed to collect soil samples from the muck buckets or spoil piles a minimum of once every ten (10) feet, whichever is more often, and at any time when changes in soil conditions or obstructions are apparent or suspected.

#### **1.07 SUBMITTALS**

- A. Submittals shall be made in accordance with SAWS' requirements. Review and acceptance of the Contractor's submittals by SAWS' Representative shall not be construed in any way as relieving the Contractor of its responsibilities under this Contract.
- B. Qualifications: Submit the name of the contractor or subcontractor that will perform the tunneling Work and written documentation summarizing the qualifications of the firm, description of reference projects including SAWS' name and contact information, project superintendent, and site safety representative. Submit personnel qualifications in accordance with Paragraphs 1.06 B through F. Provide qualifications and training records for site safety representative, personnel responsible for air quality monitoring, and licensed surveyor.
- C. Work Area Layout Drawings: The Contractor shall submit shaft work area layout drawings detailing dimensions and locations of all equipment, including overall work area boundaries, crane, front-end loader, forklift, spoil stockpiles, spoil hauling equipment, pumps, generator, pipe storage area, tool trailer or containers, fences, and staging area. Shaft layout drawings will be required for all shaft locations and shall be to scale, or show correct dimensions. The Contractor's layout drawings shall show that all equipment and operations shall be completely contained within the allowable construction zones shown on the Drawings.
- D. Tunneling Work Plan:
1. Submit a detailed description of the methods and equipment to be used in completing each tunneled reach.
  2. Manufacturer and type of tunneling shield and other equipment to be used: description and details of the shield excavation system, machine controls, steering procedures,



excavation tools, cutter types and arrangement, face breasting or flood door provisions, mucking system, thrust jacks, and liner erection equipment.

3. Submit a description of the alignment control system:
    - a. Provide manufacturer's literature and drawings, showing setup and support provisions, and other details for the laser, and/or theodolite system. Confirm that these systems can achieve the required line and grade within the specified tolerances.
    - b. Submit a description of surveying methods to set guidance system positions and a description of procedures to check and reset or realign guidance system during construction.
    - c. Submit results of line and grade survey to ensure that the floor slab, and launch and retrieval portals are installed properly, prior to launch.
  4. Detailed description of equipment and procedures for excavation, spoil removal, containment, transport, and off-site disposal. Provide written documentation from the disposal site(s) indicating that they will accept the spoil and are in compliance with applicable regulations.
  5. Ventilation and air quality monitoring system, including monitors and alarm activation.
- E. Calculations: Calculations shall be submitted in a neat, legible format. Basis of calculations shall be consistent with the ground conditions described in the Geotechnical Report, and the conditions anticipated by the Contractor. All calculations shall be prepared by or under the direct supervision of a Professional Engineer licensed in the State of Texas, who shall stamp and sign the calculations.
1. Submit design drawings and calculations for the design of the tunnel liner plate confirming that liner plate capacity is adequate to safely support all anticipated loads, including earth and groundwater pressures, any applicable traffic loads or other live loads, surcharge loads, grouting pressures, and handling loads. Submitted drawings shall be adequate for construction and include installation details.
- F. Tunnel Liner Plate Product Data: Submit shop drawings and other product data for tunnel liner plate sections and fasteners. Include information on any coatings, if required.
- G. Liner Plate Contact Grouting Plan:
1. A description of liner plate contact grouting methods and equipment that includes sketches as appropriate, indicating type and location of mixing equipment, pumps, injection ports, pressure measurement and maximum allowable pressure, blocking or otherwise securing liner to avoid excessive displacement, volume measurement, grouting sequence, schedule, and stage volumes. Include planned grout port locations and spacing.

2. A grout mix design including: grout mix constituents and proportions, including materials by weight and volume; grout densities and viscosities, including wet density at point of placement and initial set time of the grout; and compressive strength.
- H. Schedule: Provide a schedule for all tunneling work, identifying all major construction activities as independent items. The schedule shall include, at a minimum, the following activities: mobilization, shaft excavation and support, working slab construction, tunneling, liner plate installation and contact grouting, installation of carrier pipe, shaft backfill, site restoration, cleanup, and demobilization. The schedule shall also include the work hours and workdays for each activity, and a written description of the construction activities. The schedule will be reviewed by SAWS' Representative and shall be updated and resubmitted by the Contractor every two (2) weeks or more frequently if requested by SAWS' Representative.
- I. Daily Records: The following daily records shall be submitted to the onsite SAWS' Representative for review, by noon on the day following the shift for which the data or records were taken:
1. Tunneling Records: The Contractor shall provide complete written tunneling records to SAWS' Representative. These records shall include, at a minimum: date, time, name of superintendent, tunnel drive identification, installed liner plate ring number and corresponding tunnel length, time required to excavate each segment, time required to set subsequent liner plate ring, spoil volumes (for example: muck carts per pipe segment and estimated volume per cart), soil conditions (including occurrences of unstable soils/rock and any corresponding ground loss) and groundwater inflow rates (if any), line and grade offsets, any movement of the guidance system, problems encountered with tunnel components or equipment, any observed deformations of the primary liner, and durations and reasons for delays.
  2. Grouting Records: Maintain daily logs of grouting operations and submit records of grouting to SAWS' Representative. The records shall include the following information: time and date, name of the grouting supervisor, tunnel station, liner ring number and port number, grout mix, grout volume pumped and pumping pressures, observations of any liner deformations, interruptions, leakages, or other grouting issues.
  3. Manually recorded observations shall be made at intervals of not less than one time per liner plate ring, as conditions change, and as directed by SAWS' Representative.
  4. At least seven (7) days prior to the launch of the shield, the Contractor shall submit samples of the jacking logs or records to be used.
- J. Contingency Plans: The following list includes possible problem scenarios that may be encountered during the tunneling operations (the list is not all-inclusive of issues that could arise during construction). The Contractor shall submit contingency plans for dealing with each scenario while satisfying the Specifications. These plans shall include the observations and measurements required to clearly identify the cause of the problems.

1. Hydrocarbon smell is detected in the shield or in the shaft.
2. Settlement and Subsidence:
  - a. Survey measurements indicate deformations exceed allowable limits.
  - b. Excavated volumes significantly exceed pipe volume installed.
  - c. Voids are encountered or created by over excavation that may not be detectable by survey measurements.
3. Severe storms or flooding predicted; shaft flooding possible.
4. Groundwater inflows into the tunnel which may carry soil into the tunnel and lead to voids outside the tunnel liner, or that may pose a hazard to workers.

**K. Tunnel Shield Maintenance Plan:**

1. The Maintenance Plan shall include, but not be limited to: tunneling shield/TBM, ground support installation equipment, muck handling equipment, lighting and ventilation equipment, safety equipment, and all other items determined to be essential for safe, efficient tunneling.
2. The Plan shall also include procedures for in-place replacement of tunneling shield/TBM components (e.g. cutting tools) when the tunnel excavation efficiency is reduced to the extent that completion of the work on schedule is jeopardized.
3. Include details and drawings to describe means and methods for gaining access to the cutterhead/cutting tools if required, including:
  - a. Step-by-step description of planned cutterhead/cutting tool inspection and/or repair,
  - b. Contingency plans and alternative methods.
4. The Maintenance Plan shall be sufficiently detailed to identify all maintenance activities and shall include as a minimum a schedule of required daily, weekly, and monthly procedures.
5. Include a list of replacement parts and maintenance materials that will be stored on site during the Contract Work.

**L. Safety Plan: A Safety Plan for the tunneling operations including:**

1. Air monitoring equipment and procedures
2. Provisions for lighting, ventilation, and electrical system safeguards

3. Protection against soil instability and groundwater inflow
  4. Safety for tunnel and shaft access and exit including ladders, stairs, walkways, and hoists
  5. Protections against mechanical and hydraulic equipment operations, and for lifting and hoisting equipment and material
  6. Monitoring for hazardous gases
  7. Means for emergency evacuation and self-rescue
  8. Protection of shaft including traffic barriers, accidental, or unauthorized entry, and falling objects
  9. Provide name of site safety representative responsible for implementing safety program.
- M. Geotechnical Investigation: When Geotechnical Investigations are conducted by Contractor, submit results to SAWS for Record purposes.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Manufacturers:
1. Contech Construction Products, Inc.
  2. DSI Tunneling, LLC.
  3. Or pre-approved equal.
- B. Tunnel Liner Plate:
1. Corrugated metal tunnel liner plates shall be made from steel sheets conforming to the requirements of ASTM A-1011.
  2. If galvanized steel is called for on the Drawings, material to be galvanized shall be zinc coated in accordance with ASTM A-123, except that the zinc shall be applied at a rate of 2.0 oz. per square foot on each side. Bolts and nuts shall be galvanized to conform to ASTM A153. Galvanizing shall not be required for tunnels where the carrier pipe will be fully grouted into place immediately after placement.
  3. Steel liner plates may be either 2-flange or 4-flange type, 16 inches to 24 inches in width.

4. Tunnel Liner Plates and fasteners shall comply with the requirements of AASHTO HB-17.
- a. The minimum thickness gauge of liner plates shall meet or exceed the values tabulated below, which are calculated by the design methods of AASHTO HB-17.

TABLE 1: 2 FLANGE LINER PLATE, H-20 LIVE LOAD					
Nominal Diameter		Thickness		Height of Fill	
feet, inches	meters, m	Gauge	mm	feet	meters, m
7' & less	2.1 m & less	12	2.7	All fill heights	
7' 2" to 9'	2.15 m to 2.7 m	10	3.4	All fill heights	
9' 2" to 11'	2.75 m to 3.3 m	8	4.2	All fill heights	

Note: For diameters larger than 11 feet (3.3 meters) or for any diameter with unstable soil conditions, consult the manufacturer.

TABLE 2: 2 FLANGE LINER PLATE, H-20 LIVE LOAD					
Nominal Diameter		Thickness		Height of Fill	
feet, inches	meters, m	Gauge	mm	feet	meters, m
7' & less	2.1 m & less	10	3.4	All fill heights	
7' 2" to 9'	2.15 m to 2.7 m	8	4.2	All fill heights	
9' 2" to 11'	2.75 m to 3.3 m	7	4.6	to 28'	to 8.4 m
9' 2" to 11'	2.75 m to 3.3 m	5	5.3	over 28'	over 8.4 m

Note: For diameters larger than 11 feet (3.3 meters) or for any diameter with unstable soil conditions, consult the manufacturer.

- b. Liner plates shall be punched for bolting on both longitudinal and circumferential seams and fabricated to permit complete erection from the inside of the tunnel.
- c. Where shown on the Drawings, gasketed liner plates shall be used.
- d. Field welding of Tunnel Liner Plate, including grout couplings shall not be allowed.
- e. The material used for the construction of these plates shall be new, unused and suitable for the purpose intended.
- f. Bolts used with lapped-seam (2-flange) liner plates shall be not less than 5/8" diameter. Bolts shall conform to ASTM A-449 for plate thickness equal to or greater than 0.209", and to ASTM A-307 for plate thickness less than 0.209". The nuts shall conform to ASTM A-307.
- g. Bolts used with 4-flange liner plates shall be not less than 1/2" diameter for plate thickness up to and including 0.179", and not less than 5/8" diameter for plates of greater thickness. The bolts and nuts shall be quick-acting coarse thread and shall conform to ASTM A-307, Grade A.

- h. The following defects are specified as constituting poor workmanship and the presence of any of them in any individual liner plate, or in general in any shipment, shall constitute sufficient cause for rejection:
  - i. Uneven laps,
  - ii. Elliptical shaping,
  - iii. Variation from a straight centerline,
  - iv. Ragged edges,
  - v. Loose, unevenly lined or spaced bolt holes,
  - vi. Illegible brands,
  - vii. Dents or bends in the metal itself,
  - viii. Evidence of prior use.

C. Contact Grout for Initial Tunnel Support:

- 1. Grout used for backfill of the annular space between the tunnel liner plates and the surrounding ground shall be mixed in the volumetric proportions of 1-part Portland cement, 1-part bentonite, and not to exceed 5 parts of sand. Enough water shall be used to produce, when well mixed, a grout having the consistency of thick cream.
- 2. Contact grout shall have a minimum unconfined compressive strength of 10 psi in 24 hours, and 50 psi in 28 days.

**PART 3 - EXECUTION**

**3.01 GENERAL REQUIREMENTS**

A. Tunneling shall not begin until the following tasks have been completed:

- 1. All required submittals have been provided, reviewed, and accepted.
- 2. The Contractor shall notify the One Call system to request marking of utilities by utility SAWS/operators that subscribe to One Call and shall individually notify all other known or suspected utilities to request marking of these utilities. The Contractor shall confirm that all requested locates are made prior to commencing tunneling operations. The Contractor shall visually confirm and stake all existing lines, cables, or other underground facilities including exposing all crossing utilities and utilities within ten (10) feet laterally of the designed tunnel. The Contractor shall also contact the San Antonio Water System prior to excavation regarding existing sewer and water utility locations.

3. Shaft excavations and support systems for each drive have been completed in accordance with submittals and the requirements of this Section and Section 02400 – Tunnel Shafts.
  4. The Contractor has confirmed that the ground will remain stable without movement of soil or water while the entry/exit location shoring is removed and while the tunnel is being launched or received into a shaft, in accordance with Section 02315 – Portal Stabilization.
  5. Existing groundwater has been lowered to an elevation beneath the proposed tunnel invert in locations called on out on the Drawings.
  6. Site safety representative has prepared a code of safe practices and an emergency plan in accordance with OSHA and other applicable requirements. Provide SAWS' Representative and SAWS with a copy of each prior to tunneling. Hold safety meetings and provide safety instruction for new employees as required by OSHA. Conduct a pre-construction safety conference in accordance with OSHA requirements.
  7. All specified settlement instrumentation has been installed, approved, and baselined in accordance with Section 02445 – Settlement Monitoring.
  8. The Contractor has provided written notice of the inception of tunneling operations a minimum of 72 hours prior to start.
  9. A start-up inspection of all mechanical and hydraulic systems associated with the tunneling operations has been completed. SAWS' Representative shall be notified at least 72 hours prior to the start-up inspection and SAWS representative shall be present during the inspection. The records of the start-up inspection shall be submitted to SAWS' Representative within 24 hours of the completed inspection.
- B. The Contractor shall provide the necessary groundwater control measures to perform the work and to provide safe working conditions. Dewatering operations conducted outside of the shaft excavations or along tunnel alignments shall be conducted in accordance with the dewatering requirements described in SAWS Section SS 804 – Excavation, Trenching, and Backfill, Section SS 02140 – Control of Ground and Surface Water, and Section SS 02242 – Water Control for Shafts and Tunnels.
- C. The Contractor shall properly manage and dispose of groundwater inflows to the shafts in accordance with requirements of Section SS 02140 – Control of Ground and Surface Water and Section SS 02242 - Water Control for Shafts and Tunnels, and all permit conditions. The Contractor shall not discharge groundwater inflow into storm sewers, sanitary sewers, water bodies, or streets without proper approval and permits.
- D. The Contractor shall furnish all labor, equipment, power, and materials necessary for tunneling, spoil removal and disposal, tunnel support installation, contact grouting behind tunnel supports, and other associated work required for the Contractor's methods of construction.

- E. Conduct all operations such that trucks and other vehicles do not interfere with traffic or create a mud, dust, or noise nuisance in the streets and to adjacent properties. Promptly clean up, remove, and dispose of mud or spoil spillage.
- F. All Work shall be done so as not to disturb roadways, railroads, creek channels, adjacent structures, landscaped areas, or existing utilities. Any damage shall be immediately repaired to original or better condition and to the satisfaction of SAWS' Representative, at no additional cost to SAWS.
- G. Whenever there is a condition that is likely to endanger the stability of the tunnel or adjacent facilities or structures, the Contractor shall operate with a full crew 24 hours a day, including weekends and holidays, without interruption, until those conditions no longer jeopardize the stability of the Work.

### **3.02 TUNNEL LINER PLATE**

- A. Install the tunnel liner plates to the limits indicated and as specified in AASHTO HB-17, Division II, Section 25.
- B. When the liner plates are being installed, care shall be taken to maintain alignment, grade, and the circular shape of the tunnel. Plates in consecutive rings shall be installed so that the longitudinal joints in adjacent rings are staggered and not alignment more often than every second ring.
- C. The clear inside diameter of the tunnel liner shall meet the requirements noted on the Drawings or as stated elsewhere in these Specifications.
- D. Tunnel liner plate shall not be allowed to deflect vertically during installation. If deflections are detected that indicate, in the opinion of SAWS' Representative, a potential safety or stability hazard, take appropriate measures to correct the problem and prevent further deformation.
- E. Liner plate installation shall proceed as closely as possible behind the excavation. Excavation shall at no time proceed ahead of the required space to install an individual tunnel liner plate.
- F. If inflow of soil through the tunnel liner is detected, take immediate action to correct the problem and prevent further inflow.
- G. Maintain an adequate supply of tunnel liner plates at the work site at all times.

### **3.03 TUNNELING**

- A. During tunnel excavation, support the ground continuously in a manner to prevent loss of ground and keep the perimeter and face of the tunnel stable. Advance the tunneling shield only far enough to permit construction of one ring of liner plate, entirely within the tail of the shield.



- B. Accurately maintain the face of the excavation so as to allow the absolute minimum of void space outside the liner plate. Maintain a maximum of 1/2" tolerance between the outside of the tunneling shield and the excavation wherever possible. In no case shall the excavated tunnel diameter be greater than 4" larger than the tunnel liner O.D., or greater than that recommended by the liner plate manufacturer.
- C. Keep the excavation face breasted or otherwise supported and prevent ground losses, excessive raveling, or erosion. Maintain standby face supports for immediate use when needed.
- D. During shutdown periods, support the face of the excavation by positive means; no support shall rely solely on hydraulic pressure.
- E. The tunnel excavation shall be controlled to restrict the excavation of the materials to a volume equal to the liner plate installed, plus the allowable annular space, to prevent loss of ground and settlement or possible damage to overlying structures.
- F. The Contractor shall monitor excavated spoil volume. If excavated spoil volume exceeds the theoretical volume of the tunnel liner being installed (including reasonable allowance for soil bulking), the Contractor shall notify SAWS' Representative and promptly modify excavation and face support procedures to prevent further over-excavation.
- G. Completely contain, transport, and dispose of all excavated materials away from the construction site. Use only the disposal sites identified in approved submittals for spoil disposal.
- H. Tunneling operations shall control surface settlement and heave above the pipeline to prevent damage to existing utilities, facilities, and improvements. In no case shall ground instrumentation and movements (settlement/heave) exceed the values specified in Section 02445 - Settlement Monitoring, and shall not cause damage to adjacent structures, roadways, or utilities. The Contractor shall repair any damage resulting from construction activities, at no additional cost to SAWS and without extension of schedule for completion.
- I. The completed tunnel lining shall have full bearing against the ground. The annular space between the liner plates and the excavated ground shall be filled with grout as specified herein. The Contractor shall pressure grout any additional voids caused by or encountered during the shaft construction or tunneling as specified in Section 03360, Contact Grouting.

#### **3.04 INSTALLATION OF CONTACT GROUT**

- A. Install contact grout in the void space between the outside of the tunnel liner plate and the surrounding excavated ground. At a minimum, install contact grout at the end of each work shift, or more often as conditions warrant. The daily grouting requirement may be waived, at the sole discretion of SAWS' Representative, in instances of very low daily forward progress.
- B. After grouting, deflection of the liner shall be no more than allowed in this Specification, nor shall the liner be distorted by excessive pressure.

- C. Unless specified otherwise, install contact grout through grout fittings. Remove and plug grout fittings after contact grouting.
- D. An attempt shall be made to hook-up and pump grout at every installed grout port.
- E. In general, contact grouting at a port shall be considered completed when less than one cubic foot of grout of the accepted mix and consistency can be pumped in 5 minutes under the maximum safe contact grout pressure, or if grout issues forth of the same consistency, and at the same rate as that being pumped, from the next grout port in the line.
- F. As grout pumping through any port is stopped, the port shall be plugged to prevent backflow or flow of grout.
- G. For liner plates installed in hand-mining excavations, grout once every 4 feet, or more frequently, when conditions dictate.
- H. Provide seals on tail of shield or TBM which will prevent grout from spilling.
- I. Upon completion of each grouting operation, sound primary liner and immediately correct voids discovered by necessary means approved by SAWS' Representative. After all voids are successfully filled, grout holes will be packed, when necessary, with dry mortar mix and threaded taps securely placed in holes.
- J. Contractor shall reference Section SS 03360 – Contact Grouting, where more specific requirements regarding contact grouting are found.

### **3.05 INSTALLING CARRIER PIPE IN TUNNEL LINER**

- A. Place, align, and anchor guide rails and/or carrier pipe supports inside the tunnel liner. If guide rails are used, place cement mortar on both sides of the rails.
- B. After carrier pipe installation is complete, the annular space between the carrier pipe and tunnel liner shall be completely filled with annular space grout per Section 02426 – Carrier Pipe in Tunnels.
- C. Contractor shall reference to Section SS 02426 – Carrier Pipe in Tunnels, where more specific requirements regarding carrier pipe in tunnels are found.

### **3.06 CONTROL OF LINE AND GRADE**

- A. The benchmarks and control points indicated on the Contract Document have been established in the field. The Contractor shall verify these benchmarks by survey prior to the start of construction and shall confirm positions or report any errors or discrepancies in writing to SAWS' Representative.
- B. After confirming that all established benchmarks provided for the Contractor's use are accurate, use these benchmarks to furnish and maintain all reference lines and grades for tunneling. The Contractor shall use these lines and grades to establish the exact location of

the tunnel using a laser or theodolite guidance system. Submit to SAWS' Representative copies of field notes used to establish all lines and grades and allow SAWS' Representative to check guidance system setup prior to beginning each tunneling drive. Provide access for SAWS' Representative to perform survey checks of the guidance system and the line and grade of the carrier pipe on a daily basis during tunneling operations. The system shall be configured to allow SAWS' Representative or designed representative to confirm line and grade by direct observation in tunnel. The Contractor is fully responsible for the accuracy of the Work and the correction of it, as required.

- C. The tunnel liner plate shall be installed in accordance with the following tolerances, or within such tolerances that allow for the carrier pipe to be installed on the design line and grade while providing adequate space for annular space grouting, as Specified in Section 02426 – Carrier Pipe in Tunnels:
  - 1. Variations from design line: +/- Six (6) inches maximum.
  - 2. Variations from design grade: +/- Six (6) inches maximum.
- D. If the installation is off line or grade, make the necessary corrections, and return to the design alignment and grade at a rate of not more than one (1) inch per twenty-five (25) feet.
- E. Monitor line and grade continuously during tunneling operations. Record deviation with respect to design line and grade once per ten (10) feet of tunnel advancement and submit records to SAWS' Representative daily.
- F. If the pipe installation does not meet the specified tolerance, the Contractor shall correct the installation including any necessary redesign of the pipeline or structures and acquisition of necessary easements. All corrective work shall be performed by the Contractor at no additional cost to SAWS and without schedule extension and is subject to the written approval of SAWS' Representative.

### **3.07 CLEANUP AND RESTORATION**

- A. After completion of tunneling, all construction debris, spoils, oil, grease, and other materials will be removed from the tunnel, shafts, and all Contractor work areas. Cleaning shall be incidental to the construction. No separate payment shall be made for cleanup.
- B. Restoration shall follow construction as the Work progresses and shall be completed as soon as possible. Restore and repair any damage resulting from surface settlement caused by shaft excavation or tunneling. Any property damaged or destroyed, shall be restored to a condition equal to or better than existing prior to construction. Restoration shall be completed no later than thirty (30) days after the tunneling is complete. This provision for restoration shall include all property affected by the construction operations.

### **3.08 SAFETY**

- A. The Contractor is responsible for safety on the job site. Methods of construction shall be

such as to ensure the safety of the Work, Contractor's and other employees on site, and the public. Perform all Work in accordance with all current applicable regulations and safety requirements of Federal, State, and local agencies. Comply with all applicable provisions of 29 CFR Part 1926, Subpart S – Underground Construction and Subpart P – Excavations, by OSHA. In the event of conflict, comply with the more stringent requirements.

- B. When personnel are underground, furnish and operate a temporary ventilation system, and air monitoring system conforming to the requirements of OSHA. Operate and maintain a ventilation system that provides a sufficient supply of fresh air and maintains an atmosphere free of toxic or flammable gasses in all underground work areas.
- C. All Work shall conform to the requirements of OSHA. Gas testing shall be performed by a certified gas tester in accordance with OSHA requirements.
- D. All underground construction shall be performed in accordance with the applicable fire prevention and control requirements of OSHA, and any State or local fire agency requirements and/or ordinances.
- E. No gasoline-powered equipment or tobacco smoking shall be permitted in jacking/receiving shafts or the tunnels.

### **3.09 MEASUREMENT AND PAYMENT**

- A. Unit Prices
  - 1. Tunneling with liner plate shall be measured by linear foot of bore or tunnel along center line as measured from face to face of bore pits.
  - 2. Liners, where required by plans, of the size and material required shall be measured by the linear foot actually installed in accordance with the Contract Documents.
  - 3. Payment will include and be full compensation for labor, equipment, materials and supervision for construction of liner plate and excavation, complete in place, including disposal at excess materials, sheeting, shoring, or bracing, dewatering, utility adjustments, connections to existing sewer, grouting where required, tests, backfilling, cleanup and other related work necessary for construction as specified or as shown on the Contract Documents.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.01 SCOPE OF WORK**

- A. This section is intended to supplement SAWS Item 856 – Jacking, Boring or Tunneling Pipe. No modifications to Item 856 are proposed.
- B. This Section describes requirements for portal stabilization measures to be taken at shaft locations to prevent soil/rock inflows, and to control groundwater inflows during launching and retrieving of the tunneling equipment. The Contractor shall provide portal stabilization at all shaft penetrations such that no soil/rock and no more than 5 gpm of water enters the shaft when portals are opened for launching or retrieving of the tunneling equipment.
- C. The Contractor may provide portal stabilization using grouting methods, guillotine wall (double- wall) methods, methods integral to the shaft construction, or other methods proposed by the Contractor, subject to Consultant’s written approval.
- D. The Work includes all operations necessary to provide portal stabilization that meets the requirements herein. This includes any secondary measures (such as additional contact grouting) or work required if initial stabilization methods are not successful.

### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. SS 02400 – Tunnel Shafts
- B. SS 02314 – Tunneling with Liner Plate
- C. SS 02441 – Pipe-Jacked Tunnels
- D. SS 02445 – Settlement Monitoring
- E. SAWS 804 – Excavation, Trenching and Backfill

### **1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS**

- A. The publications listed below form a part of this Specification to the extent referenced. Where conflicts between these Specifications and the referenced specification, code or standard occur, the more restrictive specification shall govern. The publications are referenced in the text by basic designation only. Where a date is given for referenced standards, that edition shall be used. Where no date is given for referenced standards, the latest edition available on the date of issue of Contract Documents shall be used.
- B. San Antonio Water System (SAWS)
  - 1. Specifications for Water and Sanitary Sewer Construction – latest version
  - 2. Materials Specifications

- C. ASCE Standard Design and Construction Guidelines for Microtunneling, ASCE/CI 36-14.

#### **1.04 DEFINITIONS**

- A. Portal Stabilization: Where the new trenchless pipelines enter or exit a shaft excavation, the Contractor shall stabilize the portal to prevent soil/rock or groundwater inflows into the shaft that may lead to settlement around the shaft or flooding of the excavation. Portal stabilization may be accomplished using applicable ground improvement, double sheeting methods combined with contact grouting (guillotine method) or may be integral to the shaft construction method (as for auger-drilled shafts and secant pile shafts).
- B. Guillotine (Double-Wall) Stabilization Method: To provide stable ground and groundwater control at shaft penetrations, a set of steel sheetpiles is installed just outside the primary shoring system in front of the portal locations. Contact grout is then injected between the primary shoring system and guillotine sheets to confirm that the soil between is stable and will prevent groundwater flow. A hole is then cut in the primary shoring, exposing the stabilized ground and allowing for the insertion of the tunneling equipment into the shaft seal and through the primary shoring. Once the tunneling shield and shaft seal are mated, the guillotine sheets can be lifted out of the tunnel path and removed.
- C. Ground Improvement: A prism of stabilized soil is created just outside the shoring system using grouting methods appropriate for the ground conditions. The improved block stabilizes the soil and lowers the permeability of the soil sufficiently to control groundwater inflows. It is important that the stabilized prism is cast tightly against the existing shoring, extending well beyond the portal to be cut in the shoring, so that groundwater cannot flow along the shoring and enter the portal. Any grout/soil-cement strength must also be carefully controlled to allow the tunneling equipment to efficiently excavate it.

#### **1.05 DESIGN CRITERIA**

- A. The Contractor shall provide portal stabilization to prevent soil/rock inflows and to control groundwater inflows during launch and retrieval of the tunneling equipment for all shaft locations.
- B. Portal stabilization methods shall ensure that no soil/rock and no more than 5 gpm of water enters the shaft when creating portals for the launch or retrieval of the tunneling equipment, as required in Paragraph 3.03 A.
- C. The Contractor may accomplish portal stabilization by the use of ground improvement, the guillotine wall (double-wall) method, methods integral to the shoring system (such as for auger- drilled shafts and secant piles) or by other Contractor suggested methods, subject to the requirements of these Specifications and SAWS or Engineer written approval. Multiple options for achieving portal stabilization, including an allowance for contractor-suggested methods, are presented to allow flexibility for contractor preference. Not all methods listed are appropriate for all ground conditions. It is the sole responsibility of the Contractor to choose portal stabilization methods that are appropriate for the ground conditions at each shaft.

- D. The maximum 28-day compressive strength of any grout used, or soil-cement created shall not exceed 150 psi. The minimum 24-hour compressive strength shall be at least 10 psi.

Additionally, the cured grout or soil-cement shall be of a strength that can be efficiently excavated by the tunneling equipment without damage to the equipment.

- E. Guillotine Wall (Double-Wall) Method:

1. The Contractor shall accomplish this method of stabilization by inserting a secondary set of interlocking steel sheetpiles just outside of the primary shoring system. The guillotine wall shall extend not less than three (3) feet beyond the maximum portal dimensions to be opened in the primary shoring system, in all directions.
2. The contractor shall inject contact grout between the primary shoring system and the guillotine wall, as necessary, to stabilize the soil between and to seal any voids that will allow groundwater flow into the shaft, before opening tunnel portals.

- F. Ground Improvement: Where ground improvement is used for portal stabilization, the Contractor shall:

1. Choose ground improvement methods that will achieve the required stability in the ground conditions as described in the Geotechnical Data Reports, for each shaft location.
2. The prism of improved ground shall extend not less than three (3) feet beyond the maximum portal dimensions to be opened in the primary shoring system in all directions.

## **1.06 SUBMITTALS**

- A. Submittals shall be made in accordance with SAWS's requirements. Review and acceptance of the Contractor's submittals by the Consultant shall not be construed in any way as relieving the Contractor of its responsibilities under this Contract.

- B. Portal Stabilization:

1. Provide a description of the methods to be used for each portal stabilization technique proposed. Provide shop drawings showing the details and dimensions of each stabilization system and full narrative describing the procedures.
2. Provide a list of which portal stabilization method will be used at each shaft location.
3. Provide a description of the secondary or remedial methods that will be employed if the initial stabilization efforts fail to achieve the required stabilization as described in Paragraph 3.03 A.

4. Provide mix designs for any concrete or grout proposed as a part of the portal stabilization work.

## **PART 2 – EXECUTION**

### **2.01 GUILLOTINE WALL METHODS**

- A. The Contractor shall visually verify the location of all utilities that may cross or are within 5 feet adjacent to the location of guillotine sheets before commencing sheetpile installation.
- B. Pre-drilling of the soils may be necessary to install sheetpiles to the required depths.
- C. Guillotine sheets shall be completely removed after the tunneling equipment has been seated in the shaft seal.

### **2.02 GROUND IMPROVEMENT METHODS**

- A. Prisms of improved ground shall be installed in full contact with the shoring to prevent uncontrolled groundwater flow along the shoring face and into the portals. If ground improvement cannot be performed tight against the shoring face, supplemental contact grouting shall be used to achieve control of groundwater inflows.

### **2.03 VERIFICATION OF STABILITY**

- A. The Contractor shall stabilize the soils at all tunnel portal locations to prevent the inflow of weak, running, or flowing soils or loose rock and to control groundwater inflows. The Contractor shall confirm that the ground has been stabilized to the extent that ground will remain stable without movement of soil/rock or water while the entry/exit location shoring is removed and while the tunneling equipment is being launched or received into a shaft or during jacking operations. The progressive steps identified below shall be used to confirm suitable stabilization has been achieved for all shaft types and entry/exit locations:
  1. After the Contractor believes he has stabilized the ground sufficiently outside a given shaft seal, the Contractor shall demonstrate the stability of the ground by cutting a 3-inch diameter hole in the shoring wall near the center of the bore. If no soil/rock and less than 5 gpm of water enters the shaft, the Contractor may progress to the next demonstration step. If soil/rock or more than 5 gpm of water enter into the shaft, the Contractor shall seal the demonstration hole and further stabilize the ground before repeating the demonstration step.
  2. After successful completion of the first demonstration step, the Contractor shall demonstrate the stability of the ground by cutting a 12-inch diameter hole in the shoring wall at the location of previous demonstration hole. If no soil/rock and less than 5 gpm of water enters the shaft, the Contractor may progress to the next demonstration step. If soil/rock or more than 5 gpm of water enters the shaft, the Contractor shall again seal the demonstration hole and further stabilize the ground



before repeating the demonstration step.

3. After successful completion of the first two demonstration steps, and if the Contractor believes the portal stabilization work is sufficient, the Contractor may proceed with remainder of the shaft wall penetration procedures.
4. Successful completion of shaft wall penetrations and related activities necessary to demonstrate such shall be at the Contractor's sole expense.

### **PART 3 – PAYMENT**

#### **3.01 MEASUREMENT FOR PAYMENT**

- A. This item is considered subsidiary to jacking, boring or tunneling pipe and no separate payment will be made to the Contractor for the work.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SECTION INCLUDES**

- A. Construction, maintenance, and backfilling requirements of tunnel shafts. This Section specifies the minimum requirements and acceptable construction methods for excavation and support of shafts for trenchless crossings. The shafts will also be used to facilitate the construction of connections, manholes, and other permanent structures shown on the Drawings.
- B. The Contractor shall design, furnish, install, and maintain a system of temporary supports, including all bracing and associated items, to retain excavations in a safe manner, to control ground movements, and to control groundwater inflows. Upon completion of the required excavation and pipe installation, the Contractor shall remove the support system, as specified, and backfill the excavations.
- C. The Contractor shall have sole responsibility for selection of shaft type, construction method, exact location, and sizing of the excavations, subject to the requirements of this Section, to accommodate shoring, bracing, and pipe installation to the specified lines, grades and tolerances. The shafts shall be sized to facilitate construction of manholes, connections, vaults, and other permanent structures shown on the Drawings.
- D. The Work shall include site grading; temporary access road construction; fencing and signage; protection of utilities; construction staging areas; design and construction of shaft excavations and excavation support systems; material disposal; control and disposal of groundwater, surface water, and construction water; backfilling and abandoning shafts; and site restoration.
- E. In general, acceptable shaft types include: rock bolts and shotcrete, soldier piles and lagging, trench boxes, slide rail systems, and liner plate shafts, subject to the requirements of this Specifications, as well as review and written approval by the Owner. Due to site restrictions at certain shaft locations, allowable shaft construction methods may be limited. See Drawings for allowable shaft types for each specific location. Due to anticipated unstable ground in saturated conditions, external dewatering is required at certain shaft locations.

### **1.02 DEFINITIONS**

- A. **Liner Plate Shaft:** A shaft formed by sequential excavation and erection of support rings consisting of segmental steel liner plates. All voids between the excavation and the liner plates are backfilled with grout to ensure complete contact with the ground. A liner-plate shaft is generally considered a non-watertight shaft. External dewatering may be required if groundwater levels are above shaft invert.

- B. **Soldier Pile and Lagging Shaft:** A non-watertight excavation support system composed of vertical steel piles, wales, struts, and lagging. The vertical piles extend from ground surface to a sufficient depth below the final excavation depth to provide adequate resistance against earth pressures. Lagging, consisting of wooden boards or steel sheets is inserted between the flanges of the adjacent H-beams to support the excavation and prevent soil from sloughing or caving into the excavation. Wales are horizontal support beams installed and welded to the vertical soldier piles to stiffen the support system and are sized and installed at a vertical spacing to safely support external earth loads. The shaft bottom is covered with a concrete slab with one or more sumps. External dewatering may be required if groundwater levels are above shaft invert.
- C. **Rock Bolts & Shotcrete Shaft:** A type of drill shaft support to rock excavation involving the use of rock bolts, wire mesh and shotcrete. Rock bolts are a type of drilled anchor used for rock material that are grouted in place and posttensioned. Rock bolts are used in conjunction with shotcrete. Shotcrete is a fast hardening sprayed concrete used to stabilize the face of rock excavations.
- D. **Slide Rails Shaft:** A vertical sheeting and dig and push trench support system that is modular and allows the user to push the system in place while digging the excavation to depth.

### **1.03 SUBMITTALS**

- A. Shaft design submittals by Contractor shall be signed and sealed by a Professional Engineer registered in the State of Texas.
- B. Submit shaft construction drawings and seal slabs. Clearly indicate allowable surcharge loads and restrictions on surcharge capacity, including live loads, on shaft construction drawings. Indicate thrust blocks or other reactions required for pipe jacking, when applicable. Also provide the following information for each shaft.
  - 1. Location of shafts by station and limits of working sites.
  - 2. Description of site security arrangements in conformance with Paragraph 3.03, Shaft Construction.
  - 3. Description of method of extending shaft above flood level in conformance with Paragraph 3.03, Shaft Construction.
  - 4. Any geotechnical/boring undertaken by Contractor for whatever purpose connected to Work.
  - 5. Minimum rock bolt length and horizontal and vertical spacing, as applicable for rock bolt & shotcrete shafts.
- C. **Shaft Monitoring Plan:** Submit for review prior to construction, shaft monitoring plan that includes schedule of instrumentation design, layout of instrumentation parts, equipment installation details, manufacturer's catalog literature, and monitoring report forms.

- D. Structures Assessment. Provide preconstruction and post-construction assessment reports for critical structures located within radius of shaft center equal to shaft depth plus shaft radius, measured in plan. Include photographs or video of any existing damage to structures in vicinity of shafts in assessment reports.
- E. Submit shaft surface settlement monitoring plan for review prior to construction. Identify location of settlement monitoring points, reference benchmarks, survey frequency and procedures, and reporting formats on plan.
- F. Submit readings of monitoring plans to SAWS and Engineer as soon as readings have been taken.
- G. Submit shaft temporary deck drawings and calculations to SAWS and Engineer, signed and sealed by Contractor's Professional Engineer in event that shaft is not needed for immediate construction activity, in conformance with Paragraph 3.03, Shaft Construction.

#### **1.04 PERFORMANCE REQUIREMENTS**

- A. Shaft design must include allowance for contractor's equipment and stored material and spoil stockpile as appropriate. Design must also allow for HS-20 highway loading if located in the vicinity of a paved area and/or allow for Cooper E-80 locomotive loading if located in the vicinity of a railroad
- B. Design shaft to support earth pressure, unrelieved hydrostatic pressures, bottom heave, utility loads, equipment, applicable traffic loads, and other surcharge loads in such manner as will allow safe construction and will prevent damage to adjacent structures (including existing pipelines and utilities) and injury to workers and the public. In addition, the installation of excavation support systems shall not cause a disruption to public convenience or access.
- C. Design shaft located within 50-year flood plain with water retaining liner extending 2 feet above 50-year flood elevation. It is acceptable when liner is stored at site for immediate installation in lieu of it being installed at shaft, provided that shaft liner extends at least 2 feet above existing ground elevation.
- D. Excavation support systems shall be designed to be compatible with the geologic conditions as described in the Geotechnical Report and the conditions anticipated by the Contractor.
- E. The design of shoring and protection methods that meet the Specification requirements herein are the Contractor's responsibility. Shafts shall be of a shape and size large enough to facilitate all the necessary groundwater control, construction operations, pipeline equipment and operations, tunneling operations, construction of appurtenances, such as manholes, etc., and to accommodate indicated connections to other reaches of the project. Shoring design is subject to review and approval by the SAWS.
- F. Design steel plate deck, if such is required, for HS-20 loading.

- G. Shaft design calculations shall include all phases of the shaft construction including installation, operation and removal. The minimum factor of safety for any phase of the work shall be 1.5.
- H. The shaft design shall allow the safe and expeditious construction of the permanent facilities without excessive movement or settlement of the ground and in a manner that will prevent damage to, or movement of adjacent structures, utilities and other facilities. Monitor and protect adjacent utilities from horizontal and vertical movements in accordance to Section 02445 – Settlement Monitoring.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. All structural steel used for the support systems, whether new or used, shall be sound and free from defects which may impair strength.
- B. Structural Steel: ASTM A36.
- C. Liner Plate: AASHTO HB-17 “Standard Specifications for Highway Bridges”, Section 15
  1. Corrugated metal tunnel liner plates shall be made from steel sheets conforming to the requirements of ASTM A-1011.
  2. Steel liner plates may be either 2-flange or 4-flange type, 16 inches to 24 inches in width.
  3. Tunnel Liner Plates and fasteners shall comply with the requirements of AASHTO HB-17.
  4. Liner plates shall be punched for bolting on both longitudinal and circumferential seams and fabricated to permit complete erection from the inside of the tunnel.
  5. Where shown on the Drawings, gasketed liner plates shall be used.
  6. Every other plate radially of every second ring vertically shall be fitted with a minimum 1-1/2-inch diameter grout hole.
  7. Field welding of Tunnel Liner Plate, including grout couplings shall not be allowed.
  8. The material used for the construction of these plates shall be new, unused and suitable for the purpose intended.
  9. Bolts used with lapped-seam (2-flange) liner plates shall be not less than 5/8” diameter. Bolts shall conform to ASTM A-449 for plate thickness equal to or greater than 0.209”, and to ASTM A-307 for plate thickness less than 0.209”. The nuts shall conform to ASTM A-307.

10. Bolts used with 4-flange liner plates shall be not less than ½” diameter for plate thickness up to and including 0.179”, and not less than 5/8” diameter for plates of greater thickness. The bolts and nuts shall be quick-acting coarse thread and shall conform to ASTM A-307, Grade A.

**D. Rock Bolts & Shotcrete Shafts:**

1. Provide rock bolt bars in accordance to ASTM A 615 (Grade 75) or approved equal. Bolts shall be secured with J-lock resin or equivalent equal and shall be installed and handled in accordance with manufacturer’s specifications.
2. Welded wire mesh shall have a minimum size and gauge of 4x4 W4.0xW4.0 and shall be in accordance with ASTM A 1064.
3. Facing shotcrete shall have a minimum 4,000 PSI 28-day compressive strength, and be in accordance with ASTM C 150 Type I, II, or III cement. Sufficient admixture shall be used to prevent premature setting of shotcrete.

**E. Soldier Pile and Lagging Shafts:**

1. Provide timber, steel, or precast concrete lagging or sheets of sufficient thickness to withstand lateral pressures.
2. Steel ribs and auxiliary structural members shall be free of defect which may impair or reduce their structural integrity. Provide steel appurtenances required for installation of ribs such as tie rods, bolts, splice plates, dutchmen and drift pins, with ribs.
3. Struts shall be installed and preloaded by jacking to 50 percent of design capacity, before excavation resumes. Steel wedges, or shims, shall be installed and welded in place to lock in preloaded stresses and prevent excessive lateral formation.

## **PART 3 - EXECUTION**

### **3.01 LOCATION OF ACCESS SHAFTS**

- A. Contractor has sole responsibility for selection of shaft sites needed for construction operations unless otherwise indicated on Drawings. Location will be subject to approval of the Project Manager.
- B. Locate shafts and associated work areas to avoid blocking driveways and cross streets, and to minimize disruption to business and commercial interests. Avoid shaft locations near areas identified as residential or potentially contaminated.
- C. Plan shaft locations to minimize interference with storm drainage channels, ditches, water lines, sanitary sewers, storm water sewers or culverts, which, when damaged, could result in ground washout or flooding of shafts and tunnels.

### **3.02 UTILITY RELOCATION**

- A. Relocate utilities as shown on Drawings. Utility relocations required by Contractor for shaft construction shall take into account zone of potential settlement in vicinity of shaft.
- B. Obtain approval from Project Manager for permanent relocations prior to relocating.

### **3.03 SHAFT CONSTRUCTION**

- A. Conform to the following for ground support systems:
  - 1. Install liner elements, bracing and shoring structural members at locations and in method sequence and tolerances defined on shaft construction drawings as excavation progresses.
  - 2. Ensure bracing and shoring are in contact with liner to provide full support as shown in shaft construction drawings. Evaluate and check modifications to liner, bracing, and shoring. Obtain approval from Contractor's Professional Engineer and submit to SAWS.
  - 3. Install seal slab as soon as final depth and stable bottom conditions have been reached and accepted by Project Manager. Construct seal slab capable of withstanding full piezometric pressure, either by pressure relief using under drains, or in case of more permeable ground condition, by use of structural reinforced slab. Construct seal slab in accordance with design provided by Contractor's Professional Engineer.
  - 4. Design and construct entire shaft to appropriate factors of safety against yield, deformation, or instability as determined by Contractor's Professional Engineer. Shaft must withstand full hydrostatic head without failure.
  - 5. Special framing, bracing or shoring required around tunnel "eyes" or other penetrations shall be in-place according to shaft construction drawings before liner or any bracing or shoring at penetration is cut or removed.
  - 6. Securely breast and shore face of starter or back tunnels to resist both soil and hydrostatic pressure.
  - 7. When applicable, pressure grout voids or seepage paths around shafts and adjoining tunnels. Pressure grout bolted steel liner plates as they are installed, unless otherwise approved by Project Manager. Perform secondary or 'back grouting' as ground measurement, voids, or deformation of shaft liner are detected.
- B. Install suitable thrust or reaction blocks as required for pipe jacking equipment.
- C. Provide drainage from shafts while work is in progress and until adjacent pipe joints have been sealed and shaft is backfilled. Conform to requirements of Section 01578 - Control of Ground Water and Surface Water.

- D. Surface Water Control. Divert surface water runoff and discharge from dewatering system away from shaft. Protect shafts from infiltration or flooding.
- E. Each surface work site is to be surrounded by security fence, which shall be secure any time site is unattended by Contractor's personnel.
- F. Protect shaft, when not in use by second security fence at perimeter of shaft, or alternatively by cover designed in accordance with Paragraph 1.04, Performance Requirements.
- G. Provide portable concrete traffic barriers at locations where work site is situated adjacent to highway, road, driveway, or parking lot. Angle traffic barriers in direction of lane flow. Do not place perpendicular to on-coming traffic.
- H. Cover shaft which is constructed more than 60 days in advance of its intended use by steel plate deck designed by Contractor's Professional Engineer, and restore surface to permit full traffic flow during time shaft is not in use. Remove from site other material and equipment used by Contractor including portable concrete traffic barriers, traffic control system, fencing and reinstall at time shaft is re-opened for use.
- I. Construct suitable guardrail barrier around periphery of shaft, meeting applicable safety standards. Properly maintain barrier throughout period shaft remains open. Repair broken boards, supports, and structural members. Provide ladder with safety cage when required by OSHA in each shaft. In addition, provide full cover or other security barrier for each access shaft in which there is no construction activity or which is unattended by Contractor's personnel.
- J. Size of Shafts: Make size adequate for construction of permanent structures indicated on Drawings and to provide adequate room to meet operational requirements for tunnel construction and backfill.
- J. Rock Bolts & Shotcrete Shafts:
  - 1. Rock shaft wall shall be limited to a maximum time of 48 hours, or less if conditions warrant, of exposure without shotcrete application. If rain is expected, the rock with no shotcrete shall be covered with plastic sheeting to reduce contact with moisture.
  - 2. The time between completion of individual drill hole excavation and resin placement shall not exceed 24 hours.
  - 3. Apply a minimum of 5-inches of shotcrete to shaft wall and ensure the welded wire mesh is fully encapsulated.



### **3.04 BACKFILL**

- A. Provide cement-stabilized sand to minimum depth of 10 feet above crown of pipe, but where shaft is located in paved area, cement-stabilized sand shall be used to within one foot of pavement subgrade elevation. Compact cement-stabilized sand. In locations where backfill is not subject to traffic loading, depth above initial cement-stabilized sand may be backfilled with select backfill. When insufficient work space exists, Grout manhole or structure annular space.
- B. Remove shaft liner above level of 8 feet below ground surface, unless otherwise indicated on Drawings. Maintain sufficient ground support to meet excavation safety requirements while removing shaft structure.

### **3.05 MONITORING**

- A. Monitoring Instrumentation. Instrumentation specified and readings shall be accessible at all times to Project Manager.
  - 1. Install and maintain instrumentation system to monitor and detect movement of ground surface and adjacent structures. Establish vertical survey control points at distance from construction area that avoids disturbance due to ground settlement.
  - 2. Project Manager may through independent contractor or consultant, install instrumentation in, on, near, or adjacent to construction work. Provide access to work for such independent installations.
  - 3. Install instruments in accordance with Drawings and manufacturer's recommendations.
- B. Surface Settlement Monitoring
  - 1. Establish monitoring points on all critical structures.
  - 2. Record location of settlement monitoring points with respect to construction baselines and elevations. Record elevations to an accuracy of 0.01 feet for each monitoring point location. Establish monitoring points at locations and by methods that protect them from damage by construction operations, tampering, or other external influences.
  - 3. Monitoring points to measure ground elevation are required at distance of 10 feet and 20 feet from perimeter of shaft on each of four radial lines, at 90 degrees to each other.
  - 4. Railroads. Monitor ground settlement of track subbase at centerline of each track when within zone of potential settlement.
- C. Reading Frequency and Reporting. Submit weekly to Project Representative, records of readings from various instruments and survey points.

1. Record all shaft monitoring readings at least once per week starting prior to shaft construction and continuing until shaft has been backfilled and until no more detectable movement occurs.
2. Immediately report to Project Manager any movement, cracking, or settlement which is detected.
3. Following substantial completion but prior to final completion, make final survey of all shaft related monitoring points.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SECTION INCLUDES**

- A. Handling, transporting, and installing sanitary sewer lines in primary lined tunnels.

### **1.02 DEFINITIONS**

- A. Carrier Pipe: Permanent pipe for operational use that will convey flows.
- B. Steel Casing Pipe: A pipe installed by direct-jacking using pipejacking methods. The steel casing pipe supports the ground and provides a stable underground excavation for installation of the carrier pipe.
- C. Liner Plate Tunnel: A tunnel shaft support system installed by conventional tunneling means (hand mining or mechanical excavation) which supports the ground and provides a stable underground excavation for installation of the carrier pipe.

### **1.03 SUBMITTALS**

- A. Provide brief description of method of transporting carrier pipe into tunnel; method of hoisting and positioning pipe; method of jointing and aligning pipe; and blocking plan.
- B. Submit buoyant force calculations, bulkhead design, and blocking details. Include in calculations analysis of stresses and deformation induced on carrier pipe. Submittal must be signed and sealed by Professional Engineer registered in State of Texas.

## **PART 2 - PRODUCTS**

### **2.01 PIPE MATERIAL AND FITTINGS**

- A. Sewer pipe may consist of fiberglass pipe (FRP), and polyvinyl chloride (PVC) pipe, as shown on the Drawings.

### **2.02 CASING SPACERS / ISOLATORS OR CONTRACTOR-DESIGNED CARRIER PIPE SUPPORTS:**

- A. Casing spacers/isolators or contractor-designed carrier pipe supports shall be designed by the manufacturer to adequately support the carrier pipe within the casing pipe under all conditions. Number and location of casing spacers shall be determined by the manufacturer to protect carrier pipe from damages.
- B. Casing spacers shall conform to SAWS' Material Standard Specification 05-31-Specification for Casing Insulators.
- C. Acceptable manufacturers and models shall be those listed in SAWS' Material Standard Specification 05-31-Specification for Casing Insulators.

- D. If Contractor-designed carrier pipe supports are used, provide materials that are suitable to safely support the carrier pipe during installation and grouting operations without damage to the pipe. The support system shall meet all applicable requirements of the pipe manufacturer.

### **2.03 CASING END SEALS**

- A. Casing end seals shall be sized by the Contractor to accommodate the diameter of the casing pipe. These seals shall be installed using brick mortar end seals as shown in the Contract Documents. Contractor shall support the end seals during grout-filling operations.

## **PART 3 - EXECUTION**

### **3.01 INSTALLATION TOLERANCES**

- A. Prior to installing sewer pipe, verify that primary liner has been constructed so that sewer pipe may be placed in conformance with specified tolerances.
- B. Tolerances from lines and grades shown on Drawings for sewer pipe installed in primary liner are plus or minus 6 inches in horizontal alignment and plus or minus 1-1/2 inches in elevation. Should misalignment of primary liner preclude installation of sewer pipe to tolerances specified, notify Project Manager.

### **3.02 PIPE HANDLING**

- A. Handle and transport pipe into tunnel in manner that prevents damage to pipe, joints, gaskets, and plastic liner. Do not install pipe damaged during placement operations. Propose pipe repair procedures for review and approval of Project Manager (ref. Section SS 1050 paragraph 103(G)).

### **3.03 TUNNEL CLEANUP**

- A. Prior to pipe placement in tunnel, remove temporary tunnel utilities, such as electrical and ventilation. Remove loose material, dirt, standing water, and debris prior to pipe placement.
- B. Temporary steel construction tracks or steel pipe skids may be left in place when they do not interfere with alignment of sewer pipe or interfere with final placement of annular grout.

### **3.04 INVERT PIPE SUPPORT**

- A. Provide support adequate to establish final pipe grade. Support may include screeded concrete, steel beam, or other method as designated by Contractor's Engineer. Secure pipe support to pipe or primary liner. When concrete is used for pipe support, cure it minimum of 12 hours prior to setting pipe.

### **3.05 JOINING PIPE IN TUNNELS**

- A. Join pipe segments to properly compress gaskets and allow for correct final positioning of pipe for line and grade. Closely align pipes by bringing them loosely together by means of hydraulic jacks, locomotives, pipemobiles, or winches. Once pipes have been loosely joined, pull them home by means of hydraulic tugger or other similar method suitably protecting pipe and joints against damage. Impact jointing such as ramming with locomotives or other mechanical equipment is not permitted.

### **3.06 BLOCKING PIPE IN TUNNEL AND BULKHEADS**

- A. Install pipe blocking system. Use pipe blocking to position sewer pipe in tunnel to allow minimum of 4 inches of grout to be placed between sewer pipe and tunnel primary liner or casing.
- B. Secure blocking rigidly in place without dependence on wedges to prevent dislodging during pipe placement and grouting operations.
- C. Construct bulkheads to withstand imposed grout pressure without leakage. Provide adequate venting for bulkheads.

### **3.07 ACCEPTANCE TESTING**

- A. Perform as-built survey on installed sewer pipe. Take invert elevations at each pipe joint. Take two diameter readings, at right angles, randomly at average of 20 feet spacing or 10 feet non-rigid pipe.
- B. Test for leakage by low pressure air methods.

### **3.08 MEASUREMENT AND PAYMENT**

- A. Unit Prices.
  - 1. Length of sewer installed in primary lined tunnels will be measured by linear foot along center line of completed sewer, center line to center line of manholes, as designated on Drawings, and to end of stubs or termination of pipe; and to inside face of lift stations and treatment plant works. Installation of sewer within limits of structure other than manholes will not be considered for measurement and payment at unit price bid.
  - 2. Payment for installation of sewer in primary lined tunnels is on a linear foot basis.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SECTION INCLUDES**

- A. This Section includes the minimum requirements for the installation of casing pipe using open-shield pipejacking, such as jacking pipe following hand-shield excavation or close-shield pipejacking methods such as Tunnel Boring Matching (TBM).
- B. Certain locations require lowering of existing groundwater to below tunnel invert elevation prior to tunneling work. Perform all dewatering work in accordance to Sections SS 2242 – Water Control for Shaft Tunnel Construction and SS2140 – Control of Ground and Surface Water.
- C. Jacking pipe shall be provided in accordance to Section 02610 – Steel Casing Pipe.

### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. SS 02245 – Settlement Monitoring
- B. SS 02610 – Steel Casing Pipe
- C. SS 02140 – Control of Ground and Surface Water
- D. SS 02242 – Water Control Shaft Tunnel Construction
- E. SS 01050 – Survey Controls

### **1.03 REFERENCE STANDARDS**

- A. American Association of State Highway and Transportation Officials (AASHTO).
- B. Occupational Safety and Health Administration (OSHA).
- C. National Electrical Code - (NFPA 70).

### **1.04 DEFINITION**

- A. Pipejacking. Pipejacking is a technique for installing a casing pipe as primary liner from a jacking shaft to a receiving shaft, using jacks. Soil/rock excavation is carried out within a shield in front of the lead pipe segment using hand-mining, mechanical methods such as a roadheader or digger-boom, or with mechanized equipment such as a rotary tunnel boring machine (TBM).The excavation method should be chosen to be compatible with the anticipated ground conditions. The shield is steerable using hydraulic or mechanical jacks to orient an articulated section of the shield, and guidance is provided using a laser, theodolite, or gyroscope system supplemented with a water level if necessary.

- B. Tunnel Boring Machine (TBM). Mechanized excavating equipment that is steerable, guided and articulated, connected to and shoved forward by the casing being installed, with man entry.
- C. Tunneling Methodology. Written description, together with supporting documentation that defines plans and procedures for pipe jacking operations.
- D. Zone of Active Excavation. Area located within radial distance about surface point immediately above face of excavation equal to depth to bottom of excavation.
- E. Critical Structure. Building, structure, bridge, pier, or similar construction partially or entirely located within zone of active excavation.
- F. Open Shield. Face of heading or tunnel which is unsupported during excavation (e.g., in hand-mining or shield excavation).
- G. Close Shield. Face of heading or tunnel which is supported during excavation process from TBM, where cutter head allows both partial exposure of face and full closure, by means of hydraulically operated gates.
- H. Primary Tunnel Liner. Elements designed, fabricated, furnished, installed, monitored, and maintained in the tunnel by the Contractor for initial ground support to provide excavation stability and safety during construction. The primary liner provides temporary ground support to allow for the installation of the final gravity sewer pipe and annular space grout which serve as the final lining system.
- I. Carrier Pipe: Permanent pipe for operational use that is used to convey flows. Carrier pipes may be installed inside a casing pipe or liner plate tunnel.
- J. Tunneling Shield: Fabricated ground support, circular in section, providing a 360-degree protection to those working within it. The tunneling shield has a cutting edge, and is equipped with independently operated hydraulic propulsion rams, allowing it to be steered. The shield typically has a hood protrusion at the crown (except in the case of a rotary TBM), and face breasting equipment. Liner plate is erected within a tail attached to the back of the shield. The shield is propelled forward by pushing against the previously installed primary tunnel liner.

#### **1.05 QUALITY ASSURANCE**

- A. Failure to meet the qualification requirements is failure to fulfill the Contract and the Contractor will be required to obtain a subcontractor that meets the qualification requirements.
- B. All tunneling work shall be performed by an experienced Contractor who has at least five (5) years of experience in performing tunneling work using liner plate support and has completed at least five (5) projects of similar diameter in similar ground conditions.

1. At least one individual tunneled length shall have been equal to or greater in length than the longest tunnel on this Project.
  2. At least one tunnel shall have been completed in full-face rock conditions.
  3. At least one tunnel shall have been completed in mixed-face conditions of soil overlying bedrock.
  4. At least two tunnels shall have been completed using a shield to support the ground at the tunnel face.
  5. The Contractor shall submit details of referenced projects including SAWS's name and contact information, and project superintendent.
- C. The project superintendent shall have at least five (5) years of experience supervising tunneling construction using liner plate support. The Contractor shall submit details of referenced projects including SAWS' name and contact information, and project superintendent.
- D. All contractor personnel who will work within the shaft excavations or within the tunnel shall have completed training in excavation safety and confined space work.
- E. The site safety representative and personnel responsible for air quality monitoring shall be experienced in tunnel construction and shall have current certification by OSHA.
- F. The surveyor responsible for line-and-grade control shall be a Licensed Surveyor registered in the State of Texas who has prior experience on tunnel projects.
- G. The Contractor shall provide written notice to SAWS at least 72 hours in advance of the planned launch of tunneling operations. All Work by the Contractor shall be done in the presence of SAWS unless SAWS grants prior written approval to perform such Work in SAWS's absence.
- H. The Contractor shall allow access to SAWS' Representative and shall furnish necessary assistance and cooperation to aid SAWS' Representative in observations, measurements, data, and sample collection, including, but not limited to the following:
1. SAWS' Representative shall have full access to the tunnel and shield prior to, during, and following all tunneling operations. This shall include, but not be limited to, visual inspection of installed pipes and verification of line and grade.
  2. SAWS' Representative shall have full access to the tunneling shafts prior to, during, and following all tunneling operations. The Contractor shall provide safe access in accordance with all safety regulations.
  3. SAWS' Representative shall have full access to spoils removed from the tunnel excavation prior to, during, and following all tunneling operations. SAWS shall be



allowed to collect soil samples from the muck buckets or spoil piles a minimum of once every ten (10) feet, whichever is more often, and at any time when changes in soil conditions or obstructions are apparent or suspected.

## **1.06 SUBMITTALS**

A. Following submittals are required:

1. Tunneling Methodology. Submit for review Tunneling Work Plan with detailed construction drawings, written description identifying specifics of proposed method of construction and sequence of operations to be performed during construction, as required by method of tunnel excavation and liner installation.
  - a. Proposed method of tunnel construction and type of face support.
  - b. Manufacturer and type of tunneling equipment proposed; type of lighting and ventilation systems.
  - c. If use of mechanized excavating equipment (such as TBM or shielded excavators) is proposed, submit arrangement drawings and technical specifications of machine and trailing equipment (included modifications), experience record with this type of machine of both Contractor and proposed operator and copy of manufacturer's operation manual for machine.
  - d. The Contractor may elect to use tunnel shield that is separate from mechanized excavation equipment or for use with hand excavation. When use of tunnel shield is proposed, submit arrangement drawings, design criteria, dimensional data and method of excavation and operation of shield, including acceptable method for supporting, controlling and closing face of heading.
  - e. Complete details of equipment, methods and procedures to be used for ground support, including but not limited to primary liner installation, timing of installation in relation to excavation plan, bulkheads and equipment.
  - f. Grouting techniques meeting the requirements of this Section and Section SS 03360 – Contact Grouting.
  - g. Number and duration of shifts planned to be worked each day.
  - h. Sequence of operations,
  - i. Locations of access shafts and work sites.
  - j. Method of spoil transportation from face, surface storage and disposal location.
  - k. Capacity of jacking equipment and type of cushioning.

- l. Identify critical utility crossings and special precautions proposed.
- m. Submit tunnel jacking force calculations – need to provide jacking system with 2.0 times jacking forces calculated or provide intermediate jacking stations.

Drawings and Calculations: Submit for record purposes, drawings and calculations for tunnel support system. Provide adequate drawings and installation details for construction. For pipe jacking, show casing joint detail. Documents must be signed and sealed by Professional Engineer registered in State of Texas. Calculations shall include clear statement of criteria used for design as described in Paragraph 1.06, Design Criteria

2. Submit for review design criteria established by Contractor's Engineer for casing, including design calculations and installation details, and certification by qualified Engineer registered in the State of Texas that structural design of primary tunnel meets criteria and specified requirements for range of field conditions.
3. Quality Control: Submit for review brief description of quality control methods including:
  - a. Method and frequency of survey control.
  - b. Example of tunnel daily log.
4. Geotechnical Investigation: When geotechnical investigations are conducted, submit results to Project Manager for record purposes.
5. Monitoring Plans:
  - a. Instrumentation Monitoring Plan: Submit for review, prior to construction, monitoring plan that includes schedule of instrumentation design, layout of instrumentation points, equipment installation details, manufacturer's catalog literature, and monitoring report forms.
  - b. Surface Settlement Monitoring Plan. Submit settlement monitoring plan for review prior to construction. Identify on plan location of settlement monitoring points, reference benchmarks, survey frequency and procedures, and reporting formats.
  - c. Refer to Section SS 02445 – Settlement Monitoring for additional requirements.
6. Structures Assessment. Provide preconstruction and post construction assessment reports for critical structures, namely those located within zone of active excavation from proposed tunnel centerline. Include photographs or video of existing damage to structures in vicinity of sewer alignment in assessment reports.
7. Readings of all monitoring shall be submitted weekly to SAWS. Any readings outside of the allowable shall be reported immediately.

8. Daily Reports: Maintain shift log as defined in Paragraph 3.04, Pipe-jacked Tunneling Data, and make available to Project Manager on request.

## **1.07 DESIGN CRITERIA**

- A. Assume responsibility for selection of appropriate casing and joints to carry thrust of any jacking forces or other construction loads in combination with overburden, earth and hydrostatic loads. Design of any pipe indicated on Drawings considers in-place loads only and does not take into account any construction loads. Criteria for longitudinal loading (jacking forces) on pipe and joints shall be determined, based on selected method of construction.
- B. Jacked casing shall be designed to withstand thrust from TBM or shield and pipe advance without damage or distortion. Propulsion jacks shall be configured so that thrust is uniformly distributed and will not damage or distort pipe.
- C. Take into account loads from handling and storing.
- D. Criteria to be used at railroad crossings shall be Cooper E-80 locomotive loading distributions in accordance with AREMA specifications for culverts. In design, account for additive loadings due to multiple tracks.
- E. Criteria to be used for truck loading shall be HS-20 vehicle loading distributions in accordance with AASHTO.
- F. Provide casing of diameter shown on Drawings. Substitution of pipe with larger diameter to suit tunnel equipment availability will only be permitted if demonstrated to satisfaction of Project Manager that design flows and velocities can be achieved.

## **PART 2 PRODUCTS**

### **2.01 GENERAL**

- A. Use casing of size so that minimum clearance between bottom of carrier pipe and inside of casing is minimum 4 inches, and minimum clearance between top of pipe and inside of casing is 9 inches.

### **2.02 CASING PIPE**

- A. Assume responsibility for selecting appropriate casing and joints to safely carry loads imposed during construction, including jacking forces. Casing joints shall be flush with outside face when re assembled.
- B. Use casing that is round with smooth, even outer surface, and has joints that allow for easy connections between pipes. Design pipe so that jacking loads are evenly distributed around entire pipe joint and such that point loads will not occur when pipe is installed.

- C. Pipe used for pipe jacking shall be capable of withstanding all forces that will be imposed by process of installation, as well as final in-place loading conditions. Protect driving ends of pipe and joints against damage.
- D. Casing Pipe. Provide new uncoated welded steel pipe, manufactured in accordance with AWWA C200.
- E. Design stress in pipe wall shall be 50 percent of minimum yield point of steel or 18,000 psi, whichever is less when subjected to loading conditions.
- F. Design deflection to be used in determining wall thickness shall not exceed 3 percent of nominal casing pipe size.
- G. Bedding constant to be used in determining wall thickness shall be 0.10. Lag factors shall be 1.0 for all live loads.
- H. Minimum thickness of steel shall be as shown on drawing.
- I. Casing pipe design shall also include stresses due to jacking forces when pipe is to be installed by jacking method.
- J. Equip casing pipe with approximately 2-inch diameter grout holes furnished with plugs. Place holes in pattern so that each succeeding hole from top dead center is 60 degrees right, then 60 degrees left, then top dead center. Locate holes in each line no more than 9 feet apart.

### **PART 3 EXECUTION**

#### **3.01 CONSTRUCTION OPERATIONS CRITERIA**

- A. Use methods for tunneling operations that will minimize ground settlement. Select method which will control flow of water and prevent loss of soil into tunnel and provide stability of face under anticipated conditions.
- B. Conduct tunneling operations in accordance with applicable safety rules and regulations, OSHA standards and Contractor's safety plan. Use methods which include due regard for safety of workmen, adjacent structures, utilities, and public.
- C. Maintain clean working conditions wherever there is man access.
- D. For tunneling under railroad embankments, highways, or streets, perform installation so as to avoid interference with operation of railroads, highways, or streets, except as approved by owner of facility.

### **3.02 GROUND WATER CONTROL**

- A. Provide ground water control measures in conformance with Section 02140 - Control of Ground and Surface Water and Section 02242 Water Control for Shaft Tunnel Construction, when necessary to perform Work.

### **3.03 EQUIPMENT**

- A. Assume responsibility for selection of tunneling equipment which, based on past experience, has proven to be satisfactory for excavation of soils to be encountered.
- B. Employ tunneling equipment that will be capable of handling various anticipated ground conditions and is capable of minimizing loss of soil ahead of and around machine and shall provide satisfactory support of excavated face.
- C. Tunnel Boring Machine (TBM). A TBM used for pipe-jacking shall conform to shape of tunnel with uniform perimeter that is free of projections that could produce over-excavation or voids. Appropriately sized overcutting bead may be provided to facilitate steering. In addition it shall:
  - 1. Be capable of minimizing loss of ground ahead of and around machine and providing satisfactory support of excavated face. Use TBM with, when necessary for ground control, earth-pressure balance or slurry-shield capabilities.
  - 2. Conform to shape of tunnel with uniform perimeter that is free of projections that could produce over-excavation or voids. TBM shield shall be continuous around its full perimeter; open-bottom shield is not acceptable.
  - 3. Have tail section long enough to enable setting of initial supports within machine, while still providing at least 12-inches of overlap beyond last installed support elements when thrusting jacks are extended to fullest extent possible.
  - 4. Have propulsion jacks capable of moving machine in forward direction while maintaining construction tolerances with respect to line and grade, without damage to previously-installed tunnel supports. Design propulsion system so that in event of failure of any element of system, there is no movement backward and there is no overstressing or distortion of tunnel supports.
  - 5. Incorporate seal in TBM tail shield to prevent leakage of grout between shield and liner into tunnel space, when grout is required immediately behind shield.
  - 6. Have motors and operating controls protected against water inflow.
  - 7. Provide bi-directional drive on cutter head wheel, or fins or grippers to control roll due to rotation.
  - 8. Provide means for maintaining tunnel face under wet and adverse soil conditions. Use

closure doors on cutter wheel or other means, such as earth-pressure balance or slurry shield, acceptable to Project Manager.

D. Tunnel Hand-Shield. If hand shield is used for pipe-jacked tunneling (with or without attached mechanized excavating equipment), shield must be capable of handling various anticipated ground conditions. In addition, shield shall:

1. Conform to shape of tunnel with uniform perimeter that is free of projections that could produce over excavation or voids. Appropriately sized overcutting bead or taper along length of shield may be provided to facilitate steering. Shield shall be continuous around its full perimeter; open bottom shield is not acceptable. Although it is recognized that capability to over excavate beyond perimeter of shield may be necessary under certain conditions, make provisions to prevent accidental over excavation.
2. Have hood, poling or breasting plates, shelves and breast jacks, breast tables, and combinations of these and other bracing as necessary to fully support face of tunnel excavation without loss of ground.
3. Have tail section long enough to enable setting of initial supports within shield while still providing at least 12-inches of overlap beyond last-installed support elements when shield has been pushed forward to fullest extent possible.
4. The tunneling shield shall include the capability to efficiently excavate and operate in competent full-face rock conditions, as may be encountered along the tunnel reaches.
5. The tunneling shield shall maintain the face of the excavation to allow the minimum of void space outside the liner plate.
  - a. Maintain a maximum of 1/2" radial overcut between the outside of the shield O.D. and the excavation.
6. Have propulsion system for moving shield in forward direction, while maintaining construction tolerances with respect to line and grade, without damage to previously-installed tunnel support. Design propulsion system so that in event of failure of any element of system, there is no movement backward and there is no overstressing or distortion of tunnel supports.
7. Have motors and operating controls protected against water inflow.
8. Incorporate seal in tail of shield to prevent leakage of grout between shield and liner into tunnel space, when grout is required immediately behind shield.

E. Pipe Jacking Equipment. Provide pipe jacking system with following features:

1. Has main jacks mounted in jacking frame located in starting shaft.

2. Has jacking frame which successively pushes string of connected casing following tunneling excavation equipment towards receiving shaft.
  3. Has sufficient jacking capacity to push tunneling excavation equipment and string of casing through ground. Incorporates intermediate jacking stations, if required.
  4. Has capacity at least 20 percent greater than calculated maximum jacking load.
  5. Develops uniform distribution of jacking forces on end of casing by use of spreader rings and packing, measured by operating gauges.
  6. Provides and maintains casing lubrication system at all times to lower friction developed on surface of pipe during jacking.
  7. Jack Thrust Reactions. Use reactions for pipe jacking that are adequate to support jacking pressure developed by main jacking system. Special care shall be taken when setting casing guide rails in jacking shaft to ensure correctness of alignment, grade, and stability.
- F. Air Quality. Provide equipment to maintain proper air quality of manned tunnel operations during construction in accordance with OSHA requirements.
- G. Enclose lighting fixtures in watertight enclosures with suitable guards. Provide separate circuits for lighting, and other equipment.
- H. Electrical systems shall conform to requirements of National Electrical Code - NFPA70.

### **3.04 PIPE-JACKED TUNNELING DATA**

- A. Maintain shift logs of construction events and observations. Project Manager shall have access to all logs with regard to following information:
1. Location of boring machine face or shield by station and progress of tunnel drive during shift.
  2. Hours worked per shift on tunneling operations.
  3. Completed field forms, such as steering control logs, for checking line and grade of tunneling operation, showing achieved tolerance relative to design alignment.
  4. Maximum jacking pressures per drive.
  5. Location, elevation and brief soil descriptions of soil strata.
  6. Ground water control operations and piezometric levels.

7. Observation of any lost ground or other ground movement.
8. Any unusual conditions or events.
9. Reasons for operational shutdown in event drive are halted.

### **3.05 EXCAVATION AND JACKING OF PIPE**

#### **A. Tunnel Excavation.**

1. Keep tunnel excavation within easements and rights-of-way indicated on Drawings and to lines and grades designated on Drawings.
2. Perform tunneling operations in manner that will minimize movement of ground in front of and surrounding tunnel. Prevent damage to structures and utilities above and in vicinity of tunneling operations.
3. Open-face excavations:
  - a. Keep face breasted or otherwise supported and prevent falls, excessive raveling, or erosion. Maintain standby face supports for immediate use when needed.
  - b. During shut-down periods, support face of excavation by positive means; no support shall rely solely on hydraulic pressure.
4. Closed-face excavation:
  - a. Carefully control volume of spoil removed. Advance rate and excavation rate to be compatible to avoid over excavation or loss of ground.
  - b. When cutting head is withdrawn or is open for any purpose, keep excavated face supported and stabilized.
5. Excavated diameter should be minimum size to permit casing installation by jacking with allowance for bentonite injection into annular space.
6. Whenever there is condition encountered which could endanger tunnel excavation or adjacent structures, operate without intermission including 24-hour working, weekends and holidays, until condition no longer exists.
7. Assume responsibility for damage due to settlement from any construction-induced activities.

#### **B. Jacking of Casing Pipe**

1. Provide heavy-duty jacks of capacity suitable for forcing casing pipe through ground. Construct operating jacks so that even pressure is applied to all jacks used. Provide suitable jacking head, (timber, etc.), and suitable bracing between jacks and jacking



head. Provide suitable jacking frame and/or back stop. Set casing pipe to be jacked on guides, (timber, etc.), properly braced together, to support section of pipe and direct it to proper line and grade. Place whole jacking assembly so as to line up with direction and grade of casing pipe.

2. Excavate ground material just ahead of casing pipe by use of air-powered tools, excavating machine or other acceptable means, and remove through casing pipe. Then force casing pipe through ground with jacks, into space thus provided. Dispose excavated material as specified.
3. Excavate face commencing at the crown and proceed down to invert. Excavate heading so that both sides of heading are excavated simultaneously.
4. At all time maintain standby face supports to allow for immediate use when needed. At end of shift and whenever excavation is suspended or shut-down, install breast boards, or other approved methods, across full face of heading.
5. Cushion joints as necessary to transmit jacking forces without damage to casing or joints.
6. Maintain envelope of bentonite slurry around exterior of casing during jacking and excavation operation to reduce exterior friction and possibility of casing seizing in place.
7. If casing seizes up in place and elect to construct recovery access shaft, obtain approval from Project Manager. Coordinate traffic control measures and utility adjustments as necessary prior to commencing work.
8. In event a section of casing is damaged during jacking operation, or joint failure occurs, as evidenced by inspection, visible ground water inflow or other observations, submit for approval his methods for repair or replacement of casing.
9. Refer to Section SS 02610 – Steel Casing Pipe for specific casing requirements.

### **3.06 CONTROL OF LINE AND GRADE**

- A. Construction Control. Contractor shall reference Specification SS 01050 – Survey Control.
  1. Project Manager will establish baselines and benchmarks indicated on Drawings. Check baselines and benchmarks at beginning of Work and report any errors or discrepancies to Project Manager.
  2. Use baselines and benchmarks established by Project Manager to establish and maintain construction control points, reference lines and grades for locating tunnel, sewer pipe, and structures.

Establish construction control points sufficiently far from work so as not to be affected by

ground movement caused by pipe-jacked tunneling operations.

- B. Bench Mark Movement. Ensure that if settlement of ground surface occurs during construction which affects accuracy of temporary benchmarks detect and report such movement and reestablish temporary bench marks. Advise Project Manager of any settlement affecting permanent monumentation benchmarks.
- C. Line and Grade.
  - 1. Check and record survey control for tunnel against above-ground undisturbed reference at least once for each 250 feet of tunnel constructed.
  - 2. Record exact position of TBM or shield after each shove to ensure alignment is within specified tolerances. Make immediate correction to alignment before allowable tolerances are exceeded.
  - 3. When excavation is off line or grade, make alignment corrections to avoid reverse grades in gravity sewers.
  - 4. Acceptance criteria for sewer pipe shall be plus or minus 6 inches in horizontal alignment from theoretical at any point between manholes, including receiving end, and plus or minus 1-1/2 inches in elevation from theoretical.
  - 5. Pipe installed outside tolerances and subsequently abandoned shall first be fully grouted.

### **3.07 MONITORING**

- A. Instrumentation Monitoring and Surface Settlement Monitoring. Contractor shall reference Specification SS 02445 Settlement Monitoring.

### **3.08 MEASUREMENT AND PAYMENT**

- A. Unit Prices.
  - 1. Length of sewer installed will be measured by linear foot along center line of completed sewer from center line to center line of manholes, as designated on Drawings; and to end of stubs or termination of pipe; and to inside face of lift station and treatment plant works. Installation of sewer within limits of structure other than manholes will not be considered for measurement and payment at unit price bid.
  - 2. Payment will include and be full compensation for labor, equipment, materials, and supervision for construction of sewer and excavation, complete in place including disposal of excess materials, sheeting, shoring or bracing, dewatering, utility adjustments, connections to existing sewers, grouting when required, tests, backfilling, clean-up, and other related work necessary for construction as specified or as shown on Drawings.

3. Monitoring for installations, observations, and reporting is considered subsidiary to the pipe-jack tunnels and no separate payment will be made to the Contractor for the work.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.01 SECTION INCLUDES**

- A. Tunnel construction of sewers by one-pass methods with or without man entry. Construction methods involve jacking pipe following hand-shield excavation or tunnel boring machine (TBM), with pipe serving as both tunnel liner during construction and sewer pipe after completion of construction.

### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. SS 02245 – Settlement Monitoring
- B. SS 02610 – Steel Casing Pipe
- C. SS 02140 – Control of Ground and Surface Water
- D. SS 02242 – Water Control Shaft Tunnel Construction
- E. SS 03360 – Contact Grouting.
- F. SS 01050 – Survey Controls

### **1.03 REFERENCE STANDARDS**

- A. American Association of State Highway and Transportation Officials (AASHTO).
- B. Occupational Safety and Health Administration (OSHA).
- C. National Electrical Code - (NFPA 70).

### **1.04 DEFINITION**

- A. Direct Pipejacking: Method for installing sewer pipe that serves as initial construction lining and tunnel support, installed for stability and safety during construction, and as sewer pipe. Pipe is shoved forward, or jacked, as tunnel is advanced.
- B. Tunnel Boring Machine (TBM): Mechanized excavating equipment that is steerable, guided and articulated, connected to and shoved forward by pipe being installed, with man entry.
- C. Open Shield. Face of heading or tunnel which is unsupported during excavation (e.g., in hand-mining or shield excavation).
- D. Close Shield. Face of heading or tunnel which is supported during excavation process from TBM, where cutter head allows both partial exposure of face and full closure, by means of hydraulically operated gates.

- E. Tunneling Methodology. Written description, together with supporting documentation that defines plans and procedures for pipe jacking operations.

#### **1.05 SUBMITTALS**

- A. Following submittals are required:

1. Tunneling Methodology. Brief description of proposed tunnel methodology. Description should be sufficient to convey following:
  - a. Proposed method of tunnel construction and type of face support.
  - b. If use of mechanized excavating equipment is proposed, submit drawings and technical specifications of machine and associated equipment including any modifications, experience record with this type of equipment, and Contractor's experience and training records for the equipment operator.
  - c. When use of tunnel shield is proposed, submit arrangement drawings, design criteria, dimensional data and method of excavation and operation of shield, including acceptable method for supporting, controlling and closing face of heading.
  - d. Type of lighting and ventilation systems.
  - e. Number and duration of shifts planned to be worked each day.
  - f. Sequence of operations,
  - g. Locations of access shafts and work sites.
  - h. Method of controlling line and grade of tunneling operation.
  - i. Method of spoil transportation from face, surface storage and disposal location.
  - j. Capacity of jacking equipment and type of cushioning.
  - k. Grouting technique meeting requirements of SS 03360 – Contact Grouting.
2. Drawings and Calculations: Submit for record purposes, drawings and calculations for any tunnel support system designed by the Contractor.
  - a. Provide adequate drawings and installation details for construction. For pipe jacking and show pipe and pipe joint detail, including the pipe stress calculations based on jacking loads. Documents must be signed and sealed by Professional Engineer registered in State of Texas.

3. Quality Control: Submit for review brief description of quality control methods including:
  - a. Method and frequency of survey control.
  - b. Example of tunnel daily log.
4. Geotechnical Investigation: When geotechnical investigations are conducted by the Contractor, submit results to SAWS and Design Consultant for record purposes.
5. Monitoring Plans:
  - a. Instrumentation Monitoring Plan: Submit for review, prior to construction, monitoring plan that includes schedule of instrumentation design, layout of instrumentation points, equipment installation details, manufacturer's catalog literature, and monitoring report forms.
  - b. Surface Settlement Monitoring Plan. Submit settlement monitoring plan for review prior to construction. Identify on plan location of settlement monitoring points, reference benchmarks, survey frequency and procedures, and reporting formats.
6. Structures Assessment. Provide preconstruction and post construction assessment reports for critical structures, namely those located within zone of active excavation from proposed tunnel centerline. Include photographs or video of existing damage to structures in vicinity of sewer alignment in assessment reports.
7. Readings of all monitoring shall be submitted to SAWS and Design Consultant.
8. Daily Reports: Maintain shift log as defined in Paragraph 3.04, Pipe-jacked Tunneling Data, and make available to SAWS and Design Consultant on request.

#### **1.06 DESIGN CRITERIA**

- A. Contractor is responsible for selection of the appropriate pipe and pipe joints to carry thrust of any jacking forces or other construction loads in combination with overburden, earth and hydrostatic loads. Design of any pipe indicated on Drawings considers in-place loads only and does not take into account any construction loads. Criteria for longitudinal loading (jacking forces) on pipe and joints shall be determined by the Contractor, based on selected method of construction.
- B. Jacked pipe shall be designed to withstand thrust from TBM or shield and pipe advance without damage or distortion. Propulsion jacks shall be configured so that thrust is uniformly distributed and will not damage or distort pipe.
- C. Take into account loads from handling and storing.

- D. All design assumptions regarding subsurface conditions, equipment requirements, groundwater and other factors are the responsibility of the Contractor and shall be fully documented.
- E. Criteria to be used for truck loading shall be HL-20 vehicle loading distributions in accordance with the AASHTO LRFD Bridge Design Specification.
- F. Provide pipes of diameter shown on Drawings. Substitution of pipe with larger diameter to suit TBM equipment availability will only be permitted if demonstrated to satisfaction of SAWS and Design Consultant that design flows and velocities can be achieved.
- G. Tunneling excavation method shall be capable of excavating through full face bedrock conditions, as may be encountered along the tunnels.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Fiberglass Reinforced pipe, joints, and fittings to be in accordance with Section SPT 857 - Glass-Fiber Reinforced Pipe for Large Diameter Gravity Sanitary Sewers.
- B. Use pipe that is round with smooth, even outer surface, and has joints that allow for easy connections between pipes. Design pipe ends so that jacking loads are evenly distributed around entire pipe joint and such that point loads will not occur when pipe is installed.
- C. Provide 2-inch diameter grout ports in wall of pipe when required. Provide plugs of 316 stainless steel or other corrosion-resistant material compatible with pipe. Place hole in a pattern so that each succeeding hole from top dead center is 60 degrees right, then 60 degrees left, then top dead center. Locate hole in no more than 5 feet apart. Design and install grout port plugs to meet pipe test pressure.
- D. Pipe used for pipe jacking shall be capable of withstanding all forces that will be imposed by process of installation, as well as final in-place loading conditions. Protect driving ends of pipe and joints against damage.
- E. Do not exceed 40 percent of allowable jacking /pushing capacity of ultimate compressive strength or maximum allowable compressive strength recommended by manufacturer, whichever is less.

## **PART 3 EXECUTION**

### **3.01 CONSTRUCTION OPERATIONS CRITERIA**

- A. Use methods for tunneling operations that will minimize ground settlement. Select method which will control flow of water and prevent loss of soil into tunnel and provide stability of face under anticipated conditions.

- B. Conduct tunneling operations in accordance with applicable safety rules and regulations, OSHA standards and Contractor's safety plan. Use methods which include due regard for safety of workmen, adjacent structures, utilities, and public.
- C. Maintain clean working conditions wherever there is man access.
- D. For tunneling under highways, or streets, perform installation so as to avoid interference with operation of highways, or streets, except as approved by owner of facility.

### **3.02 GROUND WATER CONTROL**

- A. Provide ground water control measures in conformance with Section 02140 – Control of Ground and Surface Water and Section 02242 – Water Control for Shaft Tunnel Construction, when necessary to perform Work.

### **3.03 EQUIPMENT**

- A. Contractor shall be responsible for selection of tunneling equipment which, based on past experience, has proven to be satisfactory for excavation of soils to be encountered.
- B. The Contractor shall employ tunneling equipment that will be capable of handling various anticipated ground conditions and is capable of minimizing loss of soil ahead of and around machine and shall provide satisfactory support of excavated face.
- C. Tunnel Boring Machine (TBM). A TBM used for pipe-jacking shall conform to shape of tunnel with uniform perimeter that is free of projections that could produce over-excavation or voids. Appropriately sized overcutting bead may be provided to facilitate steering. In addition it shall:
  - 1. Be capable of full face closure.
  - 2. Be equipped with appropriate seals to prevent loss of bentonite lubricant.
  - 3. Be capable of correcting roll by reverse drive or fins.
  - 4. Be designed to handle adverse ground conditions including ground water ingress.
  - 5. Be equipped with visual display to show operator actual position of TBM relative to design reference.
- D. Tunnel Shield. If hand shield is used for pipe-jacked tunneling (with or without attached mechanized excavating equipment), shield must be capable of handling various anticipated ground conditions. In addition, shield shall:



1. Conform to shape of tunnel with uniform perimeter that is free of projections that could produce over-excavation or voids. Appropriately-sized overcutting bead may be provided to facilitate steering. Shield shall be continuous around its full perimeter; open bottom shield not acceptable.
  2. Have hood, poling or breasting plates, shelves and breast jacks, breast tables, and combination of these and other bracing as necessary to fully support face of tunnel excavation without loss of ground.
  3. Have tail section long enough to enable setting of initial supports within shield while still providing at least 12-inches of overlap beyond last-installed support elements when shield has been pushed forward to fullest extent possible.
  4. Have propulsion system for moving shield in forward direction, while maintaining construction tolerances with respect to line and grade, without damage to previously-installed tunnel support. Design propulsion system so that in event of failure of any element of system, there is no movement backward and there is no overstressing or distortion of tunnel supports.
  5. Have motors and operating controls protected against water inflow.
  6. Incorporate seal in tail of shield to prevent leakage of grout between shield and liner into tunnel space, when grout is required immediately behind shield.
- E. Pipe Jacking Equipment. Provide pipe jacking system with following features:
1. Has main jacks mounted in jacking frame located in starting shaft.
  2. Has jacking frame which successively pushes string of connected pipes following tunneling excavation equipment towards receiving shaft.
  3. Has sufficient jacking capacity to push tunneling excavation equipment and string of pipe through ground. Incorporates intermediate jacking stations, if required.
  4. Has capacity at least 20 percent greater than calculated maximum jacking load.
  5. Develops uniform distribution of jacking forces on end of pipe by use of spreader rings and packing, measured by operating gauges.
  6. Provides and maintains pipe lubrication system at all times to lower friction developed on surface of pipe during jacking.
  7. Jack Thrust Reactions. Use reactions for pipe jacking that are adequate to support jacking pressure developed by main jacking system. Special care shall be taken when setting pipe guide rails in jacking shaft to ensure correctness of alignment, grade, and stability.

- F. Air Quality. Provide equipment to maintain proper air quality of manned tunnel operations during construction in accordance with OSHA requirements.
- G. Enclose lighting fixtures in watertight enclosures with suitable guards. Provide separate circuits for lighting, and other equipment.
- H. Electrical systems shall conform to requirements of National Electrical Code - NFPA70.

### **3.04 PIPE-JACKED TUNNELING DATA**

- A. Maintain shift logs of construction events and observations. SAWS and Design Consultant shall have access to all logs with regard to following information:
  - 1. Location of boring machine face or shield by station and progress of tunnel drive during shift.
  - 2. Hours worked per shift on tunneling operations.
  - 3. Completed field forms, such as steering control logs, for checking line and grade of tunneling operation, showing achieved tolerance relative to design alignment.
  - 4. Maximum pipe jacking pressures per drive.
  - 5. Location, elevation and brief soil descriptions of soil strata.
  - 6. Ground water control operations and piezometric levels.
  - 7. Observation of any lost ground or other ground movement.
  - 8. Any unusual conditions or events.
  - 9. Reasons for operational shutdown in event drive are halted.

### **3.05 EXCAVATION AND JACKING OF PIPE**

- A. Tunnel Excavation.
  - 1. Keep tunnel excavation within easements and rights-of-way indicated on Drawings and to lines and grades designated on Drawings.
  - 2. Perform tunneling operations in manner that will minimize movement of ground in front of and surrounding tunnel. Prevent damage to structures and utilities above and in vicinity of tunneling operations.
  - 3. Open-shield excavations:

- a. Keep face breasted or otherwise supported and prevent falls, excessive raveling, or erosion. Maintain standby face supports for immediate use when needed.
  - b. During shut-down periods, support face of excavation by positive means; no support shall rely solely on hydraulic pressure.
4. Closed-shield excavation:
- a. Carefully control volume of spoil removed. Advance rate and excavation rate to be compatible to avoid over excavation or loss of ground.
  - b. When cutting head is withdrawn or is open for any purpose, keep excavated face supported and stabilized.
5. Excavated diameter should be minimum size to permit pipe installation by jacking with allowance for bentonite injection into annular space.
6. Whenever there is condition encountered which could endanger tunnel excavation or adjacent structures, operate without intermission including 24-hour working, weekends and holidays, until condition no longer exists.
7. Assume responsibility for damage due to settlement from any construction-induced activities.
- B. Pipe Jacking
1. Provide heavy-duty jacks of capacity suitable for forcing pipe through ground. Construction operating jacks so that even pressure is applied to all jacks used. Provide suitable jacking head and suitable bracing between jacks and jacking head. Provide suitable jacking frame and/or back stop.
  2. Set pipe on guides to support section of pipe being jacked and to direct it in the proper liner and grade. Conform excavation of underside of pipe to the contour and grade of pipe.
  3. Excavate ground material head of pipe by using air-powered tools, excavating machine or other acceptable means. Dispose of excavated material as specified.
  4. Open Shield Excavations additional requirements:
    - a. Excavate face commencing at crown and proceed down to invert. Excavate heading so that both sides of heading are excavated simultaneously.
    - b. At all times maintain standby face supports to allow for immediate use when needed.

- c. At end of each shift and whenever excavation is suspended or shut down, install breast boards, or other approved methods, across full face of heading.
  5. Cushion pipe joints as recommended by pipe manufacturer to transmit jacking forces without damage to pipe or pipe joints.
  6. Lubricate annular space to minimize jacking loads. Maintain envelope of bentonite slurry around exterior of pipe during jacking and excavation operation to reduce exterior friction and possibility of pipe seizing in place. Control slurry pressuring to within safe buckling capacity of pipe.
  7. If pipe seizes up in place and elect to construct recovery access shaft, obtain approval from SAWS and Design Consultant. Coordinate traffic control measures and utility adjustments as necessary prior to commencing work.
  8. Do not exceed forces recommended by manufacturer for coupling pipe. If excessive force is required, remove coupling, determine source of problem, and correct it.
  9. Depending on character of soil encountered during jacking operation, carry on operation without interruption, insofar as practical, to prevent pipe from becoming firmly set in ground.
  10. When pressure grouting pipe, seal grout holes with liner resin to a thickness equal to pipe liner thickness or with a threaded plug for that purpose.
  11. Apply joint lubricant to bell interior surface and elastomeric seals. Use only lubricants approved by pipe manufacturer.
  12. In event section of pipe is damaged during jacking operation, or joint failure occurs, as evidenced by inspection, visible ground water inflow or other observations, submit for approval his methods for repair or replacement of pipe.
- C. Grouting. Grouting requirements are defined in SS 03360 – Contact Grouting.

### **3.06 RISK AND CONTINGENCY PLANS**

- A. The Contractor should be prepared to drill through mixed soil/bedrock face conditions and/or bedrock conditions.
- B. The Contractor shall prepare and implement an approved contingency plan dealing with key project or direct pipe jacking tunneling risks identified. As a minimum, the Contractor shall have defined plans complete with equipment and materials on standby to mitigate against the following direct pipe jacking tunneling risks:
  1. Shaft/pit collapse
  2. Tunnel collapse

3. Shift/pit flooding
4. Tunnel flooding
5. Mechanical failure
6. Settlement or heave scenarios
7. Serious safety or environmental incidents
8. High water inflows at the face of the TBM which prevents access to machinery
9. Higher jacking forces than expected
10. Large boulder and/or structures encountered. Requiring the abandonment of the bore
11. Pipe damage and joint failure during jacking operations

### **3.07 CONTROL OF LINE AND GRADE**

- A. Construction Control. Contractor shall reference Specification SS 01050 – Survey Control.
  1. SAWS and Design Consultant will establish baselines and benchmarks indicated on Drawings. Check baselines and benchmarks at beginning of Work and report any errors or discrepancies to SAWS and Design Consultant.
  2. Use baselines and benchmarks established by SAWS and Design Consultant to establish and maintain construction control points, reference lines and grades for locating tunnel, sewer pipe, and structures.
  3. Establish construction control points sufficiently far from work so as not to be affected by ground movement caused by pipe-jacked tunneling operations.
- B. Bench Mark Movement. Ensure that if settlement of ground surface occurs during construction which affects accuracy of temporary benchmarks detect and report such movement and reestablish temporary bench marks. Advise SAWS and Design Consultant of any settlement affecting permanent monumentation benchmarks.
- C. Line and Grade.
  1. Check and record survey control for tunnel against above-ground undisturbed reference at least once for each 250 feet of tunnel constructed.
  2. Record exact position of TBM or shield after each shove to ensure alignment is within specified tolerances. Make immediate correction to alignment before allowable tolerances are exceeded.
  3. When excavation is off line or grade, make alignment corrections to avoid reverse grades in gravity sewers.
  4. Acceptance criteria for sewer pipe shall be plus or minus 6-inches in horizontal alignment from theoretical at any point between manholes, including receiving end, and plus or minus 1 1/2-inches in elevation from theoretical.

5. Pipe installed outside tolerances and subsequently abandoned shall first be fully grouted.

### **3.08 MONITORING**

- A. Instrumentation Monitoring and Surface Settlement Monitoring. Contractor shall reference Specification SS 02445 Settlement Monitoring.

### **3.09 MEASUREMENT AND PAYMENT**

- A. Unit Prices.
  1. Length of sewer installed will be measured by linear foot along center line of completed sewer from center line to center line of manholes, as designated on Drawings; and to end of stubs or termination of pipe; and to inside face of lift station and treatment plant works. Installation of sewer within limits of structure other than manholes will not be considered for measurement and payment at unit price bid.
  2. Payment will include and be full compensation for labor, equipment, materials, and supervision for construction of sewer and excavation, complete in place including disposal of excess materials, sheeting, shoring or bracing, dewatering, utility adjustments, connections to existing sewers, grouting when required, tests, backfilling, clean-up, and other related work necessary for construction as specified or as shown on Drawings.
  3. Monitoring for installations, observation, and reporting is considered subsidiary to the pipe-jack tunnels and no separate payment will be made to the Contractor for the work.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.01 SCOPE OF WORK**

- A. This section is intended to supplement SAWS Item 856 – Jacking, Boring or Tunneling Pipe. No modifications to Item 856 are proposed.
- B. Section includes: Furnishing, installing, and monitoring settlement instrumentation for measuring ground movements around and above trenchless construction operations. The Work includes but is not limited to: installing surface monitoring points, installing subsurface monitoring points furnishing monitoring equipment, and recording observations and measurements from the monitoring points on a periodic basis before, during, and after trenchless construction.
- C. The Contractor is responsible for surveying the elevations of the surface and subsurface monitoring points, in accordance with the requirements herein. Elevations shall be determined before operations begin to establish a baseline, and during and after operations to monitor any movements related to the trenchless construction. All monitoring points shall be surveyed after trenchless construction has been completed to evaluate long-term settlements, as specified herein.
- D. Minimum instrumentation requirements are specified herein. Additionally, the Contractor shall install other instrumentation as necessary to control operations, monitor ground conditions and ground response to achieve specified project requirements and to prevent damage to existing structures and facilities.

### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. SS 02400 – Tunnel Shafts
- B. SS 02314 – Tunneling with Liner Plate
- C. SS 02441 – Pipe-Jacked Tunnels
- D. SS 03360 – Contact Grouting

### **1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS**

- A. The publications listed below form a part of this Specification to the extent referenced. Where conflicts between these Specifications and the referenced specification, code or standard occur, the more restrictive specification shall govern. The latest edition available on the date of issue of Contract Documents shall be used.
- B. San Antonio Water System (SAWS)
  - 1. Specifications for Water and Sanitary Sewer Construction – latest version
  - 2. Materials Specifications

**1.04 DEFINITIONS**

- A. Surface Monitoring Points: A marking established as a baseline for measuring elevation of the ground surface using optical survey methods.
- B. Subsurface Monitoring Point: A cased borehole settlement monitoring point located above the tunnel crown used for detecting settlement between the location of the settlement point and the tunnel excavation.

**1.05 DESIGN CRITERIA**

- A. Any ground movements (settlement/heave) shall be limited to values that shall not cause damage to adjacent utilities and facilities that are to remain in service. In no case shall settlements exceed the applicable values listed in Table 1 below.

**Table 1 – Maximum Allowable Settlement / Heave Values**

<b>Site Feature</b>	<b>Allowable Settlement / Heave (inches)</b>
Railroad Tracks	0.25
Surface Streets	<0.5
Underground Utilities	<0.5
Unimproved Ground	3.00

- B. No movement of State Highway 151 bridge will be allowed. If movement of bridge is detected, or a cave-in or other large ground loss events occur, contractor shall implement contingency plan.

**1.06 QUALITY ASSURANCE**

- A. Surveyor Qualifications: All surveying shall be performed by a land surveyor licensed in the State of Texas with previous experience surveying for the detection of surface deformations.
- B. Monitoring points shall be installed within 50 feet of the beginning and end of each tunnel as well as every 100 feet along the tunnel alignment. Also install monitoring points approximately 20 feet of each side of tunnel for primary lined tunnels greater than 60-inches. Additional surface monitoring points may be required and shall be installed as directed by SAWS.
- C. For crossing under utilities and pipelines, locate monitoring points directly above and 10 feet before and after intersection.
- D. Should actual field conditions prevent installation of instruments at the location specified herein, obtain written acceptance from SAWS for new instrument location and elevation.



Surveying for monitoring settlement instrumentation shall be referenced to the same control points and benchmarks established for setting out the Work. Control points shall be tied to benchmarks and other monuments outside of the zone of influence of the excavation or trenchless construction.

#### **1.07 SUBMITTALS**

- A. Submittals shall be made in accordance with SAWS' requirements. Review and acceptance of the Contractor's submittals by the Consultant shall not be construed in any way as relieving the Contractor of its responsibilities under this Contract.
- B. Qualifications: Submit surveying personnel qualifications in accordance with the requirements herein.
- C. Submit the following, at least one (1) month before scheduled installation of monitoring points:
  - 1. Instrumentation Schedule: Submit the proposed schedule for installing the surface and subsurface monitoring points.
  - 2. Description of methods and materials for installing and protecting surface and subsurface monitoring points.
  - 3. Drawings with locations of proposed monitoring points shown in plan and profile.
- D. Reports and Records
  - 1. The Contractor shall submit all reports of monitoring data to SAWS.
  - 2. Within 72 hours following installation of the instruments, submit drawings showing the actual as-built installed location, the instrument identification number, the instrument type, the installation date and time, and the tip elevation and instrument length. Include details of installed instruments, accessories and protective measures including all dimensions and materials used.
  - 3. Submit surveyed baseline measurements of all monitoring points at least fourteen (14) days prior to commencing excavation to establish baseline readings.
  - 4. Submit surveyed measurements of monitoring points during and after construction in accordance with Part 3 of this Specification.
- E. Structure Assessment: Submit pre-construction and post-construction assessment reports for critical structures, namely those located within zone of active excavation from proposed tunnel centerline. Include photographs or videos of existing damage to structures in vicinity of sewer alignment in Assessment Report.

- F. Submit for approval contingency plan to monitor, record and prevent movement of bridge columns and adjacent 42-inch Sanitary Sewer. Contingency plan shall include actions to be taken in the event movement on bridge is detected, disturbance to existing 42-inch Sanitary Sewer occurs, and cave-in or large ground-loss event occurs

## **PART 2 – PRODUCTS**

### **2.01 MATERIALS**

- A. All instrumentation shall remain the property of the Contractor following completion of the Work and shall be removed or abandoned according to applicable codes and standards, unless otherwise noted.
- B. Surface Monitoring Points: Surface monitoring points shall be established by an inscribed marking or approved surveyor's nail driven flush with the surface in asphalt or concrete paved areas. In landscaped areas, surface monitoring points shall be established by driving a 2-inch by 2-inch timber stake flush with the ground. The stake shall be driven to a depth required to provide a stable monitoring point given the soil conditions. Each monitoring point shall have a tag or marking indicating the station and offset from centerline.
- C. Subsurface Monitoring Points: Each point shall consist of a #6 rebar settlement rod installed within and isolated from a PVC cased borehole. The settlement rod shall be driven 6 to 12 inches past the bottom of the borehole casing into undisturbed ground, and the tips shall be located at five feet above the pipe crown centerline as noted on the Plans, or as directed by the Consultant. The settlement rod shall be secured to the PVC casing with a 12-inch length of loose cable or chain to prevent the rod from falling more than approximately 12 inches. The casing shall be flush with pavement or recessed, and capped and protected with a road box if installed within traffic lanes, shoulders, parking lots, or bike lanes and shall be in accordance with applicable permit requirements. Inclometers shall consist of aluminum or plastic casing drilled vertically into stable soil. Each casing shall have tracking grooves to guide sensing probe. The probe shall be supplied with stops at 2-foot intervals for collection of inclination data.
- D. Bridge Column Monitoring Points: Bridge column tiltmeters monitoring points shall be established to measure the change in inclination of structural columns. Tiltmeters shall consists of reference points on plates attached to surface of bridge column and monitored by means of a portable readout unit or remote electronic sensing units.

## **PART 3 – EXECUTION**

### **3.01 GENERAL REQUIREMENTS**

- A. Instrumentation shall be installed at locations approved by SAWS. Instruments shall be installed in accordance with the approved installation schedule.

- B. The Contractor shall locate conduits and underground utilities in all areas where borings are to be drilled and instruments installed. Instrument locations shall be modified, as approved by the Consultant, to avoid interference with the existing conduit and utilities. The Contractor shall repair damage to existing utilities resulting from instrument installations.
- C. Contractor shall install and perform a baseline survey of all surface and subsurface settlement monitoring devices at least 14 days prior to excavation.
- D. Contractor shall provide access and assistance to the Consultant for obtaining supplemental monitoring data, as requested by Consultant.
- E. Provide data from readings of all monitoring points to the Consultant within 24 hours of reading.

### **3.02 MONITORING FREQUENCY**

- A. Surface Monitoring Points: Initial survey measurements shall be obtained prior to any excavation and daily after beginning excavation, or trenchless construction.
- B. Subsurface Monitoring Points: Once trenchless construction begins, subsurface monitoring points within 50 feet of the tunnel face shall be surveyed once for every 10 feet of tunnel progress, and at least once daily.
- C. All monitoring points shall be surveyed at least once per day during trenchless construction operations. Once these operations are complete, all settlement monitoring devices shall be surveyed once per day for the first seven days, once at 14 days, and once at 30 days after completion of the trenchless work.
- D. Contractor to immediately report any movement, cracking, or settlement that approaches the allowable limits in paragraph 1.05.

### **3.03 SURFACE MONITORING POINTS**

- A. Establish a system of surface monitoring points. Up to eight (8) additional monitoring point locations (in addition to locations specified in Part 1.06) shall be determined jointly by SAWS and Contractor in the field prior to construction.
- B. Surveying of surface monitoring points shall consist of determining the elevation of each monitoring point with respect to a benchmark selected by the Consultant to a precision of 0.01 foot.

### **3.04 SUBSURFACE MONITORING POINTS**

- A. Notify the Consultant at least 3 days in advance of installing subsurface monitoring points.

- B. The subsurface monitoring points shall be installed as close as practicable to the locations approved by SAWS. SAWS may modify subsurface monitoring point locations depending on field conditions, conflicting utilities, and monitoring objectives.
- C. Locate and confirm all utilities and protect utilities or relocate monitoring points as necessary to protect all utilities. Follow State laws and accepted industry procedures for one-call notification and visual confirmation of locations of all crossing or adjacent utilities.
- D. Subsurface monitoring point installations shall be completed at least 14 days in advance of commencing shaft construction, or trenchless construction.
- E. Conduct drilling operations using appropriate methods that are consistent with anticipated geologic conditions. Use mud rotary wash methods or provide casing as required to hold drill hole open.
- F. Subsurface monitoring rods shall move freely with the soil at the tip and shall be isolated from the soil surrounding the borehole by the casing.
- G. Establish monitoring points on all critical structures. Provide inclinometers to monitor subsurface deformation around tunnel excavation underneath SH-151.
- H. Protection: Install protective housing with cap. Protective housing shall be installed within a flush-mounted precast concrete box or vault if in traffic lanes or paved areas, so as not to obstruct vehicle or foot traffic, and shall be in accordance with TxDOT standards and permit requirements.
- I. Surveying of subsurface monitoring points shall consist of determining the elevation of each monitoring rod with respect to a benchmark selected by the Consultant to a precision of 0.01 foot.

### **3.05 INSTRUMENT PROTECTION, MAINTENANCE, AND REPAIR**

- A. Protect the instruments and surface control points from damage. Damaged installations shall be replaced or repaired prior to continuing excavation, or trenchless construction, unless permitted otherwise in writing by the Consultant.

### **3.06 ABANDONMENT OF INSTRUMENTS**

- A. Surface Monitoring Points: All surface monitoring points on public property shall remain in place at the completion of the Work. Remove all surface monitoring points on private property during the cleanup and restoration work, or as required by SAWS.
- B. Subsurface monitoring points: Properly abandon all monitoring point boreholes, by removing the rebar and then grouting the drilled holes with neat cement grout. Subsurface monitoring points shall be abandoned at the conclusion of the monitoring phase (See Paragraph 3.02 C) as described in 03360 – Contact Grouting, or as required by SAWS. Remove flush mounted surface boxes and restore surface to original condition.

**PART 4 – PAYMENT**

**4.01 MEASUREMENT FOR PAYMENT**

- A. This item is considered subsidiary to the work and no separate payment will be made to the Contractor for the work.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.01 SCOPE OF WORK**

- A. This section is intended to supplement SAWS Item 856 – Jacking, Boring or Tunneling Pipe. No modifications to Item 856 are proposed.
- B. The section provides the minimum requirements for manufacturing, furnishing, and transporting steel casing pipe to be installed by trenchless methods. The Contractor shall provide all labor, equipment and materials to install steel casing pipe to host water line and gravity sewer at the locations shown on the Plans.

### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. SS 02314 – Tunneling with Liner Plate
- B. SS 02441– Pipe-Jacked Tunnels
- C. SS 02426 – Carrier Pipe in Tunnels
- D. SS 03360 – Contact Grouting

### **1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS**

- A. The publications listed below form a part of this Specification to the extent referenced. Where conflicts between these Specifications and the referenced specification, code, or standard occur, the more restrictive specification shall govern. The latest edition available on the date of issue of Contract Documents shall be used.
- B. San Antonio Water System (SAWS)
  - 1. Specifications for Water and Sanitary Sewer Construction – latest version
  - 2. Materials Specifications
- C. ASTM A139 – Specification for Electric Fusion (Arc) Welded Steel Pipe (Sizes 4 inches and Over)
- D. ASCE Standard Design and Construction Guidelines for Microtunneling ASCE/CI 36-14.

### **1.04 DESIGN CRITERIA**

- A. The Contractor is fully responsible for the design of steel casing pipe or tunnel liner that meets or exceeds the design requirements of this Specification and that is specifically designed for installation by the intended trenchless method.
- B. Steel Casing Pipe

1. Design of the casing pipe shall account for all installation and service loads including: (1) jacking loads; (2) external groundwater and earth loads; (3) traffic loads, (4) practical consideration for handling, shipping, and other construction operations; (5) any other live or dead loads reasonably anticipated. Design shall be sealed and signed by a registered Professional Engineer licensed in the State of Texas. The Contractor shall submit certification that the design prepared by the Registered Engineer was used.
  2. The allowable jacking capacity shall not exceed 50 percent of the minimum steel yield stress.
  3. Steel casing pipe shall have a minimum wall thickness of 0.50 inches.
  4. Steel casing pipe connections shall be achieved by full penetration field butt welding or an integral, machined, press-fit connection (Permalok or equal) prior to installation of the pipe, depending on the type of carrier pipe. Field butt welding a square end piece of steel pipe to a thirty-five (35) degree beveled end of steel pipe is acceptable. Integral, machined, press-fit connections shall be installed in accordance with the manufacturer's installation procedures and recommendations.
  5. Steel casing pipe shall be provided with grout/lubricant ports along the pipe at intervals of ten (10) feet or less. Ports and fittings shall be attached to the pipe in a manner that will not materially affect the strength of the pipe nor interfere with installation of carrier pipe. Plugs for sealing the fittings shall be provided by the Contractor and shall be capable of withstanding all external and internal pressures and loads without leaking.
- C. Steel casing pipe shall be provided with inside diameter sufficient to efficiently install the required carrier pipe with casing spacers as required in SS 02426 – Carrier Pipe in Tunnels. Allowable casing diameters are shown on the Plans.
- D. Steel casing pipe shall be furnished in lengths that are compatible with Contractor's shaft sizes, allowable work areas and Contractor's approved work plan.

## **1.05 SUBMITTALS**

- A. Submittals shall be made in accordance with SAWS' requirements. Review and acceptance of the Contractor's submittals by the Consultant shall not be construed in any way as relieving the Contractor of its responsibilities under this Contract.
- B. Steel Casing Pipe: The Contractor shall furnish shop drawings illustrating the details of the casing pipe, grout/lubrication ports, joint details, and miscellaneous items to be furnished and fabricated for the pipe. Dimensions, tolerances, wall thickness, properties and strengths, and other pertinent information shall be shown. These items shall be submitted for review by SAWS prior to fabrication.
- C. Calculations: Calculations shall be submitted in a neat, legible format. Basis of calculations shall be consistent with information provided in the Geotechnical Data Report. All calculations shall be prepared by or under direct supervision of a Professional Engineer licensed in State of Texas, who shall stamp and sign calculations.

1. Provide calculations confirming that pipe jacking capacity is adequate to resist the anticipated jacking loads for each crossing with a minimum factor of safety of two (2).
2. Submit calculations confirming that pipe capacity is adequate to safely support all other anticipated loads, including earth and groundwater pressures, surcharge loads, and handling loads.
3. Submit calculations confirming that jointing method will support all loading conditions.

## **PART 2 – PRODUCTS**

### **2.01 MATERIALS**

#### **A. Steel Casing Pipe**

1. Steel casing pipe shall be new, smooth-wall, carbon steel pipe conforming to ASTM Specification A139, Grade B.
2. Dimensional Tolerances: Contractor shall bear sole responsibility for furnishing and installing steel casing pipe with dimensional tolerances that are compatible with performance requirements and proposed installation methods that meet or exceed the specific requirements below:
  - a. The minimum wall thickness at any point shall be at least 100% of the nominal wall thickness.
  - b. Steel pipe shall have an outside circumference that is within 1.0 percent or 3/4" of the nominal circumference, whichever is less.
  - c. The outside diameter of the pipe shall be within 1/8" of the nominal outside diameter.
  - d. Steel pipe shall have a roundness such that the difference between the major and minor outside diameters shall not exceed 0.5 percent of the specified nominal outside diameter or 1/4", whichever is less.
  - e. Steel pipe shall have a maximum allowable straightness deviation of 1/8" in any 10- foot length.
  - f. All steel pipe shall have square ends. The ends of pipe sections shall not vary by more than 1/8" at any point from a true plane perpendicular to the axis of the pipe and passing through the center of the pipe at the end.
3. Steel casing pipe shall be fabricated with longitudinal weld seams. All girth weld seams shall be ground flush.



4. Prior to delivery of the pipe, end/internal bracing shall be furnished and installed, as recommended by the manufacturer, for protection during shipping, storage, and installation.

### **PART 3 – EXECUTION**

#### **3.01 INSTALLATION**

- A. Steel casing pipe shall be installed in accordance with 02441 – Pipe-Jacked Tunnels.
- B. Carrier pipe shall be installed inside steel casing pipe in accordance with 02426 – Carrier Pipe in Tunnels.
- C. Contact grouting of the annulus outside the casing pipe shall be performed in accordance with 03360 – Contact Grouting.

### **PART 4 – PAYMENT**

#### **4.01 MEASUREMENT FOR PAYMENT**

- A. Casing pipe of the size and material required shall be measured for payment by the linear foot actually installed in accordance with the plans. Casing pipe shall be paid for under the bid item “Casing”.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.01 DESCRIPTION**

This item shall consist of the installation of 12" HDPE temporary water main, including all necessary trenching, trench repair, piping, fittings, valves, service connections, tie-ins, testing and all appurtenances to provide a temporary water main in accordance with these specifications.

### **1.02 MATERIALS**

Contractor is to use an approved SAWS material for the temporary water main. All types of pipe materials will be part of this bid item.

### **1.03 CONSTRUCTION**

The contractor shall be responsible for maintaining access to impacted homes or businesses and securing the temporary water main during construction. Contractor shall be responsible for any damage and /or injuries resulting from the installation of the temporary water main. The temporary water main is intended to be an above ground installation, but may be placed underground. The contractor is to fully restrain the entire length of the temporary water main if placed above ground. If the temporary water main is underground the pipe will be a restrained system and must adhere to Standard details DD-839-04 through DD-839-08 or as shown on plan drawings. Restraints for the temporary water main are inclusive to this bid item. The Contractor shall coordinate placement with SAWS and SAWS Inspectors. Contractor shall notify residents and/or businesses 48 hours prior to installation of the temporary main. Temporary main must be chlorinated, sampled, and tested prior to activation and approved by SAWS.

**1.04 MEASUREMENT** The temporary water main shall be measured by Lump Sum (LS) for the entirety of the project.

### **1.05 PAYMENT**

12" HDPE temporary waterline, including all necessary trenching, trench repair, piping, fittings, valves, service connections, tie-ins, testing and all appurtenances to provide a temporary water main for water main construction will be paid lump sum, inclusive of all the above stated items installed. Such payment shall also include trench excavation, if required, accomplished either manually or mechanically.

**DESCRIPTION:** This item shall consist of the installation and adjustment of four (4) inch to eight (8) inch sanitary sewer private laterals in accordance with these specifications.

**MATERIALS:** The lateral piping shall be SDR 26, ASTM 2241, 160 psi.

**CONSTRUCTION:** Sanitary sewer private lateral piping begins from the clean out at the property line to the point of connection within the limits of the Customer's lot or property. The Contractor shall furnish all materials necessary to complete all connections and to provide the required slope for proper drainage of effluent. Testing of the newly installed pipe shall be the responsibility of the Contractor. Construction of four (4) inch and six (6) inch lateral shall maintain a minimum slope of 2%. Construction of eight (8) inch lateral shall maintain a minimum slope of 0.4%.

The work involved with the installation of sanitary sewer private laterals shall include, but is not limited to, the excavation of miscellaneous material encountered, acquiring all necessary permits, calling in and confirming locates, the use of a Licensed Plumber, cutting, abandoning, connecting to existing infrastructure and plugging the Customer's old sanitary sewer private lateral within the limits of the Customer's property, backfilling the trench with approved selected material and disposal of surplus excavated material, the replacement of surfaces of all types (including but not limited to curbs, HMAC pavement, driveways sidewalks, etc..) over the completed private lateral trench with approved selected material, removing and replacing fences and the restoration of the site when complete. Existing trees and shrubbery within the Customer's property shall not be disturbed. Lawn turf over the trench shall be removed squarely to a depth of 2 inches and in lengths not to exceed 36 inches. Lawn turf removed and material excavated from the trench area shall not be placed directly upon existing lawn turf areas, but rather, they shall be separated and placed on building paper, plastic membrane, or approved equal. Placed building paper, plastic membrane, or approved equal shall cover the existing lawn turf adjacent and parallel to the alignment followed by the trench. After the installation of the sanitary sewer private lateral, the trench shall be backfilled and adequately tamped in two compacted lifts of 5 inches and watered. The lawn turf shall be replaced, adequately tamped, and thoroughly watered after surplus soil is removed. If the existing turf cannot be reestablished the Contractor is to provide, install and establish matching sod (at no additional cost to SAWS).

**MEASUREMENT:** The sanitary sewer private lateral piping shall be measured by the linear foot (LF).

**PAYMENT:** Sanitary sewer private laterals (4) inch to (8) inch will be paid at the unit bid price per linear foot, inclusive of all requirement and items installed as described in the construction section of this specification. Such payment shall also include trench excavation accomplished either manually or mechanically. If mechanical trenching equipment is utilized, depressions or damage to lawn areas caused by crawler track pads or pneumatic tires shall be repaired and restored to their original condition (at no additional cost to SAWS).

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.01 SCOPE OF WORK**

- A. This section is intended to supplement SAWS Item 856 – Jacking, Boring or Tunneling Pipe. No modifications to Item 856 are proposed.
- B. This Section provides minimum requirements for contact grouting of all voids caused or encountered during casing installation, the annular space outside the jacking pipe after trenchless installations are complete, around shafts as necessary to prevent surface settlement, as necessary to complete portal stabilization work, and for abandonment grouting of boreholes for subsurface monitoring points after trenchless construction is complete.

### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. SS 02400 – Tunnel Shafts
- B. SS 02314 – Tunneling with Liner Plate
- C. SS 02315 – Portal Stabilization
- D. SS 02441 – Pipe-Jacked Tunnels
- E. SS 02426 – Carrier Pipe in Tunnels
- F. SS 02445 – Settlement Monitoring
- G. SS 02610 – Steel Casing Pipe

### **1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS**

- A. The publications listed below form a part of this Specification to the extent referenced. Where conflicts between these Specifications and the referenced specification, code, or standard occur, the more restrictive specification shall govern. The latest edition available on the date of issue of Contract Documents shall be used.
- B. ASTM C 31 – Standard Practice for Making and Curing Concrete Test Specimens in the Field
- C. ASTM C 39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
- D. ASTM C 94 – Standard Specification for Ready-Mixed Concrete
- E. ASTM C 109 – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-inch Cube Specimens)

- F. ASTM C 144 – Standard Specification for Aggregate for Masonry Mortar
- G. ASTM C 150 – Standard Specification for Portland Cement
- H. ASTM C 937 – Standard Specification for Grout Fluidifier for Preplaced-Aggregate Concrete

#### **1.04 DESIGN CRITERIA**

- A. Contact grout shall be used to fill any voids, including the annular space created by the shield overcut during trenchless construction, caused or encountered outside of shafts, as necessary for portal stabilization, and for abandonment of subsurface monitoring point boreholes.
- B. Grout Mixes: Develop one or more grout mixes designed to completely fill the voids outside the casing or shafts and to provide acceptable strength to prevent settlement. Grout used outside shaft excavations shall be of a strength that allows for efficient excavation by the tunneling equipment. Determine 24-hour and 28-day strength of each grout mix in accordance with ASTM C39 or C109. All grout mix proportions shall be subject to review and acceptance by the Consultant.
- C. Grout Composition: Grout shall consist of Portland cement, bentonite, fluidifier as necessary, and water in the proportions specified herein or as approved by the Consultant. Sand may be added to the grout mix in instances of very high grout takes as approved by the Consultant. The addition of sand may require additional water or fluidifier to be added to the grout mix.
- D. Compressive Strength: The minimum compressive strength at 24 hours shall be at least 10 psi. The minimum compressive strength at 28 days shall be 50 psi. The grouting contractor shall coordinate with the trenchless subcontractor to ensure that the grout strength for any grout that will be excavated during trenchless construction can be efficiently excavated by the tunneling equipment without damaging the equipment or causing excessive wear of cutting tools.

#### **1.05 QUALITY ASSURANCE**

- A. Grout Strength Tests:
  - 1. Prepare samples for 24-hour and 28-day compressive strength tests according to ASTM C31 for cylinders or ASTM C109 for cubes. Test samples according to ASTM C39 or C109 as applicable. Grout for the cylinders or cubes shall be taken from the nozzle of the grout injection line. Collect at least one set of four (4) samples for each 500 cubic feet of grout injected but not less than one set for each grouting shift, unless directed in writing otherwise by the Consultant.

## **1.06 SUBMITTALS**

- A. Submittals shall be made in accordance with SAWS' requirements. Review and acceptance of the Contractor's submittals by the Consultant shall not be construed in any way as relieving the Contractor of its responsibilities under this Contract.
- B. Work Plan and Methods:
  - 1. Submit a work plan for each type of contact grouting required, including: contact grouting methods and details of equipment, grouting procedures and sequences, injection pressures, monitoring and recording equipment, pressure gauge calibration data, methods of controlling grout pressure, and provisions to protect pipe lining or shaft supports.
  - 2. Submit details of grout mix proportions, admixtures, including manufacturer's literature, MSD sheets, and laboratory test data verifying the strength of the proposed grout mix.
- C. Reports and Records: Maintain and submit daily logs of grouting operations, including grouting locations, pressures, volumes, and grout mix pumped, and time of pumping. Note any problems or unusual observations on logs.
- D. Grout Strength Tests: Submit test results for 24-hour and 28-day compressive strength tests for the cylinder molds or grout cubes obtained during grouting operations.

## **PART 2 – PRODUCTS**

### **2.01 MATERIALS**

- A. Cement: Cement shall be Type II or Type V Portland cement conforming to ASTM C 150. Type II cement shall meet Table 4 false set requirements of ASTM C 150.
- B. Bentonite: Bentonite shall be a commercially processed powdered bentonite, Wyoming type, such as Imacco-gel, Black Hills, or equal.
- C. Fluidifier: Fluidifiers shall hold the solid constituents of the grout in colloidal suspension, be compatible with the cement and water used in the grouting work, and comply with the requirements of ASTM C 937.
- D. Admixtures: Other admixtures may be used subject to the written approval of SAWS to improve the pumpability, to control set time, to hold sand in suspension, and to prevent segregation and bleeding.
- E. Water: Requirement such as pH level per ASTM C94.

## **2.02 EQUIPMENT**

- A. Equipment for mixing and injecting grout shall be adequate to satisfactorily mix and agitate the grout and force it into the grout ports, in a continuous flow at the desired pressure. Pumps shall be capable of continuously developing a sustained pressure of 0.5 psi per foot of overburden at the grout port connection. Sustained grouting pressures shall not exceed 0.5 psi per foot of overburden unless otherwise approved by SAWS.
- B. Two pressure gauges shall be provided, one at the grout pump and one at the collar of each port being grouted. The accuracy of the gauges shall be periodically checked with an accurately calibrated pressure gauge. A minimum of two spare pressure gauges shall be available on site at all times.
- C. The grouting equipment shall be provided with a meter to determine the volume of grout injected. The meter shall be calibrated in cubic feet to the nearest one-tenth of a cubic foot.
- D. The grouting equipment shall be maintained in satisfactory operating condition throughout the course of the work to ensure continuous and efficient performance during grouting operations.
- E. Suitable stop valves shall be provided at the collar of each port for use in maintaining pressure as required until the grout has set.
- F. Grout hoses shall have an inside diameter not less than 1-1/2 inches and shall be capable of withstanding the maximum water and grout pressures to be used.

## **PART 3 – EXECUTION**

### **3.01 GENERAL REQUIREMENTS**

- A. All grouting operations are to be performed in the presence of SAWS. Notify SAWS at least 24 hours in advance of starting contact grouting operations.
- B. The Contractor shall take care to prevent the spill or escape of grout to the ground surface, into any water body, or into any sanitary or storm sewer. The Contractor shall closely monitor grouting operations to detect any spills or escape of grout to the surface or into any water body, sanitary sewer, or storm sewer. Any such spill shall be immediately contained and cleaned up by the Contractor at no additional cost.
- C. During grouting work, provide for adequate disposal of all waste and wastewater. Remove and properly dispose of all waste grout resulting from grouting operations. The contents of grout lines shall not be discharged into the pipe, sanitary sewers, storm drains, or water bodies.

### **3.02 MIXING AND INJECTION OF GROUT**

- A. All materials shall be free of lumps when put into the mixer and the grout mix shall be continuously agitated. Grout shall flow unimpeded and shall completely fill all voids. Grout not injected within 90 minutes of mixing shall be wasted.
- B. The grouting process shall be operated and controlled so that the grout is delivered uniformly and steadily.
- C. Recirculate grout mixes when any new mix is batched or after adding water, fluidifier, or sand to mix. Recirculate mix for at least 2 minutes prior to pumping grout into grout port.
- D. In general, grouting will be considered completed when less than one cubic foot of grout of the accepted mix and consistency can be pumped in 5 minutes under the specified maximum pressure. After the grouting is finished, the valve shall be closed before the grout header is removed and remain closed until grout has set. For any port ahead of the grouting operation, with a valve attached, and the valve in the open position; the current port shall be considered grouted if grout issues forth, from the subsequent port, with the same color and consistency, and at the same rate as that being pumped. Replace grout plugs in pipe at the completion of grouting.

### **3.03 CONTACT GROUTING OF SHAFTS**

- A. Commence contact grouting of shafts after completion of each shaft, and before trenchless construction begins.
- B. Inject grout through vertical or inclined holes drilled from the ground surface to intersect the known or suspected void. Alternatively, drill grout holes horizontally through shaft support elements into the soil to intersect the known or suspected void. Holes shall be sufficiently close to ensure all voids are completely filled.
- C. Install check valve and grout nipple in each hole drilled.
- D. Inject grout through each grout nipple until completion, as defined in Paragraph 3.02 D.

### **3.04 CONTACT GROUTING OF STEEL CASING**

- A. Commence contact grouting outside of the casing pipe within 72 hours following the completion of each drive.
- B. Grout ports shall be provided in casing pipes at intervals not greater than 10 feet.
- C. Contact grout ports shall be installed by the pipe manufacturer in the pipe before pipe is jacked into place. Drilling grout ports through pipe shall not be permitted. Grout ports shall be threaded to accept valve fittings and plugs.
- D. An attempt shall be made to hook-up and pump grout at every port or coupling unless approval is granted by SAWS in writing to omit grouting of selected ports.



- E. Before attempting to grout a port the Contractor shall insert a long rod through the port to clean the area outside the grout port of loose soil and to provide a path for grout to travel.
- F. Inject grout through the grout connections in such a manner as to completely fill all voids outside the pipe resulting from, or encountered during, trenchless operations. Grout pressure shall be controlled to avoid damaging the pipe, and to avoid movement of the surrounding ground or improvements.
- G. Grouting shall generally progress sequentially in a constant upgradient direction from one grout port to the next grout port in the sequence indicated in the approved submittals.
- H. At all times during the grouting operations, sufficient contact grout ports ahead of the port to be grouted shall be cleaned and ready for grouting. Valves or other suitable devices shall be attached and placed in the fully open position on all ungrouted ports within the maximum grout communication distance, as determined by the Contractor and accepted by the Consultant.
- I. For any port ahead of the grouting operation, with a valve attached, and the valve in the open position, such port shall be considered grouted if grout issues forth of the same consistency and color, and at the same rate as that being pumped. Replace grout plugs in pipe at the completion of grouting.
- J. Pipe grout fittings shall be sealed with screw type plugs upon completion of grouting.

### **3.05 CONTACT GROUTING OF SUBSURFACE SETTLEMENT POINT BOREHOLES**

- A. After all settlement monitoring measurements have been completed, monitoring point borehole casings shall be grouted.
- B. Inject grout into each casing until filled. Grout may be injected by gravity flow, through a tremie pipe, or by attaching a valve and nipple at the casing collar.

### **3.06 CLEANUP**

- A. After completion of contact grouting, all related construction debris, grout, oil, grease, and all other materials shall be removed from the jacking pipe, jacking and receiving shafts, and all Contractor work areas.

## **PART 4 – PAYMENT**

### **4.01 MEASUREMENT FOR PAYMENT**

- A. This item is considered subsidiary to the work and no separate payment will be made to the Contractor for the work.

**END OF SECTION**