



**SAN ANTONIO WATER SYSTEM
CENTRAL WATER INTEGRATION PIPELINE
TERMINUS TANK PROJECT
SAWS Job No. 18-8609
SAWS Solicitation No. CO-00170**

ADDENDUM No. 1
March 16, 2018

To Bidder of Record:

This addendum, applicable to work referenced above, is an amendment to the bidding documents and as such will be made a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the addendum number and issue date in the space provided in submitted copies of the proposal.

REVISIONS TO CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS

TABLE OF CONTENTS

a) Page TOC-i, Division 1 – General Requirements, delete the following:

“01370 Schedule of Values”

b) Page TOC-i, Division 3 – Concrete, add the following (in numerical order):

“03713 Shotcrete”

INVITATION TO BIDDERS

a) Remove and replace the Invitation to Bidders in its entirety with the revised version attached to this Addendum.

BID PROPOSAL

a) Remove and replace the Bid Proposal in its entirety with the revised version attached to this Addendum. This version should be used when submitting a bid for this project.

PROPOSAL CERTIFICATION

a) Remove and replace the Proposal Certification page in its entirety with the revised version attached to this Addendum. This version should be used when submitting a bid for this project.

GOOD FAITH EFFORT PLAN

- a) Remove and replace the Good Faith Effort Plan in its entirety with the revised version attached to this Addendum. This version should be used when submitting a bid for this project.

SUPPLEMENTARY CONDITIONS

- a) Page SS-4, Section 5.18, delete in its entirety.
- b) Pages SS-4 and SS-5, Section 8.6, delete Notes ⁽¹⁾ and ⁽²⁾ and refer instead to Section 9.2.
- c) Page SS-5, Section 8.5.3, relocate this section prior to Section 8.6 under Article VIII. CONTRACT COMPLETION TIME.
- d) Page SS-5, Section 8.5.3, after the words “San Antonio, TX”, add the words “at the San Antonio International Airport”.
- e) Page SS-5, Section 9.2, delete in its entirety and replace with the following:

“9.2 Add the following paragraph:

- 9.2.3 Phase 1 Completion of the Project will be considered only after the casting beds have been fully removed from the project site and the project laydown area is condensed to the limits as indicated in the Drawings.

Substantial Completion must be achieved within **250 calendar days** of the NTP date. For Phase 2 Completion, to be considered Substantially Complete at a project level, the following portions of the Work must be completed:

1. Piping and Appurtenant Fittings (as shown on the Drawings)
2. Concrete Ground Storage Tank
3. Minor-Clean Up Work
4. Demobilization

Upon demobilization, the CONTRACTOR will wait for the completion of work by other contractors before beginning the Work to achieve Final Completion.

Final Completion is achieved within **615 calendar days** of the NTP date. Final Completion occurs once the following portions of the Work are successfully completed after the Work:

1. Mobilization
2. Leak Testing
3. Tank Disinfection

Contract time will continue to be charged against the CONTRACTOR until the OWNER approves Final Acceptance of the Project.”

SECTION 01010 – SUMMARY OF WORK

- a) Page 01010-2, Paragraph 1.03.A.1., delete this paragraph in its entirety and replace with “1. Terminus Tank: Construction of a 10.0 MG pre-stressed, concrete ground storage tank; associated piping stub-outs, conduits and appurtenances; and other site improvements and work as described in the Contract Documents.”

SECTION 01015 – USE OF PREMISES

- a) Page 01015-1, Paragraph 1.02.A., delete the first sentence in its entirety and replace with “Property address for the Terminus Tank is 20015 Hardy Oak Blvd, San Antonio, Texas 78258.”
- b) Page 01015-1, Paragraph 1.02.E., delete the second sentence in its entirety.
- c) Page 01015-4, Paragraph 1.05.B., delete this paragraph in its entirety.

SECTION 01025 – MEASUREMENT AND PAYMENT

- a) Replace this section in its entirety with attached Section 01025.

SECTION 01040 – COORDINATION

- a) Page 01040-1, Paragraph 1.03, renumber from “1.03” to “1.02”.
- b) Page 01040-2, Paragraph 1.01, renumber from “1.01” to “3.01”.

SECTION 01300 – SUBMITTALS

- a) Page 01300-8, Paragraph 1.01, renumber from “1.01” to “3.01”.

SECTION 01370 – SCHEDULE OF VALUES

- a) Delete this section in its entirety.

SECTION 03713 – SHOTCRETE

- a) Add the attached Section 03713 to the Contract Documents.

The remainder of the bid documents remain unchanged.

Bill D. Marriott
Bill D. Marriott, P.E.
Tetra Tech, Inc.

3/16/2018



END OF ADDENDUM No. 1

INVITATION TO BIDDERS

Solicitation No. CO-00170

Sealed bids are requested by the San Antonio Water System for the construction of a 10.0 million gallon (MG) prestressed concrete ground storage tank for the Central Water Integration Pipeline Terminus Tank Project, SAWS Job No. 18-8609.

To view additional project information, as well as obtain the plans and specifications for this project, visit our website located at 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 pre-bid meeting will not be held for this project.

For questions regarding this solicitation, technical questions or additional information, please contact Jessica Goforth, Contract Administrator, in writing via email to: jessica.goforth@saws.org or by fax to (210) 233-4466 until **2:00 PM (CT) on March 21, 2018**. Answers to the questions will be posted to the web site by **10:00 AM (CT) on March 23, 2018** as a separate document or included as part of an addendum. Please be advised that Bidders are prohibited from communicating with any other SAWS staff, the Consultant, the Developer, or City of San Antonio officials regarding this IFB up until the contract is awarded as outlined in the Instructions to Bidders.

Sealed bids will be received by Counter Services in the Customer Service office across from the Guard Station, 2800 U.S. Hwy 281 North, Customer Center Building, San Antonio, Texas 78212, **until 2:00 PM (CT) on March 27, 2018**. Bids will then be publicly opened and read aloud by Contract Administration in CR-C137, Customer Center Building, 2800 U.S. Hwy 281 North, San Antonio, Texas. Each bid must be accompanied by a cashier's check, certified check, or bid bond in an amount not less than five percent of the total bid price.

BID PROPOSAL

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

TO THE SAN ANTONIO WATER SYSTEM:

Pursuant to Instructions and Invitations to Bidders, 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 to wit:

LUMP SUM PRICES FOR:

ITEM NO.	ITEM DESCRIPTION (PRICE TO BE WRITTEN IN WORDS)	UNIT	QTY	UNIT PRICE (IN FIGURES)	TOTAL (IN FIGURES)
1.	Central Water Integration Pipeline Terminus Tank Project - Furnish all materials, labor, and equipment for construction of a new 10.0 million gallon prestressed concrete ground storage tank, drainage and water supply pipelines, site improvements, and all appurtenances for a complete in-place facility, in accordance with the Contract Documents, complete in place.	LS	1	\$ _____	\$ _____
2.	Permit Allowance – (See Specification Section 01025 for description)	Not to Exceed Allowance		\$ <u>10,000.00</u>	\$ <u>10,000.00</u>
3.	General Allowance – Contractor shall include an allowance for items unforeseen or not specifically characterized in the Contract Documents, encountered during the course of construction.	Not to Exceed Allowance		\$ <u>100,000.00</u>	\$ <u>100,000.00</u>

Central Water Integration Pipeline Terminus Tank Project
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ITEM NO.	ITEM DESCRIPTION (PRICE TO BE WRITTEN IN WORDS)	UNIT	QTY	UNIT PRICE (IN FIGURES)	TOTAL (IN FIGURES)
A.	SUBTOTAL BASE BID AMOUNT (Items 1 - 3)				\$ _____
4.	Mobilization and Demobilization - This item shall include project move-in and move-out of personnel and equipment, for all work including furnishing all labor, materials, tools, equipment and incidentals required to mobilize, demobilize, bond and insure the Work for the project in accordance with the Contract Documents, complete in place. Maximum of 5% of Line Item 'A. SUBTOTAL BASE BID AMOUNT (Items 1 - 3)'	LS	1	\$ _____	\$ _____
5.	Roadway Work – This item shall consist of furnishing all labor, equipment, tools and materials associated with the temporary all-weather access road as indicated on the Drawings and in the Contract Documents.	LS	1	\$ _____	\$ _____
6.	Select Fill Material – (See Specification Section 01025 for description).	CY	1,000	\$ _____	\$ _____
B.	TOTAL BID AMOUNT (Items 1 - 6)				\$ _____

Mobilization and Demobilization lump sum bid shall be limited to a maximum 5% of the Line Item 'A. SUBTOTAL BASE BID AMOUNT (Items 1 - 3)'. Line Item 'A. SUBTOTAL BASE BID AMOUNT (Items 1 - 3)' is defined as all bid items EXCLUDING Item 4 – Mobilization and Demobilization, Item 5 – Roadway Work, and Item 6 – Select Fill Material. **If the Lump Sum price for Item 4 exceeds the allowable maximum stated for Mobilization and Demobilization, SAWS reserves the right to cap the amount at 5% and adjust the extension of the bid item accordingly.**

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BIDDER'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 BID.

The Bidder offers to construct the Project in accordance with the Contract Documents for the contract price, to substantially complete the work within **250 calendar days** and to complete all work on the Project within **615 calendar days** after the start date, as set forth in the Authorization to Proceed. **The Bidder 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 Bid Proposal which are included on the following pages.

END OF SECTION

PROPOSAL CERTIFICATION

Accompanying this proposal is a Bid Bond or Certified or Cashier's Check on a State or National Bank 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 60 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 30 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 substantially completed within **250 consecutive calendar days** and all work completed within **615 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: Central Water Integration Pipeline Terminus Tank Project, San Antonio Water System Job No. 18-8609

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. – SMWVB 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/>

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. This section defines the method that will be used to determine the quantities of Work performed or materials supplied and establish the basis upon which payment will be made.

1.02 ADMINISTRATIVE SUBMITTALS

- A. Schedule of Values: Submit schedule on CONTRACTOR's standard form. Refer to Paragraph 1.05 of this Section and Section 01300 - Submittals for additional requirements.
- B. Schedule of Estimated Progress Payments (refer to Paragraph 1.06 of this Section for additional requirements):
 - 1. Submit with initially acceptable Schedule of Values.
 - 2. Submit adjustments thereto with Application for Payment.
- C. Application for Payment.
- D. Final Application for Payment.

1.03 RELATED WORK

- A. Section 01300 – Submittals.

1.04 PRICE

- A. Required items of Work and incidentals necessary for the satisfactory completion of the Project shall be considered incidental to the specified Work required under this contract and shall be considered as included in the unit prices for the various proposal items. CONTRACTOR shall prepare his Bid accordingly to allow for such items:
 - 1. Not specifically listed in the Bid Proposal.
 - 2. Not specified in this section to be measured or to be included in one of the items listed in the Bid Proposal.
 - 3. To include CONTRACTOR's overhead and profit.

- B. Work includes the furnishing of all labor, materials, equipment, tools, and related items for performing all operations required to complete the Project satisfactorily in place, as specified by the Contract Documents.

1.05 SCHEDULE OF VALUES

- A. Prepare a separate Schedule of Values for each phase of Work under the Agreement.
- B. Use line items in the proposal as line items in the Schedule of Values. Provide adequate detail to allow easy determination of the percentage of work completed for each item.
- C. Lump Sum Work
 - 1. Reflect Schedule of Values format included in conformed Bid Proposal Form, specified allowances, and equipment selected by OWNER, as applicable.
 - 2. List bonds and insurance premiums, mobilization, demobilization, facility startup, and contract closeout separately.
 - 3. Separate product costs and installation costs. Break down by Divisions 2 through 16 for each of the Project facilities.
 - a. Product costs include cost for product, delivery and unloading, royalties and patent fees, taxes, and other cost paid directly to the supplier or vendor.
 - b. Installation costs include cost for the supervision, labor and supervision, labor and equipment for field fabrication, erection, installation, start-up, initial operation and CONTRACTOR's overhead and profit.
 - 4. Divide principal subcontract amounts into an adequate number of line items to allow determination of the percentage of work completed for each item. These line items may be used to establish the value of work to be added or deleted from the project.
- D. An unbalanced or front-end loaded schedule will not be acceptable.
- E. Summation of the complete Schedule of Values representing all Work shall equal the Contract Price.

1.06 SCHEDULE OF ESTIMATED PROGRESS PAYMENTS

- A. Show estimated payment requests throughout Contract Times aggregating the initial Contract Price.
- B. Base estimated progress payments on initially acceptable progress schedule. Adjust to reflect subsequent adjustments in progress schedule and Contract Price as reflected by modifications to the Contract Documents.

1.07 APPLICATION FOR PAYMENT

- A. Reference Article VII Contract Payments of the Contract General Conditions.
- B. Preparation:
 - 1. Round values to nearest dollar.
 - 2. List each Change Order and Written Amendment executed prior to date of submission as separate line item. Totals to equal those shown on the Transmittal Summary Form for each schedule as applicable.
 - 3. Submit Application for Payment, including a Transmittal Summary Form and detailed Application for Payment Form(s) for each schedule as applicable, a listing of materials on hand for each schedule as applicable and such supporting data as may be requested by OWNER.
- C. Include accepted Schedule of Values for each schedule or portion of Work, the unit price breakdown for Work to be paid on unit price basis, a listing of OWNER-selected equipment if applicable, and allowances, as appropriate.

1.08 MEASUREMENT – GENERAL

- A. Weighing, measuring, and metering devices used to measure quantity of materials for Work shall be suitable for purpose intended and conform to tolerances and specifications as specified in National Institute of Standards and Technology, Handbook 44.
- B. Whenever pay quantities of material are determined by weight, the material shall be weighed on scales furnished by CONTRACTOR and certified accurate by the state agency responsible. A weight or load slip shall be obtained from the weigh facility and delivered to the OWNER's representative at the point of delivery of the material.
- C. If material is shipped by rail, the car weights will be accepted provided that actual weight of material only will be paid for and not minimum car weight used for assessing freight tariff, and provided further that car weights will not be acceptable for material to be passed through mixing plants.
- D. Vehicles used to haul material being paid for by weight shall be weighed empty daily and at such additional times as required by OWNER. Each vehicle shall bear a plainly legible identification mark.
- E. All materials that are specified for measurement by the cubic yard measured in the vehicle shall be hauled in vehicles of such type and size that the actual contents may be readily and accurately determined. Unless all vehicles are of uniform capacity, each vehicle must bear a plainly legible identification mark indicating its water level capacity. All vehicles shall be loaded to at least their water level capacity. Loads hauled in vehicles not meeting the above requirements or loads of a quantity less than the capacity of the vehicle, measured after being leveled off as above provided, will be subject to rejection, and no compensation will be allowed for such material.

- F. Where measurement of quantities depends on elevation of existing ground, elevations obtained during construction will be compared with those shown on Drawings. Variations of 1 foot or less will be ignored, and profiles shown on Drawings will be used for determining quantities. Quantities will be based on ground profiles shown.
- G. Units of measure shown on the Schedule of Values shall be as follows unless specified otherwise.

Item	Method of Measurement
AC	Acre-Field Measure by OWNER
CY	Cubic Yard-Field Measure by OWNER within the limits specified or shown
CY-VM	Cubic Yard-Measured in the Vehicle by Volume
EA	Each-Field Count by OWNER
GAL	Gallon-Field Measure by OWNER
HR	Hour
LB	Pound(s)-Weight Measure by Scale
LF	Linear Foot-Field Measure by OWNER
LS	Lump Sum-Unit is one; no measurement will be made
MFBM	Thousand Foot Board Measure-Delivery Invoice
SF	Square Foot
SY	Square Yard
TON	Ton-Weight Measure by Scale (2,000 pounds)

1.09 PAYMENT

- A. Reference Article VII Contract Payments of the General Conditions.
- B. General:
 - 1. The date for CONTRACTOR's submission of monthly Application for Payment shall be established at the Pre-construction Conference.
- C. Payment for all Work shown or specified in the Contract Documents is included in the Contract Price. No measurement or payment will be made for individual items.

1.10 NONPAYMENT FOR REJECTED OR UNUSED PRODUCTS

- A. Payment will not be made for the following:
 - 1. Loading, hauling, and disposing of rejected material.
 - 2. Quantities of material wasted or disposed of in manner not called for under the Contract Documents.
 - 3. Rejected loads of material, including material rejected after it has been placed by reason of failure of CONTRACTOR to conform to provisions of the Contract Documents.
 - 4. Material not unloaded from transporting vehicle.
 - 5. Defective Work not accepted by OWNER.
 - 6. Material remaining on hand after completion of Work.

1.11 PARTIAL PAYMENT FOR STORED MATERIALS AND EQUIPMENT

- A. Partial payment for stored materials and equipment shall be in accordance with Article VII, Section 7.2 of the General Conditions of these Contract Documents and any revisions to said General Conditions as documented in the Supplementary Conditions.

1.12 BID PROPOSAL ITEMS

- A. Bidder will complete the Work for the following listed Work items for the prices listed on the Bid Proposal:

Item No. 1: Base Bid for the Terminus Tank (Terminus Site)

1. Description
 - a. Work items include:
 - i. new 10.0 MG prestressed concrete ground storage tank.
 - ii. drainage and water supply pipelines.
 - b. Site improvement work items include:
 - i. site excavation and fill placement.
 - ii. all appurtenances and miscellaneous improvements for a complete in-place facility.
2. Measurement – Measurement of Item No. 1 will be by lump sum.
3. Payment of the full lump sum price shall be paid for the work performed and in accordance with the Schedule of Values. Payment shall constitute full compensation to the CONTRACTOR for furnishing all: labor, equipment, tools, and materials; mobilization and demobilization; and for performing all operations required to furnish to the OWNER the project, complete in place, as specified and as indicated on the Contract Drawings and Specifications.

Item No. 2: Permitting Allowance

1. Description – This item shall be for permitting fees associated with the project scope. This shall include furnishing all materials, and incidentals required to obtain all necessary permits including review fees, in accordance with the Contract Documents, complete in place.
2. Measurement – Measurement for the item “Permitting Allowance” will be “by permit” of the actual fees. This allowance shall cover any approved reimbursement of costs related to obtaining permits required to construct the project. Proof of payment of permits fees will be required, and reimbursements will be made on the basis of actual permit fees required by each respective agency paid. The labor associated with obtaining permits is considered incidental to Item No. 1.
3. Payment of the not to exceed allowance price shall be paid for the work. Payment shall constitute full compensation to the CONTRACTOR for obtaining all necessary permits for the Project. CONTRACTOR shall provide permit receipts to SAWS for reimbursement.

Item No. 3: General Allowance

1. Description – This item shall be an allowance for items unforeseen or not specifically characterized in the Contract Documents, encountered during the course of construction.
2. Measurement – Measurement for the item “General Allowance” will be by time and materials. The usage of the allowance shall meet the requirements of the General Conditions for contract changes and shall be only by written authorization of the OWNER.
3. Payment of the not to exceed allowance price shall be paid for the work. Payment shall constitute full compensation to the CONTRACTOR for any unforeseen items or not specifically characterized in the Contract Documents. CONTRACTOR shall provide a detailed breakdown for furnishing all labor, materials and equipment for payment.

Item No. 4: Mobilization and Demobilization

1. Description – Work item shall include mobilization and demobilization costs associated with the Central Water Integration Pipeline Project Terminus Tank scope. This item shall include project move-in and move-out of personnel and equipment, for all work including furnishing all labor, materials, tools, equipment and incidentals required to mobilize, demobilize, bond and insure the Work for the project in accordance with the Contract Documents, complete in place.
2. Measurement – Measurement of Item No. 4 will be by lump sum as the work progresses. If the Lump Sum price for Item 4 exceeds the allowable maximum stated for Mobilization and Demobilization, SAWS reserves the right to cap the amount at 5% and adjust the extension of the bid item accordingly.
3. Payment – Partial payments of the lump sum bid for mobilization will be as follows:
 - a. When 1% of the adjusted contract amount for construction items (which is defined as the total contract amount less the lump sum proposal for mobilization) is earned, 50% of the mobilization lump sum proposal will be paid. Insurance and Bonds will be paid on the initial request for payment under a sub-heading to mobilization entitled "Insurance and Bonds". The amount paid for Insurance and Bonds will not exceed 3% of the total contract amount for construction items. Receipts or other proof of payment for the full amount of compensation requested under the sub-heading of “Insurance and Bonds” shall be provided to the OWNER with the request for payment.
 - b. When 5% of the adjusted contract amount for construction items is earned, 75% of the mobilization lump sum proposal will be paid.
 - c. Upon completion of all Work under this contract, payment for the remainder of the lump sum proposal for mobilization will be made.

Item No. 5: Roadway Work

1. Description – The Roadway Work shall consist of furnishing all labor, equipment, tools and materials as indicated on the Drawings and in the Contract Documents. The Roadway Work shall provide for a temporary all-weather access roadway that will be maintained throughout the duration of construction. The roadway will be maintained by the CONTRACTOR and will be available for use by all other contractors, OWNER, ENGINEER, or others requiring access to the site including areas that the CONTRACTOR is utilizing and not utilizing.
2. Measurement – Measurement of Item No. 5 will be by unit cost based on the number of square yards. The Schedule of Values shall provide a unit cost in square yards. The unit cost in the Schedule of Values shall be utilized to adjust for changes in the location, length and width of the roadway including both decreases and increases.
3. Payment of the full lump sum price shall be paid for the work performed and in accordance with the Schedule of Values. Payment shall constitute full compensation to the CONTRACTOR for furnishing all: labor, equipment, tools, and materials; and for performing all operations required as indicated on the Contract Drawings and Specifications.

Item No. 6: Select Fill Material

1. Description – The Select Fill Material allowance shall cover any overages on the select fill quantity required to grade in accordance with the drawings. The base bid quantity in Item No. 1 shall include the select fill volume required based on the estimated grade of the limestone layer shown in the drawings. This item includes import, placement, and compaction of the select fill material with payment by the compacted cubic yard as specified.
2. Measurement – Measurement of Item No. 6 will be by unit cost based on the number of compacted cubic yards of select fill material.
3. Payment of the unit cost price shall be paid for the work performed as measured based on the unit cost for materials and the number of cubic yards of material. Payment shall constitute full compensation to the CONTRACTOR for furnishing all labor, equipment, tools and materials, and for performing all operations required as indicated on the Contract Drawings and Specifications.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

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SECTION 03713

SHOTCRETE

PART 1 GENERAL

1.01 SUMMARY

- A. Related Documents:
 - 1. Drawings and general provisions of the contract apply to this Section.
 - 2. Review these documents for coordination with additional requirements and information that apply to work under this Section.

- B. Section Includes: Pneumatically applied concrete.

- C. Related Work:
 - 1. Section 03100 – Concrete Formwork
 - 2. Section 03200 – Concrete Reinforcement
 - 3. Section 03300 – Cast-in-Place Concrete
 - 4. Section 13207 – Wire-Wound, Prestressed Concrete Tank with Steel Diaphragm

1.02 REFERENCES

- A. General:
 - 1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
 - 2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
 - 3. Refer to General Conditions and Supplementary Conditions for references to applicable regulatory requirements.

- B. ACI – American Concrete Institute:
 - 1. ACI 506R Guide to Shotcrete
 - 2. ACI 506.2 Specifications for Shotcrete

- C. ASTM International:

1. ASTM C33 Standard Specification for Concrete Aggregates
2. ASTM C150 Standard Specification for Portland Cement
3. ASTM C1140 Standard Practice for Preparing and Testing Specimens from Shotcrete Test Panels
4. ASTM C1141 Standard Specification for Admixtures for Shotcrete

1.03 SUBMITTALS

- A. Submit under provisions of Section 01300 – Submittals.
- B. Qualifications of shotcrete applicator and personnel performing the work.
- C. Mix designs including compressive test data used to establish proportions. Material certificates for shotcrete materials, including cements, aggregates and admixtures. Submit to Testing Laboratory for record purposes.
- D. Submit batch tickets to Testing Laboratory for each batch of shotcrete, indicating weight of cement, aggregate, water and admixtures.
- E. Samples as requested by the Testing Laboratory.

1.04 QUALITY ASSURANCE

- A. Perform shotcrete work in accordance with the requirements of ACI 506.2, "Specifications for Materials, Proportioning, and Application of Shotcrete".
- B. Shotcrete Mix Design: Testing laboratory shall, under direction of a Registered Engineer, design shotcrete mixes. Each mix shall bear the signature and registration number of the responsible engineer.
- C. Test Panels: Prepare preconstruction test panels at least 21 days prior to job placement, using the mix and equipment proposed for the project.
 1. Each proposed nozzleman shall prepare a panel demonstrating each shooting orientation.
 2. Fabricate test panels in accordance with ASTM C1140 and as approved by the ENGINEER's representative.
 3. Notify Testing Laboratory to observe placement of panels. Maintain panels at point of fabrication for seven (7) days and until Testing Laboratory has taken cores.
 4. Samples taken from test panel shall achieve a mean core grade of 2.0, in accordance with Section 1.7 of ACI 506.2, "Shotcrete Core Grades". In the event of failure, nozzleman shall be permitted one retest. Any nozzleman failing the second test shall not be permitted on the project.
- D. Certificates of Compliance: Acceptability of the following materials will be based upon documentation furnished by the manufacturer identifying each batch of material and certifying compliance with the requirements specified.

1. Portland cement
 2. Fly Ash
 3. Admixtures
- E. Certified laboratory test reports: Before delivery of materials, certified copies of the reports of all tests required in referenced publications or otherwise specified here shall be submitted. Certified test reports are required for the following:
1. Cement
 2. Aggregates
 3. Admixtures

1.05 ENVIRONMENTAL REQUIREMENTS

- A. Ensure materials and surrounding air temperature are a minimum 40 deg F prior to, during, and seven (7) days after completion of work.
- B. During freezing or near freezing weather, provide equipment and cover to maintain minimum 40 deg F and to protect work completed or work in progress.
- C. Suspend shotcrete operations during high winds, rainy weather, hot weather, or near freezing temperatures when work cannot be protected.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Concrete materials shall conform to the appropriate requirements of Section 03200 - Concrete Reinforcement and Section 03300 - Cast-in-Place Concrete, ACI 506R and ACI 506.2 except as specified herein for adjustment of aggregate and mix for placing.
- B. Add mixtures: ASTM C1141.
- C. Aggregate: ASTM C33, combined Gradation No. 2 as specified in ACI 506.R.
- D. Pre-approved Products
 1. MASTER EMACO S 211SP SHOTCRETE
 2. MASTER EMACO S 210SP
 3. SIKA REPAIR 224
 4. SIKA REPAIR SHB
 5. ENGINEER-approved equivalent substitution

2.02 SHOTCRETE MIX

- A. Proportion shotcrete mix in accordance with ACI 506.2 to achieve 4,000 psi compressive strength at 28 days.
- B. Provide a mix that is plastic enough to give good compaction and low percentage of rebound, but stiff enough not to sag.
- C. Measure and mix shotcrete in accordance with requirements of Section 03300 - Cast-in-Place Concrete.

2.03 EQUIPMENT

- A. Equipment: Equipment of design and size which has given good results in similar work; pneumatic feed type; capable of maintaining continuous placement.
- B. Air Supply: Clean, dry air adequate for maintaining sufficient nozzle velocity, uniformly steady for work while simultaneously operating blow pipe for cleaning away rebound.
- C. Delivery Equipment: Capable of discharging aggregate-cement-water mixture accurately, uniformly, and continuously through the delivery hose.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Verify fabricated forms are true to line and dimension, adequately braced against deflection and vibration, and constructed to permit escape of air and rebound during gunning operations.
- C. Ensure correct placement of reinforcement. Ensure sufficient clearance around reinforcement to permit complete encasement.
- D. Ensure easy access to shotcrete surfaces for screening and finishing, to permit uninterrupted application.
- E. Beginning of installation means the Subcontractor accepts that the existing conditions meet the above criteria.

3.02 PREPARATION

- A. Prepare surfaces by high pressure washing. Minimize abrupt changes in thickness of repair. Remove square external corners from substrate by radiating the edge.
- B. Ensure that forms are true to line and dimension, adequately braced against deflection and vibration, and constructed to permit escape of air and rebound during gunning operations.
- C. Do not place shotcrete on any surface which is frozen, spongy or where there is standing water.

- D. Shotcrete placed against existing concrete or masonry - Remove unsound material before applying shotcrete. Chip or scarify any area to be repaired to remove off-sets which would cause an abrupt change in thickness without suitable reinforcement. Taper edges to leave no square shoulders at the perimeter of a cavity. Remove loose material from areas receiving shotcrete. Wet the surface until it is damp, but without visible free water. Remove paint, oil, grease and other contaminants and apply bonding agent to provide a surface for proper bonding of the shotcrete.

3.03 ALIGNMENT CONTROL

- A. Provide alignment wires to establish thickness and plane of required surfaces.
- B. Install alignment wires at corners and offsets not established by forms.
- C. Tighten alignment wires true to line. Position adjustment devices to permit additional tightening.

3.04 APPLICATION

- A. Ensure sufficient clearance around reinforcement to permit complete encasement.
- B. Allow easy access to shotcrete surfaces for screening and finishing to permit uninterrupted application.
- C. Establish, and adhere to, operating procedures for placement in close quarters, at extended distances or around unusual obstructions where placement velocities and mix consistency must be adjusted.
- D. When shotcreting walls, begin the application at the bottom and work upwards. Ensure that the work does not sag.
- E. Direct nozzle perpendicular to surface to ensure maximum compaction with minimum rebound.
- F. Build up thickness by layers, in multiple passes of the nozzle over the work area. Follow a routing that will fill and completely encase reinforcement, using maximum layer thickness.
- G. Allow each layer to take initial set before applying succeeding layers.
- H. After initial set, remove excess material outside of forms and alignment lines.
- I. Remove laitance that has taken final set by sandblasting. Clean with air-water jet.
- J. Sound work with hammer for voids. Cut out voids and replace with new shotcrete layers.
- K. Remove trapped rebound at construction and expansion joints.
- L. Remove rebound material which does not fall clear of the work. Discard salvaged rebound.
- M. Keep rebound and other loose or porous material out of new construction.
- N. Provide troweled finish of final layer. Avoid troweling of thin sections of shotcrete unless both troweling and commencement of moisture curing take place, within a relatively short period after placement of shotcrete. Do not scrape or cut to remove high spots until the shotcrete has become stiff enough to withstand pull of the cutting device.

- O. Remove and replace all shotcrete which exhibits sags or sloughs, segregation, honeycombing, sand pockets or other obvious defects. Repair defective areas.

3.05 CURING

- A. Keep completed surfaces wet for a minimum of seven (7) days. Immediately after placement, protect shotcrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Protect shotcrete repair work from frost action or heavy water flow.

3.06 FIELD QUALITY CONTROL

- A. Inspection and Testing will be performed under provisions of Section 03300 – Cast-in-Place Concrete.
- B. Testing Laboratory will:
 - 1. Test and inspect materials as required to ensure compliance with specifications.
 - 2. Collect and review tickets for each batch of shotcrete delivered. Annotate water added subsequent to batching.
 - 3. Observe placement of preconstruction test panels. Take six (6) cores from each panel; three (3) with reinforcement and three (3) non-reinforced. Visually inspect and grade in accordance with "Quality Assurance" article. Test non-reinforced cores for compressive strength at seven (7) days.
 - 4. Special Inspect shotcrete placement, as required, for conformance with the Contract Documents.
 - 5. Take 3-inch (75 mm) core specimens from field test panels and test for compressive strength.
 - 6. Take 3-inch (75 mm) core specimens from in place work to examine for structural soundness.
- C. The Subcontractor shall:
 - 1. Patch areas cored for testing.
 - 2. Pay Testing Laboratory for investigating low-strength compressive test results.

END OF SECTION