

**SAN ANTONIO WATER SYSTEM
WATER SYSTEM CONSTRUCTION**

Addendum No. 2

To Specifications For

2013 Annual Sanitary Sewer Main Point Repair and Manhole Adjustments Construction Contract –
Package 4

SAWS Job Nos. 13-0104 (O&M) and 13-1402 (CIP) and 13-1403 (CIP)
Solicitation No. B-13-013-RA

To Bidder of Record:

This addendum, applicable to the work associated with the above referenced Contract, is an amendment to the bidding documents and as such shall be a part of and included in the Contract. The original contract documents and any prior addenda remain in full force except as modified by the following, which shall take precedence over any contrary provisions in prior documents.

Special Specifications:

Insert the attached Special Specification SS1- INTERNAL CIPP POINT REPAIR OF PIPELINES after the Special Conditions.

Questions and Answers:

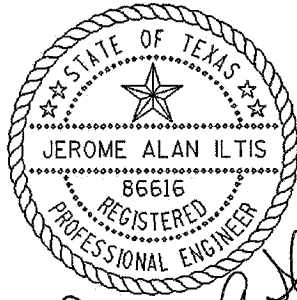
The following written question was received by SAWS following the January 17, 2013 pre-bid meeting. Response to the question is provided as follows:

Q1: I was just wondering if this project that's advertised to bid on 1/24/2013 has any plans we could download or purchase. I've downloaded the specifications and addendum no. 1, but there's no plans.

Response: There are no additional plans to download. There are, however, drawings of details referenced in the bid documents that are found in the standard specifications. SAWS Standard Drawing No. 854-03 is an example. SAWS standard specifications are posted on the SAWS internet web site at http://www.saws.org/business_center/specs/constspecs/.

Q2: The bid package referenced above references: SAWS Special Specification: "Internal CIPP Point Repair of Pipelines" I don't see this specification in the bid documents online, and I checked one of the other packages also. I also looked online at the SAWS Standard Construction and Materials specifications and don't see it there either. Could you send a link if it is online, or a en e-copy/pdf if it's not?

Response: The attached Special Specification SS1- INTERNAL CIPP POINT REPAIR OF PIPELINES has been inserted after the Special Conditions.



Jerome A. Iltis
1/22/13

Jerome A. Iltis
Jerome A. Iltis, P.E.
O&M Engineering
San Antonio Water System

The undersigned acknowledges receipt of this Addendum No. 2 and the bid submitted herewith is in accordance with the information and stipulation set forth.

Date

Signature of Bidder

END OF ADDENDUM

Special Specification SS1- INTERNAL CIPP POINT REPAIR OF PIPELINES

A. General

1. Scope

The work covered in this item includes the labor, equipment, materials for performing all work necessary to rehabilitate gravity sanitary sewers by installation of a resin impregnated fiberglass patch into the existing pipe using an inflatable element and air pressure. Curing of the resin impregnated fiberglass patch shall be accomplished at ambient temperature and shall result in a hard, impermeable, corrosion resistant pipe within a pipe.

2. Design

Wall thickness calculations for the point repair shall be made in accordance with ASTM 1216 Appendix XI. The design of the point repair shall take into consideration the type of deterioration or damage to the existing host pipe, as well as hydraulic, soil and live loads.

3. General Procedures

The installation of the point repair shall be defined as the rehabilitation of an existing conduit by the installation of a composite material tube (silicate resin-impregnated fiberglass), which is first formed into an overlapping tube from a sheet and then pulled, pushed or both into the sewer host pipe. After insertion, the tube shall be inflated using air pressure and then cured at ambient temperature until the composite material tube is a hard, impermeable pipe. The repair shall extend a minimum of one foot past either end of the defect.

4. Corrosion Resistance

The point repair shall be fabricated from materials which, when cured, will be able to withstand internal exposure to sewer gasses and effluent containing hydrogen sulfide, carbon monoxide, carbon dioxide, methane, dilute sulfuric acid, and external exposure to soil bacterial and chemical attack which may be due to materials in the surrounding ground.

B. Materials

1. Fiberglass Mat

The tube shall be fabricated from a two-sided fiberglass mat, comprised of a chopped fiber mat on one side bonded to a woven fiberglass mat on the other.

2. Silicate Resin

The resin shall be an ambient curing, two-part silicate based resin with an MDI (“Waterglass”) hardener.

3. Physical Properties

When cured the minimum physical properties of the patch shall be equal to or greater than those listed in the table below:

Physical Property	Value
Flexural Strength	27,000 psi
Flexural Modulus	800,000 psi

C. Execution

1. Application

This process is applicable for short repairs up to 5 feet (1.5 meters) in length and in diameters from 3 to 27 inches (80 to 700 mm), and longer lengths up to 16 feet (5 meters) in length and in diameters from 3 to 32 inches (80 to 800 mm). Longer repairs may be accomplished by installing multiple patches end to end with a 6 inch overlap of material where the patches are joined.

2. Referenced Specifications

ASTM F 1216 Standard Practice for Rehabilitation of Existing Pipelines and conduits by the Inversion and Curing of a Resin-Impregnated Tube.

ASTM D 790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulation Materials.

3. Preparatory Procedures

The following procedures shall be adhered to unless otherwise approved.

a. Safety

Safety precautions shall be in strict accordance with all applicable OSHA standards. All requirements for traffic control and confined space entry will be observed.

b Flow Control

The flow of sewage around the section of sewer pipe under repair shall be maintained. A suitable bypass shall be constructed by installing a plug in the sewer line at a point upstream of the pipe under repair and pumping the sewage to a point in the same sewer line downstream of that section. The pump and by pass lines shall be of adequate capacity and size to handle the flow of sewage and prevent any back flow of sewage into homes connected to the sewer line.

c. Cleaning

Cleaning of the sewer pipe shall be carried out immediately before TV inspection.

d Inspection

TV inspection of the sewer pipe shall be carried out immediately before insertion of the tube, to ensure that the sewer is clean and that the pipe conditions have not changed.

4. Installation Procedures

The process of installing a point repair using the AM-PATCH system involves the following steps:

a. CCTV

1. Measure pipe diameter.
2. Determine position and size of the defect.
3. Mark the TV cable with a piece of tape to indicate the distance from the entrance of the host pipe to the defect.

b. Clean

1. Clean the pipe using a high pressure water jet.
2. Remove any roots, dirt or debris that might affect the installation.

c. Insert Pull Rope

1. Insert a pull rope from the upstream to downstream manhole.

- d. Calculate Length of Patch
 - 1. Calculate the length of the patch, adding sufficient length to allow for the patch to extend 1 foot into the undamaged host pipe at each end of the repair.
- e. Calculate the Amount of Material Required to Make the Patch
 - 1. Calculate the amount of fiberglass material required for the patch, allowing enough material for the three-layer thickness recommended by the manufacturer.
 - 2. Calculate the amount of resin required to wet out the patch according to tables provided by the manufacturer.
- f. Wet Out the Patch
 - 1. Lay out the fiberglass material woven side down on a clean sheet of plastic.
 - 2. Mix the two-part silicate resin in accordance with manufacturer's instructions.
 - 3. Apply resin to the fiberglass material and fold the patch in accordance with manufacturer's instructions.
- g. Roll Wet Out Patch Onto the Fixed Diameter Packer
 - 1. Install protective sleeve around fixed diameter packer.
 - 2. Roll the patch around the packer.
 - 3. Secure the patch to the packer with the binding wire.
- h. Insert Packer and Patch into the Sewer Line
 - 1. Mark the push rods and positioning rope with the measurement for the position of the defect.
 - 2. Insert the packer into the host pipe and center the area of the defect on the Patch.

- i. Inflate the Packer
 - 1. Slowly inflate the packer to a safe working pressure.
 - 2. Listen for the binding wire to pop.
 - 3. Tie off positioning rope.
- j. Cure the Patch
 - 1. Allow the patch to cure the prescribed amount of time.
- k. Deflate and Remove Packer
- l. Post TV
 - 1. Using CCTV to examine the patch and determine that it is properly installed.
 - 2. Make a video tape for the owner.

5. Finish

The finished repair shall be as smooth as commercially feasible, with a smooth transition from the host pipe to the repair pipe on either end. The repair shall overlap past the defect by at least one foot onto sound pipe at either end.

6. Cleanup

After all work has been completed, the contractor will clean up the project area. The contractor will dispose of any excess material and debris in a safe manner.

7. Final Acceptance

In addition to any specific acceptance criteria specified in the contract, the following standards should be met:

a. Finish

The finished pipe should be continuous over the length of the defect plus two feet and be free as practical from significant defects.

b. Defects

Any defects which will affect (in the foreseeable future or warranty period) the integrity of the installed pipe should be repaired at the Contractor's expense, in a manner mutually agreed upon by the Owner and the Contractor.

c. Service Connections

Reinstatement of all building sewer connections must be done neatly and smoothly.

8. Warranty

Unless otherwise agreed upon prior to bid, the Contractor shall warrant the liner for a period of two year. During the warranty period, any workmanship or material defects which affect the integrity of strength of the repair shall be repaired at the Contractor's expense in a manner mutually agreed upon by the Owner and the Contractor.

D. Payment

Payments shall be based upon an accepted bid price agreed upon prior to the work being performed, and each repair shall be treated as a separate bid, unless the agreements are mutually approved prior to commencement of work. Cleaning and TV will be considered incidental to the point repair cost.

END OF SECTION SS1