

**Bidding Requirements, Contract Forms and Conditions of the Contract**  
**ADDENDUM**  
Section 00900

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**ADDENDUM No. 2**

Date: August 29, 2016

City of Austin

Project Name: South Austin Regional WWTP – Thickeners Improvements Project

C.I.P. No. 3333.016 IFB No.: 6100 CLMC558

This Addendum forms a part of the Contract and corrects or modifies original Bid Documents, dated **July 25, 2016**. Acknowledge receipt of this addendum in space provided on bid form. Failure to do so may subject bidder to disqualification.

**A. Project Manual Revisions:**

Note: Revisions per this Addendum No. 2 in the specifications have been **bolded and underlined**.

Volume 2:

Section 09850: Remove section in its entirety, and replace with the attached Section 09850.

**B. Drawing Revisions:**

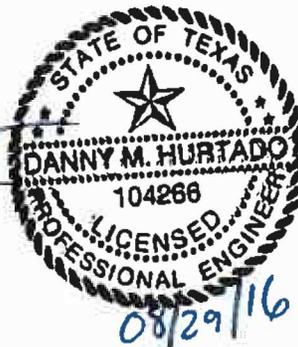
Sheet G-1: Remove sheet G-1, and replace with the attached sheet G-1. The sheets E-71 – E-74 have been removed from the Sheet Index.

Sheets E-71 – E-74: Remove sheets E-71, E-72, E-73 and E-74 in their entirety.

This addendum consists of 8 pages/sheets (including this 1 page).

  
Approved by OWNER 8-29-16

  
Approved by ENGINEER/ARCHITECT



**END**

SECTION 09850  
CORROSION PROTECTION FOR CONCRETE STRUCTURES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This specification covers work, materials and equipment required for protecting the interior of concrete structures by spray-application of a 100 percent solids and VOC-free coating system to provide corrosion protection (protective coating). Procedures for surface preparation, cleaning, application and testing are described herein.
- B. Provide a protective coating for the following:
  - 1. Walls and underside of the concrete top of the thickener supernatant box and the scum pump wet well at each gravity thickener.
  - 2. Launder surfaces at each gravity thickener as shown on process mechanical drawings.
  - 3. Any other surfaces as indicated on the Drawings or specified herein.

1.02 RELATED SECTIONS

- A. Section 403S – Concrete for Structures.
- B. Section 410S – Concrete Structures.

1.03 REFERENCES

- A. ASTM D638 - Tensile Properties of Plastics.
- B. ASTM D790 - Flexural Properties of Unreinforced and Reinforced Plastics.
- C. ASTM D695 - Compressive Properties of Rigid Plastics.
- D. ASTM D4541 - Pull-off Strength of Coatings Using a Portable Adhesion Tester.
- E. ASTM D2584 - Volatile Matter Content.
- F. ASTM D2240 - Durometer Hardness, Type D.
- G. ASTM D543 - Resistance of Plastics to Chemical Reagents.
- H. ASTM C109 - Compressive Strength Hydraulic Cement Mortars.
- I. ASTM - The published standards of the American Society for Testing and Materials, West Conshohocken, PA.
- J. NACE - The published standards of National Association of Corrosion Engineers (NACE International), Houston, TX.

- K. SSPC - The published standards of the Society of Protective Coatings, Pittsburgh, PA.
- L. SSPWC 210-2.3.3 - Chemical resistance testing published in the Standard Specifications for Public Works Construction, 1997 edition (otherwise known as "The Greenbook").

#### 1.04 SUBMITTALS

- A. The following items shall be submitted:
  - 1. Technical data sheet on each product used, including ASTM test results indicating the product conforms to and is suitable for its intended use per these specifications.
  - 2. Material Safety Data Sheets (MSDS) for each product used.
  - 3. Project specific guidelines and recommendations.
  - 4. Applicator Qualifications:
    - a. Manufacturer certification that Applicator has been trained and approved in the handling, mixing and application of the products to be used.
    - b. Certification that the equipment to be used for applying the products has been manufactured or approved by the protective coating manufacturer and Applicator personnel have been trained and certified for proper use of the equipment.
    - c. Three (3) years of experience and five (5) recent references of projects of similar size and scope and Applicator must provide references indicating successful application on underground concrete or masonry substrates of a minimum 100,000 sf of the specified 100% solids, VOC-free protective coating by plural component spray application.
    - d. Proof of any required federal, state or local permits or licenses necessary for the project.

#### 1.05 QUALITY ASSURANCE

- A. Applicator shall initiate and enforce quality control procedures consistent with applicable ASTM, NACE and SSPC standards and the protective coating manufacturer's recommendations.
- B. A NACE certified coating inspector ("Inspector") shall be provided by Owner. The Inspector will observe surface preparation, application and material handling procedures to ensure adherence to the specifications.

#### 1.06 STORAGE AND HANDLING

- A. Products are to be kept dry, protected from weather and stored under cover.
- B. Products are to be stored and handled according to their material safety data sheets.

#### 1.07 SITE CONDITIONS

- A. Applicator shall conform with all local, state and federal regulations including those set forth by OSHA, RCRA and the EPA and any other applicable authorities.

## 1.08 WARRANTY

- A. Applicator shall warrant all work against defects in materials and workmanship for a period of five (5) year, unless otherwise noted, from the date of final acceptance of the project. Applicator shall, within a reasonable time after receipt of written notice thereof, repair defects in materials or workmanship which may develop during said five (5) year period, and any damage to other work caused by such defects or the repairing of same, at his own expense and without cost to the Owner.
- B. Applicator shall warrant the protective coating against (a) delamination from substrate; (b) degradation of finish; (c) cracking and spalling of finish; (d) corrosion of substrate due to defects in finish; (e) where defects in workmanship create a failure as defined in 1.08D, the warranty against failure shall apply.
- C. "Failure" will be deemed to have occurred if the protective lining fails to (a) prevent the internal damage or corrosion of the structure (b) protects the substrate and environment from contamination by wastewater contents (both liquid and gaseous). If any such failure occurs within the five (5) years from the date of the Owner's acceptance of the project, the damage shall be repaired to restore the lining to like new condition at no cost to the Owner within 60 days after written notification of the failure. "Failure" does not include damage resulting from mechanical force not customarily present or act of God.
- D. A warranty inspection shall be conducted annually for the entire warranty period with the manufacturer present. The manufacturer shall conduct the warranty inspection in the presence of the Owner. The manufacturer shall produce a written report within two weeks of the inspection and must include the Owner's signature. Any defective work discovered shall be corrected by the Contractor in accordance with specifications and at no additional cost to the Owner. Other corrective measures may be required during the warranty period.

## PART 2 PRODUCTS

### 2.01 EXISTING PRODUCTS

- A. Standard Portland cement or new concrete (not quick setting high strength cement) must be well cured prior to application of the protective coating.

### 2.02 PROTECTIVE COATING MANUFACTURER

- A. Raven Lining Systems, Inc., Tulsa, Oklahoma.
- B. Sprayroq, Inc., Pelham, Alabama.
- C. Quadex, North Little Rock, Arkansas.
- D. Sealing Systems, Loretto, MN

### 2.03 PROTECTIVE COATING

- A. Refer to City of Austin SPL No. WW-511 for specified products by specified manufacturers listed in 2.02.

## 2.04 PROTECTIVE COATING APPLICATION EQUIPMENT

- A. Manufacturer approved plural component spray equipment shall be used in the application of the specified protective coating.

## PART 3 EXECUTION

### 3.01 ACCEPTABLE APPLICATORS

- A. Protective coating must be applied by a Certified Applicator of the protective coating manufacturer and according to manufacturer specifications.

### 3.02 EXAMINATION

- A. All structures to be coated shall be readily accessible to Applicator.
- B. Appropriate actions shall be taken to comply with local, state and federal regulatory and other applicable agencies with regard to environment, health and safety.
- C. Any active flows shall be dammed, plugged or diverted as required to ensure that the liquid flow is maintained below the surfaces to be coated. Flows should be totally plugged and/or diverted when coating the invert. All extraneous flows into the concrete structure at or above the area coated shall be plugged and/or diverted until the coating has set hard to the touch.
- D. Installation of the protective coating shall not commence until the concrete substrate has properly cured in accordance with these specifications.
- E. Temperature of the surface to be coated should 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.

### 3.03 SURFACE PREPARATION

- A. Applicator shall inspect all specified surfaces 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 protective coating.
- B. Applicator shall perform all surface preparation and protective coating installation.
- C. All contaminants including: oils, grease, **existing coatings**, waxes, form release, curing compounds, efflorescence, sealers, salts, or other contaminants shall be removed. All concrete or mortar that is not sound or has been damaged by chemical exposure shall be removed to a sound concrete surface or replaced.
- D. Surface preparation method(s) should be based upon the conditions of the substrate, service environment and the requirements of the protective coating to be applied. Surfaces to receive protective coating shall be cleaned and abraded to produce a sound surface with adequate profile and porosity to provide a strong bond between the protective coating and the substrate.

- E. All surfaces should be inspected by the Inspector during and after preparation and before the protective coating is applied.

### 3.04 APPLICATION OF PROTECTIVE COATING

- A. Application procedures shall conform to the recommendations of the protective coating manufacturer, including material handling, mixing, environmental controls during application, safety, and spray equipment.
- B. The spray equipment shall be specifically designed to accurately ratio and apply the specified protective coating materials and shall be regularly maintained and in proper working order.
- C. The protective coating material must be spray applied by a Certified Applicator of the protective coating manufacturer.
- D. Specified surfaces shall be coated by spray application of a moisture tolerant, VOC-free, 100% solids, protective coating at a thickness as specified in SPL No. WW-511.
- E. If necessary, subsequent topcoating or additional coats of the protective coating should occur as soon as the basecoat becomes tack free, (normally within 2-4 hours) but no later than the recoat window (normally 24 hours at 70° F) for the specified products. Additional surface preparation procedures per Manufacturer's recommended specifications will be required if this recoat window is exceeded.

### 3.05 TESTING AND INSPECTION

- A. During application, Applicator shall regularly perform and record protective coating thickness readings with a wet film thickness gage meeting ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages, to ensure a uniform thickness during application. A minimum of three readings per 200 square foot area shall be recorded. Applicator will submit all documentation on thickness readings to Inspector on a daily basis when coating application occurs.
- B. Applicator shall perform holiday detection on all surfaces coated with the protective coating in the presence of Inspector. After the protective coating has set hard to the touch, surfaces shall first be dried, an induced holiday shall then be made on to the coated concrete surface and shall serve to determine the minimum/maximum voltage to be used to test the coating for holidays at that particular area. The spark tester shall be initially set at 100 volts per 1 mil (25 microns) of film thickness applied but may be adjusted as necessary to detect the induced holiday (refer to NACE RPO188-99). 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 can be hand applied to the repair area. All touch-up/repair procedures shall follow the protective coating manufacturer's recommendations. (Note: This procedure is sometimes difficult or impossible to perform in tight manhole or vault structures or may provide unreliable readings when testing coatings applied to concrete.)
- C. Measurement of bond strength of the protective coating to the substrate shall be made at regular intervals and along different sections of the structure. At the sole discretion of the Project Engineer, a minimum of three (3) successful pull test evaluations (glue failure constitutes an unsuccessful pull) shall be made every 1,000 square feet of coated structure. Bond strength

shall be measured in accordance with ASTM D4541. Any areas detected to have inadequate bond strength shall be evaluated by the Project Engineer. Further bond tests may be performed in that area to determine the extent of potentially deficient bonded area and repairs shall be made by Applicator in strict accordance with manufacturer's recommendations.

- D. A final visual inspection shall be made by the Inspector and Applicator. Any deficiencies in the finished coating shall be marked and repaired by Applicator according to the procedures set forth herein.

### 3.06 FIELD QUALITY CONTROL

- A. Certified manufacturer's representative shall be present to observe application of coating and after completion to inspect and certify that product was properly applied.
- B. Random areas shall be sound tested in the presence of the Owner's Representative, where coating has been applied in accordance with manufacturer recommendations.

### 3.07 CLEAN AND ADJUST

- A. Promptly remove trash and debris resulting from coating operation from the site.
- B. Use commercial solvents to clean tools immediately after use. Once cured, the material must be mechanically abraded.

END OF SECTION

