

Addendum III Lower Reedy WRRF Digester Capacity Improvements Project

Posting Date: January 23, 2019

In published Request for Bid (RFB) for Lower Reedy Digester project, please note the following updates:

1. **Q:** Please provide an asbestos and lead survey for the structures to be demolished.

A: Owner shall perform lead and asbestos survey. Any required abatement activities will be addressed through the Contract's Contingency Allowance.

- ~~2. **Q:** Please provide as-builts of the NPW pump station that is to be removed for the future digester.~~

~~**A:** (Question 16 from Addendum II)~~

- ~~3. **Q:** Please confirm the owner is responsible to lower the existing digester floating lid and remove the pressure from the system prior to the contractor beginning work.~~

~~**A:** (Question 17 from Addendum II)~~

4. **Q:** Please confirm all loose and abandoned equipment in the work zone and demolished buildings will be removed by the owner. (Uninstalled pumps, batteries, fuel storage tanks, old uninstalled piping, etc) If any hazardous debris is to remain and be disposed of by the contractor please provide a list.

A: Owner shall remove hazardous debris; Contractor shall be responsible for remaining items.

5. **Q:** Please clarify the scope of work attached to the demo of the well pump shown on drawing C-05. What is required for decommissioning and will the owner handle any permit changes if necessary.

A: See Drawings Item 3. Demolition of the water tank and associated equipment has been removed from the scope of this project.

6. **Q:** To remove the well storage tank shown on drawing C05 additional trees will need to be cleared to remove the tank. Please confirm that the contractor will not be responsible for any additional permits that this may require for clearing beyond limits of disturbance shown on the drawings.

A: See Drawings Item 3. Demolition of the water tank and associated equipment has been removed from the scope of this project.

7. **Q:** Will four 10-hour days be an acceptable alternate in lieu of five 8-hour days? Please confirm

A: Work hours shall be coordinated with the General Contractor in accordance with Specification Section 01010, 1.07.

8. **Q:** Specification 13206-3, Section 1.04 A4, provides an internal operating pressure but not a maximum temperature differential. Please provide the maximum temperature differential. Tanks are typically designed for a 40° temperature differential. Please confirm that this is acceptable.

A: See Addendum II and Specifications Item 1 in this addendum.

9. **Q:** Specification 13206-3, Section 1.04 A6a, requires the thickness of the dome shall not be less than 3" for monolithic concrete. Based on the internal operating pressure provided, a 7" minimum dome thickness is required. Please delete 3" and replace with 7".

A: See Addendum II and Specifications Item 1 in this addendum.

10. **Q:** Specification 13206-7, Section 2.01B, allows Preload, Inc., Happaug, New York as a Type II tank builder. Preload, Inc. has not built five structures of this size in the last 10 years meeting these specifications and should not be considered an equal for the Type II construction methodology. Please delete them as being an equal to Crom and Precon.

A: See Addendum II and Specifications Item 1 in this addendum.

11. **Q:** Specification 13206-7, Section 2.02A, second sentence, delete wall. The tank wall shall utilize shotcrete at 4,000 psi per Section 2.07.

A: See Addendum II and Specifications Item 1 in this addendum.

12. **Q:** Specification 13206-9, Section 2.09A, mentions a "precast" dome roof. Please delete "precast" as the domes should be monolithically cast.

A: See Addendum II and Specifications Item 1 in this addendum.

13. **Q:** Specification 13206-9, Section 2.10 A6, requires two access manways in the side wall of each digester. Please delete "each" since only one digester is required.

A: See Addendum II and Specifications Item 1 in this addendum.

14. **Q:** Specification 13206-10, Section 3.02A, we suggest adding wording after the last sentence reading, "Steel percentage in orthogonal and circumferential directions to be confirmed by finite element modeling of the cone action."

A: See Addendum II and Specifications Item 1 in this addendum.

~~15. **Q:** Spec section 08710-Hardware, paragraph 3.04 hardware sets- Set #1 calls for a concealed vertical rod and in #2 it calls for a mortise panic hardware. They can't do those on the flood doors. Please clarify what they should supply here.~~

~~**A:-(Question 5 from Addendum II)**~~

16. **Q:** Specification 13206-10, Section 3.02 B, requires that the floor shall be designed as a concrete mat foundation not less than 8" thick and shall be placed monolithically. Drawing Sheet S222, Note 2, requires an 18" minimum thick slab. Please confirm that an 18" minimum thick slab is required.
- A:** See Addendum II and Specifications Item 1 in this addendum.
17. **Q:** Specification 13206-11, Section 3.03 D. CROM recommends that the interior core wall be finished smooth to ensure maximum success of the interior coating system. We recommend replacing this Section with: "A shotcrete coat conforming to Section 03360 – Shotcrete, shall cover and protect the galvanized steel diaphragm with a minimum of one-inch cover. The final layer of shotcrete shall be finished smooth. A broom finish is not acceptable."
- A:** See Addendum II and Specifications Item 1 in this addendum.
18. **Q:** Specification 13206-12, Section 3.03 G, requires that the Contractor shall furnish, install and coordinate all work including, but not limited to, tank construction, telemetry work, electrical work, and mechanical work. The General Contractor will provide and install all telemetry work, electrical work, and mechanical work.
- A:** See Addendum II and Specifications Item 1 in this addendum.
19. **Q:** Specification 13206-13, Section 3.06, Testing, does not mention if the tank is required to be air pressure tested. Please confirm if the tank needs to be air pressure tested.
- A:** See Addendum II and Specifications Item 1 in this addendum.
20. **Q:** Specification 13206-14, Section 3.09A, requires the tank exterior shall be painted, if applicable, in compliance with Section 09801-MIC Coating System, or Section 09900-Painting. Please delete exterior and replace with interior.
- A:** See Addendum II and Specifications Item 1 in this addendum.
21. **Q:** Specification 13206-14, Section 3.09. To ensure the longevity of the dome roof of the prestressed concrete tank, we recommend adding Item B below: "B. The interior of the prestressed concrete tank shall be coated in conformance with Section 09801 and shall be included in the scope of the tank MANUFACTURER. The interior coating shall carry the same 5-year warranty as the prestressed concrete tank (see section 1.07 WARRANTY). Subcontracting of this work is not allowed."
- A:** See Addendum II and Specifications Item 1 in this addendum.
22. **Q:** Specification 03350-5, Section 3.05, Concrete Finish Schedule, requires all interior finish floors of buildings and structures and walking surfaces which will be continuously or intermittently wet shall receive a Type Finish "D" which requires steel troweling. Typically, we provide a soft broom finish on digester tank floors, like described for Type "E" – Broom or Belt. Please confirm that a soft broom finish is acceptable for the digester tank floor.
- A:** See Addendum II and Specifications Item 1 in this addendum.

23. **Q:** Specification 03360-3, Section 3.03 B1, requires shotcrete directly exposed to water or wastewater, cover of reinforcement as stated in ACI 506.2 shall be increased ½". Please confirm that a 1½" minimum cover over the interior of the diaphragm is required.

A: Language in Section 03360 is general and refers to adding an additional ½" of shotcrete cover over reinforcing steel and not over a galvanized steel diaphragm. 1" cover over the steel diaphragm as specified in Section 13206 is correct.

24. **Q:** Specification 09801, Section 2.02B. Neither Tnemec nor CROM recommend that Tnemec Series 434 with the top coat of 435 be applied to Prestressed Concrete Tanks. As per Tnemec's and CROM's recommendation, we recommend replacing this section with: "The MIC Coating shall be an epoxy mortar system as Raven 405 as manufacturer and applied by Raven Lining Systems. Additional approved systems include: Sauereisen Sewergard 210S, Stonhard Stonchem 510, Sherwin-Williams Dura-Plate 5900 or 6100, and Tnemec Series 436."

A: See Specifications Item 3 in this addendum.

25. **Q:** Drawing Sheet M220, Typical Wall Pipe Penetration Type, Detail 1509211, requires a wall sleeve with compressible link type seal. We do not recommend using this type system due to leakage and contraction issues. We recommend using Detail 1509208 for all wall pipe penetrations. Please confirm Detail 1509208 is acceptable to use for all wall pipe penetrations.

A: Pipe penetrations though the digester tank wall per Detail 1509208 in lieu of Detail 1509211 are acceptable.

26. **Q:** Drawing Sheet M222, Section D, provides centerline elevations of wall penetrations. In order to provide proper prestressing in the tank wall, the wall penetration elevations need to be moved up from the existing elevation shown to the new elevation required:
6" SR / existing 700.25 / required 702.00 (falls within unbanded manhole area)
3" Temperature Probe / existing 700.00 / required 701.83 (falls within unbanded manhole area)
6" ST / existing 701.92 / required 702.00 (falls within unbanded manhole area)

A: Not acceptable.

~~27. **Q:** Please confirm all loose and abandoned equipment in the work zone and demolished buildings will be removed by the owner. (Uninstalled pumps, batteries, fuel storage tanks, old uninstalled piping, etc) If any hazardous debris is to remain and be disposed of by the contractor please provide a list.~~

~~**A:** (Repeat of Question 4)~~

~~28. **Q:** Please clarify the scope of work attached to the demo of the well pump shown on drawing C-05. What is required for decommissioning and will the owner handle any permit changes if necessary.~~

~~**A:** (Repeat of Question 5)~~

~~29. **Q:** To remove the well storage tank shown on drawing C05 additional trees will need to be cleared to remove the tank. Please confirm that the contractor will not be responsible for any additional permits that this may require for clearing beyond limits of disturbance shown on the drawings.~~

~~**A:** (Repeat of Question 6)~~

30. **Q:** Drawing Sheet M220, Bottom Plan, shows the 6" SR pipe on the centerline of the tank, then changing direction and passing through the tank wall in the same vertical plane as the 6" ST pipe. Since both 6" SR and the 6" ST pipes have been moved up the wall to the same elevation, the 6"

SR pipe on the centerline of the tank needs to be moved horizontally to fit in-between the 6" SR and 6" ST pipes when passing through the tank wall. Moving the 6" SR pipe in question 16½" towards the other 6" SR pipe should place all the pipes in line and with no interference.

A: Not acceptable.

31. **Q:** Drawing Sheet S220, Detail 2, shows a W8x28 pipe support attaching to the tank wall. Please provide reactions for the digester wall connection. Also, please provide desired detail.

A: Refer to Detail 2 on Drawing S220 for connection detail.

32. **Q:** Please provide connection detail for the liner motion mixer at the apex of the digester dome. Who will be responsible for any inserts into the concrete dome in order to provide a gas-tight connection?

A: Tank supplier shall refer to the Ovivo Mixer Submittal included in Addendum II. Tank supplier shall coordinate connection of mixer to roof dome.

33. **Q:** Is the tank manufacturer responsible for the analysis of the dome due to the plunging action of the liner motion mixer over time? Will there be a submittal requirement?

A: Tank supplier shall be responsible for all loads imparted on the roof dome by the linear motion mixer. Refer to Ovivo Mixer Submittal included in Addendum II.

34. **Q:** Specification 16170 provides information about grounding and bonding. Specification 16670 provides information about lightning protection systems. Section 2.02 B, requires conductors shall be aluminum cable, consisting of a minimum of 24 strands of No. 14 AWG aluminum wire. Bonding to any concrete encased tank steel is not recommended and shall not be allowed, per the tank manufacturer. All bonding shall be done by using air terminals on the top of the tank dome with PVC conduit adhered to the exterior tank wall.

Electrical grounding to the reinforcing of a prestressed concrete tank is prohibited by AWWA D110-13 per Section 5.16. Items requiring grounding, such as lightning protection, are required to be a separate system with its own ground connections. Excerpts of the referenced sections are provided below:

- AWWA D110-13, Sec. 5.16 – Electrical grounding to non-prestressed reinforcing steel or prestressed reinforcement for any equipment or electrical service shall be strictly prohibited.
- AWWA D110-13, Sec. 5.17 – Lightning protection, if required, shall be a separate system with its own ground connections.

A: Acknowledged.

35. **Q:** The new digester calls for EIFS (section 07240) on the sides of “each” digester, does this mean that the existing digester also gets the treatment. The same is also true for Section 07750 Spray Polyurethane Foam Roofing System.

A: The new digester is the only tank to receive EIFS and Spray Polyurethane Foam Roofing System on this project.

36. **Q:** On drawing S222 there is no detail as to what happens between the spray foam on the top of the digester and the EIFS in the sides- can the EIFS terminate at Elevation 730.00 and the 3' area to the dome be coated with an epoxy? A transition detail between the EIFS and Spray Polyurethane Foam Roofing on Digester #2 would be appreciated.

A: See Drawings Item 1 of this addendum.

37. **Q:** SECTION 11489 Dual Membrane Digester Gas Storage System, Article 1.01.A says contractor will install. 2.01.C says manufacturer will install. Please clarify. Evoqua prefers GC installation on ground mounted units like this one.

- Article 2.03.A.3. - "tear strength of 213/180" and "tensile strength of 730/640" These strengths need to be updates as follows: "tear strength of 214/180" and "tensile strength of 646/562"
- Article 2.03.A.7. Add "...or white."
- Article 2.03.B.3. – "adhesion shall be 11 lbs/inch" This adhesion strength need to be updated as follows: "adhesion shall be 20 lbs/inch"
- Article 2.03.D.2. – "...4 inch wide Type 304 stainless steel clamping bars." Change to "... 4 inch wide aluminum or Type 304 stainless steel clamping bars"
- Article 2.04.A.1. – "deliver 220 cfm at a 15-inches w.c. discharge pressure" Fan needs to be sized greater than gas withdraw, should be 290 cfm @ 16" w.c.
- Article 2.04.C.1. – "Valve material shall be Type 304 or Type 316 stainless steel material." Change to "...Type 304, Type 316 stainless steel or cast iron."
- Article 2.05.B.1. – "pressure regulating valve and shall be provided in accordance with the requirements of Section 17851, Gas Monitoring Systems." We ask to have the manufacturer RKI with model M2 to be an acceptable manufacturer in Section 17851. Article 3.02.A.3. – "Weld Inflation Test"
- Specification 13206-7, Section 2.02A, second sentence, delete wall. The tank wall shall utilize shotcrete at 4,000 psi per Section 2.07.
- Specification 13206-9, Section 2.09A, mentions a "precast" dome roof. Please delete "precast" as the domes should be monolithically cast.
- Specification 13206-9, Section 2.10 A6, requires two access manways in the side wall of each digester. Please delete "each" since only one digester is required.
- Specification 13206-10, Section 3.02A, we suggest adding wording after the last sentence reading, "Steel percentage in orthogonal and circumferential directions to be confirmed by finite element modeling of the cone action."

A: See Specifications Item 4 of this addendum.

38. **Q:** Drawing A202 has a note calling for Crystalline Waterproofing @ the Roof Slab of Digester Building No.2 with a reference to the structural drawings. I do not find a reference in the Structural Drawings or in the Specifications. Please advise if this is a concrete additive or an additional coating to the referenced Traffic Bearing Coating.

A: See Drawings Item 2 of this addendum. No crystalline waterproofing is required at this location.

Specifications

1. Specification Section 13206: Replace in its entirety with the attached Section 13206 – Prestressed Concrete Tank (Type II).
2. Specification Section 09801: Delete Section 09801-MIC Coating System in its entirety.
3. Specification Section 09802: Add the attached Section 09802 – Polyurethane MIC Coatings.
4. Specification Section 11489: Replace in its entirety with the attached Section 11489 – Dual Membrane Digester Gas Storage System.
5. Specification Section 15390: Page 15390-2, Piping System Schedule, SD Row: Delete See Section 02710 and replace with “See Section 02604”.
6. Specification Section 02604: Replace in its entirety with the attached Section 02604 – Utility Structures and Storm Drain Pipe.
7. Specification Section 00920: Add the attached Varec Waste Gas Burner Submittal.

Drawings

1. Drawing M221 - Add Detail 1 in Attachment No. 1 to Drawing M221.
2. Drawing A202 - Remove reference to crystalline waterproofing on the lower roof of the Digester Control Building.
3. Drawing C05 - Delete call-out “Demolish Water Tank and Associated Equipment” and remove demolition hatching on the water tank and associated equipment. Demolition of the water tank and associated equipment has been removed from the scope of this project.

If you have any questions and/or concerns, please do not hesitate to contact Stephanie Selman stephanies@re-wa.org or Julie Dacus at julied@re-wa.org.