

FILE NO. 0240-137

VIA FAX and/or EMAIL, and UPS

DEKALB UTILITY DISTRICT  
DEKALB COUNTY, TENNESSEE  
2012 WATER SYSTEM IMPROVEMENTS  
CONTRACT A – 2.0 MGD WATER TREATMENT PLANT  
CONTRACT B – RAW WATER INTAKE  
CONTRACT C – 18" RAW AND FINISHED WATER TRANSMISSION LINES

**BID DATE: TUESDAY, SEPTEMBER 16, 2014, 2:00 P.M. LOCAL TIME**

Acknowledge receipt of this ADDENDUM TWO (2) in the space provided on the BID FORM.

The attention of the plan holders is directed to the following changes and/or clarifications to the Contract Documents, Specifications, and/or Plans.

**A. CONTRACT DOCUMENTS**

1. BID DATE

- a) The Advertisement for Bids and the Instruction to Bidders states the date and time for the Bid Opening of this project is September 16, 2014 at 2:00 P.M. local time. By this ADDENDUM TWO, the bid date shall be changed to **Thursday, September 25, 2014 at 2:00 P.M. local time**. The location of the Bid Opening shall remain the same.
- b) The contract time for Contract A shall be increased from 420 consecutive calendar days to 545 consecutive calendar days.

**B. SPECIFICATIONS**

1. SECTION 02610

- a) Replace 2.1 (D) with the following: All plain end, mechanical joint and push-on, single gasket joint pipe shall be Class 350 ductile iron pipe.
- b) Replace 2.1 (I) with the following: Standard and special fittings for underground pipe shall be ductile iron. Standard mechanical joint fittings shall be used. All fittings shall conform to the specifications of ANSI A21.10/AWWA C110 or ANSI A21.53/AWWA C153 for underground pipe utilizing mechanical joint fittings.
- c) Add 2.1 (S), which reads as follows: Mechanical joints for fittings, valves and hydrants shall be restrained using mechanical joint restraints as manufactured by EBBA Iron Megalug or an engineer approved equal.

2. SECTION 02641

- a) Plug valves shall be Golden Anderson Figure 517 or engineer approved equal.

3. SECTION 11214

- a) There shall be three (3) raw water intake screens.
- b) The butterfly valves shall be 3" valves.

4. SECTION 11236

- a) In 2.01 (B) Part 3; change the number of backwash pumps to one (1). There is only one (1) backwash pump required.

5. SECTION 11320

- a) Remove "and filters" from 1.1 (C).
- b) The flash mixer for the Super-Pulsators shown on the Plans shall be sized and provided by Infilco Degremont, Inc. (IDI).
- c) IDI will provide one (1) 30" diameter side manway for each vacuum chamber.
- d) IDI will provide one (1) 30" diameter side manway for each clarifier.
- e) IDI will provide one (1) ladder inside of each vacuum chamber.

6. SECTION 11330

- a) Replace 2.11 (A) Part 1 with the following: The stilling baffles shall be constructed of 304SS, and shall be sized, designed and supplied by Kruger.

7. Section 11354

- a) Included with this Addendum Two (2) is Section 11354 – Fiberglass Washwater Troughs.

8. Section 11353

- a) Please note the following clarifications to this specification: 1) Air flow is 600 SCFM; 2) Discharge pressure is 19.3 psia; 3) Noise level is 72 dB with enclosure (measured to DIN EN ISO 2151); 4) Integral check valve is required.

9. Section 11600

- a) Section 11600 is not applicable to Contracts A, B, or C. Please disregard Section 11600.

**C. PLANS**

**CONTRACT A**

1. Sheet M1.1

- a) Disregard the call out note for an 18" plug valve on this sheet.

2. Sheet M1.3

- a) The vacuum chamber transfer/vortex breaker pipe shall be 14" diameter.

3. Sheet M1.4

- a) The floor drain for the alum and caustic bulk storage containment area shall tie to the 6" mud valve as shown in Section A/M1.5 on Sheet M1.5.

4. Sheet M1.5

- a) The elevation for the Bottom of Valve Chamber shown in Section A/M1.5 shall be 1101.00 feet.

5. Sheet M2.4

- a) The floor drain for the alum and caustic bulk storage containment area shall tie to the 6" mud valve as shown in Section A/M2.5 on Sheet M2.5.
- b) The valves on the 18" influent line are an electrically operated 18" butterfly valve and an 18" butterfly valve.

6. Sheet M2.5

- a) The elevation for the Bottom of Valve Chamber shown in Section B/M2.5 shall be 1101.00 feet.

7. Sheet M3.1

- a) All 4" diameter drain piping encased in concrete shall be SCH 80 PVC.
- b) All floor drains for the drain piping shall be trapped and the cleanout plugs countersunk.

8. Sheet M3.2

- a) Disregard the center gullet washwater trough shown in both Plan Views. There shall be two (2) washwater troughs in each filter.

9. Sheet 1.6

- a) Section A indicates 1'-6" at elevation 1106.67'. This slab should be 8" thick and top of concrete elevation is 1106.67'.
- b) Section A and C are the same condition. However, the detail for Section C is incorrect. Use Section A dimensions and details.

10. Sheet S5.3

- a) Section R indicates a slab thickness of 8". Section N indicates a slab thickness of 6". The correct slab thickness is 8".
- b) The correct thickness for slab shown in Sections A and B is 6".
- c) Attached are revised sections as follows: Sheet 1 is Section E; Sheet 2 is Section N; and Sheet 3 is Section R.

11. Sheet E1.0

- a) The generator and transformer slabs are 8" thick with #5 bars at 12" o/c/e/w at 3" clear from bottom of the slab.

**CONTRACT B**

1. Sheet M1.2

- a) The 36" diameter casing pipe shall be CL150 Ductile Iron.
- b) Disregard angle measurement on Discharge Pipe Anchor Detail.

2. Sheet S2.3

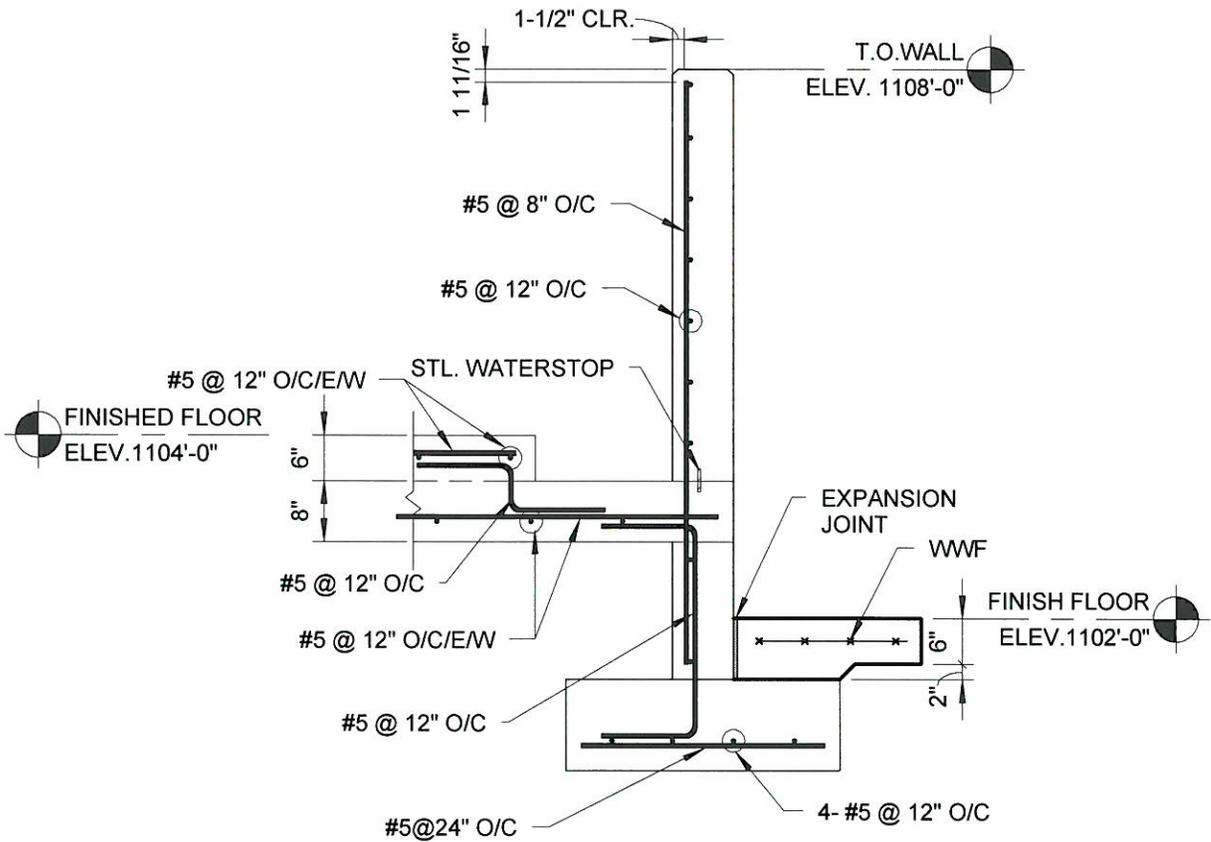
- a) The correct retaining wall thickness is 1'-3" as shown in Section D. Please revise S1.1 and S1.3 plan view accordingly.

END OF ADDENDUM TWO

Goodwyn, Mills and Cawood, Inc.  
3310 West End Avenue, Suite 420  
Nashville, Tennessee 37203

Bryant Griffin  
TN License No. 107347

September 11, 2014



E

DESCRIPTION:  
**2012 WATER SYSTEM  
 IMPROVEMENTS  
 CONTRACT "A"  
 WATER TREATMENT PLANT**

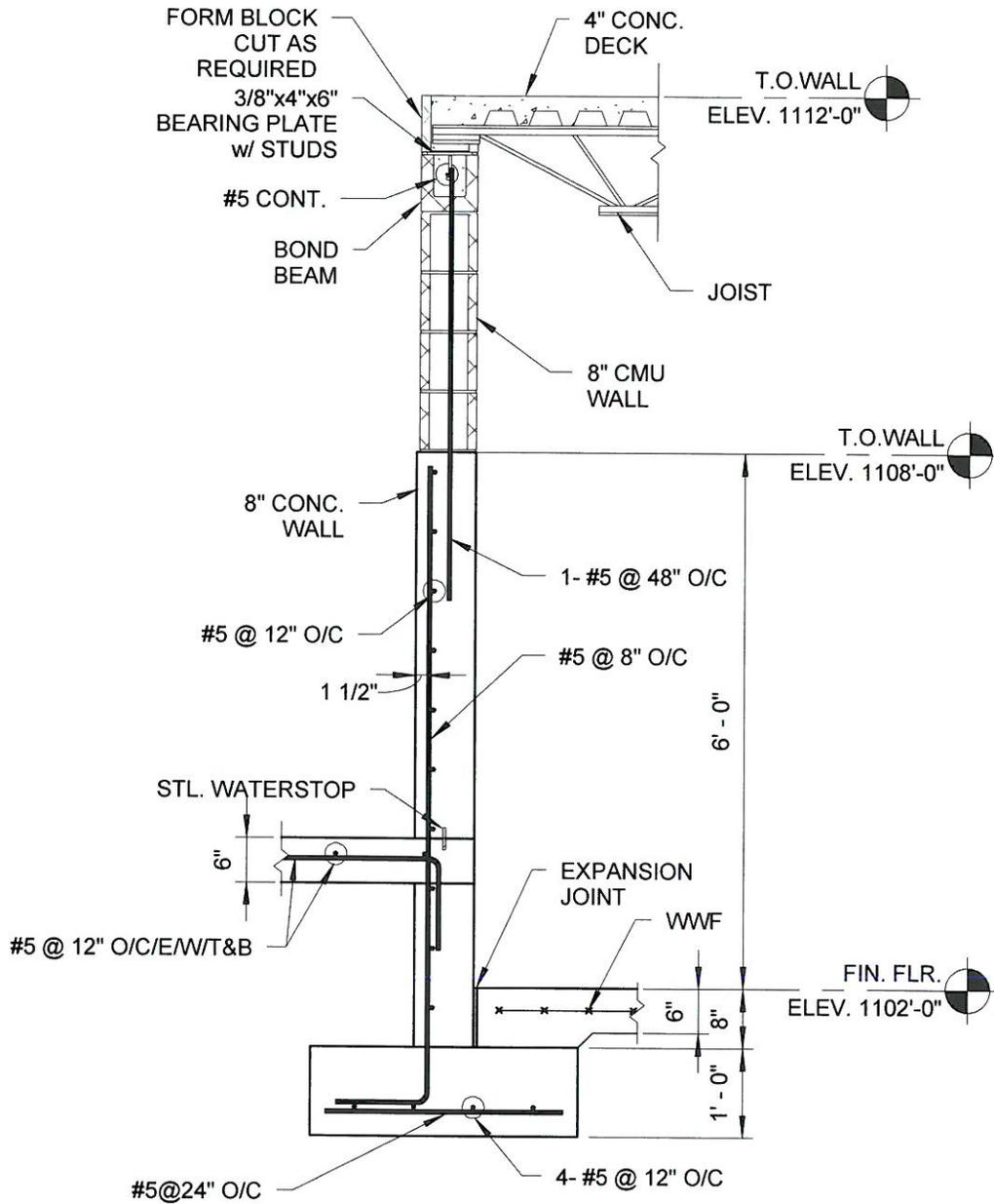
ADDENDUM  
 #2  
 SHEET 1

DATE: 09/12/14  
 DRAWN BY: TLM



**GOODWYN | MILLS | CAWOOD**

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N

DESCRIPTION:  
**2012 WATER SYSTEM  
 IMPROVEMENTS  
 CONTRACT "A"  
 WATER TREATMENT PLANT**

ADDENDUM  
 #2  
 SHEET 2

DATE: 09/12/14  
 DRAWN BY: Author



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**PART 1.0 GENERAL**

**1.1 SCOPE OF WORK**

**A. DESCRIPTION**

Contractor shall furnish and install effluent troughs as described in the contract plans and specifications.

Adjustable straight edge weir plates, if required, shall be of fiberglass reinforced polyester laminate made by the matched die method.

**B. SPECIFICATIONS AND STANDARDS**

ANSI/AWWA F101 Contact-Molded, Fiberglass-Reinforced Plastic Washwater Troughs and Launderers.

ANSI/AWWA F102 Matched-Die-Molded, Fiberglass-Reinforced Plastic Weir Plates Scum Baffles and Mounting Brackets.

ASTM Standards listed in Table 1.

ANSI/NSF-61 Standard.

**PART 2.0 DESIGN**

**2.1 DESCRIPTION**

**A. LOADINGS**

The troughs shall be designed to support, within stress and deflection limitations, the following loadings:

1. Gravity Load - Downward vertical loads shall include the weight of the trough and appurtenant attachments, such as weir plates and spreader bars, together with the weight of water to fill the trough. Any additional loads, such as piping, etc., shall also be considered.

2. Buoyant Load - The buoyant load shall act vertically upward, its magnitude equal to the weight of displaced water (trough weight neglected). The line of action passes through the centroid of the submerged cross-sectional area.
3. Lateral Load - Loads acting against the trough side walls; specifically, those induced by differential water levels on either side of the trough walls. The maximum possible differential, existing when the trough is empty and the tank is full, or, when the trough is full and the tank is empty, shall be used when calculating deflection, fiber stress, etc..

## **B. OTHER DESIGN CONDITIONS**

1. Thermal Stresses - The troughs shall be designed to accommodate temperature induced stresses resulting from differences in coefficients of thermal expansion(contraction) between the trough and tank/support materials.
2. Torsional Stability - The trough system shall be designed to resist torsional oscillations induced by the flow of water over trough edges. Any or all of the following trough stabilization techniques shall be considered.

- \* Trough-to-trough stabilization
- \* Torsional stiffness
- \* Support spacing and rigidity
- \* Internal baffles and/or flow straighteners

3. Deflection Under Load - Maximum vertical deflection under full buoyant or gravity load shall be less than or equal to  $L/1000$ , where  $L$  is defined as the unsupported trough length, in inches (mm). Under no circumstances shall the maximum vertical deflection, measured at mid-point between trough supports, exceed 3/16" (4.8 mm).

Maximum trough side wall horizontal deflection under full lateral load shall be less than or equal to  $D/100$ , where  $D$  is defined as the trough depth, in inches (mm). Under no circumstances shall the maximum side wall deflection exceed 3/16" (4.8 mm).

Trough bottom deflection (oilcanning) under full buoyant or gravity load shall be less than or equal to  $W/100$ , where  $W$  is defined as the trough width, in inches (mm). Under no circumstances shall the maximum bottom deflection exceed 3/16" (4.8 mm).

4. Fiber Stress Limitations - Supplemental to the deflection criteria, the troughs

shall also be designed such that the maximum wall stress under the most severe loading conditions is less than or equal to 1500 psi (10342 kPa). This stress

criteria is equivalent to 7:1 safety factor (approximate) as applied to the tensile and flexural properties of contact molded troughs and launders.

5. Thermal Expansion/Contraction - The troughs shall be designed to accommodate a thermally induced expansion (contraction) of 1/8" (3.2 mm) per 20 ft. (6 m) length of trough over temperature range of -10°F to 100°F (-25°C to 82.2°C), without exceeding the deflection or strain limitations set forth in the preceding sections.

## **PART 3.0 MATERIALS**

### **3.1 DESCRIPTION**

#### **A. RESIN**

The resin shall be a commercial grade, general purpose polyester thermosetting resin, which has either been evaluated in a laminate, or which has been determined by a previous documented service to be acceptable for the service conditions. Contact the factory for specific chemical resistant application.

The resin shall contain no fillers except as follows:

- \* A thixotropic agent which does not interfere with laminate quality, or with the required chemical resistance of the laminate may be added for viscosity control.
  - \* Resin may contain pigments, dyes or colorants which have been determined by at least five (5) years previous service to be acceptable for the service condition without fading or chalking from original color standard.
1. Ultraviolet Resistance - Ultraviolet resistance is required in all laminates exposed to ultraviolet light whether it is in the form of pigmentation or ultraviolet absorbers.
  2. Metal Reinforcement - When metal reinforcements are used, they shall be free of rust, oil and any foreign matter. They shall be completely encapsulated with a minimum of 1/8" (3.2 mm) thick laminate.
  3. Glass reinforcement shall consist of chemically bonded surfacing mat and chopped strand or chopped strand mat as hereinafter described. Surfacing mat shall be Type C, 10 to 20 mils thick, with a silane finish and a styrene-soluble

binder. The glass content of this layer shall not exceed 20% by weight.

chopped strands shall be Type E glass, with silane finish and styrene-soluble binder. The glass content of the finished laminate shall be adequate to produce mechanical and physical properties conforming to Table 1.

4. The troughs shall be ANSI/NSF-61 Certified.

**B. MOUNTING BRACKETS**

All trough mounting brackets, hardware and stabilizers shall be Type 18-8 stainless steel.

**C. TROUGH SPREADERS**

All trough spreaders shall be 1" (25.4 mm) diameter ABS bar.

**PART 4.0 MANUFACTURE**

**4.1 DESCRIPTION**

- A. The inner surface of the trough shall be smooth and resin rich. The outer surface shall be reasonably smooth and no glass fibers shall be exposed. The size and number of air bubbles shall be held to a minimum. Laminations shall be dense and without voids, dry spots, cracks or crazes.
- B. The inner surface of the trough shall be reinforced with glass surfacing mat. This shall be followed with chopped strand glass laminate, max. 2 oz/ft<sup>2</sup> (0.61 kg/m<sup>2</sup>), in a minimum of two (2) layers. Void content of the complete laminate shall not exceed 2-1/2% of laminate volume.
- C. The top edges of the trough shall be level and parallel with a tolerance of  $\pm 1/8"$  (3.2 mm) (measured when the trough is not loaded). The length of a trough section shall have a tolerance of  $\pm 1/8"$  (3.2 mm) per 10 ft. (3 m) length.

The laminate thickness tolerance shall be plus 1/8" (3.2 mm) minus 0.

- D. Thickness at locations of supports such as saddles shall be at least 1-1/2 times the nominal thickness of the trough and shall conform to the fiber stress limitations set forth in the design section of this specification.
- E. End flanges and blind ends shall be a minimum of 1-1/2 times the nominal thickness of the trough and shall conform to the fiber stress limitations set forth in the design section of this specification.

- F. An integrally molded water stop shall be provided on the trough whenever the trough is grouted into and/or passes through a wall.
- G. ABS spreaders shall be bolted between the trough walls on approximate 2 ft. (610 mm) centers to enhance the structural rigidity of the trough system.

## **PART 5.0 TESTING**

### **5.1 DESCRIPTION**

- A. Manufacturer shall maintain a continuous quality control program and shall, upon request, furnish the Engineer with certified test reports consisting of the mechanical and physical tests listed below.
- B. Procedure to be used in determining the properties listed in Table 1 below shall be in accordance with the latest ASTM Standards: Ultimate Tensile Strength - ASTM designation D638; Flexural Strength - ASTM designation D790; Modulus of Elasticity - ASTM designation D790; Hardness - ASTM designation D2583; Water Absorption - ASTM designation D570.
- C. Hardness tests shall be made on the resin-rich surface of the product.
- D. Flexural tests shall be made with the resin-rich surface in compression.
- E. Test samples shall be full thickness of the item produced and shall not be machined on the surface.
- F. Mechanical and physical properties shall conform to those of Table 1 below:

**TABLE 1**

**LAMINATE MECHANICAL AND PHYSICAL PROPERTIES 73°F (55°C).**

	<u>ASTM Test Method</u>	<u>Material Thickness ¼" (6.3 mm)</u>
Ultimate Tensile Strength – PSI (KPa) x 10 <sup>3</sup> (Min.)	D638	12 (83)
Flexural Strength – PSI (KPa) x 10 <sup>3</sup> (Min.)	D790	19 (131)
Flexural Modulus of Elasticity PSI (KPa) x 10 <sup>6</sup> (Min.)	D790	0.9 (6.2)
Barcol Hardness (Min.)	D2583	35
Water Absorption - % (Max.)	D570	0.2

**PART 6.0 PACKAGING AND STORAGE:**

**6.1 DESCRIPTION**

- A. Troughs shall be suitably packaged to avoid damage during handling and shipment.
- B. Should it be necessary to store product prior to installation, precautions should be taken to prevent warpage or distortion.
- C. Troughs should be stored on a flat place and adequately supported on wooden support members to evenly distribute weight of troughs. When stored more than one (1) high, succeeding items should be stored level and evenly supported by blocks or spacers.

**PART 7.0 INSTALLATION:**

**7.1 DESCRIPTION**

- A. Troughs shall be installed so that the trough weir edges are level to within  $\pm 1/8"$  (3.2 mm).

**END OF SECTION**