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ENGINEER'S SUPPLEMENTAL INSTRUCTIONS NO. TWENTY-FOUR (24)
(Via Posting to FTP Site and Electronic Mail)

TO: Wes Weaver
John Jacob
Jeff Burst
Weaver Construction Management, Inc. (WCMI)

DATE: January 25, 2013

FROM: Mark A. Morton, P.E. *MAM*
GMS, Inc.

RE: Harold D. Thompson Regional Water Reclamation Facility (HDTRWRF)-Phase 1
ENGINEER'S SUPPLEMENTAL INSTRUCTIONS NO. TWENTY-FOUR (ESI-024)

This ESI-024 provides clarification on the fixed scum spray system required at each of the two secondary clarifiers. The non-potable water piping and appurtenances required to feed these spray systems are detailed on Project Drawing SC-7, with Section A on Project Drawing SC-9 including a general call out and Note No. 4 referencing the spray system. Project Drawing SC-9 shall be amended according to the following scum spray system requirements to clarify the scope of required work.

- Spray system header pipe to be minimum 1-1/2" diameter.
- All pipe and fittings to be Schedule 80 PVC.
- Provide pressure regulator downstream of the hydrant or isolation valve at outside face of clarifier tank. Install regulator in a vertical position for draining, along with union for ease of removal.
- Pressure regulator shall be Model PMR-10 MF EFF as manufactured by Senninger Irrigation, Inc. to accommodate a 10 psi outlet pressure, up to 100 psi inlet pressure, 6-12 gpm flow range and 1-inch NPT inlet and outlet connections, with necessary NPT nipples and unions.
- Provide 1" diaphragm valve immediately downstream of pressure regulator for pressure and flow control to spray system header pipe. Install valve in horizontal position for draining, along with union for ease of removal.
- Diaphragm valve shall be Series 2729 valve as manufactured by Spears Manufacturing Co. or equal with PVC body, weir type construction, EPDM diaphragm and seals, handwheel, position indicator and minimum pressure rating of 100 psi.
- Spray system header pipe shall be run along the clarifier bridge on the opposite side of electrical and control conduits.
- Spray system header pipe shall be provided with tee fittings for connection of spray nozzles, rotate tee down as necessary to direct nozzle spray perpendicular to water surface.

- Spray nozzles shall be specifically designed to produce a flat spray pattern for scum control in wastewater tanks with bronze construction, counterweight lever with rubber deflector, lifting of counterweight provides full nozzle purge, minimum 120° spray angle, minimum 1/4-inch NPT inlet connection, and a maximum flow rate of 2.0 gpm at 10 psi.
 - Model 22561 nozzle as manufactured by Spraying Systems Co., or
 - Series 564 nozzle as manufactured by Lechler USA or equal
- Each clarifier tank shall have six (6) spray nozzles installed at a 4'-0" center spacing, the first nozzle located 4'-0" from the inside face of clarifier tank wall. NOTE: This clarification reduces the number of spray nozzles originally shown to be at 2'-0" O.C.
- The spray system header pipe shall be secured to the clarifier bridge support member at each nozzle location with galvanized hardware.
- A full port ball valve shall be installed at the end of the spray system header pipe, near the center of the clarifier, to allow for air release and draining of the header pipe. Locate valve to be accessible from clarifier bridge and permit gravity drainage of the header pipe.
- All above ground piping shall be installed to allow for complete draining when the non-potable water supply is terminated at the yard hydrant. All reducers and/or bushings shall be placed to allow complete drainage.
- Each yard hydrant shall be a freeze proof, stop and waste type of hydrant per Project Drawing SC-7, with the bottom drain fitting set in a minimum of 1 cubic yard of 1-1/2" river rock wrapped in filter fabric.

ec: Lower Fountain Metropolitan Sewage Disposal District
 Fountain Sanitation District
 Colorado Centre Metropolitan District

cc: Jerry Miller, GMS, Inc.
 David R. Frisch, P.L.S., GMS, Inc.
 Roger J. Sams, P.E., GMS, Inc.