

SECTION 2
REPAIR AND PAINTING OF EXISTING AERATION BASIN

- 2.01 Scope: Provide materials, labor, equipment and superintendent in accordance with the Technical Specifications and Contract documents. Contractor's responsibility includes; but is not limited to: construction sequencing in accordance with the Contract Documents, quality control of workmanship and materials, handling of all materials, handling and disposal of all waste, and compliance with regulatory standards governing the work for the repair and painting of **one (1) aeration basin**.
- 2.02 Description of Existing Basin:
- A. **Dunbar WWTP Aeration Basin #2** is approximately 15 feet tall, 135 foot diameter above-ground steel aeration basin constructed in 2003 which is located on 601 Palmetto Street; Saint Simons Island, Georgia 31522. The last rehabilitation project to the Aeration Basin #2 was completed in 2006.
- 2.03 Work Schedule: The Contractor shall schedule the work to be done such that interferences with normal operation will be minimized. Before the aeration basin is taken out of service, approval must be received from the Owner. In addition, the proposed work schedule shall be submitted to the Owner and the Engineer for approval. The Owner reserves the right to return the aeration basin to service at any time during the work period in the event of emergency. The Contractor shall provide all necessary pressure reducing / blow off valves in the system to maintain system pressure while a aeration basin is out of service at no additional cost to the Owner.
- 2.04 Aeration Basin Inspection: The basin is available for inspection prior to bidding. The Contractor shall coordinate with the Owner an aeration basin inspection to identify any structural repairs that need to be made and also to determine if lead containment is required. The Contractor shall provide all the necessary lighting, equipment, and safety gear to insure the safety and protection of workers and inspection representatives.
- 2.05 Work to be Done: The aeration basin shall be completely repaired, and shall be cleaned and repainted as described in these Specifications.
- 2.06 Repair Work: All repair work shall be done as specified and shall be in accordance with AWWA Standards (latest version).
- 2.07 Repairs and Repainting:
- A. Repairs for Aeration Basin #2 consist of the following:
1. Remove and replace all foundation sealants.
 2. Apply protective coating to Aeration Basin interior concrete flooring per manufacturer's recommendation.
 3. Repair concrete base as directed by Engineer where the concrete has broken.

4. Weld plates on all sections as directed by Engineer where corrosion has reduced effective wall thickness a minimum of 1/8-inch.
5. Blast and coat all exposed piping above ground, interior piping, fittings, valves, stairs/walkway, and interior/exterior walls.
6. Remove and replace with new stainless steel nuts-bolts-washers and a minimum 1/8-inch neoprene gaskets on all exposed piping above ground where the existing bolts and gaskets are heavily corroded and not deemed salvageable.
7. Reinstall, blast and coat steel wall removed for temporary construction equipment access prior to final completion as specified.
8. Exterior – Non Immersion (Overcoat and Rehab System):
 - a. Contractor to remove and replace conduits, brackets, mounts, and electrical equipment necessary to perform the work at no additional cost to the Owner.
 - b. Contractor to remove trim limbs and branches necessary to perform the work at no additional cost to the Owner.
 - c. Apply solution of 1 part chlorine bleach and 3 parts water to the surface to treat the mold, mildew and algae and remove old paint not tightly bonded to the surface. Remove the surface contaminants by pressure washing with 3,500 psi water.
 - d. Clean all visible rust oxidized areas with SSPC-SP3 power tool or SSPC-7 brush off blasting to bare metal and dull glossy surfaces.
 - e. Contain blasted debris as specified in these Specifications.
9. Interior- Immersion (Full Blast and Rehab System):
 - a. Contractor to remove and replace conduits, brackets, mounts, and electrical equipment necessary to perform the work at no additional cost to the Owner.
 - b. SSPC-SP10 Near White Metal blast interior surfaces and remove completely existing interior coating.
 - c. Field prime blasted surfaces, stripe coat and one (1) additional coat in accordance with AWWA Standards, Inside Paint System No. 5, latest version.
 - d. Blasting and field prime applications shall be accomplished on the same day.
 - e. Contain blasted debris as specified in these Specifications.

2.08 Surface Preparation: Prior to applying any paint, the surface shall be cleaned of all loose scale, rust and deteriorated paint. The Contractor shall consult with the paint

manufacturer to insure that the degree of cleaning and surface profile produced will be satisfactory for the coating system performance.

- A. All surfaces specified to be solvent cleaned shall be prepared by removing all oil, grease, soil or other contaminants from the surface by washing with an alkaline cleaner described in Appendix A.3 of SSPC-SP-1 "Solvent Cleaning" to remove all dirt, dust, paint, chalk and foreign matter.
- B. All exterior surfaces specified to be commercial blasted shall be prepared in accordance with Steel Structures Painting Council Surface Preparation Specifications No. 6 "Commercial Blast Cleaning."
- C. All surfaces specified to be brush blasted shall be prepared in accordance with Steel Structures Painting Council Surface Preparation Specifications No. 7 "Brush Blast Cleaning."
- D. All interior surfaces specified to be near white blasted shall be prepared in accordance with Steel Structures Painting Council Surface Preparation Specifications No. 10 "Near White Blast Cleaning."
- E. In addition, all surfaces shall be free of weld slag, flux and surface contaminants that would interfere with the bond of the coatings. The surface of welds should be reasonably smooth and free of irregularities such as sharp peaks, pits, etc., to insure uniform film continuity.
- F. All exterior surfaces specified to be sprayed with a bleach solution. Let solution sit for 15 minutes before power washing clean. Power wash with 3,500 psi with oscillating tip. Power tool clean all visible rusty areas to a SSPC-SP3 standard. Feather all edges. Prior to coating the substrate must be clean dry and free of all contaminants.
- G. Interior Concrete Floor – Immersion: Brush off abrasive blast to in accordance with SSPC-SP13 provide ICRI Surface Profile CSP 1-3.

2.09 Debris Containment and Disposal During Paint Removal Operations: The primer coating on the aeration basin to be repainted might contain lead in varying amounts. The Contractor will be required to contain all blasting debris generated in the removal of any lead based coating. During surface preparation, airborne particulate and debris from the removal of the paint can contaminate the air, soil and water surrounding the work site. The Contractor will be required to perform any site remediation required due to improper collection and disposal of paint removal debris. The Contractor shall develop a debris containment and disposal plan in accordance with these Specifications, Federal and State requirements. The Contractor shall submit this plan to the Engineer for review and comment prior to starting work.

- A. Containment System: If required, as a minimum, the Contractor shall install a containment system meeting the requirements of Class 2 as specified in the SSPC Guide 6 (95) "Guide for Containing Debris Generated During Paint Removal

Operations". Assessment of the containment system will be conducted in accordance with SSPC Guide 6 Section 5.5. All testing required will be paid by the Owner. The standards and references listed in Section 3 of the SSPC Guide 6 (95) shall form and be part of these Specifications. The Contractor's attention is directed to the SSPC Guide 6 for the development of the containment system. All workers shall be protected in accordance with the applicable OSHA standards.

- B. Disposal of Debris: Until testing shows otherwise, all debris collected by the containment system will be considered a hazardous waste and must be handled and disposed of in accordance with Federal and State regulations. The Contractor's attention is directed to SSPC Guide 7 "Guide for the Disposal of Lead Contaminated Surface Preparation Debris" which shall be made a part of these Specifications. The Owner will pay for all testing required to determine if the collected material is hazardous.

For the purposes of bidding this project, the Contractor is to assume that the material collected is a hazardous material. The Contractor shall cooperate with the Engineer and Owner in obtaining an EPA Identification Number. The Contractor can elect to transport and dispose of the material in a hazardous waste landfill or treat the waste onsite and dispose of in a Subtitle D landfill. The Contractor shall identify the method of handling the hazardous material in the disposal plan submitted to the Engineer. If the hazardous waste material is to be treated onsite, the Contractor shall prepare a waste analysis plan in accordance with SSPC Guide 7 Section 6.4.3. Whether the waste is hauled to a hazardous waste landfill or treated onsite and disposed of in a Subtitle D landfill, the Contractor is responsible for all treatment and disposal cost and should include such in his bid.

- C. At the Contractor's option, the lead removal can be accomplished by using an Enviro-Prep system or a Pretox 2000 coating system. If used, the Contractor shall submit the proposed application and removal methods to the Owner and Engineer for review.

2.10 Repainting Work: All repainting work shall be done as specified and shall be in accordance with the latest applicable paragraphs of AWWA Standards.

- A. Prior to the application of any paint or coating material, the Contractor shall submit to the Engineer an affidavit from the paint manufacturer that the material supplied complies with the requirements of AWWA Standards and is approved by the American National Standards Institute/National Sanitation Foundation Standards. All paints used shall be the products of a single paint manufacturer. In addition, the paint manufacturer shall certify that the specified coating is compatible with the existing coating. If not compatible, a suitable change order will be issued.
- B. Prior to application of the first coat of paint, the Contractor shall have the paint manufacturer's representative inspect and certify to the Engineer that the

surface has been properly prepared to receive the coating at no additional cost to the Owner.

- C. All cleaning including initial wash down and final wash down shall be coordinated with the Owner and shall be accomplished by means approved by the Engineer and the Owner.
- D. After completion of the repainting work and before payment is made by the Owner, the Contractor shall submit to the Engineer an affidavit stating that all repainting work has been completed in accordance with the requirements of AWWA Standards and these Specifications.
- E. Field prime, field touch-up and field finish coats shall be applied by experienced workmen. The paint manufacturer's printed instructions shall be submitted with schedules to the Engineer for approval. Those instructions shall be kept available at the jobsite, be explained in detail to all painters, and the requirements thereof strictly observed. **The Contractor shall be responsible for all damages and repair of damages due to spray, sand, etc. on adjacent structures, vehicles, etc.** Extreme caution and application techniques shall be used when this possibility exists.
- F. Prior to notifying the Engineer that painting is completed, the Contractor shall notify the paint manufacturer's representative who shall make a semifinal inspection of the painting work. The manufacturer representative shall then notify the Contractor and the Engineer of all instances where the painting work fails to comply with the Specifications, as well as defects discovered. The Contractor shall immediately make those alterations which are necessary to make the work comply with the Specifications.
- G. After completion of the repainting work and before payment is made by the Owner, the Contractor shall submit to the Engineer an affidavit stating that all repainting work has been completed in accordance with the requirements of AWWA Standards and these Specifications.

2.11 Paint System: System specified is referenced to AWWA Standards. Acceptable paint manufacturers and their respective paint requirements are listed below. Equivalent coating system from other manufacturers must be submitted to the Engineer for approval. Individual paint requirements shall be in accordance with the latest manufacturer's requirements if different than specified below.

- A. **Interior – Immersion Steel (Full Blast and Rehab System)**:
 - 1. Tnemec: Each coat shall be a contrasting color to assure even coverage.
 - a. Prime Coat: One (1) coat Tnemec Series 1, color Greenish-Gray applied at 2.5 to 3.5 dry mils.
 - b. Filler Surface (Pits): One (1) coat of Tnemec Series 215, color Beige applied at 1/16-inch to 1/8-inch.

- c. 1st Intermediate Coat: One (1) coat Tnemec Series N69, color Cloud applied at 3.0 to 5.0 dry mils applied in a color noticeably different than the finish coat.
 - d. Finish Coat: One (1) coat Tnemec Series G435, color Gray applied at 15.0 to 20.0 dry mils.
 - e. Inaccessible Areas: Immediately after the finish coat application, all areas deemed inaccessible to coatings (Skip welds, construction/design defects, etc.) shall be sealed with Sika Flex 1A or sealant approved by the coatings manufacturer.
2. Equal zinc-rich primer and epoxy systems by Carboline, Induron, or Sherwin-Williams are acceptable if it meets and exceeds the ASTM performance standards of the basis of design. The usual "or equal" clause shall apply. No request for substitution will be considered which decreases the film thickness and/or the number of coats to be applied, or which offers a change from the generic type of coating specified.
- B. Interior - Immersion Concrete Floor
1. Tnemec: Each coat shall be contrasting color to assure even coverage.
 - a. Prime Coat: One (1) coat Tnemec Series N69, color Beige applied at 3.0-5.0 dry mils.
 - b. Finish Coat: One (1) coat of Series N69, color Gray applied at 3.0-5.0 dry mils.
- C. Exterior – Non Immersion (Full Blast and Rehab System):
3. Tnemec: Each coat shall be a contrasting color to assure even coverage.
 - a. Stairs/Walkway and Basin Base: All areas deemed deteriorating (cracks, construction/design defects, etc.) above grade shall be exposed 6-inch below the ground, sealed with a sealant approved by the coatings manufacturer, and the soils restored to original grade.
 - b. Prime Coat: One (1) coat Tnemec Series 1, color Greenish-Gray applied at 3.0 to 5.0 mils dry.
 - c. Intermediate Coat: One (1) coat Tnemec Series 27, color Slate gray applied at 2.0 to 3.0 dry mils.
 - d. Wall/Stairs/Walkway/Basin Base Finish Coat: One (1) coat Tnemec Series 1095, color Tank White applied at 2.0 to 3.0 dry mils.
 - e. Air Piping Finish Coat: One (1) coat Tnemec Series 1095, color tank Seawater applied at 2.0 to 3.0 dry mils.

- f. Influent/Effluent Piping Finish Coat: One (1) coat Tnemec Series 1095, color Casanova applied at 2.0 to 3.0 dry mils.
 - g. Sludge Piping Finish Coat: One (1) coat Tnemec Series 1095, color Tank White applied at 2.0 to 3.0 dry mils.
 - h. Inaccessible Areas: Immediately after the finish coat application, all areas deemed inaccessible to coatings (Skip welds, construction/design defects, etc.) shall be sealed with Sika Flex 1A or sealant approved by the coatings manufacturer.
4. Equal zinc-rich primer, epoxy, polyurethane, and fluoropolymer systems by Carboline, Induron, or Sherwin-Williams are acceptable if it meets and exceeds the ASTM performance standards of the basis of design. The usual "or equal" clause shall apply. No request for substitution will be considered which decreases the film thickness and/or the number of coats to be applied, or which offers a change from the generic type of coating specified.
5. After finish painting, mark exposed, non-submerged piping with stenciled name of contents and flow direction arrow at valves and fittings, on piping at both sides of walls and floors where pipes pass through, and on long runs approximately every 20 feet or closer when directed. Specifically mark lines according to their size (diameter) and specific contents as directed by the Engineer or noted in the legend herein. Place legends and flow arrows where they can be easily read from the floor. Where pipes are adjacent to each other, arrange legends neatly in line. Use block style lettering with letter size as follows:

<u>Pipe or Covering outside diameter</u>	<u>Letter Size</u>
2-1/2 inch to 6 inch	1-1/4 inch
8 inch to 10 inch	2-1/2 inch
Over 10 inch	3-1/2 inch

2.12 Final Inspection: After notice from the Contractor that the repair and painting work is completed in accordance with these Specifications, the Engineer shall make a final inspection of the work. The Contractor will be notified of all instances where work fails to comply with Specifications. The Contractor shall immediately make those alterations which will make the work fully comply with the Specifications at no additional cost to the Owner.

All inspection and inspection reports will be in accordance with the AWWA Standards.

2.13 Cleaning Up: Site shall be kept clean daily and materials stored accordingly to Manufacturer's recommendation. Accumulations of lead-containing dust and debris generated by work activities shall be removed and cleaned daily. Before the work will be considered complete, all rubbish and unused material due to or connected with the construction shall be removed from the premises and disposed of in a manner

satisfactory to the Owner. Level area with bank sand so that new grass surfaces matches level of existing grass and maintains pre-construction drainage patterns. Level and fill minor ruts or depressions caused by construction operations with bank sand, where grass is still viable. And restore unpaved areas not requiring sodding with hydro mulch seeding and fertilizer accordingly.

Private and public property disturbed and damaged as a result of the work shall be restored to their original or better condition by the Contractor at no additional cost to the Owner; final payment will be withheld until that work is finished.

- 2.14 **Guarantee:** The Contractor shall guarantee all work to the extent that he will repair defects due to faulty design, workmanship and material which may appear for a period of one year after final acceptance. Contractor to spot clean aeration basin exterior for year-end inspection.

The Owner will establish a date within **11 months** after the painting work is accepted for the first anniversary inspection (year-end inspection) for all painting work. This first anniversary inspection shall be conducted with the Owner, Engineer, Contractor, and the Paint Manufacturer's Representative in accordance with AWWA Standards. Any remedial work required based on this inspection will be done in accordance with AWWA Standards at the Contractor's expense. The Contractor shall complete any necessary repairs within 30 consecutive days following the year-end inspection.

END OF SECTION