

ADDENDUM NO. 2

MOCCASIN BEND WASTEWATER TREATMENT PLANT DETRITORS REHABILITATION CONTRACT NO. W-15-001-201

CITY OF CHATTANOOGA, TENNESSEE

The following changes shall be made to the Contract Documents, Specifications, and Drawings:



I. CONTRACT DOCUMENTS

A. Section 00 01 10, Table of Contents. "Division 00 - Procurement and Contracting Requirements"

1. DELETE "00 30 00.18.06 TDOT Certified Disadvantaged Business Enterprises List".

B. Section 00 21 13, Instructions to Bidders. Page 00 21 13-8

1. In the last sentence of the first paragraph of Article 15.01, DELETE the sentence "The Bidder shall submit one original and two copies of all documents in the envelope" and SUBSTITUTE the following sentence: "The bidder shall submit one original of all documents in the envelope".
2. In Article 15.01, DELETE Paragraphs "E. Certification By Proposed Prime or Subcontractor Regarding Equal Employment Opportunity" and "F. Certification Regarding Debarment, Suspension, and Other Responsibility Matters".

II. SPECIFICATIONS

A. Section 09 92 00, Protective Coatings. Pages 09 92 00-1 through 09 92 00-12.

1. DELETE the Specification in its entirety and SUBSTITUTE therefor the attached Specification.

B. Section 40 05 23-3, Valves. Part 2.2A, page 40 05 23-3.

1. DELETE the last sentence of Part 2.2, paragraph "A" and SUBSTITUTE therefor the following sentence: "Gate valves shall be equal to Mueller A-2360 or approved equal."

C. Section 40 05 73, Stainless Steel Slide Gates. Pages 40 05 73-1, 40 05 73-2, and 40 05 73-5.

1. In Part 1.2, paragraph "B.", DELETE "0.5 gpm/ft" in the first line and SUBSTITUTE therefor "0.05 gpm/ft".
2. In Part 2.1, paragraph "A.", ADD the following paragraph: "e. Stems and stem extensions shall be Type 304 stainless steel."
3. In Part 2.2, DELETE paragraph "A." and SUBSTITUTE the following paragraph: "A. Slide gates shall be equal to those as manufactured by RW Gate, Fontaine-Aquanox, or approved equal."

D. Section 46 23 73, Detritor Grit Separator Mechanisms. Page 46 23 73-1.

1. In Part 1.1, DELETE paragraph "C." and SUBSTITUTE the following paragraph: "C. Grit collection and cleaning mechanisms shall be equal to those manufactured by Ovivo USA, LLC or approved equal."

E. Section 26 05 53, Detritor Grit Separator Mechanisms. Page 26 05 53-6.

1. DELETE Part 3.2G, paragraph "3" and SUBSTITUTE the following paragraph: "3. Colors for 480/277V Circuits shall be as follows:
 - a. Phase A: Brown
 - b. Phase B: Purple
 - c. Phase C: Yellow"
2. Part 3.2, ADD the following paragraph:
 - "H. The Contractor shall label all raceways, wire, and devices in the field corresponding to the contract drawings. All Labels shall be stainless steel. All control lights shall have each lamp labeled with a stainless steel label."

III. DRAWINGS

- A. **Drawing No. G3.** DELETE the drawing in its entirety and SUBSTITUTE therefor the attached Drawing No. G3.1.
- B. **Drawing No. G5.** DELETE the drawing in its entirety and SUBSTITUTE therefor the attached Drawing No. G5.1.

IV. REQUESTS FOR INFORMATION (RFIs)

The following are the responses to the Requests For Information (RFIs) that were submitted to the City Purchasing Department:

- A. **Section 09 92 00.** Part 2.2A, paragraphs "2. Level II Repair" and "3. Level III Repair", pages 09 92 00-4 and 09 92 00-5.

RFI Statements and Questions

1. The Tnemec product mentioned in these two areas Series 217 Repair Mortar is listed to be applied at a range of 1/4" - 4".
2. Level II and Level III Repair are allotted 19,700 sf of repair area on the Bid Form. With 19,700 sf of area Level II & Level III combined, there is a substantial amount of material cost without any "real" thicknesses to base our pricing upon.
3. Could we get a stated base thickness to use for our estimate and maybe have a pricing line item for Series 217 at say 1/2" increments? We could have a base thickness of 2" that would serve as a contract baseline.

Engineer's Response

1. The 1/4" - 4" range is the product's effective range and not necessarily the thickness range to be expected to be applied on this project.
2. 17,700 sf of the 19,700 sf is the estimated area to be repaired under Level II. The thickness for Level II is 1/4" to 1/2".
3. It is anticipated that the majority of the repairs will be Level II repairs. However, if the quantities exceed the amount in the bid form for any of the Levels, then adjustments will be made accordingly via change order(s).

- B. **Section 05 58 00.** Part 2.3, paragraphs "B.2 and B.5" and Part 2.5, paragraph "B.", pages 05 58 00-3 and 05 58 00-4.

RFI Statements and Questions

"These questions are in regards to Contract No. W-15-001-201 for Moccasin Bend in particular, the Flat Aluminum Covers specified in section 05 58 00.

1. Please provide more details of the cover attachment, existing and new bridges?

2. Is Bridge #3 new or are you keeping the existing one?
3. Please confirm these live loads to be accurate - uniform live load 20 psf, panel load 40 psf and hatch load 150 psf?"

Engineer's Response

1. The Contractor shall field verify the dimensions of the covers and bridges shown on the Contract Drawings. Details of the components for the covers and bridges shall be furnished to the Engineer for review during the shop drawing phase of the project.
2. Bridge #3 (Detritor No.3) will remain as well as all grit removal equipment in Detritor No.3. However, the equipment and the concrete in Detritor No.3 are to be surface prepped and coated with a protective coating as stipulated in Specification Section 09 92 00.
3. The live loads listed in the specifications are correct.

C. *Section 46 23 73.* Pages 46 23 73-1 through 46 23 73-6.

RFI Statements and Questions

BAR Environmental, Inc. requested formal pre-qualification approval for the detritor equipment on the upcoming bid. BAR provided a Prequalification Submittal for ENVIRODYNE SYSTEMS, INC., a company that they recently picked up to represent.

Engineer's Response

The Specification Sections for the Valves, Stainless Steel Slide Gates, and Detritor Equipment are being modified to allow for consideration of substitutes after the Notice to Proceed. See Section II, items B, C, and D above.

D. *Division 26 - Electrical Specifications and Drawings E1 through E5.*

RFI Statements and Questions

1. Are we to understand that all the raceways needed from Junction box 1, 2, and 3 to MCC 420 and PLC-1-R1 are existing and to be reused?
2. Sheet E2 note 2 references a TVSS specified in the specifications. I cannot locate the TVSS specification.
3. The center drive and cleaning mechanism motors do not indicate a service disconnect. Should there be a service disconnect?
4. Sheet E2 note 3. Cannot locate this note.
5. Sheet E2 should be 2- note number 8. Is there to be two Detritor control panels?

Engineer's Response

1. See Sheet E2 and E4.

Contractor shall reuse existing raceways and underground raceways from JB1,2, &3 to the Influent PS for the new wiring installation. New conduit and wiring will be required once inside the Influent PS building.

2. Specification Section 26 49 13 TVSS.

Provide Eaton PTX080 TVSS devices in locations specified on the drawings. Enclosure for TVSS shall be NEMA 4X.

3. See sheet E2.

Disconnects for center drives are not required. The disconnecting means is in the new control panel and is within 50' of the drive motors.

4. Hex note #3 should be located on the wire trough shown to the left of the new Detritor control panel.

5. There is only one Detritor control panel Hex note #8. All controls and starters are located in one control cabinet.

Bidder Must Acknowledge Receipt of this Addendum on Bid Form

Addendum Prepared by

CTI ENGINEERS, INC.

January 19, 2017

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Under this section furnish all materials, equipment, and labor to accomplish all painting necessary or convenient to the Contractor for the satisfactory completion of the work included under these Contract Documents. The words "paint" and "painting" used in this specification apply to and also describe the use and application of protective coatings.
- B. In general, the work included under this section shall include the surface preparation, shop priming, field priming, and/or field painting of all surfaces identified in these Specifications and on the Contract Drawings. These surfaces include, but are not limited to, the following:
 - 1. Ferrous metals (except stainless steel or pre-finished surfaces),
 - 2. Galvanized metal and
 - 3. Concrete.
- C. Aluminum, fiberglass, polyvinyl chloride, stainless steel, and/or other corrosion-resistant metal surfaces (excluding piping) shall not be painted unless specifically called for on the Drawings or in these Contract Documents.

1.2 QUALITY ASSURANCE

- A. Submit to the Engineer for his review the following information concerning the materials the Contractor proposes to use in work covered by this item:
 - 1. A list of all components (paints or other materials) to be used in each painting system required herein.
 - 2. A complete descriptive specification of each component.
 - 3. Only those systems and components which are judged acceptable by the Engineer shall be utilized in the work covered by this item. No materials shall be delivered to the job site until the Engineer has evaluated their acceptability.
- B. All products submitted shall be lead- and chromate-free formulations and comply to current VOC emission regulations. Manufacturers technical data sheets must contain the following information:
 - 1. Manufacturer's name.
 - 2. Type of paint or other generic identification.
 - 3. Manufacturer's stock number.
 - 4. Color (if any).
 - 5. Type of gloss.
 - 6. Minimum flash point.
 - 7. Percent solids by volume.
 - 8. Recommended dry film thickness per coat
 - 9. Theoretical coverage rates.
 - 10. Instructions for mixing, thinning, or reducing (as applicable).
 - 11. Manufacturer's application recommendations.
 - 12. Safety and storage information.
 - 13. Viscosity at ambient temperature.

14. Average dry times (dry to touch, dry to recoat) at ambient temperature.
 15. Recommended thinners and maximum thinning permissible to meet current VOC regulations.
 16. Recommended primer if applicable.
 17. Application method (brush, roll, conventional or airless spray).
 18. VOC level of coating.
 19. Instructions for mixing multiple component materials.
- C. Obtain the Engineer's review of the first area, item, or portion of work of each surface type and color specified. The first area, item, or portion of work which is acceptable to the Engineer shall serve as the project standard for all surfaces of similar type and color. Where spray application is utilized, the area to be reviewed shall not be smaller than 100 square feet.
- D. An authorized representative of the coatings manufacturer shall be present at the start-up and periodically during painting operations. Such representative shall instruct and observe the Contractor's workmanship and shall, at the completion of the work, certify in writing to the Engineer that the manufacturer's application recommendations were followed.
- E. Contractor Qualification. Contractor must provide documentation that he has previously performed this type of work and provide job references as required by the Engineer. Provide a written guarantee against defective materials and workmanship in accordance with these Specifications.

1.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver all paint, primers, varnishes, and sealers to the job site in their original, unopened containers not exceeding 5-gallon capacity each, unless otherwise specified herein. With the permission of the Engineer, the manufacturer may use and ship in agitator barrels. Paint containers shall not be opened until they have been inspected and approved by the Engineer.
- B. Store paint and related materials and equipment in a suitable location on the project site away from work areas and other storage areas. Strictly adhere to all applicable health, safety, and fire regulations controlling the storage of paint and related materials. Store and handle all materials in accordance with the manufacturer's recommendations.
- C. Each container shall be marked with the manufacturer's name, product number, and batch number. The labels shall also show mixing and thinning instructions, and recommended dry film thickness of each product. Use thinner recommended by the manufacturer. The use of accelerators must be approved by the Engineer. Any substitutions of generic thinners must be approved by the Engineer.

1.4 JOB CONDITIONS

- A. Strictly follow the manufacturer's recommendations concerning environmental conditions under which a material can be applied. No finishes shall be applied in areas where dust is being generated.
- B. Cover or otherwise protect the finished work of other trades, surfaces not being painted concurrently, and/or surfaces which are not to be painted. Any injury or

damage to such surfaces shall be remedied at Contractor's expense to the satisfaction of the Engineer before final acceptance, and no separate payment therefor will be made.

1.5 TESTING EQUIPMENT

- A. Furnish and make available to the Engineer the following items of testing equipment for use in determining if the requirements of this Specification section are being satisfied. The specified items of equipment shall be available for the Engineer's use at all times when field painting or surface preparation is in progress.
1. Wet film gauge.
 2. Surface thermometer.
 3. Spring micrometer with surface profile tape.
 4. Set of Steel Structures Painting Council Visual Standards (SSPC-VIS 1-89).
 5. Holiday (pin hole) detector (low voltage).
 6. Sling-psychrometer and psychrometric tables.
 7. Magnetic dry film gauge (Type 1 or Type 2) with appropriate calibration shims or plates.

1.6 LEVELS OF REPAIR FOR INTERIOR CONCRETE SURFACES

- A. Level I Repair – Surface preparation and application of protective coating on surfaces with none of the defects described below for Level II or III repairs. Surface preparation and application of the protective coating shall be done in accordance with the requirements stipulated in Parts 2 and 3 below.
- B. Level II Repair – Surface preparation and application of surface restoration mortar and protective coating on surfaces with exposed aggregate, concrete spalling, cracking, delamination, voids, and/or any other defects identified by the Owner's representative that are greater than $\frac{1}{4}$ inch in the horizontal dimension and between $\frac{1}{4}$ and $\frac{1}{2}$ inch in the vertical dimension. Surface preparation and application of the surface restoration mortar and protective coating shall be done in accordance with the requirements stipulated in Parts 2 and 3 below.
- C. Level III – Surface preparation and concrete repair for areas with exposed aggregate, concrete spalling, cracking, delamination, voids, honeycombing, rock pockets, holes left by the tie rods, and/or other defects identified by the Owner's representative that are greater than $\frac{1}{4}$ inch in the horizontal dimension and greater than $\frac{1}{2}$ inch in the vertical dimension. Repairs shall be conducted in accordance with the requirements stipulated in Parts 2 and 3 below and as shown/stipulated on the Contract Drawings.

PART 2 - PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. The specific products and manufacturers listed for each general product classification in Part 2.2, Materials List, of this section are given only to identify the generic type, quality, and general composition required for each product. Furnish similar products of other manufacturers subject to the review of the Engineer in

accordance with the provisions of Part 1.2, Quality Assurance, of this section. The utilization of named products as given in Part 2.2, Material List, of this section does not excuse the Contractor from complying with the provisions of Part 1.2.

- B. All materials used in successive field coats shall be produced by the same manufacturer. Material used in the first field coat over shop painted or previously painted surfaces shall cause no wrinkling, lifting, or other damage to underlying paint.

2.2 MATERIAL LIST

Primers, Fillers, Surfacer, and Finishes: Subject to compliance with requirements, provide the following or approved equivalent:

A. Interior Concrete Surfaces

1. Level I Repair

- PC-1: Primer Coat – TNEMEC “Series 201 Epoxoprime.” (Horizontal - 6.0 to 12.0 mils DFT and Vertical - 4.0 to 6.0 mils DFT).
- FC-1: First Coat – TNEMEC “Series 436 Perma-Shield FR” (80.0 to 125.0 mils DFT).
- SC-1: Seal Coat – TNEMEC “Series 435 Perma-Glaze” (30.0 to 40.0 mils DFT).

2. Level II Repair

- SR-1: Surface Restoration - TNEMEC “Series 218 MORTARCLAD” or
- SR-2: Surface Restoration - TNEMEC “Series 217 MORTARCRETE”.
- PC-1: Primer Coat – TNEMEC “Series 201 Epoxoprime.” (Horizontal - 6.0 to 12.0 mils DFT and Vertical - 4.0 to 6.0 mils DFT).
- FC-1: First Coat – TNEMEC “Series 436 Perma-Shield FR” (80.0 to 125.0 mils DFT).
- SC-1: Seal Coat – TNEMEC “Series 435 Perma-Glaze” (30.0 to 40.0 mils DFT).

3. Level III Repair

- ER-1: Exposed Rebar – Clean per application guide and prime with TNEMEC Series 1 Omnithane (2.5 to 3.5 mils DFT).
- SR-2: Surface Restoration – SR-2: TNEMEC “Series 217 MORTARCRETE”.
- PC-1: Primer Coat – TNEMEC “Series 201 Expoxoprime.” (Horizontal - 6.0 to 12.0 mils DFT and Vertical - 4.0 to 6.0 mils DFT).
- FC-1: First Coat – TNEMEC “Series 436 Perma-Shield FR” (80.0 to 125.0 mils DFT).

SC-1: Seal Coat – TNEMEC “Series 435 Perma-Glaze” (30.0 to 40.0 mils DFT).

B. Exterior Concrete Surfaces

F-1: Large Cracks, Voids, and other Surface Imperfections - TNEMEC "Series 215 Filler/Surfacer."

PC-1: Primer Coat - TNEMEC "Series 201 Epoxoprime" (6.0 to 12.0 mils DFT).

SC-2: Second Coat - TNEMEC "Series 281-Color TNEME-GLAZE" (6.0 to 12.0 mils DFT).

FC-2: Finish Coat - TNEMEC "Series 290/291-Color TNEME-GLAZE" (2.0 to 3.0 mils DFT).

C. Exterior Exposed Steel and Galvanized Metals

PC-2: Primer Coat - TNEMEC "Series 1 Omnithane" (2.5 to 3.5 mils DFT).

FC-3: Finish Coat - TNEMEC "Series 1074/1075 Endura-Shield" (2.0 to 5.0 mils DFT).

2.3 COLORS

- A. Color Cards. Submit color cards for all paints, stains, or other materials to the Engineer for review and color selection. Only those colors which have been reviewed and accepted by the Engineer shall be utilized in work covered by this section.

2.4 MIXING AND TINTING

- A. All paints and other materials shall be mixed and tinted by the paint manufacturer prior to delivery to the job site, when possible.
- B. Strictly adhere to the manufacturer's recommendations when job site mixing and/or tinting is required. The Contractor shall be solely responsible for the proper conduct of all on-site mixing and/or tinting.

PART 3 - EXECUTION

3.1 CONTRACTOR'S INSPECTION

- A. Examine all surfaces scheduled to receive paint or other finishes for conditions that will adversely affect execution, permanence, or quality of work covered by this item. Surfaces which cannot be put into an acceptable condition through preparatory work as included in Part 3.2, Preparation of Surfaces, shall be immediately brought to the attention of the Engineer.
- B. Do not proceed with surface preparation or coating application until surface conditions are suitable.

3.2 PREPARATION OF SURFACES

A. Surface Preparation Specifications

1. General. Where abrasive blasting is specified, a low free silica abrasive with a silica content of <5% shall be used. Mineral slag by-products may not be used. Abrasive blasting should produce a surface profile of not less than 1.5 mils or greater than 3.5 mils.
2. SSPC-SP 1 "Solvent Cleaning": Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from steel surfaces.
3. SSPC-SP 2 "Hand Tool Cleaning": Hand tool cleaning is a method of preparing steel surfaces by the use of non-power hand tools. Hand tool cleaning removes all loose mill scale, loose rust, paint, and other loose detrimental foreign material. It is not intended that adherent mill scale, rust, and paint be removed by this process. Mill scale, rust, and paint are considered tightly adherent if they cannot be removed by lifting them with a dull putty knife.
4. SSPC-SP 3 "Power Tool Cleaning": Power tool cleaning is a method of preparing steel surfaces by the use of power assisted hand tools. Power tool cleaning removes loose rust, paint, and other loose detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Mill scale, rust, and paint are considered adherent if they cannot be removed by lifting with a dull putty knife.
5. SSPC-SP 5 "White Metal Blast Cleaning": A white metal blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products and other foreign matter.
6. SSPC-SP 6 "Commercial Blast Cleaning": A commercial blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products and other foreign matter, except for staining. Staining shall be limited to no more than 33 percent of each square inch of surface area and may consist of light shadows, slight streaks or minor discolorations caused by stains of rust, stains of mill scale or stains of previously applied paint. Slight residues of rust and paint may also be left in the bottoms of pits if the original surface is pitted.
7. SSPC-SP 7 "Brush-Off Blast Cleaning": A brush-off blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust and loose paint. Tightly adherent mill scale, rust and paint may remain on the surface. Mill scale, rust and paint are considered tightly adherent if they cannot be removed by lifting with a dull putty knife.
8. SSPC-SP 10 "Near-White Blast Cleaning": A near-white blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products and any other foreign matter, except for staining. Staining shall be limited to no more

than 5 percent of each square inch of surface area and may consist of light shadows, slight streaks or minor discolorations caused by stains of rust, stains of mill scale or stains of previously applied paint.

9. SSPC-SP 11 "Power Tool Cleaning to Bare Metal": The removal of all visible oil, grease, dirt, mill scale, rust, paint, oxide, corrosion products, and other foreign matter. Slight residues of rust and paint may be left in the lower portion of pits if the original surface is pitted. Differs from SSPC-SP 3 in that it requires more thorough cleaning and a surface profile not less than 1 mil (25 microns).
10. NAPF 500-03-01 "Solvent Cleaning": Solvent cleaning is a method for removing all oil, small deposits of asphalt paint, grease, soil, drawing and cutting compounds and other soluble contaminants from iron surfaces.
11. NAPF 500-03-04 "Abrasive Blast Cleaning of Ductile Iron Pipe": An abrasive blast cleaned, exterior pipe surface when viewed without magnification, shall be free of all visible dirt, dust, loose annealing oxide, loose rust, loose mold coating and other foreign matter. All oils, small deposits of asphalt paint, and grease shall have been removed by solvent cleaning per NAPF 500-03-01. After the entire surface to be coated has been struck by the blast media, tightly adherent annealing oxide, mold coating and rust staining may remain on the surface provided they cannot be removed by lifting with a dull putty knife.
12. SSPC-SP 13/NACE 6 "Surface Preparation of Concrete": A joint standard that gives requirements of the surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of a bonding protective coating system. Use the following methods of surface preparation as recommended by the coatings manufacturer or as specified herein:
 - a. Surface cleaning as described in ASTM D 4258 to include vacuum cleaning, air blast cleaning, and water cleaning to remove dirt, loose material, and/or dust; detergent water cleaning and/or steam cleaning to remove oil and grease from concrete.
 - b. Dry, wet or vacuum-assisted abrasive blasting as described in ASTM D 4259 to remove contaminants, laitance, and weak concrete, to expose subsurface voids, and to produce a sound concrete surface with adequate profile and surface porosity.
 - c. Impact-tool methods including scarifying, scabbing and rotary peening and/or power tool methods including circular grinding, sanding, and wire brushing as described in ASTM D 4259 to remove existing coatings laitance, weak concrete and protrusions in concrete. These methods may require abrasive blasting (b. above) to produce a uniform, sound concrete surface with adequate profile and surface porosity that is suitable for the specified protective coating system.
 - d. Acid-etching will not be approved.

B. Concrete Surfaces

1. Concrete Immersion and Interior Surface Exposed to H₂S Fumes: Remove all loose materials, deteriorated concrete, laitance, existing coatings, and other bond-inhibiting materials from the surface in accordance with SSPC-SP 13/NACE 6, minimum surface profile of ICRI-CSP6.
2. Exterior Concrete Surfaces: Abrasive blast, shot-based or mechanically abrade concrete surfaces to remove laitance, curing compounds, hardeners, sealers, and other contaminants and to provide a minimum ICRI-CSP 3 or greater surface profile. Large cracks, voids, and other surface imperfections shall be filled with TNEMEC Series 215 Filler/Surfacer.

C. Shop Priming and Painting

1. Coat interior, inaccessible surfaces of equipment with an epoxy system suitable for the lifetime of the equipment at anticipated operating conditions and temperatures, unless otherwise specified or accepted.
2. Coat exterior and accessible interior surfaces with an appropriate epoxy system unless otherwise specified or accepted.

D. Ferrous Metal (Excluding Stainless Steel)

1. Exterior Exposed Steel: SSPC-SP 3 Power tool cleaning or SSPC-SP 11 Power tool cleaning to bare metal all rusted or damaged areas. SSPC-SP 11 is preferred. Feather edges.
2. Immersion Surfaces: "Near-White Blast Cleaning" in accordance with SSPC-SP 10 (NACE No. 2). Abrasive blasting shall achieve an anchor pattern or blast profile of between 30 and 40 percent of the dry film thickness of the first applied coat of primer or paint.
3. Non-Immersion Surfaces: "Commercial Blast Cleaning" in accordance with SSPC-SP 6 (NACE No. 3). Abrasive blasting shall achieve an anchor pattern or blast profile of between 30 and 40 percent of the dry film thickness of the first applied coat of primer or paint.
4. High Temperature System: "Near White Blast Cleaning" in accordance with SSPC-SP 10 (NACE No. 2). Abrasive blasting shall achieve an anchor pattern or blast profile of between 30 and 40 percent of the dry film thickness of the first applied coat of primer or paint.
5. Field Preparation of Shop Primed Surfaces: "Solvent Cleaning" in accordance with SSPC-SP 1. Shop primed ferrous metal surfaces which have been damaged or which show signs of corrosion shall be sand blasted and/or cleaned in accordance with the specification given above for the particular finish coating to be applied prior to the application of the field primer or finish coating.

E. Nonferrous Metals

1. Exterior Exposed Galvanized Metals: SSPC-SP 3 Power tool cleaning or SSPC-SP 11 Power tool cleaning to bare metal all rusted or damaged areas. SSPC-SP 11 is preferred. Feather edges.
2. Aluminum: The surface should always be wiped with an acceptable solvent for removing oil and grease. Light sanding or light abrasive blast cleaning, and/or a phosphoric etch should be used on aluminum that is not anodized or alodized to assure good adhesion. Etching solutions should be used according to manufacturers recommendations.

F. Stainless Steel Piping: Surfaces shall be clean, dry, and free of contaminants. Oils, greases, waxes, etc., shall be removed by solvent cleaning in accordance with SSPC-SP 1. Surfaces shall be roughened by hand sanding or light blast cleaning.

3.3 APPLICATION

A. Apply finish coatings with suitable brushes, rollers, or spray equipment per manufacturers instructions.

1. Rate of application shall not exceed the paint manufacturer's recommendation for the surface being coated.
2. Brushes, rollers, and spraying equipment shall be kept clean, dry, and free of contaminants at all times.
3. Stain shall be applied by brush or clean, dry cloth. Wipe or dry brush until desired toning is achieved. If deeper tone is required, repeat application after first coat is thoroughly dry.
4. Coatings shall be applied in accordance with paint manufacturer's recommendations and may be subject to inspection at all times by representatives of the Owner or manufacturer.
5. All spray equipment may be inspected by the Engineer's resident project representative (RPR) or Owner's representative before paint application begins.
6. A moisture trap shall be placed in air line supply between the compressor and the pressure pot, airless pump, and/or blow down hoses.
7. Operational regulators and gauges shall be provided for pressure tanks or airless pumps.
8. All spent abrasive and dust from blasting operations shall be removed from surfaces prior to painting application.
9. Blasted surfaces shall be coated with one coat of primer during the same day that blasting is done.
10. Priming shall not be applied closer than 6 inches to a non-blasted area. Any subsequent blasting operation shall not result in abrasive particles embedded in the paint film.

11. No painting shall take place when the temperature is below 50°F, or when the surface temperature is within 5°F of the dewpoint, or when the relative humidity is above 85%, unless approved by the Engineer.
 12. Spray gun must be held perpendicular to the surface being coated, and handled in such a manner that dry over spray is held to a minimum.
 13. When paint is being applied to the interior of tanks or confined areas, sufficient explosion proof blowers or fans shall be installed to provide adequate ventilation. Adhere to the paint manufacturer's recommendations for forced air ventilation during application and curing. When isocyanate catalyzed coatings are being applied, positive pressure air supplied respirators must be used.
 14. Cover or otherwise protect the finished work of other trades and surfaces which are not to be painted. Any injury or damage to such surfaces shall be remedied to the satisfaction of the Engineer at the expense of the Contractor before final acceptance and payment will be made.
 15. All materials used in successive field coats shall be produced by the same manufacturer.
- B. Field painting shall be in the number of coats specified in Part 3.5, Painting Schedule, of this section. Shop or field-applied priming coats shall not be considered as one of the required field finish coats.
1. Individual field finish coats shall be tinted differently in order to distinguish each coat from preceding or succeeding coats.
 2. Strictly comply with the coating manufacturer's recommendation for drying time between coats.
 3. The Engineer shall inspect each coat before additional coats are applied. Only inspected coats will be considered in determining the number of coats applied.
- C. Finish Coats. Finish coats shall be smooth, free of brush marks, streaks, runs, laps or pile-up of paint, and skipped or missed areas. Moldings, trim, and other ornaments shall be left clean and true to details with no undue amount of paint in corners and depressions. The edges of paint adjoining other materials or colors shall be clean and sharp with no overlapping. Where any portion of the finish of a wall has been damaged or is not acceptable, the entire wall shall be refinished.

3.4 TESTING AND INSPECTION

- A. Ambient Conditions. Prior to and during paint application, the following ambient conditions shall be measured to confirm that all conditions are within specified limits:
1. Air temperature and relative humidity to be measured with a sling or battery operated psychrometer. The dew point shall be determined from approved psychrometric tables using measured wet- and dry-bulb thermometer readings.
 2. Surface temperature to be measured with a surface temperature thermometer.

- B. Surface Profile. Prior to paint application and after abrasive blasting, the surface to be painted shall be checked with surface profile tape to determine if the depth of profile specified has been achieved.
- C. Film Thickness
1. Wet Film Thickness. The wet film thickness of each coat of paint shall be verified by measuring with an approved wet film thickness gauge as it is applied.
 2. Dry Film Thickness. The dry film thickness (DFT) of each coat of paint and the entire system shall be measured with a Type 1 or Type 2 magnetic dry film thickness gauge in accordance with SSPC-PA 2. Five spot measurements (3 readings constitute 1 spot measurement) shall be taken for each 100 square feet area as outlined in SSPC-PA 2, Section 3.

Holiday Testing. The paint on all interior tank surfaces and submerged steel shall be tested with a Tinker & Razor, or equivalent, low voltage, wet sponge holiday detector after the paint has cured for at least 5 days. Locations where holidays are detected shall be marked for repair and retested and after repair work has been completed.

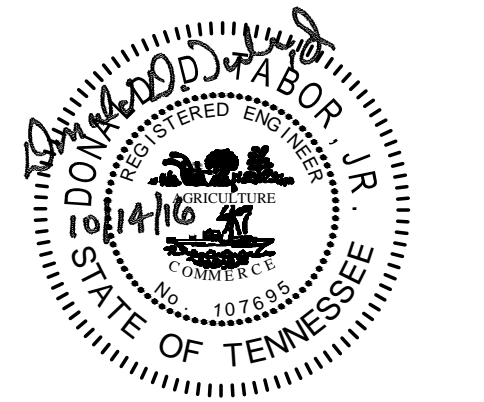
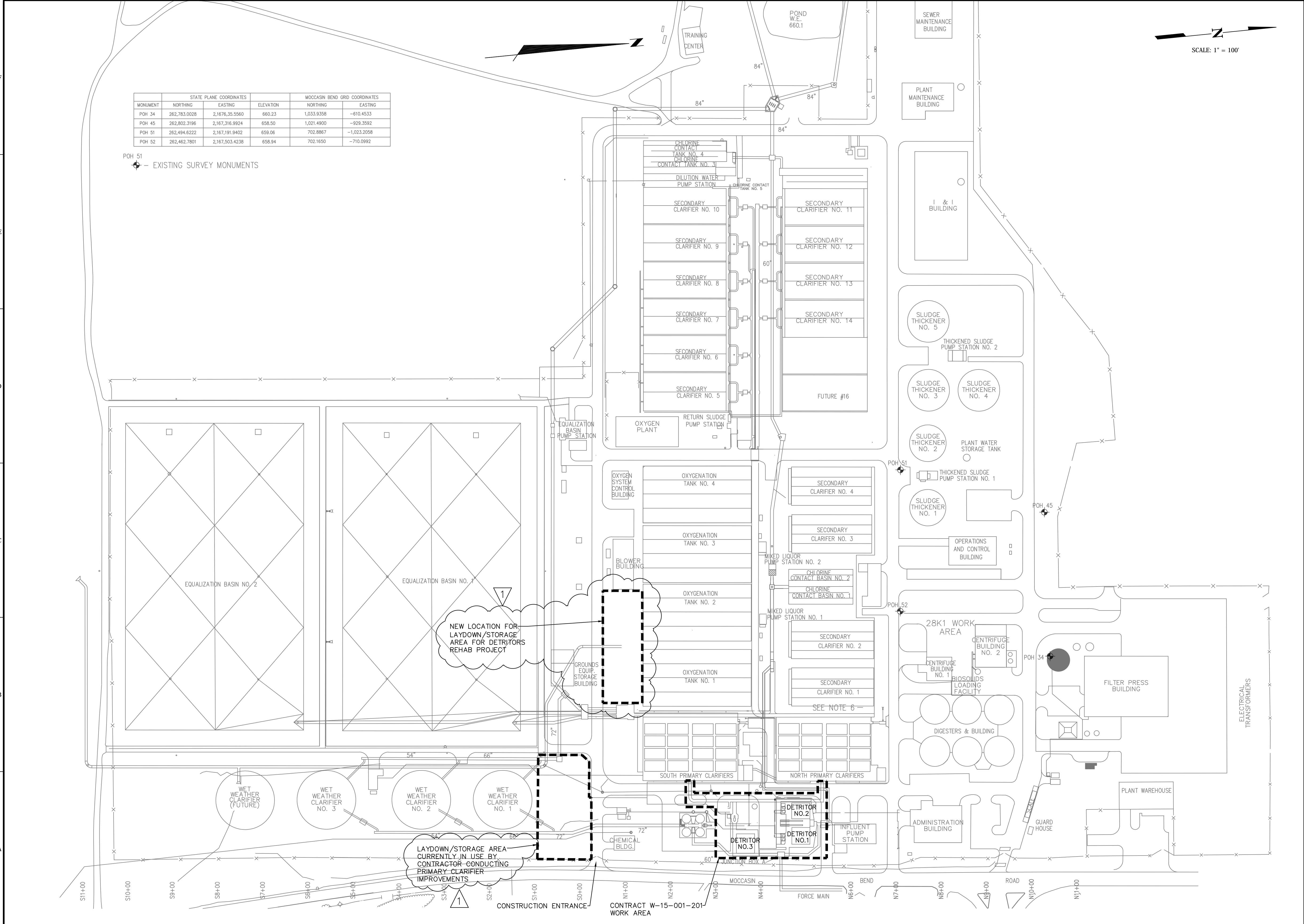
3.5 PROTECTIVE COATING SCHEDULE

1. Protective coatings shall be applied in accordance with the following schedule for the surface and exposure specified:

PROTECTIVE COATING SCHEDULE								
Surface Type	Surface Preparation ¹	Surface Restoration ²	Primer Coat ²	DFT Mils	First Coat ²	DFT Mils	Second Coat ²	DFT Mils
Interior Concrete Surfaces								
Level I Repair	SSPC-SP 13/ NACE 6	N/A	PC-1	6 – 12 Horiz. 4 – 6 Vert.	FC-1	80 - 125	SC-1	30 – 40
Level II Repair	SSPC-SP 13/ NACE 6	SR-1 or SR-2	PC-1	6 – 12 Horiz. 4 – 6 Vert.	FC-1	80 – 125	SC-1	30 – 40
Level III Repair	SSPC-SP 13/ NACE 6	SR-2	PC-1	6 – 12 Horiz. 4 – 6 Vert.	FC-1	80 – 125	SC-1	30 – 40
Exterior Concrete Surfaces								
Exterior Concrete Surfaces	Abrasive Blast (Shot-Based or Mechanically)	F-1	PC-1	6 – 12 Horiz. 4 – 6 Vert.	SC-2	6 – 12	FC-2	2 – 3
Exposed Steel Rebar								
Exposed Steel Rebar	Clean Per Application Guide	N/A	ER-1	2.5 – 3.5	N/A	N/A	N/A	N/A
Exterior Exposed Steel and Galvanized Metals								
Exterior Exposed Steel and Galvanized Metals	SSPC-SP 3 or SSPC-SP 11	N/A	PC-2	2.5 – 3.5	FC-3	2 - 5	N/A	N/A
¹ See Part 3.2 of this Specification. ² See Part 2.2 of this Specification.								

END OF SECTION

CTI PROJECT: C15039 (Chattanooga, Tennessee) MBWWTP Detritors Rehabilitation
DRAWING: OVERALL PLAN (479189v13/1/18/17 5:14PM), LAYOUT: GENERAL PLAN
CREATED: 1/18/2017 LAST SAVED: 1/18/2017 BY: DTABOR PLOT DATE: 1/18/2017

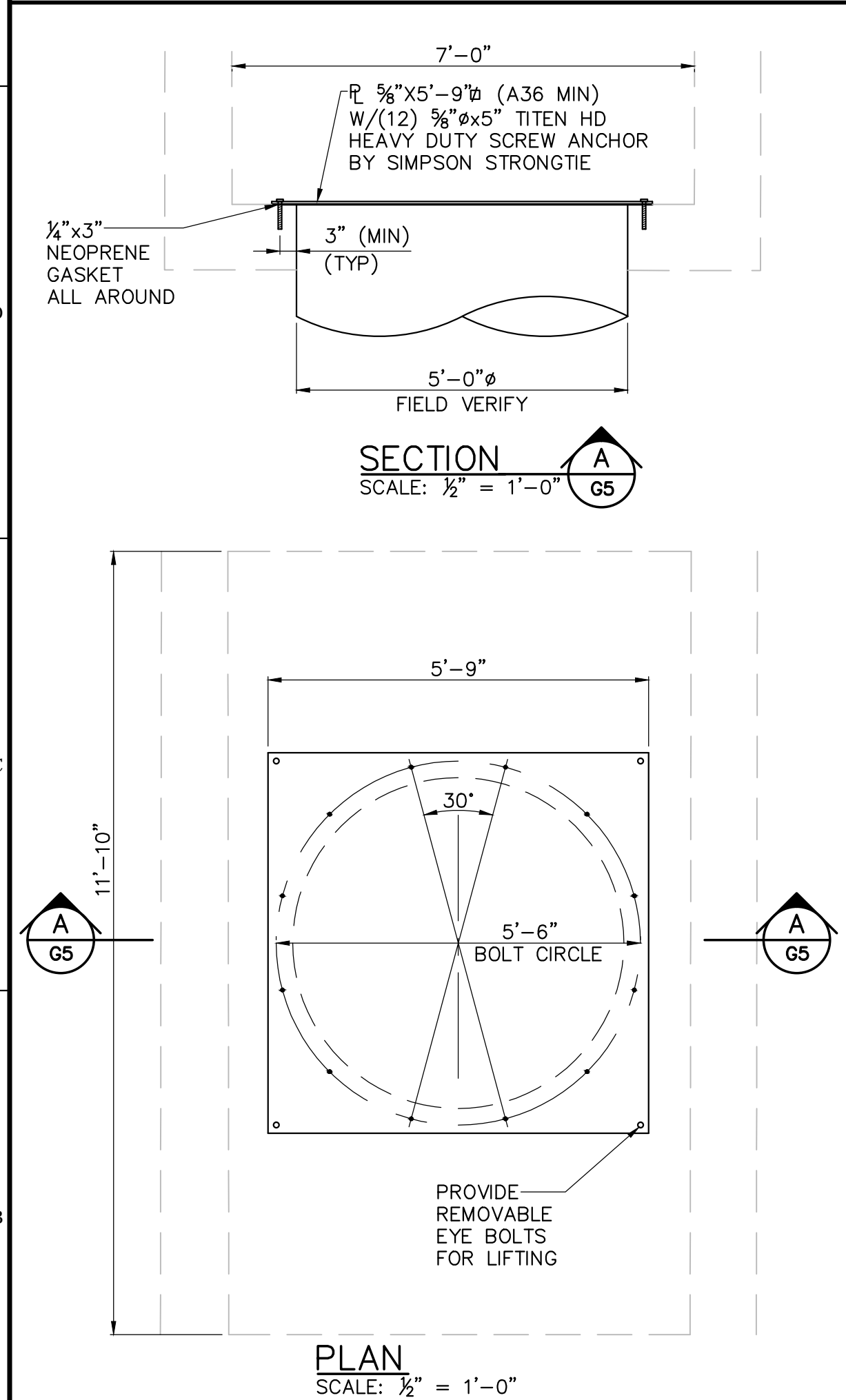
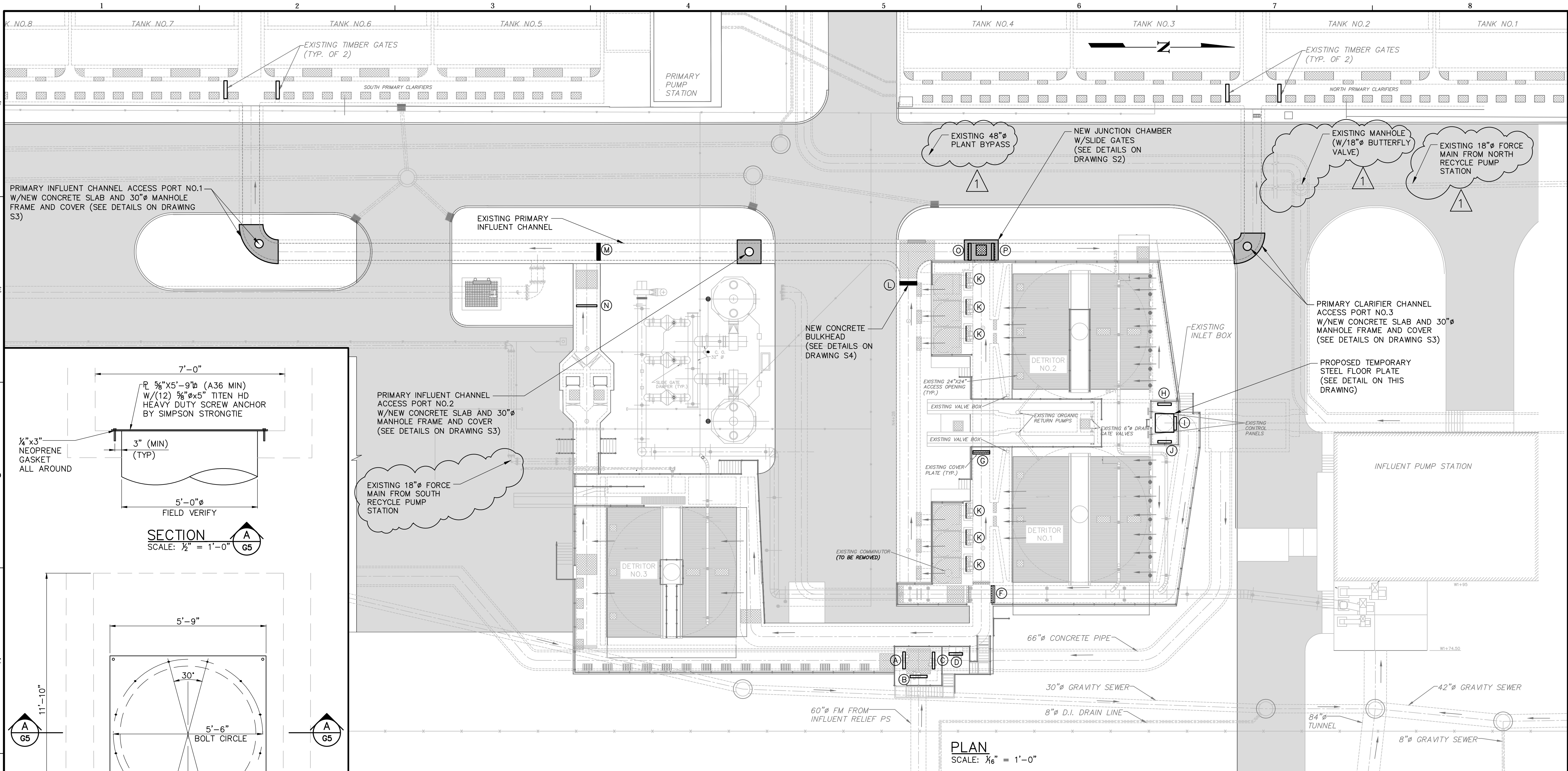


MOCCASIN BEND WASTEWATER TREATMENT PLANT
DETRITORS REHABILITATION
CONTRACT NO. W-15-001-201
CITY OF CHATTANOOGA, TN



REV	DATE	REVISION DESCRIPTION
1	01/17	NEW LAYDOWN LOCATION

THIS LINE IS ONE INCH LONG WHEN PLOTTED FULL SCALE		
THIS DRAWING MUST BE USED IN CONJUNCTION WITH THE APPLICABLE OR GOVERNING TECHNICAL SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS.		
CTI PROJECT NO: C15039-03		
DATE: OCTOBER 2016		
DISC. LEAD:	DESIGNER:	CHECKER:
ADS	DDT	DDT
SHEET TITLE		
GENERAL DRAWINGS		



- NOTES:**
- THE CONTRACTOR MAY SUBMIT AN ALTERNATE CONSTRUCTION SEQUENCE TO THE ENGINEER FOR REVIEW AND CONSIDERATION FOR APPROVAL.
 - THE INFLUENT RELIEF PUMP STATION MAY NEED TO BE OPERATED DURING PEAK FLOW CONDITIONS THROUGHOUT THE CONSTRUCTION PERIOD. EXISTING GATES "A" AND "B" SHALL BE OPENED AND EXISTING GATE "C" SHALL REMAIN CLOSED WHEN THE INFLUENT RELIEF PUMP STATION IS OPERATING. THE CONTRACTOR SHALL COORDINATE OPERATION OF THE RELIEF PUMP STATION AND THE STATED EXISTING GATES WITH MBWWTP OPERATIONS PERSONNEL.

		CONSTRUCTION SEQUENCE																								
		WEEK NUMBER																								
WORK TASK NO.	ITEM NO.S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1*	1.A-1.I																									
2	2.1-2.7																									
3	3.1-3.7																									
4	4.1-4.5																									
5	5.1-5.11																									
6	6.1-6.5																									
7	7.1-7.7																									

* TO BE COMPLETED DURING DRY WEATHER WITH NO RAIN FORECAST FOR THE TIME PERIOD INDICATED.

NOTES:

- THE CONTRACTOR SHALL PROVIDE A TEMPORARY BYPASS PUMPING SYSTEM(S) TO CONVEY THE FLOWS FROM THE NORTH AND SOUTH RECYCLE PUMP STATIONS WHILE WORK IS BEING DONE IN THE PRIMARY INFLUENT CHANNEL AND IN ANY OTHER AFFECTED DOWNSTREAM AREAS DURING CONSTRUCTION. THE DESIGN, INSTALLATION, AND OPERATION OF THE TEMPORARY BYPASS PUMPING SYSTEM SHALL BE THE CONTRACTOR'S RESPONSIBILITY, SUBJECT TO THE ENGINEER'S APPROVAL AS SPECIFIED. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A SPECIALTY CONTRACTOR (FIRM) WHO CAN DEMONSTRATE TO THE ENGINEER THAT IT SPECIALIZES IN THE DESIGN AND OPERATION OF TEMPORARY BYPASS PUMPING SYSTEMS AS STIPULATED IN SPECIFICATION SECTION 01 51 43.
- THE CAPACITY OF THE BYPASS PUMPING SYSTEM SHALL BE EQUAL TO OR GREATER THAN THE FIRM CAPACITY OF EACH PUMP STATION (IE. 5,000 GPM). EACH STATION IS CURRENTLY EQUIPPED WITH THREE 2,500 GPM PUMPS, WITH TWO PUMPS OPERATING SIMULTANEOUSLY DURING PEAK FLOW CONDITIONS AND ONE PUMP SERVING AS A BACKUP. A SECOND BYPASS PUMP(S) WITH A SIMILAR CAPACITY SHALL BE PROVIDED AS A BACKUP IN THE EVENT THE PRIMARY BYPASS PUMP(S) FAILS TO OPERATE.
- THE CONTRACTOR SHALL PREPARE AND SUBMIT A SPECIFIC DETAILED DESCRIPTION OF THE PROPOSED PUMPING SYSTEM(S) REQUIRED PER THE REQUIREMENTS STIPULATED IN SPECIFICATION SECTION 01 51 43.

MINIMUM TEMPORARY BYPASS PUMPING REQUIREMENTS

TASK 1 - DURATION 1-WEEK*

- 1.A VERIFY that existing Gates "A" and "B" are OPEN and existing Gate "C" is CLOSED.
- 1.B DIVERT all flow to the Influent Relief PS and SHUT-DOWN the Influent PS.
- 1.C INSTALL temporary Stop-Plate "F".
- 1.D INSTALL temporary Bulkhead "M".
- 1.E INSTALL the temporary Floor Plate in the Detritor Inlet Box.
- 1.F OPEN existing Gate "D".
- 1.G RESTART the Influent PS and SHUT-DOWN the Influent Relief PS (Limit flows through Influent PS to 50 mgd).
- 1.H CLOSE existing Gate "C".

TASK 2 - DURATION 4-WEEKS

- 2.1 COMPLETE improvements in Detritor Inlet Box (including installation of new Gates "H," "I," and "J," coating of walls, etc.).
- 2.2 CONSTRUCT upper sections of New Junction Chamber.
- 2.3 REMOVE existing Communitor Inlet Sluice Gates and Actuators (Detritors 1 & 2) and remaining Communitor (Detritor 1).
- 2.4 INSTALL new Communitor Inlet Channel Cover Plates (Plates "K").
- 2.5 INSTALL new permanent Bulkhead "L".
- 2.6 REMOVE Covers, Odor Draw-off Duct, and all existing Equipment from Detritor #2.
- 2.7 BEGIN Structural Improvements in Detritor #2.

TASK 3 - DURATION 8-WEEKS

- 3.1 COMPLETE Structural Improvements in Detritor #2.
- 3.2 INSTALL temporary Stop-Plate "G".
- 3.3 REMOVE Covers, Odor Draw-off Duct, and all existing Equipment from Detritor #1.
- 3.4 COORDINATE with MBWWTP personnel regarding draining of the south primary clarifier tanks (ie. Tanks 1 thru 4) and DRAIN (or Pump Out) Primary Inlet Channel north of temporary Bulkhead "M".
- 3.5 REHABILITATE Primary Inlet Channel north of temporary Bulkhead "M" and INSTALL new Channel Access Ports #2 and #3.
- 3.6 INSTALL new Slide Gates "O" and "P" in New Junction Chamber.

TASK 4 - DURATION 4-WEEKS

- 4.1 INSTALL new Equipment (including Reciprocating Rakes) and Covers and REINSTALL Odor Draw-off Duct (Detritor #2).
- 4.2 COMPLETE Structural Improvements in Detritor #1.
- 4.3 REMOVE the temporary Floor Plate in the Detritor Inlet Box.
- 4.4 OPEN new Gate "H" and CLOSE Gates "I" and "J".
- 4.5 START Detritor #2 with outlet flows to Primary Clarifier Tanks #1 thru #4.

TASK 5 - DURATION 4-WEEKS

- 5.1 CLOSE existing Gate "D" and Shut-Down Detritor #3.
- 5.2 INSTALL new Equipment (including Reciprocating Rakes) and Covers and REINSTALL Odor Draw-off Duct (Detritor #1).
- 5.3 REMOVE existing Covers and Odor Draw-off Duct from and COMPLETE Structural Improvement to Detritor #3.
- 5.4 COORDINATE with MBWWTP personnel regarding draining of the north primary clarifier tanks (ie. Tanks 5 thru 8) and DRAIN (or Pump Out) Primary Inlet Channel south of temporary Bulkhead "M".
- 5.5 REHABILITATE Primary Inlet Channel south of temporary Bulkhead "M" and INSTALL new Channel Access Port #1.
- 5.6 INSTALL and CLOSE new Slide Gate "N".
- 5.7 REMOVE temporary Bulkhead "M".
- 5.8 OPEN new Gate "J".
- 5.9 REMOVE temporary Stop-Plate "G".
- 5.10 START Detritor #1 with outlet flows to all Primary Clarifiers.
- 5.11 INCREASE flow limit on Influent PS to 100 mgd.

TASK 6 - DURATION 4-WEEKS

- 6.1 INSTALL new Covers and REINSTALL odor Draw-off Duct at Detritor #3.
- 6.2 REMOVE Temporary Stop Plate "F".
- 6.3 OPEN new Gate "I".
- 6.4 START Detritor #3.
- 6.5 INCREASE flow limit on Influent PS to 150 mgd.

TASK 7 - NON-CRITICAL PATH TASKS - DURATION WESKS 2 THRU 25

- 7.1 Miscellaneous demolition of other items not included in the tasks above.
- 7.2 Electrical upgrades.
- 7.3 Rehabilitation of odor control duct supports.
- 7.4 Rehabilitation of existing cover plates and Installation of new cover plates.
- 7.5 Coating of concrete deck and exposed ferrous metals.
- 7.6 Installation of new ultrasonic transducers.
- 7.7 Installation of new handrail.
- 7.8 Remove fine screen #6 if not already removed prior to construction.
- 7.9 Others work as required.



MOCCASIN BEND WASTEWATER TREATMENT PLANT

DETRITORS REHABILITATION

CONTRACT NO. W-15-001-201

CITY OF CHATTANOOGA, TN



REV	DATE	REVISION DESCRIPTION
1	01/17	ADDED TEMP. BYPASS NOTES AND N. RECYCLE FM

THIS LINE IS ONE INCH LONG WHEN PLOTTED FULL SCALE		
THIS DRAWING MUST BE USED IN CONJUNCTION WITH THE APPLICABLE OR GOVERNING TECHNICAL SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS.		
CTI PROJECT NO: C15039-03		
DATE: OCTOBER 2016	DISC. LEAD: ADS	DESIGNER: DDT
	CHECKER: ADS	

SHEET TITLE
GENERAL DRAWINGS

CONSTRUCTION SEQUENCE

SHEET
G5.1 of G5