



August 15, 2023

## **Columbia County - Ellisville To Ft White Water Main Extension**

Columbia Co Bid No. 2023-04

### **ADDENDUM NO 6**

#### **REVISED SPECIFICATIONS**

1. In Project Manual Vol 1, replace Contractor Bid Form with the attached Contractor Bid Form. Note the updated pay items descriptions and quantities associated with design changes described in this Addendum.
2. In Project Manual Vol 2. add the attached Spec 099000 - Painting & Coating.
3. In Project Manual Vol 2, Spec 263213, replace the words "LP" and "Liquid Petroleum" with the words "Diesel" throughout, and disregard references to gaseous fuel throughout. In Spec 263213, Paragraph 44.4.A.D, replace the words "cubic feet per hour" with the words "gallons per hour".

#### **REVISED DRAWINGS**

1. In the Project Drawings, replace Sheet 15 with the attached replacement Sheet 15. Note that a 12-inch propeller water meter has been added at the Ft White WTP.
2. In the Project Drawings, replace Sheet 63 with the attached replacement Sheet 63.
3. In the Project Drawings, replace Sheets 16, 75, 88 and 90 with the attached replacements Sheets 16, 75, 88 and 90. Note that the backup generator shall be equipped with a 95-gallon sub-base diesel fuel tank, rather than a remote LP fuel tank.

#### **RESPONSES TO BIDDERS' QUESTIONS**

- Q1. What is the required testing frequency for soil compaction in the unimproved right-of-way along US 41/441?*
- A1. In Project Manual Vol 2, Spec 312316, Paragraph 73.7.E, replace the words "1 every 500'" with the words "1 every 2,000' or as directed by Owner's Representative".**
- Q2. Q: Another concern is the density testing frequency along CR 18 and within the town limits where the line is in the green areas.*
- A2. In Project Manual Vol 2, Spec 312316, Paragraph 73.7.E, replace the words "1 every 500'" with the words "1 every 2,000' or as directed by Owner's Representative".**

- Q3. *Need some clarification on the standard trench compaction notes.*
- A3. In Project Manual Vol 2, Spec 312213, Paragraphs 67.9.A.B and 67.9.B.B, replace the words "97 percent" with the words 98 percent". In Project Drawings, Sheet 84, Standard Trench Detail, change the callout for backfill compaction from "98% max density" to "95% max density".**
- Q4. *We need some clarification on the Chlorine Booster Station as the plans state that a 250 gal LP storage tank with cradle is needed and references "(see detail MS 08)". The detail MS 08 states that a 500 gal is called for the job.*
- A4. The generator fuel source will be diesel fuel, rather than LP gas. See related specification and drawing revisions, this Addendum.**

**END OF QUESTIONS**

**END OF ADDENDUM NO. 6**

(Please acknowledge receipt of Addendums)

Project Name: Ellisville to Ft White Water Main Extension

**Columbia County Project Number: 2023-04**

\* items in green added or modified for Addendum 6

**Table 1  
CONTRACTOR BID FORM**

Pay Item	Pay Item Description	Notes	Quantities			Unit	Unit Price	Extended Price
			Project Total Qty	Qty Owner Provided	Contractor Bid Qty			
1	Mobilization		1		1	LS		\$0.00
2	Maintenance of Traffic	1	1		1	LS		\$0.00
3	Erosion Control	2	1		1	LS		\$0.00
4	Disinfection and Testing	3	1		1	LS		\$0.00
5	12" HDPE Pipe, PE4710, DR-13.5	4	47,600	37,800	9,800	LF		\$0.00
6	HDD 12" HDPE Pipe, PE4710, DR-11	4,5	4,700	1,200	3,500	LF		\$0.00
7	12" DIP Pipe, FLG, Class 50		15		15	LF		\$0.00
8	12" DIP Pipe, MJ, Class 50		165		165	LF		\$0.00
9	10" DIP Pipe, MJ, Class 50		10		10	LF		\$0.00
10	6" DIP Pipe, FLG, Class 50		20		20	LF		\$0.00
11	6" DIP Pipe, MJ, Class 50		20		20	LF		\$0.00
12	12" DI 90 Bend Fitting, FLG, C153	6	3		3	EA		\$0.00
13	12" DI 90 Bend Fitting, MJ, C153	6	12	6	6	EA		\$0.00
14	12" DI 45 Bend Fitting, MJ, C153	6	11	2	9	EA		\$0.00
15	12" x 12" DI Tee Fitting, MJ, C153	6	5		5	EA		\$0.00
16	12" x 10" DI Tee Fitting, MJ, C153	6	1		1	EA		\$0.00
17	6" DI 90 Bend Fitting, FLG, C153	6	1		1	EA		\$0.00
18	6" DI 90 Bend Fitting, MJ, C153	6	1		1	EA		\$0.00
19	6" x 6" DI Tee Fitting, MJ, C153	6	1		1	EA		\$0.00
20	12" x 6" DI Reducer Fitting, FLG, C153	6	3		3	EA		\$0.00
21	Hydrant Assembly, 5-1/4" Barrel, Yellow	7, 8	29	20	9	EA		\$0.00
22	12" Gate Valve, Resilient Wedge, NRS, FLG	8	1		1	EA		\$0.00
23	12" Gate Valve, Resilient Wedge, NRS, MJ	8	46	20	26	EA		\$0.00
24	10" Gate Valve, Resilient Wedge, NRS, MJ	8	1		1	EA		\$0.00
25	6" Gate Valve, Resilient Wedge, NRS, FLG	8	2		2	EA		\$0.00
26	2" Combination Air Release Valve (ARV), NPT	9	17	8	9	EA		\$0.00
27	6" Pressure Control (Altitude) Valve, FLG	10	1		1	EA		\$0.00
28	12" Propeller Flowmeter, FLG		2		2	EA		\$0.00
29	6" Ultrasonic Flowmeter, FLG		1		1	EA		\$0.00
30	6" Static Mixer, 3-element, FLG		1		1	EA		\$0.00
31	10'L x 12'W x 9'H Chlorination Building, Prefab Concrete	11	1		1	EA		\$0.00
32	Hypochlorite Analyzer, Feed & Control System	12	1		1	LS		\$0.00
33	20 kW Generator and Diesel Fuel System	13	1		1	LS		\$0.00
34	Web-Based Monitoring System		1		1	LS		\$0.00
35	6' Chain Link Security Fence	14	190		190	LF		\$0.00
36	10' Limerock Drive		120		120	SY		\$0.00
37	Chlorine Booster Station Sitework	15	1		1	LS		\$0.00
38	Asphalt Restoration	16	1		1	LS		\$0.00
39	Concrete Restoration		1		1	LS		\$0.00
40	Seed and Mulch, Bahia		1		1	LS		\$0.00
<b>Total Bid:</b>								<b>\$0.00</b>

Contractor Name (PRINT): \_\_\_\_\_

Contractor Signature: \_\_\_\_\_

**Table 1 Notes:**

- 1 Item includes all elements required for the temporary traffic control (TTC) plan, construction stakeout, and temporary centerline delineation and stop bars placed at all non-working times.
- 2 Item includes synthetic bales, staked silt fence and other items necessary to minimize erosion and to prevent sediment transport to inlets, culverts, and/or directly beyond the project limits.
- 3 Item includes all requirements of AWWA, ASTM and FDEP.
- 4 Item includes all joint fusions, all MJ adapters (with stiffener inserts) and temporary sample taps. Owner-provided quantity includes piping only. See Table 2 for supplemental Owner-provided materials.
- 5 Item includes all horizontal directional drill (HDD) installation; no casing required.
- 6 Item includes all joint accessories. Owner-provided quantity includes fitting only. See Table 2 for supplemental Owner-provided materials.
- 7 Item includes hydrant tee, 6" branch main, 6" gate valve, all joint accessories and RPM markers. Owner-provided quantity includes hydrant only. See Table 2 for supplemental Owner-provided materials.
- 8 Item includes all joint accessories and valve box assemblies for buried installations.
- 9 Item includes tapping saddle and precast vault with frame and cover. Owner-provided quantity includes valve only. See Table 2 for supplemental Owner-provided materials.
- 10 Item includes 1" hydraulic sensing line to ground storage tanks.
- 11 Item includes concrete foundation slab, doors with hardware, HVAC systems with louvers, plumbing, electrical and lightning protection.
- 12 Item includes injection quill with vault, analyzer probes with vault and chemical piping.
- 13 **Item includes concrete pad for generator assembly, protective bollards, automatic transfer switch with controls, and all fuel piping with accessories.**
- 14 Item includes 12'-wide double swing gate.
- 15 Item includes clearing, grading, grassing, sidewalk, equipment pads and miscellaneous yard piping.
- 16 Item includes asphalt millings for open cut drives where millings pre-exist.

## SECTION 099000 - PAINTING AND COATING

## PART 1 - GENERAL

## 1.1 GENERAL INTENT

- A. A. The intent of this Specifications is to provide the material and workmanship necessary to produce complete protection of the surfaces to be coated for Columbia County. This includes all surface preparation, pre-treatment, coating application, touch-up of factory coated surfaces, protection of surfaces not to be coated, clean-up, and appurtenant work, all in accordance with the requirements of the Contract Documents. Throughout this specification "ENGINEER" refers to North Florida Professional Services or Contract Manager. And "OWNER" refers to Columbia County.

## 1.2 PURPOSE

- A. The purpose of this Specification is to generally outline the work contemplated for the painting and protective coating work performed for Columbia County, including Contract Operations, Capital Improvement Projects, and Developer Contributed Assets as defined under Scope below; together with the General Conditions, Special Provisions and all other Technical Specifications included herewith. All paints and materials used on interior tank or treatment unit surfaces shall conform to AWWA and/or Florida Department of Environmental Protection (FDEP) regulations as they may apply to potable water or wastewater service. The manufacturer furnishing the coating material may be required to furnish certification to the ENGINEER/OWNER that the materials meet these provisions.

## 1.3 DESCRIPTION

- A. The extent of painting work is shown on the project drawings, contracts and schedules, and as specified herein.
- B. The work includes painting and finishing of interior and exterior exposed items and surfaces throughout the project, except as otherwise specified or shown on the drawings.
  - 1. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of the work.
- C. The work includes field painting of exposed bare and covered pipes and ducts including color coding, and of hangers, exposed steel and iron work, tanks, vessels, and primed metal surfaces of equipment installed under the mechanical and electrical work, except as otherwise indicated.
- D. Paint all exposed surfaces normally painted in the execution of a building project whether or not colors are designated in "schedules". Where items or surfaces are not specifically mentioned, or are not specifically excluded from the painting work, paint these the same as adjacent similar materials or areas. If color or finish is not designated, the OWNER will select these from standard colors available for the materials systems specified.

## 1.4 PAINTING NOT INCLUDED

- A. The following categories of work are not included as part of the field-applied finish work, unless otherwise noted on the drawings or in the Contract Documents.
1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under the various sections for structural steel, miscellaneous metal, metal fabrications, hollow metal work, and similar items. Also, for fabricated components such as shop-fabricated or factory-built mechanical and electrical equipment or accessories.
  2. Pre-Finished Items: Unless otherwise shown or specified, do not include painting when factory-finishing or installer finishing is specified for such items as, but not limited to, finished electrical equipment including light fixtures, switchgear and distribution cabinets.
  3. Concealed Surfaces: Unless otherwise shown or specified, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas. Painting of galvanized work that will be concealed in the completed work is not required. Do not paint structural steel to be encased in concrete, nor structural steel specified not to be painted under Division S. Except for touch-up as specified in Part 3, painting of shop primed structural steel and ferrous metals that will be concealed in the completed work is not required.
  4. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plating, copper, bronze and similar finished materials will not require finish painting, unless otherwise specified.
  5. Operating and Machined Parts and Labels: Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, machined surfaces, grease fittings, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting unless otherwise specified.
    - a. Do not paint over any code-requiring labels, such as Underwriter's Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.
  6. Other Surfaces: Do not apply to glass, manhole frames and covers, aluminum platform gratings, stair treads, door thresholds, concrete wearing surfaces, or other walking surfaces unless otherwise specified.

#### 1.5 CODES, STANDARDS AND REGULATIONS

- A. The work herein specified shall be performed in a legally acceptable manner, and it shall be the responsibility of the CONTRACTOR to obtain any and all licenses, permits, and legal approvals required to perform the work specified.
- B. All material and work covered by this specification shall comply with all currently approved or accepted provisions of applicable codes and standards published by the following organizations:

ANSI	-	American National Standards Institute 11
West 42nd		New York, NY 10036
		212-642-4900
API	-	American Petroleum Institute
		1220 L Street N.W.

- Washington, DC 20005  
202-682-8000
- ASTM - American Society for Testing and Materials 100  
Barr Harbor Dr.  
West Conshohocken, PA. 19428 610-  
832-9500
- AWS - American Welding Society  
550 N.W. LeJeune Rd.  
Miami, FL 33126  
305-443-9353
- AWWA - American Water Works Association  
  
6666 West Quincy Avenue  
Denver, CO. 80235  
303-794-7711
- FM Factory Mutual Research  
1151 Boston-Providence Turnpike  
Norwood, MA 02062  
617-762-4300
- NACE - National Association of Corrosion Engineers  
PO Box 218340  
Houston, TX 77218 1440  
South Creek Dr.  
Houston, TX. 77084-4906  
713-492-0535
- NEMA - National Electrical Manufacturer's Association  
2101 L Street N.W. Ste. 300  
Washington, DC 20037  
202-457-8400
- NFPA - National Fire Protection Association  
1 Battery march Park  
Quincy, MA 02269-9101  
617-770-3000
- OSHA - Occupational Safety and Health Act  
U.S. Department of Labor  
Occupational Safety & Health Administration 8040  
Peters Rd. Bldg. H-100  
Fort Lauderdale, FL 33324  
954-424-0242

SAE		Society of Automotive Engineers 400 Commonwealth Dr. Warrendale PA. 15096-0001 412-776-4841
SSPC	-	Steel Structures Painting Council 40 24th Street Pittsburgh, PA 15222 412-281-2331
SSPWC	-	Standard Specifications for Public Works Construction Building News, Inc. 3055 Overland Avenue Los Angeles, CA 90034 310- 202-7775
UBC		Uniform Building Code Published by ICBO
UL		Underwriters Laboratories Inc. 333Psingsten Rd. Northbrook IL. 67062 312-273-4255

- C. The CONTRACTOR shall comply with all applicable Federal, state, and local laws and ordinances.

#### 1.6 ACCEPTABLE COATING MANUFACTURERS

- A. Except as otherwise indicated herein, materials specified are from the catalog of the Kop-Coat, Inc. listed below. Materials by other manufacturers approved by the ENGINEER are acceptable provided that they are established to the satisfaction of the ENGINEER as being compatible with and of equal quality to the coatings of the company listed. The CONTRACTOR shall provide satisfactory documentation from the firm manufacturing the proposed material that the material meets the specified requirements and is equivalent or better than the listed materials in the following properties:

1. Quality
2. Durability
3. Resistance to abrasion and physical damage
4. Life expectancy
5. Ability to recoat in future
6. Solids content by volume
7. Dry film thickness per coat
8. Compatibility with other coatings
9. Suitability for the intended service
10. Resistance to chemical attack
11. Temperature limitations in service and during application
12. Type and quality of recommended undercoats and topcoats
13. Ease of application
14. Ease of repairing damaged areas
15. Stability of colors

- B. The cost of all testing and analyzing of the proposed substitute materials that may be required by the ENGINEER, shall be paid by the CONTRACTOR. If the proposed substitution requires changes in the contract work, the CONTRACTOR shall bear all such costs involved and the costs of allied trades affected by the substitution. These substitutions for other manufacturers must be made and approved prior to the bid date opening.

- C. Material Sources: Kop-Coat Inc. is the standard of quality for the industrial coating materials specified in this Section. Where paint numbers are listed, it is to show the type and quality of coatings that are required. For convenience of reference, this specification includes product designations for coatings and coating colors as manufactured by the Kop-Coat Inc., St. Louis, MO. 800-547-2468. Other acceptable manufacturers are, Keeler and Long, Watertown, CT. 203-274-6701, and Tnemec Co., Kansas City, MO. 816-483-3400 , and Porter International, Louisville, Ky. 502- 588-9769. Proposed substitute materials must be shown to satisfy the material descriptions and to equal or exceed the properties of the listed materials as required above in Paragraph 1-06 A.

#### 1.7 SUBMITTALS

- A. Coating Materials List: The CONTRACTOR shall provide six (6) copies of a coating materials list which indicates the manufacturer and the coating number, keyed to the coating schedule herein, for approval of the ENGINEER. The submittals shall be made sufficiently in advance of the coating operations to allow ample time for checking, correcting, resubmitting and rechecking.

- B. Paint Manufacturer's Information: For each paint system to be used, the CONTRACTOR shall submit the following listed data prior to beginning painting operations.
1. Paint manufacturer's data sheet for each product used.
  2. Paint manufacturer's instructions and recommendations on surface preparation and application.
  3. Colors available for each product (where applicable).
  4. Compatibility of shop and field applied coatings (where applicable).
  5. Material safety data sheet for each product used.
- C. Samples and Manufacturer's Certificate: Provide all submittals, including the following, as specified in Division 1.
1. Submit manufacturer's standard color chart for color selection.
  2. Submit specimens, approximately 8 by 10 inches in size, for custom mixed colors for approval, not including color coding colors.
  3. Where equipment is customarily shipped with a standard finish, submit samples of the proposed color and finish for approval prior to shipping.
  4. Furnish affidavits from the manufacturer certifying that materials furnished conform to the requirements specified and that paint products have been checked for compatibility.
  5. Submit a supplementary schedule of paint products with mil thickness, and solids by volume, including all paint applied in the shop and in the field. Provide a schedule that is in accordance with the recommendations of the paint manufacturer.
  6. Furnish affidavits from the manufacturer certifying that coatings in immersion service contain no water-soluble solvents or corrosion inhibitive (active) pigments with slight water solubility.

## 1.8 DELIVERY AND STORAGE

- A. Deliver all coating materials to the job site in original, new and unbroken, sealed packages and containers bearing manufacturer's name and label, and the following information, all of which shall be plainly legible at the time of use:
1. Name or title of material.
  2. Fed. Spec. number, if applicable.
  3. Manufacturer's stock number and date of manufacturer.
  4. Manufacturer's formula or specification number.
  5. Manufacturer's batch number.
  6. Manufacturer's name.
  7. Contents by volume, for major pigment and vehicle constituents.
  8. Thinning instructions.
  9. Application instructions.
  10. Color name and number.
  11. Expiration date.
- B. Store paint materials and painting tools and equipment, including solvents and cleaning materials, in a well ventilated, dry area and away from high heat. Do not store in building or structure being painted, nor leave overnight therein. Follow manufacturer's recommendations for the safe storage of paints and solvents. CONTRACTOR shall store materials in compliance with all local, state, and

federal regulations.

## 1.9 QUALITY ASSURANCE

- A. Inspection by the ENGINEER, or the waiver of inspection of any particular portion of the work, shall not relieve the CONTRACTOR of his responsibility to perform the work in accordance with these Specifications.
- B. Inspection Devices: The CONTRACTOR shall furnish, until final acceptance of the work, inspection devices in good working condition for the detection of holidays, measurement of surface profile, and measurement of dry film thicknesses of the protective coatings. Surface preparation comparison visual standards, profile and dry film thickness devices shall be made available for the ENGINEER's use at all times while coating is being done. The CONTRACTOR shall provide the services of a trained operator of the holiday detection devices until the final acceptance of such coatings. Holiday detection devices shall be operated only in the presence of the ENGINEER.
- C. Surface Cleanliness: Preparation of metallic surfaces shall be based upon comparison with SSPC-VIS 1 (ASTM D2200), and as described herein. The CONTRACTOR shall furnish the photographic standards. To facilitate inspection, the CONTRACTOR shall, on the first day of abrasive blasting operations, abrasive blast metal panels to the standards specified. Plates shall measure a minimum of 8.5 inches by 11 inches. Panels meeting the requirements of the Specifications shall be initiated by the CONTRACTOR and the OWNER's representative and coated with a clear non-yellowing finish. One of these panels shall be prepared for each type of abrasive blasting and shall be used as a comparison standard throughout the project. The CONTRACTOR shall provide SSPC-VIS 1 Surface Preparation Standards for use during the abrasive blasting operations.
- D. Surface Profile: The blast abrasive shall be suitable to achieve the blast profile as required for the coating system used. The CONTRACTOR shall furnish for the ENGINEER's use, a Keane-Tator Surface Comparator No. 372 or approved equal.
- E. Film Thickness Testing: On ferrous metals, the dry film coating thickness shall be measured in accordance with the SSPC "Paint Application Specification No. 2" (SSPC-PA2), using a magnetic-type dry film thickness gauge such as Mikrotest Model FM, Elcometer Model 111/1EZ, Positector 2000 or approved equal. Each coat shall be tested for the correct thickness. No measurements shall be made until at least eight (8) hours after application of the coating. On non-ferrous metals and other substrates, the coating thicknesses shall be measured at the time of application using a wet film gauge.
- F. Holiday Testing: The CONTRACTOR shall holiday test all coated ferrous surfaces inside a steel reservoir, or other surfaces which will be submerged in water or other liquids, or surfaces which are enclosed in a vapor space in such structures. Areas which contain holidays shall be marked and repaired or recoated in accordance with the coating manufacturer's printed instructions and then retested.
  - 1. Coatings With Thickness Exceeding 20 Mils: For surfaces having a total dry film coating thickness exceeding 20 mils: Pulse-type holiday detector such as Tinker & Rasor Model AP-W, D.E. Stearns Co. Model 14/20, or approved equal shall be used. The unit shall be adjusted to operate at the voltage required to cause a spark jump across an air gap equal to twice the specified coating thickness.
  - 2. Coatings With Thickness of 20 Mils or Less: For surfaces having a total dry film coating

thickness of 20 mils or less: Tinker & Rasor Model M-1 non-destructive type holiday detector, K-D Bird Dog or approved equal shall be used. The unit shall operate at less than 75-volts. For thicknesses between 10 and 20 mils, a non-sudsing type wetting agent, such as Kodak Photo-Flo, or equal shall be added to the water prior to wetting the detector sponge.

#### 1.10 MANUFACTURER'S REPRESENTATIVE

- A. The CONTRACTOR shall require the protective coating manufacturer to furnish a qualified technical representative to visit the project site for technical support and as may be necessary to resolve field problems attributable or associated with the manufacturer's products furnished under this contract or the application thereof.

#### 1.11 SAFETY AND HEALTH REQUIREMENTS

- A. General: The CONTRACTOR shall provide and require use of personal protective and safety equipment for persons working in or about the project site, in accordance with requirements of OSHA Safety and Health Standards for Construction (29CFR 1910, 1915, and 1926) its revisions, and all other applicable regulations. The CONTRACTOR shall also comply with the coating manufacturer's printed instructions, appropriate technical bulletins, manuals, and material safety data sheets in the handling of potentially hazardous or harmful materials.
- B. Head and Face Protection and Respiratory Devices: The CONTRACTOR shall require all persons to wear protective helmets while in the vicinity of the work. In additions, workers engaged in or near the work during sandblasting shall wear eye and face protection devices and air purifying, half-mask or mouthpiece respirators with appropriate filters. Barrier creams shall be used on any exposed areas of skin.
- C. Ventilation: Where ventilation is used to control hazardous exposure, all equipment shall be explosion proof. Forced air ventilation shall be provided to reduce the concentration of air contaminants to the degree such that a hazard does not exist and to assist in the proper curing of coatings applied in a confined area. Air circulation and exhausting of solvent vapors shall be continued until coatings have fully cured.
- D. Sound Levels: Whenever the occupational noise exposure exceeds maximum allowable sound levels permitted under OSHA regulations, the CONTRACTOR shall provide and require the use of approved hearing protection devices.
- E. Illumination: Adequate illumination shall be provided while work is in progress, including explosion-proof lights and electrical equipment. Whenever required by the ENGINEER, the CONTRACTOR shall provide additional illumination to cover all areas to be inspected. The level of illumination for inspection purposes shall be determined by the ENGINEER.
- F. Temporary Access: All temporary ladders and scaffolding shall conform to applicable safety requirements. Scaffolding shall be erected where requested by the ENGINEER to facilitate inspection and shall be moved by the CONTRACTOR to locations as requested by the ENGINEER.
- G. Cloths and cotton waste that might constitute a fire hazard shall be placed in fire resistant closed metal containers until removed from the project site or destroyed at the end of each workday.

#### 1.12 WARRANTY

- A. All work covered under the Contract shall be guaranteed against defective workmanship and materials for a period of one (1) year after completion and acceptance of the work. A first anniversary inspection will be scheduled by the CONTRACTOR during the eleventh (11th) month following acceptance of the work. A report shall be furnished to the OWNER describing the condition of the paint system and other work covered under the Contract. Tank draining shall be coordinated with the OWNER. Any latent defects found during this inspection shall be promptly repaired by the CONTRACTOR at no additional cost to the OWNER. Any location where coats of paint have peeled off, bubbled or cracked, and any location where rusting is evident, shall be considered a failure of the paint system. The CONTRACTOR shall make repairs at all points where failures are observed by removing the deteriorated coating, cleaning the surfaces and recoating with the same paint system. Any such repair work shall be completed by the CONTRACTOR within thirty (30) days after written notice of such defects unless otherwise negotiated.
- B. Failure on the part of the CONTRACTOR to schedule this warranty inspection will not relieve him of warranty responsibility and any defects found by the OWNER after the normal warranty period will be assumed to have occurred during the one (1) year while the warranty was in effect.

## PART 2 - PRODUCTS AND COATING SYSTEMS

### 2.1 GENERAL

- A. Definitions: The term "paint", "coatings", or "finishes" as used herein, shall include surface treatments, emulsions, enamels, paints, epoxy resins, and all other protective coatings, excepting galvanizing or anodizing, whether used as a pre-treatment, primer, intermediate coat, or finish coat. The term "DFT" means minimum dry film thickness.
- B. Compatibility: In any coating system, only compatible materials from a single manufacturer shall be used in the work. Particular attention shall be directed to compatibility of primers and finish coats. If necessary, subject to the approval of the ENGINEER, a barrier coat shall be applied between all existing prime coats and subsequent field coats to insure compatibility.

### 2.2 COLORS AND FINISHES

- A. All colors and shades of colors for all coats of paint shall be as selected or specified. Paint colors, surface treatment, gloss, and finishes, are indicated or specified in the "schedules" of the contract documents. Color and gloss not indicated or specified will be selected by the OWNER.
- B. Each coat shall be of a slightly different shade, as directed by the ENGINEER, to facilitate inspection of surface coverage of each coat. Finish colors shall be as selected from the manufacturer's standard color samples or shall be customer mixed to match color samples furnished by the ENGINEER. Final acceptance of colors will be from samples applied on the job.
- C. Color Pigments: Pure, non-fading, applicable types to suit the substrates and service indicated.
- D. Paint Coordination: Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Furnish information to manufacturers, fabricators, suppliers and others where necessary on the characteristics of the finish materials to be used, to ensure compatible prime coats of use. Provide barrier coats over incompatible primers or remove and re-prime as required.

E. Color Coding: All exposed piping in structures, aboveground or in pipe trenches, shall be color code painted in strict accordance with the color code chart presented in Paragraph 3-15 of this section. All colors shall be as specified or as selected by the OWNER.

## 2.3 UNDERCOATS AND THINNERS

- A. Undercoats: Provide undercoat paint produced by the same manufacturer as the finish coats.
- B. Thinners: Use only thinners approved by the paint manufacturer and use only within recommended limits.

## 2.4 INDUSTRIAL COATING SYSTEMS

- A. The CONTRACTOR shall use coating materials suitable for the intended use and recommended by their manufacturer for the intended service.
- B. Protective Coating Materials: Products shall be standard coatings produced by recognized manufacturers regularly engaged in production of such materials for application on essentially identical facilities to those proposed in this project. Where requested, the CONTRACTOR shall provide the ENGINEER with the names of not less than ten (10) successful applications of the proposed manufacturer's products, which have been proven over a three (3) year period of time, demonstrating compliance with this specification requirement.

C. System 1 - Alkyd Enamel: High quality gloss or semi-gloss, long oil alkyd finish with a minimum solids content of 57% by volume. Primer as recommended by manufacturer.

### 1. Painting New Construction

- a. Prime coat except wood surfaces (DFT=3.0 mils) Kop-Coat 622-LCF Primer.
- b. Prime coat for wood surfaces (DFT = 1.5 mils) Kop-Coat Rustarmor 500 enamel thinned 15% with Kop-Coat 4000 Thinner.
- c. Finish coats, two (Total DFT = 3.0 mils) Kop-Coat Rustarmor 500 Enamel.
- d. Total system DFT except wood surfaces = 6.0 mils Total system DFT for wood surfaces = 4.5 mils

### 2. Repainting Existing Surfaces

- a. The cleaned steel is to be hand brushed twice with (DFT = 4.0 mils) Kop- Coat 622-LCF Primer. Completely work the primer into all the irregular surface faces of the steel.
- b. Finish coats, two (total DFT = 3.0 mils) Kop-Coat Rustarmor 500 Enamel.
- c. Total millage shall be at least 7.0 mils.

D. System 2 - Silicone Alkyd Enamel: High quality gloss alkyd, medium long oil alkyd finish.

Minimum solids content of 48% by volume. Prime coat to be as recommended by manufacturer.

1. Painting New Construction
    - a. Prime coat (DFT = 3.0 mils) Kop-Coat 622-LCF Primer.
    - b. Finish coats, two (Total DFT = 3.0 mils) Kop-Coat Sub-Sil B
    - c. Total system DFT = 6.0 mils.
  2. Repainting Existing Surfaces
    - a. The cleaned steel is to be hand brushed twice with (DFT = 4.0 mils) Kop-Coat 622-LCF Primer.
    - b. Finish coats, two (Total DFT = 3.0 mils) Kop-Coat 1515 Silicone Alkyd.
    - c. Total millage shall be at least 7.0 mils.
- E. System 3 - High Build Epoxy: High build polyamide epoxy coating, resistant to splash, spillage and fumes of dilute acids, bases and salts, and with high resistance to weathering. Coating material shall have a minimum solids content of 56% by volume. Prime coat to be a rust inhibitive epoxy primer as recommended by manufacturer.
1. Prime coat (DFT = 1.5 mils) Kop-Coat 294 Epoxy Primer.
  2. Finish coats, two (Total DFT = 10.0 mils) Kop-Coat Hi-Gard Epoxy Coating.
  3. Total system DFT = 11.5 mils.
- F. System 4 Acrylic Latex (High Sheen): Single component, water based acrylic latex with a fungicide additive and minimum solids content of 35% by volume. Prime coat to be as recommended by manufacturer.
1. Prime coat (DFT = 2.0 mils) as recommended by manufacturer, if needed.
  2. Finish coats, two (Total DFT = 3.0 mils) Kop-Coat 620 Acrylic Emulsion.
  3. Total system DFT = 5.0 mils (with prime coat). 3.0 mils (without prime coat).
- G. System 5 - Acrylic, Concrete and Masonry (Flat): High molecular weight acrylic coating material with a minimum solids content of 41% by volume. Prime coat shall be an acrylic filler and sealer for concrete surfaces.
1. Painting New Construction
    - a. Prime coat (filler/sealer) Kop-Coat Concrete and Masonry Filler.
    - b. Finish coats, two (Total DFT = 3.0 mils) Kop-Coat 600 Interior-Exterior Acrylic Emulsion.

- c. Total system DFT = 3.0 mils.
2. Repainting Existing Surfaces
  - a. Spot prime if needed with Kop-Coat Concrete and Masonry Filler to insure a consistent total finish appearance.
  - b. Finish coats, two (Total DFT 3.0 mils) Kop-Coat 600 Interior-Exterior Acrylic Emulsion.
  - c. Total millage shall be at least 3.0 mils.
- H. System 6 - Coal Tar Epoxy, Steel: High build, 2-component amine or polyamide cured coal tar epoxy, solids content of at least 74% by volume, suitable for long term immersion in wastewater and for coating of buried surfaces, and conforming to or exceeding Corps of Engineers Specification C-200, or SSPC Paint 16. Prime coats are for use as a shop primer only. Prime coat shall be omitted when both surface preparation and coating are to be performed in the field.
  1. Prime coat (DFT = 1.5 mils) Kop-Coat 654 Epoxy Primer.
  2. Finish coats, two (Total DFT = 20.0 mils) Kop-Coat Bitumastic No.300-M.

Note: Time between coats is critical and maximum times as stated by the manufacturer must not be exceeded.

3. Total system DFT = 21.5 mils (with prime coat). 20.0 mils (without prime coat).

- Notes: a. Spot sandblast to SSPC-SP10 all areas damaged during erection, or areas not precoated before application of coating.
- b. All edges, nuts, bolts, lap joints, weld seams and the roof rim angle shall receive one brush-applied coat prior to the application of the complete spray coat.

- I. System 7 - Coal Tar Epoxy, Concrete: High build, 2-component amine or polyamide cured coal tar epoxy, solids content of at least 74% by volume, suitable for long term immersion in wastewater and for coating of buried surfaces and conforming to or exceeding Corps. of Engineers Specification C-200, or SSPC Paint 16. Filler compound shall be a 2-component epoxy material used to fill voids and provide a suitable surface for the application of the coal tar epoxy. Filler is worked into the concrete surface with a wide blade putty knife or a squeegee.
  1. First coat - Kop-Coat Bitumastic No. 300-M, thinned 33 percent with Thinner 2000 and apply at the rate of 200-300 sq. ft. per gallon. Allow not more than 24 hours before applying additional coats at the normal, unthinned rate.
  2. Finish coats, two (Total DFT = 20.0 mils) Kop-Coat Bitumastic No.300-M.

Note: Time between coats is critical and maximum times as stated by the manufacturer must not be exceeded.

3. Total system DFT = 20.0 mils.

- J. System 8-Polyamide Cured Epoxy for Steel or Concrete Potable Water Storage Tanks or Treatment Units: High build polyamide cured epoxy coating with solids contents of at least 56% by volume and a finish coat color of white. The material shall be capable of achieving at least 5 mils dry film thickness per coat. The epoxy coating material shall be suitable for long-term immersion service in potable water. The materials used shall appear on the latest published list of approved coatings for use in potable water issued by the Florida Department of Environmental Protection. Submit a written certification that the proposed materials meet the above regulatory agency standards and policies. Apply the material with a primer if recommended by the coating manufacturer. Thinners and additives shall also be in compliance with this paragraph.

1. Steel Tanks or Treatment Units

- a. First coat (DFT=5.0 mils) Kop-Coat Hi-Gard Epoxy. See notes (1), (2) and (3)
- b. Finish coat (DFT = 5.0 mils) Kop-Coat Hi-Gard Epoxy
- c. Total system DFT = 10.0 mils

Notes:

- (1) All sharp edges, weld burrs, weld spatter and surface irregularities shall be ground smooth before applying coating.
- (2) Touch-up coating to be done for areas damaged during erection, or areas not pre-coated. Spot sandblast to SSPC-SP10 before application of coating.
- (3) All edges, nuts, bolts, lap joints, weld seams and the roof rim angle shall receive one brush-applied coat prior to the application of the complete spray coat.

2. Concrete Tanks or Treatment Units

- a. First coat (DFT = 4.0 mils) Kop-Coat Hi-Gard Epoxy thinned 20% with Kop-Coat 2,000 Thinner.
- b. Finish coat (DFT = 6.0 mils) Kop-Coat Hi-Gard Epoxy.
- c. Total system DFT = 10.0 mils.

3. Curing Period: Prior to immersion, subject the completed system to at least 7 days of curing time with the substrate temperature at a minimum of 70 degrees F, or 10 days at a minimum of 60 degrees F. More curing time or a higher temperature shall be provided if recommended by the manufacturer. If the environmental conditions do not provide the necessary minimum temperature, use heated air to provide the necessary heat for curing. Other combinations of curing time and temperature may be used if the coating manufacturer presents satisfactory documentation and test results to substantiate that the degree of curing is equal or greater than curing for 7 days at 70 degrees F.

- K. System 9 - Polyurethane: High gloss, 2 - component aliphatic polyurethane for use on steel, fiberglass and PVC. Coating material shall have a minimum solids content of 56% by volume. Prep surface as recommended by manufacture. Product is not recommended for interior building surfaces or continuous immersion.

1. Prime coat (DFT = 3.0 mils) Hi-GARD Epoxy
2. Finish coats, two (total DFT=3.0 mils) Kop-Coat 1122 BRS Linear Polyurethane
3. Total system = 6.0 mils minimum

### PART 3 - EXECUTION

#### 3.1 STORAGE, MIXING AND THINNING OF MATERIALS

- A. Manufacturer's Recommendations: Unless otherwise specified herein, the coating manufacturer's printed recommendations and instructions for thinning, mixing, handling, applying, and protecting its coating materials, for preparation of surfaces for coating, and for all other procedures relative to coating shall be strictly observed. No substitutes or other deviations will be permitted without written permission of the ENGINEER. The CONTRACTOR shall supply the ENGINEER with copies of each manufacturer's instructions in accordance with the requirements of Paragraph 1-07, "SUBMITTALS".
- B. All protective coating materials shall be used within the manufacturer's recommended shelf life.
- C. Storage and mixing of paint or other coating materials shall be performed only in those areas designated by the ENGINEER.

#### 3.2 PREPARATION FOR COATING

- A. General: All surfaces to receive protective coatings shall be cleaned as specified herein prior to application of said coatings. The CONTRACTOR shall examine all surfaces to be coated, and shall correct all surface defects before application of any coating material. All marred or abraded spots on shop-primed and on factory-finished surfaces shall receive touch-up restoration prior to any coating application. Do not paint over dirt, rust, scale, oil, grease, moisture, scuffed surfaces or other foreign material or in conditions otherwise detrimental to the formation of a durable paint bond and film.
- B. Protection of Surfaces Not to be Coated: Surfaces which are not to receive protective coatings shall be protected during surface preparation, cleaning, and coating operations. All hardware, lighting fixtures, switch plates, machined surfaces, couplings, shafts, bearings, nameplates on machinery and other surfaces not to be painted shall be removed, masked or otherwise protected. Drop cloths shall be provided to prevent coating materials from falling on or marring adjacent surfaces. The working parts of all mechanical and electrical equipment shall be protected from damage during surface preparation and coating operations. Openings in motors shall be masked to prevent entry of coating or other materials.
- C. Protection of Adjacent Work and Areas: Care shall be exercised not to damage adjacent work during blast cleaning operations. Spray painting shall be conducted under carefully controlled conditions. The CONTRACTOR shall be fully responsible for and shall promptly repair to the satisfaction of the OWNER any and all damage to adjacent work or adjoining property occurring from blast cleaning or coating operations.

- D. Protection of Painted Surfaces: Cleaning and coating shall be so programmed that dust and other contaminants from the cleaning process will not fall on wet, newly-coated surfaces.

### 3.3 SURFACE PREPARATION STANDARDS

- A. The following referenced surface preparation specifications of the Steel Structures Painting Council shall form a part of this Specification:

1. Solvent Cleaning (SSPC-SP1): The method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from steel surfaces through the use of solvent, vapor, emulsion, alkaline, and/or steam.
2. Hand Tool Cleaning (SSPC-SP2): The method for removing all loose mill scale, loose rust, loose paint, and other loose detrimental foreign matter through the use of non-power hand tools.
3. Power Tool Cleaning (SSPC-SP3): The method for removing all loose mill scale, loose rust, loose paint, and other loose detrimental foreign matter through the use of power assisted hand tools.
4. White Metal Blast Cleaning (SSPC-SP5): The method of preparing steel surfaces which, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, and paint.
5. Commercial Blast Cleaning (SSPC-SP6): The method of preparing steel surfaces which, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, and paint. Evenly dispersed very light shadows, streaks, and discolorations caused by stains of rust, mill scale, and previously applied paint may remain on no more than 33% of the surface.
6. Brush-off Blast Cleaning (SSPC-SP7): The method of preparing steel surfaces which, 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.
7. Near-White Blast Cleaning (SSPC-SP10): The method of preparing steel surfaces which, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, and paint. Evenly dispersed very light shadows, streaks, and discolorations caused by stains of rust, mill scale, and previously applied paint may remain on no more than 5% of the surface.

### 3.4 SURFACE PREPARATION

- A. General: Perform preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.
1. Remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces. Following completion of painting of each space

or area, reinstall the removed items by workmen skilled in the trades involved.

2. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program the cleaning and painting so that contaminants from the cleaning process will not fall onto wet, newly painted surfaces. Remove mildew in accordance with the paint manufacturer's recommendations.

### 3.5 NEW FERROUS METAL SURFACE PREPARATION (UNGALVANIZED)

- A. The minimum abrasive blasting surface preparation shall be as specified in the coating system schedules included at the end of this section. Where there is a conflict between these Specifications and the coating manufacturer's printed recommendations for the intended service, the higher degree of cleaning shall apply.
- B. Workmanship for metal surface preparation shall be in conformance with the current SSPC Standards and this section. Blast cleaned surfaces shall match the standard samples available from the National Association of Corrosion Engineers (NACE) Standard TM-01-70.
- C. All oil, grease, welding fluxes and other surface contaminants shall be removed by alkaline cleaning per SSPC-SP1 prior to blast cleaning.
- D. All sharp edges shall be rounded or chamfered and all burrs, surface defects and weld splatter shall be ground smooth prior to blast cleaning.
- E. The type and size of abrasive shall be selected to produce a surface profile that meets the coating manufacturer's recommendation for the particular coating and service conditions. CONTRACTOR shall submit data and samples for approval on abrasives to be used on the Project. Abrasives that are used shall be designed for the specific purpose of blast cleaning. Abrasives shall be free of contaminants and chlorides. Ordinary builder's sand shall not be considered to be approved abrasive material. ENGINEER will periodically sample abrasives used at the job site for comparison with approved submitted materials.
- F. The abrasive shall not be reused unless otherwise approved by the ENGINEER. For automated shop blasting systems, clean oil and moisture-free abrasives shall be maintained.
- G. The CONTRACTOR shall comply with the applicable federal, state, and local air pollution control regulations for blast cleaning.
- H. Compressed air for air blast cleaning shall be supplied at adequate pressure from well-maintained compressors equipped with oil/moisture separators which remove all contaminants.
- I. Surfaces shall be cleaned of all dust and residual particles of the cleaning operation by dry air blast cleaning, vacuuming or other approved method prior to painting.
- J. Enclosed areas and other areas where dust settling is a problem shall be vacuum cleaned and wiped with a tack cloth.
- K. Damaged or defective coating shall be removed by the specified blast cleaning to meet the clean surface requirements before recoating.

- L. If the specified abrasive blast cleaning will damage adjacent work, the area to be cleaned is less than 100 square feet, and the coated surface will not be submerged in service, the SSPC-SP2, Hand Tool Cleaning, or SSPC-SP3, Power Tool Cleaning, will be permitted.
- M. Shop applied coatings of unknown composition shall be completely removed before the specified coatings are applied. Valves, castings, ductile iron pipe, and fabricated pipe or equipment shall be examined for the presence of shop-applied temporary coatings. Temporary coatings shall be completely removed by Solvent Cleaning per SSPC-SP1 before the abrasive blast cleaning work has been started.
- N. Shop primed equipment shall be alkaline cleaned in the field before finish coats are APPLIED

### 3.6 FERROUS METAL SURFACE PREPARATION (GALVANIZED)

- A. All installation and erection caused blemishes to galvanized surfaces shall be touched up in accordance with ASTM A780 prior to coating.
- B. Galvanized ferrous metal shall be alkaline cleaned per SSPC-SP1 to remove oil, grease, and other contaminants detrimental to adhesion of the protective coating system to be used.
- C. Surfaces shall be pretreated with Kop-Coat 40 Passivator, one coat 0.4 mil DFT, prior to finish coating, in accordance with the printed recommendations of the coating manufacturer.

### 3.7 SURFACE PREPARATION OF FERROUS SURFACES WITH EXISTING COATINGS, EXCLUDING STEEL TANK OR TREATMENT UNIT INTERIORS (IN ADDITION TO REQUIREMENTS IN PARAGRAPHS 3-05 AND 3-06).

- A. General: All grease, oil, heavy chalk, dirt, or other contaminants shall be removed by solvent or detergent cleaning prior to abrasive blast cleaning. The CONTRACTOR shall determine the generic type of the existing coatings by laboratory testing, at no additional cost to the OWNER.
- B. Abrasive Blast Cleaning: The CONTRACTOR shall provide the degree of cleaning specified in the coating system schedule for the entire surface to be coated. If the degree of cleaning is not specified in the schedule, deteriorated coatings shall be removed by abrasive blast cleaning to SSPC-SP6, Commercial Blast Cleaning. Areas of tightly adhering coatings shall be cleaned to SSPC-SP7, Brush-Off Blast Cleaning, with the remaining thickness of existing coating not to exceed 3 mils.
- C. Incompatible Coatings: If coatings to be applied are not compatible with existing coatings, the CONTRACTOR shall apply intermediate coatings per the paint manufacturer's recommendation for the specified abrasive blast cleaning. A small trial application shall be conducted for compatibility prior to painting large areas.
- D. Unknown Coatings: Coatings of unknown composition shall be completely removed prior to application of new coatings.

### 3.8 SURFACE PREPARATION FOR REPAINTING EXISTING STEEL

- A. The entire structure is to be completely pressure washed at 3,000 to 5,000 psi with potable water.

- B. All areas shall be cleaned/sandblasted to the surface preparation standards as specified herein, or superceded by the bid form.
- C. All cleaned areas are to be primed the same workday that they are cleaned and blasted.

### 3.9 PRESSURE WASH CLEANING FOR REPAINTING EXISTING CONCRETE

- A. The entire structure is to be pressure washed at 3,000 to 5,000 psi with a solution of 50% water and bleach to yield a mixture with a minimum concentration of 2-1/2% sodium hypochlorite.
- B. The entire structure is to be completely rinsed by pressure washing at 3,000 to 5,000 psi with potable water.

### 3.10 CONCRETE AND CONCRETE BLOCK MASONRY SURFACE PREPARATION

- A. Surface preparation shall not begin until at least 30 days after the concrete has been placed.
- B. All efflorescence, chalk, dust, dirt, oil and grease shall be removed by Detergent Cleaning per SSPC-SP1 before abrasive blast cleaning.
- C. Concrete, concrete block masonry surfaces, previously painted concrete and masonry and deteriorated concrete and masonry surfaces to be coated shall be abrasive blast cleaned to remove laitance, paint, deteriorated concrete, and roughen the entire surface equivalent to the surface of the No. 80 grit flint sandpaper. Concrete shall have a consistent, even texture (void free) and shall be patched where needed.
- D. Determine the alkalinity and moisture content of the surfaces to be painted by performing appropriate tests. If the surfaces are found to be sufficiently alkaline to cause blistering and burning of the finish paint, correct this condition before application of paint. Do not paint over surfaces where the moisture content exceeds that permitted in the manufacturer's printed directions.
- E. If acid etching is required by the coating application instructions, the treatment shall be made after sandblasting. After acid etching, rinse surfaces with clean water to neutralize the acid and test the Ph. The pH shall be between 7.0 and 8.0.
- F. Surfaces shall be clean and dry and as recommended by the coating manufacturer before coating is started.
- G. Unless required for proper adhesion, surfaces shall be dry prior to coating. The presence of moisture shall be determined with a moisture detection device such as Delmhors Model DB, or approved equal.

### 3.11 PLASTIC, FIBERGLASS AND NONFERROUS METALS SURFACE PREPARATION

- A. Plastic and Fiberglass surfaces shall be sanded or Brush Off Blast Cleaned, SSPC-SP7, prior to solvent cleaning with a chemical compatible with the coating system primer. If blast cleaned, use 60-80 mesh abrasive.

- B. Non-ferrous metal surfaces shall be Solvent Cleaned, SSPC-SP1, followed by sanding or Brush Off Blast Cleaning, SSPC-SP7.
- C. All surfaces shall be clean and dry prior to coating application.

### 3.12 WOOD SURFACE PREPARATION

- A. Clean wood surfaces to be painted of all dust, dirt, grease, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, with either manual or mechanical means, as applicable, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of the priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic woodfiller. Sandpaper smooth when dried and dust off.
- B. Prime or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood.

### 3.13 WORKMANSHIP

- A. Skilled craftsmen and experienced supervision shall be used on all work.
- B. Clean drop cloths shall be used. All damage to surfaces resulting from the work hereunder shall be leaned, repaired, and refinished to the complete satisfaction of the ENGINEER, at no cost to the OWNER.
- C. All coatings shall be applied under dry and dust-free conditions. Coating shall be done in a workmanlike manner so as to produce an even film of uniform thickness. Edges, corners, crevices, and joints shall receive special attention to insure that they have been thoroughly cleaned and that they receive an adequate thickness of coating material. The finished surfaces shall be free from runs, drops, ridges, waves, laps, alligating, brush marks, and variations in color, texture, and finish. The hiding shall be so complete that the addition of another coat would not increase the hiding. Special attention shall be given to insure that edges, corners, crevices, welds, and similar areas receive a film thickness equivalent to adjacent areas, and installations shall be protected by the use of drop cloths or other approved precautionary measures.

### 3.14 SHOP COATING REQUIREMENTS

- A. All items of equipment, or parts of equipment which are not submerged in service, shall be shop primed and then finish coated in the field after installation with the specified or approved color. The methods, materials, application, equipment and all other details of shop painting shall comply with these Specifications. If the shop primer requires top-coating within a specified period of time, the equipment shall be finish coated in the shop and then touch-up painted after installation.
- B. All items of equipment, or parts and surfaces of equipment which are submerged when in service, with the exception of pumps and valves shall have all surface preparation and coating work performed in the field.
- C. The interior surfaces of steel water reservoirs shall have all surface preparation and coating work performed in the field.

- D. For certain pieces of equipment it may be undesirable or impractical to apply finish coatings in the field. Such equipment may include engine generator sets, equipment such as electrical control panels, switch-gear or main control boards, submerged parts of the pumps, ferrous metal passages in valves, or other items where it is not possible to obtain the specified quality in the field. Such equipment shall be shop primed and finish coated in the field with the identical material after installation. The CONTRACTOR shall require the manufacturer of each such piece of equipment to certify as part of its shop drawings that the surface preparation is in accordance with these Specifications. The coating material data sheet shall be submitted with the shop drawings for the equipment.
- E. For certain small pieces of equipment the manufacturer may have a standard coating system which is suitable for the intended service conditions. In such cases, the final determination of suitability will be made during review of the shop drawing submittals. Equipment of this type generally includes only indoor equipment such as instruments, small compressors, and chemical metering pumps.
- F. Shop painted surfaces shall be protected during shipment and handling by suitable provisions including padding, blocking, and the use of canvas or nylon slings. Primed surfaces shall not be exposed to the weather for more than 6 months before finish coating, or less time if recommended by the coating manufacturer.
- G. Damage to shop-applied coatings shall be repaired in accordance with this section and the coating manufacturer's printed instructions prior to finishpainting.
- H. The CONTRACTOR shall make certain that the shop primers and field topcoats are compatible and meet the requirements of this section. Copies of applicable coating manufacturer's data sheets shall be submitted with equipment shop drawings.

### 3.15 APPLICATION OF COATINGS

- A. The application of protective coatings to steel substrates shall be in accordance with "Paint Application Specification No. 1", (SSPC-A-1), Steel Structures Painting Council.
- B. Cleaned surfaces and all coats shall be inspected prior to each succeeding coat. The CONTRACTOR shall schedule such inspection with the ENGINEER in advance.
- C. Blast cleaned ferrous metal surfaces shall be painted before any rusting or other deterioration of the surface occurs. Blast cleaning shall be limited to only those surfaces that can be painted in the same working day.
- D. Coatings shall be prepared, mixed and applied in accordance with the manufacturer's instructions and recommendations, and these Specifications. If directions differ, the most stringent requirements shall be followed.
- E. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.
- F. Stir materials before application to produce a mixture of uniform density, and stir as required during

- the application of the materials. Do not stir surface film into the coating materials. Remove the film, and if necessary, strain the material before using.
- G. Special attention shall be given to edges, angles, weld seams, flanges, nuts and bolts, and other places where insufficient film thicknesses are likely to be present. Use stripe (brushed or gloved) painting for these areas.
- H. Finish coats, including touch-up and damage repair coats shall be applied in a manner which will present a uniform texture and color matched appearance.
1. Job Conditions: The following job conditions will be strictly enforced during the application of coatings for the project.
1. Apply water-base coatings only when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 degrees F and 90 degrees F unless otherwise permitted by the paint manufacturer's printed instructions.
  2. Apply solvent-thinned coatings only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F and 95 degrees F unless otherwise permitted by the paint manufacturer's printed instructions.
  3. Do not apply paint in dust or smoke laden atmosphere, high winds, rain, fog or mist; or when the relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instructions.
  4. Do not apply coatings when the temperature is less than 5 degrees F above the dewpoint. Dewpoint shall be determined by use of a sling psychrometer in conjunction with U.S. Weather Bureau psychrometric tables.
  5. Do not apply coatings when the outside air temperature is expected to drop below 45 degrees F or less than 5 degrees F above the dewpoint, within 8 hours after application of the coating.
  6. Painting may be continued during inclement weather only if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the paint manufacturer during application and drying periods.
- J. The finish coat on all work shall be applied after all concrete, masonry, and equipment installation is complete and the work areas are clean and dust-free.
- K. General Considerations:
1. Apply paint as specified and in accordance with the manufacturer's directions. Use brushes for applying first coat on wood and on metals other than steel and sheet metal and items fabricated from steel and sheet metal. For other coats on wood, metal and other substrates, use applicators and techniques best suited for the type of material being applied.
  2. Apply additional coats when undercoats, stains or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. ensure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

3. Paint surfaces behind movable equipment the same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment with prime coat only before final installation of equipment.
  4. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.
  5. Paint the back sides of removable or hinged covers to match the exposed surfaces.
  6. Finish exterior doors on tops, bottoms and side edges the same as the exterior faces, unless otherwise indicated or specified.
  7. Sand lightly between each succeeding enamel coat.
  8. Omit the field prime coat on shop-primed surfaces and touch up painted metal surfaces which are not to be finished painted and which will not be exposed to view in the completed work. Do not omit primer on metal surfaces specified to be finish coated or on metal surfaces that will be exposed to view in the completed work.
- L. Scheduled Painting:
1. Apply the first coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
  2. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- M. Minimum Coating Thickness: Apply each material at not less than the manufacturer's recommended spreading rate, to establish a total dry film thickness as specified or, if not specified, as recommended by coating manufacturer.
- N. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to those items exposed in mechanical equipment rooms and in occupied spaces, and on the outside or exterior of buildings or structures:
1. Mechanical items to be painted include, but are not limited to, the following:
    - a. Piping, valves, pipe hangers, and supports.
    - b. Pumps
    - c. Tanks
    - d. Duct work, insulation
    - e. Motors, mechanical equipment, and supports
    - f. Accessory items
  2. Electrical items to be painted include, but are not limited to, the following:

a. Conduit and fittings

b. Switchgear

- O. Prime Coats: Apply a prime coat to material, equipment and surfaces which are required to be painted or finished, and which have not been prime coated by others. Clean and prime unprimed ferrous metals as soon as possible after delivery of the metals to the job site. Recoat primed and sealed surfaces where there is evidence of suction spots or /unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
- P. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surfaces imperfections.
- Q. Pigmented, Opaque Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.
- R. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

3.16 CURING OF COATINGS

- A. The CONTRACTOR shall provide curing conditions in accordance with the conditions recommended by the coating material manufacturer or by these Specifications, whichever is the more stringent requirement, prior to placing the completed coating system into service.
- B. Forced Air Ventilation of Steel Reservoirs and Enclosed Hydraulic Structures: Forced air ventilation is required for the application and curing of coatings on the interior surfaces of steel reservoirs and enclosed hydraulic structures. During curing periods, continuously exhaust air from a manhole in the lowest shell ring or in the case of an enclosed hydraulic structure, from the lowest level of the structure using portable ducting. After all interior coating operations have been completed, provide a final curing period for a minimum of 10 days, during which time the forced air ventilation system shall operate continuously. For additional requirements, refer to the specific written instructions of the manufacturer for the coating system being applied.

3.17 COLOR CODING

- A. All exposed piping shall be color coded. After the finish coat has been applied, label each line with stenciled legends identifying the nature of the pipe contents and the direction of flow. This stenciled identification shall appear in one or more places in the line as deemed necessary by the ENGINEER. Stencil legends shall be white for all pipe except white color-coded pipe, which shall have black legends. Labels shall occur a minimum of every 15 feet of straight piping and at all bends. Minimum stencil size shall be two-inch letters for 4-inch and larger diameter piping and one-inch letters for 2-inch to 3-1/2-inch diameter piping. Piping 1-1/2-inch diameter and smaller shall be identified using plastic wrap-around pipe markers.
- B. Items to be coded but not specifically mentioned shall be coated in a color selected by the ENGINEER or OWNER.
- C. All paints/coatings used in potable water contact areas must have AWWA and EPA classification and approvals.

- D. All requirements of the Occupational Safety and Health Act (OSHA) concerning color coding and safety markings shall be considered part of these Specifications unless specifically excluded.
- E. Any paint/coating requirements/specifications not specifically addressed in the foregoing shall be decided upon as required by the ENGINEER.
- F. Every valve or connection, where it may be possible for a worker to be exposed to a hazardous substance, shall be labeled per General Industry Safety Orders, Article 112, OSHA Occupational Safety and Health Standards 29CFR1910.

Color Code Chart

APPLICATION	COLOR
	Orange - Kop-Coat OSHA Safety Orange #J498
<u>Water Lines/Piping</u>	
Raw Settled or Clarified Finished or Potable Reuse Water	Olive Green - Kop-Coat OSHA Safety Green #2383 Aqua - Kop-Coat Marine Green #7333 Dark Blue - Kop-Coat OSHA Safety Blue A#183 Pantone Purple 522C - Kop-Coat OSHA Safety
<u>Chemical Lines/Piping</u>	
Alum or Sodium Aluminate Ammonia Carbon Slurry Chlorine (Gas/Solution) Fluoride Methanol	Orange - Kop-Coat OSHA Safety Orange #J498 White - Kop-Coat #0800 Black - Kop-Coat #C900 Yellow - Kop-Coat OSHA Safety Yellow #625 Light Blue w/Red Band - Kop-Coat Dawn Blue #8155 with 6 " bands of Kop-Coat OSHA Safety Red #0508 Red w/Yellow Band - Kop-Coat OSHA Safety Red #0508 with 6" bands of Kop-Coat OSHA Safety Yellow #S625
Lime Slurry Odophos Sulfuric Acid or Sulfur Dioxide	Light Green — Kop-Coat Eye-Rest Green #2369 Violet — Kop-coat OSHA Safety Purple #S585 Light Green w/Yellow Band, Kop-Coat Eye-Rest Green #2369 with 6" bands of Kop-Coat OSHA Safety Yellow #S625

## 3.18 COATING SYSTEM SCHEDULES

## A. COATING SYSTEM SCHEDULE, FERROUS METAL - NOT GALVANIZED (FM):

Schedule No.	Item	Surface Prep.	System No.
FM-1	All exposed surfaces outdoors, exposed to normal industrial exposure	Commercial Blast Cleaning, SSPC-SP6	Urethane #9
FM-2	All exposed surfaces indoors and outdoors, exposed to moderate and severe industrial exposure	Commercial Blast Cleaning, SSPC-SP6	(2b) Urethane #9
FM-3	Surfaces in Chlorination room, chlorine gas exposure	Commercial Blast Cleaning, SSPC-SP6	(3) High Build Epoxy
FM-4	Surfaces submerged or intermittently submerged in potable water, including all surfaces lower than 2' above high water level and all surfaces inside enclosed hydraulic structures, tanks and treatment units, and all surfaces of valves, couplings and pumps	Near White Metal Blast Cleaning, SSPC- SP10	(3) or (8) High Build Epoxy
FM-5	Surfaces submerged or intermittently submerged in wastewater, including all surfaces lower than 2' above high water level and all surfaces inside enclosed hydraulic structures, tanks and treatment units and all surfaces of valves, couplings and pumps	Near White Metal Blast Cleaning, SSPC- SP10	(6) Coal Tar Epoxy or (3) High Build Epoxy (if color desired)
FM-6	Buried surfaces that are not specified to be coated elsewhere	Near White Metal Blast Cleaning, SSPC- SP10	(6) Coal Tar Epoxy
FM-7	Indoor architectural sheet metal, flashings, door frames, and exposed ducts	Commercial Blast Cleaning, SSPC-SP6	(1) Alkyd Enamel
FM-8	Surfaces of indoor equipment	Commercial Blast Cleaning, SSPC-SP6	(1) Alkyd Enamel

B. COATING SYSTEM SCHEDULE, FERROUS METAL - GALVANIZED (FMG):

All galvanized surfaces except for the following items shall be coated unless required by other Sections:  
 (1) Floor gratings and frames, (2) Handrails, (3) Stair treads, (4) Chain link fencing and appurtenances.

Schedule No.	Item	Surface Prep.	System No.
FMG-1	All exposed surfaces indoors and outdoors, except those included below	Solvent Cleaning per Paragraph 3-06	(1) Alkyd Enamel
FMG-2	All exposed surfaces indoors and outdoors, including surfaces in chlorinator room and chlorine storage room, except those included below	Solvent Cleaning per Paragraph 3-06	(3) or (8) High Build Epoxy
FMG-3	Surfaces buried or submerged in wastewater	Solvent Cleaning per Paragraph 3-06 or Brush Off Grade Blast Cleaning SSPC-SP7	(6) Coal Tar Epoxy
FMG-4	Indoor architectural sheet metal, flashings, doors, frames, and exposed ducts	Solvent Cleaning per Paragraph 3-06	(1) Alkyd Enamel

C. COATING SYSTEM SCHEDULE, STEEL DIGESTER FLOATING COVERS AND DIGESTER GASHOLDERS (SD):

Schedule No.	Item	Surface Prep.	System No.
SD-1	All ferrous surfaces submerged in water or sludge, including rim plate	White Metal Blast Cleaning, SSPC-SPS	(6) Coal Tar Epoxy
SD-2	All ferrous surfaces exposed to digester gas	White Metal Blast Cleaning, SSPC-SPS	(6) Coal Tar Epoxy
SD-3	All interior ferrous surfaces of gasholder shell, including top angle	White Metal Blast Cleaning, SSPC-SPS	(6) Coal Tar Epoxy
SD-4	Exposed, outdoors	Commercial Blast Cleaning, SSPC-SP6	(2) Silicone Alkyd Enamel or Urethane

D. COATING SYSTEM SCHEDULE, NON-FERROUS METAL, PLASTIC, FIBERGLASS (NFM):

Where isolated non-ferrous parts are associated with equipment or piping, the CONTRACTOR shall use the coating system for the adjacent connected surfaces. Do not coat handrails, gratings, frames or hatches. Only primers recommended by the coating manufacturer shall be used.

Schedule No.	Item	Surface Prep.	System No.
NFM-1	All exposed surfaces indoors and outdoors, except those included below	Solvent Cleaning per Paragraph 3-09	(1) Alkyd Enamel
NFM-2	Chlorination room and chlorine storage room	Solvent Cleaning per Paragraph 3-09	(3) or (8) High Build Epoxy
NFM-3	Polyvinyl chloride plastic piping, and fiberglass surfaces, indoor and outdoors, or in structures not submerged	Solvent Cleaning per Paragraph 3-09	(4) Acrylic Latex

E. COATING SYSTEM SCHEDULE – CONCRETE AND CONCRETE BLOCK MASONRY (C):

Schedule No.	Item	Surface Prep.	System No.
C-1	Exposed, indoors and outdoors, as indicated on the plans	Per Paragraph 3-09	(5b) Acrylic-Concrete Repainting
C-2	Submerged in wastewater as indicated on the plans	Per Paragraph 3-10	(7) Coal Tar Epoxy-Concrete
C-3	Interior surfaces of sewer manholes, including sidewalls, bottom, and metal appurtenances, for manholes and L/S's indicated on the plans	Per Paragraph 3-10	See Specification 09950

F. COATING SYSTEM SCHEDULE - WOOD (W):

Schedule No.	Item	Surface Prep.	System No.
W-1	Exposed, indoors and outdoors, as indicated on the plans	Per Paragraph 2-12	(1) Alkyd Enamel
W-2	Exposed, indoors and outdoors, as indicated on the plans	Per Paragraph 3-12	(4) Acrylic Latex

3.1 CLEAN-UP AND PROTECTION

- A. Clean Up: During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each workday. Upon completion of painting work, clean window glass and other paint-spattered surfaces located on site and off site. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- B. Protection: Protect work of other trades located on site and off site, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting.
  - 1. Provide "Wet Paint" signs, as required, to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.
  - 2. At the completion of work of other trades, touch up and restore all damaged or defaced painted surfaces.

3.2 APPEARANCE AND INSPECTION

- A. All painting shall be accomplished in a workmanlike manner and shall be free of unsightly sags, runs, bubbles, drips, waves, laps, alligatoring, unnecessary brush marks and overspray or other physical defects and shall be uniform in color.
- B. The CONTRACTOR shall provide all rigging, scaffolding and other equipment necessary for a satisfactory inspection of a complete paint system and acceptance by the ENGINEER/OWNER.
- C. Inspection shall be conducted by an inspector selected by the ENGINEER/OWNER in the presence of the OWNER's representative and the CONTRACTOR or his representative. Provisions for calibrated and functional test equipment is the responsibility of the CONTRACTOR.

- D. The paint film shall be free of pinholes and holidays as determined by the use of an approved holiday detector as defined in Paragraph 1-09 of this Section.
- E. The paint film shall be randomly checked for dry film thickness as stipulated in the "Coating System" sections of these specifications. Thicknesses shall be checked with a properly calibrated and approved magnetic gauge as defined in Paragraph 1-09 of this Section.

3.3 REPAIR OF DEFECTS IN PAINT

- A. Any defects discovered during inspection, such as low film millage, holidays or pinholes, shall be repaired with the same materials as used for the original finish coat(s). Excessive low millage could require extra full coat(s) of paint.
- B. A final inspection will be conducted by the ENGINEER/OWNER or his representative after any necessary repairs and prior to final acceptance of the job.

3.4 DISINFECTION OF POTABLE WATER STORAGE TANKS

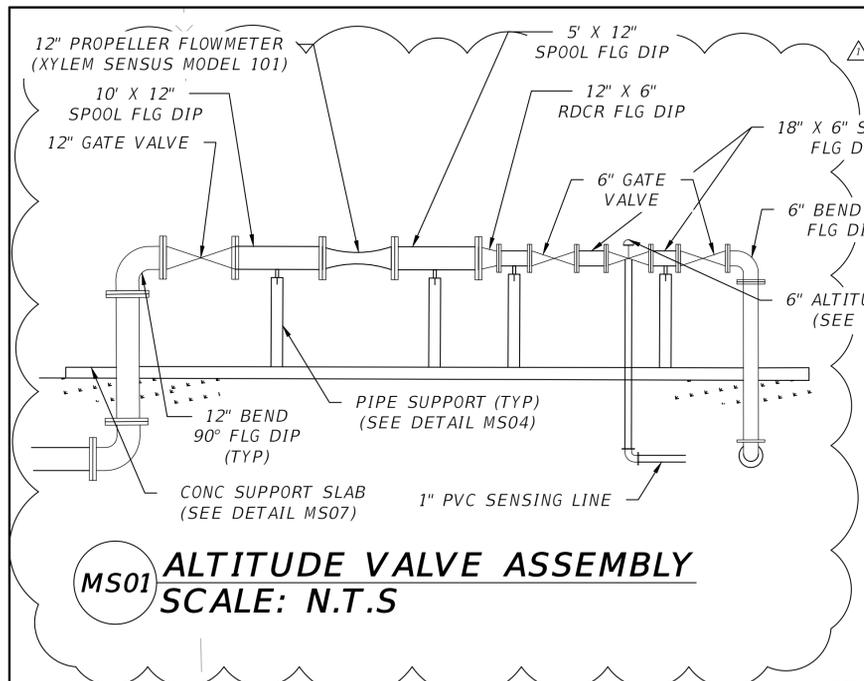
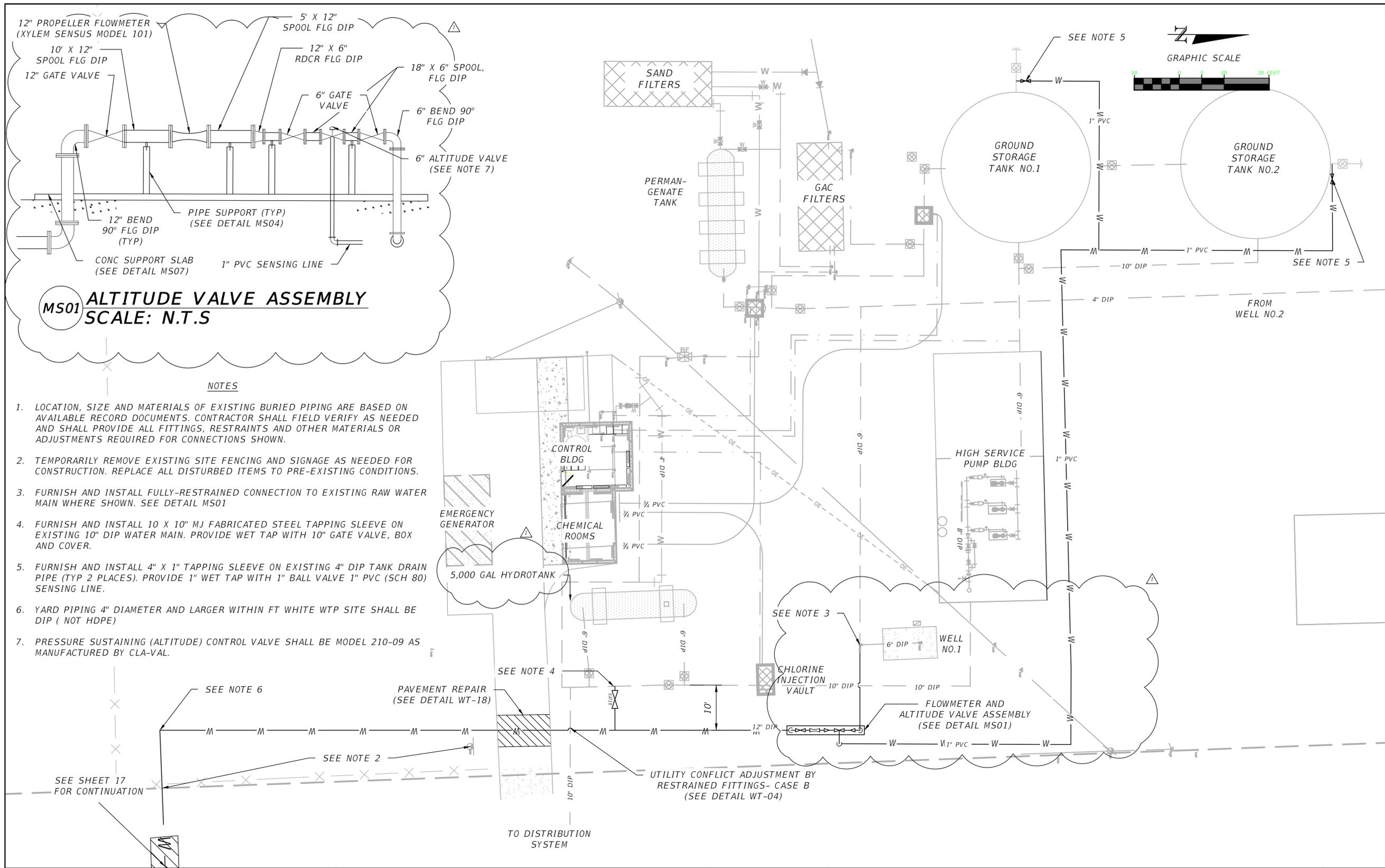
- A. Description: This paragraph specifies disinfection procedures for potable water storage tanks.
- B. Quality Assurance: The following documents are a part of this section as specified and modified. In case of conflict between the requirements of this paragraph and those of the listed documents, the requirements of this paragraph shall prevail.

<u>Reference</u>	<u>Title</u>
AWWA D105, latest revision	Disinfection of Water Storage Facilities

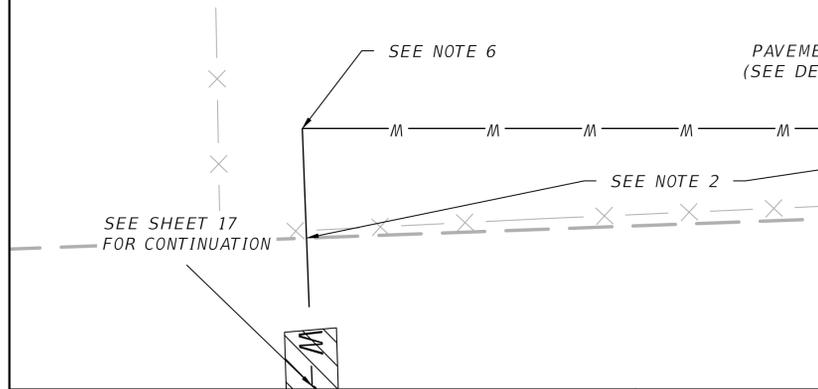
- C. Information to be Provided: Affidavit of Compliance as described in AWWA D105.
- D. After the tank has been painted and the interior surfaces have thoroughly dried, the CONTRACTOR shall remove all visible dirt and contaminating materials. The interior of the tank shall be disinfected in accordance with Chlorination Method 2 of AWWA D105. The CONTRACTOR shall furnish all of the chlorine required.
- E. The CONTRACTOR shall be responsible for obtaining proper disinfection as determined by bacteriological testing. Samples for bacterial analyses will be taken and analyzed by the OWNER. Two consecutive samples are required to pass the bacteriological tests for the tank to comply with these disinfection requirements.
- F. Water for filling the tank after the initial disinfection will be provided by the OWNER. If bacteriological testing shows the presence of coliform bacteria, the tank shall be re-disinfected. The CONTRACTOR shall pay the OWNER for water required to fill the tank after the first filling at currently approved General Service water rates for the OWNER.

END OF SECTION 099000





- NOTES**
1. LOCATION, SIZE AND MATERIALS OF EXISTING BURIED PIPING ARE BASED ON AVAILABLE RECORD DOCUMENTS. CONTRACTOR SHALL FIELD VERIFY AS NEEDED AND SHALL PROVIDE ALL FITTINGS, RESTRAINTS AND OTHER MATERIALS OR ADJUSTMENTS REQUIRED FOR CONNECTIONS SHOWN.
  2. TEMPORARILY REMOVE EXISTING SITE FENCING AND SIGNAGE AS NEEDED FOR CONSTRUCTION. REPLACE ALL DISTURBED ITEMS TO PRE-EXISTING CONDITIONS.
  3. FURNISH AND INSTALL FULLY-RESTRAINED CONNECTION TO EXISTING RAW WATER MAIN WHERE SHOWN. SEE DETAIL MS01
  4. FURNISH AND INSTALL 10 X 10" MJ FABRICATED STEEL TAPPING SLEEVE ON EXISTING 10" DIP WATER MAIN. PROVIDE WET TAP WITH 10" GATE VALVE, BOX AND COVER.
  5. FURNISH AND INSTALL 4" X 1" TAPPING SLEEVE ON EXISTING 4" DIP TANK DRAIN PIPE (TYP 2 PLACES). PROVIDE 1" WET TAP WITH 1" BALL VALVE 1" PVC (SCH 80) SENSING LINE.
  6. YARD PIPING 4" DIAMETER AND LARGER WITHIN FT WHITE WTP SITE SHALL BE DIP ( NOT HDPE)
  7. PRESSURE SUSTAINING (ALTITUDE) CONTROL VALVE SHALL BE MODEL 210-09 AS MANUFACTURED BY CLA-VAL.



REVISIONS	
DATE	DESCRIPTION
7-31-2023	PER ADDENDUM 6

**NORTH FLORIDA PROFESSIONAL SERVICES, INC.**

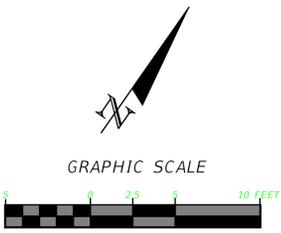
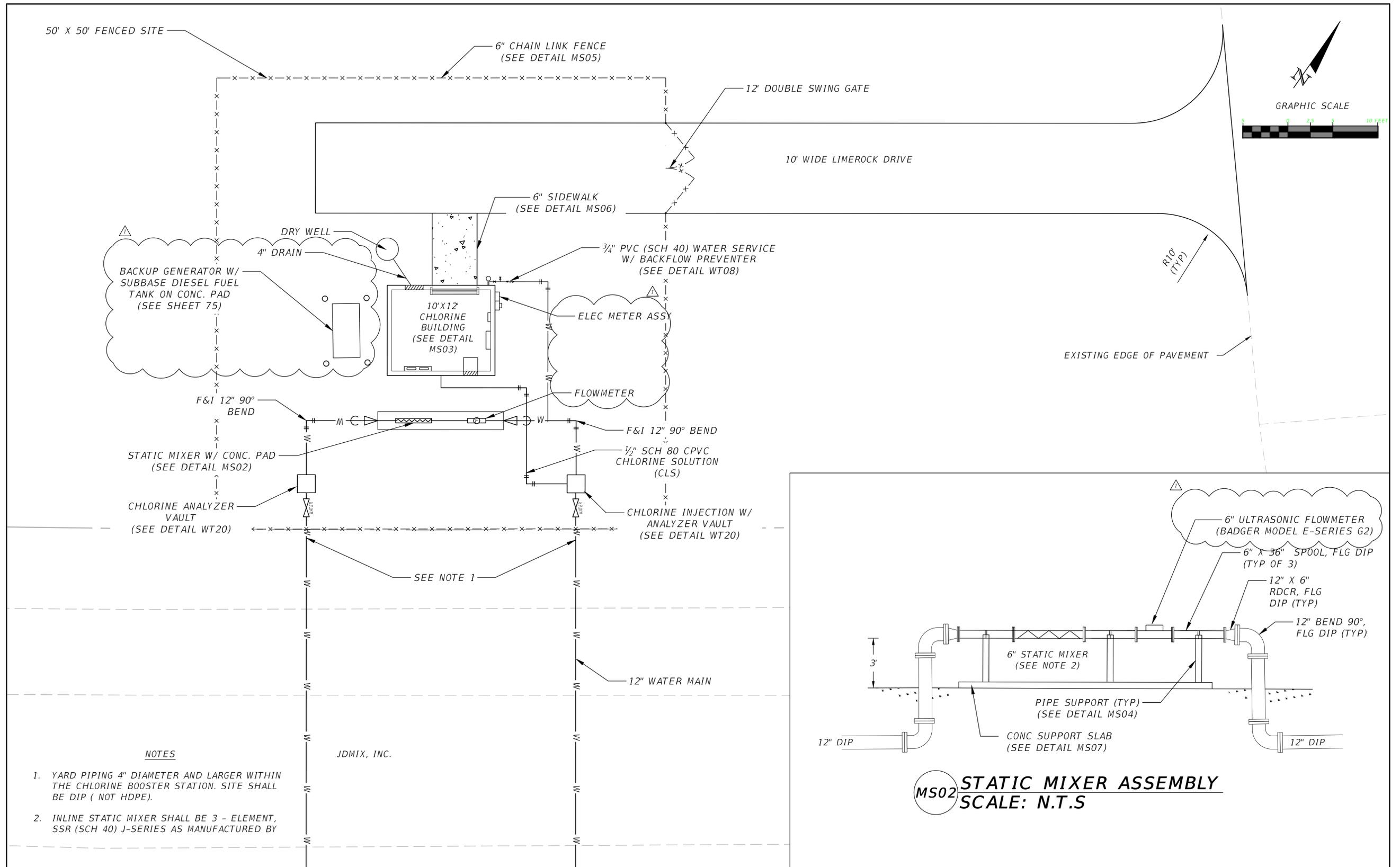
P.O. BOX 3823  
LAKE CITY, FL 32056  
PH. 386-752-4675  
LIC NO. LB8356

2551 BLAIRSTONE PINES DR.  
TALLAHASSEE, FL 32301  
WWW.NFPS.NET  
CA# 29011

JOB NUMBER:  
L220110CCB  
EOR:  
RICKY L. HENDRIX  
P.E. NO.:  
45239

**FORT WHITE WTP SITE PLAN**  
**ELLISVILLE WATER MAIN EXTENSION**  
**COLUMBIA COUNTY, FLORIDA**

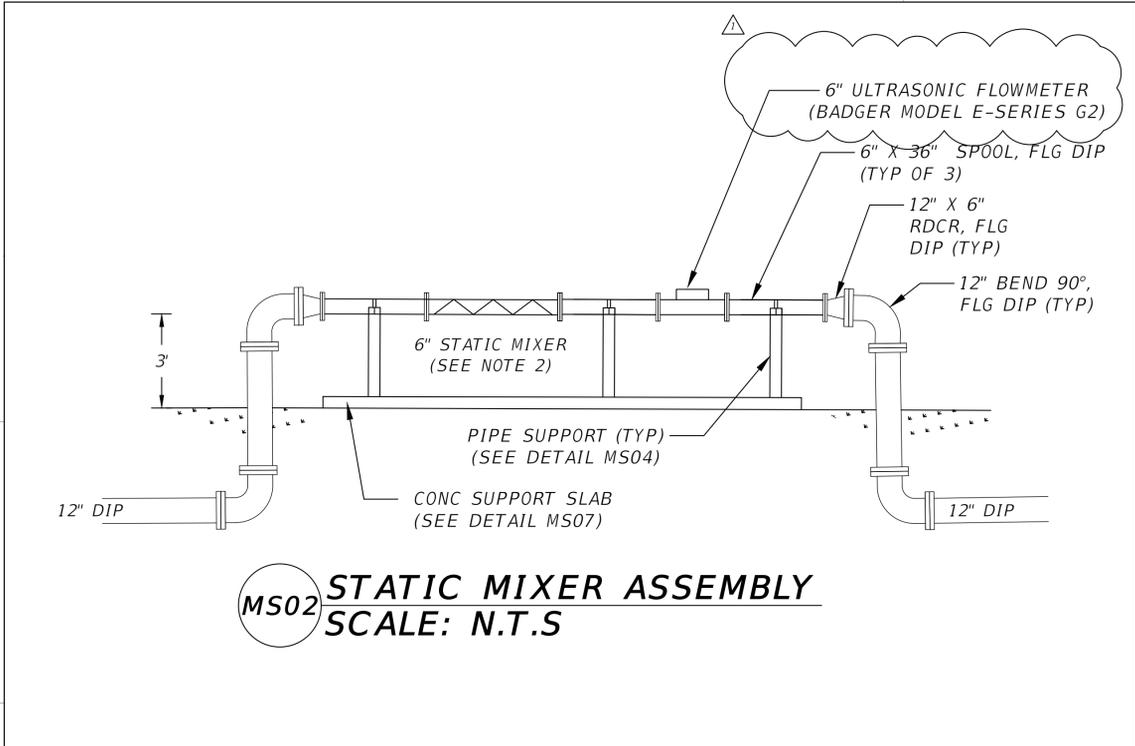
SHEET NO.  
**15**



**NOTES**

1. YARD PIPING 4" DIAMETER AND LARGER WITHIN THE CHLORINE BOOSTER STATION. SITE SHALL BE DIP ( NOT HDPE).
2. INLINE STATIC MIXER SHALL BE 3 - ELEMENT, SSR (SCH 40) J-SERIES AS MANUFACTURED BY

JDMIX, INC.



**MS02 STATIC MIXER ASSEMBLY**  
SCALE: N.T.S

REVISIONS	
DATE	DESCRIPTION
8-3-2023	PER ADDENDUM 6



**NORTH FLORIDA PROFESSIONAL SERVICES, INC.**  
 P.O. BOX 3823  
 LAKE CITY, FL 32056  
 PH. 386-752-4675  
 LIC NO. LB8356

2551 BLAIRSTONE PINES DR.  
 TALLAHASSEE, FL 32301  
 WWW.NFPS.NET  
 CA# 29011

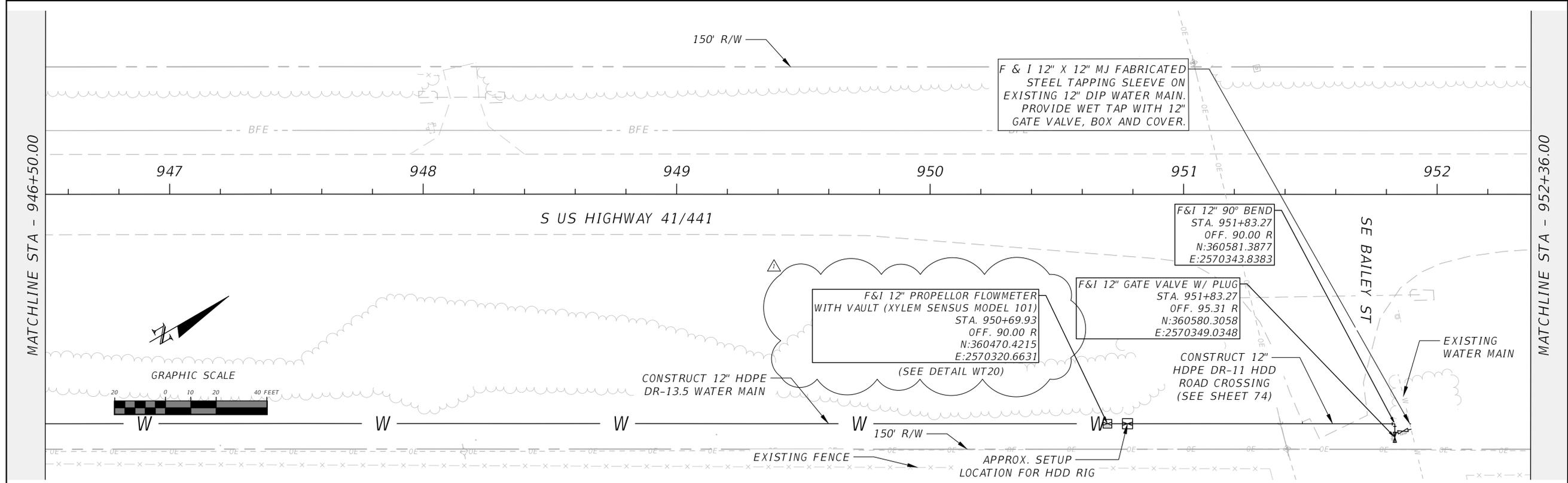
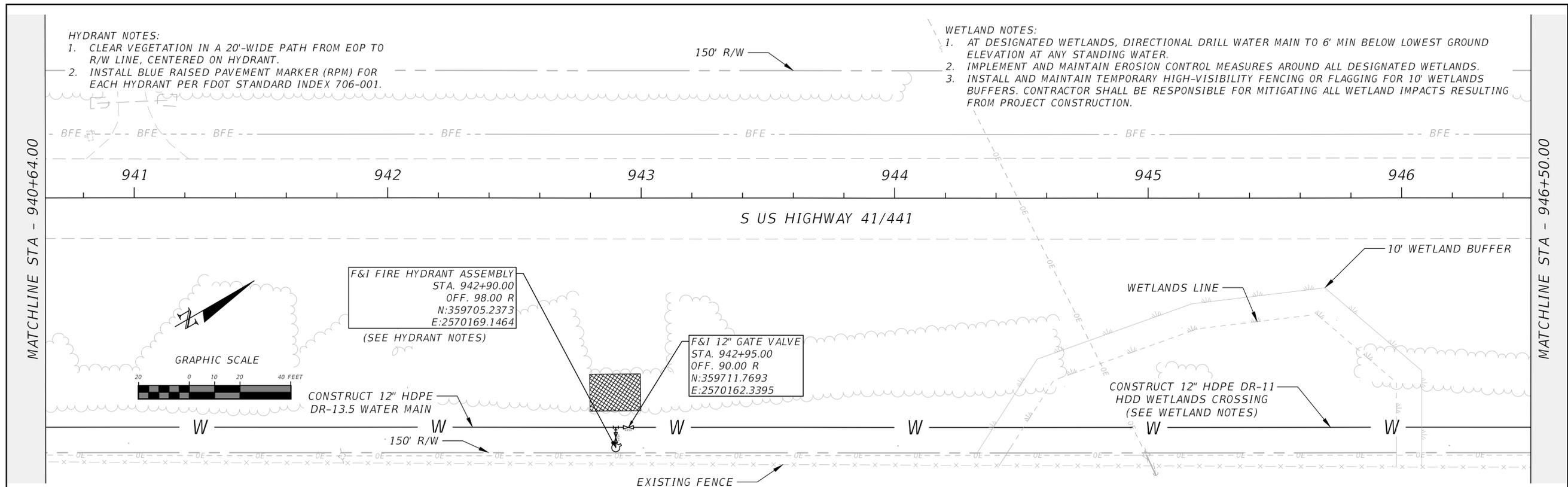
JOB NUMBER:  
L220110CCB  
 EOR:  
RICKY L. HENDRIX  
 P.E. NO.:  
45239

**CHLORINE BOOSTER STATION SITE PLAN**  
**ELLISVILLE WATER MAIN EXTENSION**  
**COLUMBIA COUNTY, FLORIDA**

SHEET NO.  
**16**

- HYDRANT NOTES:**
1. CLEAR VEGETATION IN A 20'-WIDE PATH FROM EOP TO R/W LINE, CENTERED ON HYDRANT.
  2. INSTALL BLUE RAISED PAVEMENT MARKER (RPM) FOR EACH HYDRANT PER FDOT STANDARD INDEX 706-001.

- WETLAND NOTES:**
1. AT DESIGNATED WETLANDS, DIRECTIONAL DRILL WATER MAIN TO 6' MIN BELOW LOWEST GROUND ELEVATION AT ANY STANDING WATER.
  2. IMPLEMENT AND MAINTAIN EROSION CONTROL MEASURES AROUND ALL DESIGNATED WETLANDS.
  3. INSTALL AND MAINTAIN TEMPORARY HIGH-VISIBILITY FENCING OR FLAGGING FOR 10' WETLANDS BUFFERS. CONTRACTOR SHALL BE RESPONSIBLE FOR MITIGATING ALL WETLAND IMPACTS RESULTING FROM PROJECT CONSTRUCTION.



REVISIONS	
DATE	DESCRIPTION
8-3-2023	PER ADDENDUM 6

**NORTH FLORIDA PROFESSIONAL SERVICES, INC.**  
 P.O. BOX 3823  
 LAKE CITY, FL 32056  
 PH. 386-752-4675  
 LIC NO. LB8356

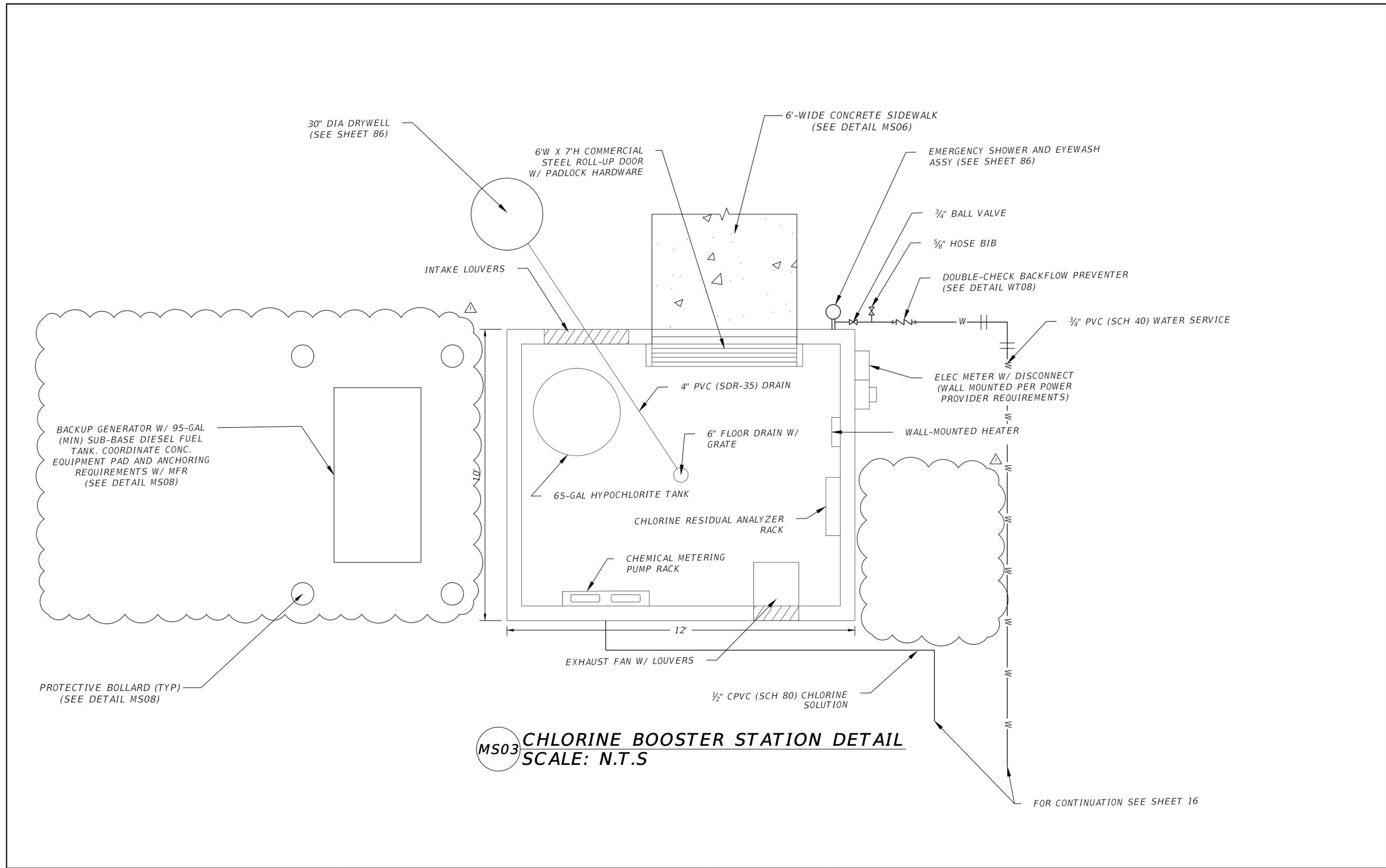
2551 BLAIRSTONE PINES DR.  
 TALLAHASSEE, FL 32301  
 WWW.NFPS.NET  
 CA# 29011

JOB NUMBER:  
L220110CCB  
 EOR:  
RICKY L. HENDRIX  
 P.E. NO.:  
45239

**US 41-441 PLAN**  
**ELLISVILLE WATER MAIN EXTENSION**  
**COLUMBIA COUNTY, FLORIDA**

SHEET NO.  
**63**

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



**MS03 CHLORINE BOOSTER STATION DETAIL**  
**SCALE: N.T.S**

FOR CONTINUATION SEE SHEET 16

REVISIONS	
DATE	DESCRIPTION
8-3-2023	△ PER ADDENDUM 6

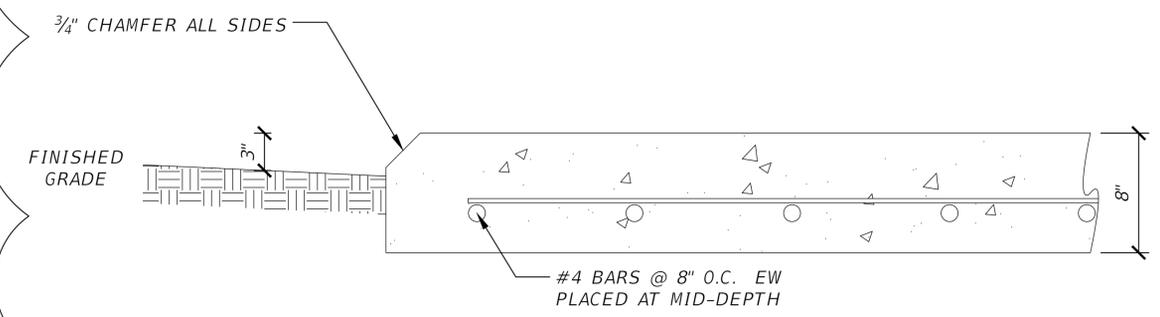
**NORTH FLORIDA PROFESSIONAL SERVICES, INC.**  
 P.O. BOX 3823  
 LAKE CITY, FL 32056  
 PH. 386-752-4675  
 LIC NO. LB8356

2551 BLAIRSTONE PINES DR.  
 TALLAHASSEE, FL 32301  
 WWW.NFPS.NET  
 CA# 29011

JOB NUMBER:  
 L220110CCB  
 EOR:  
 RICKY L. HENDRIX  
 P.E. NO.:  
 45239

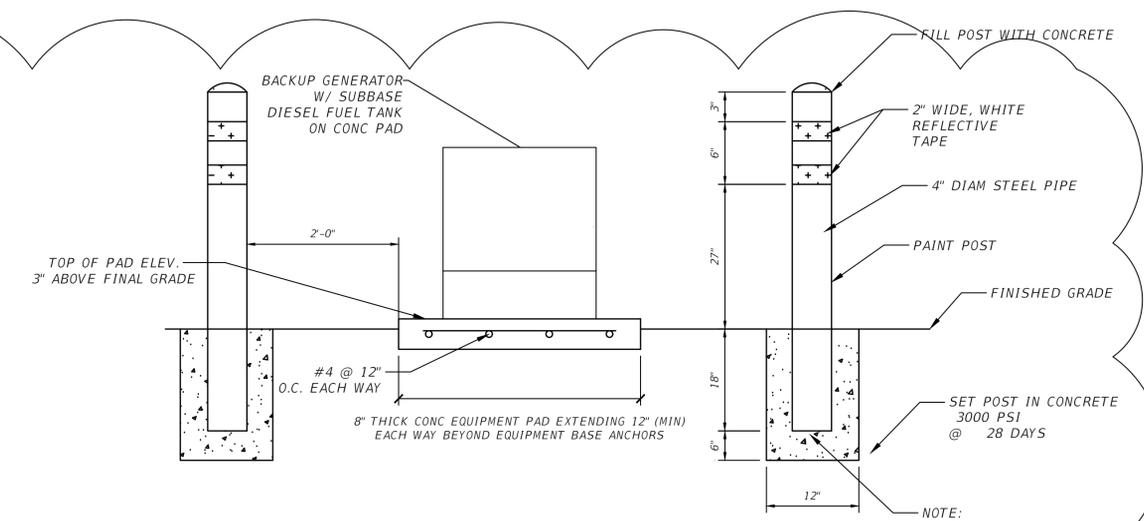
**CHLORINE BOOSTER STATION DETAIL**  
**ELLISVILLE WATER MAIN EXTENSION**  
**COLUMBIA COUNTY, FLORIDA**

SHEET NO.
75



- NOTES:**
1. CONCRETE MIX SHALL BE 4,000 PSI (28-DAY STRENGTH) AND SHALL MEET ASTM C150 AND C33 REQUIREMENTS.
  2. SUPPORT SLAB SHALL EXTEND 12" (MIN.) EACH WAY BEYOND OUTER EDGES OF ANCHORED EQUIPMENT OR PIPE SUPPORTS.
  3. PROVIDE 2" (MIN.) CLEAR COVER OVER ALL REQUIREMENT BARS OR WIRE.

**MS07 CONCRETE SUPPORT SLAB**  
SCALE: N.T.S



- REINFORCED CONCRETE EQUIPMENT PADS**
1. PROVIDE BUILT-UP PAD AREA FOR NEW CONCRETE FOUNDATIONS TO ELEVATIONS AS SHOWN. USE CLEAN GRANULAR FILL IN 6-INCH LIFTS. GRANULAR FILL SHALL BE CLEAN SAND WITH NO MORE THAN 10% FINES PASSING THROUGH A NO.200 SIEVE. COMPACT TO 95% RELATIVE COMPACTION PER ASTM D1557. PROVIDE TEST REPORT FROM INDEPENDENT TEST LAB SATISFACTORY TO OWNER AND ENGINEER.
  2. COORDINATE FORM PLACEMENT WITH PIPING AND ELECTRICAL CONDUITS AS SHOWN IN THESE DRAWINGS. FORMWORK FOR SLAB SHALL BE IN ACCORDANCE WITH ACI 347, FOR PLACEMENT OF CONCRETE IN ACCORDANCE WITH ACI 304R.
  3. REINFORCING STEEL SHALL BE DEFORMED BARS IN ACCORDANCE WITH ASTM A615, GRADE 60, PLACED ON SUPPORTS IN ACCORDANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE.
  4. PROTECT SURFACES AND WET CURE CONCRETE FOR A MINIMUM OF 7 DAYS AFTER PLACEMENT.

**MS08 PROPANE TANK SUPPORT DETAIL**  
SCALE: N.T.S

REVISIONS	
DATE	DESCRIPTION
8-8-2023	△ PER ADDENDUM 6



**NORTH FLORIDA PROFESSIONAL SERVICES, INC.**  
 P.O. BOX 3823  
 LAKE CITY, FL 32056  
 PH. 386-752-4675  
 LIC NO. LB8356

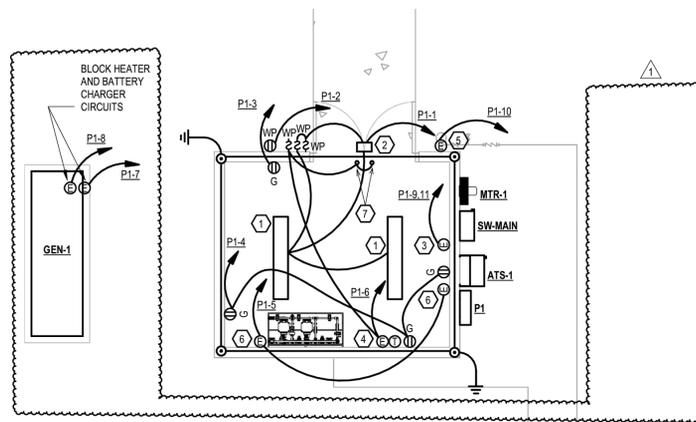
2551 BLAIRSTONE PINES DR.  
 TALLAHASSEE, FL 32301  
 WWW.NFPS.NET  
 CA# 29011

JOB NUMBER:  
L220110CCB  
 EOR:  
RICKY L. HENDRIX  
 P.E. NO.:  
45239

**MISC DETAIL**  
**ELLISVILLE WATER MAIN EXTENSION**  
**COLUMBIA COUNTY, FLORIDA**

SHEET NO.  
88

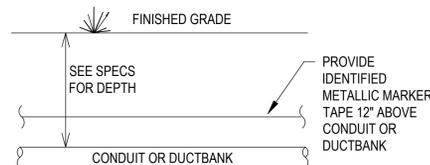
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



**1 FLOOR PLAN**  
NOT TO SCALE

**KEY NOTES**

- INTERIOR LIGHT FIXTURE, SIGNIFY DAYBRITE #LBX-70L-840-UNV-FD. TYP OF 2. PROVIDE ONE OF THESE FIXTURES WITH INTEGRAL EMERGENCY BATTERY PACK.
- EXTERIOR WALL MOUNTED LIGHT FIXTURE, SIGNIFY GARDCO #111L-16L-550-NW-G2-3-VOLT-BRONZE.
- WALL MOUNTED SPACE HEATER. SEE SCHEDULE.
- THRU WALL EXHAUST FAN. SEE SCHEDULE. PROVIDE LINE VOLTAGE THERMOSTATE ADJACENT TO FAN.
- EYEWASH STATION. PROVIDE FLOW SWITCH & HORN STROBE. SEE DIAGRAM.
- PUMPS AND CONTROLS. PROVIDE PUMPS AND CONTROLS. SEE DIAGRAMS.
- PROVIDE LINE VOLTAGE DOOR SWITCHES WIRED IN PARALLEL WITH WALL SWITCH SUCH THAT IF THE SWITCH IS ON, THERMOSTAT CALLS FOR COOLING OR EITHER DOOR IS OPENED THE EF WILL RUN.



**3 BURIED CONDUIT MARKER DETAIL**  
NOT TO SCALE

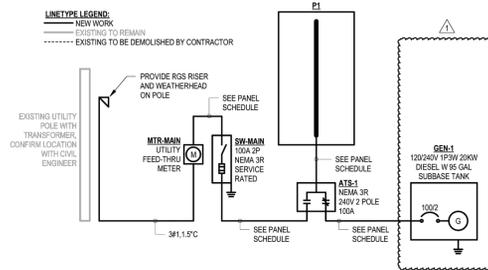
**PANELBOARD SCHEDULE: P1**

<b>BASIS OF DESIGN:</b> 00	<b>BUSS RATING:</b> 100	<b>FEEDER</b>
<b>SUPPLY FROM:</b> ATS-1	<b>MCB:</b> NLO	<b>PHASES:</b> 241
<b>MOUNTING:</b> SURFACE	<b>IF MLO, UPSTREAM OCPD:</b> 100	<b>NEUTRAL:</b> #1
<b>ENCLOSURE:</b> NEMA 3R	<b>NEUTRAL RATING:</b> 100%	<b>GROUND:</b> #8
<b>VOLTS:</b> 120/240	<b>PQM:</b> NO	<b>CONDUIT:</b> 1.5"
<b>PHASES:</b> 1	<b>SPD:</b> YES	<b># OF RUNS:</b> 1
<b>WIRES:</b> 3	<b># OF VERTICAL SECTIONS:</b> 1	<b>TOTAL AMPACITY:</b> 110A
<b>KAIC:</b> 22	<b>SERVICE RATED:</b> NO	

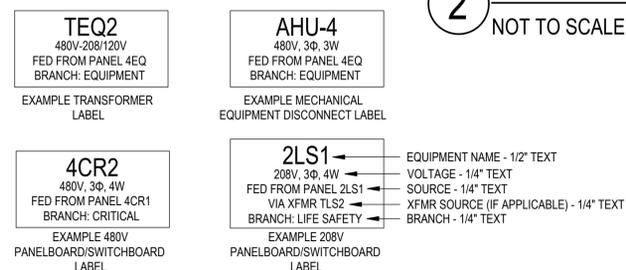
  

CKT	LOAD	BREAKER		PHASE (kVA)		PHASE (kVA)		BREAKER		LOAD	CKT
		P	TRIP	A	B	A	B	TRIP	P		
1	LIGHTING	1	20	0.2		0.2		20	1	EXTERIOR RECEPTACLE	2
3	INTERIOR RECEPTACLE	1	20	0.2		0.2		20	1	INTERIOR RECEPTACLES	4
5	PUMP PKG	1	20	1.0		0.2		20	1	EXHAUST FAN	6
7	GENERATOR/BLOCK HEATER	1	20	1.0		0.2		20	1	GENERATOR BATTERY CHARGER	8
9	UNIT HEATER	2	35	3.3		0.2		20	1	EYEWASH	10
11	CKT SHALL BE 2#8,#10G,3/4"					3.3		20	1	SPARE	12
13	SPARE	1	20					20	1	SPARE	14
15	SPARE	1	20					20	1	SPARE	16
17	SPARE									SPARE	18
19	SPARE									SPARE	20
21	SPARE									SPARE	22
23	SPARE									SPARE	24

TOTAL PHASE LOAD (kVA): 5.1    5.4    HIGH PHASE (AMPS): 45.0  
TOTAL CONNECTED LOAD (kVA): 10.5    TOTAL LOAD (AMPS): 43.8



**2 SINGLE LINE DIAGRAM**  
NOT TO SCALE

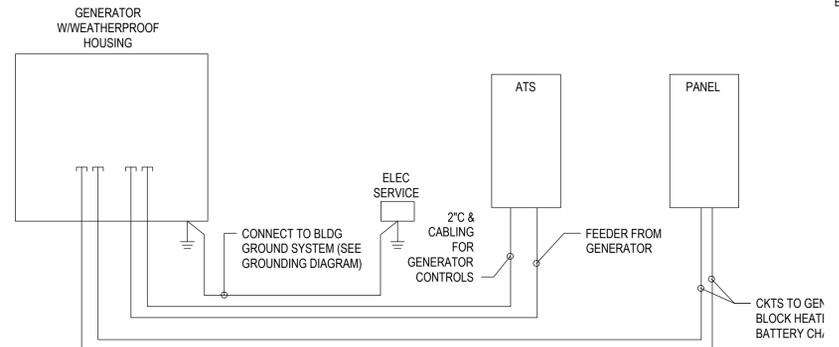


- NOTES:**
- ENGRAVED 1/16" THICK PLASTIC TAG.
  - TAG SHALL HAVE ALL EDGES BEVELED AND SMOOTH.
  - SECURE TAG WITH A MINIMUM OF 2 CHROME (STAINLESS STEEL FOR WET OR DAMP LOCATIONS) SCREWS.
  - ADHESIVE BACKING, TAPE, ETC IS NOT ALLOWED.
  - DIMENSIONS SHALL BE AS REQUIRED TO FIT APPROPRIATE TEXT. COLORS AS FOLLOWS:
- COLORS AS FOLLOWS:  
BRANCH: NORMAL    LETTERS: BLACK    BACKGROUND: WHITE

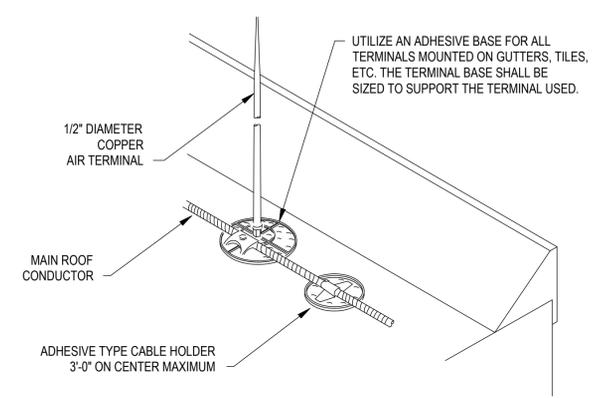
**4 TYPICAL EQUIPMENT LABELING DETAIL**  
NOT TO SCALE

**GENERAL LIGHTNING PROTECTION NOTE**

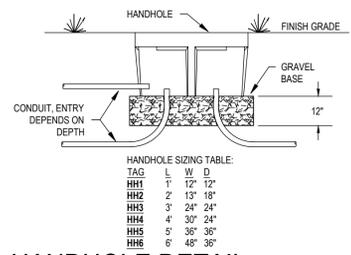
CONTRACTOR SHALL PROVIDE A CLASS 1 LIGHTING PROTECTION SYSTEM IN COMPLIANCE WITH NFPA 780. SYSTEM SHALL BE PROVIDED WITH A MASTER LABEL ATTACHED TO THE BUILDING AND SHALL BE IN COMPLIANCE WITH UNDERWRITERS LABORATORIES, INC. MASTER LABEL SERVICE, UL96A. SEE SPECIFICATIONS FOR A COMPLETE DESCRIPTION. COORDINATE LAYOUT WITH ARCHITECTURAL PLANS. PROVIDE REQUIRED CONNECTIONS TO ROOF MOUNTED EQUIPMENT SUCH AS EXHAUST FANS, VENT-THRU-ROOF PIPES, ETC NOT SHOWN HERE, SEE MECHANICAL & PLUMBING PLANS.



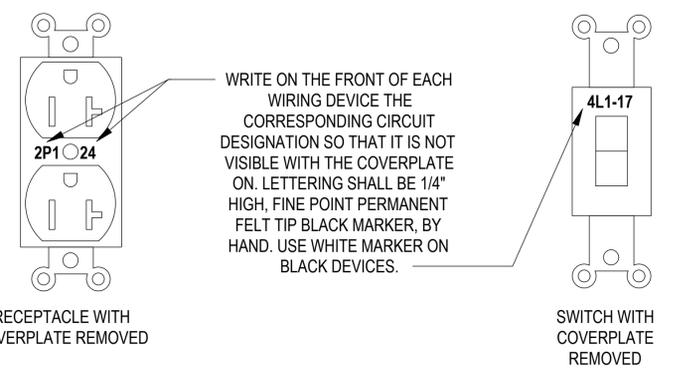
**8 GENERATOR DIAGRAM**  
NOT TO SCALE



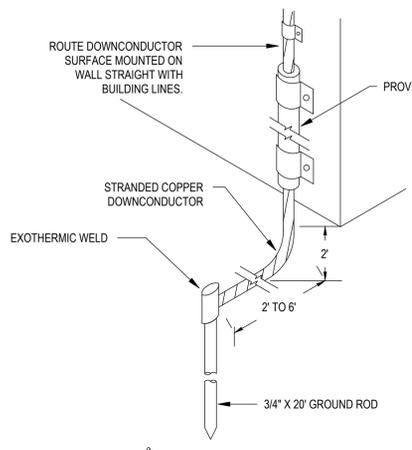
**7 ADHESIVE AIR TERMINAL BASE DETAIL**  
NOT TO SCALE



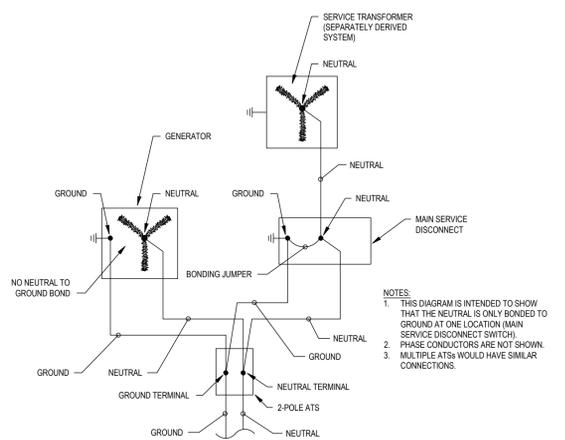
**5 HANDHOLE DETAIL**  
NOT TO SCALE



**6 WIRING DEVICE LABEL DETAIL**  
NOT TO SCALE



**9 GROUNDING ARRANGEMENT**  
NOT TO SCALE



**10 GENERATION SYSTEM GROUNDING DIAGRAM - 2-POLE ATS**  
NOT TO SCALE

**AB Akin Brooks Engineering**

Akin Brooks Engineering, Inc.  
14260 W Newberry Rd #115  
Newberry, FL 32669

FL License 35307  
352.281.7104  
akinbrooks.com

**REVISIONS**

DATE	DESCRIPTION
8-3-2023	PER ADDENDUM 6

**NORTH FLORIDA PROFESSIONAL SERVICES, INC.**

P.O. BOX 3823  
LAKE CITY, FL 32056  
PH. 386-752-4675  
LIC NO. LB8356

2551 BLAIRSTONE PINES DR.  
TALLAHASSEE, FL 32301  
WWW.NFPS.NET  
CA# 29011

JOB NUMBER:  
L220110CCB  
EOR:  
MARK R. AKIN  
P.E. NO.:  
59242

**FLOOR PLAN, DIAGRAMS AND DETAILS**

**ELLISVILLE WATER MAIN EXTENSION**

**COLUMBIA COUNTY, FLORIDA**

SHEET NO.  
**90**

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.