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*Notification of this Addendum is transmitted via email to all current plan holders.  
This Addendum is posted on the District website at  
[www.valleywater.org/Programs/Construction.aspx](http://www.valleywater.org/Programs/Construction.aspx).*

November 25, 2015

**ADDENDUM NO. 1  
TO CONTRACT DOCUMENTS FOR THE  
WOLFE ROAD RECYCLED WATER FACILITIES PROJECT  
Project No. 91244001 Contract No. C0607**

Notice is hereby given to Prospective Bidders that the Contract Documents are modified as hereinafter set forth.

**BID DOCUMENTS**

**Title Page**

**REPLACE** the text that reads "Bid Opening: December 16, 2015" with the following text "Bid Opening: Monday, December 21, 2015"

**NOTICE TO BIDDERS**

**Paragraph 1 Notice.**

**REPLACE** with:

"Notice is hereby given that sealed Proposals will be accepted by the Construction Program of the Santa Clara Valley Water District, Room B108, of the District's Administration Building, 5750 Almaden Expressway, San Jose, California 95118 up to 2 p.m. on **Monday, December 21, 2015.**"

**SPECIFICATIONS AND CONTRACT DOCUMENTS**

**SPECIAL PROVISIONS**

**Article 20.01. Schedule of Bid Items**

## **ADD 20.01.02. Description of Bid Items**

- A. The following bid item listing provides a reference to an Article providing a general description of the work to be included in the bid items. The reference information is intended to assist the Contractor during the bid period; see article 20.01.01 above.

<b><u>Bid Item No.</u></b>	<b><u>Item Name</u></b>
1	Mobilization (Refer to Article 22.01.F)
2	Quality Assurance/Quality Control (Refer to Article 19.02.09.A)
3A	Trench Excavation with Select Backfill Option (Refer to Article 24.02.F)
3B	Trench Excavation with Soil-Cement or CDF Backfill Option (Refer to Article 24.02.F)
4A	Select Backfill Option (Refer to Article 24.05.G)
4B	Soil-Cement or CDF Backfill Option (Refer to Article 24.06.G)
5A	Type "A" Backfill with Select Backfill Option (Refer to Article 24.07.G)
5B	Type "A" Backfill with Soil-Cement or CDF Backfill Option (Refer to Article 24.07.G)
6	Roadway Base (Refer to Article 24.09.G)
7	Pavement Restoration (Refer to Article 24.10.G)
8	Trench Excavation and Backfill at Pier Footing
9	Bore & Jack – Sta 10+95 to Sta 12+57 (Refer to Article 25.02.G)
10	Bore & Jack – Sta 15+82 to Sta 17+95 (Refer to Article 25.02.G)
11	Bore & Jack – Sta 85+08 to Sta 86+86 (Refer to Article 25.02.G)
12	Bore & Jack – Sta 88+47 to Sta 90+08 (Refer to Article 25.02.G)
13A	24-inch Pressure Pipe & Appurtenances – HDPE (Refer to Article 27.01.G)
13B	24-inch Pressure Pipe & Appurtenances – PVC (Refer to Article 27.01.G)
14	Traffic Control (Refer to Article 30.01.G)
15	Traffic Signal Restoration (Refer to Article 24.10.G)
16	Pump Station Site Work & Utilities
17	Pump Station Building (Refer to Section 35 1.12.A)

- 18 Pump Station Motors, Controls, and Electrical (Refer to Sections 34, 36, and 37)
- 19 Homestead Crossing Connection (Refer to Article 28.01.G)
- 20 Contaminated Material Transport & Disposal (Refer to Article 24.11.G)

## TECHNICAL PROVISIONS

### Article 22.02 Clearing and Grubbing

#### F. Payment

1. **REPLACE** “shall be included in the lump sum price bid for Pump Station Site Work & Utilities, Bid Item No. 22.” With:

“shall be included in the lump sum price bid for Pump Station Site Work & Utilities, Bid Item No. 16.”

### Article 23.01 Testing

#### D. Testing

1. **REPLACE** “The District, through its authorized testing consultant, will have tests performed as required during the progress of the work to determine compliance with the compaction requirements specified herein.” With:

“Tests shall be performed by the Contractor as required during the progress of the work to determine compliance with the compaction requirements specified herein.”

#### F. Measurement

3. **REPLACE** “Measurement for payment for the removal and restoration of concrete sidewalks, wheelchair ramps, driveway aprons, and curbs and gutters, regardless of limits, shall be to the neat line dimensions as shown on the Drawings” with:

“No measurement will be made for the removal and restoration of concrete sidewalks, wheelchair ramps, driveway aprons, and curbs and gutters, regardless of limits and work shall be considered incidental to the various items of work requiring these items.”

### Article 24.07 Type ‘A’ Backfill

#### G. Payment

2. **REPLACE** “shall be included in the unit price bid per cubic yard for TYPE ‘A’ BACKFILL, Bid Item No. 5.” With:

“shall be included in the unit price bid per cubic yard for TYPE ‘A’ BACKFILL, Bid Item No. 5A or 5B.”

## Article 24.09 Roadway Base

### G. Payment

2. **REPLACE** “shall be included in the square foot price bid for PAVEMENT RESTORATION, Bid Item No. 7.” With:

“shall be included in the lump sum price bid for TRAFFIC SIGNAL RESTORATION, Bid Item No. 15.”

3. **REPLACE** “shall be included in the lump sum price bid for TRAFFIC CONTROL, Bid Item No. 21.” With:

“shall be included in the lump sum price bid for TRAFFIC CONTROL, Bid Item No. 14.”

## Article 24.10 A.C. Pavement Restoration

### G. Payment

1. **REPLACE** “shall be included in the lump sum price bid for TRAFFIC CONTROL, Bid Item No. 21.” With:

“shall be included in the lump sum price bid for TRAFFIC CONTROL, Bid Item No. 14.”

## Article 25.02 Bore Jack

### G. Payment

2. **REPLACE** paragraph 2 in its entirety with:

“2. Full compensation for doing all work and furnishing carrier pipe, skids, end seals, and all other materials for the 24” Carrier Pipe installation in tunnels, as shown on the Drawings and as specified in these Specifications, shall be included in the unit price bid for 24” PRESSURE PIPE & APPURTENANCES.”

4. **DELETE** “end seals”

## Section 35 Special Construction and Structures

**ADD** new “Article 35.02 Paints” (ATTACHMENT 1).

### Article 35.06 Structural Steel

**REPLACE** All references to “Article 39.02” with “Article 35.02 Paints”

### Article 35.11 Metal Roof

**REPLACE** All references to “Article 39.02” with “Article 35.02 Paints”

## **Article 35.20 Pre-Engineered Building**

**REPLACE** All references to “Article 39.02” with “Article 35.02 Paints”

## **Article 36.25 Wires and Cables, 600 Volts and Below**

### 3.02 CIRCUIT IDENTIFICATION

#### B. Color Coding General

**REPLACE** Paragraph B. Color Coding Table with ATTACHMENT 2

#### JJJ Power Conductors

**REPLACE** “JJJ” with “C”

#### KKK Instrumentation and Control Conductors

**REPLACE** “KKK” with “D”

#### LLL Drawings

**REPLACE** “LLL” TO “E”

## **Article 36.37 Motors**

### 1.03. SUBMITTALS

**ADD** New Paragraph C.

#### C. Provide Factory Certification of Field Service Engineer

**ADD** New Paragraph 1.06 SPECIAL CONDITIONS

### 1.06 SPECIAL CONDITIONS

- A. Motor is part of Pump, Motor, and VFD Assembly. Motor shall comply with the requirements of this Article as well as the Article 34.01 and Article 36.43.
- B. Pump manufacturer shall be responsible for ensuring that motor provided in this Article is compatible with the pump and VFD provided in other Articles. If there are motor specifications in this article that exceed the pump and VFD requirements, manufacturer and contractor shall provide and meet the most stringent requirement.
- C. Motor shall be commissioned with the pump and VFD as a system. A field service engineer that has been factory certified by the supplied pump, motor, and VFD manufacturer shall be responsible for commissioning and testing these equipment. Field Service engineer qualifications shall be submitted and approved by District.

**ADD** New Paragraph 3.02 COMMISSIONING AND TESTING

3.02 COMMISSIONING AND TESTING

- A. Commissioning and testing shall be performed by the field service engineer.
- B. Commissioning and testing shall be conducted for the motor; however complete commissioning and testing shall be performed as a system assembly with the motor, pump, and VFD.
- C. Field Service Engineer shall interpret and submit field reports. Field Service Engineer shall also certify the system is ready for service.

**Article 36.43 Adjustable Speed Drives**

1.03 SUBMITTALS

**ADD** New Paragraph B.

- B. Provide Factory Certification of Field Service Engineer

**ADD** New Paragraph 1.11 - SPECIAL CONDITIONS

1.11 SPECIAL CONDITIONS

- A. Adjustable Speed Drive (VFD or ASD) is part of Pump, Motor, and VFD Assembly. ASD shall comply with the requirements of this Article as well as the Article 34.01 and Article 36.37.
- B. Pump manufacturer shall be responsible for ensuring that ASD provided in this Article is compatible with the pump and motor provided in other Articles. If there are ASD specifications in this article that exceed the pump and motor requirements, manufacturer and contractor shall provide and meet the most stringent requirement.
- C. VFD shall be commissioned with the pump and motor as a system. A field service engineer that has been is factory certified by the supplied pump, motor, and VFD manufacturer shall be responsible for commissioning and testing these equipment. Field Service engineer qualifications shall be submitted and approved by District.

**ADD** New Paragraph 3.06 Commissioning and Testing

3.06 COMMISSIONING AND TESTING

- A. Commissioning and Testing shall be performed by the field service engineer.
- B. Commissioning and testing shall be conducted for the ASD; however complete commissioning and testing shall be performed as a system assembly with the motor, pump, and ASD.
- C. Field Service Engineer shall interpret and submit field reports. Field Service Engineer shall also certify the system is ready for service.

## Article 37.01 General Instrumentation and Controls Requirements

1.01.D.4. **ADD** to end of sentence:

“per specification Articles 37.10 & 37.11.”

1.01.D.5. **REPLACE** sentence with:

“A color laser printer for printing the reports, workstation screen displays, PLC & OIT configurations, etc.”

3.02.B.1.a.2.(d) **ADD** to end of sentence:

“and the redundant communication functions.”

### Article 37.01.01. Process Control Description

3.01 SYSTEM OVERVIEW

**REPLACE** Paragraph A. with:

“A. The pump station has two pumps driven by 7.5 hp motors with AC variable frequency drives.”

3.02.B. **REPLACE** Paragraph 5 with:

“5. The pump shall be commanded to start by the PLC digital output MD-901.”

3.03.A.2. **ADD** to the end of Paragraph:

“The lag pump shall not be started until the lead pump cannot maintain the efficient running operations.”

3.03.B.4. **ADD** to the end of Paragraph:

“The #4 pump shall not be started until the other pumps cannot maintain the efficient running operations.”

### Article 37.01.02. Instrument List

3.01. INSTRUMENT LIST

**REPLACE** table with ATTACHMENT 3

### Article 37.02. Control Panels, Enclosures, and Cabinets

2.02.A.2. **REPLACE** Paragraph b.8. with: ATTACHMENT 2 (same as “Article 36.25 Wires and Cables, 600 Volts and Below 3.02.B. Color Coding Table”)

### Article 37.05 Flow Instruments

2.02.D.1. **ADD** to the end of Paragraph:

“d. Badger M2000”

2.02.D.2. **ADD** to the end of Paragraph:

“f. Input power – 24 VDC”

2.02.D. **ADD** New Paragraph 8:

“8. HART communication protocol shall be included.”

### Article 37.06 Pressure Instruments

2.02.C. **ADD** New Paragraph 11:

“11. HART communication protocol shall be included.”

### Article 37.10 Supervisory Control and Data Acquisitions

2.02.B. **REPLACE** Paragraph with:

“B. The Contractor shall provide and install a workstation with the auxiliary devices and software:

1. A 27” Microsoft Windows based desktop workstation shall be provided with the required software for the PLC programming, OIT configuration, remote I/O configuration, testing, and troubleshooting the PLCs and other equipment specified under this Contract. All resident software shall be furnished and installed on the hard disk as a single user license transportable to another machine. The Contractor shall provide any additional components required (including cables, software drivers, and etc.) to use the computer for remote or local programming the PLC and the local control panel, training/demonstration tool and as described above. The computer shall include the following items as a minimum.

- a. CPU: Intel Core i7 series processor, Quad Core, 3.7 GHz
- b. Cache: 6 MB L2 Minimum
- c. RAM: 8 GB RAM DDR3 1600 MHz Dual Channel.
- d. Pointing device: Optical wireless mouse with USB adapter.
- e. One 15 pin video and S-Video out connector
- f. Display: 27" Wide Screen, 16:9 aspect ratio, 1920x1080 resolution
- g. Hard Drive: 500 GB SATA Hard Drive



- h. Optical Drive: DVD+/-RW Drive capable of burning 25 GB capacity Blu-ray disc.
- i. Network Interface: One 10/100 PCI Ethernet Network Interface Card
- j. Wi-Fi Wireless Card: Dual band 802.16e and 802.11a/g/n wireless card
- k. Ports: One serial, and two USB minimum
- l. Operating System: Microsoft Windows, 64-bit version
- m. PLC & OIT Online and Offline programming software, cables and license: The latest version of Rockwell Software Studio 5000 Logix Designer and Rockwell Software FactoryTalk View ME Station
- n. Installed software: Microsoft Office and Adobe Acrobat: latest version
- o. Documentation: Manufacturer's standard user manuals and training CDs
- p. Warranty: 3 Yr Limited Manufacturer's warranty
- q. FCC certification: Class B.
- r. Manufacturer: Dell OptiPlex 7010 or equal.

2.02.C. **ADD** Paragraph:

"C. The Contractor shall provide a color laser printer for printing the reports, workstation screen displays, PLC & OIT configurations, etc.

1. A color laser printer with the required software capable to print reports with 8.5"x11" and 11"x17" size papers.
2. Manufacturer: HP LaserJet Pro M476dw Color Printer or equal."

### **Article 37.11 Programmable Logic Controller**

1.01.I. **REPLACE** Paragraph I. with:

"I. Use the software and hardware, including cables, mounting hardware, connectors, enclosures, racks, communication cable, splitters, terminators, and taps per the related specifications in Sections 36 and 37."

### **CONSTRUCTION MAP AND PLAN**

#### **DRAWINGS**

#### **Sheet TC-01:**

**Traffic Control Legend: ADD MUTCD Sign R4-7A, MUTCD Sign C20(CA) – Bike, and the MUTCD sign R13A(CA).**

**Traffic Control Legend: REMOVE** the word “Ahead” from Signs R9-11a (L) and R9-11a (R). Apply the change universally to signs R9-11a (L) and R9-11a (R) on all temporary traffic control drawings.

**Traffic Control Legend: REPLACE** “R4-7R” with “R4-7” on item number 17, and “R4-7L” with “R4-8” on item number 18.

**Traffic Control Legend: REPLACE** “W16-1P, W11-1” with “W11-1” on item number 29.

**Traffic Control Legend: ADD** Item number 30 next to the “Share the Road” sign with the title of “W16-1P”.

**Sheet TC-03:**

**REPLACE** Sheet TC-03 with revised Sheet TC-03 (ATTACHMENT 3).

**Sheet TC-04:**

**ADD** Sign W24-1L at the Southwest corner of the intersection of South Wolfe Road and East Evelyn Avenue facing in the Western direction.

**ADD** Sign W4-2 250 feet West of the C30(CA) sign along East Evelyn Avenue, then shift all other signs to the West of Sign W4-2 by 250 feet westward, starting from Sign W16-1P.

**EXTEND** the channelizing device taper ending near Station 15+20 northward to face of curb.

**Sheet TC-10:**

**ADD** a Sign “R4-7A” at Station 52+05 along the East end of the work zone facing in the Southern direction.

**Sheet TC-17:**

**ADD** a Sign “R4-7A” at Station 96+65 along the East end of the work zone facing in the Southern direction.

**Sheet TC-22:**

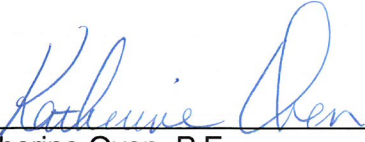
**ADD** a Sign “R13A(CA)” at Station 128+25 along the East end of the work zone facing in the Northern direction.

**Sheet TC-24:**

**ADD** a Sign “R13A(CA)” at Station 128+25 along the Western set of cones along South Wolfe Road facing in the Northern direction.

**REPLACE** sign label “R4-7L” with sign label “R4-8”.

THIS ADDENDUM NO. 1, WHICH CONTAINS 11 PAGES, 0 DRAWINGS, AND 3 ATTACHMENTS, IS ATTACHED TO AND IS A PART OF THE SPECIFICATIONS AND CONTRACT DOCUMENTS FOR THIS PROJECT.



Katherine Owen, P.E.  
Deputy Operating Officer  
Water Utility Capital Division

Date: 11/25/2015

Enclosure(s):

- Attachment 1 Article 35.02 Paints
- Attachment 2 Color Coding Tables
- Attachment 3 Article 37.01.02. Instrument List

**PART 1 GENERAL**

1.01 SUMMARY

- A. This Article includes provisions for the painting and coating of interior and exterior surfaces of the Pre-Engineered building. Painting of valves, piping or pumping equipment in the interior of the building is provided in Article 28.05.
- B. Section Includes:
  - 1. Painting for all new surfaces whether or not colors are designated in “schedules,” except where a surface or material is specifically indicated not to be painted or is to remain natural. Surfaces to be painted include, but are not limited to:
    - a. Exterior and interior walls of the Pre-engineered building and ceilings of new structures (except where factory finish color selection is acceptable).
    - b. Doors, louvers (except where factory finish color selection is acceptable).
    - c. All equipment (except where factory finish color selection is acceptable).
    - d. Supports, pedestals, equipment screens, pipe supports and bollards.
    - e. Exposed structural steel.
    - f. Miscellaneous metals, rain water leaders, downspouts, and exposed flashing.
    - g. Exposed ductwork.
    - h. Overhead rollup doors (except where factory finish color selection is acceptable).
    - i. Any aluminum to be embedded in or in contact with concrete or masonry shall be coated to prevent electrolysis.
    - j. Touch-up of damaged coatings.
    - k. Minor items where they are mounted on a painted surface.
  - 2. Surfaces not required to be painted:

- a. Any piping, valves and equipment inside the building that is already covered in Article 28.05.
  - b. Stainless steel.
  - c. Brass, bronze or copper.
  - d. Finish hardware, except door closers that are not stainless steel.
  - e. Portions of metal, other than aluminum, embedded in concrete. This does not apply to the back face of items mounted in concrete or masonry surfaces which shall be painted before erection.
  - f. Concrete surfaces.
  - g. Aluminum gratings, ladders and checker plates.
  - h. Electrical conduits, junction boxes, fittings, devices and appurtenances.
  - i. Electrical and instrumentation panels that have an acceptable factory finish.
  - j. Instrumentation devices.
3. The Contractor shall take whatever precautions are necessary to minimize the effects of the painting process in the adjacent property including dust from abrasive blasting or the spilling of chemicals (solvents, thinners, paints).

#### 1.02 RELATED SECTIONS:

- A. Article 35.06—Structural Steel.
- B. Article 35.11—Metal Roof.
- C. Article 35.20—Pre-Engineered Buildings.

#### REFERENCE STANDARDS

- D. 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.
- E. American Society for Testing and Materials (ASTM):
  1. ASTM D4417—Standard Method for Field Measurement of Surface Profile of Blast Cleaned Steel.
  2. ASTM D4258—Surface Cleaning Concrete for Coating.

3. ASTM D4259—Abrading Concrete.
  4. ASTM D4263—Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
  5. ASTM D4285—Indicating Oil or Water in Compressed Air.
- F. National Association of Corrosion Engineers (NACE):
1. RP-0188-88—Standard Recommended Practice for Discontinuity (Holiday) Testing of Protective Coatings.
- G. Steel Structures Painting Council (SSPC):
1. SSPC-SP-1—Solvent Cleaning.
  2. SSPC-SP-2—Hand Tool Cleaning.
  3. SSPC-SP-5—White Metal Blast Cleaning.
  4. SSPC-SP-6—Commercial Blast Cleaning.
  5. SSPC-SP-7—Brush Off Blast Cleaning.
  6. SSPC-SP-10—Near-White Blast Cleaning.
  7. SSPC-PA-2—Measurement of Dry Paint Thickness with Magnetic Gauges.
- H. Occupational Safety and Health Act (OSHA).

### 1.03 SUBMITTALS

- A. See Special Provisions Article 19.01 for requirements for the mechanics and administration of the submittal process.
- B. Provide documentation confirming application contractor compliance with qualifications requirements.
- C. Submit product data including manufacturer's specifications and data on the proposed paint systems and detailed surface preparation, application procedures and dry film thickness.
- D. Submit color cards, including standard and special colors, for initial color selections.
- E. Manufacturers Certification: That all products furnished meet applicable regulations for the local Air Resources Board or Air Quality management District having jurisdiction as to allowable VOC content for the place of application and use intended.

- F. Submit paint samples on 8 by 10-inch cards for preliminary and final selection.

#### 1.04 PRE-PAINTING CONFERENCE

- A. Well in advance of commencement of painting operations, but after required submittals are reviewed, one or more pre-painting conferences shall be held. All parties with an interest in the painting work shall attend including the Contractor, paint manufacturer representatives (if requested by the Engineer or Contractor), Engineer, and the painting subcontractor and his/her supervisor. The Contractor shall coordinate with the Engineer and shall contact each party and arrange the meeting(s).
- B. Each conference shall include an inspection of the areas to be painted by all parties and a discussion of the conformance of each area with the specifications. Important issues such as environmental conditions, climate control systems, original primer dry film thickness, and monitoring the number of coats that have been field applied shall be discussed and problems shall be resolved.
- C. A written record of each meeting shall be submitted to the Engineer by the Contractor.

#### 1.05 DELIVERY AND STORAGE

- A. Deliver all materials in unopened and unbroken containers with manufacturer's label. Label shall state VOC content.
- B. Store in assigned area. Maintain storage area clean and fire safe. Dispose of used rags and clean all buckets daily. Store solvents in closed approved storage containers.

#### 1.06 QUALITY ASSURANCE

- A. Qualifications
  - 1. The Application Contractor shall have a minimum of five (5) years experience in the successful application of similar products. Only skilled painters shall be used on the work and specialists shall be employed where required.
- B. Responsibilities
  - 1. All paints and application methods shall be compliant with the Bay Area Air Quality Management District regulations.
  - 2. Coatings and applications shall meet all federal, state and local regulations. Coatings and applications shall meet the requirement of the local hazardous material agencies.

**1.07 MEASUREMENT AND PAYMENT**

- A. Compensation shall be included in the Contract prices of the various items of work requiring paints.
- B. Painting shall be considered incidental to the item of work requiring payment and therefore, no measurement will be made. Refer to Article 20.01, Schedule of Bid Items.

**1.08 TOUCH-UP PAINT**

- A. Provide one gallon of each type of finish paint type and color in a new paint container, labeled with the contents, manufacturer, and color tints used in this Work.

**PART 2 PRODUCTS****2.01 COLORS**

- A. All colors will be selected by the Engineer from standard and custom color charts and samples submitted by the Contractor.
- B. Selected colors will include "deep colors" for up to approximately 15 percent of the painted surfaces. If deep colors are not available in a specified product, another appropriate formulation shall be provided by the Contractor.

**2.02 MATERIALS**

- A. Coatings shall be of a premium grade and the type recommended by the manufacturer for the intended use and substrate. Expected service life is a minimum of 15 years.
- B. If the Contractor applies any coatings for which it has not submitted certificates indicating the VOC content and that the product complies with applicable Air Quality Management District regulations, or applies coatings that have been modified or thinned other than as recommended by the manufacturer, the Contractor shall be responsible for any fines, costs, remedies, or legal actions that may result.
- C. All painting materials shall show the manufacturer's brand, date of manufacture and name. They shall be used without adulteration and mixed, thinned, and applied in strict accordance with manufacturer's directions for the applicable materials and surface and with the Engineer's approval before using. A Product Data Sheet and Material Safety Data Sheet for all coating, activators, thinners, accelerators and other materials shall be obtained from the manufacturer for each shipment of materials to the job site.
- D. Compatibility: Shop priming shall be done with primers that are guaranteed by the manufacturer to be compatible with the finish paints to be used. Thinning or



reducing the paint shall be completed in accordance with the coating manufacturer's recommendations.

- E. No paint containing lead or asbestos will be allowed. Oil shall be pure boiled linseed oil.

### 2.03 SPECIALTY COATINGS: PRIMERS, STAINS, SEALERS AND CLEARS

- A. Products and makers listed establish type of material and level of quality. Equivalent products manufactured by Dunn Edwards, ICI Dulux Paint Stores, Sherwin-Williams, Carboline, Ameron, Tnemec, or equal may be submitted for review.
- B. Specialty Coatings: Coatings listed under this category include primers, sealers, stains and clear coatings. All products provided shall comply with the maximum allowable VOC limit assigned to that category of product by the Air Quality Management District having
  1. Alkyd Rust Inhibiting Primer: Solvent thinned, oxide red primer Maximum allowable VOC limit 350, ICI Rust Guard 4150, Sherwin-Williams Kromik Metal Primer E41N1, Valspar 13-R-49 Intermediate Field Coat Primer, or equal.
  2. Alkyd Phenolic Galvanized Metal Primer: Solvent thinned, alkyd phenolic galvanized metal primer. Maximum allowable VOC limit 350, XIM Gutter Primer, Tnemec 90-97, Universal Alkyd Metal Primer, ICI Ultra-Hide 4160, or equal.
  3. PVA Sealer: Latex (P.V.A.) Sealer for interior gypsum wallboard. Maximum allowable VOC limit 350. PVA Wall Primer Sealer Ultra-Hide No. 1030, Sherwin-Williams, or equal.
  4. Latex Block Filler: A heavy bodied latex filler for use on interior and exterior porous concrete block masonry and concrete. Maximum allowable VOC limit 250, ICI Interior/Exterior Acrylic Block Filler, Bloxfill No. 4000, Sherwin-Williams, or equal.
  5. Penetrating Oil Stain: Colorfast pigments dispersed in oil. Maximum allowable VOC limit 350. Use a wood filler on open-grained woods. Use Benheim, or equal, shading stain when necessary to blend contrasting sap wood or wild grain. ICI Dulux Interior Solventborne Wood Finish Stain, Woodpride No. 1700, Flecto Penetrating Oil Stain, Sherwin-Williams, or equal.
  6. Wood Filler: Minwax Paste Wood Filler, Pratt and Lambert Wood Filler, Sherwin-Williams Wood Filler, or equal.
  7. Satin Polyurethane Varnish: Maximum allowable VOC limit 350. ICI Dulux Interior Waterborne Aquacrylic Gloss Varnish Woodbridge No. 1808, No. 1802 (Lower VOC), Flecto Varthane, Sherwin-Williams, or equal.

8. Aluminum Isolation from Concrete: A high build polyamide epoxy with chemical and abrasion resistance. Sherwin Williams Macropoxy 646, Ameron Amercoat 351, Tnemec Epoxoline 80, or equal.

#### 2.04 ARCHITECTURAL COATINGS

- A. Coatings listed under this category consist of decorative and protective coatings used to protect surfaces and provide color for buildings and other non-process structures. Conduits are painted with walls and ceilings when surface mounted. All piping is painted in accordance with Article 28.05.
- B. Products and makers listed in the architectural painting schedule establish the type of material and level of quality. Equivalent products manufactured by Dunn Edwards, Glidden, Sherwin-Williams, ICI Dulux, Devoe Coatings, or equal may be submitted for review. Provide primer and filler as recommended by the coating manufacturer for product and substrate.

### PART 3 EXECUTION

#### 3.01 PREPARATION OF SURFACES

- A. Check that hardware, trim, plates, lighting fixtures covers and similar items have been removed before starting work; coordinate with work under sections installing such items. Check that equipment adjacent to walls shall be disconnected and moved to permit wall surfaces to be painted before starting work under this Section.
- B. Prepare surfaces to be painted in accordance with the manufacturer's requirements.
- C. Wash all metal surfaces with solvent or cleaner to remove dirt or grease, and clean off rust or scale with wire brush or sand paper.
- D. Bare or Shop Coated Steel: Remove rust and scale by wire brushing or sandblasting; wash with solvent or cleaner.
- E. Galvanized Steel: Etch with phosphoric solution such as Galvaprime, Galva-prep, or equal; flush surface clean with water and allow drying.
- F. Examine areas to receive work of this Section. Make certain that surfaces are even, smooth, sound, clean, dry, and free from defects or substances that might affect application.
- G. Arrange for repairs or major cleaning as required. Starting work indicates acceptance of surfaces as satisfactory to achieve required result.
- H. Prepare all surfaces in accordance with the more stringent of the coating material manufacturer's recommendations, other requirements in this Paragraph 3.02 or referenced or applicable requirements for surface preparation in the SSPC Steel Structures Painting Manual, Volume 2, and summarized below:

1. SSPC-SP1: Solvent Cleaning: Removal of all oil, grease, soil, drawing compound, cutting compound and other soluble contaminants from the surfaces with solvents and/or commercial cleaners by wiping, dipping, steam cleaning, or vapor degreasing.
  2. SSPC-SP2: Hand Tool Cleaning: Removal of all loose mill scale, rust, paint and other loose detrimental foreign matter by the use of non-powered hand tools.
  3. SSPC-SP3: Power Tool Cleaning: Removal of all loose mill scale, rust, paint, and other loose detrimental foreign matter by the use of power-operated portable tools.
  4. SSPC- SP6: Commercial Blast Cleaning: Removal of all oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter by compressed air nozzle blasting, centrifugal wheels or other required methods.
  5. Remaining discoloration stains shall not exceed 33-1/3% of each square inch of surface.
  6. SSPC-SP7: Brush-Off Blast Cleaning: Removal of all oil, grease, dirt, dust, loose-mill scale and loose paint by compressed air nozzle blasting, centrifugal wheels or other required means.
  7. SSPC-SP10: Near-white Blast Cleaning.
  8. SSPC-SP13: Surface preparation of concrete.
- I. Dust all surfaces and wipe clean with a tack cloth just prior to coating

### 3.02 WORKMANSHIP

#### A. General

1. Primer (spot) and paint used for a particular surface shall, in general, be as scheduled for that type of new surface. Confirm with the paint manufacturer that the paint proposed for a particular repair condition will be compatible with the existing painted surface. Sample repainted areas on the actual site will be required to ensure this compatibility. Finished repainted areas shall be covered by the same guarantee specified for remainder of work.
2. Protection of furniture and other movable objects, equipment, fittings and accessories shall be provided throughout the painting operations. Canopies of lighting fixtures shall be loosened and removed from contact with surface, covered and protected and reset upon completion. Remove all electric plates, surface hardware, etc., before painting, protect and replace when completed. Mask all machinery name plates and all machined parts not receiving a paint finish. Dripped or spattered paint

shall be promptly removed. Lay drop cloths in all areas where painting is being done to adequately protect flooring and other work from all damage during the operation and until the finished job is accepted.

3. The Contractor identified work areas for storage and mixing of all painting materials shall be subject to review and approval by the Engineer. Materials shall be in full compliance with the requirements of pertinent codes and fire regulations. Proper containers outside of the buildings shall be provided and used for painting wastes and no plumbing fixture shall be used for this purpose.
4. On metal surfaces coating thickness shall be determined with magnetic dry film thickness gauge calibrated in accordance with SSPC-PA-2. The number of readings will be a minimum of that stated in SSPC-PA-2. Deficiencies in film thickness shall be corrected by the application of an additional coat(s). On masonry, application rates will vary according to surface texture, however, in no case shall the manufacturer's stated coverage rate be exceeded. On porous surfaces, it shall be the painter's responsibility to achieve a protective and decorative finish either by decreasing the coverage rate or by applying additional coats of paint.

B. Field Priming

1. Steel members, metal castings, mechanical and electrical equipment and other metals which are shop primed before delivery at the site will not require a prime coat on the job.
2. Equipment which is customarily shipped with a baked-on enamel finish or with a standard factory finish shall normally be field painted unless the prefinished equipment is specifically color selected and unless the finish has not been damaged in transit or during installation. Surfaces that have been shop painted and have been damaged or where the shop coats have deteriorated, shall be properly cleaned and retouched before any successive painting is done in the field. All such field painting shall match as nearly as possible the original finish.

C. Field Painting

1. All painting at the site shall be designated as Field Painting.
2. All paint shall be at room temperature before applying and no painting shall be done when the temperature is below 50 degrees F, in dust-laden air, when rain or snow is falling, or until all traces of moisture have completely disappeared from the surface to be painted. Coatings shall not be applied unless the temperature of the surface being coated is, and remains, at least 5 degrees F above the dew point until the coating is dry "to touch." Relative humidity shall be less than 85 percent during application.

3. Corners, sharp edges and welds shall be stripped (an additional coat by brush) prior to application of the specified coat. Coating used for stripping shall be the same as that specified for the coat to be applied.
4. Successive coats of paint shall be tinted so as to make each coat easily distinguishable from each other with the final undercoat tinted to the approximate shade of the finished coat.
5. Finish surfaces shall not show brush marks, lap marks or roller marks, or other irregularities. Undercoats shall be thoroughly and uniformly sanded with No. 00 sandpaper or equal to remove defects and provide a smooth even surface. Top and bottom edges of doors shall be painted and all exterior trim shall be back-primed before installation.
6. Painting shall be continuous and shall be accomplished in an orderly manner so as to facilitate inspection. All exterior concrete and masonry painting shall be performed in one continuous manner structure by structure. Materials subject to weathering shall be prime coated as quickly as possible. Surfaces of exposed members that will be inaccessible after erection shall be cleaned and painted before erection.
7. All materials shall be applied by spray unless otherwise directed by the Engineer. The Contractor shall be responsible for all damage caused by overspray or drifting. On concrete or masonry, back-rolling after spraying shall be undertaken immediately following each coat to assure that all voids and holes are wet out and fully coated. Back-rolling may be deleted from the final coat if the test panel indicates that the prior coats followed by back-rolling is sufficient to provide a continuous coating without pinholes.
8. All surfaces to be painted as well as the atmosphere in which painting is to be done shall be kept warm and dry by heating and ventilation, if necessary, until each coat of paint has hardened. Any defective paint shall be removed and repainted in accordance with the requirements of the paint manufacturer.
9. Determine coating integrity in accordance with NACE RP-0188-88 using the low voltage wet sponge test method. All holidays will be clearly marked for repair.
10. Before final acceptance of the work, all damaged surfaces of paint shall be cleaned and repainted. Completed work shall be free from runs, drips, sags, holidays, voids and other imperfections. Finish coats shall provide complete hiding and uniform color. All defective work shall be corrected by the Contractor or applicator at no cost to the District.
11. Damaged coatings, pinholes and holidays shall be feather-edged and repaired in accordance with recommendations of the paint manufacturer.

12. Multiple coats may be required to obtain the minimum required paint thickness, depending on method of application, difference in manufacturer's products and atmospheric conditions.

### 3.03 ENVIRONMENTAL REQUIREMENTS

#### A. Climate Control:

1. The Contractor shall provide and install all necessary equipment and temporary power to provide a controlled environment for the application of the painting/coating system in accordance with the manufacturer's recommendations. This may include, but not be limited to, temporary enclosure, ventilation, heating, dehumidification, and the associated equipment for monitoring the environment during painting/coating operations. No time extensions will be allowed for delays resulting from not having appropriate weather protection and climate controls.

#### B. Noise:

1. All mobile or fixed noise producing machinery and equipment, including "package" equipment such as fans, air compressors, electrical generators, electrical operators and the like, shall be suitably housed, enclosed, shielded, equipped with noise control features, or muffled to not exceed the maximum noise levels per Article 17.03.01.

#### C. Tenting (if required):

1. The tenting materials shall protect the painting/coating application from rain and moisture (in conjunction with the physical features of the structures to be coated). Tenting shall allow climate control equipment to maintain an atmosphere for continued application of the painting/coating materials during wet weather conditions.
2. Tenting materials shall consist of waterproof protective material, frames, and associated anchoring devices, openings to allow ingress and egress of persons, equipment, and ventilation, ropes, and any other materials required to provide the level of protection to the work area as indicated in the Specifications.
3. Tenting shall be placed so that the tank being insulated will be entirely protected during the duration of the painting/coating operation.
4. Tenting shall be placed so that the adjacent structures shall be protected from potential contamination from painting/coating operations.
5. Tents must be trussed and anchored to withstand storms anticipated during the specified work periods.

#### D. All adjacent surfaces shall be protected from painting/coating operations.

## 3.04 INSPECTION AND TESTING

- A. All inspection and testing shall be witnessed by the Engineer.
- B. All materials and work (coating and surface preparation) shall be accessible for inspection.
- C. The completed work shall be inspected visually for skips, holidays, hiding, uniform color and appearance, and other imperfections. All defective work shall be corrected by the Contractor at no cost to the District.
- D. Determine coating thickness on steel in accordance with SSPC-PA-2. The number of readings will be a minimum of that stated in SSPC-PA-2.
- E. Determine coating integrity for coatings in immersion areas or subjected to splash and spillage in accordance with NACE RP0188-88 "Standard Recommended Practice for Discontinuity (Holiday) Testing of Protective Coatings" using the low voltage wet sponge test method. All holidays will be clearly marked for repair.
- F. The contractor shall furnish and use following test equipment (for painting):
  - 1. Wet film thickness gauge.
  - 2. Dry film thickness gauge (with certified thickness calibrator) equal to Mikrotest III, Elcometer Inspector III, or Positest.
  - 3. Holiday Detector. Low voltage type such as Tinker & Razor Model M-1, Series 9533.
  - 4. SSPC VIS-1-67T Pictorial Surface Preparation Standard.
  - 5. Keane-Tator Surface Comparator Number 372 or equal.
  - 6. Sling Psychrometer.
  - 7. Surface moisture metering device equal to Delmhors Model DB.

## 3.05 CLEANUP

- A. The premises shall at all times be kept free from accumulation of waste material and rubbish caused by employees or work. At the completion of the painting remove all tools, scaffolding, surplus materials and all rubbish from and about the buildings and leave work "broom clean" unless more exactly specified.
- B. Upon completion, remove all paint where it has been spilled, splashed, or splattered on all surfaces, including floors, fixtures, equipment, etc., leaving the work ready for inspection.

END OF ARTICLE

ATTACHMENT 2  
 Article 36.25 Paragraph 3.02.B &  
 Article 37.02 Paragraph 2.02.A.2.b.8

B. Color Coding Table

<b>System</b>	<b>Wire</b>	<b>Color</b>
240/120 Volts Single-phase, three-wire	Neutral Line 1 Line 2	White Black Red
208Y/120 Volts Three-phase, four-wire	Neutral Phase A Phase B Phase C	White Black Red Blue
480Y/277 Volts Three-phase, four-wire	Neutral Phase A Phase B Phase C	White Brown Orange Yellow

<b>System</b>	<b>Color</b>
Equipment Grounding Cables	Green
General Purpose AC Control Cables	Red
Discrete AC Cables at I/O Cards	Brown
General Purpose DC Control Cables	Blue
Discrete DC Cables at I/O Cards	Violet
Instrumentation Cables	Black/White
Externally-Fed Control Cables (Interlocks)	Yellow



3.01. INSTRUMENT LIST

Tag No.	Description	P&ID	Specification	Range	Remarks
PIT-102	Outlet Pressure Transmitter	I-2	37.06	0-160 psig	To be provided in the future project
PIT-103	Service Pressure Transmitter	I-2	37.06	0-120 psig	4-20 mA loop power
PIT-104	Pump No.1 Suction Pressure Transmitter	I-2	37.06	0-120 psig	4-20 mA loop power
PIT-105	Pump No.1 Discharge Pressure Transmitter	I-2	37.06	0-160 psig	4-20 mA loop power
PIT-106	Pump No.2 Suction Pressure Transmitter	I-2	37.06	0-120 psig	4-20 mA loop power
PIT-107	Pump No.2 Discharge Pressure Transmitter	I-2	37.06	0-160 psig	4-20 mA loop power
PIT-108	Pump No.3 Suction Pressure Transmitter	I-2	37.06	0-120 psig	To be provided in the future project
PIT-109	Pump No.3 Discharge Pressure Transmitter	I-2	37.06	0-160 psig	To be provided in the future project
PIT-110	Pump No.4 Suction Pressure Transmitter	I-2	37.06	0-120 psig	To be provided in the future project
PIT-111	Pump No.4 Discharge Pressure Transmitter	I-2	37.06	0-160 psig	To be provided in the future project
FE-302	Outlet Flowmeter	I-2	37.05	0-300 gpm	To be provided in the future project
FIT-302	Outlet Flow Transmitter	I-2	37.05	0-300 gpm	To be provided in the future project
FE-303	Service Flowmeter	I-2	37.05	0-300 gpm	To be provided in the future project
FIT-303	Service Flow Transmitter	I-2	37.05	0-300 gpm	To be provided in the future project
FE-304	Pump No. 1 Discharge Flowmeter	I-2	37.05	0-300 gpm	
FIT-304	Pump No. 1 Discharge Flow Transmitter	I-2	37.05	0-300 gpm	24VDC power, 4-20 mA output
FE-305	Pump No. 2 Discharge Flowmeter	I-2	37.05	0-300 gpm	
FIT-305	Pump No. 2 Discharge Flow Transmitter	I-2	37.05	0-300 gpm	24VDC power, 4-20 mA output
FE-306	Pump No. 3 Discharge Flowmeter	I-2	37.05	0-300 gpm	To be provided in the future project
FIT-306	Pump No. 3 Discharge Flow Transmitter	I-2	37.05	0-300 gpm	To be provided in the future project
FE-307	Pump No. 4 Discharge Flowmeter	I-2	37.05	0-300 gpm	To be provided in the future project
FIT-307	Pump No. 4 Discharge Flow Transmitter	I-2	37.05	0-300 gpm	To be provided in the future project