To: All Plan Holders of Record

From: Verdantas LLC
For the Owner

Re: ***Addendum No. 1***
Water Treatment Plant Solids Handling Bldg. Improvements
City of Wheeling, WV

Date: November 6, 2026

This Addendum forms a part of the contract documents and modifies the original bidding documents dated October 2026 and all previous addenda, if any. Acknowledge receipt of this addendum in the space provided in the bid forms. Failure to do so may subject the bidder to disqualification.

PRE-BID MEETING

The combined Sluice Gate and Sludge Dewatering Pre-Bid Meeting Minutes and Sign-in Sheet are attached.

OPINION OF PROBABLE CONSTRUCTION COST

The Opinion of Probable Construction Cost as published in the Legal Notice shall be changed from $2,011,700.00 to $2,009,000.00.

PLANS

DRAWING 20D-01 – SLUDGE DEWATERING BLDG. UPPER PLAN DEMOLITION

REPLACE the note:

"CONTRACTOR TO REMOVE THE WINDOW TO FACILITATE DEMOLITION OF EXISTING BELT PRESS AND INSTALLATION OF THE NEW SCREW PRESS" with the following language:

"THE CONTRACTOR SHALL REMOVE THE EXISTING EAST WINDOW IN THE FILTER PRESS ROOM AS REQUIRED TO FACILITATE DEMOLITION OF THE EXISTING BELT FILTER PRESSES AND INSTALLATION OF THE NEW SCREW PRESS. PROTECT THE WINDOW FROM DAMAGE DURING REMOVAL, STORAGE, AND REINSTALLATION. UPON COMPLETION OF THE EQUIPMENT INSTALLATION, REINSTALL THE EXISTING WINDOW. IF THE WINDOW IS DAMAGED, REPLACE IT IN KIND WITH A NEW WINDOW AT NO ADDITIONAL COST TO THE OWNER."

ADD NOTE:

"THE CONTRACTOR SHALL REMOVE THE EXISTING SOUTH WINDOW IN THE GRAVITY THICKENER ROOM AS REQUIRED TO FACILITATE DEMOLITION OF THE

EXISTING GRAVITY THICKENER MECHANISMS AND INSTALLATION OF THE NEW MECHANISMS. PROTECT THE WINDOW FROM DAMAGE DURING REMOVAL, STORAGE, AND REINSTALLATION. UPON COMPLETION OF THE EQUIPMENT INSTALLATION, REINSTALL THE EXISTING WINDOW. IF THE WINDOW IS DAMAGED, REPLACE IT IN KIND WITH A NEW WINDOW AT NO ADDITIONAL COST TO THE OWNER."

DRAWING 20D-05 – SLUDGE DEWATERING BLDG. UPPER PLAN NEW EQUIPMENT LAYOUT

ADD NOTE:

"THE CONTRACTOR SHALL REMOVE THE EXISTING EAST WINDOW IN THE BELT FILTER PRESS ROOM AS REQUIRED TO FACILITATE DEMOLITION OF THE EXISTING BELT FILTER PRESSES AND INSTALLATION OF THE NEW SCREW PRESS. PROTECT THE WINDOW FROM DAMAGE DURING REMOVAL, STORAGE, AND REINSTALLATION. UPON COMPLETION OF THE EQUIPMENT INSTALLATION, REINSTALL THE EXISTING WINDOW. IF THE WINDOW IS DAMAGED, REPLACE IT IN KIND WITH A NEW WINDOW AT NO ADDITIONAL COST TO THE OWNER."

ADD NOTE:

"THE CONTRACTOR SHALL REMOVE THE EXISTING SOUTH WINDOW IN THE GRAVITY THICKENER ROOM AS REQUIRED TO FACILITATE DEMOLITION OF THE EXISTING GRAVITY THICKENER MECHANISMS AND INSTALLATION OF THE NEW MECHANISMS. PROTECT THE WINDOW FROM DAMAGE DURING REMOVAL, STORAGE, AND REINSTALLATION. UPON COMPLETION OF THE EQUIPMENT INSTALLATION, REINSTALL THE EXISTING WINDOW. IF THE WINDOW IS DAMAGED, REPLACE IT IN KIND WITH A NEW WINDOW AT NO ADDITIONAL COST TO THE OWNER."

DRAWING 20D-08 – SLUDGE DEWATERING BLDG. NEW EQUIPMENT SECTIONS E, F

SLUDGE FEED LINE AND FLOW METER

The proposed flow meter shown on Sheet 14, Drawing 20D-08 shall be a 3" Flow Meter with a 4"x 3" reducer out of the operating floor prior to the 3" flow meter.

SPECIFICATIONS

ADD the following Specifications Sections:

099100 – PIPE PAINTING AND SPECIAL COATINGS
330505.30 – LEAKAGE TESTING
330519 – DUCTILE IRON PIPE
330531.19 – PVC PIPE (ASTM 1785)

CLARIFICATIONS

Structural Capacity of Catwalk in Gravity Thickener Room:

Based on review of the as-built drawings, the longitudinal C10×15.3 steel catwalk beams have an estimated allowable live-load capacity of 70 psf, with beam bending controlling. The connections of the C10 beams to the wall and/or C12 support beams appear adequate for this loading.

The drawings identify the walkway grating only as 2-inch aluminum grating. No manufacturer, section properties, span rating, or allowable load information was identified; therefore, the grating capacity cannot be verified. Similarly, the available information is insufficient to verify the bearing/support capacity at the C12 beams and tank structure.

Accordingly, the 70 psf allowable live load applies only to the C10×15.3 catwalk beams and should not be interpreted as the allowable capacity of the complete catwalk assembly. The overall catwalk capacity may be governed by the aluminum grating or its supporting/bearing components, whose capacities remain undetermined.

For construction shoring design, the Contractor may use an estimated catwalk dead load of 22 psf. This value represents the estimated self-weight of the existing catwalk assembly and is not an allowable superimposed construction load. Note that shoring load should be provide in the construction documents for the contractor's shoring engineer.

Equipment Supply Responsibility:

The pumps, polymer skid, and flowmeter are to be furnished by the screw press manufacturer as a single package as per specifications. Contractor is to verify that all equipment submitted matches the required plans and specifications.

DB/MS:mep

Enclosures

Z:\Project Files\WA-XZ\Wheelingwater\34141 - Wheeling-WTP Sludge Dewatering\Working\Bid Documents\Addenda\Addendum 01\Addendum 01.Doc

Meeting Minutes

To: **Attendees**

Subject: ***Wheeling Water Treatment Plant***
Combined Settling Tank Sluice Gate Replacement & Solids Handling Bldg. Improvements Pre-Bid

Date: **November 3, 2026**

The agenda for the Pre-bid Conference scheduled for **November 3, 2026 at 10:00 a.m**. at the City of Wheeling Water Department Conference Room is as follows:

- Sign-In Sheet
- Introductions
- Introduction of the Project
- Question and Answers – Note all answers to question are only made final when documented by addendum.

Project Overview:

Settling Tank Sluice Gate Replacement

The City of Wheeling WTP requires replacement of the existing effluent sluice gate for Settling Basin No. 1 (South Tank). The existing gate has experienced leakage and is no longer capable of providing adequate flow regulation or positive isolation of the basin.

The Project also includes furnishing and installing a bulkhead in the effluent channel of Settling Basin No. 1 to isolate the portion of the channel located south of the drop structure. The bulkhead is intended to prevent water from occupying the full channel length and to mitigate leakage occurring along the common wall shared with the Blower Building. The Work includes furnishing and installing temporary bulkheads for concrete placement and completely filling the existing effluent conduit with concrete, including all associated labor, materials, equipment, placement, and incidental work as shown on the Drawings

Sealed bids will be received by the City of Wheeling, WV at the office of the City Manager, 1500 Chapline Street, Wheeling, WV 26003 until **2:00 November 12, 2026 (will be changed via Addendum 01)** will be opened and read immediately thereafter.

Addendum 01 will be issued changing the Opinion of Probable Construction cost from $2,011,700.00 to $211,700.00 and changing the bid time from 2:30 to 2:00.

Project includes but is not limited to:

The Work under this Contract includes, but is not limited to:

- Purchase and Installation of all equipment and accessories
- Structural modifications and supports (if any) required for installation

Project is locally funded and NOT subject to BABAA requirements.

Client Specific Hot Points:

Construction Sequencing is critical for this project as the WTP cannot have a sustained shutdown. See Summary of work Specification 011100 1.5 SCHEDULES AND SEQUENCE OF CONSTRUCTION.

Discussion:

Settling Tank may only be shut down no longer than 8 hours at a time per SPEC 36428 1.7. CONTRACTOR USE OF SITE. Tanks will need to be refilled to allow the plant to catch up in water production. Coordination with the operator is required.

The settling tank may only be drained during non-freezing conditions.

Concrete bulkhead may be poured in separate pours. Only access is through the “drop shaft” where the existing gate is.

Existing Grating may be removed and replaced during construction.

Solids Handling Bldg. Improvements

The City of Wheeling WTP - Solids Handling Improvements Project consists of replacing the existing belt filter presses with new multi-disk screw presses, a polymer feed system, thickened sludge feed pumps, and replacing the collection mechanisms and other auxiliary equipment for the existing gravity thickener units.

The Work under this Contract includes, but is not limited to:

- Purchase and Installation of all equipment and accessories
- Structural modifications and supports (if any) required for installation
- Start-up and Commissioning of Equipment

Sealed bids will be received by the City of Wheeling, WV at the office of the City Manager until 2:30 p.m. November 12, 2026 and will be opened and read immediately thereafter.

Addendum 01 will be issued changing the Opinion of Probable Construction cost from $2,011,700.00 to $2,009,000.00

Client Specific Hot Points:

Construction Sequencing is critical for this project. See Summary of work Specification 011100 1.5 SCHEDULES AND SEQUENCE OF CONSTRUCTION.

Discussion:

Plant Operation typically press sludge twice per week. Follow Sequence of Construction Spec in 011100 for additional information.

No coating is required for the containment area

Existing Gravity Thickener Drive Head Assembly is 1270 lbs.

MEETING SIGN-IN: 38010 – ***Combined Wheeling Water Treatment Plant Settling Tank Sluice Gate and Sludge Bldg Improvements***
DATE: November 3, 2026

NAME	COMPANY (REPRESENTING)	ADDRESS	CITY	ZIP	EMAIL ADDRESS
David Harman	S.E.T	235 E Water St	Lowellville OH	44436	Dharman@SETinc.biz
Josh Leach	Lone Pine Construction	83 Lusk Rd	Bentleyville PA	15314	JRLEACH@LonePineConstruction.com
Anna Dickey	Lone Pine Construction	83 Lusk Rd	Bentleyville PA	15314	AnnaD@LonePineConstruction.com
John R Deitz	Grae-Con	880 Kingsdale Rd	Steubenville OH	43952	Jdeitz@graecon.com
Brent Adams	Grae-Con	880 Kingsdale Rd	Steubenville OH	43952	BAdams@graecon.com
Scott Antonik	Grae-Con	880 Kingsdale Rd	Steubenville OH	43952	SAntonik@graecon.com
Mike Rice	Wheeling Water	1551 Richland Ave	Wheeling WV	26003	MRice@WheelingWv.gov
Dan Barr	Verdantas	2001 Main St	Wheeling WV	26003	DBarr@verdantas.com
Lucas Skelly	Verdantas	2001 Main St	Wheeling WV	26003	LSkelly@verdantas.com

SECTION 099100 - PIPE PAINTING AND SPECIAL COATINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Work covered by this Section includes the furnishing and application of paints, stains, primers, varnishes, and other finish, decorative, and protective coatings.

B. Shop priming and factory pre-finishing are required on some, but not necessarily all, of the items described in other sections.

C. Extent of work:

1. All new process equipment and process piping.

2. All conduits, ducts, drains, etc. of other trades unless such product is deemed to have an acceptable factory pre-finish, under the following conditions:
   a. When specifically called out as requiring special coating protection.

1.2 DEFINITIONS

A. Special coating systems are defined as those types of materials and methods of application requiring more than normal skills and techniques for mixing, handling and application, as specified in the "Painting" section.

1. The term "special coating systems" as used in this section includes applied materials used in prime, intermediate and finish coats.

2. The word "paint", as applied in this and/or other Sections, shall apply to all special coatings required herein for the protection of materials from corrosive environments, weathering processes, or for aesthetic or other reasons.

3. The term "exposed surfaces" is defined to include areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, and similar components are in place in areas to be coated. Extend special coatings in these areas as required to maintain the coating system integrity and provide desired protection.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's technical information including basic materials analysis and application instructions for each coating material specified.

1. List each material and cross-reference to the specific coating and finish system and application. Identify each material by the manufacturer's catalog number and general classification.

2. In the event that the submittal requests a substitution, then the following ASTM test results from an independent test laboratory for the referenced products shall be included:

ASTM B 117 Salt Fog

ASTM D 3359 (Method A and B) Adhesion Test
ASTM G8, Method A Cathodic Disbondment
ASTM D 4541 (Elcometer)
ASTM D 4060 Taber Abrasion
ASTM D 522 (Conical Mandrel)
ASTM D 3363 Pencil Hardness
ASTM D 2794 Impact
ASTM G 53 QUV Exposure
ASTM D 2240 Durometer, Shore D
ASTM D 870 Immersion (Potable Water)
ASTM E 96 Moisture Vapor Transmission
ASTM D 2370 Tensile Strength and Elongation
ASTM D 638 Tear Strength

B. Manufacturer's representative color and texture sample cards shall be submitted to the Engineer at least 30 days prior to painting application. Contractor shall coordinate work so as to allow sufficient time for paint to be delivered to the job site.

1.4 QUALITY ASSURANCE

A. Single Source Responsibility: Provide primers and other undercoat material produced by the same manufacturer as the finish coats. Use only thinners recommended by the manufacturer, and only within recommended limits.

B. Coordination of Work: Review other sections of these specifications in which other coatings are to be provided to ensure compatibility of the total coating systems for various substrates.

1. Upon request, furnish information on the characteristics of pre-primed materials, to ensure that provisions for specified finish coats can be appropriately applied.

2. Notify the Engineer of any anticipated problems involved in using the coating systems as specified.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the job site in the manufacturer's original, new, unopened packages and containers bearing the manufacturer's name and label and the following information:

1. Name or title of material.

2. Federal Specification number, if applicable.

3. Manufacturer's stock number and date of manufacture.

4. Manufacturer's name.

5. Contents by volume, for major pigment and vehicle constituents.

6. Thinning instructions.

7. Application instructions.

8. Color name and number.

9. Handling instructions and precautions.

B. Store materials not in actual use in tightly covered containers at a minimum ambient temperature of 45 deg. F (7 deg. C) in a well-ventilated area. Maintain containers used in storage of coatings in a clean condition, free of foreign materials and residue.

1. Protect from freezing where necessary. Keep storage area neat and orderly. Remove oily rags and waste daily. Take all necessary precautionary measures to ensure that workmen and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing and application of stains.

C. No material shall be applied unless the containers are opened in the presence of the Owner’s Representative.

1.6 PROJECT CONDITIONS

A. Apply coatings only when the temperature of surfaces to be coated and surrounding air temperatures are above 45 deg. F (7 deg. C), unless otherwise permitted by manufacturer's printed instructions.

B. Do not apply coatings in snow, rain, fog or mist, or when the relative humidity exceeds 85%, or to damp or wet surfaces unless otherwise permitted by manufacturer's printed instructions. Allow wet surfaces to dry thoroughly and attain the temperature and conditions specified before proceeding with or continuing with the coating operation.

1. Work may continue during inclement weather only if areas and surfaces to be coated are enclosed, and the temperature within the area can be maintained within limits specified by the manufacturer during application and drying periods.

C. Report to a responsible person such as safety personnel, General Trades Superintendent, etc., any condition which may pose a threat to the health and welfare of employees.

D. Keep working area clean and safe.

E. Obey all job site rules and regulations.

F. Surfaces not to be painted unless specifically stated otherwise:

1. Face brick
2. Pre-finished wall panels, partitions and ceiling tile
3. Items with acceptable factory-applied final finish
4. Concealed ducts, pipes and conduit.
5. Glass, Aluminum, Copper, Bronze, Stainless Steel
6. PRODUCTS

1.7 MANUFACTURERS

A. A. Manufacturers: Subject to compliance with requirements, provide products of

one of the following:

1. Tnemec Company, Inc., North Kansas City, Missouri
2. Carboline Company, At. Louis, Missouri
3. Sherwin Williams Company, Cleveland, Ohio

B. Material Quality: Provide the best quality grade of the various types of coatings as regularly manufactured by acceptable coating manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

C. Proprietary names to designate colors or materials are not intended to imply that products of named manufacturers are required to the exclusion of equivalent products of other manufacturers.

D. Request for substitution shall include manufacturer's literature for each product giving the name, product number, generic type, descriptive information, solids by volume, recommended dry film thickness and certified test reports showing results to equal the performance criteria of the products listed herein.

1.8 COATING SYSTEMS

A. Ferrous Metal:

1. Non-Submerged, Interior Exposure
   Surface Preparation: SSPC-SP6 Commercial Blast

First Coat:	Tnemec Series N69 Hi-Build Epoxoline II @ 3.0-5.0 mils dry
	Carboline Carboguard 60 @ 3.0 - 5.0 DFT
	Sherwin Williams Macropoxy 646 at 3.0-5.0 mils DFT
Second Coat:	Tnemec Series N69 Hi-Build Epoxoline II @ 4.0-6.0 mils dry
	Carboline Carboguard 60 @ 4.0 - 6.0 DFT
	Sherwin-Williams Macropoxy 646 at 4.0-6.0 mils DFT

NOTE: If shop primed, field surface preparation for weld seams and abraded areas is SSPC-SP-10 and spot prime with Series N69 @ 3-5 mils dry or Carboline Carboguard 60 @ 3.0 - 5.0 DFT or Sherwin-Williams Macropoxy 646 at 3.0-5.0 mils DFT.

B. PVC Pipe

1. Non-Submerged, Interior Exposure

Surface Preparation:	Lightly sand
First Coat:	Tnemec Series N69 Hi-Build Epoxoline II @ 200 sq.ft. per gal.
	Carboline Carboguard 60 @ 200 sq. ft. per gal.
	Sherwin-Williams Macropoxy 646 at 200 sq ft per gal

1.9 COLOR CODING AND PROCESS SYSTEM IDENTIFICATION

A. The following color coding is suggested for wastewater transport and treatment systems. Color coding for processing piping, equipment, and appurtenances is a suggested system unless otherwise specified or requested by Owner. Final coding to

be determined in the field:

1. Equipment - light gray with O.S.H.A. orange coupling guards and O.S.H.A. yellow belt guards.
2. Pipe Supports - hangers to be the same color as piping applied, floor posts to be the same as adjacent wall color, and fabricated racks to be manufacturer's standard protective finish or paint same as adjacent wall color if not having a suitable protective finish.
3. Process piping-exposed interior or exterior:
   a. Submerged Pipe or Supports - Black
   b. Intermittently Submerged Metals - Black (unless piping as defined otherwise)
   c. Raw wastewater - Medium Grey*

   *These colors are recommended as standard by WEF.

B. Miscellaneous, non-process related items such as electrical conduit, ductwork, roof drains, etc. are to be properly prepped and finished to match adjacent wall or ceiling color.

1. In situations where two colors do not have sufficient contrast to easily differentiate between them, a six (6) inch band of contrasting color shall be on one of the pipes at approximately thirty (30) inch intervals.

1.10 SURFACE PREPARATION

A. General:

1. Dislodge dirt, rust, plaster nibs, mortar spatter, and other dry material by scraping or brushing. Remove dust and loose material by brushing, sweeping, vacuuming, or blowing with high-pressure air.
2. Remove oil, wax, and grease by scraping off heavy deposits and cleaning with mineral spirits or a hot trisodium phosphate solution followed by a water rinse.
3. Verify that surfaces to be coated are dry, clean, and free of dust, dirt, oil, wax, grease, or other contaminants.

B. Non-Ferrous Metal:

1. SSPC-SPI solvent cleaning to remove all contaminants.

C. Ferrous Metal:

1. Enclosed: Remove loose rust, mill scale, and other foreign matter by hand (SSPC-SP2) or power tool (SSPC-SP3) cleaning and apply specified coating before rusting occurs.
2. Non-Submerged, Architecturally Exposed: Society of Protective Coatings, SSPC-SP6 Commercial Blast.
3. Submerged Steel: Society of Protective Coatings, SSPC-SP10 Near White Blast.

PART 2 - EXECUTION

2.1 PRE-WORK INSPECTION

A. Examine surfaces to be coated and report conditions that would adversely affect appearance or performance of coating systems and which cannot be put into an acceptable condition by preparatory work specified in Paragraph 3.2.

B. Do not proceed with surface preparation and application until surface is acceptable or authorization to proceed is given by the Owner’s representative.

2.2 SURFACE PREPARATION

A. General:

1. Dislodge dirt, rust, plaster nibs, mortar spatter and other dry material by scraping or brushing. Remove dust and loose material by brushing, sweeping, vacuuming, or blowing with high-pressure air.

2. Remove oil, wax and grease by scraping off heavy deposits and cleaning with mineral spirits or a hot trisodium phosphate solution followed by a water rinse.

3. Verify that surfaces to be coated are dry, clean, and free of dust, dirt, oil, wax, grease, or other contaminants.

B. Non-Ferrous Metal:

1. SSPC-SPI solvent cleaning to remove all contaminants.

C. Ferrous Metal:

1. Enclosed: Remove loose rust, mill scale, and other foreign matters by hand (SSPC-SP2) or power tool (SSPC-SP3) cleaning and apply specified coating before rusting occurs.

2. Non-Submerged, Architecturally Exposed: Society of Protective Coatings, SSPC-SP6 Commercial Blast.

3. Submerged Steel: Society of Protective Coatings, SSPC-SP10 Near White Blast.

2.3 APPLICATION

A. General: Apply special coatings by brush, roller, spray, squeegee, or other applicators in accordance with the manufacturer's directions. Brushes best suited for the type of material being applied. Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.

1. Coating colors, surface treatments, and finishes are indicated in the "Schedules" of the contract documents.

2. Provide finish coats that are compatible with the primers used.

3. The number of coats and coating film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the coating manufacturer. Sand between coating applications where sanding is required to produce an even, smooth surface in accordance with the coating manufacturer's directions.

4. Coat surfaces behind movable equipment and furniture the same as similar exposed surfaces.

5. Coat the back sides of access panels, removable or hinged covers, and similar hinged items, to match exposed surfaces.

B. Minimum Coating Thickness: Apply each material at not thinner than the manufacturer's recommended spreading rate. Provide a total dry film thickness of the entire coating system as recommended by the manufacturer.

C. Prime Coats: Before the application of finish coats, apply a prime coat, as recommended by the coating manufacturer, to material that is required to be painted or finished, and which has not been prime coated by others.

1. Recoat primed and sealed substrates where there is evidence of suction spots or unsealed areas in the first coat, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

D. Brush Application: Brush out and work brush coats into surfaces in an even film. Eliminate cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Neatly draw glass lines and color breaks.

1. Apply primers and first coats by brush unless the manufacturer's instructions permit use of mechanical applicators.

E. Mechanical Applications: Use mechanical methods for coating applications permitted by the coating manufacturer's recommendations, governing ordinances, and trade union regulations.

1. Wherever spray application is used, apply each coat to provide the equivalent hiding of brush-applied coats. Do not double-back with spray equipment building-up film thickness of 2 coats in one pass, unless recommended by the coating manufacturer.

F. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or recoat work not in compliance with specified requirements.

G. Spray application will not be permitted for the Primary Clarifier Painting bid item.

2.4 INSPECTION

A. Request acceptance of each coat before applying succeeding coats.

B. The Contractor shall furnish the Engineer a suitable thickness detector of a type recommended by the paint manufacturer.

C. Any field painting found to be defective shall be removed and the surfaces repainted as the Engineer may direct at no additional cost to the Owner.

D. Before final approval of the work, all damaged surfaces of paint (field or factory applied) shall be cleaned and repainted or touched up as directed.

2.5 FIELD QUALITY CONTROL

A. The Owner reserves the right to invoke the following material testing procedure at any

time, and at any number of times during the period when coating operations are being conducted.

1. The Owner will engage the services of an independent testing laboratory to sample the coating being used. Samples of material delivered to the project site will be taken, identified, sealed, and certified in the presence of the Contractor.
2. The testing laboratory will perform appropriate tests for any or all of the following characteristics as required by the Owner:
   a. Quantitative materials analysis.
   b. Absorption.
   c. Accelerated weathering.

2.6 CLEANING

A. Clean-Up: At the end of each workday during the progress of work, remove rubbish, empty cans, rags and other discarded materials from the site.

1. Upon completion of the work, clean window glass and other spattered surfaces. Remove spattered coatings by washing, scraping or other proper methods, using care not to scratch or otherwise damage adjacent finished surfaces.

2.7 PROTECTION

A. Protect work of other trades, whether to be coated or not, against damage from coating operations. Correct damage by cleaning, repairing or replacing, and recoating as acceptable to the Engineer. Leave the work in undamaged condition.

B. Provide "Wet Paint" signs as required to protect newly coated finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of coating operations.

1. At completion of the work of other trades, touch up and restore damaged or defaced coated surfaces.

END OF SECTION

SECTION 330505.30 - LEAKAGE TESTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

A. The Contractor shall perform sufficient tests to determine that the installation of all pipe materials have been as specified and that test results are in accordance with those required for approval of the installation.

B. The Contractor shall furnish all pressure gauges, suitable pump or pumps, pipes, test heads, and any other apparatus and materials used for these tests. These tests are to be considered as part of the work, and no additional compensation shall be made.

C. The tests shall be conducted under the direction of the Engineer or an appointed agent. Any testing done without direction and supervision as specified shall not be considered as a proper means of approval.

D. The Contractor may obtain water for testing as may be required by observing the rules and regulations enforced in the municipality in which the work is being done.

1.3 QUALITY ASSURANCE

A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

PART 2 - HYDROSTATIC TESTING

2.1 GENERAL

A. The pipe to be tested must be sufficiently backfilled to prevent movement while under test pressure.

B. Joint restraint at fittings should be permanent and constructed to withstand test pressure. If concrete thrust blocks are used, sufficient time must be allowed before testing to permit the concrete to cure. A cure time of seven (7) days is recommended when Type I Portland cement is used; three (3) days is recommended when Type III high-early Portland cement is used.

C. Test ends should be restrained to withstand the appreciable thrusts that are developed under test pressure.

D. Air pressure testing of installed pressure pipe is expressly prohibited.

E. Any testing performed without the knowledge of the Engineer shall not be considered a test for the purpose of this specification.

2.2 FORCE MAINS

A. All pipes, valves, fittings, etc. shall be laid in such a manner as to leave all joints watertight. After the pipe is laid and before backfill is placed around the joints, such lengths of the force main as determined by the responsible agency shall be tested under a hydrostatic pressure of 1.25 times the working pressure at the highest point along the test section, but, in no case, shall such force mains be tested at less than 100 pounds per square inch.

B. Each section of pipeline shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation, shall be applied by means of a booster pump connected to the pipe in a manner satisfactory to the Engineer. The duration of the test shall be for a minimum of sixty (60) minutes.

C. No pipe installation will be accepted unless the leakage rate for the section of pipe being tested does not exceed a rate of 75 gallons per 24 hours per mile per inch of nominal diameter.

D. The Contractor shall furnish suitable means for determining the quantity of water lost by leakage during the test.

END OF SECTION 330505.30

SECTION 330519 - DUCTILE IRON PIPE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

A. The Contractor shall furnish all the materials for and shall properly place at the locations shown on the drawings or as directed, all ductile iron pipe of the sizes specified, shown or required for the proper completion of the work included under this contract.

1.3 QUALITY ASSURANCE

A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical data and application instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All ductile iron pipe shall conform to AWWA C151 with the ends being designed for one of the type joints as specified herein.

B. To assure that the iron is suitable for satisfactory drilling and cutting, the chemical constituents shall meet the physical property recommendations of ASTM A 536.

C. The minimum wall thickness of the pipe barrel shall be that indicated in ANSI A21.50 (AWWA C150) for laying condition "2", 150 psi internal working pressure and a surge pressure of 100 psi and 5 ft. depth of cover unless otherwise indicated on the drawings. ANSI A21.50 (AWWA C150) CLASS 52 shall be the minimum thickness class for ductile iron pipe furnished under this specification unless otherwise shown on the drawings.

2.2 COATING AND LINING

A. The outside surface of all ductile iron pipe shall be shop coated with either a coal tar or asphalt base bituminous material. If this coating material is found to be damaged prior to the pipe trench being backfilled, the Contractor shall provide and apply additional material of that required to repair the damages. The Contractor shall have sufficient coating material available at the job site prior to laying the pipe.

B. The interior of the pipe shall be lined with cement mortar and seal coated in complete conformance with ANSI A21.4 (AWWA C104).

2.3 JOINTS

A. Mechanical Joints and Push-on Joints including their respective appurtenances shall conform to ANSI A21.11 (AWWA C111).

B. Flanged Joints shall conform to AWWA C110 or ANSI A21.10. Flanged joints shall not be installed underground except within structures as indicated on plans or directed by the Engineer.

C. Appurtenances used to make flanged joints shall include: one-eighth (1/8) inch thick rubber gaskets, bolts having American Standard Heavy Unfinished Hexagonal Head and Nut dimensions in conformance with ANSI B18.1, and material for bolts and nuts shall conform to ASTM A 575 or A 576.

D. Ball and socket joints (river crossing) shall be restrained, boltless and capable of deflecting up to 15 degrees and shall be installed in accordance with the manufacturer's recommendations.

2.4 POLYETHYLENE ENCASEMENT

A. The ductile iron pipe, fittings and appurtenances buried underground, shall be encased with 8 mil polyethylene film conforming to AWWA C105, unless noted otherwise.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All trenches, when pipe laying is in progress, shall be kept dry and all pipes and specials shall be laid accurately to the required lines and grades and shall be uniformly supported along their entire lengths. The bottom of the excavation shall be properly trimmed, with holes at each joint to receive the bell and to permit the properly cementing the joints.

B. Pipe shall be fully entered and shall abut against adjacent pipe and in such a manner that there will be no unevenness along the inverts.

C. When pipes enter or pass through concrete walls, manholes, sewers or other structures, holes shall be provided and the pipes properly cemented in place so as to form a watertight joint.

END OF SECTION 330519

SECTION 330531.19 - PVC PIPE (ASTM D 1785)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

A. The Contractor shall furnish and install all polyvinyl chloride (PVC) pipe as specified herein, shown on the Drawings or as directed by the Engineer.

1.3 QUALITY ASSURANCE

A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical data and application instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All PVC pipe used, as covered under this section, shall conform to ASTM D 1785, with end being designated for one of the type joints as specified herein. PVC compounds shall conform to ASTM D 1784.

B. PVC pipe under this section shall be Schedule 40, 80 or 120 as indicated on the drawings.

C. Materials of construction, including joints and fittings, shall be suitable for exposure to raw sewage.

2.2 JOINTS AND FITTINGS

A. Solvent cemented joints for pipe and fittings shall conform to ASTM D 2855.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All trenches, when pipe laying is in progress, shall be kept dry and all pipes and specials shall be laid accurately to the required lines and grades and shall be uniformly supported

along their entire lengths. The bottom of the excavation shall be properly trimmed, with holes at each joint to receive the bell and to permit the properly cementing the joints.

B. Pipe shall be fully entered and shall abut against adjacent pipe and in such a manner that there will be no unevenness along the inverts.

C. When pipes enter or pass through concrete walls, manholes, sewers or other structures, holes shall be provided and the pipes properly cemented in place so as to form a watertight joint.

END OF SECTION 330531.19