

CITY OF WESTMORLAND

*WTP Filter Replacement Project*

**ADDENDUM NO. 3**

The following constitutes Addendum No. 3 for this project, which is the second set of formally submitted questions along with their corresponding answers:

Question #1: Will AWC Water Solutions provide all the “Parts List” items on AWC Water Solutions drawings, sheet 1 of 10?

Answer #1: *Yes, these items will be supplied by AWC.*

Question #2: Will the AWC Water Solutions filter be delivered assembled including the underdrains and pump? Will the valves, instrumentation etc. need to be assembled by the contractor at the project site?

Answer #2: *The tank & underdrains will be assembled in AWC’s workshop. The instruments & valves will be shipped loose & are to be assembled on site by the Prime Contractor. Please refer to the PID (in the Appendices to the Bid Documents Specifications) for AWC scope of supply. No pumps are in AWC’s scope.*

Question #3: Will AWC Water Solutions provide the media of Crushed Quartz, Anthracite, Silica Sand, & Garnet? If so, will the media be delivered in super sacks or other containers?

Answer #3: *AWC will be supplying the media; media will be delivered in bags (anthracite 1ft<sup>3</sup>/bag, silica sand 0.5ft<sup>3</sup>/bag). To be confirmed during order placement by the Prime Contractor.*

Question #4: What is the procurement time for the filter & appurtenances?

Answer #4: *The tank & equipment will be shipped to the project site 8 months (anticipated lead time) after receipt of PO. Schedule can be confirmed & optimized once PO is received by AWC.*

Question #5: AWC Water Solutions drawing, Appendix D, has a Parts List. Will these items be pre-installed by AWC Water Solutions or does the contractor install the items on the Parts List?

Answer #5: *All shipped loose items, as per AWC's PID, will be required to be installed by the Prime Contractor. An erection drawing will be supplied by AWC to support site assembly (by the Prime Contractor) activities.*

Question #6: Is the prefinished metal roofing on the canopy a standing seam roof?

Answer #6: *We do not have any records indicating the exact roof type. It is noted as "prefinished metal roofing" on the available record drawings. Contractor is responsible to verify the roof material prior to submitting the Work Sequence Plan to the City.*

Question #7: Specification section 01500, 2.2B.B states, "Contractor shall provide office space for owner's representative." This is a small project. Is an office space really required?

Answer #7: *A temporary office space for the Owner's representative is not necessary to be provided.*

Question #8: Specification section 01820, 3.4.C states that the field training duration is 14 days. This seems excessive. Training is usually done in 1 day. Please verify if the 14 days of training is really needed.

Answer #8: *The indicated duration of 14 days for field training is intended to cover both commissioning of the new filter/equipment and training. This duration of 14 days is based on AWC's provided estimated duration for on-site commissioning and training.*

Question #9: Are the existing filters made of steel?

Answer #9: *The existing Westech filters are made of steel.*

Question #10: The specifications for this project seem to be missing Section 09960 Fusion-Bonded Epoxy Linings and Coatings. We want to be able to accurately provide the right coating & lining for the piping but won't be able to do so without this spec. Also there seems

to be a spec missing for Liquid Epoxy as well. The Liquid Epoxy references Section 09960 Fusion- Bonded Epoxy Linings and Coatings which in our experience is not the true spec. Please let us know if this is correct or if there is a separate spec for Liquid Epoxy please send that one as well if possible.

*Answer #10: General Note 20 has been added to G-2 of the Bid Documents that clarifies the specification for coating and lining of ductile iron pipe and fittings. Specification 15056 has been revised to include coating and lining requirements for ductile iron pipe and fittings. Revised drawing G-2 and revised Specification Section 15056 have been attached to this Addendum.*

Each bidder must acknowledge receipt of this addendum in the noted space below and on the signature page of the Bid Proposal. **Include a copy of this addendum with your Bid Proposal Package. It is the bidding Contractor's responsibility to notify its sub-contractors about changes based on all addenda.**



City of Westmorland

August 13, 2024

Date

ACCEPTANCE OF NOTICE

Receipt of ADDENDUM NO. 3 is hereby acknowledged by:

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Date

By: \_\_\_\_\_

Name and Signature

**GENERAL NOTES**

- AT MINIMUM, ALL WORK TO CONFORM TO THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", 2021 EDITION WITH SUPPLEMENTS, EXCEPT AS OTHERWISE NOTED.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY IN THE FIELD THE EXACT LOCATION OF EXISTING UTILITIES, SIZE, QUANTITIES, AND THE CONDITIONS.
- THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES, PIPES, OR STRUCTURES SHOWN ON THE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. APPROVAL OF THE PLANS BY THE CITY OF WESTMORLAND DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY, COMPLETENESS, LOCATION, EXISTENCE, OR NONEXISTENCE OF ANY UNDERGROUND UTILITY, PIPE, OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT.
- THE CONTRACTOR IS REQUIRED TO TAKE ALL DUE PRECAUTIONARY MEANS TO PROTECT UTILITY LINES. THE CONTRACTOR SHALL HAVE A COPY OF THE PROJECT PLANS AND SPECIFICATIONS ON THE JOB AT ALL TIMES.
- THE ENGINEER SHALL BE NOTIFIED AT LEAST FIVE (5) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION FOR OBSERVATION OF CONSTRUCTION. NO FACILITIES SHALL BE BACKFILLED UNTIL OBSERVED BY THE ENGINEER.
- ALL EXISTING IMPROVEMENTS INCLUDING CONCRETE CURB AND GUTTER, AC OR PCC PAVING, WHICH ARE BEING JOINED OR MATCHED IN CONNECTION WITH THIS PROJECT SHALL BE JOINED OR MATCHED IN A MANNER SATISFACTORY TO THE ENGINEER, OWNER, AND/OR OWNER'S REPRESENTATIVE INCLUDING NECESSARY SAW CUTTING, REMOVAL, REPLACEMENT AND CAPPING. ALL CONCRETE SIDEWALKS OR CURBS TO BE REMOVED AND REPLACED SHALL BE SAW CUT TO THE NEAREST TRANSVERSE SCORE MARK OR ADJUSTABLE CONTROL JOINT OR WEAKENED PLANE JOINT.
- CONTRACTOR SHALL MAINTAIN THE WORK AREAS IN A NEAT, SAFE, CLEAN AND SANITARY CONDITION AT ALL TIMES AND TO THE SATISFACTION OF THE CITY. STREETS SHALL BE KEPT CLEAN OF DEBRIS, DUST, AND OTHER NUISANCE AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CLEANUP OF ADJACENT STREETS AFFECTED BY CONSTRUCTION.
- TRAFFIC CONTROL DURING CONSTRUCTION IN CITY STREETS SHALL CONFORM TO THE STATE OF CALIFORNIA MANUAL OF TRAFFIC CONTROLS, SPECIAL PROVISIONS, CITY PERMIT, AND THE WORK AREA TRAFFIC CONTROL HANDBOOK (WATCH).
- THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT AT LEAST 48 HOURS BEFORE BEGINNING ANY CONSTRUCTION WORK AT 811.
- PIPELINE LENGTHS SHOWN ARE HORIZONTAL DISTANCES AND MAY VARY FROM ACTUAL DISTANCE. CONTRACTOR'S PRICING SHALL BE BASED UPON ACTUAL DISTANCE REQUIRED TO INSTALL THE PIPES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AT NO ADDITIONAL COST TO THE OWNER, FOR THE DURATION OF THE PROJECT WITHOUT LAPSES.
- CONTRACTOR SHALL POSSESS A VALID CALIFORNIA CLASS "A" CONTRACTOR'S LICENSE.
- WORK SHOWN OR INDICATED ON THESE PLANS, OR CALLED FOR IN THE SPECIFICATIONS, BUT NOT INCLUDED AS PAY QUANTITY ITEMS, SHALL BE CONSIDERED INCIDENTAL WORK, THE COST OF WHICH SHALL BE INCLUDED IN THE CONTRACTOR'S BID FOR PAY QUANTITY ITEMS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING UTILITIES, PAVEMENT CURBS, TRAFFIC STRIPING AND MARKINGS, TRAFFIC SIGNAL EQUIPMENT (INCLUDING DETECTOR LOOPS), STRUCTURES (GARDEN WALLS, RETAINING WALLS, CONCRETE STEPS, PAVERS), TREES, LANDSCAPING IRRIGATION SYSTEMS, AND OTHER EXISTING IMPROVEMENTS, AS A RESULT OF CONTRACTOR'S OPERATIONS, AND WILL BE REQUIRED TO REPAIR, REMODEL OR REPLACE SAME TO THE SATISFACTION OF, AS DIRECTED BY, THE ENGINEER, OWNER, OWNER'S REPRESENTATIVE OR UTILITY COMPANY AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL FURNISH ALL CONSTRUCTION SURVEYS FOR THIS PROJECT AS DESCRIBED IN THE SPECIFICATIONS AT NO ADDITIONAL COST TO THE OWNER. SURVEY POINTS DESTROYED AS A RESULT OF THE CONTRACTOR'S NEGLIGENCE OR FAILURE TO PROVIDE PROPER PROTECTION, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE, AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL CONDUCT CONSTRUCTION OPERATIONS IN SUCH A MANNER THAT STORM RUNOFF OR OTHER WATERS MAY PROCEED UNINTERRUPTED ALONG THE STREET OR DRAINAGE COURSES IN ACCORDANCE WITH CONTRACTOR'S APPROVED WATER POLLUTION CONTROL PLAN AND FEDERAL/STATE/LOCAL REGULATORY REQUIREMENTS AND GUIDELINES.
- STATIONING OF REMOVALS AND WIDTHS OF REMOVALS PER THE INDICATED SCOPE OF WORK ARE APPROXIMATE ONLY. ACTUAL REMOVALS SHALL BE AS DIRECTED BY THE ENGINEER. CONSTRUCTION SITE SHALL BE MAINTAINED IN SUCH A CONDITION THAT AN UNANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. SUCH "DISCHARGES" OF MATERIAL OTHER THAN STORM WATER ARE ALLOWED ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES, AND WHERE THEY DO NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD, CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR NUISANCE, OR CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATIONS 40 CFR PARTS 117 AND 302.
- CONTRACTOR SHALL CONTROL SITE DRAINAGE AND EROSION AS NECESSARY TO PRECLUDE THE MOVEMENT OF ERODED OR CONTAMINATED SOIL OFFSITE PER REGULATORY AGENCY REQUIREMENTS.
- CONTRACTOR SHALL HANDLE, STORE AND DISPOSE OF CONTAMINATED SOIL THAT MAY BE ENCOUNTERED DURING CONSTRUCTION OF THIS PROJECT, IN CONFORMANCE WITH REGULATORY AGENCY REQUIREMENTS.
- THE NEW FILTER NO. 2 DESIGN IS BASED ON THE CONTACT CLARIFIER/FILTER (FILTER) DESIGN MANUFACTURED BY AWC WATER SOLUTIONS. MECHANICAL, ELECTRICAL, AND INSTRUMENTATION SHOP DRAWINGS FOR THE NEW FILTER UNIT HAVE ALREADY BEEN PREPARED BY AWC WATER SOLUTIONS AS PART OF THE CONTRACT DOCUMENTS, AND HAVE BEEN INCLUDED IN THE APPENDICES TO THE CONTRACT SPECIFICATIONS. THE CONTRACTOR IS REQUIRED TO FURNISH THE NEW FILTER UNIT BASED ON THE AWC FILTER UNIT SHOP DRAWINGS, DESIGN, CHARACTERISTICS, SPECIFICATIONS, AND SUPPORTING INFORMATION THAT IS INCLUDED HEREIN AND IN THE SPECIFICATIONS. SEE SPECIFICATIONS APPENDIX A THROUGH APPENDIX E FOR AWC FILTER UNIT SHOP DRAWINGS AND FILTER DESIGN CHARACTERISTICS INFORMATION.
- ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE LINED AND COATED PER SPECIFICATION 15056.

**PIPELINE NOTES**

- ALL FASTENERS, NUTS, BOLTS AND WASHERS SHALL BE TYPE 316 STAINLESS STEEL. THREAD SHALL BE LUBRICATED WITH AN ANTI-GALLING COMPOUND SPECIFICALLY MANUFACTURED FOR STAINLESS STEEL. FASTENERS WITH SPECIAL COATING SPECIFICALLY DESIGNED FOR HIGHLY CORROSIVE APPLICATIONS MAY BE USED WITH WRITTEN APPROVAL FROM THE ENGINEER-OF-RECORD. ALL FITTINGS SHALL BE TIGHTENED IN ACCORDANCE WITH WRITTEN MANUFACTURER'S RECOMMENDATIONS FOR SEQUENCE AND TORQUE. TORQUE WRENCH SHALL BE USED FOR FINAL TIGHTENING, AIR IMPACT TOOLS WILL NOT BE PERMITTED.
- ALL BURIED FERROUS METAL FLANGES, JOINTS, AND FASTENERS AND BURIED SS FABRICATIONS SHALL BE WAX TAPED PER AWWA C217.
- ALL CONNECTIONS AND UTILITY CROSSINGS TO BE POTHOLED AND VERIFIED PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
- ALL GASKETS SHALL BE BUNA-N OR MATERIAL SPECIFICALLY MANUFACTURED FOR POTABLE WATER APPLICATIONS AS APPROVED BY THE ENGINEER OF RECORD.
- ALL THREADED CONNECTIONS SHALL BE SEALED WITH TEFLON TAPE.

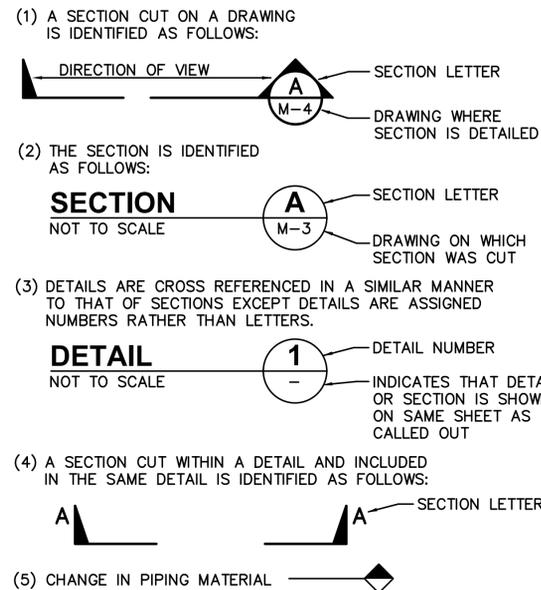
**KEY REFERENCE DRAWINGS**

- KENNEDY-JENKS DRAWINGS (SHEETS 1 THROUGH 57; DATED JULY 23, 1997); THIS PERTAINS TO THE EXISTING WTP AS CONSTRUCTED AND PLACED INTO OPERATION IN 2002.
- PSOMAS DRAWINGS (SHEETS 1 THROUGH 94; DATED JUNE 30, 2017); THIS PERTAINS TO PROPOSED IMPROVEMENTS TO THE WTP THAT HAVE NOT YET BEEN CONSTRUCTED
- REFERENCE DRAWINGS CAN BE OBTAINED BY CONTRACTOR FROM THE CITY OF WESTMORLAND

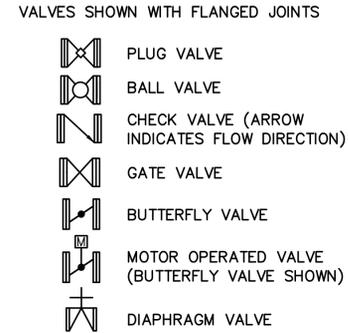
**PUBLIC AGENCIES & UTILITIES**

CITY OF WESTMORLAND (CITY HALL)	(760) 344-3411
CITY OF WESTMORLAND (PUBLIC WORKS DEPARTMENT)	(760) 344-9274
CITY OF WESTMORLAND (POLICE DEPARTMENT)	(760) 344-3411
CITY OF WESTMORLAND (FIRE DEPARTMENT)	(760) 344-3411
IMPERIAL IRRIGATION DISTRICT (IID)	(760) 339-9280
TIME WARNER CABLE	(760) 335-4818
SOUTHERN CALIFORNIA GAS COMPANY	(909) 335-7836
STATE WATER RESOURCES CONTROL BOARD (DIVISION OF DRINKING WATER)	(619) 525-4159

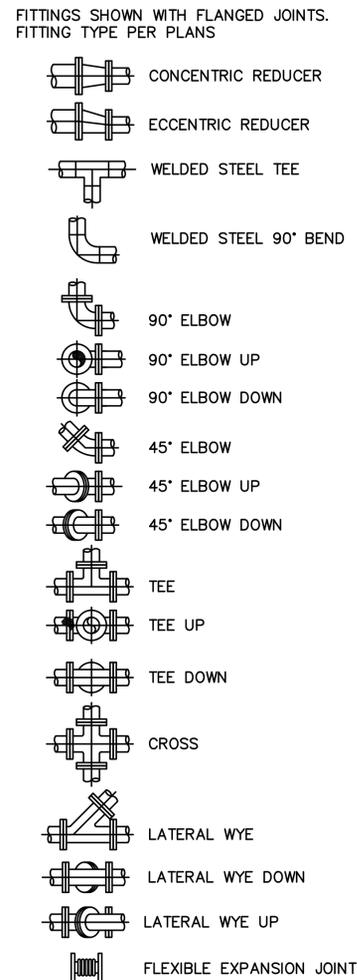
**CROSS REFERENCING SYSTEM**



**VALVE SYMBOLS**



**FITTING SYMBOLS**



**OTHER SYMBOLS**



**SHEET INDEX**

SHEET	DESCRIPTION
G-1	TITLE SHEET, MAPS, AND BENCH MARK
G-2	GENERAL NOTES, CROSS REFERENCING SYSTEM, VALVE SYMBOL LEGEND, AND SHEET INDEX
G-3	ABBREVIATIONS LIST
G-4	SITE ACCESS AND CONTRACTOR WORK LIMITS
G-5	FILTER UNIT AREA AND CONTROL BUILDING PLAN
D-1	RAISED WALKWAY AND STAIRCASE REMOVAL PLAN
D-2	MECHANICAL REMOVAL PLAN AND SECTIONS
D-3	MECHANICAL REMOVAL SECTIONS
D-4	MECHANICAL REMOVAL DETAILS
M-1	MECHANICAL IMPROVEMENT PLAN AND SECTIONS
M-2	MECHANICAL IMPROVEMENT SECTIONS AND DETAILS
M-3	MECHANICAL IMPROVEMENT DETAILS
S-1	GENERAL STRUCTURAL NOTES, SCHEDULES, AND ABBREVIATIONS
S-2	TYPICAL STRUCTURAL DETAILS
E-1	ELECTRICAL NOTES, SYMBOLS, AND LEGEND
E-2	ELECTRICAL SCHEDULES
E-3	ELECTRICAL SITE PLANS
E-4	CONNECTION DIAGRAM
E-5	CONDUIT BLOCK DIAGRAM
E-6	ELECTRICAL DETAILS
I-1	INSTRUMENTATION NOTES, SYMBOLS, AND LEGEND
I-2	P&ID

<p><b>USE OF DOCUMENTS</b></p> <p>THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF PSOMAS.</p>	ADDENDUM NO. 3	08/13/24	TSD			DESIGNED BL	<p>PLANS PREPARED BY:</p> <p><b>DUDEK</b></p> <p>605 Third Street Encinitas, CA 92024 760.942.5147 Fax 760.632.0164</p>	CITY OF WESTMORLAND: WTP WATER FILTER REPLACEMENT PROJECT		DWG NO G-2
						DRAWN TD		GENERAL NOTES, CROSS REFERENCING SYSTEM, VALVE SYMBOL LEGEND, AND SHEET INDEX		JOB NO 15667
						CHECKED DG				DATE 07/02/24
	NO.	REVISION	DATE	BY						SHEET OF

**SECTION 15056  
DUCTILE-IRON PIPE AND FITTINGS**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. This section includes materials and installation of Ductile-Iron Pipe (DIP) and fittings.

**1.2 RELATED WORK DESCRIBED ELSEWHERE**

- A. Section 01330: Submittal Procedures
- B. Section 01650: Product Delivery, Storage, and Handling Requirements
- C. Section 09900: Protective Coatings
- D. Section 15040: Pressure Testing, Disinfecting, Flushing, and Dechlorinating

**1.3 SYSTEM DESCRIPTION**

- A. Furnish and install ductile-iron pressure pipe as shown on the Plans including appurtenant fittings and connections in conformance with Manufacturer's installation requirements and in compliance with applicable construction safety codes and standards.

**1.4 QUALITY ASSURANCE**

- A. Manufacturer of pipe and fittings shall employ manufacturing methods and material formulations in use for a minimum of five years.
- B. Owner or Owner's Representative shall be entitled to inspect pipes and witness the manufacturing process.
- C. Repair factory-applied linings and coatings per manufacturer's recommendations.

**1.5 REFERENCES**

- A. ASME/ANSI B16.1 Cast Iron Pipe Flanges and Flanged Fittings – Class 25, 125, 250 and 800
- B. ASME/ANSI B16.42 Ductile Iron Flanged Fittings – Classes 150 and 300
- C. ASTM A536 Ductile Iron Castings
- D. AWWA C104/ANSI 21.4 Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water
- E. AWWA C105/ANSI A21.5 Polyethylene Encasement for Ductile-Iron Pipe Systems
- F. AWWA C110/ANSI 21.10 Ductile-Iron and Gray-Iron Fittings, 3 In. through 48 In., for Water
- G. AWWA C111/ANSI 21.11 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- H. AWWA C115/ANSI A21.15 Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges
- I. AWWA C116/ANSI A21.16 Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings for Water Supply Service

- J. AWWA C150/ANSI A21.50 Thickness Design of Ductile Iron Pipe
- K. AWWA C151/ANSI A21.51 Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids
- L. AWWA C153/ANSI A21.53 Ductile-Iron Compact Fittings, 3 In. through 64 In., for Water Service
- M. AWWA C600 Installation of Ductile-Iron Water Mains and Their Appurtenances
- N. AWWA Manual M41 Ductile-Iron Pipe and Fittings
- O. SSPC SP1 Solvent Cleaning
- P. SSPC SP6/NACE 3 Commercial Blast Cleaning
- Q. SSPC SP10/NACE 2 Near White Blast Cleaning

**1.6 SUBMITTALS**

- A. Furnish the following submittals:

SUBMITTAL	DESCRIPTION
Catalog Data	Required per catalog data requirements.
	Required for pipe, couplings, fittings, protective coatings, and gaskets.
Installation Instructions	Use AWWA C600 for pipe installation
	Submit supplementary information as needed to cover proprietary methods of joint restraint.
Line Drawings	Line drawings.
	Materials list.
	Layout schedule.
	Order of installation.
	Length and location of each pipe section and fitting.
	Dimensional checks.
	Station and elevation of the pipe invert at all changes in grade.
Certificate of Compliance	Deliver with the pipe an affidavit from the Manufacturer stating compliance with requirements of AWWA and the Contract Documents
	Data used by the Contractor in manufacture and quality control
Warranty	Furnish one-year warranty from date of final acceptance

**1.7 DELIVERY, STORAGE AND HANDLING**

- A. Refer to Section 01600 for delivery, storage, and handling requirements.
- B. Packaging, shipping, handling, and storage of pipe shall be performed in accordance with Manufacturer’s instructions.
- C. Transportation shall be by competent haulers and accomplished in a manner that will avoid damage to the pipe, its lining, or coating.
- D. Unload the pipe by mechanical means, such as a crane or backhoe, or by rope and skids, as recommended by the Manufacturer. In using skids, pipes must be prevented from striking other pipe. No dropping of pipe from trucks will be allowed.

- E. Store pipe and fittings in accordance with Manufacturer's recommendations to prevent damage and contamination.
- F. Carefully handle pipe to prevent damage to the lining and coating. Attach cable, rope, or other devices used for lowering fittings into the trench around the exterior of the fitting for handling. Do not under any circumstances attach the cable, rope, or other device through the fitting's interior for handling.

**1.8 UNIT PRICES**

- A. Payment for the Work in this section shall be included as part of the lump-sum or unit-price bid amount for which such Work is appurtenant thereto, including all Work and materials specified herein and as may be required to install and complete this portion of the Work.

**PART 2 - MATERIALS**

**2.1 ACCEPTABLE MANUFACTURERS**

- A. Acceptable manufacturers include the following:

ITEM	MANUFACTURER	MANUFACTURER LOCATION
Ductile-Iron Pipe	American Ductile Iron Pipe	Birmingham, AL
	McWane Ductile, Inc.	Coshocton, OH
	U.S. Pipe and Foundry	Birmingham, AL
	Accepted equal	
Ductile-Iron Pipe Fittings	American Ductile Iron Pipe	Birmingham, AL
	Star Pipe Products	Houston, TX
	Tyler Pipe Div. McWane, Inc.	Tyler, TX
	U.S. Pipe and Foundry	Birmingham, AL
	Accepted equal	
Tee-Head Bolts and Hex Nuts on Mechanical Joints	NSS Industries Corten	
	Accepted equal	
Shop Coat on Buried Pipe	Koppers 11-S Primer	Pittsburgh, PA
	Accepted equal	
Ductile Iron Pipe Mechanical Joint Restraints	EBAA Iron Megalug Series 1100	Eastland, TX
	Romac Grip Ring	Bothell, WA
	Star Pipe Products Retainer Gland Series 500/600	Houston, TX
	Accepted equal	
Ductile Iron Pipe Restraint Harness for Push-on Bells	EBAA Iron Megalug Series 1700	Eastland, TX
	Romac 600	Bothell, WA
	Accepted equal	

## 2.2 MATERIALS

- A. Refer to Section 01600 / 01640 for basic requirements for products and materials.
- B. Ductile-iron pipe and fittings shall meet or exceed the following materials and manufacturing requirements:

MATERIAL/ COMPONENT	STANDARDS/ CHARACTERISTICS	SPECIFICATION/REQUIREMENT	
Pipe	Standards	AWWA C151 NSF 61 for potable water pipe	
	Material	Ductile-iron	
	Size	As shown on plans.	
	Wall Thickness		Pipe sizes 14" and larger = Thickness Class 50, unless otherwise specified
			Flanged Pipe: Minimum Thickness Class 53 (thickness class per DIPRA requirements); do not use the pressure class pipe thickness guidelines indicated below.
			OR
			Pressure class pipe may be substituted for thickness class pipe as follows:
			Under 16-inch diameter = not allowed
			16 to 18-inch diameter = pressure class 350
			20 to 24-inch diameter = pressure class 300
			30 to 36-inch diameter = pressure class 250
			Per AWWA C151 Section 4.6.
Markings		18 or 20-foot lengths per AWWA C151/ANSI A21.51, except where shorter lengths are required to fit horizontal or vertical alignment.	
Lengths		Buried	
	<del>Liquid Epoxy Coating</del> <del>Fusion-bonded Epoxy Coatings</del>	<del>Per AWWA C116</del> <del>Per Section 2.3 of this specification.</del>	
	Cement Mortar Lining	Per AWWA C104 <u>and Section 2.3 of this specification.</u>	
Joints	Mechanical Joints	AWWA C151	
	Flanged Joints	AWWA C115	
Fittings	Material	AWWA C110/ANSI 21.10 or C153/ANSI A21.53	
	Standards	AWWA C110	
	Style	Cast the letters "DI" or "DUCTILE" into fittings, unless otherwise specified.	
	Marking	Ductile Iron	

MATERIAL/ COMPONENT	STANDARDS/ CHARACTERISTICS	SPECIFICATION/REQUIREMENT
	Coatings	Same coating as the adjacent pipe, as described above for Pipe Coatings.
	Linings	Same lining as the adjacent pipe, as described above for Pipe Linings.
Ductile Iron Pipe Joint Restraints	Material	Ductile Iron
	Style	Gripping
	Working Pressure Rating	Wedge 350 psi (3-16-inch) 250 psi (18-48-inch)
Flanges	Material	ANSI/ASME B16.42 Class 150
	Pressures 0-200 psi	ANSI/ASME B16.42 Class 150
	Integrally-cast type for fittings	Boltholes of flanged valves shall straddle horizontal and vertical centerlines of pipe run to which valves are attached.
Flange Bolts, Nuts, Washers and Gaskets		12 mils MDFT Koppers 11-S primer
Plastic Film Wrap for Corrosion Protection <b>(unless Wax Tape Coating is required for all buried Ductile Iron Pipe per callouts on plans or as specified in other specification sections)</b>	Standards	Polyethylene plastic tube
	Material	8-mil, single layer on pipe and double layer on fittings and appurtenances
	Thickness	2-inch wide polyethylene adhesive tape
	Adhesive tape to connect plastic film tubes and plastic film wrap at fittings and appurtenances	

C. Provide identification for buried AWWA C151 ductile-iron pipe in the following manner:

PIPE CONTENTS	IDENTIFICATION/ WARNING/ LOCATING	TYPE	MATERIALS/METHOD
Potable Water	Pipe Contents Identification	Identification tape	2-inch high letters reading "POTABLE WATER"
			Color = blue with white letters
			Polyethylene
			4 mils minimum thickness
	Pipe Warning	Warning Tape	Attached to top of polyethylene wrap on pipe with adhesive tape
			2-inch high letters reading "CAUTION: WATERLINE BURIED BELOW"
			Color = blue with white letters
			Polyethylene
			4 mils minimum thickness

PIPE CONTENTS	IDENTIFICATION/ WARNING/ LOCATING	TYPE	MATERIALS/METHOD
			6-inch width Installed in pipe trench 18 inches above pipe

### **2.3 PAINTING AND COATING**

- A. The exterior surfaces of all pipe and fittings shall be factory coated with a minimum one (1) mil thick petroleum asphaltic material per AWWA C110 and C151.
- B. All pipe and fittings shall be cement-mortar lined in accordance with AWWA C104, using the double thickness requirements indicated in said standard, Type II or Type V Portland cement per ASTM C 150 shall be used.
- C. Ferrous Metals OVERCOAT: Tank or Vessel Exterior, Related Structural Steel, Miscellaneous Metals, and Above Grade Piping
1. **Surface Preparation:** Surface Preparation: Clean all previously coated and bare metal surfaces to remove all visible contaminants, loose rust, corrosion products, and loose paint in accordance with SSPC-SP WJ-4/NACE WJ-4 Light Cleaning by use of Low-Pressure Water Cleaning (LP WC) between 3,500 and 5,000 psi using a 0 degree rotating nozzle. Prepare any bare steel per SSPC SP 2 Hand Tool Cleaning or SSPC SP 3 Power Tool Cleaning. Prepared area shall be feathered in to create a smooth transition from bare metal to existing coatings. Spot prime following Tie Coat. Spot prime exposed or prepared metal and onto the existing coatings a minimum of two inches to a thickness consistent with feathered edges. Clean and abrade existing coating in accordance with manufactures instructions prior to field application of coating systems.
  2. Polysiloxane Finish, 90% volume solids with compatible moisture cure urethane zinc primer
    - a. **Prime Coat: Epoxy**
      - (1) CG Carboguard 890 VOC, 4 – 6 mils dft; or Rustbond PS, 1 – 3 mils dft
      - (2) SW Corothane I Galvapac 2K 100 Zinc (B65 Series), 2 – 4 mils dft
      - (3) TC N140
    - b. **Intermediate Coat: Epoxy**
      - (1) CG Carboguard 890 VOC, 4 – 6 mils dft
      - (2) SW Macropoxy 646-100 (B58 Series), 4 – 6 mils dft
      - (3) TC 140
    - c. **Finish Coat: Polysiloxane**

(1) CG Carboxane 2100 FC, 3 – 7 mils dft

(2) SW SherLoxane 800, 4 – 6 mils dft

(3) TC 750

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Prior to installing the pipe, grade and prepare the bottom of the trench to provide uniform bearing throughout the entire length of each pipe. Form a flat or semi-circular trench bottom conforming to the grade to which the pipe is to be installed.
- B. Prior to installing pipe, grade and prepare trench bottom to provide uniform bearing throughout entire length of each joint of pipe. Dig bell holes of ample dimension in trench bottom at locations of each joint to facilitate joining. Form flat or semi-circular trench bottom conforming to grade to which pipe is to be installed.

### **3.2 INSTALLATION**

- A. Furnish and install pipe and fittings at locations shown on Plans and Submittals.
- B. The following installation standards shall be followed:
  - 1. Manufacturer's installation and warranty requirements
  - 2. Applicable OSHA and Cal OSHA regulations
  - 3. Applicable building, fire, plumbing and mechanical code requirements
  - 4. AWWA C600 Installation of Ductile-Iron Water Mains and Their Appurtenances
  - 5. AWWA Manual M41 Ductile-Iron Pipe and Fittings
- C. Shop applied prime coats which have been damaged or bare areas shall be touched-up with primer recommended by the coating manufacturer after commercial blasting complying with SSPC-SP 6.
- D. Inspect each pipe and fitting before installation. Inspect the interior and exterior protective coatings. Patch damaged areas in the field with material recommended by the protective coating manufacturer. Thoroughly clean the ends of the pipe. Remove foreign matter and dirt from inside of the pipe and keep pipe clean during and after installation.
- D.E. Refer variances between the above documents and Contract Documents to Owner's Representative.
- E.F. Accurately place pipe to lines and grades shown. Support fittings independently of pipe.

F.G. Assemble joints as follows:

1. Cut and machine pipe per AWWA C600, AWWA M41, and Manufacturer's standard procedures.
2. Do not cut pipe with cold chisel, standard iron pipe cutter, or any other method that may fracture pipe or produce ragged, uneven edges.
3. Spigot and bell shall slide together without displacement of rubber gasket. Joint shall be dirt free. Where possible install pipe with bell facing in direction of laying.
4. Insert rubber ring into groove making sure ring is completely seated. Lubrication for spigot and instruction for lubricant use shall be supplied by pipe Manufacturer.
5. Insert spigot into bell and force slowly into position using large bar lever and wood block across pipe end. For large pipe, a come-along (with padding that will not scratch the pipe) may be used.
6. Allowable joint deflections shall not exceed the manufacturer's recommendations.

G.H. Provide PE wrap on ductile iron and cast iron fittings and pipe as follows:

1. Comply with AWWA C105.
2. Wrap film snugly around all exterior ferrous surfaces and 8 inches beyond bells, overlapping at least 2 inches at each seam.
3. Do not install polyethylene film wrap on pipe sections or fittings to be concrete encased, installed within casing or installed through concrete slope anchors.
4. Leave stainless steel nuts and bolts exposed.
5. Secure polyethylene wrap in place using 2-inch wide plastic tape.
6. At least 3 circumferential turns of plastic tape shall seal film wrap ends over pipe and above valve bonnets.
7. A 15-mil coat of Koppers Bituplastic No 33 may be applied as an alternate to polyethylene wrapping.

H.I. Provide thrust restraint as follows:

1. See Section 15000

### **3.3 FIELD QUALITY CONTROL**

- A. Do not backfill any joint until the Owner's Representative has observed it. Leave open sufficient trench space in the vicinity of each joint to permit visual observation around the entire periphery of the joint.
- B. Field testing shall include the following:

ITEM	TEST FOR	TEST STANDARD (ASTM OR OTHER TEST STANDARD)	FREQUENCY	FIRST TEST PAID FOR BY	RETESTS PAID FOR BY
Ductile Iron Pipe	Leakage	Section 15040, AWWA C600 and AWWA M41	All new pipe	Contractor	Contractor
	Anchorage and Support of Exposed Pipe	Visual inspection of finished installation. Support per UPC Table 3-1 and 3-2	1 inspection	Owner	Owner
	Installation	Visual inspection of finished installation	1 inspection	Owner	Owner
	11 month Warranty Inspection	Demonstrate compliance to Contract Documents and Manufacturers printed Literature	1 test	Owner	Contractor

- C. Remove damaged pipe or fittings upon discovery and without delay from the Project Site.

**3.4 CLEANING AND DISINFECTION**

- A. Clean and disinfect pipe in accordance with Section 15040.

**3.5 PROTECTION**

A. Close open end of pipe with tight-fitting cap or plug to prevent entrance of foreign matter into pipe at all times when pipe installation is not in progress. These provisions shall apply during noon hour as well as overnight. Do not use pipeline as a drain for removing water that has infiltrated into trench. Maintain inside of pipe free from foreign materials and in a clean and sanitary condition until acceptance by Owner.

B. The Contractor shall maintain the inside of the pipe free from foreign materials and in a clean and sanitary condition until its acceptance by the Owner. When the work requires and the size of the pipe allows entry of personnel into the pipe, the Contractor shall comply with all Federal and State regulations for confined space entry. Work inside pipelines shall not be undertaken until all the tests and safety provisions of the Code of Federal Regulations 1910.146, and the General Industry Safety Orders of the California Code of Regulations, Title 8, Section 5159 for confined space entry have been performed and the area is verified as safe to enter.

A-C. Protect adjacent work and surfaces not to be coated from blast cleaning, overspray, spattering, and spillage. Use protective coverings or drop cloths. Where protection is required or provided for coated surface, maintain until the coating has properly cured.

Do not handle, work on, or disturb these areas until the coating is completely dry and hard.

### **3.6 HYDROSTATIC TESTING**

A. Field hydrostatic testing shall be performed in accordance with SECTION 15040.

**END OF SECTION**