PUBLIC WORKS & WATER RESOURCES
CITY OF NEWARK

220 South Main Street · Newark, Delaware 19711
302.366.7000 · Fax 302.366.7160 · www.newarkde.gov

June 7, 2023

CONTRACT NO. 23-08

ADDENDUM #1

1. PROJECT INFORMATION

Name:	South Wellfield Resin-GAC System
Owner:	City of Newark, Delaware
Contract Number:	23-08
Date of Addendum:	June 7, 2023
Pre-Bid Meeting Date:	10:00 a.m., Tuesday, May 30, 2023
Questions Deadline:	5:00 p.m., Tuesday, June 13, 2023
Bid Submission Deadline:	2:00 p.m., Tuesday, June 20, 2023

2. NOTICE TO BIDDERS

A. The Bidder shall acknowledge receipt of this addendum with their submitted proposal. Failure to do so may disqualify the Bidder.
B. The date for questions and receipt of bids remains unchanged by this addendum.
C. This addendum shall serve to answer questions submitted to date for this contract.
D. There will be two additional non-mandatory opportunities for Contractors and/or their Sub-Contractors to visit the South Wellfield Water Treatment Plant:
    1) Friday, June 9, 2023, from 10:00 a.m. to 11:00 a.m.
    2) Tuesday, June 13, 2023, from 10:00 a.m. to 11:00 a.m.

3. REVISIONS

A. Replace Specification Section 40 05 13 – Piping, Fittings, and Accessories with the attached Specification Section 40 05 13 – Piping, Fittings, and Accessories – Bid Addendum #1.

4. RESPONSES TO QUESTIONS SUBMITTED VIA EMAIL

Question 1:	Consider a time extension as the current time frame will not work without a LD allowance by the contractor in the bid?
Response 1:	The duration of the contract is hereby extended to 150 calendar days. The concrete slab foundation shall be constructed, cured, and ready within 90 days of the Notice to Proceed for unloading and setting of the units.
Question 2:	Please acknowledge that a notice to proceed will be delayed until submittals, including shop drawings are approved and can be dependent on Tank Manufacture Delivery Schedule at time of approvals?
Response 2:	Notice to Proceed date shall be issued immediately upon execution of the contract. The contract duration is extended as per Question #1.
Question 3:	Are all underground pipes to be painted, can this be performed prior to installation above grade?
Response 3:	Buried pipes shall have a bituminous exterior coating. See the attached revised Section 40 05 13 – Piping, Fittings, and Accessories, Section 2.1 has been updated to address underground piping. Pipe within vaults and exposed above grade shall be coated in the field per Section 40 05 13 – Piping, Fittings, and Accessories, Section 2.1.F.
Question 4:	Are all underground pipes to be insulated, even if buried 42" below grade?
Response 4:	Buried pipes do not require insulation when buried below 42" per Section 22 07 11 – Thermal Pipe Insulation.
Question 5:	Is it the intent to have all metal surfaces; the valves, piping etc. to be shot blasted for preparation or will "factory prime" coating be acceptable prior to field application of final painting coat?
Response 5:	Factory primed materials are acceptable for materials to be coated in the field after assembly per Section 09 96 00 – Performance Coatings.
Question 6:	Please provide a sales/design contact for the CALGONCARBON and chem feed (TUFF SKID) companies that were worked with for this design, we need scope and costs for their packages.
Response 6:	The Calgon Carbon equipment and materials were purchased by the City and will be delivered to the site. The requested Calgon contact information is: Adam Bettwy: 412-298-7153; Adam.Bettwy@kuraray.com, Christina Theys: 412-877-2530; Christina.Theys@kuraray.com, and Charles Drewry: 352-467-0103; Charles.Drewry@kuraray.com The chemical feed pump representative is Pyrz Water. The requested Pyrz contact information is: Bob Pyrz: 215-256-8430; bob@pyrzwater.com

5. ATTACHMENTS TO THIS ADDENDUM

A. PRE-BID MEETING MINUTES
B. PRE-BID MEETING SIGN-IN SHEET
C. REVISED SPECIFICATION SECTION 40 05 13 – PIPING, FITTINGS, AND ACCESSORIES – BID ADDEDUM #1

END OF ADDENDUM #1

CITY OF NEWARK
SOUTH WELLFIELD RESIN-GAC SYSTEM
CONTRACT 23-08
PRE-BID MEETING AGENDA, MAY 30, 2023 AT 10:00 AM

1. Sign-In and Introductions

A. **This is a MANDATORY Pre-Bid Meeting. All Contractors must sign-in and the email addresses provided will be used for future correspondence regarding project.**

B. The sign-in sheet is attached to the meeting minutes.

2. **Project Location –** South Wellfield Water Treatment Plant

3. **Background –** Ethan and Brian provided background information on the proposed resin-GAC units and the existing WTP.

A. The project is funded by the Delaware Drinking Water State Revolving Fund (DWSRF) Program. Projects funded by DWSRF are subject to the following provisions:

1. Delaware Prevailing Wage Regulations.
2. Davis-Bacon Wage Rates.
3. American Iron and Steel (AIS) Requirement.
4. Build America, Buy America (BABA) Act Compliance.
5. Bipartisan Infrastructure Law.
6. Minority Business and Women's Business Enterprise (MBE/WBE).
7. Disadvantage Business Enterprise (DBE) Program.

4. **Scope of Work** (See pages 34-45 for the contract documents)

A. Construction and installation of two Calgon Model 12-40 resin-GAC adsorber units.

1. The Calgon Model 12-40 resin-GAC adsorber units have already been purchased by the City. The estimated delivery timeframe of the units is late November.

B. Construction and installation of a concrete slab foundation for the adsorber units, concrete valve vault, wooden manifold enclosures, ductile iron water main piping, and sidewalks (new and existing).

C. Installation of a new sodium hypochlorite feed line and pump.

D. Installation of electrical equipment within the manifold enclosures, including lighting and unit heaters.

E. Associated electrical work for the manifold enclosures and resin/GAC systems, including power, controls, and SCADA monitoring.

F. Integration of new SCADA and controls will be by ACS (see attached ACS proposal).

G. Contractor shall connect the new water piping to the existing water effluent pipe.

H. WTP operation shall be maintained during construction of the concrete slab foundation and adsorber units. After the units have been installed, WTP operation may be shut down for a maximum of 3 calendar days (specific days to be coordinated with Contractor and City and can occur on either weekdays or weekends) for the construction of the concrete valve vault and associated piping, fittings, accessories, and controls. WTP operation shall resume for the remainder of the construction.

I. All new water lines must be hydrostatically tested and disinfected.

J. Plant new trees for vegetative screening.

K. Contractor shall take a pre-construction video/photographs prior to mobilization.

L. Contractor to submit as-built plans of all installed items at the end of work.

5. Contractor Questions

A. Any questions during the bidding period should be directed in writing via email to contracts@newark.de.us.

1. Email subject line shall be titled "RFI for Contract 23-08, South Wellfield Resin-GAC System".
2. All technical questions must be received no later than 5:00 pm on Tuesday, June 13, 2023.

6. Bidder Qualifications

A. **No contract will be awarded to any bidder who in the judgement of the City is not a responsible bidder, or is not prepared with all the necessary experience, capital, organization, and equipment to conduct and complete the work for which the bidder proposes to contract.**

7. Delivery of Bids

A. **Bids will be accepted as sealed hardcopies or emailed in PDF form to the City Purchasing Division at** contracts@newark.de.us**.**

B. Each bid shall be submitted on the "Proposal" form included herein, on pages 46-48.

C. The proposal and all other required documents must be submitted in a sealed envelope clearly identified with the bidder's name and marked "City of Newark Contract No. 23-08, SOUTH WELLFIELD RESIN-GAC SYSTEM."

D. Bids will be received until 2:00 PM, June 20, 2023 at the Purchasing Office, Newark Municipal Building, 220 South Main Street, Newark, DE 19711.

E. Bid Bond of 10% is required.

8. Opening of Bids/Award

A. Bids will be read at 2pm on Tuesday June 20th in the City Council chambers.

B. Award will be upon review and approval by City Council on July 10th meeting. Notice to Proceed as early as July 11th.

9. Bid Documents

A. Bid Proposal Form.

B. Bid Bond.

C. Non-Collusion Statement.

D. Equal Opportunity Affidavit.

E. Pre-Approval required for substitution.

10. Project Deadline

A. **90 calendar days** from Notice to Proceed. The City will consider product lead time and supply issues if encountered.

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11. Potential Damages

A. Liquidated damages of five hundred dollars ($500.00) per day may be assessed to the Contractor by the City for each day the contract is extended beyond the completion date. Liquidated damages are not to be construed as a penalty in any sense.

12. Addenda

A. An addendum will be issued (if needed) to address any changes to the project.

13. Contractor's Liability Insurance (see pages 26-27, General Provisions, Item 21)

A. This section should be reviewed and discussed with the City if there are any concerns prior to bid.

14. Permits (Scope of Work Item 3, see page 34)

A. DHSS ODW – Approval to Construct

15. Coordination (Scope of Work Item 4, see pages 34-35)

A. ACS – Controls Installation Proposal

16. Submittals (Scope of Work Item 5, see page 35)

A. Contractor shall submit all relevant AIS and BABA certifications concurrently with material and equipment shop drawings.

17. Security and Site Access (Scope of Work Item 7, see page 35)

A. Work area is on the City's private property. The City will issue a single badge to the Contractor that authorizes the Contractor to enter the site.

B. The City owns and maintains an electrical substation at the end of the access drive through the subject site. Staging areas, parked vehicles, and equipment shall be located such that they do not obstruct access to the electrical substation unless otherwise approved by the Owner.

C. The Contractor must keep the existing driveway within the site clear for electrical crews to enter the site if needed.

D. The Contractor shall maintain a minimum of 10' horizontal clearance from the overhead electric lines at all times. Should the Contractor require less than 10' of clearance to perform the work, the City will cover the overhead lines accordingly. The Contractor shall request the overhead lines be covered no less than 10 business days in advance.

E. The parking lot outside of the site is privately owned by the adjacent property owner. Care should be taken as to not damage, disturb, or block the parking lot. The Contractor may need to provide parking lot utilization updates and/or coordinate with the parking lot owner.

F. All Contractor equipment must be stored inside of the site. No equipment may be stored within the neighboring parking lot.

G. Contractor is responsible for establishing a laydown area and for the security of the equipment and materials related to the work.

H. The laydown area must be approved by the City before construction and restoration shall be completed by the Contractor incidental to contract price.

18. Work Restrictions (Scope of Work Item 8, see pages 35-36)

A. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction when deliveries may impact the public right-of-way.

B. On Site Work Hours: Monday thru Friday – 7:00 AM to 5:00 PM, or as approved by the City. The Contractor may work alternative times as coordinated with and permitted by the City.

C. Weekend Hours: Must be approved by the City. Contractor must submit request to work on weekends at least 5 business days in advance. The City indicated they could be flexible regarding weekend activity in regard to the slab construction to meet the delivery date.

D. Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than 5 days in advance of interruption.
2. Obtain Owner's written permission before proceeding with interruption.

E. Use of tobacco and other controlled substances on project sites is not permitted.

F. Contaminant spill response equipment shall be readily available on-site.

19. Coordination with the City (Scope of Work Item 13, see page 37; Sequence of Construction, see Sheet CS0001)

A. Contractor is to notify the City of the estimated time of completion of the concrete foundation slab so that the City can notify Calgon to schedule delivery of the units. The City will then notify Calgon and provide the Contractor with a 7 days notice of delivery.

B. Contractor is to coordinate with the City the specific days to shut down the WTP (maximum of 3 calendar days) for the construction of the concrete valve vault and associated piping, fittings, accessories, and controls. The 3 days can be weekdays or weekends.

20. Drawings

A. Sheet 13 lists the weight of each vessel.

CITY OF NEWARK
SOUTH WELLFIELD RESIN-GAC SYSTEM
CONTRACT 23-08
PRE-BID MEETING AGENDA, MAY 30, 2023 AT 10:00 AM

21. Questions From the Meeting

Question 1:	Who is responsible for providing the connections for the resin/GAC media and backwash?
Response 1:	The Contractor is responsible for providing the media and backwash connections. The types of connections are depicted on the plans.
Question 2:	Do the backwash piping/hoses need to be NSF certified?
Response 2:	Piping/hoses must be new and clean, but NSF certification is not required.
Question 3:	Who is responsible for filling/backwashing the tanks with the appropriate media?
Response 3:	The Contractor is responsible for filling the tanks with the appropriate media and for backwashing the tanks. The Contractor is to coordinate with Calgon for the delivery of the resin/GAC and to have a Calgon representative present to assist with the system startup/backwashing.
Question 4:	Is restoration of the lawn area around the existing driveway included as part of bid item #25 – Site Restoration?
Response 4:	Yes. The Contractor will be responsible for restoration of any lawn area around the existing driveway if disturbed.

Pennoni

City of Newark
Pre-BID Meeting Sign-In Sheet

Project: **South Wellfield Resin-GAC System**

Job Number: Contract No. 23-08

Project Location: South Wellfield WTP

Meeting Location: South Wellfield WTP, 912 S Chapel St, Newark, DE

Meeting Date: Tuesday, May 30, 2023 Meeting Time: 10:00 AM

Organization - Name / Address / Zip Code	Print and Sign Your Name	Telephone / Fax / Email
Pennoni Associates Inc.	~~Michael Ellis~~	Phone: 302-351-52[redacted]66
121 Continental Drive, Suite 207	BRIAN MILLER	
Newark, DE 19713		Email: bmiller ~~mellis~~@pennoni.com
Pennoni Associates Inc.	Erika Addison	Phone: 302-351-5263
121 Continental Drive, Suite 207		
Newark, DE 19713		Email: eaddison@pennoni.com
City of Newark	~~Mark Neimeister~~	Phone: 302-366-7000
220 Main Street	ETHAN	
Newark, DE 19711		Email: erobinson ~~mneimeister~~@newark.de.us
NOOTER CONSTRUCTION	CHET CONNEEN	Phone:
6 INTERPLEX CIR	CORY SABO	Mobile: 610-639-8979
BENSALEM, PA 19053		Email: CLCONNEEN@NOOTER.COM
CORRADO AMERICAN LL	DON LEO	Phone: 302-494-9890
200 MARCH LANE		Mobile:
NEW CASTLE DE 19720	RICK BOMHART	Email: DLEO@CORRADO.COM

RBOMHART@CORRADO.COM
302-669-6063

Pennoni

City of Newark
Pre-BID Meeting Sign-In Sheet

Organization - Name / Address / Zip Code	Print and Sign Your Name	Telephone / Fax / Email
A-DEL CONSTRUCTION CO., INC.	ROBERT KEMSKE	Phone: 302-453-8286 EXT. 116
10 ADEL DRIVE		Mobile: 302-383-3095
NEWARK, DE 19702		Email: RKEMSKE@A-DEL.com
TRINITY SUBSURFACE	TRACEY SHOEMAKER	Phone:
14 HADCO RD		Mobile: 302-593-1412
WILM DE 19804		Email: tracey@trinitysubsurface.com
MERIT CONSTRUCTION	JOHN EVERHART	Phone: 302-997-9810
5700 KIRKWOOD HGY, SUITE 201		Mobile: 302-275-7006
WILMINGTON, DE 19808		Email: johne@mce85.com
CITY OF NEWARK, DE	TF (TIM FILASKY)	Phone:
		Mobile:
		Email:
		Phone:
		Mobile:
		Email:
		Phone:
		Mobile:
		Email:

SECTION 40 05 13 – PIPING, FITTINGS, AND ACCESSORIES

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Pressure Filter and Finished Water Piping, Valves, Fittings, and Accessories

1.2 QUALITY ASSURANCE

A. All pipe, appurtenances and installation shall conform to the applicable AWWA Standard.

B. Ductile Iron Pipe: AWWA C151; Ductile Iron Pipe, Centrifugally Cast or Sand Lined Molds, for water or other liquids.

C. Cement Lining: AWWA C104; Cement-Mortar Lining for Ductile Iron and Gray Iron Pipe and Fittings for water.

D. Rubber Gasket Joints: AWWA C111; Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings.

E. Fittings: AWWA C110; Gray Iron and Ductile Iron Fittings, 3 inch through 48 inch, for water and other liquids.

F. Flanged Pipe: AWWA C115; Flanged Cast Iron and Ductile Iron Pipe with Threaded Flanges.

G. Installation: AWWA C600; Installation of Gray and Ductile Cast Iron Water Mains and Appurtenances.

H. Manufacturer's name and applicable manufacturing specifications data shall be on all pipe and appurtenances.

I. ASTM A-436: Austenitic Gray Iron Castings.

J. Ductile Iron Pipe: AWWA C150; Thickness Design of Ductile-Iron Pipe.

1.3 SUBMITTALS

A. Submit manufacturer's certification that the pipe and appurtenances have been manufactured in accordance with the applicable AWWA standard and these specifications.

B. Submit product data on all valves, fittings, and service fittings.

PART 2 - MATERIALS

2.1 DUCTILE IRON PIPE AND FITTINGS

A. All buried pipe 3" or larger shall be Ductile Iron (AWWA C151) Class 52 push on or mechanical joint (AWWA C 111); all non-buried pipe shall be Class 52 Ductile Iron Flanged Joint (AWWA C115) unless otherwise indicated. Pipe shall be as manufactured by the American Cast Iron Pipe Co., U.S. Pipe Co. or approved alternate.

B. Fittings shall be Ductile Iron mechanical joint (AWWA C153), Class 250 as manufactured by American Cast Iron Pipe Co., U.S. Pipe Co., or approved equal. Fittings shall be furnished suitable for use with the type of pipe specified herein.

C. Flanged fittings shall be Ductile Iron rated for 250 psi working pressure and shall conform to the applicable provisions of AWWA C110 and C115. The flange shall be drilled according to ANSI B16.1, Class 125.

D. Buried fittings shall have mechanical joints and shall be AWWA Compact C153. Fittings shall be furnished suitable for use with the type of pipe specified.

E. Cement mortar lining and seal coating for all pipe and fittings shall be in accordance with ANSI A 21.4-AWWA C104. Bituminous outside coating shall be in accordance with ANSI A 21.51 AWWA C151 for pipe and ANSI A 21.10 AWWA C110 for fittings.

F. Non-buried, flanged pipes and fittings shall have arc-applied or paint-applied, 99.99% pure zinc coating, having a mass of 200g/m² with a finished layer of standard shop-applied primer paint in accordance with AWWA C151. Pipe markings shall include the word “ZINC” in the pipe markings or label required by AWWA C151 and/or other markings as deemed appropriate by the manufacturer.

1. Zinc coating shall comply with all applicable parts of ISO 8179 for zinc coatings.
2. Shop applied primer coat shall be provided for pipe installed interior to vault or building areas.
3. Field applied performance coating shall be provided upon completion in piping installation.

2.2 RESTRAINED JOINT COUPLING

A. CASTINGS: All cast components (end rings, center ring and bolt guides) are ductile iron, meeting or exceeding the requirements of ASTM A536, grade 65-45-12.

B. FLANGE: Compatible with flat face flanges with ANSI Class 125 and 150 bolt circles. See page 10-6 for filler flange.

C. GRIPPERS: Ductile (nodular) iron, meeting, or exceeding ASTM A536, grade 65-45-12.

1. Machine sharpened and heat treated.

2. PPG Xylan 1424 coated for corrosion protection.

D. GASKET: SBR compounded for water and sewer service in accordance with ASTM D2000. NBR available upon request.

1. NSF/ ANSI 61 & 372 Certified.

E. DRAW-HOOK FASTENERS: 304L stainless steel.

F. RAMP RUNNERS: Reinforced nylon.

G. BOLT & NUT: 304 stainless steel, 5/8-11 bolts with heavy hex e-coated nuts. Fasteners provided with anti-galling protection.

H. WASHER: 304 Stainless steel.

I. COATINGS: Flanged coupling Romacoat fusion bonded epoxy, NSF 61 certified. End rings are Romabond polyester.

J. WORKING PRESSURE: Up to 350 PSI.

K. Coupling shall be ROMAC ALPHA FC flanged coupling or approved equal.

2.3 GASKETS AND BOLTING MATERIALS

A. Provide all gaskets, bolts, lubricant, and other accessories required to install pipe, fittings, and specials complete and ready for service.

B. Gaskets shall be 1/8 inch thick, cloth inserted synthetic rubber full face gaskets with holes punched for flanges conforming to AWWA C-111. Gaskets for ductile iron flanged pipe and fittings 12 inches and smaller shall have "nominal" inside diameters, not the larger inside diameters, per ANSI B16.21.

C. Gaskets and bolts for other than flanged joints shall be as otherwise specified for pipe and pipe joints.

D. Flanged Dismantling Joints

1. Flanged Dismantling Joints (non-restraint) shall be ROMAC, Smith-Blair Type 971, or approved equal.
2. Flanged Dismantling Joints (restraint) shall be ROMAC, Smith-Blair Type 975 or approved equal.

2.4 VALVES

A. Butterfly Valve (Actuator Controlled)

1. Mueller Henry Pratt 2FII

2. Flomatic SYLAX 3 butterfly valve, lug connection, NSF/ANSI 61 certified with ductile iron body, EPDM vulcanized seat, stainless-steel stem and disc, 250 PSI bi-directional pressure rating, for use with ANSI 125/150 flanges, actuator shaft connection.

2.5 VALVE ACTUATOR

A. Acceptable Manufacturer

1. Harold Beck & Sons, Inc. Model 11-163

B. Features

1. Electric actuators shall conform to the requirements of AWWA Standard C540-93. The gearbox case shall be epoxy coated ductile iron. Motor case and cover shall be aluminum. All external fasteners on the electric actuator will be stainless steel.
2. The actuation time shall be a minimum of 60 seconds.
3. Actuators shall contain electric motor, gearing, manual over-ride, limit switches, torque switches, reversing contactor, drive coupling, hand wheel, integral motor controls, and In-Automatic feedback contact.
4. Motor speed reduction shall be by means of a gear train consisting of hardened steel spur gears and self-locking worm and worm gear set. The worm shall be heat-treated alloy steel and have worm thread surface rolled or ground. The worm gear shall be bronze. Non-metallic gears in the power train are not acceptable.
5. The motor shall be designed for actuator service, totally enclosed, non-ventilated, 120 volt, 1-phase 60 Hz, NEMA 4, Class F insulation and protected by means of thermal switches.
6. The actuator shall be equipped with a manual hand wheel for manual mode operation.
7. Limit switches shall be geared to the drive mechanism. Cams attached to the valve shaft or travel type limit switches are unacceptable. Limit switches shall be capable of indicating valve travel during manual operation. Limit switches shall be rated 2A at 120-volt AC, minimum. Two (2) sets of NO and NC contacts shall be provided for each direction of travel.
8. The actuator shall include an adjustable torque switch to interrupt the motor power when an obstruction is encounter in either opening or closing direction.
9. The actuator shall include mechanical limit stops to restrict valve travel.

C. Controls

1. Actuators shall be furnished with NEMA 4 enclosure. The control voltage shall be 120 volts. Actuators will be capable of operating in an ambient temperature range of -20°F to +160°F.
2. The actuator shall be furnished with a terminal chamber. The terminals shall allow installation of bare wire(s) or with crimped terminations. All wire termination screws shall be factory installed. Terminal identification shall be clearly marked as an integral part of the terminal strip.
3. Local Operation shall be by an Open and Close control knob and a Local, Stop, and Remote selector knob.

2.6 STAINLESS STEEL PIPE AND FITTINGS

A. Pipe

1. Forged stainless steel material conforms to ASME SA182 Grades F304/304L & F316/316L.
2. Forged stainless steel flange dimensions conform to ASME B16.5.
3. NPT threads conform to ASME B1.20.1.
4. Manufacturing facility is ISO 9001:2008.
5. Stainless steel plate flange dimensions conform to ASME B16.5 Class 150.
6. Stainless steel plate flange made from ASTM A240 plate or cast in conformance with ASTM A351

B. Camlock Connection

1. 316 Stainless Steel.
2. Seal: Buna.
3. Includes Safety Pins.
4. Type: “B” Quick Disconnect.
5. Type “B” female camlock (Cam & Groove) coupler to male NPT threads.
6. NSF/ANSI/CAN 61 Section 8, Annex G (1/4” to 2”).

2.7 STAINLESS STEEL VALVES

A. Stainless Steel Full-Port Ball Valve

1. Female NPT Thread, 1/4”-3” 1000 CWP (psig), Cold Non-Shock.
2. 150 psig Saturated Steam.
3. Vacuum Service to 29 inches Hg. MSS SP-110 Compliant.
4. Designed, cast, machined, assembled, and 100% factory tested in USA.
5. NSF/ANSI/CAN 61 Section 8, Annex G (1/4” to 2”).
6. NSF/ANSI 372 - Drinking Water System Components – Lead Content.
7. Apollo Valve 76F Series CF8M or approved equal.

2.8 PIPE SUPPORTS

A. Support horizontal piping so that no strain is exerted on any equipment, machinery or piping due to weight of piping.

B. Where practical, support riser piping independently of connected horizontal piping.

PART 3 - EXECUTION

3.1 VALVE ACTUATOR

A. Field Installation

1. Install valves, actuators, extensions, valve boxes, and accessories according to manufacturer instructions.
2. Firmly support valves to avoid undue stresses on piping.
3. Coat studs, bolts, and nuts with anti-seizing lubricant.
4. Verify valve torque requirements.
5. Verify valve travel so that limits can be factory set.
6. Provide required valve extension and mounting hardware.
7. Coordinate control and power connections.

B. Start-Up

1. The Contractor shall coordinate with the manufacturer's authorized service representative to inspect the finished wiring and installation and then place the actuator in service, and then exercise each the valve over its full range in operating local and remote.

C. Training

1. Manufacturer's authorized service representative shall provide operational and maintenance training in a 4-hour training session.

3.2 HYDROSTATIC TESTING

A. Pressure Testing

1. Before being tested, buried piping shall be backfilled to a safe level and thrust restraint suitable to withstand the hydrostatic test pressure shall be in place. Pipelines shall be thoroughly flushed to remove all foreign materials which may have entered the pipe during construction.
2. The Contractor shall hydrostatically test all water mains at a pressure of 150 psi, maintained for a period of not less than 4 hours. Allowable leakage is AWWA standards and CIPRA recommendations.

B. Should any of these tests on a section of pipeline disclose an inability to hold the stipulated test pressure or leakage in an amount greater than that permitted, the Contractor shall, at his own expense, locate and correct any defects and retest same to the satisfaction of the Engineer.

3.3 DISINFECTING WATER MAINS

A. All newly installed water mains shall be disinfected in accordance with the applicable section of AWWA Standard C601-81.

END OF SECTION