To: All Plan Holders of Record

From: Verdantas LLC
For the Owner

Re: ***Addendum No. 1***
Route 19 Water System Pump Station
Summit Township Water Authority, PA

Date: September 5, 2025

This Addendum forms a part of the contract documents and modifies the original bidding documents dated August 2025 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.

This Addendum modifies the original bidding documents as follows:

1. Paint all new interior masonry surfaces with one coat block filler, 2 coats of finish. Patch and paint all existing masonry surfaces with one coat of finish.

2. Seal interior concrete slab, install vinyl base.

3. Prime and paint new drywall ceiling, paint existing ceiling one coat.

4. Prime and paint all water piping support bracing.

5. Remove existing T-111, install Double 8 Vinyl Siding System at gables.

6. Remove and replace existing fascia and soffit system at remaining rakes.

7. Install downspout and elbows on east elevation. Rework boot condition.

8. Asphalt Shingle Roofing System to be Owens-Corning Timberline HDZ Shakewood, 130 MPH, Limited Lifetime Warranty, or equivalent.

9. 2 Foot vertical maximum x 4 foot horizontal footer/foundation stepping is acceptable. Verify modifications meet minimum frost depth requirements.

10. Contractor to provide graded swale and piped yard drain at new concrete slab directing surface stormwater to existing catch basin at east side of building.

PRE-BID CONFERENCE

Attached are the Meeting Agenda/Notes and sign-in sheet.

BID FORMS

Replace Bid Form, Page BF.18, with the enclosed Bid Form, Page BF.18A.

SPECIFICATIONS

Add the following Specification Sections:

013319 – Field Test Reporting
013326 – Product Testing and Certifying
014126 – General Regulations and Permits
014323 – Qualifications of Tradesman
016600 – Product Handling and Protection
331113.11 – Pump Station Alterations

PREVAILING WAGES

Heavy and Highway – Decision No. PA20250088, Modification No. 10, dated 08/22/2025

Bidders shall utilize this revised decision when compiling their Bid.

PLANS

Replace plan sheets A2 with the enclosed Revised plan sheet A2 with Strainer Location.

JZ/JC:mep

Enclosures

H:\2024\241940\SPEC\Adenda\Addendum 01\Addendum 01.Doc

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Meeting Agenda/Notes

Date	August 25, 2025
Time	10:00 AM
Location	East End of Old Hershey Rd, Erie PA
Subject	Pre-Bid Meeting
Project Number	CTC.0024194000
Invitees	All Prospective Bidders

1. Meeting Summary

- On site meeting was held so potential bidders could view the site and existing booster pump station facility and match up the drawings for the proposed addition.
  - Attendees consisted of the following.
    - Brian Hiles, Summit Township Water Authority
    - Gary Matczak, Gary Matczak Architects
    - Reid Scott, Verdantas
    - John Zack, Verdantas
    - David Tillotson, Frontier General Contracting
    - Marty Slladanowski, Keystone Electric
    - Wes McLallen, Konzel Construction
  - Discussions were centered around the acceptable amount of time needed to shut down the booster pump station to make the new connections.

2. Action Items

- An addendum will be issued following contractor RFI's.

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Summit Township Water Authority
Hershey Road Booster Pump Station
Pre-Bid Meeting August 25, 2025

Company Name	Representative	Email Address	Phone #
Frontis General Contractor	David T Hlotsan	dthlotsan@frontisgc.net	814-384-5590
KEYSTONE Electric	MANNY Skladanowski	mskladanowski@zenithsystems.com	814-382-0034
~~WES McCALLEN~~ KONZEL CONST.	WES McCALLEN	wes.mccallen@konzelconstruction.com	814-431-3520

The Bidder hereby acknowledges that they have reviewed the following addenda:

Addendum No.						
Date:						

The undersigned, having full knowledge of the plans and specifications for the improvements and the conditions of the Proposal hereby agree to furnish all the services, labor, materials, and equipment necessary to complete the work according to the plans and specifications and to accept as full compensation the lump sum or the unit prices specified serving as deduct or extra compensation rates.

And We (or I) do hereby agree that in the event of failure on OUR part to contract as aforesaid (provided this Proposal is accepted) the Bid Bond, Check or Letter of Credit accompanying this Proposal shall be forfeited to the Owner as liquidated damages for the difference between this bid and the awarded Contract price, not to exceed the amount of bond. We further agree that the Owner may reject any or all bids.

By signature below, I hereby certify that **I AND MY Insurance Agent have examined the insurance requirements** in the specifications and that the types and amounts of same are currently in effect or will be obtained and kept in effect for the project duration and that my Insurance Agent has assured that notification of non-renewal, policy modification, and/or cancellation to all certificate holders will occur per the contract requirements. Verification will be provided to the Owner subsequent to the issuance of a Notice of Award.

BF.18A

Submitted by,

Firm, Corporation, or Individual	Officer's Name and Title (typed)	Telephone Number
Street Address	Officer's Signature	Fax Number
City, State, Zip Code	Date	E-Mail Address
Unique Entity Identifier Number (UEI) SAM.gov	Ohio Secretary of State ID Number	Federal Tax ID Number

Note: Evidence of authority to sign must be affixed and attested by the Secretary.

COMPLETION DATE: JUNE 5, 2026

LIQUIDATED DAMAGES: $1,000.00 PER DAY

SECTION 013319 - FIELD TEST REPORTING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes, but is not limited to, services performed by (*an independent) (a)* testing laboratory. Laboratory services covered under this section are for testing materials used for field constructed elements of the work. Performance testing of manufactured items and shop fabricated materials shall be covered under their respective specification section.

B. All testing performed under this item shall be for the protection and benefit of the Owner and shall not be construed by the Contractor as a comprehensive quality control program intended to protect the Contractor, his subcontractors, or his suppliers. The testing frequency and types of testing shall be *at the discretion of the Owner.*

C. Inspections, tests, and related actions specified in this section and elsewhere in the contract documents are not intended to limit the Contractor's own quality control procedures and testing, which facilitate overall compliance with requirements of the contract documents. Requirements for the Contractor to provide quality control services as required by the Engineer, the Owner, governing authorities, or other authorized entities are not limited by the provisions of this Section.

E. Materials and installed work may require testing or retesting at any time during progress of work. Retesting of rejected materials or installed work shall be done at Contractor's expense.

1.2 RELATED DOCUMENTS

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

B. The Contract Documents may include testing requirements furnished under other Sections. Work elements which may include other testing requirements are:
   1. Water piping systems.

1.3 SELECTION AND PAYMENT

A. The Contractor will employ an independent testing laboratory to perform specified testing. Payment shall be incidental to the related work bid item. The laboratory shall be mutually agreed upon by the Owner, Engineer, and Contractor.

B. Employment of testing laboratory in no way relieves the Contractor of the obligation to perform work in accordance with requirements of the contract documents.

C. The testing laboratory and their personnel shall be under the direction of the Engineer's on-site representative, regardless of who employs their services.

1.4 REFERENCES

A. ASTM C-31, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
B. ASTM C-33, Standard Specification for Concrete Aggregates.
C. ASTM C-39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
D. ASTM C-94, Standard Specification for Ready-Mixed Concrete.

1.5 SUBMITTALS

A. Prior to the start of work, submit testing laboratory name, address, and telephone number, and names of full-time *specialist* and responsible officer.

B. Submit copy of the testing laboratory's evaluation report issued by one of the evaluation authorities identified in Article 1.6 of this Section with memorandum of remedies of any deficiencies reported by the inspection.

C. Submit the chain of custody and other QA/QC procedures for each test to be utilized by the laboratory.

D. Submit a sample test report for review by the Engineer to demonstrate conformance with Article 3.2 herein.

1.6 QUALITY ASSURANCE

A. The field personnel utilized to perform all field-testing and preparation shall be certified for those tests being performed.

1.7 RESPONSIBILITIES

A. Testing Laboratory Responsibilities:
    1. Provide qualified personnel at the site. Cooperate with the Engineer and Contractor in performance of services.
    2. Perform specified sampling and testing of products in accordance with the specified standards.
    3.
    4. Immediately notify the Engineer and Contractor of observed irregularities or nonconformance of work or products.
    5. Perform additional tests required by the Engineer.
    6. Testing personnel are to report to the Engineer or his representative upon arrival on site for instructions and requirements. Prior to leaving the site, furnish the Engineer or his representative all test results whether in a formal or informal format.
    7. Attend preconstruction meetings and progress meetings.
B. Contractor Responsibilities:
    1. Provide access to materials proposed to be used which require testing.
    2. Cooperate with laboratory personnel and provide access to the work *(and to manufacturers' facilities).*
    3. Provide incidental labor and facilities:
        a. To provide access to work to be tested.
        b. To obtain and handle samples at the site or at the source of products to be tested.
        c. To facilitate tests.

d. To provide storage and curing of test samples as required by the testing laboratory.

4. Notify the Engineer *(and laboratory)* 24 hours prior to expected time for operations requiring testing services for scheduling purposes. Materials will not be permitted to be placed without the proper testing being performed in conformance with this Section.

1.8 LIMITS OF LABORATORY AUTHORITY

A. The laboratory may not release, revoke, alter, or enlarge the requirements of the contract documents.

B. The laboratory may not approve or accept any portion of the work.

C. The laboratory may not assume any duties of the Contractor.

D. The laboratory has no authority to stop the work.

1.9 SCHEDULE OF TESTS

Testing anticipated on this project shall include, but is not limited to:

2. Leakage Testing
   a. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
   b. 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.
   c. 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.
   d. 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.
   e. 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.
   f. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

8. Hydrostatic Testing – Pressure Pipe, For Watermain and Force Main
   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.
f. The hydrostatic testing sheet marked "Exhibit D" following this section shall be filled out for each section of piping tested in this manner.
g. After the pipe has been installed and partially backfilled (if applicable) subject all newly installed pipe, or any valved sections of it in such lengths of the force main as determined by the responsible agency, unless otherwise specified, to a hydrostatic pressure test equal to 1-1/2 times the line working pressure (50% over the working pressure) but not less than 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 150 pounds per square inch.. The duration of each test shall be at least 2 hours.
h. 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.
i. No pipe installation will be accepted unless the leakage rate for the section of pipe being tested does not exceed a rate as shown on hydrostatic test chart, during a 24-hour test duration.
j. The Contractor shall furnish suitable means for determining the quantity of water lost by leakage during the test.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION

3.1 SEQUENCING AND SCHEDULING

A. The Contractor shall coordinate the sequence of work activities so as to accommodate required testing and shall allow sufficient time for testing of materials by the laboratory so as to cause no delay in the work or the work of any other Contractor. In addition, the Contractor shall coordinate his work so as to avoid the necessity of removing and replacing work to accommodate inspections and tests.

3.2 LABORATORY TEST RESULTS

A. The testing laboratory shall submit a certified written report of each inspection, test, or similar service concurrently to the Owner, Engineer, and Contractor.

B. Written reports of each inspection, test, or similar service shall include, but not be limited to, the following:
1. Name of testing laboratory.
2. Project name and construction contract reference number.
3. Dates and locations of samples and tests or inspections.
4. Date of report.

5. Names of individuals making the inspection or test.
6. Designation of the work and test method.
7. Test results.
8. Notation of significant ambient conditions at the time of sample taking and testing.

END OF SECTION 013319

VERDANTAS, LLC - HYDROSTATIC LEAKAGE TEST

JOB. NO. _____ PROJECT: _____

CONTRACTOR: _____ CLIENT: _____

WATERLINE TESTED AT: _____ _____
(Street Name) (Station of Gauge)

FROM STATION _____ TO STATION _____ ON _____

WATERLINE SIZE _____ TYPE _____

TESTED _____ , _____ AT _____ FOR _____
TOTAL L.F. PIPE SIZE PSI DURATION

ALLOWABLE LEAKAGE _____ PER 1,000 L.F. OR _____ PER _____
GALS./HR. TOTAL GALS. TOTAL L.F.

1ST TEST _____, _____ AND _____
PASS / FAIL PRESSURE LOST GALLONS LOST

2nd TEST _____, _____ AND _____
PASS / FAIL PRESSURE LOST GALLONS LOST

APPROVED BY _____
(INSPECTOR)

COMMENTS: _____

_____

ALLOWABLE LEAKAGE PER 1,000 FEET OF WATERMAIN:

PIPE SIZE INCH DIAMETER	ALLOWABLE LEAKAGE GALS. / 1,000 FEET
6	1
8	1.3
10	1.6
12	1.9
16	2.5
20	3.2
24	3.8
30	4.8
36	5.7

NOTE: IN NO CASE SHALL THE TESTED SECTION EXCEED 2,000 FEET IN LENGTH.

SECTION 013326 – PRODUCT TESTING AND CERTIFYING

PART 1 - GENERAL

1.1 QUALITY OF MATERIALS

A. Where the specifications call for mill or shop tests, the Contractor shall furnish duplicate copies of attested manufacturer's certificates showing details of quality or performance sufficient to demonstrate conformity to contract requirements. Mill, shop or witness tests shall be subject to view by the Engineer's representative, but the Engineer's representation shall not relieve the Contractor from the necessity of furnishing certificates specified. The Engineer shall be notified by the Contractor in writing, sufficiently in advance of the time of making tests, so that proper arrangements may be made. Waiving of witness of tests by the Engineer may be in writing only by the Engineer. All costs for travel, lodging, food and transportation that are necessary for the Engineer's representative and the Owner's representative to attend witness tests shall be included in the Contractor's bid for those item(s) specifically designated as being subject to witness testing.

B. Unless otherwise specified, all materials, equipment and articles shall be erected, installed, applied, or connected, used, cleaned and conditioned in accordance with the printed instructions and directions of the manufacturer.

C. The installation shall be so made that its several component parts will function together as a workable system. It shall be complete with all accessories necessary for its operation and shall be left with all equipment properly adjusted and in working order.

D. The work shall be executed in conformity with the best practice and so as to contribute to efficiency of operation, minimum maintenance, accessibility and sightliness. It shall also be executed so that the installation will conform and accommodate itself to the building structure, its equipment and usage.

E. Whenever in the contract documents a particular brand, make of material, device or equipment is shown or specified, such brand, make of material, device or equipment is to be regarded merely as a standard and such trade name shall be followed by "or equal".

1.2 QUALITY ASSURANCE

A. The equipment and materials to be furnished under this Contract shall be the products of well established and reliable firms which have had ample experience for at least five (5) years in the manufacture of equipment or materials similar in design and of equal quality to that specified. If required, the manufacturer shall submit a list of installations of similar equipment which have been in successful operation for at least five (5) years.

1.3 EXPERIENCE CLAUSE REQUIREMENT AND PERFORMANCE BONDS FOR MANUFACTURER

A. For every piece of equipment furnished under this Contract, the manufacturer will be required to have a minimum of five (5) years of experience in providing this specific type

of equipment. In lieu of this experience requirement, the manufacturer will be required to provide performance bond(s) for the faithful performance of the equipment and guarantee payment in a sum of not less than one hundred and fifty percent (150%) of the total equipment price for the completed work for that item. In the absence of verifiable experience, the manufacturer will be required to provide the performance bond(s) for the same number of years that the manufacturer was found lacking in experience from the specified five (5) year period. The performance bond(s) shall be from an approved surety company, to the satisfaction of the Owner's Law Director.

B. Agents of bonding companies which write bonds for the performance and payment of the contract shall furnish power of attorney bearing the seal of the company, evidencing such agent's authority to execute the particular type of bond to be furnished, and evidencing also the right of the surety company to do business in the State of Pennsylvania. Copy of this proof shall be attached to each copy of the contract.

C. The bond shall be purchased through a surety company with a local agent upon whom service of process can be made.

D. In event of failure of surety or co-surety, the manufacturer shall immediately furnish a new bond, as required herein. The manufacturer's bond will not be released until all provisions of the contract have been fulfilled.

E. The surety used for the bid bond and performance bond shall be listed in the latest U.S. Treasury Circular 570 and the Penal Sums shall be within the maximum specified for such company in said Circular 570.

END OF SECTION 013326

SECTION 014126 - GENERAL REGULATIONS AND PERMITS

PART 1 - GENERAL

1.1 REGISTRATION

All Contractors and subcontractors shall be registered with the Building Department having jurisdiction. Contact the Building Department for additional registration information.

1.2 PERMITS

The Contractor shall apply for and pay for all permits from the Owner and/or other authorities having jurisdiction.

END OF SECTION 014126

SECTION 014323 – QUALIFICATIONS OF TRADESMEN

PART 1 - GENERAL

1.1 CHARACTER OF WORKMEN AND EQUIPMENT

A. The Contractor shall employ competent and efficient workmen for every kind of work. Any person employed on the work who shall refuse or neglect to obey directions of the Owner or his representative, or who shall be deemed incompetent or disorderly, or who shall commit trespass upon public or private property in the vicinity of the work, shall be dismissed when the Owner so orders, and shall not be re-employed unless express permission be given by the Owner. The methods, equipment and appliances used on the work and the labor employed shall be such as will produce a satisfactory quality of work, and shall be adequate to complete the contract within the specified time limit.

B. In hiring of employees for the performance of work under this Contract, or any Subcontract hereunder, no Contractor or Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor, shall, by reason of race, sex, creed or color, discriminate against any citizen of the State of Pennsylvania in the work to which the employment relates. No Contractor, Subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, creed, sex or color.

END OF SECTION 014323

SECTION 016600 - PRODUCT HANDLING AND PROTECTION

PART 1 - GENERAL

1.1 DELIVERY AND STORAGE OF MATERIALS

A. The Contractor shall be responsible for delivery and storage of all materials.

B. The Contractor shall coordinate with the Engineer on the arrangement for storing construction materials and equipment. Deliveries of all construction materials and equipment should be made at suitable times.

C. The Contractor shall store all materials required for the performance of this contract at sites designated by the Engineer.

D. All stockpiles shall be neat, compact, completely safe, and barricaded with warning lights if necessary.

E. Precautions shall be taken so that no shade trees, shrubs, flowers, sidewalks, driveways or other facilities will be damaged by the storage of materials. The Contractor shall be responsible for the restoration of all stockpile sites to their original condition.

F. Materials, tools and machinery shall not be piled or placed against shade trees, unless they shall be amply protected against injury therefrom. All materials, tools, machinery, etc. stored upon public thoroughfares must be provided with red lights at night time so as to warn the traffic of such obstruction.

G. Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, shall again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. Approved portions of the construction site may be used for storage purposes and for the placing of the Contractor's plant and equipment, but any additional space required therefore must be provided by the Contractor at his expense. Private property shall not be used for storage purposes without written permission of the property owner or lessee, and copies of such written permission shall be furnished the Engineer. All storage sites shall be restored to their original condition by the Contractor at his expense.

END OF SECTION 016600

SECTION 331113.11 – PUMP STATION ALTERATIONS

PART 1 – GENERAL

1.1 SUMMARY

A. Furnishing all labor, materials, tools, equipment, and services for all waterlines as shown on the Drawings.

B. Although such is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a functional and complete installation.

1.2 RELATED DOCUMENTS AND SECTIONS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions (if included), and Division 1 Specifications Sections, apply to this Section.

B. Section 013319 – Field Testing Requirements

C. Section 013326 – Product Testing and Certifying

D. Section 014126 – General Regulations and Permits

E. Section 014323 – Qualifications of Tradesmen

F. Section 016600 – Product Handling and Protection

1.3 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

A. Model 350 AST Double Check Valve Assembly 8 Inch Model with two gate valves. See attached reference sheet.

B. Neptune MACH 10 Ultrasonic Meter 8 Inch Model. See attached reference sheet.

1.4 SUBMITTALS

A. Manufacturer's Affidavit: The manufacturer shall furnish an affidavit indicating that all pipe, fittings, valves, and appurtenances have been manufactured and tested in accordance with the requirements of the applicable referenced Standards. A copy of the affidavit indicating the Project on which the material is to be used, shall be forwarded to ENGINEER prior to construction.

B. Shop Drawings: Submit information for the following items.

- Pipe Support System

1.5 REFERENCES

A. AWWA C110 - Ductile-Iron and Gray-Iron Fittings

B. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

C. AWWA C116 - Protective Fusion-Bonded Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings

D. AWWA C150 - Thickness Design of Ductile-Iron Pipe

E. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast

F. AWWA C153 - Ductile-Iron Compact Fittings

G. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service

H. AWWA C515 - Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service

I. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances

J. AWWA C651 - Disinfecting Water Mains

K. ASTM A47 - Standard Specification for Ferritic Malleable Iron Castings

L. ASTM A48 - Standard Specification for Gray Iron Castings

M. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings

1.6 QUALITY ASSURANCE

A. Comply with all provisions of Section 014323 – Qualifications of Tradesmen.

B. Comply with all provisions of Section 014126 – General Regulations and Permits.

C. All pipes, fittings, valves, and appurtenances shall be appropriately marked for identification purposes. The materials and methods of manufacture, and completed pipes, fittings, valves, and appurtenances shall be subject to inspection and rejection at all times. OWNER and ENGINEER have the right to make inspections.

1.7 PROJECT CONDITIONS

A. Environmental Requirements

Add any project specific requirements related to environmental issues at the project site

B. Existing Conditions

1. Protect existing structures and utilities from damage. Repair if damaged by this work.
2. Do not change pipe sizes without securing written approval of Engineer.

C. Field Measurements
1. If Contractor initiated, make changes approved by the Engineer without added cost to Owner.

1.8 DELIVERY STORAGE AND HANDLING

A. Deliver products to the site, store and protect under provisions of Section 016600 – Product Handling and Protection.

B. At no time shall other pipes or materials be placed in the pipes.

C. Repair damage to pipe exterior and interior surfaces; pipe so damaged subject to rejection.

1.9 COORDINATION WITH THE OWNER

A. The Engineer and Owner reserve the right to dictate the sequence delivery, and construction of the station alterations. Based on weather conditions and other factors that might legitimately affect the installation scheduling, the manufacturer may be required to hold the station deliveries up to 90 days; but in doing so, the equipment manufacturer may submit a pay request for the cost of the stored materials along with any insurance or other documentation requested by the Engineer and Owner.

PART 2 – PRODUCTS

2.1 WATERMAIN PIPE AND FITTINGS

A. Ductile Iron Pipe and Fittings
1. Pipe shall be designed in accordance with AWWA C150, minimum Thickness Class 52, minimum Pressure Class 350.
2. Fittings: To be in accordance with AWWA C110 or C153.
3. Exterior Coating: Pipe and fittings to be coated with a fusion-bonded epoxy coating in accordance with AWWA C116.
4. Interior Lining: AWWA C116 fusion-bonded epoxy coating.
5. Joints: To be flanged in accordance with AWWA C111, rubber gasket.
   a. For all bolted joints, bolt length shall be such that all threads of the nut will be engaged.
   b. Flange: To be in accordance with AWWA C115-20, 150 psi rated minimum. Zinco-platted bolts and nuts. Include C111 rubber gasket, ring or full face.

B. Coupling
1. Coupling shall be the Smith Blair Dresser OMNI Cast Coupling – STD Sleeve Model 441 8 Inch or approved equal by Engineer. See attached reference sheet.

2.2 VALVES

C. Gate Valve
1. The isolating valve as shown shall be a full ported gate valve meeting the requirements of AWWA C509 or AWWA C-515 designed for 200 psi working pressure. The body, bonnet, wedge and seal plate shall be ductile iron in accordance with ASTM A536. The wedge shall be totally encapsulated in rubber. The rubber coating shall be permanently bonded to the ductile iron wedge casting and shall meet ASTM D429 tests for rubber to metal bonding. No paint shall be allowed in the wedge and the wedge must not be hollow. All gaskets shall be O-ring seals. All fasteners are to be 304 stainless steel. The body, bonnet and seal plate shall be epoxy coated in accordance with ANSI/AWWA C550 certified to NSF 61. The coating shall be on the interior and exterior of the valve.
2. The valves are to be non-rising stem with handwheel operator, opening left.
3. The valve body shall be flanged and drilled to ANSI B16.1, Class 125.
4. Valve maximum working pressure rating shall be 250 psi.
5. THE GATE VALVE SHALL BE MUELLER VALVE MODEL A-2360-8 OR APPROVED EQUAL.

D. Operators
1. Manual Operation
   a. Valves shall be equipped with nut, gears, and other appurtenances as required for manual operation as specified or scheduled.
   b. Operation shall be designed so that the effort required operating the handwheel or lever shall not exceed 25 lbs. applied at the extremity of the wheel or lever.
   c. Handwheels on valves 4 in. and larger shall not be less than 12 in. in diameter.
   d. Wrench nuts shall be cast iron or bronze, 1-15/16 in. at top, 2 in. square at base and 1-3/4 in. high with a flanged base.

E. Protective Coatings
1. All iron parts of valve assemblies shall be painted before leaving the shop.
2. All exterior and internal waterway ferrous surfaces of each valve, except finished or bearing surfaces shall be shop painted with a liquid or powder epoxy coating of approximately 10 mils dry film thickness conforming to AWWA C550.

PART 3 – EXECUTION

3.1 PIPE MODIFICATIONS

A. Preparation
1. Clean gaskets and all surfaces in contact with gaskets; comply with manufacturer's instructions.
2. Keep interior of pipe and fittings clean.
3. Prepare piping connection to equipment with flanges.

B. Removal and modification of existing piping
1. Remove piping in a careful manner so as not to damage portions of the structure , equipment and piping that are to remain.

2. Piping removed and not reused subject to salvage by OWNER; place that salvaged by OWNER storage on the Site as directed; dispose of that not salvaged by the Owner off of Site.
3. Repair defaced surfaces and all other damage.
4. Provide adequate support for piping to remain in place.
5. Modify piping as in and as required for proper connections.
6. Provide appropriate blind flanges, plugs, or caps for sealing remaining piping

C. Installation
1. Install all flanged piping, couplings, valves, assemblies, and meters in accordance with manufacturer instructions.
2. Route all piping as indicated on Drawings.
3. Tighten flanged joints with all bolts taking equal stress.
4. Pipe support structures to be installed as shown and required to support the pipe modifications.

D. Connection to existing piping and structures
1. Provide 24 hours notice to ENGINEER and OWNER prior to making connection to existing piping.
2. Disconnection to be coordinated with OWNER at a time deemed acceptable to the owner. Disconnection shall be limited to 24 hours.
3. A representative of OWNER shall operate existing valves. CONTRACTOR shall not operate existing valves

3.2 VALVES AND METERS

A. Installation
1. Valves, including gate valves and check valves, and meters shall be carefully handled and placed so as not to permit any damage to the interior coatings, disc or seat. Internal type lifting devices shall not be permitted. Do not use handwheels or stems as lifting of rigging points.
2. All valves and meters shall be carefully installed in their respective positions free from distortion and stress. Connecting joints shall conform to applicable requirements of the specifications.
3. Stem guides shall be accurately aligned.

B. Testing
1. All valves and meters shall be tested in place by the Contractor as far as practicable under conditions for the pipelines, in which they are placed, and defects revealed in valves, meters, or connections under test shall be corrected at the expense of the Contractor to the satisfaction of the Engineer.

C. Operation and Maintenance Manuals
1. Prior to or with the delivery of equipment, the manufacturer shall provide copies of an operation and maintenance manual including storage, installation, start-up, operating and maintaining instructions, and a complete parts and recommended spare parts list. The O & M Manuals shall be in compliance with the General Requirements of these specifications.

3.3 CONNECTION TO AND INSERTIONS INTO EXISTING MAINS

B. Connect new mains to existing mains using proper fittings and in a manner acceptable to OWNER and ENGINEER.

C. No cut-ins or connections to existing mains shall be made unless at least 48 hours notice is given to OWNER and ENGINEER.

D. Two days prior to shutting valves on existing lines, notify all affected property owners, local official in charge of the water works system, and ENGINEER of such shutoff.

E. Keep shutoff time to a minimum and do at off-peak hours.

F. A representative of OWNER shall operate existing valves. CONTRACTOR shall not operate existing valves.

G. OWNER and ENGINEER assume no responsibility for any delay occasioned by special requirements or conditions which must be met in making connections.

H. Take extreme care in making connections to prevent contamination of existing mains.

I. Before making cut-ins or connections to existing mains, wash all fittings, valves, and pipe with clean water, and then disinfect by washing with a chlorine solution having a residual chlorine strength of not less than 50 ppm.

3.4 LEAKAGE TESTS

A. All pipeline construction shall be subjected to hydrostatic leakage testing of each valve section, as it is completed, unless otherwise directed by the Engineer. All pipes, valves, fittings, etc. shall be laid in such a manner as to leave all joints watertight.

B. Each section of pipe being tested shall be filled slowly with water, and, before applying the specified test pressure, all air shall be expelled from the pipe. The method of obtaining and placing test water(s) into the pipeline shall be approved by the Engineer.

C. The test shall be observed by the Engineer or his designate. The Owner will furnish a pressure gauge for measuring the pressure on the water main. The Contractor shall furnish a suitable pump, pipes, bulkheads and all appliances, labor, fuel, and other appurtenances necessary to make these tests.

D. The test pressure shall be maintained for sufficient length of time to allow for a thorough examination of joints and elimination of leakage where necessary. The pipeline shall be made absolutely tight under the test pressure.

E. The Contractor shall drain each section of the waterline piping after it has been tested. If the drains are connected to valve or drain vaults, then, within a reasonable period of time after the test has been completed, the Contractor shall pump all water out of the vaults.

F. In cold weather, immediately after testing a section of the waterline piping, the Contractor shall open all valves, air cocks, by-passes, and drains; shall drain that section of the

pipeline, including the bonnets of all valves contained therein, and shall take all other precautions necessary to prevent injury due to freezing to the water main, piping and appurtenances.

G. Every precaution must be taken to remove, valve-off, or otherwise protect delicate control equipment in or attached to pipelines to prevent damage or injury thereto.

H. Leakage is defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, as required to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled as herein required.

I. In calculating leakage, the Engineer will not make allowance for any leakage at the valves, the removable bulkheads, etc.

J. The evaluation of actual leakage to standard pressure leakage is calculated by the application of the ratio determined from the square root of respective pressures, other factors being equal.

K. The test pressure shall be 150 psi unless otherwise specified elsewhere in these specifications. Testing procedure shall be as specified herein for the particular pipe material contained in the section tested and shall be subject to modification as required by a particular pipeline material specification or part thereof, as contained elsewhere in these specifications.

L. For cast iron pipe (CIP) or ductile iron pipe (DIP), AWWA C600 shall govern the test, except that the allowable leakage rate shall be 12 gpd per mile of pipe per inch of diameter.

M. All defective materials and construction found in the pipeline as a result of leakage tests shall be corrected by removal of the defective materials and reconstruction with sound materials and construction. The entire section shall then be retested in accordance with the foregoing.

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

O. The lack of hydrants, branch shutoff valves, or any other attachments to the line being tested shall not preclude the testing of each valved section as it is completed. In the event that hydrants, branch shutoff valves or any other attached appurtenances are not available for installation prior to testing of each valved section, then plugs or other approved means of containing line pressure must be utilized so as to test each valved section of main line as it is completed. A retest of each valved section will then be necessary after all appurtenances are installed. There will be no additional payment for any such retests.

P. The Contractor shall provide all pressure test equipment. The Owner shall provide all test water required and shall provide test gauges.

3.5 DISINFECTION

A. Prior to disinfection, all pipeline construction shall be flushed to remove any foreign material. Flushing shall be performed after completion and approval of the leakage tests. The minimum requirements for flushing are as follows:

Pipe Size	Minimum GPM Required
6"	220
8"	390
10"	610
12"	880
14"	1,200
16"	1,565
18"	1,980
20"	2,450
24"	3,500

B. Flushing at these rates shall be continued for at least five (5) minutes. In the event the foregoing requirements cannot be met due to the Owner's facilities being inadequate, alternate rate(s) and duration(s) of flushing shall be used.

C. Disinfecting water mains shall be in accordance with AWWA C651 and as specified herein.

D. The following disinfectants may be used: Chlorine or chlorine water; calcium hypochlorite; sodium hypochlorite solution, or chlorinated lime-water mixture. Chlorine shall be applied at one extremity of a pipe section via a corporation stop (installed in the top of the pipe by the Contractor) and bled at the opposite extremity of a properly segregated section. Precautions shall be taken to prevent dosed water from flowing into the potable water supply. All high points on the section treated shall be properly vented for air escape.

E. The rate of applying the disinfectant shall provide at least 25 ppm (mg per liter) chlorine dose at the outlet end of the line section being treated. The disinfecting period shall be twenty-four (24) hours, and, at the end of this period, a chlorine residual of at least 10 mg per liter shall exist at the outlet end of the line.

In the event of unfavorable or unsanitary conditions of installation, poor packing, or high pH, the period of disinfection may be extended. For shorter periods of disinfection, higher dosages shall be required.

F. Sterilizing water shall be disposed of in a satisfactory manner by the Contractor. If the foregoing disinfection procedure fails to provide thorough disinfection of the line, it shall be repeated as necessary in the pipeline for a period of 20 - 30 days after it is placed into operation.

G. Tests for efficacy of sterilization shall be made by the Owner, and repeated sterilization shall be carried out by the Contractor when required.

H. Contractor shall provide all disinfectants and disinfection equipment. Owner shall provide all test waters needed.

END OF SECTION 331113.11

Model 350AST
Double Check Valve Assembly

Application
Designed for installation on potable water lines to protect against both backsiphonage and backpressure of polluted water into the potable water supply. The Model 350AST shall provide protection where a potential health hazard does not exist. Ideal for use where Lead-Free* valves are required.

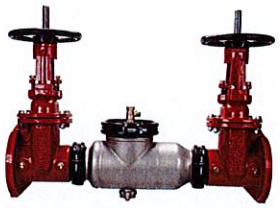
Standard Compliance (Horizontal and Vertical)
- ASSE® Listed 1015
- AWWA Compliant C510 (with gates only), and C550
- UL® Classified
- C-UL® Classified
- FM® Approved
- CSA® Certified
- IAPMO® Listed
- Approved by the Foundation for Cross Connection Control and Hydraulic Research at the University of Southern California
- Meets the requirements of NSF/ANSI 61*

*(0.25% MAX. WEIGHTED AVERAGE LEAD CONTENT)

Materials

Main valve body	304L Stainless steel
Access covers	304L Stainless steel
Internals	Stainless steel, 300 Series NORYL™
Fasteners and springs	Stainless Steel, 300 Series
Seal ring	EPDM (FDA approved)
O-ring	Buna Nitrile (FDA approved)

Features
Sizes: 2 1/2", 3", 4", 6", 8", 10"
Maximum working water pressure 175 PSI
Maximum working water temperature 140˚F
Hydrostatic test pressure 350 PSI
End connections
(Grooved for steel pipe) AWWA C606
(Flanged) ANSI B16.1 Class 125



(SHOWN WITH OPTIONAL OSY GATE VALVES)

LEAD FREE

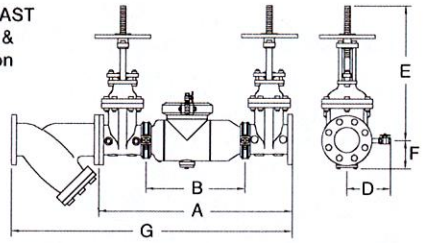
NSF/ANSI 61

Options
(Suffixes can be combined)
- ☐ - with flanged end NRS gate valves (standard)
- ☐ FSC - with epoxy coated wye type strainer (flanged only)
- ☐ G - with grooved end NRS gate valves
- ☐ GF - with grooved inlet gate connection and flanged outlet gate connection
- ☐ FG - with flanged inlet gate connection and grooved outlet gate connection
- ☐ OSY - flanged end OS&Y gate valves
- ☐ OSYG - with grooved end OS&Y gate valves
- ☐ PI - with Post Indicator Gate Valves
- ☐ BG - with grooved end butterfly valves with integral supervisory switches
- ☐ BF - with flanged end butterfly valves with integral supervisory switches
- ☐ OSY - flanged end OS&Y gate valves
- ☐ –509 - with AWWA C509 gate valves

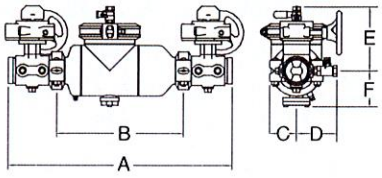
Accessories
- ☐ Repair kit (rubber only)
- ☐ Thermal expansion tank (Model XT)
- ☐ OS & Y Gate valve tamper switch (OSY-40)

53 11

MODEL 350AST with OSY & FSC option



MODEL 350AST with BG option



Dimensions & Weights (do not include pkg.)

MODEL 350AST SIZE		WEIGHT													
		WITHOUT GATES		WITH NRS GATES (GXF)		WITH OS&Y GATES (GXF)		WITH NRS GATES (GXG)		WITH OS&Y GATES (GXG)		WITH BUTTERFLY VALVES (GXG)		WITH BUTTERFLY VALVES (GXF)	
in.	mm	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
2 1/2	65	33	15	94	43	112	51	86	39	104	47	79	36	89	40
3	80	34	15.4	112	51	130	60	102	46	120	54	83	38	96	44
4	100	35	15.8	168	76	204	93	142	64	184	83	87	39	109	50
6	150	63	29	280	127	338	153	250	114	308	140	150	68	180	82
8	200	177	80	565	256	647	293	525	238	593	269	347	112	393	178
10	250	177	80	769	349	865	392	717	325	807	366	443	200	501	227

MODEL 350AST SIZE		DIMENSION (approximate)																					
		A		A WITH BUTTERFLY		B LESS GATE VALVES		C		D		E NRS GATE		E OS&Y OPEN		E OS&Y CLOSED		E WITH BUTTERFLY VALVES		F		G	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
21/2	65	31 7/8	810	28 3/4	730	16 5/8	422	4 1/2	114	7 1/4	184	11 1/2	292	17 3/4	451	15 3/8	391	8 1/4	210	5	127	42	1067
3	80	32 7/8	835	29 3/8	746	16 5/8	422	4 1/2	114	7 1/4	184	12 3/4	324	20 1/4	514	17	432	8 1/4	210	5	127	43 1/2	1105
4	100	34 7/8	886	30 1/4	768	16 5/8	422	4 1/2	114	8	203	14 1/2	368	22 1/2	572	18 1/4	464	9	229	5	127	50	1270
6	150	43 1/2	1105	36 1/2	927	22 1/4	565	5 1/2	140	10	254	18	457	30 1/2	775	24 1/4	616	10 1/4	260	6	152	61 5/8	1565
8	200	52 3/4	1340	45 3/4	1162	29 1/2	749	9 1/4	235	11	279	21 1/8	537	37	940	28 1/2	724	18 1/2	470	8 3/8	213	77 1/8	1959
10	250	55 3/4	1416	49 3/4	1264	29 1/2	749	9 1/4	235	12	305	24 3/4	629	45 5/8	1159	34 3/4	883	18 1/2	470	8 3/8	213	85 3/8	2169

Zurn Industries, LLC | Wilkins
1747 Commerce Way, Paso Robles, CA U.S.A. 93446 Ph. 855-663-9876, Fax 805-238-5766
In Canada | **Zurn Industries Limited**
7900 Goreway Drive, Unit 10, Brampton, Ontario L6T 5W6, 877-892-5216
www.zurn.com

Rev. :L
Date: 12/19
Document No. BF-350AST
Product No. Model 350AST

Superior Accuracy. Zero Maintenance.

Neptune® MACH 10® Ultrasonic Meter

The MACH 10® ultrasonic water meter features solid state ultrasonic technology including a factory-calibrated, replaceable unitized measuring element (UME) with no degradation of accuracy over time. Combined with a corrosion-resistant, lead free, high-copper alloy maincase, the MACH 10 is built to withstand demanding service conditions and deliver sustained accuracy over the life of the meter.

- Sizes 3" through 12"
- Extended low-flow range for superior leak detection
- Accuracy sustained over meter life
- Can be installed in both horizontal and vertical applications
- Open flow path design with low pressure loss
- Advanced ultrasonic technology with easily replaceable UME design
- Lead free, high-copper alloy maincase
- UL Listed and FM Approved (standard)
- Available in standard turbine and compound lay lengths
- No maintenance

NEPTUNE
TECHNOLOGY GROUP

#winyourday

Specifications

AWWA C715 Compliant

NSF/ANSI 61 Certified

UL Listed/FM Approved (Standard)

Maximum Operating Water Pressure

- 175 psi

Operating Water Temperature Range

- +33°F to +122°F (+0.5°C to +50°C)

Environmental Conditions

- Operating temperature: +14°F to +149°F (-10°C to +65°C)
- Storage temperature: -40°F to +158°F (-40°C to +70°C)

Applications

- Potable water
- Fire service
- Reclaim water

Warranty

- Neptune provides a limited warranty for performance, materials, and workmanship. See warranty statement for details.

System Compatibility

- Compatible with Neptune R900® System. Also available as MACH 10®)R900*i*™ for an integrated radio solution and MACH 10®)TC for Sensus Touch Coupler compatibility.

Operating Characteristics

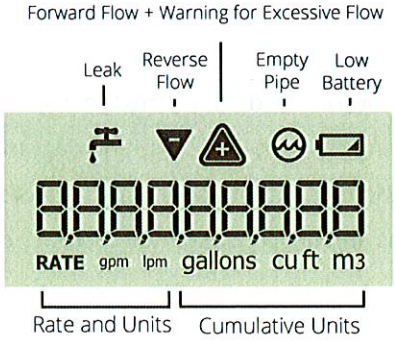
Meter Size	Extended Low Flow @ 100% Accuracy (+/- 3.0%)	Normal Operating Range @ 100% Accuracy (+/- 1.5%)	Safe Maximum Operating Capacity	
			Normal Operation (Non Fire Service)	Fire Service
3"	0.50 U.S. gpm	0.75 to 500 U.S. gpm	500 U.S. gpm	420 U.S. gpm
4"	0.75 U.S. gpm	1.5 to 1250 U.S. gpm	1250 U.S. gpm	1100 U.S. gpm
6"	1.0 U.S. gpm	2.0 to 2000 U.S. gpm	2000 U.S. gpm	1800 U.S. gpm
8"	4.0 U.S. gpm	6.0 to 4000 U.S. gpm	4000 U.S. gpm	4000 U.S. gpm
10"	6.0 U.S. gpm	10.0 to 6500 U.S. gpm	6500 U.S. gpm	6500 U.S. gpm
12"	8.0 U.S. gpm	12.0 to 8000 U.S. gpm	8000 U.S. gpm	8000 U.S. gpm

Registration

High Resolution (8-digit reading)		3"	4"	6" - 12"
1	U.S. Gallons	√	√	
10	U.S. Gallons			√
0.1	Cubic Feet	√	√	
1	Cubic Feet			√
0.01	Cubic Metres	√	√	
0.1	Cubic Metres			√

LCD Display

9-digit display for extra resolution on manual reads.

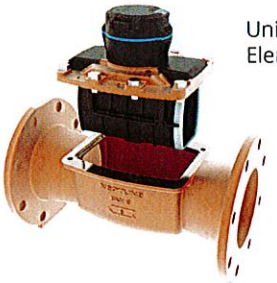


Dimensions

Meter Size	Length	Height	Weight
3"	12"	9½"	39 lbs
	17"	9½"	42 lbs
4"	14"	11"	51 lbs
	20"	11"	57 lbs
6"	18"	12¾"	79 lbs
	24"	12¾"	91 lbs
8"	20"	15 ⅜"	160 lbs
10"	26"	17 ⅞"	264 lbs
12"	19 ⅞"	20"	292 lbs

Available Units of Measure

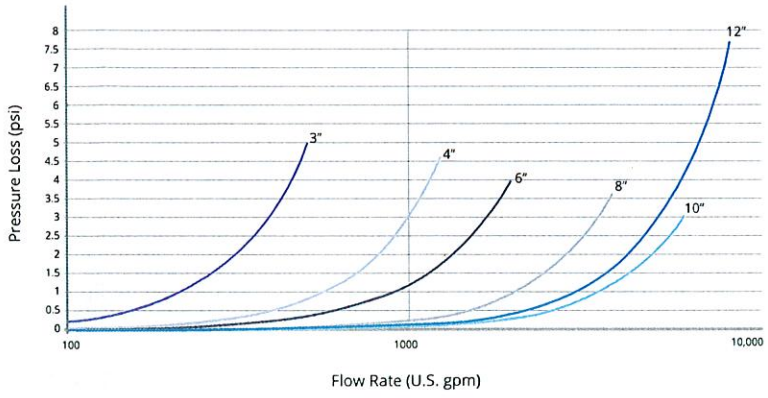
Consumption	Rate
Gallons	GPM
Cubic Feet	GPM
Cubic Metres	LPM



Unitized Measuring Element (UME)

Pressure Loss

This chart shows typical meter performance. Individual results may vary.



neptunetg.com

Neptune Technology Group
1600 Alabama Highway 229
Tallassee, AL 36078
800-633-8754 f 334-283-7293

OMNI Coupling System

Cast Couplings — Straight & Reducing Transitions

441

Description: Cast Couplings

Application: To join plain end pipes with the same or different O.D.s by changing followers and gaskets.

Key Features:

- Heavy cast Ductile Iron parts for long life
- Meets applicable AWWA C219 Standards
- Flanges and gaskets can be mixed and matched on the same size nominal sleeve
- Most couplings are stab fit, making installation a b eeze. No disassembly is required
- Up to 2.4" of range with a single coupling, reducing the need for large coupling inventories
- One sleeve per nominal pipe size takes the guess work out of deciding which sleeve size to choose
- Flanges are color coded by pipe type: Red for iron pipe size O.D.; Blue for Ductile O.D.; and gray for Asbestos Cement O.D.
- Gaskets and flanges a e permanently marked with a part number and range to facilitate proper selection
- Sleeves are available in a variety of lengths, and custom length Steel sleeves are available for special applications

UL CERTIFIED
LOOK FOR THE UL MARK FOR DETAILS
NSF/ANSI 61
NSF/ANSI 372

Materials Specifications (subject to change)

SLEEVE: Ductile Iron ASTM A536. Ends have smooth inside taper for uniform gasket seating

GASKET: Nitrile (Buna N) certified to NSF/ANSI 61G. Compounded to p oduce superior storage and performance characteristics while resisting water, acids, alkalies, most (aliphatic) hydrocarbon fluids and other chemicals

FOLLOWER FLANGES: Ductile Iron ASTM A536. Designed for high strength to weight ratio

BOLTS & NUTS: High strength low alloy Steel bolts with heavy, semi-finished hexagon nuts to WWA C219 (ANSI A21.11) ***Optional: Stainless Steel***

FINISH: Flexi-Coat® Fusion-Bonded Epoxy Finish

Working Pressure: Up to 250 PSI

Pipe Applications: Steel, Cast Iron, Asbestos Cement, PVC and other. For other pipe materials, please contact Smith-Blair Engineering.

Sizes (in inches): 2, 2½, 3, 4, 6, 8, 10, 12, 14, 16

THIS PRODUCT DOES NOT RESTRAIN PIPE MOVEMENT. Proper anchoring is required to prevent pipe pullout. Failure to anchor or improper anchoring can result in dangerous pipe content escape, property damage, serious injury, or death. Read the product installation instructions prior to installing this product.

441

OMNI Coupling System

Cast Couplings — Straight & Reducing Transitions

Cast Straight and Cast Transition

NOMINAL PIPE SIZE INCHES	CATALOG NUMBER END CODE (SEE PAGE 14)	O.D.** END 1 INCHES	O.D.** END 2 INCHES	OVERALL BOLT & LAYING LENGTH INCHES	5/8" BOLT QUANTITY REQUIRED	SLEEVE LENGTH INCHES †	APPROXIMATE SHIPPING WEIGHT LBS.
2	441-00000263-900	2.34-2.63	2.34-2.63	8 1/2	2	4	8 1/2
2 1/2	441-00000288-900	2.65-2.88	2.65-2.88	8 1/2	2	4	9
3	441-00000313-900	2.85-3.13	2.85-3.13	8 1/2	4	4	13 1/2
	441-00000350-900	3.44-3.62	3.44-3.62	8 1/2	4	4	13 1/2
	441-00000396-900	3.80-3.96	3.80-3.96	8 1/2	4	4	13 1/2
	441-00000414-900	3.97-4.14	3.97-4.14	8 1/2	4	4	13 1/2
	441-03500313-900	3.44-3.62	2.85-3.13	8 1/2	4	4	13 1/2
	441-03960313-900	3.80-3.96	2.85-3.13	8 1/2	4	4	13 1/2
	441-03960350-900	3.80-3.96	3.44-3.62	8 1/2	4	4	13 1/2
	441-04140313-900	3.97-4.14	2.85-3.13	8 1/2	4	4	13 1/2
	441-04140350-900	3.97-4.14	3.44-3.62	8 1/2	4	4	13 1/2
	441-04140396-900	3.97-4.14	3.80-3.96	8 1/2	4	4	13 1/2
4†	441-00000415-900	4.00-4.15	4.00-4.15	8 1/2	4	5	15
	441-00000450-900	4.22-4.50	4.22-4.50	8 1/2	4	5	15
	441-00000486-900	4.46-4.86	4.46-4.86	8 1/2	4	5	15
	441-00000510-900	4.80-5.10	4.80-5.10	8 1/2	4	5	15
	441-00000545-900	5.11-5.45	5.11-5.45	8 1/2	4	5	15
	441-04500415-900	4.22-4.50	4.00-4.15	8 1/2	4	5	15
	441-04860415-900	4.46-4.86	4.00-4.15	8 1/2	4	5	15
	441-05100415-900	4.80-5.10	4.00-4.15	8 1/2	4	5	15
	441-05100450-900	4.80-5.10	4.22-4.50	8 1/2	4	5	15
	441-05100486-900	4.80-5.10	4.46-4.86	8 1/2	4	5	15
	441-05450415-900	5.11-5.45	4.00-4.15	8 1/2	4	5	15
	441-05450450-900	5.11-5.45	4.22-4.50	8 1/2	4	5	15
	441-05450486-900	5.11-5.45	4.46-4.86	8 1/2	4	5	15
	441-05450510-900	5.11-5.45	4.80-5.10	8 1/2	4	5	15
6†	441-00000615-900	6.00-6.15	6.00-6.15	8 1/2	4	5	25
	441-00000663-900	6.28-6.63	6.28-6.63	8 1/2	4	5	25
	441-00000696-900	6.56-6.96	6.56-6.96	8 1/2	4	5	25
	441-00000722-900	6.90-7.22	6.90-7.22	8 1/2	4	5	25
	441-00000765-900	7.25-7.65	7.25-7.65	8 1/2	4	5	25
	441-06630615-900	6.28-6.63	6.00-6.15	8 1/2	4	5	25
	441-06960615-900	6.56-6.96	6.00-6.15	8 1/2	4	5	25
	441-07220615-900	6.90-7.22	6.00-6.15	8 1/2	4	5	25
	441-07220663-900	6.90-7.22	6.28-6.63	8 1/2	4	5	25
	441-07220696-900	6.90-7.22	6.56-6.96	8 1/2	4	5	25
	441-07650615-900	7.25-7.65	6.00-6.15	8 1/2	4	5	25
	441-07650663-900	7.25-7.65	6.28-6.63	8 1/2	4	5	25
	441-07650696-900	7.25-7.65	6.56-6.96	8 1/2	4	5	25
	441-07650722-900	7.25-7.65	6.90-7.22	8 1/2	4	5	25

Type 441 Couplings will connect any two pipes within the O.D. range without changing parts. Suitable anchorage must be provided when excessive pipe movement could occur.
** Published ranges indicate nominal pipe outside diameters. Couplings are designed for pipes within current AWWA standard tolerances. † For longer sleeve length see 442.

Cast Straight and Cast Transition, Continued

NOMINAL PIPE SIZE INCHES	CATALOG NUMBER END CODE (SEE PAGE 14)	O.D.** END 1 INCHES	O.D.** END 2 INCHES	OVERALL BOLT & LAYING LENGTH INCHES	5/8" BOLT QUANTITY REQUIRED	SLEEVE LENGTH INCHES †	APPROXIMATE SHIPPING WEIGHT LBS.
8†	441-00000800-900	8.00-8.16	8.00-8.16	8 1/2	6	5	31
	441-00000863-900	8.40-8.63	8.40-8.63	8 1/2	6	5	31
	441-00000911-900	8.54-9.11	8.54-9.11	8 1/2	6	5	31
	441-00000930-900	9.05-9.30	9.05-9.30	9 1/2	6	5	31
	441-00000945-900	9.05-9.45	9.05-9.45	9 1/2	6	5	31
	441-00000985-900	9.46-9.85	9.46-9.85	9 1/2	6	5	31
	441-08630800-900	8.40-8.63	8.00-8.16	8 1/2	6	5	31
	441-09110800-900	8.54-9.11	8.00-8.16	8 1/2	6	5	31
	441-09300800-900	8.00-8.16	8.00-8.16	8 1/2	6	5	31
	441-09300863-900	8.40-8.63	8.40-8.63	8 1/2	6	5	31
	441-09300911-900	8.54-9.11	8.54-9.11	8 1/2	6	5	31
	441-09450800-900	9.05-9.45	8.00-8.16	9 1/2	6	5	31
	441-09450863-900	9.05-9.45	8.40-8.63	9 1/2	6	5	31
	441-09450911-900	9.05-9.45	8.54-9.11	9 1/2	6	5	31
	441-09850800-900	9.46-9.85	8.00-8.16	9 1/2	6	5	31
	441-09850863-900	9.46-9.85	8.40-8.63	8 1/2	6	5	31
	441-09850911-900	9.46-9.85	8.54-9.11	8 1/2	6	5	31
	441-09850945-900	9.46-9.85	9.05-9.45	8 1/2	6	5	31
10†	441-00001000-900	10.00	10.00	9 1/2	6	6	47
	441-00001075-900	10.50-10.75	10.50-10.75	9 1/2	6	6	47
	441-00001160-900	11.10-11.60	11.10-11.60	11	6	6	47
	441-00001188-900	11.65-11.88	11.65-11.88	9 1/2	6	6	47
	441-00001220-900	11.90-12.20	11.90-12.20	9 1/2	6	6	47
	441-10751000-900	10.50-10.75	10.00	9 1/2	6	6	47
	441-11601000-900	11.10-11.60	10.00	11	6	6	47
	441-11601075-900	11.10-11.60	10.50-10.75	9 1/2	6	6	47
	441-11881000-900	11.65-11.88	10.00	9 1/2	6	6	47
	441-11881075-900	11.65-11.88	10.50-10.75	9 1/2	6	6	47
	441-11881160-900	11.65-11.88	11.10-11.60	11	6	6	47
	441-12201000-900	11.90-12.20	10.00	9 1/2	6	6	47
	441-12201075-900	11.90-12.20	10.50-10.75	9 1/2	6	6	47
	441-12201160-900	11.90-12.20	11.10-11.60	11	6	6	47
	441-12201188-900	11.90-12.20	11.65-11.88	9 1/2	6	6	47

Type 441 Couplings will connect any two pipes within the O.D. range without changing parts. Suitable anchorage must be provided when excessive pipe movement could occur.
** Published ranges indicate nominal pipe outside diameters. Couplings are designed for pipes within current AWWA standard tolerances. †For longer sleeve length see 442.

Cast Straight and Cast Transition, Continued

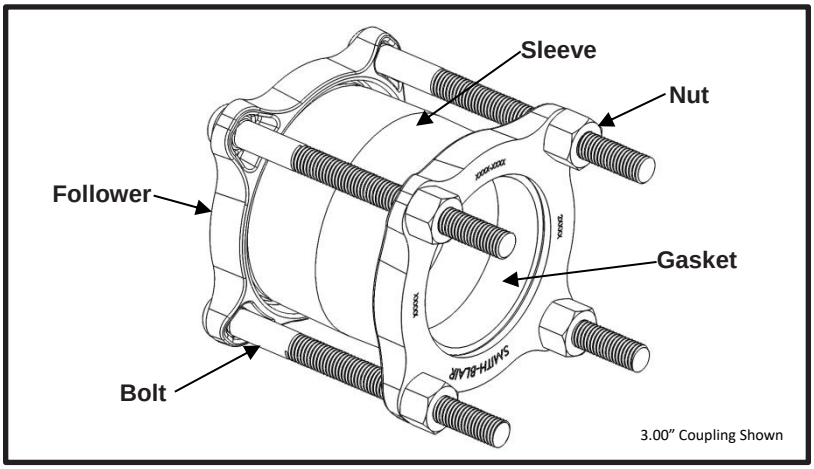
NOMINAL PIPE SIZE INCHES	CATALOG NUMBER END CODE (SEE PAGE 14)	O.D.** END 1 INCHES	O.D.** END 2 INCHES	OVERALL BOLT & LAYING LENGTH INCHES	5/8" BOLT QUANTITY REQUIRED	SLEEVE LENGTH INCHES †	APPROXIMATE SHIPPING WEIGHT LBS.
12†	441-00001200-900	12.00	12.00	9 1/2	8	6	52
	441-00001275-900	12.50-12.75	12.50-12.75	9 1/2	8	6	52
	441-00001350-900	13.20-13.50	13.20-13.50	11	8	6	52
	441-00001375-900	13.51-13.75	13.51-13.75	9 1/2	8	6	52
	441-00001420-900	13.90-14.20	13.90-14.20	9 1/2	8	6	52
	441-00001440-900	14.21-14.40	14.21-14.40	9 1/2	8	6	52
	441-12751200-900	12.50-12.75	12.00	9 1/2	8	6	52
	441-13501200-900	13.20-13.50	12.00	9 1/2	8	6	52
	441-13501275-900	13.20-13.50	12.50-12.75	9 1/2	8	6	52
	441-13751200-900	13.51-13.75	12.00	9 1/2	8	6	52
	441-13751275-900	13.51-13.75	12.50-12.75	9 1/2	8	6	52
	441-13751350-900	13.51-13.75	13.20-13.50	9 1/2	8	6	52
	441-14201200-900	13.90-14.20	12.00	9 1/2	8	6	52
	441-14201275-900	13.90-14.20	12.50-12.75	9 1/2	8	6	52
	441-14201350-900	13.90-14.20	13.20-13.50	9 1/2	8	6	52
	441-14201375-900	13.90-14.20	13.51-13.75	9 1/2	8	6	52
	441-14401200-900	14.21-14.40	12.00	9 1/2	8	6	52
	441-14401275-900	14.21-14.40	12.50-12.75	9 1/2	8	6	52
	441-14401350-900	14.21-14.40	13.20-13.50	9 1/2	8	6	52
	441-14401375-900	14.21-14.40	13.51-13.75	9 1/2	8	6	52
	441-14401420-900	14.21-14.40	13.90-14.20	9 1/2	8	6	52
14†	441-00001550-900	15.30-15.50	15.30-15.50	9 1/2	8	6	59
	441-00001580-900	15.55-15.80	15.55-15.80	9 1/2	8	6	59
	441-00001622-900	16.22-16.35	16.22-16.35	9 1/2	8	6	59
	441-00001655-900	16.41-16.55	16.41-16.55	9 1/2	8	6	59
	441-00001690-900	16.73-16.90	16.73-16.90	9 1/2	8	6	59
	441-15801550-900	15.55-15.80	15.30-15.50	9 1/2	8	6	59
	441-16221550-900	16.22-16.35	15.30-15.50	9 1/2	8	6	59
	441-16221580-900	16.22-16.35	15.55-15.80	9 1/2	8	6	59
	441-16551550-900	16.41-16.55	15.30-15.50	9 1/2	8	6	59
	441-16551580-900	16.41-16.55	15.55-15.80	9 1/2	8	6	59
	441-16551622-900	16.41-16.55	16.22-16.35	9 1/2	8	6	59
	441-16801550-900	16.73-16.90	15.30-15.50	9 1/2	8	6	59
	441-16901580-900	16.73-16.90	15.55-15.80	9 1/2	8	6	59
	441-16901622-900	16.73-16.90	16.22-16.35	9 1/2	8	6	59
	441-16901655-900	16.73-16.90	16.41-16.55	9 1/2	8	6	59
16†	441-00001780-900	17.40-17.80	17.40-17.80	11	10	6	71
	441-00001890-900	18.46-18.90	18.46-18.90	9 1/2	10	6	71
	441-00001920-900	18.90-19.20	18.90-19.20	9 1/2	10	6	71
	441-18901780-900	18.46-18.90	17.40-17.80	11	10	6	71
	441-19201780-900	18.90-19.20	17.40-17.80	11	10	6	71
	441-19201890-900	18.90-19.20	18.46-18.90	9 1/2	10	6	71

Type 441 Couplings will connect any two pipes within the O.D. range without changing parts. Suitable anchorage must be provided when excessive pipe movement could occur.
** Published ranges indicate nominal pipe outside diameters. Couplings are designed for pipes within current AWWA standard tolerances. †For longer sleeve length see 442.

Cast Reducing Couplings

NOMINAL SIZE INCHES		CATALOG NUMBER END CODE (SEE PAGE 14)	O.D.** END 1 INCHES	O.D.** END 2 INCHES	LAYING LENGTH INCHES	5/8" BOLTS		APPROXIMATE SHIPPING WEIGHT LBS.
END 1	END 2					LENGTH INCHES	QUANTITY REQUIRED	
2 1/2	2	441-02880263-900	2.65-2.88	2.34-2.63	8 1/2	8	2	20
6	4	441-06630415-900	6.28-6.63	4.00-4.15	5	4 1/2	8	25
		441-06630450-900	6.28-6.63	4.22-4.50				
		441-06630486-900	6.28-6.63	4.46-4.86				
		441-06630510-900	6.28-6.63	4.80-5.10				
		441-06630545-900	6.28-6.63	5.11-5.45				
		441-06960415-900	6.56-6.96	4.00-4.15				
		441-06960450-900	6.56-6.96	4.22-4.50				
		441-06960486-900	6.56-6.96	4.46-4.86				
		441-06960510-900	6.56-6.96	4.80-5.10				
		441-06960545-900	6.56-6.96	5.11-5.45				
		441-07220415-900	6.90-7.22	4.00-4.15				
		441-07220450-900	6.90-7.22	4.22-4.50				
		441-07220486-900	6.90-7.22	4.46-4.86				
		441-07220510-900	6.90-7.22	4.80-5.10				
		441-07220545-900	6.90-7.22	5.11-5.45				
		411-07650415-900	7.25-7.65	4.00-4.15				
		441-07650450-900	7.25-7.65	4.22-4.50				
		441-07650486-900	7.25-7.65	4.46-4.86				
		411-07650510-900	7.25-7.65	4.80-5.10				
		441-07650545-900	7.25-7.65	5.11-5.45				
8	6	441-08630615-900	8.40-8.63	6.00-6.15	5	4 1/2	10	35
		441-08630663-900	8.40-8.63	6.28-6.63				
		441-08630696-900	8.40-8.63	6.56-6.96				
		441-08630722-900	8.40-8.63	6.90-7.22				
		441-08630765-900	8.40-8.63	7.25-7.65				
		441-09110615-900	8.54-9.11	6.00-6.15				
		441-09110663-900	8.54-9.11	6.28-6.63				
		441-09110696-900	8.54-9.11	6.56-6.96				
		441-09110722-900	8.54-9.11	6.90-7.22				
		441-09110765-900	8.54-9.11	7.25-7.65				
		441-09450615-900	9.05-9.45	6.00-6.15				
		441-09450663-900	9.05-9.45	6.28-6.63				
		441-09450696-900	9.05-9.45	6.56-6.96				
		441-09450722-900	9.05-9.45	6.90-7.22				
		441-09450765-900	9.05-9.45	7.25-7.65				
		441-09850615-900	9.46-9.85	6.00-6.15				
		441-09850663-900	9.46-9.85	6.28-6.63				
		441-09850696-900	9.46-9.85	6.56-6.96				
		441-09850722-900	9.46-9.85	6.90-7.22				
		441-09850765-900	9.46-9.85	7.25-7.65				

SPECIFICATION
OMNI™ CAST COUPLING – STD SLEEVE
MODEL 441



APPLICATIONS

- **Typical Uses**
  - Joining plain-end pipe of same outside diameters
  - Joining plain-end pipe of different outside diameters with same nominal size
  - Replace split or excessively damaged pipe
- **Standard Pipe Sizes**
  - 2" to 16" nominal
- **Type of Pipe**
  - Carbon Steel, Stainless Steel, Ductile Iron, Asbestos Cement, PVC, HDPE *(with stiffeners)*
- **Working Pressure**
  - 250 psi

MATERIALS

- **Follower**
  - Cast using Ductile Iron 65-45-12 per ASTM A536
  - Flexi-Coat® fusion bonded epoxy finish
- **Sleeve**
  - Cast using Ductile Iron 65-45-12 per ASTM A536
  - Flexi-Coat® fusion bonded epoxy finish
  - Designed to provide up to 2.40" of range with a single assembly
- **Gasket**
  - Nitrile (Buna-N) per ASTM D2000
  - Compounded to resist water, oil, natural gas, acids, alkalies, most (aliphatic) hydrocarbon fluids, and many other chemicals
  - Temperature range: -20ºF to +180ºF
- **Bolts**
  - High Strength Low Alloy (HSLA) Steel per AWWA C111/A21.11
  - 5/8"-11UNC, Track Head Oval Neck with Rolled Threads
- **Nut**
  - HSLA Steel per AWWA C111/A21.11
  - 5/8"-11UNC, Heavy Hex Semi-Finished

LISTINGS

- Certified to NSF/ANSI 61 and NSF/ANSI 372
- Meets applicable portions of AWWA C219
- Flexi-Coat® Fusion-Bonded Epoxy Coating meets requirements of AWWA C213

OPTIONS

- Type 304 Stainless Steel hardware with fluoropolymer coated nuts to prevent galling
- Type 316 Stainless Steel hardware with fluoropolymer coated nuts to prevent galling
- Alternative gasket material (e.g. Viton, EPDM, etc.)
- Insulating boot

NOTES

- Pipe stiffeners **are required** when this product is used on HDPE
- Xylem, Smith-Blair, SB stylized, and Flexi-Coat are registered trademarks and Omni is a trademark of Xylem, Inc., or one of its subsidiaries.
- These product specifications were correct at the time of publication and are subject to change without notice
- See the Smith-Blair website for part numbers and ordering information
- See the Smith-Blair website for warranty information
- See the Smith-Blair website for corrosion notice

THIS PRODUCT DOES NOT RESTRAIN PIPE MOVEMENT. Proper anchoring is required to prevent pipe pull out. Failure to anchor or improper anchoring can result in dangerous pipe content escape, property damage, serious injury, or death. Refer to smith-blair.com for products designed to restrain axial pipe movement. Read the product installation instructions prior to installing this product.

SPECIFICATION
OMNI™ CAST COUPLING – STD SLEEVE
MODEL 441

Recommended Pipe to Pipe Centerline Gaps

Sleeve Length	Optimum Gaps		Maximum Gap
	Straight Run	Deflected Joints	
5”	1/2”	1”	2”
7”	1/2”	1-1/2”	3”
10”	1”	2-1/4”	4-1/2”
Longer Than 10”	1”	2-3/4”	"Sleeve Length" – 6”

Pipe gap to be centered in coupling sleeve.

Total Maximum Allowable Axial Pipe Movement per Coupling

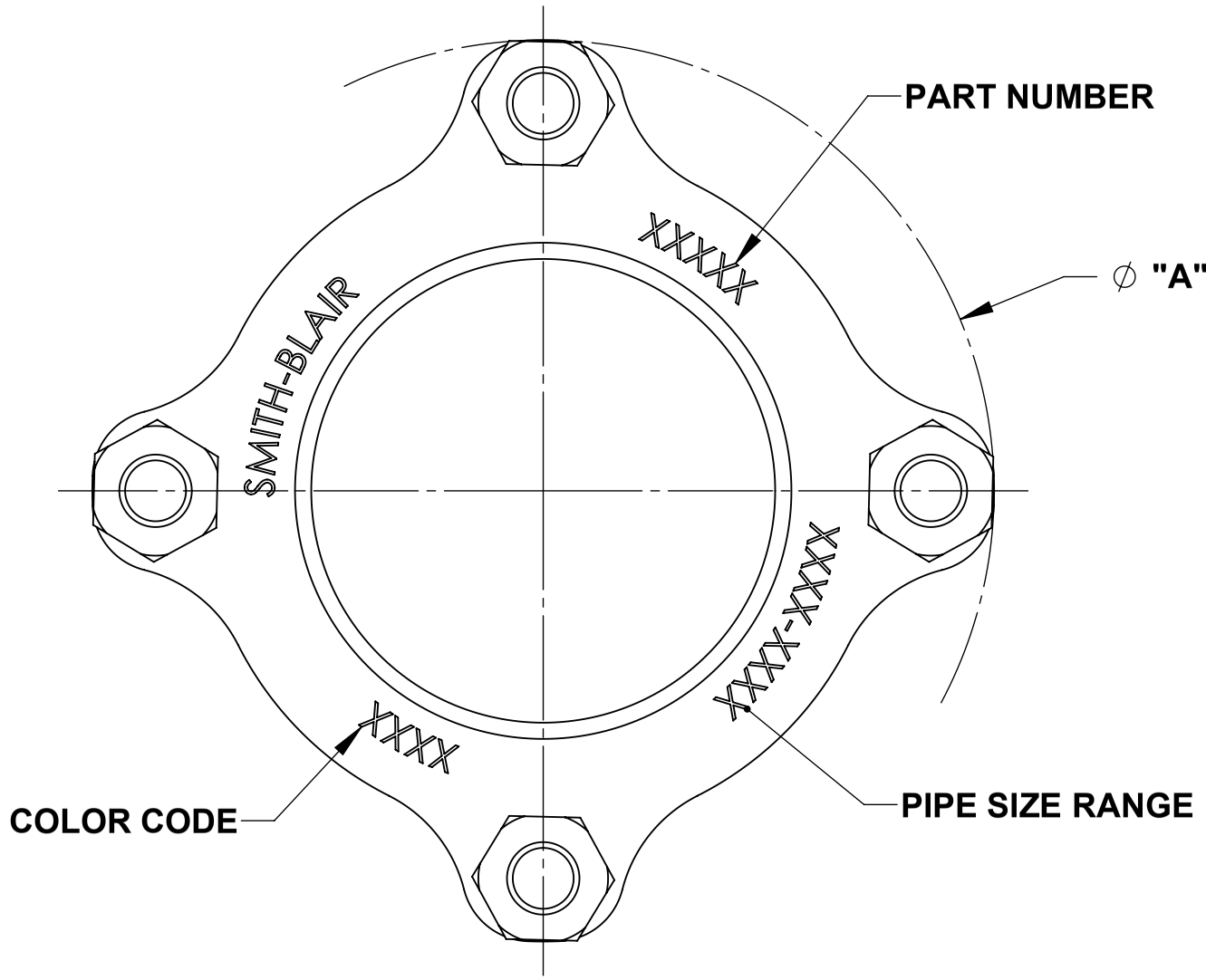
Coupling Size	Allowable Movement
3/4" to 2"	1/8"
2-1/2" to 10"	1/4"
10-3/4" and Larger	3/8"

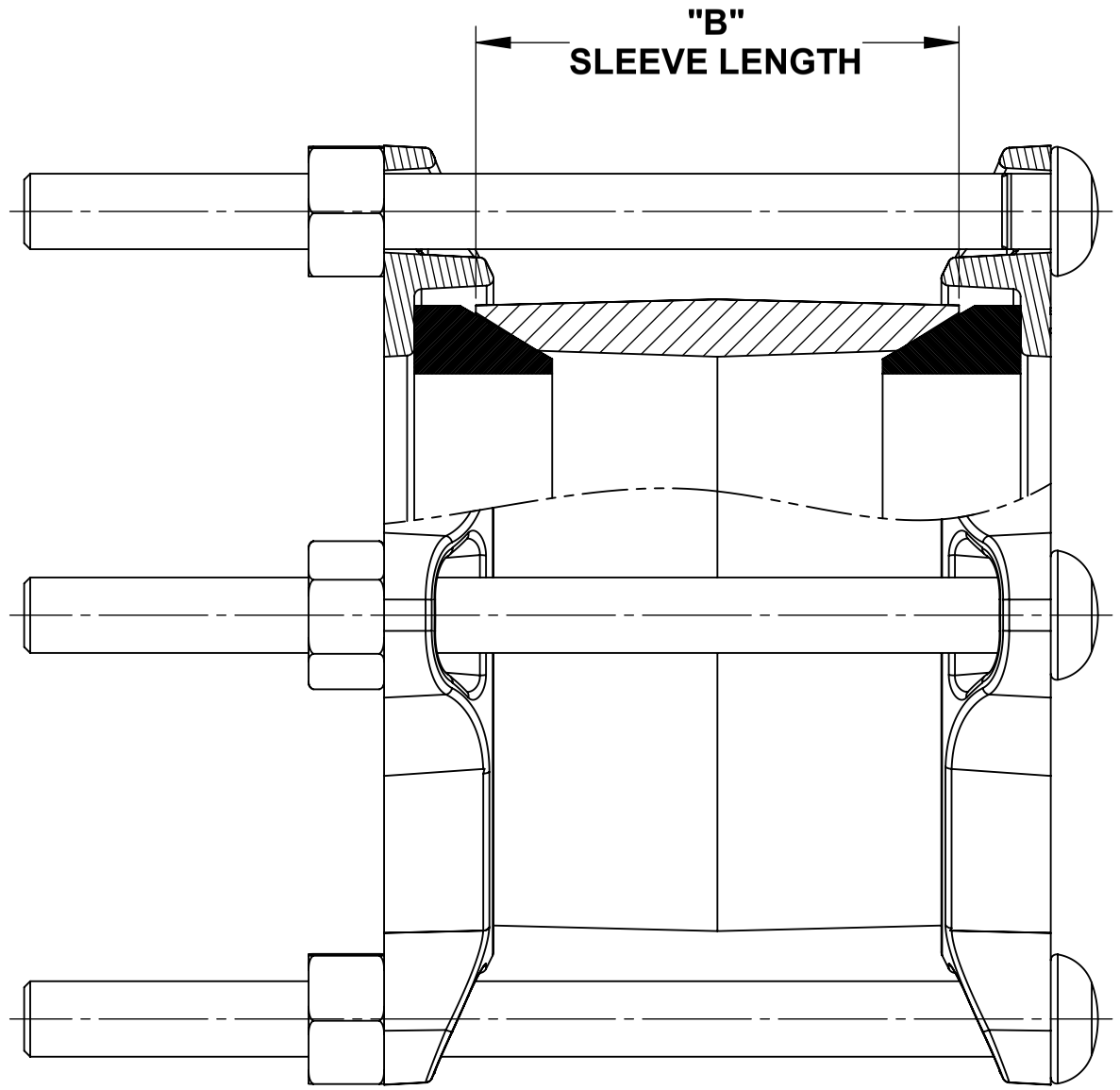
Pipe End Tolerances

Nominal Pipe Size	Minus Tolerance	Plus Tolerance
1/2" up to 16"	-0.06	+0.06

Maximum Angular Deflection per Coupling 4° (Pipe-to-Pipe) 2° (Pipe-to-Sleeve)

30 Globe Ave, Texarkana, AR 71854
Ph: 870-773-5127 • Fax: 870-773-5212
Toll-Free Numbers: Ph: 800-643-9705 • Fax: 800-648-6792





NOTES:

1. SEE SMITH-BLAIR CATALOG FOR PIPE RANGE AVAILABILITY
2. 6" COUPLING SHOWN OTHER SIZES SIMILAR

NOM. PIPE SIZE	PIPE O.D. RANGE	A	B	HARDWARE		APPROX WEIGHT (LBS)
				QTY.	SIZE	
2	2.34 TO 2.63	6.01	4.00	2	5/8" X 8.00"	9
2.50	2.65 TO 2.88	6.52	4.00	2	5/8" X 8.00"	9
3	2.85 TO 4.14	7.78	4.00	4	5/8" X 8.00"	14
4	4.00 TO 5.45	9.01	5.00	5	5/8" X 8.00"	15
6	6.00 TO 7.65	11.28	5.00	5	5/8" X 8.00"	25
8	8.00 TO 9.85	13.48	5.00	5	5/8" X 9.00"	31
10	10.00 TO 12.20	15.83	6.00	6	5/8" X 10.50"	47
12	12.00 TO 14.40	18.30	6.00	8	5/8" X 10.50"	52
14	15.30 TO 16.90	20.55	6.00	8	5/8" X 9.00"	59
16	17.40 TO 19.20	22.93	6.00	10	5/8" X 10.50"	71

WRENCH SIZE CHART	
NUT	SIZE
5/8"-11UNC HH	1-1/16"

TOLERANCES U.N.O.
.XX= ±.03
.XXX= ±.015
FRACTIONS=
ANGLES=±1°
MACH. FIN=
ALL DIMENSIONS ARE IN INCHES.

NOTES:
REMOVE BURRS AND SHARP EDGES
DO NOT SCALE DWG.

SCALE: N/A

APP'D		DATE	
CK'D		DATE	
DRN	CHD	DATE	1/13/16

TITLE

SPECIFICATION

OMNI™ CAST COUPLING - STD SLEEVE
MODEL 441

SMITH-BLAIR, Inc.
TEXARKANA, ARKANSAS

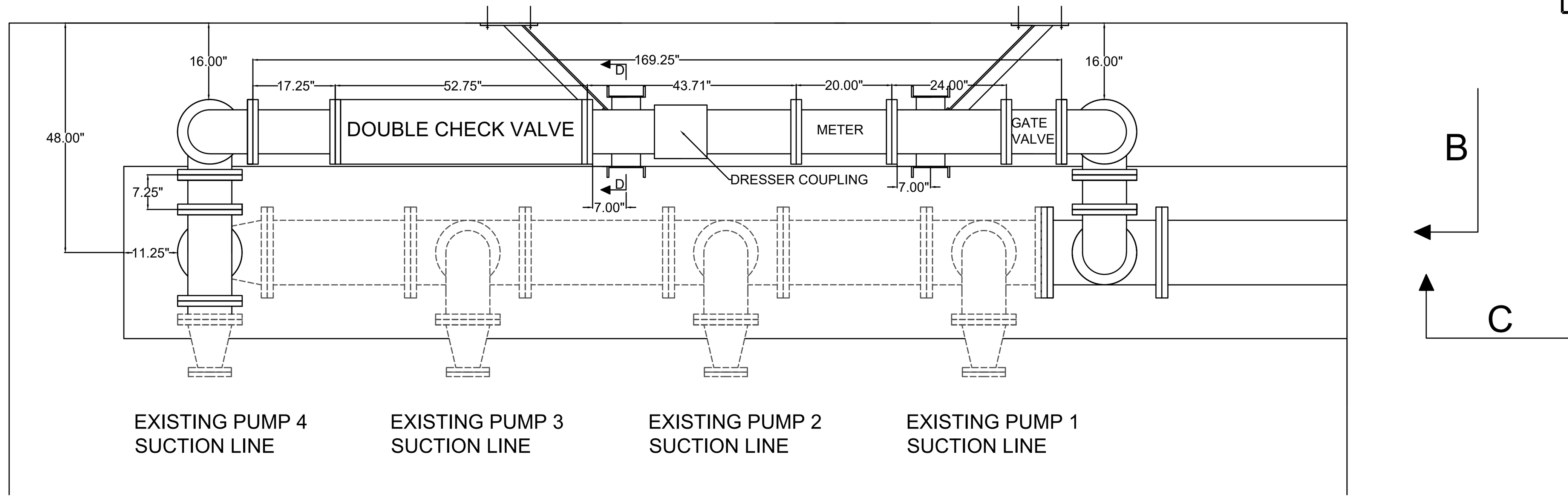
P/N N/A

DWG. NO. SPEC_441.DRW

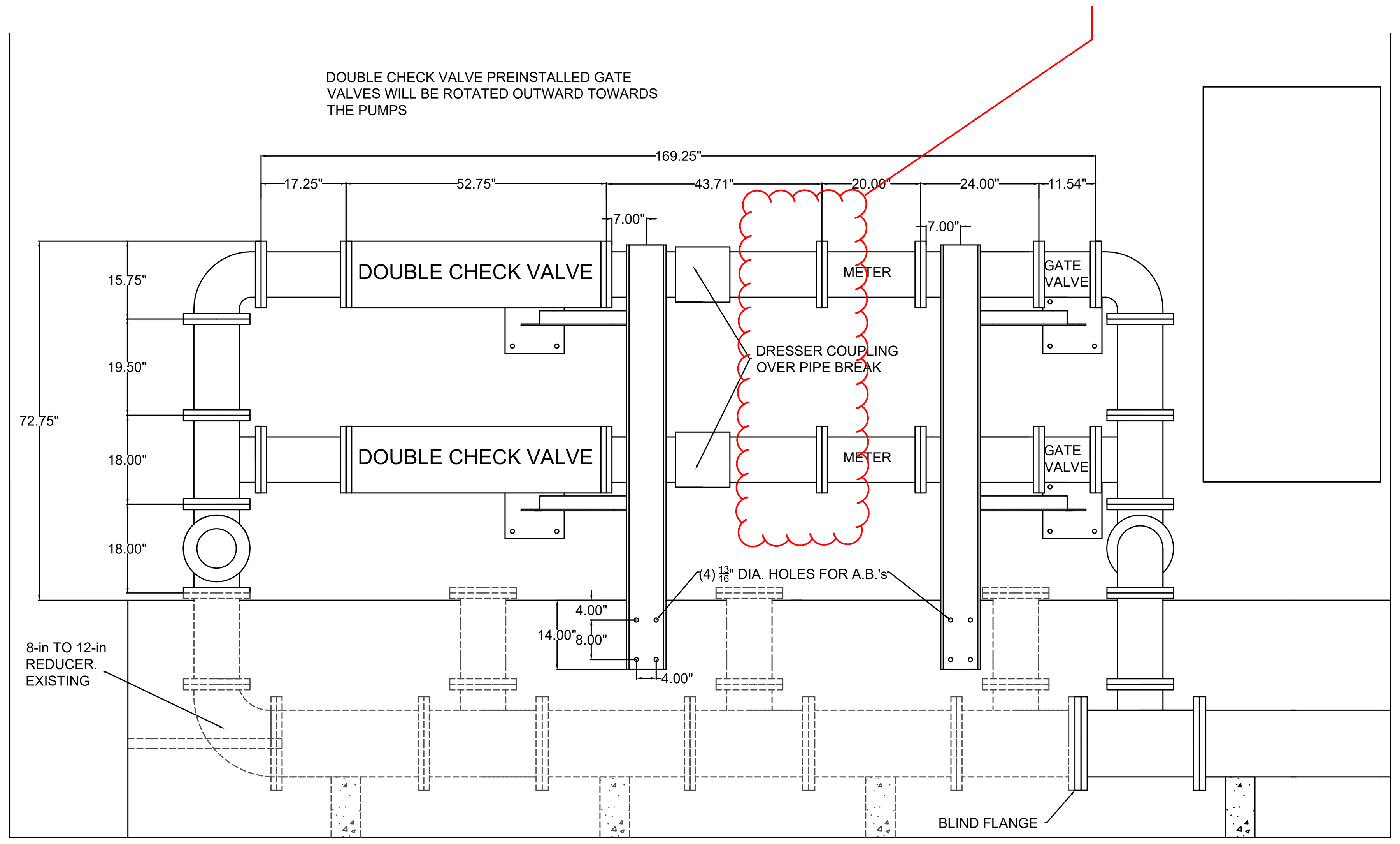
SHEET 1 OF 1

REV. 10/5/16

NOTE: THESE PLANS HAVE BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE DESIGN PROFESSIONAL CANNOT ASSURE ITS ACCURACY, AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT.



CONTRACTOR TO INSTALL SUMMIT TWP SUPPLIED STRAINER DIRECTLY AFTER TWP SUPPLIED METER

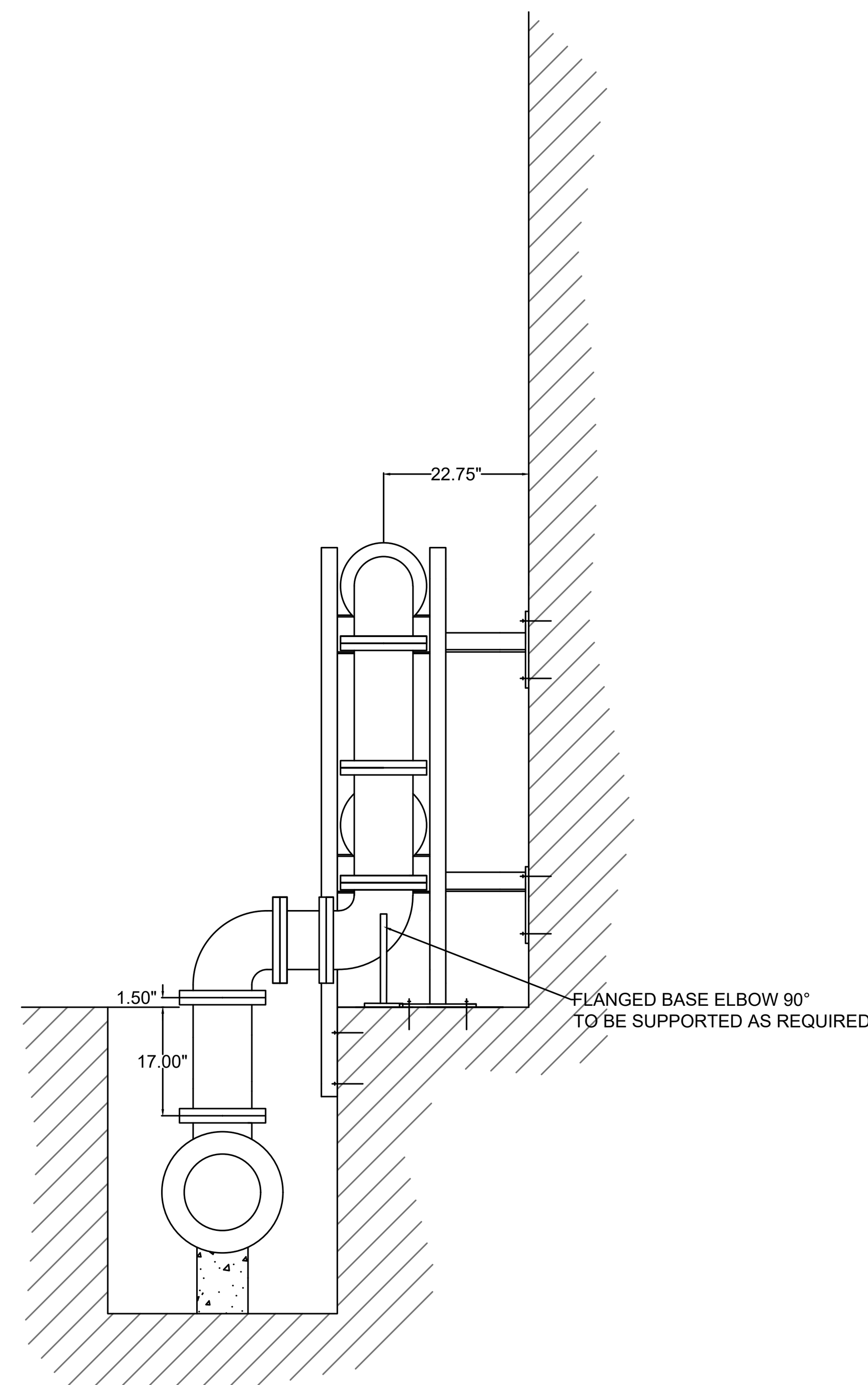


CONTRACTOR TO FIELD VERIFY MEASUREMENTS AND LOCATIONS OF ALL EXISTING PIPE WORK, IN ADDITION TO ALL TRENCH DIMENSIONS.

ALL DRAWINGS REFERENCE 1988 ROUTE 19 WATER SYSTEM PUMP STATION DRAWING PAGE 12 FOR EXISTING CONDITIONS. ADDITIONAL INFORMATION WAS GATHERED FROM IN FIELD MEASUREMENTS AND STANDARD PIPE SIZING.

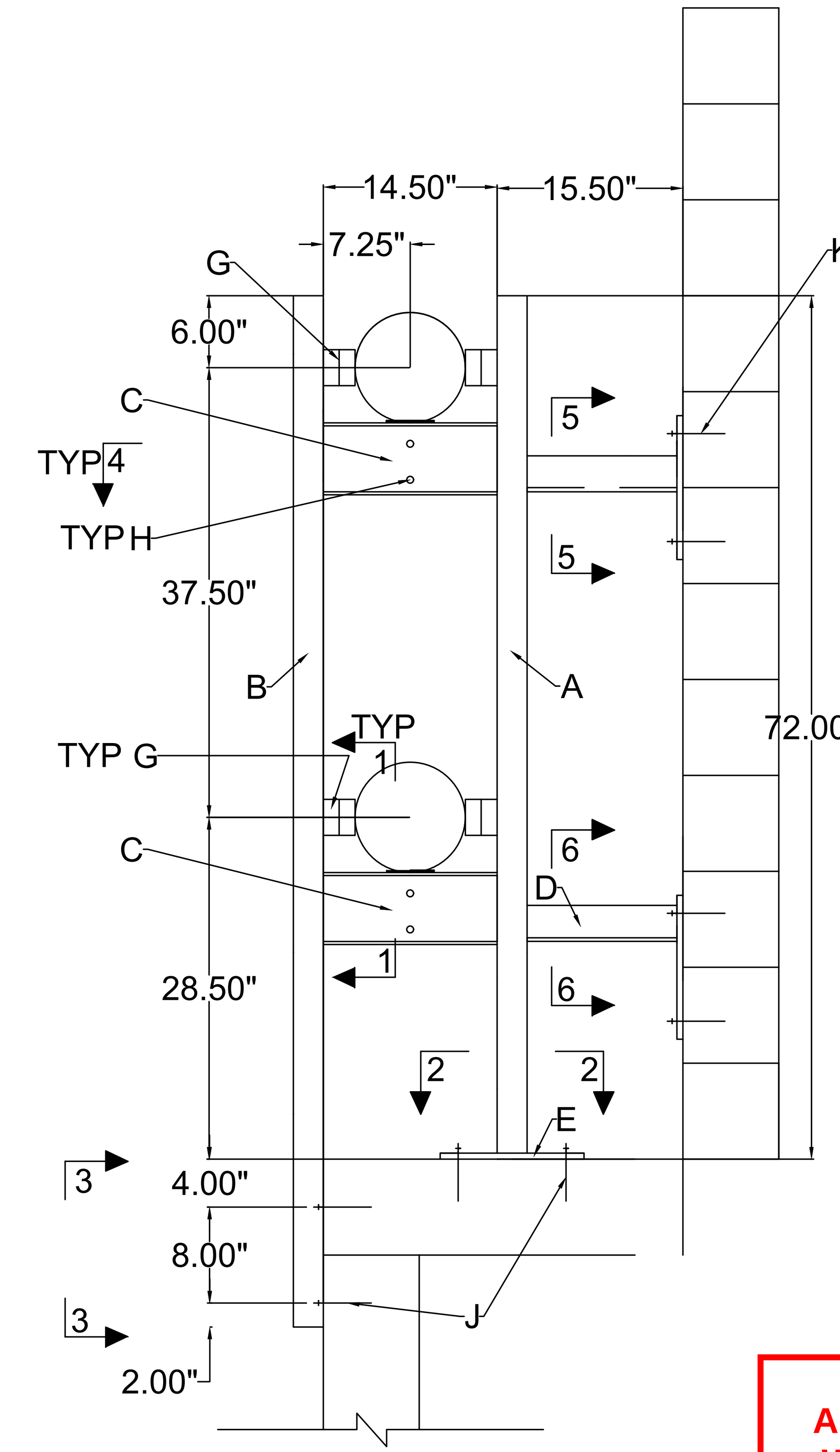
SECTION VIEW C

SCALE: 1/2" = 1'-0"



SECTION VIEW B

SCALE: 1/2" = 1'-0"



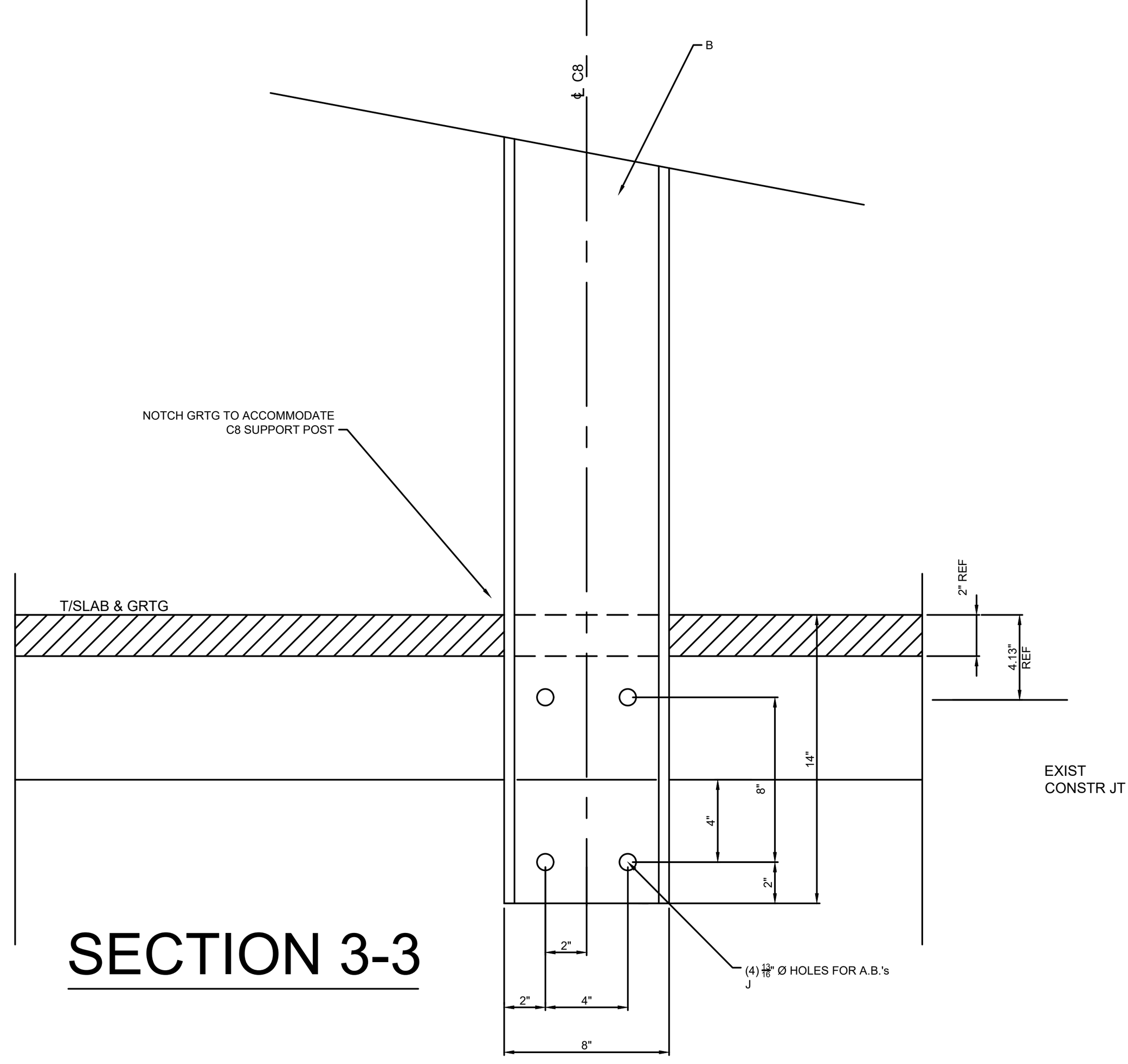
SUPPORT DETAIL D

ELEVATION VIEW

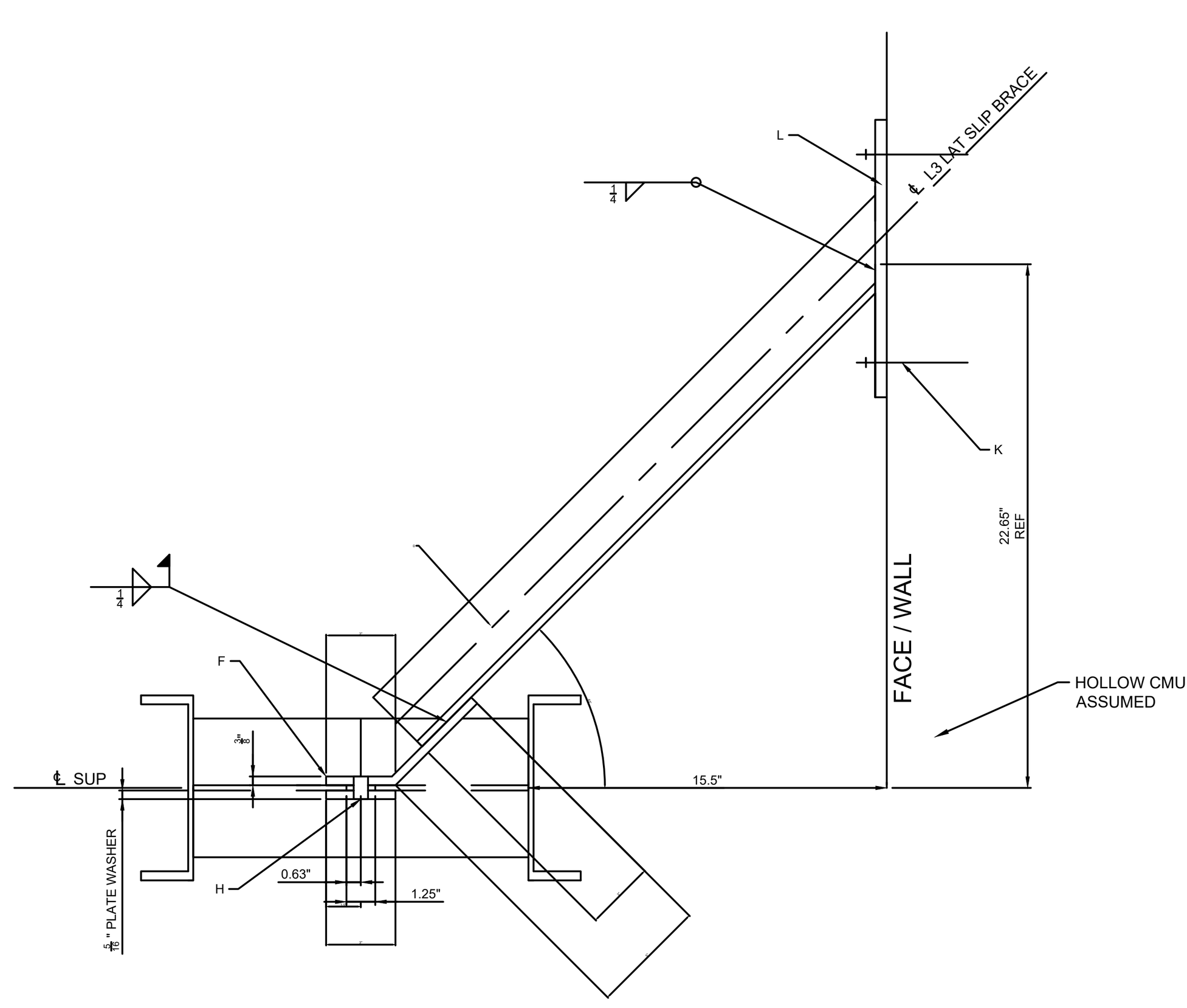
BIU/MAI RELEASED
ALL WORK MUST COMPLY
WITH UCC REGULATIONS
REVIEWED BY TLH 000888
DATE: 06/10/2025 Terry L. Heath

Item	Qnty	Description & Requirements	Material	ASTM	Finish
a	1	C8x11.5 x 5-11 1/2" lg	Steel	A36	Galvanized
b	1	C8x11.5 x 7'-2" lg with (4) 13/16" dia. bolt holes bottom end for bolts (j)	Steel	A36	Galvanized
c	2	W6x15 x 0'-14 1/2 " lg with (2) 9/16" x 1 1/4" lg horz slotted bolt holes (centered in web @ 3" ga) for bolts (h). 5/16" thick continuous/hardened plate washer of sufficient width to completely cover the slot(s) shall be provided. PTFE slide plate on top flange at pipe contact area.	Steel	A36 (W6) F436 (PL WASHER)	Galvanized
d	2	L3x3x5/16 x Length as required, 45 deg mitre one end	Steel	A36	Galvanized
e	1	PL 1/2 x12 x 12 lg with (4) 13/16" dia. bolt holes for bolts (j)	Steel	A36	Galvanized
f	2	Bent PL 3/8 x 4 3/4 x 0'-8" lg w/3" & 5" legs and (2) 9/16" dia. bolt holes short leg (3" ga & 7/8" edge dist): See Detail	Steel	A36	Galvanized
g	As Required	PL 3" wide x 0'-7 1/2" lg Shim Pack, thickness as required. PTFE surface on outer ply	Steel	A36	Galvanized
h	4	1/2" dia. x 0'-2 1/2" long framing bolts (centered in horz slots of item (c) installed finger tight with Locktite Threadlocker Red 271)	Steel	A325	Galvanized
j	8	3/4" dia. x 0'-7" lg Hilti adhesive anchor HAS-B-105 HDG + HIT-HY-200 V3 (4" min embedment)	Steel	F1554 Gr 105	Galvanized
k	8	1/2" dia. x 0'-4" lg Hilti adhesive anchor HIT-SC Threaded Rod 5.8 + HIT 270 w/sieve sleeve (2" min embedment - hollow CMU)	5.8 Carbon Steel	F568	Galvanized
l	2	PL 1/2 x 12 x 12 lg with (4) 9/16" dia. bolt holes for bolts (k)	Steel	A36	Galvanized

NOTES:
1. TWO PIPE SUPPORT ASSEMBLIES REQUIRED
2. QUANTITIES SHOWN ARE PER PIPE SUPPORT ASSEMBLY
3. ITEM (i) INTENTIONALLY OMITTED
4. REFER TO ASSOCIATED DESIGN DETAILS FOR ITEM DESIGNATIONS

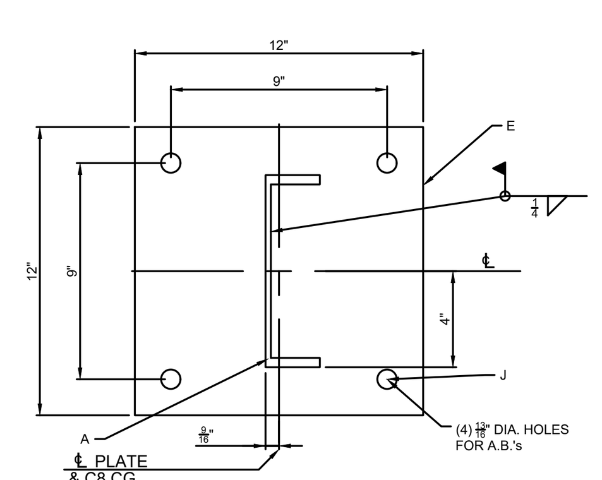


SECTION 3-3



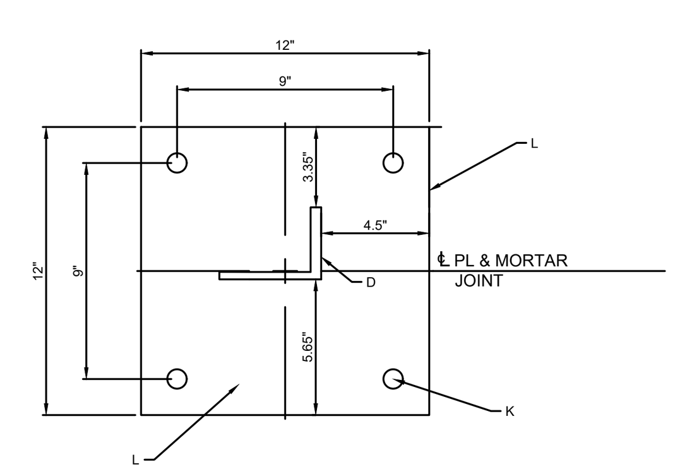
SECTION 4-4

LAT SUP BRACE



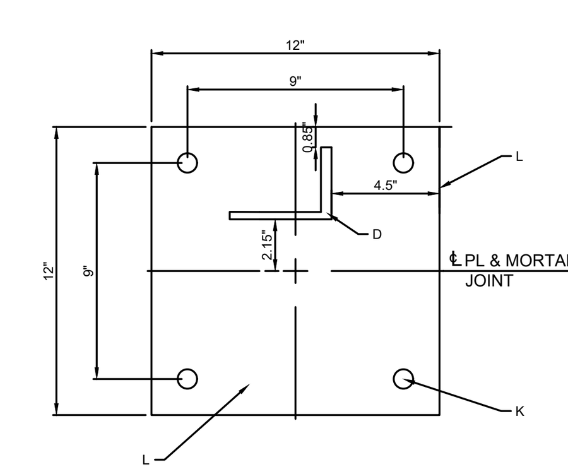
SECTION 2-2

BASE PLATE



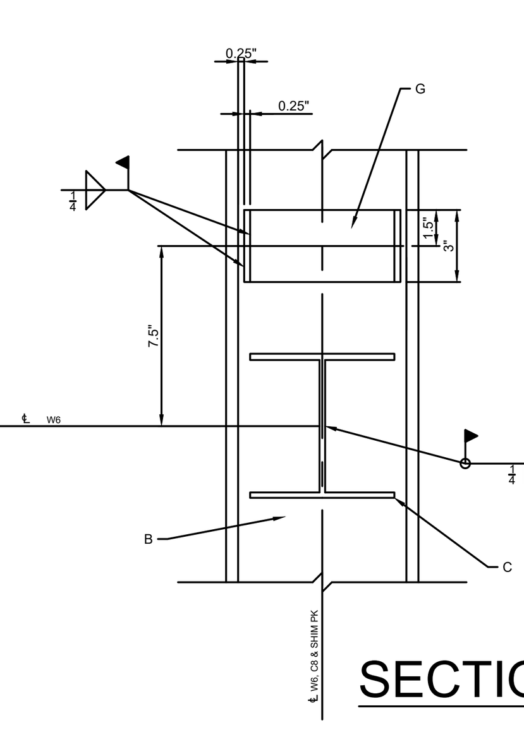
SECTION 5-5

UPPER PLATE



SECTION 6-6

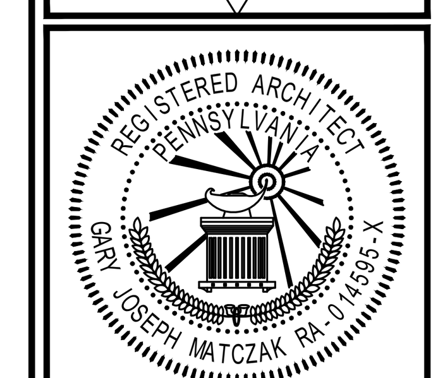
LOWER PLATE



SECTION 1-1

GARY MATCZAK ARCHITECTS
4509 WEST RIDGE ROAD
ERIE, PA 16506
814-836-8500

ADDITION to:
ROUTE 19 WATER SYSTEM PUMP STATION
6152 PEACH STREET
ERIE, PENNSYLVANIA 16428



SUPPORT DETAILS
SECTIONS
SCHEDULE

NO.	DATE	REVISION
1	9/4/2025	Strainer Location

A 2

PROJECT NO. 2337
DATE APRIL 2025

\\matczak-ds418\File Storage\GMA\Drawing Files\Current Projects\2337 - Summit Township Pump Station\2337-A2.dwg Apr 21, 2025 - 11:11am