DEPARTMENT OF TRANSPORTATION

Planning & Engineering
Office of Project Development
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December 6, 2024

ADDENDUM NO. 2

RE: Item #2, December 11, 2024 Letting - 436 ( ), PCN X05W, Hughes County - Water Main Improvement and Sewer Manhole Adjustments

TO WHOM IT MAY CONCERN:

The following addenda to the plans shall be inserted and made a part of your proposal for the referenced project.

SPECIAL PROVISIONS: Technical Specs:
Please destroy sheets 40 05 00-7, 40 05 00-8, 40 05 00-9, 40 05 51-2, and 40 05 61-2 and replace with the enclose sheets, dated 12/6/24.
Division 40 05 00 Sections 3.6B.2.b. and 3.6B.2.d. were revised.
Division 40 05 51 Section 2.4A. was revised.
Division 40 05 61 Section 2.3A. was revised.

SDEBS BID PROPOSAL: NO CHANGE

PLANS: Please destroy sheet N.4 and replace with the enclosed sheet, dated 12/6/24.

Sheet N.4: THRUST BLOCK DETAL was added.

Sincerely,

Sam Weisgram
Engineering Supervisor

SW/cj

CC: Jason Humphrey, Pierre Region Engineer
Dean VanDeWiele, Pierre Area Engineer

1) Water – Potable Water.

b. Test requirements:
1) Test medium: Water.
2) Pressure: 150 PSIG
3) Duration: 2 HRS

c. Gaskets and O-Rings:
1) O-Rings : Neoprene or rubber.
2) Flanged, push-on and mechanical joints (ductile iron): Rubber, AWWA/ANSI C111/A21.11.
3) Flanged joints (steel): Rubber, AWWA C207

2. System components:
a. Pipe size to 2 IN
1) Buried service:
a) Material:
(1) Municipex PEXa Pipe.
b) Fittings: AWWA C800.
(1) Copper to Poly Compression Couplings: Ford Meter Box Company or approved equal.
(a) Fittings shall be NO LEAD.
(2) Service Saddles: Smith Blair 372 series, Romac 305 and 306 series, Ford FS313, CC4-CC7, or approved equal.
(a) Saddles shall be all 304 stainless steel with 304 stainless steel studs and nuts.
(b) A minimum of two studs per saddle shall be required.
(c) AWWA threads.
(d) Fully passivated welds.
(3) Corporation Stops for Poly:
(a) Valves are to be ball type rated to 300 psig maximum water pressure. Valve shall include end piece O-ring and have a fluorocarbon coated ball capable of 360 degree stem rotation.
(b) Stem shall be blow-out proof design.
(c) Seat shall be stainless steel reinforced.
(4) Curb Stops for Poly: Minneapolis Pattern Ball Valves or approved equal.
(a) Reference: AWWA C800-01, ASTM B62.
(b) Cap and stem shall include BUNA-N or EPDM O-ring seals.
(c) Brass Teflon coated (PTFE) ball shall be for use in potable water systems with 300 psig water working pressure.
(5) Curb Boxes: Minneapolis Pattern 5622 or approved equal.
(a) Base tapped 1 ½ IN
(b) Extended Length: 7 FT
(6) Poly Pipe Stiffeners: Stainless steel as manufactured for IPS PE pipe.
(a) 1-piece model with rolled edge.
c) Joints: Flared.
d) Tracer wire: #12 AWG Copper Clad Steel, High Strength with minimum 450 lb. break load, with minimum 30 mil high molecular weight polyethylene (HMWPE) insulation thickness manufactured to ASTM and/or UL specifications.
e) Coating: Polyethylene .wrap 8 Mil at all metallic components (fittings and valves).
(1) Pull on type.

b. Pipe size 3 IN
1) Buried service:
a) Material:
(1) Polyethylene pipe.
(a) Reference: AWWA PE 3408, ASTM D1248, Type III, Class C, Category 5, Grade P34, ASTM D3350.

b) Fittings: AWWA C800.
(1) Copper to Poly Compression Couplings: Ford Meter Box Company or approved equal.
(a) Fittings shall be NO LEAD.
(2) Service Saddles: Smith Blair 372 series, Romac 305 and 306 series, Ford FS313, CC4-CC7, or approved equal.
(a) Saddles shall be all 304 stainless steel with 304 stainless steel studs and nuts.
(b) A minimum of two studs per saddle shall be required.
(c) AWWA threads.
(d) Fully passivated welds.
(3) Corporation Stops for Poly:
(a) Valves are to be ball type rated to 300 psig maximum water pressure. Valve shall include end piece O-ring and have a fluorocarbon coated ball capable of 360 degree stem rotation.
(b) Stem shall be blow-out proof design.
(c) Seat shall be stainless steel reinforced.
(4) Curb Stops for Poly: Minneapolis Pattern Ball Valves or approved equal.
(a) Reference: AWWA C800-01, ASTM B62.
(b) Cap and stem shall include BUNA-N or EPDM O-ring seals.
(c) Brass Teflon coated (PTFE) ball shall be for use in potable water systems with 300 psig water working pressure.
(5) Curb Boxes: Minneapolis Pattern 5622 or approved equal.
(a) Base tapped 1 ½ IN
(b) Extended Length: 7 FT
(6) Poly Pipe Stiffeners: Stainless steel as manufactured for IPS PE pipe.
(a) 1-piece model with rolled edge.
c) Joints: Flared.
d) Tracer wire: #12 AWG Copper Clad Steel, High Strength with minimum 450 lb. break load, with minimum 30 mil high molecular weight polyethylene (HMWPE) insulation thickness manufactured to ASTM and/or UL specifications.
e) Coating: Polyethylene .wrap 8 Mil at all metallic components (fittings and valves).
(1) Pull on type.

c.

d. Pipe size 4 IN through 14 IN:
1) Buried service:
a) Materials:
(1) Either PVC, DR18 (Class 235)
(a) Pipe length: 20 FT
(2) Water pipe shall be the product of a manufacturer having a minimum of 5 years experience in the manufacture of water works.
b) Reference: AWWA C900, C906.
c) Coating: Polyethylene .wrap 8 Mil at all metallic components (fittings, valves and hydrants).
(1) Pull on type.
d) Fittings:
(1) PVC: Spec-Loc or approved equal
(a) Reference: ASTM D1784, ASTM D3139, ASTM F477, NSF-61, DR 18.
(b) Fitting shall be Class 235.
(c) Bulldog internal joint restraints shall be required.
(d) Fittings shall be rated for the maximum system operating pressure, up to the maximum rated operating pressure of C900 pipe.

(e) Solvent weld- or gasket-end fittings are acceptable. Solvent weld bells shall be compatible with C900 pipe. Gasket bells shall conform to ASTM D3139 with gaskets conforming to F477. Gaskets shall be locked-in style.
(f) PVC fittings are preferred and shall be used where applicable.

(2)

(3) Optional: AWWA/ANSI C153/A21.53 ductile iron compact fittings for sizes 3 IN to 16 IN.
(a) Fittings shall be 350 psi rated.
(b) Coating: Fusion-Bonded Epoxy coated, internally and externally per AWWA C116
(c) Internal linings and coatings exposed to water shall be NSF approved for potable water service.
(d) Mechanical joint gaskets are to be Tyler Union or approved equal. Standard MJ gasket made with SBR and meets NSF-61, NSF-372, and Annex G and ANSI/AWWA C11/A21.11.
(e) Bolts are to be ¾" x 3 ½" Cor-Blue T-Bolt w/ Epoxy Nut or other length as specified.

e) Joints: Push-on joints with mechanical (stuffing box type) joints at fittings and valves.
f) Joint restraints for PVC and ductile iron pipe shall be Smith-Blair Cam-Lock, EBAA Iron Sales, or approved equal.
(1) Shall include standard mechanical joint gaskets.

2. 2” square nut
3. Left opening as viewed from the top.
4. Direction of opening and the word OPEN to be cast in handwheel or valve bonnet.
5. Unless otherwise specified, actuators for valves to be buried, submerged or installed in vaults or manholes shall be sealed to withstand at least 20 FT of submergence.

B. Buried Valve Actuators:
1. Provide screw type adjustable cast iron valve box, sufficient length of minimum bury depth of 6 FT, 5 ¼ IN minimum diameter, 3/16 IN minimum thickness, and identifying cast iron cover rated for traffic load.
2. Box base to enclose buried valve gear box or bonnet.
3. Provide 2 IN standard actuator nuts complying with AWWA C500, Section 3.16.
4. Permanently lubricated screw-type operators, totally enclosed and of watertight construction designed for underground service.
5. Overload protection shall be incorporated into the operator allowing the application of 450 FT/LBS input torque at full-open and full closed positions without damage to the operator or valve.
6. Provide concrete pad encasement of valve box as shown for all buried valves unless shown otherwise.

2.4 FABRICATION

A. End Connections:
1. Provide the type of end connections for valves as required in the Piping Schedules presented in Section 40 05 00 or as shown on the Drawings.
a. Valve inlets shall be designed for use with ductile iron, cast iron, HDPE, and PVC pipe materials.
b. Mechanical joint valve inlets shall be allowed.
c. Alpha restraint joint design as furnished by American Flow Control or approved equal shall be allowed for valve inlets.
d. Restraint accessories shall be factory installed.
2. Comply with the following standards:
a. Threaded: ASME B1.20.1.
b. Flanged: ASME B16.1, Class 125 unless otherwise noted or AWWA C207.
c. Bell and spigot or mechanical (gland) type: AWWA/ANSI C111/A21.11.

B. Refer to individual valve Specification Sections for specifications of each type of valve used on Project.

C. Nuts, Bolts, and Washers:
1. Wetted or internal to be bronze or stainless steel.
a. Exposed to be stainless steel or epoxy coated.

D. Epoxy Interior Coating: Provide epoxy interior coating for all ferrous surfaces in accordance with AWWA C550.

2.5 SOURCE QUALITY CONTROL

A. Certification of performance, leakage and hydrostatic tests as described in Section 5 of AWWA C509 or C515 shall be furnished when requested by the Engineer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Setting Buried Valves:
1. Locate valves installed in pipe trenches where buried pipe indicated on Drawings.

1. 125 PSI steam, 200 PSI non-shock WOG.

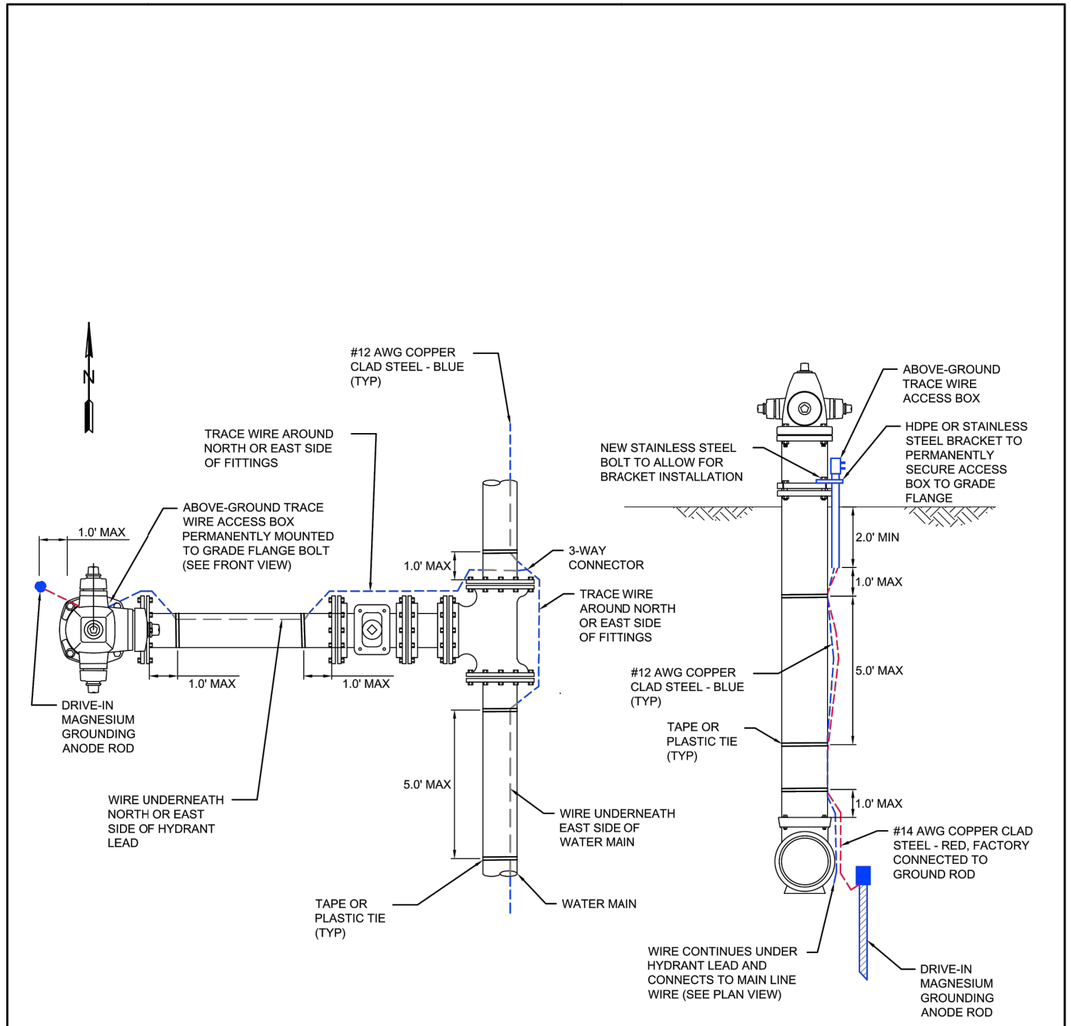
E. Manufacturers:
   1. Nibco.
   2. Stockham.

2.3 VALVES: WATER POTABLE

A. Resilient Wedge Gate Valves, 3 to 48 IN (Water Application):
   1. Comply with AWWA C509 or AWWA C515.
   2. Materials:
      a. Stem and stem nut: Stainless Steel for all non-rising stems and bronze for rising stems.
         1) Wetted bronze parts in low zinc bronze.
         2) Aluminum bronze components: Heat treated per AWWA C504.
      b. Body, gate: Ductile iron.
      c. Resilient wedge: Fully encapsulated rubber wedge. Styrene Butadiene Rubber (SBR).
         1) Ductile iron wedge shall have sealing surfaces of the wedge permanently bonded with resilient material to mee ASTM tests for rubber to metal bond ASTM D429.
   3. Design requirements:
      a. Minimum 200 PSIG working pressure.
      b. Buried: NRS, O-ring stem seal, 2 IN square operating nut.
         1) Stuffing boxes shall be O-ring seal type with two rings located in stem above thrust-collar.
         2) Low friction torque reduction thrust bearing shall be located both above and below the stem collar.
      c. Counter clockwise (Left) open rotation.
      d. Non-rising stems
         1) Shall be in full compliance with AWWA Standards with cast integral stem collar.
         2) Stem shall be constructed of series 300 or 400 stainless steel and shall be sealed by three O-rings.
         3) Stem nut shall be independent of wedge and shall be solid bronze conforming to ASTM B62.
      e. Exterior bolts and nuts shall be stainless steel meeting the requirements of 300 or 400 Series stainless steel.
      f. Fusion bonded epoxy coating interior and exterior except stainless steel and bearing surfaces.
         1) Comply with AWWA C550.
         2) Comply with NSF 61.
         3) Minimum two-part thermosetting, non-toxic epoxy.
         4) Wetted bronze parts in low zinc bronze.
         5) Aluminum bronze components: Heat treated per AWWA C504.
      g. Valves shall have a minimum hydrostatic shell test of 400 PSI and seat test of 250 PSI. At the 250 PSI shut-off text, valve must be bubble-tight with a zero leakage allowance.
   4. Acceptable manufacturers:
      a. Valves: Valves shall be the product of a manufacturer having a minimum of five years of experience in the manufacture of water works and distribution valves. Resilient wedge gate valves shall be made in the U.S.A.
         1) American Darling Valve Company
         2) Mueller Company
         3) Clow.Valve Division
         4) Waterous Company
         5) American AVK
         6) Or approved equal
      b. Valve Boxes, Parts, and Covers: Shall be made in the U.S.A.
         1) Tyler Pipe Utilities Division
         2) Mueller Company
         3) Clow Corporation

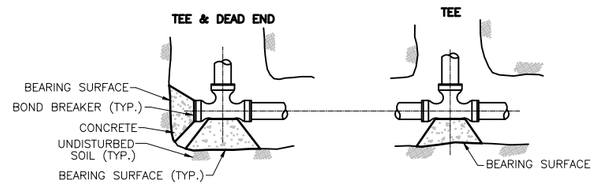
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	X05W	N.4	N.4

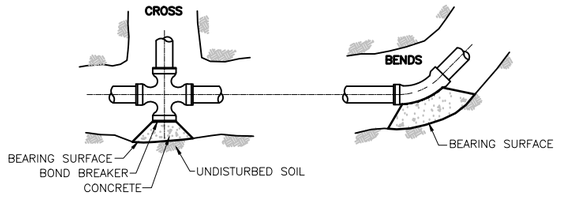
REV DATE: 12/06/2024 INITIAL: DLH



HYDRANT - PLAN VIEW
NO SCALE

HYDRANT - SECTION VIEW
NO SCALE





THRUST BLOCKING SIZE REQUIREMENTS					
FITTING TYPE	PIPE SIZE	THRUST BLOCK DIMENSIONS		BLOCK AREA	MIN. CONCRETE
	(IN)	LENGTH (IN)	WIDTH (IN)	(SF)	VOLUME (CY)
45° BEND	14	37	46	11.8	1.1
22.5° BEND	14	36	24	6.0	0.6
FIRE HYDRANT	6	27	22	4.0	0.3
TEE	14	36	61	15.4	1.4
TEE	12	34	48	11.3	1.0
TEE	10	32	36	7.9	0.6
TEE	8	29	25	5.1	0.4
TEE	6	26	16	2.8	0.2
TEE	4	23	8	1.3	0.1

NOTES:
1. THRUST BLOCKS SHALL BE REQUIRED IF MECHANICAL JOINT FITTINGS ARE USED.
2. ALL COSTS ASSOCIATED WITH MATERIALS AND INSTALLATION OF THRUST BLOCKS WILL BE INCIDENTAL TO THE "X PIPE BEND" BID ITEMS.
3. THRUST BLOCKS MUST BE CAST IN PLACE CONCRETE.
4. BEARING SURFACE BASED ON BEARING STRENGTH OF 3,000 P.S.F. AND MAIN PRESSURE OF 200 P.S.I.
5. BOND BREAKER TO BE MINIMUM OF 8 MIL POLYETHYLENE PLASTIC.

THRUST BLOCK DETAIL

MINNESOTA RURAL WATER ASSOCIATION
STANDARD DETAIL

TRACE WIRE
HYDRANT DETAIL

May 28, 2014

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