



**STANDARD MODIFICATIONS TO MONTANA PUBLIC
WORKS STANDARD SPECIFICATIONS SEVENTH
EDITION**

2021

Section 02660 – Water Distribution Systems

1.3 Add the following references

AWWA C515 Reduced wall, Resilient seated Gate Valves for Water Service

AWWA C550 Protective Interior Coatings for Valves and Hydrants

AWWA C800 Underground Service lines and Fittings

ANSI/NSF 61 Municipal Drinking Water Components

2.2. B.2 Replace Paragraph with:

Use underground pipe and fittings having push-on joints meeting AWWA C111. Use mechanical joints only as approved by the County Water District of Billings Heights.

2.2 B.5.a Revise paragraph to read:

Assure joints are push-on joints meeting AWWA C111. Use mechanical joints only as approved by the County Water District of Billings Heights. Assure the fitting interior is cement mortar lined meeting AWWA C104. Assure the fitting exterior is bituminous tar coated 1 mil thick. Use compact fittings having a rated working pressure of 350 psi following manufacturer recommended laying lengths.

2.2. C.1 Revise paragraph to read:

Furnish PVC water main pipe meeting AWWA C900 requirements, made to ductile iron O.D's for "push on" joints. Assure pipe joints are bell and spigot having an elastomeric gasket. Use DR14 305 psi pipe. DR 18 235 psi may be used if pre-approved by the County Water District of Billings Heights.

2.2 D.1. d.1 Revise Paragraph to read:

Use pipe meeting AWWA C901. Polyethylene (PE) pressure pipe on all services will be HDPE 4710 with a minimum 250 psi rating. The minimum service line size allowed in the district shall be ¾" I.P.S.

2.2 D.1.d.3 Add the subsection:

No couplings will be allowed between the mainline corporation stop and the property line curb valve. Any District service line damaged during any type of construction will be replaced entirely from the corporation stop at the main to the curb stop on property. All damaged and replaced service lines must be inspected by District personnel prior to backfilling.

2.3.A.3 Revise Paragraph to read:

Assure both types have a class 125, ANSI B16.1 outlet flange, are rated for a minimum 150 psi working pressure and contain a threaded test plug on the neck or body of the tapping sleeve. Assure gaskets are manufacturers' standard for use in potable water systems. Use cor-ten or stainless-steel bolts and nuts. Assure mechanical joint type is fusion-bonded, 12 mil thickness, and epoxy coated. When using type (2) above on PVC pipe, assure that the body length of the sleeve meets the minimum requirement of the pipe manufacturer. Assure tapping valves meet the applicable requirements for gate valves as outlined in this section, with flanged inlets compatible with the flange of the tapping sleeve and mechanical joint outlet.

2.5.A Replace paragraph with:

Service clamps for metal pipe, or Asbestos cement pipe, when required, shall be flat, double strap, brass/bronze metal conforming to ANSI/NSF 61 with Neoprene gasket cemented in place and corporation stop threads as manufactured by Mueller BR2B with AWWA taper threads C.C series, or equal. Service clamps for PVC pipe shall be all brass/bronze, O.D controlled with neoprene gasket cemented in place and corporation stop threads as manufactured by Mueller H-13400 series, or equal. Taps for water service saddles shall be full-size taps with AWWA taper (C.C) threads. The saddle and corporation stop shall be set on the pipe prior to tapping and the tap shall be made through the corporation stop using a standard tapping machine only. Undersized taps will not be allowed. Shell cutters shall be used for tapping PVC pipe.

2.6.B Replace paragraph with:

Furnish compression or Insta-Tite fittings as manufactured by Mueller Ford, or an approved equal.

2.6.C Delete this subsection entirely.

2.8 A.5 Add the following subsection:

Any valve operating nuts that are greater than 8.5 feet in depth from the top of the nut to the finish grade surface shall be supplied with valve operator extensions. These extensions shall be securely connected to the valve operator and shall come to a level of 6 to 6.5 feet below finish grade. They shall be permanently centered in the valve box for ease of operation. Securely connect the extension to the valve operator nut by drilling a hole ¼" in depth of sufficient size to allow the set screw to be seated. The set screw threads shall be coated with lock-tite prior to connection to the operating nut.

2.8 B.1 Add to the end of paragraph:

Butterfly valves shall be installed with the operating mechanism oriented to the short side of the street closest to the curb uniformly.

2.8 B.6 Add the following subsection:

Any valve operating nuts that are greater than 8.5 feet in depth from the top of the nut to the finish grade surface shall be supplied with valve operator extensions. These extensions shall be securely connected to the valve operator and shall come to a level of 6 to 6.5 feet below finish grade. They shall be permanently centered in the valve box for ease of operation. Securely connect the extension to the valve operator nut by drilling a hole 1/4" in depth of sufficient size to allow the set screw to be seated. The set screw threads shall be coated with lock-tite prior to connection to the operating nut.

2.10.B. Revise paragraph to read:

Furnish hydrants with 5-1/4-inch valve openings, 6- inch, slip-on joint inlets, one 4-inch pumper connection, and two 2-1/2-inch hose connections. Assure hose nozzles have National Standard Hose Threads, and pumper nozzle has threads in accordance with City of Billings standard (four threads/inch; pitch diameter = 4.800 ± 0.005 inches). Coat all hydrant nozzle threads with food grade anti-seize. Furnish National Standard operating nut. Furnish hydrants opening counter clockwise and having an arrow on the hydrant top designating the opening direction.

2.10. D. Revise the paragraph to read:

The fire hydrants allowed within the County Water District of Billings Heights service area are as follows, Mueller Company Centurion, Kennedy K-81 Guardian, or Waterous Pacer, or approved equivalent. Paint the hydrants in accordance with the City of Billings color scheme of aluminum for the barrel and red for the nozzle caps and bonnet for all hydrants within the City limits.

2.13.A Revise the paragraph to read:

Insulation board may be installed after approval by the engineer and or the County Water District of Billings Heights. Water line insulation board shall be block molded high density EPS PLUS meeting or exceeding ASTM C 578 type XV(EPS), Type VII (XPS), specification or approved equal. Insulation board will be 60 PSI with an R- value of 5 per inch thickness. Insulation board shall be installed with 2 inches of sand bedding and 2 inches of sand over the top of the insulation board. The insulation board will be laid in sheets with a minimum width of 4 feet and a standard of 2" thickness needed per foot to equal the minimum burial depth of 6.5 feet.

2.14 Revise paragraph to read:

Flushing hydrants shall be non-freezing, self-draining Mainguard NO.78 Blow off Hydrants or an approved equal. All working parts will be bronze-to-bronze design and be serviceable from above grade. The outlet nozzle will be bronze and 2.5" NST.

3.2.C.11 Delete this subsection entirely.

3.2.C.12 Add the following subsection:

Mechanically restrain all dead-end valves and fittings in accordance with design standards in addition to using concrete thrust restraint. Precast concrete thrust blocks are acceptable as pre-approved by the district.

3.2.C.13 Add the following subsection:

Any Asbestos Cement water main to be crossed underneath for any reason must be cut out at the crossing and replaced with C900 as follows. The A.C pipe will be dug and exposed 5 feet past each side of the trench for the crossing to virgin soil. The span will be replaced with C900 pipe that has been swabbed with a 1% hypochlorite solution. The section of C900 will then be coupled to the existing A.C pipe using two Hymax couplers. All crossings must be inspected by District personnel before backfilling. See CWDBH detail drawing 0315.

3.2.C.14 Add the following subsection:

Any District water main that must be lowered will be done using the method provided in the detail drawing attached. In the event it is an A.C water line to be lowered the method will be the same except for the addition of 5 extra feet on each side past the normal main lowering reconnection point. C900 pipe and two Hymax couplers will be used in all lowering or reconnections to A.C pipe unless specified otherwise by the district. All pipe lowering must be inspected by District personnel prior to backfilling. See CWDBH detail drawing 0314.

3.2.D.3.b Revise paragraph to read:

All notifications are the responsibility of the contractor. The contractor will ensure that a minimum of 48 hours' notice is given prior to interruption of service. Any interruption in service will be held to a maximum of 8 hours. Any interruption taking longer than 8 hours will require the contractor to provide temporary water to the customers affected.

3.4.A.1 Revise to read:

Perform hydrostatic and leakage testing in accordance with County Water District of Billings Heights standards. Once the pipe is laid and backfilled Test for at least 2 hours, all newly laid pipe, or any valved section, to a Hydrostatic pressure of not less than 200 psi.

3.4.A.8 Revise paragraph to read:

Pressure and leakage tests must be conducted in the presence of an engineer or the engineer's designated inspector. The engineer or their inspector must be on site for the entire duration of the test or it will not be accepted by the district.

3.4.C.2.a.2 Delete this subsection entirely.

3.4.C.2.a.3 Delete this subsection entirely.

3.4.C.3.a. Revise to read:

Continuous feed shall be the only method used. Other methods may be used for Specific applications if approved by the Engineer and or the County Water District of Billings Heights. The continuous method shall produce a 24-hour Residual of not less than 25 mg/l.

3.4.C.3.a.1 Delete this subsection entirely.

3.4.C.3.a.3 Delete this subsection entirely

3.4.C.3.a.2.b Revise paragraph to read:

Use water from existing distribution system or other approved source of supply to flow at a constant, measured rate into the newly laid water main. At a point of no more than 10 feet downstream from the beginning of a new water main assure water entering the new main receives a dose of chlorine feed at a constant rate such that the water will have at least 50 mg/l free chlorine. To assure this concentration is provided, measure at constant intervals.

3.4.C.3.a.2.d Revise the last sentence to read:

At the end of the 24-hour period, the treated water in all portions of the main must have a minimum free chlorine residual of 25 mg/l free chlorine.

3.4.C.3.a.2.f Delete this subsection entirely.

3.4.C.4.b Add the following subsection:

Dechlorination

Dechlorination is required where discharged water can enter into either the city stormwater collection system or state receiving water. The contractor shall be responsible to ensure that dechlorination operations are in compliance with the Montana Department of Environmental Quality General Permit for Disinfected Water and Hydrostatic Testing. Ascorbic acid shall be used for all dechlorination operations.

3.4.D.1 Revise paragraph to read:

After final flushing and before placing the water main back in service, a sample or samples collected from the main shall be tested for bacteriological quality. The contractor will take these samples in the presence of the County Water District of Billings Heights personnel. The samples will be taken to the lab by District personnel and the contractor shall pay for the testing.

3.4.D.2.a Add sentence to end of paragraph:

The contractor shall take these tests in the presence of District personnel and the samples will be taken to the lab by District personnel and the contractor shall pay for the testing.

3.8.A. Revise paragraph to read:

The service line shall be one continuous line of pipe from the corporation stop to the curb stop and from the curb stop to the meter loop. Any service line with a distance over 75 feet between the curb stop and the location the service line enters the building or residence will be required to use a meter pit. Contact the County Water District of Billings Heights for acceptable pit specifications and construction requirements.

3.8.C Add the following subsection:

In any project or utility construction within the CWDBH service area that is requiring front of lot utilities the district will allow a section of water service line to be connected to the curb stop and swept up past the 10-foot utility easement on property. See detail drawing 0316. This applies to front of lot utility projects only.

3.10 Add the following section:

SEPARATION

Any above ground facilities to include cans, pedestals, poles, transformers, etc will maintain a minimum of 5 feet separation from any and all District appurtenances. Any private utilities involved in front of lot utility construction will also maintain as a minimum 5 feet separation from any and all District appurtenances.

These standard modifications to the MPWSS are in addition to the Rules and Regulations Governing Water Service and Standards for the County Water District of Billings Heights and the CWDBH Service Line and Fire Line Regulations. A copy of these standards is available free online at www.heightswaterdistrict.com. A written copy may be provided for a fee upon request from the County Water District office located at 1540 Popelka Drive, Billings Montana