

General Construction and Water Notes:

1. Projects located in Distributor Contract Areas shall require the District to contact Denver Water prior to the pre-construction meeting.
2. All materials and workmanship shall be in accordance with Denver Water's Engineering Standards, Materials Specifications, and Drawings. All main installations/system modifications will be approved and inspected by Denver Water. Field change directives made by Distribution Inspection shall be made within 24 hours by the contractor.
3. Contractors shall maintain a copy of the current Engineering Standards on-site at all times during construction. See the chart below for a quick reference to the frequently used material specifications.

Material Specification Quick References:

<u>Material Specification</u>	<u>Description</u>
MS 01	Ductile Iron Pipe
MS 02	Polyvinyl Chloride Pressure Pipe
MS 03	Ductile Iron Waterworks Fittings
MS 5	Resilient Seated Gate Valves
MS 6	Rubber Seated Butterfly Valves
MS 8	Tapping Valves - Mechanical Joint Type
MS 9	Fabricated Carbon Steel and Stainless Steel Tapping Sleeves
MS 12	Cast Iron Valve Boxes
MS 13	Dry-Barrel Fire Hydrants
MS 14	Polyethylene Encasement Material
MS 23	Brass and Bronze Goods
MS 28	Concrete Vaults
MS 29	Mechanical Joint Restraint
MS 30	Bolted Sleeve-Type Couplings
MS 36	Flanged Joint Accessories

4. AWG 12 solid copper wire shall be installed on all non-metallic water mains.
5. The depth of cover over the pipe, measured from official street grade to the top of the pipe, shall be a minimum of 4-1/2 feet and shall be known as the *cover over the pipe*. If difficulties arise when crossing interference, and where specifically approved by Denver Water, deviations from 4-1/2 feet of cover will be permitted. The cover over the pipe shall be a minimum of 4-1/2 feet and a maximum of 10 feet with Denver Water approval.
6. Any changes in alignment and grade shall be authorized by Denver Water and shall be accomplished by the installation of additional fittings. The deflection of joints is permitted only when installing pipe on horizontal or vertical curves.
7. Prior to the installation of water mains, road construction must have progressed to at least the sub-grade state. Sub-grade is defined as an elevation of no more than 7 inches below the finished street grade.
8. The Contractor shall adjust all valve boxes and fire hydrants to the final finished grade.
9. Bends, tees, fire hydrants, blow-offs, and plugs at dead-end mains shall be protected from thrust with mechanical restraint and concrete kick blocks in accordance with Denver Water's Engineering Standards.
10. Valves shall be located on property line extensions, except for tapping tees where an additional valve shall be placed on the tapping tee. Other valve locations may be required as shown on the plans.
11. Utility crossings shall maintain a minimum clearance of 18-inches from the outside of the pipes.
12. Only one point of connection is allowed until the testing of the new main installations is complete.
13. Newly installed water mains and fire service lines shall be hydrostatically tested in accordance with Denver Water Engineering Standards, Section 8.25.
14. The trench shall be excavated and the pipe exposed for inspection at any location on the project, when requested by Denver Water.
15. The sterilization and flushing of mains shall be inspected and certified by the Health Department having jurisdiction; one copy of the certification shall be provided to Denver Water. The certification shall note the location of the main and state the main has been inspected by a representative of the Health Department having jurisdiction and complies with the procedures set forth by that department.

16. The Contractor is responsible for:
- a. Notifying customers verbally or in writing who may be affected by a water outage during construction.
 - b. Obtaining, at the Contractor's expense, applicable licenses, permits, bonds, etc., that are required for the main installation/system modification.
 - c. Contacting Denver Water's Construction Engineering personnel for the Pre-construction Meeting and Inspection, at 303-628-6671, at least 48 hours prior to beginning construction.
 - d. In the event of an emergency in Denver or in a Total Service Area after working hours, call Denver Water's Westside Dispatcher: 303-628-6801. In a Master Meter or Read & Bill District, please contact the representative of the district in which the Project is taking place.
 - e. Paying all additional charges for inspection outside normal work hours.

Note: Be advised that on occasion valves in our system may be inoperable. On such occasions, it may become necessary to back up an additional block for the shut out. If that occurs, make additional notifications verbally or in writing to customers with the mandatory 24 hours advance notice. When valve maintenance is required, a delay of several days should be expected.

Tap and Meter Notes (for Denver, Total Service, and Read and Bill Areas only. In Master Meter Districts please refer to the Specification for that District).

1. Before any taps are made on mains, tap applications and payment must be received and approved by the Distributor and Denver Water, and the water main has passed water quality testing.
2. Denver Water will make all taps that are 2 inches and smaller.
3. Individual service line PRVs shall be installed by the licensee when area pressure exceeds 80 psi.
4. Services and Meters:
 - a. The Contractor may request an on-site pre-construction conference with the Meter Inspector for all taps, service lines, and meters larger than one-inch, and for projects involving more than one tap and service. To schedule a pre-construction conference, call Meter Inspection at 303-628-6145.
 - b. A copy of the approved plans with Denver Water's approval sticker must be present on-site at the time the tap is made and the meter is inspected or installed.
 - c. Prior to the tap being made, the service address shall be posted, and the curb valve shall be installed. Upon tap installation, the contractor may request the meter inspection after the first pour of concrete foundation has occurred. The service address shall remain posted until the meter setting passes inspection.
 - d. Meters cannot be set, inspected, or services activated, until the requirements for backflow prevention have been completed. Contact the Backflow Prevention Program personnel at 303-628-5969 for further information.
 - e. Meter pits and vaults must be set flush with the final grade of the landscape, including the proper depth for soil amendment. If final grading has not been completed at the time of meter inspection, the Owner will be required to raise or lower the meter pit/vault when final grade is established. Adjustment of the pit may require adjustment of the meter setting within the pit.
 - f. Meter setting, valves, and service lines from the main to the Backflow Preventer Assembly, if present, or to 5 feet after the meter vault, must meet all applicable Engineering Standards in effect at the time of activation. Modifications may be required from the details on these plans to comply with the current engineering standards.
 - g. No present or future fences or walls are permitted between the Right-Of-Way (ROW) or easement and the meter setting. There shall be no permanent obstructions within 5 feet of the outside wall of the meter pit or vault.
 - h. Inside the City of Denver, all multi-family dwellings with a single tap, service line, and meter are required to sub-meter each individual unit (Sec 401.3.2 of Denver modifications to the International Plumbing Code, Ordinance Number 576, Series of 2004). Call the City and County of Denver Plumbing Inspector for information at 720-865-2625.
 - i. Inside the City of Denver, all service lines must be installed to avoid existing or proposed street trees. Contact the City and County of Denver's Forester at 720-913-0647 for information.

Cross-Connection Control Requirements:

The licensees listed below shall be in conformance with Denver Water's Engineering Standards, Chapter 5.05, *Cross-Connection Control and Backflow Prevention*. Backflow prevention assemblies are required to be installed on the following water service lines:

1. Commercial domestic service lines
2. Multi-Family domestic service lines (depending on potential hazard)
3. Fire service lines
4. Irrigation service lines
5. Single family residential domestic service lines with an auxiliary water source (Dual Water Service Agreement required)
6. Recycled Water service lines, if system design includes chemical injection or pumps.
 - a. Backflow prevention assemblies installed on recycled water service lines shall be identified as "Recycled Water".
7. It is at the sole discretion of Denver Water's Cross-Connection Control section to approve or deny a variance request related to a proposed backflow prevention assembly installation.
 - a. Backflow prevention assemblies shall be a model manufactured in accordance with AWWA C510 and C511 and shall have met the specifications by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.
 - b. The licensee is required to have a certified American Backflow Prevention Association (ABPA) or American Society of Sanitary Engineering (ASSE) tester inspect and test the existing and/or newly installed containment backflow prevention assemblies on dedicated domestic, irrigation, fire and recycle water service lines upon installation and annually thereafter.
 - c. Within 48 hours of Denver Water setting the meter and turning on the water service, the ABPA or ASSE tester is required to submit the containment backflow assembly test report(s) to the Cross-Connection Control Office:

Fax: 303-794-8325

E-Mail: CrossConnectionControl@denverwater.org

- d. There shall be no unprotected takeoffs from the service line ahead of any meter or backflow prevention assembly located at the point of delivery to the customer's water system.
- e. No branch line or taps are allowed on dedicated irrigation water service lines or recycled water service line for domestic (potable) use (e.g., drinking fountains, water play features, swimming pool, restroom facilities, etc.)

DEN Requirements:

1. Contractors shall maintain a copy of the current Engineering Standards and Capital Project Construction Standards, when applicable, on site at all times during construction.
2. Wax tape, metallic fittings, and appurtenances shall be in accordance with Denver Water Capital Projects Construction Standards, 3rd Edition SECTION 09 97 13.04.
3. An AMI endpoint is required to be purchased by the contractor at the time of meter installation.
4. Contact the following Denver Water personnel prior to construction for project coordination and inspection services at DEN:

DEN Airside Construction Inspection

- a. Minimum of 30 days prior to construction
- b. Denver Water Construction Management - Jeff Slankard 303-628-6165

DEN Landside Construction Inspection

- c. Minimum of 48 hours prior to construction
- d. Denver Water Construction Engineering - 303-628-6671

DEN Cathodic Protection Inspection

- a. Minimum of 48 hours prior to construction
- b. Denver Water Construction Management - Lee Burke 303-628-6293