

SPECIFICATIONS
FOR
PRIVATE CONSTRUCTION OF PUBLIC WATER MAINS
FOR
CITY OF YAKIMA
2017

The latest edition of the Standard Specifications for Road, Bridge, and Municipal Construction prepared by the Washington State Department of Transportation and the Washington State Chapter of the American Public Works Association and all current applicable amendments is, by this supplemented hereinafter. Each section of the Standard Specifications shall be considered as much a part of these Specifications as if they were actually set forth herein.

All sections of the Standard Specifications shall apply to this project as appropriate, except as modified by these Special Provisions. All Special Provisions apply to work within the City of Yakima's water service area. Contact Nob Hill Water Association for requirements where construction is outside of the City of Yakima's water service area.

All measurement and payment sections within the Standard Specifications are deleted for privately funded construction projects. The Developer shall be responsible for payment of all costs for the project and for procuring a qualified contractor.

NOTE:

Where pavement repair is required or when utilities are included with roadway construction, the Contractor shall follow the City of Yakima Special Provisions for Private Construction of Streets, Drainage & Illumination as they modify the Standard Specifications for that work including the adjustment of the utility castings to final grade. Contractor shall adhere to all requirements of Yakima Municipal Code Chapter 8.72 – Excavations in Public Rights-of-way.

2-07 WATERING

2-07.3 Construction Requirements

Add the following new section

2-07.3(A) Water Supplied From Hydrants

The Contractor shall contact the City of Yakima Water/Irrigation Division to secure a metered hydrant connection and comply with all requirements before obtaining water from fire hydrants. The Contractor shall notify the Engineer as soon as permit has been obtained.

The contractor shall only use hydrant wrenches to operate hydrants. The hydrant valve must be open full, since a partially opened valve may cause damage to the hydrant. The auxiliary valve on the outlet of the metered hydrant connection shall be used with for flow control purposes. Fire hydrant valves must be closed slowly to avoid pressure surges in the water system. The Contractor shall carefully note the importance of following these directions.

If a hydrant or metered connection is damaged, the Contractor shall immediately notify the City of Yakima Water/Irrigation Division so that the damage can be repaired as quickly as possible.

Upon completing the use of the hydrants, the Contractor shall return the metered hydrant connection. The City of Yakima Water/Irrigation Division may inspect the hydrant for any possible damage. The contractor will be billed for repairing the damage to a hydrant or meter if resulting from improper use.

The contractor shall convey the water from the nearest convenient hydrant at their own expense and as approved by the City of Yakima Water/Irrigation Division. The contractor shall be responsible for all costs associated with the use of the hydrant, including rental fees and metered water use.

Any violation of these requirements may result in fines and damage costs to the contractor resulting from the malfunctioning of damaged fire hydrants, in the event of fire.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS

7-08.2 Materials

Revise the second paragraph to read:

Gravel Backfill for Pipe Zone Bedding

The crushed gravel used for gravel backfill for pipe zone bedding shall be crushed surfacing top course meeting the requirements of Section 9-03.12(3).

7-09 WATER MAINS

7-09.1 Description

Supplement this section with the following:

The City Water/Irrigation Division will operate all existing water valves required as part of the project. Existing valves within the project area shall remain accessible at all times.

All new water mains crossing nonpotable lines such as sanitary and storm sewer lines shall conform to the City of Yakima's *Waterline Separation from Nonpotable Conveyance Systems* standards.

7-09.3(5) Grade and Alignment

Revise the first sentence of the third paragraph to read as follows:

The depth of trenching for water mains shall be such as to give a minimum cover of 48 inches over the top of the pipe unless otherwise specified in the Special Provisions.

7-09.3(9) Bedding the Pipe

Delete the first sentence

Revise the second sentence to read:

Gravel backfill for pipe zone bedding shall be placed to the depths shown on the City of Yakima Standard Detail for Typical Trench Section, W3.

7-09.3(10) Backfilling Trenches

Supplement this section with the following:

Street crossing trenches and other locations as shown on the plans or directed by the Engineer shall be backfilled for the full depth of the trench with Crushed Surfacing Top Course meeting the requirements of SECTION 9-03.12(3).

7-09.3(11) Compaction of Backfill

Delete the first paragraph and supplement this section with the following:

The density of the compacted material shall be at least 95% of the maximum density as determined by ASTM D 698 Tests (Standard Proctor). Placement of courses of aggregate shall not proceed until density requirements have been met.

The first 500 feet of trench backfill operations shall be considered a test section for the Contractor to demonstrate his backfilling and compaction techniques. The Contractor shall notify the Engineer at least 3 working days prior to beginning trench excavation and backfill operations and the Engineer will arrange for in-place density tests to be taken on the completed test section in accordance with the above requirements. No further trenching will be allowed until the specified density is achieved in the test section. Passing in-place density tests in the test section will not relieve the Contractor from achieving the specified densities throughout the project.

7-09.3(19)A Connection to Existing Mains

Add the following:

No connection to existing mains shall be allowed prior to a successful pressure test, disinfection, flushing and a satisfactory bacteriological test result is obtained.

Prior to installing new water main, the contractor shall pothole the existing water main at the designed point of connection to determine exact size, type, depth and location of existing water main. The new water main shall be laid at the same depth as the existing water main to avoid an unnecessary fittings as part of the final connection.

The Water/Irrigation Division shall furnish and install new tapping sleeves and valves to existing mains up to and including 12-inch. Costs, including materials and labor, as determined by the Water Distribution Supervisor, shall be paid at the Code Administration, City Hall, 129 N. 2nd St. Yakima, WA. 98901, before materials are ordered and the work is scheduled.

Mechanical joint fittings, valves and fire hydrants shall be connected with a ROMAC "Grip Ring", or an approved equivalent.

7-09.3(22) Blowoff Assemblies

Revise the first sentence to read:

Blowoff Assemblies shall be constructed at the locations shown on the Plans and in accordance with the *City of Yakima Typical Blow Off Assembly Detail W5*.

7-09.3(23) Hydrostatic Pressure Test

Revise the first sentence to read:

All water mains and appurtenances shall be tested under a hydrostatic pressure of 180 psi.

Supplement this section with the following:

Test shall be made with main gate valves open. Upon completion of the test, each valve shall be tested by closing each in turn and relieving the pressure beyond. This test of the valve will be acceptable if there is no immediate loss of pressure on the gauge when the pressure comes against the valve being checked. The Contractor shall verify that the pressure differential across the valve does not exceed the rated working pressure of the valve.

7-09.3(23)A Testing Extensions From Existing Mains

Delete this section

7-09.3(23)B Testing Section With Hydrants Installed

Revise this section to read:

When hydrants are included with the section of water main to be tested, the testing shall be conducted as described in Section 7-09.3(23) in two separate tests as follows:

Test No. 1 – Hydrant auxiliary gate valves closed, with the hydrant operating stem valves and hose ports open.

Test No. 2 – Hydrant operating the stem valves closed, with the hydrant auxiliary gate valves and hose ports open.

7-09.3(23)C Testing Hydrants Installed on Existing Mains

Revise this section to read:

For hydrants being installed and connected to an existing water main, the hydrant connection shall be provided by the City of Yakima Water/Irrigation Division, including the auxiliary gate valve. In some cases, the City will also install the hydrant and all associated piping. The owner or contractor requiring the new fire hydrant shall be responsible for all costs associated with the City's installation.

Where the contractor installs the hydrant and piping, all materials shall be field chlorinated as described in **7-09.3(24)M** prior to connecting to the auxiliary gate valve.

Once connected, a visual inspection of all connections shall be performed prior to backfilling. If the distance between the auxiliary gate valve and hydrant is more than one full length of pipe, the hydrant and piping shall be pressure tested according to 7-09.3(23) and disinfected according 7-09.3(24) prior to being connected to the auxiliary gate valve and existing water main.

7-09.3(24) Disinfection of Water Mains

Supplement this section with the following:

A representative from the City of Yakima Water/Irrigation Division will collect all bacteriological samples for testing and pay the cost associated with the initial samples. If test results are unsatisfactory, contractor shall disinfect the water main as previously outlined. New bacteriological samples will be taken by a representative of the Water/Irrigation Division. The contractor will be responsible for all costs associated with subsequent disinfection and sample testing.

7-09.3(24)A Flushing

Revise the first paragraph to read:

All filling, flushing and chlorinating of the new water system shall be done through a metered hydrant or blowoff connection with an approved double check assembly. Contractor shall secure the metered connection and double check assembly from the City of Yakima Water/Irrigation Division (see also 2-07.3(A) Water Supplied From Hydrants). Sections of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that may have become lodged in the pipe. If a hydrant is not installed at the end of the new main, then a temporary blow-off shall be provided by the contractor large enough to develop a flow velocity of at least 2.5 fps in the water main. No portion of the temporary blow-off shall remain in place as part of the permanent water system. Contractor is required to de-chlorinate all water flushed onto the street surface or into any storm drain system. Flushing may only be done into the sanitary sewer system if previously approved by the city's Wastewater Division.

Delete the second paragraph

7-09.3(24)H Point of Application

Delete this section

7-09.3(24)N Final Flushing and Testing

Revise the last sentence in the third paragraph to read:

Samples will be collected and bacteriological tests obtained by the City of Yakima Water/Irrigation Division.

7-12.3 Construction Requirements

Supplement this section with the following:

Valve box tops and lids shall be placed so that the ears of the lid/notches of the top section are in-line with the direction of the main.

Where valve boxes are installed in unpaved areas, the contractor shall install a 24-inch square/diameter x 4-inch thick pad of 3,000 psi concrete pad around valve box. The valve box and concrete pad shall be set flush to the surrounding surface.

7-12.3(1) Installation of Valve Marker Post

Delete this section

7-14 HYDRANTS

7-14.3(1) Setting Hydrants

Delete the fourth paragraph.

Supplement this section with the following:

The hydrant shall be set to the correct elevation on a concrete block base 12-inch x 12-inch x 6-inch thick, which has been placed on undisturbed earth. Around the base of the hydrant, the Contractor shall place 0.25 C.Y. of drain rock ranging in size from 3/4-inch to 1½-inch, said drain rock being for the purpose of allowing free drainage of the hydrant. Hydrants shall be installed according to City of Yakima Standard Detail for Hydrant Assembly, W1.

Where fire hydrants are installed in unpaved areas, the contractor shall install a 5-foot square x 4-inch thick pad of 3,000 psi concrete pad around fire hydrant at the bury line. The concrete pad shall be set flush to the surrounding surface.

7-14.3(2)A Hydrant Restraint

Revise this section to read as follows:

All mechanical joints associated with the hydrant (shoe, auxiliary gate valve, tee) shall be connected with ROMAC "Grip Ring" accessory pack or approved equivalent. Where the length between the auxiliary valve and hydrant shoe is greater than 18 feet, a Tyton joint "Field-lok" type gasket shall be used at the pipe joint for restraint. No concrete thrust blocking is required at the hydrant tee or at the hydrant shoe.

7-14.3(2)B Auxiliary Gate Valves and Valve Boxes

Revise this section as follows:

Auxiliary gate valves and valve boxes shall be installed in accordance with Section 7-12.

7-14.3(3) Resetting Existing Hydrants

Revise this section as follows:

Where existing hydrants are shown on the Plans for adjustments to conform to a new street alignment or grade or both, the hydrant shall be relocated as necessary by the City of Yakima Water/Irrigation Division at the contractor's or owner's expense.

7-14.3(4) Moving Existing Hydrants

Revise this section as follows:

Where existing hydrants are shown on the Plans to be moved, the hydrant shall be moved as necessary by the City of Yakima Water/Irrigation Division at the contractor's or owner's expense.

7-14.3(5) Reconnecting Existing Hydrants

Delete this section

7-15 SERVICE CONNECTIONS

7-15.1 Description

This section is supplemented with the following:

City of Yakima Water/Irrigation Division will install all 2-inch and smaller service connections from the main to and including the meter setter for the premises served. Service connections larger than 2-inches shall be installed as shown and noted on the plans as part of the new waterline installation. No service shall be installed by the Water/Irrigation Division prior to a successful pressure test, disinfection, flushing and a satisfactory bacteriological test result is obtained.

Costs for all service connections/installations performed by the City of Yakima Water/Irrigation Division, including materials and labor, as determined by the Water Distribution Supervisor, shall be paid at Code Administration, City Hall, 129 N. 2nd St. Yakima, WA. 98901, before materials are ordered and the work is scheduled.

9-30 WATER DISTRIBUTION MATERIALS

9-30.1 Pipe

9-30.1(1) Ductile Iron Pipe

The last sentence of paragraph 1 is replaced with the following:

All other ductile iron pipe shall be Special Thickness Class 52 with cement mortar lining complying with, AWWA C151/A21.51 and C104/A21.4 most current editions.

Paragraph 2 is replaced with the following:

Non-restraining joints shall be rubber gasket, push-on type (Tyton Joint), conforming to ANSI/AWWA C111/A21.11, most current edition.

Paragraph 3 is replaced with the following:

Restrained pipe joints shall utilize US Pipe "Field-lok" gaskets or approved equal.

9-30.1(4) Steel Pipe

Delete this section.

9-30.1(5) Polyvinyl Chloride (PVC)

Delete this section.

9-30.1(6) Polyethylene (PE) Pressure Pipe (4 Inches and Over)

Delete this section

9-30.2 Fittings

9-30.2(4) Steel Pipe

Delete this section

9-30.2(5) Polyvinyl Chloride (PVC) Pipe

Delete this section

9-30.2(6) Restrained Joints

Revise this section to read:

Mechanically restrained pipe and fittings may be used in lieu of thrust blocking as approved by the City. The engineer shall provide appropriate restraint calculations, indicating the length of pipe and fittings to be restrained for each particular size and type of fitting to be installed. Thrust restraint calculators such as those provided by Ductile Iron Pipe Research Association, EBAA Iron or similar may be used to determine required restraint lengths.

The restraining of ductile iron fittings, and valves shall be accomplished by the use of ROMAC "Grip Ring" follower gland or approved equal. Any device utilizing round point set screws shall not be permitted.

All couplings installed underground to connect ductile iron shall be manufactured of ductile iron.

9-30.2(9) Grooved and Shouldered Joints

Delete this section.

9-30.2(10) Polyethylene (PE) Pipe (4 Inches and Over)

Delete this section.

9-30.2(11) Fabricated Steel Mechanical Slip-Type Expansion Joints

Delete this section

9-30.3 Valves

9-30.3(1) Gate Valves (3 to 16 Inches)

Delete this section and replace it with the following:

9-30.3(1) Gate Valves (2-inches to 8-inches)

Gate valves, sized 2-inch through 8-inch, shall be resilient seated gate valves conforming to ANSI/AWWA C 509 latest edition. The valves shall have mechanical joint connections including accessories, or flanged connections, as noted on the Plans.

The Contractor shall provide an affidavit of compliance stating that the valve furnished fully complies with AWWA C509

Approved gate valve manufacturers include:

- Mueller Co.
- Clow Valve Co.
- M&H Valve Co.
- Kennedy Valve Co.
- American Flow Control

9.30.3(3) Butterfly Valves

Supplement this section with the following:

All valves 12-inches and over shall be butterfly valves conforming to ANSI/AWWA C504, latest edition.

9-30.3(4) Valve Boxes

Supplement this section with the following:

The top section of the valve boxes shall be Rich Model 940-B, or equal, 18 inches high. The bottom section shall be a Rich Model R-36, or equal, 36 inches high. Extension section shall be Rich Model 044, or equal, 12 inches high.

9-30.3(5) Valve Marker Posts

Delete this section

9-30.3(8) Tapping Sleeve and Valve Assembly

Delete this section

9-30.5 Hydrants

9-30.5(1) End Connections

Replace this section with the following:

The end connection shall be mechanical joint, meeting the requirements of AWWA C110.

Hydrants domes and nozzle caps to be painted black using Moore's Urethane Gloss Safety Black or approved equal. Hydrant nozzle body to be painted yellow using Moore's Urethane Gloss Safety Yellow or approved equal. Nozzle caps and operating nut to be 1-1/2-inch pentagon point to flat. Hydrants to have weather caps installed on or over the operating nut. Hydrant pumper port to be supplied with 5-inch Storz coupling nozzle x 4-1/2-inch NST connection with cap and cable.

Approved hydrants include:

- Mueller Super Centurion 250
- M&H Style 129

9-30.6 Water Service Connections (2 Inches and Smaller)

Delete this section