



City of Estevan

Construction Specifications

SECTION 1400
WATER AND SEWER CONNECTIONS

1.0 GENERAL

The work of this section governs the installation of water and sewer service connections in conformity with regulations governing plumbing and drainage issued by Saskatchewan Health, City of Estevan bylaws and these specifications.

2.0 MATERIALS

2.1 Sewer service pipe shall be PVC Gravity Sewer Pipe, SDR 35 conforming to CSA 182.2 and ASTM D3034, with integral wall thickened bell ends factory fitted with elastomeric gaskets.

The minimum size of pipe for sanitary sewer connections shall be 100 mm diameter. Plugs shall be PVC spigot type to suit the pipe bell end. Couplings shall conform to the manufacturer's requirements for pipe connections.

2.2 Water Services:

.1) Pipe:

The specified material for building services shall be in accordance with the following table and be CSA certified:

Pipe Diameter (mm)	Pipe Material	Class	Pressure Specification Conformance
20 - 25	Type K Annealed Copper	1.1MPa	CSA HC76
	"Kitec" Composite Tubing	1.1MPa	CSA B137.9
35 - 75	Type K Annealed Copper	1.1MPa	CSA HC76
	"Kitec" Composite Tubing	1.1MPa	CSA B137.9
	Series 160 PE tubing	1.6MPa	

.2) Service Clamps:

Service clamps shall be bronze body tapped for Mueller tapping thread, BUNA-N or NEOPRENE gasket with stainless steel double straps and nuts (Robar 2706). Use service clamps with 40 mm or larger main stops and with services on 100 mm diameter watermains.

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.3) Unions:

All unions shall be standard brass compression type, adaptable to the size and type of pipe used. Unions shall be Ford C44-33G or Mueller H15403 or Emco #17082/84/86/ 87/88.

.4) Curb Stops:

Curb stops shall be standard brass with drain globe or ball valve works, with compression type joints. The valves shall be Mueller Type H 15219, Mueller Type H15182, Ford Model B44 or approved equal. Fittings and adaptors to suit Type K Copper, Kitec composite tubing or Series 160 PE tubing.

The valve box, top extension and lower box shall be of Schedule 40 - Cast Iron sectional, telescopic Mueller A714 (20 - 35 mm services) and A715 (40 and 50 mm services). Pipe, coated on the exterior and interior with hot dipped asphalt comprising:

- Bottom box: complete with 10 mm set screw
- Bottom casing: 25 mm diameter, 3.38 mm W.T.
- Top box: 32 mm diameter, 3.56 W.T. complete with 10 mm set screw and standard IP threads at one end to suit cover.

The curb stop cover shall be Mueller Type A800 ribbed cover complete with hexagonal brass plug or approved equal.

The curb box rods shall be 13 mm Type 304 stainless steel and shall be as shown in City of Estevan standard drawings complete with standard pig tail, flattened end to suit operating key welded to stainless steel clevis. The clevis shall be fabricated to receive brass or stainless steel cotter pin.

.5) Corporation stops:

Corporation stops shall be Mueller Type H15008, Ford Model F1000-39 or FB1000 or Emco 17072/73/74/75/76 of standard brass with AWWA tapping thread and compression type joint compatible with type of pipe used.

.6) Corrosion Protection:

Protective coating system and sacrificial anode system to protect curb stop box, operating rod and casing in conformance with Section 1500.

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3.0 INSTALLATION

3.1 Water Service

Install water services and sanitary sewer services in a common trench, using Class "B" bedding unless specified otherwise.

Leave the trench open until connections have been pressurized. Ensure that all corporation stops are in the open position before commencing backfill.

Lay the water pipe so that it will drain to the curb stop from the building, with sufficient slack to allow for settlement and to proper line and grade shown on the drawings or as directed by the Engineering Services Division.

Unless otherwise specified tap the corporation stops into the main under normal operating pressure with an approved tapping machine. After completion of each tapping connection, backfill the area below and 75 mm above the main, the corporation stop and gooseneck with granular material as specified in Section 1090 Granular Materials and Aggregates.

Provide 2.5 m of cover over the service lines at the property line.

Do not direct tap 40mm and larger diameter water services.

Tapping Method:

	DR18 PVC WATERMAIN DIAMETER (mm)					
Pipe (mm)	100	150	200	250	300	400
Tap Size (mm)	TAPPING METHOD					
20	2	1	1	1	1	1
25	2	1	1	1	1	1
40	2	2	2	2	2	2
50	2	2	2	2	2	2

Where:

1 = Direct tap

2 = Tap through an approved service clamp

AC pipe may be tapped with an approved tapping clamp.

Use protective tape coatings on all service clamps and other fittings with dissimilar metals in contact. Use either protective tape coatings or sacrificial zinc anodes to protect service box casing from electrolytic corrosion.

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Install the corporation stop in the top quadrant of the watermain at an angle of 0° to 45° from the horizontal.

Avoid tapping corporation stops into watermains within 600 mm of a pipe joint, fitting or valve. Stagger multiple taps with a minimum of 450 mm between taps.

Tighten corporation stops into asbestos-cement and ductile iron watermains with 70 to 80 Newton-meters of torque with 1 to 3 threads showing. Tighten corporation stops into PVC watermains (cast iron O.D. only) with 35 to 40 Newton-meters of torque.

Wrap the thread of the corporation stops used on PVC and ductile iron watermains with three to four wrappings of "teflon" pipe thread tape before installation of the corporation stop.

Install curb stops on a 75 mm x 200 mm x 250 mm concrete block.

In fine grained or clay soils construct a drainage sump 0.2 m³ in volume below and around the curb stop.

After curb stops have been installed, mark the curb stop location above ground with a 38 mm x 140 mm x 1200 mm red wooden marker.

Adequately secure the curb extension rod to the curb stop. Set the service box plumb with the upper sections of the service box adjusted to grade elevation. Install the lower section of the service box and the extension rod a minimum of 300 mm below ground elevation to prevent heavy loads being transmitted to the curb stop. Leave the curb stops closed.

3.2 Sewer Service:

Lay sanitary sewer service pipe at a minimum grades of 1.0% for 150 mm pipe and 2% for 100 mm pipe. Lay pipes true to line and grade, downstream of the water service relative to the direction of flow in the sanitary sewer main.

When the sewer service pipe is installed but not connected to the sewer service from the building, plug the pipe with a PVC plug or cap.

Holes for the tee or wye saddle shall be approximately 10mm larger than outside diameter of the service pipe to permit the saddle to fit snugly in the hole. Ensure that the service does not protrude into the sewer main. Connect the saddle to the main with stainless steel straps and clamps protected from electrolytic corrosion with protective coating system.

Tap the sewer main in the upper half and install a tee or wye saddle. Care shall be taken while tapping so that the sewer main will not be fractured. Remove all broken pipe from inside of the sewer main.

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Use service risers as shown on the standard drawings when the sewer main depth is 3.5 meters or more.

4.0 MEASUREMENT AND PAYMENT

- 4.1 The following work items in this section shall be paid in accordance with the Contract Unit Prices which shall be deemed full compensation for all labour, materials, equipment, supplies, superintendence, overhead and profit for all work incidental to the supply, installation, completion and maintenance during warranty period of the respective items.
- (i) Water service pipe shall be paid on the basis of lineal meters of pipe in place measured from the centerline of the main to the end of the installed pipe. The Contract Unit Price shall be deemed to include trench excavation and backfill, pipe, fittings, saddles, clamps, blocking, connections, testing, disinfecting, flushing, gravel, surface restoration, markers, corrosion protection and all work incidental to a complete installation.
 - (ii) Corporation stops shall be paid on the basis of size and number. The Contract Unit Price shall be deemed to include trench excavation and backfill, corporation stop, tapping main, clamps, corrosion protection, connections, testing, disinfecting, flushing, gravel, surface restoration and all work incidental to a complete installation.
 - (iii) Curb stop and box shall be paid on the basis of size and number. The Contract Unit Price shall be deemed to include trench excavation and backfill, curb stop assembly, connections, clamps, testing, disinfecting, flushing, gravel, corrosion protection, surface restoration and all work incidental to a complete installation.
 - (iv) Sewer service pipe shall be paid on the basis of lineal meters of pipe in place measured from the centerline of the main to the end of the installed pipe. The Contract Unit Price shall be deemed to include trench excavation and backfill, pipe, connections, end plug, saddles, radius bends, clamps, corrosion protection, risers, concrete, marker post, testing, flushing, gravel, surface restoration and all work incidental to a complete installation.
- 4.2 All remaining work items described in this section shall be deemed incidental to the items in Article 4.1 of this section.