



8.0 SEWER AND WATER SERVICE CONNECTIONS

8.1. Service Connections – Minimum Requirements

The minimum size of service connections to a single-family dwelling shall be as follows:

- Sanitary Sewer 150 mm diameter
- Water Service 25 mm diameter

The minimum grade on a 150 mm service shall be 1.0%.

Connection to a main sewer line shall be by means of a tapped service saddle (full wrap) at the top quadrant of the main on existing mains. In-line tees may be used with prior approval of the County.

Where bends are utilized, the long radius type or a combination of 22½ degree bends and straight pipe shall be used.

For water services sized 50 mm and smaller, the tapping shall be at the 2 o'clock position on the distribution main.

- Water mains shall be tapped under pressure.
- All water services to be direct tapped or utilize service clamps.

Refer to Standard Drawings located in Section 18.0 Standard Drawings:

- 1) 8.1 Typical 50 mm and Smaller Residential Water and 150 mm Sanitary Sewer;
- 2) 8.2 Water Service Connection – Manufactured Home;
- 3) 8.3 Sanitary Service Connection – Manufactured Home;
- 4) 8.4 Single and Double Service Layout;
- 5) 8.5 Typical Sanitary Service Connection;
- 6) 8.6 Residential Sanitary Sewer Service Riser connection;



- 7) 8.7 Typical Standard Riser Detail;
- 8) 8.8 Inspection Chamber Detail;
- 9) 8.9 Blow Off Valve.

8.2. Sanitary Sewer Service

Service pipe shall be PVC SDR 35 (minimum) building service pipe.

Service fittings shall be either in-line tees or saddle tees, complete with gasket and stainless steel straps and nuts.

8.3. Service Connections – Installation Requirements

Where the water service is 50 mm or smaller in size, the water and sanitary services shall be installed in a common trench to the middle of each lot.

The services shall be installed so that, when facing the lot being served, the water service is on the right of the sanitary service.

Where two services are installed in a common trench, they shall be installed per the Standard Drawing.

The minimum depth of cover over the water and sanitary services at the property line shall be 3.0 m and the maximum shall be 3.5 m, per the Standard Drawing.

Where the sewer services are required to connect to mains in excess of 4.50 m deep, risers shall be installed to within 3.60 m of finished surface.

Corporation main stops and curb stops shall be installed in accordance with the Standard Drawings. Material to be Mueller or approved equal.

Where a copper service is installed, there shall be a vertical loop near the corporation main stop. Water service is to be goose necked. Service shall be snaked in the trench to allow for thermal contraction.

Service box for residential service to have adjustable sliding top section, standard block iron pipe with threaded top. Top section to be 600 mm in length, with a minimum ID of



35 mm and a 10 mm set screw. The service box shall be adjustable from 2.5 to 3.5 m bury. The threaded steel cap shall have a slotted top with a 19 mm pentagon brass plug.

The casing shall be standard black iron pipe with an OD of 33.5 mm. The rod should be T-304 stainless steel, 12.5 mm diameter by 2.2 m long, complete with standard pig tail for 25 mm ID pipe and welded bottom bracket with an 8 mm cored hole. Rod to be complete with a 6 mm diameter stainless steel cotter pin of sufficient length.

Box bottom boot to be cast or ductile iron, factory coated, with a clear opening to allow curb stop access. The boot is to attach to the casing by means of a threaded joint.

Curb stops shall be installed at property or easement lines as shown on the Standard Drawings and shall be stop and drain unless approved otherwise based on site conditions.

Sewer services shall be installed at property or easement lines as shown on the Standard Drawings, and shall be properly capped or plugged to prevent the entry of earth, water or deleterious material into the pipe.

All services shall be laid on 75 mm of granular bedding, and the bedding material shall be placed up to a level of 300 mm above the crown of the highest service in the trench.

Painted stakes of 50 mm x 100 mm size shall be extended from the end of the service connections to a minimum of 0.70 m above the ground level, per the Standard Drawing.

The Developer shall employ an Engineering firm to complete the tests as outlined in Table 10.4 Page 10.15. One copy of the results shall be submitted to the County for their review.

8.4. Service Connection Report

The Developer's Engineer shall provide detailed record drawings for all installed service connections, with such drawings providing information related to pipe dimensions, invert elevations, depth of service lines, location of services relative to property line(s), manholes and/or watermain valves.



8.5. Lot Service Connections

8.5.1. Work Included

Provide all labour, products and equipment required for the lot service connections, including but not limited to:

- 1) water service piping
- 2) sewer service piping
- 3) corporation cocks, connection to main
- 4) curb stops, service boxes, service markers

8.5.2. Quality Standards and Assurances

Products and workmanship shall conform to applicable municipal and provincial standards and to specifications.

All products and workmanship will be subject to inspection by the County.

Perform all tests required by authorities having jurisdiction. Test water and disinfect services with mains.

Notify the County and authorities in ample time before testing to permit inspection and to allow tests to be witnessed.

Do not cover work before inspection and testing unless authorized by the County in writing.

Remove or repair defective products or work which fails to meet specified requirements as directed by the County.



8.6. Products

8.6.1. Service Pipe, Fittings

Underground copper service pipe - Type K soft copper for a diameter of 25 mm and less, and Type K copper and approved PVC materials for diameters greater than 25 mm.

Main or corporation cocks – Compression type AWWA thread.

Curb stops – Copper to copper ball valve with a drain. Curb stops 38 mm or larger shall be ball bearing type.

Couplings – Standard Brass Compression type.

Service Boxes – Epoxy coated extension type for a maximum extension of 3.5 m, complete with stainless steel operating rod, brass clevis and key. Service box to be supported on a cast iron piece nailed to a pressure treated preserved wood plank.

Service Clamps – Bronze double strap conforming to Smith-Blair 323 or approved stainless steel AWWA Boss.

2.3 kg Zinc Anode Protection to be installed as indicated on Drawing No. 4.10.

Service boxes to be adjustable from 2.4 m to 3.0 m bury, unless otherwise noted on drawings.

8.6.2. Sewer Service Pipe

PVC, SDR 35 minimum.

8.6.3. Sewer Saddles

Manufactured tee saddles, gasketed joints secured with double steel clamps.

8.6.4. Sand Bags

Bags to be new material and in a condition acceptable to the County. Sand to be clean and free from debris, conforming to imported sand requirements.



8.6.5. Rigid Foam Urethane Insulation

Density (ASTM D1622) not less than 28.8 kg/cubic meter. (Nominal 32.0 kg).

Closed cell content (ASTM D2856) not less than 90%.

Water absorption (ASTM D2842) not greater than 0.34 kg/square meter.

Initial thermal conductivity (ASTM D2326) (K Factor) not greater than watts/meter degree Celsius.

Dimensional stability (ASTM D2126)

Compressive strength (ASTM D1621) not less than 206.8 kPa at 10% deflection.

8.6.6. Water Services

Use tapping machine to drill, tap and thread corporation main stop into main. Use special care to prevent cuttings falling into main. Wherever possible, tap main under pressure and obtain written approval from the County to do otherwise.

Lay copper service pipe to designated location and connect to existing service lines. Service connections shall be tapped into the upper portion of the watermain at an angle of at least 45° from the horizontal. Tapings shall have a minimum spacing of at least 1 m. Attach curb stop and set service box to grade where required.

Brace boxes securely to keep plumb during backfilling. Test for operation both before and after pressure test.

Where curb stop is located under sidewalk, concrete slab or other structure, set top of extension service box flush with surface and fill hole around pipe neatly with concrete.

Use service clamps on all services tapped into 150 mm mains and on 25 mm and larger services tapped into 200 mm to 300 mm lines. In all other cases, use service clamps where size of main stop is larger than recommended for size of main.

Place water service lines at least 2.7 m below final finished grade elevations, unless otherwise directed.



Lay water service lines in same trench with sewer service line. Install sanitary services on left side of water service as viewed from main towards property line. Install storm sewer service on right side of water service as viewed from main towards property line. Paint last 1 m of sanitary service pipe red. Paint last 1.0 m of storm service pipe green. Make all connections to existing services using appropriate couplings.

Lot service connections to residential lots shall be installed inside property line to easement line for lane servicing; and to property line, or easement line if an easement exists, for street servicing. (As shown on the drawings) Water services connections to residential lots shall be 0.15 m short of the easement line for lane servicing and 0.15 m outside property line or easement line if an easement exists, for street servicing.

The County may require the delivery of curb stop risers to the public works yard. The Contractor shall confirm this requirement with the County and shall provide evidence of a receipt signed by the Public Works manager accordingly.

8.6.7. Sewer Services

Connect services to mains with manufactured Tee or Wye fittings placed in mains, or by cutting into mains and installing manufactured Tee saddles or Wye saddles and 45° bends. A 150 mm x 100 mm reducer shall be installed at property line to transition from the 150 mm connection at the main to the 100 mm Lot Service Pipe. Take care to avoid cracking pipe and remove all cuttings from pipe. Secure joint between saddle and main with mortar or other means acceptable to the County.

Do not allow spigots or other obstructions to project into main. Lay service pipe to an even gradient as directed.

Install service lines as detailed, at locations and to grade designated by grade sheet provided in field. Install services at right angle to main, unless otherwise specified.

Bends permitted only at three locations – 45° bend with Wye or 22.5 degree bend with tee connection at main, 45° bend at top of riser and 22.5° bend maximum at property line for house service connection between these points.



Support service lines adequately to prevent dislocation, buckling or settlement. When water lines must be laid below sewer lines, ensure that backfill over water lines is adequately compacted to prevent settlement or dislocation of sewers.

When a connection cannot be made directly to a house service line, plug end of sewer service to prevent entry of water and dirt.

Install service risers only where noted on the lot grading plan. Ensure adequate support for the riser section utilizing sandbags or screened rock.

8.6.8. Markers

A 50 mm by 100 mm marker stake, from invert elevation to 600 mm above ground level shall be placed at the end of each water service line, the top 600 mm to be painted blue. Place a 100 mm diameter white PVC pipe over the water service box from 600 mm below ground to 600 mm above ground.

END OF SECTION