

SECTION 33 31 16

SITE SANITARY SEWERAGE GRAVITY SERVICE LATERALS

PART 1: GENERAL

1.1 SECTION INCLUDES

- A. Installation of service laterals in sanitary sewers serving areas where sanitary sewer service did not previously exist.
- B. Reconnection of existing service connections along parallel, replacement, or rehabilitated sanitary sewers.

1.2 PERFORMANCE REQUIREMENTS

- A. Accurately locate in field all proposed service laterals along new sanitary sewer main.
- B. Accurately locate in field existing service connections and proposed service laterals along alignment of new parallel or replacement sewer main.

1.3 SUBMITTALS

- A. Conform to requirements of Section 01 00 04 - Submittals.
- B. Submit product data for each pipe product, fitting, coupling and adapter.
- C. Show reconnected services on record drawings. Give exact distance from each service connection to nearest downstream manhole.

PART 2: PRODUCTS

2.1 PVC SERVICE CONNECTION

- A. Use SDR 35 PVC sewer pipe conforming to ASTM D1784 and ASTM D3034. For depths greater than 10', use SDR 26.
- B. PVC pipe shall be gasket jointed with gasket conforming to ASTM D3212.
- C. Provide service connection pipe in sizes shown on Drawings. For reconnection of existing services, select service connection pipe diameter to match existing service diameter. Reconnections to rehabilitated sanitary sewer mains shall be limited to following maximum service connection diameter:

Sewer Main Diameter	Maximum Service Connection Diameter
8" or less	4"
10" or less	6"

- D. Subject to above limits, provide 6-inch service connection when more than one service discharges into single pipe.
- E. Connect service laterals to new, parallel, or replacement sewer mains with prefabricated, full-bodied tee or wye fittings conforming to specifications for sewer main pipe material as specified in other Sections for sewers less than 10 inches in diameter.
- F. Where sewers are installed using pipe augering or tunneling, or where sewer is 10 inches or greater in diameter, use a pre-fabricated lateral hub with rubber sleeve and stainless steel band (Inserta Tee or equal) to connect service to sewer main.

2.2 PIPE SADDLES

- A. Use pipe saddles only on existing sanitary sewer mains. Comply with Paragraph 2.1E for new, parallel, and replacement sanitary sewer mains.
- B. Supply one-piece prefabricated saddle, either polyethylene or PVC, with neoprene gasket to accomplish complete seal. Use saddle fabricated to fit outside diameter of connecting pipe. Protruding lip of saddle must be at least 5/8- inch long with grooves or ridges to retain stainless steel band clamps.
- C. Use 1/2-inch stainless steel band clamps for securing saddles to liner pipe.

2.3 COUPLINGS AND ADAPTERS

- A. For connections between new PVC pipe stubouts and existing service (4-, 6-, or 8-inch diameter), use flexible adapter coupling consisting of neoprene gasket and stainless steel shear rings with 1/2-inch stainless steel band clamps.
- B. For connections between new PVC pipe stubout and new service, use rubber-gasket adapter coupling.

2.4 PLUGS AND CAPS

- C. Seal upstream end of unconnected sewer service stubs with rubber gasket plugs or caps of same pipe type and size.

2.5 CLEANOUTS

- A. Use SDR 35 PVC sewer pipe conforming to ASTM D1784 and ASTM D3034.
- B. PVC pipe shall be gasket jointed with gasket conforming to ASTM D3212.
- C. Cleanouts to be provided every 75 LF, and at all changes of direction along the sanitary sewer lateral.
- D. Concrete collars to be provided on all new cleanout installations.
- E. Install double cleanout on all new individual service connections in accordance with Owner standard details.
- F. Solid cleanout caps shall be provided. PVC or cast iron caps may be provided in unpaved areas. Cast iron caps shall be provided in paved areas. Cast iron caps shall be marked "Sewer".

PART 3: EXECUTION

3.1 PERFORMANCE REQUIREMENTS

- A. Provide minimum of 72 hours' notice to customers whose sanitary sewer service will potentially be interrupted.
- B. Accurately field locate service connections, whether in service or not, along rehabilitated sanitary sewer main. For parallel and replacement sewers, service connections may be located as pipe laying progresses from downstream to upstream.
- C. Properly disconnect existing connections from sewer and reconnect to rehabilitated liner, as described in this Section.
- D. Reconnect service connections, including those that go to unoccupied or abandoned buildings or to vacant lots, unless directed otherwise by Owner.
- E. Complete reconnection of service lines within 24 hours after cured-in-place liner installation and within 72 hours after disconnection for sliplining, parallel, or replacement sanitary sewer mains.
- F. Reconnect services on cured-in-place liner for any poly pipe (PVC, HDPE) or other pipe type at 6 feet depth or less by excavation method. Owner reserves right to require service connections by excavation when remote cut service connection damages lines.
- G. Reconnection by excavation method shall include fittings and required pipe length to reconnect service line.
- H. Connect services 8 inches in diameter and larger to sewer by construction of manhole. Refer to appropriate Specification on manholes for construction.

3.2 PROTECTION

- A. Provide barricades, warning lights, and signs for excavations created for service connections.
- B. Do not allow sand, debris, or runoff to enter sewer system.

3.3 PREPARATION

- A. Determine existing sewer locations and number of existing service connections from closed circuit television (CCTV) inspection DVDs or from field survey. Accurately field locate existing service connections, whether in service or not. Use existing service locations to connect or reconnect service lines or liner.
- B. For rehabilitated sanitary sewer mains, allow liner to normalize to ambient temperature and recover from imposed stretch. For cured-in-place liners, verify that liner is completely cured.
- C. For new parallel and replacement sanitary sewer mains, complete testing and acceptance of downstream sewers as applicable.

3.4 EXCAVATION AND BACKFILL

- A. Excavate in accordance with Section 31 23 33 - Excavation and Backfill for Utilities.
- B. Perform work in accordance with OSHA standards.
- C. Install and operate necessary ground water and surface water control measures in accordance with requirements of the Contract Documents.
- D. Determine locations where limited access, buildings or structure preclude use of mechanical excavation equipment. Obtain approval from Owner for hand excavation.

3.5 RECONNECTION BY EXCAVATION METHOD

- A. Remove portion of existing sanitary sewer main or carrier pipe to expose liner pipe. Provide sufficient working space for installing prefabricated pipe saddle.
- B. Carefully cut liner pipe making hole to accept stubout protruding from underside of saddle.
- C. Strap on saddle using stainless steel band on each side of saddle. Tighten bands to produce watertight seal of saddle gasket to liner pipe.
- D. Remove and replace cracked, offset, or leaking service line for up to 5 feet, measured horizontally, from center of new liner.
- E. Make up connection between liner and service line using PVC sewer pipe and approved fittings and couplings.
- F. Encase entire service connection in cement stabilized sand as shown on Drawings.
- G. Test service connections before backfilling.

3.6 RECONNECTION BY REMOTE METHOD

- A. Make service reconnections using remote-operated cutting tools on non poly pipe (PVC, HDPE) for cured-in-place liners at depth greater than 6 feet.
- B. Employ method and equipment that restore service connection capacity to not less than 90 percent of original capacity.
- C. Immediately open missed connections and repair holes drilled in error using method approved by Owner.

3.7 RECONNECTION ON PARALLEL OR REPLACEMENT SEGMENTS

- A. Install service connections on sewer main.
- B. Remove and replace cracked, offset or leaking service line for up to 5 feet, measured horizontally, from centerline of sanitary sewer main.

- C. Make up connection between main and existing service line using PVC sewer pipe and approved couplings, as shown on Drawings.
- D. Test service connections before backfilling.
- E. Embed service connection and service line as specified for sanitary sewer main as shown on Drawings. Place and compact trench zone backfill in compliance with Section 31 23 33 - Excavation and Backfill for Utilities.

3.8 INSTALLATION OF NEW SERVICE LATERALS

- A. Install service connections on sanitary sewer main for each service connection. Provide length of lateral indicated on Drawings. Install plug or cap on upstream end of service lateral as needed.
- B. Test service connections before backfilling.
- C. Embed service connection and service line as specified for sanitary sewer main, and as shown on Drawings. Place and compact trench zone backfill in compliance with Section 31 23 33 - Excavation and Backfill for Utilities. Install minimum 2-foot length of magnetic locating tape along axis of service stub and 9 inches to 12 inches above crown of pipe, at end of stub.
- D. Install dual direction cleanouts at the point of demarcation or as otherwise shown on Drawings.
- E. New service lateral slope shall not be less than 2%.

3.9 TESTING

- A. Test service reconnections and service laterals. Follow applicable procedures given in Section 33 01 30.13 - Acceptance Testing for Sanitary Sewers to perform smoke testing to confirm reconnection.
- B. Perform post installation CCTV inspection as specified in the Contract Documents. Cleaning and television inspection to show locations of service connection.

3.10 CLEANUP

- A. Backfill excavation as specified in Section 31 23 33 - Excavation and Backfill for Utilities.
- B. Replace pavement or sidewalks removed or damaged by excavation. In unpaved areas, bring surface to grade and slope surrounding excavation. Grades shall be sloped as such to drain away from cleanout caps. Restore all disturbed paved and lawn areas in accordance with local base and Department of Public Works regulations.

END OF SECTION 33 31 16