

ITEM 932

POINT REPAIRS TO SANITARY SEWER LINES

932.1

General:

- A. Scope: This item governs for repairing existing sanitary sewer lines necessitated by a structural or hydraulic defect in pipe material, alignment, or grade which cannot be corrected by any means other than excavation and repair and/or replacement of a section of sewer. Schedule is used to approximate quantities only and to give a representative sample as to field conditions for point repairs.
- B. Related Specification Items:
 - Item 921 - Sanitary Sewer Lines
 - Item 925 - By-Pass Pumping
 - Item 429 - Trench Safety System
 - Item 933 - Sanitary Service Leads and Connections or Reconnections
 - Item 530 - Concrete Curb, Gutter, Curb and Gutter, Sidewalks and Driveways
 - Item 433 - Cement-Stabilized Sand Bedding and Backfill Material
 - Item 937 - Aggregate Bedding
 - Item 936 - Smoke Testing, Cleaning, and Television Inspection of Sanitary Gravity Sewer Lines

932.2

Determination of Need for a Point Repair:

- A. Line Segment Scheduled for Rehabilitation: Contractor is responsible for determining need and location for point repairs as set forth herein below. Concurrence of OWNER'S representative required prior to proceeding with repairs.
 - 1. Television inspection reports in accordance with Specification Item 936;
 - 2. Inability to traverse entire sewer line segment during cleaning operations in accordance with Specification Item 936 or;

3. Verification of adequate clearance for crossing underground utilities, pipelines, etc.
4. Inability to complete installation of liner due to structural defects in existing sanitary sewer pipe except as noted below. Point repair permitted only after cleaning operations, performed in accordance with Specification Item 936, from both ends of pipe have been unsuccessful. Point repair not permitted on structural defects if structural defect is caused by, or related to, a service connection. Repair of structural defect of this type to be in accordance with Paragraph M. hereinafter.

B. Line Segments Scheduled for Point Repairs Only: It is the responsibility of Contractor to determine need and location for a point repair by means of smoke testing operations or television inspection.

932.3 Classification of Point Repairs: Classify point repairs by inside diameter of pipe, trench depth, trench length, trench condition (wet or dry) for each repair.

- A. Trench Depth: Defined as distance or depth from flow line (invert of pipe) to natural ground directly above pipe.
- B. Trench Length: Defined as distance in feet of excavated trench measured at pipe grade and along centerline of pipe.
- C. Trench Condition: Defined as two (2) types, either wet or dry. Wet trench defined as a trench in which well points are required to keep excavation dry in order to make repairs. Dry trench defined as a trench in which no well pointing is necessary for performing repair. Trench, which fills with rainwater, is not a wet trench. Trench condition determined by OWNER'S representative.
- D. Trench Width: Defined in accordance with Specification Item 921.

932.4 Notification of Utility Companies: Contractor, prior to excavation, responsible for notifying all utility companies of work on sewer facilities so that all above and underground utilities can be protected at locations identified. Contractor responsible for repairing/replacing utilities damaged by construction operation at his expense.

932.5 Restoration of Surfaces: Replace or repair sidewalks, driveways, culverts, inlets, curbing, gutters, shrubbery, trees, fences, improved sod, and other like obstructions removed or disturbed by construction to condition equivalent to that existing prior to commencement of work. Restoration of asphalt topped

flexible base, concrete base streets, driveways, and sidewalks as specified in Specification Item 530.

932.6 Method and Procedure for Dry Point Repair: Dry point repair includes all supervision, labor, equipment, and materials necessary to complete following:

- A. Remove and protect aboveground appurtenances that will be replaced as specified in Paragraph 5, hereinabove.
- B. Locate and protect all utilities as specified in Paragraph 4, hereinabove.
- C. Set up by-pass pumping as necessary in accordance with Specification Item 925.
- D. Excavate and uncover 12 linear feet of sewer line measured along top of pipe, and expose damaged or defective sections in accordance with Specification Item 921. Provide Trench Safety System in accordance with Specification Item 429.
- E. Remove defective material and reshape or replace trench foundation as necessary to match grade of remaining segments. Install pipe bedding in accordance with applicable specification item. Tamp materials placed in trench so as to prevent sags in replacement segments. If existing material in bottom of trench is of such a consistency that it is not stable, then stabilize bottom in accordance with applicable Specification Item 433, Cement-Stabilized Sand Bedding and Backfill Material, or Specification Item 937, Aggregate Bedding.
 - a. On sewer lines designated for point repairs only, remove entire defective sections of pipe and replace with material as specified in Paragraph H hereinafter.
 - b. On sewer lines designated for sliplining or internal pipe replacement/rehabilitation (pipe bursting, pipe cracking, pipe crushing, etc.) remove top section of pipe and then use opening as insertion pit for rehabilitation. After completion of rehabilitation, backfill point repair excavation with cement-stabilized sand in accordance with Specification Item 433.
- F. Replace and repair all defective pipe material in 12-foot section of sewer with properly sized pipe, pipe material, and appurtenances. Tie newly laid replacement sewer pipe to existing sewer pipe, main sewer lines, and service connections so that there is no possible source of infiltration/inflow. When applicable, sever sewer line so that smooth plain-end spigot exists at both ends of replacement section. Properly

size materials for making tie-ins as specified in Specification Item 921. Replace any service connection within limits of point repair in accordance with pipe manufacturer's recommendations. Seal open joints within the 12 linear feet of uncovered pipe in which barrel of pipe is still good. Yarn open joints with activated oakum. Paint exterior circumference at joint, minimum width of 9 inches on each side of joint, with concrete bonding material. Apply concrete bonding material in strict accordance with manufacturers printed instructions then completely encase joint with concrete having a minimum thickness of 6 inches all around and a minimum length of 18 inches. Submit any alternate method for pipe repair or sealing of open joints of OWNER'S representative for approval.

- G. Test repairs in accordance with Paragraph 14. hereinafter.
- H. Backfill trench in accordance with Specification Item 921. Backfill to natural ground elevation and restore surface in accordance with Paragraph 5. hereinbefore.

932.7 Method and Procedure for Wet Point Repair: A wet point repair shall include all supervision, labor, equipment, and materials necessary to complete following items.

- A. All items listed under Paragraph 6. hereinabove.
- B. Dewater trench as necessary to provide a safe and suitable working condition.

932.8 Materials: For sewer pipe repair materials use types as specified below:

- A. For 8" thru 36" Sewers: Use pipe as specified in Specification Item 921.
- B. For Sewers Larger than 36": Use reinforced concrete pipe conforming to ASTM C76, Class III, gasketed joints.
- C. Connection to Ends of Existing Sewers: Use compression or mechanical-type adapters or connectors as manufactured by Fernco or approved equal. Adapters or connectors employing full circle clamps to be furnished with stainless steel clamp. In event pipe size exceeds size of adapters or connectors commercially available, then butt spigot ends of replacement pipe and existing sound pipe tight. Seal opening between abutting spigot ends with Bradco Plastics, Inc., Plastxbond EPO 950. Paint exterior circumference of abutting spigot ends, minimum width of 9 inches on each spigot, with concrete bonding material. Apply concrete bonding material in strict accordance with manufacturers printed instructions. Then completely

encase joint with concrete having a minimum thickness of 6 inches all around and a minimum length of 18 inches.

932.9 Abandonment: If a field decision is made by OWNER'S representative that point repairs to an existing sewer will not sufficiently correct problems, or if Contractor excavates at approved location and does not find source of problem; then after verification by OWNER'S representative abandon point repair and backfill excavation. Backfill in accordance with Specification Item 921 when point repair has been declared abandoned. OWNER'S representative to determine how to proceed or whether to reclassify line for further investigation.

932.10 Field Judgements: Because of uncertainty of leak locations resulting from travel of smoke in passages in soil above sewer, certain field judgements governing point repairing must be made by OWNER'S representative. These field judgements may supersede, or be in addition to, specification requirement and will govern until specification requirements prevail. Field judgements include as a minimum following situations:

- A. Determination of trench condition - wet or dry - made after sewer pipe has been uncovered.
- B. Determination of length of sewer pipe to relay.
- C. Determination of method of payment:
 - 1. Replacement of 3 to 12 linear feet of pipe or sealing of open joints.
 - 2. Replacement of service connection; stacks or wyes.
- D. Determination of well pointing requirement.
- E. Determination of abandonment.
- F. Rerouting of sewage by bypassing pumping.

932.11 Observation: OWNER'S representative will maintain daily report of work accomplished/in progress indicating weather conditions, labor and equipment on work site, contract time used, pay items completed, etc. Report to be signed by Contractor's superintendent and OWNER'S representative for acknowledgment of factual record keeping.

932.12 By-pass Pumping: Reroute normal flow of sewage in sewer lines selected for point repairs while repairs/replacement are in progress. Provide by-pass

pumping in accordance with Specification 925 so that flow of sewage is not interrupted.

932.13 Service Lead: Follow procedures established by Specification 933 for service lead reconnections on line segments scheduled for point repairs or rehabilitation.

932.14 Smoke Testing: After completion of point repairs/replacement and service connection on a sewer line segment, but prior to back filling, smoke test sewer line segment in accordance with procedures set forth in Specification 936. Testing to immediately follow repairs/replacement and/or service connections so as to minimize number of open excavations. If no smoke leaks are observed, proceed with appropriate backfill procedures. Isolate manhole section to be tested from adjacent manhole sections to prevent smoke from migrating into lines not being tested and to provide a concentration of smoke in section of line to be tested.

Prior to smoke testing, provide written notice to effective area residents' one day in advance. Also, provide notice to appropriate Police and Fire Departments prior to smoke testing.

Induce smoke into both upstream and downstream manholes. Monitor tap/connections and point repairs for smoke leaks. Review with OWNER'S representative each tap/connection and point repair beginning at manhole where smoke is being induced (either upstream or downstream manhole) and moving toward other manhole. Note leaks observed, if any. Then move smoke blower to other manhole of test section and induce smoke at that manhole. Inspect for leaks in direction of manhole where smoke blower was located previously.

Tap/connections, replacements, and point repairs noted as leaking to be repaired or replaced and then retested. Contractor only allowed to leave tap/connections and point repairs exposed in one (1) manhole section at a time. If tap/connection excavation, installation, and testing or resultant tap/connection repair/replacement, retesting, and backfilling of excavation is not completed within work day, properly cover each excavation with plywood, metal, or suitable materials and erect lighted barricade.

932.15 Measurement and Payment: Basis for payment for a point repair as follows:

- A. Point Repair: Pay for point repair at unit price bid per **each** for all repairs necessary within a 12-foot section according to size and depth of pipe, including repair of sewer service connections if necessary.
- B. Extra for Wet Point Repair: Pay extra for wet point repair at the unit price bid per **each**. Payment is in addition to point repair pay and is

- compensation for additional construction procedures required for dewatering trench.
- C. Extension to Point Repair: When authorized, pay for extensions of point repairs beyond 12 foot standard length at unit price bid per **linear foot** of extension according to size and depth of pipe including repair of sewer service connections if necessary. No additional compensation to be paid for trench dewatering; i.e., extra for wet point repair.
 - D. By-pass Pumping: Pay for by-pass pumping in accordance with Specification Item 925.
 - E. Removal and Replacement of Pavement for Streets, Driveways, Parking Lots, and Sidewalks: Pay for removal and replacement of paved (improved) surfaces in accordance with Specification Item 530.
 - F. Restoration of Surfaces: No compensation for restoration of surfaces except as noted above.
 - G. Abandonment: Pay for an approved abandonment of a point repair at the unit price bid per each for depth and trench condition. Bid price includes all work involved prior to abandonment and includes backfill and restoration of the surface.
 - H. Extra Cement-Stabilized-Sand Bedding/Backfill, Extra Bank-Sand Bedding and/or Backfill, and Extra Shell or Aggregate Bedding: At locations as specified in applicable specification item measure Extra Class A Bedding, Extra Cement-Stabilized Sand Backfill, Extra Bank-Sand Backfill, and Extra Shell or Aggregate Bedding by the cubic yard within limitations set forth in each appropriate specification item. Use definition of "Extra" as set forth therein. Pay for "Extra Cement-Stabilized Sand Bedding/Backfill," "Extra Bank-Sand Backfill," "Extra Shell or Aggregate Bedding," where measured at the unit price bid for furnishing and installing material specified.
 - I. Reconnection of Service Lead: Pay for reconnection of house, or building service leads, or stacks in accordance with Specification Item 933. Payment is full compensation for materials, labor, and equipment necessary to located and make connections. Any number of houses or buildings discharging into a common point of sewer line is counted as one, and only one, house connection. Service lead reconnections within limits of a point repair considered as incidental to point repair and no pay allowed.
 - J. Service Lead Extension: Pay for service lead extension of all sizes in accordance with Specification Item 933. Pay for service lead extension to service connection located in limits of a point repair in addition to a point repair pay item.

- K. Trench Safety System: Pay for trench safety system in accordance with Specification Item 429.
- L. Testing: No separate pay for smoke testing after repair completion. Include cost of same in unit price bid for item of which it is a component.

END OF ITEM 932