

SECTION 15562 POINT REPAIRS OF SEWERS

1.1 SCOPE

- A. *The work covered* in this section shall include furnishing all labor, equipment, and materials required to complete the point repairs determined to be necessary. All point repairs shall be completed in strict accordance with this section of the Specifications.
- B. *The existing flow* in the line segment being replaced shall be controlled whenever necessary during replacement.

1.2 DESCRIPTION

- A. *The term "point repair"* shall refer to construction required to correct a severe problem at a specified location in a sewer line which cannot be corrected by internal sewer line grouting. Point repairs will be line replacements from 3 to 12 linear feet performed at locations previously identified during internal sewer inspections. The length of pipe to be replaced at each point is representative only and may not reflect the actual extent of work required. If additional length is required to be replaced beyond that described, based on field observations, the Contractor, at the Engineer's instruction, may be directed to replace additional sections of pipe such that an appropriate connection to sound pipe is possible. No change in contract price shall be deemed justified due to a change in the length of pipe, 12 linear feet or less, for each point repair line item. Payment for additional replacement over 12 linear feet shall be at the unit prices bid.

1.3 MAIN LINE POINT REPAIRS

- A. *Locate all existing underground utilities* before beginning excavation for main line and service connection repairs from the manhole of reference.
- B. *Where a point repair is to be made underneath existing pavement or concrete*, the surface to be excavated shall be saw cut in straight lines.
- C. *Where point repair is to be made in an easement*, any fences or other interferences shall be removed. Contractor is responsible for replacement of such interferences in the same or better condition than found.
- D. *Exercise reasonable care* during the initial excavation of the defective pipe so as not to disturb existing pipe that is still acceptable. After the defective pipe has been exposed, as much additional pipe shall be uncovered as is necessary to allow space for workmen and the installation of the new pipe. The defective pipe shall be saw cut out in such a way that the ends are straight and smooth and free of chips or cracks so that a smooth plain-end spigot exists at both ends to receive replacement section. The defective pipe shall be removed from the trench and the former bedding material of that pipe excavated to 6

inches below the pipe grade. The bottom of the trench shall then be filled with 6 inches of 1/2 to 3/4-inch crushed stone.

- E. *No pipe shall be laid* except in the presence of the Resident Project Representative (RPR) representing the Owner and the Engineer.
- F. *Before sewer pipe is placed in position* in the trench, carefully prepare the bottom and sides of the trench and install any necessary bracing and sheeting required.
- G. *On sewer lines where more than 6 feet of existing line is replaced* with new pipe, a mason's line or wire shall be tightly stretched above ground level, parallel to and directly above the axis of the pipe to be installed. This line to be supported at intervals not exceeding 50 feet on sewers being laid on a 2 percent or more grade and not exceeding 25 feet on grades less than 2 percent. The exact line and grade for each section of pipe shall be determined by measuring down this line to the invert of the pipe in place. Each replacement pipe section shall be accurately placed to the exact same line and grade as the existing sewer line. Furnish all labor and materials necessary for erecting batter boards.
- H. *Sewer lines where more than 12 feet of existing line is replaced* with new pipe, shall meet the specification requirements of this section and Sections 15062 and 15064.
- I. *Lasers* may be used after the type and procedures are approved by the Engineer. When lasers are used, reference points for both line and grade will be set at each manhole. Where grades are 0.6 percent or less, the elevation of the beam shall be checked each 50 feet by using an offset point or Engineer's level.
- J. *While pipe laying is in progress*, do not allow water to run in the trench sufficient to cause a washing of the bedding or backfill material into the line. Do not open up at any time more trench than available pumping facilities are able to dewater.
- K. *Trench bottoms* found to be unsuitable for foundations after pipe laying operations have started shall be corrected and brought to exact line and grade as required.
- L. *Carefully inspect* each piece of pipe and special fitting before it is placed, and no defective pipe shall be laid in the trench. Pipe laying shall proceed upgrade, starting at the lower end of the grade and with the bells upgrade. When pipe laying is not in progress, the ends of the pipe shall be kept tightly closed with an approved temporary plug.
- M. *Bell holes* shall be of sufficient size to allow ample room for properly making the pipe joints. Bell holes shall be cut out not more than two joints ahead of the pipe laying. The bottom of the trench between bell holes shall be carefully graded so that each pipe barrel will rest on a solid foundation for its entire length. Each pipe joint shall be laid to form a close concentric joint with adjoining pipe and so as to avoid sudden off-sets or inequalities in the flow line.
- N. *Wherever dissimilar pipe materials are joined*, the replacement pipe shall be cut to a length one inch less than the overall length of the section being replaced. The pipe shall then be placed in the trench and the compression couplings installed. After installation, the work

shall be checked to ensure that the replacement pipe is vertically and horizontally aligned with the existing pipe and that the compression couplings are tight and evenly fitted.

- O. *If the point repair work occurs* in an area of construction adjacent to or that is part of a service line connection, the existing service line(s) shall be connected to the new line, using new tees, wyes, and other fittings, as required. Service lines shall be replaced from the tee or tap up to sound pipe. If necessary, due to poor pipe conditions, and at the direction of the Engineer, service line shall be replaced to the property line. Payment for service line replacement will be based on linear feet as bid. Service lines cut and temporarily plugged for the purpose of point repairs or sewer line replacement shall be reconnected and placed back into service the same day. Maintain existing sewage flow from the service connections during construction.
- P. *Any sound portion of the main sewer pipe or service line broken by Contractor's negligence or carelessness* shall be replaced at the Contractor's expense.

1.4 CROSSING WATER LINES AND STORM SEWERS

- A. *Where sewers cross storm sewers and below water lines with an 18-inch clearance or greater separation*, backfill with crushed stone between the sewer main and storm sewer or water main crossing.
- B. *Where sewers cross storm sewers with less than an 18-inch separation*, the sewer pipe shall be encased with 3,000 psi concrete for a distance of 5 feet each side of the crossing.
- C. *Where sewers cross below water lines with less than an 18-inch separation*, the sewer pipe shall be encased with 3,000 psi concrete for a distance of 10 feet each side of the crossing.
- D. *Where sewers cross above water lines*, both the sewer main and water main shall be ductile iron pipe with joints that are equivalent to water main standards, placed such that the joints are centered for a distance of 10 feet on each side of the point of crossing.

1.5 CONNECTIONS

- A. *Replacing connections to existing manholes or inlets* by removing all connecting pipe and existing mortar, inserting a length of sewer pipe into the hole, sliding pipe gasket onto the pipe such that the gasket will be centered within the manhole wall, filling around same with grout, Hydraulic Cement for Manholes, and troweling the inside and outside surfaces of the joint to a neat finish. As specified elsewhere, the bottom of the manholes shall be shaped or reshaped as necessary to fit the invert of the sewer pipe.

1.6 PIPE PROTECTION

- A. *Pipe sewers with less than 3-1/2 feet of cover* where subject to traffic loads and 2-1/2 feet of cover at any other location when completed shall be ductile iron pipe or will be provided with concrete protection as shown on the plans. Such pipe protection, when not shown on the plans, will be placed in accordance with the typical section shown.

1.7 EXISTING UTILITIES

- A. *Carefully protect from damage* at all times all existing sewers, water lines, gas lines, sidewalks, curbs, gutters, pavements, electric lines, or other utilities or structures in the vicinity of the work. Where it is necessary to repair, remove, and/or replace any such utility or structure for the accomplishment of the work, the work shall be done under the provisions set forth in the General and Special Conditions of these Specifications. Any such work shall be considered incidental to the construction of sewers and no additional payment will be allowed for the work.

1.8 FIELD JUDGMENT

- A. *The Engineer and/or his duly authorized representative may make a field judgment* at any time during a repair which shall govern over the repair until such time that the Specifications will again prevail.

1.9 CLEANUP

- A. *After completing each section of the sewer line repair,* remove all debris, construction materials, and equipment from the site of the work; grade and smooth over the surface of both sides of the line; reseed and/or repave as required; and leave the entire right-of-way in a clean, neat, and serviceable condition.

1.10 MEASUREMENT AND PAYMENT

- A. Measurement shall be along the center line of the pipe from beginning of repair to end as specified by work order or as directed by the engineer. All sections under 12 feet in length shall be measured as each and all additional length beyond the initial 12 feet shall be measured by the linear foot. Measurement of tees shall be measured by each used of different sizes. Service lines shall be measured by the linear foot beyond the main trench.
- B. Payment for point repairs shall be at the unit price bid for the first 12 feet of each point repair complete in place excluding service tees and service lines. Service tees shall be paid for at the unit price bid for each tee of different size used. Service lines will be paid at the unit price bid for the different sizes per linear foot complete in place.

END OF SECTION