

SECTION 02503 – SEWER MAINLINE OPEN-CUT POINT REPAIR

PART 1 - GENERAL

1.1 SUMMARY

This section applies to the open-cut point repair of a public sewer which lies within public rights-of-way or in utility easements under the control of the City for sewer purposes.

1.2 RELATED SECTIONS

- A. Section 01000 – General Project Requirements.
- B. Section 01300 – Submittals.
- C. Section 02200 – Earthwork.
- D. Section 02250 – Trenching, Pipe Embedment and Backfill.
- E. Section 02575 – Surface Restoration.
- F. Section 02620 – Ductile Iron Pipe for Sewers.
- G. Section 02624 – Polyvinyl Chloride (PVC) Gravity Sewer Pipe.

1.3 CODES AND STANDARDS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - A746 Standard Specification for Ductile Iron Gravity Sewer Pipe.
 - C425 Standard specification for compression joints for VCP.
 - C1173-18 Standard specification for flexible transition couplings for underground piping systems.
 - D16 Standard Terminology for Paint, Related Coatings, Materials, and Applications.
 - D1784 Standard Specification for Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPVC) Compounds.
 - D2241 Standard Specification for Polyvinyl Chloride (PVC) Pressure Rated Pipe (SDR Series).
 - D2412 Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel Plate Loading.
 - D3034 Standard Specification for Type PSM Polyvinyl Chloride (PVC) Solid Wall Sewer Pipe and Fittings.
 - D3212 Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
 - E329 Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.
 - F477 Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
 - F679 Standard Specification for Poly Vinyl Chloride (PVC) Large Diameter Plastic Gravity Sewer Pipe and Fittings.

1.4 SUBMITTALS

- A. Drawings, specifications, and data covering the proposed materials shall be submitted to the City in accordance with Section 01300 - Submittals. The Contractor shall submit the following to the City for review and approval:
 - 1. Pipe, fittings and couplings.
 - 2. Information on gasket polymer properties.
 - 3. Application methods, application requirements and chemical resistance data for all products furnished.
 - 4. Manufacturer's Certificate of Compliance.
 - 5. Pipe embedment, backfill, materials and sub-contractor used for site restoration.
 - 6. CCTV Inspection Equipment: Submit minimum 15 days prior to performing inspections:
 - a. Name and qualifications of inspection firm.
 - b. Brand name and model number of video equipment to be used.
 - 7. CCTV inspection video and inspection logs. Video shall become property of the City.
 - 8. Permits:
 - a. The Contractor shall obtain all necessary permits and licenses required to perform the Work.

1.5 DEFINITIONS

- A. ANSI: American National Standards Institute.
- B. ASTM: American Society for Testing and Materials.
- C. AWWA: American Water Works Association.
- D. CCTV: Closed Circuit Television.
- E. DIP: Ductile Iron Pipe.
- F. PVC: Poly Vinyl Chloride.
- G. SDR: Standard Dimension Ratio.

1.6 QUALITY ASSURANCE

- A. The Contractor is responsible for the quality assurance and quality control of the Work.
- B. All Work shall be performed by a Contractor with a proven record of performance for similar installations. Contractor shall submit the following:
 - 1. CCTV Inspection Company must have actively performed such services for minimum of 2 years.
 - 2. Warranty Terms and Period: Contractor's warranty period shall be three (3) years for the performance and maintenance of the work performed.

1.7 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Packaging, handling, delivery and storage of materials shall be done in accordance with this Section, the manufacturer's recommendations and in accordance with Section 01000 – General Project Requirements.
- B. Delivery of materials shall be in manufacturer's original unopened and undamaged packages. Materials shall be clearly marked to identify brand name and contents on each package. Packages showing signs of damage that may affect the condition of the contents are not acceptable.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pipe:

1. Approved pipe materials are: polyvinyl chloride (PVC) or ductile iron pipe (DIP).
2. Pipe materials other than those listed above shall not be used for sanitary sewers unless otherwise approved by the City.
3. General requirements:
 - a. Ductile Iron Pipe (DIP) shall conform to Section 02620 – Ductile Iron Pipe for Sewers.
 - b. Polyvinyl Chloride (PVC) pipe shall conform to Section 02624 – Polyvinyl Chloride (PVC) Gravity Sewer Pipe.

B. Fittings:

- a. All fittings shall be factory-produced and shall be designed for installation on the pipe to be used. Fittings shall be of the same quality and material as the pipe used.
- b. Couplings for point repairs:
 - i. All couplings shall form tight compression joints.
 - ii. When connecting to the existing sanitary sewer, the Contractor shall use Non-Shear Fernco Strongback 5000 series couplings, MaxAdaptor couplings or City approved equal.

PART 3 - EXECUTION

3.1 SAFETY

- A. All work shall be performed in accordance with applicable OSHA standards.

3.2 PREPARATION

- A. Contractor shall clear the work area required for excavation in accordance with Section 02200 – Earthwork. It is the Contractor's responsibility to provide a photo or video log of the work zone(s) and to protect and restore the area to a condition as good as or better than it was before the Work was started. All removed fences; shrubbery, sidewalks, planters and landscaping shall be restored utilizing new materials unless otherwise directed in writing by both the Owner/Occupant and the City.

B. Existing Utilities:

1. The Contractor is responsible for protecting all utilities. All permits and licenses required for the execution of the Work shall be obtained by the Contractor.
2. The Contractor shall notify all utilities at least 48 hours in advance before making excavation in accordance with Missouri State Law.
3. When water mains or water service lines exist in the area, the Contractor shall comply with all applicable rules and regulations of the Kansas City, Missouri Water Services Department and the Code of State Regulations.

3.3 INSTALLATION

A. General Construction Requirements:

1. Open cut point repairs on a sanitary sewer shall be done in accordance with drawing 02503-1 and as described herein.

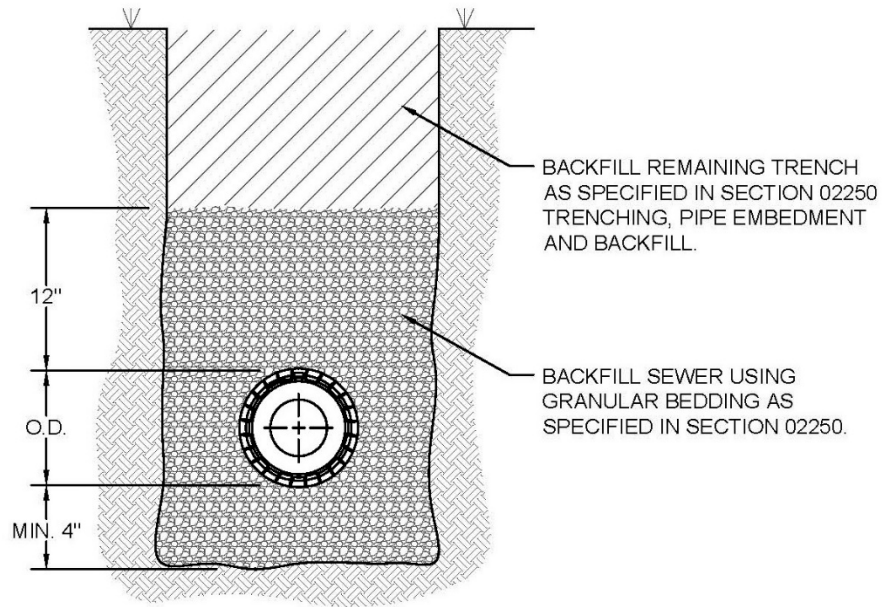
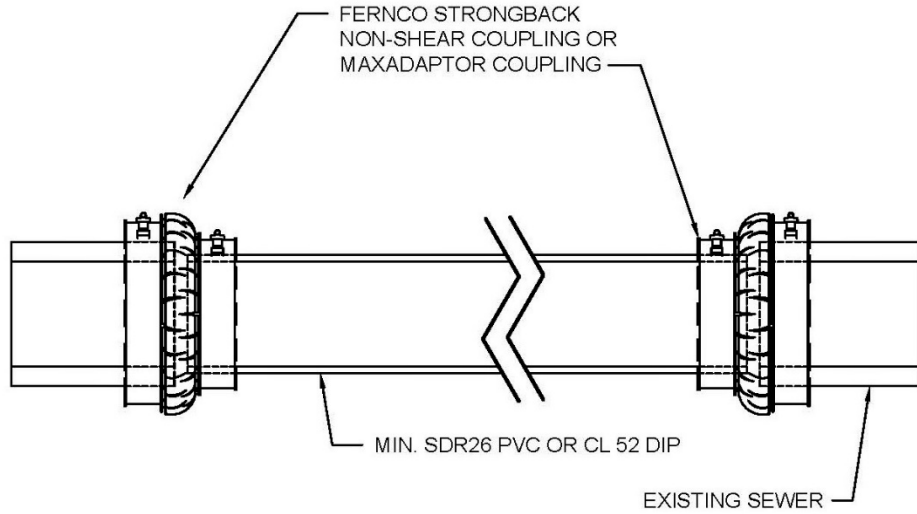
- B. Excavation:
1. Excavation required for sanitary sewers shall be done in accordance with Section 02200 – Earthwork except as modified herein.
 2. Width of Trench: The width of trench at the top of a pipe shall not exceed the outside diameter of the pipe plus eighteen (18) inches.
 3. Sheet piling, Shoring and Bracing: The Contractor shall do all necessary trench bracing, shoring, or sheet piling to prevent slides or cave-ins. Additional shoring, sheet piling, and bracing shall be placed wherever required, as determined by the Water Services Department, for the successful and safe execution of the work.
- C. Pipe Embedment and Backfill:
1. The granular embedment and backfill for sanitary sewers shall be done in accordance with Section 02250 – Trenching, Pipe Embedment and Backfill. See also drawing 02503-1.
 2. The sewer trench in earth excavation shall be carried to a point not less than four (4) inches below the bottom of the pipe barrel and when in rock excavation to a point not less than six (6) inches below the bottom of pipe barrel.
 3. Installation:
 - a. Pipe Embedment: The pipe bedding shall be compacted to the bottom of pipe with proper allowance for bell joints. After each section or joint of pipe has been shoved “home” and placed in proper alignment, twelve (12) inches (no more, no less) of pipe embedment shall be placed above the pipe and compacted by hand or mechanical tampers. In no case shall brick or other large stones be used as bedding or as trench backfill.
 - b. Backfill: After compacting the 12 inches of granular bedding above the pipe, see Section 02250 – Trenching, Pipe Embedment and Backfill for the backfill requirements of the remaining trench (in paved and in unpaved areas).

3.4 COMPLETION OF WORK AND SITE RESTORATION

- A. All applicable inspection policies, procedures, and charges are made part of these specifications by reference and are subject to change by the City without notification. Copies of current policies, procedures and fee schedules may be obtained from the Water Services Department.
- B. Site Restoration shall be done in accordance with Section 02575 – Surface Restoration. All pavement, surfacing, driveways, sidewalks, curb, gutter, sod, landscape and all other surface features affected by the work shall be restored.

Drawing 02503-1 on the following page.

Drawing 02503-1



SCALE: NTS

SEWER MAINLINE OPEN CUT REPAIR

WATER SERVICES
CITY OF KANSAS CITY, MISSOURI

DRAWING NO. **02503-1**

DEVELOPED BY: _____
TECHNICAL ADVISORY COMMITTEE

APPROVED BY: _____
DATE: 4/16/2021

1 OF 1

END OF SECTION