

SECTION 400 SANITARY SEWER

401.0 DESCRIPTION

Sanitary sewer installation shall be performed in accordance with the provisions of the latest published edition of the MnDOT Standard Specifications and the City Engineers Association of Minnesota Standard Specifications, 2018 Edition, except as modified herein.

All materials must be domestically manufactured in the U.S.A.

402.0 MATERIALS

402.1 PIPE

Polyvinyl Chloride pipe (PVC) shall be used for gravity sanitary sewer 8 inch through 12 inch diameter with a maximum cover of 26 feet and shall conform to the requirements of ASTM D-3034 and ASTM F-679 for the size, standard dimension ratio (SDR), and strength requirements indicated on the Plans, Specifications, and Special Provisions. The grade used shall be resistant to aggressive soils or corrosive substances in accordance with the requirements of ASTM D-543 and be green in color. Pipe shall be new, manufactured within the past 12 months as determined from the date stamp on the pipe and free of defects. Pipe will be rejected if surface chalking from UV exposure is visible.

For main line sanitary pipe and services 8 inches in diameter and larger, SDR 35 pipe shall be used for depths to 15 feet, and SDR 26 pipe shall be used for depths from 15 feet to 26 feet.

Material service connections shall be Schedule 40.

Wye branches for PVC pipe shall be a 4 inch wye or spur and of the same strength as specified for 8 inch sewer pipe.

402.2 MANHOLES

Manholes shall be precast concrete with an integral cast base and shall be set on a minimum of 6 inches of compacted foundation material. Manhole precast top sections shall be eccentric cones or flat slab as indicated in the Drawings.

The adjusting rings and castings of each manhole shall be sealed with an external rubber sleeve as manufactured by Infi-Shield, Inc. or approved equivalent. The seal shall be made of EPDM rubber and have a minimum thickness of 65 mils. The sleeve shall be sealed to the top of the cone or top slab of the manhole/ catch basin and over the top of the casting with non-hardening butyl rubber mastic. All labor and materials necessary to install the rubber-sealing sleeve will be incidental to the installation of each manhole.

To prevent leakage into the manhole, the Contractor shall furnish and install a 9 inch Infi-Shield Gator Wrap, or approved equal, at all manhole riser joints.

402.3 MANHOLE CASTINGS

Manhole castings will be equal to NEENAH 1733 with a NEENAH TYPE B cover. The cover shall be marked "SANITARY" The cover shall be solid with two concealed pick holes.

402.4 MANHOLE ADJUSTING RINGS

HDPE manhole adjusting rings manufactured by Ladtech Inc., or approved equal, shall be used.

403.0 CONSTRUCTION REQUIREMENTS

403.1 INSPECTION AND RESPONSIBILITY OF MATERIALS

The Contractor shall be responsible for all Contractor furnished material and all such material that is found to be defective in manufacture or that has become damaged in handling after delivery by the manufacturer shall be replaced at the Contractor's own expense. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the work.

403.2 SERVICE DISRUPTION - NOTIFICATION TO PROPERTY OWNERS

The Contractor shall provide the City's Project Coordinator a minimum of 24 hours notice on all requests to disconnect or plug sanitary sewer mains. Disruption of service shall be during the time of day when the least inconvenience will be caused to the property owners.

During construction, when it becomes necessary to disconnect or plug sanitary mains, the Contractor will notify all consumers affected by such operation at least 24 hours in advance whenever possible and advise them of the probable time when service shall be restored.

403.3 REMOVALS

403.3.1 SANITARY SEWER PIPE REPLACEMENT

Sanitary sewer pipe replacement shall include all labor and materials necessary to excavate and replace existing sanitary sewer pipe. PVC SDR 35 pipe or approved equal shall be used for repair unless otherwise specified on plans. Fernco adapters or approved equal shall be required to connect old pipe to new pipe. The cost to connect the old pipe to the new pipe is incidental to sanitary pipe sewer replacement.

403.3.2 SANITARY SEWER SERVICE REPAIR

Sanitary sewer service repair shall include all labor and materials necessary to excavate and replace existing sanitary sewer service pipe. PVC Schedule 40 pipe or approved equal shall be used for repair unless otherwise specified on plans. Fernco adapters or approved equal shall be required to connect old pipe to new pipe. The cost to connect the old pipe to the new pipe is incidental to sanitary sewer service replacement. The existing service pipe shall be clear of all obstructions prior to connecting the new service pipe.

403.3.3 SALVAGE MANHOLE CASTING

The castings indicated for salvage shall be removed from the structure, and, unless marked for reuse on the Drawings, delivered to the City of St. Louis Park Municipal Service Center at 7305 Oxford Street. This work shall be coordinated with the Project Coordinator.

403.4 PIPE

403.4.1 PIPE LAYING OPERATIONS

No deviation from the required line or grade will be allowed except with the consent of the Engineer.

No pipe material shall be laid in water or when the trench or bedding conditions are otherwise unsuitable or improper.

All pipe shall be laid using laser equipment, furnished and set by the Contractor according to the grade stakes established by the Engineer or a designated representative. The Contractor shall provide and use a suitable grade rod to insure the proper grade of the pipe. The Contractor shall check the grades at a frequency not to exceed 100 feet. The Contractor shall provide competent workmen to operate the laser equipment.

Whenever existing utility structures or branch connections leading to main sewers or to main drains, or other conduits, ducts, pipes, or structures present obstructions to the grade and alignment of the pipe, they shall be permanently supported, removed, relocated or reconstructed by the Contractor involved. In those instances where their relocation or reconstruction is impractical, a deviation from line and grade will be ordered, and the change shall be made in the manner directed by the Engineer and with extra compensation allowed therefore.

When watermain and water services, whether lowered or existing, are in danger of freezing due to the proximity of sanitary sewers, or sanitary sewer structures, the Engineer may direct the placement of insulation between the sanitary sewer and the watermain or service pipe.

403.4.2 JOINTING

Before laying the pipes, the outside of the spigot and the inside of the bell shall be wiped clean and dry. Pipe ends shall be kept clean until joints are made.

403.5 SEWER SERVICES

Existing sewer services shall be connected to the new sewers, as shown on the plans. If the top of the main sewer is 13 feet or less below street grade, a horizontal wye branch shall be placed so that the connection has a slight vertical angle with the main sewer.

Risers shall be used to extend service connections to a point within 12 feet of the street grade. Wherever these are used, concrete shall be placed as a collar around the main horizontal sewer and shall extend to a point 6 inches above the bell connection. The riser pipe shall be laid against the undisturbed trench wall as shown on the detail sheet in the plans.

The Contractor is responsible for keeping records of service installations and must submit a tie card for each service installed per the City Standard Detail Plate M-2. This record shall be turned over to the Engineer within 10 days of service installation.

403.6 MANHOLES AND CASTINGS

403.6.1 MANHOLE PLACEMENT PROCEDURE

All manholes will be set plumb. All openings along the line of sanitary sewer shall be securely closed, as directed, and at the suspension of work at any time, suitable stoppers shall be placed to prevent earth or any substance from entering the sanitary sewer. If water is present in the trench, the seals shall remain in place until the trench is completely dry.

403.6.2 CONNECT TO EXISTING MANHOLE

When connection to an existing sanitary sewer is made at an existing or proposed manhole, the Contractor shall expose and verify the elevation of the existing sewer prior to laying any sanitary sewer to, or from, the connection point. If the elevation of the existing sewer does not match the elevation shown on the plans, the Contractor shall notify the Engineer, at which time the Engineer may adjust the proposed grades.

403.6.3 ADJUST MANHOLE FITTED STEEL RING

This item shall include installation of a fitted steel ring on manhole casting to adjust the elevation of the manhole to the new wear course on mill and overlay streets. The fitted steel rings shall be glued in place with manufacturer recommended adhesive.

403.6.4 ADJUST MANHOLE FRAME AND RING

The item “Adjust Manhole Frame and Ring” shall include excavation around the structures indicated on the plans; removal of existing rings, installation, and gluing of new rings; salvaging and re-setting the casting, and the addition of external rubber sleeve as manufactured by Infi-Shield, Inc. or approved equivalent and installation of the concrete collar.

Pavement patching of the excavated area shall be the same material type and depth as shown in the plans and specifications. The backfill of the excavated area shall use aggregate base material consistent with the requirements of the plans and specifications. The excavation area shall be sufficient size to allow for compaction methods that achieve densities as outlined in Section 700 Bituminous Paving and Street Construction.

403.6.5 REHABILITATE MANHOLE (INTERIOR)

The item “Rehabilitate Manhole (Interior)” shall include all materials and labor to complete interior rehabilitation work on existing manholes. This includes invert repairs, doghouse repairs, joint mortaring, and mortaring of existing rings.

403.7 TELEWISE SEWER

All newly constructed sewers must be jetted clean and televised after sewer services are installed and within 15 days after the manholes are raised as directed by the Engineer. The Contractor shall provide the owner with a DVD and detailed report prior to paving wear course.

403.8 SANITARY SEWER BYPASS PUMPING

During sanitary sewer construction, the Contractor will be required to install and maintain by-pass pumping of sewage flows from all affected homes.

The bypass pumping must minimize disturbance to the residents and enable efficient removal and replacement of the sanitary sewer and services. The temporary bypass pumping must be designed to adequately maintain and accommodate sewage flow and provide safeguards to prevent sewage backups. The Contractor must coordinate all work with the Engineer. The Contractor must coordinate and communicate with property owners regarding connection and location to the property owners’ service lines.

The Contractor must inform affected residents with a letter approved by the Project Coordinator when the work is to take place and the potential for temporary disruption of service during the switch to and from the temporary system. Disruption of service is not allowed from 5 a.m. to 10 a.m. and from 4 p.m. to 10 p.m. The Contractor must provide emergency phone numbers of personnel to call during evenings and weekends. The Contractor must maintain, inspect, and adjust the bypassing system as needed or directed throughout construction. If staging of the temporary system is necessary, the Contractor must provide a schedule and description of how this is to be accomplished.

It will be a specific requirement that all temporary sanitary sewer service connections and bypass pumping systems be inspected and approved by the Engineer to ensure proper connection and safeguarding measures have been taken.

To effectively perform the replacements, it will be necessary to provide for bypass pumping of sewage flows. The Contractor will be responsible for providing the means and equipment for such bypass pumping. The Contractor will be responsible for damages to property due to sewer backups. The work must include, but not be limited to, all equipment, bypass pumping, flow control, service

pipe, proper adaptors at all connections, labor, backfilling and other work involved with providing a temporary sanitary sewer service.

The work must be coordinated with the Engineer and affected property owners prior to removal. Services and main line pipe that are damaged by negligence must be repaired by the Contractor at the Contractor's expense.

403.9 SANITARY SEWER SYSTEM CLEANING

The City will televise the sanitary sewer system in the project area before the Contractor commences work to determine if any repairs or cleaning are needed. The City may inspect or televise the sanitary sewer again after the project to determine if any debris is present due to the Contractor's operations. If it is determined by the City that cleaning of the system is required, this work must be conducted by the Contractor at their own expense.

The Contractor will be responsible for all costs incurred by the City to correct situations related to Contractor's failure to properly clean sanitary sewer structures, and for Contractor's work creating obstructions in the system, including private services.

404.0 METHOD OF MEASUREMENT

All items will be measured separately according to design designation as indicated in the pay item name and as may be detailed and defined in the Drawings, Specifications, or Special Conditions.

404.1 SANITARY SEWER PIPE (NEW INSTALLATION AND REPLACEMENT)

Included in the unit price bid shall be the removal of existing pipe, Fernco adaptors or other materials required to connect the old pipe to the new pipe.

404.2 SANITARY SEWER SERVICE REPAIR

Sewer service pipe furnished and installed will be measured by the linear foot. Included in the unit price bid shall be the removal of existing pipe, Fernco adaptors or other materials required to connect the old pipe to the new pipe.

404.3 SERVICE RISER CONNECTION

Service Riser Connections of each design will be measured by the unit, constructed complete-in-place as specified.

404.4 SALVAGE MANHOLE CASTING

Salvaged manhole castings will be measured by the unit.

404.5 MANHOLE CASTINGS

Manhole castings installed on existing structures will be measured by the unit.

404.6 CONNECT TO EXISTING MANHOLE

Connect to existing manhole will be measured by the unit.

404.7 ADJUST MANHOLE FITTED STEEL RING

This item will be measured by the unit.

404.8 ADJUST MANHOLE FRAME AND RING

This item shall be measured as a unit and shall include all materials and labor necessary to adjust manhole frame and ring on existing manholes.

404.9 REHABILITATE MANHOLE (INTERIOR)

This shall be measured as a unit and shall include all materials and labor to complete interior rehabilitation work on existing manholes.

405.0 BASIS OF PAYMENT

Payment for construction of sanitary sewer facilities will be made as detailed in the method of measurement and as shown in the Contract Documents or detailed in the Special Conditions.

Payment shall include all costs of furnishing and installing the complete facility as required by the Drawings, Specifications, and Special Conditions.

Payment for sewer pipe and service pipe items at the Contract prices per linear foot of pipe of each design shall be compensation in full for all costs of providing a complete-in-place pipeline, including excavation, foundation preparation, backfilling, leakage testing, televising, disposal of surplus or waste materials, and such other work as may be specified, but excluding the construction of other structures or special sections and the placement of special fittings, appurtenances or materials specifically designated for payment under other Contract Items.

All other work under this section is incidental to the contract unless specifically listed in the Special Conditions.