
Part 1 - General

1.01 Description

- .1 This Section is supplemental to OPSS.MUNI 412 and shall supersede conflicting specifications within OPSS.MUNI 412.

1.02 Related Specification

- .1 Construction Specification Section 01330 - Submittal Procedures
- .2 Construction Specification Section 02315 - Trenching, Backfilling and Compacting
- .3 Construction Specification Section 02316 - Rock Excavation
- .4 Construction Specification Section 02631 - Maintenance Holes, Catch Basins, Ditch Inlets and Valve Chambers
- .5 Region of Durham Approved Manufacturer's Products List and Region of Durham Standard Drawings
- .6 OPSS.MUNI 201 - Construction Specification for Clearing, Close Cut Clearing, Grubbing and Removal of Surface and Piled Boulders
- .7 OPSS.MUNI 206 - Construction Specification for Grading
- .8 OPSS.MUNI 412 - Construction Specification for Sewage Forcemain Construction by Open Cut Method
- .9 OPSS.MUNI 490 – Construction Specification for Site Preparation for Pipelines, Utilities, and Associated Structures in Open Cut
- .10 OPSS.MUNI 492 - Construction Specification for Site Restoration Following Installation of Pipelines, Utilities and Associated Structures in Open Cut
- .11 OPSS.MUNI 801 - Construction Specification for Protection of Trees

1.03 Basis of Payment

- .1 Unit price bid for sewage forcemain pipe shall include all labour, equipment and materials to do the work as specified, including but not limited to:
 - .1 All necessary clearing and grubbing.

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- .2 Excavation to grade and disposal of surplus materials.
 - .3 Dewatering up to 50,000 L per day unless included in a separate item.
 - .4 Supporting and protecting existing services unless otherwise noted.
 - .5 Abandoning of existing forcemain pipes in accordance with Contract Drawings including:
 - .1 Saw-cutting of existing pipe.
 - .2 Removal and disposal off site of existing pipes and fittings, thrust restraints and thrust blocks as required.
 - .3 Supply and placement of 15 MPa concrete plug in the ends of the existing sewage forcemains that are to be abandoned in place. Minimum length of the concrete plug shall be 300 mm.
 - .4 Supply and placement of mechanical plug on existing sewage forcemain to remain in service, where required.
 - .6 Supply and installation of all pipes, fittings, bends, adapters, reducers, specials, sleeves, restrainers, thrust blocks and tracer wire, complete in the specified bedding.
 - .7 Connections to existing forcemains and maintenance holes complete with proper adapters.
 - .8 Supply and installation of underground warning tape and tracer wire
 - .9 All cathodic protection in accordance with Region of Durham Standard Drawings.
 - .10 Cathodic protection of existing ferrous pipes and fittings where exposed in accordance with Region of Durham Standard Drawings when such exposed pipe/fitting is to remain in service.
 - .11 Substitution 50-50 19mm Clear Stone and Crusher Run mix for Class B bedding in wet areas at the Contract Administrator's direction as shown on Region of Durham Standard Drawings.
 - .12 Substitution 50-50 19mm Clear Stone and Crusher Run mix for Class P bedding in wet areas at the Contract Administrator's direction as shown on Region of Durham Standard Drawings.

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- .13 Backfill with Select Native Materials and compaction.
 - .14 Permanent surface restoration in accordance with Section 02700 and Special Provisions, unless included in a separate item.
 - .15 Supply of marker posts and all installation costs where forcemain is located within an easement or open field situation.
 - .16 All testing and cleaning of forcemains in accordance with this Section.
 - .17 Water for testing and flushing where required.
 - .18 Provision of temporary plug and blow off at open end of forcemain.
 - .19 Recording of exact location and elevation of end of completed forcemain installation.
 - .20 All other work necessary to complete sewage forcemain and services as specified.
- .2 Tender quantity for forcemain will include any adjustment in length within plus or minus 0.3 metres to what is shown on the Contract Drawings. No increase is to be given or deduction taken for adjustment within the 0.3 metre horizontal tolerance. If actual measurement is outside this tolerance, actual measurement will be paid.
 - .3 Valves and chambers to be paid as separate items.

Part 2 - Products

2.01 Pipe Materials

- .1 Reference Region of Durham Approved Manufacturers' Products List on *The Road Authority* website at www.roadauthority.com.
- .2 All sewage forcemain materials shall be in accordance with Contract Drawings and Special Provisions.
- .3 Supply fittings suitable for and compatible with class and type of pipe with which they will be used.

2.02 Bedding, Cover and Backfill Materials

- .1 Bedding, cover and backfill materials shall be as specified in Section 02315.

Part 3 - Execution

3.01 Transporting Unloading, and Pipe Storing

- .1 Take delivery of pipes and fittings near to trench. Do not impede traffic.
- .2 Unload pipe using mechanical equipment.
- .3 Place materials in safe storage.
- .4 Follow pipe manufacturer's handling and storage recommendations.
- .5 Do not drop pipe onto ground, rubber tires, or equivalent.

3.02 Site Preparation

- .1 Do site preparation to OPSS.MUNI 490 unless covered under a separate item.

3.03 Trenching and Backfilling

- .1 Do trenching and backfilling to Section 02315.

3.04 Cathodic Protection Anode Installation

- .1 All ferrous and other non-plastic materials including tracer wire, and mechanical restrainers shall be cathodically protected in accordance with Region of Durham Standard Drawings.
- .2 The pipe or fitting surface shall be cleaned to facilitate welding of the anode lead wire to the pipe. The anode lead shall be CAD welded to the pipe surface and the integrity of each weld tested and verified by the Contract Administrator. The weld shall be repeated if necessary.
- .3 The anode shall be placed at least 300 mm from the pipe. The positioned anode shall be soaked after installation until saturated with water to ensure immediate operation.

3.05 Bedding and Cover

- .1 Place bedding and cover materials in accordance with Region of Durham Standard Drawings.
- .2 Place warning tape on top of cover prior to backfilling.

3.06 Installation of Valves

- .1 Install valves in accordance with Region of Durham Standard Drawings.

3.07 Thrust Restraint

- .1 All fittings on PVC pipe shall have restrained joints and granular thrust blocks in accordance with Region of Durham Standard Drawings. In addition, all joints encountered within the specified restraining length as indicated on Region of Durham Standard Drawings, must also be restrained. Concrete Pressure Pipe shall have restrained joints as shown on Contract Drawings and verified by the manufacturer.

3.08 Hydrostatic Pressure Testing

- .1 Hydrostatic pressure and hydrostatic leakage tests will be carried out by the Region of Durham unless otherwise specified. Testing pressure shall be 710 kPa or as specified in the Contract Documents.
- .2 Supply labour and equipment as required to assist the Region of Durham's crew to conduct tests.
- .3 Tracer wire shall be tested by Region of Durham at time of pressure testing and during Final Inspection.

3.09 Cleaning

- .1 Cleaning and flushing will be carried out by the Contractor unless otherwise specified.
- .2 Cleaning to include passing of at least one swab through entire length of forcemain.

3.10 Markers

- .1 If a forcemain is located within an easement or open field situation, the developer/contractor shall be responsible to place Region of Durham forcemain markers in accordance with Region of Durham Standard Drawings.

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- .2 Marker signs shall be made available to the Developer/Contractor from the Region of Durham at no cost. Marker posts and all installation costs shall be at the Developer's/Contractor's expense. Spacing shall be as shown on the Contract Drawings.

3.11 Tracer Wire

- .1 On open cut installations, provide one tracer wire in accordance with Region of Durham Standard Drawings.
- .2 On all Horizontal Directional Drilling installations, provide two solid copper tracer wires, positioned on opposite sides of the pipe.

END OF SECTION