



Project: B-4109
County: Durham

PROJECT SPECIAL PROVISIONS
Utility Construction

GENERAL CONSTRUCTION REQUIREMENTS:

Specifications:

The proposed utility construction shall meet the applicable requirements of the NC Department of Transportation's "Standard Specifications for Roads and Structures" dated July 2006, and the following provisions.

Lay water mains at least 10ft laterally from existing or proposed sanitary sewers.

The depth of pipeline installation may vary to achieve minimum clearance of existing or proposed utilities or storm drainage while maintaining minimum cover specified (whether existing or proposed pipelines, conduits, cables, mains and storm drainage are shown on the plans or not).

After the installed pipe, fittings, valves, hydrants, corporation stops and end plugs are inserted and secured, the pipe line shall be subjected to a hydrostatic pressure test of 200 psi for a period of 3 hours, by pumping the section full of clean water using an approved pressure pump. Cross connection for flushing and chlorination shall be made by means of a temporary connection from the supply pipe with an approved backflow prevention device. Taps for the cross connection piping shall be made to the portion of the existing water main that will be removed from service. The proposed water main shall be laid to within one pipe length of the point of final connection prior to flushing and testing. All flushing and chlorination work shall be preformed in accordance with AWWA C651-99. All fittings, valves and backflow prevention devices required for chlorination and testing shall be incidental to the cost of the proposed pipe being tested.

Contractor shall make such arrangements, as the utility owner requires, for measuring and paying for water required to flush and test water mains.

The City of Durham's chemist shall do all bacteriological testing for new water lines. The contractor shall not activate new water mains until the City of Durham approves the bacteriological testing.

Owner and Owner's Requirements:

The existing utilities belong to The City of Durham. The Contractor shall provide access for the owner's representatives to all phases of construction. Notify the owner two weeks before commencement of any work and one week before service interruption. The

contractor shall provide the City of Durham with as built drawings for the proposed water mains installed.

The contractor shall provide a set of as built plans to the City of Durham after all the work shown on the Utility Construction Plans is completed, per the City of Durham's Specifications (Section 4.0).

Utility Locations Shown on the Plans:

The location, size, and type material of the existing utilities shown on the plans are from the best available information. The Contractor will be responsible for determining the exact location, size, and type material of the existing facilities.

1. PRECAST CONCRETE SANITARY SEWER MANHOLE WITH FLAT TOP:

Sanitary sewer manholes with flat top shall be installed in accordance with the utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

Sanitary sewer manholes shall be a standard precast manhole and shall conform to ASTM C478.

Joints between precast manhole sections shall be O-ring rubber gaskets conforming to ASTM C-443 or butyl rubber gaskets conforming to AASHTO M198.

Connection of pipe to manholes for cored or precast holes shall be by a resilient connector conforming to ASTM C923.

False bottom manholes shall be filled with concrete as shown on the utility plans. The concrete used for the false bottoms shall conform to Standard Specification Section 1000 for Class B concrete.

Sanitary sewer manholes with false bottoms shall be constructed with invert channels, as shown on the plans or standard details, to confine and direct the flow through the manhole. The invert channels shall be finished smooth and shaped to provide an easy transition from inlet to outlet. The benches or shelves shall be finished to a non-slip texture and shall be sloped toward the invert channel.

Vent pipe shall be Schedule 40, 4" diameter pipe of grade "B" steel as specified in ASTM A139. Steel shall have minimum yield strength of 35,000 psi. Vent pipe shall be galvanized with a coal tar epoxy coating. Vent opening shall have a wire mesh insect screen covering the opening. Connections of vent pipes to manholes shall be cored or precast holes. Vent pipes shall be securely anchored with concrete and galvanized anchors, the opening into the manhole shall be flush with the interior surface of the manhole. The bottom of the vent pipe shall be a minimum of 3' below finished grade.

Vent pipe shall be extended to an elevation 1.5' above the 100 year flood elevation.

All manholes with vents require a watertight manhole frame and cover.

Watertight manhole frames and covers shall be cast iron conforming to ASTM A48 Class 30 and shall be coated in conformance with ASTM A74. Such frames and covers shall be traffic bearing and shall conform to the weights and dimensions as shown on the utility plans except for those differences necessary for watertightness.

Watertight manhole frames and covers shall be sealed using a flexible plastic or rubber gasket which is permanently attached to the ring. Manhole covers shall be securely attached to the manhole frame with (4) stainless steel bolts. The manhole frame shall be securely attached to the manhole and sealed with butyl rubber or bituminous sealer.

Manhole frames and covers shall be of cast iron conforming to ASTM A48 Class 30, shall be traffic bearing, and shall have machined contact surfaces. Manhole frames and covers shall be as shown on plans or an approved equal. Covers shall have 2 air vents, 1" in diameter unless manholes are shown with watertight manhole rings and covers.

Sewer manholes over 3' in depth or 3' above finished grade shall have steps spaced on the inside and outside of the manholes (12" on center), of the type shown on the plans. Cast iron shall be ASTM A48 Class 30. Steps shall be installed in accordance with the plans or standard details and shall be tested as required in ASTM C478.

Elevated flat top manholes without vents shall be 1.5' above the 100 year flood elevation.

Sewer manholes with flat top over 3' above finished grade shall have (2) schedule 40 galvanized steel grab pipes of the type shown on the plans. Galvanized steel pipe, schedule 40 shall conform to ASTM A53. The flat top shall have (2) steel sleeves cast into the flat and the galvanized steel pipe grouted into the sleeves.

Sanitary sewer manholes with flat tops will be measured on the "per each" basis and on the "linear feet" basis for that portion exceeding 6' in height.

Measurements will be made for the appropriate diameter of manhole on the actual number constructed as required and accepted. The height of the manhole will be measured to the nearest tenth of a meter from the manhole invert to the top of the manhole ring.

Sanitary sewer manholes with a flat tops and false bottom bases installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract unit price per each for "4' Dia. PC Conc. Sewer Manhole with a Flat Top, 0-6' Depth" or "4' Dia. PC Conc. Sewer Manhole with a Flat Top and Vent, 0-6' Depth" and a contract unit price per linear feet for "Utility Manhole Wall, 4' Dia". Such prices and payments will be compensation in full for all materials, labor, equipment, excavation and backfill, and incidentals necessary to complete the work as required.

2. STEEL ENCASEMENT PIPE AND CONCRETE COLLARS:

Steel encasement pipe and concrete collars for creek crossing shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer. Steel encasement pipe may be of the following types: - spiral welded steel pipe in accordance with ASTM A211; circular black or galvanized steel pipe in accordance with ASTM A53 or A589; high strength smooth wall steel casing in accordance with API-5L, Grade B, or other grades; or other steel pipe of acceptable quality and meeting the approval of the Engineer.

Steel encasement pipe shall be 60' in length with no joints.

The carrier pipe shall be installed inside the encasement pipe by use of spiders appropriately spaced to support the carrier pipe from deflection. Spiders shall be sized to raise the carrier pipe bells above the encasement pipe and to restrict excessive radial movement. Spiders shall be securely attached to the carrier pipe and shall be approved by the Engineer.

After the carrier pipe is installed and tested, the ends of the encasement pipe shall be plugged or capped with concrete, brick or other approved materials. The plug or cap shall have a one-inch diameter weep hole at the bottom to facilitate drainage of the encasement pipe.

Steel encasement pipe shall have an exterior bituminous coating conforming to the requirements of AWWA C110.

Concrete collars shall be sized and installed as shown on the utility plans. The concrete used for the concrete collars shall conform to Standard Specification Section 1000 for Class B concrete 3000 psi.

Steel encasement pipe and concrete collars, installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract unit price per each for "20" Steel Encasement Pipe, 0.500" Thick and Concrete Collars". Such prices and payments will be full compensation for all materials, excavation, equipment, labor, installation, grouting, backfilling, and incidentals necessary to complete the work as required.

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COUNTY: Durham

PROJECT SPECIAL PROVISIONS
Utility

UTILITIES BY OTHERS:

General:

The following utility companies have facilities that will be in conflict with the construction of this project:

- A. Duke Energy
- B. Time Warner Cable
- C. Verizon
- D. PSNC Gas

The conflicting facilities will be adjusted prior to the date of availability except where noted and are therefore listed in these special provisions for the benefit of the Contractor. All utility work listed herein will be done by the utility owners. All utilities are shown on the plans from the best available information.

The Contractor's attention is directed to Article 105.8 of the Standard Specifications.

Utilities Requiring Adjustment:

- A. Duke Energy
 - 1. See "Utilities by Others Plans" for utility conflicts.
- B. Time Warner Cable
 - 1. See "Utilities by Others Plans" for utility conflicts.
- C. Verizon
 - 1. See "Utilities by Others Plans" for utility conflicts.
- D. PSNC Gas
 - 1. See "Utilities by Others Plans" for utility conflicts.