

Prepared by:

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Project: B-3509
County: Rockingham

PROJECT SPECIAL PROVISIONS
Utility Construction



I. GENERAL CONSTRUCTION REQUIREMENTS

Specifications:

The proposed utility construction shall meet the applicable requirements of the North Carolina Department of Transportation's "Standard Specifications for Roads and Structures" dated January 2002, and the following provisions.

The Contractor is herein forewarned as to the possibility of having to vary the depth of pipeline installation 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).

Water mains shall be laid at least 10 feet laterally from existing or proposed sanitary sewers. Minimum separation between proposed water mains and existing or proposed storm sewers shall be 12 inches.

The Contractor shall locate all existing water services and relocate, connect, or reconnect as directed by the Engineer. New water services shall be installed as indicated on the plans and/or as directed by the Engineer.

Payment for the cutting and plugging of existing water and sewer lines to be abandoned shall be considered incidental to other pay items in the contract.

"Gate Valves" as noted on the plans shall be resilient-seat type valves conforming to ANSI/AWWA C509.

Owner and Owner's Requirements:

The existing utilities belong to the City of Eden. The Contractor shall provide access for the Owner's representatives during all phases of construction. The Owner shall be notified two weeks prior to commencement of any work and one week prior to service interruption. Contact Eden City Hall at (336) 623-2110.

After the installed pipe, fittings, valves, hydrants, corporation stops, and end plugs are inserted and secured, the pipeline shall be subjected to a hydrostatic pressure of

200 PSI for 2 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 performed 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.

Any cracked, damaged, or defective pipe, fittings, valves, hydrants, or other attachments discovered as a result of the pressure test, shall be removed and replaced with sound material. The tests shall be repeated until test results are satisfactory.

After the pressure test is complete, the Contractor shall make a leakage test. Such leakage test shall last at least 2 hours at a pressure of 200 PSI.

The pressure test and leakage test may be performed concurrently.

All valves on the lines being sterilized shall be opened and closed several times during the chlorination period. The pipeline shall then be flushed with clean water until the residual chlorine is reduced to 1.0 ppm or at the same level as in the existing water mains. Samples of water shall be taken at representative points along the pipeline by the Contractor in approved containers and submitted to a certified testing laboratory for bacterial and chlorine content. Test results shall be provided to the City of Eden.

Connections made to the existing water system for the purpose of loading and testing new water mains shall also be large enough to provide adequate flushing velocity. Water mains 12" and larger will also require a hydrant (temporary if one is not designated) for the purpose of flushing the water main. This shall be considered incidental to other pay items in the contract.

All work involving pipe restraint for connecting new water mains to the existing water mains shall be coordinated with the utility owner.

Existing water meters, fire hydrants, and related appurtenances which are removed from service shall become property of the Contractor, and the Contractor shall properly dispose of these items. This shall be considered incidental to other pay items in the contract.

The City of Eden shall witness all tests performed on their water and sewer facilities. Test results shall be provided to the City of Eden.

It shall be the Contractor's responsibility to notify customers affected by necessary shut downs of the existing water system at least 24 hours in advance.

The owners shall be notified in advance of any interruption of water service with ample time to make arrangements. Interruption of water service on main lines shall be limited to a maximum of four (4) hours or as approved by the Engineer.

Utility Locations Shown on the Plans:

The location, size, and type of 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 of material of the existing facilities necessary for the construction of the proposed utilities and to avoid damage to existing utilities.

II. COMPENSATION:

No direct payment will be made for utility construction work required by the preceding provisions, which are general requirements applying to utility construction, and all of the requirements stated will be considered incidental work, paid for at the contract unit prices of the various utility items included in the contract.

1. DUCTILE IRON RESTRAINED JOINT WATER PIPE:

Ductile Iron Restrained Joint Water Pipe shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans and/or as directed by the Engineer.

Ductile Iron Restrained Joint Water Pipe shall be of the pressure class shown on the utility plans and shall conform to ANSI A21.51 (AWWA C151) Push-on joints for such pipe shall be in accordance with ANSI A21.11 (AWWA C111). Pipe thickness shall be designed in accordance with ANSI A21.50 (AWWA C150) and based on laying conditions and internal pressures as stated on the plans. Cement mortar lining and seal coating for pipe shall be in accordance with ANSI A21.4 (AWWA C104). Bituminous outside coating shall be in accordance with ANSI A21.51 (AWWA C151).

All Ductile Iron Restrained Joint Water Pipe shall be installed in accordance with laying condition Type 2 as stated in ANSI A21.51 (AWWA C151) unless otherwise shown on the plans or directed by the Engineer.

Ductile Iron Restrained Joint Water Pipe, installed in accordance with the plans and provisions herein and accepted, will be measured along the pipe from end to end, with no deductions for fittings and valves, and paid for at the contract unit price per linear foot for, "____ Inch DI Restrained Joint Water Pipe, PC ____". Such prices and payments will be full compensation for all materials, including pipe accessories, excavation, labor, pressure testing, sterilization, backfilling, and incidentals necessary to complete the work as required.

2. BREAK DOWN, PLUG, AND FILL ABANDONED METER VAULT

Meter vaults in the construction area that will be abandoned shall have all connecting water pipe cut and plugged, the top of the vault removed to an elevation of 2 feet below subgrade or below the spring line, and the vault filled with select earth material properly tamped. Any vault that will have the connecting water pipe filled with cement grout shall also be filled with cement grout to the top of main pipe openings, elevated pipe openings excepted. Vaults with connecting water pipe that do not require filling with cement grout shall be plugged in a manner acceptable to the Engineer before the vault is filled in with earth material.

The quantity of abandoned meter vaults broken down, filled in and accepted will be measured and paid for at the contract unit price each for "Break Down, Plug, And Fill Abandoned Meter Vault". Such prices and payments will be full compensation for all materials, plugging pipe openings, breaking down vault, excavation, backfilling, and incidentals necessary to complete the work as required.

3. REMOVE AND STOCKPILE EXISTING WATER METER:

The existing water meters to be removed and stockpiled shall be disconnected from the pipe and stockpiled in an area accessible by truck or as directed by the Engineer. After the water meters are stockpiled, the Contractor shall contact the City of Eden to receive and remove the water meters.

The quantity of water meters removed, stockpiled, and accepted, will be measured and paid for at the contract unit price per each for "Remove and Stockpile Existing Water Meter". Such price and payment will be full compensation for all labor, removal, stockpiling, and incidentals necessary to complete the work as required.

4. REMOVE, STOCKPILE, AND RELOCATE EXISTING FIRE HYDRANT:

The existing fire hydrants to be removed, stockpiled, and relocated will be separated at the hydrant base from the existing pipe and stockpiled in an area accessible by truck or as directed by the Engineer. The existing fire hydrant shall be removed prior to construction of the detour, stockpiled until the detour is taken out of service, then reinstalled at the new location shown on the plans, or as directed by the Engineer.

The quantity of existing fire hydrants removed, stockpiled, and relocated, and accepted, will be measured and paid for at the contract unit price per each for "Remove, Stockpile, and Relocate Existing Fire Hydrant". Such price and payment will be full compensation for all excavation, removing, stockpiling, relocating, reaction backing, rods, necessary extension pieces and hydrant shoes, reconnecting to the water main, placing stone, backfilling, labor, and incidentals necessary to complete the work as required.

5. WATER METER

Proposed water meters and meter boxes shall be installed at the locations shown on the utility plans, or as directed by the Engineer.

The City of Eden will provide the water meter, meter yoke, meter valve, and meter box, and the Contractor shall install the above items at the appropriate location shown on the plans, or as directed by the Engineer. Any fittings necessary to connect the meter to the water line will be considered incidental. Any pipe necessary to connect to the water line will be paid for as provided elsewhere in these provisions.

All work shall be in accordance with the applicable plumbing codes, as shown on the plans, and as directed by the Engineer.

Water meter boxes shall be placed with the top of the meter box flush with finish grade of the project.

The quantity of water meters and meter boxes installed and accepted will be measured and paid for at the contract unit price each for "___ Inch Water Meter". Such price and payment will be full compensation for all labor, materials, excavation, installation, backfilling, and incidentals necessary to complete the work as required.

6. RESTRAINED RETAINER GLANDS:

Restrained retainer glands shall be installed in accordance with the applicable provisions herein, as shown on the plans and/or as directed by the Engineer.

Restrained retainer glands shall be heavy duty ductile iron conforming to ASTM A536. Restrained retainer glands shall meet the specifications for ANSI A21.11 (AWWA C111). Restrained retainer glands shall be capable of restraining mechanical joints for a minimum working pressure of 250 psi with a minimum factor of safety of 2:1, using high strength steel angled set screws meeting AISI 4140 or ductile iron wedges. Twist-off nuts shall be used to insure proper torquing of retaining devices.

Restrained retainer glands, 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 "_____ " Restrained Retainer Gland". Such prices and payments will be full compensation for all materials, labor, excavation and backfilling, installation, testing and incidentals necessary to complete the work as required.

7. WATERTIGHT MANHOLE RING AND COVER

Watertight manhole rings and covers shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans and/or as directed by the Engineer.

Watertight manhole rings and covers shall be cast iron conforming to ASTM A48 Class 30 and shall be coated in conformance with ASTM A74. Such rings and covers shall be traffic bearing and shall conform to the weights and dimensions of Roadway Standard Detail Drawing 840.54, except for those differences necessary for watertightness.

Manhole rings and covers shall be sealed using a flexible plastic or rubber gasket which is permanently attached to the ring. Manhole rings shall be securely attached to the manhole and shall be sealed with butyl rubber or bituminous sealer.

Watertight manhole rings and covers, 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 "Watertight Manhole Ring and Cover". Such prices and payments will be full compensation for all labor, materials, removal and disposal of existing ring and cover, and incidentals necessary to complete the work as required.

8. MANHOLE VENT PIPE

Manhole vent pipes shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans and/or as directed by the Engineer.

Manhole vent pipes shall be 4" diameter steel pipe, with bituminous coating on the interior and exterior of the pipe. The Contractor shall core a hole through the wall of the manhole cone section just large enough to allow the vent pipe to be inserted through the manhole wall. The end of the vent pipe shall be flush with the interior wall of the manhole. The annular space between the outside of the vent pipe and the manhole wall shall be grouted with non-shrink hydraulic cement. To provide lateral stability for the vent pipe, the Contractor shall also secure the vent pipe against the outside of the manhole using a 3" stainless steel saddle-type band bolted to the exterior wall of the manhole. The upper end of the vent pipe shall have an insect screen attached securely to the end of the pipe.

Manhole vent pipes, 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 "Manhole Vent Pipe". Such prices and payments will be full compensation for all labor, materials, and incidentals necessary to complete the work as required.

9. BEDDING MATERIAL

Bedding material for utility lines shall be installed in accordance with the applicable utility provisions herein, as shown on the utility construction plans, and/or as directed by the Engineer.

Bedding material shall meet the requirements of Article 1016-3 of the Standard Specifications. Bedding material shall be installed in accordance with Articles 300-6 and 300-7 of the Standard Specifications and the detail sheets which are part of the Utility Construction Plans.

Bedding material installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract unit price per ton for "Bedding Material, Utilities Class ____". Such prices and payments shall be full compensation for all materials, labor, equipment, compaction and shaping the bedding material in accordance with Article 300-4 of the Standard Specifications, and incidentals necessary to complete the work as required.

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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 - Power Transmission**
- B. Duke Energy - Power Distribution**
- C. Sprint Communications - Telephone**
- D. Piedmont Natural Gas**
- E. Time Warner - CATV**

The conflicting facilities of these concerns will be adjusted prior to the date of availability, unless otherwise 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. For utility relocations, see the Utilities By Others Plans.

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

Utilities Requiring Adjustment:

A) Duke Energy – Power Transmission

- 1. Station 17+70± Line -L-

An existing power transmission line crosses Line -L- near Station 17+70±. Duke Energy – Power Transmission will de-energize the line by July 1, 2006, and will leave the conductors in place during construction. If the conductors over Line -L- must be removed for equipment operation, Duke Energy – Power Transmission will need two (2) weeks notice and one (1) month to complete the work.

See Utilities By Others Plans for details.

B) Duke Energy – Power Distribution

1. See Utilities By Others Plans for details.

C) Sprint Communications – Telephone

1. Station 18+55 Line -L- Lt. & Rt.
At the proper stage of construction and after the proposed 18" RCP is installed from right to left under the roadway at Line -L-, the Contractor will notify the telephone company seven (7) calendar days prior to the date the telephone company can begin work. The telephone company will be given two (2) calendar days to place their two 4" conduits in the same trench as the proposed 18" RCP and complete their work at this location.
2. Station 13+94 Line -L- Lt. to 21+80 Line -L- Rt.
At the proper stage of construction and after the proposed conduits are placed on the permanent bridge, the Contractor will notify the telephone company thirty (30) calendar days prior to the date the telephone company can begin work. The telephone company will be given ninety (90) calendar days to install their telephone facilities left and right of Line -L- between Station 13+94 and Station 21+80 and inside the conduits on the permanent bridge.
3. See Utilities By Others Plans for details.

D) Piedmont Natural Gas

1. All existing natural gas lines will be abandoned within the limits of the project.
2. See Utilities by Others plans for details.

E) Time Warner - CATV

1. All existing cable TV lines will be abandoned within the limits of the project.
2. See Utilities by Others plans for details.