



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 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).

On new force main sewers or water lines, and tie in sections of existing force main sewers or water lines, the method of anchoring pipe bends, valves, and related appurtenances will be the responsibility of the Contractor. Tying in to existing force main sewers or water lines may alter such lines to the extent that these pipelines with existing pipe bends, valves and related appurtenances may also require reaction backing; this work shall also be the responsibility of the Contractor.

The Contractor shall submit his proposed method of anchoring to the Engineer for review and approval prior to any applicable force main sewer construction. Such approval will not relieve the Contractor of his responsibility of properly anchoring the force main sewers. Concrete thrust blocking and/or thrust collars shall be installed as noted on the utility construction plans and details, and as directed by the Engineer, and shall be incidental to the pipe being anchored.

Owner and Owner's Requirements:

The existing waterline belongs to the City of Winston-Salem. The contact person(s) for the City of Winston-Salem is Mr. Paul Williams, PE at (336) 650-7650, or Mr. David Doss, PE at (336) 727-8063. The Contractor shall provide access for the owner's representatives to all phases of utility construction. The owners shall be notified two weeks prior to commencement of any utility work and one week prior to service interruption.

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 a period of 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. Cross connection and blowoff piping shall be 2" in diameter for mains 8" in diameter and smaller, and 4" in diameter for mains greater than 8" but less than 16" in diameter. 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, 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 chlorinating period. The pipeline shall then be flushed with clean water until the residual chlorine is reduced to less than 1.0 ppm or at the same level as in the existing water mains. Samples of water shall be taken by the Contractor at points along the pipeline in approved containers and submitted to a certified testing laboratory for bacterial and chlorine content. The Contractor will provide copies of the certified test reports to the Engineer who will in turn provide certified copies to the City of Winston-Salem.

Water meters that require relocation shall be relocated as shown on the utility construction plans. Relocation of the water meters shall be paid for as noted in the Standard Specifications. Should backflow prevention devices be present on the existing water meters, relocation of such devices shall be incidental.

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

All ductile iron sewer pipe shall meet the requirements of ANSI A21.51/AWWA C151. Nominal pipe laying length shall be from eighteen to twenty feet (depending on manufacturer). Joints shall be mechanical joint or rubber ring gasket slip joint, each conforming to ANSI A21.11/AWWA C-111. The pipe and fittings shall have an asphaltic exterior coating as specified in AWWA C151. Interior of the pipe shall be coated with ceramic epoxy to produce a minimum dry

film thickness of 40 mils. Calcium aluminate mortar lining of the ductile iron sewer pipe is not acceptable on this project.

Utilities and Utility Locations Shown on the Plans:

The location, size, and type material of the existing utilities shown on the plans is from the best available information. The Contractor will be responsible for determining the exact location, size, and type material of the existing facilities necessary for the construction of the proposed utilities and to avoid damage to existing facilities.

All water lines shall be installed with a minimum of three feet of cover. Installation that requires more than six feet of fill over the proposed line shall be evaluated by the Engineer on a case by case basis.

Gate Valves and Butterfly Valves:

All butterfly valves and gate valves shall conform to the requirements of ANSI/AWWA C504 and/or ANSI/AWWA C509. The direction of rotation of the handwheel or wrench nut to open the valve shall be to the left or counterclockwise.

The contractor shall notify the appropriate representative with the City of Winston-Salem when the fire hydrant shown on the utility construction plans at approximate Station 17+80 -L- is removed. The City of Winston-Salem will provide a new fire hydrant to be installed at the new location, and take possession of the old fire hydrant. The Contractor will be compensated for this work as noted in the contract and the Standard Specification as "Relocate Existing Fire Hydrant". No additional payment will be made for this work and all items associated with relocation of the fire hydrant shall be considered incidental to the contract pay item.

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. 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.

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 the Standard Specifications, and incidentals necessary to complete the work as required.

2. RESTRAINED RETAINER GLANDS:

Restrained Retainer glands shall be installed in accordance with the applicable provisions herein and 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 or push-on joints for a minimum working pressure of 200 PSI with a minimum factor of safety of 2:1 using ductile iron wedges. Twist-off nuts shall be used to insure proper torquing of retaining devices.

Restrained Retainer glands for push-on joints shall have machined serrations on the inside surface. Wedges that bear against pipe wall shall not be used on bell and spigot type installations. The required restrained length shall be restrained by retainer glands. The Contractor shall be responsible for determining the necessary lengths to be restrained. Design of the restrained portion of the new water piping system shall be approved by a registered professional engineer, and submitted to the Utility Section, Project Services Unit for approval prior to installation.

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 Glands". 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.

3. BREAKDOWN AND FILL ABANDONED SEPTIC TANK:

All existing septic tanks in the construction area that will be abandoned shall have all connecting sewer pipe removed/plugged or rerouted, the top of the tank removed to an elevation of 2 feet below subgrade, the sewage removed, and the septic tank filled with select earth material properly tamped. Septic tank pipes that do not require filling with cement grout shall be plugged in a manner acceptable to the Engineer before the septic tank is filled with earth material. Any

sewage pumped out of the existing septic tank shall be properly disposed of as directed by the Engineer.

The quantity of abandoned septic tanks broken down, filled and abandoned will be measured and paid for at the contract unit price each for "Breakdown and Fill Abandoned Septic Tank". Such prices and payments will be full compensation for all materials, plugging pipe openings, breaking down septic tanks, excavation, backfilling, and incidentals necessary to complete the work as required.

4. POLYVINYL CHLORIDE (PVC) SEWER PIPE:

Polyvinyl chloride (PVC) sewer 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.

PVC sewer pipe shall conform to ASTM D1785, and shall be of the size and schedule noted on the utility plans. The pipe shall be installed using approved bedding methods.

The pipe shall have bell joints that shall be a homogenous part of the pipe. The pipe joints shall be assembled in accordance with the recommendations of the manufacturer and in accordance with these provisions.

Polyvinyl chloride (PVC) sewer pipe, installed in accordance with the plans and the provisions herein and accepted, will be measured along the pipe from centerline of the sewer main to the point where the pipe leaves the dwelling and paid for at the contract unit price per linear foot for "_____" PVC Sewer Pipe, Schedule 40". Such prices and payment will be full compensation for furnishing all labor, equipment, materials, pipe accessories, fittings, seals, excavation, backfilling, leakage testing, and incidentals necessary to complete the work as required.

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 Corp. - Power (Distribution)
- B) Bell South - Telephone
- C) Piedmont Natural Gas Company – Natural Gas

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 owner. 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 Corp. - Power (Distribution)
 - 1) Duke Energy Corp. shall relocate its lines and poles to the locations within the project limits prior to September 1, 2005 as shown on the Utilities by Others Plans.
 - 2) Contact person for Duke Energy Distribution is Mr. Ted Plummer at 336-917-2557.

- B) Bell South - Telephone
 - 1) Bell South shall abandon some of its aerial telephone lines and some of its buried underground lines at the existing locations within the project limits prior to September 1, 2005 as shown on Utilities by Others Plans.

- 2) New aerial lines shall be installed at the locations within the project limit prior to September 1, 2005 as shown on the Utilities by Others Plan.
- 3) Contact person for Bell South is Mr. Paul Tucker at 336-778-0885.

C) Piedmont Natural Gas Company – Natural Gas

- 1) Piedmont Natural Gas Company shall abandon some of its underground lines at the existing locations within the project limits prior to September 1, 2005 as shown on Utilities by Others Plans.
- 2) New underground lines shall be installed at the locations within the project limit prior to September 1, 2005 as shown on the Utilities by Others Plan.
- 3) Contact person for Piedmont Natural Gas Company is Mr. David Jackson at 336-761-8303.