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Project: R-3415
County: Yadkin

PROJECT SPECIAL PROVISIONS
Utility Construction

I. 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 10 feet laterally from existing or proposed sanitary sewers. See utility plans for installation instructions in areas where 10 feet distance cannot be maintained.

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).

On new sewer force mains and tie-in sections of sewer force mains, the method of anchoring pipe bends, plugs, caps, tees, reducing sections, valves, and related appurtenances will be the responsibility of the Contractor. Tying into existing sewer force mains may alter such lines to the extent that these pipelines with fittings, valves, and appurtenances may also require reaction backing or restraint; 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 before any applicable sewer force mains construction. Such approval will not relieve the Contractor of his responsibility of properly anchoring the sewer force mains system.

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

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

Copies of bacteriological testing reports shall be provided to the utility owner prior to activating new water mains.

Owner and Owner's Requirements:

The existing utilities belong to the Town of Boonville. 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.

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.

II. COMPENSATION

No direct payment will be made for determining existing utility locations 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 and the detail sheets that 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 IV". 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.

2. FOUNDATION CONDITIONING MATERIAL:

Where foundation conditioning is required by Section 300 of the Standard Specifications, the foundation conditioning material shall meet the approval of the Engineer.

Where the pipe foundation material is found to be of poor supporting value or of rock, the foundation shall be conditioned by removing the existing foundation material by undercutting one (1) foot or to a depth as directed by the Engineer and backfilling with either a suitable local material or foundation conditioning material consisting of crushed stone, gravel, or a combination of sand and crushed stone approved by the Engineer as being suitable for the purpose intended. The selection of the type of backfill to be used for foundation conditioning will be made by the Engineer.

The quantity of foundation conditioning material to be paid for will be the actual number of tons of this material, weighed in trucks on approved platform scales, which have been used in accordance with Section 300 of the Standard Specifications.

The quantity of foundation conditioning material, installed as required herein and accepted, will be measured as provided above, and paid for at the contract unit price per ton for "Foundation Conditioning Material Utilities Class VI". Such price and payment will be full compensation for undercutting the pipe grade, furnishing and placing the foundation conditioning material, and any incidentals necessary to complete the work as required.

3. PAVEMENT REPAIR FOR UTILITY WORK:

Bituminous plant mix shall be used for pavement repair to replace pavement which was removed in order to remove or place utility pipe lines. All work shall be in accordance with Section 654 of the Standard Specifications. Immediately upon completion of the pipe line removal or installation within the pavement area the pavement repair shall be made.

The quantity of bituminous plant mix measured as provided in Article 654-4 of the Standard Specifications, completed in place and accepted will be paid for at the contract unit price per ton for "Pavement Repair for Utility Work."

The above price and payment will be full compensation for all work covered by this section, including but not limited to cutting, removal, and disposal of pavement, base and subgrade; furnishing and applying tack coat; furnishing,

placing, and compacting of bituminous plant mix; furnishing of asphalt cement for the bituminous plant mix; and furnishing scales.

Any provisions included in the contract in the form of project special provisions or in any other form which provide for adjustments in compensation due to variations in the price of asphalt cement will not be applicable to payment for the work covered by this section.

The item of "Pavement Repair for Utility Work" will be considered to be a minor item. In the event that the item of "Pavement Repair for Utility Work" overruns the original bid quantity by more than 100 percent, the provisions of Article 104-5 pertaining to revised contract unit prices for overrunning minor items will not apply to this item.

4. 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 thickness class and pressure rating 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.

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, "6" DI Restrained Joint Water Pipe, Class 50". 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.

5. DUCTILE IRON RESTRAINED JOINT WATER PIPE FITTINGS:

Ductile Iron Restrained Joint Water Pipe Fittings 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 Bends and Tees shall be in accordance with applicable requirements of ANSI A21.10 (AWWA C110). Joints for such bends and tees shall be in accordance with ANSI A21.11 (AWWA C111) and be cement mortar lined with a seal coat in accordance with ANSI A21.4 (AWWA C104). All Restrained Joint Water Pipe Fittings shall have a minimum pressure rating of 250#.

The quantity of Ductile Iron Restrained Joint Water Pipe Fittings, installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract unit price per pound for "Ductile Iron Restrained Joint Water Pipe Fittings, 250# Min. WP". Such price and payment will be full compensation for all materials, including pipe accessories, labor, installation, backfilling, and incidentals necessary to complete the work as required.

6. COPPER WATER PIPE:

Copper 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.

Copper water pipe shall be of the type shown on the utility plans; either annealed or tempered to meet the conditions required. This pipe shall conform to ASTM B88 for Type K. This pipe shall be connected by using flared or compression type fittings, and such work shall meet all local plumbing codes where applicable.

Copper 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 deduction for fittings, and paid for at the contract unit price per linear foot for "3/4" Copper Water Pipe, Type K". Such prices and payments will be full compensation for all materials, excavation, labor, fittings, backfilling, and incidentals necessary to complete the work as required.

7. POLYVINYL CHLORIDE (PVC) WATER PIPE:

Polyvinyl chloride (PVC) 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.

PVC pipe shall be of the size, dimension ratio (SDR) pressure rating as noted on the utility plans. The pipe, when used for conveying drinking water, shall meet

the requirements of the National Sanitation Foundation Seal of Approval. The pipe shall be circular in shape with no appreciable distortion and shall conform to ASTM D2241.

The pipe shall have a gasketed joint used in conjunction with an integral bell, which shall be a homogeneous part of the pipe. The joints for PVC water pipe shall conform to ASTM D3139 for push-on-joint type pipe using flexible elastomeric seals conforming to ASTM F477. The PVC pipe bells made as an integral part of the PVC pipe shall conform to ASTM D3139. The pipe joints shall be assembled in accordance with the recommendations of the manufacturer and in accordance with the specifications.

Polyvinyl chloride (PVC) water pipe 4" or larger shall require the use of Ductile Iron Water Pipe Fittings as noted elsewhere in these provisions.

PVC pipe shall have its location marked by using a detectable marking tape, installed 18 to 24 inches below finished grade. Such tape shall be as approved by the Engineer.

Polyvinyl chloride (PVC) fittings and 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 or valves, and paid for at the contract unit price per linear foot for "___" PVC Water Pipe, SDR 21, 200# WP". Such prices and payments will be full compensation for furnishing all labor, equipment, material, pipe accessories, PVC fittings, gaskets, detectable marking tape, pipe plugs, seals, excavation, backfilling, anchoring, pressure testing, chlorinating, and incidentals necessary to complete the work as required.

8. DUCTILE IRON WATER PIPE FITTINGS:

Ductile iron water pipe fittings and specials 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 water pipe fittings and specials for cast iron or ductile iron water pipe shall conform to ANSI/AWWA C110/A21.10 for standard size fittings or ANSI/AWWA C153/A21.53 for compact fittings. All joints shall be either mechanical joint or push-on joint conforming to ANSI/AWWA C111/A21.11. Fittings shall be cement mortar lined with a seal coat in accordance with ANSI/AWWA C104/A21.4. All fittings shall have a minimum pressure rating of 250 #.

The quantity of ductile iron water pipe fittings will be measured based on the published weights listed in ANSI/AWWA C110/A21.10 exclusive of the weights of any accessories. If the Contractor elects to use compact ductile iron water pipe fittings, measurement shall be based on the weight of standard size ductile iron

water pipe fittings as published in ANSI A21.10 (AWWA C-110). No measurement of the accessories will be made as the accessories are considered incidental to other work being paid for by the various items in the contract.

The quantity of water pipe fittings, installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract unit price per pound for "Ductile Iron Water Pipe Fittings, 250# Min. WP". Such price and payment will be full compensation for all materials, including accessories, labor, installation, anchoring pipe fittings, pressure and leakage tests, sterilization, backfilling, and incidentals necessary to complete the work as required.

9. CORPORATION STOP:

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

Corporation stops shall be installed at each reconnected water service connection, on small water service lines, or at other locations as specified by the Engineer.

Corporation stops shall be all bronze material of approved construction conforming to ANSI/AWWA C800.

Corporation stops, 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 "3/4" Corporation Stop". Such prices and payments will be full compensation for all materials, equipment, excavation, labor, installation, backfilling, and incidentals necessary to complete the work as required. Required service pipe to connect any disrupted water pipe to corporation stop will be paid for as new pipe noted elsewhere in these provisions.

10. GATE VALVE AND VALVE BOX:

Gate valves and valve boxes shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

Gate valves shall be iron body and shall conform to ANSI/AWWA C509 for resilient seat type valves. Gate valves shall have non-rising stems with a 2-inch square operating nut and O-ring seals, and shall open by turning counterclockwise. Gate valves shall have mechanical joint ends conforming to ANSI/AWWA C111/A21.11 unless otherwise shown on the plans or directed by the Engineer. Gate valves shall have a design working water pressure of 200 psig.

All gate valves shall be installed with an approved valve box, normally flush with the ground or pavement. Valve boxes shall be of the screw or slip type with a base to fit the valve yoke and removable plug cap with the word "WATER" cast therein. Valve boxes shall be made of cast iron conforming to ASTM A48, Class 25, unless otherwise shown on the utility plans and/or as directed by the Engineer.

The quantity of gate valves and valve boxes, 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 "___" Gate Valve And Valve Box, 200# WP". Such prices and payments will be full compensation for all materials, labor, excavations, installation, sterilization, pressure testing, valve box installation with the necessary extension pieces, backfilling, and incidentals necessary to complete the work as required.

11. TAPPING SADDLE:

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

Tapping saddles shall conform to AWWA Standards.

Tapping saddles, 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 "___" X ___" Tapping Saddle". Such prices and payments will be full compensation for all materials, equipment, excavation, labor, connecting tapping saddle, backfilling, and incidentals necessary to complete the work as required.

12. FLEXIBLE COUPLING

The work of this provision consists of furnishing and installing elastomeric couplings to join sanitary sewer pipe of different types together or for joining plain ends of sanitary sewer pipe when transitioning from new pipe to old pipe.

Couplings shall be elastomeric PVC sleeve couplings with stainless steel compression bands and stainless steel shear rings. The couplings shall provide a watertight connection.

The quantity of elastomeric couplings furnished and installed as required and accepted will be measured and paid for at the contract unit price per each for "6" Flexible Coupling (DI to TC)." Such prices and payments will be compensation in full for all materials, labor, equipment, excavation and backfill, and incidentals necessary to complete the work.

13. TRANSITION COUPLING:

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

Transition couplings shall consist of a center sleeve of either ASTM A126 Class B grey cast iron, ASTM A536 ductile iron, or carbon steel with a minimum yield strength of 30,000 psi, two resilient gaskets, two iron follower rings, and high strength steel nuts and bolts as per ANSI A21.11 (AWWA C111). The transition couplings shall be coated with a bituminous or epoxy coating. Transition couplings shall have a minimum working pressure of 150 psi and have been approved by the Engineer.

The Contractor shall verify the size, type material, etc. of the existing and proposed pipes prior to ordering.

The quantity of transition couplings, 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 "10" Transition Coupling (PVC to AC)". Such prices and payments will be full compensation for all materials, labor, installation, approved transition coupling, equipment, coating, and incidentals necessary to complete the work as required.

14. POLYVINYL CHLORIDE (PVC) FORCE MAIN SEWER PIPE:

Polyvinyl chloride (PVC) force main 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 pipe shall be of the size, dimension ratio (SDR), and pressure rating as noted on the utility plans. The pipe shall be circular in shape with no appreciable distortion and shall conform to ASTM D2241.

The pipe shall have a gasketed joint used in conjunction with an integral bell, which shall be a homogeneous part of the pipe. The joints for PVC Force Main Sewer pipe shall conform to ASTM D3139 for push-on-joint type pipe using flexible elastomeric seals conforming to ASTM F477. The PVC pipe bells, made as an integral part of the PVC pipe, shall conform to ASTM D3139. The pipe joints shall be assembled in accordance with the recommendations of the manufacturer and in accordance with the Specifications.

Polyvinyl chloride (PVC) sewer pipe 4" or larger shall require the use of Ductile Iron Sewer Pipe Fittings as noted elsewhere in these provisions.

PVC pipe shall have its location marked by using a detectable marking tape, installed 18 to 24 inches below finished grade. Such tape shall be as approved by the Engineer.

Polyvinyl chloride (PVC) force main sewer 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 paid for at the contract unit price per linear foot for "4" PVC Force Main Sewer Pipe, SDR 21, 200# WP". Such price and payments will be full compensation for furnishing all labor, equipment, materials, pipe accessories, PVC fittings, gaskets, detectable marking tape, seals, excavation, backfilling, anchoring, pressure testing, and incidentals necessary to complete the work as required.

15. DUCTILE IRON SEWER PIPE:

Ductile iron 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.

Ductile iron sewer pipe shall be of the thickness class or pressure class shown on the utility plans and shall conform to ANSI A21.51 (AWWA C151). Such pipe shall be either mechanical joint or push-on-joint in accordance with ANSI A21.11 (AWWA C111) or as designated by the Engineer.

All ductile iron sewer 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.

Ductile iron sewer pipe, installed in accordance with the plans and provisions herein and accepted, will be measured along the pipe from centerline of manhole to centerline of manhole and paid for at the contract unit price per linear foot for "___" DI Sewer Pipe, PC 350". Such prices and payments will be full compensation for all materials, excavation, labor, leakage tests, fittings, saddles, backfilling, and incidentals necessary to complete the work as required.

16. DUCTILE IRON FORCE MAIN SEWER PIPE:

Ductile iron force main 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.

Ductile iron force main sewer pipe shall be of the thickness class or pressure class shown on the utility plans and shall conform to ANSI A21.51 (AWWA C151). Such pipe shall be either mechanical joint or push-on-joint and installed with rubber gaskets in accordance with ANSI A21.11 (AWWA C111) or as directed by the Engineer.

All ductile iron force main sewer pipe shall be cement mortar lined with a seal coat in accordance with ANSI A21.4 (AWWA C104).

All ductile iron force main sewer pipe shall be installed in accordance with laying condition Type "2" as stated in ANSI A21.50 (AWWA C150) unless otherwise shown on the plans.

Ductile iron force main sewer 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 paid for at the contract unit price per linear foot for " 4" DI Force Main Sewer Pipe, PC 350". Such prices and payments will be full compensation for all materials, including pipe accessories, excavation, labor, anchoring pipe fittings, pressure testing, backfilling, and incidentals necessary to complete the work as required.

17. RELOCATE EXISTING WATER METER:

The existing water meters and meter boxes that are to be relocated shall be installed at the locations shown on the utility plans or as directed by the Engineer.

The relocation of water meters shall consist of the removal and installation at the appropriate location of the water meter, meter yoke, meter valve, and meter box. Any fittings necessary to reconnect the relocated meter to the water line will be considered incidental. Any pipe necessary to complete the relocation 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.

Relocated 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 relocated and accepted will be measured and paid for at the contract unit price each for "Relocate Existing Water Meter". Such price and payment will be full compensation for all labor, excavation, removing, installing and reconnecting the meter and box, backfilling, and incidentals necessary to complete the work as required.

18. RELOCATE EXISTING FIRE HYDRANT:

All existing fire hydrants in the road construction area, and others that will be a hazard to the motorist, shall be relocated to 6 feet back of the curb, adjacent to the right of way, as shown on the plans, and/or as directed by the Engineer.

Existing fire hydrants to be relocated shall be separated at the hydrant base from the existing pipe and placed in the new location. Each hydrant shall be connected to the main with a 6-inch branch line having at least as much cover as the distribution main. Hydrants shall be set plumb with the pumper nozzle facing the roadway and with the breakaway safety flange between 1 and 4 inches above the finished surrounding grade. Except where approved otherwise, the backfill around hydrants shall be thoroughly compacted to the finished grade line immediately after installation to obtain beneficial use of the hydrant as soon as possible. Not less than 7 cubic feet of clean crushed stone shall be placed around the base of the hydrant to insure drainage of hydrant barrel, and approved reaction backing installed as shown on the plans.

Where necessary, the hydrant shoe shall be removed and replaced with the appropriate type to connect the relocated hydrant to the new pipe. Hydrant extension pieces shall be furnished and installed or removed to provide the proper bury of the pipe and hydrant.

The quantity of existing fire hydrants removed, relocated, and accepted, will be measured and paid for at the contract unit price per each for "Relocate Existing Fire Hydrant". Such price and payment will be full compensation for all excavation, removing, 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.

19. DUCTILE IRON SEWER PIPE FITTINGS:

Ductile iron sewer pipe fittings and specials shall be installed in accordance with the applicable utility provisions herein and as shown on the utility plans and/or as directed by the Engineer.

Ductile iron sewer pipe fittings and specials for cast iron or ductile iron sewer pipe shall conform to ANSI A21.10 (AWWA C-110) and ANSI A21.11 (AWWA C-111) for standard size fittings or ANSI/AWWA C153/A21.53 for compact ductile iron fittings. These fittings shall be cement mortar lined with a seal coat in accordance with ANSI A21.4 (AWWA C104). All fittings shall have a minimum pressure rating of 250#.

The quantity of ductile iron sewer pipe fittings to be paid for will be the delivered weight in pounds of the pipe fittings exclusive of the weight of any accessories. If the Contractor elects to use compact ductile iron fittings, payment shall be based on the weight of standard size fittings as published in ANSI/AWWA C110/A21.10. No measurement of the accessories will be made as the accessories are considered incidental to other work being paid for by the various items in the contract.

The quantity of sewer pipe fittings, installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract unit price per pound for "Ductile Iron Sewer Pipe Fittings, 250# Min. WP". Such price and payment will be full compensation for all materials, including pipe accessories, labor, installation, anchoring pipe fittings, backfilling, and incidentals necessary to complete the work as required.

20. CEMENT GROUT FOR FILLING ABANDONED PIPES:

All abandoned pipes located in the roadway shall be filled with a portland cement and sand grout to the satisfaction of the Engineer.

The cement grout shall have a minimum compressive strength of 500 #. Such grout shall consist of portland cement, sand and water. The grout shall be of a consistency to flow and be vibrated, if necessary, in order for the mix to flow uniformly into the pipe to be filled.

The quantity of cement grout placed and accepted will be measured and paid for at the contract unit price per linear foot for "Cement Grout for Filling 10" AC Abandoned Water Pipe". Such price and payment will be full compensation for all materials, pumping or placing grout, labor, excavation, backfilling, and incidentals necessary to complete the work as required.

21. THRUST COLLAR

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

Thrust collars shall consist of restrained retainer gland, $\frac{3}{4}$ " bituminous coated all thread restraining rods and Class A concrete blocking with reinforcing steel.

Restrained Retainer glands shall be high strength ductile iron conforming to ASTM A536. Restrained Retainer glands shall be capable of restraining mechanical joints for a minimum working pressure of 250# WP. The Restrained Retainer glands shall have series of machined serration on the inside diameter of the retainer, which provides a grip on the pipe surface, with 360° contact and support of the barrel. The split design allows use on both new and existing pipe installations.

The concrete shall meet the requirements of Section 1000 of the Standard Specifications for Class A concrete.

The reinforcing steel shall meet the requirements of Section 1070 of the Standard Specifications. The quantity of Thrust Collars, installed in accordance with the plans and provisions herein and accepted, will be measured and paid for

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at the contract unit price each for "Thrust Collar". Such price and payments will be full compensation for all materials, labor, excavation, connections, installations, backfilling and incidentals necessary to complete the work as required.

PROJECT: R-3415
COUNTY: YADKIN

PROJECT SPECIAL PROVISIONS
Utility

UTILITY CONFLICTS:

General:

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

- A. Duke Power Co.
- B. Surry Yadkin EMC
- C. Sprint Telephone
- D. Frontier Energy

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 Power Co.

- 1. See "Utility By Others Plans" for utility conflicts.
- 2. All Power Poles have been relocated.
- 3. Caution should be used when installing culverts in the vicinity of power lines. Contact the utility company to arrange for the lines to be de-energized, if required.

B. Surry Yadkin EMC

- 1. See "Utility By Others Plans" for utility conflicts.
- 2. All Power Poles have been relocated.
- 3. Caution should be used when installing culverts in the vicinity of power lines. Contact the utility company to arrange for the lines to be de-energized, if required.

C. Sprint Telephone

1. See "Utility By Others Plans" for utility conflicts.
2. All Telephone facilities have been relocated.

D. Frontier Energy

1. See "Utility By Others Plans" for utility conflicts.
2. All gas mains will remain in place, and be adjusted as necessary. The gas company will need two weeks notice and four weeks to complete the work at each conflict.