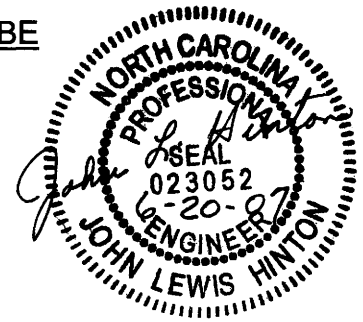




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Project: 37831 (NC 112) County: BUNCOMBE

**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, the City of Asheville's specifications, and the following provisions.

The Contractor shall be responsible for field verifying location, size, type and elevation of all underground utilities, as well as reconnecting any water and/or sanitary sewer services disturbed during construction, even if they are not shown on the plans. The water line shall be installed as to provide a minimum of 3 feet of coverage above the top of pipe from finished grade, unless shown differently on plans. The Contractor shall verify that all new water and sanitary sewer lines have ten (10') feet horizontal clearance between each other.

The Contractor is herein forewarned as to the possibility of having to vary the depth of the 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, storm drainage are shown on the plans or not).

All ductile iron pipes 12" and smaller shall be pressure class 350 and all ductile iron pipes 16" and larger shall be pressure class 200 complying with the requirements of Subsection 1036-5 of the NCDOT Standard Specifications for Roads and Structures, unless otherwise indicated herein.

All gate valves shall be resilient-seat type valves conforming to ANSI/AWWA C509. The direction of rotation of the handwheel or wrench nut to open the valve shall be to the left (counterclockwise) and be so marked.

Double strap tapping saddles shall be installed for all new/relocated service lines 1" and smaller in diameter.

All valve box covers and sanitary sewer manhole covers shall be cast to indicate "WATER" or "SEWER", as the case may be with the appropriate utility owner's special cover verbiage cast into the cover.

The Contractor shall submit his proposed method of anchoring to the Engineer for review and approval of restraining all pipe, pipe bends, valves and other related appurtenances. Anchoring will be the responsibility of the Contractor. Connecting to existing water mains may alter such lines to the extent that these pipelines with existing pipe bends, valves and other related appurtenances may also require restrained retainer glands, or reaction blocking; this is also the responsibility of the Contractor.

### **Water lines and Valves:**

The existing water lines belong to the City of Asheville. The existing sewer lines belong to Metropolitan Sewerage District of Buncombe County (MSD). The Contractor shall provide access for the Owner's representatives to all phases of construction. Notify the Owners two weeks before commencement of any work and one week before service interruption. Interruption of water service on main lines shall be limited to a maximum of four (4) hours. Individual service connection interruptions shall be scheduled between regular working hours. Water services shall be restored within the same working day.

All valves shall be Resilient Seat Gate Valves or Butterfly Valves unless otherwise indicated herein. All valves shall meet the specification as shown in the NCDOT Standard Specifications for Roads and Structures.

Disinfecting and pressure testing shall be done in accordance with the current City of Asheville requirements and specifications.

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.

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 and be approved by Owners. 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 at representative

points along the pipeline by a certified testing laboratory and tested for chlorine residual and coliform bacteria.

**Gravity Sewer:**

MSD shall be notified two weeks in advance before the Contractor begins work and one week in advance of any interruptions of sewer service with ample time to make arrangements. Contractor shall be aware that the sewer lines being relocated are active at this time.

All lines and manholes shall be installed at proper grade, alignment and location. All gravity sewer lines regardless of material will be tested by low pressure air test and/or vacuum test. Services will be installed prior to the test and they will be tested along with the line. The line shall be pressurized to 4psi and stabilized. After stabilization the pressure will be lowered to 3.5psi and the inspector will determine the time it takes for the pressure to drop to 2.5psi. The allowable time of drop for a 12" diameter line is 1.8min/100ft of pipe. If the pressure remains between 3.5psi and 2.5psi for the test time, the lines are acceptable. If the line does not pass, check the installation of the lines and run the test again.

All manholes shall be tested after assembly and prior to backfilling using a vacuum tester. All lift holes shall be plugged with non-shrink grout. All pipes entering the manhole shall be plugged. All plugs shall be braced to keep plug from being drawn into manhole. The inside of the manhole shall be wet down with a soap and water solution which will visibly indicate areas of leakage after the test is performed. Test head shall be placed on or in the cone section and the seal inflated as per the manufacturer's specifications. A vacuum of 10 inches of mercury shall be drawn and the vacuum pump shut off. With the valve closed, the time it takes for the vacuum to drop to 9 inches shall be measured. The manhole shall pass if the time is greater than the values below:

Manhole Depth	Manhole Diameter		
	48"	60"	72"
10' or less	60sec	75sec	90sec
10' – 15'	75sec	90sec	105sec
Over 15'	90sec	105sec	120sec

If the manhole fails, necessary repairs shall be made using non-shrink grout. Then re-test until manhole is acceptable.

All lines shall be inspected for pipe deflection by pulling a mandrel through the lines. Deflection shall not exceed 5%. Mandrel must be 95% of the diameter of the pipe.

## 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.

### **Owners and Owner's Requirements:**

The existing water utilities belong to the City of Asheville. The Contractor shall provide access for the owner's representatives to all phases of construction. The owners shall be notified two weeks prior to commencement of any work and one week prior to service interruption.

#### Contacts:

City of Asheville-Water Resources: Michael Brookshire-(828) 259-5955

City of Asheville-Engineering Department: John Echeverri-(828) 259-5617

MSD of Buncombe County: Stan Boyd -(828) 254-9646

### **1. 18" VALVE:**

Butterfly valves and valve boxes shall be installed as shown on the plans, as required by the provisions herein, and/or as directed by the Engineer.

Butterfly valves shall conform to ANSI/AWWA C504 for Class 150B valves with O-ring shaft seals. Such valves shall have mechanical joint ends, a manual actuator with 2 inch operating nut and shall be designed for buried installation. Butterfly valves shall open left (counterclockwise).

The 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 35, unless otherwise shown on the utility plans and/or as directed by the Engineer.

The quantity of butterfly 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 "18" Valve". Such prices and payments will be full compensation for all materials, labor, installation, excavation and backfill, testing and sterilization, and incidentals necessary to complete the work as required.

**2. 18" TAPPING VALVE:**

Tapping sleeves, 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.

Tapping sleeves shall be cast iron, ductile iron, or Type 304 stainless steel and shall be pressure rated at 200 psi. Tapping sleeves shall be either the split sleeve type with mechanical joint ends or the full circle type with double seals. The outlet shall be 125# flange. The Contractor shall verify the type material, size, etc. of the existing pipe to be tapped prior to ordering the sleeve.

Tapping valves shall be iron body with flanged by mechanical ends and pressure rated at 200 psi. Tapping valves shall be AWWA type valves except the opening shall be clear to allow a full size cutter to pass thru. Tapping valves shall have non-rising stems with O-ring seals and 2 inch operating nut, and shall open left (counterclockwise). Tapping valves shall be of the same type as required for gate valves (double disc C-500 or resilient seat C-509).

Tapping sleeves and valves shall be sterilized and pressure tested and the valve operated prior to the tap being made. This test shall be of water at the same pressure that is within the existing pipe.

Valves shall be installed with an approved valve box, normally flush with the pavement or ground. 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 from cast iron conforming to ASTM A48, Class 25 unless shown otherwise on the utility plans and/or as directed by the Engineer.

The quantity of tapping sleeves, 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 each for "18" Tapping Valve". Such price and payments will be full compensation for all materials, labor, excavation, installation, sterilization, pressure testing, valve box installation with necessary extension pieces, backfilling, and incidentals necessary to complete the work as required.

**3. 2" BALL VALVE:**

Ball 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.

Ball valves shall be installed on existing/new 2" water mains and service lines and shall conform to AWWA C800. Valves shall be made of heavy brass components with a PTFE coated ball on a "blow-out" proof stem with double O-

ring seals, and shall be rated for 300# working pressure. Operating nut shall be curb key” design for quarter turn open or close and shall open left.

All valves shall be installed with an approved valve box normally flush with ground or pavement. Valve boxes shall be of the screw or slip type with a base to fit the valve yoke and a removable plug cap with the word “WATER” cast therein. Valve boxes shall be made of cast iron conforming to ASTM A48, class 30, unless otherwise shown on the utility plans and/or as directed by the Engineer.

The quantity of ball valves and valve boxes, installed in accordance with the plans and utility provisions herein and accepted, will be measured and paid for at the contract unit price each for “2” Ball Valve”. Such prices and payments will be full compensation for all materials, labor, installation, valve box installation, excavation and backfill, and incidentals necessary to complete the work as required.

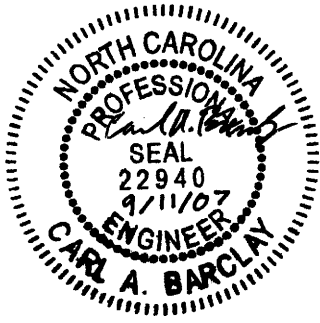
#### **4. REMOVE EXISTING WATER VAULT:**

The existing water vault shall be removed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer. The existing vault shall be excavated, (backfilling to 95% standard proctor), removed and will become the property of the Contractor. The water meter inside the vault shall be removed and stockpiled on the project site and become the property of the City of Asheville. The Contractor shall contact Ivan Thomas with the City at telephone # (828) 259-5975 when water meter is stockpiled and ready for pick up.

Any electrical service connections , in addition to all permits, licenses and inspections shall be the responsibility of the Contractor and considered incidental to this removal.

The quantity of existing water vaults that will be removed in accordance with the plans and utility provisions herein and accepted, will be measured and paid for at the contract unit price per each for “Remove Existing Water Vault”. Such price and payments will be full compensation for all materials including equipment, excavation and backfill, labor, removal of existing vault, and incidental necessary to complete the work as required.

PROJECT: SA-181  
COUNTY: BUNCOMBE



**PROJECT SPECIAL PROVISIONS**

**Utility Construction**

**Conduit Protection**

**1. SCOPE OF WORK**

The Contractor shall construct Conduit Protection in order to protect AT&T's (BellSouth) conduit that is located under proposed drainage structures. Conduit Protection shall be constructed at the following locations:

<u>Drainage Structure #</u>	<u>-L- Station</u>
12	29+75
23	37+16
22	37+45
21	39+12

All work shall be performed in accordance with these Special Provisions, the detail sheet (UC-12A) and as directed by the Engineer and subject to the approval of the Utility Owner.

**2. GENERAL CONSTRUCTION REQUIREMENTS**

**CONTACT OWNER**

AT&T shall be contacted two weeks prior to this work commencing in order to be present during construction.

**DIMENSIONS**

Conduit Protection shall extend 3 feet on both sides of the centerline of the conduit bundle and longitudinally shall extend 2 feet past the drainage structure. The conduit protection shall be 6 inches thick with 3 inches clearance from the conduit.

**CONSTRUCTION METHOD**

The Contractor shall excavate in order to expose the above dimensions. After the conduit is verified to have 3 inches of soil coverage, Class B concrete shall be placed according to the above dimensions and detail sheet (UC-12A).

**3. METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

Measurement and Payment shall be made at the contract unit bid price for "Class B Concrete for Protecting Conduit" measured in cubic yards. The unit bid price shall be full compensation for all materials, equipment and labor necessary to complete the work in accordance with the plans, Specifications, and as directed by the Engineer.

DATE: 9/10/07

PROJECT: SA-181  
COUNTY: BUNCOMBE

**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. Progress Energy - Power Distribution
- B. AT&T (Bellsouth) – Telephone
- C. Public Service of North Carolina – Natural Gas
- D. Charter Communications - CATV

The conflicting facilities of these concerns will be adjusted as listed below 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. Charter Communications will be attaching their facilities to Progress Energy's utility poles.

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

Utilities Requiring Adjustment:

- A) Progress Energy -Will be relocated by date of availability.
  - 1) See Utilities by Others Plans.
- B) AT&T – Conduit duct bank will remain in place and be protected, see detail sheet UC-12A. For any other conflict requiring adjustment, AT&T shall be given one week notice and one week to complete the work.
  - 1) See Utilities by Others Plans.
  - 2) See Utilities Construction Section of Project Special Provisions.
- C) Public Service of North Carolina- For any conflict requiring adjustment, owner shall be given one week notice and one week to complete the work.
  - 1) See Utilities by Others Plans.
- D) Charter Communications – Will be relocated two weeks after Progress Energy's utility poles are relocated.
  - 1) See Utilities by Others Plans.

NOTE: All other utilities shall remain in place and will be adjusted as necessary.