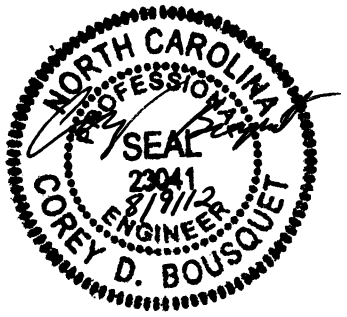

PROJECT SPECIAL PROVISIONS
Utility Construction

Revise the *2012 Standard Specifications* as follows:

Utility Owners' Contact Information:

Page 15-1, Subarticle 1500-2 Cooperation with the Utility Owner, paragraph 2, add the following sentences:

Greenville Utilities Commission (GUC) is the owner of the water and gas lines. The contact person for the water lines is Bill Edwards (252-551-1557). The contact person for the gas lines is Charles Buck (252-551-1593).

The GUC will provide Representatives for inspections on their facilities.

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). Unless approved otherwise, all construction shall be performed during the regular office hours of the GUC, i.e. 8:00 a.m. to 5:00 p.m. GUC may provide construction observation after hours or on weekends and holidays as needed. Construction observation provided outside regular office hours will be at the contractor's expense.

North Carolina 811 shall be contacted a minimum of forty-eight (48) hours prior to any excavation. The utilities contacted shall have the opportunity to take the steps which they deem necessary to protect their utilities. The Contract Documents shall note that utility location by NC 811 is not valid after the expiration of a fifteen (15) business day period beginning on the date of such location.

Prior to commencing any gas or water line construction work, GUC shall be contacted to schedule a separate preconstruction conference. No utility construction shall occur until after the preconstruction conference is held.

Prior to the commencement of hydrostatic testing and chlorination for the water line, GUC shall be contacted to request scheduling of inspection and testing. The GUC's Representatives shall visually inspect the completed installation prior to testing to insure that all valves and other appurtenances have been installed and are operable. All defects disclosed by the inspection shall be corrected prior to testing.

Upon completion of the gas line or a substantial part thereof, sections of the gas line shall be cleaned and tested in accordance with GUC. Contractor shall give

three (3) days notice prior to testing any section of the gas line in order that proper notification can be made by GUC to other parties.

The GUC shall specify the test procedure and the test pressures, including test pressures for special construction, valve assemblies and other installations as designated by GUC's Authorized Representative.

The Contractor shall provide access for the owner's representatives during construction and provide a set of as-built plans to GUC after all work shown on the Utility Construction Plan is completed.

Water Line Testing

Page 15-6, 1510-3(B) Subarticle Construction Methods, after line 21, replace the allowable leakage formula with the following:

$W=LD(\sqrt{P})\div 148{,}000$

Page 15-6, 1510-3(B) Subarticle Construction Methods,
line 32, delete "concurrently or".

Page 15-7, Subarticle 1515-2 Materials, add the following sentences:

The proposed water line construction shall meet the applicable requirements of the NCDOT's "Standard Specifications for Roads and Structures" (dated January, 2012) and Greenville Utilities Commission Manual for the design and Construction of Water and Wastewater System Extensions.

All ductile iron water pipe fittings shall be wrapped with polyethylene and shall be in accordance with ANSI A21.5 (AWWA Standard C105). The cost for the polyethylene wrap will be incidental to the pay items for 6" water line.

The gas line materials shall be provided by Greenville Utilities Commission.

Measurement and payment for work will be in accordance with NCDOT's "Standard Specifications for Roads and Structures" (dated January, 2012).

1. INSTALL 4" and 8" MDPE GAS MAIN:

1.0 General
This section contains the specifications for the installation of the 4" and 8" MDPE Gas pipeline. The installation of the pipeline and all work on the natural gas system shall be in accordance with all applicable sections of Title 49 of the Code of Federal Regulations, Chapter I, Part 192, "Transportation of natural and other gas by pipeline: minimum Federal safety standards". Should there appear to be a conflict between these specifications and Part 192, the Federal standards shall

take precedence and the conflict shall be brought to the attention of the Commission.

1.1 Survey Stakes

Contractor will use survey stakes to determine extent of clearing required on the permanent and temporary construction easements, and to locate the centerline of the proposed pipeline as shown on the plans. The cost of replacing survey stakes that have been destroyed due to the carelessness of Contractor shall be paid by Contractor. Contractor will maintain the survey stakes throughout the construction period of the pipeline. Any property corners, monuments or markers destroyed by Contractor shall be replaced by and at the expense of the Contractor.

1.2 Horizontal Directional Drilling

Medium-density polyethylene (MDPE) Gas 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.

The 4" and 8" MDPE Gas Pipe, SDR 11.5, 60# WP, fittings, valves/boxes, tracer boxes and gas vent stacks will be supplied by GUC.

Vent Stack shall not be PE pipe, and must extend 7' above ground level outside the clear zone or behind the guardrail as directed by the Engineer.

There will be no additional compensation if rock is encountered.

Drilling fluid to be bentonite slurry. Use admixtures suitable to the site conditions.

MDPE Gas Pipe to be fused and tested prior to placement beneath the buffer zones and creeks. Join pipe segments by cutting the ends square, heating and fusing under sufficient pressure to create a single length of pipe sufficient to complete installation in one continuous pulling operation. The pipe manufacturers listing of fusion parameters validated by appropriate testing and the parameters of the contractor's fusion system shall be submitted to the Resident Engineer prior to fusing of segments of MDPE Gas Pipe into the pipe string. MDPE Gas Pipe string to be tested in accordance with testing procedure outlined in these specifications under pneumatic testing - Section 1.14 prior to being placed beneath the buffer zones and creek.

MDPE Gas Pipe to be installed beneath buffer zones and creeks shall be in accordance with Section 1550 of the Standard Specifications for Roads and Structures by boring or drilling a small pilot hole along a parabolic arc beneath the creek and buffer zones. A minimum cover of 3 feet shall be maintained over the MDPE Gas Pipe at all times unless otherwise noted on plans. Enlarge the pilot hole by use of a reamer or reamers to the required diameter. The contractor

will pull the pipe string through the hole by the drill string. Cap the pipe string during the pulling operation. Pulling operation to incorporate a swivel connection to minimize torsional stress imposed upon the pipe string. Fully support the pipe string before and during pull back so that the pipe string will move freely without damage. MDPE Gas Pipe installed by directional boring shall not be connected to existing pipe or fittings for one week from the time of installation to allow tensional stresses to relax.

Drilling fluid to be re-circulated through use of a solids control system to remove spoil from drilling fluid surface returns. After cleaning, return the drilling fluid surface returns to the active system. No drilling fluid shall enter the stream.

The Contractor may elect to conduct simultaneously reaming and pulling of the pipe string in one operation at the discretion of the Engineer. The reamer head shall be fitted with a sleeve to prevent possible spalling that may become lodged and prohibit the pull back of the pipe string.

1.3 Right-of-Way Clearing and Grading

a. The right-of-way shall be cleared of trees, shrubs and other obstructions only to the width required to permit the construction equipment to efficiently perform the necessary pipeline installation activities. In every case, the Contractor shall confine the clearing work to inside the right of way or the construction easements.
b. Prior to commencing clearing operations, the Contractor shall familiarize itself with all of the provisions and restrictions included in the permits procured by Commission, including the preservation of certain trees and shrubs, and shall carefully comply with these provisions and restrictions.
c. All trees and shrubs shall be cut level with the surface of the ground, and shall be piled along the right-of-way and promptly disposed of in a manner satisfactory to the landowner and/or tenant, and the Commission's Authorized Representative. Disposal of this material shall also be performed in compliance with federal, state and local regulations.
d. The right-of-way along the ditch line and in the ditch spoil area shall be cleared of stumps and other debris to ensure that the spoil from the ditching operation will remain free of any debris.
d. Adequate care shall be exercised in conducting the right-of-way clearing operations in order to avoid damage or injury to adjacent property.
e. Burning of timber, brush, or any other clearing debris or materials is not permitted on this project.

1.4 Ditching

a. The Contractor shall dig the pipeline ditch on the staked survey line or the designed offset provided by Engineer. No deviation from the survey line shall be made unless field conditions necessitate a change in routing, and approval has been obtained from Commission's Authorized Representative. The Contractor

will excavate the ditch such that the 4" and 8" pipeline will, upon installation in the ditch, have the finished elevation as shown on the project drawings.

b. For lateral connections to existing facilities, unless specified otherwise in the job description, special provisions, Commission drawings, and/or Permit Drawings, the pipeline ditch shall be excavated to the minimum width and depth to provide the minimum cover as listed below. The pipe cover shall be measured from the top of the pipe to the graded ground level on each side of the ditch.

MINIMUM DITCH REQUIREMENTS

Nominal Pipe Size	Width	Cover
2"	12"	36"
4"	16"	36"
6"	18"	36"
8"	20"	36"
10"	22"	36"
12"	24"	36"
14"	26"	36"
16"	28"	36"
18"	30"	36"
20"	32"	36"
22"	34"	36"
24"	36"	36"
26"	38"	36"
30"	42"	36"
36"	48"	36"

c. In the event partial or all rock areas are encountered along the route, the pipeline ditch shall be excavated to a depth to provide the minimum cover as shown in paragraph b. above, plus an allowance for the placement of dirt-filled sack benches at 20 foot intervals to support the pipe and maintain a minimum four inches of clearance between the pipe and the bottom of the ditch for subsequent ditch padding.

d. As directed by Commission's Authorized Representative, the Contractor shall excavate the ditch across cultivated or improved land in a manner that will separate and preserve a minimum of 12 inches of top soil from the remaining excavated subsoil (double ditching).

e. The Contractor shall construct temporary bridges or leave dirt plugs in the pipeline ditch in areas along the pipeline route wherever necessary to provide the landowners or tenants safe ingress and egress to their property or residence.

f. During ditch excavation operations, the Contractor shall provide and maintain erosion and sedimentation control structures as required by NCDOT.

1.5 Handling and storage of Pipe and Materials

The Contractor shall make prompt arrangements at his expense for the hauling and proper handling and storage of all pipe, valves, fittings and other materials furnished by Commission (except for storage facilities provided by Commission for materials stockpiled prior to the commencement of the work). The Contractor shall be responsible for loading, unloading and storing of these materials in a manner to prevent damage and loss, and to allow ease for future handling and distribution. All damages or losses of Commission materials incurred after receipt of these materials by the Contractor shall be the Contractor's responsibility to replace. Pipe shall be handled with approved equipment in the manner to prevent damage to the pipe. Appropriate unloading and handling equipment of adequate capacity must be used to unload the truck. Pipe must not be rolled or pushed off the truck.

a. Several storage or staging areas along the project may be appropriate. The site should provide protection against physical damage to the pipe. The site shall be large enough to accommodate the pipe, accessories and provides access to equipment to enter and exit the site.

b. Pipe store in coils shall be placed on wooden palettes that are evenly placed to support the pipe against deformation or damage to the pipe surface. The pipe coils shall be stored at a sufficient height to prevent ground water runoff from enter or touching the pipe. Special handling and laying equipment may be required for coiled pipe. During installation the coiled pipe may require field processing through re-rounding and straightening equipment.

c. Standard pipe in 40' or 50' sections may be stacked in rows on a platform of adequate strength to prevent pipe deflection. The platform requires blocking on each side to contain the pipe sections. Pipes shall be laid straight, not crossing over or entangled with each other. The platform shall be high enough to prevent any part of the pipe surface from touching the ground or allowing ground runoff water to enter the pipe. The pipe platforms shall be made of padded wood stringers that are properly spaced to evenly support the pipe joints against deformation or damage to the pipe surface. The Contractor shall stack the pipe in an acceptable number of tiers; however, the number of tiers shall be reduced if Commission's Authorized Representative determines that a safety risk exists or that damage to the surface of the pipe or pipe deformation has occurred.

d. Materials that can be easily lost, or damaged by exposure to rain, humidity or extreme temperatures should be stored in a building.

1.6 Hauling and Stringing

a. The hauling of pipe and other materials shall be performed in compliance with the rules and regulations of the State Highway Department, the Interstate Commerce Commission, and any other governmental agencies, which have jurisdiction. Contractor shall obtain from these agencies the necessary permits or licenses required for the hauling operations.

b. Padded bolsters and nylon straps shall be used by Contractor to protect the pipe from damage during the hauling operations. The pipe shall be adequately

supported on the trailers, and the number of tiers shall be kept to an acceptable limit to prevent deformation of the pipe joints and/or damage to the pipe surface.
c. Careful loading and stringing shall be followed by the Contractor to avoid damage to the pipe. After unloading, the pipe shall be supported above ground, level, and in a manner that will prevent rain runoff water and sediment from entering the pipe.
d. When applicable, the A-frames of the sideboom tractors (if) used to unload the pipe along the right-of-way shall be sufficiently padded to protect the pipe from damage.
e. The Contractor shall string pipe and materials on the right-of-way in a manner that will cause the least interference possible in the normal use of the land that is crossed. The Contractor will string pipe and materials such that property owners or tenants of property adjacent to the right-of-way shall at all times have at least one driveway clear for ingress and egress of vehicles.

1.7 Laying

a. The pipe lay shall proceed along the route of the previously excavated ditch with the lineup and butt fusion of the pipe joints being performed alongside the ditch by the Contractor. The Contractor shall keep the ditching, laying and butt fusion operations within reasonable distance of each other consistent with good pipeline construction practices.
b. The open ends of the pipe sections that cannot be visually inspected shall be securely closed at the end of each workday to prevent the entrance of animals or foreign matter into the pipe. Canvas or watertight nightcaps shall be used, and shall not be removed until the resumption of work.

1.8 Inspection

(1) A GUC's Representative should inspect all materials for defects prior to installation.
(2) All butt fusion joints shall be visually inspected by a GUC's Representative. The size and shape of the external fusion beads indicate if a proper joint has been made. The double bead width should be 2 to 2 ½ times the bead height from the pipe surface. The beads should be uniform in size and shape all around the joint and the depth of the v-groove between the beads must not be more than half the bead height. If the v-groove is too deep, a "cold" fusion may be have occurred. Cold fusion results when most of the melt is pressed out of the joint.

1.9 Lowering-In

a. Before the pipe is lowered, the Contractor will confirm the following:

(1) Large rocks or material that could damage the pipe have been removed.
(2) Any rock bed areas have been removed.
(3) The ditch bottom shall have an even and continuous grade, so that the pipe has a substantial and continuous bearing.

b. Wherever possible when lowering pipe into the trench, vertical bends shall be lowered first and anchored with backfill material. Horizontal bends shall be placed to bear against the outside wall of the trench. All verticals bends shall fit the ditch, it being the intent to lower the pipe in such a manner that will cause the pipeline to be installed without tension.
c. During the lowering-in operations, the pipe shall be handled at all times with wide canvas or nylon slings to prevent damage pipe. Bare wire rope slings, chains, hooks or metal bars will not be permitted for handling the pipe sections.
d. Lowering-in and backfilling operations shall not be permitted until the Contractor has notified Commission's Authorized Representative and obtained his approval to proceed. Should lowering-in or backfilling be performed without the approval or presence of Commission's Authorized Representative, Contractor may then be required to uncover that section of line for inspection at Contractor's expense.
e. The distance between the lowering-in operation and the backfill operation shall not exceed one thousand feet, or as approved by Commission's Authorized Representative.
f. Locator Wire: A 10 gauge, stranded copper wire with 45 mil polyethylene insulation and jacketing shall run continuously and shall be taped securely to the gas main at intervals no greater than 16 feet. The wire shall be colored-coded yellow for gas. The locator wire shall be accessible for hook-up at all tracing stations at locations not to exceed 1000 feet. Cost and installation of the locator wire and tracing stations shall be considered incidental to the installation of the 4" MDPE gas main. In the areas where the pipe will be installed by directional bore, two-locator wire shall be attached to the pipe.

Acceptable Wire Connections:

1. Set screw pressure type for use with 10 gauge stranded wire, Model #1007-PE45-GN by Kris-Tech Wire Company, Rome NY, or approved equal.
2. C-Tap for two way splicing of tracing wire, for use with 10 gauge stranded wire. T&B #54705 or approved equal.
3. Split bolts, three wire type for splicing of tracer wire, for use with 10 gauge stranded wire. ILSCO Catalog #SEL-2S or equal.

Tracing Station (flush with the grade) – Cast Iron valve box provided by GUC for corrosion protection. Height shall be a minimum of 10" to be installed at grade with cast iron lid and frame. The cast iron lid will be labeled with the wording "TEST STATION". Tracing Station Box shall be placed on 3' of #57 stone, approximately 3' square. Each of the two wires entering the station shall be encased in 1" Sch. 80 PVC piping and arranged in a manner as to indicate their direction. Five (5) feet of slack shall be left at the end of each wire inside the box. The pipeline marker provided by GUC will accompany each tracing station.

1.10 Backfilling

a. Backfilling shall follow the laying and lowering of the pipe as closely as possible and shall be done so that no excavated material remains undistributed on adjoining ground.
b. Sections of the ditch that have been "double-ditched" shall be backfilled with subsoil to within 12 inches of the ground level, or top of subsoil and compacted. Topsoil shall be placed in the ditch for the top 12 inches and the topsoil backfill shall be heaped over the center of the ditch to a height that will insure complete filling of the ditch after settlement. Backfill through cultivated field or fields suitable for cultivation shall be rounded off so as not to interfere with farming operations.
c. Where the right-of-way has been graded or leveled to facilitate the operation of ditching machines or other equipment, the backfill shall be completed so that the original contour of the ground will be restored unless otherwise directed by Commission's Authorized Representative.
d. Excavated rocks whose largest dimension is not larger than six (6) inches may be returned to the ditch, however, no rocks larger than 1 1/2 inches in diameter will be permitted to be placed directly on top of or around the pipe. Rocks returned to the pipe ditch shall be prevented from contacting the pipe by the use of rock shield or padding. Rocks that are six (6) inches or larger in diameter can be placed in cuts in the pipeline right-of-way providing the cuts are backfilled with soil and graded back to their original contours. Excavated rock not returned to the ditch shall in no case be left in cultivated fields or fields suitable for cultivation. When rock shield is not used, the pipe shall be protected by earth bedding and padding of not less than four (4) inches around the entire pipe circumference. No barrels, cans, drums, stumps, rubbish, waste or refuse shall be placed in the ditch.
e. The backfilling shall be performed with care to prevent damage to the external coating of the pipe, fittings or other appurtenances. Hand backfilling shall be used where necessary.
f. Where additional backfill material is required, beyond that available from the ditch excavation, such material shall be furnished and placed in the ditch at the Contractor's expense.
g. Any backfilling omitted because of installation of sack breakers, taps, tie-in connections, test stations, valves, concrete foundations, anchor blocks, etc., shall be performed after such installations have been completed and approved.
h. Any drainage ditches that have been disturbed as a consequence of the installation of the pipeline shall be restored by the Contractor to their original elevation during the backfilling operation.

1.11 Stream and Buffer Zone Crossings

a. The Contractor shall provide all labor and equipment to directional bore the pipeline across streams and buffer zones. Such crossings are to be considered as part of the scope of work.

b. The pipelines installed by directional bore shall be installed below the streambed as shown in the plans.
c. The Contractor shall perform all operations outside the buffer zones. The stream and buffer zones cannot be impacted.

1.12 Valves, Taps, and Connectors

a. All designated valves, taps other appurtenances shall be installed by the Contractor at the locations shown on the plans or as directed by Commission's Authorized Representative. Installation shall be in accordance with the detailed drawings and applicable sections of these Specifications.
b. The Contractor shall be compensated for the installation of valves, taps, etc. The compensation shall include all costs associated with the work required to fabricate, pre-test and install these appurtenances where shown on the plans and shall be incidental to the unit price to install the 4" and 8" MDPE gas main.
c. Unless shown otherwise on the plans, or as directed by Commission's Authorized Representative, placement and tie-in of all valves, taps and other appurtenances shall be performed by the Contractor in conjunction with the laying of the pipeline, prior to the cleaning and testing of the completed pipeline sections.
d. In the event hot cuts are required to connect the newly installed pipeline to an existing pipeline which is in service, then Commission shall make arrangements to have this work performed by the Contractor's employees or others under the direct supervision and scheduling of Commission's Authorized Representative.
c. Special care shall be taken by the Contractor while performing the necessary backfill operations at valve, tap, etc., installations to prevent movement of the pipeline adjacent to these installations which might result in added tensile and bending stresses to the pipe.

1.13 Internal Pipe Cleaning

(1) Pigging Line: After a section of pipeline is lowered and backfilled and prior to pressure testing, Contractor shall run a cleaning pig through the section to clean the line and check for obstructions.
(2) Cutting out Pig: In the event the pig lodges in the line, Contractor shall cut the line, remove the obstruction, butt fuse the pipe joint and repeat the pigging operation until a successful run of the pig has been completed, at no additional cost to the Commission.
(3) Commission's Authorized Representative must be present when Contractor inserts pig in the line, removes such pig from the opposite end of the pipe section or cuts out obstructions and repairs line, or the cleaning operations will not be accepted, and such cleaning operations not witnessed by Commission's Authorized Representative shall be repeated at no additional cost to Commission.
(4) Types of Pigs and Construction: Commission shall supply all pigs for cleaning the test sections.

(5) The intent of these specifications is not to cover every aspect of the cleaning process, but is to provide specific requirements that are necessary for this particular job. Contractor shall be solely responsible for the cleaning operation and shall pursue the work in a diligent manner so as to complete the work in the least possible amount of time.

1.14 Pneumatic Testing

1.14.1 General

(1) Upon completion of the line or a substantial part thereof, sections of the line shall be cleaned and tested in accordance with the procedure specified herein. Contractor shall give three (3) days notice prior to testing any section of the pipeline in order that proper notification can be made by Commission to other parties.
(2) The Commission shall specify the test procedure and the test pressures, including test pressures for special construction, valve assemblies and other installations as designated in the Special Provisions, in the plans, or by Commission's Authorized Representative.

1.14.2 Test Equipment, Materials and Labor Furnished by Contractor

(1) Contractor shall provide air compressor(s) capable of increasing line pressure to the specified test pressure.
(2) Contractor shall furnish test fittings, manifold piping, valves, high pressure hose, temperature and pressure recorders, gauges, squeegees, brush pigs, swabs, sizing plates, charts and all other test apparatus including calibration reports for instruments as may be required by Commission's Authorized Representative.
(3) Fittings, pipe, valves, etc. shall be of proper rating for the test pressure specified. The use of cast iron materials shall not be permitted.

1.14.3 Determining Test Pressures and Test Sections

(1) Contractor shall notify Commission's Authorized Representative three (3) days in advance concerning plans for testing any section of the pipeline. Contractor shall furnish all materials (except materials furnished by Commission), and fabricate and install manifolds required for testing in accordance with the applicable drawings or to the satisfaction of Commission's Authorized Representative.

(a) The test pressure for the 4" and 8" MDPE Gas Pipe, SDR 11.5, 60# WP shall be 90 psig.

1.14.4 Pretest Procedures

(1) The Contractor shall install manifolds at agreed points. The installation of the manifolds shall be in strict accordance with MDPE pipe manufacturer standards.
(2) The test section shall be backfilled throughout its entire length, except at valve settings and necessary tie-in locations approved by Commission's Authorized Representative.
(3) All main line valve assemblies shall be installed in the line prior to main line testing.
(4) The Contractor shall install all test instrument lines. All lines shall be either high—pressure tubing or hose.

1.14.5 Pressuring Procedures

The Contractor shall pressure the pipeline test section as described below:

(1) Pressuring Operations

— The Contractor shall increase the pressure to the specified test pressure in small increments. The pressure sensing point shall be at each end point in the test section.
— When testing at pressures above the system design pressure, the maximum test duration shall be eight hours. If the test is not completed due to leakage, equipment failure, or any other reason, depressurize the test section completely, and allow it to relax for at least eight (8) hours before pressurizing the test section again. All thermoplastic pipes have reduced strength at elevated temperatures. Test pressure must be reduced when the test section is at elevated temperature either from service conditions or from environmental conditions. The maximum test pressure is measured at the lowest elevation in the test section. See pipe manufacturer specifications for elevated temperature test pressure adjustments. The pneumatic test should be gradually increased to not more than one-half of the test pressure, and then increase in small increments until the test pressure is reached. The contractor shall stop the compressor when pressure in the pipe test section reaches the test pressure. A pressure chart or recorder, which produces a permanent pressure record, will be attached to the pipeline in order to monitor the pressure of the test section. The recording device shall be of a type that continuously records the pressure for a period of see Table 1, on page 13 and shall be approved by the Commission's Authorized Representative. The test shall be considered successful if the specified test pressure is maintained for the specified test duration, with allowances for changes in temperature. However, the success of the test shall be determined by Commission's Authorized Representative.

Table 1

Test Durations Gas Pipe

Length of Pipe	Test Duration
0 – 250 feet	15 minutes
251 – 500 feet	30 minutes
501 – 1000 feet	1 hour
Over 1000 feet	8 hours (with a recording gauge)

(2) Procedure for Locating and Repairing Leaks or Failures During Pneumatic Testing

(a) Should the procedure outlined in Paragraph (1) above indicate that a leak exists, the Contractor shall then check all possible sources of leaks by inspecting all valves, instrument lines, exposed piping and test equipment. Should no leaks be found, an underground leak is then evident.
(b) At this point, the Contractor shall furnish labor and equipment to locate the leak or failure. The Contractor shall repair all leaks and failures. After repairs are made and the pipe is depressurized for 8 hours, the Contractor shall restore the pressure to the specified test section.
(c) Should a leak be due to faulty workmanship by the Contractor, or due to failure or negligence on the part of the Contractor, then the Contractor shall bear all costs incurred for locating and repairing the leak.
(d) Should a leak be due to faulty or defective material furnished to the Contractor by the Commission, then the Commission shall reimburse the Contractor for all costs incurred for locating and repairing the leak, and for the cost to bring the testing operation back to the point attained at the time the leak was detected. Reimbursement shall be made on an extra work basis in accordance with labor and equipment rates provided for in the proposal. Any leaks found shall be repaired according to Commission's specifications.
(e) Upon detecting that a leak exists in any test section, the Contractor shall then proceed to locate the leak using the initial list of equipment and personnel approved by the Commission prior to commencing the testing program. Commission's Authorized Representative shall be furnished the following information prior to proceeding to locate and repair the leak:

1) The list of approved equipment to be used in locating the leak.
2) A list of approved personnel, including names and classifications, to be utilized in locating the leak.
3) Proper records shall be kept in accordance with the extra work provisions of the General Conditions with regard to all work performed in locating and repairing all leaks or failures.

(4) Procedure after the repair of the leak or failure and the pipe has been depressurized for 8 hours, the Contractor shall repeat the pressure testing procedure as outlined previously and then proceed as follows:

(a) The Contractor shall then pressurize the pipeline section to the specified test pressure. Contractor shall terminate the pressure operations when the specified test pressure is reached.
(b) The Contractor shall hold the test pressure for a continuous period of see table 1, on page 13 and providing a continuous test recording for the duration of the test. If depressurization occurs during the test, then the pressure shall be allowed to stabilize. At such time as the test pressure stabilizes for a period of one (1) hour, the Contractor shall then pressurize the test section back to the test pressure in accordance with the test procedure. The test period shall begin again after any re-pressure. No re-pressuring shall be performed during the test period. Immediately following completion of the pressure test, all data shall be analyzed by Commission's Authorized Representative to determine the acceptability of the test.

1.14.6 Change in Pressure

In the event a continuous decrease in pressure is observed, the Contractor shall re-pressure the section to the specified test pressure after an elapsed time of two (2) hours. If a continuation of pressure decay is observed within the next two (2) hour period, a leak is evident. Therefore, the Contractor shall discontinue the testing until the leak has been located and subsequent repair (or repairs) made. If the pressure stabilizes within these four (4) hours, the Contractor shall re-pressure to the specified test pressure and proceed with the test program. Contractor shall not permit the pressure during the test to increase in excess of 50 psig above the test pressure.

1.14.7 Records

The Contractor shall keep an accurate report of all data obtained. The Contractor shall complete the approved test form for each section. All records shall reflect, but not be limited to the following:

(1) Tests shall be numbered by test sections, i.e., Test #1, #2, #3, etc.
(2) Commission's name.
(3) Date and time the test starts.
(4) Date and time the test ends.
(5) Test pressure.
(6) Test medium.
(7) Certification by the Contractor.
(8) Certification by Commission.
(9) Explanation of any discontinuity in pressure on any chart.
(10) Continuous pressure recording charts for each test section.

Should a leak occur in any test section, in addition to the above information, the following will also be furnished:

(1) Location of the leak by engineering station.
(2) Pressure at time leak was detected (furnish chart).
(3) Date and time leak was detected.
(4) Date and time leak was found.
(5) Date and time leak was repaired.
(6) Cause of leak (split seam, crack or other, etc.).

Note: After each leak, the entire test procedure is to be repeated, starting with a new chart.

All records shall be sent to Commission's Authorized Representative as specified in the Contract Documents.

1.15 Purging and Introducing Natural Gas

Purging air from the pipeline prior to introducing natural gas shall be accomplished by using a slug of nitrogen gas to keep air and natural gas from mixing. Contractor is to supply all materials and equipment necessary to perform the purging operation. The specific procedures to be followed shall be supplied by the Commission prior to the activity. In general, however, the purging and gas up process will take place as follows:

(a) Notification shall be given to proper authorities at least three days in advance of the procedure taking place.
(b) Contractor will attach purging and venting connections on opposite ends of the completed pipeline.
(c) The Contractor will introduce the specified amount of nitrogen into the pipeline.
(d) Immediately following the nitrogen introduction, natural gas will be introduced, at the same location, in such a manner as to push the nitrogen slug towards the end of the pipeline that has the vent installed.
(e) Contractor will employ a combustible gas indicator to sample the gas venting from the vent stack. When it is determined that 100% natural gas is venting the pipeline, the venting operation will cease.

The pipeline will be pressured with natural gas, and Contractor will cap the purging connections.

1.16 Right-of-Way Cleanup

a. The Contractor shall begin the right-of-way cleanup work immediately following the backfilling operations, and shall diligently perform all of the required cleanup activities until final completion of the project.
b. As backfilling is completed, the Contractor shall clear the right-of-way and adjacent property of all surplus materials, rubbish, debris and any surplus excavated material or loose rocks remaining from the excavation operations.
c. Brush, stumps, broken skids and other such debris shall be hauled away, or otherwise disposed of in a manner and at a location acceptable to NCDOT and in compliance with all applicable environmental regulations.
d. After removal of all surplus materials, rubbish and debris, the Contractor shall finish grading the right-of-way using a disc or other approved implements to obtain a smooth and natural appearance. A crown of backfill material shall be placed directly over the ditch, and across cultivated lands the crown shall be smoothed and rounded down to a height of approximately 12 inches above the finished grade.
e. Final grading shall be performed in compliance with all applicable environmental permits, and the Contractor shall install permanent erosion and sedimentation control structures as required by local environmental agencies.
f. Wherever roads, culverts, driveways, sidewalks and curbs have been cut or damaged during construction, the Contractor shall repair these surfaces and structures with the same type and quality material as that used in the original installation. Road repairs shall be performed in compliance with the requirements of the local authority having jurisdiction, and to the approval of Commission's Authorized Representative.
g. All Surplus construction materials furnished by Commission shall be hauled to Commission's storage yard by the Contractor and unloaded in a designated area. The Contractor shall furnish the necessary labor and equipment to unload the surplus materials.
h. The Contractor shall install pipeline markers as directed by Commission's Authorized Representative.

1.17 Environmental Protection

a. The Contractor shall conduct all of its construction operations in a manner that minimizes detrimental impact to the soil and water resources located along the pipeline route, and that protects, to the highest degree possible, the surrounding lands and natural scenery from any adverse effects that may occur as a result of the necessary construction activities
b. The Contractor shall strictly comply with the requirements of the Contract Documents, and with the requirements of the federal, state and local environmental protection agencies having jurisdiction in the areas along the route of the proposed pipeline.
c. Erosion and sediment control measures include, but are not limited to, the installation of, silt fences, trench plugs, temporary culvert and crushed stone bridges, riprap, mulch, erosion control mats, and geotextile fabrics. Erosion

control mats for stabilizing slopes shall be biodegradable jute netting or equal approved by NCDOT.

d. The Contractor shall exercise extreme care while performing the necessary construction work near streams and buffer zones. The streams and buffer zones cannot be disturbed, the contractor shall install the gas line under the streams and buffer zones by direction bore as shown on the plans.

e. An adequate number of trash receptacles will be furnished by the Contractor during the construction operation to provide a means for Contractor's personnel to dispose of garbage and construction waste materials. Under no circumstances shall these materials be thrown away or disposed of on the pipeline right-of-way or the adjoining properties.

1.18 Safety

The Contractor shall take all possible measures necessary to protect all personnel in the work areas and the general public as set out in the General Conditions.

1.19 Qualifications of Contractors

A Contractor, Sub-Contractor, or individual performing work on Owner's facilities must provide a written Plan of Qualification of Personnel satisfactory to the Owner that complies with the regulations contained in the Code of Federal Regulations Title 49, Part 192 SubPart N, "Qualification of Personnel" and Part 199, "Drug and Alcohol Testing".

Additionally, Contractors and Sub-Contractors must provide Owner with documentation, records, and/or evaluations verifying that all individuals that will be on-site and performing certain tasks on this project are qualified to perform those tasks.

No Contractor, Sub-Contractor, or individual may perform work on Owner's facilities unless they have satisfied the requirements stated herein, except that work performed that does not require compliance with the Federal Regulation cited above may be performed, at the sole discretion of the Owner. Owner reserves the right to be the sole judge of the acceptability of any Qualification Plan submitted for its approval.

The 4" and 8" gas pipe, installed in accordance with the plans and provisions herein and accepted, will be paid for by lump sum for "Install 4" and 8" MDPE Gas Main ". Such prices and payments will be full compensation for excavation, labor, testing, backfilling and incidentals necessary to complete the work to install gas lines, fittings, tracer stations, pipe markers, gas vent stack and valves/valve boxes.

County: Pitt
Project : B-4787

PROJECT SPECIAL PROVISIONS
Utilities by Others

UTILITIES BY OTHERS:

General:

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

A) Greenville Utilities Commission (Power)
B) CenturyLink (Telephone)
C) Suddenlink (CATV)
D) Edgecombe Martin EMC (Power)

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.

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

Utilities Requiring Adjustments:

A) Greenville Utilities Commission (Power)

1. Greenville Utilities Commission's work within the limits of the project will be completed by December 15, 2012.

   See "Utilities By Others Plans" for details.

   Contact person: Kyle Brown @ (252) 551-1484.

B) CenturyLink (Telephone)

1. CenturyLink's work within the limits of the project will be completed by February 15, 2013

   See "Utilities By Others Plans" for details.

   Contact person: Sharon Jones @ (252) 321-9411.

C) Suddenlink (CATV)

1. Suddenlink's work within the limits of the project will be completed by February 15, 2013.

   See "Utilities By Others Plans" for details.

   Contact person: Dedric Staton @ (252) 757-2222.

D) Edgecombe Martin EMC (Power)

1. Edgecombe Martin EMC shall coordinate a joint use arrangement with Greeneville Utilities Commission off site northwest of L-line prior to traversing the project limits with their power lines. The joint use poles will carry power, telephone and cable. Edgecombe Martin EMC's work will be completed by Dec 15, 2012.

   See "Utilities by Others Plans" for details.

   Contact person: Earnest James @ 252-641-9509.