GREENVILLE UTILITIES COMMISSION

of

THE CITY OF GREENVILLE, NORTH CAROLINA

Request for Bids

for

DIMP Project 2018-01: Cathodic Protection Short Repair & Emergency Valve Replacement

Issued

July 30, 2018

TABLE OF CONTENTS

ADVERTISEMENT FOR PROPOSALS

by

Greenville Utilities Commission of the City of Greenville, NC

for

The Greenville Utilities Commission
DIMP Project 2018-01: Cathodic Protection Short Repair &
Emergency Valve Replacement
Pitt County, North Carolina

Sealed Bids for **the construction of a 8-inch PE natural gas main roadway crossing, and 3 emergency valve replacements** will be received by the Greenville Utilities Commission in the Engineering Center Conference Room at 801 Mumford Road, P. O. Box 1847, Greenville, NC 27835 until **11:00 a.m. on Thursday, August 16, 2018** and immediately thereafter publicly opened and read.

Bids must be enclosed in a sealed envelope, addressed to the Greenville Utilities Commission and the outside of the envelope must be marked **BID FOR DIMP Project 2018-01: Cathodic Protection Short Repair & Emergency Valve Replacement**. All Bids must include the information specified in the format specified in the Instructions to Bidders, and all Bids must be made on blank forms provided with and included in the bound document. The name, address, and license number of the Bidder must be plainly marked thereon. Oral or faxed Bids are invalid and will be rejected.

Each Bid submitted must be accompanied by cash or a certified check, drawn on a bank or trust company authorized to do business in North Carolina, payable to the Greenville Utilities Commission in an amount at least equal to five percent (5%) of the total amount of the Bid, as a guarantee that a contract will be entered into. In lieu of cash or a certified check, the Bidder may submit a bid bond in the form prescribed in G.S. 143-129 as amended by Chapter 1104 of the Public Laws of 1951.

Contractors are notified that legislative acts relating to licensing of contractors will be observed in receiving bids and awarding contracts. It is the Bidder's responsibility to ensure and to provide proof of compliance with all applicable licensing requirements.

A **Pre-Bid Conference** will be held at the Greenville Utilities Commission Engineering Center at 801 Mumford Road, Greenville, North Carolina 27835 on **Thursday, August 2**, at **11:00 a.m.**, local time.

The major items of Work include:

- Constructing, testing, purging, and filling with gas a 8-inch PE natural gas pipeline;
- Tying in the new pipeline to the existing natural gas distribution system.
- Abandoning the old 6-inch steel pipeline.
- Abandoning the old 6-inch PE pipeline.
- Stopping off 6-inch Steel Mains and Replacing 6-inch Steel Valves

ADVERTISEMENT FOR PROPOSALS

- Stopping off 8-inch Steel Main and Replacing a 8-inch Steel Valve
- Remove/Replace Concrete Curb & Gutter
- Remove/ Replace Concrete Sidewalk
- Asphalt Patching

Bidders are advised that this contract contains provisions requiring the Contractor to document that sufficient good faith efforts have been made to provide equal opportunity for Minority and Women Enterprises to participate in the subcontracting and material supplier opportunities available under this contract.

The complete Bid Package will be posted and available at http://www.guc.com/doing-business-with-us for download.

The right is reserved to reject any or all Bids, to waive informalities, and to award Contract or Contracts which, in the opinion of the Owner, appear to be in its best interest. The right is reserved to hold any or all Bids for a period of sixty (60) days from the opening thereof.

Late proposals will not be considered.

INTRODUCTION AND PROJECT DESCRIPTION

The Greenville Utilities Commission (GUC) is requesting Bids for the construction, testing, and gas-up of a Cathodic Protection Repair and Emergency Valve Replacements. The proposed Cathodic Protection Repair will be an 8-inch ASTM D2513, 0.784-inch wall thickness, PE natural gas main with a 12-inch ASME B16.9 & ASTM A234 WPB, 0.250-inch wall thickness, Steel Coated Casing Pipe that is to be Jack & Bored under Greenville Boulevard. The Jack and Bore is approximately 100 LF in length. The following work will also require the contractor to perform new tie-ins and abandon old existing mains. The new main will to be tied into our existing facilities with the use of a 6-inch Mueller Stopper. Construction will be within NCDOT Right-of-Way, GUC utility easements and/or public utility easements. As designed, there is one Jack and Bore and the remainder of the construction is designed to be performed by conventional means. The Emergency Valve Replacement consists of (2) 6-inch steel valves and (1) 8-inch steel natural gas valve at individual locations in Greenville. The emergency valve replacement will require that the main be exposed and stopped off with Mueller Stoppers. The new gas main is to be tested to 90 psig for a maximum allowable operating pressure (MAOP) of 60 psig.

The CONTRACTOR will be required to deliver a tested, cleaned, purged, and gassed-up pipeline. The CONTRACTOR shall make all tie-ins between the new main installation and the existing natural gas distribution system. The CONTRACTOR shall coordinate all tie-ins with the Greenville Utilities Commission.

GENERAL REQUIREMENTS

CONTRACTOR's bidding on the WORK must have a minimum of five (5) years of experience constructing natural gas mains and/or according to the requirements of Title 49, Part 192, and the project PLANS and SPECIFICATIONS. CONTRACTOR must have a minimum of five (5) years of experience in horizontal directional drilling with similar diameter pipe, preferable in the geological region of the project.

The OWNER shall provide pipe, fittings, valves, valve boxes, tracing wire, and line markers as listed in the Bill of Materials on the construction drawings. The CONTRACTOR shall provide all other materials and equipment required for construction of the pipeline, and for the restoration for the site following Construction.

SITE CONDITIONS

The work will be performed in an urban setting. The surrounding terrain consists of houses, commercial buildings, roads, bridges and railways. The work will be predominately performed in the NCDOT Right-of-Way, which will require the work to be performed within the roadway. Traffic volumes will impact the time of day the work can be performed.

GENERAL INSTRUCTIONS FOR REQUEST FOR PROPOSAL

1.0 NOTICE TO PROPOSERS

Sealed proposals, subject to the conditions made a part hereof, will be received the Greenville Utilities Commission in the Engineering Center Conference Room at 801 Mumford Road, Greenville, North Carolina 27835 until 11:00 AM (EDST) on **August 16, 2018,** the day of opening**. Proposals submitted in a fax or e-mail in response to this Invitation for Proposals will not be acceptable. Late Proposals will not be considered.**

1.1 PRE-PROPOSAL MEETING – A Pre-proposal meeting will be held at the Greenville Utilities Commission (801 Mumford Rd. Greenville, NC 27835) on Thursday, August 2, 2018 at 11:00 AM (EDST).

1.1.1 The intent of the Pre-Proposal Meeting is to allow the proposers an opportunity to ask questions and make clarifications prior to submitting a proposal.

1.1.2 Only portions of the proposal/contract will be discussed. Lack of discussion or clarifications of any portion of the proposal/contract does not relieve the proposer from conforming to the provisions of the same.

1.1.3 All questions relative to this project must be submitted no later than Tuesday, August 7, 2018 at 5:00 PM (EDST).

2.0 STANDARD FORMS REQUIRED

Each proposer must submit a proposal on the enclosed proposal forms. **The proposal must be signed by an authorized official of the firm. Return only the attached Proposal Form. Do not return the Advertisement for Proposals, Instructions to Proposers or Specifications.**

3.0 PREPARATION OF PROPOSAL

Proposals must be in sealed envelopes clearly marked on the outside with the name of the proposal and the proposal opening date and time.

4.0 TIME FOR OPENING PROPOSALS

Proposals will be opened promptly and read at the hour and on the date set forth in the advertisement in the Office of the Procurement Coordinator, Greenville Utilities Main Office, 401 S. Greene Street, Greenville, North Carolina. Proposer or their authorized agents are invited to be present.

5.0 DEPOSIT / BID BOND / PERFORMANCE BOND

A 5% Deposit/Bid Bond is required for this proposal. A Performance Bond is required for this proposal.

6.0 NC SALES TAX

Do **not** include NC sales taxes in proposal figure; however, Greenville Utilities Commission (GUC) does pay sales tax. Sales tax should be added to the invoice as a separate item.

7.0 FEDERAL EXCISE TAX

GUC is exempt from Federal Excise Tax and will issue a Federal Exemption Certificate upon request to the successful proposer.

8.0 EXCEPTIONS TO BE CLEARLY STATED

If proposal is not in strict accordance with Section II, "Specifications," proposer must list or note all exceptions **on the Request for Proposal Form**, otherwise, it is fully understood that the successful proposer will furnish equipment and/or materials exactly as specified. GUC reserves the right to accept or reject proposals with noted minor deviations from specifications and to determine the lowest responsible, responsive proposal from the standpoint of quality, performance, and price.

9.0 EVALUATION AND AWARD OF PROPOSALS

GUC reserves the right to reject any and all proposals, to waive any and all informalities, and to disregard all nonconforming or conditional proposals or counter proposals. In evaluating proposals, GUC shall consider whether the proposals comply with the prescribed requirements, plus all alternates or options requested. GUC reserves the right to include or exclude any option or alternative in GUC's opinion is in GUC's best interests. If a proposal is to be awarded, it will be awarded to the lowest responsible, responsive proposer whose evaluation by GUC indicates that the award will be in GUC's best interests. Only firm prices will be considered for award of this proposal.

10.0 PROMPT PAYMENT DISCOUNTS

Proposers are urged to compute all discounts into the price offered. If a prompt payment discount is offered, it may be considered in the award of the contract.

11.0 NUMERICAL ERRORS

In the case of a discrepancy between a unit price and the extension (the unit price multiplied by the number of units), the unit price governs. In the case where numerical proposals are stated both in numbers and in words, the words govern.

12.0 PROPOSAL WITHDRAWAL

A proposer must notify GUC in writing of its request to withdraw a proposal within seventy-two (72) hours after the proposal opening, not including Saturdays, Sundays, or holidays. In order to justify withdrawal, the proposer must demonstrate that a substantial error exists and that the proposal was submitted in good faith.

13.0 MINORITY BUSINESS PARTICIPATION PROGRAM

GUC has adopted an Affirmative Action and Minority and Women Business Enterprise Plan (M/WBE) Program. Firms submitting a proposal are attesting that they also have taken affirmative action to ensure equality of opportunity in all aspects of employment, and to utilize M/WBE suppliers of materials and/or labor.

14.0 QUANTITIES

Quantities specified are only estimates of GUC's requirements. GUC reserves the right to purchase more or less than the stated quantities at prices indicated in the submitted Proposal Form based on our actual needs.

15.0 DELIVERY

Shipments will be made to GUC only upon releases from a purchase order issued by GUC in accordance with its current needs.
Time is of the essence with respect to all deliveries under this Agreement.
Delivery of all equipment, materials, or supplies shall be made Free on Board (FOB) GUC Warehouse, 801 Mumford Road, Greenville, North Carolina 27834, unless otherwise specified. The agreed price for such equipment, materials, or supplies shall include all costs of delivery and ownership, and risks of loss shall not be transferred from Provider to GUC until express written acceptance of delivery and inspection by GUC. Delivery hours are between 8:00 AM and 4:30 PM Monday-Friday only. **GUC's purchase order number is to be shown on the packing slip or any related documents.** GUC reserves the right to refuse or return any delivery with no purchase order number or which is damaged. GUC will not be charged a restocking fee for any delivery which is refused or returned.
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16.0 DELIVERY TIME

Delivery time is to be stated by the proposer and will be a factor in the evaluation of proposals.

17.0 CONTRACT PERIOD

The contract period will begin at the date of issuance of an approved Purchase Order and shall not exceed **June 30, 2019**.

18.0 MANUFACTURER

Proposer is to specify the manufacturer of items being quoted where applicable.

19.0 CONTACT INFORMATION

Questions regarding this proposal request should be directed to Durk Tyson, Gas Systems Engineer, Gas Department at (252) 551-2048, tysonfd@guc.com.

20.0 TERMS AND CONDITIONS

The attached Terms and Conditions apply to all purchases made by Greenville Utilities Commission (GUC) and must be considered as part of the proposal.

Special Instructions to Bidders

City of Greenville/Greenville Utilities Commission
Minority and/or Women Business Enterprise (M/WBE) Program

GUC
Construction Guidelines and Affidavits
$100,000 and above

These instructions shall be included with each bid solicitation.

City of Greenville/Greenville Utilities Commission
Minority and/or Women Business Enterprise Program

$100,000 and Above Construction Guidelines for M/WBE Participants

Policy Statement

It is the policy of the City of Greenville and Greenville Utilities Commission to provide minorities and women equal opportunity for participating in all aspects of the City's and Utilities' contracting and procurement programs, including but not limited to, construction projects, supplies and materials purchases, and professional and personal service contracts.

Goals and Good Faith Efforts

Bidders responding to this solicitation shall comply with the M/WBE program by making Good Faith Efforts to achieve the following aspiration goals for participation.

	GUC	
	MBE	**WBE**
Construction	7%	4%

Bidders shall submit M/WBE information with their bids on the forms provided. This information will be subject to verification by GUC prior to contract award. **As of July 1, 2009, contractors, subcontractors, suppliers, service providers, or M/WBE members of joint ventures intended to satisfy GUC M/WBE goals shall be certified by the NC Office of Historically Underutilized Businesses (NC HUB) only.** Firms qualifying as "WBE" for GUC's goals must be designated as a "women-owned business" by the HUB Office. Firms qualifying as "MBE" for the GUC's goals must be certified in one of the other categories (i.e.: Black, Hispanic, Asian American, American Indian, Disabled, or Socially and Economically Disadvantaged). Those firms who are certified as both a "WBE" and "MBE" may only satisfy the "MBE" requirement. A complete database of NC HUB certified firms may be found at http://www.doa.nc.gov/hub/. An internal database of firms who have expressed interest to do business with the City and GUC is available at www.greenvillencmwbe.org. However, the HUB status of these firms must be verified by the HUB database. GUC shall accept NCDOT certified firms on federally funded projects only. Please note: A contractor may utilize any firm desired. However, for participation purposes, all M/WBE vendors who wish to do business *as a minority or a female* must be certified by NC HUB.

The Bidder shall make good faith efforts to encourage participation of M/WBEs prior to submission of bids in order to be considered as a responsive bidder. Bidders are cautioned that even though their submittal indicates they will meet the M/WBE goal, they should document their good faith efforts and be prepared to submit this information, if requested.

The M/WBE's listed by the Contractor on the **Identification of Minority/Women Business Participation** which are determined by the GUC to be certified shall perform the work and supply the materials for which they are listed unless the Contractors receive prior authorization from the GUC to perform the work with other forces or to obtain materials from other sources. If a contractor is proposing to perform all elements of the work with his own forces, he must be prepared to document evidence satisfactory to the owner of similar government contracts where he has self-performed.

The Contractor shall enter into and supply copies of fully executed subcontracts with each M/WBE or supply signed Letter(s) of Intent to the Project Manager after award of contract and prior to Notice to Proceed. Any amendments to subcontracts shall be submitted to the Project Manager prior to execution.

Instructions

The Bidder shall provide with the bid the following documentation:

☐ Identification of Minority/Women Business Participation
(if participation is zero, please mark zero—Blank forms will be considered nonresponsive)

☐ Affidavit A (if subcontracting)

OR

☐ Identification of Minority/Women Business Participation
(if participation is zero, please mark zero—Blank forms will be considered nonresponsive)

☐ Affidavit B (if self-performing; must attest that bidder does not customarily subcontract work on this type of project—includes supplies and materials)

Within 72 hours or 3 business days after notification of being the apparent low bidder who is subcontracting anything must provide the following information:

☐ Affidavit C (if aspirational goals are met or are exceeded)

OR

☐ Affidavit D (if aspirational goals are not met)

After award of contract and prior to issuance of notice to proceed:

☐ Letter(s) of Intent or Executed Contracts

****With each pay request, the prime contractors will submit the Proof of Payment Certification, listing payments made to M/WBE subcontractors.**

*****If a change is needed in M/WBE Participation, submit a Request to Change M/WBE Participation Form. Good Faith Efforts to substitute with another M/WBE contractor must be demonstrated.**

Minimum Compliance Requirements:

All written statements, affidavits, or intentions made by the Bidder shall become a part of the agreement between the Contractor and the GUC for performance of contracts. Failure to comply with any of these statements, affidavits or intentions or with the minority business guidelines shall constitute a breach of the contract. A finding by the GUC that any information submitted (either prior to award of the contract or during the performance of the contract) is inaccurate, false, or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the GUC whether to terminate the contract for breach or not. In determining whether a contractor has made Good Faith Efforts, the GUC will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts.

Identification of Minority/Women Business Participation

I,_____,
(Name of Bidder)

do hereby certify that on this project, we will use the following minority/women business enterprises as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work type	*M/WBE Category

*M/WBE categories: Black, African American (**B**), Hispanic, Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

If you will not be utilizing M/WBE contractors, please certify by entering zero "0"

The total value of MBE business contracting will be ($)_____.

The total value of WBE business contracting will be ($)_____.

Greenville Utilities Commission AFFIDAVIT A – Listing of Good Faith Efforts

County of _____

(Name of Bidder)

Affidavit of_____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- ❑ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ❑ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- ❑ **3** – **(15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ❑ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ❑ **5** – **(10 pts)** Attended prebid meetings scheduled by the public owner.
- ❑ **6** – **(20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ❑ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ❑ **8** – **(25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- ❑ **9** – **(20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ❑ **10** - **(20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority/Women Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority/women business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of_____, County of_____

Subscribed and sworn to before me this _____day of _____20____

Notary Public_____

My commission expires _____

Greenville Utilities Commission --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of _____

Affidavit of _____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____

_____ contract.
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20___

Notary Public _____

My commission expires _____

Greenville Utilities Commission - AFFIDAVIT C - Portion of the Work to be Performed by M/WBE Firms

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by M/WBE businesses as defined in GS143-128.2(g) and the COG/GUC M/WBE Plan sec. III is equal to or greater than 11% of the bidders total contract price, then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____ (Name of Bidder) I do hereby certify that on the

_____ (Project Name)

Project ID# _____ Amount of Bid $ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _____% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

Name and Phone Number	*M/WBE Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with M/WBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

Greenville Utilities Commission AFFIDAVIT D – Good Faith Efforts

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 11% participation by minority/women business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _____% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*M/WBE Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**),Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

Examples of documentation required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.

B. Copies of quotes or responses received from each firm responding to the solicitation.

C. A telephone log of follow-up calls to each firm sent a solicitation.

D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.

E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

F. Copy of pre-bid roster.

G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

H. Letter detailing reasons for rejection of minority business due to lack of qualification.

I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with M/WBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public_____

My commission expires _____

LETTER OF INTENT
M/WBE Subcontractor Performance

Please submit this form or executed subcontracts with M/WBE firms after award of contract and prior to issuance of notice to proceed.

PROJECT: _____
(Project Name)

TO: _____
(Name of Prime Bidder/Architect)

The undersigned intends to perform work in connection with the above project as a:

____Minority Business Enterprise _____Women Business Enterprise

The M/WBE status of the undersigned is certified the NC Office of Historically Underutilized Businesses (required). ___ Yes ___ No

The undersigned is prepared to perform the following described work or provide materials or services in connection with the above project at the following dollar amount:

Work/Materials/Service Provided	Dollar Amount of Contract	Projected Start Date	Projected End Date

_____
(Date)

_____ _____
(Address) (Name & Phone No. of M/WBE Firm)

_____ _____
(Name & Title of Authorized Representative of M/WBE) (Signature of Authorized Representative of M/WBE)

REQUEST TO CHANGE M/WBE PARTICIPATION

(Submit changes only if notified as apparent lowest bidder, continuing through project completion)

Project: _____

Bidder or Prime Contractor: _____

Name & Title of Authorized Representative: _____

Address: _____ **Phone #:** _____

_____ **Email Address:** _____

Total Contract Amount (including approved change orders or amendments): $_____

Name of subcontractor: _____

Good or service provided: _____

Proposed Action:

___Replace subcontractor
___Perform work with own forces

For the above actions, you must provide one of the following reasons (Please check applicable reason):

___ The listed MBE/WBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract.

___The listed MBE/WBE is bankrupt or insolvent.

___The listed MBE/WBE fails or refuses to perform his/her subcontract or furnish the listed materials.

___The work performed by the listed subcontractor is unsatisfactory according to industry standards and is not in accordance with the plans and specifications; or the subcontractor is substantially delaying or disrupting the progress of the work.

If <u>replacing</u> subcontractor:

Name of replacement subcontractor: _____

The M/WBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required). ___Yes ___No

Dollar amount of original contract $_____

Dollar amount of amended contract $ _____

Other Proposed Action:

___Increase total dollar amount of work
___Decrease total dollar amount of work
___Add additional subcontractor
___Other

Please describe reason for requested action: _____

_____

If <u>adding</u> additional subcontractor:*

The M/WBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required).___Yes ___No

**Please attach Letter of Intent or executed contract document*

Dollar amount of original contract $_____

Dollar amount of amended contract $ _____

Interoffice Use Only:

Approval __Y __N

Date_____

Signature_____

Pay Application No. _____

Purchase Order No. _____

Proof of Payment Certification

M/WBE Contractors, Suppliers, Service Providers

Project Name: _____

Prime Contractor: _____

Current Contract Amount (including change orders): $_____

Requested Payment Amount for this Period: $_____

Is this the final payment? ___Yes ___No

Firm Name	M/WBE Category*	Total Amount Paid from this Pay Request	Total Contract Amount (including changes)	Total Amount Remaining

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

Date:_____

Certified By: _____
Name

_____
Title

_____
Signature

1.0 TAXES

No taxes shall be included in any bid prices. GUC is exempt from Federal Excise Tax. GUC is not exempt from North Carolina state sales and use tax or, if applicable, Pitt County sales and use tax. Such taxes shall be shown as a separate item on the invoice.

2.0 INVOICES

It is understood and agreed that orders will be shipped at the established contract prices and quantities in effect on dates orders are placed. Invoicing at variance with this provision may subject the contract to cancellation. Applicable North Carolina sales tax shall be invoiced as a separate line item. All invoices must bear the GUC purchase order number. Mail all invoices to Greenville Utilities Commission, Finance Department, PO Box 1847, Greenville, N.C. 27835-1847.

3.0 PAYMENT TERMS

Payments for apparatus, supplies, materials, equipment or services will be made after the receipt and acceptance and after submission of a proper invoice. GUC's normal payment policy is thirty (30) days. GUC will not be responsible for any goods delivered without a purchase order having been issued. Payment will be made in U. S. currency only.

4.0 CONDITION AND PACKAGING

It is understood and agreed that any item offered or shipped shall be new and in first class condition, that all containers shall be new and suitable for storage or shipment, and that prices include standard commercial packaging.

5.0 SPECIFICATIONS

Any deviation from specifications must be clearly pointed out, otherwise, it will be considered that items offered are in strict compliance with specifications, and the Provider will be held responsible. Deviations must be explained in detail. **The Provider shall not construe this paragraph as inviting deviation or implying that any deviation will be acceptable.**

6.0 AWARD OF CONTRACT

All purchases will be based on the lowest responsible, responsive offer that is most advantageous to GUC as determined upon consideration of such factors as prices offered, the quality of the article(s) offered, the general reputation and performance capabilities of the Provider, substantial conformity with the specifications the suitability of the article(s) for the intended use, the related materials needed, the date(s) of delivery and performance, and such other factors deemed by GUC to be pertinent or peculiar to the purchase in question.

Acceptance of the order includes acceptance of all terms, conditions, prices, delivery instructions, and specifications as shown on this set of Terms and Conditions and in this order or attached to and made a part of this order.

The conditions of this order cannot be modified except by written amendment in the form of "Amended Purchase Order," which has been approved by GUC's Purchasing Department.

In the event of a Provider's failure to deliver or perform as specified, GUC reserves the right to cancel the order or any part thereof, without prejudice to GUC's other rights. The Provider agrees that GUC may return part of or all of any shipment at Provider's expense. GUC may charge the Provider with all reasonable expenses resulting from such failure to deliver or perform.

7.0 MEDIATION/BINDING ARBITRATION

In the event of any dispute between the Parties, the Parties agree to submit any dispute to non-binding mediation before a mutually agreeable Mediator prior to initiating litigation. If the Parties are unable to agree upon a Mediator within thirty (30) days after demand therefore, either Party may petition a Court of competent jurisdiction for the designation of a qualified Mediator for these purposes. Each Party shall bear its own costs and expenses of participating in the mediation (including, without limitation, reasonable attorneys' fees), and each Party shall bear one-half (1/2) of the costs and expenses of the Mediator. Unless otherwise agreed, the Parties will hold the mediation in Greenville, North Carolina. The matters discussed or revealed in the mediation session shall not be disclosed in any subsequent litigation.

In the event the matter is not resolved in mediation, either Party may request arbitration. The parties shall jointly select an Arbitrator, and shall be bound by the decision of the Arbitrator with respect to any dispute between the parties with respect to this Agreement. If the parties are unable to mutually agree upon an Arbitrator, the Parties shall each select an Arbitrator, and the two Arbitrators so selected shall select a third Arbitrator, and the decision of the majority of the Arbitrators shall be conclusive and binding upon the Parties. The Parties at all times agree to equally split the costs of any Arbitrator(s) selected in an effort to resolve the dispute between the Parties. Any party desiring to resolve a dispute under the terms of this Agreement shall notify the other Party in writing, and the Parties shall seek to agree upon a mutually agreed-upon Arbitrator within a period of ten (10) days from the date of such written demand. If the Parties are unable to agree within such ten (10) day period, the Parties shall each select an Arbitrator, and the two (2) Arbitrators so selected shall select a third Arbitrator within fifteen (15) days from the date of the written demand for arbitration, and a decision shall be rendered by the Arbitrator(s) so selected within five (5) days after such Arbitrator(s) is selected.

8.0 GOVERNMENT RESTRICTIONS

In the event any Governmental restrictions may be imposed which would necessitate alteration of the material, quality, workmanship, or performance of the items offered on this bid prior to their delivery, it shall be the responsibility of the successful Provider to notify the GUC Procurement Coordinator, at once, indicating in its letter the specific regulation which required such alterations. GUC reserves the right to accept any such alterations, including any price adjustments occasioned thereby, or, in the sole discretion of GUC, to cancel the contract.

9.0 INSURANCE

9.1 **Coverage** – The Provider at its sole cost and expense shall provide commercial insurance of such type and with the following coverage and limits:

9.1.1 **Worker's Compensation** – The Provider shall provide and maintain Worker's Compensation Insurance, as required by the laws of North Carolina, as well as employer's liability coverage with minimum limits of $1,000,000 each

accident, covering all Provider's employees who are engaged in any work under the contract. If any work is sublet, the Provider shall require the subcontractor to provide the same coverage for any of its employees engaged in any work under the contract.

9.1.2 **General Liability** – Commercial Liability Coverage written on an "occurrence" basis in the minimum amount of $1,000,000 per occurrence.

9.1.3 **Automobile** – Automobile Liability Insurance, to include coverage for all owned, hired, and non-owned vehicles used in connection with the contract with a minimum combined single limit of $1,000,000 per accident.

9.2 **Requirements** - Providing and maintaining adequate insurance coverage is a material obligation of the Provider. All such insurance shall meet all laws of the State of North Carolina. Such insurance coverage shall be obtained from companies that are authorized to provide such coverage and that are authorized to do business in North Carolina by the Commissioner of Insurance. The Provider shall at all times comply with the terms of such insurance policies and all requirements of the insurer under any of such insurance policies, except as they may conflict with existing North Carolina laws or this contract. The limits of coverage under each insurance policy maintained by the Provider shall not be interpreted as limiting the Provider's liability and obligations under the contract. It is agreed that the insurance carrier will provide 30 day written notice of cancellation by regular mail to the GUC's Procurement Coordinator. Any waiver of insurance must be approved by the Procurement Coordinator.

Waiver approved: _____
Procurement Coordinator

10.0 PATENTS AND COPYRIGHTS

The Provider shall hold and save GUC, its officers, agents, and employees, harmless from liability of any kind, including costs and expenses, including reasonable attorney fees, on account of any copyrighted articles or any patented or unpatented invention, device or appliance manufactured or used in the performance of this contract.

11.0 PATENT AND COPYRIGHT INDEMNITY

The Provider will defend or settle, at its own expense, any action brought against GUC to the extent that it is based on a claim that the product(s) provided pursuant to this agreement infringe any U.S. copyright or patent; and will pay those costs, damages, and attorney fees finally awarded against GUC in any such action attributable to any such claim, but such defense, settlements, and payments are conditioned on the following: (1) that Provider shall be notified promptly in writing by GUC of any such claim; (2) that Provider shall have sole control of the defense of any action on such claim and of all negotiations for its settlement or compromise; (3) that GUC shall cooperate with Provider in a reasonable way to facilitate the settlement of defense of such claim; (4) that such claim does not arise from GUC modifications not authorized by the Provider or from the use of combination of products provided by the Provider with products provided by GUC or by others; and (5) should such product(s) become, or in the Provider's opinion likely to become, the subject of such claim of infringement, then GUC shall permit Provider, at Provider's option and expense, either to procure for GUC the right to

continue using the product(s), or replace or modify the same so that it becomes non-infringing and performs in a substantially similar manner to the original product.

12.0 ASSIGNMENT

No assignment of the Provider's obligations or the Provider's right to receive payment hereunder shall be permitted without the express written consent of GUC, provided however, upon written request approved by the GUC Procurement Coordinator, solely as a convenience to the Provider, GUC may:

- Forward the Provider's payment check directly to any person or entity designated by the Provider, and
- Include any person or entity designated by Provider as a joint payee on the Provider's payment check.
- In no event shall such approval and action obligate GUC to anyone other than the Provider, and the Provider shall remain responsible for fulfillment of all contract obligations.

13.0 ACCESS TO PERSON AND RECORDS

GUC shall have reasonable access to persons and records of Provider as a result of all contracts entered into by GUC.

14.0 INSPECTION AT BIDDER'S SITE

GUC reserves the right to inspect, at a reasonable time, the item, plant, or other facilities of a prospective Provider prior to contract award and during the contract term as necessary for GUC's determination that such item, plant, or other facilities conform with the specifications/requirements and are adequate and suitable for the proper and effective performance of the contract. Provider may limit GUC's access to restricted areas.

15.0 AVAILABILITY OF FUNDS

Any and all payments of compensation of this specific transaction and any continuation or any renewal or extension are dependent upon and subject to the allocation of GUC funds for the purpose set forth in this Agreement.

16.0 GOVERNING LAWS

All contracts, transactions, or agreements are made under and shall be governed by and construed in accordance with the laws of the State of North Carolina.

17.0 ADMINISTRATIVE CODE

Quotes, bids, proposals, and awards are subject to applicable provisions of the North Carolina Statutes, Rules, Regulations, or Administrative Codes.

18.0 CLARIFICATIONS/INTERPRETATIONS

Any and all questions regarding these Terms and Conditions must be addressed to the GUC Procurement Coordinator. Do not contact the user directly. **These Terms and Conditions are a complete statement of the parties' agreement and may only be modified in writing signed by Provider and GUC's Procurement Coordinator.**

19.0 SITUS

The place of all contracts, transactions, agreements, their situs and forum, shall be North Carolina, where all matters, whether in contract or tort, relating to the validity, construction, interpretation, and enforcement shall be determined.

20.0 TERMINATION OF AGREEMENT

GUC or Provider may terminate this Agreement for just cause at any time. Provider will be paid for all labor and expenses incurred as of the termination date. Just cause shall be based on reasonable grounds, and there must be a fair and honest cause or reason for such action. The causes for termination, include, but are not limited to: (1) Provider's failure to comply with the services in this agreement, (2) Provider's failure to perform in accordance with this Agreement, (3) Provider's disregard of laws and regulations related to this Agreement, (4) Provider's violation of the provisions of the Agreement, (5) Provider's failure to perform in accordance with all project requirements, or (6) Provider's failure to work in accordance with GUC's policies and/or procedures.

21.0 DELIVERY

Time is of the essence with respect to all deliveries under this Agreement.
Delivery of all equipment, materials, or supplies shall be made Free on Board (FOB) GUC Warehouse, 801 Mumford Road, Greenville, North Carolina 27834, unless otherwise specified. The agreed price for such equipment, materials, or supplies shall include all costs of delivery and ownership, and risks of loss shall not be transferred from Provider to GUC until express written acceptance of delivery and inspection by GUC. Delivery hours are between 8:00 AM and 4:30 PM Monday-Friday only. **GUC's purchase order number is to be shown on the packing slip or any related documents.** GUC reserves the right to refuse or return any delivery with no purchase order number or which is damaged. GUC will not be charged a restocking fee for any delivery which is refused or returned.

22.0 INDEMNITY PROVISION

Provider agrees to indemnity and save GREENVILLE UTILITIES COMMISSION of the City of Greenville, Pitt County, North Carolina, and the City of Greenville, North Carolina, its co-owners, joint venturers, agents, employees, and insurance carriers harmless from any and all Third Party claims, actions, costs, expenses, including reasonable attorney fees, judgments, or other damages resulting from injury to any person (including injury resulting in death), or damage (including loss or destruction) to third party tangible property arising out of the negligent performance of the terms of this Contract by Provider; including, but not limited to, Provider's employees, agents, subcontractors, and others designated by Provider to perform work or services in, about, or attendant to, the work and services under the terms of this Contract. Provider shall not be held responsible for any losses, expenses, claims, subrogations, actions, costs, judgments, or other damages, directly and proximately caused by the negligence of

Greenville Utilities Commission of the City of Greenville, Pitt County, North Carolina. Insurance covering this indemnity agreement by Provider in favor of Greenville Utilities Commission of the City of Greenville, Pitt County, North Carolina, and the City of Greenville, North Carolina, shall be provided by Provider.

23.0 FORCE MAJEURE

Neither party shall be considered in default in the performance of its obligations hereunder to the extent that the performance of any such obligation is prevented or delayed by any cause, existing or future, which is beyond the reasonable control of such party. In any such event of force majeure, the parties shall advise each other of such event, and the parties shall negotiate an equitable adjustment to their respective obligations under this Agreement.

24.0 STANDARD OF CARE

The Provider hereby agrees to abide by the standard of care generally accepted in the engineering profession in the performance of services under this contract.

25.0 INTEGRATED CONTRACT

These Terms and Conditions represent the entire contract between the Parties. No verbal or other written agreement(s) shall be held to vary the provisions of this Agreement.

26.0 CONTRACT PROVISIONS

Each of the provisions of these Terms and Conditions shall apply to the full extent permitted by law, and the invalidity in whole or in part of any provision shall not affect the remainder of such provision or any other provisions.

27.0 E-VERIFY

E-Verify - I understand that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25 et seq. I am aware of and in compliance with the requirements of E-Verify and Article 2 of Chapter 64 of the North Carolina General Statutes. To the best of my knowledge, any subcontractors employed by me as a part of this contract are in compliance with the requirements of E-Verify and Article 2 of Chapter 64 of the North Carolina General Statutes.

28.0 AFFIRMATIVE ACTION

The Provider will take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of the handicapped, and concerning the treatment of all employees, without discrimination by reason of race, color, religion, sex, national origin, or physical handicap.

29.0 IRAN DIVESTMENT ACT CERTIFICATION

By acceptance of this purchase order, Vendor/Contractor certifies that, as of the date of the purchase order or contract, it is not on the Final Divestment List as created by the State

Treasurer pursuant to N.C.G.S. § 143-6A-4. In compliance with the requirements of the Iran Divestment Act and N.C.G.S. § 143C-6A-5(b), Vendor/Contractor shall not utilize in the performance of the contract any subcontractor that is identified on the Final Divestment List.

30.0 UNIFORM GUIDANCE

Contracts funded with federal grant or loan funds must be procured in a manner that conforms with all applicable federal laws, policies, and standards, including those under the Uniform Guidance (2 C.F.R. Part 200).

31.0 NOTICES

Notices to the Parties should be sent to the addresses specified on the first page of these Terms and Conditions.

Cleve Haddock, CLGPO
Procurement Coordinator
Greenville Utilities Commission
401 South Greene Street
Greenville, N.C. 27834

Letter of Compliance to E-Verify for Greenville Utilities Commission

1. I have submitted a bid for contract or desire to enter into a contract with the Greenville Utilities Commission;
2. As part of my duties and responsibilities pursuant to said bid and/or contract, I affirm that I am aware of and in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):

3. ____ After hiring an employee to work in the United States I verify the work authorization of said employee through E-Verify and retain the record of the verification of work authorization while the employee is employed and for one year thereafter; or
4. ____ I employee less than fifteen (15) employees in the State of North Carolina.

5. As part of my duties and responsibilities pursuant to said bid and/or contract, I affirm that to the best of my knowledge and subcontractors employed as a part of this bid and/or contract, are in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):

6. ____ After hiring an employee to work in the United States the subcontractor verifies the work authorization of said employee through E-Verify and retains the record of the verification of work authorization while the employee is employed and for one year thereafter; or
7. ____ Employ less than fifteen (15) employees in the State of North Carolina.

Specify subcontractor: _____

_____ (Company Name)

By: _____ (Typed Name)

_____ (Authorized Signatory)

_____ (Title)

_____ (Date)

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PERFORMANCE BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:
Greenville Utilities Commission
P.O. Box 1847
Greenville, North Carolina 27835-1847

CONSTRUCTION CONTRACT
Effective Date of the Agreement:
Amount:
Description *(name and location)*: **DIMP Project 2018-01: Cathodic Protection Short Repair & Emergency Valve Replacement; Pitt County, North Carolina**

BOND
Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	**By:** _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	**Attest:** _____
Signature	Signature
_____	_____
Title	Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced

or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

CHANGE ORDER

GREENVILLE UTILITIES COMMISSION
PROJECT CHANGE ORDER

Assigned by Finance
Change Order Number: CO-_____

Department: _____ Date: _____ Capital Project Number: _____
Project Name: _____ Vendor Name: _____
Initiated By: _____ (Name) Vendor Address: _____
☐ Owner ☐ Engineer ☐ Contractor Vendor Contact: _____
☐ Other _____

1. TYPE OF CHANGE: ☐ Design ☐ Engineering ☐ Scope ☐ Other _____
2. REASON FOR CHANGE: ☐ Owner ☐ Vendor ☐ Safety ☐ Construction ☐ Cost ☐ Schedule
3. CHANGE ORDER DESCRIPTION: _____

Change Order Justification - _____

4. ACCOUNT NUMBER: _____
5. SCHEDULE IMPACT: ☐ No Impact ☐ Schedule Impact 6. Project Delay Of: ☐ Days ☐ Weeks ☐ Months (Check One)
Start Date: _____ Finish Date: _____ Total Time Delay: _____

7. ESTIMATED COST:

Project Mgmt	_____	☐ Add	☐ Deduct
Engr/Design	_____	☐ Add	☐ Deduct
Construction	_____	☐ Add	☐ Deduct
Labor	_____	☐ Add	☐ Deduct
Materials	_____	☐ Add	☐ Deduct
Other Direct	_____	☐ Add	☐ Deduct
Indirect	_____	☐ Add	☐ Deduct
Total Change Order Amount:	_____	☐ Add	☐ Deduct

8. REVISED CAPITAL PROJECT COST: Original Budget: $ _____ Revised Estimate to Complete: $_____

APPROVED ☐ DISAPPROVED ☐ _____
Project Manager Date

APPROVED ☐ DISAPPROVED ☐ _____
Department Head Date

APPROVED ☐ DISAPPROVED ☐ _____
Assistant General Manager/Chief Operating Officer Date

APPROVED ☐ DISAPPROVED ☐ _____
General Manager/Chief Executive Officer Date

RETURN TO FINANCE AFTER GM/CEO SIGNATURE

GREENVILLE UTILITIES COMMISSION

PROPOSAL FORM

The undersigned bidder hereby declares that it has carefully examined the enclosed detailed plans and specifications for furnishing GUC with the below listed items. The undersigned bidder further agrees, if this proposal is accepted to furnish any or all of the items upon the quoted prices.

UNIT PRICE BID

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1001	Mobilization	LS	1		
2001	Install 6" PE pipe by conventional trenching at 3' to 5' Depth.	LF	30		
2002	Install 6" PE pipe by vibratory plow at 3' to 5' Depth.	LF	130		
2003	Install 12" Steel Casing by Jack and Bore with 8" PE gas main	LF	100		
3001	8" Tie-ins by use of trench box	EA	2		
3002	Tie -in to Existing 6" Steel with 6" PE transition fitting	EA	1		
3003	Tie -in to Existing 6" PE gas main with 6" Electrofusion Coupling	EA	2		
4001	Install 2" Steel Vents	EA	2		
5001	Install 6" PE ball valve assemblies	EA	2		
5002	Install 6" Steel ball valve assemblies	EA	2		
5003	Install 8" Steel ball valve assemblies	EA	1		
6001	Install 6" Stopper on 6" Steel Gas Main	EA	5		
6002	Install 8" Stopper on 8" Steel Gas Main	EA	2		
7001	Pigging, Testing, purging & gas-up of pipeline	LS	1		
8001	Restoration of pipeline ROW (seed, mulch, tack)	AC	0.10		
8002	Install pipeline markers	EA	4		
9001	Asphalt Removal/ Repair	LS	1		
9002	Remove/ Replace Conc. Sidewalk	LS	1		
9003	Remove/ Replace Conc. Curb & Gutter	LS	1		
9004	Valve Replacement Backfill (6" lifts)	LS	1		
10001	Traffic Control	LS	1		
	Total Bid Submitted				

Anticipated Start Date: _____

Anticipated Construction Duration: _____

It is certified that this proposal is made in good faith and without collusion or connection with any other person bidding on the same above listed items. It is also certified that this proposal is made in good faith and without collusion or connection with any GUC employee(s).

Certified check or cash for $ n/a or bid bond for $ n/a attached.

Firm Name _____ Phone (_____)_____

Address_____

City _____ State _____ Zip Code _____

Fax (____)_____ E-Mail _____

Authorized Official _____ Title _____
Typed Name

_____ Date _____
Signature

Proposals must be received no later than
August 16, 2018 at 11:00 AM (EDST).

NO PROPOSALS CONSIDERED UNLESS SUBMITTED ON THE PROPOSAL FORM(S)

RETURN ALL FORM(S) EXCEPTION, E-VERIFY, ETC.

GREENVILLE UTILITIES COMMISSION

EXCEPTION FORM

DIMP Project 2018-01: Cathodic Protection Short Repair &

Emergency Valve Replacement

Provider's Certification: This is to certify that it is our intent to furnish equipment, material, services, etc. in absolute compliance with the proposal specification except where expressly noted below.

Instructions: List all exceptions or variations to these bid specifications. Providers shall identify each exception or variation by specification page. The omission of exception or variation information shall be deemed by the Commission as the Provider's intent to absolutely comply with the proposal specification. If additional space is required, Provider may reproduce this form as necessary.

Page #	Exception/Variation
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Authorized Signature of Certification: _____
Print Name: _____

Firm Represented: _____
Address: _____
_____

TECHNICAL SPECIFICATIONS

FOR

DIMP Project 2018-01: CATHODIC PROTECTION SHORT REPAIR & EMERGENCY VALVE REPLACEMENT

TABLE OF CONTENTS

GREENVILLE UTILITIES COMMISSION
NATURAL GAS DEPARTMENT

SPECIFICATIONS FOR
CATHODIC PROTECTION SHORT REPAIR & EMERGENCY VALVE REPLACEMENT

1 SECTION 1 - GENERAL

1.1 Scope of work

The work included under this Contract shall include supplying all necessary materials not supplied by the Greenville Utilities Commission (GUC), labor and equipment to install natural gas distribution mains and all necessary appurtenances within the GUC's natural gas distribution system as specified herein and detailed on the Plans and/or as designated by the ENGINEER.

Natural gas main installations will include eight (8) inch main. The piping will be medium-density polyethylene. The work involved will include installation of mains to be operated at 60 psig. All mains will be tested at 90 psig.

This Contract shall require the CONTRACTOR to work on live gas mains.

The types of work required under this Contract shall include: direct burial, directional drilling, and bore installation of polyethylene natural gas mains.

The GUC reserves the right to add to or delete from the work once the CONTRACTOR has mobilized. This work must be performed in the order directed by the ENGINEER. The GUC also reserves the right to extend the term of the Contract to allow for completion of any additional work added to this Contract.

Award of this Contract shall in no way restrict the GUC from using its own construction crews or from hiring additional CONTRACTORs to perform the same or similar type work.

1.2 Compliance

The CONTRACTOR shall comply with all provisions of the GUC's *Operation and Maintenance Plan*, dated March 1996 and CFR Title 49, Part 192.

1.3 Bidder Qualifications

All bidders must be pre-qualified by the GUC prior to submission of the Bid Proposal. Contact the ENGINEER for qualification information.

1.4 Operator Qualification (OQ)

CONTRACTORs are required to provide a current copy of the Company's Operator Qualification (OQ) Plan for natural gas distribution work prior to award of the Contract. Copies of all employee OQ qualifications shall be provided to the ENGINEER prior to beginning the work. The OQ written plan and employee records shall be in accordance with Title 49 of the Code of Federal Regulations, Chapter I, Part 192 (49 CFR 192), Subtitle N, "Qualification of Pipeline Personnel."

The CONTRACTOR shall furnish the GUC with records of continuous employee qualification for all employees with each monthly progress payment application. Qualification documentation shall be provided for all new employees prior to performing work on the GUC's natural gas system.

The GUC may, at its discretion, accept the provisions of a CONTRACTOR's Plan. CONTRACTORs shall make available, upon request, written records of their employee's qualifications. At a minimum these records shall include:

- Identification of qualified individual(s)
- Identification of covered task(s) each individual is qualified to perform
- Date that current qualification was received
- Method of evaluation used to obtain qualification
- Name of individual or organization for each covered task
- Training program outlines and materials
- List of non-qualified individuals that will be performing tasks on behalf of the GUC while under the direction of a contract qualified individual.

1.5 Drug Testing

Any and all employees of the CONTRACTOR who will be involved with natural gas distribution construction and maintenance operations required by this contract shall be required to participate in an anti-drug/drug testing program. This program shall be administered in accordance with Title 49 of the Code of Federal Regulations, Chapter I, Part 199 (49 CFR 199), "Drug Testing," and Subtitle A, Part 40, "Procedures for Transportation workplace Drug Testing Programs." The program must have been in force for no less than 12 months and the CONTRACTOR must show proof of enforcement to the Owner.

The CONTRACTOR shall furnish the GUC with documentation of participation in a qualified drug-testing program. Prior to the performance of any fusion and/or tie-in operations, a negative (no evidence of drug use) test must be documented for all employees who will be involved with these operations.

1.6 Inspection

The ENGINEER shall have access to the work at all times. The CONTRACTOR shall provide proper facilities for such access and for inspection. The ENGINEER shall be present for all special testing or approval of the work that is required by the Specifications, the ENGINEER's instructions, laws, ordinances, or any public authority.

The ENGINEER, in order to be present, shall be given sufficient notice prior to any required testing or approval. The CONTRACTOR shall have no claim against the GUC for time or monies when sufficient notice, as described above, is not given to the ENGINEER.

The ENGINEER may require re-examination of any of the work. If required, the CONTRACTOR shall provide all labor and equipment necessary to uncover the work. If the work is determined to be in accordance with the Specifications, the GUC will pay the costs of re-examination and replacement. If the work is not in accordance with the Specifications, the CONTRACTOR shall pay such costs.

Inspector(s) will be stationed at the work site to report to the ENGINEER as to the progress of the work, the manner in which it is being performed, and also to report whenever it appears that the materials furnished by either the GUC or the CONTRACTOR or the work performed by the CONTRACTOR fails to meet the requirements of the Plans or Specifications.

If a dispute arises between the Inspector and the CONTRACTOR as to the materials furnished or to the manner of performing the work, the Inspector shall have the authority to reject the questionable materials or suspend the work until the issue can be referred to and a decision can be made by the ENGINEER. Inspectors are not allowed to revoke, alter, enlarge, relax or release any requirements of these Specifications or to issue instructions contrary to the Contract Documents. Inspectors shall in no case act as foremen or perform duties for the CONTRACTOR or interfere with the management of the work by the CONTRACTOR.

The ENGINEER will make a final inspection of the work included in the Contract as soon as possible after notification from the CONTRACTOR that the work is substantially complete and ready for inspection. If any of the work is not acceptable at the time of the inspection, the ENGINEER will advise the CONTRACTOR, in writing, as to the particular item(s) to be completed or corrected before the work can be given final approval and final payment for the work is approved.

1.7 Scheduling of work

The CONTRACTOR shall typically have control of the scheduling of the proposed work, however, the GUC reserves the right to require sections of the work to be completed prior to or following other sections of the work.

The CONTRACTOR shall provide a schedule of the work to the ENGINEER, prior to beginning the work. The schedule shall include station-by-station progression, milestones (dates) for the proposed progress, crew introduction and exit information, and other relevant information deemed necessary by the ENGINEER.

1.8 Superintendence

The CONTRACTOR shall keep on the work at all times during its progress a competent resident Superintendent, having a minimum of three (3) years of experience in the installation of natural gas distribution facilities. The Superintendent shall represent all work performed by all of the CONTRACTOR's crews and shall not function as the foreman for any individual crew when more than one crew is onsite performing work required by the Contract. The Superintendent shall not be replaced without written notice to the ENGINEER except under extraordinary circumstances, as determined by the ENGINEER. The Superintendent will be the CONTRACTOR's representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications to or from the Superintendent shall be binding as if given to or received from the CONTRACTOR.

1.9 CONTRACTOR Crew Requirements

The CONTRACTOR shall provide a sufficient number of crews to efficiently complete the work required by the Contract within the Contract Period. For the purpose of this Contract, the term crew shall be defined as a collective group of CONTRACTOR personnel consisting of a foreman and other necessary personnel knowledgeable and able to perform a specific task or tasks. The CONTRACTOR shall provide a minimum of one mainline crew for this project. The CONTRACTOR shall provide the ENGINEER with five (5) working days notice prior to introducing new crews to the Project. The GUC reserves the right to limit the number of crews or request additional crews to complete the work associated with this Project.

1.10 Implied work

All incidental work required through the Plans and/or the Specifications, or as otherwise directed by the ENGINEER, for which no payment is specifically provided, and any and all work or materials not specified herein which may fairly be implied as included in the Contract and necessary to complete the work, and which the GUC shall judge to be so included, shall be executed and/or furnished by the CONTRACTOR without extra compensation.

1.11 Required work Not Covered by a Unit Cost

For any required work that is not covered by a specific unit cost in the Bid Proposal, a price must be submitted to and approved by the ENGINEER prior to performing the work. Any work performed without prior, written approval from the ENGINEER will be performed at the sole expense of the CONTRACTOR.

End of Section 1

2 SECTION 2 - GENERAL CONSTRUCTION MATERIALS

The CONTRACTOR shall supply and pay for all labor and materials necessary for the completion of the work specified herein and on the Plans, except as otherwise expressly provided for in the Contract Documents. Unless otherwise specified, all materials shall be new.

2.1 Crushed Aggregate Base Course (CABC)

Crushed aggregate used for maintaining traffic, and repairing and constructing private access pavements shall be crushed from stone, slag or gravel and shall contain all of the sizes produced when the original aggregate is reduced through a series of crushers to the maximum size specified. It shall be free of all deleterious substances in accordance with the NCDOT *Standard Specifications for Road and Structures*, latest edition.

2.2 Select Fill

Material used for bedding or backfill material purposes shall consist of approved materials; typically clean topsoil or other borrow material capable of achieving necessary compaction required for protection of the pipe and pipe and trench stabilization, as approved by the ENGINEER.

2.3 Sand

Sand shall be naturally occurring sand or manufactured stone sand. Natural sand shall consist of grains of hard, sound material, predominantly quartz, occurring in natural deposits. Manufactured sand shall consist of sound crushed particles of minimum NCDOT Grade B stone, essentially free from flat or elongated pieces, with sharp edges and corners removed. All sand shall be clean and free from foreign matter such as loam, dirt, sticks, roots, leaves, silt, vegetable matter and oil or dyestuffs.

2.4 Concrete

Concrete shall be Class B (3000 psi minimum) for sidewalks, driveways, and curb and gutters and shall conform to the requirements of NCDOT *Standard Specifications for Road and Structures*, latest edition Sections 825, 846 and 848.

End of Section 2

3 SECTION 3 - GENERAL CONSTRUCTION REQUIREMENTS

3.1 Standards

The work covered by these Specifications consists of, and includes, the performance of all operations and the furnishing of all labor, equipment, supplies and other facilities and incidental materials, as required, necessary for the construction of natural gas distribution mains and other facilities complete. The work shall be complete, tested, accepted and connected to the existing gas distribution systems.

All work on the natural gas distribution system shall be performed in accordance with: Title 49 of the Code of Federal Regulations, Chapter I, Part 192 (49 CFR 192), "Transportation of Natural and other Gas by Pipeline: Minimum Federal Safety Standards," as amended; the GUC's *Operation and Maintenance Plan*, as amended; and any other applicable standards which are hereby incorporated into these Specifications by reference.

General construction operations applicable to natural gas facilities installation shall be performed in accordance with: Title 29 of the Code of Federal Regulations, Chapter I (29 CFR 1926), *Occupational Safety and Health Standards for the Construction Industry*; and any other applicable standards which are hereby incorporated into these Specifications by reference.

3.2 Mobilization

The CONTRACTOR shall furnish all equipment, materials and labor necessary for the performance of construction preparatory operations, including but not limited to: the movement of personnel, material and equipment to and from the project site; the establishment of the CONTRACTOR's offices and storage and equipment areas; the establishment of all markings, signs, traffic detours and controls; and all other facilities necessary to perform the work as specified herein.

Measurement and Payment

The cost of mobilization will be covered by a specific contract unit price. The Contractor may bill 50% of the amount with the first invoice and 50% on the second invoice. The cost of any and all bonds, licenses, equipment, materials, labor, etc., required for startup or mobilization operations shall be included in the unit price bid.

3.3 Equipment, Tools, Labor and Materials

3.3.1 Equipment, Tools, Labor and Materials To Be Furnished By OWNER

The GUC shall supply no equipment, tools, or labor necessary for the completion of the work as specified herein.

The GUC shall supply the CONTRACTOR with all pipe, tees, elbows, reducers, valves, valve boxes and tracer wire as listed in the Bill of Materials on the construction drawings. Material furnished by the GUC will be available to the CONTRACTOR at the GUC's storage facilities located at the Operations Center, 801 Mumford Road, Greenville, North Carolina. The CONTRACTOR shall requisition materials on the form provided by the GUC and shall account for or return all materials so requisitioned. No separate payment will be made to the CONTRACTOR for time, labor and equipment necessary for the CONTRACTOR to receive and haul materials from the GUC's storage facilities to the work site(s); such costs are to be included in and absorbed by the unit prices bid in the CONTRACTOR's proposal.

3.3.2 Equipment, Tools, Labor and Materials To Be Furnished By CONTRACTOR

The CONTRACTOR shall supply and pay for all labor and materials necessary for the completion of the work specified herein. The CONTRACTOR shall supply any and all materials incidental to the installation of the gas pipe not supplied by the GUC as described in 3.3.1 Equipment, Tools, Labor and Materials To Be Furnished by OWNER, including but not limited to: select fill, sand and gravel; concrete; asphalt; testing equipment and fittings; erosion and sediment control materials; and protective rock shields. Unless otherwise specified, all materials shall be new.

The CONTRACTOR shall provide and pay for all equipment, tools and labor necessary for the proper completion of the work specified herein, including but not limited to: excavation and trenching equipment; pipe cutting, welding and fusing equipment and supplies; pipeline testing equipment; traffic control devices; and any and all applicable safety equipment which may be required.

Workmanship, tools, equipment and materials shall be of good quality meeting established industry standards. The CONTRACTOR shall, as required by the ENGINEER, furnish satisfactory evidence as to the kind and quality of materials that the CONTRACTOR provides.

Only equipment that will not damage the surfacing along any improved roadways shall be used. When crossing improved roadways with equipment that will damage it, wood boards, flat pads or other approved methods shall be used to prevent damage to the roadway. The CONTRACTOR shall repair any and all resulting damage at no cost to the GUC.

The CONTRACTOR shall, as required by the ENGINEER, furnish a complete list of equipment that will be employed on the job from the commencement of the work and until the ENGINEER accepts the job.

3.4 Inspection By The Engineer

Prior to installation of the gas distribution facilities, the ENGINEER shall inspect all pipe, fittings, valves, and other appurtenances in accordance with all provisions specified herein as well as all applicable manufacturers' standards and specifications. The CONTRACTOR shall remove from the work all materials which do not meet the provisions specified herein, as well as any and all manufacturer's standards and specifications, and replace such with acceptable materials.

The CONTRACTOR shall produce evidence, as required by the ENGINEER, that any and all items of the work have been installed in accordance with the project Plans and Specifications. The ENGINEER will conduct field inspections and witness field tests as specified herein.

3.5 Submittals

All submittals shall be identified as required by the ENGINEER, and shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and any and all other data which may be required by the ENGINEER to show that the materials and equipment the CONTRACTOR proposes to provide and use are in accordance with required Specifications.

3.5.1 As-Built Documents

The GUC and its inspector(s) will collect as-built information for this project. The CONTRACTOR shall allow the GUC access to the work during the installations and prior to backfill operations such that the necessary data collection can be completed.

No claims for time extensions or monetary considerations will be allowed by the GUC for the work required by the as-built data collection.

3.6 Right-of-Way and Easements

The CONTRACTOR shall confine construction operations to the immediate vicinity of the project location as shown on the Plans and in no case shall the CONTRACTOR encroach beyond the limits of the City of Greenville or of the NCDOT rights-of-way. The CONTRACTOR shall further use due care in placing construction tools, equipment, excavated materials, and pipeline facility materials and supplies so as to cause the least possible damage to property and the least interference with traffic. The placing of such tools, equipment, and materials shall be subject to the approval of the ENGINEER. Any damage resulting from the placement of equipment and materials or construction operation occurring outside of the City of Greenville or NCDOT rights-of-way or designated work areas shall be the sole responsibility of the CONTRACTOR. The CONTRACTOR shall make satisfactory settlement for any damage directly with the property owner involved.

The CONTRACTOR shall conduct the construction in such a manner to cause the least inconvenience to the citizens of the area, thereby maintaining good public relations. The CONTRACTOR shall not unnecessarily interfere with the use of any public or private improvements, including landscaping; nor unnecessarily damage such improvements. The CONTRACTOR shall repair any damage to such improvements to pre-construction condition, or as otherwise directed by the ENGINEER.

3.6.1 Protection of Existing Property Irons and Monuments

The CONTRACTOR shall use care in protecting existing property irons and monuments adjacent to his working area. If a property iron or monument must be removed to install new facilities, the CONTRACTOR shall be responsible for locating the iron or monument in such a manner that a surveyor, registered by the North Carolina Board of Examiners for Professional Engineers and Surveyors, can accurately replace the iron or monument after construction of the new facilities. If a property iron or monument is destroyed because of neglect on the part of the CONTRACTOR, a surveyor registered by the North Carolina Board of Examiners for Professional Engineers and Surveyors shall immediately replace it at the CONTRACTOR's expense.

3.7 Cooperation Among CONTRACTORs

The CONTRACTOR shall not hinder the work being performed by other contractors within the limits of or adjacent to this Project. The CONTRACTOR shall cooperate with other contractors, utilities or entities working in the Project area or adjacent to the Project area. The ENGINEER shall provide assistance, when necessary, to assure that the Project is completed in a manner which is in the best interest of the GUC.

When contracts are awarded to or contracts are active by separate contractors for concurrent construction in or adjacent to the work area, the CONTRACTOR shall update the Project Schedule and submit this schedule to the ENGINEER for review. For separate contracts awarded by other entities, the ENGINEER shall review and compare the contractor schedules with the appropriate department(s). If necessary, revisions to the schedule will be provided to the CONTRACTOR. The CONTRACTOR shall be allowed to requests modifications to the revised schedule which will not conflict with or hinder the work scheduled to be performed by others.

The CONTRACTOR shall assume all liability, financial or otherwise, in connection with the Contract and shall protect and save harmless the GUC from any and all damages and claims that may arise because of any inconvenience, delay, or loss he experiences as a result of the presence and operations of other contractors working in or near the work. The CONTRACTOR shall also assume all responsibility for any of the work not completed due to the presence or operation of other contractors.

Except for an extension of the Contract Length, the GUC will not be responsible for any inconvenience, delay, or loss experienced by the CONTRACTOR as a result of his failure to gain access to the work at the time contemplated. When the failure to gain access is not due to any fault or negligence of the CONTRACTOR, an extension of the Contract Length may be allowed on the basis of the amount of time delayed.

The GUC will not assume any responsibility for acts, failures, or omissions that delay the work, except as provided herein.

If the CONTRACTOR or any of their subcontractors or employees cause loss or damage to any other contractor, and if such other contractor makes a claim against the GUC, its employees or agents, due to any loss so sustained the GUC shall notify the CONTRACTOR, who shall defend, indemnify and save harmless the GUC, its employees and agents against any such claim, expense or judgment arising there from.

Upon the written request of the CONTRACTOR, the ENGINEER may relieve the CONTRACTOR of the requirement of maintaining and protecting certain portions of the work which have been completed in all respects in accordance with the requirements of the Specifications and other Contract Documents and to the satisfaction of the ENGINEER and of which the GUC has taken occupancy or use of, and thereafter except with the ENGINEER's consent, the CONTRACTOR will not be required to do further work thereon. In addition, such action by the ENGINEER will relieve the CONTRACTOR of responsibility for injury or damage to said completed portions of the work resulting from work performed by other contractors, utilities or entities. However, nothing in this section will be construed as relieving the CONTRACTOR of full responsibility for repairing, removing and replacing defective work or materials found at any time before the completion and acceptance of all work by the ENGINEER or within the Guarantee Period for the work.

3.8 Maintenance of Traffic

The CONTRACTOR shall be required to provide maintenance of traffic within the construction area for the duration of the construction period, including during any temporary suspension of work. Maintenance of traffic shall be performed conforming to the current edition of the "Manual on Uniform Traffic Control Devices" (MUTCD).

When requested by the ENGINEER, the CONTRACTOR shall provide a detailed Traffic Maintenance Plan for portions of the work prior to beginning work to be performed under this Contract. The submitted traffic plan shall be reviewed by the ENGINEER for completeness and compliance with the requirements of the City of Greenville and NCDOT. If revisions are required for the plan(s), the CONTRACTOR shall be provided with the revised plan or be required to submit a revised plan. The CONTRACTOR must have an approved traffic maintenance plan prior to commencing the work for the section(s) covered by the plan.

Where it becomes necessary to close roadways or sections of roadways, the amount of roadway closure shall be generally limited to the immediate work area and shall be in accordance with the above manual and specifications. In the event that an entire roadway or section of roadway is required to be closed, the CONTRACTOR will be required to notify and receive authorization from the ENGINEER prior to closing the road and upon reopening the road.

All materials, equipment and labor used for traffic control measures shall meet the requirements of the NCDOT. Traffic control measures shall be made available to the ENGINEER for inspection prior to commencement of the work.

Measurement and Payment

Maintenance of traffic is considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for maintenance of traffic, as specified herein, shall be included in the unit prices bid for the various pay items of the work.

3.8.1 Traffic Cones, Barrels, Barricades and Signs

The CONTRACTOR shall furnish, install and maintain sufficient traffic cones, barrels, barricades and signs to perform the work in accordance with the NCDOT requirements for traffic control. The traffic cones, barrels, barricades and signs shall be in accordance with the specifications provided for in the "Manual on Uniform Traffic Control Devices".

3.8.2 Flagging Operations

The CONTRACTOR shall furnish sufficient personnel and equipment to perform flagging operations as required by the work. The personnel shall be certified by the NCDOT to perform flagging operation. The equipment shall meet the guidelines and specifications of NCDOT and the MUTCD.

3.8.3 Maintenance of Ingress and Egress

The CONTRACTOR shall strive to maintain, at all times during the execution of the work, continuous ingress and egress to all affected properties and traveled ways. When ingress and egress to affected parcels must be blocked, due to the direct execution of the work, twenty-four (24) hours advance notice must be given to the affected property owner by the CONTRACTOR. In no case shall the blocking of ingress and egress be allowed for more than twenty-four (24) hours consecutively.

3.9 Pavement Removal and Disposal

The CONTRACTOR shall not cut any NCDOT maintained pavement unless a permit for cutting pavement at the specific location has been obtained from the North Carolina Department of Transportation. The CONTRACTOR shall be responsible for working with the ENGINEER to obtain the necessary permit.

Removal of pavement includes cutting of the pavement, breaking of the pavement surface and excavating the pavement using conventional trenching, hand and pneumatic equipment. Pavement removal includes removal of all layers of bituminous asphalt and concrete pavement necessary to properly install the pipe and/or appurtenances. Removal of pavement shall be limited to twenty-four (24) inches of width for mainline installations. The removal of pavement for test holes shall be in accordance with 3.13.1.1 Test Hole Excavations.

Maximum cutting dimensions for trenches and bellholes shall be in accordance with 3.17 Pavement and Concrete Replacement. Cutting in excess of these dimensions, unless approved by the ENGINEER, shall not be measured for payment. Pavement cutting shall be required in all direct burial applications, as indicated on the construction Plans, as required by permit, or as directed by the ENGINEER.

Where pavement is cut and replaced, the CONTRACTOR shall cut the edges to a straight and even line before repairing the pavement. Non-uniform edges will not be permitted or accepted.

All pavements removed as part of the work shall be removed from the jobsite and disposed of in accordance with the requirements of Federal, State, County, City of Greenville, and all applicable environmental regulations.

Measurement and Payment

Removal and disposal of pavement along mainline trenches, as described above, will be measured for payment in units of linear feet through the removed pavement section. Unit bid price shall also include cutbacks of surface pavement grades, and stepping of sub and base pavement grades.

Removal and disposal of pavement for excavation of bellholes within previously unexcavated and restored asphalt sections, as described above, will be measured for payment in units of square feet of the removed pavement section. Unit bid price shall also include cutbacks of surface pavement grades, and stepping of sub and base pavement grades.

The cost of removal and disposal of bellhole pavement within the limits of previously excavated and restored trenchlines for this project shall be considered incidental and shall not be measured for payment a second time. The cost of any and all equipment and labor

required for removal and disposal of asphalt for bellholes, as specified herein, shall be included in the various pay items of the work.

The CONTRACTOR should be aware that the thickness and materials of the surface and subgrades may vary.

Payment for removal and disposal of pavement will be made at the unit price bid. The bid price shall include the cost of any and all equipment and labor required for removal and disposal of bituminous and concrete pavement. Pavement removed and disposed of in excess of what is allowable and reasonable for installation of main and appurtenances shall be performed at the expense of the CONTRACTOR and will not be measured for payment.

3.9.1 Sidewalk, Driveway, and Curb and Gutter Removal and Disposal

The CONTRACTOR shall not cut or remove any NCDOT maintained sidewalk or curb and gutter sections unless a permit for cutting/removal of the sections at the specific location has been obtained from the North Carolina Department of Transportation. The CONTRACTOR shall be responsible for working with the ENGINEER to obtain the necessary permit.

Removal of concrete sidewalks, driveways, and concrete curbing and gutters includes the cutting of or the breaking of the concrete structure using conventional excavating, hand and pneumatic equipment. Removal of concrete sidewalks, driveways, and concrete curbing and gutters shall correspond to existing jointing. Removal of partial sidewalk sections shall not be permitted.

Cutting of the concrete sections shall be performed using appropriate saw(s) and shall be in a neat and workmanlike manner. The CONTRACTOR shall only remove sections necessary for the proper installation of the natural gas mains or sections damaged as a result of the construction activity.

All sidewalk, driveway or curbing and gutter sections removed as part of the work shall be removed from the jobsite and disposed of in accordance with the requirements of Federal, State, County, City of Greenville, and all applicable environmental regulations.

Measurement and Payment

Removal and disposal of concrete sidewalk and driveway as described above is considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for removal and disposal of concrete sidewalk and driveway, as specified herein, shall be included in the unit prices bid for the various pay items of the work.

3.10 Erosion & Sediment Control

The CONTRACTOR shall be required to provide a means of protecting and minimizing the effects of erosion and sediment displacement to the construction area and all immediate surrounding areas that may be affected by the construction activity.

Erosion and sediment control measures, including but not limited to: temporary stone construction entrances; silt fences; storm drain inlet protectors; stone for erosion control; soil stabilization mats; topsoil; temporary seeding; and permanent seeding shall be installed and maintained as indicated on the Plans, or as otherwise directed by the ENGINEER, in accordance with the *North Carolina Erosion and Sediment Control Planning and Design Manual,* the *North Carolina Erosion and Sediment Control Field Manual*, latest editions.

Measurement and Payment:

Due to the nature of this project, only minimal erosion control measures are expected. The cost of any and all equipment, materials, and labor required for erosion and sediment control, as specified herein, shall be included in the cost per acre.

3.11 Pipe and Materials Handling

The CONTRACTOR shall load, unload, haul, receive, sign for, store, and otherwise be responsible for all materials. All materials shall be handled and placed in a manner that prevents damage and does not interfere with public and private travel.

All pipes shall be lifted, rolled, or otherwise handled either manually or by mechanical means so as to not damage the pipe or coating. All damaged pipe or coating shall be repaired and acceptance of it shall be contingent upon approval by the ENGINEER.

Polyethylene pipe shall be protected from fire, excessive heat, harmful chemicals, and long-term exposure to direct sunlight. The CONTRACTOR shall exercise due care during handling to prevent gouges, scratches, cuts, kinks, flattening, or punctures in the pipe. All defects or damage which could impair the serviceability of the polyethylene pipe, in the opinion of the ENGINEER, including cuts, gouges or scratches which are deeper than ten (10) percent of the wall thickness of the pipe or pipe that has a non-conforming shape shall be removed from the pipe joint or the piping system. When loading, unloading, moving and placing polyethylene pipe, the CONTRACTOR shall avoid dropping or dragging the pipe. Chains shall not be used for handling polyethylene pipe.

Polyethylene pipe shall be stored in the shade to minimize expansion of the pipe and adverse effects of ultraviolet light to the pipe.

The height of polyethylene pipe stacks shall not exceed four (4) feet. Pipe shall not be stored overnight on the job site unless it is stored in an area protected from vandals. Pipe and other materials shall not be placed directly on the ground but rather on wooden pallets or a similar clean, flat surface.

Fusion operations on polyethylene pipe shall be performed adjacent to the trench and the pipe lifted and lowered into the trench. Where absolutely necessary to fuse polyethylene pipe at another location than adjacent to the trench, as allowed and confirmed by the ENGINEER, the pipe shall be lifted and carried to the trench. Under no circumstances shall any length or portion of the polyethylene pipe be dragged, slid, pushed or pulled, on any surface to the trench.

In all cases, materials shall be handled and stored in a manner suitable to the ENGINEER; which will facilitate inspection.

3.12 Bending of Pipe

3.12.1 Polyethylene Pipe

Pipe bends shall be used, as required, in place of fabricated fittings to change the horizontal and/or vertical alignment of polyethylene pipe.

The bending radius for polyethylene pipe shall not be less than the minimum recommended by the manufacturer for the kind, type, grade, wall thickness, and diameter of the particular polyethylene used as listed in Table 3.12.1.

TABLE 3.12.1
MINIMUM BENDING RADIUS OF POLYETHYLENE PIPE

NOMINAL PIPE SIZE	OUTSIDE DIAMETER (D) (INCHES)	RADIUS OF CURVATURE R = D(25)
2”	2.375	5’-0”
4”	4.500	9’-5”
6”	6.625	13’-10”
8”	8.625	18’-0”

A manufactured elbow shall be used if a change in direction cannot be accomplished in accordance with Table 3.12.1. Care shall be taken to prevent kinking in the polyethylene pipe. If the polyethylene pipe becomes kinked, the kinked section shall be cut out and replaced.

All fittings including butt fused, saddle fused and/or electrofused valves, elbows, tees, and couplings shall be installed such that they are located on a straight section of pipe, a minimum of three (3) feet from any field bend.

Measurement and Payment

Pipe bending operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for pipe bending operations shall be included in the unit prices bid for the various pay items of the work.

3.13 Pipe Installation

3.13.1 Location of Other Utilities

The location of existing utilities shown on the drawings was taken in part from records and in part from field surveys, and may not be complete or represent the exact location of the existing utilities. The GUC assumes no responsibility for the existence and/or location of any other utilities in the work area. It shall be the responsibility of the CONTRACTOR, to investigate and verify the existence and location of all utilities within the vicinity of the work.

The CONTRACTOR shall comply with all the provisions of the North Carolina Underground Utility Damage Prevention Act (Section 1, Chapter 87, North Carolina General Statutes, 1985, as amended) and hold the GUC harmless against any loss, damages or claims of any nature whatsoever arising out of the CONTRACTOR's failure to comply with the requirements of the aforesaid act.

At least seventy-two (72) hours prior to starting the work the CONTRACTOR shall verify the existence and location of all underground utilities, structures and associated appurtenances. The CONTRACTOR shall notify the NC-811 Call-Center (811 or 1-800-632-4949) to locate all participating underground utilities. The CONTRACTOR shall be responsible for identifying all utilities in the work area that are not participating members of the one-call system. These utility operators shall be provided with a minimum seventy-two (72) hours notice to have their facilities located prior to starting the work.

After 72 hours, the CONTRACTOR may commence excavation only if NC-811 is contacted to confirm that all utilities have either marked their underground line locations or reported that no lines are present within the vicinity of the excavation or demolition site. Prior to commencing any excavation, the CONTRACTOR must inspect the site for clear evidence of unmarked facilities.

After the markings have been made, the CONTRACTOR is required to maintain a minimum clearance of two feet between a marked underground utility line and cutting edge of any power-operated excavating equipment. Care should be taken or

excavation should be performed with hand tools if the excavation is within two feet of any marking.

If during the course of the excavation, a utility line has been exposed, before backfilling, the CONTRACTOR must inspect these facilities to ascertain if the facilities have been damaged. If damage of any kind is discovered or suspected, it is the CONTRACTOR's responsibility to notify the utility owner immediately.

The excavation of test holes may, upon the approval and/or direction of the ENGINEER, be required to ascertain the existence, location, size, type, and alignment of existing utilities or underground structures. The dimensions of these test holes shall be the minimum required to effectively locate the utilities and underground structures.

In the event that any gas lines, water lines, sewer lines, electric lines, cables, conduit, and/or any other existing utility, either underground or above ground, is damaged by the CONTRACTOR during the prosecution of the work, the owner of the damaged utility shall be notified immediately. Any fine, penalty or costs associated with the repair of the damaged utility are the sole responsibility of the CONTRACTOR.

The work shall be coordinated and performed in a manner so that all existing fire hydrants, without exception, shall be accessible at any time during the work.

The CONTRACTOR shall maintain the existing streams, ditches, drainage structures, culverts and flows at all times during the work. The CONTRACTOR shall pay for all personal injury and property damage that may occur as a result of failing to facilitate drainage.

The CONTRACTOR shall maintain sewage flow at all times by pumping and/or diversion, or other means acceptable to the ENGINEER. At no time shall the CONTRACTOR allow raw sewage to flow out of the sewer system to adjacent land or waterways. At no time shall the CONTRACTOR cause sewage to surcharge the sewage system such that sewage backs up into any service connection. In the event such backup occurs, the CONTRACTOR shall correct and pay for all damage caused.

Measurement and Payment

Utility locating operations is considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for utility locating operations shall be included in the unit prices bid for the various pay items of the work.

3.13.1.1 Test Hole Excavations

The excavation of test holes shall be utilized as a means to ascertain the existence, location, size, type, and vertical alignment of existing utilities or underground structures. Failure to take such precautions may result in the CONTRACTOR adjusting the work or having the existing utility relocated, at the CONTRACTORs expense. Unless otherwise approved by the ENGINEER, the dimensions of these test holes shall be a maximum of twelve-inches by twelve-inches (12”x12”). The CONTRACTOR shall excavate test holes to evaluate the locations of known utilities that will be crossed when boring or directional drilling installation methods are used.

Excavation of test holes shall include cutting, breaking and removal of the pavement surface and excavation of subsurface materials necessary to properly inspect the buried utilities or drainage structures. Excavation of subsurface materials shall be performed using conventional hand, vacuum and/or compressed air methods. Backhoes and other large equipment will not be permitted for the removal of pavement or excavation due to the dimensional limits of the test holes. All excavations and removals shall correspond to the limits as stated above.

All pavement and subsurface materials excavated as part of the work shall be removed from the jobsite and disposed of in accordance with the requirements of Federal, State, County, GUC, and all applicable environmental regulations.

Restoration of surfacing for test holes shall be in accordance with 3.17 Pavement and Concrete Replacement.

Measurement and Payment

The excavation and restoration of test holes, including asphalt and concrete restorations, are considered incidental and will not be measured for payment. The cost of any and all equipment and labor required for excavation and restoration of the test holes shall be included in the unit prices bid for the various pay items of the work.

3.13.2 Required Clearance

All gas mains shall be installed such that a minimum of twelve (12) inches, or as otherwise specified by the ENGINEER or detailed on the Plans, horizontal and vertical clearance is maintained from all other existing underground utilities and/or structures, thereby permitting proper routine maintenance and protection against damage which may result from proximity to the utilities and/or structures.

3.13.3 Alignment

All gas mains shall be installed true to the horizontal and vertical alignment indicated on the Plans and Contract Documents, or as otherwise directed by the ENGINEER. The CONTRACTOR shall make no deviations to the proposed horizontal and/or vertical alignment of the gas mains unless otherwise directed to do so by the ENGINEER.

In such cases where the proposed horizontal and/or vertical pipeline alignment will cause conflict with other utilities and/or structures, or result in less than the specified minimum clearance or cover, the ENGINEER shall be notified and the pipeline relocated as per his direction. Any and all costs associated with such changes will be paid for at the unit prices bid for the required equipment, incidental material and labor. No additional payments will be made for such work.

3.13.4 Required Cover

Typically, all gas mains shall be installed with a minimum cover of thirty-six (36) inches and a maximum cover of forty-eight (48) inches between the top of the main and the finished grade. The depth shall be continuous along the length of the mains.

The CONTRACTOR may, upon the approval of or at the direction of the ENGINEER, install the pipe with greater cover than the specified maximum, based on subsurface utility(s) locations and other field conditions.

3.13.5 Direct Burial

The CONTRACTOR shall, unless otherwise indicated on the Plans, specified herein or as directed by the ENGINEER, install all gas mains and associated facilities by direct burial.

Direct burial of the gas mains and associated facilities shall include, but not be limited to: clearing and grubbing, trench excavation (trenching), rock excavation (as required), trench stabilization (as required), lowering and laying pipe, and backfilling, as described herein.

Measurement and Payment

Direct burial installation of gas mains will be measured for payment based upon the linear footage of pipe installed. Pipe will be measured horizontally and through in-line fittings, valves and specials.

Direct buried pipe in-place will be paid for at the unit price bid. The bid price shall include the cost of any and all incidental materials, equipment and labor required for pipe laying operations, including: trench excavation; temporary trench stabilization; installation of the pipe, elbows, tees, reducers, transition fittings,

sleeves, couplings, end caps, plugs, locating devices; pipe bedding; select fill; backfill; testing; purging; temporary pavement patches; seeding and mulching; and cleanup.

Payment for installed pipe may be requested only after backfilling and testing operations have been completed and cleanup is in progress.

3.13.5.1 Clearing, Grubbing and Tree Removal

The CONTRACTOR shall clear all brush and timbers located along the alignment of the proposed pipeline, and properly dispose of such, off-site, in a prompt manner prior to commencing trenching operations.

In all cases where cultivated shrubbery, trees or otherwise valuable timber exists along the proposed pipeline route or right-of-way, the ENGINEER shall reserve the right to require the CONTRACTOR to adjust the alignment of the pipe or use an approved alternative method of installation which will not damage said shrubbery, trees or timber.

Measurement and Payment

Clearing, grubbing and tree removal operations which can be reasonably and effectively accomplished with a bush hog or standard trenching equipment are considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for such clearing, grubbing and tree removal, as specified herein, shall be included in the unit prices bid for the various pay items of the work.

Since the GUC does not anticipate any clearing operations which will required the removal of larger timber, the clearing and removal of large trees, stumps, etc., which may not be accomplished using a bush hog or standard equipment will be considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for such clearing, as specified herein, shall be included in the unit prices bid for the various pay items of the work.

3.13.5.2 Trenching

Trenching shall include all excavation necessary to prepare the ditch for the pipe to be installed regardless of what means or methods are necessary to produce such ditch. All trench excavation operations shall be performed in accordance with 29 CFR 1926, Subpart P - Excavations.

Prior to trenching, the CONTRACTOR shall verify the existence, location, elevation and orientation of all underground and aboveground facilities

within the vicinity of the work, in accordance with 3.13.1 Location of Other Utilities. The CONTRACTOR shall exercise care in the vicinity of any and all such obstructions.

The trench shall be excavated to a depth that will provide the minimum required cover, as specified in 3.13.4 Required Cover.

The width of the trench shall conform to the dimensions as detailed on the Plans and shall be wide enough to permit backfill to be tamped around the pipe(s) so that voids between pipe and backfill do not occur. Special care must be exercised to be certain there are no longitudinal voids beneath the pipeline.

The trench shall be excavated in a manner that offers smooth, firm and continuous support along the entire length of the pipeline. All sharp objects and debris shall be removed from the trench or the pipe shall be bedded with sand or clean fill to protect the pipe. A minimum of six (6) inches of pipe bedding shall be required in such locations. Where pipe bedding is required, the trench shall be over-excavated to a depth that will provide the minimum required cover, as specified in 3.13.4 Required Cover.

Whenever wet or otherwise unsuitable material, which is incapable of properly supporting the pipe, as determined by the ENGINEER, is encountered in the trench bottom, such material shall be over-excavated as directed by the ENGINEER to a depth necessary to allow for construction of stable pipe bedding. The over-excavated portion of the trench shall then be backfilled with select fill to proper grade to provide the minimum required cover, as specified in 3.13.4 Required Cover.

Unless determined unacceptable by the ENGINEER for backfilling operations, the CONTRACTOR shall store all excavated materials adjacent to the excavated trench for use in the backfilling operations.

No more than five hundred (500) continuous feet of trench may be open on any single project at any one time without approval from the ENGINEER.

Measurement and Payment

Trench excavation is considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for trench excavation, as specified herein, shall be included in the unit price bid for direct burial installation of the appropriate size/type pipe.

Select fill material required for adequate pipe support and where wet or otherwise unsuitable material is encountered will be measured for payment in cubic yards of material placed. Payment will not be based on delivered volumes or delivery tickets, unless specifically authorized by the ENGINEER. The ENGINEER shall verify the amount of select fill prior to payment. Select fill material placement will be paid for at the unit price bid and shall include the cost of any and all equipment, material and labor required for select fill placement as described above.

Where the CONTRACTOR is directed by the ENGINEER, the CONTRACTOR will provide extra depth trench excavation for direct burial of pipe. Compensation for extra depth shall only be made when the excavation required is in excess of sixty (60) inches and shoring equipment is utilized for the installation of the pipe.

Extra depth trench excavation will be measured and paid for in units of feet of depth per linear foot of pipe (FT/LF) for all of the excavation exceeding sixty (60) inches when shoring equipment is utilized. Extra depth trench excavation will be paid for at the unit price bid and shall include the cost of any and all equipment and labor required for extra depth trench excavation.

3.13.5.3 Blasting

Blasting will not be permitted for this project.

3.13.5.4 Trench Stabilization

Where the depth of the trench and/or the type and condition of the soil requires stabilization, the CONTRACTOR shall provide a method of trench stabilization as directed and approved by the ENGINEER.

All materials and installation methods required for shoring, sheeting, bracing and any other required means of trench stabilization shall conform to any and all requirements of 29 CFR 1926 and applicable appendices.

Trench stabilization system members shall be securely connected together and installed in a manner that prevents sliding, falling, kickouts or other predictable failures of the trench sides. Support systems shall be installed and removed in a manner that protects employees from all forms of trench failure or from being struck by members of the support system.
Cross braces installed above the pipe to support the sheeting shall be removed only after pipe embedment has been completed.

Where trench sheeting is required to be left in place, as directed by the ENGINEER, such sheeting shall be cut-off at a minimum of three (3) feet below finished grade and the cut-off portion removed from the trench. Sheeting left in place shall not be braced against the pipe, but shall be supported in a manner that will eliminate concentrated loads and horizontal thrusts on the pipe.

Measurement and Payment

Trench stabilization measures are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for the installation and maintenance of any required temporary trench stabilization measures shall be included in the unit price bid for extra depth trench excavation.

3.13.5.5 Lowering and Laying Pipe

Belt slings and/or padded calipers, which are sized to the particular pipe being laid, shall be used to handle the pipe provided such slings or calipers are free of all characteristics which might damage the pipe.

Inspection of the trench shall be made by the CONTRACTOR prior to lowering the pipe to ensure that no rocks or other sharp objects that may damage the pipe are located within the trench.

When polyethylene pipe is laid in the trench, sufficient slack in the placed pipe should be provided to allow for the contraction of the placed pipe.

When piping is lowered into the trench, care shall be exercised to avoid over stressing or buckling the piping or imposing excessive stress on the joints.

Anchors and supports shall be provided as directed and where required for fastening work into place.

Where the work is suspended, at night or for any other reason, the open ends of the pipe shall be securely plugged or closed to prevent entrance of water and other foreign material.

Measurement and Payment

Pipe lowering and laying operations are considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for lowering and laying pipe shall be included in the unit prices bid for the various pay items of the work.

3.13.5.6 Backfilling

Backfilling operations shall include the furnishing of all labor, materials and equipment necessary for the backfilling and compaction of all trenches, bellholes, and excavations over the entire length of the pipeline, as specified herein.

Trenches shall not be backfilled until the pipe has proper cover, bedding and smooth, firm and continuous support along the entire length of the pipe, as specified in 3.13.5.2 Trenching.

The trench shall be backfilled as soon as possible after the pipe has been properly placed.
Where the trench crosses driveways, roads, streets, or other places used for the travel of vehicles or pedestrians, proper care shall be taken so as not to impede the flow of traffic. All traveled ways, including driveways; walks, streets, or alleys crossed by the trench shall be compacted by mechanical means at +/- 20% of optimum moisture content to 95% of the theoretical maximum density as determined in accordance with the requirements of VTM-1. Where deemed necessary, the ENGINEER may elect to have density tests performed on the backfilled trench by an independent contractor or consultant at the GUC's expense.

Unsuitable material encountered during trench excavation shall not be used as backfill. Unsuitable material shall be removed to the limits established by the ENGINEER and replaced with select fill, as specified herein.

All backfill material shall be free from all objects that might damage the pipe. Wherever it is deemed necessary by the ENGINEER, hand labor shall be used in starting the backfill. The backfill placed from the bottom of the ditch to the top of the pipe shall be placed in the trench simultaneously on both sides of the pipe for the full width of the trench in layers not to exceed six (6) inches in depth. The backfill material shall be thoroughly compacted under and on each side of the pipe to provide solid backing against the external surface of the pipe and to remove all voids. The trench may be backfilled from one foot above the pipe to the top of the trench with mechanical equipment provided the machine is operated parallel to the trench, and the material is placed in the trench in layers not to exceed six inches for the full width.

The CONTRACTOR shall use materials removed during the excavation operation for the backfilling operation, unless these materials are unsuitable as determined by the ENGINEER.

All trenched construction shall be adequately compacted by means of rolling, tamping with mechanical rammers, or hand tamping such that no future settlement of the trench backfill will occur. If vibratory rollers are used for backfill compaction, vibratory motors shall not be activated until at least three (3) feet of backfill has been placed and compacted around the pipe. Flooding shall not be permitted as a means of backfill consolidation. Backfill compaction achieved by means of driving any type of construction equipment and/or vehicles, other than those specifically designed for trench compaction work, across any part of the trench shall not be permitted. The CONTRACTOR shall place additional fill soil and compact backfill areas where settlement occurs.

Measurement and Payment

Backfilling operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for the completion of backfilling operations, shall be included in the unit prices bid for the various pay items of the work.

3.13.6 Directional Drilling

The CONTRACTOR may, upon the approval and/or direction of the ENGINEER, choose or otherwise be directed to utilize directional drilling as an alternative method of installing the polyethylene gas mains.

Prior to commencing directional drilling operations, the CONTRACTOR shall be required to provide proof to the ENGINEER that the personnel performing the drilling operations have a minimum of one year of experience performing directional drilling operations of this type.

All directionally drilled gas main shall be installed in accordance with 3.12 Bending of Pipe; 3.13.2 Required Clearance; 3.13.4 Required Cover; and all other applicable requirements specified herein.

The length of each continuous directionally drilled installation shall be limited by the size and type of drilling equipment utilized for the operation, or as otherwise determined by the ENGINEER.

A minimum of one (1) bellhole per drilled section shall be excavated around the pipe to verify its location, depth and structural integrity. The sending and receiving pits for the directional drilling operation shall not be considered as part of the required number of inspection bellholes.

Tracer wire shall be installed along with all directionally drilled polyethylene pipes. Tracer wire installation shall be in accordance with 3.13.8 Pipe Locating Devices.

Bore logs shall be submitted to the ENGINEER for review for each directional drill performed.

Measurement and Payment

Directionally drilled mains will be measured for payment based upon the linear footage and diameter of pipe installed. Pipe will be measured horizontally and through all in-line fittings.

Directionally drilled pipe in-place will be paid for at the unit price bid for the appropriate diameter polyethylene pipe. The cost of any and all equipment, incidental materials and labor required for directional drilling operations, including: excavating and backfilling sending and receiving pits and inspection bellholes; directionally drilling the mains and fittings; testing and purging; and restoration shall be included in the unit price bid.

The cost of any and all equipment, material and labor required for the removal, disposal, and restoration of bellhole pavement shall be paid for at the unit prices bid for bellhole pavement removal and disposal, and for restoration.

3.13.6.1 Equipment

The directional drilling system/equipment used for pipe installation as specified herein shall be subject to the approval of the ENGINEER and shall incorporate the following features:

1. The system shall be remotely steerable permitting control of horizontal and vertical alignment within a window of ± two (2) inches.

2. The system shall provide for electronic monitoring of horizontal and vertical alignment. The locating tool shall be calibrated daily to an accuracy of ± two (2) inches.

3. The system shall be capable of turning 90° in a radius of 160 feet.

4. The system may utilize an inert and environmentally risk free drilling fluid. No toxic or otherwise hazardous chemical additive shall be added to the drilling fluid. A dry boring system is also acceptable.

5. Back reaming bits shall be of a diameter at least two (2) inches larger than the outside diameter of the pipe to be installed.

Drilling equipment shall be fitted with a permanent alarm system capable of detecting an electric current. The system shall have an audible alarm to warn the operator when the drill head nears electrified cables.

3.13.6.2 Procedure

The leading end of the pipe shall be capped prior to insertion through the boring hole or sleeve.

A “weak link” shall consist of a stainless steel breakaway connector, utilizing a single use connector pin system. The “weak link” shall be connected between the leading end of the pipe being pulled and the connection to the directional drill rods.

If the weak link breaks or is otherwise substantially damaged, as determined by the ENGINEER, during installation, the drilling operation shall be abandoned and new undamaged piping reinstalled at the CONTRACTOR’s expense. No payment will be granted for the abandoned section(s) of pipe.

The leading six (6) feet of the installed pipe shall be pulled through the receiving pit and inspected. If any abrasions, gouges or cuts are present which, in the opinion of the ENGINEER, may compromise the integrity of the pipe, the pipe shall be exposed back to the point where the damage originated. All damaged pipe that is determined by the ENGINEER to be unacceptable shall be removed and replaced at the CONTRACTOR's expense.

All fused joints contained within the polyethylene piping to be installed by directional drilling shall be allowed to cool down in accordance with the manufacturer's recommended fusion procedures prior to commencing the pulling operation.

3.13.7 Plowing

When the integrity of the pipe will not be compromised, polyethylene gas pipe may be installed by plowing as an alternative means of installation. Plowing shall not be allowed in rocky soils, congested areas, or any other areas deemed inappropriate by the ENGINEER. The ENGINEER will make all determinations as to where the CONTRACTOR shall be allowed to plow-in pipe.

The CONTRACTOR shall be allowed to plow-in sections of pipe three hundred (300) feet or less in length at a time. The pipe shall be inspected at sufficient intervals, by means of bellholes, and at all exit holes to determine the condition of the pipe. A minimum of one bellhole, located at the midpoint of the plowed segment, shall be required for inspection purposes. Stretched, gouged, scratched, kinked or cut pipe will not be accepted. If damage to the pipe is noted, the earth shall be excavated away from the pipe in both directions until the full extent of the damage is exposed to the satisfaction of the ENGINEER. The damaged pipe shall then be cut out and replaced at no additional cost to the GUC.

Polyethylene pipe shall be allowed to relax for a sufficient length of time, as determined by the ENGINEER, prior to joining sections of plowed-in pipe or making tie-ins to existing mains. Sections of plowed-in pipe to be joined or tied into existing mains shall be sufficiently overlapped in the tie-in bellholes to allow for shrinkage due to relaxation of the pipe. Fused joints shall be allowed to cool for a minimum of twenty (20) minutes prior to being installed by plowing.

Tracer wire shall be installed along with all plowed in polyethylene pipe. Tracer wire installation shall be in accordance with 3.13.8 Pipe Locating Devices.

Measurement and Payment

Installation of polyethylene gas mains by plowing will be measured for payment based upon the linear footage of appropriate diameter pipe being installed.

Plowed-in pipe in-place will be paid for at the unit price bid. The bid price shall include the cost of any and all equipment, incidental materials and labor required for plowing operations, including: excavating and backfilling exit holes and inspection bellholes; plowing in the pipe and associated fittings; locating devices, testing, purging, seeding and mulching, and cleanup.

3.13.8 Boring

The CONTRACTOR may, upon the approval and/or direction of the ENGINEER, choose or otherwise be directed to bore the gas mains beneath certain traveled ways and/or watercourses.

All boring methods shall be subject to the approval of the ENGINEER, and may include: dry boring, boring and jacking, auguring, pushing, and piercing.

The boring methods and equipment utilized shall be industry proven and accepted, subjected to the approval of the ENGINEER. All employees of the CONTRACTOR utilized in boring operations shall be trained and experienced with the specific boring method and equipment chosen. The CONTRACTOR shall, as required, provide the ENGINEER with documentation of said training and experience.

All boring equipment utilized shall be properly sized to install the carrier pipe without removing any excess spoil. The diameter of the auger used in any boring operation shall not, in any case, be greater than four (4) inches larger than the outside diameter of the casing or carrier pipe to be installed.

Boring operations shall be performed in such a manner that settlement, displacement, distortion, or any other damage to the existing ground surface, utilities and or structures will not occur. Where a utility is damaged or severely displaced, the authority having jurisdiction over the utility or structure shall be contacted immediately. The CONTRACTOR shall be responsible for promptly repairing or having repaired any such damage, to the ENGINEER's and the affected utility owner's satisfaction, at no cost to the GUC.

Boring operations shall, at all times, be conducted in a manner that does not create a hazard or impede the flow of traffic.

Carrier pipe installation shall be performed immediately upon completion of the boring operation. Soil voids that remain around the pipe after installation shall be properly filled with hydraulic cement grout, as directed by the ENGINEER. The grout shall be placed under pressure in a manner approved by the ENGINEER.

The CONTRACTOR shall, as directed, repair or replace, at his own expense any pipe that is damaged during boring operations.

If the bored carrier pipe strikes an obstruction during the boring operation, the cost of removing the obstruction shall be borne by the CONTRACTOR. If the obstruction cannot be removed, the boring operation shall be: abandoned; the pipe filled with cement grout, plugged and abandoned in place; and the bore re-attempted at a different location, as directed by the ENGINEER. The CONTRACTOR shall be responsible for any and all costs associated with an abandoned bore. No payment will be allowed for the abandoned section(s) of pipe.

When, in the opinion of the ENGINEER, a completed bore results in a deficiency which renders the pipe unusable, including but not limited to: insufficient cover; insufficient clearance with existing underground utilities and/or structures; excessive curvature of the pipe; excessive damage to the pipe and/or coating; or failure to stay within the right-of-way, the bore shall be abandoned; the pipe filled with cement grout, plugged and abandoned in place; and a new bore completed at no additional cost to the GUC.

The lengths of all required bores shall be as shown on the Plans or as otherwise directed by the ENGINEER. The typical allowance of five (5) feet outside of the edge of pavement or travel area outside of the roadway being bored will be provided for installation of pipe by bore methods.

Tracer wire shall be installed along with all polyethylene carrier pipes bored without a casing pipe. Tracer wire installation shall be in accordance with 3.13.8 Pipe Locating Devices.

Measurement and Payment

Gas mains installed by boring the pipe in-place will be measured for payment based upon the linear footage of pipe installed. The pipe will be measured horizontally and through in-line fittings and specials.

Boring will be paid for at the unit price bid. The cost of any and all equipment, incidental material and labor required for boring, including: excavating and backfilling sending and receiving pits; boring the main and fittings; testing and purging; and restoration, shall be included in the unit price bid.

Payment shall be made based upon the minimum required length of bore. Bored distances in excess of the minimum required length shall not be paid for as boring, but shall be paid for at the unit price bid for direct burial of the appropriate size/type pipe.

Payment for pavement replacement shall be in accordance with 3.17 Pavement and Concrete Replacement.

3.13.8.1 Casing Pipe Installation

The CONTRACTOR may be required to install the gas mains within a steel casing pipe by boring, as indicated on the Plans or as otherwise directed by the ENGINEER in accordance with 3.13.7 Boring.

The casing pipe shall be a minimum of two (2) nominal pipe sizes larger than the carrier pipe.

The CONTRACTOR may, upon the approval of the ENGINEER, install a larger diameter casing pipe than is specified or otherwise shown on the Plans. If a larger diameter casing pipe is installed, all minimum cover and clearance requirements, as specified herein, shall be met.

The casing pipe shall be installed true to line and grade; sloping to one end with an even bearing throughout its length. The casing pipe installation shall be made so as to allow free and unrestricted movement of the carrier pipe during installation.

Lengths of steel casing pipe shall be joined by welding the joints completely around the circumference of the pipe.

Casing pipe vent(s) shall be installed at the end(s) of the casing pipe as directed by the ENGINEER. The vents shall be painted above grade with a corrosion resistant primer paint as directed by the ENGINEER. The vent opening(s) shall be screened and turned downward. Approved gas warning signs shall be attached to the vent pipe(s) or placed immediately adjacent to the casing vent(s) at each end of the casing pipe.

Both ends of all casing pipe installations shall be sealed. Sealed casing shall have a minimum of one (1) two (2) inch vent welded on the casing before the carrier pipe is inserted.

Casing spacers shall be set within one (1) foot of each end of the casing and placed along the carrier pipe at a maximum spacing of ten (10) feet.

The casing pipe shall be prepared to the extent necessary to remove any sharp edges, projections, or abrasive material which could damage the polyethylene pipe during and after the insertion. Polyethylene pipe shall be inserted into the casing pipe in such a manner so as to protect the

polyethylene pipe from damage. The leading end of the polyethylene pipe shall be capped prior to insertion.

Measurement and Payment

Casing pipe installation will be measured for payment based upon the linear footage of casing pipe and carrier pipe installed horizontally between the ends and includes casing vent pipes, carrier pipe spacers, and casing end seals.

Casing pipe installed by bore with carrier pipe inserted will be paid for at the unit price bid. The cost of any and all equipment, incidental materials and labor required for the installation of casing pipe by bore, including: excavation and backfilling of sending and receiving pits, boring the casing pipe; installation of vent pipes, installation of casing/carrier pipe spacers, installation of ends seals, insertion of carrier pipe, testing and purging, and restoration, shall be included in the unit price bid.

The cost of any and all equipment and labor required for the removal, disposal, and restoration of pavement shall be paid for at the unit price bid for pavement removal and disposal and for pavement restoration.

No additional payment will be made for the substitution of a larger diameter casing pipe.

3.13.9 Pipe Locating Devices

The CONTRACTOR shall install tracer wire with all uncased polyethylene pipes to facilitate location of the pipe with commercially available electronic pipe locators. Warning tape shall also be installed with all direct buried mains and shall be continuous over the length of the mains. Installation of tracer wire and warning tape shall be as included in Table 3.13.8

TABLE 3.13.8
INSTALLATION OF LOCATING DEVICES

Method of Construction	Tracer Wire Location	Warning Tape Location
Direct Bury	6” Min./12” Max. Above Pipe	Not Required
Directional Drill	Pull Through Bore Hole With Pipe	Not Required
Plowing	6” Min./12” Max. Above Pipe	Not Required

Bored	Pull Through Bore Hole With Pipe	Not Required

The tracer wire shall be installed a maximum of twelve (12) inches above the pipe and a minimum of six (6) inches above the pipe for direct bury and plow-in installations. The locating tape shall be installed approximately six (6) to twelve (12) inches below finished grade.

Measurement and Payment

Unless specifically outlined below, all work associated with the installation of pipe locating devices is considered incidental and will not be measured for payment. The cost of any and all equipment, incidental material and labor required for the installation of pipe locating devices shall be included in the unit prices bid for the various pay items.

3.13.9.1 Electrically Conductive Tracer Wire

The CONTRACTOR shall be required to install an electrically conductive tracer wire (tracer wire) as a means of facilitating the location of buried or inserted polyethylene pipe. The tracer wire insulation color shall be yellow for gas.

When polyethylene pipe is installed by boring without a casing pipe, the tracer wire or locating tape shall be attached to the bull-nose in order to facilitate installation.

The tracer wire shall be pulled into each locating station with sufficient slack to extend a minimum of twenty-four (24) inches above finished grade. The tracer wire shall not be cut, but should remain continuous.

In the event that the continuity of the tracer wire is broken during installation, the CONTRACTOR shall install, at no additional cost to the GUC, a replacement tracer wire by either open trenching or plowing, as directed by the ENGINEER. Prior to the completion of the project, the CONTRACTOR shall perform a continuity test. The CONTRACTOR shall provide a procedure to the ENGINEER a minimum of 48 hours prior to performing the continuity test. If the test determines that there are disruptions to the continuity, the CONTRACTOR shall excavate and repair the damaged wire at no expense to the GUC.

Tracer wire shall not be mechanically fastened to the pipe.

Under no circumstances shall the tracer wire be wrapped around the polyethylene pipe.

Where new tracer wire is connected to existing tracer wire or where separate spools of tracer wire are connected, the tracer wire shall be spliced using an approved mechanical split bolt connector or an approved waterproof slicing kit. These connections shall be wrapped using splicing tape and/or plastic electrical tape in order to waterproof the splice. Tracer wire shall be spliced to locating tape using splice clamps as approved by the locating tape manufacturer, or an approved equal.

3.13.9.2 Locating Stations

Locating stations shall be installed at all locations indicated on the Plans, or as otherwise directed by the ENGINEER. When a locating station is installed at a lateral connection, the station shall be installed directly over the center of the tee or lateral branch connection. Locating stations shall be installed behind the curb and gutter or outside of the roadway at all locations other than lateral connections and intersections.

Locating station installations shall include valve boxes (top section only) and a lid. The valve box lid shall be marked “TEST” or “T”.

Locating station installation shall include excavating, setting of the valve box sections(s), coiling the tracer wire into the box, properly setting the valve box lid, backfilling and compacting around the box, and restoration.

When locating stations are not installed over the main or fitting, the tracer wire shall be installed inside one-half (½) inch or one (1) inch polyethylene tubing and the tubing shall terminate at a point between twelve (12) inches and six (6) inches below the top of the valve box.

Measurement and Payment

Locating station installations will be measured for payment based upon the number installed.

The unit price bid shall include the cost of any and all equipment, incidental material and labor required for locating station installation, as described above.

3.14 Abandonment of Existing Facilities

The CONTRACTOR shall, as indicated on the Plans or as otherwise directed by the ENGINEER, be required to remove from service certain sections of the existing gas distribution facilities, including but not limited to: mains, fittings, valves and valve boxes.

Abandonment of existing facilities shall be accomplished by either in-place abandonment or complete removal of these facilities, as indicated on the Plans or otherwise directed by the ENGINEER.

In-place abandonment shall consist of: restraint of existing facilities, disconnection of the facilities from the existing system; purging of natural gas from all gas mains; properly sealing the ends of all abandoned pipe; backfilling all exposed portions of abandoned pipe; removing top section of abandoned valve boxes and backfilling with sand and asphalt; and restoration of the affected area as directed by the ENGINEER.

Sealing of natural gas mains shall be accomplished using an appropriate welded or fused fitting to the open end(s) as directed by the ENGINEER. For abandonment of two (2) inch and smaller diameter mains, the CONTRACTOR shall use an internal rubber-based compression stopper.

Valves and valve boxes shall be abandoned in place, unless otherwise directed by the Plans or the ENGINEER. The abandonment shall not be performed until the abandonment of the main is complete. A one (1) foot square hole shall be cut around valve boxes located in the pavement or concrete and the CONTRACTOR shall render the valve inoperable by breaking off the top section of the valve box a minimum of six (6) inches below the surface of the surrounding pavement or grade and filling the valve box with the same material (asphalt, concrete, dirt, etc.) directly adjacent to the valve box. Compaction of the material used to fill the valve box shall be completed such that settlement will not result. Asphalt shall be compacted with an approved roller or vibratory plate.

Purging of gas mains shall be performed, as directed by the ENGINEER, with compressed air and shall continue until a reading of zero (0) percent gas is measured using an approved, calibrated combustible gas indicator (CGI). **All purging operations shall be done under the direct supervision of the ENGINEER. A minimum of eight (8) hours advance notice shall be provided to the ENGINEER.**

Detailed information concerning all abandoned facilities, including, but not limited to; size of pipe, length of pipe abandoned, fittings installed, etc. shall be collected and submitted to the ENGINEER by the CONTRACTOR for all projects.

The CONTRACTOR shall be required, as directed by the ENGINEER, to return various abandoned distribution facility components to GUC in working condition.

Measurement and Payment

In-place abandonment of existing distribution facilities is considered incidental work and will not be measured for payment. The cost of any and all equipment, incidental material and labor required for in-place abandonment operations shall be included in the unit price bid for the various pay items of the work.

3.14.1 Removal of Facilities

The work covered by this Contract shall require the CONTRACTOR to remove sections of abandoned piping, valves, and valve boxes.

After isolating and purging, the facilities shall be removed from the ditch and the ditch shall be backfilled and compacted. Compaction shall be equal to that of the surrounding soil or as otherwise specified on the project Plans or as required by the ENGINEER. Compaction within traveled ways, including driveways, sidewalks, streets or alleys shall meet the density requirements as specified in Section 3.13.5.6 Backfilling. Following backfilling and compaction, the surface shall be graded to match the existing grade and contour. Removed piping and materials shall be properly disposed of or otherwise handled as directed by the ENGINEER.

The CONTRACTOR shall be required to remove short sections of piping at tie-in locations, at the direction of the ENGINEER or as deemed necessary by the CONTRACTOR, to facilitate tie-in operations. Additionally, removal of pipe will only be required where indicated on Plans, or as directed by the ENGINEER.

Measurement and Payment

Abandonment of facilities by removal is considered incidental and will not be measured for payment. Seeding, mulching and tacking of the surface are considered incidental and shall not be measured for separate payment.

The cost of any and all equipment, material and labor required for the removal, disposal, and restoration (including seeding, mulching and tacking of the surface) shall be included in the unit prices bid for various pay items of the work. Pavement removal/disposal and replacement, where necessary, will be paid for at the respective unit prices bid for this work.

3.15 Clean Up

The CONTRACTOR shall keep the right-of-way reasonably clear of construction debris during the progress of the work. Cleanup shall consist of all work necessary to restore the affected area to pre-construction condition. This operation shall include, but not be limited to, the removal of excess excavated materials, equipment, rock and other materials that cannot be placed in the trench backfill. Cleanup shall also consist of the repairing or restoration of trenches, restoration to pre-construction topography, disposal of vegetative debris and re-

seeding and mulching as directed by the ENGINEER, in accordance with the NCDOT Specifications.

The CONTRACTOR will keep all paved surfaces clear of soil (compacted or loose) and loose gravel or stone. When a mechanical sweeper is used, the sweeper attachment shall be covered to minimize dust and shall utilize a wet sweeper system.

Finish grading shall be performed as necessary to re-establish slopes. The grades shall be formed to easy contours sloping towards inlets and ditches. This grading shall eliminate low spots and pockets that do not drain. Ditches shall be excavated to the section and elevations shown and shall be excavated with smooth slopes to avoid low spots and pockets that do not drain.

Developed property including but not limited to walks, steps, fences, mailboxes, paper boxes, disturbed by the work shall be restored or replaced to their original or better condition, except as shown on the Plans or directed by the ENGINEER. Ditches shall be restored to their original shape and slope. All disturbed areas not covered by pavement or structures shall be fertilized, limed, seeded, and mulched. Any washing or erosion of the surface, and any areas where grass seed does not germinate, shall be repaired and reseeded until an adequate stand of grass is achieved.

The CONTRACTOR shall be required to dress-up all work areas daily. The daily dress-up shall include backfill and compaction, removal of rocks and large dirt clods, raking to a consistent grade, removal of construction materials and debris, providing and placing a straw covering as required, and providing and placing soil stabilization measures as required by the ENGINEER. Final cleanup and restoration shall be performed within five working days of completion of all work within individual properties or sections of properties as designated by the ENGINEER. The work required prior to final cleanup and restoration shall include the installation and activation of the distribution mains and the completion of all required abandonments. This cleanup shall continuously follow, as described above, to the ENGINEER's satisfaction. Untimely cleanup resulting from the pipeline construction activities may result in the suspension of new construction, as deemed necessary by the ENGINEER.

Measurement and Payment

Cleanup operations are considered incidental work and will not be measured for payment. The cost of any and all equipment and labor required for cleanup shall be included in the unit prices bid for the various pay items of the work.

3.16 Pavement and Concrete Replacement

Within ten (10) days of the completed installation of the mains, the CONTRACTOR shall be required to re-pave or otherwise restore, as directed by the ENGINEER, all surfaced roadways and driveways and all concrete structures damaged by the construction. All restoration work within the City of Greenville or NCDOT rights-of-way shall be performed as

specified herein, as directed by the ENGINEER and to the satisfaction of NCDOT or the City of Greenville Department of Public works.

The CONTRACTOR shall replace roadway, driveway and walkway surfaces necessarily removed for the installation of the mains. It is the intent of these Specifications that the CONTRACTOR returns all paved surfaces affected by the work to as near pre-construction condition as possible in conformance with approved methods.

The CONTRACTOR assumes all responsibility for the restoration of pavement, and for safely maintaining the pavement cuts and normal traffic flow until final restoration is complete.

No asphalt paving shall be performed unless the atmospheric temperature is above 40° Fahrenheit. Where required, rolling shall be performed with an approved 10-ton roller. Hand operated vibratory plate equipment will not be allowed for finishing work on the surface course.

In all cases, the type of paving section used, as outlined below, shall be as directed by the ENGINEER prior to commencing paving operations.

Measurement and Payment

Replacement of asphalt pavement along standard mainline trenchlines utilizing the standard paving section, as described below, will be measured for payment in units of linear feet and paid for at the unit price bid for this pay item.

Replacement of asphalt pavement along standard bellholes utilizing the standard paving section, as described below, will be measured for payment in units of square feet and paid for at the unit price bid for this pay item.

Payment for pavement section replacement shall be limited along the trenchline to a width equal to the maximum trench widths allowed in Item 3.17 Pavement and Concrete Replacement. Paving of tie-in bellholes, bore pits, push pits, etc. will be limited to the minimum pit size required to complete the work. The cost of any and all equipment, material and labor required for the complete restoration of the asphalt pavement, as specified herein, shall be included in the unit price bid.

No additional payment for pavement replacement will be granted for any work or quantities in excess of the trench and bellhole limits as described in 3.9 Pavement Removal and Disposal without the approval of the ENGINEER.

Payment for pavement section replacement of test holes shall be in accordance with 3.13.1.1 Test Hole Excavations.

The stone subgrade will not be measured for payment and should be included in the cost of the asphalt replacement. Payment will not be granted to the CONTRACTOR for providing and placing excess stone.

Tack and prime coats will not be measured for payment. They are considered incidental to the pavement replacement work and their cost should be included in the CONTRACTOR's unit price bid for the replacement of asphalt restoration.

Only the amount of asphalt necessary to achieve pavement replacement conforming to the above requirements will be measured for payment. Payment will not be granted to the CONTRACTOR for providing and placing excess materials. Payment shall not be granted for surface repair that is in excess of what is reasonable to perform the installation of the pipe.

3.16.1 Standard Roadway Asphalt Pavement Replacement

Within NCDOT right-of-ways, City of Greenville right-of-ways, and where directed by the ENGINEER, roadway pavements shall be restored in conformance with the applicable sections of the NCDOT "Standard Specifications for Roads and Structures", latest edition.

For asphalt pavement replacement within City of Greenville rights-of-way, the pavement section shall consist of six (6) inches of NCDOT Type H intermediate course mixture and (2) two inches of NCDOT I-2 surface mixture over a compacted subgrade consisting of eight (8) inches of stone.

For asphalt pavement replacement within NCDOT rights-of-way, the pavement section shall consist of six (6) inches of NCDOT Type H-B base course mixture, six (6) inches of NCDOT Type H intermediate course mixture, and two (2) to three (3) inches of NCDOT Type I-2 surface course mixture over a compacted subgrade.

Proper tack coat placement shall be required for all pavement replacement to insure adequate bonding with the existing adjacent surface. Pavement replacement will not be permitted or accepted where the tack coat has not been properly applied.

Subgrade Preparation: The subgrade preparation shall conform to Section 500 of the NCDOT "Standard Specifications for Road and Structures" (latest edition).

Aggregate Base Course: Aggregate base course shall conform to Section 520 of the NCDOT "Standard Specifications for Road and Structures" (latest edition).

Bituminous Concrete Base Course: The bituminous base course shall conform to Section 630 of the NCDOT "Standard Specifications for Road and Structures", (latest edition), for Type H-B material.

Bituminous Concrete Intermediate Course: The binder course shall be placed on a prepared base course or existing pavement in accordance with Section 640 of the NCDOT "Standard Specifications for Road and Structures" (latest edition) for Type H material.

Tack Coat: The work shall be performed in accordance with Section 605 of the NCDOT "Standard Specifications for Road and Structures" (latest edition).

Bituminous Concrete Surface Course: The work shall be performed in accordance with Section 640 of the NCDOT "Standard Specifications for Road and Structures" (latest edition) for Type I-2 material.

Traffic Markings: The CONTRACTOR shall repair and restore any traffic markings that were damaged during the performance of the work. All repairs shall be in accordance with the requirements and specifications of NCDOT and the MUTCD Manual, (latest edition).

Existing Structures: All existing structures which fall under or near repaired or restores bituminous areas shall be adjusted to final grade prior to application of bituminous concrete.

3.16.2 Gravel and Other Surfacing

Gravel and dirt roadways and driveways shall be repaired and replaced to their original condition, or as otherwise directed by the ENGINEER.

Measurement and Payment

Gravel roadway and driveway restoration shall be measured for payment based on the tons of gravel placed. Excess quantities of gravel shall not be included in the measurement for payment. The cost of any and all equipment, material and labor required for gravel roadway and driveway restoration operations shall be included in the unit prices bid.

Dirt road restoration is considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for dirt roadway and driveway restoration operations shall be included in the unit prices bid for the various pay items of the work.

3.16.3 Sidewalk, Driveway, and Curb and Gutter Replacement

Sidewalks and driveways shall be repaired or replaced to the thickness of the adjacent, undisturbed sections or four (4) inches whichever is greater. Concrete curb and gutter sections shall be replaced to match adjacent curb and gutter sections. The finish shall be floated or broomed to match the existing. Joints shall be tooled to match the spacing of the existing sections.

Measurement and Payment

Concrete sidewalk and driveway restoration costs, directly resulting from the installation of gas facilities, will be measured for payment in units of square yards. The bid price shall include the cost of any and all equipment, material and labor required for concrete restoration, including: the replacement (including: reinforcement, finishing and jointing) of all classifications, thickness', and widths of

concrete. Any unnecessary damage to concrete incidental to the work shall be repaired at the CONTRACTOR's expense.

3.16.4 Concrete Structures

Concrete structures, including but not limited to headwalls and drainage structures damaged during construction, shall be promptly and satisfactorily restored to pre-construction condition, as directed by the ENGINEER, in accordance with all North Carolina Department of Transportation.

Measurement and Payment

Concrete structure restoration costs, directly resulting from the installation of water and gas facilities, will be measured for payment in units of cubic yards. Concrete structure restoration will be paid for at the unit price bid. The bid price shall include the cost of any and all equipment, material and labor required for concrete structure restoration, including: the cutting, removal, disposal and replacement (including: reinforcement, finishing and jointing) of all classifications, thickness', and widths of concrete. Any damage to concrete structures incidental to the work shall be repaired at the CONTRACTOR's expense.

End of Section 3

4 SECTION 4 - MATERIALS FOR GAS FACILITY INSTALLATION

Material descriptions are included to provide the CONTRACTOR with information necessary for proper equipment selection and installation procedures. The GUC will provide materials as described in 3.3.1 Equipment, Tools, Labor and Materials To Be Furnished By OWNER

4.1 Pipe

4.1.1 Polyethylene Gas Pipe

All polyethylene gas pipe shall be PE 2406/2708, medium-density polyethylene. The polyethylene pipe shall be manufactured and tested in accordance with ASTM specification D2513. The minimum material cell classification, as determined in accordance with ASTM D3350 shall be 234363E. All polyethylene pipes shall be Iron Pipe Size (IPS), unless noted as copper tubing size (cts).

PE 2406 polyethylene pipe properties shall be as listed in Table 4.1.1.

TABLE 4.1.1
POLYETHYLENE PIPE PROPERTIES

SIZE (INCHES)	SDR	WEIGHT (LB./FT.)	COIL/STRAIGHT LENGTH (FT.)
¾	11	0.12	Coil
2	11	.063	Coil
4	11.5	2.17	40’ (Straight Length)
6	11.0	4.89	40’ (Straight Length)
8	11.0	8.28	40’ (Straight Length)

4.1.2 Steel Gas Pipe

All steel pipe used for incorporation into the system shall be new. Used steel pipe, meeting the requirements of G.S. 192.55 and Part 192 Appendix B, Section II, may be used if mandated by extraordinary circumstances. The minimum specifications for steel carrier pipe is API 5L and steel casing pipe must meet ASTM A53/A53M standards. The manufacturing process for the steel coated pipe shall be electric weld, seamless, or continuous weld. All steel pipe shall have plain ends, finished in accordance with normal practice under API 5L or ASTM A53/ A 53M standards unless otherwise specified.

4.2 Pipe Fittings

4.2.1 Polyethylene Pipe Fittings

Polyethylene pipe fittings shall be butt fusion; saddle fusion or electrofusion fittings manufactured by an approved manufacturer and shall be composed of the same material as the pipe, as specified in 4.1.1 Polyethylene Gas Pipe. All one-half (1/2) and one (1) inch fittings must be 0.090 wall thickness copper tubing size (CTS). All fittings larger than one (1) inch shall be SDR 11, iron pipe size (IPS).

4.2.1.1 Fabricated Tees

Polyethylene fabricated tees shall consist of line pipe and a branch saddle fitting. The line pipe shall be similar in length to a standard molded tee. The branch saddle fitting shall be fusion applied, the line pipe tapped through the branch saddle fitting with a full outlet opening, and a section of pipe with a minimum length of twelve (12) inches fused to the outlet of the branch saddle fitting in the manufacturer's facilities. The branch saddle and line pipe shall be composed of the same material as the pipe, as specified in 4.1.1 Polyethylene Gas Pipe.

4.2.2 Electrofusion Fittings

Electrofusion fittings shall be manufactured of polyethylene resins compatible with PE 2406/2708, high-density pipe. The fittings shall be engineered to be used with and meet or exceed the resistance properties of SDR 11, polyethylene pipe.

4.2.3 Transition Fittings

Steel to plastic transition fittings shall meet or exceed 49 CFR 192, ASTM D2513 and ASTM A53 specification. The steel portion of the fitting shall be coated with electrostatically applied epoxy and the end shall be beveled for welding and tapered to match the pipe bore. The plastic portion of the fitting shall be composed of the same material as the pipe. The longitudinal pull out strength of the transition from steel to plastic shall exceed the yield factor of plastic pipe.

4.2.4 Steel Fittings

Steel butt-welding fittings must have pressure and temperature ratings based on stresses for pipe of the same or equivalent material. The actual bursting strength of the fitting must be at least equal to the computed bursting strength of the pipe of the designated material and wall thickness, as determined by manufacture testing of the same component manufactured to the same standards and

conditions to at least the pressure required for the pipeline to which it is being incorporated into.

Steel butt-weld fittings shall be Schedule 40 or greater. Steel Butt-welded fittings should comply with either ANSI B16.9 or MSS SP-75 and should have pressure and temperature ratings based on stresses for pipe of the same or equivalent material. Weld elbows should be long radius, unless specified otherwise.

Threaded fittings shall comply with ANSI B16.3, ANSI B16.4, ANSI B16.11, MSS SP-83, or equivalent as appropriate. Socket weld fitting shall comply with ANSI B16.11, ASTM A733, MSS SP-79, or MSS SP-83, or equivalent as appropriate.

4.2.5 Hot Tap Fitting

Fitting approved for use in this system for hot tapping operations shall be any fittings listed in the "Mueller Gas Distribution Products Guide", latest edition. Fittings manufactured by TD Williamson that are considered equal to the standards of the "Mueller Gas Distribution Products Guide" are also approved for use in the system. All fittings shall be installed per manufacturers recommendation unless otherwise authorized by the ENGINEER.

4.3 Valves

All valves to be installed in the gas distribution system shall be wrench operated, low maintenance or no maintenance valves as indicated on the Plans.

4.3.1 Main Valves

4.3.1.1 Polyethylene Valves

All main valves shall be polyethylene, full opening, ball type and maintenance free, as manufactured by Nordstrom Valve, Inc. (Polyvalve) or Kerotest (Polytec). The valves shall be composed of the same material as the pipe, as specified in 4.1.1 Polyethylene Gas Pipe. Valve outlets shall be manufactured for butt fusion. The valves shall have factory applied PE 2406/2708 extensions, in conformance with 4.1.1 Polyethylene Gas Pipe above, on both ends. Extensions shall be joined by butt fusion.

4.3.1.2 Steel Valves

All steel valves must meet the minimum requirements of ANSI/API Spec 6D or conform to a national or international standard that provides an equivalent performance level. The valves shall have a maximum service pressure rating for temperatures that equal or exceed the maximum

service temperature, meet anticipated operations conditions, only be installed in accordance with the service recommendations of the manufacturer, and all valves shall be provided with shank adapters for operating with a single lever or socket wrench having a two-inch square opening. Valve boxes must be provided for all underground valves**.**

4.4 Locating Stations and Valve Boxes

Locating station boxes shall be installed to facilitate the location of the mains. Valve boxes shall be installed to facilitate the operation of the valve.

4.4.1 Main Line Valve Boxes and Locating Stations

Locating and valve boxes, extension pieces, collars and covers shall be 2-piece screw type adjustable or 2-piece sliding type adjustable boxes as manufactured by Bingham and Taylor or ENGINEER approved equivalent. Valve box covers shall have the word “GAS” embossed on top. Locating station covers shall have the word “TEST” or “T” embossed on top.

4.5 Other Materials

Special material specifications may be listed on any supplemental Plans or drawings.

The CONTRACTOR shall provide special materials, as directed by the ENGINEER.

End of Section 4

5 SECTION 5 - GAS DISTRIBUTION FACILITIES INSTALLATION

5.1 CONTRACTOR Qualifications

The CONTRACTOR shall use only competent and skilled workmen for the performance of any and all work on the natural gas distribution system, as specified herein. The workmen shall not perform any heat fusion or welding operations on any pipe or associated fittings within the system until they have been qualified to perform such operations in accordance with the test requirements specified in 5.1.1 Heat Fusion Qualifications and 5.1.2 Welding Qualifications.

The CONTRACTOR shall furnish evidence, as required by and to the satisfaction of the ENGINEER, that the specified testing requirements have been met for each employee prior to their utilization on the work.

Measurement and Payment

Qualification of the CONTRACTOR's personnel for heat fusion and welding operations is considered incidental and will not be considered for payment. All costs associated with qualifying the CONTRACTOR's personnel, including but not limited to testing and certification, as specified herein, shall be included in the unit prices bid for the various pay items of the work.

5.1.1 Heat Fusion Qualifications

Operators of heat fusion equipment, including: butt fusion, saddle fusion and electrofusion, shall be tested and certified in accordance with the requirements of 49 CFR 192, Subpart F, Paragraph 285 along with any and all additional requirements of the specific pipe and/or fitting manufacturer.

In addition to and in accordance with the requirements above, all personnel performing heat fusion operations shall be certified by the GUC to join polyethylene pipe approved for use as included in Section 4.1.1 Polyethylene Gas Pipe, prior to commencing work, by the following procedures:

Certification: Each technician making joints in polyethylene pipe must provide evidence of current heat fusion certification from an approved pipe manufacturer, pipe vendor, or gas distribution company. Additionally each technician must be qualified by the Gas Superintendent, or designee, before making joints on polyethylene pipe that will be installed in the gas distribution system operated by the GUC.

Testing: Each technician must show proof of satisfactory training and practice in making heat fused joints on polyethylene pipe and fittings. A technician will be tested with the following procedure:

1) Make a specimen joint by joining material equal to the material being used which passes visual inspection during and after assembly and is found to have the same appearance as an acceptable joint or photograph of an acceptable joint.
2) Specimen is physically tested by cutting into at least three (3) longitudinal strips. Each strip shall:
   Show no voids or discontinuities or any cut surface in the joint area.
   Be deformed by bending, torque, or impact and if failure occurs, it must not be in the joint area.

Re-qualification must be completed if during any twelve (12) month period that person:

(i) Does not make any fusion joints.

(ii) During the course of the work, any employee of the CONTRACTOR that cumulatively performs three unsatisfactory fuses for incorporation in the natural gas distribution system that are subsequently determined to be unacceptable to the ENGINEER shall not be allowed to perform fusion operations until evidence of re-training from an acceptable source is provided to the ENGINEER.

If the technician performs unsatisfactorily in the fusion of the joints or fittings for which the technician is approved for as indicated on his fusion permit, the GUC reserves the right to revoke his/her permit to fuse polyethylene pipe on the GUC's gas system.

5.1.2 Welding Qualifications

Prior to performing welding of steel pipe on the Gas Department's natural gas system, personnel responsible for joining steel pipe by welding shall be qualified. All qualification tests shall be conducted under the supervision and direction of a qualified Gas Department welder or a qualified testing company as approved by the Gas Distribution Engineer.

The Gas Department may require contract welders or welding operators to qualify specifically for welding on the Gas Department's facilities. If so, all testing and qualification requirements shall match the requirements of the certification process listed below:

Certification: Contract welders shall provide evidence of being qualified in accordance with the procedures listed in Section 6, Section 12, Appendix A or

Appendix B of the API Standard 1104 or Section IX of the ASME Boiler and Pressure Vessel Code, "Welding and Brazing Qualifications". Welds made for the initial qualification shall satisfy destructive test requirements.

Testing:

(1) The welder shall butt weld two sections of twelve (12) inch nominal pipe size placed in a fixed position at an incline of forty-five (45) degrees.
   (a) The combination of pipe size and position qualifies the welder to perform butt and fillet welds in any position and all pipe diameters.
   (b) The weld shall be destructively tested in accordance with the requirements of API 110 or Section IX of the ASME Boiler and Pressure Vessel Code. If a weld sample fails this test the welder is not qualified to perform welds on the Gas Department's natural gas system.
(2) A separate qualification process shall be performed to ensure that the welder can successfully perform a fitting to in-service pipe.

Following the successful welder qualification of Gas Department Personnel and contract personnel, Form II.F-4.1 shall be completed and submitted to the Gas Distribution Engineer.

Requalification: After the initial test, a Gas Department welder or welding operator shall maintain qualification to perform welding operations by the following:

(1) At intervals of each calendar year and not exceeding 15 months between qualifications/requalification, each Gas Department or welding operator shall requalify in accordance with the initial qualification requirements.
(2) With intervals not to exceed 7 ½ months and at least twice each calendar year; each Gas Department welder or welding operator shall have a production weld cut out, tested, and found acceptable in accordance with the qualifying test.

5.2 Heat Fusion

All polyethylene pipe and/or fitting connections and other fabrications within the gas distribution system shall be made by heat fusion, unless otherwise directed by the ENGINEER. Heat fusion shall include: butt fusion, saddle fusion and electrofusion.

Measurement and Payment

Heat fusion operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for heat fusion operations and inspection thereof, including: heat fusion machines and wind guards, shall be included in the unit prices bid for the various pay items of the work.

5.2.1 Procedure

All heat fusion jointing procedures shall be performed in accordance with 49 CFR 192 and any and all recommended Specifications and procedures provided by the pipe and/or fitting manufacturer.

Heat fusion equipment shall, at all times, be protected from damage and kept in good working condition. Fusion equipment that shows signs of deterioration or damage shall be replaced. Heat fusion machines that, in the opinion of the ENGINEER, are in poor repair or are not of sufficient capacity to perform the work shall not be used in conjunction with work on GUC facilities.

Suitable windguards shall be provided to protect the work during periods of excessive wind or cold weather. When the ambient temperature is below 32°F care must be taken to maintain the proper heater plate temperature.

The CONTRACTOR shall, at the direction of the ENGINEER, temporarily suspend all heat fusion operations whenever conditions are not conducive to the performance of good work.

All fused joints and other connections shall be air-cooled. Accelerated cooling by any method shall not be permitted.

Fusion operations on polyethylene pipe shall be performed adjacent to the trench and the pipe lifted and lowered into the trench. Where absolutely necessary to fuse polyethylene pipe at another location than adjacent to the trench, as allowed and confirmed by the ENGINEER, the pipe shall be lifted and carried to the trench. Under no circumstances shall any length or portion of the polyethylene pipe be dragged, slid, pushed or pulled, on any surface to the trench.

5.2.2 Inspection

Visual, nondestructive and/or destructive testing procedures shall be implemented, as required by the ENGINEER, to determine the quality of the fused joints.

The ENGINEER may, at his discretion, require nondestructive testing and inspection of any or all fused joints prior to the initiation of backfilling or insertion operations.

The ENGINEER shall make all determinations as to what constitutes an acceptable fused joint as well as the disposition of all defective joints. These determinations shall be made upon completion of a visual inspection. Defective joints shall be

removed from the piping system at the ENGINEER's direction and at no cost to the GUC.

5.3 Welding

All steel pipe and/or fitting connections and other fabrications within the gas distribution system shall be made by welds, unless otherwise directed by the ENGINEER.

Measurement and Payment

Welding operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for welding operations and inspection thereof, including: welding rods, fluxes, filler metals, welding machines and wind guards, shall be included in the unit prices bid for the various pay items of the work.

5.3.1 Procedure

Welding shall be performed by a qualified welder or welding operator in accordance with welding procedures that are qualified under Section 5, Section12, Appendix A or Appendix B of API Std 1104, or Section IX of the ASME Boiler and Pressure Vessel Code to produce welds meeting the requirements of this subpart. The quality of the test welds used to qualify welding procedures shall be determined by destructive testing in accordance with the applicable welding standard(s).

The Gas Department's welding procedure is as shown in Form II.F-4.2. The standard welding procedure specifications for shielded metal arc-welding (SMAW) or carbon steel pipes, valves, fittings, and flanges are as follows:

(1) Process: Manual shielded metal arc-welding.
(2) Base metal: The base material shall conform to the specifications of API Standard 5L pipe and applicable ASTM standards.
(3) Filler metal: The filler metal shall conform to the ASW-ASTM Classifications listed in API 1104, Section 4.2.2.1. Shelf life shall not be exceeded. Heater boxes are recommended for low hydrogen electrodes.
(4) Position: As specified by the qualified procedure.
(5) Preparation of Base Material: All surfaces to be welded shall be clean and free of material that may be detrimental to the weld. The pipe ends at all welded joints shall be beveled. Bevels shall be made by machine or an appropriate oxygen cutting machine/guide.
(6) Electrical Characteristics: Direct Current reverse polarity.
(7) Welding Layers: The welding current and manner of depositing the weld metal shall be such that the layers of welding as deposited shall have a neat

appearance. Each completed weld shall be free of overlaps, undercuts, excessive convexity and concavity, scale, oxides, pin holes, nonmetallic inclusions, air pockets or any other defect. The size of electrode for each pass on each size of pipe shall be as shown in the procedure. Each bead shall be applied completely around the pipe and shall be thoroughly cleaned of all scale, slag. Or other foreign material before the next bead is started. The stringer beads will be placed in the same fashion. Welding procedure specifications shall be followed for reinforcement heights and widths and bevel dimensions.

(8) Cleaning: All slag or flux remaining on any bead of welding shall be removed before laying down the next successive bead. To increase weld quality, tacks, high spots, and starts and stops should be grounded.

(9) Defects: Any cracks or burn through that appear on the surface of any bead of welding shall be removed by grinding before depositing the next successive bead of welding to ensure a quality weld.

(10) Preheating: Preheating is not required above 32°F. If welding is done below 32°F, the pipe joint shall be heated to procedure specifications before welding is started. Moisture shall be removed from the pipe prior to performing welds. A torch with a heating tip may be used to remove frost and/or moisture.

(11) Post heating: Post heating is conducted if required by the procedure.

(12) Cooling: Cooling of welds by using any substance other than air shall not be permitted. The pipe shall not be moved until the weld is below 600°F.

(13) Alignment: Use external and/or internal lineup clamps when necessary. Lineup clamps may be removed after tacking or after fifty (50) percent of the root bead when there is danger of pipe movement or undue stress on the weld.

(14) Vertical Welding Technique: The second pass (hot pass) shall be supplied immediately after the root pass is complete. Stripper pass may be required at the 2 o'clock to 4 o'clock and 10 o'clock to 8 o'clock positions in the pipe just before applying the O.D. reinforcement pass. For downhill welding, all passes except the stripper passes will start at the 12 o'clock position and stop at the 6 o'clock position with overlap of the one-fourth (1/4) inch to one-half (1/2) inch back from the end of the previous weld. The stripper pass will start at the downhill point and move to the upper point.

(15) Transition Welds: Welds that transition between different grades of steel are to be made following the procedure for the higher grade material.

(16) On pipe greater than twelve (12) inch, the technique of using more than one welder (one on each side) should be used.

The Gas Department will accept welding procedures provided by contractors contingent upon documentation that demonstrates proper qualification of the procedure. The procedure shall be included in the permanent project file that is maintained by Engineering.

Neither Gas Department nor contract welders of welding operators may weld with a particular welding process unless, within the preceding 6 calendar months, the welder or welding operator was engaged in welding with that process.

5.3.2 Inspection

Visual, nondestructive and/or destructive testing procedures shall be implemented, as required by the ENGINEER, to determine the quality of the welded joints.

The ENGINEER may, at his discretion, require nondestructive testing and inspection of any or all welded joints prior to the initiation of backfilling or insertion operations.

The ENGINEER shall make all determinations as to what constitutes an acceptable fused joint as well as the disposition of all defective joints. These determinations shall be made upon completion of a visual inspection. Defective joints shall be removed from the piping system at the ENGINEER's direction and at no cost to the GUC.

5.4 Valves

Valves shall be installed at all locations indicated on the Plans, or as otherwise directed by the ENGINEER.

Valve installations shall include the valve, complete valve box assembly, and any required blocking.

Prior to installation, all valves shall be fully opened and fully closed a sufficient number of times to ensure that all parts are in proper working order.

All polyethylene valves shall be installed below grade by butt fusion, unless otherwise directed by the ENGINEER. Butt fusion operations on polyethylene valves shall be in accordance with 5.2 Heat Fusion.

All steel valves shall be installed below grade by welds, unless otherwise directed by the ENGINEER. Welding operations on steel valves shall be in accordance with 5.3 Welding.

Underground metal valves shall be coated with an approved coating to prevent corrosion.

Valve boxes shall be installed so as not to hinder the operation of the valve.

Valve boxes shall be insulated from the valve by blocking under the valve box with brick, concrete block or suitable masonry material. Similar material shall be used to block under the center of the valve.

Backfill shall be carefully tamped around each valve box to a distance of four (4) feet on all sides of the box, or to the undisturbed trench face if less than four (4) feet, such that the plumbness of the valve box is maintained.

A pre-manufactured concrete collar or a poured in place concrete collar shall be installed around the lid area of each valve box which is installed outside of paved roadways. Each poured in place concrete collar shall be eighteen (18) inches by eighteen (18) inches and shall be composed of concrete capable of reaching a compressive strength of 3000 psi.

All valves shall be in the open position during pressure testing, and shall remain as such upon completion of the tests. **Under no circumstances shall the CONTRACTOR operate any valves within the existing gas distribution system, or otherwise interrupt or restore gas service to any customer. GUC personnel shall perform all valve operations and service restoration, as required.**

Following the complete installation, backfill, testing and acceptance of the valve and valve box assembly, a section of two (2) inch polyethylene pipe shall be placed inside the valve box. The section of polyethylene pipe shall be sufficient in length to be retrieved and removed during the operation of the valve and such that it does not interfere with the normal placement of the lid.

Measurement and Payment

Valve installations will be measured for payment based upon the number installed.

The unit price bid shall include the cost of any and all equipment, incidental materials and labor required for valve installation, including blocking as describe above.

5.5 Pressure and Leak Testing

Each gas main installed within the GUC's distribution system shall be pressure and leak tested, as specified herein. The CONTRACTOR shall provide the necessary materials, labor and pumps required to pressurize the gas main in a satisfactory and efficient manner. **All pressure and leak testing shall be done in the presence of the ENGINEER. Tests done without supervision will not be accepted and the CONTRACTOR shall be required to retest at his expense.**

When the length of any pipe section exceeds 1,000 feet, the ENGINEER reserves the right to require the pipe to be tested in sections determined by the ENGINEER.

All new gas mains shall be pressure tested using compressed air or nitrogen. Water shall not be used as a test medium for gas mains. The method and procedure for each pressure test shall be subject to the approval of the ENGINEER.

Natural gas shall not be admitted into any gas main prior to the ENGINEER's approval and the successful completion of all required pressure tests.

Measurement and Payment

Pressure and leak testing operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for pressure and leak-testing operations shall be included in the unit prices bid for the various pay items of the work.

5.5.1 Preparation

Prior to testing, each section of two (2) inch or larger nominal diameter main shall be thoroughly cleaned by forcing a pig type mechanical cleaner through the pipe a sufficient number of times to remove all foreign matter which may have been trapped inside the pipe during construction. A minimum of two pig runs shall be required. Mains that have a nominal diameter of less than two (2) inches shall be cleaned by swabbing or by forcing compressed air through the pipe at a sufficient rate such that all foreign matter is removed.

With the exception of certain bellholes required for the installation and operation of testing equipment, each test segment shall be completely backfilled along its entire length prior to testing.

Twenty-four (24) hours prior to commencing any testing operations, the CONTRACTOR shall submit a test schedule to the ENGINEER for approval.

5.5.2 Procedure

After the pipe has been prepared in accordance with 5.4.1 Preparation, pressure and leak tests shall be performed as specified herein in accordance with 49 CFR 192, Subpart J.

Pressure testing procedures shall not be initiated until at least twenty minutes after the last fused joint has been completed.

All pressure tests shall be monitored by means of chart recording devices with an attached pressure gauge located, as directed by the ENGINEER, along the main(s) to be tested. The chart recording devices shall be capable of recording the sustained test pressure for the duration of the test. The gauge shall be liquid filled and capable

of measuring pressures to a minimum of one hundred (100) psig. The CONTRACTOR shall provide evidence of recent and accurate calibration of all chart-recording instruments. The date and time of the commencement and completion of the pressure test shall be recorded on the pressure chart, which shall be signed by the CONTRACTOR's superintendent and the ENGINEER. The original test chart shall be submitted along with a Test Record form and submitted to the ENGINEER for verification.

The GUC reserves the right to utilize its own test recording apparatuses, on any job at the discretion of the ENGINEER.

All gas mains installed within the distribution system shall be tested at ninety (90) psig or as directed by the ENGINEER for the minimum duration specified in Table 5.4.2.

TABLE 5.4.2
PRESSURE TEST DURATIONS

PIPE LENGTH (FEET)	DURATION OF TEST MAINS
0 – 250	15 Minutes
Over 250 – 500	30 Minutes
Over 500 – 1000	1 Hour
> 1,000	8 Hours

Any variations in the test durations specified in Table 5.4.2 shall be subject to the approval of the ENGINEER.

The hourly pressure along with the ambient temperature at the beginning and end of the test shall be recorded for the duration of the test on the GUC's standard form. The date and time of the commencement and completion of the pressure test shall be recorded on the form, which shall be signed by the CONTRACTOR's inspector and submitted to the ENGINEER for verification.

After correcting for temperature changes, the test shall show no loss of pressure over the duration of the test.

All tie-in fuses and fittings not included in the pressure test shall be leak tested with a foaming leak locating compound solution after the main line has been placed into service.

Any and all breaks, leaks or defects in the pipe, valves and fittings discovered during the pressure and/or foaming leak locating compound tests shall be located,

repaired or replaced, and re-tested by the CONTRACTOR, at the CONTRACTOR's expense, as directed by the ENGINEER.

5.6 Purging

Upon the successful completion of the pressure and/or foaming leak locating compound test, and after the gas main or each section thereof has been cleaned and approved in every respect to the satisfaction of the ENGINEER, the GUC will be notified and, under their supervision, natural gas will be admitted into the completed mains in sufficient quantities such that all air is purged out of the line(s).

All purging operations will be done under the direct supervision of the ENGINEER. The CONTRACTOR shall provide a minimum of twenty-four (24) hours notice to the ENGINEER prior to commencing any purging operations.

Under no circumstances shall the CONTRACTOR operate any existing valves within the GUC distribution system.

When a reading of 100-percent gas is measured using an approved, calibrated CGI, all valves shall be closed and gas pressure continuously maintained on the line(s). The CGI shall be provided by the CONTRACTOR and operated by qualified personnel.

The GUC will provide all of the natural gas necessary for the initial purging operations. Any natural gas required for subsequent purging operations, if so required shall be provided at the CONTRACTOR's expense.

Measurement and Payment

Purging operations are considered incidental work and will not be measured for payment. The cost of any and all equipment, material and labor required for purging operations shall be included in the unit prices bid for the various pay items of the work.

5.7 Tie-Ins to Existing System

It is the responsibility of the CONTRACTOR to connect the work to existing or previously installed facilities as shown on the Plans or as directed by the ENGINEER.

The Plans describe generalized tie-in procedures and materials. The CONTRACTOR shall be aware that additional fittings or alignment changes may be necessary to properly and efficiently complete the tie-in operations. The CONTRACTOR, at no cost to the GUC, shall furnish the necessary incidental materials and install the necessary materials required to complete the tie-in as shown on the Plans or as directed by the ENGINEER.

The CONTRACTOR shall have available the appropriate drilling, tapping and stopping equipment necessary for the various fittings shown on the Plans and trained and experienced personnel to operate this equipment. The tie-in operations shall be performed in a sequence as directed by the ENGINEER.

The CONTRACTOR shall have available the appropriate squeeze-off tools for plastic pipe. All points on the plastic pipe where the squeeze-off is applied shall have a full encirclement clamp or an electrofusion coupling installed to mark the location and to reinforce the pipe.

All tie-in operations, including but not limited to installation of the tie-in fitting and main blow-downs shall be performed under the direct supervision of the ENGINEER. The CONTRACTOR shall provide the ENGINEER with at least forty-eight (48) hours advance notice prior to initiating tie-in procedures.

The CONTRACTOR shall not commence any tie-in operations until the new mains have been cleaned and tested as specified in 5.4 Pressure and Leak Testing.

Under no circumstances shall the CONTRACTOR operate any valves within the existing gas distribution system, or otherwise interrupt or restore gas service to any customer. GUC personnel shall perform all valve operations and service restorations, as required.

Measurement and Payment

Squeeze off, fused, and coupled tie-in operations will be measured for payment based upon the number installed. The unit bid price shall include the cost of any and all equipment, incidental material and labor required for these tie-in operations.