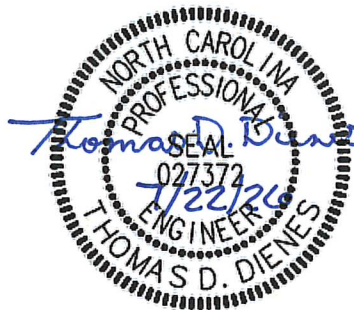




ROCKY MOUNT
PUBLIC WORKS
THE CENTER OF IT ALL

**CONTRACT DOCUMENTS
OLD MILL ROAD SEWER PUMP STATION
FORCE MAIN
CRM Project Number: 320-140726FD
ROCKY MOUNT, NORTH CAROLINA**



July 2026

Prepared by:

**GREEN ENGINEERING, P.L.L.C.
NC Firm License: P-0115
303 Goldsboro Street East
Wilson, North Carolina 27893
(252) 237-5365**

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ADVERTISEMENT FOR BIDS
CITY OF ROCKY MOUNT
ROCKY MOUNT, NORTH CAROLINA
OLD MILL ROAD SEWER PUMP STATION FORCE MAIN

General Notice

The City of Rocky Mount (Owner) is requesting Bids for the construction of the following Project:

Old Mill Road Sewer Pump Station Force Main
CRM Project Number: 320-140726FD

Bids for the construction of the Project will be received by the City of Rocky Mount, Purchasing Office (hereinafter call the "City") in the First Floor Atrium at the Frederick E. Turnage Administrative Services Complex, located at 331 South Franklin Street, Rocky Mount, North Carolina 27804, by mail at Attn: Fantashia Dickens, City of Rocky Mount, PO Box 1180, Rocky Mount, NC 27802, or by delivery at Attn: Fantashia Dickens, City of Rocky Mount, 331 S Franklin St., Rocky Mount, NC 27804 until **Thursday, August 27, 2026, at 2:00 PM** local time. At that time the Bids received will be publicly opened and read.

The Project includes the following Work:

- Pump Station Force Main including but not limited to:
 - 2,800 LF 14-inch PVC C900 (DR-21) Force Main
 - 100 LF 14-inch Ductile Iron Force Main
 - 210 LF 14-inch Restrained Joint Ductile Iron Force Main
 - 1,005 Horz. Feet 14-inch ID Directional Bore (Rock)
 - 70 LF 30-inch Diameter Steel Casing (Bored and Jacked)
 - 4 EA Sewer Air Release Valves
 - 150 CY Rock Excavation (Contingency Item)
 - Erosion Control Measures

The Project has an expected duration of **150** days.

Obtaining the Bidding Documents

The Issuing Office for the Bidding Documents is:

Green Engineering, P.L.L.C.
303 Goldsboro Street East, P.O. Box 609
Wilson, North Carolina 27893

Prospective Bidders may obtain or examine the Bidding Documents at the Issuing Office on Monday through Friday between the hours of 8:00 am and 5:00 pm, and may obtain copies of the Bidding Documents from the Issuing Office as described below. Partial sets of Bidding Documents will not be available from the Issuing Office. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including addenda, if any, obtained from sources other than the Issuing Office.

Printed copies of the Bidding Documents may be obtained from the Issuing Office upon receipt of a non-refundable payment of \$100.00 for each set. Make checks for Bidding Documents payable to Green Engineering, P.L.L.C.

The Bidding Documents may also be examined at the following locations:

ConstructConnect – Plan Room – Online Service

City of Rocky Mount – Rocky Mount, North Carolina

Pre-bid Conference

A pre-bid conference for the Project will be held on **Wednesday, August 5, 2026, at 10:00 AM** at **City of Rocky Mount, City Hall, 331 S Franklin St., Rocky Mount, NC 27804**. Attendance at the pre-bid conference is encouraged but not required.

Instructions to Bidders.

The Owner has developed a goal of ten percent (10%) for participation of minority-owned and women-owned business enterprises in construction contracts awarded pursuant to NCGS 143-128. Bidders must comply with the Owner's requirements for W/MBE documentation.

The City reserves the right to reject any and all BIDS.

BIDDERS shall be properly licensed under Chapter 87, General Statutes of North Carolina.

Small, minority and women's businesses and labor surplus area firms are encouraged to submit BIDS.

The City of Rocky Mount is an equal opportunity employer and service provider.

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

This Advertisement is issued by:

Owner: **City of Rocky Mount**

By: **Fantashia Dickens**

Title: **Purchasing Associate III**

Date: **July 28, 2026**

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.
- 2.05 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within five (5) days of Owner's request, Bidder must submit the following information:
 - A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - C. Bidder's state or other contractor license number, if applicable.
 - D. Subcontractor and Supplier qualification information.
 - E. Other required information regarding qualifications.
- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A non-mandatory pre-bid conference will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference; however, attendance at this conference is not required to submit a Bid.
- 4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

- 5.01 *Site and Other Areas*
 - A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of

materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 *Other Site-related Documents*

- A. No other Site-related documents are available.

5.04 *Site Visit and Testing by Bidders*

- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
- B. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the Owner. Bidder must conduct the required Site visit during normal working hours.
- C. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

- D. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- E. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- F. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
 - Green Engineering, PLLC
 - 303 Goldsboro Street East
 - Wilson, North Carolina 27893

- 7.02 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.03 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified or bank check or Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents. Bid security must be at least 5% of the Bidder's maximum Bid price.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by

Addendum. No item of material or equipment will be considered by Engineer as an “or-equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.

- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within five days after Bid opening:

- A. Force Main Piping**
- B. Casing Bores**
- C. Directional Bores**

- 11.02 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

- 11.03 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

- 11.04 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in SC 7.07A.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.

- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be

indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

- B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. If required by State where work is to be performed, the corporate seal shall be affixed and attested by the corporate secretary or an assistant corporate secretary. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such

certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 Lump Sum (if applicable)

- A. Bidders must submit a Bid on a lump sum basis as set forth in the Bid Form.

and/or

13.02 Base Bid with Alternates (if applicable)

- A. Bidders must submit a Bid on a lump sum basis for the base Bid and include a separate price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate.
- B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form.

and/or

13.03 Unit Price (if applicable)

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

and/or

13.04 Allowances (if applicable)

- A. For cash allowances the Bid price must include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 Each prospective Bidder is furnished one copy of the Bidding Documents. The Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.
- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

- 16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 *Evaluation of Bids*
- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a “Base Bid plus alternates” budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.
 - C. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner’s requirements as to performance and payment bonds, other required bonds (if any), and insurance. **The CONTRACTOR shall be required to provide insurance coverage equal to or greater than the limits set forth in the Supplementary Conditions. Property insurance (Installation Floater, Builder’s Risk, “All Risk” or open peril or special causes of loss policy form,**

as applicable) shall be required as defined in paragraph 6.04 of the General Conditions and paragraph SC 6.04 of the Supplementary Conditions. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.

- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 21—SALES AND USE TAXES

- 21.01 Owner is not exempt from State of North Carolina sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes must be included in the Bid.

BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to:

**City of Rocky Mount, Purchasing Office
331 South Franklin Street
Rocky Mount, North Carolina 27804**

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

2.01 The following documents are submitted with and made a condition of this Bid:

- A. Required Bid security;
- B. Identification of Minority Business Participation Form;
- C. Either Affidavit A – Listing of Good Faith Efforts or Affidavit B – Intent to Perform Contract with Own Workforce, as appropriate;
- D. List of Proposed Subcontractors;
- E. List of Proposed Suppliers;
- F. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
- G. Contractor's license number as evidence of Bidder's State Contractor's License.

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

3.01 *Lump Sum Bids*

A. Bidder will complete the Work in accordance with the Contract Documents for the following lump sum (stipulated) price(s), together with any Unit Prices indicated in Paragraph 3.02:

1. Lump Sum Price (Single Lump Sum)

Lump Sum Bid Price	\$
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2. Lump Sum Price (Base Bid and Alternates)

Lump Sum Bid Price for Base Bid	\$
Alternate A [Add] [Deduct]	\$
Alternate B [Add] [Deduct]	\$

3.02 Unit Price Bids

A. Bidder will perform the following Work at the indicated unit prices:

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
1	14-inch PVC C900 (DR-21) Force Main	LF	2,800		\$
2	14-inch Ductile Iron Force Main	LF	100		\$
3	14-inch Restrained Joint DI Force Main	LF	210		\$
4	14-inch ID Directional Bore (Fusible PVC) (Rock)	LF	1,005		\$
5	Pipeline Clean-up, Seeding & Testing	LF	3,110		\$
6	14-inch Diameter Plug Valve w/Box	EA	2		\$
7	Compact Fittings	LBS	3,500		\$
8	30-inch Diameter Steel Casing (Bored and Jacked)	LF	70		\$
9	Sewer Air Release Valve	EA	4		\$
10	Rock Excavation (Contingency Item)	CY	150		\$
11	CABC Driveway Stone	TONS	300		\$
12	Additional Stone Bedding	TONS	50		\$
13	Select Backfill	CY	100		\$
14	Clearing and Grubbing	AC	1		\$
15	Wattle Check Dam	EA	10		\$
16	Rock Check Dam	EA	3		\$
17	Silt Fence	LF	2,850		\$
18	Temporary Ditch Liner	SY	500		\$
19	Temporary Construction Entrance	EA	2		\$
20	Sewer Valve Marker	EA	2		\$
21	Arc Filter Inlet Protector	EA	1		\$
22	Arc Filter Inlet Protector with 20 LF 14" HDPE and 8'x4'x1' Energy Dissipation Pad with Class "A" Stone	EA	1		\$
23	Asphalt Driveway (Remove & Replace)	SY	70		\$
24	Future Pump Station Connection including all fittings, valves, enclosure assembly and 3-inch DI piping	LS	1		\$
25	Spoil Pile Removal and Disposal (Approximately 1,886 CY)	LS	1		\$
Total of All Unit Price Bid Items					\$

B. Unit Price (Alternates)

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
1A	14-inch ID Directional Bore (Fusible PVC) (Dirt)	LF	1,005		\$
2A	14-inch ID Directional Bore (HDPE) (Rock)	LF	1,005		\$
3A	14-inch ID Directional Bore (HDPE) (Dirt)	EA	1,005		\$

C. Bidder acknowledges that:

- each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and

2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

3.03 *Total Bid Price (Lump Sum and Unit Prices)*

Total Bid Price (Total of all Lump Sum and Unit Price Bids)	\$
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~~ARTICLE 4—BASIS OF BID—COST PLUS FEE~~

Deleted

~~ARTICLE 5—PRICE PLUS TIME BID~~

Deleted

ARTICLE 6—TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7—BIDDER’S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

7.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

7.02 *Instructions to Bidders*

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

7.03 *Receipt of Addenda*

- A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 8—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

8.01 *Bidder’s Representations*

- A. In submitting this Bid, Bidder represents the following:
 1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.

2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

8.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.

2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

CITY OF ROCKY MOUNT
OLD MILL ROAD SEWER PUMP STATION FORCE MAIN
CRM Project Number: 320-140726FD
LIST OF PROPOSED SUBCONTRACTORS & SUPPLIERS
(To be submitted with Bid)

PROPOSED SUBCONTRACTORS:

PROPOSED MAJOR SUPPLIERS:

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

Address for giving notices:

Bidder's Contact:

Name:

(typed or printed)

Title:

(typed or printed)

Phone:

Email:

Address:

Bidder's Contractor License No.: (if applicable)

BID BOND (PENAL SUM FORM)

Bidder Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: City of Rocky Mount Address <i>(principal place of business)</i> : P.O. Box 1180 331 S. Franklin Street Rocky Mount, North Carolina 27802-1180	Bid Project <i>(name and location)</i> : Old Mill Road Sewer Pump Station Force Main CRM Project Number: 320-140726FD Rocky Mount, North Carolina Bid Due Date:
Bond Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
_____ <i>(Full formal name of Bidder)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

NOTICE OF AWARD

Date of Issuance:

Owner: **City of Rocky Mount**

Owner's Project No.: **320-140726FD**

Engineer: **Green Engineering, P.L.L.C.**

Engineer's Project No.: **20-154**

Project: **Old Mill Road Sewer Pump Station Force Main**

Contract Name: **Old Mill Road Sewer Pump Station Force Main**

Bidder:

Bidder's Address:

You are notified that Owner has accepted your Bid dated **[date]** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

Old Mill Road Sewer Pump Station Force Main

The Contract Price of the awarded Contract is \$**[Contract Price]**. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

[Number of copies sent] unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☐ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **[number of copies sent]** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): **[Describe other conditions that require Successful Bidder's compliance]**

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **City of Rocky Mount**

By (signature): _____

Name (printed): _____

Title: _____

Copy: Engineer

AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between City of Rocky Mount ("Owner") and _____ ("Contractor").

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

City of Rocky Mount
Old Mill Road Sewer Pump Station Force Main
Rocky Mount, North Carolina

ARTICLE 2—THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows:

City of Rocky Mount
Old Mill Road Sewer Pump Station Force Main
Rocky Mount, North Carolina

ARTICLE 3—ENGINEER

- 3.01 The Owner has retained Green Engineering, PLLC ("Engineer") to act as Owner's representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.
- 3.02 The part of the Project that pertains to the Work has been designed by "Engineer".

ARTICLE 4—CONTRACT TIMES

- 4.01 *Time is of the Essence*
- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.
- 4.02 *Contract Times: Days*
- A. The Work will be substantially complete within 150 days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 180 days after the date when the Contract Times commence to run.

4.05 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. *Substantial Completion*: Contractor shall pay Owner \$500.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 2. *Completion of Remaining Work*: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$500.00 for each day that expires after such time until the Work is completed and ready for final payment.
 3. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

- A. For all Work other than Unit Price Work, a lump sum of \$[number].

All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.

- B. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
1	14-inch PVC C900 (DR-21) Force Main	LF	2,800		\$
2	14-inch Ductile Iron Force Main	LF	100		\$
3	14-inch Restrained Joint DI Force Main	LF	210		\$
4	14-inch ID Directional Bore (Fusible PVC) (Rock)	LF	1,005		\$
5	Pipeline Clean-up, Seeding & Testing	LF	3,110		\$
6	14-inch Diameter Plug Valve w/Box	EA	2		\$
7	Compact Fittings	LBS	3,500		\$
8	30-inch Diameter Steel Casing (Bored and Jacked)	LF	70		\$

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
9	Sewer Air Release Valve	EA	4		\$
10	Rock Excavation (Contingency Item)	CY	150		\$
11	CABC Driveway Stone	TONS	300		\$
12	Additional Stone Bedding	TONS	50		\$
13	Select Backfill	CY	100		\$
14	Clearing and Grubbing	AC	1		\$
15	Wattle Check Dam	EA	10		\$
16	Rock Check Dam	EA	3		\$
17	Silt Fence	LF	2,850		\$
18	Temporary Ditch Liner	SY	500		\$
19	Temporary Construction Entrance	EA	2		\$
20	Sewer Valve Marker	EA	2		\$
21	Arc Filter Inlet Protector	EA	1		\$
22	Arc Filter Inlet Protector with 20 LF 14" HDPE and 8'x4'x1' Energy Dissipation Pad with Class "A" Stone	EA	1		\$
23	Asphalt Driveway (Remove & Replace)	SY	70		\$
24	Future Pump Station Connection including all fittings, valves, enclosure assembly and 3-inch DI piping	LS	1		\$
25	Spoil Pile Removal and Disposal (Approximately 1,886 CY)	LS	1		\$
Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities)					\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

- C. Total of Lump Sum Amount and Unit Price Work (subject to final Unit Price adjustment) \$[number].

ARTICLE 6—PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the 5th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
 - a. 95 percent of the value of the Work completed (with the balance being retainage).
 - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
 - B. Upon Substantial Completion of the entire construction to be provided under the construction Contract Documents, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.
- 6.03 *Final Payment*
- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.
- 6.04 *Consent of Surety*
- A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.
- 6.05 *Interest*
- A. All amounts not paid when due will bear interest at the rate of 8 percent per annum.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
 1. This Agreement (pages 1 to 8, inclusive).
 2. Bonds:
 - a. Performance bond (together with power of attorney) (pages ___ to ___, inclusive).
 - b. Payment bond (together with power of attorney) (pages ___ to ___, inclusive).
 - c. Bid Bond (pages ___ to ___, inclusive).
 3. General Conditions (pages ___ to ___, inclusive).
 4. Supplementary Conditions (pages ___ to ___, inclusive).
 5. Appendix to General and Supplementary Conditions (pages ___ to ___, inclusive).
 6. Guidelines for Minority Business Participation (pages 1 to 21, inclusive).
 7. Notice of Award (pages 1 to 1, inclusive).
 8. Certificate of Owner's Attorney (pages 1 to 1, inclusive).

9. Specifications as listed in the table of contents of the project manual (copy of list attached).
10. Drawings (not attached but incorporated by reference) consisting of _____ sheets with each sheet bearing the following general title: **City of Rocky Mount – Old Mill Road Sewer Pump Station Force Main – Nash County, North Carolina**
11. Addenda (numbers _____ to _____ inclusive).
12. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages 1 to _____, inclusive).
18. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed (pages 1 to 1, inclusive).
 - b. Work Change Directives (pages 1 to 1, inclusive).
 - c. Change Orders (pages 1 to 1, inclusive).
 - d. Field Orders (pages 1 to 1, inclusive).
 - e. Certificate of Substantial Completion (pages 1 to 1, inclusive).
 - f. Contractor's Affidavit of Release of Liens (pages 1 to 1, inclusive).
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.

5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on **[indicate date on which Contract becomes effective]** (which is the Effective Date of the Contract).

Owner:

(typed or printed name of organization)
By: _____
(individual's signature)
Date: _____
(date signed)
Name: _____
(typed or printed)
Title: _____
(typed or printed)

Attest: _____
(individual's signature)
Title: _____
(typed or printed)
Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)
Title: _____
(typed or printed)
Address: _____

Phone: _____
Email: _____
(If **[Type of Entity]** is a corporation, attach evidence of authority to sign. If **[Type of Entity]** is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

Contractor:

(typed or printed name of organization)
By: _____
(individual's signature)
Date: _____
(date signed)
Name: _____
(typed or printed)
Title: _____
(typed or printed)
(If **[Type of Entity]** is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest: _____
(individual's signature)
Title: _____
(typed or printed)
Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)
Title: _____
(typed or printed)
Address: _____

Phone: _____
Email: _____
License No.: _____
(where applicable)
State: _____

*This instrument has been preaudited in the Manner
Required by the Local Government and Fiscal Control Act.*

Finance Officer

PERFORMANCE BOND

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: City of Rocky Mount Mailing address <i>(principal place of business)</i> : P.O. Box 1180 331 S. Franklin Street Rocky Mount, North Carolina 27802-1180	Contract Description <i>(name and location)</i> : Old Mill Road Sewer Pump Station Force Main CRM Project Number: 320-140726FD Rocky Mount, North Carolina Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: ☐ None ☐ See Paragraph 16	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i> By: _____ <i>(Signature)</i> Name: _____ <i>(Printed or typed)</i> Title: _____ Attest: _____ <i>(Signature)</i> Name: _____ <i>(Printed or typed)</i> Title: _____	<i>(Full formal name of Surety) (corporate seal)</i> By: _____ <i>(Signature)(Attach Power of Attorney)</i> Name: _____ <i>(Printed or typed)</i> Title: _____ Attest: _____ <i>(Signature)</i> Name: _____ <i>(Printed or typed)</i> Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

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 will 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 may 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 will 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 does 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 does 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 will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will 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 will not be reduced or set off on account of any such unrelated obligations. No right of action will 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 must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must 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 will be applicable.
- 12. Notice to the Surety, the Owner, or the Contractor must 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 will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will 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 will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. Modifications to this Bond are as follows:

PAYMENT BOND

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: City of Rocky Mount Mailing address <i>(principal place of business)</i> : P.O. Box 1180 331 S. Franklin Street Rocky Mount, North Carolina 27802-1180	Contract Description <i>(name and location)</i> : Old Mill Road Sewer Pump Station Force Main CRM Project Number: 320-140726FD Rocky Mount, North Carolina Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: ☐ None ☐ See Paragraph 18	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. 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.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. 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 will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 - 16.1.7. The total amount of previous payments received by the Claimant; and
 - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. *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.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
18. Modifications to this Bond are as follows:

CERTIFICATE OF OWNER'S ATTORNEY

CERTIFICATE OF OWNER'S ATTORNEY

PROJECT NAME: Old Mill Road Sewer Pump Station Force Main

CONTRACTOR NAME: _____

I, the undersigned, _____, the duly authorized and acting legal representative of _____, do hereby certify as follows:

I have examined the attached Contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements is adequate and has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

Name

Date

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

- requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - 1. does not conform to the Contract Documents;
 - 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
 - 1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 - 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 - 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 - 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
 - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 Substitutes

- A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
- 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
 - 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 - 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
 - 1. Observations by Engineer;
 - 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. Use or occupancy of the Work or any part thereof by Owner;
 - 5. Any review and approval of a Shop Drawing or Sample submittal;
 - 6. The issuance of a notice of acceptability by Engineer;
 - 7. The end of the correction period established in Paragraph 15.08;
 - 8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 Indemnification

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 Delegation of Professional Design Services

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

- B. *Change Proposal Procedures*

- 1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
- 2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

- 3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
- 4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
 5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
 - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work does not include any of the following items:
- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 - 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
 - 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 - 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 - 6. Expenses incurred in preparing and advancing Claims.
 - 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*
- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
 - 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
 - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
 - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
- 3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 - 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
 - 1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 - 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 - 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

SC-1.01.A.8 Add the following at the end of the Paragraph:

The Change Order form to be used on this Project is EJCDC C-941 (2018).

SC-1.01.A.50 Add the following at the end of the Paragraph:

The Work Change Directive form to be used on this Project is EJCDC C-940 (2018).

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

SC-2.01 Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

- B. *Evidence of Contractor's Insurance:* When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by Contractor in this Contract. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. *Evidence of Owner's Insurance:* After receipt from Contractor of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner in this Contract (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

2.02 *Copies of Documents*

SC-2.02 Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to Contractor five printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and none in electronic portable document format (PDF).

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

SC-3.01 Delete Paragraph 3.01.C in its entirety.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

SC-4.01.A Delete the last sentence of paragraph.

4.05 *Delays in Contractor's Progress*

SC-4.05 Amend Paragraph 4.05.C by adding the following subparagraphs:

5. *Weather-Related Delays*

- a. If “abnormal weather conditions” as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled. Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered abnormal weather conditions. Requests for time extensions due to abnormal weather conditions will be submitted to the Engineer within five days of the end of the abnormal weather condition event. It is the responsibility of the Contractor to provide the information listed in SC 4.05.C.5.b.
- b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:
 - 1) Every workday on which one or more of the following conditions exist will be considered a “bad weather day”:
 - i) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds 1/10th inch of precipitation (as rain equivalent, based on the snow/rain conversion indicated in the table entitled Exhibit A – Foreseeable Bad Weather Days; such table is hereby incorporated in this SC-4.05.C by reference.
 - 2) Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded by nearest recording station tracked by the North Carolina State Climate Office.
 - 3) Contractor shall anticipate the number of foreseeable bad weather days per month indicated in the table in Exhibit A—Foreseeable Bad Weather Days.
 - 4) In each month, every bad weather day exceeding the number of foreseeable bad weather days established in the table in Exhibit A—Foreseeable Bad

Weather Days will be considered as “abnormal weather conditions.” The existence of abnormal weather conditions will not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities or that such activities thus delayed were on Contractor’s then-current Progress Schedule’s critical path for the Project.

ARTICLE 5—SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS

5.03 *Subsurface and Physical Conditions*

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
		N/A

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
		N/A

- G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at Green Engineering, PLLC, 303 Goldsboro Street East, Wilson, NC 27893 during regular business hours, or may request copies from Engineer.

5.06 *Hazardous Environmental Conditions*

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
		N/A

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
		N/A

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.A:

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).

6.03 *Contractor's Insurance*

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds the following:

Owner
Engineer
Engineer's Sub-Consultants
- E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Jones Act (if applicable)	
Bodily injury by accident—each accident	\$ N/A
Bodily injury by disease—aggregate	\$ N/A
Employer's Liability	
Each accident	\$ 1,000,000
Each employee	\$ 1,000,000
Policy limit	\$ 2,000,000
Stop-gap Liability Coverage	
For work performed in monopolistic states, stop-gap liability coverage must be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	\$ N/A

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
 2. damages insured by reasonably available personal injury liability coverage, and
 3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
 4. Underground, explosion, and collapse coverage.
 5. Personal injury coverage.

6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
 7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 2. Any exclusion for water intrusion or water damage.
 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 4. Any exclusion of coverage relating to earth subsidence or movement.
 5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
 6. Any limitation or exclusion based on the nature of Contractor's work.
 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.
- I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$ 2,000,000
Products—Completed Operations Aggregate	\$ 1,000,000
Personal and Advertising Injury	\$ 1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$ 1,000,000

- J. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$ 1,000,000

- K. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$ 5,000,000
General Aggregate	\$ 5,000,000

- L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of \$ 5,000,000 after accounting for partial attribution of its limits to underlying policies, as allowed above.
- M. *Contractor's Pollution Liability Insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance must be maintained for no less than three years after final completion.

Contractor's Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	\$ N/A
General Aggregate	\$ N/A

- N. *Contractor's Professional Liability Insurance:* If Contractor will provide or furnish professional services under this *Contract*, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

Contractor's Professional Liability	Policy limits of not less than:
Each Claim	\$ N/A
Annual Aggregate	\$ N/A

- O. *Railroad Protective Liability Insurance:* Prior to commencing any Work within 50 feet of railroad-owned and controlled property, Contractor shall (1) endorse its commercial general liability policy with ISO CG 24 17, removing the contractual liability exclusion for work within

50 feet of a railroad, (2) purchase and maintain railroad protective liability insurance meeting the following requirements, (3) furnish a copy of the endorsement to Owner, and (4) submit a copy of the railroad protective policy and other railroad-required documentation to the railroad, and notify Owner of such submittal.

Railway shall be named insured, as well as employees of Green Engineering, PLLC

Railroad Protective Liability Insurance	Policy limits of not less than:
Each Claim	\$ N/A
Aggregate	\$ N/A

- P. *Unmanned Aerial Vehicle Liability Insurance:* If Contractor uses unmanned aerial vehicles (UAV—commonly referred to as drones) at the Site or in support of any aspect of the Work, Contractor shall obtain UAV liability insurance in the amounts stated; name Owner, Engineer, and all individuals and entities identified in the Supplementary Conditions as additional insureds; and provide a certificate to Owner confirming Contractor’s compliance with this requirement. Such insurance will provide coverage for property damage, bodily injury or death, and invasion of privacy.

Unmanned Aerial Vehicle Liability Insurance	Policy limits of not less than:
Each Claim	\$ N/A
General Aggregate	\$ N/A

- Q. *Other Required Insurance:* N/A

6.04 *Builder’s Risk and Other Property Insurance*

SC-6.04 Supplement Paragraph 6.04 of the General Conditions with the following provisions:

- F. *Builder’s Risk Requirements:* The builder’s risk insurance must:
1. be written on a builder’s risk “all risk” policy form that at a minimum includes insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment stored and in transit, and must not exclude the coverage of the following risks: fire; windstorm; hail; flood; earthquake, volcanic activity, and other earth movement; lightning; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; and water damage (other than that caused by flood).
 - a. Such policy will include an exception that results in coverage for ensuing losses from physical damage or loss with respect to any defective workmanship, methods, design, or materials exclusions.
 - b. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake, volcanic activity, and other earth movement; or flood, are not commercially available under builder’s risk policies,

by endorsement or otherwise, such insurance will be provided through other insurance policies acceptable to Owner and Contractor.

2. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
3. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of contractors, engineers, and architects).
4. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier). If this coverage is subject to a sublimit, such sublimit will be a minimum of \$ [N/A].
5. extend to cover damage or loss to insured property while in transit. If this coverage is subject to a sublimit, such sublimit will be a minimum of \$ [N/A].
6. allow for the waiver of the insurer's subrogation rights, as set forth in this Contract.
7. allow for partial occupancy or use by Owner by endorsement, and without cancellation or lapse of coverage.
8. include performance/hot testing and start-up, if applicable.
9. be maintained in effect until the Work is complete, as set forth in Paragraph 15.06.D of the General Conditions, or until written confirmation of Owner's procurement of property insurance following Substantial Completion, whichever occurs first.
10. include as named insureds the Owner, Contractor, Subcontractors (of every tier), and any other individuals or entities required by this Contract to be insured under such builder's risk policy. For purposes of Paragraphs 6.04, 6.05, and 6.06 of the General Conditions, and this and all other corresponding Supplementary Conditions, the parties required to be insured will be referred to collectively as "insureds." In addition to Owner, Contractor, and Subcontractors of every tier, include as insureds the following:
 - a. Employees of Green Engineering, PLLC Contact: E. Leo Green, III, PE
303 Goldsboro Street East Office: 252-237-5365
Wilson, North Carolina 27893 Email: elg3@greeneng.com
 - b. All Consultants of Green Engineering, PLLC
11. include, in addition to the Contract Price amount, the value of the following equipment and materials to be installed by the Contractor but furnished by the Owner or third parties:
 - a. **None**

12. If debris removal in connection with repair or replacement of insured property is subject to a coverage sublimit, such sublimit will be a minimum of \$ N/A.
13. In addition to the coverage sublimits stated above, the following coverages are also subject to sublimits, as follows:
 - a. **N/A**

ARTICLE 7—CONTRACTOR’S RESPONSIBILITIES

7.05 “Or Equals”

SC-7.05.A Amend the third sentence of paragraph by striking out the following words:

Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or-equal” item is permitted,

SC-7.05.A.1.a.3 Amend the last sentence of Paragraph a.3 by striking out “and;” and adding a period at the end of Paragraph a.3.

SC-7.05.A.1.a.4 Delete paragraph in its entirety and insert “Deleted.”

7.07 Concerning Subcontractors and Suppliers

SC-7.07.A Amend by adding the following to the end of the paragraph:

The total amount of work subcontracted by the Contractor shall not exceed fifty percent of the Contract price without prior approval from the Owner, Engineer and Agency.

SC-7.07.B Delete paragraph in its entirety and insert “Deleted”.

SC-7.07.E Delete the second sentence of paragraph and insert the following in its place:

Owner may not require that Contractor use a specific replacement.

ARTICLE 8—OTHER WORK AT THE SITE

No suggested Supplementary Conditions in this Article.

ARTICLE 9—OWNER’S RESPONSIBILITIES

No suggested Supplementary Conditions in this Article.

ARTICLE 10—ENGINEER’S STATUS DURING CONSTRUCTION

10.03 Resident Project Representative

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.B:

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:

1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
 2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.
 3. *Liaison*
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
 4. *Review of Work; Defective Work*
 - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
 5. *Inspections and Tests*
 - a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
 - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
 6. *Payment Requests:* Review Applications for Payment with Contractor.
 7. *Completion*
 - a. Participate in Engineer's visits regarding Substantial Completion.
 - b. Assist in the preparation of a punch list of items to be completed or corrected.
 - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
 - d. Observe whether items on the final punch list have been completed or corrected.
- D. The RPR will not:
1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 11—CHANGES TO THE CONTRACT

No suggested Supplementary Conditions in this Article.

ARTICLE 12—CLAIMS

No suggested Supplementary Conditions in this Article.

ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK

13.01 Cost of the Work

SC-13.01 Supplement Paragraph 13.01.B.5.c.(2) by adding the following sentence:

The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of AED Green Book: Rental Rates & Specifications for Construction Equipment.

SC-13.01 Supplement Paragraph 13.01.C.2 by adding the following definition of small tools and hand tools:

- a. For purposes of this paragraph, "small tools and hand tools" means any tool or equipment whose current price if it were purchased new at retail would be less than \$500.

13.02 Allowances

SC-13.02.C Delete paragraph in its entirety and insert "Deleted".

13.03 Unit Price Work

SC-13.03 Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. Adjustments in Unit Price

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

- a. the extended price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

No suggested Supplementary Conditions in this Article.

ARTICLE 15—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

15.01 *Progress Payments*

SC-15.01.B.4 Add the following language at the end of paragraph:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage or invest the retainage for the benefit of the Contractor.

SC-15.01.B.5 Add new paragraph immediately after Paragraph 15.01.B.4:

5. The Application for Payment form to be used on this Project is EJCDC® C-620.

SC-15.01.D.1 Delete paragraph in its entirety and insert the following in its place:

The Application for Payment with Engineer's recommendations will be presented to the Owner for consideration. If the Owner finds the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will become due twenty (20) days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

15.02 *Contractor's Warranty of Title*

SC-15.02.A Amend paragraph by striking out the following text: "7 days after".

15.03 *Substantial Completion*

SC-15.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to

agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

No suggested Supplementary Conditions in this Article.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

No suggested Supplementary Conditions in this Article.

ARTICLE 18—MISCELLANEOUS

No suggested Supplementary Conditions in this Article.

EXHIBIT A—FORESEEABLE BAD WEATHER DAYS

Month	Number of Foreseeable Bad Weather Days in Month Based on Precipitation as Rain Equivalent (inches) (1)
January	7
February	7
March	7
April	6
May	7
June	7
July	8
August	7
September	5
October	5
November	5
December	6
Notes: 1. Two inches of sleet equal one inch of rain. Five inches of wet, heavy snow equal one inch of rain. Fifteen inches of “dry” powder snow equals one inch of rain.	

APPENDIX TO GENERAL AND SUPPLEMENTARY CONDITIONS

1. HEALTH AND SAFETY REGULATIONS FOR CONSTRUCTION

The Contractor shall be responsible for the safety, efficiency, and adequacy of his equipment and methods, and for any damage which results from their failure or their improper construction, maintenance, or operation.

The Contractor shall maintain a current and accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under this Contract.

2. NORTH CAROLINA SALES TAX REPORTS

In order that the Owner may fully recover all taxes to which he is legally entitled, which were paid on construction materials by the Contractor, the following procedures shall be followed by the Contractor on this project:

- A. The Contractor shall furnish the Owner, through the Engineer, documentary evidence showing materials used and sales taxes paid by the Contractor and each Subcontractor.
- B. The documentary evidence shall consist of a certified statement by the Contractor, and each of his Subcontractors individually, showing total purchases of materials from each separate vendor and total sales taxes paid each vendor. The certified statement shall show the name of the vendor, the invoice number, or numbers, covered and inclusive dates of such invoices. Copies of each invoice shall be attached to the certified statement.
- C. Materials used from the Contractor's or Subcontractor's warehouse stock shall be shown in the certified statement at warehouse stock prices.
- D. The Contractor shall not be required to certify the Subcontractor's statements.
- E. The Contractor shall submit this documentary evidence to the Engineer monthly, covering all items involved during the pay period, along with his request for payment. Prior to final project acceptance and payment, the Contractor shall furnish to the Engineer a sworn affidavit that all project items on which N. C. Sales Tax has been paid appears in the project documentation.

3. BASIS FOR DETERMINING RESPONSIVENESS AND RESPONSIBILITY OF LOW BIDDER

For this Contract, responsiveness is defined by:

- A. The completeness and regularity of the Bid Form.
- B. A Bid Form without modifications unless requested in the technical specifications.

Responsibility may be based on whether the Bidder:

- A. Maintains a permanent place of business.

- B. Has adequate equipment to do the work properly and within the time limit established.
- C. Has adequate financial status to meet his obligations contingent to work.

4. WITHHOLDING PAYMENT

- A. The Engineer may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any approved partial payment estimate to such extent as may be necessary to protect the Owner from loss on account of:
 - (a) Defective work not remedied.
 - (b) Claims filed or reasonable evidence indicating probable filing of claims.
 - (c) Failure to Contractor to make payments properly to subcontractors or for material or labor.
 - (d) A reasonable doubt that the work can be completed for the balance then unpaid.
 - (e) Damage to another Contractor.
 - (f) Performance of work in violation of the terms of the contract documents.
- B. Where work on unit price items are substantially complete but lack clean-up and/or corrections ordered by the Engineer, amounts shall be deducted from unit prices in partial payment estimates to amply cover such clean-up and corrections.
- C. When the above grounds are cured, payment shall be made for amounts withheld because of them.

5. HIGHWAY AND RAILROAD ENCROACHMENTS

All work performed within highway or railroad rights-of-way shall be in strict accordance with the terms and conditions of the encroachment agreement(s) issued by the land owner or controlling authority. Should there be a conflict between these contract documents and the encroachment agreement(s), the more stringent condition, as determined by the Engineer, shall prevail.

Copies of existing encroachment agreement(s) are available to the Bidder, upon request to the Engineer.

6. CONFLICTS IN GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND/OR APPENDIX

Should there be any conflict between the General Conditions, Supplementary Conditions and/or this Appendix, the more stringent condition, as determined by the Engineer, shall prevail.

GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES IN ACCORDANCE WITH NORTH CAROLINA SENATE BILL 914

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager-at-risk, and alternative contracting methods on construction projects in the amount of \$300,000 or more. The legislation provides that the Public Entity shall have a verifiable ten percent (10%) goal for participation by minority businesses in the total value of work for each project for which a contract or contracts are awarded. These requirements are published to accomplish that end.

SECTION A: INTENT

It is the intent of these guidelines that the Public Entity, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded, shall cooperate and, in good faith, do all things legal, proper and reasonable to achieve the statutory goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to make purchases of materials or equipment from minority business contractors or minority business subcontractors who do not submit the lowest responsible, responsive bid(s).

SECTION B: DEFINITIONS

1. Minority - A person who is a citizen or lawful permanent resident of the United States and who is:
 - a. Black; that is, a person having origins in any of the black racial groups in Africa;
 - b. Hispanic; that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
 - c. Asian American; that is, a person having origins in any of the original peoples of the Far East, Southeast Asia, Asia, the Indian subcontinent and the Pacific Islands;
 - d. American Indian; that is, a person having origins in any of the original peoples of North America; or
 - e. Female.
2. Minority Business - Means a business:
 - a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
 - b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.

3. Socially and Economically Disadvantaged Individual - Means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged".
4. Public Entity - Means local governmental units.
5. Owner - The local government unit named in the contract.
6. Designer – Any person, firm, partnership, or corporation, which has contracted with the Public Entity to perform architectural or engineering work.
7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.
8. Contract - A mutually binding legal relationship, or any modification thereof, obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.
9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the Public Entity to perform construction work or repair.
10. Subcontractor - A firm under contract with the prime contractor or construction manager-at-risk for supplying materials, labor and/or installation. The subcontractor may or may not provide materials in his subcontract.

SECTION C: RESPONSIBILITIES

1. Office for Historically Underutilized Businesses, Department of Administration (hereinafter referred to as HUB Office).

The HUB Office has established a program which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2 to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:

- a. Identify those areas of work for which there are minority businesses, as requested.
- b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
- c. Assist in the determination of technical assistance needed by minority business contractors.

In addition to being responsible for the certification/verification of minority businesses that want to participate in the State construction program, the HUB Office will:

- a. Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
- b. Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the Public Entity.
- c. Inform minority businesses of the contracting and subcontracting process for public construction building projects.
- d. Work with the North Carolina trade and professional organizations to improve the ability of minority businesses to compete in the public construction building projects.
- e. The HUB Office also oversees the minority business program by:
 - (1) Monitoring compliance with the program requirements.
 - (2) Assisting in the implementation of training and technical assistance programs.
 - (3) Identifying and implementing outreach efforts to increase the utilization of minority businesses.
 - (4) Reporting the results of minority business utilization to the Secretary of the Department of Administration, the Governor, and the General Assembly.

2. Owner

Before awarding a contract, the owner shall do the following:

- a. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment and interaction between minority businesses and non-minority businesses.
- b. Attend the scheduled pre-bid conference.
- c. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the Public Entity for public construction or repair work and minority businesses that otherwise indicated to the Office for Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:
 - (1) A description of the work for which the bid is being solicited.
 - (2) The date, time and location where bids are to be submitted.

- (3) The name of the individual within the owner's organization who will be available to answer questions about the project.
- (4) Where bid documents may be reviewed.
- (5) Any special requirements that may exist.
- d. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.
- e. Maintain documentation of any contacts, correspondence or conversation with minority business firms made in an attempt to meet the goals.
- f. Review, jointly with the designer, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and an affidavit listing good faith efforts, or an affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.
- g. Evaluate documentation to determine that the good faith effort has been achieved for minority business utilization prior to recommendation of award.
- h. Make documentation showing evidence of implementation of owner's responsibilities available for review by the HUB Office, upon request.

3. Designer

Under the single-prime bidding, separate-prime bidding, construction manager-at-risk or alternative contracting method, the designer will:

- a. Attend the scheduled pre-bid conference to explain minority business requirements to the prospective bidders.
- b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
- c. Maintain documentation of any contacts, correspondence or conversation with minority business firms made in an attempt to meet the goals.
- d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S.143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and an affidavit listing good faith efforts, or an affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.
- e. Make documentation showing evidence of implementation of designer's responsibilities available for review by the HUB Office, upon request.

4. Prime Contractor(s), Construction Manager-at-Risk and Its First-Tier Subcontractors

Under the single-prime bidding, the separate-prime bidding, construction manager-at-risk and alternative contracting methods, contractor(s) will:

- a. Attend the scheduled pre-bid conference.
- b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
- c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification will include the following:
 - (1) A description of the work for which the sub-bid is being solicited.
 - (2) The date, time and location where sub-bids are to be submitted.
 - (3) The name of the individual within the company who will be available to answer questions about the project.
 - (4) Where bid documents may be reviewed.
 - (5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.

- d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
- e. Identify on the bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and an affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).
- f. Make documentation showing evidence of implementation of Prime Contractor(s), Construction Manager-at-Risk and First-Tier Subcontractor responsibilities available for review by the HUB Office, upon request.
- g. Upon being named the apparent low bidder, the bidder shall provide one of the following:
 - (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) Affidavit D, if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and subsequent award to the next lowest responsible and responsive bidder.

- h. During the construction of a project, at any time, if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, the designer and the Director of the HUB Office, in writing, of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.
- i. If during the construction of a project, additional subcontracting opportunities become available, make a good faith effort to solicit sub-bids from minority businesses;
- j. It is the intent that these requirements apply to all contractors performing as prime contractor, first-tier subcontractor or construction manager-at-risk.

5. Minority Business Responsibilities

Minority businesses who are contacted by owners or bidders must respond promptly as to whether or not they wish to submit a bid.

SECTION D: DISPUTE PROCEDURES

It is the policy of this State that disputes involving a person's rights, duties or privileges, should be settled through informal procedures. To that end, minority business disputes arising under these guidelines should be resolved as governed under G.S. 143-128(g).

MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

APPLICATION:

The Guidelines for Recruitment and Selection of Minority Businesses in Accordance with North Carolina Senate Bill 914 are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership.

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 Public Entity for performance of this contract. 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 Public Entity 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.

INSTRUCTIONS:

1. In accordance with G.S. 143-128.2(c), each bidder shall complete and submit the *"Identification of Minority Business Participation"* form, and Affidavits A and/or B (as applicable) with the bid. The proposed low bidder shall submit to the Owner Affidavits C and/or D (as applicable) within 72 hours of being notified of being the low bidder.

Note #1: An Affidavit C showing the portion of the work to be expended with minority business enterprises is equal to or greater than the verifiable percentage goal "shall give rise to the presumption" of adequate good faith efforts. No additional documentation from the Contractor, other than subcontracts with DBEs and their DBE certifications, will be required by the Public Entity.

Note #2: An Affidavit D showing the portion of the work to be expended with minority business enterprises is below the verifiable percentage goal requires additional documentation, including the documentation listed in Affidavit D itself.

Note #3: G.S. 143-128.2(d) limits substitution of subcontractors.

Failure to file a required affidavit or documentation that demonstrates that the contractor made the required good faith effort is grounds for rejection of the bid [G.S. 143-128.2(c)].

2. The Owner shall complete and / or procure the following items within ten (10) working **days** of the notification of tentative award to the low bidder:
 - a. The *"Owner's Affidavit of Good Faith Efforts"* or the *"Owner's Intent to Perform Work with Own Workforce (Force Account)"*, as applicable.

- b. Documentation of the Owner's good faith efforts including the following:
 - (1) the Owner's minority business participation outreach plan,
 - (2) the roster from the pre-bid meeting,
 - (3) the solicitation list the Owner maintains pursuant to G. S. 143-128.2 (e)(3),
 - (4) any list of contractors received from the Office of Historically Underutilized Businesses,
 - (5) solicitation letters sent to at least three of the contractors identified above. This solicitation letter must include all the elements laid out below [G. S. 143-128.2 (e)(3) a through e].
 - i. A description of the work for which the bid is being solicited.
 - ii. The date, time, and location where bids are to be submitted.
 - iii. The name of the individual within the Public Entity who will be available to answer questions about the project.
 - iv. Where bid documents may be reviewed.
 - v. Any special requirements that may exist.
 - c. The Owner's affidavits of publication, or other documentation of advertising,
 - d. Appropriate affidavits of good faith efforts for each Contractor,
 - e. Documentation of each Contractor's good faith efforts including the following:
 - (1) If the Contractor completed Affidavit C, the Owner will require no additional documentation from the Contractor, other than verification of subcontracts and DBE certifications for each proposed DBE subcontractor. [G.S. 143-128.2(c)(1) a.]
 - (2) If the Contractor completed Affidavit D, all the documentation listed in Affidavit D, including DBE certifications for each proposed DBE subcontractor.
3. After being awarded the contract, the Contractor will send to the Owner executed copies of each subcontract awarded to a DBE subcontractor.

Note that G. S. 143-128.2(d) limits substitution of and requires good faith efforts be made to find DBE substitute subcontractors.

Note that G.S. 143-128.2(c)(2) requires the Contractor to provide to the Owner, within 30 days of award, a list of all identified subcontractors, whether DBE or not.

OWNER'S GOOD FAITH EFFORTS:

As laid out in G.S. 143-128.2 (e) the Owner must make all the good faith efforts listed below:

Before awarding a contract, a Public Entity shall do the following:

1. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and nonminority businesses.

2. Attend the scheduled pre-bid conference.
3. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the Public Entity for public construction or repair work and minority businesses that otherwise indicated to the Office of Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:
 - a. A description of the work for which the bid is being solicited.
 - b. The date, time, and location where bids are to be submitted.
 - c. The name of the individual within the Public Entity who will be available to answer questions about the project.
 - d. Where bid documents may be reviewed.
 - e. Any special requirements that may exist.
4. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.

CONTRACTOR'S GOOD FAITH EFFORTS:

The good faith efforts to be made by the bidders/contractors (including subcontractors that further subcontract), as laid out in G.S. 143-128.2 (f), follow. Each contractor must earn at least 50 points with the good faith efforts listed below.

1. Contacting 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 or proposal date and notifying them of the nature and scope of the work to be performed. (10 points)
2. Making 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 bid or proposals are due. (10 points)
3. Breaking down or combining elements of work into economically feasible units to facilitate minority participation. (15 points)
4. Working 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. (10 points)
5. Attending any pre-bid meetings scheduled by the Public Entity. (10 points)
6. Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors. (20 points)
7. Negotiating in good faith with interested minority businesses and not rejecting 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. (15 points)

8. Providing 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. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit. (25 points)
9. Negotiating 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. (20 points)
10. Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands. (20 points)

City of Rocky Mount 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.

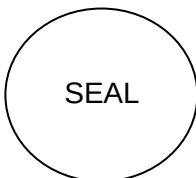
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure 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 business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____

**City of Rocky Mount --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

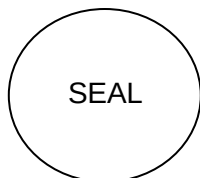
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

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: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____

**DO NOT USE AFFIDAVIT 'B' UNLESS YOU ARE ONLY PROVIDING
LABOR AND NOT PURCHASING ANY MATERIALS OR SUPPLIES**

City of Rocky Mount - AFFIDAVIT C - Portion of the Work to be Performed by HUB Certified/Minority Businesses

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 HUB certified/minority businesses as defined in GS143-128.2(g) and 128.4(a),(b),(e) is equal to or greater than 10% 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 _____ 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. Minority 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	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

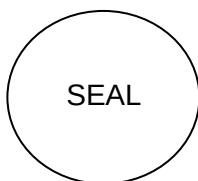
*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority 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: _____

State of _____, County of _____

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

Notary Public _____

My commission expires _____

City of Rocky Mount

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 10% participation by HUB Certified/ minority 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 ID# _____ (Project Name) Amount of Bid \$ _____

I will expend a minimum of _____% of the total dollar amount of the contract with HUB certified/ minority business enterprises. Minority 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	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Examples of documentation that may be 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:

- 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.
- Copies of quotes or responses received from each firm responding to the solicitation.
- A telephone log of follow-up calls to each firm sent a solicitation.
- 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.
- Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- Copy of pre-bid roster
- Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- Letter detailing reasons for rejection of minority business due to lack of qualification.
- 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.

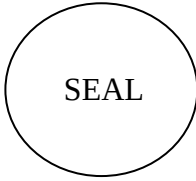
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

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: _____



State of _____, County of _____

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

Notary Public _____

My commission expires _____

Submitting Affidavit D indicates the bidder has not achieved the verifiable percentage goal for DBE participation. Therefore, the bidder must document the good faith efforts claimed in Affidavit A. The table below outlines the required documentation for each good faith effort listed in Affidavit A.

If you claimed this Good Faith Effort on Affidavit A...	you must substantiate it with the following documentation (cited in Affidavit D).
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	1. Owner requires three solicitations to DBEs for each subcontract specialty – if three DBEs are listed in the source solicitation list for that subcontract specialty. 2. Each solicitation must include the information listed in G.S. 143-128.2 (e)(3) a through e (see instructions). 3. For any subcontract specialty where a DBE was solicited and responded but not used, Owner needs proposals from the DBE and the low bidder (to ensure the DBE was underbid).
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.	Generally taken care of by the Engineer and Owner making the approved plans and specifications and bid documents widely available (typically: Owner's office, Engineer's office, AGC, and/or F.W. Dodge).
Breaking down or combining elements of work into economically feasible units to facilitate minority participation.	Owner will review the nature of subcontracts and determine if they are of reasonable size and scope.
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.	Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal
Attending any prebid meetings scheduled by the public owner	The Owner will submit a copy of the prebid roster.
Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.	Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
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.	1. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes or responses received from each firm (DBE or not) responding to the solicitation. 2. Letter detailing reasons for rejection of minority business due to lack of qualification.
Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements... Assisting DBE in obtaining the same unit pricing as the bidder with bidder's suppliers	Letter documenting proposed assistance offered to minority business.
Negotiating joint venture and partnership arrangements with minority businesses.	The existence of such a joint venture or partnership itself, or letter documenting proposed joint venture and partnership arrangements offered to minority business.
Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.	Letter documenting proposed assistance offered to minority business.

Owner's Checklist and Affidavit of the Good Faith Efforts

Project Owner _____ Project # _____

Project Name _____

Affidavit of _____

(Name of Owner's Authorized Representative)

I have made a good faith effort to comply with G.S. 143-128.2(e) under each of the following areas:
(A "public entity" is required to make all of the efforts identified in order to have achieved a "good faith effort")

- ☐ Developed and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and nonminority businesses.
- ☐ Attended the scheduled prebid conference.
- ☐ At least 10 days prior to the scheduled day of bid opening, notified minority businesses that have requested notices from the Owner for public construction or repair work and minority businesses that otherwise indicated to the Office of Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification included the following:
 - a. A description of the work for which the bid is being solicited.
 - b. The date, time, and location where bids are to be submitted.
 - c. The name of the individual within the public entity who will be available to answer questions about the project.
 - d. Where bid documents may be reviewed.
 - e. Any special requirements that may exist.
- ☐ Utilized other media, as appropriate, likely to inform potential minority businesses of the bid being sought.

I have attached to this affidavit the following documentation of the Owner's good faith efforts:

- ☐ the Owner's minority business participation outreach plan,
- ☐ the roster from the prebid meeting,
- ☐ the solicitation list the Owner maintains pursuant to G.S. 143-128.2 (e)(3),
- ☐ printouts of any list of contractors developed from the Office of Historically Underutilized Businesses or any other web-based resource,
- ☐ The Owner's affidavits of publication, or other documentation of advertising,

I have attached to this affidavit the following documentation of each proposed Contractor's good faith efforts:

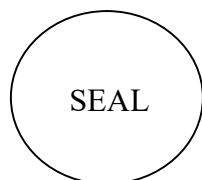
- ☐ Appropriate affidavits of good faith efforts for each proposed Contractor,
- ☐ DBE certifications for each proposed DBE subcontractor,
- ☐ For each proposed Contractor that completed Affidavit D, all the documentation listed in Affidavit D, and
- ☐ Verifications of subcontracts (optional).

The undersigned hereby certifies that the Owner has complied with the steps laid out in the resolution of this unit of local government and in the minority business participation outreach plan applying to this project, and that he or she has read this certification and is authorized to bind the Owner to the commitments herein contained.

Date: _____ Authorized Representative: _____

Signature: _____

Title: _____



State of North Carolina, County of _____

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

Notary Public _____

My commission expires _____

State of North Carolina -- Owner's Intent to Perform Work with Own Workforce.(Force Account)

Project Owner _____ Project # _____

Affidavit of _____
(Name of Owner)

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

(Name of Project) **Project.**

In making this certification, the Owner states that the Owner will perform all elements of the work on this project with his/her own current work forces (force account); and

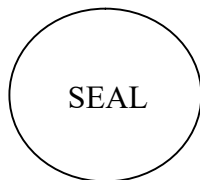
The Owner agrees to provide any additional information or documentation requested by the Public Water Supply Section in support of the above statement; and

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

Date: _____ Authorized Representative: _____

Signature: _____

Title: _____



State of North Carolina, County of _____

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

Notary Public _____

My commission expires _____

Quick Reference for Requirements of Session Law 2001-496 (Senate Bill 914)

Owner's Responsibilities

Authority	Action	Documentation/ Responsibility	When Required
G.S. 143-128.2(a)	Adopt a 10 % minority goal. Local entity may continue to use a different verifiable goal adopted prior to December 1, 2001. Local entity may establish a different verifiable goal upon proper documentation.	- Provide a Resolution that establishes a "verifiable percentage goal." - Provide a Certification that states the "verifiable percentage goal" applies to the current project. - If verifiable goal different than 10%, then provide sufficient evidence to justify the goal (e.g. disparity study).	Resolution and Certification submitted with application
G.S. 143-129(a) amended by S. L. 2001-496	Formal Bidding	- Threshold increased from \$100,000 to \$300,000 for construction. DBE requirements apply. - Threshold increased from \$30,000 to \$90,000 for purchase of materials, supplies, and equipment.	N/A
G.S. 143-131(b)	Informal Bidding	- Threshold from \$5,000 to \$300,000 for construction. DBE requirements apply. - Document all efforts. - No requirement to formally advertise. Must submit your efforts to recruit DBEs, including type of project, total \$ amount of project, and total \$ amount to DBE contractor. - Use informal bid projects to increase DBE participation.	N/A
G.S. 143-128.2(e)	<u>Good Faith Efforts (GFE)</u> - Develop and implement a DBE outreach program - Pre-bid Conference - Notify DBEs - Use Media as appropriate	- Solicit DBE firm and make it feasible for DBEs to submit successful bids. - Identify DBE firms that can perform projects (i.e. create DBE list). - Promote interaction between DBEs and non-DBE firms. - Discuss and ensure DBE program is reviewed, contact HUB office for inquiries. - Notice to DBEs to include: description of work, date, time and location for bid submittal, contact person, where bid documents can be reviewed and any other special requirements. - Use media outlets, general circulation newspapers, local and statewide DBE newspapers and radio stations.	Send notice of bidding opportunity at least 10 days prior to scheduled bid opening

This quick reference outlines the changes made by Session Law 2001-496 (Senate Bill 914).

Quick Reference for Requirements of Session Law 2001-496 (Senate Bill 914)

Bidders' Responsibilities

Authority	Action	Documentation/ Responsibility	When Required
G.S. 143-28.2(c)(1) including (a) & (b)	Provide an affidavit listing GFE. If performing all the work you must submit an affidavit stating such.	" <i>Identification of Minority Business Participation</i> " Form, and either Affidavit A or B, as appropriate	"on the bid"
G.S. 143-28.2(c)(1)(a)	Provide more detailed documentation of list of DBEs solicited or awarded, amount contracted, and percentage. If not meeting the "verifiable percentage goal," then document your solicitation efforts (Affidavit D).	Affidavit C or D (including documentation specified in Affidavit D), as appropriate	72 hours after notification of apparent low bidder
G.S. 143-28.2(c)(2)	Provide a listing of all expected subcontracts (whether DBE or not).	Provide a listing of all expected subcontracts (DBE or not).	within 30- days (statute)
G.S. 143-128.2(f)	Earn fifty points with the good faith efforts listed below. 1. Contact DBE using resources available. 10 points 2. Make plans & specification available for review. 10 points 3. Breakdown or combine elements of work into economically feasible units of work. 15 points 4. Work with DBE trade community or contractor organizations that provide assistance in recruiting DBE firms. 10 points 5. Attend pre-bid meetings scheduled by the public owner. 10 points 6. Provide assistance in getting required bonding or insurance or provide alternatives to bonding or insurance for subcontractors. 20 points 7. Negotiate in good faith with interested minority businesses and 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. 15 points 8. Provide 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. Assist minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit. 25 points 9. Negotiate 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. 20 points 10. Provide quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands. 20 points	• Use media outlets, general circulation newspapers, local and statewide DBE newspapers and radio stations. List provided by Owner or other state and local agencies. • Identify DBEs on bid list.	Provide Notice at least 10 days prior to scheduled opening bids indicating work to be performed.

This quick reference outlines the changes made by Session Law 2001-496 (Senate Bill 914).

NOTICE TO PROCEED

Owner: City of Rocky Mount Owner's Project No.: 320-140726FD
Engineer: Green Engineering, P.L.L.C. Engineer's Project No.: 20-154
Contractor: _____ Contractor's Project No.: _____
Project: Old Mill Road Sewer Pump Station Force Main
Contract Name: Old Mill Road Sewer Pump Station Force Main
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on **[date Contract Times are to start]** pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The date by which Substantial Completion must be achieved is **[date for Substantial Completion, from Agreement]**, and the date by which readiness for final payment must be achieved is **[date for readiness, from Agreement]**.

Before starting any Work at the Site, Contractor must comply with the following:

[Note any access limitations, security procedures, or other restrictions]

Owner: City of Rocky Mount
By (signature): _____
Name (printed): _____
Title: _____
Date Issued: _____
Copy: Engineer

Contractor's Application for Payment

Owner: _____ Engineer: _____ Contractor: _____ Project: _____ Contract: _____	Owner's Project No.: _____ Engineer's Project No.: _____ Contractor's Project No.: _____
Application No.: _____ Application Date: _____	
Application Period: From _____ to _____	

1. Original Contract Price	\$	-
2. Net change by Change Orders	\$	-
3. Current Contract Price (Line 1 + Line 2)	\$	-
4. Total Work completed and materials stored to date (Sum of Column G Lump Sum Total and Column J Unit Price Total)	\$	-
5. Retainage		
a. _____ X \$ _____ - Work Completed =	\$	-
b. _____ X \$ _____ - Stored Materials =	\$	-
c. Total Retainage (Line 5.a + Line 5.b)	\$	-
6. Amount eligible to date (Line 4 - Line 5.c)	\$	-
7. Less previous payments (Line 6 from prior application)		
8. Amount due this application	\$	-
9. Balance to finish, including retainage (Line 3 - Line 4 + Line 5.c)	\$	-

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such liens, security interest, or encumbrances); and

(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor: _____	
Signature: _____	Date: _____

Recommended by Engineer By: _____ Title: _____ Date: _____	Approved by Owner By: _____ Title: _____ Date: _____
Approved by Funding Agency By: _____ Title: _____ Date: _____	By: _____ Title: _____ Date: _____

Progress Estimate - Lump Sum Work

Contractor's Application for Payment

Owner:						Owner's Project No.:		
Engineer:						Engineer's Project No.:		
Contractor:						Contractor's Project No.:		
Project:								
Contract:								
Application No.:		Application Period:	From		to		Application Date:	
A	B	C	D	E	F	G	H	I
Item No.	Description	Scheduled Value (\$)	Work Completed		Materials Currently Stored (not in D or E) (\$)	Work Completed and Materials Stored to Date (D + E + F) (\$)	% of Scheduled Value (G / C) (%)	Balance to Finish (C - G) (\$)
			(D + E) From Previous Application (\$)	This Period (\$)				
Original Contract								
						-		-
						-		-
						-		-
						-		-
						-		-
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Original Contract Totals		\$ -	\$ -	\$ -	\$ -	\$ -		\$ -

Contractor's Application for Payment

Lump Sum (c) 2018 National Society of Professional Engineers for EJCDC. All rights reserved. 2 of 2

Contractor's Application for Payment

Owner:	_____	Owner's Project No.:	_____
Engineer:	_____	Engineer's Project No.:	_____
Contractor:	_____	Contractor's Project No.:	_____
Project:	_____		
Contract:	_____		

[illegible]

Contractor's Application for Payment

Owner's Project No.: _____
 Engineer's Project No.: _____
 Contractor's Project No.: _____

Unit Price (c) 2018 National Society of Professional Engineers for EJCDC. All rights reserved. 2 of 2

Contractor's Application for Payment

1 of 1

WORK CHANGE DIRECTIVE NO.: [Number of Work Change Directive]

Owner: **City of Rocky Mount** Owner's Project No.: **320-140726FD**
Engineer: **Green Engineering, P.L.L.C.** Engineer's Project No.: **20-154**
Contractor: Contractor's Project No.:
Project: **Old Mill Road Sewer Pump Station Force Main**
Contract Name: **Old Mill Road Sewer Pump Station Force Main**
Date Issued: Effective Date of Work Change Directive:

Contractor is directed to proceed promptly with the following change(s):

Description:

[Description of the change to the Work]

Attachments:

[List documents related to the change to the Work]

Purpose for the Work Change Directive:

[Describe the purpose for the change to the Work]

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

Notes to User—Check one or both of the following

☐ Non-agreement on pricing of proposed change. ☐ Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: \$ _____ **[increase] [decrease] [not yet estimated].**

Contract Time: _____ days **[increase] [decrease] [not yet estimated].**

Basis of estimated change in Contract Price:

☐ Lump Sum ☐ Unit Price ☐ Cost of the Work ☐ Other

Recommended by Engineer

Authorized by Owner

By:

Title:

Date:

CHANGE ORDER NO.: [Number of Change Order]

Owner:	City of Rocky Mount	Owner's Project No.:	320-140726FD
Engineer:	Green Engineering, P.L.L.C.	Engineer's Project No.:	20-154
Contractor:		Contractor's Project No.:	
Project:	Old Mill Road Sewer Pump Station Force Main		
Contract Name:	Old Mill Road Sewer Pump Station Force Main		
Date Issued:		Effective Date of Change Order:	

The Contract is modified as follows upon execution of this Change Order:

Description:

[Description of the change]

Attachments:

[List documents related to the change]

Change in Contract Price	Change in Contract Times [State Contract Times as either a specific date or a number of days]
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. [Number of previous Change Order] : \$ _____	[Increase] [Decrease] from previously approved Change Orders No.1 to No. [Number of previous Change Order] : Substantial Completion: _____ Ready for final payment: _____
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] this Change Order: \$ _____	[Increase] [Decrease] this Change Order: Substantial Completion: _____ Ready for final payment: _____
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____

*"THIS INSTRUMENT HAS BEEN PRE-AUDITED IN THE MANNER REQUIRED
BY THE LOCAL GOVERNMENT BUDGET AND FISCAL CONTROL ACT"*

Recommended by Engineer (if required)	_____ <i>Finance Director</i> Authorized by Owner
By: _____	_____
Title: _____	_____
Date: _____	_____
Approved by Contractor	Approved by Funding Agency (if applicable)
By: _____	_____
Title: _____	_____
Date: _____	_____

FIELD ORDER NO.: [Number of Field Order]

Owner:	<i>City of Rocky Mount</i>	Owner's Project No.:	<i>320-140726FD</i>
Engineer:	<i>Green Engineering, P.L.L.C.</i>	Engineer's Project No.:	<i>20-154</i>
Contractor:		Contractor's Project No.:	
Project:	<i>Old Mill Road Sewer Pump Station Force Main</i>		
Contract Name:	<i>Old Mill Road Sewer Pump Station Force Main</i>		
Date Issued:		Effective Date of Field Order:	

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s):

Drawing(s) / Details (s):

Description:

[Description of the change to the Work]

Attachments:

[List documents supporting change]

Issued by Engineer

By: _____

Title: _____

Date: _____

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: **City of Rocky Mount** Owner's Project No.: **320-140726FD**
Engineer: **Green Engineering, P.L.L.C.** Engineer's Project No.: **20-154**
Contractor: Contractor's Project No.:
Project: **Old Mill Road Sewer Pump Station Force Main**
Contract Name: **Old Mill Road Sewer Pump Station Force Main**

This ☐ Preliminary ☐ Final Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

[Describe the portion of the work for which Certificate of Substantial Completion is issued]

Date of Substantial Completion: **[Enter date, as determined by Engineer]**

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: ☐ None ☐ As follows:

[List amendments to Owner's Responsibilities]

Amendments to Contractor's Responsibilities: ☐ None ☐ As follows:

[List amendments to Contractor's Responsibilities]

The following documents are attached to and made a part of this Certificate:

[List attachments such as punch list; other documents]

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Engineer

By (signature): _____

Name (printed): _____

Title: _____

NOTICE OF ACCEPTABILITY OF WORK

Owner:	City of Rocky Mount	Owner's Project No.:	320-140726FD
Engineer:	Green Engineering, P.L.L.C.	Engineer's Project No.:	20-154
Contractor:		Contractor's Project No.:	
Project:	Old Mill Road Sewer Pump Station Force Main		
Contract Name:	Old Mill Road Sewer Pump Station Force Main		
Notice Date:	Effective Date of the Construction Contract:		

The Engineer hereby gives notice to the Owner and Contractor that Engineer recommends final payment to Contractor, and that the Work furnished and performed by Contractor under the Construction Contract is acceptable, expressly subject to the provisions of the Construction Contract's Contract Documents ("Contract Documents") and of the Agreement between Owner and Engineer for Professional Services dated **[date of professional services agreement]** ("Owner-Engineer Agreement"). This Notice of Acceptability of Work (Notice) is made expressly subject to the following terms and conditions to which all who receive and rely on said Notice agree:

1. This Notice has been prepared with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.
2. This Notice reflects and is an expression of the Engineer's professional opinion.
3. This Notice has been prepared to the best of Engineer's knowledge, information, and belief as of the Notice Date.
4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor's Work) under the Owner-Engineer Agreement, and applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Owner-Engineer Agreement.
5. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract, an acceptance of Work that is not in accordance with the Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents, or to otherwise comply with the Contract Documents or the terms of any special guarantees specified therein.
6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner's reservations of rights with respect to completion and final payment.

Engineer

By (signature): _____

Name (printed): _____

Title: _____

PERMITS

ROY COOPER

Governor

ELIZABETH S. BISER

Secretary

RICHARD E. ROGERS, JR.

Director



NORTH CAROLINA
Environmental Quality

September 2, 2022

Scott Miles, PE
Assistant City Engineer – Water Resources
City of Rocky Mount
Post Office Box 1180
Rocky Mount, NC 27802

Subject: Permit No. WQ0043637
City of Rocky Mount
Old Mill Road Sewer Pump Station Replacement
Wastewater Collection System Extension Permit
Nash County

Dear Permittee:

In accordance with your application received July 11, 2022, we are forwarding herewith Permit No. WQ0043637 dated September 2, 2022, to the City of Rocky Mount (Permittee) for the construction and operation upon certification of the subject wastewater collection system extension. This permit shall be effective from the date of issuance until rescinded, shall be subject to the conditions and limitations as specified therein. This cover letter shall be considered a part of this permit and is therefore incorporated therein by reference.

Please pay particular attention to the following conditions contained within this permit:

- Condition II.1: This permit shall not be automatically transferable; a request must be made and approved.
- Condition II.4: Requires that the wastewater collection facilities be properly operated and maintained in accordance with 15A NCAC 02T .0403 or any individual system-wide collection system permit issued to the Permittee.
- Condition II.7: Upon completion of construction and prior to operation of these permitted facilities, the completed Engineering Certification form with checklist attached to this permit shall be submitted with the required supporting documents to the address provided on the form. **Permit modifications are required for any changes resulting in non-compliance with this permit, regulations, or the Minimum Design Criteria.** [15A NCAC 02T.0116]

It shall be responsibility of the Permittee to ensure that the as-constructed project meets the appropriate design criteria and rules. Failure to comply may result in penalties in accordance with North Carolina General Statute §143-215.6A through §143-215.6C, construction of additional or replacement



North Carolina Department of Environmental Quality | Division of Water Resources
Raleigh Regional Office | 3800 Barrett Drive | Raleigh, North Carolina 27609
919.791.4200

City of Rocky Mount

Permit No. WQ0043637

wastewater collection facilities, and/or referral of the North Carolina-licensed Professional Engineer to the licensing board.

If any parts, requirements, or limitations contained in this permit are unacceptable, you have the right to request an adjudicatory hearing upon written request within 30 days following receipt of this permit. This request must be in the form of a written petition, conforming to Chapter 150B of North Carolina General Statutes, and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714. Unless such demands are made, this permit shall be final and binding.

If you need additional information concerning this matter, please contact Jason Robinson via e-mail at Jason.Robinson@ncdenr.gov.

Sincerely,

DocuSigned by:

BCDA9D825D4A46D...

for Richard E. Rogers, Jr.
Director, Division of Water Resources

by Scott Vinson, Regional Supervisor
Water Quality Regional Operations Section
Raleigh Regional Office
Division of Water Resources, NCDEQ

cc: Thomas D. Dienes, PE: t.dienes@greeneng.com
Raleigh Regional Office Files
DWR Laserfiche
Nash County Health Department



WASTEWATER COLLECTION SYSTEM EXTENSION PERMIT

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules, and Regulations, permission is hereby granted to the

City of Rocky Mount
Nash County

for the construction and operation of approximately 131 linear feet of 24-inch gravity sewer; a 3,820–gallon per minute pump station with Triplex pumps (2 duty, 1 standby), on-site audible and visual high water alarms, telemetry, and a permanent generator with automatic transfer switch; as well as approximately 4,635 linear feet of 14-inch force main to replace an existing, likely unpermitted pump station and forcemain as part of the Old Mill Road Sewer Pump Station Replacement project, and the discharge of zero additional gallons per day of collected domestic, commercial, industrial wastewater into the City of Rocky Mount's existing sewerage system, pursuant to the application received July 11, 2022, and in conformity with 15A NCAC 02T; the Division's Gravity Sewer Minimum Design Criteria adopted February 12, 1996 and updated in March 2008, as applicable; the Division's Minimum Design Criteria for the Fast-Track Permitting of Pump Stations and Force Mains adopted June 1, 2000 as applicable; and other supporting data subsequently filed and approved by the Department of Environmental Quality and considered a part of this permit.

This permit shall be effective from the date of issuance until rescinded and shall be subject to the specified conditions and limitations contained therein.

DocuSigned by:

Scott Vinson
BCDA9D825D4A46D...

for Richard E. Rogers, Jr.

Director, Division of Water Resources

By Authority of The Environmental Management Commission

Permit Number: WQ0043637
Permit Issued: September 2, 2022

SUPPLEMENT TO PERMIT COVER SHEET

City of Rocky Mount is hereby authorized to:

Construct, and then operate upon certification the aforementioned wastewater collection extension. The sewage and wastewater collected by this system shall be treated in Rocky Mount's Tar River Regional Wastewater Treatment Facility in accordance with Permit Number NC0043637.

Permitting of this project does not constitute an acceptance of any part of the project that does not meet 15A NCAC 02T; the Division's Gravity Sewer Minimum Design Criteria adopted February 12, 1996 as applicable; and the Division's Minimum Design Criteria for the Fast-Track Permitting of Pump Stations and Force Mains adopted June 1, 2000 as applicable, unless specifically mentioned herein. Division approval is based on acceptance of the certification provided by a North Carolina-licensed Professional Engineer in the application. It shall be the Permittee's responsibility to ensure that the as-constructed project meets the appropriate design criteria and rules.

Construction and operation is contingent upon compliance with the Standard Conditions and any Special Conditions identified below.

I. SPECIAL CONDITIONS

1. Each pump station shall be clearly and conspicuously posted using a weatherproof sign with a pump station identifying name/number, 24-Hour Emergency telephone number, and name of the owner/operator of the sewer system/pump station and instructions to call the number in the event of alarm activation or other emergency. Simplex pump stations or vacuum sewer pits serving a single-family residence may have a placard or sticker on the control panel in lieu of a sign. [15A NCAC 02T .0305(h)(2)]
2. The abandonment of any existing wastewater facilities including septic systems being replaced by new sewer infrastructure shall be done in accordance with the applicable agency having compliance oversight on such facilities. [15A NCAC 02T.0105(c)(6)]

II. STANDARD CONDITIONS

1. This permit shall not be transferable. In the event there is a desire for the wastewater collection facilities to change ownership, or there is a name change of the Permittee, a formal permit request shall be submitted to the Division accompanied by documentation from the parties involved, and other supporting materials as may be appropriate. The approval of this request shall be considered on its merits and may or may not be approved. [15A NCAC 02T.0116; G.S 143-215.1(d3)]
2. This permit shall become voidable unless the wastewater collection facilities are constructed in accordance with the conditions of this permit; 15A NCAC 02T; the Division's Gravity Sewer Minimum Design Criteria adopted February 12, 1996 as applicable; the Division's Minimum Design Criteria for the Fast-Track Permitting of Pump Stations and Force Mains adopted June 1, 2000 as applicable; and other supporting materials unless specifically mentioned herein. [15A NCAC 02T.0110]
3. This permit shall be effective only with respect to the nature and volume of wastes described in the application and other supporting data. [15A NCAC 02T .0110]

4. The wastewater collection facilities shall be properly maintained and operated at all times. The Permittee shall maintain compliance with an individual system-wide collection system permit for the operation and maintenance of these facilities as required by 15A NCAC 02T .0403. If an individual permit is not required, the following performance criteria shall be met:
 - a. The sewer system shall be effectively maintained and operated at all times to prevent discharge to land or surface waters, and to prevent any contravention of groundwater standards or surface water standards.
 - b. A map of the sewer system shall be developed and shall be actively maintained.
 - c. An operation and maintenance plan including pump station inspection frequency, preventative maintenance schedule, spare parts inventory and overflow response has been developed and implemented.
 - d. Pump stations that are not connected to a telemetry system shall be inspected every day (i.e. 365 days per year). Pump stations that are connected to a telemetry system shall be inspected at least once per week.
 - e. High-priority sewer lines shall be inspected at least once per every six-months and inspections are documented.
 - f. A general observation of the entire sewer system shall be conducted at least once per year.
 - g. Overflows and bypasses shall be reported to the appropriate Division regional office in accordance with 15A NCAC 2B .0506(a), and public notice shall be provided as required by North Carolina General Statute §143-215.1C.
 - h. A Grease Control Program is in place as follows:
 1. For public owned collection systems, the Grease Control Program shall include at least biannual distribution of educational materials for both commercial and residential users and the legal means to require grease interceptors at existing establishments. The plan shall also include legal means for inspections of the grease interceptors, enforcement for violators and the legal means to control grease entering the system from other public and private satellite sewer systems.
 2. For privately owned collection systems, the Grease Control Program shall include at least bi-annual distribution of grease education materials to users of the collection system by the permittee or its representative.
 3. Grease education materials shall be distributed more often than required in Parts (1) and (2) of this Subparagraph if necessary to prevent grease-related sanitary sewer overflows.
 - i. Right-of-ways and easements shall be maintained in the full easement width for personnel and equipment accessibility.
 - j. Documentation shall be kept for Subparagraphs (a) through (i) of this Rule for a minimum of three years with exception of the map, which shall be maintained for the life of the system.
5. The Permittee shall report by telephone to a water resources staff member at the [Raleigh](#) Regional Office, telephone number (919) 791-4200, as soon as possible, but in no case more than 24 hours, following the occurrence or first knowledge of the occurrence of either of the following:

- a. Any process unit failure, due to known or unknown reasons, that renders the facility incapable of adequate wastewater transport, such as mechanical or electrical failures of pumps, line blockage or breakage, etc.; or
- b. Any SSO and/or spill over 1,000 gallons; or
- c. Any SSO and/or spill, regardless of volume, that reaches surface water

Voice mail messages or faxed information is permissible, but this shall not be considered as the initial verbal report. Overflows and spills occurring outside normal business hours may also be reported to the Division of Emergency Management at telephone number (800) 858-0368 or (919) 733-3300. Persons reporting any of the above occurrences shall file a spill report by completing and submitting Part I of Form CS-SSO (or the most current Division approved form) within five days following first knowledge of the occurrence. This report must outline the actions taken or proposed to be taken to ensure that the problem does not recur. Part II of Form CS-SSO (or the most current Division approved form) can also be completed to show that the SSO was beyond control. [G.S. 143-215.1C(a1)]

- 6. Construction of the gravity sewers, pump stations, and force mains shall be scheduled so as not to interrupt service by the existing utilities nor result in an overflow or bypass discharge of wastewater to the surface waters of the State. [15A NCAC 02T.0108(b)]
- 7. Upon completion of construction and prior to operation of these permitted facilities, the completed Engineering Certification form with checklist attached to this permit shall be submitted with the required supporting documents to the address provided on the form. A complete certification is one where the form is fully executed and the supporting documents are provided as applicable. Any wastewater flow made tributary to the wastewater collection system extension prior to completion of this Engineer's Certification shall be considered a violation of the permit and shall subject the Permittee to appropriate enforcement actions.

If the permit is issued to a private entity with an Operational Agreement, then a copy of the Articles of Incorporation, Declarations/Covenants/Restrictions, and Bylaws that have been appropriately filed with the applicable County's Register of Deeds office shall be submitted with the certification.

A complete certification is one where the form is fully executed and the supporting documents are provided as applicable. Supporting documentation shall include the following:

- a. One copy of the project construction record drawings (plan & profile views of sewer lines & force mains) of the wastewater collection system extension. Final record drawings should be clear on the plans or on digital media (CD or DVD disk) and are defined as the design drawings that are marked up or annotated with after construction information and show required buffers, separation distances, material changes, etc.
- b. One copy of the supporting applicable design calculations including pipe and pump sizing, velocity, pump cycle times, and level control settings, pump station buoyancy, wet well storage, surge protection, detention time in the wet well, and force main, ability to flush low points in force mains with a pump cycle, and downstream sewer capacity analysis. If a portable power source or pump is dedicated to multiple stations, an evaluation of all the pump stations' storage capacities and the rotation schedule of the portable power source or pump, include travel timeframes, shall be provided.

- c. Changes to the project that do not result in non-compliance with this permit, regulations, or the Minimum Design Criteria should be clearly identified on the record drawings, on the certification in the space provided, or in written summary form.

Prior to Certification (Final or Partial): Permit modifications are required for any changes resulting in non-compliance with this permit (including but not limited to pipe length changes of 10% or greater, increased flow, pump station design capacity design increases of 5% or greater, and increases in the number/type of connections), regulations, or the Minimum Design Criteria. Requested modifications or variances to the Minimum Design Criteria will be reviewed on a case-by-case basis and each on its own merit. Please note that variances to the Minimum Design Criteria should be requested and approved during the permitting process prior to construction. After-construction requests are discouraged by the Division and may not be approved, thus requiring replacement or repair prior to certification & activation. [15A NCAC 02T .0116]

8. Gravity sewers installed greater than ten percent below the minimum required slope per the Division's Gravity Sewer Minimum Design Criteria shall not be acceptable and shall not be certified until corrected. If there is an unforeseen obstacle in the field where all viable solutions have been examined, a slope variance can be requested from the Division with firm supporting documentation. This shall be done through a permit modification with fee. Such variance requests will be evaluated on a case-by-case basis. Resolution of such request shall be evident prior to completing and submitting the construction certification. [15A NCAC 02T.0105(n)]
9. A copy of the individual permit and construction record drawings shall be maintained on file by the Permittee for the life of the wastewater collection facilities. [15A NCAC 02T .0116]
10. Failure to abide by the conditions and limitations contained in this permit; 15A NCAC 02T; the Division's Gravity Sewer Design Criteria adopted February 12, 1996 as applicable; the Division's Minimum Design Criteria for the Fast-Track Permitting of Pump Station and Force Mains adopted June 1, 2000 as applicable; and other supporting materials may subject the Permittee to an enforcement action by the Division, in accordance with North Carolina General Statutes §143-215.6A through §143-215.6C, construction of additional or replacement wastewater collection facilities, and/or referral of the North Carolina-licensed Professional Engineer to the licensing board. [15A NCAC 02T .0108(b-c)]
11. In the event that the wastewater collection facilities fail to perform satisfactorily, including the creation of nuisance conditions, the Permittee shall take immediate corrective action, including those as may be required by this Division, such as the construction of additional or replacement facilities. [15A NCAC 02T .0110; 15A NCAC 02T .0108(b)]
12. The issuance of this permit shall not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by the Division any other Federal, State, or Local government agencies which have jurisdiction or obtaining other permits which may be required by the Division or any other Federal, State, of Local government agencies. [G.S. 143-215.1(b)]

CERTIFICATION CHECKLIST

To be completed by the certifying engineer prior to operation of the permitted sewers, per 15A NCAC 02T.0116.

Certifying Engineer: _____

Certification Review Date: _____

Project Name: _____

WQ00 _____ Project County: _____

- 1) Has permittee information changed since the permit was issued (or last modified): change of mailing address, change of ownership, transfer from developer to HOA/POA, etc. ☐ Yes ☐ No
 - If yes, please provide either a change of ownership form or new contact information. Note that transfer of permits from the developer to the HOA/POA must occur with the first certification.
- 2) Have the as-built drawings have been signed, sealed, and dated by an N.C. PE? ☐ Yes ☐ No
- 3) Final Engineering certification? ☐ Yes ☐ No
 - **If Partial Engineering certification, provide detailed narrative including what is being certified in the current phase, what was previously certified (if applicable), and what is left to be certified.**
- 4) Adequate information related to sewer lines: ☐ Yes ☐ No ☐ N/A
 - Three feet minimum cover has been provided for all sewers unless ferrous pipe was installed.
 - Minimum diameters for gravity sewers are 8-inches for public lines and 6-inches for private lines.
 - Manholes have been installed: At the end of each line, at all changes in grade, size, or alignment, at all intersections, and at distances not greater than 425 feet; minimum diameter shall be 4 feet (48-inches).
- 5) Adequate information related to pump stations: ☐ Yes ☐ No ☐ N/A
 - Ensure power reliability option was selected per [15A NCAC 02T.0305\(h\)](#).
- 6) Was project construction completed in accordance with all of the following: ☐ Yes ☐ No ☐ N/A
 - [15A NCAC 02T, Minimum Design Criteria \(MDC\) for the permitting of Gravity Sewers](#) (latest version), and [MDC for the Permitting of Pump Stations and Force Mains](#) (latest version)?

If not, a variance approval is required in accordance with [15A NCAC 02T.0105\(b\)](#), **prior to certification and operation.**

 - Contact the Central Office to discuss the variance to determine a course of action.
 - Applicant must submit two copies of the variance request form, plans, specifications, calculations, and any other pertinent information to the Central Office (one hard copy, one digital copy).
 - The central office will review the variance request, and if approvable, specific language regarding the variance will be incorporated into the permit, either via a special condition or a supplementary letter. A copy of the reissued permit with variance language or the variance letter must be maintained with the original documents.
- 7) Does the project contains high priority lines ([15A NCAC 02T .0402\(2\)](#))? ☐ Yes ☐ No
 - If yes, ensure that the permit already contains the necessary condition related to high priority lines 15A NCAC 02T.0403 (a)(5). If the permit does not include this language, the Fast Track reviewer will reissue the permit with the appropriate language.
- 8) Are Permit modifications are required for any changes resulting in non-compliance with this permit (including but not limited to pipe length changes of 10% or greater, change in flow, pump station design capacity design change of 5% or greater, and/or change in the number/type of connections)? ☐ Yes ☐ No
 - If yes, a permit modification request must be submitted to the appropriate Regional Office, and **a modified permit with revised certification must be issued prior to certification and operation.**

FAST TRACK SEWER ENGINEERING CERTIFICATION

PERMITTEE: City of Rocky Mount
PERMIT #: WQ0043637
PROJECT: Old Mill Road Sewer Station Replacement
ISSUE DATE: September 2, 2022

This project shall not be considered complete nor allowed to operate in accordance with Condition 7 of this permit until the Division has received this Certification and all required supporting documentation. It should be submitted in a manner that documents the Division's receipt. Send the required documentation the Regional Supervisor, Water Quality Regional Operations Section at the address at the bottom.

Any wastewater flow made tributary to the wastewater collection system extension prior to completion of this Certification shall be considered a violation of the permit and shall subject the Permittee to appropriate enforcement actions. The Permittee is responsible for tracking all partial certifications up until a final certification is received. A Final Certification shall be a complete set of record drawings and design calculations regardless of whether partials have been submitted.

PERMITTEE'S CERTIFICATION

I, the undersigned agent for the Permittee, hereby state that this project has been constructed pursuant to the applicable standards & requirements, the Professional Engineer below has provided applicable design/construction information to the Permittee, and the Permittee is prepared to operate & maintain the wastewater collection system permitted herein or portions thereof.

 Printed Name, Title

 Signature

 Date

ENGINEER'S CERTIFICATION

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (☐ periodically, ☐ weekly, ☐ full time) the construction of the project name and location as referenced above for the above Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the following construction: **approximately 131 linear feet of 24-inch gravity sewer; a 3,820-gallon per minute pump station with Triplex pumps (2 duty, 1 standby), on-site audible and visual high water alarms, telemetry, and a permanent generator with automatic transfer switch; as well as approximately 4,635 linear feet of 14-inch force main; and the abandonment of existing pump station and infrastructure**; such that the construction was observed to be built within substantial compliance of this permit; 15A NCAC 02T; the Division of Water Resources' (Division) Gravity Sewer Minimum Design Criteria adopted February 12, 1996 as applicable; the Division's Minimum Design Criteria for the Fast-Track Permitting of Pump Stations and Force Mains adopted June 1, 2000 as applicable; and other supporting materials.

North Carolina Professional Engineer's Seal w/signature & date:

☐ Final

☐ Partial (include description)



Certification Comments/Qualifiers (attach if necessary):

ROY COOPER
Governor

ELIZABETH S. BISER
Secretary

DOUGLAS R. ANSEL
Interim Director



February 8, 2023

LETTER OF APPROVAL WITH MODIFICATIONS

City of Rocky Mount
ATTN: Scott Miles, City Engineer
PO Box 1180
331 S Franklin St
Rocky Mount, NC 27802

RE: Project Name: Old Mill Road Sewer Pump Station Replacement
Acres Approved: 5 Acres
Project ID: NASH-2023-007
County: Nash
City: Rocky Mount
Address: Multiple
River Basin: Tar-Pamlico
Stream Classification: C; NSW
Submitted By: Langdon Younce, Green Engineering
Date Received by LQS: January 18, 2023
Plan Type: Revised

Dear Mr. Miles,

This office has reviewed the subject erosion and sedimentation control plan. We find the plan to be acceptable with modifications and hereby issue this letter of Approval with Modifications. The Modifications Required for Approval are listed on the attached page. This plan approval shall expire three (3) years following the date of approval, if no land-disturbing activity has been undertaken, as is required by Title 15A NCAC 4B .0129.

As of April 1, 2019, all new construction activities are required to complete and submit an electronic Notice of Intent (eNOI) form requesting a Certificate of Coverage (COC) under the NCG010000 Construction General Permit. After the form is reviewed and found to be complete, you will receive a link with payment instructions for the \$100 annual permit fee. After the fee is processed, you will receive the COC via email. As the Financially Responsible Party shown on the FRO form submitted for this project, you MUST obtain the COC prior to commencement of any land disturbing activity. The eNOI form may be accessed at deq.nc.gov/NCG01. Please



direct questions about the eNOI form to the [Stormwater Program staff](#) in the Raleigh central office. If the owner/operator of this project changes in the future, the new responsible party must obtain a new COC.

Title 15A NCAC 4B .0118(a) and the NCG01 permit require that the following documentation be kept on file at the job site:

1. The approved E&SC plan as well as any approved deviation.
2. The NCG01 permit and the COC, once it is received.
3. Records of inspections made during the previous 12 months.

Also, this letter gives the notice required by G.S. 113A-61.1(a) of our right of periodic inspection to ensure compliance with the approved plan.

North Carolina's Sedimentation Pollution Control Program is performance-oriented, requiring protection of existing natural resources and adjoining properties. If, following the commencement of this project, it is determined that the erosion and sedimentation control plan is inadequate to meet the requirements of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statute 113A-51 through 66), this office may require revisions to the plan and implementation of the revisions to ensure compliance with the Act.

Acceptance and approval of this plan is conditioned upon your compliance with Federal and State water quality laws, regulations, and rules. In addition, local city or county ordinances or rules may also apply to this land-disturbing activity. This approval does not supersede any other permit or approval.

Please note that this approval is based in part on the accuracy of the information provided in the Financial Responsibility Form, which you provided. This permit allows for a land-disturbance, as called for on the application plan, not to exceed the approved acres. Exceeding the acreage will be a violation of this permit and would require a revised plan and additional application fee. You are requested to file an amended form if there is any change in the information included on the form. In addition, it would be helpful if you notify this office of the proposed starting date for this project.

Your cooperation is appreciated.

Letter of Approval
Scott Miles
February 8, 2023
Page 3 of 4

Sincerely,

A handwritten signature in black ink, appearing to read 'A. Fayad', written in a cursive style.

Abdulrahman Fayad
Assistant Regional Engineer I
Land Quality Section

Enclosures: Certificate of Approval
Modifications Required for Approval
NPDES NCG01 Fact Sheet

cc: Regional Office file
Langdon Younce, l.younce@greeneng.com

MODIFICATIONS REQUIRED FOR APPROVAL

Project Name: Old Mill Road Sewer Pump Station Replacement
Project ID: NASH-2023-006
County: Nash

1. Provide location of rain gage and records box.
2. Provide two copies of the plan set (one full-size and one half-size), showing the modifications required for approval. To facilitate DEMLR **review, bubble, highlight, or otherwise identify the changes to your resubmittal**. Provide one copy of additional items (such as design calculations). Provide a cover letter referencing the project name, project ID, and purpose for submittal. (G.S. 113A-57(4))

Ref: G.S. 113A-54.1 through G.S. 113A-57
Sections 15A NCAC 04A.0101 through 15A NCAC 04E.0504
General Permit NCG 010000 NPDES for Construction Activities

CERTIFICATE OF PLAN APPROVAL



The posting of this certificate certifies that an erosion and sedimentation control plan has been approved for this project by the North Carolina Department of Environmental Quality in accordance with North Carolina General Statute 113A – 57 (4) and 113A – 54 (d) (4) and North Carolina Administrative Code, Title 15A, Chapter 4B.0107 (c). This certificate must be posted at the primary entrance of the job site before construction begins and until establishment of permanent groundcover as required by North Carolina Administrative Code, Title 15A, Chapter 4B.0127 (b).

Old Mill Road Sewer Pump Station Replacement: NASH-2023-007

Project Name and Location

February 3, 2023



William H. Denton, IV

Date of Plan Approval

Regional Engineer

Certificate of Coverage

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES

GENERAL PERMIT NO. NCG010000

NC Reference No. NCG01-2023-2052
Certificate of Coverage No. NCC232052

STORMWATER DISCHARGES

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provision of North Carolina General Statute 143-215.1, other lawful standards and regulations promulgated and adopted by the North Carolina Environmental Management Commission, and the Federal Water Pollution Control Act, as amended,

City of Rocky Mount, North Carolina

is hereby authorized to discharge stormwater associated with CONSTRUCTION ACTIVITIES to surface waters of North Carolina from a site located at:

Old Mill Road Sewer Pump Station Replacement
2705 Wellington Drive
Rocky Mount
Nash County

in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in N.C. General Permit No. NCG010000.

This Certificate of Coverage is affiliated with **E&SC Plan Project No.** NASH-2023-007

This Certificate of Coverage shall become effective 7/27/2023.

This Certificate of Coverage shall remain in effect until rescinded or expired.

This Certificate of Coverage will expire on the anniversary of its effective date unless it is renewed by payment of the annual administration and compliance fee.



William E. Vinson, Jr., PE, CPESC, CPM, Chief of Program Operations
Division of Energy, Mineral, and Land Resources
By the Authority of the Environmental Management Commission



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Roy Cooper
Governor

J. Eric Boyette
Secretary

September 6, 2022

City of Rocky Mount
P.O. Box 1180
Rocky Mount, NC 27802

SUBJECT: Encroachment Contract - City of Rocky Mount
Route(s): US 301, SR 1713
Encroachment Number: E042-064-22-00178
Nash County

Dear Sir:

Attached for your files is a copy of right-of-way encroachment agreement R/W 16.1 that has been properly executed. This contract covers the following:

Approx. 550' of 14" diameter force main including 30 LF of 30" diameter steel casing to be installed by dry bore and jack and one (1) manhole with air release valve at SR 1713; 205 LF of 14" diameter (I.D.) directional bore force main including all miscellaneous appurtenances required

The Encroacher shall notify the District Engineer's Office (252) 462-2550 prior to beginning work. The Encroacher shall provide 24 hours notification for inspections.

This encroachment is approved subject to the standard and special provisions that are attached to and made part of the encroachment contract.

Respectfully yours,

DocuSigned by:

Bobby Liverman

47ABEA3D62784EF...
Bobby Liverman, PE
District Engineer

For K. Bowen

KGB/BLL/rim

Attachments

cc:

Mr. B. L. Liverman, PE- District Engineer
Nash County Maintenance Engineer

Standard Provisions

1. Approval may be rescinded upon failure to follow any of the provisions in this permit and may be considered a violation of the encroachment agreement.
2. The Encroaching party or their contractor shall provide the following notices prior to construction activity within the NCDOT Right of Way:
 - a. Three (3) business days advance phone call at telephone (252) 462-2553 or email to rlgross@ncdot.gov to the District Engineer's office
 - b. If the construction falls within the limits of an NCDOT managed construction project, five (5) business days advance phone call to the Resident Engineer, Ms. Kim Moore at (252) 462-2582 or email to kdmoore1@ncdot.gov.Failure to provide these notifications prior to beginning construction is subject to the Division Engineer's discretion to cease construction activity for this encroachment. NCDOT reserves the right to cease any construction or maintenance work associated with this installation by the encroaching party until the construction or maintenance meets the satisfaction of the Division Engineer or their representative.
3. Prior to beginning work, it is the requirement of the Encroaching Party to contact the appropriate Utility Companies involved and make arrangements to adjust or relocate any utilities that conflict with the proposed work.
4. It shall be the responsibility of the encroaching party to determine the location of utilities within the encroachment area. NCGS § 87-115 through § 87-130 of the Underground Utility Safety and Damage Prevention Act requires underground utilities to be located by calling 811 prior to construction. The encroaching party shall be responsible for notifying other utility owners and providing protection and safeguards to prevent damage or interruption to existing facilities and maintain access to them.
5. The encroaching party shall notify the appropriate municipal office prior to beginning any work within the municipality's limits of jurisdiction.
6. This approval and associated plans and supporting documents shall not be interpreted to allow any design change or change in the intent of the design by the Owner, Design Engineer, or any of their representatives. Any revisions or changes to these approved plans or intent for construction must be obtained in writing from the Division Engineer's office or their representative prior to construction or during construction, if an issue arises during construction to warrant changes.
7. NCDOT does not guarantee the right of way on this road, nor will it be responsible for any claim for damages brought about by any property owner by reason of this installation. It is the responsibility of the encroaching party to verify the right of way.
8. Encroaching party shall be responsible for obtaining all necessary permanent and/or temporary construction, drainage, utility and/or sight distance easements.

9. WORK ZONE TRAFFIC CONTROL QUALIFICATIONS AND TRAINING PROGRAM

All personnel performing any activity inside the highway right of way are required to be familiar with the NCDOT Maintenance / Utility Traffic Control Guidelines (MUTCG). No specific training course or test is required for qualification in the Maintenance /Utility Traffic Control Guidelines (MUTCG).

All flagging, spotting, or operating Automated Flagger Assist Devices (AFAD) inside the highway right of way requires qualified and trained Work Zone Flaggers. Training for this certification is provided by NCDOT approved training resources and by private entities that have been pre-approved to train themselves.

All personnel involved with the installation of Work Zone Traffic Control devices inside the highway right of way are required to be qualified and trained Work Zone Installers. Training for this certification is provided by NCDOT approved training resources and by private entities that have been pre-approved to train themselves.

All personnel in charge of overseeing work zone Temporary Traffic Control operations and installations inside the highway right of way are required to be qualified and trained Work Zone Supervisors. Training for this certification is provided by NCDOT approved training resources and by private entities that have been pre-approved to train themselves.

For questions and/or additional information regarding this training program please refer to <https://connect.ncdot.gov/projects/WZTC/Pages/Training.aspx> or call the NCDOT Work Zone Traffic Control Section (919) 814-5000.

10. The party of the second part shall employ traffic control measures that are in accordance with the prevailing federal, state, local, and NCDOT policies, standards, and procedures. These policies, standards, and procedures include, but are not limited to the following:
 - a. Manual on Uniform Traffic Control Devices (MUTCD) – North Carolina has adopted the MUTCD to provide basic principles and guidelines for traffic control device design, application, installation, and maintenance. North Carolina uses the MUTCD as a minimum requirement where higher supplemental standards specific to North Carolina are not established. Use fundamental principles and best practices of MUTCD (Part 6, Temporary Traffic Control).
 - b. NCDOT Maintenance / Utility Traffic Control Guidelines – This document enhances the fundamental principles and best practices established in MUTCD Part 6, Temporary Traffic Control, incorporating NCDOT-specific standards and details. It also covers important safety knowledge for a wide range of work zone job responsibilities.
11. Nighttime and weekend operations will NOT be allowed unless written approval is received from the District Engineer. If nighttime or weekend work is allowed or required, all signs must be retro-reflective, and a work zone lighting plan must be submitted for approval prior to construction.

12. Two-way traffic shall be maintained at all times unless designated by the District Engineer. Traffic shall not be rerouted or detoured without the prior written approval from the District Engineer. No utility work will be allowed on state holidays from 7:00 PM the night before through 9:00 AM the day prior to, following or during local events without prior approval from the District Engineer. If the construction is within 1000 feet of a school location or on a designated bus route, the construction shall be coordinated with the school start and end times to avoid traffic delays.
13. Work requiring lane or shoulder closures shall not be performed on both sides of the road simultaneously within the same area.
14. Any work requiring equipment or personnel within 5 feet of the edge of any travel lane of an undivided facility and within 10 feet of the edge of any travel lane of a divided facility shall require a lane closure with appropriate tapers per current NCDOT Roadway Standard Drawings or MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
15. Any pavement markings that are damaged or obliterated shall be restored by the encroaching party at no expense to NCDOT.
16. The encroaching party shall comply with all applicable Federal, State and local environmental regulations and shall obtain all necessary Federal, State and local environmental permits, including but not limited to, those related to sediment control, stormwater, wetland, streams, endangered species and historical sites. Additional information can be obtained by contacting the NCDOT Roadside Environmental Engineer regarding the North Carolina Natural Heritage Program or the United States Fish and Wildlife Services. Contact the Division Roadside Environmental Engineer's Office at 252-640-6427.
17. When surface area in excess of one acre will be disturbed, the Encroacher shall submit a Sediment and Erosion Control Plan which has been approved by the appropriate regulatory agency or authority prior to beginning any work on the Right of Way. Failure to provide this information shall be grounds for suspension of operations. Proper temporary and permanent measures shall be used to control erosion and sedimentation in accordance with the approved sediment and erosion control plan.
18. The Verification of Compliance with Environmental Regulations (VCER-1) form is required for all non-utility encroachment agreements or any utility encroachments when land disturbance within NCDOT right of way exceeds 1 acre. The VCER-1 form must be PE sealed by a NC registered professional engineer who has verified that all appropriate environmental permits (if applicable) have been obtained and all applicable environmental regulations have been followed.

19. All erosion control devices and measures shall be constructed, installed, maintained, and removed by the Encroacher in accordance with all applicable Federal, State, and Local laws, regulations, ordinances, and policies. Permanent vegetation shall be established on all disturbed areas in accordance with the recommendations of the Division Roadside Environmental Engineer. All areas disturbed (shoulders, ditches, removed accesses, etc.) shall be graded and seeded in accordance with the latest NCDOT Standards Specifications for Roads and Structures and within 15 calendar days with an approved NCDOT seed mixture (all lawn type areas shall be maintained and reseeded as such). Seeding rates per acre shall be applied according to the Division Roadside Environmental Engineer. Any plant or vegetation in the NCDOT planted sites that is destroyed or damaged as a result of this encroachment shall be replaced with plants of like kind or similar shape.
20. The contractor shall not begin the construction until after the traffic control and erosion control devices have been installed to the satisfaction of the Division Engineer or their
21. An executed copy of the encroachment agreement, provisions and approved plans shall be present at the construction site at all times. If safety or traffic conditions warrant such an action, NCDOT reserves the right to further limit, restrict or suspend operations within the right of way.
22. The Encroaching Party and/or their Contractor shall comply with all OSHA requirements. If OSHA visits the work area associated with this encroachment, the District Office shall be notified by the encroaching party immediately if any violations are cited.
23. All disturbed areas are to be fully restored to current NCDOT minimum roadway standards or as directed by the Division Engineer or their representative. Disturbed areas within NCDOT Right-of-Way include, but not limited to, any excavation areas, pavement removal, drainage or other features.
24. The encroaching party shall notify the Division Engineer or their representative immediately in the event any drainage structure is blocked, disturbed or damaged. All drainage structures disturbed, damaged or blocked shall be restored to its original condition as directed by the Division Engineer or their representative.
25. Unless specified otherwise, during non-working hours, equipment shall be located away from the job site or parked as close to the right of way line as possible and be properly barricaded in order not to have any equipment obstruction within the Clear Recovery Area. Also, during non-working hours, no parking or material storage shall be allowed along the shoulders of any state-maintained roadway.
26. Right of Way monuments disturbed during construction shall be referenced by a registered Land Surveyor and reset after construction.
27. If the approved method of construction is unsuccessful and other means are required, prior approval must be obtained through the District Engineer before construction may continue.

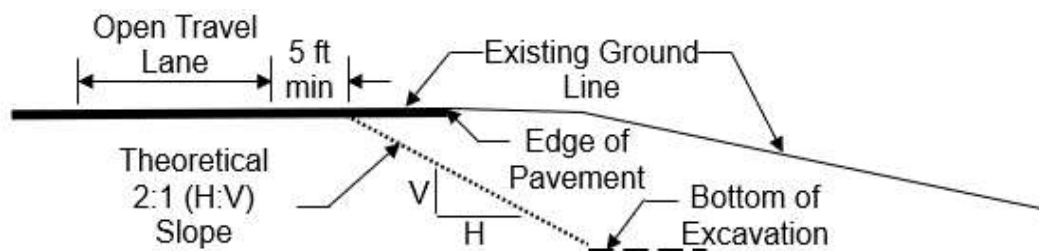
28. All traffic control, asphalt mixes, structures, construction, workmanship and construction methods, and materials shall be in compliance with the most-recent versions of the following resources: ASTM Standards, Manual on Uniform Traffic Control Devices, NCDOT Utilities Accommodations Manual, NCDOT Standard Specifications for Roads and Structures, NCDOT Roadway Standard Drawings, NCDOT Asphalt Quality Management System manual, and the approved plans.
29. It is the responsibility of the encroaching party or their contractor to prevent any mud/dirt from tracking onto the roadway. Any dirt which may collect on the roadway pavement from equipment and/or truck traffic on site shall be immediately removed to avoid any unsafe traffic conditions.
30. The Encroaching party shall notify the District Engineer's office within 2 business days after construction is complete. The District Engineer may perform a construction inspection. Any deficiencies may be noted and reported to the encroaching party to make immediate repairs or resolve any issues to restore the right-of-way to a similar condition prior to construction, including pavement, signage, traffic signals, pavement markings, drainage, structures/pipes, or other highway design features.

Special Provisions

1. Excavation within 1000 feet of a signalized intersection will require notification by the encroaching party to the Division Traffic Engineer at telephone number (252) 640-6505 no less than one week prior to beginning work. All traffic signal or detection cables must be located prior to excavation. Cost to replace or repair NCDOT signs, signals, pavement markings or associated equipment and facilities shall be the responsibility of the encroaching party.
2. This agreement does not authorize installations within nor encroachment onto railroad rights of way. Permits for installations within railroad right of way must be obtained from the railroad and are the responsibility of the encroaching party.
3. Traffic control shall be coordinated with the District Engineer, Mr. Bobby Liverman at telephone (252) 462-2550, prior to construction.
4. Ingress and egress shall be maintained to all businesses and dwellings affected by the project. Special attention shall be paid to police, EMS and fire stations, fire hydrants, secondary schools, and hospitals.
5. Traffic shall be maintained at all times. All lanes of traffic are to be open during the hours of 7:00 A.M. to 9:00 A.M. and from 4:00 P.M. to 6:00 P.M. Monday through Friday, during any time of inclement weather, or as directed by the District Engineer. Any violation of these hours will result in ceasing any further construction by the Encroaching Party or their contractor.
6. No trees within NCDOT ROW shall be cut without authorization from the Division Roadside Environmental Engineer. An inventory of trees measuring greater than 4 caliper inches (measured 6" above the ground) is required when trees within C/A right of way will be impacted by the encroachment installation. Mitigation is required and will be determined by the Division Roadside Environmental Engineer's Office.

7. The applicant is responsible for identifying project impacts to waters of the United States (wetlands, intermittent streams, perennial streams and ponds) located within the NCDOT right-of-way. The discharge of dredged or fill material into waters of the United States requires authorization from the United States Army Corps of Engineers (USACE) and certification from the North Carolina Division of Water Quality (NCDWQ). The applicant is required to obtain pertinent permits or certification from these regulatory agencies if construction of the project impacts waters of the United States within the NCDOT right-of-way. The applicant is responsible for complying with any river or stream Riparian Buffer Rule as regulated by the NCDWQ. The Rule regulates activity within a 50-foot buffer along perennial streams, intermittent streams and ponds. Additional information can be obtained by contacting the NCDWQ or the USACE.
8. The contractor shall perform all monitoring and record keeping and any required maintenance of erosion and sediment control measures to maintain compliance with stormwater regulations.
9. A minimum of 5 feet clearance is required for utility installations beneath or near drainage pipes, headwalls, and a minimum of two-foot clearance below the flowline of streams. If directional drilling, a minimum ten-foot clearance distance is required from drainage structures and a minimum of 5 feet below flowline of streams
10. At points where the utility is placed under existing storm drainage, the trench will be backfilled with excavatable flowable fill up to the outside diameter of the existing pipe.
11. Guardrail removed or damaged during construction shall be replaced or repaired to its original condition, meeting current NCDOT standards or as directed by the Division Engineer or their representative.
12. All Traffic signs moved during construction shall be reinstalled as soon as possible to the satisfaction of the Division Engineer or their representative.
13. Any utility markers, cabinets, pedestals, meter bases and services for meter reading required shall be as close to the Right of Way line as possible. If it is not feasible to install at or near Right of Way line, then written approval shall be obtained from NCDOT prior to installation.
14. Detection tape, where required by NCGS § 87-115 through § 87-130 of the Underground Utility Safety and Damage Prevention Act, shall be buried in the trench approximately 1 foot above the installed facility. Where conduit is installed in the right of way and is not of ferrous material, locating tape or detection wire shall be installed with the conduit.
15. All utility access points, such as manholes, vaults, handholes, splice boxes and junction boxes shall be located as close to the right of way line as possible and shall not be placed in the ditch line, side slopes of the ditches or in the pavement. All manholes, handholes, splice boxes, junction boxes and vaults and covers shall be flush with the ground when located within the vehicle clear zone. Slack loops for telecommunications in industry standard housing units shall be buried a minimum of 18 inches when buried or meet minimum NCDOT vertical and horizontal clearances when installed aurally.
16. Excavation material shall not be placed on pavement.

17. The utility shall be installed within 5 feet of the right of way line and outside the 5-foot minimum from travel lane plus theoretical 2:1 slope from the edge of pavement to the bottom of the nearest excavation wall for temporary shoring. If the 2:1 slope plus 5 feet requirement above is met for traffic, then temporary shoring is typically only necessary to protect roadways from damage when a theoretical 1:1 slope from the edge of pavement intersects the nearest excavation wall. This rule of thumb should be used with caution and does not apply to all subsurface conditions, surcharge loadings and excavation geometries. Situations where this 1:1 slope is not recommended include groundwater depth is above bottom of excavation or excavation is deeper than 10 feet or in Type B or C soils as defined by OSHA Technical Manual. Temporary shoring may be avoided by locating trenches, bore pits, and other excavations far enough away from the open travel lane, edge of pavement and any existing structure, support, utility, property, etc. to be protected. Temporary shoring is required when a theoretical 2:1 slope from the bottom of excavation will intersect the existing ground line less than 5 feet from the outside edge of an open travel lane as shown in the figure below or when a theoretical 2:1 slope from the bottom of excavation will intersect any existing structure, support, utility, property, etc. to be protected.



Temporary shoring shall be designed and constructed in accordance with current NCDOT Standard Temporary Shoring provisions (refer to <https://connect.ncdot.gov/resources/Specifications/Pages/2018-Specifications-and-Special-Provisions.aspx> and see SP11 R002).

a. Temporary excavation shoring, such as sheet piling, shall be installed. The design of the shoring shall include the effects of traffic loads. The shoring system shall be designed and sealed by a licensed North Carolina Professional Engineer. Shoring plans and design calculations shall be submitted to the Division Engineer for review and approval prior to construction. (See NCDOT Utilities Accommodations Manual for more information on requirements for shoring plans and design calculations.) Trench boxes shall not be accepted as temporary shoring and will not be approved for use in instances where shoring is required to protect the highway, drainage structure, and/or supporting pavement or structure foundation.

b. All trench excavation inside the limits of the theoretical one-to-one slope, as defined by the policy, shall be completely backfilled and compacted at the end of each construction day. No portion of the trench shall be left open overnight. Any excavation that is not backfilled by the end of the workday must address any safety and traveling public concerns including accommodations for bicycles, pedestrians and persons with disabilities.

c. The trench backfill material shall meet the Statewide Borrow Criteria. The trench shall be backfilled in accordance with Section 300-7 of the latest NCDOT Standard Specifications for Roads and Structures, which basically requires the backfill material to be placed in layers not to exceed 6 inches loose and compacted to at least 95% of the density obtained by compacting a sample in accordance with AASHTO T99 as modified by DOT.

d. At the discretion of the Division Engineer, a qualified NCDOT inspector shall be on the site at all times during construction. The encroaching party shall reimburse NCDOT for the cost of providing the inspector. If NCDOT cannot supply an inspector, the encroaching party (not the utility contractor) should make arrangements to have a qualified inspector, under the supervision of a licensed North Carolina Professional Engineer, on the site at all times. The Professional Registered Engineer shall certify that the utility was installed in accordance with the encroachment agreement and that the backfill material meets the Statewide Borrow Criteria.

e. The length of parallel excavation shall be limited to the length necessary to install and backfill one joint of pipe at a time, not to exceed twenty-five (25) feet.

18. Boring equipment will be provided of a type and size to facilitate boring in the local geologic conditions and shall be able to facilitate the encroachment work.

19. When Horizontal Directional Drilling (HDD) is used, the following stipulations apply:
- a. Use drilling fluids as appropriate for the type soils but use of water alone is prohibited. Pump drilling fluids only while drilling or reaming. Directional boring using jetting with a Bentonite (or equivalent material) slurry is recommended. Monitor flow rates to match the amount leaving the bore hole and do not increase pressure or flow to free stuck drill heads, reamers or piping. Open cutting to retrieve stuck drill heads is not allowed without prior permission from the District Engineer.
 - b. The minimum depth shall adhere to the table below for transverse (under non-controlled access, partial controlled access, or limited controlled access roadway) installations and refers to maximum diameter of hole drilled and not the dimension of the carrier or encasement pipe.

Diameter of Drilled Hole	Minimum Depth of Cover (Backream)
2" to 6"	5 feet

>6" to 15"	12 times hole diameter (e.g. 6-inch hole means 6 feet minimum depth)
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>15" to 36"	15 feet or greater
-------------	--------------------

- c. Under fully controlled access roadway installations, the minimum depth for transverse crossings shall be 15 feet under any pavement (ramps or thru lanes)
- d. An overbore (backream diameter) shall not be more than 1.5 times the outside diameter of the pipe or encasement under any highway for pipes 12 inches in diameter or less. For pipes with outer diameter larger than 12 inches, the overbore may be no larger than outer diameter of pipe plus 6 inches. An overbore exceeding 1.5 times greater than the outside diameter of the pipe or encasement may be considered if the encroachment agreement includes a statement signed and sealed by a licensed North Carolina Professional Engineer indicating that an overbore in excess of 1.5 times the outside diameter of the pipe or encasement will appropriately arch and no damage will be done to the pavement or sub-grade.
- e. Directional boring is allowed beneath embankment material in naturally occurring soil.
- f. Any parallel installation utilizing the directional boring method shall be made at a minimum depth of three (3') feet (cover) below the ground surface and outside the theoretical 1:1 slope from the existing edge of pavement except where the parallel installation crosses a paved roadway.
- g. All directional bores shall maintain ten (10) feet minimum (clear) distance from the nearest part of any structure, including but not limited to bridges, footings, pipe culverts or box culverts. Directional bores are not allowed beneath bridge footings, culvert wingwall footings, slope protection or retaining walls.
- h. The tip of the drill string shall have a cutter head.
- i. Detection wire shall be installed with non-ferrous material.
- j. HDPE pipe installed by directional boring shall not be connected to existing pipe or fittings for one (1) week from the time of installation to allow tensional stresses to relax.

20. Any pavement damaged because of settlement of the pavement or damaged by equipment used to perform encroachment work, shall be re-surfaced to the satisfaction of the District Engineer. This may include the removal of pavement and a 50' mechanical overlay. All pavement work and pavement markings (temporary and final) are the responsibility of the Encroaching Party.



Green Engineering, PLLC

Water, Wastewater, Surveying

Planning, Project Management

303 Goldsboro Street East • PO Box 609 • Wilson, NC 27894

TEL 252.237.5365 • FAX 252.243.7489

WWW.GREENENGINEERING.COM

August 9, 2022

State of North Carolina
Department of Transportation
3013 U.S. Hwy. 64-A
Nashville, North Carolina 27856

Attention: Mr. Bobby Liverman, P.E.
District Engineer

SUBJECT: Two Party Right of Way Encroachment Agreement
Old Mill Road Sewer Pump Station Force Main
Nash County, North Carolina
PN: 20-154

Dear Mr. Liverman:

On behalf of the City of Rocky Mount, the following items are enclosed with this electronic encroachment submittal:

- Two-Party Right of Way Encroachment Agreement for Primary and Secondary Highways
- Construction Drawings and Details
- Verification of Environmental Compliance form
- Directional Drill Fraction Mitigation Contingency Plan
- USDA NCRS Soils Data Report

If you should have any questions regarding these items, please do not hesitate to call.

Respectfully,

A handwritten signature in black ink, appearing to read 'W. Landon Younce', with a stylized flourish at the end.

W. Landon Younce, PE

Enclosures: As stated.

cc: Mr. Scott Miles, P.E. – Assistant City Engineer, City of Rocky Mount, North Carolina

DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY ENCROACHMENT AGREEMENT
PRIMARY AND SECONDARY HIGHWAYS

-AND-

The City of Rocky Mount

P.O. Box 1180

331 S. Franklin Street

Rocky Mount, NC 27802-1180

THIS AGREEMENT, made and entered into this the 6 day of September 2022 by and between the Department of Transportation, party of the first part; and the City of Rocky Mount, North Carolina

party of the second part,

WITNESSETH

THAT WHEREAS, the party of the second part desires to encroach on the right of way of the public road designated as Route(s) U.S. Hwy. 301 Bus. and SR 1713 (Old Mill Road), located in the City of Rocky Mount, just west of the Tar River

with the construction and/or erection of: Approximately 550 Linear Feet of 14-inch dia. Force Main including 30 LF 30-inch dia. Steel Casing to be installed by Dry Bore & Jack and One (1) Manhole with Air Release Valve at SR 1713; 205 Linear Feet of 14-inch dia. (I.D.) Directional Bore Force Main including all miscellaneous Appurtenances required under entire Right-of-Way of U.S. Highway 301 Bus. to prevent impacts.

WHEREAS, it is to the material advantage of the party of the second part to effect this encroachment, and the party of the first part in the exercise of authority conferred upon it by statute, is willing to permit the encroachment within the limits of the right of way as indicated, subject to the conditions of this agreement;

NOW, THEREFORE, IT IS AGREED that the party of the first part hereby grants to the party of the second part the right and privilege to make this encroachment as shown on attached plan sheet(s), specifications and special provisions which are made a part hereof upon the following conditions, to wit:

That the installation, operation, and maintenance of the above described facility will be accomplished in accordance with the party of the first part's latest UTILITIES ACCOMMODATIONS MANUAL, and such revisions and amendments thereto as may be in effect at the date of this agreement. Information as to these policies and procedures may be obtained from the Division Engineer or State Utilities Manager of the party of the first part.

That the said party of the second part binds and obligates himself to install and maintain the encroaching facility in such safe and proper condition that it will not interfere with or endanger travel upon said highway, nor obstruct nor interfere with the proper maintenance thereof, to reimburse the party of the first part for the cost incurred for any repairs or maintenance to its roadways and structures necessary due to the installation and existence of the facilities of the party of the second part, and if at any time the party of the first part shall require the removal of or changes in the location of the said facilities, that the said party of the second part binds himself, his successors and assigns, to promptly remove or alter the said facilities, in order to conform to the said requirement, without any cost to the party of the first part.

That the party of the second part agrees to provide during construction and any subsequent maintenance proper signs, signal lights, flagmen and other warning devices for the protection of traffic in conformance with the latest Manual on Uniform Traffic Control Devices for Streets and Highways and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the Division Engineer of the party of the first part.

That the party of the second part hereby agrees to indemnify and save harmless the party of the first part from all damages and claims for damage that may arise by reason of the installation and maintenance of this encroachment.

That the party of the second part agrees to restore all areas disturbed during installation and maintenance to the satisfaction of the Division Engineer of the party of the first part. The party of the second part agrees to exercise every reasonable precaution during construction and maintenance to prevent eroding of soil; silting or pollution of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces or other property; or pollution of the air. There shall be compliance with applicable rules and regulations of the North Carolina Division of Environmental Management, North Carolina Sedimentation Control Commission, and with ordinances and regulations of various counties, municipalities and other official agencies relating to pollution prevention and control. When any installation or maintenance operation disturbs the ground surface and existing ground cover, the party of the second part agrees to remove and replace the sod or otherwise reestablish the grass cover to meet the satisfaction of the Division Engineer of the party of the first part.

That the party of the second part agrees to assume the actual cost of any inspection of the work considered to be necessary by the Division Engineer of the party of the first part.

That the party of the second part agrees to have available at the construction site, at all times during construction, a copy of this agreement showing evidence of approval by the party of the first part. The party of the first part reserves the right to stop all work unless evidence of approval can be shown.

Provided the work contained in this agreement is being performed on a completed highway open to traffic; the party of the second part agrees to give written notice to the Division Engineer of the party of the first part when all work contained herein has been completed. Unless specifically requested by the party of the first part, written notice of completion of work on highway projects under construction will not be required.

That in the case of noncompliance with the terms of this agreement by the party of the second part, the party of the first part reserves the right to stop all work until the facility has been brought into compliance or removed from the right of way at no cost to the party of the first part.

That it is agreed by both parties that this agreement shall become void if actual construction of the work contemplated herein is not begun within one (1) year from the date of authorization by the party of the first part unless written waiver is secured by the party of the second part from the party of the first part.

During the performance of this contract, the second party, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor"), agrees as follows:

- a. Compliance with Regulations: The contractor shall comply with the Regulations relative to nondiscrimination in Federally-assisted programs of the U. S. Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
- b. Nondiscrimination: The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials

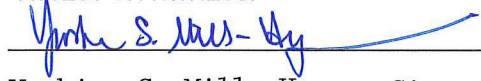
and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

- c. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.
- d. **Information and Reports:** The contractor shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Department of Transportation or the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the Department of Transportation, or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information.
- e. **Sanctions for Noncompliance:** In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the Department of Transportation shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to,
 - (1) withholding of payments to the contractor under the contract until the contractor complies, and/or
 - (2) cancellation, termination or suspension of the contract, in whole or in part.
- f. **Incorporation of Provisions:** The contractor shall include the provisions of paragraphs "a" through "f" in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Department of Transportation or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Department of Transportation to enter into such litigation to protect the interests of the State, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

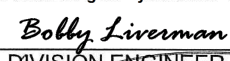
R/W (161) : Party of the Second Part certifies that this agreement is true and accurate copy of the form R/W (161) incorporating all revisions to date.

IN WITNESS WHEREOF, each of the parties to this agreement has caused the same to be executed the day and year first above written.

ATTEST OR WITNESS:


Yashica S. Mills-Hyman -City of Rocky Mt.
331 S. Franklin St, Rocky Mount, NC 27802-1180

DEPARTMENT OF TRANSPORTATION

BY:  For K. Bowen
DIVISION ENGINEER


Scott Miles, PE - Asst. City Engineer/Water Resources
331 S. Franklin St, Rocky Mount, NC 27802-1180
Second Party

INSTRUCTIONS

When the applicant is a corporation or a municipality, this agreement must have the corporate seal and be attested by the corporation secretary or by the empowered city official, unless a waiver of corporate seal and attestation by the secretary or by the empowered City official is on file in the Raleigh office of the State Utilities Manager. In the space provided in this agreement for execution, the name of the corporation or municipality shall be typed above the name, and title of all persons signing the agreement should be typed directly below their signature.

When the applicant is not a corporation, then his signature must be witnessed by one person. The address should be included in this agreement and the names of all persons signing the agreement should be typed directly below their signature.

This agreement must be accompanied, in the form of an attachment, by plans or drawings showing the following applicable information:

1. All roadways and ramps.
2. Right of way lines and where applicable, the control of access lines.
3. Location of the existing and/or proposed encroachment.
4. Length, size and type of encroachment.
5. Method of installation.
6. Dimensions showing the distance from the encroachment to edge of pavement, shoulders, etc.
7. Location by highway survey station number. If station number cannot be obtained, location should be shown by distance from some identifiable point, such as a bridge, road, intersection, etc. (To assist in preparation of the encroachment plan, the Department's roadway plans may be seen at the various Highway Division Offices, or at the Raleigh office.)
8. Drainage structures or bridges if affected by encroachment (show vertical and horizontal dimensions from encroachment to nearest part of structure).
9. Method of attachment to drainage structures or bridges.
10. Manhole design.
11. On underground utilities, the depth of bury under all traveled lanes, shoulders, ditches, sidewalks, etc.
12. Length, size and type of encasement where required.
13. On underground crossings, notation as to method of crossing - boring and jacking, open cut, etc.
14. Location of vents.

GENERAL REQUIREMENTS

1. Any attachment to a bridge or other drainage structure must be approved by the State Utilities Manager in Raleigh prior to submission of encroachment agreement to the Division Engineer.
2. All crossings should be as near as possible normal to the centerline of the highway.
3. Minimum vertical clearances of overhead wires and cables above all roadways must conform to clearances set out in the National Electric Safety Code.
4. Encasements shall extend from ditch line to ditch line in cut sections and 5' beyond toe of slopes in fill sections.
5. All vents should be extended to the right of way line or as otherwise required by the Department.
6. All pipe encasements as to material and strength shall meet the standards and specifications of the Department.
7. Any special provisions or specifications as to the performance of the work or the method of construction that may be required by the Department must be shown on a separate sheet attached to encroachment agreement provided that such information cannot be shown on plans or drawings.
8. The Department's Division Engineer should be given notice by the applicant prior to actual starting of installation included in this agreement.

VERIFICATION OF COMPLIANCE WITH ENVIRONMENTAL REGULATIONS

(Check Appropriate Box)

- ☐ Permits from the N.C. Department of Environment and Natural Resources and the U.S. Army Corp of Engineers are not required for this project. However, all applicable federal and state regulations have been followed.
- ☐ The required permits from the N.C. Department of Environment and Natural Resources and the U.S. Army Corp of Engineers have been obtained for this project. Copies of permits and Completion Certificates are attached.
- ☒ All applicable NPDES Stormwater Permit requirements have been met for this project. (The applicant should contact the N.C. Division of Water Quality in Raleigh to determine if a stormwater permit is required.)
- ☒ The project is in compliance with all applicable sedimentation and erosion control laws and regulations.

Project Name: Old Mill Road Sewer PS Force Main

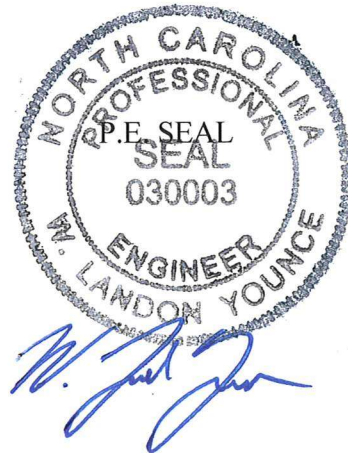
Township: Stony Creek County: Nash

Project Engineer: W. Landon Younce, P.E. Phone No.: 252-237-5365

Project Contact: Thomas D. Dienes, P.E.

Applicant's Name: City of Rocky Mount, North Carolina

Date Submitted: August 9, 2022



**FRACTION MITIGATION
CONTINGENCY PLAN
FOR HORIZONTAL DIRECTIONAL
DRILLING**

**Old Mill Road Sewer Pump Station Force Main
Rocky Mount, North Carolina**

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6.0	HORIZONTAL DIRECTIONAL DRILLING PROCEDURES
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8.0	PROJECT COMPLETION AND CLEAN-UP

1.0 INTRODUCTION

Horizontal Directional Drilling operations always have the potential to release drilling fluid to the environment through a Frac-out. A Frac-out is described as a condition where drilling mud is released through fissures in existing bedrock and seeks a path of lesser resistance to the surface. Drilling fluid consists of a bentonite-clay mixture and although these fluids are not considered toxic to the environment, they do pose a risk to invertebrates and fish in surrounding waterways.

Most Frac-outs tend to occur near the surface where the flowpath is less hindered, however the possibility exists for Frac-outs to occur anywhere along the bore, especially if higher pressures are used due to extremely long runs, such as across streams or through controlled access rights-of-way.

This Frac-out Contingency Plan establishes operational procedures and responsibilities for the prevention, containment, and clean-up of frac-outs which may occur.

Specific objectives of this plan

- A. Minimize potential for Frac-outs
- B. Provide timely detection to Frac-outs when they occur
- C. Protect the environment and associated vegetation
- D. Ensure a timely, organized, minimal-impact response in the event a Frac-out does occur
- E. Ensure all parties, including Regulatory Authorities, are properly informed

2.0 DESCRIPTION OF DRILLING OPERATIONS

This project consists of:

205 Linear Feet of 14-inch (I.D.) Horizontal Directional Drilled Sanitary Sewer Force Main

At the first sign of any evidence of frac-out or a drop in drilling pressure, operators shall cease all drilling operations and inform the proper channels. Maintenance and safety personnel will be immediately notified for proper clean-up measures to be implemented. Vac trucks and containment measures shall be readily available onsite to assist clean-up at short notice. The onsite Contractor supervisor shall evaluate and act according to the following procedures:

- A. If the Frac-out event is minor and easily contained, drilling operations may resume after the application of a leak-stoppage compound.
- B. If the Frac-out event has reached the surface, contamination procedures are warranted. All soils contaminated with Bentonite shall be hand-dug and removed up to a depth of 2 feet. Drilling Contractor shall be responsible for the proper disposal of this material as required by law. Supervisor onsite and the Owner's Engineer shall be notified to assist in follow-up response with the proper regulatory agencies. The Contractor shall supervise the mobilization of any required equipment such as vacuum trucks on an as-needed basis.

3.0 CONTRACTOR RESPONSIBILITIES

The Contractor's foreman shall have the overall responsibility for implementation of this Fraction Mitigation Contingency Plan. It is the Contractor's responsibility to ensure all employees are properly trained. The Contractor's foreman or supervisor shall be notified immediately upon the witness of a frac-out event. Other responsibilities include coordination of personnel, safety, clean-up response, disposal, and updates to all regulatory personnel. It is also the responsibility of the Contractor to ensure all waste materials are properly categorized and removed from the site. The Contractor shall be familiar with all aspects of the drilling method, this Contingency Plan, and all regulatory approvals which were required to proceed with the overall pipeline project. This Contingency Plan shall be familiar to all contractor employees and be readily available to all other personnel onsite at the time the work occurs. All Contractor employees shall be properly trained.

4.0 DRILLING EQUIPMENT

The Contractor's Supervisor / Foreman shall ensure the following:

- A. All Contractor vehicles and equipment shall be properly maintained and checked daily to prevent leaks of hazardous materials onsite.
- B. Spill containment measures shall be available onsite at all times and kept in good working order.
- C. Equipment required will be either readily available onsite or properly accessible within 15 minutes in the event a Frac-out occurs.

- D. Should operation near watercourses become required, plastic sheeting and absorbent material shall be placed beneath motorized vehicles to prevent pollution of the stream bottom by leaking fluids.

5.0 TRAINING

The Contractor's Supervisor / Foreman shall ensure the following training of all employees, regarding:

- A. Fraction Mitigation Contingency Plan
- B. All Inspection and Reporting procedures, should a Frac-out Release occur
- C. Complete Responsibilities of Contractor employees in the event of a Frac-out event
- D. Operation of all Release Prevention and Release Control Equipment when necessary
- E. Proper communication with Owner and Regulatory Agencies during a Clean-up Effort

6.0 HORIZONTAL DIRECTIONAL DRILLING PROCEDURES

The following procedures shall be followed each day of drilling operations:

The Contractor's Supervisor shall properly brief all employees at the beginning of each day, shall go over the proper procedures as called for in this Fraction Mitigation Contingency Plan and shall be on-site at all times when drilling operations are ongoing. Any concerns made by the drilling crew shall be thoroughly discussed prior to initiation of drilling each working day.

Drill pressure shall be closely monitored so as not to exceed the minimum which is necessary for pipeline installation. Pressure should be monitored at random intervals to prevent onset of a Frac-out event.

All bore pits, both entry bore and exit bore, shall be properly surrounded by silt fence or other equivalent control measures. Spill kits shall be readily available onsite for when a Frac-out occurs. Proper containment materials to include but not be limited to straw, silt fence, sandbags, etc. shall be properly staged throughout the bore area before drilling

commences. If drilling occurs near streams and other significant water features, a proper barrier shall be protected between, thus protecting the watercourse from bentonite material.

Once drilling operations have commenced, the Drilling Contractor shall closely monitor drill pressure and shall be ready to cease drilling operations at the moment of either a drop in rig pressure, or a lack of returns in the entrance pit. If a Frac-out is occurring, all Contractor employees shall cease whatever work is being performed and scope the area to find the Frac-out location. Notes will be taken and measures immediately installed as called forth in this Mitigation Plan. The Owner and all the proper regulatory authorities shall be informed of the event and the progress of clean-up activities.

Any water containing bentonite, mud, silt or any other pollutants which may occur during the drill process shall not be allowed to migrate downstream into any drainage features or watercourses, including ponds and lakes. Bentonite shall be disposed of properly, as required by law or recycled in an approved manner. All other wastes shall be delivered to a landfill or the proper recycle facility for disposal.

Vacuum Trucks or Vac-Trucks shall be properly staged in locations along the bore where they can be easily accessed, within a maximum 15-minute window in the event a Frac-out occurs.

In the event a Frac-out Occurs, the following sequence shall be followed:

- A. Cease directional drill operations Immediately
- B. Pull back on bore to relieve pressure on the Frac-out Location
- C. Notify Supervisor/Foreman immediately so the proper safety and management actions can take place and notifications of the proper authorities can occur.
- D. Supervisor/Foreman shall evaluate the Frac-out Location and recommend the level of response which is necessary, while notifying the proper authority.
- E. If Frac-out is minor and can be easily contained, a leak stopping compound may be utilized. If the leak stopping compound is not successful, the bore shall be rerouted to a proper alternative location, where the Frac-out has not occurred.
- F. If the Frac-out has reached the surface, all affected material within 2 feet of the ground surface shall be removed by hand and properly disposed of. A berm may be constructed around the Frac-out location to thoroughly contain all drilling fluid. Clean sand shall be used when returning the excavated areas back up to pre-project contours.
- G. If the Frac-out has become widespread the Contractor's Supervisor shall utilize as many Vac-Trucks as are required to properly remove all contaminated soils.

Once the Frac-out release has been properly contained, a Close-out activity should be conducted at the direction of the Contractor's Supervisor. The Close-out Activity shall include the following:

- A. The recovered drilling fluid may either be recycled or hauled to a properly approved disposal site.
- B. Discharge to storm drains, streams, and other watercourses is not allowed.
- C. Clean sand shall be used when returning the excavated areas back up to pre-project contours. Once site has been properly restored, all containment measures shall be removed.

For small quantity releases not requiring notification, drilling may recommence once the Frac-out is 100% contained by the leak stopping compound. Drilling may also recommence if the bore is relocated to another area from the Frac-out location AND Contractor's clean-up crew remains at the Frac-out location to complete the clean-up efforts.

For all Frac-outs which DO require external notification, the drilling operation may NOT recommence until authority is given by the proper agencies, regulatory authorities.

Bore Abandonment will only be required when every effort to contain the Frac-out has failed and there is no other alternative than to completely abandon the bore for a new location. All previous measures will be taken to properly restore the Frac-out area to pre-construction conditions.

7.0 COMMUNICATION WITH REGULATORY AUTHORITIES

In the event drilling fluid from a Frac-out event reaches a drainage feature or a water source, the Contractor's Supervisor shall notify safety personnel as well as the proper regulatory agencies within 24 hours. The following information shall be delivered.

- A. Name and Telephone Number of Reporter
- B. Location of the Frac-out Release
- C. Date and Time of Frac-out Release
- D. Frac-out Type and Estimated Quantity
- E. Details of how the Release Occurred
- F. Activity Occurrence around the Frac-out Location
- G. Description of All Sensitive Areas in the Frac-out Vicinity
- H. Description of Clean-up Methods to secure the Site
- I. List of Regulatory Permits Obtained for the Project

Contractor personnel will adhere to all proper safety protocols including assistance of Regulatory Personnel which may arrive onsite. All regulatory personnel, regardless of entity, shall be required to follow all onsite safety protocols. Contractor Supervisor shall coordinate communication between Contractor and the proper Regulatory authorities.

Regulatory Authorities include the North Carolina Department of Transportation (NCDOT) and the North Carolina Department of Environmental Quality (NCDEQ).

Contractors Supervisor shall properly record a total summary of the Frac-out event in his/her daily inspection log. The log shall include all the previously detailed items above.

8.0 PROJECT COMPLETION AND CLEAN-UP

All remaining construction materials and post-construction debris shall be removed from the site and properly disposed of at the end of each workday.

Bore entry pits and exit pits, as well as any other sump pits created for the purpose of the directional drill activities shall be returned to their natural grade, filling with clean sand where necessary, to properly restore these areas to their preconstruction conditions.

Once construction is complete and the project site is completely stabilized, the Contractor's Supervisor shall coordinate the removal of all protective measures (matting, fiber rolls, straw bales, silt fencing, etc.)



United States
Department of
Agriculture

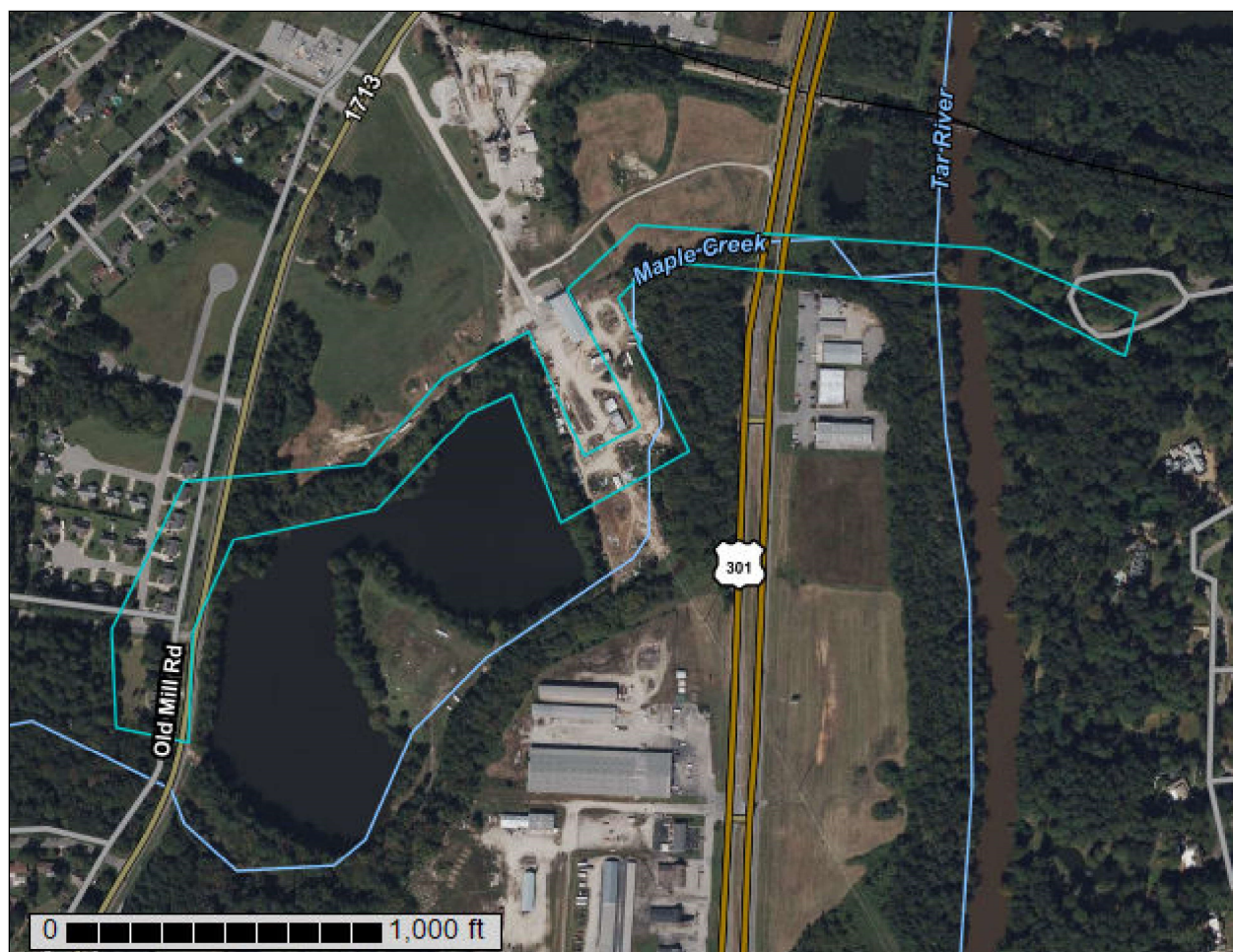
NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Nash County, North Carolina**

Old Mill Road Pump Station Replacement



August 1, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

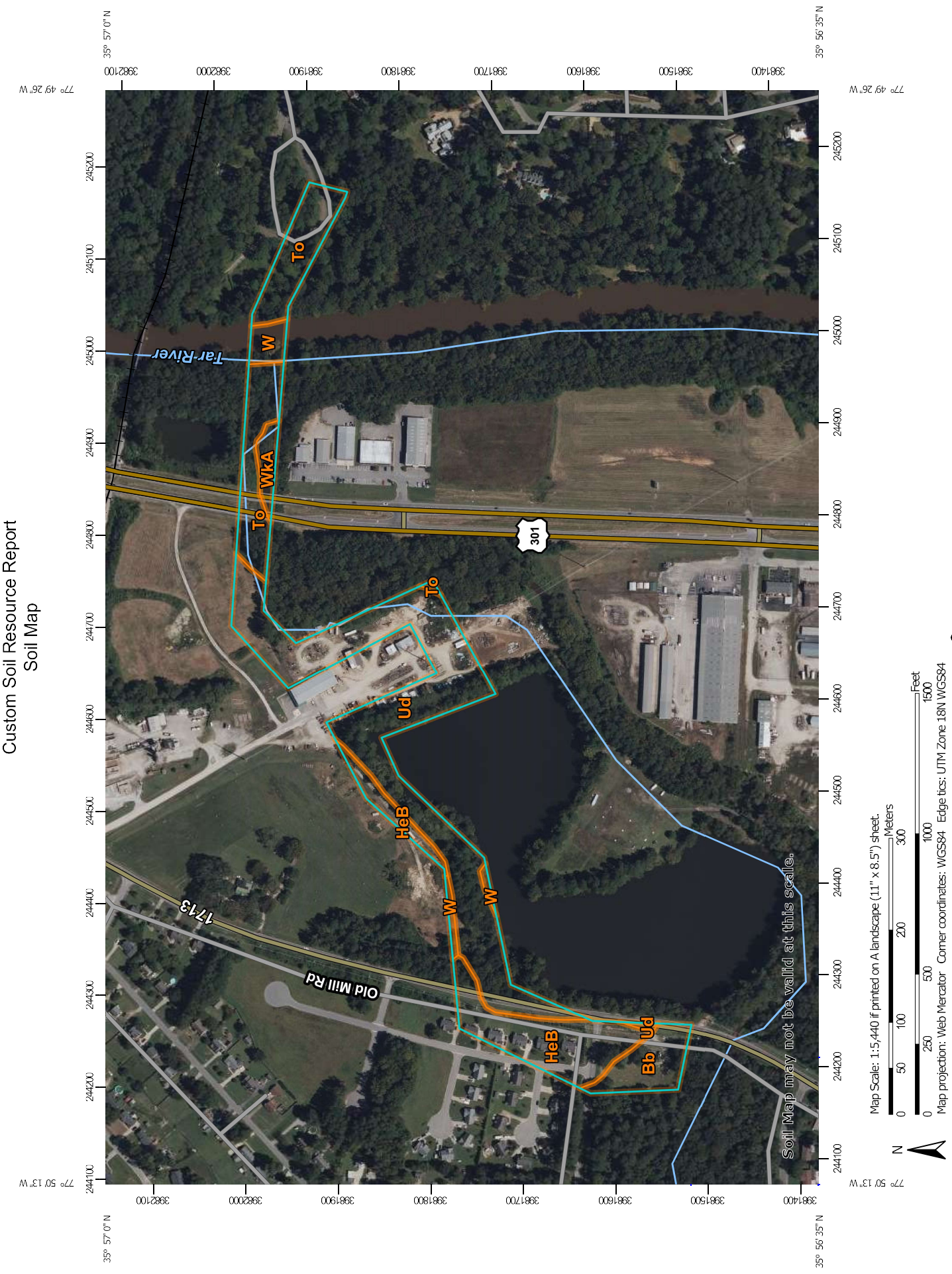
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Nash County, North Carolina
Survey Area Data: Version 21, Jan 21, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 1, 2020—Nov 21, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bb	Bibb loam, 0 to 2 percent slopes, frequently flooded	1.2	7.3%
HeB	Helena coarse sandy loam, 2 to 6 percent slopes	3.2	18.9%
To	Tomotley fine sandy loam, 0 to 2 percent slopes, rarely flooded	3.1	18.3%
Ud	Udorthents, loamy	8.4	49.6%
W	Water	0.6	3.5%
WkA	Wickham fine sandy loam, 0 to 3 percent slopes, rarely flooded	0.4	2.4%
Totals for Area of Interest		17.0	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Nash County, North Carolina

Bb—Bibb loam, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 3qd5
Elevation: 80 to 330 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 59 to 70 degrees F
Frost-free period: 210 to 265 days
Farmland classification: Not prime farmland

Map Unit Composition

Bibb, undrained, and similar soils: 80 percent
Johnston, undrained, and similar soils: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bibb, Undrained

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Sandy and loamy alluvium

Typical profile

A - 0 to 6 inches: sandy loam
Cg1 - 6 to 60 inches: sandy loam
Cg2 - 60 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Description of Johnston, Undrained

Setting

Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Sandy and loamy alluvium

Typical profile

A - 0 to 30 inches: mucky loam
Cg1 - 30 to 34 inches: loamy fine sand
Cg2 - 34 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Ponded
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

HeB—Helena coarse sandy loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 3qdq
Elevation: 200 to 1,400 feet
Mean annual precipitation: 37 to 60 inches
Mean annual air temperature: 59 to 66 degrees F
Frost-free period: 200 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Helena and similar soils: 75 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Helena

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, footslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Saprolite derived from granite and gneiss and/or schist

Typical profile

Ap - 0 to 18 inches: coarse sandy loam
Bt - 18 to 31 inches: clay loam

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BC - 31 to 48 inches: clay

C - 48 to 80 inches: sandy loam

Properties and qualities

Slope: 2 to 6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Worsham, undrained

Percent of map unit: 2 percent

Landform: Depressions

Landform position (two-dimensional): Footslope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Wehadkee, undrained

Percent of map unit: 2 percent

Landform: Depressions on flood plains

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: Yes

To—Tomotley fine sandy loam, 0 to 2 percent slopes, rarely flooded

Map Unit Setting

National map unit symbol: 3qf3

Elevation: 80 to 330 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 59 to 70 degrees F

Frost-free period: 210 to 265 days

Farmland classification: Prime farmland if drained

Map Unit Composition

Tomotley, drained, and similar soils: 80 percent

Tomotley, undrained, and similar soils: 10 percent

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Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tomotley, Drained

Setting

Landform: Depressions on stream terraces, flats on stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Old loamy alluvium derived from igneous and metamorphic rock

Typical profile

Ap - 0 to 5 inches: fine sandy loam

BA - 5 to 9 inches: fine sandy loam

Btg - 9 to 31 inches: clay loam

BCg - 31 to 40 inches: sandy loam

Cg - 40 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: Rare

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: B/D

Hydric soil rating: Yes

Description of Tomotley, Undrained

Setting

Landform: Depressions on stream terraces, flats on stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Old loamy alluvium derived from igneous and metamorphic rock

Typical profile

A - 0 to 5 inches: fine sandy loam

BA - 5 to 9 inches: fine sandy loam

Btg - 9 to 31 inches: clay loam

BCg - 31 to 40 inches: sandy loam

Cg - 40 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)

Depth to water table: About 0 to 12 inches

Custom Soil Resource Report

Frequency of flooding: Rare
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Ud—Udorthents, loamy

Map Unit Setting

National map unit symbol: 3qf4
Elevation: 20 to 330 feet
Mean annual precipitation: 40 to 55 inches
Mean annual air temperature: 59 to 70 degrees F
Frost-free period: 200 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy mine spoil or earthy fill

Typical profile

C - 0 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8w

Hydric soil rating: No

WkA—Wickham fine sandy loam, 0 to 3 percent slopes, rarely flooded

Map Unit Setting

National map unit symbol: 3qfb

Elevation: 200 to 1,400 feet

Mean annual precipitation: 37 to 60 inches

Mean annual air temperature: 59 to 66 degrees F

Frost-free period: 200 to 240 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Wickham and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wickham

Setting

Landform: Stream terraces

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Old loamy alluvium derived from igneous and metamorphic rock

Typical profile

Ap - 0 to 8 inches: fine sandy loam

Bt - 8 to 42 inches: sandy clay loam

BC - 42 to 50 inches: sandy clay loam

C - 50 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

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Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: B

Hydric soil rating: No

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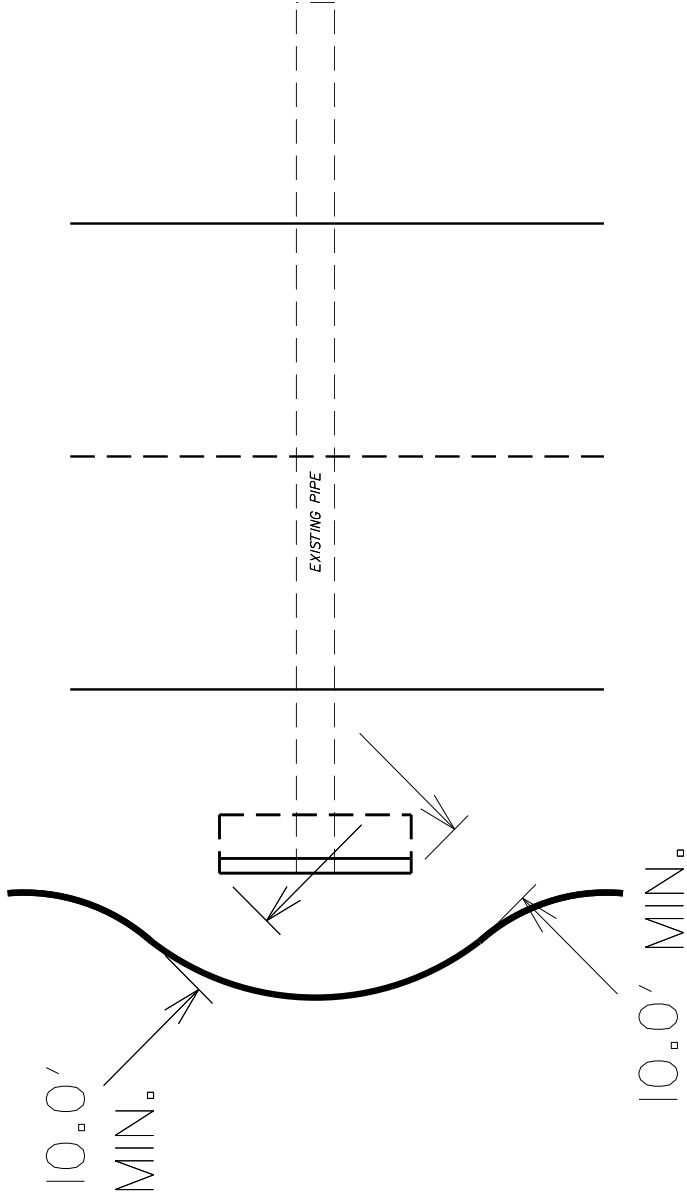
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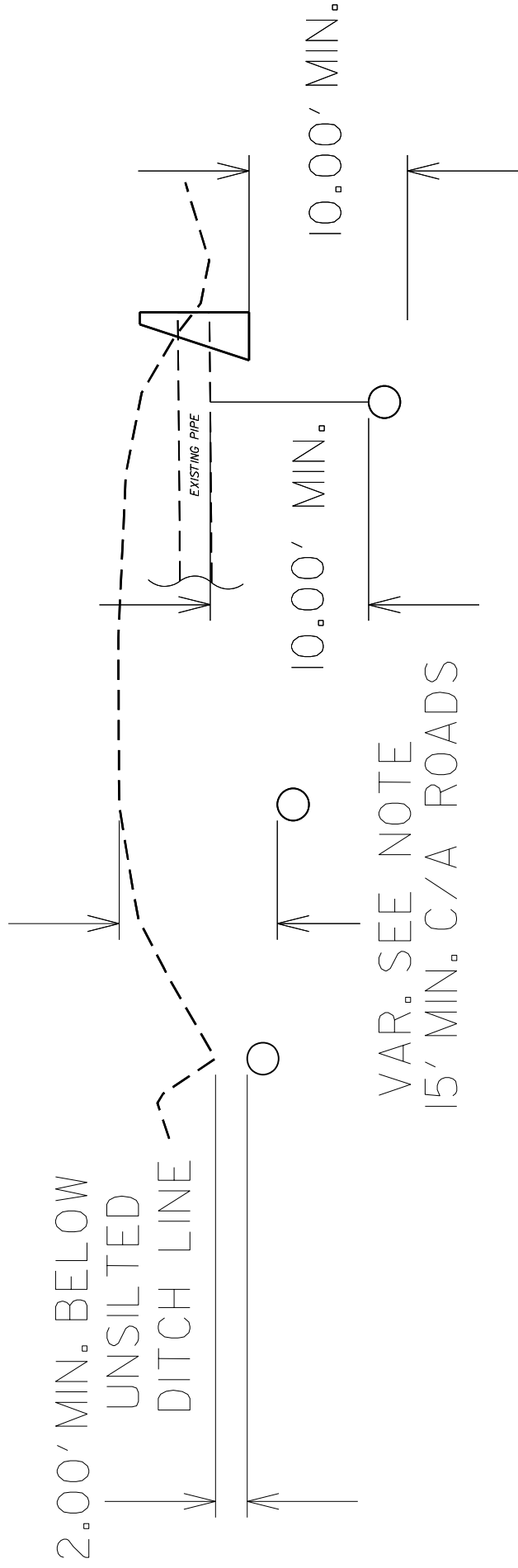
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DIRECTIONAL DRILLING METHOD



NOTE:

DIAMETER	MIN. DEPTH OF COVER
2" TO 6"	5'
>6" TO 15"	12 X HOLE DIAMETER
>15" TO 36"	>=15'



STABILIZATION REQUIREMENTS:

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 3, 2011 issued by the North Carolina Department of Environment and Natural Resources Division of Water Quality. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

SEEDING AND MULCHING:

(East)

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

All Roadway Areas

March 1 - August 31		September 1 - February 28	
50#	Tall Fescue	50#	Tall Fescue
10#	Centipede	10#	Centipede
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Waste and Borrow Locations

March 1 – August 31		September 1 - February 28	
75#	Tall Fescue	75#	Tall Fescue
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

Approved Tall Fescue Cultivars

06 Dust	Escalade	Justice	Scorpion
2 nd Millennium	Essential	Kalahari	Serengeti
3 rd Millennium	Evergreen 2	Kentucky 31*	Shelby
Apache III	Falcon IV	Kitty Hawk 2000	Sheridan
Avenger	Falcon NG	Legitimate	Signia
Barlexas	Falcon V	Lexington	Silver Hawk
Barlexas II	Faith	LSD	Sliverstar
Bar Fa	Fat Cat	Magellan	Shenandoah Elite
Barrera	Festnova	Matador	Sidewinder
Barrington	Fidelity	Millennium SRP	Skyline
Barrobusto	Finelawn Elite	Monet	Solara
Barvado	Finelawn Xpress	Mustang 4	Southern Choice II
Biltmore	Finesse II	Ninja 2	Speedway
Bingo	Firebird	Ol' Glory	Spyder LS
Bizem	Firecracker LS	Olympic Gold	Sunset Gold
Blackwatch	Firenza	Padre	Taccoa
Blade Runner II	Five Point	Patagonia	Tanzania
Bonsai	Focus	Pedigree	Trio
Braveheart	Forte	Picasso	Tahoe II
Bravo	Garrison	Piedmont	Talladega
Bullseye	Gazelle II	Plantation	Tarheel
Cannavaro	Gold Medallion	Proseeds 5301	Terrano
Catalyst	Grande 3	Prospect	Titan ltd
Cayenne	Greenbrooks	Pure Gold	Titanium LS
Cessane Rz	Greenkeeper	Quest	Tracer
Chipper	Gremlin	Raptor II	Traverse SRP
Cochise IV	Greystone	Rebel Exeda	Tulsa Time
Constitution	Guardian 21	Rebel Sentry	Turbo
Corgi	Guardian 41	Rebel IV	Turbo RZ
Corona	Hemi	Regiment II	Tuxedo RZ
Coyote	Honky Tonk	Regenerate	Ultimate
Darlington	Hot Rod	Rendition	Venture
Davinci	Hunter	Rhambler 2 SRP	Umbrella
Desire	Inferno	Rembrandt	Van Gogh
Dominion	Innovator	Reunion	Watchdog
Dynamic	Integrity	Riverside	Wolfpack II
Dynasty	Jaguar 3	RNP	Xtremegreen
Endeavor	Jamboree	Rocket	

***Note: Kentucky 31 will no longer be an approved NCDOT Tall Fescue Cultivar after December 31, 2015.**

On cut and fill slopes 2:1 or steeper Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Lespedeza from January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

TEMPORARY SEEDING:

Fertilizer shall be the same analysis as specified for *Seeding and Mulching* and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. Sweet Sudan Grass, German Millet or Browntop Millet shall be used in summer months and Rye Grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

FERTILIZER TOPDRESSING:

Fertilizer used for topdressing on all roadway areas except slopes 2:1 and steeper shall be 10-20-20 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 10-20-20 analysis and as directed.

Fertilizer used for topdressing on slopes 2:1 and steeper and waste and borrow areas shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

SUPPLEMENTAL SEEDING:

The kinds of seed and proportions shall be the same as specified for *Seeding and Mulching*, with the exception that no centipede seed will be used in the seed mix for supplemental seeding. The rate of application for supplemental seeding may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

MOWING:

The minimum mowing height on this project shall be 4 inches.

DIVISION I - GENERAL REQUIREMENTS

DETAILED SPECIFICATIONS

SECTION 0101 - PROJECT DESCRIPTION

PART 1.00 - GENERAL

1.01 Description

The work contained in this project, Old Mill Road Sewer Pump Station Force Main, is generally described as the following:

- 2,800 LF 14-inch PVC C900 (DR-21) Force Main
- 100 LF 14-inch Ductile Iron Force Main
- 210 LF 14-inch Restrained Joint DI Force Main
- 1,005 LF 14-inch I.D. Directional Bore (Rock)
- 70 LF 30-inch dia. Steel Casing (Bored and Jacked)
- 2 EA 14-inch Plug Valves
- 4 EA Sewer Air Release Valves
- 3,500 LBS Ductile Iron Fittings

The intent of this Section is to provide a general project description to aid each Bidder in understanding the overall scope of the project and the work included in the Contract.

PART 2.00 - PRODUCTS

All material and product descriptions are included in the other applicable sections of these specifications and/or as shown on the project drawings.

PART 3.00 - EXECUTION

As described in the Bid proposal, these detailed specifications and the project drawings.

END OF SECTION

DIVISION 1 - GENERAL REQUIREMENTS

DETAILED SPECIFICATIONS

SECTION 0110 - PROJECT MEETINGS

PART 1.00 - GENERAL

1.01 Description

The work covered in this section includes attendance and participation in (1) preconstruction conference and monthly project meetings.

The purpose of the preconstruction conference is to enable all of the parties having an interest in this project to meet, exchange preliminary ideas and schedules, and lay the groundwork for the project.

The periodic project meetings shall be conducted by the Engineer throughout the construction period to enable orderly review of progress during construction and to provide for systematic discussion of problems.

These periodic project meetings, in general, will be held monthly at the job site, or at a location and time schedule mutually acceptable to the Contractor, Engineer, and other involved parties.

1.02 Quality Assurance

Persons designated by the Contractor to attend and participate in project meetings shall have all required authority to commit the Contractor to solutions as agreed upon in the project meetings.

1.03 Submittals

A. Agenda Items

To the maximum extent possible, advise the Engineer, at least 24 hours in advance of the project meeting, regarding all items to be added to the agenda.

B. Minutes

The Engineer will compile minutes of each project meeting and will distribute copies to the Owner and the Contractor. The Contractor may make and distribute such other copies as he wishes.

PART 2.00 - PRODUCTS

No products are required in this Section.

PART 3.00 - EXECUTION

3.01 Meeting Schedule

Coordinate with Engineer to establish a mutually acceptable schedule for project meetings.

3.02 Meeting Location

If possible, project meetings shall be held at the job site; otherwise, location will be worked out with Engineer.

3.03 Attendance

The Contractor shall have a representative present at the preconstruction conference and all periodic project meetings, unless previous arrangements are approved by the Engineer.

To the maximum extent practicable, the Contractor shall assign the same person or persons to represent his interest at all project meetings throughout the construction period. Subcontractors, suppliers, and others may be invited to attend project meetings in which their aspects of the work are involved.

END OF SECTION

DIVISION I - GENERAL REQUIREMENTS

DETAILED SPECIFICATIONS

SECTION 0120 - SUBMITTALS & SUBSTITUTIONS

PART 1.00 - GENERAL

1.01 Description

Wherever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined either by manufacturer's name and catalog number or by reference to recognized industry standards.

To ensure that the specified materials and products are furnished and installed in accordance with the design intent, the herein established procedures shall be followed for submittal of design data and for its review and approval, or rejection, by the Engineer.

1.02 Product Handling

Make all pre-submittals, shop drawings, requests for substitutions, and other items in strict accordance with the provisions of this Section of the specifications.

PART 2.00 - PRODUCTS

2.01 Pre-submittals and Shop Drawings

Data shall include all drawings, design, performance curves, construction materials, installation requirements, capabilities, and any additional information available to allow the Engineer to adequately evaluate the product for the proposed application.

Scale of drawings shall be sufficiently large to show all pertinent features of the items and its method of connection to the work.

Number of sets of each submittal shall be as follows:

- A. Pre-submittals - 2 sets
- B. Shop Drawings - 5 sets

2.02 Colors

Unless the precise color is specifically described in the Contract Documents, whenever a choice of color is available in a specified product, submit accurate color charts to the Engineer for his review and selection.

2.03 Substitutions

A. Engineer's approval required:

1. The Contract is based on the materials, equipment, and methods described in the Contract Documents.
2. The Engineer will consider proposals for substitution of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Engineer to evaluate the proposed substitution.
3. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this work by the Engineer.

B. "Or equal":

1. Where the phrase "or equal" or "or approved equal" occurs in the Contract Documents, do not assume that material, equipment, or methods will be approved as equal unless the item has been specifically approved for this work by the Engineer.
2. The decision of the Engineer shall be final.

2.04 Operation and Maintenance Manuals

A. General:

O&M Manuals shall be furnished by the manufacturer for all equipment, unless otherwise specifically directed by the Engineer. These manuals shall be prepared in durable binders approximately 8 1/2" by 11" in size and with at least the following items:

1. Identification on, or readable through, the front cover stating general nature of the manual.
2. Neatly typewritten index near the front of the manual, furnishing immediate information as to location in the manual of all emergency data regarding the installation.

3. Complete instructions regarding operation and maintenance of all equipment involved.
4. Complete nomenclature of all replaceable parts, their part numbers, current cost, and name and address of nearest vendor of parts.
5. Copy of all guarantees and warranties issued.

B. Extraneous data:

Where contents of manuals include manufacturer's catalog pages, clearly indicate the precise items included in this installation and delete, or otherwise clearly indicate, all manufacturer's data with which this installation is not concerned.

C. Number of copies required:

Unless otherwise specifically directed by the Engineer, deliver three (3) hard copies and two (2) electronic copies on CD of the manual to the Engineer.

2.05 Other Submittals Required

- A. Construction Schedule - Updated every 4 months
- B. Project Cash Flow (Cumulative)
- C. Monthly Partial Payment Requests
- D. Sales Tax Reports
- E. Subcontractor Approval Request
- F. Bonds for Highway Department (where applicable)
- G. Insurance Certificate for Railroad (where applicable)
- H. Payrolls (EPA & HUD Projects only)
- I. As-Built Construction Drawings

PART 3.00 - EXECUTION

3.01 Prequalification of Equipment

When the detailed specification for any equipment or material requires prequalification, these submittals shall be sent or delivered to the Engineer at least fifteen (15) days prior to the scheduled date for receiving and opening bids.

3.02 Shop Drawings

The Contractor shall submit shop drawings to the Engineer for all products, equipment, and material to be used on this project, regardless of whether the item is listed in the specifications or not. Pipe manufacturer's certification of materials shall be acceptable for specified items.

Shop drawings should be submitted at least fifteen (15) days in advance of anticipated project usage to allow for the Engineer's review and approval, or rejection.

Unapproved items shall not be acceptable on this project.

3.03 Submittal Schedule

The following provides a listing of the minimum submittal times for the other items listed in Part 2.00 of this specification:

- A. Colors - Fifteen (15) days prior to need
- B. O&M Manuals - Prior to 40% project completion
- C. Construction Schedule - Prior to preconstruction conference
- D. Projected Cash Flow - Prior to preconstruction conference
- E. Partial Payment Requests - Monthly
- F. Sales Tax Reports - Monthly, with Payment Requests
- G. Payrolls - Weekly (when required)
- H. Subcontractor Approval Request - Fifteen (15) days prior to need
- I. Highway Bonds - Seven (7) days prior to highway work
- J. Railroad Bonds - Fifteen (15) days prior to railroad work

3.04 Miscellaneous Submittals

To be resolved with the Engineer at least fifteen (15) days prior to need.

3.05 As-Built Construction Drawings

The Contractor shall maintain and keep up-to-date a set of "as-built" drawings of the project work. These shall be protected and kept on the project for inspection. At project completion these "as-built" drawings shall be turned over to the Engineer.

3.06 Submittal Revisions

A revised Construction Schedule shall be submitted to the Engineer within seven (7) days after the construction progress varies 10% or more from the current Construction Schedule for two consecutive months, or at any other time when the Contractor desires to permanently alter the planned schedule.

END OF SECTION

DIVISION 1 - GENERAL REQUIREMENTS

DETAILED SPECIFICATIONS

SECTION 0140 - TEMPORARY FACILITIES AND CONTROLS

PART 1.00 - GENERAL

1.01 Description

The temporary facilities and controls covered in this Section include, but are not necessarily limited to:

- A. All utilities, including water, sewer, gas, electricity and/or telephone, except as noted otherwise in these specifications
- B. Field offices and sheds
- C. Storage yards
- D. Sanitary facilities
- E. Safety measures

1.02 Product Handling

Use all means necessary to maintain temporary facilities and control in proper and safe condition throughout progress of the work. In the event of loss or damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

PART 2.00 - PRODUCTS

2.01 Temporary Utilities

A. General:

Each contractor shall provide and pay all costs for all gas, water, and electric required for the performance of the work, by he or his subcontractors.

B. Temporary gas and water:

C. Temporary electricity:

- (1) Furnish and install all necessary temporary wiring.

- (2) Furnish and install area distribution boxes so located that the individual trades may use their own construction-type extension cords to obtain adequate power and artificial lighting at all points where required by inspectors and for safety (when required for buildings).

2.02 Field Office

When field offices are located at the job, the Contractor shall make the field office available to the Engineer or his representatives.

2.03 Sanitary Facilities

Furnish and install all required temporary toilet buildings with sanitary toilets for use of all workmen; comply with all minimum requirements of the Health Department or other public agency having jurisdiction; maintain in a sanitary condition at all times.

2.04 Safety Measures

The Contractor shall comply with all safety and health requirements of:

- A. Contract General Conditions; Special Conditions; Supplemental Conditions; FmHA, EPA, and/or HUD Conditions (when applicable)
- B. Occupational Safety and Health Act of 1970 (P.L. 91-596) with any amendments
- C. North Carolina Department of Labor
- D. U.S. Department of Labor Safety and Health Regulations promulgated under Section 107 of the Contract Work Hours and Safety Standards Act (P.L. 91-54)
- E. Associated General Contractors' "Manual of Accident Prevention in Construction"
- F. Local Health Department

2.05 Use of Explosives

When the use of explosives is necessary for the prosecution of the work, the Contractor shall exercise the utmost care not to endanger life or property. The Contractor shall be responsible for any and all damage or injury to persons or property resulting from the use of explosives. Such responsibility shall include, but shall in no way be limited to all damages arising from all forms of trespass to adjacent property as a result of blasting by the Contractor.

All explosives shall be stored in a secure manner, in compliance with all laws, and all such storage places shall be marked clearly "DANGEROUS EXPLOSIVES."

The Contractor shall notify each public utility company having facilities in close proximity to the site of the work of his intention to use explosives. This notice shall be given sufficiently in advance to enable the utility companies to take whatever steps they may consider necessary to protect their property from injury. The Contractor shall also give the Engineer, all occupants of adjacent property, and all other Contractors working in or near the project notice of his intention to use explosives.

2.06 Protection and Restoration of Property

The Contractor shall be responsible for the protection from his activities of all public and private property on and adjacent to the work and shall use every reasonable precaution necessary to prevent damage or injury thereto. He shall use suitable precautions to prevent damage to pipes, conduits, and other underground structures, and to poles, wires, cables, and other overhead structures.

The Contractor shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer has witnessed or otherwise referenced their location and shall not remove them until directed.

The Contractor shall be responsible for the removal, preservation, and resetting of all mail boxes disturbed by the construction operations. The mail boxes and their supports, when reset, shall be left in as good a condition as they were before removal. The Contractor will not be required to furnish new material except as required to repair damage resulting from construction operations.

The Contractor will be held responsible for all damage or injury to property of any character resulting from any act, omission, negligence, or misconduct in the prosecution of the work. When any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, negligence, or misconduct in the execution of the work, he shall either restore at his own expense such property to a condition similar or equal to that existing before such damage or injury was done, or shall make good such damage or injury in a manner acceptable to the owner of the damaged property. In case of failure on the part of the Contractor to restore such property or make good such damage or injury the Project Owner may be the Contractor's expense repair, rebuild, or otherwise restore such property in such manner as the Engineer may consider necessary.

PART 3.00 - EXECUTION

3.01 Removal

Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the work; remove all such temporary facilities and control as rapidly as progress of the work will permit or as directed by the Engineer.

END OF SECTION

DIVISION 1 - GENERAL REQUIREMENTS

DETAILED SPECIFICATIONS

SECTION 0150 - PROJECT CLOSEOUT

PART 1.00 - GENERAL

1.01 Description

The work covered by this Section includes, but is not limited to, the following items:

- A. Final Project Inspections
- B. Operation and Maintenance Manuals

PART 2.00 - PRODUCTS

2.01 Final Inspections

At such time as the Contractor and the Project Inspector together agree that the Work has been completed in accordance with the project drawings and the contract documents, the Contractor shall request, in writing, that the Engineer conduct a final inspection.

The Engineer shall notify the other parties who need to make inspections, including where applicable but not limited to the Owner, N. C. Department of Transportation, Farmers Home Administration, N. C. Department of Environment, Health and Natural Resources (sewers) and water works.

The Engineer shall coordinate the final inspections with the Owner, the Contractor and all others requiring such inspections.

Upon completion of his final inspection, the Engineer shall provide the Contractor with his "punch list" of items needing additional work. Punch lists from other agencies involved shall be provided to the Contractor also for his attention and correction.

When the Contractor has completed all work to the satisfaction of all agencies involved, the Engineer shall issue to the Contractor a letter of project acceptance, stating the acceptance date and the project warranty period.

2.02 Operation and Maintenance Manuals

The Contractor shall bind and furnish operation and maintenance manuals as required by these detailed specifications for all equipment items in accordance with the Submittals schedule.

PART 3.00 - EXECUTION

Shall be as described in these Detailed Specifications.

END OF SECTION

DIVISION 2 - SITE WORK

DETAILED SPECIFICATIONS

SECTION 0210 - CLEARING AND GRUBBING

PART 1.00 - GENERAL

1.01 Description

The work covered by this division shall consist of all necessary clearing, grubbing, and disposal of all vegetation and debris from within the construction limits.

Clearing and grubbing operations shall be completed sufficiently in advance of grading operations as may be necessary to prevent any of the debris from the clearing and grubbing operations from interfering with the excavation or embankment operations.

The work under this section shall be performed in a manner which will cause a minimum of soil erosion. The Contractor shall perform such erosion control work, temporary or permanent, as may be necessary in order to satisfactorily minimize erosion resulting from clearing and grubbing operations.

1.02 Quality Assurance

Provide at least one person who shall be present at all times during tree clearing and grubbing operations and who shall be thoroughly familiar with the types of trees involved and who shall direct the trimming of roots and limbs where required.

In addition to complying with all pertinent codes and regulations, comply with the requirements of those insurance carriers providing coverage for this work.

1.03 Job Conditions

A. Dust Control

Use all means necessary to prevent the spread of dust during performance of the work of this Section; thoroughly moisten all surfaces as required to prevent dust being a nuisance to the public, neighbors, and concurrent performance of other work on the site.

B. Burning

On-site burning shall be in full accordance with all Federal, State, and local codes and ordinances. No burning will be permitted within the limits of any actual spray irrigation field, where applicable.

C. Protection

Use all means necessary to protect existing objects designated to remain, and in the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer at no additional cost to the Owner.

PART 2.00 - MATERIALS

2.01 Fill Dirt

Shall be clean dry soil obtained from the site at a location designated by the Engineer.

2.02 Concrete

When required for filling and/or capping wells, shall be 2500 psi concrete in compliance with Section 0310 of these specifications.

2.03 Temporary Barricades

Unless otherwise specifically approved by the Engineer, use only new and solid lumber of utility grade or better to construct temporary barricades around the objects designated to remain.

2.04 Pruning Paint

Use only a pruning paint specifically formulated for horticultural application to cut or damaged plant tissue and approved by the Engineer for use on this work.

2.05 Other Materials

All other materials, not specifically described but required for proper completion of the work of this section, shall be as selected by the Contractor subject to approval of the Engineer.

PART 3.00 - EXECUTION

3.01 Preparation

A. Notification:

Notify the Engineer at least two full working days prior to commencing the work of this Section.

B. Site inspection:

Prior to all work of this section, carefully inspect the entire site and all objects designated to be removed and to be preserved.

Locate all existing utility lines and determine all requirements for disconnecting and capping.

Locate all existing active utility lines traversing the site and determine the requirements for their protection.

C. Clarification:

The Drawings do not propose to show all objects existing on the site.

Before commencing the work of this section, verify with the Engineer all objects to be removed and all objects to be preserved.

3.02 Clearing and Grubbing

A. General

Clearing and grubbing of construction sites, pipeline easements, and roadway areas, shall consist of removing all vegetation and debris, including but not limited to trees, logs, stumps, junked vehicles, snags, lumber, sawdust piles, fences, leaf piles, brick, tile, rubble, and masonry in the area of grade change, excavation, embankment construction, structure construction or alternation and building construction.

B. Clearing

The Contractor shall conduct his operations in a manner to prevent limb, bark, or root injuries to trees, shrubs, or other types of vegetation that are to remain growing and also to prevent damage to adjacent property. When any such injuries unavoidably occur, all rough edges of scarred areas shall first be made reasonably smooth in accordance with generally accepted horticultural practice, and the scars then thoroughly covered with an asphaltum base tree paint. Any such plants that

are damaged by any construction operations to such an extent as to destroy their value for shade or other landscape purposes, shall be cut and disposed of by the Contractor, without extra compensation, when so directed by the Engineer.

The Contractor shall not cut any timber beyond the clearing limits established by the Engineer nor shall he cut any timber which is to be preserved for landscape or erosion control purposes except at the direction of the Engineer.

The clearing limits shall include the entire site for construction projects, unless shown otherwise on the drawings or directed otherwise by the Engineer.

Clearing of pipeline and drainage easements shall include both permanent and construction easements as shown on the drawings, unless otherwise directed by the Engineer.

In the clearing of roadway areas where the depth of embankment exceeds 6 feet in height, sound trees shall be cut at a height of not more than 6 inches above natural ground, unless otherwise directed by the Engineer.

When trees are to be cut in areas not designated for grubbing, the trees shall be cut off at or below the natural ground surface.

C. Grubbing

The work of grubbing shall be performed on all areas cleared, except as follows:

1. Stumps, outside of the permanent easements but within the construction easements, may be allowed to remain in place; however, such stumps must be cut off at or below natural ground surface.
2. In roadway embankment areas, when the embankment exceeds 6 feet in height, sound stumps shall be cut off not more than 6 inches above the existing ground level and not grubbed. Unsound or decayed stumps shall be removed to a depth of at least 2 feet below the natural ground surface.

Within all areas designated for clearing and/or grubbing, all holes and other depressions shall be filled and the area brought to a uniform contour so as to allow the Owner to mow the area without hindrance. This work shall be done as a part of the clearing and grubbing operation regardless of whether the irregularities were the results of the Contractor's operations or were originally existing.

Additionally, all exposes, loose debris - bottles, cans, bricks, rocks (over 2" diameter), etc. - shall be removed from construction sites and permanent easements surfaces.

3.03 Disposal

Timber of value, including pulpwood, shall be limbed up and immediately cut in merchantable lengths by the Contractor for prompt removal from the right-of-way of the property Owner. The Contractor shall notify the property owner or his authorized agent in writing that he has 30 days in which to remove the timber. If the timber is not removed within a 30 day period the Contractor shall dispose of the timber as hereinafter provided. A copy of the Contractor's letter to the property owner or his authorized agent giving expiration date for the removal of the timber shall be sent to the Resident Engineer. This letter shall include a postscript paragraph which the property owner or his authorized agent may sign authorizing the Contractor to dispose of the timber if the owner or his authorized agent does not reserve it for his use.

All remaining brush, roots, stumps, tree laps, timber not reserved by the property owner and all other vegetation shall be disposed of by the Contractor either by burning the vegetation within the area cleared or by disposal in locations off of the right-of-way and out of sight of the project. Off site disposal shall be in accordance with state and local solid waste regulations.

When the vegetation is disposed of by burning, all burning shall be done in such a manner as to prevent injury to property within or outside of the right-of-way. Burning shall be in compliance with all local, state, and federal laws, ordinances, and regulations. The securing of necessary burning permits shall be the responsibility of the contractor. All burning shall be under the constant care of competent watchmen. Burning shall be thorough and shall not be permitted to smolder and result in dense smoke.

When the timber and debris are to be disposed of in locations off of the right-of-way and out of sight of the project, the Contractor shall furnish the Engineer, before final acceptance of the project, a written release from the property owner, or his authorized agent, granting the servitude of his lands.

All debris other than vegetation, even if burnable, shall be disposed of in areas that are outside of the right-of-way and provided by the Contractor, unless otherwise required by the plans or special provisions or unless disposal with the right-of-way is permitted by the Engineer.

Timber and debris shall not be dumped, buried, or disposed of in wetlands in any manner unless approved in advance in writing by the Engineer.

3.04 Method of Measurement

Except where clearing and grubbing is included as part of a lump sum construction item, the quantity of clearing and grubbing to be paid for will be the actual number of acres as measured along the surface of the cleared area. Individual, isolated trees or stumps within the project limits which have to be cleared, grubbed and removed or limbed up for construction shall be included in the unit price for clearing & grubbing.

END OF SECTION

DIVISION 2 - SITE WORK

DETAILED SPECIFICATIONS

SECTION 0215 - DEMOLITION

PART 1.00 - GENERAL

1.01 Description

The work covered by this Section includes the necessary equipment, tools, materials, labor, and supervision for the complete demolition, removal, and disposal of all structures, buildings, building components, and/or appurtenances as indicated in the contract and/or on the project drawings.

1.02 Quality Assurance

The Contractor shall provide at least one person who shall be thoroughly trained and experienced in this type work, who shall be present at all times during the execution of the work of this section, and who shall personally direct the demolition operations.

Comply with all pertinent codes, ordinances, and regulations governing this type work.

1.03 Job Conditions

A. Dust Control

Use all means necessary to prevent the spread of dust during the performance of the work of this Section and to prevent dust being a nuisance to the public, neighbors, and concurrent performance of other work on the site.

B. Burning

Any on-site burning shall be in full accordance with all Federal, State and local codes and ordinances.

C. Protection

Use all means necessary to protect new or existing objects designated to remain, and in the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer at no additional cost to the Owner.

PART 2.00 - MATERIALS

2.01 Fill Dirt

Shall be clean dry soil obtained from the site at a location designated by the Engineer, unless otherwise stated in these specifications.

2.02 Temporary Barricades

Unless otherwise specifically approved by the Engineer, use only new and solid lumber of utility grade or better to construct temporary barricades, where needed for safety or item protection.

2.03 Other Materials

All other materials, not specifically described but required for the proper completion of the work of this Section, shall be as selected by the Contractor, subject to the approval of the Engineer.

PART 3.00 - EXECUTION

3.01 Preparation

A. Notification:

Notify the Engineer at least two full working days prior to commencing the work of this Section.

B. Site inspection:

Prior to all work of this section, carefully inspect the entire site and all objects designated to be removed and to be preserved.

Locate all existing utility lines and determine all requirements for disconnecting and capping.

Locate all existing active utility lines traversing the site and determine the requirements for their protection.

C. Clarification:

The drawings do not propose to show all objects existing on the site.

Before commencing the work of this section, verify with the Engineer all objects to be removed and all objects to be preserved.

3.02 General Requirements

All structures, buildings, building components, appurtenances, foundations, basement walls, concrete slabs, pavement, septic tanks, pipelines, utility lines, and all other items designated to be removed, or necessary to be removed prior to construction, shall be completely demolished and cleared from the right-of-way, unless otherwise approved by the Engineer.

All materials resulting from the demolition work, unless specifically designated for salvage to the Owner or where such materials may be the property of utility companies providing service to the location, shall become the property of the Contractor and shall be disposed of or used by him, or else may be sold by him as his property.

3.03 Utilities

The Contractor shall make all necessary arrangements with utility companies for the disconnecting of service and the removal of and recovery by them of all meters, telephones, or any other utility facilities or equipment owned by them. The Contractor shall also arrange for and actually effect the disconnecting and closing of water and sewer connections to buildings, including but not limited to any work that must be done in addition to that normally done by the utility company, in conformity with all applicable codes and regulations of the local Boards of Health.

3.04 Disposal

Unless otherwise indicated in the contract or shown on the drawings, all parts of the structures, buildings, appurtenances and all materials recovered during their demolition shall become the property of the Contractor, and shall be removed from the project by the Contractor, unless approved otherwise by the Engineer.

Disposal by burning will be permitted when it poses no danger to the surroundings and subject to all applicable sections of these specifications and all State and local ordinances.

Where waste and debris are to be disposed of in areas that are outside of the project site or right-of-way, other than active public waste or disposal areas, the following requirements shall be applicable:

- A. Construction debris, and all broken pavement and masonry, shall be covered with a minimum of 6 inches of earth material. The completed waste area shall be shaped to contours which are comparable to and blend in with the adjacent topography where practical. Slopes should not be steeper than 2 to 1.
- B. Seeding and mulching shall be performed over all earth or earth covered waste areas. Seeding and mulching shall be in accordance with Section 0270 of these specifications.

- C. Erosion control measures in accordance with Section 0271 of these specifications shall be installed and maintained by the Contractor at all waste disposal areas, as needed or as directed by the Engineer, at no additional cost to the Owner.
- D. Disposal of waste or debris in active public waste or disposal areas will not be permitted without prior approval of the Engineer.
- E. Disposal of waste and debris will not be allowed in any area under the Corps of Engineers' regulatory jurisdiction until the Contractor has obtained a permit for such disposal from the Corps' District Engineer having jurisdiction, and has furnished a copy of this permit to the Project Engineer.
- F. When the materials and debris are to be disposed of in locations off of the right-of-way and out of sight of the project, the Contractor shall furnish the Engineer, before final acceptance of the project, a written release from the property owner, or his authorized agent, granting the servitude of his lands.

3.05 Compensation

All work covered by this section shall be included in the lump sum price bid for this project. Such price and payment will be full compensation for all work covered by this section, including but not limited to demolition removal; disposal of material and debris; clean-up; furnishing, grading, seeding and mulching, and erosion control of disposal areas; and all costs incurred in connection with the work.

END OF SECTION

DIVISION 2 – SITE WORK

DETAILED SPECIFICATIONS

SECTION 0220 – EXCAVATION, FILLING AND GRADING

PART 1.00 - GENERAL

1.01 Description

Excavating, filling, and grading required for this work includes, but is not necessarily limited to:

- A. Excavating for footings and foundations
- B. Filling and backfilling to attain indicated grades
- C. Trenching and trench backfilling
- D. Rough and finish grading of the site
- E. Furnishing and installing granular cushion under all interior concrete slabs on grade

1.02 Quality Assurance

The General Contractor shall employ and pay for an independent testing laboratory to perform all testing as specified herein. The laboratory selected shall be subject to approval by the Engineer.

A. Testing Services

1. Testing Services to be provided by testing laboratory include the following:
 - a. Test the Contractor's proposed materials in the laboratory and/or field for compliance with the Specifications.
 - b. Perform field moisture content and density tests to assure that the specified compaction of backfill materials has been obtained.
 - c. Report all test results to the Engineer and the Contractor.
2. Authority and Duties of Testing Agency: Technicians representing the testing laboratory shall inspect the materials in the field and perform tests, and shall report their findings to the Engineer and the Contractor. When the materials furnished or work performed fails to fulfill specification requirements, the technician will direct the attention of the Engineer and the Contractor to such failure.

- a. The technician shall not act as foremen or perform other duties for the Contractor. Work will be checked as it progresses, but failure to detect any defective work or materials shall not in any way prevent later rejection when such defect is discovered, nor shall it obligate the Engineer for final acceptance. Technicians are not authorized to revoke, alter, relax, enlarge, or release any requirements of the specifications, nor to approve or accept any portion of the work.
3. Responsibilities and duties of Contractor: The use of testing services shall in no way relieve the Contractor of his responsibility to furnish materials and construction in full compliance with the Drawings and Specifications.
 - a. Secure and deliver to the Engineer or to the testing agency, without cost, preliminary representative samples of the materials he proposed to use and which are required to be tested.
 - b. Furnish such casual labor as is necessary to obtain and handle samples at the Project or at other sources of material.
 - c. Advise the testing agency sufficiently in advance of operations to allow for completion of quality tests and for the assignment of personnel.

B. Reference Standards:

The Contractor shall comply with applicable provisions and recommendations of the following:

1. ASTM D 422, Particle-Size Analysis of Soils.
2. ASTM D 423, Liquid Limit of Soils.
3. ASTM D 427, Shrinkage Factors of Soils.
4. ASTM D 698, Moisture-Density Relations of Soils, using 5.5 lb (2.5 kg) Rammer and 12-in. (304.8 mm Drop).
5. ASTM D 1140, Amount of Material in Soils Finer than the No. 200 Sieve.
6. ASTM D 1556, Density of Soil in Place by the Sand-Cone Method.
7. ASTM D 1557, Moisture-Density Relations of Soils, using 10.0 lb (4.5 kg) Rammer and 18-in. (457 mm) Drop.
8. ASTM D 2166, Unconfined Compressive Strength of Cohesive Soil.
9. ASTM D 36, Structural Steel.
10. ASTM A 328, Steel Sheet Piling.

C. Test Reports

1. Submit copies of the following reports directly to Engineer from the testing service, with copy to the Contractor:
 - a. Tests on borrow material.

- b. Footing subgrade.
- c. Field density tests.
- d. Optimum moisture - maximum density curve for each soil used for backfill.
- e. Tests of actual unconfined compressive strength or bearing tests of each strata.

1.03 Job Conditions

A. Dust Control

Use all means necessary to control dust on and near the work and on and near any off-site borrow areas if such dust is caused by the Contractor's operations during performance of the work or if resulting from the condition in which the Contractor leaves the project site.

Thoroughly moisten all surfaces as required to prevent dust from being a nuisance to the public, neighbors, and other work operations on the site.

B. Protection

Use all means necessary to protect all materials of this section before, during and after installation. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

PART 2.00 - MATERIALS

2.01 Fill Material, General

A. Approval Required

All fill material shall be subject to approval of the Engineer.

B. Notification

For approval of imported fill material, notify the Engineer at least four working days in advance of intention to import material, designate the proposed borrow area, and permit the Engineer to sample as necessary from the borrow area for the purpose of making acceptance tests to prove the quality of the material.

2.02 On-site Fill Material

All on-site fill material shall be soil-rock mixture which is free from organic matter and other deleterious substance. It shall contain no rocks or lumps over four inches in greatest

dimension and not more than 15% of the rocks or lumps shall be larger than 2 inches in greatest dimension.

2.03 Imported Fill Material

All imported fill material shall meet the requirements of Section 2.02 above and shall, in addition, be predominantly granular with a maximum particle size of two inches and a plasticity index of 12 or less.

2.04 Fill Beneath Foundations

All fill material placed within two feet of the base of building footings and/or slabs shall have a plasticity index of 15 or less.

2.05 Granular Cushion

The granular cushion material to be installed under floor slabs as shown on the drawing shall be a clean mineral aggregate with particle sizes grading within the following limits:

Passing 1" mesh	100%
Passing #8 sieve	5% or less
Passing #200 sieve	1% or less

N. C. Department of Transportation gradation size 57 is acceptable for this application.

2.06 Trench and Structural Backfill

A. On-Site Fill Material

All on-site fill material used for trench and structural backfill shall meet the requirements of Section 2.02 above.

B. Imported Cohesionless Material

All imported cohesionless material used for trench and structural backfill shall be free from organic substance and other deleterious matter, shall be subject to the approval of the Engineer, and shall be in particle size grading within the following limits:

Passing the number four sieve:	100%
Passing the number 200 sieve:	3% maximum

2.07 Other Materials

All other materials, not specifically described but required for proper completion of the work of this Section, shall be as selected by the Contractor subject to the approval of the Engineer.

PART 3.00 - EXECUTION

3.01 General

Prior to all work of this Section, become thoroughly familiar with the site, the site conditions, and all portions of the work falling within this Section.

Do not allow or cause any of the work performed or installed to be covered up or enclosed by work of this Section prior to all required inspections, tests, and approvals.

Should any of the work be so enclosed or covered up before it has been approved, uncover all such work at no additional cost to the Owner.

After the work has been completely tested, inspected, and approved, make all repairs and replacements necessary to restore the work to the condition in which it was found at the time of uncovering, all at no additional cost to the Owner.

3.02 Finish elevations and lines

For the setting and establishing of finish elevations and lines, the Owner through his Engineer shall provide to the Contractor sufficient plans, monuments, bench marks and/or references for the Contractor to properly stake and construct the project in accordance with the project drawings.

The Contractor shall take all necessary precautions to preserve all monuments, bench marks, and references provided for this project, and if lost or disturbed, shall immediately replace such to the approval of the Engineer at no cost to the Owner.

3.03 Excavation

A. General

1. Rock excavation shall be in accordance with specification section 0222; otherwise, all other excavation shall be unclassified and shall be included in the lump sum price bid for the project.
2. The Contractor shall be responsible for the definite location of existing facilities within the area of his excavation for work under this Contract. Care shall be exercised during such location work to avoid damaging and/or disrupting the affected facility. The Contractor shall be responsible for repairing, at his expense, damage to any structure, piping, or utility caused by his work.
3. If blasting is required, the Contractor shall comply with all laws, ordinances, applicable safety code requirements, and regulations relative to the handling, storage, and use of explosives and the protection of life

and property. The Contractor shall be responsible for any and all damage caused by his blasting operations. Suitable methods shall be employed to confine all materials lifted by blasting within the limits of the excavation or trench.

- a. All rock which cannot be handled and compacted as earth shall be kept separate from other excavated materials and shall not be mixed with backfill or embankment materials except as specified or directed.
4. Sheeting and shoring shall be provided as necessary for the protection of the work and for the safety of personnel. The clearances and types of the temporary structures, insofar as they affect the character of the finished work, will be subject to the approval of the Engineer, but the Contractor shall be responsible for the adequacy of all sheeting, bracing, cofferdamming, etc. No separate payment is to be made for providing or removing steel or wood sheet piling; payment shall be considered as having been included in the price bid for the Contract. All shoring, bracing and sheeting shall be removed as the excavations are backfilled and in a manner such as to prevent injurious caving; or, if so directed by the Engineer, because in his opinion, removal would be damaging to structures or personnel, shall be left in place. Sheeting left in place shall be cut off 3 feet below the surface. Payment for sheeting left in place shall be considered as having been included in the Contract Price. All sheeting and bracing must be maintained until replaced by other sheeting and bracing or until the permanent construction is able to withstand lateral pressures from soil water. Remove sheeting and bracing from excavations unless otherwise ordered in writing by the Engineer. Removal shall be done so as to not cause injury to the work. Removal shall be equal on both sides of excavations to ensure no unequal loads on pipe or structure. Defer removal of sheeting and bracing, where removal may cause soil to come into contact with concrete until the concrete has cured a minimum of 7 days.
5. All excavation within the grading limits of the Project shall be performed to the lines and grades indicated on the Drawings. All excavation shall be performed in the manner and sequence as required for the work.
 - a. Excavation work shall be performed in a safe and proper manner with appropriate precautions being taken against all hazards. Excavations shall provide adequate working space and clearances for the work to be performed therein and for installation and removal of concrete forms. In no case shall excavation faces be undercut for extended footings.
 - b. Subgrades shall be firm, dense, and thoroughly compacted to a 90 percent maximum density. The finished elevation or stabilized

subgrades shall not be above subgrade elevations shown on the Drawings.

- c. Exposed soil after excavations have been made shall be protected against detrimental damage and change in condition from physical disturbance and rain. Wherever possible, concrete footings shall be done the same day the excavation is made. If this is not done, the footing excavations shall be properly protected.

6. All excavated materials that meet the requirements for backfill shall be stockpiled within the site (but not less than 25 feet from the surface borders of any excavation) for use as backfill, or for providing final site grades. All excavated materials which are not considered suitable for fill, and any surplus or excavated material which is not required for fill shall be disposed of by the Contractor. Upon completion of the work all on-site waste and disposal areas shall be cleaned and the debris removed from the site.

B. Excavations for Structures:

1. Excavations for the construction of structures shall be carefully made to the depths indicated or required. Bottoms for footings, slabs, and grade beams shall be level, clean and clear of loose material, the lower sections true to size. Footings, slab, and grade beam bottoms shall be approved by the Engineer before any concrete is placed thereon.
2. When the excavation has reached the design subgrade, the exposed subgrade shall be proof rolled using a 25-ton pneumatic tire roller. Proof rolling operation shall be inspected by the Engineer. Any soft or unconsolidated zones or areas detected by proof rolling operations shall be undercut as directed by the Engineer. The undercut subgrade shall be sacrificed to a minimum depth of 6-inches and compacted to a minimum of 95 percent of the maximum density as determined by ASTM D 1557. After the undercut subgrade has been sacrificed and compacted the undercut shall be backfilled with select backfill to the design subgrade elevation in accordance with Section 3.07.B. The final subgrade shall be inspected and approved by the Engineer.
3. In excavations for structures, where, in the opinion of the Engineer, the ground, not affected by high water level, is spongy or otherwise unsuitable for the contemplated foundation, the Contractor will be required to remove such unsuitable earth and replace it with suitable material properly compacted.
4. Excavations for structures which have been carried below the depths indicated shall be refilled to the proper grade with select backfill material properly compacted as specified herein.

5. All structure excavations shall be hand-trimmed to permit the placing of full widths, and lengths of footings on horizontal beds. Rounded and undercut edges will not be permitted.
6. Excavation shall be extended a minimum of two feet on each side of structures, footings, etc. unless otherwise shown or specified.

C. Roadway Excavations

1. Roadway excavation shall consist of excavation for the roadways in conformity with lines, grades, cross sections, and dimensions shown on the Drawings and shall include the excavation of all unsuitable material from the subgrade.
2. The subgrade shall be compacted to 90 percent maximum density.

D. Trench Excavations

1. Trenches shall be excavated to a width which will provide adequate working space and clearances for proper pipe installation, jointing, and embedment, and ductbank installation.
 - a. Where pipe elevations are not shown on the Drawings, trenches shall be excavated to a depth sufficient to provide a minimum cover over the top of the pipe of 3 feet.
 - b. Unless otherwise shown ductbank trenches shall be excavated to provide a minimum cover over ductbanks of 3 feet.
 - c. Subgrades for electrical ductbank shall be compacted to 90 percent maximum density.
2. Where necessary to reduce earth load on pipe trench banks to prevent sliding, or caving, banks may be cut back on slopes which shall not extend lower than 12 inches above the top of the pipe.
3. Except where otherwise required, pipe trenches shall be excavated 6 inches below the underside of the pipe to provide for the installation of granular embedment pipe foundation material.
4. Where in earth, trench bottoms for 6 inch or smaller pipe may be excavated below the pipe subgrade and granular embedment material provided as specified or the trench bottom may be graded to provide uniform and continuous support (between bell holes or end joints) of the installed pipe.

5. Over-depths in trench excavation shall be backfilled with select backfill material properly compacted. Whenever unsuitable material that is incapable of properly supporting the pipe is encountered in the undercut required for bedding material, the unsuitable material shall be removed to the depth required and the trench backfilled to the proper grade with select backfill material properly compacted.
6. Bell holes shall provide adequate clearance for tools and methods used in installing pipe. No part of any bell or coupling shall be in contact with the trench bottom, trench walls, or granular embedment when the pipe is jointed.
7. Where existing piping or ductbank constructed by others cross the new pipeline or new electrical ductbank trench excavation, they shall be adequately supported and protected from damage due to construction. All methods for supporting and maintaining these facilities shall be subject to approval by the Engineer. Care shall be taken to insure that the grades and alignment of piping and electrical ductbanks constructed by others are maintained and that the pipe joints are not disturbed. Backfill shall be carefully placed and taped to prevent damage or future settlement. Any damage or misalignment of piping or electrical ductbanks constructed by others due to construction or settlement shall be repaired by the Contractor at his expense.

3.04 Preparation of Subgrade

A. Stripping

After the site has been cleared, the Contractor shall strip the vegetation and topsoil to a depth of at least 12 inches below the original elevation in the area beneath the building. This topsoil shall be stockpiled for later use in landscaping the site.

B. Scarifying

After the site has been cleared, stripped, and excavated to within six inches of the specified depths for recompaction, scarify the exposed surface to a minimum depth of six inches, thoroughly moisture condition, and compact to the requirements specified for fill below.

C. Leveling

Remove all ruts, hummocks, and other uneven surfaces by surface grading prior to placement to fill.

3.05 Excess Water Control

A. Unfavorable Weather

Do not place, spread, or roll any fill material during unfavorable weather conditions.

Do not resume operations until moisture content and fill density are satisfactory to the Engineer.

B. Flooding

Provide berms or channels to prevent flooding of subgrade; promptly remove all water collecting in depressions.

C. Softened Subgrade

Where soil has been softened or eroded by flooding or placement during unfavorable weather, remove all damaged areas and recompact as specified for fill and compaction below.

D. Dewatering

Provide and maintain at all times during construction, ample means and devices with which to promptly remove and dispose of all water from every source entering the excavations or other parts of the work.

Dewater by means which will ensure dry excavations and the preservation of the final lines and grades of bottoms of excavations.

3.06 Fill and Compaction

A. Filling

After subgrade compaction has been approved by the Engineer, spread approved fill material in layers not exceeding six inches in uncompacted thickness.

B. Moisture Conditioning

Water or aerate the fill material as necessary and thoroughly mix to obtain a moisture content which will permit proper compaction.

C. Compaction, General

Compact each soil layer to at least the specified minimum degree; repeat compaction process until plan grade is attained.

D. Degree of Compaction Requirements
(By Standard Proctor, except where noted)

1. Structural fill:
Densify all structural fill, including recompacted existing fill and backfill, to a minimum degree of compaction of 90%.
2. Pavement areas:
Compact the upper six inches of fill in pavement areas to a minimum degree of compaction of 95%.
3. Trenches in building and pavement areas:
Building and pavement areas are defined, for the purpose of this paragraph, as extending a minimum of five feet beyond the building and/or pavement.
Compact cohesion backfill material to a minimum degree of compaction of 90%.
Compact the upper six inches of backfill in pavement areas to a minimum degree of compaction of 95%.
Densify cohesionless backfill material to a minimum relative density of 70% as determined by the ASTM test designated as D-2049-69.
Compact materials of questionable cohesion to either a minimum degree of compaction of 90% or a minimum relative density of 70%, whichever results in the greater dry density.

3.07 Grading

A. General

Except as otherwise directed by the Engineer, perform all rough and finish grading required to attain the elevations indicated on the Drawings.

B. Grading Tolerances

- | | | |
|----|--|-------------------------|
| 1. | Rough grade | |
| | Building and parking areas: | Plus or minus 0.1 foot |
| 2. | Finish grade | |
| | Granular cushion under concrete slabs: | Plus or minus 0.05 foot |
| | Parking areas: | Plus or minus 0.1 foot |
| | Landscaped areas: | Plus or minus 0.1 foot |

C. Treatment After Completion of Grading

After grading is completed and the Engineer has finished his inspection, permit no further excavation, filling, or grading except with the approval of and inspection of the Engineer.

Use all means necessary to prevent the erosion of freshly graded areas during

construction and until such time as permanent drainage and erosion control measures have been installed.

3.08 Excavating for Footings

A. Preparation

To minimize differential settlement, it is essential that earth surfaces upon which footings will be placed be compacted to the approval of the Engineer and in accordance with the compaction requirements established in this Section of these Specifications.

Verify that all compaction is complete and approved prior to excavating for footings.

B. Excavating

Excavate to the established lines and grades.

Cut off bottom of trenches level and remove all loose soil.

Where soft spots are encountered, undercut all defective material and replace with suitable backfill or lean concrete.

3.09 Placing Granular Cushion

Carefully place the granular cushion in areas to receive concrete slabs on grade, uniformly attaining the thickness indicated on the Drawings and providing all required transition planes.

3.10 Trenching

A. General

Perform all trenching required for the installation of items where trenching is not specifically described in other Sections of these Specifications.

Make all trenches open vertical construction with sufficient width to provide free working space at both sides of the trench and around the installed item as required for joining, backfilling, and compacting.

B. Depth

Trench as required to provide the elevations shown on the Drawings.

Where elevations are not shown on the drawings, trench to sufficient depth to give

a minimum of 36 inches of fill above the top of the pipe measured from the adjacent finished grade.

C. Correction of Faulty Grades

Where trench excavation is inadvertently carried below proper elevations, backfill with material approved by the Engineer and then compact to provide a firm and unyielding subgrade and/or foundation to the approval of the Engineer and at no additional cost to the Owner.

D. Trench Bracing

Properly support all trenches in strict accordance with all pertinent rules and regulations.

Brace, sheet, and support trench walls in such a manner that they will be safe and that the ground alongside the excavation will not slide or settle, and that all existing improvements of every kind, whether on public or private property, will be fully protected from damage.

In the event of damage to such improvements, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

Arrange all bracing, sheeting, and shoring so as to not place stress on any portion of the completed work until the general construction thereof has proceeded far enough to provide sufficient strength.

E. Removal of Trench Bracing

Exercise care in the drawing and removal of sheeting, shoring, bracing, and timbering to prevent collapse or caving of the excavation faces being supported.

F. Grading and Stockpiling Trenched Material

Control the stockpiling of trenched material in a manner to prevent water running into the excavations.

Do not obstruct surface drainage but provide means whereby storm and waste waters are diverted into existing gutters, other surface drains, or temporary drains.

3.11 Foundation For Pipes

A. General

Grade the trench bottoms to provide a smooth, firm, and stable foundation free of

rock points throughout the length of the pipe.

B. Foundation Material

Place a minimum of six inches of the specified cohesionless material in the bottom of the trench when directed by the Engineer.

C. Subsurface Conditions

In areas where soft, unstable materials are encountered at the surface upon which cohesionless material is to be placed, remove the unstable material and replace it with material approved by the Engineer; make sufficient depth to develop a firm foundation for the item being installed.

If the need for such overexcavation has been occasioned by an act or failure to act on the part of the Contractor, make the overexcavation and replacement at no additional cost to the Owner.

D. Shaping

At each joint in pipe, recess the bottom of the trench as required into the firm foundation in such a manner as to relieve the bell of the pipe of all load and to ensure continuous bearing of the pipe barrel on the firm foundation.

Accurately shape all pipe subgrade and fit the bottom of the trench to the pipe shape.

3.12 Bedding for Pipes

A. General

To ensure that adequate and uniform support is provided both under and along the sides of the pipe, stone bedding material must also be utilized for haunching at least up to the spring line of all PVC and ABS pipe. PVC pipe subject to flooding should be bedded in stone one (1) foot above top of pipe. This bedding shall be included in the price of bid for work being performed, and will not be paid for extra.

Take special care to provide firm bedding support on the underside of the pipe and fittings for the full length of the pipe.

B. Material

Acceptable bedding material shall be a granular, non-cohesive material which shall have a 95% passing a 3/4 inch sieve and 95% retained on a #4 sieve.

- C. Other bedding procedures and materials may be used if prior written approval has been obtained from the Engineer.

3.13 Backfill for Pipes

A. Using On-Site Materials

After the pipe has been properly bedded, selected material from excavation or borrow, at a moisture content which will facilitate compaction, shall be placed alongside the pipe in layers not exceeding 6 inches in depth. Care shall be taken to insure thorough compaction of the fill under the haunches of the pipe. Each layer shall be thoroughly compacted by rolling, tamping and mechanical rammers, or by hand tamping with heavy iron tampers, the tamping face area of which shall not exceed 25 square inches. The method of filling and compacting shall be continued until the fill has reached an elevation 12 inches above the top of the pipe. The remainder of the trench shall be backfilled and thoroughly compacted the layers not exceeding 6 inches.

B. Using Imported Cohesionless Material

After the pipe has been bedded, cover and fill the remaining portion of the trench with the specified cohesionless material and densify as specified in this Section.

3.14 Cleaning Up

Upon completion of the work of this Section, immediately remove all debris and excess earth material from the site.

END OF SECTION

DIVISION 2 – SITE WORK

DETAILED SPECIFICATIONS

SECTION 0222 – ROCK EXCAVATION

PART 1.00 - GENERAL

1.01 Definition of Work

- A. The Contractor shall furnish all labor, materials, tools, equipment and all else required for and to excavate rock as hereinafter defined, remove and dispose of unsuitable materials and protect the public and his own employees from harm during the construction operations.
- B. Rock Excavation shall be defined as removal and disposal of solid, ledge rock in place which, in the opinion of the Engineer, cannot be removed practically without the use of specialized pre-splitting methods such as: drilling, blasting, wedging, prying, jacking, hydraulic hammering, etc. Soft, disintegrated rock that can be removed with a picking or scarifying action shall not be classified as rock excavation. Excavated boulders or rock fragments with a volume of One (1) Cubic Yard or less shall not be classified as Rock Excavation.

1.02 Work Included

- A. The Contractor shall provide all labor, materials, tools, equipment and all else required for and to perform all work and services necessary for and incidental to Rock Excavation.

1.03 Contractor's Insurance

- A. It shall be the Contractor's responsibility to have adequate insurance to cover any damages resulting from blasting or other construction activities.
- B. It shall also be the responsibility of the Contractor to ensure that any subcontractors hired to perform blasting services shall have adequate insurance to cover any damages.
- C. The Contractor shall hold the Engineer and City together with its employees harmless from any claims of damages due to blasting or other construction related activities.

1.04 Permits

- A. A Blasting Permit shall be obtained by the Contractor or his subcontractor from the CRM Department of Engineering.

1.05 Safety Regulations

- A. The Contractor shall take all necessary precautions to protect life and property while engaged in blasting operations.
- B. The Contractor shall provide and use an appropriate blast mat at locations where the danger of rock or overburden being thrown by a blast.
- C. No blasting shall be allowed unless a galvanometer is used to check cap circuits.
- D. Blasting procedures shall conform to all applicable local, state, and federal laws and ordinances.

1.06 Blasting Records

- A. Blasting Log
 - 1. Contractor shall be required to keep a blasting log containing the
 - 2. following minimum information:
 - a. Date of shot
 - b. Time of shot
 - c. Foreman's name
 - d. Number and depth of holes
 - e. Approximate depth of overburden
 - f. Amount and type of explosive used in each hole
 - g. Type of caps used (instant or delay)
 - h. Weather conditions

1.07 Product Delivery, Storage, and Handling

- B. Contractor shall comply with all Local, State, and Federal Regulations regarding the receipt, transport and storage of explosives.
- C. Explosives kept on site shall be contained in clearly painted, signed, or otherwise permanently marked container and shall be locked with the key in the possession of the person in charge of the blasting operations.

PART 2.00 - PRODUCTS

NOT USED

PART 3.00 - EXECUTION

3.01 General

- A. Rock shall be excavated to the same limits as other trench, roadway, or structure excavations except that the excavations shall extend an additional six (6") inches vertically below subgrade or bottom of pipe and an additional nine (9") inches on all sides horizontally to allow for placement and compaction of cushioning material.

- B. Acceptable cushioning material shall be either Class II or III material as defined in ASTM D2321. Class of bedding material shall be consistent with initial backfill material on typical Bedding Detail or Cross-Section shown on the Drawings.
- C. The excavation shall be filled with select cushioning material to subgrade of the pipe, roadway, or structure and compacted to appropriate compaction density for backfilling in accordance with Section 0220 for trench excavations.
- D. Contractor shall remove all rock fragments, boulders, and debris from site and dispose of in an approved waste area.

3.02 Method of Measurement

- A. Measurement of rock excavation shall be the depth of rock removed within the trench multiplied by the width of rock removed within the trench multiplied by the linear feet of rock removed within the trench. Depth of rock removed is considered the vertical measurement from the surface grade of the rock strata to the bottom of the invert of the pipe or undercut. Width of rock removed is considered the horizontal measurement from rock face to rock face on each side of the trench. Linear feet of rock removed is considered the horizontal measurement along the trench alignment from manhole to manhole. Individual boulders greater than 1 cubic yard will be estimated by multiplying the approximate width, length and height of the boulder.
- B. Payment for rock excavation shall be the number of cubic yards excavated from the completed and accepted work.

END OF SECTION

DIVISION 2 - SITE WORK

DETAILED SPECIFICATIONS

SECTION 0252 - PAVEMENT REPAIRS

PART 1.00 - GENERAL

1.01 Description

The work covered by this Section includes the replacing and/or repairing of asphalt and concrete roadway and driveway pavement cuts in accordance with the drawings, these specifications, and as directed by the Engineer.

1.02 Quality Assurance

For the work of this Section, use only personnel who are completely trained and experienced in the required skills and techniques necessary to properly perform this work.

PART 2.00 - MATERIALS

2.01 Stone Base

Shall be Standard Size ABC in accordance with the requirement of Section 520 of the "Standard Specifications for Road and Structures," North Carolina Department of Transportation, 2012.

2.02 Portland Cement Concrete Pavements

All portland cement concrete used in the replacement of all sidewalks, driveways, curbs and gutters, and street openings shall be Class A with a minimum compressive strength at 28 days of 3,000 pounds per square inch. The maximum water-cement ratio (gallons of water per bag of cement) shall not exceed 6.7. The maximum slump (in inches shall not exceed 4 and the minimum cement content (Bbls/C.Y.) shall be 1.60.

2.03 Bituminous Pavement

Bituminous concrete used in the repair and replacement of all damaged or removed asphalt surfaces shall be a bituminous plant mix surface course of Type SF9.5A as described in Section 610 of the "Standard Specifications for Road and Structures," North Carolina Department of Transportation, 2012.

Tack coat materials shall be Emulsified Asphalt, Grade RS-1H as described in Section 605 of the "Standard Specifications for Road and Structures," North Carolina Department of Transportation, 2012.

PART 3.00 - EXECUTION

3.01 Pavement Repairs

Where it is necessary to open-cut across concrete pavement or concrete base pavement, all replaced concrete shall have a depth of 1" greater than the depth of the original slab. Immediately under the replaced concrete, there shall be placed a thoroughly compacted 3" layer of soil type base course, sand, screening, or other granular material. All replaced concrete, joint filler, and sub-grade reinforcing material shall meet the specifications of the North Carolina Department of Transportation, both as to material and performance of work.

Where it is necessary to open-cut across road ways with surfaces other than concrete, the type and thickness of surface and/or base as formerly existed or as shown on the drawings shall be installed. The replacement surface and/or base shall extend a minimum of one (1) foot on each side of the excavated opening. The thickness of replacement materials shall be as shown on the drawings.

3.02 Maintenance

Pavement patches and repairs made by the Contractor shall be maintained by him until the end of the project warranty period. Patches which settle, sink, break, buckle, or otherwise become unsatisfactory shall be promptly repaired at no additional cost to the Owner. The settled area shall be saw cut (a minimum of 12 inches outside settled area), the subgrade shall be repaired and the pavement shall be replaced in accordance with Paragraph 3.01 of this specification. **Skin patching of settled areas will not be accepted.**

END OF SECTION

DIVISION 2 - SITE WORK

DETAILED SPECIFICATIONS

SECTION 0255 - UNPAVED DRIVEWAYS AND ACCESS ROADS

PART 1.00 - GENERAL

1.01 Description

The work of this Section includes the furnishing of all materials, equipment, labor, and supervision for the complete construction of driveway, access roads, and other roadways as described in these specifications and/or shown on the drawings.

1.02 Quality Assurance

The Contractor shall provide at least one person who shall be thoroughly trained and experienced in the skills required, who shall be completely familiar with the design and application of the work described for this Section, and who shall be present at all times during progress of the work of this Section and shall direct all work performed under this Section.

In addition to complying with all pertinent codes and regulations, comply also with the referenced and applicable portions of the "Standard Specifications For Roads and Structures" (current edition) of the State of North Carolina, Department of Transportation, Division of Highways (N.C. DOT).

1.03 Product Handling

Use all means necessary to protect roadway construction materials before, during, and after installation and to protect the installed work and materials of all other contractors. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

Use all means necessary to prevent the spread of dust during the performance of the work of this Section. Dust control shall be in accordance with the requirements of this Section and Section 0271-"Control of Erosion, Siltation and Air Pollution."

PART 2.00 - MATERIALS

2.01 Stone Base

Shall be Standard Size ABC per N.C. Department of Transportation Specification Section 520 gradation requirements (or Size ABC(M) when approved in advance by the Engineer).

2.02 Driveway Pipe

Shall be reinforced concrete pipe meeting the requirements of AASHTO M170 and N.C. DOT Specification Section 310 for reinforced concrete pipe and concrete flared end sections.

PART 3.00 - EXECUTION

3.01 Construction

Site driveways and access roads shall have a minimum of 6" compacted stone base course, unless shown otherwise on the drawings, on a graded, shaped, and compacted subgrade.

Subgrade shall be approved by the Engineer prior to the placement of stone base course. Stone base shall not be placed on a wet subgrade.

Driveway pipes shall be installed at locations as shown on the drawings and shall be sized as shown on the drawings or as required by the N.C. Department of Transportation. Driveway installations on public rights-of-way shall be acceptable to the Department of Transportation.

END OF SECTION

DIVISION 2 - SITE WORK

DETAILED SPECIFICATIONS

SECTION 0265 - BEDDING & BACKFILL MATERIALS

PART 1.00 - GENERAL

1.01 Description

This Section covers the stone bedding and soil or stone backfill materials used in pipe line construction, and other similar installations where shown on the drawings, required in the specifications or as directed by the Engineer.

1.02 Quality Assurance

Materials shall meet the requirements of Part 2.00 of these specifications, and shall be acceptable to the Engineer.

PART 2.00 - MATERIALS

2.01 Stone Bedding

Bedding material shall have ninety-five (95) percent passing a three-fourths (3/4) inch (19.0-mm) sieve and ninety-five (95) percent retained on a number four (4) (4.75-mm) sieve.

2.02 Select Backfill

Where other than local material is used for backfill above the foundation, such material will be classified as select backfill. This material shall be a soil material which meets the requirements of AASHO M 145 for class A-2-4 soils. This material shall be a well graded gravelly, silty, or clayey sand with a plasticity index equal to or less than ten (10), and liquid limit equal to or less than forty (40).

PART 3.00 - EXECUTION

3.01 Installation

The usage and installation of stone bedding shall be in accordance with the specification for the particular item being installed.

END OF SECTION

DIVISION 2 - SITE WORK

DETAILED SPECIFICATIONS

SECTION 0270 - SEEDING & MULCHING

PART 1.00 - GENERAL

1.01 Description

The work covered by this Section consists of preparing seedbeds; furnishing, placing, and covering limestone, fertilizer, and seed; compacting seedbeds; furnishing, placing, and securing mulch; and other operations necessary for the permanent establishment of grasses and legumes from seed, including temporary erosion control, on all disturbed areas, except irrigation fields, unless shown otherwise on the drawings; in accordance with these specifications.

The Contractor shall adapt his operations to variation in weather or soil conditions as necessary for the successful establishment and growth of the grasses or legumes.

In all operations covered by this Section, care shall be taken to preserve and/or to improve the existing landscape of the area treated.

1.02 Quality Assurance

Provide at least one person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the best methods for their installation and who shall direct all work performed under this Section.

All materials used in the work of section shall meet or exceed the specifications of Federal, State, and County laws requiring inspection for purity, disease, and insect control.

PART 2.00 - MATERIALS

2.01 Fertilizer

The quality of all fertilizer shall comply with the requirements of the North Carolina Fertilizer Law and with the rules and regulations adopted by the North Carolina Department of Agriculture.

All areas to be seeded, both on a temporary and permanent basis, respectively, will receive the following fertilizer application rates:

<u>Schedule</u>	<u>Area</u>	<u>Type</u>	<u>Qty (Per Ac.)</u>
Temp. – Summer	All	10-10-10	700 lbs.
Temp. – Winter	All	10-10-10	700 lbs.
Permanent – All Seasons	All	10-10-10	500 lbs.

2.02 Limestone

All limestone shall be ground agricultural limestone. It shall contain not less than 85% of the combined calcium and magnesium carbonates. The limestone shall be graded so that 100% shall pass the 10-mesh screen, and 40% will pass through the 100-mesh screen.

All areas to be seeded both on a temporary and permanent basis respectively, will receive the following limestone application rates:

<u>Schedule</u>	<u>Area</u>	<u>Qty (Per Ac.)</u>
Temp. – Summer	All	4000 lbs.
Temp. – Winter	All	4000 lbs.
Permanent - All Seasons	All	4000 lbs.

2.03 Seed

The quality of all seed shall be in strict accordance with rules and regulations adopted by the North Carolina Department of Agriculture.

Each of the species of seed shall be furnished and delivered in separate bags with certified seed tags.

All areas to be seeded both on a temporary and permanent basis respectively, will receive the following rates of application:

A. Temporary - (Summer)

March 1 to August 31

Browntop Millet

40 lbs/acre

B. Temporary - (Winter)

September 1 to February 28

Oats	50 lbs/acre
Rye Grain	20 lbs/acre

C. Permanent

Summer - March 1 to August 31

Bermudagrass (hulled)	35 lbs/acre
Centipede	10 lbs/acre
German/Browntop Millet Grain	10 lbs/acre

Winter - September 1 to February 28

Bermudagrass (unhulled)	35 lbs/acre
Tall Fescue	50 lbs/acre
Annual Rye	10 lbs/acre

2.04 Mulch

Mulch for erosion control shall consist of grain straw or other acceptable material, and shall have been approved by the Engineer before being used. Straw mulch that is matted or lumpy shall be loosened and separated before being used.

Mulch and asphalt tack shall be applied according to the following rates:

Mulch	4000 lbs/acre
Asphalt Tack	7 - 10 gals/1000 sq. ft.

Material for holding mulch in place shall be asphalt or other approved binding material.

Mulch shall be doubled if crimping is the method used.

PART 3.00 - EXECUTION

3.01 Seedbed Preparation

The soil shall then be scarified or otherwise loosened to a depth of not less than 4 inches except as otherwise provided below or otherwise directed by the Engineer. Clods shall be broken and the top 2 inches of soil shall be worked into an acceptable seedbed by the use of soil pulverizers, drags, or harrows; or by other methods approved by the Engineer.

3.02 Applying and Covering Limestone, Fertilizer, and Seed

A. General

Seasonal limitations for seeding operations; the kinds and grades of fertilizers; the kinds of seed; and the rates of application of limestone, fertilizer, and seed shall be as directed by the Engineer.

Equipment to be used for the application, covering, or compaction of limestone, fertilizer, and seed shall have been approved by the Engineer before being used on the project. Approval may be revoked at any time if equipment is not maintained in satisfactory working condition, or if the equipment operation damages the seed.

Limestone, fertilizer, and seed shall be applied within 24 hours after completion of seedbed preparation unless otherwise permitted by the Engineer, but no limestone or fertilizer shall be distributed and no seed shall be sown when the Engineer determines that weather and soil conditions are unfavorable for such operations.

During the application of fertilizer, adequate precautions shall be taken to prevent damage to traffic, structures, guard rails, traffic control devices, or any other appurtenances. The Contractor shall either provide adequate covering or change methods of application as required to avoid such damage. When such damage occurs the contractor shall repair it, including any cleaning that may be necessary.

B. Limestone and Fertilizer

Limestone should be applied as a part of the seedbed preparation provided it is immediately worked into the soil. If not so applied, limestone and fertilizer shall be distributed uniformly over the prepared seedbed at the specified rate of application and then harrowed, raked, or otherwise thoroughly worked or mixed into the seedbed.

C. Seed

Seed shall be distributed uniformly over the seedbed at the required rate of application, and immediately harrowed, dragged, raked, or otherwise worked so as to cover the seed with a layer of soil. The depth of covering shall be as directed by the Engineer. If two or more kinds of seed are to be used which require different depths of covering, they shall be sown separately.

When a combination seed and fertilizer drill is used, fertilizer may be drilled in with the seed after limestone has been applied and worked into the soil. If two or more kinds of seed are being used which require different depths of covering, the seed requiring the lighter covering may be broadcast or sown with a special attachment to the drill, or drilled lightly following the initial drilling operations.

When a hydraulic seeder is used for application of seed and fertilizer, the seed shall not remain in water containing fertilizer for more than 30 minutes prior to application unless otherwise permitted by the Engineer.

Immediately after seed has been properly covered the seedbed shall be compacted in the manner and degree approved by the Engineer.

3.03 Mulching

A. General

All seeded areas shall be mulched unless otherwise indicated or directed by the Engineer.

Grain straw may be used as mulch at any time of the year.

If permission to use material other than grain straw is requested by the Contractor and the use of such material is approved by the Engineer, the seasonal limitations, the methods and rates of application, the type of binding material, or other conditions governing the use of such material will be established by the Engineer at the time of approval.

B. Preparation for Mulching

Before mulch is applied on cut or fill slopes which are 3:1 or flatter, medians, shoulders, and ditch slopes, the Contractor shall remove and dispose of all exposed stones in excess of 2 inches in diameter and all roots or other debris which will prevent proper contact of the mulch with the soil.

C. Applying Mulch

Mulch shall be applied within 24 hours after the completion of seeding unless otherwise permitted by the Engineer. Care shall be exercised to prevent displacement of soil or seed or other damage to the seeded area during the mulching operations.

Mulch shall be uniformly spread by hand or by approved mechanical spreaders or blowers which will provide an acceptable application. An acceptable application will be that which will allow some sunlight to penetrate and air to circulate but also partially shade the ground, reduce erosion, and conserve soil moisture. Thick clumps of straw are not permissible, as a uniform coverage is expected.

D. Holding Mulch

Mulch shall be held in place by applying a sufficient amount of asphalt or other approved binding material to assure that the mulch is properly held in place. The

rate and method of application of binding material shall meet the approval of the Engineer. Where binding material is not applied directly with the mulch, it shall be applied immediately following the mulch application. An extra application may be necessary in bottom of drainage swales to prevent erosion.

3.04 Maintenance of Seeding and Mulching

Areas where seeding and mulching have been performed shall be maintained in a satisfactory condition until final acceptance of the project, at no additional cost to the Owner.

Maintenance shall include mowing at the location and time directed by the Engineer.

Areas of damage or failure due to any cause shall be corrected by being repaired or by being completely redone as may be directed by the Engineer.

Where correction will require extensive seedbed preparation, or where earthwork repairs or complete reshaping are necessary, the seeding and mulching shall be redone in accordance with this Section.

3.05 Precautions

During the application of asphalt binding material, or other approved binding materials which may cause damage, adequate precautions shall be taken to prevent damage to traffic, structures, guard rails, traffic control devices, or any other appurtenances. The Contractor shall either provide adequate covering or change methods of application as required to avoid such damage. When such damage occurs the Contractor shall repair it, including any cleaning that may be necessary.

The Contractor shall take sufficient precautions to prevent mulch from entering drainage structures through displacement by wind, water, or other causes and shall promptly remove any blockage to drainage facilities which may occur.

END OF SECTION

DIVISION 2 - SITE WORK

DETAILED SPECIFICATIONS

SECTION 0271 - CONTROL OF EROSION, SILTATION, AND POLLUTION

PART 1.00 - GENERAL

1.01 Description

The Contractor shall take whatever measures are necessary to minimize soil erosion and siltation, water pollution, and air pollution caused by his operations. The Contractor shall also comply with the applicable regulations of all legally constituted authorities relating to pollution prevention and control. The Contractor shall keep himself fully informed of all such regulations which in any way affect the conduct of the work, and shall at all times observe and comply with all such regulations. In the event of conflict between such regulations and the requirements of the specifications, the more restrictive requirements shall apply.

The Engineer will limit the area over which construction operations are performed whenever the Contractor's operations do not make effective use of construction practices and temporary measures which will minimize erosion, or whenever construction operations have not been coordinated to effectively minimize erosion, or whenever permanent erosion control features are not being completed as soon as permitted by construction operations.

1.02 Submittals

All materials to be used on this project for erosion control, water and air pollution control, and/or dust control shall have been approved by the Engineer prior to being used. Submittals for the Engineer's approval shall be in five (5) copies.

1.03 Quality Assurance

All work under this Section shall be in full compliance with the North Carolina Sedimentation Pollution Control Act of 1973 and all Rules and Regulations promulgated pursuant to the provisions of this act.

PART 2.00 - MATERIALS

2.01 Silt Fence

Either wood posts or steel posts may be used. Wood posts shall be a minimum of 6 feet long, at least 3 inches in diameter, and straight enough to provide a fence without noticeable misalignment. Steel posts shall be 5 feet long, 1 3/4" wide, and have projections for fastening the wire to the fence.

Wire fence fabric shall be at least 32 inches high, and shall have at least 6 horizontal wires. Vertical wires shall be spaced 12 inches apart. The top and bottom wires shall be at least 10 gauge. All other wires shall be at least 12 1/2 gauge.

Engineering of geotextile filter fabric such as Trevira 1115 or Mirafi 140 shall be at least 24 inches wide and shall weigh at least 4.5 ounces per square yard. Other materials may be used provided these materials have been approved by the Engineer.

Wire staples shall be a No. 9 staple and shall be at least 1 1/2 inches long.

2.02 Other Materials

Any additional materials required for usage in this Section shall be approved by the Engineer prior to being used.

PART 3.00 - EXECUTION

3.01 Erosion and Siltation Control

The Contractor shall exercise every reasonable precaution throughout the life of the project to prevent the eroding of soil and the silting of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces, or other property.

Excavated materials shall not be deposited, nor shall earth dikes or other temporary earth structures be constructed, in rivers, streams, or impoundments.

Frequent fording of live streams with construction equipment will not be permitted; therefore, temporary bridges or other structures shall be used wherever frequent stream crossings are necessary. Unless otherwise approved in writing by the Engineer, mechanized equipment shall not be operated in live streams except as may be necessary to construct channel changes and to construct or remove temporary or permanent structures.

Temporary and permanent erosion control measures shall be provided as shown on the plans or as directed by the Engineer. Temporary measures shall be installed during the initial stages of construction for the areas they serve. All permanent erosion control work

shall be incorporated into the project at the earliest practicable time. Temporary erosion control measures shall be coordinated with permanent erosion control measures and all other work on the project to assure economical, effective, and continuous erosion control throughout the construction and post construction period and to minimize siltation of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces, or other property.

Temporary erosion control measures shall include but not be limited to the use of temporary berms, dikes, dams, drainage ditches, silt basins, silt ditches, slope drains, structures, vegetation, mulches, mats, netting, gravel, or any other methods or devices that are necessary. Temporary erosion control measures may include work outside the right of way or construction limits where such work is necessary as a result of construction such as borrow pit operations, haul roads, plant sites, equipment storage sites, and disposal of waste or debris. The Contractor shall be liable for all damages to public or private property caused by silting or slides originating in waste areas used by the Contractor.

The Contractor shall stabilize graded slopes within 15 working days or 30 calendar days (whichever is shorter) or at completion of any phase of grading. Permanent stabilization shall be completed within 30 working days or 120 calendar days (whichever is shorter) after construction completion.

Erosion control measures installed by the Contractor shall be acceptably maintained at a minimum of 50% of the original sediment storage capacity by the Contractor until such time as a satisfactory, permanent growth of grass is established. The Contractor shall remove the erosion control measures when directed by the Engineer, after the areas they serve have been stabilized.

State (and local, where required) erosion control approvals, for measures to be performed by the Contractor, shall be obtained by the Engineer prior to the initiation of any construction.

3.02 Water and Air Pollution

The Contractor shall exercise every reasonable precaution throughout the life of the project to prevent pollution of rivers, streams, and water impoundments. Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage, and other harmful waste shall not be discharged into or alongside of rivers, streams, or impoundments, or into natural or manmade channels leading thereto.

The Contractor shall comply with all State or local air pollution regulations throughout the life of the project.

3.03 Dust Control

The Contractor shall control dust throughout the life of the project within the project area and at all other areas affected by the construction of the project, including, but not specifically limited, unpaved secondary roads, haul roads, access roads, disposal sites, borrow and material sources, and production sites. Dust control shall not be considered effective where the amount of dust creates a potential or actual unsafe condition, public nuisance, or condition endangering the value, utility, or appearance of any property.

The Contractor will not be directly compensated for any dust control measures necessary, as this work will be considered incidental to the work covered by the various contract items.

3.04 Sanctions

Failure of the Contractor to fulfill any of the requirements of this article may result in the Engineer ordering the stopping of construction operations until such failure has been corrected. Such suspension of operations will not justify an extension of contract time.

Failure on the part of the Contractor to perform the necessary measures to control erosion, siltation, and pollution will result in the Engineer notifying the Contractor to take such measures. In the event that the Contractor fails to perform such measures within 24 hours after receipt of such notice, the Engineer may suspend the work as provided above, or may proceed to have such measures performed. The cost of such work performed by other forces will be deducted from monies due the Contractor on his contract.

3.05 Method of Measurement

Unless shown otherwise in these specifications or the proposal, work done under this Section of the Detailed Specification for temporary erosion, siltation and/or air pollution control shall be considered incidental to the work covered by the various contract items and will not be directly compensated.

END OF SECTION

DIVISION 2 – SITE WORK

DETAILED SPECIFICATIONS

SECTION 272A - EXCELSIOR MATTING FOR EROSION CONTROL

PART 1.00 - GENERAL

1.01 Description

The Contractor shall install excelsior roll matting over the seed and mulch at the following locations:

- A. On all dam embankments
- B. On any other disturbed areas around buildings, pump stations, and lagoons where the slopes are 3:1 or steeper
- C. Other areas as designated on the drawings or as directed by the Engineer

No asphalt tack will be required in areas where matting is to be used.

PART 2.00 - MATERIALS

2.01 General

Matting for erosion control shall be excelsior matting. Other acceptable matting material manufactured especially for erosion control may be used when approved by the Engineer in writing prior to being used.

2.02 Excelsior Matting

The excelsior blanket shall consist of a machine produced matt of curled wood excelsior of 80% 6-inch or longer fiber length with consistent thickness and the fiber evenly distributed over the entire area of the blanket. The top side of each blanket shall be covered with a photodegradable extruded plastic mesh. The blanket shall be made smolder resistant without the use of chemical additives. The staples shall be made of wire 0.091 inches in diameter or greater. “U” shaped with legs 6 inches in length and a 1-inch crown. Size and gauges of staples used will vary with soil conditions. The staples shall be driven vertically into the ground spaced approximately two (2) linear yards apart on each side, and one row in the center alternatively spaced between each side. (60 staples on each blanket) Use a common row of staples on adjoining blankets.

2.03 Wire Staples

Staples shall be machine made of No. 11 gage new steel wire formed into a "U" shape. The size when formed shall be not less than 6 inches in length with a throat of not less than 1 inch in width.

PART 3.00 – EXECUTION

3.01 Placing of Matting

Placing of matting shall be done immediately following mulching.

Matting shall be unrolled in the direction of the flow of water and shall be applied without stretching so that it will lie smoothly but loosely on the soil surface. The upchannel or top of slope end of each piece of matting shall be buried in a narrow trench at least 5 inches deep and tamped firmly. After the end of the matting is buried, the trench shall be closed and tamped firmly. Where one roll of matting ends and a second roll begins, the end of the upper roll shall be brought over the buried end of the second roll so that there will be a 6-inch overlap. Check slots shall be constructed at each 50 feet longitudinally in the matting or as directed by the Engineer. These slots shall be narrow trenches at least 5 inches deep. The matting shall be folded over and buried to the full depth of the trench, after which the trench shall be closed and firmly tamped. Where 2 or more widths of matting are laid side by side, the overlap shall be at least 4 inches.

Staples shall be placed across matting at ends, junctions, and check slots and shall be spaced approximately 10 inches apart.

Staples shall be placed along the outer edges and down the center of each strip of matting and shall be spaced 3 feet apart. Staples shall also be placed along all lapped edges 2 to 3 feet apart.

In the installation of erosion control matting on cut or fill slopes the Engineer may require adjustments in the trenching or stapling requirements to fit individual slope conditions.

3.02 Maintenance of Matting

The Contractor shall maintain matting until all work on the project has been completed and accepted. Prior to acceptance of the project, if any staples have become loosened or raised or if the matting becomes loose or torn, or undermined for any reason, the damaged areas shall be reshaped, reseeded, and refertilized, and the matting shall be acceptably repaired or replaced. Where matting becomes loose or raised above the surface of the ground, the matting shall be acceptably repaired, replaced, or removed, as directed by the Engineer. The repair of damaged areas shall be performed at no cost to the Owner.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1503 - PIPE: GRAVITY SEWERS & FORCE MAINS - General

PART 1.00 - GENERAL

1.01 Description

The work in this Section covers the furnishing and installation of all pipe required to complete the systems as shown on the drawings and as described in these contract documents.

1.02 Quality Assurance

The Contractor shall use sufficient workmen and competent supervisors in the execution of this portion of the work to ensure adequate and proper installation throughout.

The pipe class numbers or pressure ratings shall be clearly shown on the pipe.

1.03 Submittal

Prior to the installation of any pipe, the Contractor shall submit and receive the Engineer's approval of shop drawings and/or manufacturer's material certification of compliance with specifications.

Submittals shall be in five (5) copies and shall be provided to the Engineer at least fifteen (15) days prior to the planned installation time.

PART 2.00 - MATERIALS

Product requirements for pipe, service pipe, manholes, fittings and other materials for this work are included elsewhere in these specifications.

Allowable materials for this project are as follows:

A. Force main pipe

1. Ductile iron (Section 1510)
2. PVC C900 (Section 1524) (DR 21)

B. Cohesionless material (sand):

The cohesionless material used for trench and structural foundation shall be free from organic substance and other deleterious matter, shall be subject to the approval of the Engineer, and shall be in particle size grading within the following limits:

Passing the number 4 sieve:	100%
Passing the number 200 sieve:	3% maximum

C. Granular material (stone):

Acceptable material shall be a granular, non-cohesive material which shall have a 95% passing a 3/4 inch sieve and 95% retained on a #4 sieve.

PART 3.00 - EXECUTION

3.01 Construction Staking

The Owner, through his Engineer, will provide all land surveys, base lines and points for location of the principal component parts of the work, together with a suitable number of benchmarks adjacent to the work. From the information provided by the Engineer, the Contractor shall develop and make all detail surveys, lines, and elevations and set all batterboards as he deems necessary.

3.02 Pipe Handling and Laying

All pipe shall be unloaded and handled with reasonable care. Pipe shall not be rolled or dragged over gravel or rock during handling. When any joint or section of pipe is damaged during unloading or handling, the undamaged portions of the joint or section may be used where partial lengths are needed or, if damaged sufficiently, the Engineer will reject the joint or section as being unfit for installation and the Contractor shall remove such rejected pipe from the project.

Minor damage to pipe may be repaired by the Contractor when permitted by the Engineer.

3.03 Water Main Conflicts

In the event a water main crosses above any sanitary sewer, minimum vertical separation of 18 inches must be maintained. If this clearance cannot be maintained, a section of ductile iron pipe, minimum of 10 feet each side of crossing, must be inserted into the sewer line.

In the event the water main crosses under the sanitary sewer, 20 feet of ductile iron is to

be inserted into the sewer main (10 feet each side of water main crossing).

Where it is impossible to maintain a minimum of 10 feet of horizontal clearance between the water and sewer installations, a vertical separation of 18 inches (water main above sewer) must be maintained.

Payment shall be at the unit price bid for the ductile iron sewer pipe.

3.04 Trench Excavation

A. General

Open no more trench in advance of pipe laying than is necessary to expedite the work.

Excavate trenches to a width that will provide adequate working space, but not more than maximum design width so as not to undercut trench walls.

Excavate bell holes at each joint to provide full-length barrel support of the pipe and to prevent point loading at the bells or couplings.

Unless trench banks above the top of the pipe are cut back on a stable slope, sheet and brace trenches as necessary to prevent caving and sliding, to provide protection for workmen and the pipe, and to protect adjacent structures and facilities. Do not remove trench sheeting unless the pipe strength is sufficient to support the external loads. The width of the trench at any point below the top of the pipe should not be greater than that necessary to provide adequate room for joining the pipe and compacting the haunching and initial backfill.

During the course of construction, should the trench be over-excavated below a point 6 inches below the bottom of the pipe, fill that area of over-excavation with an acceptable class of embedment material, as approved by the Engineer, and compact to a minimum density (Standard Proctor) of 90 percent, at no cost to the Owner, except as described in paragraph 3.05B and 3.15 C.

B. Parallel Roadway Trenches

Where utility installation is to take place upon the shoulder of any paved street or highway, excavate trench to a width that will provide adequate working space but in no case shall the hard surfaced, traveled portion of roadway be damaged. Where the structural integrity of the roadway pavement is jeopardized, proper sheeting and bracing shall be installed to provide adequate protection to adjacent roadway and structures, and to afford the necessary protection to the workmen and pipe.

Excavation material shall not be stored on the pavement if it can be reasonably

handled otherwise; in cases where storing of excavated material on pavement is absolutely necessary, same shall be moved as quickly as practical and the pavement shall be thoroughly cleaned.

Excavation in the immediate vicinity of drainage structures shall be made with special care so as not to damage or interfere with the use of the existing drainage facilities.

Drainage facilities that are inadvertently damaged must be repaired or replaced immediately.

Parallel open trench installations that involve possible damage in event of rain or other falling weather, or which may be hazardous to traffic due to open trench, should be closed without undue delay. In no case should a trench remain open longer than a 24 hour period, except with approval of the Engineer.

C. Trenching Within Pavements

Where it is necessary to open-cut asphalt or concrete pavements, surface cuts shall be made with a concrete saw with a maximum width of five (5) feet.

Where excessive depths of pipe installations are encountered and the structural integrity of the roadway surface and/or the safety of the workmen is in doubt, proper sheeting and bracing of the trench shall be required.

Handling and placement of the excavated material within this area shall be handled as in Paragraph 3.04 B.

All excess excavated material shall be removed and disposed of outside the limits of the right-of-way in such a manner as not to interfere with the drainage of highways unless otherwise permitted or directed by the Engineer or his representative.

D. Rock Excavation

See Specification Section 0222.

3.05 Preparation of Pipe Foundation

A. General

The pipe foundation shall be true to line and grade and uniformly firm. Where bell and spigot type pipe is used, recesses shall be excavated to receive the pipe bells.

B. Unsuitable Foundation Material

Where the foundation material is found to be of poor supporting value or of rock, the Engineer may make minor adjustment in the location of the pipe to provide a more suitable foundation. Where this is not practical, the foundation material shall be conditioned by removing the existing foundation material by undercutting to the depth as directed by the Engineer, and backfilling with either a cohesionless material as described in paragraph 2.00.B or a granular material as described in paragraph 2.00.C.

Payment for "Foundation Material" shall be as described in paragraph 3.15.

C. Placement of Bedding Material

In such cases where the unclassified trench excavation material is unsuitable for bedding, and a stone bedding as specified is used, a sufficient depth (four to six inches) of the stone, compacted uniformly firm, shall be placed in the trench bottom to establish a uniform and stable support along the entire length of pipe to be installed. When specified, to ensure that adequate and uniform support is provided both under and along the sides of the pipe, this stone bedding material must also be utilized for haunching at least up to the springline of the pipe, unless noted otherwise in the pipe specifications.

3.06 Laying Pipe

A. Inspection

After delivery alongside the trench, all pipeline material shall be carefully examined for both soundness and specifications compliance.

B. Pipe Installation

Clean joint contact surfaces immediately prior to jointing. Use lubricants, primers, or adhesives as recommended by the pipe or joint manufacturer. All pipe shall be laid on the prepared foundation, bell end up grade with each joint being checked for proper alignment and grade as the work proceeds. Excavate bell holes for each pipe joint. When jointed in the trench, the pipe shall form a true and smooth line. Whenever practicable, start pipe laying at the lowest point.

C. Dewatering

Keep trenches dry during pipe laying. Divert surface water from the trench area to the greatest extent practicable without causing damage to the adjacent property. Before pipe laying is started remove all water that may have entered the trench and continue to dewater trench by the most expedient method.

3.07 Backfilling

After the bedding has been prepared and the pipe installed, selected material - approved by the Engineer - from the unclassified excavation or borrow, at a moisture content which will facilitate compaction, shall be placed alongside the pipe in layers not exceeding 6 inches in depth. Care shall be taken to insure thorough compaction of the fill under the haunches of the pipe. Each layer shall be thoroughly compacted by rolling, tamping and mechanical rammers, or by hand tamping with heavy iron tampers, the tamping face area of which shall not exceed 25 square inches. The method of filling and compacting shall be continued until the fill has reached an elevation 12 inches above the top of the pipe. The remainder of the trench shall be backfilled and thoroughly compacted in layers not exceeding 12 inches.

Care shall be taken during backfill and compaction operations to maintain alignment and prevent damage to the joints. The backfill shall be kept free from stones, frozen lumps, chunks of highly plastic clay, or other objectionable material.

All local backfill materials shall be compacted at a moisture content satisfactory to the Engineer, which shall be approximately that required to produce the maximum density. The Contractor shall dry or add moisture to the local material when required to provide a uniformly compacted and stable embankment.

When other than local material (unclassified excavation) is used for backfilling above the foundation, such material will be classified as select backfill material as specified in Section 0265 of these specifications. Use of this select backfill material shall be only when directed by the Engineer or his representative.

Unclassified excavation used for backfill will not be an extra pay item, but will be included in the unit price bid for the particular pipe being installed. Selected borrow shall be paid for as described in paragraph 3.15 D.

Backfill over and around the pipe and backfill around and adjacent to all drainage structure shall be compacted to a minimum density of 80 percent as determined by the AASHTO Standard Method T-99, except the backfill under pavements shall be compacted to a minimum density of 90% and adjacent areas within 4 to 10 feet of the pavement shall be compacted to a minimum density of 90%. In the event a conflict exists regarding compaction requirements between the NCDOT encroachment agreement(s) and these contract documents, the more stringent shall be followed, as determined by the Engineer. Tests for density of compaction may be made at the option of the Engineer, and deficiencies shall be corrected by the Contractor without additional cost to the Owner. Costs incurred for the original testing shall be the responsibility of the Owner, and the costs of retesting because of deficiencies noted shall be the responsibility of the Contractor.

The operation of heavy equipment shall be conducted so that no damage to the pipe shall result. Heavy equipment shall not be operated over any pipe until it has been properly

backfilled and has a minimum cover of three (3) feet, unless approved otherwise by the Engineer.

If excavated pipe trench material is unsuitable for backfill, the material shall be removed from the job site and wasted at no additional cost to the owner.

3.08 Testing

A. Air Test

All sewer lines will be tested by the low pressure air test. If services are installed prior to the test, they will be tested along with the line. It is imperative that proper plugs be installed on the cleanout stacks. All plugs must withstand the test pressure.

1. Procedure for Air Test

The low pressure air test in accordance with ASTM C 828 shall be used. Prior to testing, the main shall be clean of debris. All plugs shall be secured properly.

The line shall be pressurized to 4 psi and stabilized. After stabilization the pressure will be lowered to 3.5 psi and the inspector will determine the time it takes for the pressure to drop to 2.5 psi.

To simplify the ASTM procedure, the following table shall be used to determine allowable test times.

Pipe Size	Time (min./100' of pipe)
4"	0.3
6"	0.7
8"	1.2
10"	1.5
12"	1.8
15"	2.1
18"	2.4
24"	3.0
30"	4.8
36"	5.4

If the pressure stays between 3.5 psi and 2.5 psi for the test time, the pipe is acceptable. If the line does not pass, the installation shall be checked, corrected, and re-tested. All testing equipment shall be provided by the contractor.

B. Force Mains

All force main installations shall be pressure tested in locations as specified by the Engineer. The test shall be performed using a suitable pump and an accurate pressure gauge. Immediately upon completion of a portion of line, one hundred one hundred (100) pounds per square inch internal water pressure shall be applied and maintained for two (2) hours to the satisfaction of the designated inspector. The leakage rate shall not exceed ten (10) gallons per inch of pipe diameter-per mile of pipe-per twenty-four (24) hours. Any leakage indicated by the test shall be made water tight and any defective material causing such leakage shall be replaced and the test repeated. In the event the force main is located within one hundred (100) feet of a well, no leakage shall allowed.

Any valves, plugs, taps, etc., required by the Contractor for testing of force mains shall be the responsibility of the Contractor, subject to the approval of the Engineer, and will not be extra pay item, but will be included in the unit price bid for the force main.

C. Deflection

All ABS and PVC sewer pipe shall be mandrel tested not less than 30 days after completion of all backfill. Maximum allowable deflection shall be 5%. The mandrel, to be provided by the Contractor, shall be a rigid device sized to pass 5% deflection.

The mandrel device shall be cylindrical in shape and constructed with nine or ten evenly spaced arms or prongs. Mandrels with less arms will be rejected as not sufficiently accurate. The dimensions of the mandrel shall be obtained from the Engineer. The "D" mandrel dimension shall carry a tolerance of 0.01".

The mandrel shall be hand pulled by the Contractor through all sewer lines. Any sections of the sewer not passing the mandrel shall be uncovered and the Contractor shall reround or replace the sewer to the satisfaction of the engineer. These repaired sections shall be retested.

The inspection shall be conducted no earlier than 30 days after reaching final trench backfill grade for 5% deflection before final acceptance, provided in the opinion of the engineer that sufficient water densification or rainfall has occurred to thoroughly settle the soil throughout the entire trench depth. If this cannot be achieved in the time after installation prior to the project completion date, then the mandrel size shall be increased to measure 1/3 less of a deflection allowance.

Contact length (L) shall be measured between points of contact on the mandrel arm. This length shall not be less than as shown in Table 1. It is advisable not to exceed the L dimension, otherwise insertion of the mandrel into pipe may be difficult because of channel constrictions in the manhole itself.

The Engineer shall be responsible for approving the mandrel. Proving rings may be used to assist in this. Drawings of the mandrel with complete dimensions shall be furnished by the Contractor to the engineer for each diameter and specification of pipe.

3.09 Pavement Repairs

Where it is necessary to open-cut across concrete pavement or concrete base pavement, all replaced concrete shall have a depth of 1" greater than the depth of the original slab. Immediately under the replaced concrete, there shall be placed a thoroughly compacted 3" layer of soil type base course, sand, screening, or other granular material. All replaced concrete, joint filler, and sub-grade reinforcing material shall meet the specifications of the North Carolina Department of Transportation, both as to material and performance of work.

Where it is necessary to open-cut across roadways with surfaces other than concrete, the type and thickness of surface and/or base as formerly existed or as shown on the drawings shall be installed. The replacement surface and/or base shall extend a minimum of one (1) foot on each side of the excavated opening. The thickness of replacement materials shall be as shown on the drawings.

3.11 Bore & Jacking

See Section 1529 - Pipe (Steel Casings) for these requirements.

3.12 Traffic, Safety and Signs

The Contractor shall provide during construction and any subsequent maintenance, proper signs, signed lights, flagman, and other warning devices for the protection of traffic in conformance with the latest "Manual on Uniform Traffic Control Devices for Streets and Highways" as provided by the North Carolina Department of Transportation. Information as to the above must be obtained from the Department office and an approved plan outlined prior to commencing work.

Traffic will not be detoured or rerouted for the installation of any utility installation except when approved by the Engineer. When detours are allowed, the Engineer will delineate the detour route and all signing and marking of the detour which may be necessary. The entire cost of the signing and marking, together with the installation, shall be borne by the Contractor.

Where one-way traffic is being maintained, it may be required to be flagged twenty-four (24) hours per day. Flagmen shall be equipped with the standard "STOP" and "SLOW" signs on a rigid pedestal mounted five (5) feet high, a red flag during daylight, and a red light or torch at night. The flagmen shall wear distinctive apparel such as a helmet and safety jacket.

3.13 Erosion Control

Shall be in accordance with Section 0271 of these specifications.

3.14 Seeding and Mulching

Shall be in accordance with Section 0270 of these specifications.

3.15 Method of Measurement

A. Sewer Pipe

The quantity of pipe to be paid for will be the actual number of linear feet of pipe that has been installed into the completed and accepted work. Pay depths shall be based on the original drawings, or changes approved by the Engineer. Measurements shall be made from inside wall to inside wall of manholes. Footage through manhole shall not be allowed. The tie-ins, of new and/or existing sanitary sewer lines to manholes as shown on the drawings shall not be a separate pay item, but shall be included in the unit price bid for "Sanitary Sewer Pipe, L.F."

B. Stone Bedding

Stone bedding shall be placed beneath all gravity sewers of 8" diameter or larger except ductile iron. Bedding shall be a minimum of six (6") inches deep beneath the pipe, and shall be along the sides of the pipe at least up to the springline, unless shown otherwise in the Pipe specification. Bedding width shall be at least the width of the pipe O.D. plus 24 inches. Stone bedding shall not be a separate pay item, but will be included in the unit price bid for Sanitary Sewer Pipe. (Stone required by the Engineer beneath ductile iron pipe will be paid for a unit price bid and shall be measured in place or based on delivery tickets, at the Engineer's option.

C. Foundation Material

Payment for "Foundation Material," also referred to as "Stone Bedding," for gravity sewers and/or force mains, except as described and required in paragraph 3.15.B above, shall be as follows.

No measurement will be made of pipe undercut excavation, and the specified material used for conditioning the foundation will be classified as foundation conditioning material and will be paid for by the actual number of tons used. Payment at the contract unit price for "Foundation Conditioning Material" shall be full compensation for all the required work of foundation conditioning, including all pipe undercut excavation, furnishing and placing foundation materials, and hauling and disposal of undercut material.

No payment will be made for overexcavation and backfilling by the Contractor when not requested or approved by the Engineer.

If the need for undercutting has been occasioned by an act or failure to act on the part of the Contractor, the necessary undercut excavation and replacement shall be done at no cost to the Owner.

Maximum pay width for "Foundation Material" ("Stone Bedding"), when required by the Engineer, shall be equal to the pipe O.D. plus 24 inches.

D. Select Backfill

Maximum pay width for select backfill, where required by the Engineer, shall be equal to the pipe O.D. plus 24 inches, and shall be at the unit price bid for "Select Backfill". The Contractor shall include in his unit price for select backfill any cost associated with excavating and removing unsuitable material from the project.

E. Pavement Repairs

Asphalt and concrete pavement cuts shall have a maximum pay width of five (5) feet.

3.16 Damages and Repairs

Upon completion of the construction work, the Contractor shall immediately remove all construction equipment, tools and excess materials from the project sites. All portions of the project sites shall be left in a neat and orderly condition. All disturbed areas shall be restored to the approval of the N.C. Department of Transportation and the Engineer.

The Contractor shall be responsible for any damages caused by his construction operations, to include but not limited to telephone cables, power lines, gas pipelines, existing water services, sewer mains, sewer services, storm drainage and pavement not designated for cutting.

3.17 Sewer Main Acceptance

In addition to the other requirements of this Section, prior to the acceptance of any sanitary sewer main, the Contractor shall flush and clean all debris from pipelines and manholes. Water required for flushing and cleaning shall be the responsibility of the Contractor.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1506 - PIPE: RESTRAINED JOINT

PART 1.00 - GENERAL

1.01 Description

This section provides a description of the restrained joint pipe to be furnished and installed on this project at locations as shown on the drawings, listed in the specifications or as directed by the Engineer.

PART 2.00 - PRODUCTS

2.01 General

Pipe shall be ductile iron manufactured in accordance with the requirements of ANSI/AWWA C151/A21.51. Pipe shall be Griffin SNAP-LOC or equal. Pipe thickness shall be pressure class 350 or thickness class 50 and heavier, shall be designed in accordance with ANSI/AWWA C150/A21.50 and shall be based on laying conditions and internal pressures as specified in the project plans.

Fittings shall be ductile iron and in accordance with applicable requirements of either ANSI/AWWA C153/A21.53 or ANSI/AWWA C110/A21.10 and shall utilize Griffin BOLT-LOK pipe spigots or mechanical joint fittings with mechanical joint restraint systems, "MegaLug" or equal for restraint when required.

Restrained joints for pipe and fittings shall be designed for a working pressure of 350 psi for sizes 6" through 24". SNAP-LOC Joint shall be capable of being deflected after assembly 4° in 6" through 12" sizes and 3° in 14" through 24" sizes.

Pipe and fittings shall have cement mortar lining and seal coating, where applicable, in accordance with ANSI/AWWA C104/A21.4.

PART 3.00 - EXECUTION

3.01 Installation

Shall be in accordance with Section 1502 for water mains and/or Section 1503 for sewer mains, as applicable.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1510 - PIPE: DUCTILE IRON

PART 1.00 - GENERAL

1.01 Description

This Section provides a description of the required ductile iron pipe to be furnished and installed on this project at locations as shown on the drawings, listed in the specifications or as directed by the Engineer.

PART 2.00 - PRODUCTS

2.01 General

Ductile iron pipe shall be manufactured in strict conformance with ANSI/AWWA C150/A 21.50 and ANSI/AWWA C151/A 21.51, and shall be Class 50, or greater.

Ductile iron pipe used in open trench construction shall be furnished with "push-on" joints according to ANSI/AWWA C 111/A 21.11, unless otherwise shown on the drawings or herein specified.

Ductile iron pipe used within encasements and in aerial lines, shall be furnished with "mechanical" joints according to ANSI/AWWA C151/A 21.51.

2.02 Interior Linings

Lining shall be 100% solids, ceramic epoxy lining that is abrasion-resistant and specifically designed for wastewater immersion and fume environments. Lining shall provide low permeation to H₂S gas, protect against microbiological influenced corrosion (MIC), and provide chemical resistance to ductile iron pipe and fittings for severe wastewater.

Unless otherwise permitted, all internal surfaces of ductile iron pipe and fittings shall be lined with an amine cured novalac ceramic epoxy containing at least 20% by volume of ceramic quartz pigment. The lining material shall have a permeability rating of zero when tested in accordance with Method A – ASTM E96-66, Procedure A with test duration of 30 days. The lining shall be applied by a competent firm with a successful history of applying linings to the interior of ductile iron pipe and fittings. Within 8 hours of surface preparation, the interior of the pipe shall receive 40 mils nominal DFT. No lining shall take place when the substrate or ambient temperature is below 40° F. The surface shall

also be dry and dust free. The lining shall not be used on faces of the flanges (if applicable).

Due to tolerances involved, the gasket area and spigot end up to 6-inches back from the end of the spigot end must be coated with 6 mils nominal, 10 mils maximum of “PROTECTO” Joint Compound, or approved equal. The Joint Compound shall be applied by brush to ensure coverage. Care should be taken that the Joint Compound is smooth without excess buildup in the gasket seat or on the spigot ends. Coating of the gasket seat and spigot ends shall be done after the application of the lining.

The number of coats of lining material applied and the touch up and repair of the lining shall be as recommended by the manufacturer. The pipe manufacturer shall provide a certification attesting that the application meets or exceeds the requirements of these specifications.

Lining material shall be “PROTECTO 401”, or approved equal.

PART 3.00 - EXECUTION

3.01 Installation

Shall be in accordance with Section 1502 for water mains and/or Section 1503 for sewer mains.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1524 - PIPE: PVC (C900)

PART 1.00 - GENERAL

1.01 Description

This Section provides a description of the required polyvinyl chloride (PVC) pressure pipe, DR18, to be furnished, installed and used in water system applications to carry potable water and in force main applications to carry untreated sanitary sewage at pressures (including surge) up to the maximum class rating.

PART 2.00 - PRODUCTS

2.01 Polyvinyl Chloride (PVC) Pipe - C 900

The pipe shall meet the requirements of AWWA C900 "Poly Vinyl Chloride (PVC) Pressure Pipe".

The PVC pipe shall be manufactured from Class 12454-A or Class 12454-B virgin compounds as defined in ASTM D1784.

The PVC pipe shall be furnished in standard lengths of 20 feet and shall have an integral bell joint system meeting the requirements of ASTM D-3139.

A. Pipe Standards

DR-25 (165 psi)				
<u>Size</u>	<u>Wt./Ft.</u>	<u>O.D.</u>	<u>Min. Wall</u>	
4"	1.9	4.80"	0.192"	
6"	3.9	6.90"	0.276"	
8"	6.7	9.05"	0.362"	
10"	10.1	11.10"	0.444"	
12"	14.3	13.20"	0.528"	
14"	19.3	15.30"	0.612"	
16"	25.2	17.40"	0.696"	
18"	31.6	19.50"	0.780"	
20"	39.0	21.60"	0.864"	

DR-25 (165 psi)			
<u>Size</u>	<u>Wt./Ft.</u>	<u>O.D.</u>	<u>Min. Wall</u>
24"	56.0	25.80"	1.032"

DR-21 (200 psi)			
<u>Size</u>	<u>Wt./Ft.</u>	<u>O.D.</u>	<u>Min. Wall</u>
14"	22.9	15.30"	0.729"
16"	29.7	17.40"	0.829"
18"	37.5	19.50"	0.929"
20"	46.1	21.60"	1.029"
24"	65.5	25.80"	1.229"

DR-18 (235 psi)			
<u>Size</u>	<u>Wt./Ft.</u>	<u>O.D.</u>	<u>Min. Wall</u>
4"	2.6	4.80"	0.267"
6"	5.3	6.90"	0.383"
8"	9.2	9.05"	0.503"
10"	13.8	11.10"	0.617"
12"	19.6	13.20"	0.733"
14"	26.5	15.30"	0.850"
16"	34.5	17.40"	0.967"
18"	43.4	19.50"	1.083"
20"	53.5	21.60"	1.200"
24"	76.5	25.80"	1.433"

DR-14 (305 psi)			
<u>Size</u>	<u>Wt./Ft.</u>	<u>O.D.</u>	<u>Min. Wall</u>
4"	3.2	4.80"	0.343"
6"	6.7	6.90"	0.493"
8"	11.6	9.05"	0.646"
10"	14.5	11.10"	0.793"
12"	24.8	13.20"	0.943"

B. Gaskets

Elastomeric ring gaskets shall conform to ASTM F477.

PART 3.00 - EXECUTION

3.01 Installation

Shall be in accordance with Section 1502 for water lines, Section 1503 for sanitary sewer force mains and/or other applicable sections of these specifications.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1527A - PIPE: HIGH DENSITY POLYETHYLENE (HDPE)

PART 1.00- GENERAL

1.01 Description

This section provides a description of the required high density polyethylene (HDPE) pipe to be used for the directional bore portion of the water main.

PART 2.00 - PRODUCTS

2.01 General

This specification governs the material, pipe, fittings, butt fusion and general construction practice for HDPE pipe and includes the following reference specifications:

Reference Specifications:

1. ASTM D-638 - Test Method for Tensile Properties of Plastics
2. ASTM D-790 - Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
3. ASTM D-1238 (190/21.6) - Test Method for Flow Rates of Thermal Plastics by Extrusion Plastometer
4. ASTM D-1248 - Specification for Polyethylene Plastics Molding and Extrusion Materials
5. ASTM D-1505 - Test Method for Density of Plastics by the Density Gradient Technique
6. ASTM D-1599 - Test method for Short Time Hydraulic Failure Pressure of Plastic Pipe, Tubing and Fittings
7. ASTM D-1693 - Test Method for Environmental Stress Cracking of Ethylene Plastics

8. ASTM D-2122 - Method for Determining Dimensions of Thermal Plastic Pipe and Fittings
9. ASTM D-2837 - Method for obtaining Hydrostatic Design Basis for Thermal Plastic Pipe Materials
10. ASTM D-3350 - Specification for Polyethylene Plastics Pipe and Fittings Material
11. ASTM F-1248 - Determination of Environmental Stress Crack Resistance (ESCR) of Polyethylene Pipe
12. ASTM D-4219 - Test Method for Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique
13. ASTM F714 - Standard Specification for Polyethylene Plastic Pipe Based on Outside Diameter

2.02 Materials

Nominal Material Physical and Pipe Performance Properties*

<u>Property</u>	<u>Specification</u>	<u>Units</u>	<u>Extruded Pipe*</u>
Material Designation	PPI/ASTM		PE3408
Material Classification	ASTM D-1248		III C 5 P34
Cell Classification	ASTM D-3350		345444E
Density (3)	ASTM D-1505	gm/cm ³	0.950
Melt Flow (4)	ASTM D-1238	(190/21.6)gm/10 min	8.50
Flex Modulus (5)	ASTM D-790	psi	136,000
Tensile Str. (4)	ASTM D-638	psi	3500
ESCR (3)	ASTM D-1693	Hours	F _o > 5000
HDB @ 73EF (4)	ASTM D-2837	psi	1600
U-V Stabilizer (C)	ASTM D-1603	%C	2.5
Hardness	ASTM D-2240	Shore "D"	66
Compressive Strength (Yield)	ASTM D-695	psi	1600
Tensile Strength @ Yield (Type IV Spec.)	ASTM D-638 (2"/min)	psi	3200
Elongation @ Yield	ASTM D-638	%, min.	8
Tensile Strength @ Break (Type IV Spec.)	ASTM D-638	psi	5000
Elongation @ Break	ASTM D-638	%, min.	750
Modulus of Elasticity	ASTM D-638	psi	130,000

<u>Property</u>	<u>Specification</u>	<u>Units</u>	<u>Extruded Pipe*</u>
ESCR:			
(Cond A,B,C: Mold. Slab)	ASTM D-1693	F ₀ ,Hrs	F ₀ >5000**
(Compressed Ring (Pipe))	ASTM F-1248	F ₅₀ ,Hrs	F ₅₀ >1000**
Slow Crack Growth	Battelle Method	Day to Failure	F ₀ >32
Impact Strength (IZOD)	ASTM D-256	In-lb/in	
(.125" THK) (Method A)		Notch	42
Fatigue Endurance	Battelle Rotary	Cycles @ "1600 psi @ 9 RPM	F ₀ >2000
Linear Thermal Expansion Coef.	ASTM D-696	in/in/EF	1.2 X 10 ⁻⁴
Thermal Conductivity	ASTM C-177	BTU-in/Ft ² /hrs/°F	2.7
Brittleness Temp.	ASTM D-746	°F	<-180°F
Vicat Soft. Temp.	ASTM D-1525	°F	+257
Heat Fusion Cond.		psi @ °F	40psi@500°F
NSF Listing	Standard #14		"Listed"

* This list of Typical Physical Properties is intended for basic characterization of the pipe, and does not represent specific determinations or specifications.

** Tests were discontinued because no failures and no indication of stress crack initiation.

Materials used for the manufacture of polyethylene pipe and fittings shall be extra high molecular weight, high density ethylene/hexene copolymer PE 3408 polyethylene resin meeting the above listed physical property and pipe performance requirements:

The polyethylene pipe MANUFACTURER shall provide certification that stress regression testing has been performed on the specific product. The said certification shall include a stress life curve per ASTM D2837. The stress regression testing shall have been done in accordance with ASTM D 2837, and the manufacturer shall provide a product supplying a minimum Hydrostatic Design Basis (HDR) of 1,600 psi, as determined in accordance with ASTM D 2837.

Further, the material shall be listed by PPI (the Plastics Pipe Institute, a division of the Society of the Plastic Industry) in PPI TR-4 with a 73°F hydrostatic design stress rating of 800 psi, and a 140°F hydrostatic design stress rating of 400 psi. The PPI Listing shall be in the name of the pipe manufacturer, and shall be based on ASTM D 2837 and PPI TR-3 testing and validation of samples of the pipe manufacturer's production pipe.

The MANUFACTURER'S certification shall state that the pipe was manufactured from one specific resin in compliance with these specifications. The certificate shall state the specific resin used, its source, and list its compliance to these specifications.

2.03 Pipe Extrusion

The pipe shall be extruded using a melt homogenizing/plasticating extruder and "appropriate" die. The extruder screw design should be customized for the HDPE being processed to minimize melt fracture of the molecular structure thus reducing the molecular weight and changing some physical properties from resin to pipe. The resin should be processed at its melt temperature of 375°F to 425°F. The extruded tubular melt will be vacuum or pressure sized in downstream cooling tanks to form round pipe to specification diameter and wall thickness with a "matt-finish" surface.

2.04 Pipe and Fittings

1. Pipe

All HDPE pipe used on this project shall have an interior pipe diameter equal to or greater than the adjoining water main pipe. The SDR (Standard Dimension Ratio) shall be 9 and the pressure rating of the pipe supplied shall be 200 psi. The following table provides a general comparison of the HDPE diameters required as compared to SDR 21 PVC:

<u>PVC</u>	<u>HDPE</u>
12"	16"
8"	10"
6"	8"

The pipe shall be produced with the nominal physical properties outlined in Section 2.02, and to the dimensions and tolerances specified in ASTM F-714. Additionally, the pipe shall be inspected per industry accepted manufacturer standards for:

* Diameter	* Straightness
* Wall Thickness	* Ovality
* Concentricity	* Toe-In
* Quick Burst	* Overall Workmanship
Pressure and	Inspection on ID & OD
Ductility	* Print Line
* Joint Length	

The pipe shall contain no recycled compound except that generated in the MANUFACTURER's own plant from resin of the same specification from the same raw material. The pipe shall be homogenous throughout and free of visible cracks, holes, voids, foreign inclusions, or other deleterious defects, and shall be identical in color, density, melt index and other physical properties throughout.

2. Pipe Performance

The pipe shall be in compliance with the physical and performance requirements of Section 2.02 of this specification. Specifically, the pipe will be extruded from resin meeting specifications of ASTM D 3350 with a cell classification of PE:345434C; and ASTM D-1248 pipe grade resin type III, Class C, Category 5, grade P34 polyethylene compound. The pipe shall exhibit the short term tensile and compressive physical properties listed in Section 2.02 and the pipe shall provide the long term endurance characteristics recognized by: the compressed pipe ring environmental stress crack resistance greater than 1000 hrs; the slow crack growth resistance greater than 32 days; the impact strength (toughness) greater than 48 in-lb/in notch; and rotary fatigue endurance at " 1600 psi bending stress with $F_o > 2000$ cycles.

3. Fittings

The standard HDPE fittings shall be standard commercial products manufactured by injection molding or by extrusion and machining, or, shall be fabricated from PE pipe conforming to this specification. The fittings shall be fully pressure rated by the manufacturer to provide a working pressure equal to the pipe for 50 years service at 73.4°F with an included 2:1 safety factor. The fittings shall be manufactured from the same resin type, grade, and cell classification as the pipe itself. The manufacture of the fittings shall be in accordance with good commercial practice to provide fittings homogeneous throughout and free from crack, holes, foreign inclusions, voids, or other injurious defects. The fitting shall be as uniform as commercially practicable in color, opacity, density and other physical properties. The minimum "quick-burst" strength of the fittings shall not be less than that of the pipe with which the fitting is to be used.

4. Tracing Wire

Shall be in accordance with Section 1502 or 1503. Any HDPE pipe bored without tracing wire shall be removed and reinstalled.

2.05 Joining

Sections of polyethylene pipe should be joined into continuous lengths on the job site above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, temperature requirements of 400°F, alignment, and 75 psi interfacial fusion pressure.

Butt fusion joining shall be 100% efficient offering a joint weld strength equal to or greater than the tensile strength of the pipe. Socket fusion shall not be used. Extrusion welding or hot gas welding of HDPE shall not be used for pressure pipe applications nor

in fabrications where shear or structural strength is important. Flanges, unions, grooved-couplers, transition fittings and some mechanical couplers may be used to mechanically connect HDPE pipe without butt fusion. Refer to the manufacturer's recommendations.

2.06 Quality and Workmanship

The pipe and fitting manufacturer's production facilities shall be open for inspection by the owner or his designated agents. During inspection, the manufacturer shall demonstrate that he has facilities capable of manufacturing the pipe and fittings required by this specification, that a quality control program meeting the minimum requirements of D3035, and ASTM F-714 is in use, and that facilities for performing the tests required by this specification are in use.

The engineer may request certification that the pipe produced is represented by the quality assurance data. Additionally, test results from the manufacturer's testing which show the pipe does not meet appropriate ASTM standards of manufacturer's representation, will be cause for rejection of the pipe represented by the testing. These tests may include density and flow rate measurements from samples taken at selected locations within the pipe wall and thermal stability determinations according to ASTM D 3350, 10.1.9.

The engineer may request certified lab data from the manufacturer to verify the physical properties of the materials supplied under this specification.

Polyethylene pipe and fittings may be rejected in whole or in part by the engineer for failure to meet any of the requirements of this specification.

2.07 Pipe Marking

During extrusion production, the HDPE pipe shall be continuously marked with durable printing with the following information:

- | | | |
|----|-------------------------|--------------|
| 1. | Nominal Size | 8" |
| 2. | Dimension Ratio | SDR 9 |
| 3. | Pressure Rating | 200 psi |
| 4. | Type | (Trade Name) |
| 5. | Material Classification | PE3408 |
| 6. | Certification Bases | ASTM F714 |
| 7. | Position for NSF/FM Use | |

8. Pipe Test Category
9. Plant
10. Extruder Number
11. Date
12. Operator Number
13. Shift Letter
14. Resin Supplier Code

PART 3.00 - EXECUTION

3.01 Pipe Packaging, Handling, Storage

The manufacturer shall package the pipe in a manner designed to deliver the pipe to the project neatly, intact, and without physical damage. The transportation carrier shall use appropriate method and intermittent checks to insure the pipe is properly supported, stacked, and restrained during transport such that the pipe is not nicked, gouged, or physically damaged.

Pipe shall be stored on clean, level ground to prevent undue scratching or gouging of the pipe. If the pipe must be stacked for storage, such stacking shall be done in accordance with the pipe manufacturer's recommendations. The handling of the pipe shall be done in such a manner that it is not damaged by dragging over sharp objects or cut by chokers or lifting equipment.

Sections of pipe having been discovered with cuts or gouges in excess of 10% of the wall thickness of the pipe shall be cut out and removed. The undamaged portions of the pipe shall be rejoined using the butt fusion joining method.

Fused segments of pipe shall be handled so as to avoid damage to the pipe. When lifting fused sections of pipe, chains or cable type chokers must be avoided. Nylon slings are preferred. Spreader bars are recommended when lifting long fused sections. Care must be exercised to avoid cutting or gouging the pipe.

3.02 Construction Practice

Construction and installation shall be performed in compliance with the manufacturers Design Guidelines and Installation Guidelines, and this specification.

1. Trench Construction

The trench and trench bottom should be constructed in accordance with ASTM D-2321-Section 7.

2. Embedment Material

Embedment materials should be Class I, Class II, or Class III materials as defined by ASTM-D-2321-Section 6.

3. Bedding

Bedding of the pipe should be performed in accordance with ASTM-D-2321-Section 8. Compaction rates should be as specified in ASTM-2321. Deviation from the specified compaction rates should be done only with the approval of the engineer.

4. Testing

HDPE pressure pipe shall be hydrostatically pressure tested before being placed into service. The test shall be conducted in accordance with ASTM F2164 and AWWA Manual M55, Chapter 9. The test shall be performed using a suitable pump and an accurate pressure gauge. Immediately upon completion of a portion of line, the test section shall be filled with potable water while allowing all free air to exit. The pressure in the section shall be measured as close as possible to the lowest point of the pipe section tested. One hundred fifty (150) pounds per square inch pressure shall be applied and maintained for four (4) hours to allow for linearization of pipe expansion. During this time an arbitrary amount of make-up water is added as needed to maintain pressure. After three (3) hours testing, the allowable pressure drop shall not exceed 7.5 psi over the final one (1) hour period, to the satisfaction of the designated inspector. If pressure drop does exceed 7.5 psi, the portion of pipe being tested shall be allowed to relax for a minimum of eight (8) hours before the testing sequence can be repeated. If the tested portion of pipe fails again, the entire segment shall be completely replaced and the new installation tested accordingly.

END OF SECTION

DIVISION 15 – MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1527C – PIPE: FUSIBLE POLYVINYL CHLORIDE PIPE

PART 1.00 - GENERAL

1.01 Work Included

- A. Provide and install all PVC pipe as shown in the PLANS or discussed in the CONTRACT DOCUMENTS.
- B. The CONTRACTOR shall provide all materials, labor, equipment, tools, etc., and perform all required work and services necessary for and incidental to a complete installation as shown on the PLANS and/or called for in the SPECIFICATIONS in complete accord with the CONTRACT DOCUMENTS.
- C. All supplementary or miscellaneous items, equipment, appurtenances, or devices necessary for or incidental to a complete and functional installation, whether or not shown on the PLANS or addressed in the SPECIFICATIONS, shall be provided and installed as part of the WORK.
- D. For horizontal directional drilling, CONTRACTOR shall provide a structurally sound, leakproof, monolithic polyvinyl chloride pipe for all piping identified as such on the plans. Individual pipe lengths shall be assembled by butt-fusion unless otherwise specified. Connected fittings shall be fused or mechanically joined to the piping as specified. CONTRACTOR shall also be responsible for all installation processes included drilling, back-reaming, management and disposal of all drilling fluid, dewatering flow around the work, and leak testing the fusible polyvinyl chloride pipe and fittings in accordance with these specifications.

1.02 References

- A. AWWA C900 - AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 Inch through 12 Inch for Water Distribution .
- B. ASTM D2241 – Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure- Rated Pipe (SDR Series).
- C. ASTM D1784 – Standard Specification for Rigid Poly (Vinyl Chloride) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.

1.03 Submittals

- A. Provide shop drawings and/or manufacturer's literature fully describing the selected product.
- B. Provide copies of manufacturer's recommended handling, storage, and installation instructions.
- C. Provide fusion technician data indicating current certification and licensing for fusible polyvinyl chloride pipe. During installation, if asked, provide specific fusion parameters, including criteria recorded by the data logger.
- D. Provide data sheets for fusible polyvinyl chloride pipe, including diameter, dimension ratio, pressure class, outside and inside diameter, bend radius, tensile strength, safe pull force, dyrostatic design basis, critical buckling pressure, and weight.

1.04 Delivery, Storage & Handling

- A. In accordance with the manufacturer's instructions, install pipe as soon as possible after delivery. Protect all pipe during delivery and storage from sunlight, weather, damage and contamination. Pipe damaged in any fashion shall be replaced by the CONTRACTOR. Pipe contaminated with petroleum products such as diesel fuel exhaust shall be replaced by the CONTRACTOR.
- B. Any scratch or gouge greater than 10% of the wall thickness will be considered significant and can be rejected.

PART 2.00 - PRODUCTS

2.01 Pipe

- A. Fusible polyvinyl chloride plastic pipe shall be manufactured of Type 1, Grade 1, 2,000 psi design stress compound designated as Polyvinyl Chloride 1120 cell classification 12454 and shall conform to ASTM D1784 compound specifications. Pipe shall be manufactured with 100% virgin resin. Pipe shall have plain ends and be blue in color.
- B. Polyvinyl chloride pipe shall conform to ASTM D2241 or AWWA C900 as designated in the BID SCHEDULE and/or shown on the PLANS.
- C. Polyvinyl chloride pipe conforming to AWWA C900 shall have a maximum DR ratio of 18 and be 235 psi or greater.
- D. Polyvinyl chloride pipe conforming to ASTM D2241 shall have a minimum

hydrostatic working pressure of 200 psi (SDR 21) unless shown otherwise in the BID SCHEDULE or on the PLANS.

E. Markings on pipe.

1. The manufacturer's name, trademark or logo.
2. Nominal pipe size (for example: 8").
3. The designation number for the product standard (for example: AWWA C900).
4. Dimensions ratio number (for example: DR 18).
5. Class or Pressure rating for PVC pressure pipe (for example: Class 200).
6. PVC material cell classification (for example: 12454-B).
7. The polyvinyl chloride plastic pipe shall bear the National Sanitation Foundation (NSF) seal of approval.

2.02 Tracing Wire

Shall be in accordance with Section 1502. Any Fusible Polyvinyl Chloride Pipe bored without tracing wire shall be removed and reinstalled.

PART 3.00 - EXECUTION

3.01 Pipe Packaging, Handling, Storage

The manufacturer shall package the pipe in a manner designed to deliver the pipe to the project neatly, intact, and without physical damage. The transportation carrier shall use appropriate method and intermittent checks to insure the pipe is properly supported, stacked, and restrained during transport such that the pipe is not nicked, gouged, or physically damaged.

Pipe shall be stored on clean, level ground to prevent undue scratching or gouging of the pipe. If the pipe must be stacked for storage, such stacking shall be done in accordance with the pipe manufacturer's recommendations. The handling of the pipe shall be done in such a manner that it is not damaged by dragging over sharp objects or cut by chokers or lifting equipment.

Sections of pipe having been discovered with cuts or gouges in excess of 10% of the wall thickness of the pipe shall be cut out and removed. The undamaged portions of the pipe shall be rejoined using the butt fusion joining method.

Fused segments of pipe shall be handled so as to avoid damage to the pipe. When lifting fused sections of pipe, chains or cable type chokers must be avoided. Nylon slings are preferred. Spreader bars are recommended when lifting long fused sections. Care must be exercised to avoid cutting or gouging the pipe.

3.02 Preparation

- A. Install in locations as shown in PLANS.
- B. Protect existing landscaping, conditions and features.

3.03 Installation

- A. Install pipe and appurtenances.
- B. Block pipe at all locations where thrust forces are created.
- C. Fusible PVC shall be installed in a manner not to exceed the manufacturer's recommended bending radius or safe pulling force.
- D. Fusible polyvinyl chloride shall be pulled into position using equipment that consists of a directional drilling rig or sufficient capacity to perform the bore and pullback of the pipe, a drilling fluid mixing and delivery system of sufficient capacity to successfully complete the crossing, a guidance system to accurately guide boring operations, and trained and competent personnel to operate the system. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.
- E. Connections between PVC pipe installed with HDD and PVC or DIP pipe in open cuts shall be accomplished with restrained joints, bends or couplings. Pipe alignment shall be such that the joint deflection does not exceed that recommended by the coupling manufacturer, nor shall the PVC pipe at the connection be deflected beyond the minimum bend radius recommended by the pipe manufacturer.

3.04 Construction Practice

Construction and installation shall be performed in compliance with the manufacturers Design Guidelines and Installation Guidelines, and this specification.

- 1. Trench Construction
 - A. The trench and trench bottom should be constructed in accordance with ASTM D-2321-Section 7.
 - B. Excavate trench for pipe installation to provide proper grades at end connections.

- C. Keep trench free of debris, material, or obstructions that may damage pipe.
- 2. Embedment Material

Embedment materials should be Class I, Class II, or Class III materials as defined by ASTM-D-2321-Section 6.
- 3. Bedding

Bedding of the pipe should be performed in accordance with ASTM-D-2321-Section 8. Compaction rates should be as specified in ASTM-2321. Deviation from the specified compaction rates should be done only with the approval of the engineer.
- 4. Testing

Fusible PVC pressure pipe shall be hydrostatically pressure tested before being placed into service. The pipeline shall be filled with potable water. After all free air is removed from the test section, the pressure shall be raised at a steady rate to the rated pressure for the pipe (200 psi). The pressure in the section shall be measured as close as possible to the lowest point of the test section. The rated pressure shall be held for a three (3) hour period without make up pressure to allow expansion or pipe stretching to stabilize. After this equilibrium period the test section shall be returned to operating pressure, the pump turned off and the final test pressure (200 psi) held for three (3) hours. 4.2 gallons of make up water per 100 feet of pipe tested shall be allowed for expansion and may be added prior to the final test. Any leaks indicated by the test shall be repaired and the final test shall be repeated.

3.05 Fusion Process

A. General

- 1. Fusible polyvinyl chloride pipe will be fused by qualified fusion technicians, as documented by the pipe supplier. Training records for qualified fusion technicians shall be available to OWNER or ENGINEER upon request.
- 2. Only appropriately sized and outfitted fusion machines that have been approved by the pipe supplier shall be used for the fusion process.
- 3. Other equipment specifically required for the fusion process shall include the following:
 - a. Pipe rollers shall be used for support of pipe to either side of the machine.
 - b. A weather protection canopy that allows full machine motion of

the heat plate, fusion assembly and carriage shall be provided for fusion in inclement and/or windy weather.

- c. Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.
- d. Facing blades specifically designed for cutting fusible polyvinyl chloride pipe.

B. Fusion Data Logger

- 1. Each joint fusion shall be recorded and logged by an electronic monitoring device (data logger) affixed to the fusion machine. The current version of the pipe supplier's recommended and compatible software shall be used and a protective case shall be utilized for the hand held wireless portion of the unit. Data logger operations and maintenance manual shall be with the unit at all times. Data not logged by the data logger shall be logged manually and be included in the Fusion Technician's joint report. Joint data shall be submitted as part of the As-Recorded information, if requested by the ENGINEER.

END OF SECTION

DIVISION 15 – MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1527D - HORIZONTAL DIRECTIONAL DRILLING

PART 1.00 - GENERAL

1.01 Description of Work

The pipeline, where shown on the plans, shall be installed by using horizontal directional drilling equipment.

The directionally controlled horizontal drilling operation shall consist of drilling a small diameter pilot hole along the alignment and at the minimum depths and/or elevations indicated on the drawings; reaming the pilot hole to a diameter suitable for installation of the high density polyethylene pipe (HDPE) or Fusible PVC Pipe; installing the HDPE or Fusible PVC Pipe along the reamed hole; and coordinating the connections from the pull section to the water line as shown on the drawings; all in accordance with these specifications.

1.02 Quality Assurance

Installation of pipeline by the horizontally drilled, directionally controlled method shall be only by a Contractor having minimum of three (3) years experience in directional drilling. The Superintendent shall have successfully completed a minimum of three (3) directional drilled pipe installations, 8 inches or greater in diameter and in excess of 500 feet each in length. CONTRACTOR will furnish the ENGINEER with a list of references substantiating the mentioned requirements.

1.03 Submittals

The CONTRACTOR will supply Material Safety Sheets (MSDS) for all material used in making up drilling fluids. The drilling fluid composition must meet all federal, state and local laws and environmental regulations governing the use, handling, storage and disposal of such material.

1.04 Job Conditions

Permanent water line easements and temporary easements necessary for erection of drilling equipment and installation of the pipeline have been obtained by the OWNER in the location indicated on the plans.

The CONTRACTOR shall be responsible for all preparation and erosion control measures

required the perform construction operations. All disturbed areas shall be restored to original condition.

The CONTRACTOR shall be responsible for obtaining all permits and regulatory authorizations for drilling activities, including any permits required for mobilizing materials and equipment, and disposal of drilling fluids and industrial debris. The CONTRACTOR will be responsible for paying all fines that may be imposed due to illegal discharge.

PART 2.00 – PRODUCTS

2.01 General

The CONTRACTOR shall provide all materials, equipment and labor for completing the crossings, and for adequate protection of the work.

2.02 Equipment

Horizontal drilling equipment used to make the crossings shall have the ability to achieve an angle of entry of 10-15 degrees.

2.03 Materials

HDPE – SDR 9: See Section 1527A of these Specifications

Fusible PVC Pipe (Class 200): See Section 1527C of these Specifications

HDPE or Fusible PVC Pipe (Class 200) pressure pipe shall be furnished complete with all jointing materials and other necessary appurtenances.

2.04 Fittings

Fittings will be used in accordance with the materials specifications. All additional appurtenances such as bell restraints, mega lugs, etc. shall meet the material specifications. The Contractor will supply the pipe and fittings and will include its price in the bid. All pipe installed by guided boring will be joined by an approved butt fusion or electrofusion technique according to the manufacturers specifications.

PART 3.00 - EXECUTION

3.01 General

The CONTRACTOR shall install the pipeline by the horizontally drilled, directionally controlled method of construction. This method shall consist of the drilling of a pilot hole within the designed tolerances for radius requirements, followed by enlargement of the hole

to accommodate the product line.

3.02 Pilot Hole Instrumentation

The CONTRACTOR will at all times provide and maintain instrumentation which will accurately locate the pilot hole position in the X, Y, and Z axis relative to ground surface. Drill fluid flow rate and pressure must also be monitored. CONTRACTOR shall maintain and provide the ENGINEER/OWNER, upon request, access to the data generated by the downhole survey tools.

The maximum vertical deviation from the profile indicated on the plan/profile drawing is 1 ft. The maximum horizontal deviation from the centerline indicated on the plan/profile drawing is 1 ft. The actual bore exit point shall be within a 1 ft. radius of the exit point indicated on the plan/profile drawing.

3.03 Reaming and Pull-Back Operation

Upon completion of the pilot hole drilling, the hole shall be enlarged by reaming, and the preassembled pipeline pull section installed in the hole. The pipeline shall be preassembled to provide one continuous pulling operation. The pipeline shall be temporarily capped before the pulling operation to prevent any drilling fluid, water, or debris from entering the pipeline.

3.04 Prereaming

Prereaming operations shall be conducted at the discretion of the CONTRACTOR. All provisions of this specification relating to simultaneous reaming and pulling back operations shall also pertain to prereaming operations.

3.05 Pulling Loads

The maximum allowable tensile load imposed on the pipeline pull section shall be equal to 90 percent of the product of the specified minimum yield strength (SMYS) of the pipe and the area of high density polyethylene in the pipe section. If more than one value is involved for a given pull section, the lesser shall govern.

3.06 Torsional Stress

A swivel shall be used to connect the pipeline pull section to the reaming assembly to minimize torsional stress imposed on the section.

3.07 Pull Section Support

The pull section shall be supported as it proceeds during pull-back so that it moves freely and the pipe and corrosion coating are not damaged.

3.08 External Collapse Pressure

The pull section shall be installed in the reamed hole in such a manner that pressures are minimized. Any damage to the pipe resulting from external pressure during installation shall be the responsibility of the CONTRACTOR.

3.09 Buoyancy Modification

Buoyancy modification shall be used at the discretion of the CONTRACTOR. Any buoyancy modifications procedure proposed for use shall be submitted to the ENGINEER for acceptance. No procedure may be used which has not been accepted by the ENGINEER. CONTRACTOR is responsible for any damage to the pipeline resulting from buoyancy modification.

3.10 Drilling Fluids

The composition of all drilling fluids proposed for use shall be submitted to the ENGINEER for acceptance. No fluid will be approved or utilized that does not comply with permit requirements and environmental regulations.

The Contractor shall install a containment structure around the bore hole to hold excess drilling fluids and spoils. The drilling fluids and spoils shall be pumped from the containment structure and disposed of off-site. Excess drilling fluid and spoils shall not be discharged into sanitary or storm drain systems, ditches or waterways.

3.11 Water

CONTRACTOR is responsible for procuring, transporting, and storing any water required for his operations.

3.12 Recirculation

CONTRACTOR shall employ his best efforts to minimize excess drilling fluid by recirculating surface returns. This shall include, but not be limited to, provision of a solids control system sized and configured to remove spoil from drilling fluid surface returns so that the fluid may be returned to the active system without hindering drilling progress.

3.13 Inadvertent Returns

CONTRACTOR shall employ his efforts to maintain full annular circulation of drilling fluids. Drilling fluid returns at locations other than the entry and exit points shall be minimized. In the event that annular circulation is lost, CONTRACTOR shall take steps to restore circulation. If inadvertent surface returns of drilling fluids occur, they shall be immediately contained with handplaced barriers (i.e., hay bales, sandbags, silt fences, etc.), and collected using pumps, where practicable. If the amount of the surface return is not great enough to be collected, the affected area shall be flushed with fresh water and the fluid

will be allowed to dry and dissipate naturally. If the amount of surface return exceeds that which can be contained and collected in the small sumps, drilling operations will be suspended until surface return volumes can be brought under control.

3.14 Piping

Refer to Part 2.00 of this specification for permitted materials used in the directional bore.

3.15 Transition Between Pipeline Sections

CONTRACTOR shall provide all necessary fittings and appurtenances for the transition joints between the directional bore pipe and the adjoining pipe material. Refer to Part 2.00 of this specification.

3.16 Flushing, Testing and Disinfection

Before and after installation, the pipe shall be pressure tested as specified in Section 1502 – Pipe: Water Mains.

3.17 Method of Measurement and Payment

The quantity of HDPE/Fusible PVC pipe to be paid for will be the actual number of horizontal linear feet of the pipe that has been installed into the completed and acceptable work measured on the ground surface from the beginning point to the ending point as shown on the construction plans.

All transition piping installed at each end of the directional bore will be measured and paid for at the unit price provided in the Bid Proposal.

All fittings restraint harnesses, mechanically restrained joints and transition couplings shall be included in the unit price bid for the HDPE/Fusible PVC directional bore item.

Contractor shall provide asbuilt drawings complete with stations and elevations every twenty feet of directional bore. Contractor will also provide centerline offsets for each station. Final payment will not be approved until asbuilts have been received by the Engineer.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1529 - STEEL CASINGS

PART 1.00 - GENERAL

1.01 Description

Where shown on the drawings or as directed by the Engineer, the Contractor shall furnish and completely install the specified encasement (tunnel liner or bored and jacked steel pipe) in accordance with these specifications, the project drawings and the best practices of the trade.

1.02 Quality Assurance

For the actual installation of steel encasements, use only personnel completely trained and experienced in the installation of the approved materials and thoroughly familiar with the project design.

1.03 Product Handling

Use all means necessary to protect steel encasement materials before, during, and after installation and to protect the installed work and materials of any other Contractor. In the event of damage immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

PART 2.00 - MATERIALS

2.01 Tunnel Liner

Corrugated steel liner material shall conform to the requirements of ASTM A569, and shall be twelve (12) gage, two (2) flange, galvanized and fully bituminous coated. The tunnel shall be equipped with sufficient number of two (2) inch water-tight grout plugs to assure complete filling of all voids around the outside diameter of the tunnel.

Shop drawing will be furnished prior to construction showing a typical section of the tunnel, details of the plates, longitudinal and circumferential seams, size and length of bolts, section modules, with an average ring and location of grout plugs.

2.02 Steel Casing

The spiral welded or smooth wall steel pipe encasements shall conform to the following schedule:

Casing Diameter <u>O. D.</u>	Wall Thickness	
	<u>Highway</u>	<u>*Railroad</u>
8"	0.188	0.188
12"	0.188	0.219
16"	0.250	0.250
20"	0.250	0.281
24"	0.250	0.344
30"	0.312	0.406
36"	0.375	0.469

* To be coal-tar coated, lined wrapped.

Welded steel pipe shall meet the requirements of ASTM A139.

PART 3.00 - EXECUTION

3.01 Tunnel Installation

A. General

No excavation or other work for the installation and erection of the tunnel shall begin prior to both the bond being approved, and proper notification being acknowledged by the proper authority - either the Railroad Company, the Department of Transportation, or other applicable party.

B. Tunnel Installation

The tunnel liner shall be installed one (1) ring at a time, with all bolts being properly tightened as the rings progress. No more than ten (10) linear feet of tunnel shall be installed prior to grouting all the voids around the outside diameter of the tunnel liner. Once the tunnel has been properly installed and inspected by the Engineer and the Railroad Co., or D.O.T., the carrier pipe shall be threaded through the tunnel and properly cradled. The carrier pipe shall be checked grade and alignment by the Engineer. The ends of the tunnel shall be sealed with an eight (8) inch brick wall to provide a watertight encasement prior to backfilling.

3.02 Bore and Jack Installation

A. General

Smooth wall or spiral weld steel pipe shall be dry bored and jacked at locations as designated on the plans, wet boring methods not be allowed. All boring pits shall be properly sheeted to prevent injury and provide a stable working area for the boring machine.

B. Operation

The boring and jacking operation shall be a simultaneous operation consisting of an auger boring, a circular hole progressively ahead of the encasement pipe as it is being jacked into the void. As the dry boring operation progresses, the spoil is augered back into the boring pit for disposal. Once a section of encasement pipe has been jacked into the void, a new section of pipe shall be butt-welded to the previously installed section.

If voids are encountered or occur outside the encasement pipe, grout holes shall be installed in the top section of the section of the encasement pipe at ten (10) foot centers and the voids filled with 1:3 portland cement grout at sufficient pressure to prevent settlement in the roadway.

In the event an obstruction is encountered during the boring and jacking operation, the auger is to be withdrawn and the excess pipe is to be cut off, capped, and filled with 1:3 portland cement grout at sufficient pressure to fill all voids before moving to another boring site.

In the event the proper grade as shown on the plans is not obtained, and the installation must be abandoned, the installation is to be filled with grout as specified above.

3.03 Open Cut Installation

Where open cut installation of encasements is specified, they shall be in accordance with Section 1502 or Section 1503, as applicable, or as directed by the Engineer.

3.04 Method of Measurement and Payment

The quantity of tunnel liner or steel casing to be paid for will be the actual number of linear feet of liner or casing installed.

All ductile iron carrier pipe, carrier pipe support “spiders”, fittings restraint harnesses, “mega lugs” and transition couplings shall be included in the unit price bid for the specified encasement (tunnel liner or bored and jacked steel pipe) installed.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1530 - VALVES (GENERAL)

PART 1.00 - GENERAL

1.01 Description

The work covered in this Section includes the furnishing and installation of all valves shown on the drawings, required in these specifications, or as directed by the Engineer.

1.02 Quality Assurance

All materials and installations shall comply with pertinent Federal, State and local codes and regulations; with applicable AWWA standards; and with herein referenced standards.

Installations shall be performed only by persons completely trained and experienced in the installation of the required materials, and under the supervision of a person knowledgeable in this work, who is thoroughly familiar with the project design and the approved shop drawings.

1.03 Submittals

Submit shop drawings, in five copies for review and approval by the Engineer, for all valves and other miscellaneous items covered by these specifications.

PART 2.00 - PRODUCTS

Product requirements for valves needed on this project are included elsewhere in Division 15 of these specifications.

PART 3.00 - EXECUTION

3.01 General

All valves shall be installed in accordance with the manufacturer's recommendations, as directed by the Engineer and as herein specified.

Valves shall be installed at locations as shown on the drawings or as directed by the

Engineer.

Installed valves shall be properly aligned, plumbed, and braced when required.

Buried valves shall be properly bedded to prevent settlement. Valves in pits shall be properly supported.

3.02 Buried Valves

Valve boxes, as per Section 1552 of these specifications, shall be installed for each buried valve. Boxes shall be centered over valve operating nut and shall be adjusted to finished ground elevation, unless otherwise directed by the Engineer.

Valves and boxes shall be installed as shown on drawings and backfilled with acceptable material. Backfill shall be compacted as required by the pipeline installation requirements and as directed by the Engineer.

Valves buried greater than 48" in depth shall be equipped with a solid steel extension stem. Stem shall be extended to within 12" of final grade.

3.03 Non-buried Valves

Paint all exposed ferrous metals in accordance with Section 0910 "High Performance Coatings."

3.04 Testing

Valves shall be tested as an integral part of pipeline installation.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1532 - GATE VALVES (RESILIENT SEATED)

PART 1.00 - GENERAL

1.01 Description

This Section provides a description of the required resilient seated gate valves to be used and installed on this project at locations as shown on the drawings or as directed by the Engineer.

PART 2.00 - PRODUCTS

2.01 Gate Valves (Resilient Seated)

All gate valves furnished under these specifications shall fully conform to the latest revision of A.W.W.A. Standard C 509 covering resilient seated gate valves - 2 In. through 12 In. - for Water and Other Liquids," unless otherwise noted herein.

Valves are to be "open-counterclockwise" and shall be complete with a 2-inch square operating nut, unless shown otherwise on the drawings, or as herein stated. Non-buried valves shall be complete with handwheels.

The wedge shall be of cast iron completely encapsulated with rubber.

The sealing rubber shall be permanently bonded to the cast iron wedge to meet ASTM Test for rubber metal bond ASTM D429.

Stems for NRS assemblies shall be cast bronze with integral collars in full compliance with AWWA. OS & Y stems shall be bronze. The NRS stem stuffing box shall be the o-ring seal type with two o-rings located above thrust collar and one o-ring below. The two o-rings above the thrust collar shall be replaceable with valve fully open and subjected to full rated working pressure.

There shall be two low torque thrust bearings located above and below the stem collar. The stem nut shall be independent of wedge and shall be made of solid bronze. There shall be a smooth unobstructed waterway free of all pockets, cavities and depressions in the seat area.

The body and bonnet shall be coated with fusion bonded epoxy both interior and exterior, complying with AWWA C550 and be NSF 61 approved. Each valve shall have maker's name, pressure rating and year in which manufactured cast on the body. Prior to shipment from factory, each valve shall be tested by hydrostatic pressure equal to requirement for both AWWA (twice the specified working pressure) and 400 PSI ULFM requirements.

Gate valves shall be Mueller, American Valve and Hydrant, or equal.

PART 3.00 - EXECUTION

3.01 Installation

Shall be in accordance with Section 1530.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1534 - CHECK VALVES

PART 1.00 - GENERAL

1.01 Description

This Section provides a description of check valves to be used and installed at locations as shown on the drawings or as directed by the Engineer. All valves described in this Section may not necessarily be required for this particular project.

PART 2.00 - PRODUCTS

2.01 Iron Bodied, Swing Check Valves

Check valves shall be of the iron body, bronze mounted, full opening swing type.

Valves in sizes 2 in. through 12 in. shall be rated for 175 psi water working pressure and 350 psi hydrostatic test for structural soundness.

Valves in sizes 16 in. through 24 in. shall be rated for 150 psi water working pressure and 300 psi hydrostatic test for structural soundness.

Check valves shall be furnished with 125# ANSI flanged ends. Clappers shall be all bronze (B-62) for sizes through 4" and cast iron bronze faced (90-0-6-4) for 5" and larger.

All check valves shall be equipped with outside lever and weight.

Check valves to be as manufactured by American, Mueller, Kennedy, Clow, or equal.

2.02 Iron Bodied, Rubber Flapper Swing Check Valves

Check valves shall be of the iron body and cover, full opening swing type.

Valves in sizes 2 in. through 12 in. shall be rated for 175 psi water working pressure and 350 psi hydrostatic test for structural soundness.

Valves in sizes 16 in. through 24 in. shall be rated for 150 psi water working pressure and 300 psi hydrostatic test for structural soundness.

Check valves shall be furnished with 125# ANSI flanged ends.

The flapper shall be Buna-N (70 Duro) having an "O" ring seating edge and be internally reinforced with steel. Flapper shall be captured between the body and the body cover in a manner to permit the flapper to flex from closed to full open position during flow through the valve. Flapper shall be easily removed without need to remove the valve from the line.

Valve shall be suitable for buried service with stainless steel cover bolts.

Check valves to be APCO Series 100 Rubber Flapper Swing Check Valve as manufactured by Valve & Primer Corporation or equal.

PART 3.00 - EXECUTION

3.01 Installation

Shall be in accordance with Section 1530 of these specifications.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1535 - PLUG VALVES

PART 1.00 - GENERAL

1.01 Description

This Section provides a description of plug valves to be furnished and installed on this project at locations as shown on the drawings or as directed by the Engineer.

PART 2.00 - PRODUCTS

2.01 Description

All plug valves shall be of the tight closing, resilient faced plug type and shall be of eccentric seating construction such that the opening movement of the closing member (plug) results in the closing member rising off the body seat contact. Port areas shall be equal to at least 80% of the nominal size pipe area.

Valves shall be drop tight at rated pressure of 150 psig and shall be satisfactory for applications involving throttling service and/or frequent operation and for applications involving open/close valve operation. All Eccentric Seating Plug Valves shall be as supplied by Henry Pratt, DeZurik, or equal.

A. Valve Bodies

Shall be constructed of cast iron ASTM A-126 Class B. Flanges shall be faced and drilled in accordance with ANSI B16.1, Class 125. The valve body shall be fitted with a bolted bonnet. The lower trunnion shall be cast integrally with the valve body.

B. Valve Plug

Shall be constructed of cast iron ASTM A-126 Class B. The plug shall have a cylindrical seating surface which is eccentrically offset from the center of the plug shafts. The plug shafts shall be integral. The plug shall have a synthetic rubber bonded to all surfaces except shaft and thrust bearing surfaces. The rubber compound shall be approximately 70 durometer hardness.

The bond must withstand 75 lbs. pull under test procedure ASTM D-429, Method

B, to conform to the eccentric seating surface of the body. The rubber compound shall be approximately 70 hardness. The bond must withstand 35 lbs. pull under test procedure ASTM D-429, Method B.

C. Valve Body Seats

Shall be constructed of a welded-in overlay of not less than 90% pure nickel on all body seat surfaces in contact with the plug face. Coated non-metallic materials shall not be acceptable.

D. Trunnion Bearings

Valves shall be fitted with sleeve type bearings. Bearings shall be corrosion resistant and constructed of phenolic-backed or fiberglass-backed woven teflon fiber.

E. Packing

The valve bonnet or cover shall be fitted with a cavity to accommodate a packing set. The packing shall be self-adjusting chevron type replacement without disassembling valve, unless otherwise approved by the Engineer.

F. Thrust Bearings

Shall be provided at the top and bottom faced surfaces of the plug. Thrust bearings shall be corrosion resistant and constructed of phenolic-backed or fiberglass-backed woven teflon fiber.

G. Operators

1. Buried Valves

- a. All buried plug valves shall be provided with a 2" square nut for operation with a standard valve wrench.
- b. All buried valves shall be provided with worm and gear actuators suited for the intended service.

2. Non-Buried Valves

- a. All non-buried plug valves in sizes 8" and greater shall have worm gear reducer with handwheel operator.
- b. Non-buried plug valves less than 8" in size shall be provided with wrench actuators.

PART 3.00 - EXECUTION

3.01 Installation

Shall be in accordance with Section 1530 of these specifications.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1545 - AIR RELEASE VALVES (SEWAGE)

PART 1.00 - GENERAL

1.01 Description

Furnish and install sewage air release valves on force mains for this project at locations as shown on the drawings, or as directed by the Engineer, in accordance with these specifications, the project drawings and the manufacturer's recommendations.

PART 2.00 - PRODUCTS

2.01 Sewage Air Release Valve

This air release valve shall automatically release air, gas, or vapor under pressure during system operation.

The valve shall be of the long body design and shall have a 2" NPT inlet, a 1" NPT outlet, and an orifice sized to operate properly with system pressure of 0 to 150 psi.

Valve shall be constructed of cast iron body and top; bronze, brass or stainless steel trim; stainless steel float; and an adjustable orifice button of hi-carbon rubber. The valve shall be furnished and assembled with back flushing attachments, including inlet shut-off valve, blow-off valve, clear water inlet valve, rubber supply hose and quick disconnect couplings, so that the interior body can be flushed periodically for proper operation.

The sewage air release valves shall be Crispin, Val-Matic or equal.

2.02 Other Items

Saddles shall be double strap ductile iron.

Piping shall be cast iron, galvanized iron or copper service pipe as shown on the drawings.

Manhole cones shall be eccentric-type as shown on the drawings and shall be in accordance with Section 0320 of these specifications.

Ring and cover shall be N. C. Department of Transportation Standard No. 840.54 or equal, unless shown otherwise on the drawings.

PART 3.00 - EXECUTION

3.01 Installation

Air release valve installation shall be as shown on the drawings in accordance with the manufacturer's recommendations and Section 0320 and 1503 of these specifications.

Payment for air release valves shall be based on the unit price bid per unit including the valve and accessories, manhole section, ring & cover, stone, saddle, valves and piping - all completely installed.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1550 - FITTINGS

PART 1.00 - GENERAL

1.01 Description

The work included in this Section covers the furnishing and installation of all pipe fittings shown on the drawings, described in the specifications or required to make complete water main, force main or gravity sewer installations, as applicable to this project.

1.02 Submittals

Shop drawings in five (5) copies shall be submitted to the Engineer for review and approval prior to the delivery of any of these materials to the project.

PART 2.00 - MATERIALS

2.01 Ductile Iron Fittings

Unless indicated otherwise on the drawings or herewithin, all fittings shall be ductile iron, mechanical joint compact fittings and shall conform with ANSI/AWWA C153/A21.53.

Ductile iron fittings shall be bituminous coated outside for buried mechanical joint fittings, prime coated outside for exposed flanged fittings with a primer compatible with the final coatings, and all shall be lined with PROTECTO 401 in accordance with Section 1510, Paragraph 2.02.

2.02 PVC Fittings

Unless indicated otherwise on the drawings or herewithin, the Contractor may use solvent weld-type PVC fittings on any PVC pipe-line of less than 4" I.D., except chlorination system and sewer services. Fittings shall be identical to the pipeline on which installed in class and materials and shall conform to the same specifications as are applicable to the pipe.

PART 3.00 - EXECUTION

3.01 Installation

Fittings shall be installed in accordance with Section 1502 or Section 1503, as applicable; as shown on the drawings and as directed by the Engineer.

On gravity sewers, when ductile iron pipe is connected to another pipe material, a "Fernco Flexible Coupling," or equal, shall be used and this connection shall be completely encased in a concrete collar. The concrete for collars shall be Class A, 3,000 psi. The cost of the coupling and concrete shall be included in the unit prices bid for the ductile iron pipe.

On water mains, transition couplings required to go from one type pipe to another shall not be an extra pay item, but shall be included in the unit prices bid for the pipe being installed.

3.02 Testing

Fittings shall be tested in accordance with the pipeline testing requirements.

END OF SECTION

DIVISION 15 - MECHANICAL

DETAILED SPECIFICATIONS

SECTION 1552 - VALVE BOXES - Standard

PART 1.00 - GENERAL

1.01 Description

The Contractor shall furnish and install new standard valve boxes for each buried valve installed on this work, except where otherwise noted.

PART 2.00 - MATERIALS

2.01 Valve Box - Standard

All valve boxes, except as noted otherwise, shall be two (2) piece adjustable screw type of cast iron construction with tops marked "Water" or "Sewer" as appropriate for the installation. Cast iron valve boxes shall conform to ASTM A-48 Class 35B. Boxes shall be Capitol Foundry standard two piece screw type valve box and lid or equal.

PART 3.00 - EXECUTION

3.01 Installation

Valve boxes shall be provided for each buried valve and installed as shown on the drawings. Boxes will be centered over the valve operating nut and will be set plumb. Top of boxes shall be adjusted to be flush with finished ground elevation, unless otherwise directed by the Engineer.

All valve boxes shall be encased in 2' x 2' x 6" concrete pads (3,000 psi). Concrete pads in pavement shall be installed beneath the asphalt pavement.

Valve boxes shall not be considered to be properly set, unless the valve wrench fits easily on the valve.

END OF SECTION

