



**CONTRACT DOCUMENTS &
TECHNICAL SPECIFICATIONS**

PWC2324019-REBID

**WATER MAIN REPLACEMENT FROM ROBESON STREET TO
WINSLOW**

ISSUED FOR BID

DECEMBER 2023

**Fayetteville Public Works Commission
Administrative Building
955 Old Wilmington Road
Fayetteville, NC 28301**

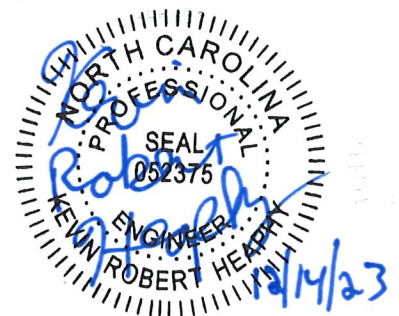


TABLE OF CONTENTS

SECTION A – PROJECT SPECIFICS

General

- Advertisement for Bids
- 00100 – Instructions to Bidders

Bid Submittal Documents

- Bid Schedule – Performance and Delivery
- Bid Checklist
- 00300 – Bid Pricing Form
- Contractor Qualification Forms
- Bid Supplemental Forms and Attachments
- Minority, Women, Disadvantaged Business Enterprise (MWDBE) Program
 - MWDBE Program Forms
- SLS Disclosure Form

SECTION B – CONTRACT EXECUTION DOCUMENTS

- Notice of Award
- Acceptance of Award
- Construction Agreement
- PWC General Conditions
- Contract Supplemental Forms and Attachments
- Notice to Proceed

SECTION C – ADMINISTRATIVE PROVISIONS

DIVISION 1 – GENERAL REQUIREMENTS

- 01000 – Supplementary Conditions
- 01025 – Measurement and Payment
- 01300 – Submittals
- 01400 – Quality Control
- 01700 – Project Closeout

SECTION D – TECHNICAL SPECIFICATIONS

DIVISION 2 – SITE WORK

- 02110 - Site Clearing
- 02111 - Site Clearing, (Utility)
- 02211 - Grading, Utilities
- 02222 - Excavation and Backfilling for Utility Systems *rev 1.1.16*
- 02272 - Erosion Control - General Provisions
- 02273 - Temporary Silt Fence
- 02274 - Gravel Construction Entrance/Exit
- 02275 - Block and Gravel Inlet Protection *rev 7.1.10*
- 02301 - Boring and Jacking
- 02350 - Steel H Piles
- 02500 - Traffic Control
- 02505 - Adjustment of Existing Structures *rev 1.1.17*
- 02573 - Permanent Pavement Patch *rev 1.1.17*
- 02574 - Temporary Pavement Patch (Type I-19.0C)
- 02575 - Driveway Replacement
- 02584 - Roadway and Parking Lot Marking
- 02660 - Water Distribution *rev 12.10.19*
- 02662 - Fire Hydrant Painting

02680 - Epoxy Lining
02730 - Sanitary Sewer System *rev 1.1.16*
02771 - Sewer Lateral Rehabilitation *rev 1.2015*
02831 - Chain Link Fencing
02931 - Lawns and Grasses (Sodding)
02933 - Lawns and Grasses (Seeding)
03301 - Concrete Construction (Utility)
09804 - Special Coatings (Epoxy Lining Ductile Iron Pipe and Fittings *rev 3.31.15*)

APPENDICES

Appendix A – Easements
Appendix B – NCDOT & Railroad Encroachments
Appendix C – Permits
Appendix D – Drawings

SECTION A – PROJECT SPECIFICS GENERAL

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**ADVERTISEMENT FOR BID
FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW**

**Cumberland County
North Carolina**

Pursuant to N.C.G.S 143-129, sealed bids are solicited and will be received at Fayetteville Public Works Commission, Administration Building, Conference Room 107, 955 Old Wilmington Road, Fayetteville, NC 28301, until **2:00 p.m., Wednesday, January 10, 2024**, at which time they will be publicly opened and read.

This project consists of installation of approximately 670 linear feet of twelve (12) inch water main along an existing easement between Robeson Street and Winslow Street, including approximately 150 linear feet of main and casing installed by jack and bore to cross under railroad tracks; testing and connection to the existing water system; abandonment of the existing ten (10) inch water main; and all other necessary items to complete the work as described herein and as described in these Contract Documents.

The foregoing description shall not be construed as a complete description of all work required. All work shall be done in accordance with PWC technical specifications and standard contract terms.

Bids must be enclosed in a sealed envelope addressed to Victoria McAllister, Procurement Manager, Fayetteville Public Works Commission, 955 Old Wilmington Road, Fayetteville, North Carolina 28301. The outside of the envelope must be marked **SEALED BID: WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW** and shall indicate the name, address and state license number of the bidder. Bids shall be submitted on the printed forms, or exact copies thereof, contained in the Contract Documents.

Each bid shall be accompanied by a bid bond of five percent (5%) of the bid executed by a surety company licensed under the laws of North Carolina to execute the Contract in accordance with the bid bond and upon failure to forthwith make payment, the surety shall pay the obligee an amount equal to the amount of said bond. Said deposit shall be retained by the Owner as liquidated damages in event of failure of the successful bidder to execute the Contract within ten (10) days after the Notice of Award or give satisfactory surety as required by law.

Performance and Payment Bonds are required in the amount of 100% of the Contract amount and shall be furnished by the Contractor.

All Contractors are notified that North Carolina Statutory provisions as to licensing of Contractors will be followed as applicable in receiving and evaluating bids and in reading and awarding the Contract (Chapter 87 of the North Carolina General Statutes).

The license classification shall be:

Part 1:	Public Utilities (Water and Sewer)	-	Unlimited
	Unclassified	-	Unlimited

Plans and Specifications including Contract Documents will be available online for viewing and downloading on or about **December 15, 2023** on the PWC Procurement website at <https://www.faypwc.com/purchasing>. In addition, the documents will be available from the Fayetteville State University Construction Resource Office (FSU CRO) at <https://www.uncfsu.edu/academics/colleges-schools-and-departments/broadwell-college-of-business-and-economics/outreach-centers/construction-resource-office>. In collaboration with the North Carolina Institute of Minority Economic Development, the FSU CRO offers services and support to help small, minority, veteran, and women-owned businesses identify and compete for construction-related projects.

At the FSU CRO, potential bidders may:

- Research, view and print project drawings to scale free of charge;
- Use available software to prepare their bid; and
- Receive certification and pre-qualification assistance.

Please email the FSU CRO to make an appointment: fsucro@uncfsu.edu

Plans and Specifications are also being furnished to ISQFT (www.isqft.com) for online posting. Purchase of the documents is not required to bid.

Fayetteville Public Works Commission reserves the right to reject any or all bids for any reason determined by PWC to be in its best interest, or to award the bid to the lowest responsible bidder or bidders, taking into consideration quality, performance, and the time specified in the bids for the performance of the contract.

The bidder to whom the contract may be awarded must comply fully with the requirements of North Carolina General Statutes Section 143-129, as amended.

No bids may be withdrawn after the scheduled Bid Opening for a period of ninety (90) calendar days.

FAYETTEVILLE PUBLIC WORKS COMMISSION
Victoria McAllister
Purchasing Manager

**00100 - INSTRUCTIONS TO BIDDERS
FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW**

A. DEFINED TERMS

Terms used in these Instructions to Bidders are defined in the Definitions and Terminology sections of PWC General Conditions.

B. COPIES OF BIDDING DOCUMENTS

1. Complete sets of the Bidding Documents as stated in the Invitation to Bidders, may be obtained from the PWC Procurement Department.
2. Complete sets of Bidding Documents shall be used in preparing Bids. PWC assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

C. EXAMINATION OF CONTRACT DOCUMENTS, OTHER RELATED DATA, AND PROJECT SITE

1. Before submitting a Bid, each Bidder shall (a) examine the Contract Documents thoroughly, (b) visit the site and become familiar with the site and any local conditions that may in any manner affect the cost, progress, or performance of the Work, (c) be familiar with federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress or performance of the Work, and (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) give the PWC Procurement Manager written notice of all conflicts, errors or discrepancies in the Contract Documents.
2. Bidders should consult the Specifications for the identification of those reports of investigations and tests of subsurface and latent physical conditions at the site or reports that otherwise may affect cost, progress, or performance of the Work which may have been utilized in the preparation of the Drawings and Specifications. PWC will make copies of such reports if available at the cost (non-refundable) of reproduction to any Bidder requesting them. These reports are not intended to constitute any explicit or implicit representation as to the nature of the subsurface and latent physical conditions, which may be encountered at the site or to constitute explicit or implicit representations as to any other matter, contained in any report. Such reports are not guaranteed as to accuracy or completeness and are not part of the Contract Documents. Before submitting a Bid, each Bidder will, at its own expense, make such investigations and tests as the Bidder may deem necessary to determine his Bid for the performance of the Work in accordance with the Contract Documents.
3. On request (minimum 48 hours advance notice), PWC will provide each Bidder access to the site to conduct such investigations and tests, as each Bidder deems necessary for submission of its Bid.
4. The lands upon which the Work is to be performed, right-of-way for access thereto, and other lands available for use by the Contractor in performing the Work are identified in the Contract Documents.

5. The submission of a Bid constitutes an incontrovertible representation by the Bidder that it has complied with every requirement of this Section and that the Contract Documents are sufficient in scope and detail to indicate and convey an understanding of all terms and conditions for the performance of the Work.

D. INTERPRETATIONS AND ADDENDA

1. All questions about the meaning or intent of the bid or Contract Documents shall be submitted in writing to Victoria McAllister, Procurement Manager, by email to procurement@faypwc.com. In order to receive consideration, questions must be received by 5:00 p.m. ET on Friday, December 22, 2023. Any interpretations of questions so raised, which in the opinion of the Project Engineer require interpretations, will be issued by Addenda via email or posted online by the Owner and/or Project Engineer. An Addendum extending the Bid Opening date may be issued up to five (5) business days before the Bid Opening date. An Addendum withdrawing the Invitation for Bid may be issued any time prior to the Bid Opening date. The Owner and Project Engineer will not be responsible for oral interpretations or clarifications, which anyone presumes to make on their behalf.

Bidders are expressly prohibited from contacting any PWC official or employee associated with this project, except as noted above. Violation of this prohibition is grounds for the immediate disqualification of the bidder.

2. PWC may issue such additional Addenda as may be necessary to clarify, correct, or change the Contract Documents. Such Addenda, if any, will be issued in the manner and within the time stated in Paragraph 1 of this Section.
3. Each Bidder shall be responsible for determining that all Addenda issued by PWC have been received before submitting a Bid for the Work.
4. Each Bidder shall acknowledge the receipt of each Addendum on the Bid Form.

E. QUALIFICATION OF CONTRACTORS

1. **Bidder Qualification Form** – The Bid package shall include the completed Contractor Qualification Form and all supporting documentation.
2. **Statutory Requirements** – The Bidder shall comply with all federal, state, and local statutes, regulations, and codes as they relate to the Project. Failure to comply with these requirements shall be considered a breach of Contract.
3. Contractor to provide utility references for similar projects completed by identified crews.
4. PWC is looking for utility contractors with experienced personnel in all facets of water and/or sewer main replacement services. The minimum work experience of the following Personnel Classifications will be required:
 - **Superintendent:** Must have a minimum of 10 years of experience as a superintendent, coordinating and managing all aspects of sewer and/or water construction projects.
 - **Foreman/Crew Leader:** Must have a minimum of 8 years of experience as a foreman/crew leader, coordinating and supervising a team of crew members for sewer and/or water construction projects.

- **Operator:** Must have a minimum of 8 years of experience operating heavy equipment for sewer and/or water construction projects.

5. Equipment Requirements (Minimum)

- Excavator, 65,000 to 85,000 LB Class
- Excavator, 38,000 to 64,999 LB Class
- Excavator, 18,000 to 37,999 LB Class

Contractor will only be paid for equipment and tools in use on work-site.

F. SUBSTITUTE MATERIAL AND EQUIPMENT

The Contract, if awarded, will be on the basis of material and equipment described in the Drawings or required in the Specifications without consideration of possible substitute or "or-equal" items. The procedure for submittal of substitute or "or-equal" items for consideration is set forth in the PWC General Conditions.

G. CONTRACTOR'S LICENSE

1. No General Contractor shall engage in contracting work in the State of North Carolina unless it has been licensed under in accordance with North Carolina law.
2. Bidders are prohibited from contracting for, or bidding upon, the construction, removal, repair or improvements to or upon real property owned, controlled or leased by Fayetteville Public Works Commission without a North Carolina Contractor's License.
3. Each bidder shall indicate its North Carolina Contractor's License number on the bid envelope and the Bid Form.
4. License Classification shall be:
 - Public Utilities Water and Sewer: Unlimited
 - Unclassified: Unlimited

H. SUBCONTRACTORS

1. Contractor shall subcontract no more than 49 percent (49%) of the value of the Contract.
2. Each Bidder shall submit to PWC with its bid the List of Subcontractors, Suppliers, other persons, and organizations proposed for those portions of the Work for which such identification is required. If PWC, after due investigation has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, PWC may, before Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute without an increase in the Bid.
3. If the apparent Successful Bidder declines to make such a substitution, PWC may award the Contract to the next lowest responsive, responsible Bidder that proposes to use acceptable Subcontractors, Suppliers, and other persons, and organizations. The declining to make requested substitutions will not constitute grounds for sacrificing the bid security of any Bidder. If PWC does not make written objection to a Bidder's list of Subcontractors, Suppliers, other persons, or organizations prior to giving Notice of Award, the list will be considered acceptable, subject to revocation as provided in the PWC

General Conditions.

I. MINORITY, WOMEN, DISADVANTAGED BUSINESS ENTERPRISE (MWDBE) PROGRAM / SMALL LOCAL SUPPLIER (SLS) PROGRAM

1. PWC is committed to promoting the utilization of Minority, Women, and Disadvantaged Businesses in PWC's geographical statistical area (GSA) by providing equal opportunity for participating in all aspects of PWC's contracting and procurement programs. The GSA consists of NCDOT division areas 3-8, and 10. PWC is also committed to promoting the utilization of small, local businesses in the Fayetteville Metropolitan Statistical Area (MSA) by increasing opportunities for those businesses to participate in PWC procurements. The MSA consists of Cumberland County, Hoke County, and Harnett County.
2. PWC requires Bidders to report efforts to utilize Minority, Women, and Disadvantaged Business Enterprises (MWDBEs) and Historically Underutilized Businesses (HUBs) for specific projects and requires all Bidders to report all such efforts for MWDBEs, HUBs, and Small Local Suppliers regardless of the requirements of a specific project. Bidders shall document any good-faith efforts and utilization in the MWDBE forms provided within the Contract Documents.
3. NCDOT Disadvantaged Business Enterprise (DBE) and NC Department of Administration (DOA) Historically Underutilized Business (HUB) firms with current certifications are acceptable for listing in the bidder's submittal of MWDBE participation and will be considered to meet any necessary contract goal. Firms that are certified through NCDOT are listed in the "Vendor Directory" which can be accessed through the following: <https://www.ebs.nc.gov/VendorDirectory/default.html>. Firms that are certified through NC DOA are listed at the "Vendor Search" which can be accessed through the following link: <https://evp.nc.gov/vendors/vendorsearchadvanceform/?id=d98aa5d6-0d57-ee11-be6e-001dd804e775>.
4. Bidders shall submit, with their bid, the MWDBE documentation required in the Contract Documents.

J. SUBMISSION OF BIDS

1. All Bidders shall use the enclosed Bid Forms, or exact copies thereof, in submitting their bid prices. PWC will not accept oral Bids or Bids received by telephone, email, or telecopier (FAX machine) for this Bid.
2. All prices must be F.O.B. delivered to the point as indicated by this Bid. PWC will grant no allowance for boxing, crating, or delivery unless specifically provided for in this Bid.
3. The Bid Form must be completed in black ink. Black or blue pen ink is acceptable if handwritten. Discrepancies between amounts shown in words and amounts shown in figures will be resolved in favor of the amounts shown in words. Discrepancies in the multiplication of units of Work and the unit prices will be resolved in favor of the correct multiplication 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.

4. Bid submittals sent by mail should be registered mail. The sealed Bid, marked as indicated above, should be enclosed in an additional sealed envelope similarly marked and addressed to:

Fayetteville Public Works Commission
Attn: Victoria McAllister, Procurement Manager
955 Old Wilmington Road
Fayetteville, North Carolina 28301

5. Mark the envelope in the lower left-hand corner with the project title, hour and due date of Bid, and the Bidder's North Carolina contractor registration number.
6. Bids sent by mail and arriving after the time for the opening of Bids shall not be considered valid Bids. In such instances, the Bidders shall have no claim against PWC.
7. All items contained in the Bid Checklist shall be completely filled out and submitted with the bid. Failure to submit any of the items requested with the Bid Form may be just cause for rejection of the Bid by PWC.
8. All erasures, insertions, additions, and other changes made by the Bidder to the Bid Form shall be signed or initialed by the Bidder. Bids containing any conditions, omissions, erasures, alterations, or items not called for in the Bid, may be rejected by PWC as being incomplete or nonresponsive.
9. The Bid Form must be signed in order to be considered. If the Bidder is a corporation, the Bid must be submitted in the name of the corporation, not simply the corporation's trade name. In addition, the Bidder must indicate the corporate title of the individual signing the Bid.
10. The Bid Form, the Bid security, if any, and any other documents required, shall be enclosed in a sealed opaque envelope. Any notation or notations on the exterior of the envelope purporting to alter, amend, modify, or revise the bid contained within the envelope shall be of no effect and shall be disregarded.
11. All Bids received in the Procurement Department by the deadline indicated will be kept sealed until the time and date of the Bid Opening.
12. All late Bids shall be returned unopened to the sender.

K. BID BOND

1. Each Bid shall be accompanied by an acceptable Bid bond in the amount of five percent (5%) of the Bid amount, and made payable to Fayetteville Public Works Commission, North Carolina.
2. The Bid bond is a guarantee that if the contract is awarded by PWC to the Bidder, the Bidder shall enter into the contract with PWC for the work mentioned in this Bid or forfeit the Bid bond to PWC, not as a penalty, but as liquidated damages.
3. No forfeiture under a Bid bond shall exceed the lesser of (a) the difference between the Bid for which the Bid bond was written and the next low Bid of another Bidder, or (b) the

face amount of the Bid bond.

4. All bonds shall be executed by a surety company selected by the Bidder, which is legally authorized to do business in the State of North Carolina (NCGS §44 A-26), and the bond shall be the same in both form as well as substance as AIA Document A310, Bid Bond.
5. The Bidder shall require the attorney-in-fact, who executed the required bond on behalf of the surety company, to affix thereto a certified and current copy of the power of attorney.
6. The bond premium shall be paid by the Bidder and the cost shall be included in the Bid price.
7. Any inspection of procurement transaction records shall be subject to reasonable restrictions to ensure the security and integrity of the records.

L. OPENING OF BIDS

1. Bids will be opened publicly and read aloud on the date and time set for the Bid Opening in the Notice to Bidders.
2. Any Bidder, upon request, shall be afforded the opportunity to inspect Bid records within a reasonable time after the opening of all Bids but prior to award, except in the event that PWC decides not to accept any of the Bids and to reopen the contract. Otherwise, bid records shall be open to public inspection only after the award of the Contract.
3. Any inspection of procurement transaction records shall be subject to reasonable restrictions to ensure the security and integrity of the records.

M. MODIFICATION OF BIDS

1. A Bid may be modified or withdrawn by the Bidder at any time prior to the time and date set for the Bid Opening. The Bidder shall notify the PWC Procurement Department in writing of its intentions.
2. Modified and withdrawn Bids may be resubmitted to the PWC Procurement Department up to the time and date set for the Bid Opening.

N. WITHDRAWAL OF BID DUE TO ERROR

1. If the Bidder desires to withdraw its Bid, the Bidder must do so before the time fixed for the opening, without prejudice, by communicating its purpose in writing to PWC. After bids are open, bids may only be withdrawn in strict accordance with N.C.G.S. Section 143-129-1

O. BIDS TO REMAIN OPEN

1. All Bids shall remain open for ninety (90) calendar days after the day of the Bid Opening.

P. ESTIMATED QUANTITIES

1. The estimated quantities contained herein in certain items in the Bid are for the purpose of comparing bids, and while they are believed to be close approximations, they are not guaranteed, and settlement will be made on the basis of the work as actually executed at the unit prices in the Bid as accepted. PWC further reserves the right to delete any single line item or combination of items from the bid and cannot guarantee that all quantities

listed in the Contract Documents will be utilized.

2. The Contractor should verify quantities before submitting a bid. Due to conditions that may be found under pavement such as the accurate location of existing water lines, sewer lines, gas lines, and structure services of all types, quantities are subject to change during construction, but this contingency shall not be used for a claim to change unit prices submitted in the Bid.

Q. AWARD OF CONTRACT

1. PWC reserves the right to reject any and all Bids, to waive any and all informalities, and to disregard all nonconforming, nonresponsive, or conditional Bids. PWC reserves the right to request additional information from any or all bidders for evaluation purposes. Failure or refusal to furnish additional information as requested may result in the rejection of the bid.
2. In case of a tie Bid, the tie shall be decided by lot.
3. It is the intent of PWC to recommend the award of this contract to the lowest responsive, responsible Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. In determining the lowest responsible Bidder, PWC may consider, among other criteria, the Bidder's past performance conduct on other contracts, and other information provided by the Bidder as noted below.
4. In determining the lowest responsive Bidder, PWC will evaluate the Bidder's proposed Bid price and the completeness of the submitted bid in accordance with the requirements of the Contract Documents.
5. PWC may consider the operating costs, maintenance considerations, performance date, and guarantees of materials and equipment.
6. PWC may conduct such investigations as deemed necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Bidders, as well as other considerations, to include but not limited to resources available to the Bidder to perform the work effectively, proposed Subcontractors and other persons and organizations to do the work in accordance with the Contract Documents to PWC's satisfaction within the prescribed time.
7. PWC reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to PWC's satisfaction.
8. If the Contract is to be awarded, PWC will give the Successful Bidder a Notice of Award within ninety (90) days after the day of the Bid Opening.
9. The Bidder to whom the contract is awarded shall, within ten (10) days after prescribed documents are presented for signature, execute and deliver the Contract Documents and any other forms or bonds required by the Bid to PWC.
10. The Bidder is required to complete the attached forms that will allow PWC to verify that the Bidder is qualified to perform the Work described in these Contract Documents. All

forms shall be completed and submitted with the Bid. Failure to submit all the required forms shall be considered grounds for PWC to reject the bid.

PWC will review all of the bids and qualification data to determine the lowest responsive, responsible Bidder. PWC reserves the right to not award the Contract to the lowest bidder if the information provided is not complete, does not meet the satisfaction of PWC, or has been falsified. PWC will not request any additional information in order to allow the Contractor to complete bid.

11. During the evaluation phase, bid submittals will be reviewed to ascertain which bids technically and otherwise address all the requirements of these Contract Documents. Bid submittals determined to be technically non-responsive or not sufficiently responsive may be disqualified.

The Bidder shall address each of the Evaluation Criteria as requested in the Technical Evaluation Criteria Form located within Section A Project Specifics Bid Submittal Documents. To be considered substantive, the information must respond to all requirements.

12. PWC may conduct such investigations/verifications as deemed necessary to establish the responsibility, qualification and financial ability of the Bidder. Should PWC find that the apparent low bidder is not the lowest responsive, responsible bidder by integrity of the information furnished, said apparent low bidder will be so notified and its bid bond shall be returned without prejudice. Failure or refusal to furnish any items of information requested by PWC shall be considered as non-responsive and therefore basis for rejection of the bid.

R. TAXES

1. The Successful Bidder shall pay all county, city, state and federal taxes required by laws in effect at the time Bids are received and resulting from the Work or traceable thereto, under whatever name levied.
2. Said taxes shall not be in addition to the contract price between PWC and the Successful Bidder. The taxes shall be an obligation of the Successful Bidder and not of PWC. PWC shall be held harmless from same by the Successful Bidder.

S. PERFORMANCE AND OTHER BONDS

1. The PWC General Conditions set forth PWC's requirements as to Performance and other Bonds.

T. E-VERIFY REQUIREMENTS

1. Contractor hereby acknowledges that "E-Verify" is the federal E-Verify program operated by the US Department of Homeland Security and other federal agencies which is used to verify the work authorization of newly hired employees pursuant to federal law and in accordance with Article 2, Chapter 64 of the North Carolina General Statutes.
2. Contractor further acknowledges that all employers, as defined by Article 2, Chapter 64 of the North Carolina General Statutes, must use E-Verify and after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-

Verify in accordance with NCGS §64-26(a).

3. Contractor hereby pledges, attests and warrants through execution of this Agreement that Contractor complies with the requirements of Article 2, Chapter 64 of the North Carolina General Statutes and further pledges, attests and warrants that any subcontractors currently employed by or subsequently hired by Contractor shall comply with any and all E-Verify requirements. Failure to comply with the above requirements shall be considered a breach of this Agreement.

U. IRAN DIVESTMENT ACT

1. As mandated by N.C.G.S. 147-86.59(a), the Contractor hereby certifies that it is not listed on the Final Divestment List created by the North Carolina State Treasurer pursuant to N.C.G.S. 147-86.58. Contractor further certifies that in accordance with N.C.G.S. 146-86.58(b) that it shall not utilize any subcontractor found on the State Treasurer's Final Divestment List. Contractor certifies that the signatory to this Purchase Order authorized by the Contractor to make the foregoing statement.

*** END OF SECTION ***

**SECTION A – PROJECT SPECIFICS
BID SUBMITTAL DOCUMENTS**

**BID SCHEDULE – PERFORMANCE AND DELIVERY
FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW**

Deadline for Questions from Bidders ¹	5:00 PM ET, Friday, December 22, 2023
Deadline for Addenda issued by PWC Procurement Department and Project Engineer ²	5:00 P.M. ET, Thursday, January 4, 2024
Bid Opening (Submittal Deadline)	2:00 P.M. ET, Wednesday, January 10, 2024 Fayetteville Public Works Commission Administrative Building Conference Room 107 955 Old Wilmington Road Fayetteville, NC 28301
Contract Time:	Notice to Proceed until June 30, 2024
Liquidated Damages:	\$1,000.00 per day for each day beyond the Final Completion Date
Bid Acceptance Period	Within ninety (90) Calendar Days unless otherwise noted

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1. Questions regarding this bid must be submitted in writing to the attention of Victoria McAllister, Procurement Manager, by email to procurement@faypwc.com.

Bidders are expressly prohibited from contacting any FPWC official or employee associated with this Invitation to Bid, except as noted above. Violation of this prohibition is grounds for the immediate disqualification of the bidder.

2. Any addenda to these Contract Documents will be issued by the Project Engineer no later than the date and time stated above.

BID SUBMITTAL CHECKLIST

- 1. Enter Contractor's License Number where called for in the Bid Form and on the outside of the sealed envelope containing the Bid.
- 2. Photocopy of Contractor's License.
- 3. Bid Bond
- 4. Bid Forms Section 00300.
- 5. Provide the responsible North Carolina Registered Agent for Insurance Claims. Include contact information.
- 6. Provide the proposed responsible Bonding Company name. Include contact information.
- 7. List of proposed Subcontractors and material suppliers exceeding 5% of the Contract Value.
- 8. Non-Collusive Affidavit.
- 9. Nondiscrimination Clause.
- 10. Affidavit of Organization and Authority and Sworn Statement.
- 11. Equal Employment Opportunity Acknowledgment.
- 12. Certification regarding Debarment, Proposed Debarment, and other Responsible Matters.
- 13. FTA Certification Regarding Lobbying.
- 14. Identification of Minority Business Participation Form.
- 15. Affidavit A – Listing of Good Faith Efforts, et al.
- 16. Affidavit B – (Only if the Contractor will perform **ALL ELEMENTS OF THE WORK** on this project with their own forces **AND** will complete **ALL ELEMENTS OF THIS PROJECT WITHOUT THE USE OF SUBCONTRACTORS, MATERIAL SUPPLIERS, OR PROVIDERS OF PROFESSIONAL SERVICES.**
- 17. MWDBE Program Forms.
- 18. SLS Disclosure Form.
- 19. The Completed Contractor Qualification Form.

****FAILURE TO SUBMIT THE ABOVE FORMS WITH THE BID FORM MAY BE JUST CAUSE FOR REJECTION OF THE BID BY THE OWNER****

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00300 - BID FORM

TO: **Fayetteville Public Works Commission**
Attn: Victoria McAllister, Procurement Manager
955 Old Wilmington Road
Fayetteville, North Carolina 28301

PROJECT: **WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW**

FROM: BIDDER _____

ADDRESS _____

DATE OF BID _____, 20 ____

- A. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into a Contract with OWNER in the form included in the Contract Documents to perform and furnish all Work (as that term is defined in the Construction Agreement) specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the Contract Documents.

- B. BIDDER accepts all of the terms and conditions of the Instructions to Bidders, including, without limitation, those dealing with the disposition of payment and performance bonds, and insurance certificates. This bid will remain open for ninety (90) calendar days after the day of Bid opening. BIDDER will sign the Contract and submit the Contract Security and other documents required by the Contract Documents within ten (10) days after the date of receipt by the BIDDER.

- C. In submitting this Bid, Bidder represents, as more fully set forth in the Contract, that:
 - 1. BIDDER has examined copies of all the Contract Documents and of the following addenda, receipt of all which is acknowledged on the bid summary page:

 - 2. BIDDER has examined the site and locality where the Work is to be performed, the legal requirements (federal, state, and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress of performance of the work and has made such independent investigations as BIDDER deems necessary.

 - 3. BIDDER acknowledges that OWNER does not assume responsibility for the accuracy of dimensions or completeness of information and data shown or indicated in the Bidding Documents with respect to existing facilities.

 - 4. BIDDER has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site of the Work (except underground facilities) and all drawings of physical conditions in or relating to existing surface or

subsurface structures, pipelines, and utilities at or contiguous to the site are provided within these Contract Documents. Geotechnical Reports and other information regarding subsurface conditions are identified in the attached appendices and detailed in Article V of the PWC General Conditions. BIDDER acknowledges that the OWNER does not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Bidding Documents with respect to underground facilities at or contiguous to the site of Work. BIDDER had obtained and carefully studied (or assumes responsibility for have done so) all such additional or supplementary examinations investigations, explorations, tests, studies, and data that are necessary to identify and understand conditions (surface, subsurface, and underground facilities) at or contiguous to the site of Work or otherwise which may affect cost, progress, performance, or furnishing the Work or which relate to any aspect of means, methods, techniques, sequences, and procedures of construction to be employed by Bidder and safety precautions and programs incident thereto. BIDDER waives all rights to claim that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the proper submission of the Bid for the performance and furnishing of the Work in accordance with the Contract Time, Contract Price, and other terms and conditions of the Contract Documents.

5. BIDDER hereby certifies that, if awarded the Contract for construction of the Project, it will take all possible actions to minimize costs to the OWNER which are related to any disruptions in any part of the Work resulting from unforeseeable conditions which may be encountered and work changes or additions which may be made.
6. BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, exploration, tests, studies, and data with the Contract Documents.
7. BIDDER has given OWNER written notice of all conflicts, errors, ambiguities, or discrepancies that BIDDER has discovered in the Contract Documents and the written resolution thereof by OWNER is acceptable to BIDDER, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.
8. By bidding in response to this invitation, the BIDDER represents that in the preparation and submission of this Bid, said BIDDER did not, either directly or indirectly, enter into any combination or arrangement with any person, firm or corporation or enter into any agreement, participate in any collusion, or otherwise take any action in the restraint of free, competitive bidding in violation of the Sherman Act (15 U.S.C. Section 1).
9. Bid form must be completed in blue or black ink or by typewriter. The Bid price of each item on the form must be stated in both words and numerals. In case of a

conflict, words shall take precedence. Discrepancies in the multiplication of units of work and unit prices will be resolved in favor of the correct multiplication 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.

10. BIDDER understands that the award of contract will be made on the basis of the total Bid amount which will be determined as the sum of the unit price and lump sum Bid Items.
11. BIDDER understands that quantities are estimated and are not guaranteed; they are solely for comparing Bids and establishing the total Bid amount. The Price will be modified by Change Order, and final payment will be based on the quantities of work actually furnished and installed by the successful BIDDER.
12. BIDDER shall complete the Work for the prices indicated on the next page.

BIDDER NAME: _____

Line Item #		Reference to Section 01025-Robeson to Winslow Measurement & Payment Description	Estimated Quantity	Unit	Unit Price	Extended Price
INCIDENTAL ITEMS						
1	1.01	Mobilization	1	L.S.		
2	1.02	Traffic Plan and Traffic Control	1	L.S.		
3	1.03	Erosion and Sedimentation Control	1	L.S.		
4	1.04	Clearing and Grubbing	0.4	AC		
5	1.05	Select Material (Backfill)	70	C.Y.		
6	1.06	Remove and Replace Curb & Gutter – Concrete	30	L.F.		
7	1.07	Undercut Excavation	15	C.Y.		
8	1.08	Remove and Replace Concrete Sidewalk	17	S.Y.		
9	1.09	Replacement of Gravel Driveways and Parking lots	210	S.Y.		
10	1.10	Asphalt Patch in Driveways and Parking Lots	150	S.Y.		
11	1.11	Temporary Asphalt Patch in Robeson St.	25	S.Y.		
12	1.12	Permanent Asphalt Patch in Robeson St.	20	S.Y.		
13	1.13	Permanent Seeding	0.2	AC		
14	1.14	Permanent Sod	27	S.Y.		
15	1.15	Remove and Replace 6' Chain Security Link Fence	130	L.F.		
16	1.16	Slope Stabilization	285	S.Y.		
BASE WATER CONSTRUCTION ITEMS						
17	2.01	Install Water Main by Bore & Jack – 12-inch Factory RJDI with 24-inch Steel Casing	150	L.F.		
18	2.02	Install Water Main by Open Trench – 12-inch RJDI	394	L.F.		
19	2.02	Install Water Main by Open Trench – 12-inch DI	94	L.F.		

BIDDER NAME: _____

20	2.02	Install Water Main by Open Trench – 10-inch RJDI	5	L.F.			
21	2.03	New 10" Class 53 Factory RJDI Water Main and Aerial Crossing Along Water Main Alignment 'B'	1	LS			
22	2.04	New 10-inch Tapping Sleeve & Valve	1	EA			
23	2.05	New 12-inch Gate Valve	3	EA			
24	2.06	New Vacuum/Air Release Valve	1	EA			
25	2.07	New 2-inch Blow Off	1	EA			
26	2.08	Remove and Replace 1" Water Service	1	EA			
27	2.09	Cut & Plug/Abandon Existing Water Main	1	EA			
28	2.10	Grout Fill/Remove Exist. Water Main in Railroad R/W	1	L.S.			
29	2.11	Abandon Existing Aerial Water Main Crossing	1	L.S.			
30	2.12	Abandon Existing Valve	2	EA			
31	2.13	Sterilization and Testing	643	L.F.			
		BASE SEWER CONSTRUCTION ITEMS					
31	3.01	Remove and Replace Sewer Main – 8-inch DI	21	L.F.			
ALLOWANCES							
32	4.01	Contingency	1	L.S.	30,000	30,000	

- BID SUMMARY-

TOTAL BASE BID \$ _____

TOTAL ALTERNATE BID \$ _____

The BIDDER has received, acknowledged, and used the following addenda in completing the Bid. (Initial and Date as appropriate).

Addendum No. 1	Date _____
Addendum No. 2	Date _____
Addendum No. 3	Date _____
Addendum No. 4	Date _____
Addendum No. 5	Date _____
Addendum No. 6	Date _____
Addendum No. 7	Date _____

The undersigned BIDDER _____ (Contractor Name) certifies that they are licensed as a Contractor under N.C.G.S § 87, and that their license number is _____ (License Number).

The undersigned BIDDER hereby agrees to accept an award of the Contract based on the Total Contract Amount as accepted by the OWNER and as indicated on the Notice of Award.

A. BIDDER agrees that Work shall be completed within the time frame indicated in the Agreement as follow:

1. All work described herein to be complete, including restoration and all punch list items from Notice to Proceed until June 30, 2024.
2. The BIDDER acknowledges that time is of the essence in this Contract and that the OWNER will suffer financial loss if the Work is not complete within the time specified in Paragraph D.1 above plus any extensions thereof allowed in accordance with these Contract Documents. BIDDER also recognizes the delays, expense and difficulties involved in proving in a legal proceeding the actual loss suffered by the OWNER if the Work is not complete on time. The Bidder agrees to diligently pursue all available work and complete all work in an expeditious manner.

B. The following documents are attached to and made part of this bid:

Required Bid Security in the form of either a cashier's check or certified check or Bid Bond in the amount of 5% of maximum Bid price.

C. Communications concerning this Bid shall be addressed to: (CONTRACTOR's Name, Address and Telephone Number)

D. The terms used in this Bid which are defined in Definitions and Terminology Section of the PWC General Conditions or as otherwise specifically defined in the Contract Documents have the meanings assigned to them therein, which are incorporated by reference as if fully set forth herein.

E. An individual contractor is required to furnish his social security number and sole proprietorship, partnership and corporation are required to furnish their employer identification numbers to Fayetteville Public Works Commission. Please indicate this information on this Bid Form as follows:

Social Security Number: _____

Federal Employer Identification Number: _____

SUBMITTED ON ____ day of _____ 202__

AN INDIVIDUAL

BY: _____ (SEAL)

(Individual's Name and Signature)

Doing Business as: _____

North Carolina Contractor Registration Number: _____

Business Address: _____

Phone Number: _____

Subscribed and sworn to before me this ____ day of _____ 202__

NOTARY PUBLIC

My Commission Expires: _____

A PARTNERSHIP

BY: _____ (SEAL)

(Firm Name)

(General Partner and Signature)

North Carolina Contractor Registration Number: _____

Business Address: _____

Phone Number: _____

Subscribed and sworn to before me this ____ day of _____ 202__

NOTARY PUBLIC

My Commission Expires: _____

A CORPORATION

BY: _____
(Corporation Name) (State of Incorporation)

BY: _____ (SEAL)
(Name and Title of Person Authorized to Sign and Signature)

ATTEST: _____
(Secretary or Assistant Secretary and Signature)

North Carolina Contractor Registration Number: _____

Business Address: _____

Phone Number: _____

Subscribed and sworn to before me this ____ day of _____ 202__

NOTARY PUBLIC
My Commission Expires: _____

A JOINT VENTURE

BY: _____
(Name and Signature)

Doing Business as: _____

North Carolina Contractor Registration Number: _____

Business Address: _____

Phone Number: _____

Subscribed and sworn to before me this ____ day of _____ 202__

NOTARY PUBLIC
My Commission Expires: _____

(Each joint venturer must sign. The name of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

CONTRACTOR QUALIFICATION FORM

WATER MAIN REPLACEMENT FROM ROBESON ST. TO WINSLOW ST. CONTRACTOR QUALIFICATION FORM

*****MUST BE COMPLETED AND INCLUDED WITH BID*****

Fayetteville Public Works Commission reserves the right to request information from the contractor to complete its assessment of the contractor or subcontractors qualifications. Partially complete forms may be considered non-responsive based on the quantity and quality of information provided. Wholly incomplete forms will be considered non-responsive and will result in rejection of the bid.

CONTRACTOR DOCUMENTATION

(1) Name of Prime Contractor and NC License Number :	Name: NC License No.:
a. Within the last five (5) years , has the contractor been involved in any judgments, claims, or arbitration with regard to construction contracts? If so, provide list and describe each event fully. Attach additional information, as necessary.	<input type="checkbox"/> Yes (provide list and describe each event fully) <input type="checkbox"/> No
b. Within the last five (5) years , has any officer or principal of the organization ever been an officer or principal of another organization when it failed to complete a construction contract? If so, provide list and describe each event fully. Attach additional information, as necessary.	<input type="checkbox"/> Yes (provide list and describe each event fully) <input type="checkbox"/> No
c. Provide documentation (to be submitted with the Bid) that the Contractor has been in business a minimum of 10 years under the same business entity name.	
(2) Provide list of Subcontractors and field of specialty (erosion control, access, etc.), if applicable. Additional subcontractors can be attached to the qualifications form, if necessary.	
a. Subcontractor Name: Specialty:	
b. Subcontractor Name: Specialty:	
c. Subcontractor Name: Specialty:	
d. Subcontractor Name:	

WATER MAIN REPLACEMENT FROM ROBESON ST. TO WINSLOW ST. CONTRACTOR QUALIFICATION FORM

*****MUST BE COMPLETED AND INCLUDED WITH BID*****

Fayetteville Public Works Commission reserves the right to request information from the contractor to complete its assessment of the contractor or subcontractors qualifications. Partially complete forms may be considered non-responsive based on the quantity and quality of information provided. Wholly incomplete forms will be considered non-responsive and will result in rejection of the bid.

Specialty: _____

PRIME CONTRACTOR WATER AND SEWER MAIN EXPERIENCE AND RESOURCES

The Contractor shall include only those projects completed as a Prime Contractor. Any combination of project references may be listed such that the following conditions are met:

- a) At least three (3) of the Prime Contractor project references shall be water main construction projects fully completed and accepted by Owner/Client in the last five (5) years.
 - (i) The project references shall be of similar pipe size, length, scope, nature, and/or cost to the Work described in these Contract Documents.
 - (ii) At least one (1) of their project references shall have been fully completed and accepted by Owner/Client within the last eighteen (18) months.
- b) At least one (1) of the Prime Contractor project references shall be an encased bore and jack project, where the Contractor directly hired a bore and jack sub-contractor or the Contractor self-performed the bore and jack with his own forces.
 - (i) The encased bore and jack project reference may include water/sewer, gas, communication, or other pipeline wherewith installation and materials are standardized by a national standards organizational (e.g., AWWA).
 - (ii) The encased bore and jack project shall have been completed within the last four (4) years.
- c) At least one (1) of the Prime Contractor project references shall be a railroad project, where the Contractor coordinated with a railroad owner to complete a utility project within the railroad right-of-way.
 - (i) The railroad project reference may include water/sewer, gas, communication, or other pipeline wherewith installation and materials are standardized by a national standards organizational (e.g., AWWA).
 - (ii) The railroad project shall have been completed within the last seven (7) years.
- d) Project references shall include the name of the project, dates, owner or client name, owner or client contact including name of owner or client representative, phone number and email and project location, Contractor shall provide references for Fayetteville Public Works Commission to verify project information. Each project should be from separate references. Additional similar projects may be attached at the Contractor's discretion.

a) Project Name:			
Location:			
Superintendent:			
Cost:			
Types of Structures:		# Of Structures	
Start Date:		End Date:	
Client:			
Client Contact Name:		Client Phone:	
Scope/Additional Information:			

WATER MAIN REPLACEMENT FROM ROBESON ST. TO WINSLOW ST. CONTRACTOR QUALIFICATION FORM

*****MUST BE COMPLETED AND INCLUDED WITH BID*****

Fayetteville Public Works Commission reserves the right to request information from the contractor to complete its assessment of the contractor or subcontractors qualifications. Partially complete forms may be considered non-responsive based on the quantity and quality of information provided. Wholly incomplete forms will be considered non-responsive and will result in rejection of the bid.

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b) Project Name:			
Location:			
Superintendent:			
Cost:			
Types of Structures:		# Of Structures	
Start Date:		End Date:	
Client:			
Client Contact Name:		Client Phone:	

Scope/Additional Information:

c) Project Name:			
Location:			
Superintendent:			
Cost:			
Types of Structures:		# Of Structures	
Start Date:		End Date:	
Client:			
Client Contact Name:		Client Phone:	

Scope/Additional Information:

d) Project Name:			
Location:			
Superintendent:			

WATER MAIN REPLACEMENT FROM ROBESON ST. TO WINSLOW ST. CONTRACTOR QUALIFICATION FORM

*****MUST BE COMPLETED AND INCLUDED WITH BID*****

Fayetteville Public Works Commission reserves the right to request information from the contractor to complete its assessment of the contractor or subcontractors qualifications. Partially complete forms may be considered non-responsive based on the quantity and quality of information provided. Wholly incomplete forms will be considered non-responsive and will result in rejection of the bid.

Cost:			
Types of Structures:		# Of Structures	
Start Date:		End Date:	
Client:			
Client Contact Name:		Client Phone:	
Scope/Additional Information:			
e) Project Name:			
Location:			
Superintendent:			
Cost:			
Types of Structures:		# Of Structures	
Start Date:		End Date:	
Client:			
Client Contact Name:		Client Phone:	
Scope/Additional Information:			
e) Provide the number of crews qualified and available to perform the work stated in this Proposal:			
f) Provide the name of the proposed superintendent (list only one (1)) and proposed crew leaders who are qualified and available to perform the work stated in this proposal:	Proposed Superintendent (list only one (1)):		
	Crew leaders/foreman:		

WATER MAIN REPLACEMENT FROM ROBESON ST. TO WINSLOW ST. CONTRACTOR QUALIFICATION FORM

*****MUST BE COMPLETED AND INCLUDED WITH BID*****

Fayetteville Public Works Commission reserves the right to request information from the contractor to complete its assessment of the contractor or subcontractors qualifications. Partially complete forms may be considered non-responsive based on the quantity and quality of information provided. Wholly incomplete forms will be considered non-responsive and will result in rejection of the bid.

g) The Contractor's superintendent (named above) shall have been responsible for or managed projects similar in size to this proposed project, in the past **four (4)** years in the United States. The Contractor shall provide a minimum of **five (5)** references, to document the proposed superintendent's ability and qualifications to meet this requirement. Each reference should be from separate projects. Additional similar projects may be attached at the Contractor's discretion.

****The number of structures in the following Superintendent's References DO NOT COUNT towards the Prime Contractors' total numbers above.****

a. Project Name:			
Location:			
Types of Structures:		# Of Structures	
Start Date:		End Date:	
Client:			
Client Contact Name:		Client Phone:	
Scope/Additional Information:			
b. Project Name:			
Location:			
Types of Structures:		# Of Structures	
Start Date:		End Date:	
Client:			
Client Contact Name:		Client Phone:	
Scope/Additional Information:			
c. Project Name:			
Location:			

WATER MAIN REPLACEMENT FROM ROBESON ST. TO WINSLOW ST. CONTRACTOR QUALIFICATION FORM

*****MUST BE COMPLETED AND INCLUDED WITH BID*****

Fayetteville Public Works Commission reserves the right to request information from the contractor to complete its assessment of the contractor or subcontractors qualifications. Partially complete forms may be considered non-responsive based on the quantity and quality of information provided. Wholly incomplete forms will be considered non-responsive and will result in rejection of the bid.

Types of Structures:		# Of Structures	
Start Date:		End Date:	
Client:			
Client Contact Name:		Client Phone:	
Scope/Additional Information:			
d. Project Name:			
Location:			
Types of Structures:		# Of Structures	
Start Date:		End Date:	
Client:			
Client Contact Name:		Client Phone:	
Scope/Additional Information:			
e. Project Name:			
Location:			
Types of Structures:		# Of Structures	
Start Date:		End Date:	
Client:			
Client Contact Name:		Client Phone:	
Scope/Additional Information:			
h) Provide a list of applicable equipment(including make/model/size/quantity) <u>owned</u> by the prime contractor that will be utilized to complete the scope of work:			

**WATER MAIN REPLACEMENT FROM ROBESON ST. TO WINSLOW ST.
CONTRACTOR QUALIFICATION FORM**

*****MUST BE COMPLETED AND INCLUDED WITH BID*****

Fayetteville Public Works Commission reserves the right to request information from the contractor to complete its assessment of the contractor or subcontractors qualifications. Partially complete forms may be considered non-responsive based on the quantity and quality of information provided. Wholly incomplete forms will be considered non-responsive and will result in rejection of the bid.

- (1) The Contractor shall be certified and/or licensed as an installer by the manufacturer of the proposed lining system. The **Contractor shall submit** a certified statement from the manufacturer that they are a certified and/or licensed installer of the lining material.
- (2) All manufacturers of the proposed lining system shall be certified for the proposed lining system for the design, production, installation, and service of the lining system for a sanitary sewer collection system, and **shall submit** proof of certification.
- (3) The Contractor certifies that they will have a minimum of two (2) crews available to complete the work that may be assigned during each contract period.

Fayetteville Public Works Commission may conduct such investigations/verifications as deemed necessary to establish the responsibility, qualification, and financial ability of the Bidder. Should Fayetteville Public Works Commission adjudge that the apparent low bidder is not the lowest responsive, responsible bidder by virtue of the above information furnished said apparent low bidder will be so notified and his bid security shall be returned to him without prejudice. Failure or refusal to furnish any items of information requested by Fayetteville Public Works Commission shall be considered as non-responsive and therefore basis for rejection of the bid.

Submitted By (print):

Date:

Title:

Company:

Signature:

LIST OF SUBCONTRACTORS

In compliance with the Instructions to Bidders and the Supplementary Conditions, the undersigned submits the following names of Subcontractors to be used in performing the Work.

The Bidder certifies that all Subcontractors listed are eligible to perform the Work and that all Subcontractors performing more than five percent of the work are listed.

<u>Subcontractor's Work</u>	<u>Subcontractor's Name</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Bidder's Signature

BID BOND

This is a Bid Bond that is subject to the provisions of Article 3 of Chapter 44A of the North Carolina General statutes.

This Bond is executed on _____, 20 ____ .

The name of the PRINCIPAL is _____ (1)

_____ (2)

The name of the SURETY is _____

Fayetteville Public Works Commission, Fayetteville, North Carolina is the OWNER

The amount of the Bond is _____

_____ (Dollars) (\$ _____)

KNOW BY ALL MEN BY THESE PRESENTS, the Principal and Surety above named are hereby held and firmly bound unto the above named OWNER hereinafter called the OWNER in the penal sum of the amount stated above in lawful money of the United States, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that whereas the Principal has submitted to the OWNER a certain Bid, attached hereto and hereby made a part hereof to enter into a Contract in writing, for the construction of:

WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW

NOW, THEREFORE

- (a) If said Bid shall be rejected, or in the alternate,
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a Contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said Contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

ATTEST:

(Principal Secretary)
(SEAL)

Principal

BY: _____ (3)

(Address)

Witness as to Principal

Surety

(Address)

(Address)

ATTEST:

N.C. Resident Agent
(SEAL)

Witness as to Surety

(Address)

- (1) Correct name of Contractor
- (2) A Corporation, a Partnership or an Individual, as the case may be
- (3) If Contractor is a Partnership, all partners should execute Bond

**POWER OF ATTORNEY
(Attach)**

**AFFIDAVIT OF ORGANIZATION AND AUTHORITY SWORN STATEMENT
WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW**

STATE OF _____

COUNTY OF _____

_____ being the first duly sworn on oath deposes and says that the Bidder on the attached Bid Form is organized as indicated below and that all statements herein made are made on behalf of such Bidder and that this deponent is authorized to make them.

(Fill Out Applicable Paragraph)

1. CORPORATION

The bidder is a corporation organized and existing under the laws of the State of _____ and its President is _____, and its Secretary is _____, and does have a corporate seal. The _____ is authorized to sign construction Contract and Bids for the company by action of its Board of Directors taken _____, a certified copy of which is hereto attached. (Strike out last sentence if not applicable.)

2. PARTNERSHIP

The Bidder is a Partnership consisting of _____ and _____, partners doing business under the name of _____.

3. SOLE TRADER

The Bidder is an individual and if operating under a trade name, such trade name is as follows:

4. ADDRESS

The business address of the Bidder is as follows:

Its phone number is _____

Bidder

By: _____

EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract the Contractor agrees as follows:

- a. The Contractor will not discriminate against any employee or applicant because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to race, color, religion, sex, or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of the nondiscrimination clause.
- b. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
- c. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other Contract understanding, a notice, to be provided, advising the labor union or worker's representative of the Contractor's commitments under the Equal Employment Opportunity Section of this Contract, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- d. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of such rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further OWNER Contracts.
- e. The Contractor will include the provisions of this section in every subcontract or purchase order unless exempted by rules, regulations, or orders of the OWNER so that such provisions will be binding upon each Subcontractor or vendor.

(Use the following form for signatures by a CORPORATION):

Corporate Name

ATTEST:

(Assistant) Secretary

(Vice) President

(CORPORATE SEAL)

(Use the following form for signatures by and INDIVIDUAL):

BY: _____ (Seal)

WITNESS:

(ACKNOWLEDGEMENT OF THE ABOVE SIGNATURE MUST BE NOTARIZED USING FORM ON FOLLOWING PAGE)

NONDISCRIMINATION CLAUSE

It is specifically agreed as part of the consideration of the signing of this Contract that the parties hereto, their agents, officials, employees or servants will not discriminate in any manner on the basis of age, handicap, race, color, creed, sexual orientation or national origin with reference to the subject matter of this Contract, no matter how remote.

This provision being incorporated for the benefit of Fayetteville Public Works Commission, Fayetteville, North Carolina and its residents may be enforced as set out in said ordinances, enforcement of this provision shall be by action for specific performance, injunctive relief, or other remedy as by law provided.

This provision shall be binding on the successors and assigns of the parties hereto with reference to the subject matter of this Contract.

(Use the following form for signatures by a CORPORATION):

Corporate Name

ATTEST:

(Assistant) Secretary

BY: _____
(Vice) President

(Printed Name)

BY: _____
(Printed Name)

(Corporate Seal)

(Use the following form for signatures by a PARTNERSHIP or INDIVIDUAL):

BY: _____(SEAL)

(Printed Name)

WITNESS:

(Printed Name)

NON-COLLUSIVE AFFIDAVIT

State of _____)
_____)

County of _____)

_____ being first duly sworn,
deposes and says that:

- (1) He is the _____
(Owner, Partner, Officer, Representative or Agent)
of _____ the BIDDER that has
submitted the attached BID;
- (2) He is fully informed respecting the preparation and contents of the attached BID and of all
pertinent circumstances respecting such BID;
- (3) Such BID is genuine and is not a collusive or sham BID;
- (4) Neither the said BIDDER nor any of its officers, partners, owners, agents, representatives,
employees or parties in interest, including this affiant, have in any way colluded, conspired,
connived or agreed, directly or indirectly, with any other BIDDER, firm, or person to submit
a collusive or sham BID in connection with the Contract for which the attached BID has
been submitted; or to refrain from bidding in connection with such Contract; or have in any
manner, directly or indirectly, sought by agreement or collusion, or communication, or
conference with any BIDDER, firm, or person to fix the price or prices in the attached BID
or of any other BIDDER, or to fix any overhead, profit, or cost elements of the BID price
or the BID price of any other BIDDER, or to secure through any collusion, conspiracy,
connivance, or unlawful agreement any advantage against (Recipient), or any person
interested in the proposed Contract;
- (5) The price or prices quoted in the attached BID are fair and proper and are not tainted by
any collusion, conspiracy, connivance, or unlawful agreement on the part of the BIDDER
or any other of its agents, representatives, owners, employees or parties in interest,
including this affidavit.

BY _____

ITS _____
(Title)

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

Notary Public

My Commission Expires:

END OF AFFIDAVIT

F.T.A. CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

(To be submitted with each bid or offer exceeding \$100,000)

The undersigned _____ certifies, to the best of his or her knowledge and belief, that:

- (1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, *et seq.* .)]
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.]

The Contractor, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. A 3801, *et seq.*, *apply* to this certification and disclosure, if any.

_____ Signature of Contractor's Authorized Official

_____ Name and Title of Contractor's Authorized Official

_____ Date

**CERTIFICATION OF PRIMARY PARTICIPANT REGARDING DEBARMENT,
SUSPENSION AND OTHER RESPONSIBILITY MATTERS**

The Primary Participant, _____ (major third party contractor), certifies to the best of its knowledge and belief, that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
2. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (2) of this certification; and
4. Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(If the primary participant is unable to certify to any of the statements in this certification, the participant shall attach an explanation to this certification.)

THE PRIMARY PARTICIPANT _____ CERTIFIES OR AFFIRMS THE TRUTHFULNESS AND ACCURACY OF THE CONTENTS OF THE STATEMENTS SUBMITTED ON OR WITH THIS CERTIFICATION AND UNDERSTANDS THAT THE PROVISIONS OF 31 U.S.C. SECTIONS 3801 ET. SEQ. ARE APPLICABLE THERETO.

Signature

Title

Printed Name

Date

***** THIS PAGE WAS INTENTIONALLY LEFT BLANK*****

SECTION B - CONTRACT EXECUTION DOCUMENTS

NOTICE OF AWARD

TO: _____

PROJECT DESCRIPTION: WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW

The OWNER has considered the BID submitted by you for the above described work in response to its Advertisement for Bids dated _____ and Instructions to Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$_____.

You are required by the Instructions to Bidders to execute the Agreement and furnish the required Performance Bond, Payment Bond, and Certificates of Insurance within ten (10) calendar days from the date of this NOTICE to you.

If you fail to execute said Agreement and to furnish said Bonds within ten (10) days from the date of this Notice, said Owner will be entitled to consider all your rights arising out of the OWNER's acceptance of your BID as abandoned and as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____, 202_.

**OWNER: FAYETTEVILLE PUBLIC WORKS COMMISSION
FAYETTEVILLE, NC**

**BY: Victoria McAllister
TITLE: Purchasing Manager**

ACCEPTANCE OF AWARD

WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW

Receipt of the preceding NOTICE OF AWARD is hereby acknowledged this the _____
day of _____, 202 .

(CONTRACTOR)

By: _____

Title: _____

- END OF SECTION -

CONSTRUCTION AGREEMENT RV 7.17.23

PERFORMANCE BOND

Date of Execution: _____

Name of Principal: _____

(Contractor)

Name of Surety: _____

Name of Contracting

Body: Fayetteville Public Works Commission, Fayetteville, N.C.

Amount of Bond: _____

PROJECT: WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW

KNOW ALL MEN BY THESE PRESENTS, That We, the Principal and Surety above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these present.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal entered into a certain Contract with the Contracting Body, identified as shown above and hereto attached.

NOW, THEREFORE, if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions there of that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any Guaranty required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under the several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed, and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in _____ counterparts.

Witness:

(Proprietorship of Partnership)

By:

Title:

(Corporate Secretary or
Assistant Secretary, Only)

Witness:

Countersigned:

(N.C. Licensed Resident Agent)

CONTRACTOR:

(Trade or Corporate Name)

By:

Title:

(Owner, Partner, Corporate President or
Vice-President, Only)
(CORPORATE SEAL)

SURETY COMPANY:

(Surety Company Name)

By:

Title:

(Attorney in Fact)
(SURETY CORPORATE SEAL)

PAYMENT BOND

Date of Execution: _____

Name of Principal: _____

(Contractor)

Name of Surety: _____

Name of Contracting

Body: Fayetteville Public Works Commission, Fayetteville, N.C.

Amount of Bond: _____

PROJECT: WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW

KNOW ALL MEN BY THESE PRESENTS, that We, the PRINCIPAL and Surety above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal entered into a certain Contract with the Contracting Body, identified as shown above and hereto attached.

NOW THEREFORE, if the Principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under the several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed, and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in _____ counterparts.

Witness:

CONTRACTOR:

(Proprietorship of Partnership)

(Trade or Corporate Name)

By:

By:

Title:

Title:

(Corporate Secretary or
Assistant Secretary, Only)

(Owner, Partner, Corporate President or
Vice-President, Only)
(CORPORATE SEAL)

Witness:

SURETY COMPANY:

(Surety Company Name)

By:

Countersigned:

Title:

(N.C. Licensed Resident Agent)

(Attorney in Fact)
(SURETY CORPORATE SEAL)

**POWER OF ATTORNEY
(ATTACH)**

**CERTIFICATE(S) OF INSURANCE
(Attach)**

NOTICE TO PROCEED

TO: _____

Date: _____

PROJECT: **WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW**

You are hereby notified to commence work in accordance with the Contract dated _____, 202, on or before _____, 202, and you are to complete the WORK within the **contract period** thereafter. The date of final completion therefore is _____.

FAYETTEVILLE PUBLIC WORKS COMMISSION

BY: _____

Victoria McAllister

Purchasing Manager

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED

is hereby acknowledged this the _____ day of _____, 202.

(CONTRACTOR)

BY: _____

TITLE: _____

- END OF SECTION -



**MINORITY, WOMEN, AND DISADVANTAGED
BUSINESS ENTERPRISE PROGRAM**

for

**Construction, A&E Services, Purchase Contracts,
Professional Services, and General Services**

Contents

PURPOSE	4
OVERVIEW	4
I. INTRODUCTION	5
II. ADMINISTRATION	5
III. DEFINITIONS	5
IV. PROCEDURES FOR CONSTRUCTION CONTRACTS	7
A. Purpose and Application	7
B. MWDBE Aspirational Goals	7
C. Invitation for Bids	7
D. PWC Responsibilities	8
E. Contractor Good-Faith Efforts	9
F. Awarding of Construction Contracts	11
G. Counting MWDBE Participation Toward Meeting the Aspirational Goals	12
H. Documentation of Attainment of MWDBE Participation Requirements	13
V. PROCEDURES FOR ARCHITECTURE & ENGINEERING (A&E) CONTRACTS	13
A. Purpose and Application	13
B. MWDBE Aspirational Goals	14
C. Request for Qualifications	14
D. PWC Responsibilities	14
E. Meeting MWDBE Aspirational Goals	15
F. Counting MWDBE Participation	15
G. Provider Good-Faith Efforts	15
H. Documenting Good-Faith Efforts	16
VI. PROCEDURES FOR PURCHASE CONTRACTS	17
A. Purpose and Application	17
B. MWDBE Aspirational Goals	17
C. Request for Quotes or Invitation for Bids	17
D. PWC Responsibilities	18
E. Award of Purchase Contracts	19
VII. PROCEDURES FOR PROFESSIONAL, GENERAL (OTHER) SERVICE CONTRACTS	19
A. Purpose and Application	20
B. MWDBE Aspirational Goals	20
C. PWC's Responsibilities	20
D. Request for Proposals	21
E. Meeting MWDBE Aspirational Goals	21
F. Counting MWDBE Participation	21

G. Provider Good-Faith Efforts	22
I. Documenting Good-Faith Efforts	23
VIII. UTILIZATION OF JOINT VENTURE	23
IX. MWDBE REPORTING PROCEDURE	24
MWDBE COMPLIANCE PROVISIONS	25
Affidavit A: Listing of the Good Faith Efforts	27
Affidavit B: Intent to Perform Contract with Own Workforce	28
Affidavit C: Percentage of MWDBE Participation	29
Affidavit D: Good Faith Efforts	31
Affidavit E: Identification of MWDBE/Local Participation	32
MWDBE ADD / CHANGE FORM	33

PURPOSE

The Fayetteville Public Works Commission (PWC) is committed to promoting the utilization of Minorities, Women, and Disadvantaged Businesses by providing equal opportunity for participating in all aspects of PWC's contracting and procurement programs, including but not limited to, construction projects, A&E services, purchase contracts, and professional and general (other) service contracts.

To achieve this purpose, PWC has established this Minority, Women, and Disadvantaged Business Enterprise Program (MWDBE) to support historically underutilized businesses, encourage capacity development, and offer procurement opportunities to certified business enterprises.

OVERVIEW

PWC's MWDBE Program is a voluntary goals program in construction, A&E services, purchase contracts, and professional and general (other) services based on "good-faith efforts." These goals are established for a five-year period and achievement will be evaluated annually.

The aspirational goals of PWC for the utilization of Minority, Women, and Disadvantaged Business Enterprises are:

Minority business participation in construction services	14%
Women business participation in construction services	11%
Minority business participation in A&E services	6%
Women business participation in A&E services	5%
Minority business participation in purchase contracts	4%
Women business participation in purchase contracts	4%
Minority business participation in professional services	19%
Women business participation in professional services	3%
Minority business participation in general (other) services	9%
Women business participation in general (other) services	4%

I. INTRODUCTION

In 2021, Fayetteville Public Works Commission (PWC) contracted with Griffin & Strong, P.C. (GSPC) to conduct a Disparity Study to determine the effectiveness of the current policies related to local, minority, and women owned businesses and to recommend modifications and adjustments, if necessary, to PWC's policies that comply with the law.

PWC continues to implement race and gender conscious and race and gender-neutral measures to try to increase utilization of Minority, Women, and Disadvantaged Business Enterprise (MWDBE) firms. PWC has a basis to continue race and gender conscious remedies or policies toward achieving annual aspirational goals.

The MWDBE aspirational goals and guidelines developed and recommended do not require nor provide for racially based set-asides; rather they require good-faith effort by both local government and contractors to recruit and select minorities and women businesses, consistent with North Carolina Statutes and the Constitution of the United States as interpreted by the Croson Decision.

II. ADMINISTRATION

PWC General Manager/CEO is authorized to take all usual and legal administrative actions necessary to implement this Program. The ultimate responsibility for the MWDBE Program administration is assigned to the PWC General Manager/CEO or its designee. PWC General Manager/CEO or its designee is either to be personally responsible or to designate a specific person to coordinate and manage this Program. PWC General Manager/CEO or its designee is responsible for determining whether a contractor has complied with this Program and shown good-faith efforts to do so. Except for those staff services specifically assigned by this Program to other departments, the heads of departments responsible for the construction, and procurement of services and goods shall be responsible to PWC General Manager/CEO or its designee and shall cooperate with PWC General Manager/CEO or its designee in implementing this Program.

The MWDBE Program shall apply to all construction contracts, A&E contracts, purchase contracts, and services as specified in Sections IV through VII. The provisions of this Program take precedence over any other department plans or procedures in conflict herewith, except specific requirements mandated by terms or conditions of agreements in force between PWC and the federal government or the State of North Carolina that require different procedures than those described in this Program. This Program will be evaluated at the end of five years to determine its effectiveness and what adjustments are required.

III. DEFINITIONS

Affirmative Action - Specific steps to eliminate discrimination and efforts to ensure nondiscriminatory results and practices in the future, and to fully involve Minority, Women, and Disadvantaged Business Enterprises in contracts and programs.

Aspirational Goal/Goal - A voluntary percentage or quantitative objective.

Bidder/Participant - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.

Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment or service, including construction and leases, and obligating the buyer to pay for them.

Contractor - Any person, firm, partnership, corporation, association, or joint venture that has been awarded a public contract or lease, including every subcontract on such a contract.

Day – A calendar day of 24 hours measured from midnight to the next midnight. Also referred to throughout the Program documents as “days or “calendar days.”

Discrimination - To distinguish, differentiate, separate and/or segregate on the basis of age, race, religion, color, sex, national origin, handicap and/or veteran status.

Equipment - Includes materials, supplies, commodities, and apparatus.

Joint Venture - An association of two or more businesses to carry out a single business enterprise for profit, for which purpose they combine their property, capital, efforts, skills, and knowledge.

Lessee - A business that leases, or is negotiating to lease, property from PWC or equipment or services to PWC, or to the public on PWC property.

Minority - A person who is a citizen or lawful permanent resident of the United States and who is:

- a. Black American (a person having origins in any of the black racial groups of Africa);
- b. Hispanic American (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
- c. Portuguese (a person of Portuguese, Brazilian, or other Portuguese culture origin, regardless of race);
- d. Asian American (a person having origins in any of the original people of the Far East, Southeast Asia, the Indian sub-continent, or the Pacific Islands); and
- e. Native American (a person having origins in any of the original people of North America).

MWDBE - Any certified minority, women, and disadvantaged business enterprise.

Minority, Women, Disadvantaged Business Enterprise (MWDBE) - A business that is at least fifty-one (51) percent owned and controlled by minority group members or women. An MWDBE is **bona fide** only if the minority group or female ownership interests are real and continuing and not created solely to meet the MWDBE requirement. In addition, the MWDBE must itself perform satisfactory work or services or provide supplies under the contract and not act as a mere conduit. In short, the contractual

relationship must also be **bona fide**.

IV. PROCEDURES FOR CONSTRUCTION CONTRACTS

A. Purpose and Application

1. The general purpose of this Program is to help develop and support Minority, Women, and Disadvantaged Business Enterprises (MBE, WBE, and DBE) by providing opportunities for participation in the performance of all construction contracts financed entirely with PWC funds.
2. This Program shall apply to construction contracts when the PWC's estimated contract cost is \$100,000 or more, except when a contract is exempt from competitive bidding under the General Statutes of North Carolina. Contracts between \$30,000 and \$99,999.99 will also be covered by the exemption.
3. Where contracts are financed in whole or in part with federal or state funds, including grants, loans, or other funding sources containing MBE, WBE, DBE Programs, PWC will follow the federal government or the State of North Carolina. PWC General Manager/CEO or its designee will be responsible for monitoring the Program to ensure the goals are met.
4. Since PWC construction contracts are prepared by the Engineering and Facilities Departments, each of these departments shall prepare such documents with Procurement pre-approved templates for the bidding process, which includes the Program goals as required to implement this Program.
 - a. Within sixty (60) days of the Commission's approval of this Program, the departmental procedures and contract provisions shall be in effect for all bid documents issued after the date of Commission approval.

B. MWDBE Aspirational Goals

1. To implement the purpose of this Program, the goal shall be to award at least fourteen (14) percent of the total of all construction contract award amounts in each fiscal year to MBE firms and at least eleven (11) percent to WBE firms.
2. PWC General Manager/CEO or its designee may determine that higher or lower goals are appropriate on a project-by-project basis, where it can be shown that the type, size, or location of the project will affect the availability of MBE, WBE, or DBE firms, so long as the aggregate of all contracts does not lower the annual goals.

C. Invitation for Bids

1. Bidders shall submit MWDBE information with their bids. Such information shall be subject to verification by MWDBE Program staff before awarding the contract. The information shall include the names of the MWDBEs to be used and the dollar value of each such MWDBE transaction.

2. Contractors, subcontractors, suppliers, or MWDBE members of a joint venture intended to satisfy the PWC's MBE/WBE/DBE goals shall be certified by the State Department of Transportation (DOT) or North Carolina Office of Historically Underutilized Business (HUB).

D. PWC Responsibilities

1. **MWDBE Directory** – The MWDBE Program staff will establish and maintain a directory of certified Minority, Women, and Disadvantaged Business Enterprises. The purpose of the directory is to provide a resource for prime bidders on PWC construction projects who intend to solicit bids from MBE and WBE subcontractors and suppliers to meet PWC's MBE and WBE goals. The directory will not constitute a recommendation or endorsement of any listed firm.

The directory will be developed and maintained by the MWDBE Program Staff.

- a. The directory will include:
 - i. Business name, address, telephone number, and email address;
 - ii. Name(s) of business owner(s);
 - iii. Type of license;
 - iv. NAICS;
 - v. Type of MWDBE certification, and;
 - vi. Certification and expiration date with an acceptable agency.
 - b. PWC shall advertise on a contract-by-contract basis throughout the year as deemed necessary for MWDBE outreach. Advertisements shall be placed with minority/women-focused publications (state and local). Notification will also be sent to community organizations which might have knowledge of MWDBE firms.
 - c. The department heads and MWDBE Program staff should attend local and regional business fairs to promote the MWDBE Program. The departments shall also identify potentially eligible contractors through affirmative action efforts and the normal course of business. The names of identified contractors shall be forwarded to the MWDBE Program staff.
2. **MWDBE Eligibility Standards** – The eligibility of a business is determined by the ownership and control of the business.
 - a. An eligible Minority Business Enterprise owner is a citizen or lawful permanent resident of the United States, a member of a recognized ethnic or racial group, and fifty-one (51) percent owner of the business.
 - b. The eligible ethnic or racial groups are:
 - i. Black/African American
 - ii. Hispanic American
 - iii. Asian American

iv. Native American

- c. An eligible Women Business Enterprise owner is a citizen or lawful resident of the United States and a fifty-one (51) percent owner of the business and is female.

3. **Removal of MWDBE Procedures** - A contractor certified as a MWDBE may be removed from the program directory for, but not limited to, any of the following reasons:

- a. **Change of Status** - PWC General Manager/CEO or its designee may remove a MWDBE if he/she finds that the ownership or control of the business changes so that the business no longer meets the requirements of Section IV, D(2) (b) and (c) above.
- b. **Failure to comply with the MWDBE Program** - The certification of a business as a MWDBE may be removed by PWC General Manager/CEO or its designee if he/she finds any of the following conditions:
- i. That a business has submitted inaccurate, false or incomplete information to PWC;
 - ii. That in performance of a contract, a business has failed to comply with requirements of the contract with PWC;
 - iii. That in performance of a contract, a business has failed to comply with MWDBE requirements of a contract established by a contractor with PWC in response to PWC requirements; or
 - iv. That a business has otherwise failed to comply with the provisions of this MWDBE Program.
- c. **Appeal of Removal** - A business may appeal a determination of a MWDBE by satisfying the eligibility requirements in Section IV, D (2) (b) and (c).
- d. **Pre-bid Meeting or Site Visit** - PWC may hold a pre-bid meeting on formal and informal bid contracts for all prospective bidders, subcontractors, and MWDBEs for the purpose of explaining the provisions of the MWDBE Program, the process for bidding, and the contract to be performed. Available data on MWDBEs interested and/or capable of engaging in the prospective contract shall be made available to prospective bidders, contractors, and subcontractors.

E. Contractor Good-Faith Efforts

The contractor (bidder) shall make good-faith efforts to encourage the participation of MWDBEs in projects prior to submission of bids in order to be considered as a responsive bidder. A good-faith effort shall include, at a minimum, specific affirmative action steps and complete documentation thereof. The following list of factors to determine good-faith effort is not exclusive or exhaustive:

1. Whether the bidder attended any pre-submittal or pre-bid meetings, if scheduled

by PWC;

2. Whether the bidder identified and selected specific items of the project for which the contract could be performed by Minority and/or Women Business Enterprises, to provide an opportunity for participation by those enterprises (including, where appropriate, breaking down contracts into economically feasible units to facilitate MWDBE participation);
3. Whether the bidder advertised, a reasonable time before the date the bids are opened, in one or more daily or minority weekly newspapers or trade associations (i.e., N.C. Minority Business Association), trade journals, or other media;
4. Whether the bidder provided email notice of their interest in bidding on the contract to at least three (3) Minority, Women, or Disadvantaged Business Enterprises (for each identified sub-item of the contract) licensed to provide the specific items of the project a reasonable time prior to the opening of bids;
5. Whether the bidder provided interested Minority, Women, and Disadvantaged Business Enterprises with information about the Plan, specifications, and requirements for the selected subcontracting or material supply work;
6. Whether the bidder contacted PWC's MWDBE Program staff for assistance in identifying minority and women businesses certified with approved public agencies as referenced in Section IV, D (2) (b) and (c);
7. Whether the bidder negotiated in good-faith with Minority, Women, or Disadvantaged Business Enterprises and did not unjustifiably reject as unsatisfactory bids prepared by a Minority, Women, or Disadvantaged Business Enterprises, as defined by PWC;
8. Whether the bidder, where applicable, advised and made efforts to assist interested MWDBEs in obtaining bonds, lines of credit, or insurance required by PWC or contractor;
9. Whether the bidder's efforts to obtain MWDBEs participation could reasonably be expected by PWC to produce a level of participation sufficient to meet the goals of PWC.

Bidders are cautioned that even though their submittal indicates they will meet the MWDBE goals, they should document their good- faith efforts and be prepared to submit this information to protect their eligibility for award of the contract in the event PWC questions whether the good-faith requirement has been met.

10. **Performance of MBE/WBE/DBE Subcontractors and Suppliers** - The MWDBEs listed by the contractor on the Program Affidavits, which is determined by PWC to be certified, shall perform the work and supply the materials for which they are listed unless the contractor has received prior written authorization from PWC to perform the work with other forces or to obtain the materials from other sources.

The contractor shall enter into subcontracts and supply copies of all fully executed subcontracts with each MWDBE listed on the Program Affidavits to PWC's MWDBE Program staff after award of the contract and prior to the issuance of a Notice to Proceed. Any amendments to the subcontracts shall be submitted to the MWDBE Program staff within **five (5) days** of execution.

Authorization to utilize other forces or sources of materials shall be requested by submitting a "Change or Add a Subcontractor Form" for the following reasons:

- a. The listed MWDBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract, when such written contract, based upon the general terms, conditions, plans and specifications for the project, or on the terms of such subcontractor's or supplier's written bid, is presented by the contractor.
- b. The listed MWDBE becomes bankrupt or insolvent.
- c. The listed MWDBE fails or refuses to perform his/her subcontract or furnish the listed materials.
- d. The work performed by the listed subcontractor is unsatisfactory according to industry standards and is not in accordance with the plans and specifications; or the subcontractor is substantially delaying or disrupting the progress of the work.

All "Change or Add a Subcontractor Forms" shall be accompanied by good faith efforts documentation as specified on the form.

F. Awarding of Construction Contracts

1. If a construction contract is to be awarded, it shall be awarded in accordance with North Carolina General Statutes to the lowest responsible bidder who complies with all of the prescribed requirements and either:
 - a. Made a good-faith effort to comply with these goals and requirements before the time bids are opened as described above. Where a good-faith effort is claimed by the apparent lowest responsible bidder, the bidder shall be required to submit documentation **WITHIN TWENTY-FOUR (24) HOURS OF PWC'S NOTIFICATION**, which in most instances will occur the day of bid opening to show that the criteria for good-faith efforts have been met, or
 - b. Once a firm is determined to be an eligible MWDBE, and before the contract is awarded, the total dollar value to be paid to the MWDBE shall be evaluated by the MWDBE Program Staff to ensure that it is in accordance with the bidder's proposal.

If the evaluation shows that the bidder has misrepresented MWDBE participation or has not made a good-faith effort to meet the contract goals for MBE or WBE

participation, the bidder may be disqualified.

G. Counting MWDBE Participation Toward Meeting the Aspirational Goals

The degree of participation by MWDBE contractors, subcontractors, suppliers, or joint-venture partners in contract awards shall be counted in the following manner:

1. Once a firm is determined to be an eligible MWDBE contractor in accordance with this Program, the total dollar value of the contract awarded to the MWDBE is counted as participation.
2. The goals can be met by any certified MWDBE contractor, subcontractor, supplier, trucker, or joint-venture partner as listed in PWC and agency directory. All MWDBEs used to meet the goal must be certified by an approved agency and verified by PWC at the time of bid opening. Only certified firms can be counted toward the goal. The standard for certification is set forth in this Program.
3. The total dollar value of a contract with a disadvantaged business owned and controlled by a minority woman is counted toward either the minority goal or the goal for women, but not toward both. The contractor or MWDBE Program staff may choose the goal to which the value is applied.
4. In the case of a joint venture, the joint venture recipient or contractor may count toward its MWDBE goals a portion of the total dollar value of the contract that the MWDBE partner's participation in the joint-venture represents. Credit will be given equal to the minority partner's percentage of ownership in the joint venture. A MWDBE joint-venture partner must be responsible for a clearly defined portion of the work to be performed in addition to satisfying requirements for ownership and control.
5. A recipient or contractor may count toward its MWDBE goals only expenditures to MWDBEs whose ownership interests are real and continuing and not created solely to meet PWC's goals for participation, and that perform a commercially useful function in the work of a contract. A MWDBE is considered to perform a commercially useful function when it is responsible for execution of a distinct element of the work of a contract and carries out its responsibilities by actually performing, managing, and supervising the work involved. To determine whether a MWDBE is performing a commercially useful function, the MWDBE Program staff shall evaluate the amount of work subcontracted, industry practices, and other relevant factors. Consistent with normal industry practices, an MWDBE may enter into subcontracts. If a MWDBE contractor subcontracts a significantly greater portion of the work of the contract than would be expected on the basis of normal industry practices, the MWDBE shall be presumed not to be performing a commercially useful function. Evidence to rebut this presumption may be presented to the MWDBE Program staff. The MWDBE may present evidence to rebut this presumption. The MWDBE Program staff decision on the rebuttal of this presumption is subject to review by PWC General Manager/CEO or its designee. Once a contractor is determined to be an eligible MWDBE in accordance with this section, the total dollar value of the contract awarded to MWDBE is counted toward the applicable MWDBE goals, except as provided in

the provisions of this section.

6. A contractor may count toward its MWDBE goals expenditures for materials and supplies obtained from MWDBE suppliers and manufacturers, provided that the MWDBE assumes the actual and contractual responsibility for the provision of the materials and supplies.

H. Documentation of Attainment of MWDBE Participation Requirements

In order that PWC General Manager/CEO or its designee may make a recommendation to PWC as to the responsiveness of bidders, bidders shall be required to submit the following information on each MWDBE-related subcontract:

1. A description of the subcontract and purchase(s) of significant equipment and supplies to be used to perform the subcontract or prime contract, including the name and address of each MWDBE firm selected, and the name and telephone number of a contact person;
2. The dollar amount of participation of each MWDBE;
3. A statement of intent from the MWDBE subcontractor or material supplier as;
 - a. Identified in Section IV, H(1) above that they intend to contract or supply the materials, or
 - b. Sworn statements, with appropriate documentation, showing that the contractor made a good-faith effort to comply with the MWDBE Program in accordance with Section IV, E of this Program.

V. PROCEDURES FOR ARCHITECTURE & ENGINEERING (A&E) CONTRACTS

A. Purpose and Application

1. The general purpose (goal) of this Program is to help develop and support MWDBEs by providing opportunities for participation in the performance of PWC's A&E contracts financed entirely with PWC funds.
2. This Program applies to all A&E contracts except contracts in those unique circumstances where written exemption of particular contracts is determined as an exception, and less than fifty thousand dollars (\$50,000.00) by PWC General Manager/CEO. PWC General Manager/CEO or its designee will be responsible for administering and monitoring the Program to ensure that appropriate action(s) are taken in efforts of achieving the goals.
3. Where contracts are funded in whole or in part with federal or state funds and the grants, loans, or other funding sources containing MWDBE Program requirements, PWC General Manager/CEO or its designee will be responsible for monitoring the Program to ensure the goals are met.

4. Since PWC Request for Qualifications (RFQ) are prepared by the Engineering and Facilities Departments, each of these departments shall prepare such documents with Procurement pre-approved templates for the qualification-based selection process, which includes the Program goals as required to implement this Program.

B. MWDBE Aspirational Goals

1. To implement this Program, the goal shall be to award six percent (6%) of the total A&E contract dollars awarded in each fiscal year to MBE firms and five percent (5%) to WBE firms. The goals will become effective on the date that PWC approves the Program and continue for a period of five (5) years.

C. Request for Qualifications

1. It is not required that contracts under \$50,000 meet the contract goal. When possible, at least twenty-five (25) percent of the firms notified of the contract opportunity shall be MWDBE. A list of available firms will be provided by the MWDBE Program staff to the Procurement Advisor and Department. The MWDBE Program staff shall track and report the firms that are notified and that provide submittals.

D. PWC Responsibilities

1. Identification of MWDBE Firms

- a. The MWDBE Program staff will establish and maintain a directory of certified Minority, Women, and Disadvantaged Business Enterprises. The purpose of the directory is to provide a resource on PWC A&E projects. The directory will not constitute a recommendation or endorsement of any listed firm. The directory will be developed and maintained by the MWDBE Program Staff.
- b. The directory will include:
 - i. Business name, address, telephone number, and email address;
 - ii. Name(s) of business owner(s);
 - iii. Type of license;
 - iv. NAICS;
 - v. Type of MWDBE certification, and;
 - vi. Certification and expiration date with an acceptable agency.
- c. PWC shall advertise on a contract-by-contract basis throughout the year as deemed necessary for MWDBE outreach. Advertisements shall be placed with minority/women-focused publications (state and local). Notification will also be sent to community organizations which might have knowledge of MWDBE firms.

- d. The department heads and MWDBE Program staff should attend local and regional business fairs to promote the MWDBE Program. The departments shall also identify potentially eligible firms through affirmative action efforts and the normal course of business. The names of identified firms shall be forwarded to the MWDBE Program staff.

E. Meeting MWDBE Aspirational Goals

1. Goals must be met by awarding contracts to certified MWDBE firms. The MWDBE must be certified at the time of the contract award. MWDBE firms not certified at the time of the contract award will not be counted towards MWDBE goals. MWDBE goals may be met by a certified joint venture or partnership. In the case of joint ventures or partnerships, MWDBE participation counted toward the goal will be equal to the percentage of the total dollar value of the contract that the MWDBE partner is responsible for performing.

F. Counting MWDBE Participation

1. The total dollar value of a contract with a disadvantaged business owned and controlled by a minority woman is counted toward either the minority goal or the goal for women, but not toward both. The contractor or MWDBE Program staff may choose the goal to which the value is applied.
2. If a determination is made by the MWDBE Program staff that the goals have not been met, the prime service provider will be required to submit a good-faith effort statement prior to PWC awarding the contract.

G. Provider Good-Faith Efforts

The following is a list of the efforts that should be made by the prime A&E firm to encourage MWDBE participation. In order to receive credit for having made "good faith efforts", the prime A&E firm should document all actions taken to include the following:

1. Attending pre-bid meetings scheduled by the department;
2. Identifying selected specific items of the project which could be executed by a MWDBE;
3. Soliciting MWDBE A&E firm participation in a reasonable time before the solicitations are due through advertisements in circulation media, trade publications, and minority-focused media;
4. Contacting local firms, firms owned by minorities or women, and associations or business development centers which disseminate information to local businesses and businesses owned by minorities or women in a timely manner to allow sufficient time for MWDBEs to respond;
5. Following up on initial solicitations of interest by contacting the MWDBE to determine whether the MWDBE was interested in performing specific items of the

project;

6. Attempting to enter into joint venture or partnership arrangements with MWDBEs and provide interested MWDBEs with information about the requirements for the project;
7. Providing assistance to MWDBEs in the review of qualification submittal and work to be done by sub-A&E firms;
8. Using available directories of certified MWDBEs and other available resources;
9. Ensuring that the firm negotiated in good faith with the MWDBE and did not unjustifiably reject as unsatisfactory qualifications prepared by any Minority, Women, or Disadvantaged Business Enterprise;
10. Making every effort to obtain Minority, Women, or Disadvantaged Business Enterprise participation that could reasonably be expected to produce a level of participation sufficient to meet the goals of PWC; and
11. Providing interested minority, women, and disadvantaged businesses with information relative to project requirements.

H. Documenting Good-Faith Efforts

If the prime A&E firm does not meet the goals for MWDBE participation at the time of qualification submittal, then the following documents indicating "good-faith efforts" should be submitted as a minimum:

1. A report of all proposals received by the prime service provider from MWDBE sub-A&E firms must indicate the action taken by the prime A&E firm in response to the qualification submittal. In cases where proposals have been rejected, the reason for rejection must be indicated.
2. Documentation of efforts to enter into agreements with MWDBEs for sub-A&E work or arrangements for joint ventures, partnerships, or other multi-entity relationships. Also included should be a statement of why agreements or arrangements were not made.
3. Proof of contact with MWDBEs and associations or business development centers that disseminate information to MWDBEs.
4. A copy of emails or notices sent to groups in Section VI, J(3) above notifying them of the firm's intent to submit a qualification submittal to PWC. The emails or notices should indicate the areas of work available for sub-A&E firms.
5. Description of assistance provided to MWDBEs in review of the qualification submittal and work to be done by sub-A&E firms.
6. Description of the use made by firms of available resources such as directories of MWDBEs.

7. Documentation of advertisements sent to general circulation media, trade publications, and minority-focused media.
8. Proof of attendance at any pre-bid meeting.

If the prime A&E firm fails to meet the MWDBE goals with its proposed project team and cannot provide documentation of "good-faith efforts", these failures will be noted to the involved department by the MWDBE Program Staff, and the firm may be disqualified.

VI. PROCEDURES FOR PURCHASE CONTRACTS

A. Purpose and Application

1. The general purpose of this Program is to help develop and support Minority, Women, and Disadvantaged Business Enterprises (MBE, WBE, and DBE) by providing opportunities for participation in purchase contracts financed entirely with PWC funds.
2. This Program shall apply to purchase contracts over \$30,000 for apparatus, materials, supplies and purchase contracts for goods where the patent-holder is not the sole supplier. PWC General Manager/CEO or its designee will be responsible for monitoring the Program to ensure the goals are met.
3. Where contracts are funded in whole or in part with federal or state funds and the grants, loans, or other funding sources containing MWDBE Program requirements, PWC General Manager/CEO or its designee will be responsible for monitoring the Program to ensure the goals are met.
4. Since PWC purchase contracts are prepared by various departments, each of these departments shall prepare such documents with Procurement pre-approved templates for the quote or bid process, which includes the goals as required to implement this Program. PWC Departments shall document and provide to the MWDBE Program staff a list of all providers notified and responses received for informal purchases.

B. MWDBE Aspirational Goals

1. To implement the purpose of this Program, the goal shall be to award at least four (4) percent of the total of all purchase contract award amounts in each fiscal year to MBEs and at least four (4) percent to WBE firms. It is further the intent of PWC to encourage, to the extent allowed the use of local vendors (defined as located within Cumberland, Hoke, or Harnett County) whenever doing so is consistent with the requirements under G.S. 143-129.

C. Request for Quotes or Invitation for Bids

1. The various departments soliciting goods will be responsible for contacting from the directory at least one MBE and one WBE for a price quotation of \$30,000 or more on each purchase contract with MWDBE availability.

2. A list of available MWDBEs will be provided by the MWDBE Program staff to the Procurement Advisor and Department. The MWDBE Program staff shall track and report the MWDBEs that are notified and that provide submittals.

D. PWC Responsibilities

1. Identification of MWDBEs

- a. The MWDBE Program staff will establish and maintain a directory of certified Minority, Women, and Disadvantaged Business Enterprises. The purpose of the directory is to provide a resource for on PWC purchase contracts. The directory will not constitute a recommendation or endorsement of any listed supplier. The directory will be developed and maintained by the MWDBE Program Staff.
 - b. The directory will include:
 - i. Business name, address, telephone number, and email address;
 - ii. Name(s) of business owner(s);
 - iii. NAICS;
 - iv. Type of MWDBE certification, and;
 - v. Certification and expiration date with an acceptable agency.
 - c. PWC shall advertise on a contract-by-contract basis throughout the year as deemed necessary for MWDBE outreach. Advertisements shall be placed with minority/women-focused publications (state and local). Notification will also be sent to community organizations which might have knowledge of MWDBE suppliers.
 - d. The department heads and MWDBE Program staff should attend local and regional business fairs to promote the MWDBE Program. The departments shall also identify potentially eligible suppliers through affirmative action efforts and the normal course of business. The names of identified suppliers shall be forwarded to the MWDBE Program staff.
2. **MWDBE Eligibility Standards** – The eligibility of a business is determined by the ownership and control of the business.
- a. An eligible Minority Business Enterprise owner is a citizen or lawful permanent resident of the United States, a member of a recognized ethnic or racial group, and fifty-one (51) percent owner of the business.
 - b. The eligible ethnic or racial groups are:
 - i. Black/African American
 - ii. Hispanic American
 - iii. Asian American
 - iv. Native American

- c. An eligible Women Business Enterprise owner is a citizen or lawful resident of the United States and a fifty-one (51) percent owner of the business and is female.
- 3. **Removal of MWDBE Procedures** - A supplier certified as a MWDBE may be removed from the program directory for, but not limited to, any of the following reasons:
 - a. **Change of Status** - PWC General Manager/CEO or its designee may remove a MWDBE if he/she finds that the ownership or control of the business changes so that the business no longer meets the requirements of Section IV, D(2) (b) and (c) above.
 - b. **Failure to comply with the MWDBE Program** - The certification of a business as a MWDBE may be removed by PWC General Manager/CEO or its designee if he/she finds any of the following conditions:
 - i. That a business has submitted inaccurate, false or incomplete information to PWC;
 - ii. That in performance of a contract, a business has failed to comply with requirements of the contract with PWC;
 - iii. That in performance of a contract, a business has failed to comply with MWDBE requirements of a contract established by a contractor with PWC in response to PWC requirements; or
 - iv. That a business has otherwise failed to comply with the provisions of this MWDBE Program.
 - c. **Appeal of Removal** - A business may appeal a determination of a MWDBE by satisfying the eligibility requirements in Section IV, D (2) (b) and (c).
 - d. **Pre-bid Meeting or Site Visit** - PWC may hold a pre-bid meeting on formal and informal bid contracts for all prospective bidders, subcontractors, and MWDBEs for the purpose of explaining the provisions of the MWDBE Program, the process for bidding, and the contract to be performed. Available data on MWDBEs interested and/or capable of engaging in the prospective contract shall be made available to prospective bidders, contractors, and subcontractors.

E. Award of Purchase Contracts

- 1. If a purchase contract is to be awarded, it shall be awarded in accordance with North Carolina General Statutes and/or other applicable PWC, Commission, and State regulations.

VII. PROCEDURES FOR PROFESSIONAL, GENERAL (OTHER) SERVICE CONTRACTS

A. Purpose and Application

1. The general purpose (goal) of this Program is to help develop and support MWDBEs by providing opportunities for participation in the performance of PWC's professional service contracts and general (other) service contracts (hereinafter referred to as service contracts).
2. This Program applies to all service contracts except contracts under \$30,000, and in those unique circumstances where PWC General Manager/CEO or its designee determines that an exception is necessary.
3. Where contracts are funded in whole or in part with federal or state funds and the grants, loans, or other funding sources containing MWDBE Program requirements, PWC General Manager/CEO or its designee will be responsible for monitoring the Program to ensure the goals are met.
4. PWC General Manager/CEO or its designee will be responsible for administering and monitoring the Program to ensure that appropriate action(s) are taken in efforts of achieving the goals.

B. MWDBE Aspirational Goals

1. To implement this Program, the goal shall be to award nine percent (9%) of the total service contract dollars awarded in each fiscal year to MBE firms and four percent (4%) to WBE firms. The goals will become effective on the date that PWC approves the Program and continue for a period of five (5) years.

C. PWC's Responsibilities

1. Identification of MWDBE Firms

- a. The MWDBE Program staff shall establish and maintain a directory of certified MWDBE service providers that shall be made available to all departments to assist them in identifying appropriate MWDBE service providers that can be used to meet PWC's MWDBE goals. The directory shall include the businesses which provide the services routinely procured by PWC and the NAICS which the businesses are capable of providing. The directory will not constitute a recommendation or endorsement of any listed business. The directory will include:
 - i. Business name, address, and telephone number;
 - ii. Name(s) of business owner(s);
 - iii. NAICS of services available;
 - iv. Type of MWDBE certification, and;
 - v. Certification and expiration date with an acceptable agency.
- b. PWC shall provide a list of opportunities at least 30 days prior to each fiscal year (July) for MWDBE service providers. Advertisements shall

be placed with minority/women-focused publications (state and local). Notification will also be sent to community organizations that might have knowledge of MWDBE firms. Interested MWDBEs shall provide a letter of interest within **14 calendar days** of the advertisement.

- c. For opportunities that arise throughout the fiscal year, PWC shall provide an Advertisement for opportunity to but not limited to MWDBE service providers within the MWDBE directory and identified MWDBEs from the Disparity Study. Advertisements shall be placed with minority/women-focused publications (state and local). Notification will also be sent to community organizations that might have knowledge of MWDBE firms. Interested MWDBEs shall provide a letter of interest within **7 calendar days**.
- d. The department heads and MWDBE Program staff should attend local and regional business fairs to promote the MWDBE Program. The departments shall also identify potentially eligible service providers through affirmative action efforts and the normal course of business. The names of identified businesses shall be forwarded to the MWDBE Program staff.

D. Request for Proposals

1. MWDBE contract goals shall be set for service contracts over \$30,000.00. The request for proposals shall state the contract goals of four (4) percent for both MWDBE Professional and General Service contractors.
2. Contracts under \$30,000 and contracts without letters of interest are not required to meet the contract goal.
3. A list of available service providers will be provided by the MWDBE Program staff to the Procurement Advisor(s) and department(s). The MWDBE Program staff shall track and report the service providers that are notified and that provide proposals.

E. Meeting MWDBE Aspirational Goals

1. Goals must be met by awarding contracts to certified MWDBE service providers. The MWDBE must be certified at the time of the contract award. MWDBE service providers not certified at the time of the contract award will not be counted towards MWDBE goals. MWDBE goals may be met by a certified joint venture or partnership. In the case of joint ventures or partnerships, MWDBE participation counted toward the goal will be equal to the percentage of the total dollar value of the contract that the MWDBE partner is responsible for performing.

F. Counting MWDBE Participation

1. The total dollar value of a contract with a disadvantaged business owned and controlled by a minority woman is counted toward either the minority goal or the goal for women, but not toward both. The contractor or MWDBE Program staff

may choose the goal to which the value is applied.

2. If a determination is made by the MWDBE Program staff that the goals have not been met, the prime service provider will be required to submit a good-faith effort statement prior to PWC awarding the contract.

G. Provider Good-Faith Efforts

The following is a list of the efforts that should be made by the prime service provider to encourage MWDBE participation. In order to receive credit for having made "good faith efforts", the prime service provider should document all actions taken to include the following:

1. Attending pre-bid meetings scheduled by the department;
2. Identifying selected specific items of the project which could be executed by a MWDBE;
3. Soliciting MWDBE service provider participation in a reasonable time before the proposals are due through advertisements in circulation media, trade publications, and minority-focused media;
4. Contacting local firms, firms owned by minorities or women, and associations or business development centers which disseminate information to local businesses and businesses owned by minorities or women in a timely manner to allow sufficient time for MWDBEs to respond;
5. Following up on initial solicitations of interest by contacting the MWDBE to determine whether the MWDBE was interested in performing specific items of the project;
6. Attempting to enter into joint venture or partnership arrangements with MWDBEs and provide interested MWDBEs with information about the requirements for the project;
7. Providing assistance to MWDBEs in the review of proposals and work to be done by sub-service providers;
8. Using available directories of certified MWDBEs and other available resources;
9. Ensuring that the proposer negotiated in good faith with the MWDBE and did not unjustifiably reject as unsatisfactory quotes prepared by any Minority, Women, or Disadvantaged Business Enterprise;
10. Making every effort to obtain Minority, Women, or Disadvantaged Business Enterprise participation that could reasonably be expected to produce a level of participation sufficient to meet the goals of PWC; and
11. Providing interested minority, women, and disadvantaged businesses with information relative to project requirements.

I. Documenting Good-Faith Efforts

If the prime service provider does not meet the goals for MWDBE participation at the time the proposals are due, then the following documents indicating "good-faith efforts" should be submitted as a minimum:

1. A report of all proposals received by the prime service provider from MWDBE sub-providers must indicate the action taken by the prime service provider in response to the proposal. In cases where proposals have been rejected, the reason for rejection must be indicated.
2. Documentation of efforts to enter into agreements with MWDBEs for sub-provider work or arrangements for joint ventures, partnerships, or other multi-entity relationships. Also included should be a statement of why agreements or arrangements were not made.
3. Proof of contact with MWDBEs and associations or business development centers that disseminate information to MWDBEs.
4. A copy of emails or notices sent to groups in Section VI, J(3) above notifying them of the firm's intent to submit a qualification submittal to PWC. The emails or notices should indicate the areas of work available for sub-providers.
5. Description of assistance provided to MWDBEs in review of the qualification submittal and work to be done by the sub-provider.
6. Description on use made by firms of available resources such as directories of MWDBEs.
7. Documentation of advertisements sent to general circulation media, trade publications, and minority-focused media.
8. Proof of attendance at any pre-bid meeting.

If the prime service provider fails to meet the MWDBE goals with its proposed project team and cannot provide documentation of "good-faith efforts", these failures will be noted to the involved department by the MWDBE Program Staff, and the service provider may be disqualified.

VIII. UTILIZATION OF JOINT VENTURE

PWC is committed to promoting the utilization of joint venturing amongst business enterprises and to support, encourage, and offer procurement opportunities to support utilization when available so that business enterprises can meet capacity development.

The purpose of Joint Venturing is to connect high potential MWDBEs with a Prime Contractor that will supplement their growth and development. Joint Venturing is seen as an important approach to help MWDBEs compete for larger contracts. PWC conducts many outreach events to connect certified MWDBEs with PWC decision makers and prime contractors. PWC shall provide targeted outreach, training, and technical support

to MWDBEs and urge Prime contractors to provide an equivalent level of outreach and support when joint venturing is available. PWC's mission is to provide an innovative program to the industry that focuses on the accelerated growth of diverse partnerships.

IX. MWDBE REPORTING PROCEDURE

1. The MWDBE Program staff shall submit quarterly progress reports to PWC Departments. The quarterly progress reports shall be prepared by the MWDBE Program staff from information (i.e. pay applications, MWDBE forms, and requisition checklist form) submitted by each department involved in procurement within thirty (30) days following the period (each quarter). Progress reports shall indicate the type of procurement contract (i.e., construction, A&E, purchase, professional services, or general services) and shall include the following:
 - vi. Number and dollar value of total procurement contracts;
 - vii. Number and dollar value of all procurement contracts awarded to MWDBEs by the department;
 - viii. Where goals are not met, the progress report shall specify the reasons and include recommendations for increasing participation.
2. PWC General Manager/CEO or its designee shall submit an annual report to Commission. The report shall include the total number of procurement contracts by departments and the dollar value of all contracts with MWDBE participation. The level of MWDBE participation shall be reported annually.

**FAYETTEVILLE PUBLIC WORKS COMMISSION'S
MWDBE COMPLIANCE PROVISIONS**

APPLICATION:

The requirements of Fayetteville Public Works Commission (PWC) Minority, Women, and Disadvantaged Business Enterprise (MWDBE) Program for participation specific contracts are hereby made part of the Contract Documents. Copies of the Program may be obtained from:

Fayetteville Public Works Commission
Economic Inclusion Programs
P.O. Box 1089
Fayetteville, North Carolina 28302
Phone (910) 223-4016 Fax (910) 483-1429
E-mail: EIProgram@faypwc.com

NCDOT DBE Directory: www.ebs.nc.gov/VendorDirectory

HUB Directory: <https://ncadmin.nc.gov/businesses/hub>

MWDBE Compliance Requirements:

1. The Bidder shall provide, with their Bid Form, at the time bids are due, the documents set forth below, properly executed. Returning executed copies indicates and establishes that the Bidder understands and agrees to any incorporated MWDBE contract provisions.
2. All Bidders must provide with their Bid Form, at the time bids are due, a properly completed and executed copy of **either:**
 - Affidavit A – Listing of Good-Faith Efforts **OR**
 - *Affidavit B – Intent to Self-Perform with Own Workforce.

*Affidavit B should **only** be used if the Contractor will perform **ALL Elements** of the Work on this project with their own forces **AND** will complete **ALL Elements** of this project **WITHOUT** the use of subcontractors, material suppliers, or providers of professional services.
3. Upon being identified as the apparent lowest responsive, responsible Bidder, a Bidder shall, within twenty-four (24) hours of PWC's notification provide a properly completed and executed copy of **either:**
 - Affidavit C – Percentage of MWDBE Participation **OR**
 - Affidavit D – Good-Faith Efforts.
4. All Bidders must provide with their Bid Form, at the time bids are due, a properly completed and executed copy of Affidavit E- Identification of MWDBE/Local Participation Form

All written statements, certifications, or intentions made by the Bidder shall become a part of the agreement between the Contractor and Fayetteville Public Works Commission for performance of this contract.

SUBCONTRACTOR PAYMENT REQUIREMENTS:

North Carolina General Statutes 143-134.1 (N.C.G.S.) states that the percentage of retainage on payments made by the prime contractor to the subcontractor shall not exceed the percentage of retainage on payments made by the Fayetteville Public Works Commission to the prime contractor. Failure to comply with this provision shall be considered a breach of the contract, and the contract may be terminated in accordance with the termination provisions of the contract.

The Contractor shall provide an itemized statement of payments to each MWDBE subcontractor before final payment is processed.

The Contractor shall provide an itemized statement of payments to each NON-MWDBE subcontractor before final payment is processed.

Contractor

Signature

Printed Name

Title

Date

Affidavit A: Listing of the Good Faith Efforts

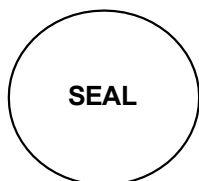
Affidavit of _____
(Name of Bidder)

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

Total Available GFE Points: 155		Minimum Number GFE Points Required: 50
Points		
10	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	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.	
15	Breaking down or combining elements of work into economically feasible units to facilitate minority participation.	
10	Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.	
10	Attending any pre-bid meetings scheduled by the public owner.	
20	Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.	
15	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.	
25	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.	
20	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	Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.	
Total GFE Points (Claimed by Bidder):		Total GFE Points (Assessed by PWC):

In accordance with NCGS 143-128.2(d) the undersigned will enter into a formal agreement with the firms listed in the Identification of Small Disadvantaged Business Participation schedule conditional upon execution of a contract with the Owner. Failure to abide by any applicable statutory provision may constitute a breach of the contract. The undersigned hereby certifies that he or she has read the terms of the MWDBE business commitment and is authorized to bind the Bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____



State of North Carolina, County of _____

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

Notary Public _____

My commission expires _____

Affidavit B: Intent to Perform Contract with Own Workforce

Affidavit of _____
(Name of Bidder)

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

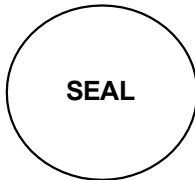
(Name of Project)

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 workforces; and will complete all elements of this project **without** the use of subcontractors, material suppliers, or providers of professional services.

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

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

Date: _____ Name of Authorized Officer: _____



State of North Carolina, County of _____

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

Notary Public _____

My commission expires _____

Affidavit C: Percentage of MWDBE Participation

Affidavit of _____
(Name of Bidder)

I hereby certify that on contract: _____
(Name of Project)

\$ _____
(Dollar Amount of Total Bid)

I will expend a minimum of _____% of the total dollar amount of the contract with Minority, Women, and Disadvantaged Business Enterprises (MWDBE). MWDBEs will be employed as subcontractors, vendors, or providers of professional services. Such work will be subcontracted to the following firms listed below.

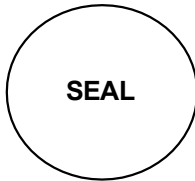
<u>Name, Address, & Phone No.</u>	<u>*MWDBE Category</u>	<u>NAICS</u>	<u>Dollar Value</u>	<u>% of Contract</u>

*MWDBE categories: Black-African Americans (B), Hispanic-Americans (H), Asian- Americans (A), Native-Americans (I), Women (F), Socially/Economically Disadvantaged (D)

Pursuant to NCGS 143-128.2(d), the undersigned will enter into a formal agreement with MWDBEs 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: _____



State of North Carolina, County of _____

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

Notary Public _____

My commission expires _____

Affidavit D: Good Faith Efforts

If Owner determines using reasonable discretion that Affidavit C is insufficient, Bidder agrees to provide the following information regarding any good-faith efforts.

<u>Name, Address, & Phone No.</u>	<u>*MWDBE Category</u>	<u>NAICS</u>	<u>Dollar Value</u>

*MWDBE categories: Black-African Americans (B), Hispanic-Americans (H), Asian- Americans (A), Native-Americans (I), Women (F), Socially/Economically Disadvantaged (D)

Bidder may be requested to provide documentation of the Bidder's good-faith efforts. Examples of documentation may include the following:

- a. Copies of solicitations for quotes to MWDBEs. Each solicitation may include a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- b. Copies of quotes or responses received from each firm responding to the solicitation.
- c. A telephone log of follow-up calls to each firm sent a solicitation.
- d. For subcontracts where a MWDBE is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- e. Documentation of any contacts or correspondence to MWDBE, community or contractor organizations in an attempt to meet the goal.
- f. Copy of pre-bid roster.
- g. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for MWDBEs.
- h. Letter detailing reasons for rejection of a MWDBE due to lack of qualification.
- i. Letter documenting proposed assistance offered to MWDBEs 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.

Date: _____ Name of Authorized Officer: _____



State of North Carolina, County of _____

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

Notary Public _____

My commission expires _____

Affidavit E: Identification of MWDBE/Local Participation

(Name of Bidder)

I hereby certify that on contract: _____

(Name of Project)

We will use the following Minority, Women, and Disadvantaged Business Enterprises (MWDBE), and Local (Cumberland, Hoke, Harnett County) as construction subcontractors, vendors, suppliers, or providers of professional services.

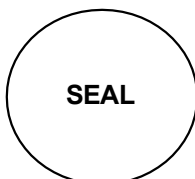
<u>Name, Address, & Phone No.</u>	<u>*MWDBE Category / **Local</u>	<u>NAICS</u>	<u>Dollar Value</u>

*MWDBE categories: Black-African Americans (B), Hispanic-Americans (H), Asian- Americans (A), Native-Americans (I), Women (F), Socially/Economically Disadvantaged (D)

**Local: Fayetteville Metropolitan Statistical Area (MSA) comprising of Cumberland County, Hoke County, and Harnett County. PWC is requesting this information for reporting purposes only, and use of local entities will not be considered for compliance with the requirements of the MWDBE Program.

The total value of MWDBE/local business contracting will be \$ _____

Date: _____ Name of Authorized Officer: _____



State of North Carolina, County of _____

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

Notary Public _____

My commission expires _____

**FAYETTEVILLE PUBLIC WORKS COMMISSION
MWDBE ADD / CHANGE FORM**

If a MWDBE subcontractor fails to complete work under the subcontract for any reason, the recipient must require the prime contractor to employ the good faith efforts set forth in the MWDBE Program if soliciting a replacement or additional subcontractor.

For MWDBE Change Request, please provide all information below:

Prime Contractor: _____

Subcontracted Work: _____

Previous Subcontractor: _____

Reason this for change request:

New Subcontractor: _____ MWDBE Category: _____

To Add MWDBE Subcontractor/Subcontracted work:

If this is a new trade being subcontracted or a subcontractor that was not documented in the original Project Bid Information submittal, then good faith efforts to solicit a MWDBE must be documented, as the original MWDBE instructions indicate. Please provide all good faith efforts below showing all the MWDBE firms contacted to perform this work along with any additional good faith efforts or evidence that there are not reasonably available firms in the work area. PWC's MWDBE Program requires that good faith efforts are to be carried out to the fullest extent practicable. If solicitations were not carried out due to being impracticable, please attach this explanation to this form.

Name, Address, & Contact Information	MBE or WBE and Certifying agency	How was this firm contacted (email, letter, or Phone) and what was the result of the solicitation? *

*Must submit copies of emails or letters. If phone calls were made this sheet can serve as documentation of calls

Date: _____ Name of Authorized Officer: _____



State of North Carolina, County of _____

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

Notary Public _____

My commission expires _____

SMALL LOCAL SUPPLIER / MWDBE SUBCONTRACTOR DISCLOSURE FORM

Contractor: _____
 Address & Phone: _____
 Project: _____
 Name: _____
 Pay Application # _____

Please complete the below form by providing the necessary information for the payments made to each subcontractor, vendor, or supplier for the work associated with the identified pay application. This form must be fully completed and attached to each pay application.

Firm Name, Address, and Contact Information	Payment Amount	Type of Work/Commodity (Include NAICS Code)

Signature

Printed Name

Title

Date

State of North Carolina
Cumberland County

CONSTRUCTION AGREEMENT

THIS CONSTRUCTION AGREEMENT (“Agreement” or “Contract”) is made by and between the Fayetteville Public Works Commission (“PWC”), a North Carolina public authority, and [REDACTED] (“Contractor”), a [REDACTED] registered to do business in North Carolina (each of each of PWC and Contractor is a “Party” and both are collectively the “Parties”) as of the date of execution last written below (the “Effective Date”). The Parties agree as follows:

1. The Construction Project. Contractor shall furnish and bear solely the entire cost of all labor and materials necessary for the construction and/or renovation of the Project (defined hereinbelow) as specified in the Contract Documents (defined hereinbelow) and complete all Work on the Project in a Workmanlike manner in strict accordance with the Contract Documents, schedule delivery of the new materials, furnish and bear solely the entire cost of all supervision, contract administration, equipment, tools, and other means necessary to complete the Project, perform every obligation imposed by the Contract Documents, and be solely responsible for the clean-up and disposal of all materials and debris relating to or arising from the construction and renovation, subject to any exceptions that are specifically set forth in the Contract Documents. Except as otherwise specifically provided in the Contract Documents, Contractor is solely responsible for all construction means, methods, techniques, sequences, procedures, safety precautions or programs, supervising, coordinating, and performing all the Work necessary to complete the Project; provided, however, PWC shall have the right, without incurring any liability to the Contractor, to suspend Contractor’s performance when a PWC employee, in his or her opinion, observes a safety violation involving a threat to life or imminent danger of bodily injury, and the suspension shall remain in effect until Contractor remedies the safety violation.

2. Terms. Capitalized terms used in this Agreement have the meaning specified below:

“Business Day” means each calendar day that is not a Saturday, Sunday, holiday observed by the federal government for its employees, or holiday observed by the State of North Carolina for its employees.

“Completion of the Project” means: (i) the Project is completed in accordance with this Agreement, except for punch list items; (ii) PWC has received any required temporary or final certificate of occupancy from the governmental agency with jurisdiction over the Project; and (iii) the registered architects or engineers (the “Designer(s)”) who designed portions or components of the Project have issued certificates of Completion of the Project as to those portions or components.

“Contract Documents” means the following documents that were either made available to Contractor by PWC during the bid solicitation process (including Drawings) or executed by the Parties or both, which are all incorporated by reference herein:

- a. This Agreement
- b. General Conditions

- c. Bid Submittal Documents
- d. Contractor's Submitted Bid
- e. Bid Bond
- f. [Form of Exceptions]
- g. Notice of Award
- h. Acceptance of Award
- i. Performance Bond
- j. Payment Bond
- k. Copy of General Contractor's License
- l. Power of Attorney
- m. Certificate of Insurance
- n. Section C – Administrative Provisions
- o. Section D - Technical Specifications
- p. [Additional Specifications]
- q. [Appendices]

The following documents may be delivered or issued on or after the Effective Date of the Agreement and may not be attached to this Agreement, but are considered Contract Documents when executed by the Parties:

- r. Notice to Proceed and Acceptance of Notice
- s. Work Change Directive(s)
- t. Change Order(s)
- u. Field Order(s)

There are no Contract Documents other than those identified in this Agreement. The Contract Documents may only be amended, modified, or supplemented as provided in this Agreement in a writing signed by the Parties.

"Fault" means a breach of contract by Contractor, negligent, reckless, or intentional act(s) or omission(s) constituting a tort under applicable statutes or common law by one or more Responsible Persons, or violation(s) of applicable statute(s) or regulation(s) by a Responsible Person.

"Project" means _____, as more specifically set forth in the Contract Documents.

"Responsible Person" means the Contractor and each of its employees, agents, representatives, subcontractors, or other persons and entities for which Contractor may be liable or responsible as a result of any statutory, tort, or contractual duty.

The terms used in this Agreement shall have the meaning as stated herein and in the General Conditions. In the event of a conflict between the terms of this Agreement and any other component(s) of the Contract Documents, the terms of this Agreement shall govern.

3. Contract Price. PWC shall pay Contractor for Completion of the Project in accordance with the Contract Documents the amount identified in the accepted Bid Form of Contractor, being in the total amount of \$ _____ (the "Price"). Contractor understands and acknowledges that the Price is derived from a specific

appropriation of funds provided for the Project. Contractor agrees and acknowledges the Price is equal to the aggregate cost of all Work to be done on the Project, including all labor, materials, equipment, apparatus, and supplies, set in accordance with the amount specified on the Bid Form submitted by Contractor and accepted by PWC.

4. Contract Times. The Parties shall perform their obligations under this Agreement in compliance with all scheduling deadlines set forth in the Contract Documents. The Contractor shall commence the Work to be performed under this Agreement on a date to be specified in accordance with the Notice to Proceed issued by PWC. Contractor shall achieve Completion of the Project no later than 360 consecutive calendar days from said date plus any modifications thereof allowed in accordance with the Contract Documents (the "Completion Date").

5. Payment. PWC shall pay Contractor in installment payments plus a final payment, as set forth in the Contract Documents. For each applicable installment payment, Contractor shall submit an application for payment in accordance with the Contract Documents. An application for payment will be processed by PWC as provided in the Contract Documents. Such installment payments shall reflect the actual Cost of the Work, not to exceed in total the Price, and the allocable portion of the total Price for said installment. PWC shall make payment to the Contractor, less any applicable retainage set forth in the Contract Documents; provided, however, that PWC may withhold all or a portion of a payment on account of (1) incomplete Work, (2) defective or nonconforming Work, (3) claims filed or a reasonable basis to believe that such claims will be filed imminently, (4) failure of the Contractor to make payments properly for labor, services, materials, equipment or subcontracts, (5) damages caused to PWC or another party by one or more Responsible Persons, or (6) failure to comply with the terms and conditions of this Agreement. In the final payment, PWC shall pay the balance of the Price, including all retained amounts, less any Liquidated Damages and other applicable damage and claim amounts, to Contractor within forty-five (45) days of Completion of the Project; provided, however, that PWC may withhold a reasonable sum from the final payment to ensure correction of any final items or condition on the Project.

6. Retainage. Subject to any restrictions applicable to any federal grant funds that may be utilized for the Project, PWC may, in its discretion, retain up to five percent (5%) of any periodic payment due Contractor; provided, however, when the Project is fifty percent (50%) complete, PWC, with written consent of the surety, shall not retain any further retainage from periodic payments due Contractor if Contractor continues to perform satisfactorily and any nonconforming Work identified in writing prior to that time by PWC or the Designer has been corrected by Contractor and accepted by PWC or the Designer, and provided further that full payment, less authorized deductions, shall also be made for those line item trades that have reached one hundred percent (100%) completion of their contract obligations by or before the Project is fifty percent (50%) complete if Contractor has performed satisfactorily in accordance with G.S. 143-134.1(b2), contingent upon PWC's receipt of an approval or certification from the Designer that the Work performed by the subcontractor is acceptable and in accordance with the Contract Documents. If PWC determines Contractor's performance is unsatisfactory, PWC may, in its discretion, reinstate retainage for each subsequent periodic application for payment as authorized in this Section up to the maximum amount of five percent (5%). The Project shall be deemed fifty percent (50%) complete when Contractor's gross project invoices, excluding the value of materials stored off-site, equal or exceed fifty percent (50%) of the Price, except the value of materials stored on-site shall not exceed twenty percent (20%) of Contractor's gross project invoices for the purpose of determining whether the Project is fifty percent (50%) complete. Within 60 days after the submission of a pay request and one of the following occurs, as specified in the Contract Documents, PWC, with written consent of the surety, shall release

to Contractor all retainage on payments held by PWC: (i) PWC receives a certificate of Substantial Completion from the Designer in charge of the Project; or (ii) PWC receives beneficial occupancy or use of the Project; provided, however, PWC may in its discretion retain sufficient funds to secure Completion of the Project or corrections on any Work. If PWC retains funds, the amount retained shall not exceed two and one-half times the estimated value of the Work to be completed or corrected. Any reduction in the amount of the retainage on payments shall be with the consent of Contractor's surety. The existence of any third-party claims against Contractor or any additive change orders to the Construction Documents shall not be a basis for delaying the release of any retainage on payments. Notwithstanding anything in this Section to the contrary, following fifty percent (50%) completion of the Project, PWC shall be authorized to withhold additional retainage from a subsequent periodic payment, not to exceed five percent (5%), in order to allow PWC to retain two and one-half percent (2.5%) total retainage through the Completion of the Project. In the event that PWC elects to withhold additional retainage on any periodic payment subsequent to release of retainage on a line-item of Work pursuant to G.S. 143-134.1(b2), Contractor may also withhold from the subcontractors remaining on the project sufficient retainage to offset the additional retainage held by PWC, notwithstanding the actual percentage of retainage withheld by PWC of the Project as a whole. Neither PWC's nor Contractor's release of retainage on payments as part of a payment in full on a line-item of Work pursuant to G.S. 143-134.1(b2) shall affect any applicable warranties on Work done by Contractor or subcontractor, and the warranties shall not begin to run any earlier than either PWC's receipt of a certificate of Substantial Completion from the Designer in charge of the Project or PWC receives beneficial occupancy.

7. Liquidated Damages. Time is of the essence with respect to performance of each of the Parties' obligations under this Agreement. Contractor recognizes and acknowledges that PWC will suffer financial and other losses if the Project is not completed by the Completion Date. The Parties recognize and agree that the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by PWC if the Project is not completed by the Completion Date. Accordingly, instead of requiring any such proof, Contractor and PWC agree that in the event Contractor fails to achieve Completion of the Project by the Completion Date, Contractor shall pay to PWC as liquidated damages to compensate PWC for damages related to the delayed Completion of the Project one thousand dollars (\$1000.00) per day ("Liquidated Damages") for each calendar day Contractor fails to achieve Completion of the Project by the Completion Date.

8. Contractor's Representations and Warranties. In order to induce PWC to enter into this Agreement, Contractor makes the following representations and warranties to PWC:

a. Contractor is duly licensed in the State of North Carolina to complete all Work necessary for the Project, is duly organized, validly existing and in good standing and has all requisite powers, rights, and authority to execute, enter into, and perform this Agreement in accordance with the terms and conditions of this Agreement, and this Agreement constitutes a legal, valid, and binding obligation of Contractor enforceable against it in accordance with its terms.

b. Contractor has read the Contract Documents, and acknowledges and understands all data, materials, specifications, and requirements identified in the Contract Documents.

c. Contractor has visited the site for the Project, conducted a thorough, visual examination of the site and adjacent areas, and become familiar

with and is satisfied as to the general, local, and site conditions that may affect cost, progress, and performance in completing the Project. Contractor is familiar with and is satisfied as to all laws and regulations that may affect cost, progress, and performance to complete the Project.

d. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the site and all drawings of physical conditions relating to existing surface or subsurface structures at the site that have been identified in the Contract Documents and any accompanying reports and drawings, and (2) reports and drawings relating to hazardous environmental conditions, if any, at or adjacent to the site that have been identified in the Contract Documents and any accompanying reports and drawings.

e. 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 Site-related reports and drawings identified in the Contract Documents, if any, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

f. Based on the information and observations referred to in subsection e. of this Section, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Price commencing on the commencement date and in accordance with the other terms and conditions of the Contract.

g. Contractor is aware of the general nature of Work to be performed by PWC and others at the Site that relates to the Work as indicated in the Contract Documents.

h. Contractor has given PWC's Designer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by the Designer is acceptable to Contractor.

i. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

j. Contractor's entry into this Agreement 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.

k. Contractor has no business or personal relationship with any PWC Commissioner, officer, director, manager, or supervisor and Contractor covenants to disclose immediately to PWC any such relationship that develops during the performance of Work on the Project.

9. Contractor's Payment Obligations. Contractor shall pay all of its obligations arising out of or in connection with the Project in a timely manner to all persons supplying materials in the prosecution of the Work and to all laborers and others employed thereon.

10. Performance and Payment Bonds. Contractor shall obtain and deliver to PWC a performance bond in the amount of one hundred percent (100%) of the Price, conditioned upon the faithful performance of the Project and all Work in accordance with the Contract Documents, which bond shall be solely for the protection of PWC. Contractor shall obtain and deliver to PWC a payment bond in the amount of one hundred percent (100%) of the Price, conditioned upon the prompt payment for all labor or materials for which the Contractor or one or more of its subcontractors is liable, which payment bond shall be solely for the protection of the persons furnishing materials or performing labor for which the Contractor is liable. The performance bond and the payment bond shall be executed by one or more surety companies legally authorized to do business in the State of North Carolina, shall become effective upon the awarding of the construction contract by PWC to Contractor, and shall at all times comply with the requirements set forth in Article 3 of North Carolina General Statutes Chapter 44A. In the event PWC deems the surety or sureties upon any bond necessary for this Agreement and the completion of the Project, or if for any reason, such bond ceases to be adequate to cover the performance and/or payment of the Work, Contractor shall, at its expense, within five (5) days after the receipt of notice from PWC, furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to PWC. In such event no further payment to Contractor shall be deemed to be due under this Agreement until new or additional security for the performance and payment of the Project shall be furnished in manner and form satisfactory to PWC. Contractor understands and acknowledges that PWC, as a public authority, is not subject to the provisions of Articles 1 and 2 of Chapter 44A of the General Statutes, in accordance with G.S. 44A-34 and applicable law.

11. Contractor's Damage Repair Obligations. Contractor shall be responsible for all damages to the property of the City of Fayetteville and of PWC that may result from the normal procedure of a Responsible Person's actions in the prosecution of the Work or that may be caused by or result from the negligence of a Responsible Person during the progress of or connected with the prosecution of the Work, whether within the limits of the Work or elsewhere. Contractor shall promptly restore all such property so damaged to a condition as good as it was immediately prior to Contractor initiating the Work on the Project.

12. Defective Work. The Project shall be subject to observation and approval by PWC, Designer, and representatives of governmental agencies with jurisdiction over the Project. PWC and Designer shall be entitled to enter at all reasonable times the premises subject to construction or renovation to inspect the Work performed by or on behalf of Contractor, provided that such entry and inspection does not materially interfere with the progress of construction. Contractor shall correct promptly, at no cost to PWC, all Work reasonably rejected by PWC or by its representatives. Should Contractor fail to correct rejected Work, PWC may, acting in its sole discretion, correct such Work and the Contractor shall pay PWC's actual costs of correction and any other applicable amounts identified in the Contract Documents.

13. As-Built Drawings. Contractor shall maintain during the progress of the Project as-built drawings indicating the current status of the Project as actually performed. Upon Completion of the Project, Contractor shall prepare a final version of such as-built drawings and submit them to PWC for approval.

14. Assignment. This Agreement shall be binding upon and inure to the benefit of the Parties, their legal representatives, successors, and assigns. Contractor may not assign, transfer, convey, or encumber, whether voluntarily or by operation of law, this Agreement or any obligations, rights under, or interests in this Agreement to a third party without the prior written consent of PWC; 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 Documents.

15. Indemnity. Contractor shall indemnify, defend, and hold harmless PWC and its Commissioners, officers, employees, agents, and representatives and the City of Fayetteville and its elected officials, managers, employees, agents, and representatives and Design Engineer (collectively "Indemnitees") from and against all claims, actions, liabilities, damages, losses, costs, and expenses (including, without limitation, injury to or death of any persons and damage to property, economic and consequential damages and attorneys' fees) asserted by one or more third parties against one or more of the Indemnitees if the Fault of one or more Responsible Persons is a proximate cause of the loss, damage, or expense indemnified. Contractor's obligation to indemnify, defend, and hold harmless the Indemnitees shall survive the termination of this Agreement.

16. Insurance. Contractor shall maintain during the Work and for at least three (3) years following Completion of the Project the insurance coverage set forth in the Contract Documents, which insurance shall be placed with insurance companies authorized to do business in the State of North Carolina and rated A minus VII or better by the current edition of Best's Key Rating Guide or otherwise approved in writing by PWC. Prior to initiating any Work, Contractor shall deliver certificates of insurance confirming each such coverage required by the Contract Documents, and Contractor shall direct its insurers to provide annually to PWC certificates confirming each such coverage during the coverage period. PWC shall be named as an additional insured in the comprehensive automobile and commercial liability insurance policies. Commercial general liability coverage shall be written on an "occurrence" basis. Contractor shall not reduce or allow the required insurance coverages to lapse without PWC's prior written approval. All policies for insurance must be endorsed to contain a provision giving PWC a thirty (30) calendar day prior written notice by certified mail of any cancellation of that policy or material reduction in coverage. Should a notice of cancellation be issued for non-payment of premiums or any part thereof, or should Contractor fail to provide and maintain certificates as set forth herein, PWC shall have the right, but shall not have the obligation, to pay such premium to the insurance company or to obtain such coverage and to deduct such payment from any sums that may be due or become due to Contractor, or to seek reimbursement for said payments from Contractor. Any such sums paid by PWC shall be due and payable immediately by Contractor upon notice from PWC. The insurance provisions of this Agreement shall not be construed as a limitation on Contractor's responsibilities and liabilities pursuant to the terms and conditions of this Agreement. Contractor's obligation to maintain insurance for three (3) years after Completion of the Project shall survive the termination of this Agreement.

17. Warranty. The Contractor hereby grants to PWC a warranty on all materials and Workmanship involved in the Project for a period of one (1) year from the Completion Date and a period of two (2) years from the Completion Date for any latent structural defects. PWC shall give written notice to Contractor of any claim under this Section within the time specified hereinabove. This warranty shall be in addition to, and not in derogation of, all other rights and

privileges which PWC may have under law, equity, or instrument, and shall survive the Completion Date and the final settlement and shall be binding on Contractor notwithstanding any provision in any other writing executed by PWC heretofore or contemporaneous with the execution of the Agreement or prior to the Completion Date.

18. Waiver. No failure on the part of any party to exercise, and no delay in exercising, any right, power, or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any right hereunder preclude any other or further cumulative and not exclusive of any remedies provided by law. This Agreement shall be binding upon and inure to the benefit of the parties, their legal representatives, successors, and assigns. This Agreement may not be assigned, transferred, conveyed, or encumbered, whether voluntarily or by operation of law, by either party without the prior written consent of the other party, which consent shall not be unreasonably withheld.

19. Law. THIS AGREEMENT SHALL BE GOVERNED BY AND INTERPRETED AND ENFORCED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NORTH CAROLINA WITHOUT GIVING EFFECT TO THE CHOICE OF LAW PROVISIONS THEREOF. The Contractor shall at all times comply with all applicable Federal, state, and local laws and building codes in the performance of its obligations under the Agreement.

20. Dispute Resolution. In the event of any dispute, controversy, or claim of any kind or nature arising under or in connection with this Agreement (a "Dispute") and involving any two or more of the following parties, PWC, Designer, Contractor or any subcontractor of Contractor, the party initiating the Dispute shall serve written notice of a Dispute on the party(ies) to the dispute, and those parties shall endeavor to settle the dispute first through direct, informal discussions between the parties' selected representatives. Any such representative(s) shall have binding authority to settle the Dispute. In the event the parties do not settle the Dispute within ten (10) days from the date of written notice of the Dispute, any party to the Dispute may, by written notice to the other party(ies), engage a mediator certified under the laws of the State of North Carolina to mediate the Dispute within thirty (30) days of such notice. The parties to the Dispute shall attend mediation in good faith. In the event mediation is unsuccessful, any party to the dispute may initiate arbitration proceedings. Any controversy or claim arising out of or relating to the Contract Documents, or the breach thereof, shall be settled by binding arbitration administered by the American Arbitration Association under its Construction Industry Arbitration Rules, and judgment on the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof. All of the foregoing dispute resolution procedures shall be held in Cumberland County, North Carolina. The costs of the mediator and arbitrator in a dispute resolution process shall be divided equally among the parties to the process; provided, however, PWC shall bear at least one-third of the cost if PWC is a party to the dispute resolution and the remainder of the cost shall be divided equally among the other parties participating in the dispute resolution. PWC shall, in its contractual arrangements with Designer, and Contractor shall, in its contracts with subcontractors and they in their contracts with lower-tier subcontractors authorize and direct such parties to participate in the dispute resolution procedures set forth in this Section. Unless otherwise directed in writing by PWC, Contractor shall continue the Project and maintain compliance with the scheduling deadlines set forth in the Contract Documents during any dispute resolution proceedings. If Contractor continues to perform, PWC shall make payments due for the continued performance in accordance with this Agreement. The provisions of this Section shall not extend any applicable statutes of limitation or repose.

21. Execution; Modification; Entire Agreement; Severability. This Agreement may be

executed in counterparts with the same effect as if the signatures to each counterpart were upon a single instrument, and all such counterparts together shall be deemed an original of this Agreement. For purposes of this Agreement, a facsimile copy or scanned copy or photocopy of a party's signature shall be sufficient to bind such party. This Agreement shall be subject to execution by electronic means in accordance with Article 40 of Chapter 66 of the North Carolina General Statutes. No oral communication, promise, understanding, or agreement before, contemporaneous with, or after the execution of this Agreement shall affect or modify any of the terms and conditions and obligations of the Contract Documents. The Contract Documents shall be modified only by a subsequent writing signed by both Parties. The Contract Documents shall be conclusively considered to contain and express all the terms and conditions agreed upon by the Parties, notwithstanding any prior or contemporaneous written communication, promise, understanding or agreement. Should any provision of this Agreement or any of the Contract Documents at any time be in conflict with any law, statute, rule, regulation, order, or ruling and thus be unenforceable, or be unenforceable for any other reason, then the remaining provisions of this Agreement shall remain in full force and effect and the court or arbitrator shall give the offending provision the fullest meaning and effect permitted by law. The titles of the Sections throughout this Agreement are for convenience only and the words contained therein shall in no way be held to explain, modify, amplify or aid in the interpretation, construction, or meaning of the provisions of this instrument.

22. Notices. Any notice which either Party is required or desires to give the other hereunder shall be deemed sufficiently given if, in writing, it is delivered personally, or sent by certified U.S. mail, return-receipt requested, postage prepaid, to the addresses listed herein below, or such other address as either Party shall give to the other Party by written notice in accordance herewith. Any notice given herein by personal delivery shall be deemed delivered when received. Any properly addressed notice given herein by certified mail shall be deemed delivered on third Business Day after the same is deposited in an official United States Post Office, postage prepaid, or if sooner upon the date when the return receipt therefore is signed, or refusal to accept the mailing by the addressee is noted thereon by the postal authorities.

To PWC:
Fayetteville Public Works Commission
Attn: Timothy Bryant, CEO/General Manager
PO Box 1089
Fayetteville, NC 28302

To Contractor:

23. Termination. PWC may terminate this Agreement immediately if during the progress of the Work or during the warranty period, the Contractor:

- a. Persistently fails to prosecute the Work properly and in accordance with this contract, including but not limited to include failure to provide sufficient crews, equipment, or resources, or failure to adhere to the schedule;
- b. Demonstrates disregard for the policies, procedures, or requirements of PWC;

- c. Demonstrates complete disregard of the authority of PWC or its designated representatives; or
- d. Violates in any substantial way the provisions and requirements of this Agreement.

Such termination shall be effective upon written notice to Contractor and its surety. PWC may terminate the contract for its convenience by providing Contractor at least seven (7) calendar days prior written notice, in which event Contractor shall be paid for all Work completed, plus other expenses as mutually agreed upon between PWC and Contractor.

24. Compliance. Contractor hereby acknowledges that "E-Verify" is the federal E-Verify program operated by the US Department of Homeland Security and other federal agencies which is used to verify the Work authorization of newly hired employees pursuant to federal law and in accordance with Article 2, Chapter 64 of the North Carolina General Statutes. Contractor further acknowledges that all employers, as defined by Article 2, Chapter 64 of the North Carolina General Statutes, must use E-Verify and after hiring an employee to Work in the United States, shall verify the Work authorization of the employee through E-Verify in accordance with N.C.G.S. §64-26(a). Contractor hereby pledges, attests, and warrants through execution of this Agreement that Contractor complies with the requirements of Article 2, Chapter 64 of the North Carolina General Statutes and further pledges, attests, and warrants that all subcontractors currently employed by or subsequently hired by Contractor shall comply with all E-Verify requirements. Failure to comply with the above requirements shall be considered a breach of this Agreement. Contractor hereby further acknowledges that the execution and delivery of this Agreement constitutes Contractor's certification to PWC and to the North Carolina State Treasurer that, as of the date of the Effective Date of this Agreement, Contractor is not listed on (a) the Final Divestment List created and maintained by the North Carolina Department of State Treasurer pursuant to the Iran Divestment Act of 2015, Chapter 147, Article 6E of the General Statutes of North Carolina (the "Iran Divestment Act"); or (b) the list of companies that the North Carolina State Treasurer determines to be engaged in a boycott of Israel in accordance with Article 6G of Chapter 147 of the General Statutes of North Carolina. Contractor represents and warrants to Commission that Contractor, and all persons and entities owning (directly or indirectly) an ownership interest in it: (i) are not, and will not become, a person or entity with whom a party is restricted from doing business with under regulations of the Office of Foreign Asset Control ("OFAC") of the Department of the Treasury (including, but not limited to, those named on OFAC's Specially Designated and Blocked Persons list) or under any statute, executive order (including, but not limited to, the September 24, 2001, Executive Order 13224 Blocking Property and Prohibiting Transactions with Persons Who Commit, Threaten to Commit, or Support Terrorism), or other governmental action; and (ii) are not knowingly engaged in, and will not knowingly engage in, any dealings or transactions or be otherwise associated with such persons or entities described in clause (i) above. Contractor also shall at all times during the term of this Agreement comply with Executive Order 11246, including but not limited to the Equal Opportunity Clause requirements set forth in 41 C.F.R. § 60-1.4. Contractor shall abide by the requirements of 41 CFR 60-300.5(a) and 60-741.5(a) prohibiting discrimination against qualified individuals on the basis of protected veteran status or disability and requiring affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified protected veterans and individuals with disabilities.

IN WITNESS WHEREOF, the Parties have executed this Agreement by their duly authorized representatives.

Fayetteville Public Works Commission

CONTRACTOR

By: _____
Timothy Bryant, CEO/GM

By: _____

(Printed Name, Title)

Date: _____

Date: _____

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act (N.C. Gen. Stat. § 159-1 et seq.).

By: _____
Rhonda Haskins, Chief Financial Officer

Approved as to form:

Legal Dept.

SAMPLE

SECTION C - ADMINISTRATIVE PROVISIONS

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**DIVISION I
01000 – SUPPLEMENTARY CONDITIONS**

ADMINISTRATIVE

1. DEFINITIONS & TERMINOLOGY

- “Contract Documents”-The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), Contractor’s Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and Engineer’s written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents.
- “Owner” - Fayetteville Public Works Commission
- “PWC Project Coordinator”- PWC employee that is observing and inspecting the Contractor’s Work onsite.
- Robeson Street to Winslow Street Project is referred to as Robeson to Winslow

2. PURPOSE

These Supplementary Conditions are intended to supplement and amplify the Technical Specifications and other requirements of this Contract. Where any article or item of the Contract Documents is modified or deleted by this document, the remaining unaltered provisions of that article, paragraph, subparagraph, or clause shall remain in effect. In the event of a conflict, these Supplementary Conditions shall take precedence.

Unless otherwise noted, all items in these Supplemental Conditions shall be considered incidental to the Work, and no additional payment will be made for costs associated with these items.

3. ORDER OF PRECEDENCE

Except as may be otherwise specifically stated in these Contract Documents, the following order of precedence shall be adhered to for resolving any conflict, error, ambiguity, or discrepancy between the provisions of these Contract Documents:

1. Any addendum issued prior to the opening of Bids.
2. The Construction Agreement, including PWC’s General Conditions
3. Section 01000 – Supplementary Conditions
4. Section 01025 – Measurement and Payment
5. Approved Drawings
6. Fayetteville Public Works Commission Standard Details
7. Fayetteville Public Works Commission Technical Specifications

4. AVAILABILITY

The Contractor shall be capable of providing crews as needed to complete the work without undue delay and shall begin work within 15 calendar days from the written Notice to Proceed (NTP).

It is expected that the Contractor will remain in the project area for the duration of the Contract.

5. SUBMITTALS

The Contractor shall not perform any portion of the Work requiring submittal and review until the respective submittal has been approved by Fayetteville Public Works Commission. Work performed prior to review and acceptance shall be at the Contractor's risk.

The Contractor shall submit the following information to Fayetteville Public Works Commission prior to commencing the first section of work.

The Contractor shall provide submittals, in accordance with the General Conditions, on but not limited to the following:

- A sample door hanger, notifying the residents of the project and those times that the resident may not have sewer service.
- Specifications (shop drawings, SDS, etc.) on the proposed materials to be used
Certified test reports that the proposed materials for this Contract were manufactured and tested in accordance with the specified American Society for Testing Materials (ASTM).
 - Bypass Pumping (area specific) – as outlined in Section 02750 of these Contract Documents.
- Contractor's safety plan.
- Contractor personnel emergency contact information.
- Labor and Equipment rates
- Property owner agreement if applicable (sample agreements and executed agreements).
- Traffic Control Plans, Pre-construction
- Video / Pictures.
- Proposed project schedule.
- Erosion Control measures.

All information contained within the submittals shall be in accordance with these Contract Documents. Facsimile (fax) copies of the submittals or re-submittals will not be acceptable.

6. PROJECT SCHEDULE

Each week, the Contractor shall provide (via email) PWC with their schedule for the upcoming week. The Contractor shall contact the PWC Project Coordinator on a daily basis, to confirm their schedule for that day. The Contractor shall immediately notify PWC of any deviations to their schedule. Failure to notify PWC of any deviations may result in payment being withheld.

The weekly schedule can be in spreadsheet format or done in a scheduling software, such as Microsoft Project.

7. PRE-CONSTRUCTION VIDEO

The Contractor shall complete a pre-construction video inspection of the project area, to document pre-existing conditions. The video shall be in a playable electronic video format (i.e., AVI, WM, .MOV, .MP4) on a standard portable digital media (USB Flash Drive or USB Hard Drive). The intent of this video is to document the roadside and/or easement conditions, easement areas, the driveways, the condition of the curb and gutter, the condition of the mailboxes, retaining walls, fences and gates, any other resident installed improvements, and the condition of the sod. It is advised that the video start on one side of the street, proceed to an intersection and then return down the other side. An additional pass showing the road centerline from a high viewing angle is preferred but not necessary. The Contractor shall include any easement areas, especially those passing through yards, driveways, etc. The video must identify the house number and the street name in the audio track and visually. The video must be accompanied by an index sheet identifying the streets of the project by time position on the video. The Contractor may also include any pre-existing conditions they want brought to the attention of the PWC Project Engineer by including notes and time position on the index sheet. The Contractor can also include still pictures of the areas, for additional documentation. Two copies of the video and any other accompanying data shall be submitted to the PWC Project Engineer before the first payment application can be released and the cost for the video shall be incidental.

8. GUARANTEE

All work completed under these Contract Documents shall be guaranteed by the Contractor for a period of five (5) years from the date of final acceptance. During that period, all serious defects discovered in the work, as determined by Fayetteville Public Works Commission, shall be removed, and replaced in a satisfactory manner by the Contractor at no cost to Fayetteville Public Works Commission.

9. PRECONSTRUCTION MEETING

PWC will host a preconstruction meeting following the issuance of Notice of Award. PWC will contact the Contractor to establish a mutually agreeable date and time to conduct the meeting.

The purpose of the meeting is to discuss general Project items, including, Contractor's responsible person and contact information, emergency contact information, submittal schedule and requirements, Contract requirements, safety, access and/or coordination issues, Notice to Proceed, Project schedule, sales tax certificate, applications for payment, warranty requirements, site restoration and clean-up.

10. WORKING TIMES

Regular working hours shall not exceed 40 hours per week, 8 hours per day (between the hours of 8:00 a.m. and 5:00 p.m.) Monday through Friday, unless otherwise approved by PWC. No work is permitted on legal holidays (to include holiday weekends). Adjustments in work schedules are also anticipated to accommodate the residents.

The Contractor shall plan their daily activities in order to ensure that all work is completed by 5:00 pm. This provision will be strictly enforced by PWC.

11. MONTHLY PROGRESS MEETINGS

The Contractor and the PWC Project Engineer shall mutually establish a regular time to meet on a monthly basis, for the duration of the project. The meetings shall be held at Fayetteville Public Works Commission complex at 955 Old Wilmington Road and will generally last about an hour. The Contractor's superintendent or designated representative shall attend these

meetings. The Contractor's representative shall be knowledgeable of the project, issues that need to be addressed, and be able to make binding decisions for the Contractor.

The purpose of the meeting is to discuss various project related items, including, but not limited to safety concerns, overall project status and schedule, the Contractor's schedule for the upcoming month, issues that the Contractor and/or the PWC Project Engineer need to address.

The cost for the Contractor's representative to attend the monthly meetings shall be included in the unit prices bid.

PROJECT SITE REQUIREMENTS

12. OFFICE FACILITIES

The Contractor shall provide at his expense telecommunications via cellular phone at all times on the job site. The Project Superintendent must be onsite and accessible by telephone at all times while work is progressing. The Project Superintendent shall have access to plans, contract documents, permits, and encroachment agreements at all times whether an office facility is provided by the Contractor or not.

13. LIMITS OF CONSTRUCTION

The Contractor shall confine their operations to the existing permanent easements or the existing street rights-of-way. The Contractor shall coordinate with Fayetteville Public Works Commission to confirm the size and location of the existing permanent easement(s).

The Contractor may use additional area for staging, storage, or other operations, provided that written permission is obtained from the property owner and all disturbed areas are restored to conditions equal to or better than existing.

14. ACCESS

The Contractor shall be responsible for constructing the necessary access needed to complete the project as outlined in these Contract Documents. Groundwater and soil conditions can vary depending on the season, and the amount of rainfall and may impact access. The Contractor shall confine their access requirements to public rights-of-way or permanent easements, wherever possible. Fayetteville Public Works Commission will aid in attempting to gain permission to cross private property, in the event it is necessary. The Contractor shall coordinate with Fayetteville Public Works Commission a minimum of two (2) weeks in advance, in order to gain such access.

Prior to completing any work on private property that is outside of a permanent easement, the Contractor shall obtain an agreement with that property owner. Further, the Contractor shall complete a pre-construction video inspection of the property. It is recommended that the pre-construction video document existing conditions of the areas adjacent to the proposed work area.

All access that is constructed on private property shall be removed and the property restored to existing or better condition than before construction commenced. The Contractor shall be responsible for obtaining a signed release from the affected property owner(s), stating that

the property has been satisfactorily restored. Final payment shall not be released until all signed releases are obtained and submitted to Fayetteville Public Works Commission.

Access constructed in permanent easements shall remain, unless otherwise instructed by Fayetteville Public Works Commission.

Fayetteville Public Works Commission shall be responsible for clearing the existing permanent easement right-of-way, should it be necessary. The Contractor shall provide Fayetteville Public Works Commission with a minimum of two (2) weeks' notice for any easement clearing.

15. EQUIPMENT

The Contractor shall be equipped with equipment perfectly adaptable for the type of construction required. Fayetteville Public Works Commission reserves the right to deny the use of inadequate equipment or of equipment not capable of performing the work in an acceptable manner.

With respect to the foregoing, it is the intent of Fayetteville Public Works Commission to require that the Contractor be equipped to perform the work shown and specified, expeditiously and in accordance with the best modern practice.

16. SITE LAYOUT AND STAKING

PWC shall provide all construction staking. The Contractor shall contact the Technical Resources Supervisor, Mr. Rodney Maness, PLS, at (910) 223-4739 to schedule the construction staking. A minimum of two (2) full business days' notice is required.

Cut sheets will be provided to the Contractor. The Contractor shall not install any utilities without a cut sheet. The Contractor shall have a copy of the cut sheets on the job site, and available for inspection by PWC staff.

Utilities shall be installed at the locations and elevations indicated on the cut sheets unless otherwise approved by the Owner. Should a conflict arise between the Drawings and the cut sheets, the cut sheets shall take precedence. Contractor shall make the PWC Project Coordinator aware of any conflict between the Drawings and the cut sheets as soon as it is discovered. The Contractor shall verify invert elevations of all water mains, sewer mains, water laterals, sewer laterals, and manholes by instrument.

17. PROJECT SIGN

The project sign(s) shall be submitted, approved, and installed prior to the start of construction activities. The Contractor shall install a project sign(s) within the project limits in the location(s) shown on the plans or as directed by PWC, at no additional cost.

18. JOBSITE REQUIREMENTS

In addition to requirements outlined in these Contract Documents, the following are mandatory requirements that will be strictly enforced:

- Posted speed limits shall be strictly adhered to. No speeding.
- Driveways shall not be blocked without prior notification and coordination with the resident.
- To the maximum extent possible, one lane of traffic shall be maintained at all times.
- Excess soil, stone, equipment, materials, etc. in the road or along the right-of-way shall be removed at the end of each workday. Soil, stone, millings, pipe, etc., shall not be stored or stockpiled in the road right-of-way.

- All trenches, excavations, or other hazards in the vicinity of the work shall be well barricaded and properly lighted at night.
- Mailboxes and traffic signs shall be only removed as necessary to facilitate the installation of the Work and shall be reinstalled during the same day of removal. Any damages to mailboxes, signs or posts shall be repaired by the Contractor at no cost to PWC.
- Portable toilets shall be provided for workers. These facilities shall be placed discretely out of public view, kept clean, and orderly.
- Contractor(s) shall not enter onto private property for the purpose of using water or electricity without the written permission of the property owner.
- The use of profane or abusive language or obscene gesturing by workmen will not be tolerated and will be just cause for immediate dismissal from the project site as directed by PWC or its authorized representative.
- OSHA safety measures are to be maintained at all times.
- An English-speaking Contractor's representative is required for each separate work crew.
- Do not litter at any time.
- Respond to all complaints within 24 hours.
- Wear proper protective clothing (hard hats, shoes, shirts, etc.). Personnel must wear an approved safety vest at all times while working on PWC's project.
- During the installation of the utilities, the excavated material may be temporarily stockpiled adjacent to the work area. In no case shall stockpiled material be allowed to remain for a period of time exceeding the workday.
- The trench shall be completely backfilled at the end of each workday.
- If construction is temporarily halted during the workday, the open trench shall be manned continuously.
- Damage to sod and/or grass along the street right-of-way due to (but not limited to) temporarily stockpiled material, construction travel and other construction related activities shall be replaced with sod at the Contractor's sole expense.

19. RAILROAD SAFETY REQUIREMENTS

The Contractor shall comply with all railroad safety requirements including but not limited to:

- CSX- [Safety Requirements - CSX.com](https://www.csx.com/safety)
- The CSX Guide for Contractor Safety & Compliance, May 12, 2022 (Appendix)

20. SAFETY REQUIREMENTS WHEN WORKING NEAR WATER

Contractor's safety plan shall include provisions for safely working near water. Contractor shall employ a competent person that will assess potential hazards associated with working near water, such as bank destabilization.

Before beginning work in a particular area, Contractor's competent person shall evaluate the area for hazards associated with working near water and shall keep a log of each evaluation. Upon request from the PWC Project Engineer or the PWC Project Coordinator, the Contractor shall submit the log for inspection.

21. SAFETY REPORTING

If the Contractor discovers a safety hazard that had not previously been identified, the

Contractor shall immediately stop Work and shall contact the PWC Project Engineer. The PWC Project Engineer and the PWC Safety Office will determine the appropriate course of action to remove the hazard.

The Contractor shall immediately report any Work-related injuries or safety incidents to the PWC Project Coordinator and the PWC Project Engineer. The PWC Project Engineer will notify the PWC Safety Department.

22. STAGING AREAS

The Contractor shall be required to secure staging areas for storing materials, equipment, etc. All costs, such as rent, restoration, erosion control measures, and permit fees (including Temporary Use Permit by the City of Fayetteville), shall be the responsibility of the Contractor. The location and operation of the staging yard shall comply with all applicable Federal, State, and local regulations.

All staging areas will be subject to inspection by Fayetteville Public Works Commission, or agents thereof, for compliance with this section without prior notice. Any deficiencies will be documented by Fayetteville Public Works Commission and written notice will be given to the Contractor in accordance with these Contract Documents. The Contractor shall rectify any deficiencies in a reasonable time. Failure to do so will result in breach of contract.

The Contractor will submit a Staging Area Operation Plan for each site consisting at a minimum of the following:

- The layout of each staging area clearly identifying use areas and sufficient in detail and scale to indicate the proximity of activity to adjacent residences and businesses.
- Transportation plan including routes for both ingress and egress.
- Dust control measures both on site and along transportation routes necessary to minimize the transmission of material onto streets used for ingress and egress.
- Fuel and hazardous material storage and management. Total secondary containment shall be used for fuel and liquid hazardous materials storage and to prevent spillage.
- Hours of operation and noise mitigation measures.
- Application and Fee for the Temporary Use Permit.
- Application and Fee for Truck Route Permit.

The Contractor shall submit to PWC the application for the Temporary Use Permit, Truck Route Permit, and Staging Area Operation Plan. Upon acceptance by PWC, the applications shall be submitted to the City of Fayetteville by PWC for review and approval.

The Contractor shall obtain a signed agreement for the staging area in accordance with the General Conditions of these Contract Documents. Upon the completion of the project the Contractor shall obtain a signed release from the property owner for the satisfactory completion and restoration prior to issuance of final payment. The Contractor shall take all necessary measures to establish permanent ground cover on the staging area, prior to obtaining a signed release from the property owner. Restoration of the staging area and establishment of permanent ground cover shall be in accordance with the approved erosion control plan. All erosion control measures shall remain in place until the permanent ground cover is established. Restoration of the staging area shall be at the Contractor's sole expense and shall not constitute additional compensation.

23. STORED MATERIALS

There will be no payment for stored materials on this project.

24. CLEANLINESS DURING CONSTRUCTION

The Contractor shall perform a daily clean-up of all dirt, debris, scrap materials and other items resulting from their operations. No open accumulation of refuse, surplus or scrap materials will be permitted. The Contractor shall legally dispose off-site all waste materials and other excess materials resulting from construction.

Failure of the Contractor to maintain a clean site will be basis for Fayetteville Public Works Commission to issue a written notice of non-compliance with the Contract. Should that notice to correct not be complied with within twenty-four (24) hours, Fayetteville Public Works Commission may authorize the cleanup to be performed by others and the costs shall be deducted from monies due the Contractor. The Contractor shall legally dispose off-site all waste materials and other excess materials resulting from the Work. No separate payment shall be made for maintaining a clean project site.

25. DUST CONTROL

The Contractor shall control the dust in all areas of the project, including staging yard and haul routes for the entire duration of the Contract. The Contractor shall have a water truck, sweeper, and a roller on-site at all times with trained personnel to operate the equipment. Watering and/or sweeping the streets shall be required as conditions dictate, or as required by PWC. The sweeping operation shall direct all materials towards the disturbed areas and not into residential yards. Should the Contractor fail to provide adequate dust control, the Owner reserves the right to stop work and/or refuse to process the Contractor's pay applications until the Contractor installs adequate dust control measures. No separate payment will be made for the control of dust.

26. RESPONSIBILITY FOR MATERIAL

All pipe, fittings, manholes, and other materials shall be inspected upon arrival at the job site by a competent superintendent before unloading to ensure that the quality of the materials conforms to the specifications. It is the Contractor's responsibility to verify all materials and dimensions before beginning Work. All materials shall be subject to inspection by PWC. Materials found to be defective shall be clearly marked and removed from the project.

27. COLLATERAL DAMAGE

Collateral damage areas are locations where the Contractor's equipment, spoil piles, materials, etc., have disturbed lawns and other areas outside of their work. All collateral damage not in asphalt shall be sodded back at the Contractor's expense. Damaged trees shall be trimmed and treated with a tree dressing.

Any damage to asphalt during construction that is outside of the trench limits or has not been previously identified by the City of Fayetteville or the PWC Project Engineer as failing shall be considered collateral damage and patch paved in accordance with these Contract Documents at no cost to the Owner.

PUBLIC RELATIONS, CUSTOMER SERVICE, NOTIFICATIONS

28. CONTRACTOR'S DUTY AND OBLIGATION TO THE PUBLIC

The Contractor at all times shall conduct the work in such a manner as to ensure the least obstruction to traffic practicable. The convenience of the general public and of the residents and businesses along and adjacent to the street(s) shall be provided for in a satisfactory manner, consistent with the operation and local conditions. The Contractor shall construct and maintain any necessary ramps, boardwalks, or other means to maintain pedestrian traffic. Costs for such work shall be incidental to the unit prices bid. The Contractor shall at all times cooperate with the public and merchants affected by the construction operations and shall maintain good public relations at all times.

The Contractor shall schedule and stage construction in a sequence to minimize disruption to The largest number of residents/businesses for the shortest period of time. Special considerations shall be given to the neighborhood solid waste and trash collection schedule, mail delivery, and bus routes, if applicable.

The Contractor shall contact the business Owners to determine the optimum time for conducting their operations. The Contractor shall schedule their operations to minimize the likelihood of equipment operating throughout the night and/or on weekends in residential areas. The Contractor shall remove their equipment from the yards of residents at the end of each workday. Equipment shall not be left in yards, overnight, or during weekends, unless the Contractor has specific written permission from the property owner.

The Contractor shall fully coordinate their operations and schedule with PWC.

29. CUSTOMER SERVICE

The Contractor is expected to make every effort to reduce the impact of their operation to Fayetteville Public Works Commission's operation and maintenance of the water and sewer system, and the affected customers within the project area. Full cooperation and coordination with Fayetteville Public Works Commission personnel and customers is expected. It is expected that the Contractor will promptly respond to any concerns voiced by residents and/or Fayetteville Public Works Commission personnel and make every effort to resolve them immediately. Should the Contractor be unable to resolve the issue, the Contractor shall promptly notify Fayetteville Public Works Commission. Such notification shall include the person's name, address, nature of complaint, and the Contractor's proposed remedy. Providing exemplary customer service shall be incidental to this Contract, and no additional payment will be made for this service.

The Contractor at all times shall conduct the work in such a manner as to ensure the least obstruction to traffic practicable. The convenience of the general public and of the residents and businesses along and adjacent to the Work shall be provided for in a satisfactory manner, consistent with the operation and local conditions. The Contractor shall construct and maintain any necessary ramps, boardwalks, or other means to maintain pedestrian traffic. Costs for such work shall be incidental to the unit prices bid. The Contractor shall at all times cooperate with the public and merchants as affected by the construction operations and shall endeavor to maintain good public relations at all times.

The Contractor shall make every effort to minimize the impacts of their operation on the businesses and/or residents. The Contractor shall contact the business Owners to determine the optimum time for conducting their operations. The Contractor shall schedule their operations to minimize the likelihood of equipment operating throughout the night and/or on

weekends in residential areas. The Contractor shall remove their equipment from the yards of residents at the end of each workday. Equipment shall not be left in yards, overnight, or during weekends, unless the Contractor has specific written permission from the property owner.

The Contractor shall fully coordinate their operations and schedule with Fayetteville Public Works Commission.

30. PUBLIC SAFETY

The Contractor shall barricade all work, roads, etc. to keep the public away from the construction. The Contractor shall provide protection to all portions of the Work when the work is not in progress. The Contractor shall provide and install all measures necessary to protect the public. Damage due to the lack of proper protection shall be the Contractor's sole responsibility.

Robeson to Winslow St. Project: Local residents have been known to trespass on the existing PWC easement, using it as a foot path between Robeson St and Winslow St. The Contractor shall provide measures to barricade or otherwise protect hazardous areas when the Work is not in progress.

31. CUSTOMER NOTIFICATION

Whenever the customer's use of the sanitary sewer must be interrupted by the Work, the Contractor shall notify the customers a minimum of two (2) business days in advance of the interruption. This notification shall be accomplished with door hanger notification cards placed at the addresses of the affected customers. Customers shall be informed when service interruption takes place and the expected duration. The Contractor shall make every effort to minimize inconvenience to the public and customers.

Service interruptions to customers shall be limited to no more than eight (8) hours at any given time.

The notifications shall describe the work to be undertaken and approximate dates of the work. The notifications shall clearly indicate the dates and times of the work. The text of the notifications shall be approved by Fayetteville Public Works Commission in advance. The Contractor shall notify The PWC Project Coordinator each time such notification is issued to the customers.

Robeson to Winslow St. Project: The Contractor shall coordinate with the PWC Project Coordinator 48 hours before commencing pile driving. The PWC Project Coordinator will notify the businesses in the vicinity to expect pile driving operations.

32. RESIDENT NOTIFICATION OF WORK

The Contractor shall not enter back yards, fenced areas, or areas that may be deemed private or personal – regardless of easements or rights of way held by Fayetteville Public Works Commission – without consent from the property owner and the PWC Project Coordinator. The Contractor shall coordinate with the PWC Project Coordinator to notify residents a minimum of one (1) week in advance of the need to work in these areas.

If there are assigned areas that will require the Contractor to access areas that are deemed private or personal (regardless of easements or rights-of-way held by PWC), the Contractor shall coordinate with the PWC Project Engineer to issue letters to the affected property owners. Those notification letters will be prepared and issued by PWC. The Contractor shall

coordinate with PWC so that the letters may be sent a minimum of 30 days before beginning any work in the area. The Contractor shall coordinate their schedule with PWC so that the information provided in the notification letters is as accurate as possible. Once the schedule has been established, the Contractor shall continually update PWC and the affected property owners of any changes to that schedule.

Communication and coordination with PWC and the property owners is an expectation of this Contract and will be used as a basis for determining if the Contract should be renewed. PWC prides itself on being customer oriented and it is the expectation that the Contractor will keep the customers (property owners) fully informed of their schedule.

33. RESIDENTIAL/COMMERCIAL COMPLAINTS

Fayetteville Public Works Commission' Complaint Resolution Procedure shall be followed throughout the duration of the Contract. The Contractor is required to maintain good public relations and to provide timely notifications to residents so as to minimize inconvenience and complaints.

Fayetteville Public Works Commission has an established protocol for addressing residents' complaints. The Contractor shall be responsible for familiarizing himself and his subcontractors with this protocol. During the course of the Work, the Contractor shall immediately respond to requests from Fayetteville Public Works Commission to address resident complaints. The Contractor shall inform his personnel and subcontractor personnel that all complaint issues be directed to the PWC Project Coordinator and the Contractor's Superintendent. The PWC Project Coordinator shall be present in all meetings with residents. Should Fayetteville Public Works Commission determine the Contractor(s) non-responsive in addressing complaints, Fayetteville Public Works Commission reserves the right to withhold progress payments until the complaint has been satisfied. The Contractor shall immediately notify the PWC Project Coordinator of any complaint received.

*** END OF SECTION ***

PERMITS-AGREEMENTS-ENCROACHMENTS/EASEMENTS

34. WATER AND SEWER CONSTRUCTION PERMITS

PWC has issued a water permits for construction of the water and sewer mains. A copy of the permits are included in Appendix A.

The permit placard will be delivered to the Contractor at the pre-construction meeting. The Contractor shall post the water permit placard on site and shall have a copy of the permitted set of plans on site at all times.

The Contractor shall make the approved, permitted plans available for inspection by Fayetteville Public Works Commission staff.

35. STREAM IMPACT PERMIT

The Robeson to Winslow Street-As designed, does not impact Blount's Creek. PWC has not obtained a stream impact permit. The Contractor shall not disturb the streambed, impede the flow of the stream, or allow the Work to degrade the quality of the stream water.

36. TRUCK ROUTE PERMIT

The Contractor will be required to obtain a Truck Route Permit from the City of Fayetteville and will be required to bond those City streets outside the project limits utilized for construction activities and/or deliveries. It is anticipated that the City will require a \$25,000 bond for the truck route permit. The cost of the bond shall be included in the Contractor's bid prices and shall not be paid for separately. The Truck Route Permit Application and fee shall be submitted to PWC for forwarding to the City. The Contractor shall keep a copy of the approved permit at the jobsite and shall make it available to the City personnel.

37. BULK WATER USAGE

Fayetteville Public Works Commission will allow the Contractor to use water from its existing water system.

A Bulk Water Hauler (BWH) permit must be purchased from the PWC Customer Service Center (955 Old Wilmington Road). The permit inspection and permit issuance will be conducted at the PWC Environmental Inspection Office between 8:00 am and 10:00 am, Monday through Friday. The PWC Environmental Inspection Office is located in Building #13 the PWC Cross Creek Water Reclamation Facility (601 N. Eastern Blvd).

The Contractor shall contact PWC's Environmental System Protection Department (910-223-4699) or visit <https://www.faypwc.com/hydrant-use-permitting/> for more information regarding the BWH permit process.

The permit fees are subject to change. The Contractor shall contact the PWC Customer Service Center at 910-483-1382 to obtain the most current fees.

The Contractor shall provide documentation on the amount of water used for operations and shall provide a monthly statement to the PWC Project Coordinator.

All BWH permits expire on January 31 regardless of when they were purchased. The Contractor shall renew the permit each year to keep it current for the duration of this Contract.

The Contractor shall utilize proper backflow prevention devices when obtaining water from Fayetteville Public Works Commission's system.

38. AGREEMENTS WITH PROPERTY OWNERS

Any and all agreements between the Contractor and individual property owners for work services, rent of staging areas, etc. located outside of any easements or public rights-of way shall not obligate the City of Fayetteville or Fayetteville Public Works Commission in any manner. Prior to performing any work on private property, which could remotely infer the Contractor acting on behalf of Fayetteville Public Works Commission, the Contractor shall furnish to Fayetteville Public Works Commission a signed and witnessed statement executed by the property owner acknowledging that the City of Fayetteville and Fayetteville Public Works Commission are not liable for any agreements between the property owner and the Contractor, and that the Contractor shall hold harmless and defend the City of Fayetteville and Fayetteville Public Works Commission from all claims, damages, etc. Additionally, all agreements/actions by Subcontractors shall be the Contractor's responsibility to secure the property owner's agreement as described herein.

Prior to release of final payment, the Contractor shall obtain written releases from the property owners for satisfaction, completion, and restoration. Copies of those written releases shall be submitted to Fayetteville Public Works Commission with the final pay application.

The Contractor bears complete responsibility for any damage to private properties outside of the permanent easements and/or rights-of-way.

39. RIGHTS-OF-WAY AND/OR EASEMENTS

Deeds, grants, encroachment permits, and rights-of-way easements for necessary property have been secured by PWC. Any additional access right-of-way shall be the responsibility of the Contractor. The Contractor shall be liable for all damages resulting from access usage.

If Work is delayed by reason of the inability of PWC to promptly secure the necessary property or rights-of-way, the Contractor shall have no claim for loss due to such delays. The Contractor will be required to work in areas where easements have been secured and stopping work to move to various locations may be required. No payment shall be made for any mobilizations within the project limits. If the PWC Project Engineer determines work cannot continue, the Contractor shall have no claim for loss due to such delays, but the time of completion may be extended accordingly.

The Contractor shall locate the limits of the rights-of-way, or property lines prior to beginning construction and shall not encroach beyond those limits. The Contractor shall be solely responsible for any damage to property resulting from failing to locate these limits prior to beginning construction.

If PWC has not obtained all of the required easements at the time of advertisement, a list of those properties where an easement has not been obtained will be located in Volume I of these Contract Documents. The Contractor shall not enter those properties where easements are not obtained. Once the easements have been obtained, PWC will notify the Contractor. Any special conditions resulting from the easement acquisition will be provided to the Contractor in writing. The Contractor shall comply with all easement's special conditions.

40. EROSION AND SEDIMENTATION CONTROL PERMITS

The projects do not require an erosion and sedimentation control plan to be approved by the North Carolina Department of Environmental Quality (NCDEQ).

41. EXCAVATION PERMIT

Before beginning exaction with a City right-of-way, the Contractor shall complete an excavation permit application and shall submit the application to the PWC Project Engineer. PWC will submit the permit application to the City and will pay the associated permit and degradation fees.

42. NCDOT ENCROACHMENT PERMIT

Robeson to Winslow

PWC has obtained an encroachment from NCDOT (NCDOT No. E062-026-21-00315) for the proposed Work within the NCDOT Right-of-Way of Robeson Street (PWC Encroachment No. 11815). The approved encroachment agreement is included in the Appendix. Expiration is August 2023 and will be renewed.

- The approved encroachment agreement and the associated provisions shall be considered a part of these Contract Documents. The Contractor shall adhere to all requirements, terms, and conditions set forth in the approved encroachment agreement.
- A copy of the approved encroachment agreement shall be on site at all times.
- The NCDOT Encroachment permit approval and associated plans and supporting documents shall not be interpreted to allow any design change or change in the intent of the design. Any revisions or changes to these approved plans or intent for construction must be obtained in writing from the NCDOT Division Engineer's office or their representative prior to construction or during construction, if an issue arises during construction to warrant changes.

Notifications

- The Contractor shall provide the Fayetteville Public Works Commission Project Coordinator and Project Manager documentation of correspondence with NCDOT.
- The Contractor, at least ten (10) business days prior to construction activity within the NCDOT Right-of-Way and/or within 1,000 feet of a signalized intersection. The Contractor shall notify the Fayetteville Public Works Commission Project Coordinator and Project Manager.
- The Contractor, at least ten (10) business days prior to construction activity within the NCDOT Right-of-Way provide the Fayetteville Public Works Commission Project Coordinator and Project Manager the completed NCDOT Notification form in the Encroachment Permit. After review and approval by the Fayetteville Public Works Commission and at least one week prior to construction activity within the NCDOT Right-of-Way, the Contractor shall provide the completed NCDOT Notification form to the NCDOT.
- The Contractor, at least three (3) business days before start of the construction activity within the NCDOT Right-of-Way, shall contact Troy Baker at the NCDOT District office by both telephone at (910) 364-0601 and email (tlbaker@ncdot.gov).
- The Contractor, no less than one (1) week prior to start of the construction activity within 1,000 feet of a signalized intersection, shall contact the Division Traffic Engineer at the NCDOT District office at (910) 364-0606.
- The Contractor shall notify the appropriate municipal office prior to beginning any work

within the municipality's limits of jurisdiction.

- The Contractor shall coordinate traffic control with the District Engineer and the Division Traffic Engineer, Mr. Frank West at telephone (910) 364-0606, prior to construction.
- The Contractor shall notify the Fayetteville Public Works Commission Project Coordinator 2 business days prior to completion of construction. The Fayetteville Public Works Commission will notify the District Engineer within 2 days after construction is complete.

NCDOT Required Preconstruction Meeting (if Required)

- If required by the NCDOT District Engineer, the Contractor shall attend a preconstruction meeting with representatives of NCDOT, the Fayetteville Public Works Commission, municipality, if applicable.

Submittals

- The NCDOT Encroachment Notification Form (See B.1.c)
- A Traffic Control Plan-At the discretion of the District Engineer, the Contractor shall submit a traffic control plan specific to the site and adequately detailed prior to construction. The plan shall be sealed and signed by a Licensed North Carolina Professional Engineer
- A Paving Quality Control Plan shall be submitted (as Directed by the District Engineer) to the District Engineer's Office prior to asphalt production utilizing form QMS-MV1.

Utility Mark Outs Prior to Construction Activities.

- It shall be the responsibility of the Contractor 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 (also refer to Section 7.04B). All traffic signal or detection cables must be located prior to excavation. The Contractor 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. The Contractor shall provide documentation to the Project Coordinator and Project Manager confirming notifications were made and that utilities were located.
- The Contractor, prior to beginning work, shall contact the appropriate Utility Companies involved and make arrangements to adjust or relocate any utilities that conflict with the proposed work.
- Cost to replace or repair utilities, including NCDOT signs, signals, pavement markings or associated equipment and facilities shall be the responsibility of the Contractor.

Training and Qualification Requirements for Work Zone Protection Personnel

- 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 shall be qualified and trained Work Zone Flaggers. The Contractor shall submit to the Fayetteville Public Works Commission valid certifications for each Work Zone Flagger assigned to the Project.
- Any 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. The Contractor shall submit to PWC valid certifications for each qualified and trained Work Zone Installer assigned to the Project. The Contractor shall submit to the Fayetteville Public Works Commission NCDOT certifications for
- 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. The Contractor shall submit to the Fayetteville Public Works Commission valid certifications for each qualified and trained Work Zone Supervisor assigned to the Project.

Work Zone Traffic-Coordination and Schedule Requirements

- Traffic control shall be coordinated with the District Engineer and the Division Traffic Engineer, Mr. Frank West at telephone (910) 364-0606, prior to construction.
- 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.
- No lane of traffic shall be closed on holidays, special events, or as directed by the engineer.
- 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.
- 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,

Lane or Shoulder Closures

- Work requiring lane or shoulder closures shall not be performed on both sides of the road simultaneously within the same area.

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. Contractor shall submit the lane closure plan to PWC and NCDOT.

Portable Concrete Barriers.

- If the Traffic Control Supervisor determines that portable concrete barrier (PCB) is required to shield a hazard within the clear zone, then the Contractor shall submit have the PCB designed and sealed by a licensed North Carolina Professional Engineer.
- The Contractor shall submit the PCB plans and design calculations to the District Engineer for their review and approval. The Contractor shall submit the PCB plans to the Fayetteville Public Works Commission for information.

Sidewalk Closures

- The Contractor shall install Sidewalk closures as necessary. Pedestrian traffic shall be detoured around these closures and shall be signed appropriately and in accordance with The American with Disabilities Act Accessibility Guidelines.
- The Contractor shall adhere to the guidelines for accommodating pedestrians in encroachment work zones as described in the NCDOT Pedestrian Work Zone Accommodations Training found at:

<https://www.youtube.com/watch?v=AOuYa5lW3dg&feature=youtu.be>

43. RAILROAD ENCROACHMENT AGREEMENTS

Robeson to Winslow

- CSX Agreement No. CSX969606 for PWC Encroachment No. 18819.

A copy of the approved encroachment agreements must be available on site at all times.

The Contractor shall adhere to all requirements and conditions set forth in the approved encroachment agreements, including the Communications Cable / Fiber Optic Rider, and all referenced specifications, including but not limited to:

- CSX-Contractor-Safety-Compliance-Guide-05122022
- CSX-Contractor shall execute and deliver to PWC the Contractor Acceptance form attached as Schedule A in the agreement prior to any commencement of work.
- Norfolk Southern Pipeline Occupancy- NSCE-8 specifications, adopted by RJ Corman Railroad Company for the new Raleigh & Fayetteville Railroad.

Insurance

Insurance requirements from the Railroads are included in the Appendix. The costs associated with the insurance requirements set forth in the railroad encroachment agreements. The requirements therein pertain to PWC's perpetual liability to the railroads over the lifetime of the agreement. These insurance requirements are separate and distinct from the Contractor's liability to PWC as set forth in the General Conditions of these Contract Documents.

Proof of insurance i.e., certificate of insurance) shall be submitted to PWC before any work can occur within the right-of-way. Failure to submit the required insurance in a timely manner shall not be the basis for any extensions of Contract Time.

Flagging Requirements

It is anticipated that the railroads will require a flagger to be present during the jack and bore operation, as well as during the installation of pipe through the casing. PWC will pay the costs for the flagger directly to the railroads.

The Contractor shall be responsible for coordinating with PWC and the railroads to ensure that a flagger is present, if required, for all operations within the railroad right-of-way.

The Contractor shall coordinate with PWC to schedule a flagger. Scheduling a flagger could take 30 calendar days or more, depending on the railroad's schedule. Therefore, the Contractor shall notify PWC in a timely manner to schedule a flagger, so as not to delay the project. PWC will be responsible for initially contacting and coordinating the flagger with the railroads.

Once the flagger is on-site, the Contractor and PWC Project Coordinator will coordinate as necessary with the flagger to minimize the amount of time working within the railroads right-of-way. The Contractor shall adjust their operations to accommodate the schedule of the flagger, at no additional cost to PWC. Failure of the Contractor to properly coordinate their schedule with PWC shall not be the basis for any extensions of Contract Time.

The actual fees for RR flagging or inspection services. PWC will coordinate flagging and inspection services and will pay the fees for said services directly to the railroads.

Fees

The Contractor shall be solely responsible for all fees or costs associated with the requirements and conditions set forth in the encroachment agreements, EXCEPT for the following:

- Any fees or costs incurred beyond the warranty period (as defined in General Conditions)
- Any fees or costs imposed on PWC by the Railroads that are not a result of the Contractor's Work within the railroad right of way
- The Encroachment fees were paid by PWC at the time of execution of the agreement.

Expected Number of Trains per Day.

Robeson Street to Winslow Street-CSX Crossing

The Federal Railroad Administration Crossing Inventory Report (Crossing No. 629885H) for the vicinity of the project area estimates 5 day "thru" trains, 10 night "thru" trains, and 0 switching trains. However, the frequency of trains can change, based on operations and traffic

volume. The actual number may vary, depending on the railroad's operations for reference, see the Crossing Inventory Report is included in the Appendix.

EXECUTION-CONSTRUCTION

44. EROSION AND SEDIMENTATION CONTROL

The projects do not require an erosion and sedimentation control plan to be approved by the North Carolina Department of Environmental Quality (NCDEQ). However, the NC Sedimentation Pollution Control Act is applicable to this Project. Therefore, the Contractor shall be responsible for ensuring that sediment does not enter the creek and does not leave the limits of construction.

The Contractor shall be responsible for implementing and maintaining best management practices for erosion and sedimentation control at the Site.

It is the responsibility of the 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.

The Contractor shall progressively adjust and/or add erosion control measures to complement their type of construction to prevent erosion and the transmittal of silt. All necessary erosion control measures shall be installed prior to any work. The installed erosion control measures shall remain serviceable until the site is restored and stabilized. Upon such time (which may be after completion of the project), the Contractor shall remove all temporary measures and final payment may be approved.

All fees, penalties, fines for non-compliance and all civil actions resulting there from shall be the Contractor's responsibility and shall in no way involve Fayetteville Public Works Commission. The Contractor shall immediately notify Fayetteville Public Works Commission of any fine, penalty, or notice of non- relating to erosion or sedimentation. The Contractor may be required to modify or supplement the measures at no additional cost to Fayetteville Public Works Commission.

In addition to installing and maintaining the appropriate erosion control devices, the Contractor shall maintain a neat and clean jobsite. The Contractor shall take the necessary measures to minimize dust, ensure the streets are clean and free of debris, and other measures as required. The Contractor shall ensure that the catch basin and inlet protection devices are free of dirt and debris.

Permanent and temporary erosion control measures proposed by the Contractor for staging areas, haul roads, bypass lines, etc. shall be at the Contractor's expense and shall not constitute additional compensation.

Robeson to Winslow

The existing water main parallels Blount's Creek, where the CSX railroad tracks cross the creek. The water main is located between the bridge abutments and the stream. The drainage area for Blount's Creek is extensive. During rain events, the flows and levels within Blount's Creek can rise, depending on the duration and volume of the rain event. It is likely that debris can travel in the creek during rain events. It is noted that it may take several days for the stream flows to return to normal, depending on the duration and intensity of the rain event.

- The Contractor shall not disturb the streambed, impede the flow of the stream, or allow the Work to degrade the quality of the stream water.
- The Contractor shall take every precaution to ensure pollutants (including but not limited to, sedimentation, fuel, lubricants, and general rubbish) do not enter Blount's Creek.

- The Contractor shall take all necessary precautions to secure their equipment and materials, in order to avoid any damage due to high stream flows.

45. TRAFFIC CONTROL

Traffic control measures shall be in accordance with Specification Section 02500 – Traffic Control, and the following requirements.

The Contractor shall provide any and all traffic safety measures as required to satisfy local, state, and federal highway requirements. The Contractor working in public rights-of-way on streets open to vehicular traffic shall be required to temporarily maintain traffic control devices to reduce unnecessary congestion and unsafe traffic conditions.

The Contractor shall be liable for any damages resulting from his negligence in using adequate work zone traffic control. Furthermore, Fayetteville Public Works Commission reserves the right to stop any work for non-compliance.

The Contractor shall coordinate his activities so as to minimize disruption of traffic and inconvenience to residents and the general public. All such traffic control devices, traffic patterns and road closures shall be approved by the City of Fayetteville (the City) and/or NCDOT.

Contact information for NCDOT or the City of Fayetteville is as follows:

Troy Baker (NCDOT): 910-364-0601

Ramon Melendez (City): (910) 433-1090

Failure to provide and maintain adequate traffic control devices may result in Fayetteville Public Works Commission's refusal to make payment until corrective measures are in place.

Improper signage and traffic control devices will not be allowed. PWC and/or the local agency reserve the right relocate and/or remove such non-conforming signs and devices, setup proper signage to ensure public safety and deduct all costs for these items which may be incurred by Fayetteville Public Works Commission. The Contractor shall make no claim for such work performed.

No work on the individual streets shall start until all the traffic control devices required for the particular work activity have been installed in accordance with the approved traffic control plan.

46. PEDESTRIAN TRAFFIC CONTROL

Designated pedestrian travel-ways shall remain open and accessible as much as practically possible. When designated pedestrian travel-ways are to be closed, the Contractor shall provide ADA acceptable pedestrian detours.

Where the barricades are in or directly adjacent to designated pedestrian travel-ways, the Contractor shall utilize ADA acceptable barricades.

Excavations that are not backfilled at the end of the workday shall be covered with appropriate material and barricaded with six foot high temporary fence.

47. PROTECTION OF PROPERTY

Upon request from the property owner, the Contractor shall remove and set aside those plantings identified by the property owner. All plantings to be salvaged shall be placed at the

edge of the existing easement. It will be the property owner's responsibility to re-plant those items saved.

Tree branches and ornamental shrubbery shall be temporarily tied back to avoid damage. Damage to trees shall be trimmed and treated with a tree dressing.

The drill entry area mud pit size depends on conditions. The trenched waterline will likely disturb the dripline of the Oak of the Shah property. If the dripline of the Oak is disturbed, the tree should be removed and replaced.

48. REMOVAL AND REPLACEMENT OF FENCING

The Contractor shall provide temporary fencing for the business located on Robeson Street. The Contractor shall install and maintain the temporary fencing along the easement line so that the existing business remains secure throughout the duration of the Work. The Contractor shall coordinate the installation of the temporary fencing and removal of the existing fence with the property owner.

The Contractor is to replace any fencing disturbed as part of their operations for the work described within these Contract Documents. Fence re-setting is considered incidental to the operation, and no additional payment will be made for this work.

In addition, if temporary fencing is requested by a property owner, the Contractor shall provide such fencing as necessary, at no additional cost to Fayetteville Public Works Commission.

Fences shall be removed, properly stored and replaced, using new items as required, to restore the item to the original condition or better. The permanent fence shall be to the same specification as the original fence.

It is noted that private fences may be located across or on the utility easement. It is expected that the Contractor will fully scope the proposed project area(s) prior to commencing work, in order to conduct the work with minimal disruption and fence removal. The Contractor shall have the primary responsibility to coordinate access across private property.

49. INSTALLATION OF WATER MAINS

Installation of the water mains shall be in accordance with PWC Technical Specification 02660 - Water Distribution. Boring Jacking shall be accomplished in accordance with Technical Specification 02301 - Boring and Jacking and the provisions of the CSX and RJ Corman encroachment.

The jack and bore subcontractor shall complete all Work associated with the jack and bore operation utilizing its own equipment and labor forces. The Jack and Bore superintendent shall be an employee of the jack and bore subcontractor. Violation of this provision of the Contract may be deemed a breach of the Contract.

CSX requires the jack and bore operation to be progressed on a 24-hour basis without stoppage until the leading edge of the pipe has reached the receiving pit.

50. INSTALLATION OF THE AERIAL CROSSING

The Contractor shall coordinate with the PWC Project Coordinator 48 hours before commencing pile driving. The PWC Project Coordinator will notify the businesses in the vicinity to expect pile driving operations.

The support piers shall utilize HP8x36 for vertical piles. The H-piles shall be a minimum of 35 feet in length and shall be driven to refusal with a 30,000-ft-lb pile driver hammer. Refusal shall be defined as follows: the H-Pile progresses no more than one (1) inch during ten (10) consecutive blows with a 30,000-ft-lb pile driver hammer. The use of a vibratory hammer will not be allowed for the installation of the H-piles.

All materials utilized for the aerial support structure, including pipe, beams, piles, straps, bolts, fasteners, spacers, and any other incidental items shall be in strict accordance with the Contract Drawings. All steel materials, including nuts and bolts, shall be hot dipped galvanized. The Contractor shall consult with the PWC Project Engineer regarding any questions or concerns pertaining to materials.

The H-piles shall be cut off square at an elevation that will provide proper alignment and connection of the water main. The horizontal section shall be W14x43 and shall be fully welded to the H-piles. All welds shall be inspected by a certified welder.

51. RIP RAP

Plane rip rap shall be field stone or rough unhewn quarry stone. Use stone that is sound, tough, dense, resistant to the action of air and water and suitable in all other respects for the purpose intended. Where broken concrete from demolished structures or pavement is available, it may be used in place of stone provided that such use meets with the approval of the PWC Project Engineer. However, the use of broken concrete that contains reinforcing steel will not be permitted.

Rip rap used along the creek banks shall be Class 1. There shall be equal distribution of the various sizes of the stone within the required size range. The size of an individual stone particle will be determined by measuring its long dimension. All stone shall meet the approval of the PWC Project Engineer. Stone or broken concrete for rip rap shall meet the following for the class and size distribution:

	Required Stone Size		
Class	Min	Mid	Max
A	2"	4"	6"
B	5"	8"	12"
1	5"	10"	17"
2	9"	14"	23"

52. EXCAVATION AND SHORING

Excavation and backfill shall be in accordance with Technical Specification 02222 – Excavation and Backfilling for Utility Systems, NCDOT Encroachment Permit, and railroad encroachment permits.

Work on railroad crossings will occur within the theoretical embankment of the railroad. The Special Conditions included in the encroachment agreements are included as an Appendix to these Contract Documents. The Contractor shall adhere to all requirements of these Special Conditions.

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.

Before excavating, the Contractor shall contact the NC One-Call Center (dial 811) for the location of existing utilities within the Project area. The Contractor shall bear the costs of utility repairs, temporary service, and other costs arising out of damage to or interruption of utilities resulting from the Contractor's operations.

Prior to excavation, the Contractor shall sawcut and remove asphalt or concrete pavement within the limits of allowable trench width. Where the excavation is within grassed easement areas, the Contractor shall take care to minimize disturbance and/or removal of trees, shrubs, bushes, etc. All excavations shall be carried to a neat line (except for the minimum space required for work, pipe jointing, caulking, etc.), and to exact finished grade except where otherwise specified (for instance, where rock is encountered in the bottom of the excavation).

Earthwork should ideally be performed during the summer months when the weather conditions are more conducive to moisture conditioning of fill materials.

Excavation material shall not be placed on pavement.

The excavation for all work included in this project is unclassified unless specifically stated in the Measurement and Payment section of these Contract Documents. The unit prices include all excavation and grading in whatever nature of material may be encountered. No additional payment will be made for excavation of material different from what was anticipated. The Contractor shall investigate and examine the site of the project before preparing and submitting a bid.

The Contractor will be held responsible for proper and adequate shoring and sheeting of all excavations. It shall also be the responsibility of the Contractor to protect all excavations from sloughing off and thus destroying firm soil for footings of any foundations planned or existing, adjacent to excavations carried to lower grade than the bottom of such foundations. Failure to observe this precaution will necessitate such foundations being carried to greater depth for firm footing at the expense of the Contractor for the extra work, time and materials involved; and the PWC Project Engineer shall have the right to determine the manner and extent to which security to the adjacent foundations shall be made.

The Contractor shall be responsible for complying with all applicable OSHA regulations. The Contractor shall have a trenching and shoring "competent" person on the job at all times when there is an open excavation. Under no circumstance will an employee of the PWC be considered the "competent" person for the operation. The Contractor shall frequently evaluate excavation slopes each day by the "competent person" for compliance with applicable PWC and OSHA regulations.

If temporary excavations are required to limit, they should be sufficiently sloped and/or require temporary shoring such as trench boxes or internally braced excavations.

Where excavation to grade for structure or pipeline discloses a distinct difference in the character of foundations, such as rock and earth, the rock shall be excavated to a depth of six (6) inches below grade, and the additional space thus excavated shall be backfilled with suitable material, which shall be thoroughly tamped and compacted to grade of the adjoining foundation material, in order that the soil conditions may be uniform in supporting the foundation-bearing parts of the structure or pipe line.

All excavations shall be covered and protected when Work is not in progress. All excavations

shall be protected from pedestrians.

As applicable excavations in streets may be covered with steel traffic plates and fastened to the pavement, as approved by the controlling agency and the PWC Project Engineer. When required by the controlling agency or the PWC Project Engineer, the plates shall be recessed into the pavement where the top of the pavement is flush with the top of the plates.

Excavations outside of vehicular areas may be covered with weather resistant $\frac{3}{4}$ -inch plywood, if approved by the PWC Project Engineer.

It may be necessary to surround the pits with concrete barriers if required by the controlling agency.

53. DEWATERING

The dewatering system shall be designed by contractor but may consist of sump pit and pumping techniques or a series of well points strategically placed around the construction area. The Contractor shall sequence the work to properly control groundwater levels during construction.

The Contractor shall maintain Groundwater levels to at least three feet or more below proposed subgrade elevations to protect surrounding areas. Groundwater levels shall be lowered prior to performing final excavations to subgrade elevation.

54. COMPACTION REQUIREMENTS

Compaction requirements in Specification Section 02222.

Tests for density of compaction are made at the sole direction of the PWC Project Engineer or the PWC Project Coordinator. All structural earth fill shall be compacted at a moisture content within +3 percentage points of the optimum moisture content. All deficiencies shall be corrected by the Contractor without additional cost to the Owner.

All structural fill material shall be placed and compacted under the fulltime control and supervision of a qualified geotechnical engineer or engineering technician working under the direction of the geotechnical engineer.

Backfill within the right-of-way of Robeson Street requires compaction in accordance with NCDOT standards and the NCDOT Encroachment Permit.

Results of compaction testing shall be submitted to the PWC Project Engineer for review and acceptance.

55. BYPASS PUMPING

Bypass pumping shall be in accordance with Specification Section 02750 – Wastewater Flow Control and the following.

The Contractor shall schedule a coordination meeting with the Fayetteville Public Works Commission and other personnel (Contractor, bypass sub-contractor, etc.) a minimum of three (3) business days prior to starting the temporary bypass pumping system.

The purpose of this coordination meeting is to ensure that the Contractor and their sub-contractors have a good understanding of the requirements and expectations of operating the temporary bypass pumping system, discuss contingency plans (to include protocols for emergency contacts), identify location(s) of pumps, verify necessary materials (repair sleeves, containment devices, etc.) are on-site and available, and any other items necessary to ensure

that the Fayetteville Public Works Commission has confidence that the appropriate personnel can operate and maintain the temporary bypass pumping system.

Should, for any reason, the Fayetteville Public Works Commission deem that the Contractor and/or their sub-contractor is not prepared to operate and maintain the temporary bypass pumping system, the temporary bypass pumping system shall not be started. The Contractor shall take all necessary steps to address any concerns to the satisfaction of the Fayetteville Public Works Commission.

Upon completion of those actions, another coordination meeting shall be held, in order for the Fayetteville Public Works Commission to confirm that the Contractor and their sub-contractor is prepared to operate and maintain the temporary bypass pumping system.

This process will be repeated until the Fayetteville Public Works Commission is satisfied that the Contractor and their sub-contractor are prepared to operate and maintain the temporary bypass pumping system.

According to billing data, the anticipated peak flow rate is approximately 1.5 gallons per minute. The dry-weather average is 0.0833 and 0.3056 gpm. Based on the anticipated peak flow rate, the PWC Project Engineer does not anticipate that bypass pumping will be required during this project.

56. PAVING REPAIR

The Contractor shall repair all disturbed asphalt in accordance with applicable PWC and agency requirements. The Contractor shall coordinate the asphalt repair requirements with the PWC Project Coordinator and the City of Fayetteville. Asphalt materials and installation shall conform to the NCDOT HMA/QMS Manual and these Contract Documents. Any asphalt removed must be disposed of off-site at the Contractor's expense.

The excavations shall be repaired utilizing permanent asphalt patch. If patching will not commence immediately following backfill of the excavation, the Contractor shall fill the top of the excavation (from subbase to grade) with aggregate base course. The Contractor shall make every effort to minimize unpaved trenches.

It shall be the Contractor's responsibility to maintain the trench (swept, wetted, compacted, etc.) until the sewer and/or main is installed. No separate payment shall be made for maintenance of the trench. The maximum allowable disturbed trench shall not exceed 3,000 feet. No trench shall be left un-patched for a period of time greater than sixty (60) calendar days after initial asphalt removal.

Immediately prior to patch paving, the trench sides shall be saw-cut straight. The lateral trenches shall be patched at the same time as the main trench. The asphalt wedge curb shall be replaced in accordance with the Owner's requirements. Damaged curb outside of the trench limits shall be removed and replaced at the Contractor's expense.

The Contractor may excavate and grade the mainline and one (1) side of lateral trenches for paving one (1) calendar day ahead of scheduled paving. The lateral trenches on the opposite side of the road are to be excavated and graded just ahead of the paving operation. The Contractor shall provide a smooth transition eliminating any vertical drop from the existing pavement to the cut-out trench at all times. Transitions shall be installed at the lateral trenches, manholes, the beginning and end points of the main line trench and all affected driveways. Transitions shall remain in place until the day patch paving occurs. Upon completion of the daily patch paving operation, the Contractor shall re-install any removed

transitions until such time the paving operation resumes. No separate payment for installation, maintenance, and removal of these transitions shall be made.

After repairing the excavations with permanent patch, the full width of the pavement (gutter to gutter) shall be overlaid with one (1) inch of S9.5B surface course asphalt. The overlay area shall be milled before placing the overlay. Asphalt millings cannot exceed two (2) inches in size and shall be swept into the trench and re-compacted.

If any patch is discovered to have settled during the warranty period, the Contractor shall remove asphalt, re-compact base and sub-base, dispose of unsuitable material off-site and re-patch any areas of settlement at no expense to PWC.

NCDOT SPECIFIC PAVING REQUIREMENTS

For NCDOT roadways, all pavement patching shall be in accordance with the approved encroachment.

- The paving of this roadway shall be in accordance with the latest version of the NCDOT Standard Specifications, Sections 610, 1012 and 1020. The Contractor shall follow all procedures of the Quality Management System (QMS) for asphalt pavement – Maintenance Version.
- The Contractor shall contact the NCDOT Division QA Supervisor prior to producing plant mix and make the Supervisor aware that the mix is being produced for a future NCDOT road. Contact the District Engineer to determine the NCDOT Division QA Supervisor. Only NCDOT approved mix designs will be acceptable.
- A Quality Control Plan shall be submitted (as Directed by the District Engineer) to the District Engineer's Office prior to asphalt production utilizing form QMS-MV1.
- When paving beyond utility installation is involved or as directed by the Engineer, a Roadway certification report sealed by a Professional Engineer shall be submitted to the District Engineer's office indicating the following:
 - Pavement thickness by type
 - Pavement density, core and/or test locations
 - Base thickness
 - Base density
 - Subgrade density
- Test frequency and method shall be in conformance with the NCDOT Materials and Tests Manual. Test must be performed by a Certified Technician including name and Certification number on report.
- "Potholing" pavement cores to expose existing utilities shall be made with an 18" diameter keyhole pavement core shall be completed as per the NCDOT Encroachment Permit.
- Full depth patching is required for all open cuts on secondary routes with:
 - 2.0 inches of I 9.5 B (ACSC) – Asphalt Concrete Surface Course the same day as cut is made.
 - 3.0 inches of I 19.0 B (ACIC) – Asphalt Concrete Intermediate Course

- 5.0 inches of B 25.0 B (ACBC) Asphalt Concrete Base Course
- The existing pavement surface shall be milled at a depth of 2.0" and a width of 25.0' on each side of the cut to key in the patch with the existing pavement surface in accordance with the attached detail.
- Eight inches of ABC will be used as the base for open cuts.
- 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.
- Concrete
 - All concrete installed within NCDOT rights of way shall be constructed in accordance with the latest NCDOT Standard Specifications for Roads and Structures and Roadway Standard Drawings and Amendments or Supplementals thereto.
 - All concrete shall be an approved NCDOT Class B mix. All materials testing results shall be provided to the District Engineer upon completion of the project.
 - All concrete sidewalk installed within NCDOT rights of way shall be constructed in accordance with the latest NCDOT Standard Specifications for Roads and Structures and Roadway Standard Drawings (Std. Dwg. No. 846.01 and 848.01) and Amendments or Supplementals thereto. All concrete shall be an approved NCDOT Class B mix.
 - All 30" curb and gutter within NCDOT rights of way shall be constructed with Class B concrete in accordance with Section 846 of the latest NCDOT Standard Specifications for Roads and Structures and Roadway Standard Drawings (Std. Dwg. No. 846.01) and Amendment or Supplemental thereto or as directed by the engineer.
 - All concrete testing results shall be provided to the District Engineer's office at time of project completion.
- Pavement Markings
 - The Contractor shall be responsible for all temporary and final pavement markings.
 - Final pavement markings and sign plans shall be submitted with the encroachment request to the Division Traffic Engineer prior to construction.
 - Final pavement markings shall be thermoplastic unless otherwise directed by the Division Traffic Engineer or District Engineer.
 - Any pavement markings that are damaged or obliterated shall be restored by the Contractor at its own expense.

57. OWNERSHIP OF EXISTING UTILITIES

Existing utilities indicated on the Plans to be abandoned shall remain the property of the utility owner. The Contractor shall be responsible for removing the existing utilities as noted on the plans and removing the material from the site unless otherwise directed by the utility owner. The utility owner shall have the right of first refusal regarding the salvage of the material.

58. UTILITY COORDINATION

Coordination with the PWC Project Engineer, PWC Project Coordinator, and utility owner shall be a requirement of this Contract.

Coordination of temporary interruptions to gas, electric, cable and telephone services shall be the responsibility of the Contractor. The Contractor shall schedule a coordination meeting with the PWC Project Coordinator, PWC Project Engineer, and the utility owner a minimum of three (3) business days prior to any planned service interruption.

Coordination of temporary interruptions to water and/or sewer services shall be the responsibility of the Contractor. The Contractor shall schedule a coordination meeting with the PWC Project Coordinator, PWC Project Engineer, and utility owner a minimum of three (3) business days prior to any planned service interruption. The duration of the service interruption shall be coordinated with the utility owner and the PWC Project Coordinator. Service interruptions to residents shall be limited to no more than eight (8) hours at any given time. If the service interruption is anticipated to exceed eight (8) hours, temporary service shall be provided. The Contractor shall provide all the necessary equipment and materials for temporary service. The notifications shall describe the work to be undertaken and approximate dates of the work. The text of the notifications shall be approved by the PWC in advance. The Contractor shall furnish a copy of the notification to the PWC Project Coordinator each time such notification is issued to the residents.

Whenever the property owner's use of the water and/or sanitary sewer must be interrupted by the Work, the Contractor shall notify the residents a minimum of 48 hours prior to service interruption. This notification shall be accomplished with door hanger notification cards placed at the addresses of the affected residents. Property owners shall be informed when service interruption takes place and the expected duration. The Contractor shall make every effort to minimize inconvenience to the public and property owners.

For service interruptions on PWC's water system, refer to the 'Water Outage' requirement of these Supplementary Conditions.

The utility owner shall supervise the Contractor's operation of their facilities within the work area.

59. PROTECTION OF AND DAMAGE TO EXISTING UTILITIES

The Contractor shall take every precaution to guard against any damage to existing structures, pipelines, and/or equipment of the utility owner. Any damage to existing structures and/or pipelines shall be the direct responsibility of the Contractor. If the Contractor damages the Contractor shall immediately notify the utility owner and the PWC Project Coordinator. If existing water, sewer, and/or other utilities (CATV, telephone, etc.) are damaged, the Contractor shall immediately notify the utility owner and the PWC Project Coordinator. The Contractor shall immediately commence repairs to the damaged water and/or sewer utility in accordance with the utility owner's requirements. The Contractor shall ensure that no debris from construction operations is allowed to enter the existing sewer system.

Damage shall be replaced and/or repaired by the Contractor as directed by the utility owner, or the value of such deducted from any monies due the Contractor under this Contract.

Damage to Existing Sanitary Sewer Facilities

Damage to Fayetteville Public Works Commission facilities resulting from the Contractor's failure to control debris and/or other items related to their operation shall be the sole responsibility of the Contractor. In the event any debris or other item from their operation enters the sewer system, the Contractor shall immediately contact Fayetteville Public Works Commission. The Contractor shall then commence efforts to capture that debris at the downstream manholes. The Contractor shall continue to search for and recover any debris until either all debris is captured or instructed otherwise by Fayetteville Public Works Commission. Any costs incurred by Fayetteville Public Works Commission to help search for and/or retrieve the debris shall be the responsibility of the Contractor.

If a sanitary sewer service is damaged as a result of the Contractor's operations, the Contractor shall replace the entire lateral, from the main to the clean-out. Installation of the new lateral shall be in accordance with PWC standard detail S.10. Replacement of the lateral includes replacement of the clean-out and re-connecting the service to the customer's existing service, utilizing all necessary fittings. The Contractor may use the existing main to lateral connection, with approval from the PWC Project Coordinator. The PWC Project Coordinator and/or PWC Project Engineer may waive the requirement to replace the sewer lateral in its entirety at their sole discretion.

If a sanitary sewer main is damaged as a result of the Work, the Contractor shall repair the damage in accordance with PWC requirements. The repair shall be in accordance with PWC standard detail S.15, and as directed by the PWC Project Coordinator.

Damage to Culverts and Storm Drainage Structures

The Contractor shall remove and replace existing culverts and drainage structures as necessary during construction. Any damage to the City of Fayetteville's storm drainage infrastructure shall be repaired in accordance with City of Fayetteville requirements within seven (7) business days after damage occurs. All costs associated with the required repairs shall be the responsibility of the Contractor, at no cost to the Owner.

The utility owner shall supervise the Contractor's operation of all valves, gates, and other equipment. Except in case of emergency, the Contractor shall notify the utility owner a minimum of two (2) business days in advance of the need for operation of valves, gates, and other equipment necessary to allow the work to progress.

The Contractor shall notify the utility owner and the PWC Project Coordinator a minimum of 48 hours in advance to coordinate any proposed service interruption. If an unscheduled service interruption occurs, the Contractor shall immediately notify the utility owner and the PWC Project Coordinator. The Contractor shall immediately commence repairs in accordance with the utility owner's standards.

60. FIRE HYDRANTS

Existing fire hydrants shall be accessible to the Fire Department at all times. Fire hydrants shall not be taken out of service without the utility owner's written approval. The Fire Department shall be notified of any fire hydrant taken out of service.

61. FIRE DEPARTMENT COORDINATION

Existing fire hydrants shall be accessible to the Fire Department at all times. If the fire hydrants are in need of replacement, relocation, or connected to a new water main, then the PWC Project Coordinator and the appropriate Fire Department shall be notified and

coordinated with prior to commencing work. Fire hydrants shall not be removed from service without prior approval from the PWC Project Engineer.

The Contractor shall notify the applicable Fire Department of the location and schedule of the Work. The Contractor shall notify the Fire Department a minimum of two (2) full business days prior to commencing work. The Contractor shall coordinate with the appropriate Fire Department regarding the placement of the temporary fire hydrants.

62. CONSTRUCTION AROUND UTILITY POLES AND GUY WIRES

The Contractor will be required to perform construction work around utility poles and guy wires which may be left in place within the construction limits of the project. The Contractor shall contact the owner of the utility to coordinate securing the poles during construction. It may be necessary for the Contractor to hire an electrical utility contractor to secure poles. All work outlined in this paragraph shall be at no additional cost to the Owner.

63. CROSSING OF ASBESTOS-CEMENT WATER MAINS

Where the proposed sewer main crosses an existing PWC water main, the Contractor shall pothole the existing water main to verify the pipe material. If the existing water main material is asbestos cement (AC), the Contractor shall replace a minimum of 20 feet of the water main with ductile iron. It is the PWC's sole determination as to the length of water main to be replaced. The replacement shall be scheduled so that it is completed prior to the sewer installation. All required notification to affected customers shall be done in accordance with these Contract Documents. Installation of the new ductile iron water main shall be in accordance with PWC requirements. The Contractor shall follow all applicable federal, state, local rules, and regulations regarding cutting and disposing of AC pipe.

NOTE: THIS REQUIREMENT DOES NOT APPLY TO THOSE WATER MAINS OWNED BY AQUA AMERICA.

64. CROSSING EXISTING OR PROPOSED UTILITIES

The Contractor shall conduct their operations so that the following requirements are adhered to:

- Underground telephone, cable TV, and gas utilities or conduit banks shall be crossed maintaining a minimum of 12-inch separation or clearance.
- Electrical crossings shall be performed while the conductor is de-energized and at all times in the presence of the utility owner. Electrical crossings shall be in accordance with NESC requirements. Electrical primary conductor crossings shall be as follows:
 - Crossing over a conductor, maintain a minimum of 12-inches of undisturbed soil encasing the conductor.
 - Crossing under a conductor shall be accomplished by boring, maintaining 12-inches of undisturbed soil encasing the conductor.

No separate payment shall be made for this work.

65. DUCTILE IRON PIPE IN CASING

All water main pipe that installed inside casing pipe shall be factory restrained joint ductile iron pipe – that is, all restraints shall be internal to the pipe. The use of mechanical restraints (i.e., mega-lugs, Field Lok gaskets, etc.) inside casing pipe shall not be permitted. Factory

restrained joint ductile iron pipe and fittings shall be U.S. Pipe's TR-Flex, Griffin Pipe Products SNAP-LOK, or American Cast Iron Company's Flex Ring Joint.

66. MANHOLE COVERS

For all manholes in streets, the Contractor shall secure the covers to the rings to reduce rattling. The Contractor shall apply four (4) dollops of roofing tar to the frame, to eliminate the cover from rattling. The dollops shall be equally spaced around the frame to the ring utilizing four dollops approximately the size of a quarter, each spaced 90 degrees around the ring. The roofing tar shall be applied upon completion of the work and video inspection. The Fayetteville Public Works Commission Project Coordinator shall verify that the manholes are properly sealed and do not rattle. The cost for this work is considered incidental, and no separate payment will be made.

For manholes located in easement areas, the Contractor shall secure the covers at all times. For those manholes that are water-tight with a locking ring and cover (cam-lock), those manholes shall be locked whenever the Contractor leaves that particular manhole. In no circumstance shall a manhole cover be left uncovered and/or unlocked when the Contractor leaves the site.

Contractors shall ensure that their subcontractors are aware of and in compliance with these requirements.

This provision will be strictly enforced by the Fayetteville Public Works Commission.

In the event that a manhole cover does not seat and/or lock properly, the Contractor shall immediately notify the Fayetteville Public Works Commission Project Coordinator.

67. CONCRETE PIPE

The Contractor shall assume that any concrete sewer main is in poor condition and subject to damage and/or failure at any time during the construction efforts. The Contractor shall take all necessary precautions to prevent damage to the concrete sewer mains while in operation. Any damage to concrete sewer mains resulting from the Contractor's operation shall be the Contractor's responsibility to repair/replace prior to installing the liner. All repairs shall be in accordance with the Fayetteville Public Works Commission's standards.

68. PROTECTION OF SANITARY SEWER SYSTEM

The Contractor shall take all necessary precaution to guard against any or all damage to existing structures, pipelines, and equipment of the Fayetteville Public Works Commission. Any damage to existing structures, pipelines, or equipment resulting from the Contractor's operations shall be the Contractor's responsibility to repair/replace prior to proceeding with the rehabilitation work. All repairs shall be in accordance with the Fayetteville Public Works Commission standards.

The Contractor shall prevent debris and other items from their rehabilitation efforts from entering the sewer system. Damage to Fayetteville Public Works Commission facilities resulting from the Contractor's failure to control debris and/or other items related to their operation shall be the sole responsibility of the Contractor.

In the event any debris or other item from their operation enters the sewer system, the Contractor shall immediately contact the Fayetteville Public Works Commission. The Contractor shall then commence efforts to capture that debris at the downstream manholes. The Contractor shall continue to search for and recover any debris until either all debris is

captured or instructed otherwise by the Fayetteville Public Works Commission. Any costs incurred by the Fayetteville Public Works Commission to help search for and/or retrieve the debris shall be the responsibility of the Contractor.

69. REPLACEMENT OF PWC WATER SERVICES

Replacement of 1-inch Water Services

Existing 1-inch water services shall be replaced utilizing one (1) inch copper tubing. Installation of the services shall be in accordance with PWC standard detail W.24. For those existing services that are split, installation shall be in accordance with PWC standard detail W.25.

New lock valves and fittings shall be installed in the new meter boxes, in accordance with PWC standard detail W.24. The Contractor shall install a new tailpiece, as required in the standard detail. The Contractor shall be responsible for connecting the new tailpiece to the customer's existing service, utilizing brass fittings. The Contractor is responsible for all necessary fittings in order to connect the copper tubing to the existing meter.

Existing meter boxes shall be replaced as part of the replacement of the water services. New meter boxes shall be located 18 inches within the right-of-way or as directed by the PWC Project Engineer. The meter boxes shall be in accordance with PWC standard detail W.4. If the new meter box will be located in asphalt or concrete, a composite, H-20 rated meter box (in accordance with PWC standard detail W.4B). The Contractor shall be responsible for furnishing and installing the meter boxes. All work shall be reviewed and approved by the PWC Project Coordinator.

Existing water services shall be abandoned by cutting the service at the main, plugging the corporation, and turning the corporation off. At the meter box, the abandoned service is to be cut or crimped, and buried a minimum of three (3) feet below grade.

The Contractor shall replace the existing water services that are damaged as a result of their operations in accordance with PWC standards. Damaged water services shall be replaced from the meter to the existing main utilizing copper tubing and all new fittings.

The Contractor shall be responsible for connecting the new tailpiece to the customer's existing service utilizing brass fittings. The Contractor is responsible for all necessary fittings in order to connect the copper tubing to the existing meter.

Should the PWC Project Engineer determine that an existing water service be replaced, the Contractor shall replace that service in accordance with the above paragraphs.

Replacement of 2-inch Water Services

Existing 2-inch water lateral pipe shall be replaced utilizing 2-inch SDR-21 PVC pipe. The Contract Drawings indicate whether the 2-inch water service is domestic or irrigation. Each 2-inch domestic service shall include a meter setter with bypass and shall be installed in accordance with PWC Standard Details W.30 and W.5. Each 2-inch irrigation service shall include a meter setter without bypass and shall be installed in accordance with PWC Standard Details W.28 and W.29.

Existing meter boxes shall be replaced as part of the replacement of the water services. New meter boxes shall be located 18 inches within the right-of-way or as directed by the PWC Project Engineer. The Contractor shall be responsible for furnishing and installing appropriate the meter boxes. The Contractor shall connect the connect the new meter setter

to the customer side utilizing brass fittings. All work shall be reviewed and approved by the PWC Project Coordinator.

Existing water services shall be abandoned by cutting and plugging the service at the main. If the existing service includes a 2-inch valve at the main, the valve shall be closed, and the valve box shall be removed and backfilled. At the meter box, the abandoned service is to be cut, capped, and buried a minimum of three (3) feet below grade.

70. PLANNED WATER OUTAGES

The Contractor shall schedule a coordination meeting with the PWC Project Coordinator and the PWC Project Engineer a minimum of three (3) working days prior to any proposed water outage. The coordination meeting shall be conducted prior to any notices being issued. The Contractor shall locate (vertically and horizontally) any utilities within the work area, in accordance with these Contract Documents. The locations of all utilities within the work area shall be determined prior to the coordination meeting. Any conflicts with the proposed work and the existing utilities shall be identified, and a plan for resolving the conflicts shall be presented to PWC. The purpose of this coordination meeting is to ensure that the Contractor has a good understanding of the requirements related to the proposed outage, verify that there are no utility conflicts, discuss any necessary contingency plans, and all equipment, materials, tools, and all other incidentals necessary to complete the work are on the project site in good working order. Should, for any reason, PWC deem that the Contractor is not prepared for the proposed outage, the outage notifications will not be distributed, and the outage shall be postponed a minimum of two (2) weeks. PWC will provide written notification to the Contractor of this decision. No additional contract time will be granted for this delay. Should the Contract time expire within that two (2) week period, PWC reserves the right to assess liquidated damages, as outlined in these Contract Documents.

Once the water outage notifications have been issued, a follow-up coordination meeting with the PWC Project Coordinator and PWC shall be held a minimum of 24 hours prior to the scheduled outage. The purpose of this meeting is to verify that the Contractor is prepared to proceed with the outage, and that all equipment, materials, tools, and all other incidentals necessary to complete the Work are on the project site and in good working order. If for any reason PWC deems that the Contractor is not prepared, the outage shall be postponed, and all customers immediately notified of the cancellation. The outage shall be postponed a minimum of two (2) weeks. No additional Contract time will be granted for this delay. Should the Contract time expire within that two (2) week period, PWC reserves the right to assess liquidated damages, as outlined in these Contract Documents.

The Contractor shall complete the required work and restore water service within the given time period for the outage. Should the Contractor fail to complete the work within the allotted time, PWC shall assess a penalty of \$500 per 15-minute interval or any portion thereof until water service is restored. This penalty will be deducted from the Contractor's pay application or be billed directly to the Contractor. The penalty may be waived for circumstances beyond the Contractor's control, as deemed by PWC. The PWC Project Coordinator and/or PWC Project Engineer reserve the right to cancel or postpone the outage at any time, for any reason.

71. CONNECTIONS TO EXISTING WATER MAINS

The Contractor shall be responsible to provide all fittings and/or couplings necessary to connect the proposed water mains to the existing water mains. All couplings (sleeves) shall

be long sleeve (minimum 12-inches in length). Sleeves shall be utilized as directed by PWC. Sleeves on ductile iron mains shall be mechanically restrained (i.e., mega-lugs). Mechanical restraints shall not be utilized on non-ductile iron mains.

72. TESTING-GENERAL

All testing shall be in accordance with PWC standards and upon completion. The Contractor shall provide all equipment, materials, personnel, traffic control and all means necessary to perform all testing and inspection at no additional costs to PWC.

The Contractor shall coordinate and fully cooperate with the PWC Project Coordinator when scheduling testing. The Contractor shall provide a minimum of two (2) business days' notice when scheduling testing with the PWC Project Coordinator.

If the same line segment and/or manhole fails the required testing more than two (2) times, the Contractor shall be charged a fee of \$100.00 per test, beginning with the 3rd attempt, until a passing test is achieved. The fee shall be deducted from the Contractor's monthly pay application.

73. PRE-TESTING

The Contractor shall perform all water system and/or sewer system pre-testing satisfactorily prior to scheduling the test to be observed by the PWC Project Coordinator.

Pre-testing shall include mandrel pulling; pressure tests for water mains and laterals; vacuum testing manholes; air/pressure tests for sewer mains and laterals; and pressure testing force mains.

74. TESTING-WATER

All water mains and water laterals shall be flushed, disinfected, and hydrostatically tested prior to placing into service. Disinfection and testing shall be in accordance with PWC Specification 02660 – Water Distribution. The PWC Project Coordinator shall be present when the Contractor begins chlorination.

The Contractor will be required to flush and remove the chlorine from the main 24 hours after initial chlorination. The North Carolina Department of Environmental Quality limits the amount of chlorinated water that may be allowed to enter a live stream, creek, or other body of water (lake, pond, etc.). The acceptable level of residual chlorine is less than 0.2 parts per million. The Contractor is responsible for reducing the residual chlorine to the acceptable level.

75. SITE RESTORATION AND CLEANUP

Upon completion of a section of work, the project location shall be cleaned up and grounds restored to the conditions that existed prior to commencing work. All restoration work shall be completed prior to commencing another section of work. Restoration includes, but is not limited to, seeding, mulching, placement of sod, replacement of fences, and patch paving. Failure to complete the restoration work in a timely manner may result in PWC withholding payment.

For those areas outside the project limits, the Contractor shall be responsible for installing sod in all disturbed areas, unless otherwise noted on the plans, and for the full replacement of any driveways disturbed as part of their operations. In those areas where an established stand of grass is disturbed due to the construction activities, the Contractor shall restore that area with sod. All other non-paved areas shall be seeded and mulched. Should the Contractor have

questions regarding the required restoration, the Contractor shall coordinate with the PWC Project Coordinator.

All property which is surplus to the needs of the project will remain or become property of the Contractor unless otherwise stated in these Contract Documents. Surplus material, tools, and temporary structures shall be removed by the Contractor within 7 calendar days. All dirt, rubbish, and other debris from the operation shall be removed and legally disposed of by the Contractor, at no additional cost to PWC.

The Contractor is to replace any fencing disturbed as part of their operations. Replacement of fencing is considered incidental to the operation, and no additional payment will be made for this work. In addition, if temporary fencing is required, the Contractor shall provide such fencing as necessary, at no additional cost to PWC. Fences shall be removed and replaced, using new materials as required, to restore the item to the original condition or better.

*** END OF SECTION ***

INCIDENTAL PROCEDURES

76. EMERGENCY RESPONSE

In the event an emergency occurs, the Contractor shall immediately notify the PWC Project Coordinator and the PWC Project Engineer, and immediately commence repairs. If the Contractor is unable to contact the PWC Project Coordinator and PWC Project Engineer, the Contractor shall immediately contact:

- During normal business hours: PWC Water Resources Construction (910-223-4715); or
- Outside of normal business hours: PWC Dispatch (910-678-7400 or 910-223-4494).

Once onsite the Contractor shall notify the PWC's Commission Dispatcher of the problem, the anticipated response time and the estimated time required to complete the repair work (AQUA Emergency 877.WTR.AQUA or 877.987.2782). It is expected that the Contractor will have the appropriate repair materials on-site in order to provide an immediate response to any water, sewer, street, and/or storm emergency. Should it be determined that the cause of the water, sewer, street, and/or storm emergency. No reimbursement to the Contractor shall be made for repairs resulting from the Contractor's actions and/or negligence.

The Contractor shall have personnel available to respond and perform emergency work immediately in less than two (2) hours. It is the Contractor's responsibility to immediately respond to any emergency. The Contractor shall immediately notify Fayetteville Public Works Commission if their crews are unable to perform the emergency work or if assistance will be required from Fayetteville Public Works Commission. Any work completed by Fayetteville Public Works Commission may be billed to the Contractor.

The Contractor shall maintain a crew capable of performing emergency maintenance work 24 hours a day, seven (7) days a week, including all holidays. The Contractor shall provide phone numbers for at least three (3) individuals in responsible charge (capable of making company binding decisions) to be available 24 hours a day, seven (7) days a week, including holidays. The emergency phone numbers, and responsible individual's names shall be furnished to Fayetteville Public Works Commission.

A water quality emergency situation, as it relates to the collection and distribution systems, is characterized as a water main break, an unexpected depressurization of the water system, a sanitary sewer overflow (or an eminent overflow), or similar situation which would potentially jeopardize water quality.

77. SPILL RESPONSE

The Contractor shall not discharge or pump any sewage, solids, or debris on the ground, streets, storm water system, ditches, or streams. Any sewage spills shall be immediately reported to the

- During normal business hours: PWC Water Resources Construction Department, (910) 223-4716 or;
- After normal business hours, the Contractor shall contact the PWC Dispatch Center, (910) 678-7400 or 910-223-4494

In the event that raw sewage is spilled, discharged, leaked, or otherwise deposited in the open environment, due to the Contractor's work, the Contractor is responsible for any cleanup of solids and disinfection of the area affected. This work will be performed at the Contractor's

expense with no additional cost to Fayetteville Public Works Commission. The Contractor is also responsible for complying with any and all regulatory requirements in regard to the size spill with no additional cost to Fayetteville Public Works Commission. The Contractor shall cooperate fully with Fayetteville Public Works Commission and the applicable State agencies in responding to and cleaning up the spill. Any work completed by Fayetteville Public Works Commission in responding to a spill caused by the Contractor's operations shall be billed to the Contractor.

Where sewage has backed up into a property due to the Contractor's failure to reopen a lateral properly or expeditiously or other aspect of the Contractor's operation, the Contractor shall immediately notify Fayetteville Public Works Commission, inspect the property with Fayetteville Public Works Commission and agree on remedial measures. The Contractor shall be responsible for all cleaning, repair and / or replacement of damaged property, temporary relocation of all occupants of the affected properties, if required, all to the satisfaction of the property owner. These actions shall be undertaken immediately upon learning of the backup. Cleaning shall be performed by firms specializing in this type of work. All costs associated with the cleaning, repair, replacement of damages, occupant accommodations, insurance and spill remediation shall be borne by the Contractor. All remediation measures required as part of a spill response are part of acceptance of the project, and final payment shall not be made until such time all required measures are addressed and approved by the appropriate regulatory agency.

78. CONFINED SPACE

Prior to entering manholes or other areas that are defined as confined spaces, the Contractor shall follow all requirements and procedures as outlined by the Occupational Safety and Health Administration's (OSHA) Confined Space Entry requirements. A confined space entry program shall be included as part of the Contractor's Safety Plan.

79. CHEMICAL USEAGE

All constituents of concern/chemicals used during project construction or furnished for project operation, whether herbicides, pesticides, disinfectant, polymer, reactant or of other classification, must show approval of either the Environmental Protection Agency or the USDA. Use of all such chemical and disposal of residues shall be in strict conformance with manufacturer's instructions. Use, storage, and final disposal of all such chemical and disposal of residues shall be in strict conformance with manufacturer's instructions. The chemical storage area must be included in the Staging Area plan.

80. HAZARDOUS COMMUNICATION PROGRAMS

Refer to Article 5, Paragraph 5.05 – PWC General Conditions.

The Contractor shall be responsible to provide to PWC and maintain safety data sheets (SDS) sheets at the job site at all times. The sheets shall be located in an easily accessible and prominently located area. If the Contractor encounters any materials considered or suspected of being hazardous, the Contractor shall immediately secure the area and contact the PWC Project Engineer for further instructions.

81. MANAGEMENT

The Contractor shall properly dispose of all unsuitable and excess materials at no additional cost to PWC.

The Contractor shall prepare and submit a Waste Management Plan shall include a description of the approach to managing waste, pre-characterization, identified of proposed disposal facilities, disposal facility permits and insurance, transportation permits and insurance. No waste shall be removed from the project or disposed without approval of PWC. All disposal documentation shall be tracked from cradle to grave and final executed manifests/bills of lading provided to PWC.

82. DISPOSAL OF DEBRIS

Debris collected by the Contractor's cleaning efforts can be disposed of at Fayetteville Public Works Commission's Rockfish Creek Water Reclamation Facility (WRF). Fayetteville Public Works Commission will be responsible for the debris once it is received at the Rockfish Creek WRF. The Rockfish Creek WRF is located at the end of Tracy Hall Road, near the intersection of Old Wilmington Road and NC Highway 87. The Contractor shall bear all costs for transporting the debris to the disposal site.

The Contractor shall take all necessary precautions to prevent debris and other items related to their rehabilitation efforts from entering the sewer system.

83. WEIGH/QUANTITY TICKETS

Weigh/quantity tickets shall be required for those Contract quantities that are not measured in place. Work of this nature requires the PWC Project Coordinator's approval prior to beginning or the Owner reserves the right not to pay for unauthorized work.

All weigh/quantity tickets for items not measurable in place shall be submitted to the PWC Project Coordinator. Each ticket shall indicate the date, Contractor, job location, name of project, quantity of material, truck number and signature of the Contractor. The Contractor shall furnish a "certified scale ticket" with each load of material to the PWC Project Coordinator by 5:00 pm the following business day in order to be considered for payment. Tickets shall not be accepted after that time.

When a material is to be paid for on a per ton basis, the weighing devices shall be certified by the N.C. Department of Agriculture. All scales shall be operated by a public weigh master licensed in accordance with the North Carolina General Statues. A certified weigh certificate shall be issued for each load and contain the following information:

- 1) Project
- 2) Date
- 3) Time issued.
- 4) Type of material
- 5) Gross weight (tons)
- 6) Tare weight
- 7) Net weight of material
- 8) Quarry or plant location
- 9) Truck number
- 10) Contractor's name
- 11) Public Weigh Master's stamp or number
- 12) Public Weigh Master's signature or initials in ink

The PWC Project Engineer and/or the PWC Project Coordinator may direct the Contractor to re-weigh the contents of any truck load that is delivered to the project on approved platform scales at no additional cost to the Owner.

When material is to be paid for on per cubic yard basis, the payment shall be based on 75% of the volume listed on the weigh/quantity ticket.

*** END OF SECTION ***

FINAL INSPECTION AND CLOSE OUT

84. FINAL INSPECTION/ACCEPTANCE OF WORK

When the PWC Project Coordinator deems the project completed and ready for final inspection, the PWC Project Coordinator shall notify the PWC Project Engineer. During the final inspection, any items documented shall be compiled in a final punch list and provided to the Contractor within five (5) business days. The Contractor shall be required to complete each item in the final inspection punch list within 30 calendar days of receipt. The project will not be considered complete until all punch list items are completed and accepted, unless otherwise determined by the PWC Project Engineer. All punch list items shall be completed prior to release of final payment.

Prior to the final inspection, the Contractor shall complete the following:

- Verify all valves are open.
- Verify all valves are accessible and can be opened.
- Verify that all manholes having camlock rings and covers are locked
- Verify all sewer plugs have been removed
-
- Place paint marks at the curb to indicate the location of water and sewer laterals (blue and green marks respectively). The paint shall be heavily applied, so that the paint will last.
- Place a PWC issued marker at all valves, outside of pavement as directed by the PWC Project Coordinator.
- Complete all restoration.
- Complete all required testing.

No separate payment shall be made for this work.

85. FINAL COMPLETION DOCUMENTATION

Prior to receiving final payment, the Contractor shall complete and/or provide the following:

- Complete all punch list items to the satisfaction of the PWC Project Engineer.
- Satisfactorily resolve all customer complaints and obtain the required releases.
- All post-construction inspection videos
- Project record drawings, in accordance with Submittals Section 01300; and
- Project close-out submittals in accordance with Submittals Section 01300.

86. RECORD DRAWINGS

Upon completion of the Work, the Contractor shall provide one complete set of drawings recording all changes to the work to indicate actual installation. Changes shall be noted in legible red letters. These changes shall include but are not limited to the following:

- Change in pipe material.
- Size, depth, and installed elevations of mains.

- Location of valves, laterals, blow-offs, and other appurtenances

Completion of the Contractor's record drawings is a specific contract requirement, and final payment will not be made until these drawings have been submitted to the PWC Project Engineer in an acceptable form.

*** END OF SECTION ***

AVAILABLE INFORMATION

87. GENERAL

Section 00 30 00 includes available information that is relevant to the Work. The documents attached in this Section are not Contract Documents unless explicitly stated. The following outline the contents of the attached available information.

88. PERMITS

PWC has issued a water and sewer construction permits for the following Projects:

- Robeson Street to Winslow Street

The permit placard shall be posted at the job site. The permitted drawings shall remain on site at all times during the Work.

89. EASEMENTS

The Fayetteville Public Works Commission has obtained or will obtain permanent and temporary construction easements, as shown on the Contract Drawings.

The Contractor shall limit their use of the temporary easements to only what is necessary to complete the Work as outlined in these Contract Documents.

90. NCDOT ENCROACHMENT PERMIT

PWC has obtained an encroachment from NCDOT (NCDOT No. E062-026-21-00315) for the proposed Work within the NCDOT Right-of-Way of Robeson Street (PWC Encroachment No. 11815).

91. RAILROAD ENCROACHMENT AGREEMENTS AND RELATED DOCUMENTS

PWC has obtained the following encroachment agreements for the work within the railroad right-of-way. A copy of the encroachment agreements are included in the Appendix:

Robeson to Winslow

CSX Agreement No. CSX766930/ PWC Encroachment No. 17785

- Railroad Protective Liability Insurance Specifications, Evidence required by CSX Transportation, Inc.
- CSX-Contractor-Safety-Compliance-Guide-05122022

92. HAZARDOUS ENVIRONMENTAL CONDITIONS

Robeson to Winslow- No reports or drawings related to Hazardous Environmental Conditions at the Site are known to PWC.

93. SUBSURFACE AND PHYSICAL CONDITIONS

Robeson to Winslow- No reports or drawings related to Subsurface and Physical Conditions at the Site are known to PWC.

*** END OF SECTION ***

DIVISION 1

01025 – MEASUREMENT AND PAYMENT

The purpose of this Section is to define the methods of measurement and payment for each of the unit prices and/or lump sum prices listed in the Bid Form, which are required to construct the Work.

The unit price and/or lump sum price bid shall be full compensation for the work required under each bid item, which shall include all incidental costs relative thereto. Certain items of work are specified and/or shown as a detail in the Contract Documents; bid prices shall include all items of work required to furnish and/or install each in accordance with the Project requirements, whether specifically stated or itemized in the Measure and Payment description. No payment will be made for stored materials.

Article 1 – INCIDENTAL ITEMS

1.01 Mobilization

- A. Payment for mobilization shall be made at a lump sum price up to 3% of Total Bid Price for each schedule.
- B. A mobilization pay item shall include all initial costs incurred prior to beginning work on this Contract, including but not limited to permits, licenses, fees, insurance, bonds, etc., as well as mobilization and demobilization of personnel and equipment up to 3% of the Total Bid Price.
- C. Payment shall be made in two (2) equal installments. The actual costs of bonds and insurance will be considered in the initial payment request provided that cost documentation, suitable to the Project Engineer, is furnished by the Contractor. Any outstanding balance of the mobilization and demobilization Pay item will be payable when the Project is determined to be 10% complete as indicated by the approved progress payments (less cost of mobilization).

1.02 Traffic Plan and Traffic Control

- A. Payment for preparation and implementation of the Traffic Control Plan shall be made at the lump sum price as listed in the Bid Form.
- B. Work shall include all costs for labor, supervision, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work, including but not limited to preparation and implementation of a Traffic Control and Pedestrian Protection Management Plan, installation, adjustments, maintenance, signage, signals, and accessories to perform all operations required to control traffic (vehicular and pedestrian) related to all the work throughout the project site, and throughout the project duration. The Contractor shall coordinate his activities so as to minimize disruption of traffic and inconvenience to residents and the general public.

- C. All such traffic control and protection of pedestrian devices shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) and approved by the City of Fayetteville.
- D. Payment under the lump sum price bid shall be made on a monthly basis based on actual estimated percentage of work completed and maintained as determined by the Project Coordinator or Project Engineer. No additional payment shall be made for any other Work due to inadequate or improperly maintained measures.
- E. PWC, and the COF reserve the right to relocate and/or remove such non-conforming signs and devices, setup proper signage to ensure public safety and deduct all costs for these items which may be incurred by PWC. The Contractor shall make no claim for such work performed.

1.03 Erosion and Sedimentation Control

- A. Payment for the installation and maintenance of erosion and sedimentation controls shall be made at the lump sum price as listed in the Bid Form.
- B. A Sediment and Erosion Control Pay item shall include all costs for labor, supervision, materials, equipment, tools, and other incidentals, not specifically covered in other bid items to install and maintain sediment and erosion control measures for compliance with the state and local requirements, and the Contract Documents and in accordance with state and local requirements. These items shall include but not limited to furnishing, installing, and maintenance of silt fence, temporary sedimentation control devices, rip-rap, rock check dams, temporary seeding, gravel construction entrances, filter fabric, integral straw, culled wood matting, inlet protection, removal, cleanup, disposal and any other erosion control devices as may be required by the appropriate regulatory agencies throughout the project site, throughout the project duration.
- C. Prospective bidders are advised that erosion and sedimentation control will be strictly enforced, and any failure to conform to required standards is considered a right precedent to PWC to deny payment. The Contractor shall be responsible for all fines levied due to improper erosion and sediment control measures to include all costs incurred by City of Fayetteville and/or Fayetteville Public Works Commission necessary to bring a non-conforming site into compliance.
- D. The cost for the permanent riprap streambank stabilization shall be paid for under Paragraph 1.16 – Structural Streambank Stabilization
- E. No additional payment will be made for removal of soil and debris from drainage structures, features, or reconditioning grading that is part of the normal maintenance activities. No additional payment shall be made for any other work due to inadequate or improperly maintained measures.
- F. Pay item will be payable when the Project is determined to be 10% complete as indicated by the approved progress payments (less cost of mobilization). The

remaining balance will be paid once the restoration of the area is completed. The Contractor shall provide documentation (invoices, etc.) with their payment application to support the amount requested.

1.04 Clearing and Grubbing

- A. Measurement shall be based upon the acre of clearing and grubbing. Measurement shall be the nearest one-tenth of an acre of clearing and grubbing completed. Payment shall be made at the applicable unit price per acre as listed in the Bid Form. No payment will be made for clearing and grubbing beyond the areas designated on the Contract Drawings.
- B. The unit price shall include all costs for labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work, including but not limited to felling trees, stump removal and disposal off-site, cutting trees in pulpwood length and stacking on or off easement areas if required, disposing of all trimmings, removing and disposing off-site all logs, branches, trunks, root mats, brush, vegetation, debris from clearing and grubbing operations and all other incidental materials not to be re-used in the work.
- C. Grinding of trees (i.e., Shinn cutting) is an acceptable means of clearing, in lieu of felling trees. However, the tree stumps shall be excavated, removed, and properly disposed. The saw dust and shredded remnants from the grinding process shall be evenly dispersed throughout the cleared area, not stockpiled into one large pile. The material left from the grinding can be mixed in with the backfill material.

Areas containing and requiring cutting and removal of weeds, grass, grain annual or perennial plants, or saplings less than one inch in diameter shall not be measured and paid for as Clearing and Grubbing.
- D. No payment will be made for clearing and grubbing beyond the areas designated on the Contract Drawings.

1.05 Select Material (Backfill)

- A. This item shall be measured by cubic yards of select material as defined in PWC Technical Specification 02222 – *Excavation and Backfilling*. The actual quantity considered for payment shall be 75% of the volume indicated on the submitted truck tickets. PWC reserves the right to verify the actual amount of material in place. Payment shall be made at the applicable unit price as listed in the Bid Form.
- B. The unit price shall include all costs for labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work, including but not limited to furnishing and installing select material to provide proper suitable backfill material compacted and in place as measured, removal and

proper disposal of unusable material. The PWC Project Coordinator shall approve the use of select material within the limits of this project.

- C. Borrow excavation material shall be supplied by the Contractor from approved borrow areas located off-site. Materials utilized on-site within the Project limits or free haul limit (defined as a two-mile radius from the project site) will not be considered for payment as borrow excavation.
- D. Disposal of unsuitable and/or suitable excavated material will not be paid for as a separate bid item.

1.06 Remove and Replace Curb & Gutter - Concrete

- A. Measurement shall be based upon the linear footage of actual curb and gutter removed and replaced. Measurement shall be along the bottom of the gutter near the face of the curb, excluding catch basin openings. Payment shall be made at the applicable Contract unit price.
- B. The unit price under this item shall include all costs for labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work, including but not limited to removing and disposing of existing curb and gutter, furnishing, hauling, and placing all materials, fine grading the subgrade, backfilling behind the curb with topsoil, adding soil amendments, expansion joints, forms, and curing.

1.07 Undercut Excavation

- A. This item shall be measured by cubic yards of unsuitable material excavated below the bedding limit line of four (4) inches below the pipe. Payment shall be made at the applicable unit price as listed in the Bid Form.
- B. Measurement shall be calculated as the authorized depth multiplied by the appropriate width as follows:
 - 1. Depth of the undercut shall be determined solely by the PWC Project Coordinator.
 - 2. Width of the undercut for pipes shall be the internal diameter of the pipe plus two (2) feet
 - 3. Width of the undercut for utility structures (vaults, manholes, etc.) shall be the external diameter/dimension of the structure plus two (2) feet.
- C. The unit price under this item shall include all labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work, including but not limited to the removal and disposal of unsuitable soil, furnishing and placing stone bedding material and all other incidentals necessary to complete the work.

- D. Payment under this item will not be made without prior authorization by the PWC Project Coordinator. No payment for undercut will be made for over-excavation by error or where proper dewatering methods are not in place for trench and/or excavation stabilization.

1.08 Remove and Replace Concrete Sidewalk

- A. This item shall be measured by square yards with a depth of five (5) inches or matching existing concrete thickness, whichever is greater. Payment shall be made at the applicable unit price as listed in the Bid Form.
- B. The designated number of square yards to be removed shall be as directed by the PWC Project Coordinator. Measurement shall be made to the nearest one-tenth square yard.
- C. The unit price under this item shall include all labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work, including but not limited to saw cutting and removal of the existing sidewalk, removing and disposing of excess or unsuitable materials off-site, furnishing, hauling, fine grading the sub-grade, compaction, expansion joint materials, curing and placing all materials, and forms. Replacement of the sidewalk shall be to existing or better condition

1.09 Replace Gravel Driveways and Parking Lots

- A. This item shall be measured by square yards of gravel driveways and parking lots complete and in place. Measurement shall be made to the nearest one-tenth square yard total. Payment shall be made at the applicable unit price as listed in the Bid Form.
- B. The unit price under this item shall include all labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work, including but not limited to furnishing stone, hauling, fine grading sub grade, backfilling, placing all materials to restore gravel driveways and parking lots.
- C. The Contractor shall install six (6) inches of aggregate base course (ABC). Replacement of gravel driveways and parking lots shall be to existing or better condition.

1.10 Asphalt Patch in Driveways and Parking Lots

- A. This item shall be measured by square yards of asphalt pavement, complete and accepted. Measurement of this item shall be made to the nearest one-tenth square yard total. Payment shall be made at the applicable unit price per square yard as listed in the Bid Form.
- B. The unit price under this item shall include all costs for labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work, including but not limited to re-cutting pavement to straight uniform

- widths parallel and perpendicular to the road with no jagged edges, removal and disposal of re-cut asphalt off site, re-compaction, removing and disposing of excess soil base course, re-compaction of pavement sub-grade, placement and compaction of temporary ABC stone to pavement grade, maintaining stone at pavement grade until removal of temporary stone for paving, transitions as required, adjusting castings as required, tack coat, placing and compacting of asphalt material, reinstating pavement markings, and cleanup.
- C. If a patched area exhibits signs of settling within the warranty period, the Contractor shall remove asphalt, re-compact base and sub-base, dispose of unsuitable material off-site and re-patch any areas of settlement at no expense to PWC.
 - D. Patching under this item shall be performed in accordance with PWC Detail M.4 and in accordance with Technical Specification 02575 – Driveway Replacement.

1.11 Temporary Asphalt Patch in Robeson Street

- A. This item shall be measured by square yards of asphalt pavement, complete and accepted. Measurement of this item shall be made to the nearest one-tenth square yard total. Payment shall be made at the applicable unit price per square yard as listed in the Bid Form.
- B. The unit price under this item shall include all costs for labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work, including but not limited to re-compaction, removing and disposing of excess soil base course, re-compaction of pavement sub-grade, placement and compaction of temporary ABC stone to pavement grade, maintaining temporary stone at pavement grade, removal of temporary stone for paving, transitions as required, adjusting castings as required, tack coat, placing and compacting of asphalt material, reinstating pavement markings, cleanup, all labor, materials, tools, equipment, and incidentals necessary to complete the work.

1.12 Permanent Asphalt Patch in Robeson Street

- A. This item shall be measured by square yards of asphalt pavement, complete and accepted. Measurement of this item shall be made to the nearest one-tenth square yard total. Payment shall be made at the applicable unit price per square yard as listed in the Bid Form.
- B. The unit price under this item shall include all costs for labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work. The work including but not limited to re-cutting pavement to straight uniform widths parallel and perpendicular to the road with no jagged edges, removal and disposal of re-cut asphalt off site, re-compaction, removing and disposing of excess soil base course, re-compaction of pavement sub-grade, placement and compaction of temporary ABC stone to pavement grade, maintaining

stone at pavement grade until removal of temporary stone for paving, transitions as required, adjusting castings as required, tack coat, placing and compacting of asphalt material, reinstating pavement markings, and cleanup.

- C. If a patched area exhibits signs of settling within the warranty period, the Contractor shall remove asphalt, re-compact base and sub-base, dispose of unsuitable material off-site and re-patch any areas of settlement at no expense to PWC.
- D. The asphalt types and depths shall be as indicated in the NCDOT encroachment agreement under item no. 86 (secondary routes). For reference, the pavement types and depths are summarized as follows:
 - 1. 2.0" of S 9.5 B (ACSC) Asphalt Concrete Surface Course the same day as cut is made
 - 2. 3.0" of I 19.0 B (ACIC) Asphalt Concrete Intermediate Course
 - 3. 5.0 inches of B25.0 B (ACBC) Asphalt Concrete Base CourseMill the existing pavement surface to a depth of 2.0" and a width of 25.0' on each side of the cut to key in the patch with the existing pavement surface.
- E. Payment for this item will not be made until applicable test reports have been submitted to the PWC Project Engineer and approved for acceptance.

1.13 Permanent Seeding

- A. Measurement shall be by acres of exposed ground that is covered by an appropriate seed mixture. Measurement shall be nearest one tenth (1/10) of an acre. This item shall apply to seeding within easements and along rights-of-way. Payment shall be made at the applicable unit price as listed in the Bid Form.
- B. The unit price under this item shall include all costs for labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work, including but not limited to soil preparation, pest control, disease control, anchoring, placing soil amendments, topsoil, grading, raking, seeding, fertilizing, mulching, crimping, watering, protection of turf areas, maintenance, and re-seeding if required.
- C. Seeding shall be placed in accordance with Technical Specification 02930 – *Seeding*.
- D. No payment will be made for areas outside of permanent and temporary easements and along rights-of-way.

1.14 Permanent Sod

- A. This item shall be measured by square yards of sod complete and, place and accepted. Payment shall be made at the applicable unit price as listed in the Bid Form.
- B. The unit price shall include all labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items necessary to complete the work, including but not limited to soil preparation, anchoring, furnishing sod, placing sod, providing topsoil as necessary, grading, raking, pest and disease control, soil amendments, fertilizing, maintaining, removal and replacement of dying sod, watering, and reseeding if required.
- C. Stripping of topsoil for sodding will not be measured and paid as a separate bid item and shall be considered incidental to this item. Work shall include stripping, stockpiling, spreading, leveling, supplemental topsoil, filling, grading, and compaction of suitable topsoil.
- D. All sod shall be placed in accordance with Technical Specification 02931 – Sod.
- E. No payment will be made for placing sod beyond the areas designated on the Contract Drawings or by the PWC Project Engineer. No payment will be made for re-sodding.

1.15 Remove and Replace Chain Link Fence

- A. This item shall be measured by actual linear feet of fencing removed and replaced. Gates will be included in the linear foot price. Payment shall be made at the applicable unit price as listed in the Bid Form.
- B. The unit price under this item shall include all labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to complete the work, including but not limited to removal of the existing fencing and associated foundations, proper disposal, installation and maintenance of the temporary fencing, installation of the new fencing, fittings, posts, truss rod, brace rails, fence fabric, excavation, concrete, barbed wire, and connecting to the existing fencing.
- C. The Contractor shall remove and properly dispose of the existing fencing, provide temporary fencing to secure access to the property, and install new fencing upon completion of the work.
- D. This pay item pertains only to the security fence surrounding the property on Robeson Street. Removal and replacement of other fencing shall be incidental to the project. No additional payment will be made for removal or replacement of other fencing.

1.16 Furnish and Install Structural Stream Bank Stabilization

- A. This item shall be measured by square yards of Class 2 rip-rap stabilization, complete and accepted. Payment shall be made at the applicable Bid price.
- B. The unit price under this item shall include all labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to furnishing and installing slope stabilization where indicated on the Contract Drawings. The work shall include, but not limited to proper preparation of the surface – including select backfill and compaction as necessary, installation of geotextile fabric in accordance with manufacturer's specifications, placement of Class II stone rip-rap, removal and proper disposal of unusable material.

Article 2 – WATER CONSTRUCTION ITEMS

2.01 Furnish and Install Water Main by Bore & Jack

- A. This item shall be measured by actual linear feet of steel casing installed. Payment shall be made at the applicable unit price as listed in the Bid Form.
- B. The unit price under this item shall include all costs for labor, materials, equipment, tools, and other incidentals, not specifically covered in other bid items, necessary to completely install the steel casing pipe and the RJDI water main pipe inside of the casing pipe as specified on the Contract Drawings and in accordance with PWC standards. The work shall include, but not limited to obtaining access to launching and target pits, cutting and removal of pavement as required, excavation, shoring, removal and disposal of excess unsuitable material off site, bedding material, horizontal and vertical controls, bore steering mechanisms, installation of the casing and main pipes at the specified line and grade, coordination with Railroad, backfill, compaction, furnishing and installing marker posts, casing spacers, and casing end closures.
- C. The Contractor shall comply with all requirements for construction within the rights-of-way of Railroad.
- D. The Contractor shall be responsible for completing the installation, all required testing, proper alignment, and grade of the installed main, and all other items related to proper installation.
- E. Installation of the water main shall be accomplished in accordance with PWC Technical Specifications: 02660 - Water Distribution and 02301 - Boring and Jacking.
- F. No payment for installation of the casing and water main shall be made until all required tests are satisfactorily completed

2.02 Furnish and Install Water Main by Open Trench- 12-inch RJD1

- A. Measurement shall be by the actual linear feet of water main installed by open trench, including all necessary fittings. Payment shall be made at the applicable unit price as listed in the Bid Form.
- B. The unit price shall include all costs for labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to install the water main and fittings as specified on the Contract Drawings and in accordance with PWC standards. The work shall include, but not limited to cutting and removal of pavement as required, excavation, shoring, dewatering, removal, and disposal of excess unsuitable material off site, bedding material, installation of the pipe at the specified line and grade, tracing wire, thrust blocking as required, backfill and compaction.
- C. All pipe segments installed must have passed the detailed compaction requirements in order to be considered for payment.
- D. The Contractor shall be responsible for completing the installation, all required compaction testing, proper alignment of the installed main, and all other items related to proper installation.
- E. No payment for will be made under this item until all required testing has been satisfactorily completed.

2.03 Furnish and install new 10" Class 53 Factory Restrained Joint Ductile Iron Water Main and Aerial Crossing

- A. Payment for the installation of the new aerial crossing shall be made at the lump sum price as listed in the Bid Form.
- B. The lump sum price shall include all labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to furnish and install new 10-inch, Class 53, factory restrained ductile iron water main and pier supports along Water Main Alignment 'B' as shown on the Contract Drawings. The work shall include, but not limited to installation of the piles to the required depth, saddles, straps, bolts, nuts, welding, fabrication, galvanizing the piles and associated steel, beams and piles, mobilization and demobilization of the pile driver hammer, all cutting, drilling, fastening of the beams, piles, and straps, connection to the existing water main, water main pipe, fittings, excavation, shoring, removal and disposal of excess unsuitable material off site, pipe bedding material, installation of the pipe at the specified line and grade, backfill, and compaction.
- C. Installation of the aerial crossing shall be in accordance with PWC requirements and as outlined in these Contract Documents. Installation of the water main shall be accomplished in accordance with PWC Specification 02660 - Water Distribution.
- D. No payment for will be made under this item until all required testing has been satisfactorily completed.

2.04 Furnish and Install New Tapping Sleeve & Valve

- A. This item shall be measured by actual count, complete and in place. Payment will be made at the applicable unit price as listed in the Bid Form.
- B. The unit price shall include all costs for labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to install the tapping sleeves and valves as specified on the Contract Drawings and in accordance with PWC standards. The work shall include, but not limited to, excavation, shoring, removal, and disposal of excess unsuitable material off site, thrust blocking as required, valve boxes, concrete protection rings, concrete collars, tracing wire, backfill, and compaction.
- C. No payment for will be made under this item until all required testing has been satisfactorily completed.

2.05 Furnish and Install New Gate Valve

- A. This item shall be measured by actual count of new gate valves installed complete and in place. Payment will be made at the applicable unit price as listed in the Bid Form.
- B. The unit price shall include all costs for labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to install the specified gate valve and valve box as indicated on the Contract Drawings and in accordance with PWC Standards. The work shall include, but not limited to, cutting and removal of pavement as required, excavation, shoring, removal, and disposal of excess unsuitable material off site, removal of old valve where identified on drawings, valve boxes, concrete protection rings, tracing wire, backfill, and compaction.
- C. No payment for will be made under this item until all required testing has been satisfactorily completed.

2.06 Furnish and Install New Vacuum/Air Release Valve

- A. This item shall be measured by actual count, complete and in place. Payment will be made at the applicable unit price as listed in the Bid Form.
- B. The unit price shall include all labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to install a vacuum/air release valve as indicated on the Contract Drawings and in accordance with PWC standards. The work shall include, but not limited to cutting and removal of pavement as required, excavation, shoring, removal, and disposal of excess unsuitable material

- off site, bedding material, installation of manhole and manhole fittings, coatings, tracing wire, backfill, and compaction.
- C. No payment for will be made under this item until all required testing has been satisfactorily completed.
- 2.07 Furnish and Install New 2-inch Blow Off
- A. This item shall be measured by actual count, complete and in place. Payment will be made at the applicable unit price as listed in the Bid Form.
- B. The unit price shall include all labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to install the specified blow-off assembly as indicated on the Contract Drawings and in accordance with PWC Standards. The work shall include, but not limited to cutting and removal of pavement as required, excavation, shoring, removal, and disposal of excess unsuitable material off site, bedding material, installation of blow-off assembly, backfill, and compaction.
- 2.08 Remove and Replace 1-inch Water Services
- A. This item shall be measured by actual count, complete and in place. Payment will be made at the applicable unit price as listed in the Bid Form.
- B. The unit price shall include all labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to remove the existing services and install new services as indicated on the Contract Drawings and in accordance with PWC Standards. The work shall include, but not limited to cutting and plugging the existing lateral at the existing main, removing the existing meter box, connecting the new tailpiece to the customer side utilizing brass fittings, furnishing, and installing new meter boxes, corporations, saddles, lock valves, fittings, cutting and removal of pavement, removal and disposal of excess unsuitable material off site, backfill, and compaction.
- C. Installation of 1-inch water services shall be in accordance with PWC standard detail W.24 utilizing 1-inch Type-K copper tubing. All connections to the customer side of the meter shall be completed by the Contractor.
- 2.09 Cut & Plug/Abandon Existing Water Main
- A. This item shall be measured by actual count. Payment will be made at the applicable unit price as listed in the Bid Form.
- B. The unit price shall include all labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to “kill-out” the existing water mains, as indicated on the Contract Drawings and in accordance with PWC Standards. The work shall include, but not limited to excavation, cutting and removal of pavement, removal, and disposal of unsuitable material off site, backfill, compaction, and concrete.

- C. All work shall be in accordance with PWC standard detail W.22, and as approved by PWC.
- 2.10 Grout Fill/Abandon Existing Water Main in Railroad R/W
- A. Payment for the under this item shall be paid for at the lump sum price as listed in the Bid Form.
 - B. The lump sum price shall include all labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to abandon the existing water main within the railroad right-of-way by grout fill or by removal of the pipe as indicated on the Contract Drawings. The work shall include, but not limited to removal of the pipe and support piers, cutting, and plugging the water main, removal of fittings as necessary, excavation, backfill, proper disposal of the materials, grout, pumps, hoses and fittings, and coordination with CSX.
 - C. Grouting and removal of the water main shall occur after PWC has accepted the new water main and laterals.
- 2.11 Abandon Existing Aerial Water Main Crossing
- A. Payment for the under this item shall be paid for at the lump sum price as listed in the Bid Form.
 - B. The lump sum price shall include all labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to remove and properly dispose of the existing aerial crossing as shown on the Contract Drawings. The work shall include, but not limited to disconnecting the existing pipe at the coupling, cutting, and plugging the main at the existing 10" valve, removal of the existing pipe, removal of fittings, excavation, backfill, proper disposal of the materials, and all necessary coordination with PWC.
- 2.12 Abandon Existing Valve
- A. This item shall be measured by actual count. Payment will be made at the applicable unit price as listed in the Bid Form.
 - B. The unit price shall include all labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to properly abandon the existing valves, as specified on the Contract Drawings. The work shall include, but not limited to excavation, cutting and removal of pavement, removal, and disposal of excess unsuitable material off site, backfill, compaction, fittings, turning off existing valve, plugging existing valve and all necessary fittings, removal of valve boxes as required.
- 2.13 Sterilization and Testing
- A. This item shall be measured by actual linear feet of new main tested, sterilized, and accepted. Payment under this item will be made at the applicable unit price as listed in the Bid Form.

- B. The unit price shall include all labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to test and sterilize the new main, services, and appurtenances in accordance with these Contract Documents, and all applicable standards, laws, and regulations. The work shall include but not limited to furnishing test equipment, installation of temporary taps for testing and/or disinfection, coordination with the PWC Project Coordinator, required sterilization and testing on the water mains, laterals, and appurtenances, removal of all unnecessary taps and fittings upon completion of the work, and legal disposal of hazardous chemicals from the site.
- C. The Contractor shall pressure test and disinfect the new water main, laterals, and appurtenances in accordance with PWC standards and all applicable standards, laws, and regulations, prior to placing them into service. The PWC Project Coordinator shall be present for all testing. When the main is tested for sterilization, the PWC Project Coordinator shall take a sample to the PWC lab to verify disinfection.

Article 3 – SANITARY SEWER CONSTRUCTION ITEMS

3.01 Remove and Replace Sewer Main

- A. This item shall be measured by actual linear feet of new main tested, sterilized, and accepted. Payment under this item will be made at the applicable unit price as listed in the Bid Form.
- B. The unit price shall include all labor, materials, equipment, tools, and incidentals not specifically covered in other bid items, necessary to remove the existing sewer main pipe and install new pipe as specified on the Contract Drawings and in accordance with PWC standards. The work shall include but not limited to cutting and removal of pavement, excavation, backfill, compaction, removal of the existing sewer, control of the existing sewer flow, installation of the pipe at the specified line and grade, coring the existing manhole, installing flexible boot connectors, connecting to the existing sewer pipe using approved couplings, bedding material, removal, and disposal of excess unsuitable material off site,

Article 4 – ALLOWANCES

4.01 Contingency

- A. Measurement: Lump sum basis.
- B. This line item shall be used only upon issuance of a Change Order, a Work Change Directive, or a Field Order by PWC for work not included in other items. The amount paid will be negotiated as per procedures in the General Conditions.
- C. Any unused portion of the allowance remaining at the completion of the Contract shall revert to PWC as a credit.

D. PWC reserves the right to delete the allowance from the Contract prior to award.

*** END OF SECTION ***

**DIVISION 1
01300 – SUBMITTALS**

PART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. This section specifies the means of all submittals. All submittals shall be submitted to the Fayetteville Public Works Commission. A general summary of the types of submittals and the number of copies required is as follows:

<u>Copies to Owner</u>	<u>Type of Submittal</u>
5	Shop drawings
5	Product samples
5	Certificates of compliance
5	Warranties

- B. All submittals shall be provided in accordance with this Section, and as outlined in Section 01000 – Special Conditions. The Contractor shall refer to other Specification Sections within these Contract Documents, to ensure that all submittal requirements are adhered to. No construction shall proceed until all required submittals have been reviewed and approved by the Fayetteville Public Works Commission. Any and all work performed prior to review and acceptance of the submittals by the Fayetteville Public Works Commission shall be at the Contractor's sole risk. Further, failure to comply with the requirements of this Section may be considered Breach of Contract, and grounds for termination.

1.02 SUBMITTAL PROCEDURES

- A. The Contractor shall transmit each submittal with a form acceptable to the Fayetteville Public Works Commission, clearly identifying the project and the Contractor, the enclosed material and other pertinent information specified in other parts of this section. The submittal shall identify variations from the Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- B. The Contractor shall revise and resubmit submittals as required, identifying all changes made since previous submittals. Resubmittals shall be noted as such.
- C. The Contractor shall distribute copies of reviewed submittals to concerned parties, with instructions to those parties to promptly report any inability to comply with provisions.

1.03 SHOP DRAWINGS

- A. General: The Contractor shall submit for review shop drawings for concrete reinforcement, structural details, materials fabricated especially for this Contract, and materials for which such Drawings are specified (as outlined in these Contract Documents) or as specifically requested by the Fayetteville Public Works Commission.
- B. Shop drawings shall show the principal dimensions, weight, structural and operating features, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the Drawings.
- C. When so specified, or if considered by the Fayetteville Public Works Commission to be acceptable, the manufacturer's specifications, catalog data, descriptive matter, illustrations, etc. may be submitted for review in place of shop drawings. In such case, the requirements shall be as specified for shop drawings, insofar as applicable.
- D. The Contractor shall be responsible for the prompt submittal of all shop drawings so that there shall be no delay to the Work due to the absence of such Drawings. The Fayetteville Public Works Commission will review the shop drawings within 10 business days of receipt of such Drawings. Reviewed shop drawings will be returned to the Contractor by regular mail.
- E. Time delays caused by rejection of submittals are not cause for extra charges to the Fayetteville Public Works Commission or time extensions.
- F. Requirements: All shop drawings shall be submitted to the Fayetteville Public Works Commission through the Contractor. The Contractor is responsible for obtaining shop drawings from his subcontractors and returning reviewed Drawings to them. All shop drawings shall be prepared on standard size, 24-inch by 36-inch sheets, or smaller, as approved by the Fayetteville Public Works Commission. All Drawings shall be clearly marked with the name of the project, Fayetteville Public Works Commission, Contractor, and pay item to which the drawing applies. Drawings shall be suitably numbered and stamped by the Contractor. Each shipment of Drawings shall be accompanied by a letter of transmittal giving a list of the drawing numbers and the names mentioned above.
- G. Product Data: Where manufacturer's publications in the form of catalogs, brochures, illustrations, or other data sheets are submitted in lieu of prepared shop drawings, such submission shall specifically indicate the particular item offered. Identification of such items and relative pertinent information shall be made with indelible ink. Submissions showing only general information will not be accepted.
- H. Product data shall include materials of construction, dimensions, performance characteristics and capacities, etc.
- I. Sample Warranties: When warranties are called for, a sample of the warranty shall be submitted with the shop drawings. The sample warranty shall be the same form that will be used for the actual warranty.
- J. Work Prior to Review: No material or equipment shall be purchased, fabricated especially for this Contract, or delivered to the project site until the required shop drawings have been

submitted, processed and marked either "APPROVED" or "APPROVED AS NOTED". All materials and Work involved in the construction shall be as represented by said Drawings.

- K. The Contractor shall not proceed with any portion of the Work for which the design and details are dependent upon the design and details of equipment for which submittal review has not been completed.
- L. Contractor's Review: Only submittals which have been checked and corrected should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting shop drawings to the Fayetteville Public Works Commission, the Contractor shall check thoroughly all such Drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all respects. Drawings which are correct shall be marked with the date, checker's name and indications of the Contractor's approval, and then shall be submitted to the Fayetteville Public Works Commission; other Drawings submitted to the Fayetteville Public Works Commission will be returned to the Contractor unreviewed.
- M. Contractor's Responsibility: The review of shop drawings will be general and shall not relieve the Contractor of the responsibility for details of design, dimensions, etc., necessary for proper fitting and construction of the Work required by the Contract and for achieving the specified performance.
- N. Contractor's Modifications: For submissions containing departures from the Contract Documents, the Contractor shall include proper explanation in his letter of transmittal. Should the Contractor submit for review equipment that requires modifications to the structures, piping, layout, etc. detailed on the Drawings, he shall also submit for review details of the proposed modifications. If such equipment and modifications are accepted, the Contractor, at no additional cost to the Fayetteville Public Works Commission, shall do all Work necessary to make such modifications.
- O. Substitutions: Whenever a particular brand or make of material, equipment, or other item is specified, or is indicated in these Contract Documents, it is for the purpose of establishing a standard of quality, design, and type desired and to supplement the detailed specifications. Any other brand or make which, in the opinion of the Fayetteville Public Works Commission, is equivalent to that specified or indicated may be offered as a substitute subject to the following provisions:
 - a. Contractor shall submit for each proposed substitution sufficient details, complete descriptive literature, and performance data together with samples of the materials, where feasible, to enable the Fayetteville Public Works Commission to determine if the proposed substitution is equal.
 - b. Contractor shall submit certified tests, where applicable, by an independent laboratory attesting that the proposed substitution is equal.
 - c. A list of installations (including contact information) where the proposed substitution is equal.
 - d. Where the acceptance of a substitution requires revision or redesign of any part of the Work, all such revision and redesign, and all new Drawings and details required therefore, shall be provided by the Contractor at his own cost and expense, and shall be subject to review of the Fayetteville Public Works Commission.

- e. In all cases the Fayetteville Public Works Commission shall be the sole judge as to whether a proposed substitution is to be accepted. The Contractor shall abide by the Fayetteville Public Works Commission 's decision when proposed substitute items are judged to be unacceptable and shall in such instances furnish the item, or substitute, as specified. No substitute items shall be used in the Work without written acceptance of the Fayetteville Public Works Commission. The Fayetteville Public Works Commission reserves the right to reject any such proposed changes or substitutions at their sole discretion, and is under no obligation to justify their decision.
 - f. Acceptance of any proposed substitution shall in no way release the Contractor from any of the provisions of the Contract Documents.
- P. Complete Submittals: Each submittal shall be complete in all aspects incorporating all information and data required to evaluate the products' compliance with the Contract Documents. Partial or incomplete submissions shall be returned to the Contractor without review.
- a. Shop Drawing Distribution: The Contractor shall submit a minimum of five (5) copies of all shop drawings to the Fayetteville Public Works Commission for review. Shop drawings will be reviewed, stamped and distributed with the appropriate box checked either "APPROVED", "APPROVED AS NOTED", "NOT APPROVED" or "REVISE AND RESUBMIT". The Fayetteville Public Works Commission shall return three (3) copies to the Contractor and retain two (2) copies

If the Contractor requires additional copies of returned shop drawings, he shall include extra Drawings in his original submittal. The Fayetteville Public Works Commission will process the Drawings and return them to the Contractor.

1.04 RECORD DRAWINGS

- A. The Contractor shall maintain a clean, undamaged set of color prints of Contract Drawings and shop drawings to be marked up for submittal as record drawings. The set shall be marked with red erasable pencil to show the actual installation where the installation varies substantially from the Work as originally shown. Where shop drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. The Contractor shall give particular attention to concealed elements that would be difficult to measure and record at a later date. The record drawings shall be signed and dated by the Contractor's project manager.
- B. The Contractor shall submit one (1) set of their record drawings to the Fayetteville Public Works Commission upon completion of the project. Final payment will not be made until the record drawings are received.

1.05 PRODUCT SAMPLES

- A. Contractor shall furnish for review all product samples as required by the Contract Documents or requested by the Fayetteville Public Works Commission to determine compliance with the specifications.
- B. Samples shall be of sufficient size or quantity to clearly illustrate the quality, type, range of color, finish or texture and shall be properly labeled to show complete project identification, the nature of the material, trade name of manufacturer and location of the Work where the material represented by the sample will be used.
- C. Samples shall be checked by the Contractor for conformance to the Contract Documents before being submitted to the Fayetteville Public Works Commission and shall bear the Contractor's stamp certifying that they have been so checked. Transportation charges on samples submitted to the Fayetteville Public Works Commission shall be prepaid by the Contractor.
- D. Fayetteville Public Works Commission's review will be for compliance with the Contract Documents, and his comments will be transmitted to the Contractor within 15 business days of receipt.
- E. Acceptable samples will establish the standards by which the completed Work will be judged.

1.06 CERTIFICATES OF COMPLIANCE

- A. Copies of certificates of compliance and test reports shall be submitted for requested items to the Fayetteville Public Works Commission prior to request for payment.

1.07 WARRANTIES

- A. Original warranties, called for in the Contract Documents, shall be submitted to the Fayetteville Public Works Commission. When warranties are required for an item, the warranty shall be submitted prior to request for payment of that item.
- B. When warranties are requested, a sample of the warranty to be provided shall be submitted with, and considered part of, the shop drawings.
- C. The Contractor shall warrant to the Fayetteville Public Works Commission that all material and labor used in the construction are covered by his warranty for a minimum of a one (1) year period upon approval and acceptance by the Fayetteville Public Works Commission. The Contractor shall replace or repair defects at no cost to the Fayetteville Public Works Commission during the warrantee period.

*** END OF SECTION ***

DIVISION I
01310 - CONSTRUCTION SCHEDULE

PART 1. GENERAL

1.01 WORK INCLUDED:

- A. This section specifies requirements and procedures in preparing and updating construction schedules and reports for planning, coordinating, executing and monitoring the progress of the work. The construction work shall be scheduled to be completed within the specified duration of the Contract.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Supplementary Conditions
- B. General Conditions
- C. Submittals

1.03 SCHEDULING RESPONSIBILITIES

- A. The construction schedule will be used to monitor job progress. The Contractor will be responsible for providing all information concerning the sequencing, logic and durations of planned activities. The Contractor will be responsible for providing monthly update information on logic changes, percent complete, actual start and finish dates and duration changes. The Contractor will be required to produce the monthly, computerized printout of the schedule updates.
- B. Assembling the initial schedule in hand drawn or computer-generated (preferred) form is the responsibility of the Contractor.
- C. It should be clearly understood that the initial schedule and all update information must be provided by the Contractor and that this information is a representation of the best efforts of the Contractor and his subcontractors as to how they envision the work to be accomplished. Similarly, all progress information to be provided by and through the Contractor must be an accurate representation of his or his subcontractors' or suppliers' actual performance. The schedule shall at all times remain an accurate reflection of the Contractor's actual or projected sequencing of the work. Once accepted, adherence to the schedule shall be obligatory upon the Contractor and his subcontractor for the work under this Contract. Owner may require the Contractor to revise the schedule if, in the Project Engineer's judgment, the schedule does not accurately reflect the actual extension of the work, or is in violation of any provision of the Contract Documents. The Contractor shall provide the necessary information required to revise the schedule as often as is necessary during the course of performance of the work without additional cost to the Owner.

1.04 PROGRESS OF WORK

- A. The work shall be started on the date indicated in the Notice to Proceed and shall be executed with such progress as may be required to prevent delay to other contractors or to the general completion of this project. The Contractor shall at all times, schedule and direct his work so that it provides an orderly progression of the work to completion within the specified Contract Time. The Contractor shall account for traffic control requirements, access of citizens within the work area and the requirements for timely restoration.
- B. The Contractor agrees that, whenever it becomes apparent from the current monthly schedule update that delays to the planned progress of work have resulted and these delays are through no fault of the Owner and hence, the Contract completion date will not be met, or when so directed by the Project Engineer, he will prepare a recovery schedule outlining steps to recover time and to complete the project on schedule.
- C. The Contractor shall submit for review a written statement of the steps he intends to take, to remove or arrest the delay to the schedule. The Contractor shall promptly provide such level of effort at no additional cost to the Owner. In addition, should schedule delays persist; the Contractor's surety will be asked to attend a schedule update meeting.
- D. Failure of the Contractor to comply with the requirements of this provision shall subject him to, at the Owner's sole discretion, withholding, in partial or in total, payments otherwise due the Contractor for work due under this Contract. The Contractor agrees that any withholding of monies is not a penalty for noncompliance but is an assurance for the Owner that funds will be available to implement these requirements should the Contractor fail to do so, since failure of the Contractor to comply with these requirements shall mean that the Contractor failed to execute the work with such diligence as to ensure its completion within the time for completion.

PART 2. CONSTRUCTION SCHEDULE

2.01 SCHEDULE REQUIREMENTS

- A. The schedule shall show the order and interdependence of activities and the sequence in which the work is to be accomplished as planned by the Contractor. The schedule shall show how the start date of a given activity is dependent on the completion date of preceding activities how its completion restricts the start of succeeding activities. A time scaled precedence format will be followed. The schedule shall indicate the start date, completion date, and duration (in days), of each activity.
- B. The Schedule Activities shall be developed into two major groups:

1. Construction Activities - Construction activities will be physical work activities that describe how the job will be constructed. Work shall include planned restoration and paving.
 2. Post Construction Testing, Start-up, Training and Close-out - Activities for this group shall include all work required satisfying appropriate specification requirements sections and meeting the requirements of final completion. There are at least three (3) mandatory activities: Punch list, Final Walkthrough and Project Complete.
- C. The Contractor shall break the work into activity durations of one to twenty (1 to 20) working days each, except for non-construction activities (such as procurement of materials and delivery of equipment) and other activities that may require longer durations. To the extent feasible, activities related to a specific physical or geographic area of the project should be grouped on the schedule for ease of understanding and simplification. The selection and number of activities shall be subject to the review of the Project Engineer.
- D. Each activity on the schedule shall have indicated for it the following:
1. Construction activities will be divided by easily recognizable division points such as stationing or street names, area of work, etc.
 2. A brief description of the activity will be included. If this description is not definitive, a separate listing of each activity and a descriptive narrative may be required.
 3. Where the contractor intends to perform work concurrently, a resource or crew identifier will be assigned to the activity to indicate parallel paths.
 4. Established PWC holidays and other non-workdays will be excluded from the schedule.
- E. Failure to include on the schedule any element of work required for the performance of this Contract shall not excuse the Contractor from completing all work required within the applicable Contract Time.
- F. A schedule which shows a completion of any portion of the construction work prior to the Contract Time dates may be accepted but in no event shall be acceptable as a basis for a claim for any delay against the Owner by the Contractor.

PART 3. SCHEDULE OF SUBMITTALS

3.01 SCHEDULE IMPLEMENTATION

- A. Within ten (10) calendar days after the Notice to Proceed, the Contractor shall submit up to three (3) prints of a schedule showing the first forty-five (45) calendar days of the work. The Contractor will revise and resubmit the forty-five (45) day schedule until it is acceptable.
- B. Within (30) calendar days after the Notice to Proceed, the Contractor shall submit three (3) copies of their proposed construction schedule for the entire Contract duration.
- C. The Contractor may submit a schedule on disk in a format wholly compatible with Microsoft Project. Submission of an electronic schedule does not preclude any other of the aforementioned individual activity requirements.
- D. If a review of the submitted schedule indicates a work plan that will not complete the work within the Contract time, it shall be the responsibility of the Contractor to revise the schedule as required and resubmit it until it is acceptable. Failure by the Contractor to submit an acceptable schedule may, at the Owner's sole discretion, be cause for the withholding of any partial payment(s) otherwise due under the Contract.
- E. Acceptance of the schedule shall not constitute a representation by the Owner that the work can be completed as shown on the schedule.

3.02 SCHEDULE UPDATES

- A. The Contractor shall submit a Schedule Update on the Monday prior to the monthly progress meeting, (or as directed by the Project Engineer), to allow the Project Engineer to review the schedule. The schedule shall be up-to-date as of the previous Friday or as directed by the Project Engineer. Actual progress of the previous month shall be recorded and future activities will be reviewed. The duration of activities and their logical connections may be revised as needed. Decisions made at these meetings and agreed to by all parties are binding with the exception that no contractual completion dates will be modified without formal written requests and acceptance as specified in the Contract Documents. The Contractor must provide the following information for each update at a minimum:
 - 1. Actual start and finish dates for all completed activities.
 - 2. Actual start dates for all started but incomplete activities including remaining durations and/or percent completes.
 - 3. Revisions in the logic, critical path or resource assigned to an activity that would affect the anticipated early start of all activities not yet started.

4. Any approved extension of Contract time shall be included in the next monthly updating of the schedule.
- B. Provide a Monthly Progress Status Report that provides the following items:
1. Summarized revisions made to the Construction Schedule since the previous submittal.
 2. Work anticipated to be started during the next period, including those activities already in progress.
 3. Problem areas, anticipated delays, and the impact on the schedule.
 4. Corrective action.
 5. The effect of changes on schedules of other prime Contractors in adjacent work areas.
- C. Failure to provide update information listed above, or failure to attend progress meetings may result in the Owner withholding partial payments.

END OF SECTION

DIVISION 1
01400 - QUALITY CONTROL

QUALITY ASSURANCE

Quality: All materials shall be new and correctly designed, and shall conform to the requirements outlined in these Contract Documents. They shall be standard first-grade quality produced by expert workmen and be intended for the use for which they are offered. Materials which, in the opinion of the Fayetteville Public Works Commission, are inferior or of a lower grade than indicated, specified, or required will not be acceptable.

Source Limitations: To the greatest extent possible for each unit of Work, the Contractor shall provide products, materials, or equipment of a singular generic kind from a single source.

Compatibility of Options: Where more than one choice is available as options for Contractor's selection of a product, material, or equipment, the Contractor shall select an option which is compatible with other products and materials already selected. Compatibility is a basic general requirement of product/material selections.

PRODUCT EVALUATION

The Fayetteville Public Works Commission will employ and pay for the services of an independent testing laboratory for specified testing as outlined in these Contract Documents.

The work or actions of the testing laboratory shall in no way relieve the Contractor of his obligations under the Contract. The laboratory testing work will include such inspections and testing required by these Contract Documents, existing laws, codes, ordinances, etc. The testing laboratory will have no authority to change the requirements of these Contract Documents, nor perform, accept or approve any of the Contractor's Work.

The Contractor shall allow the Fayetteville Public Works Commission ample time and opportunity for evaluation and testing materials to be used in the Work. The Contractor shall advise the Fayetteville Public Works Commission promptly upon placing orders for materials so that arrangements may be made, if desired, for evaluation before shipment from the place of manufacture. The Contractor shall at all times furnish the Fayetteville Public Works Commission facilities including labor, and allow proper time for evaluation and testing materials, and workmanship. The Contractor must anticipate that possible delays may occur due to the necessity of materials being inspected and accepted for use. The Contractor shall furnish, at his own expense, all samples of materials required by the Fayetteville Public Works Commission for testing, and shall make his own arrangements for providing water, electric power, or fuel for the various evaluation and tests of structures and materials.

The Fayetteville Public Works Commission will bear the cost of all tests, evaluation, or investigations undertaken by the order of the Fayetteville Public Works Commission Project Engineer for the purpose of determining conformance with these Contract Documents if such tests, evaluation, or investigations are not specifically required by these Contract Documents, and if conformance is ascertained thereby. Whenever nonconformance is determined by the Fayetteville Public Works Commission as a result of such tests, evaluation, or investigations, the Contractor shall bear the full cost of any additional tests, evaluations and investigations, which

are ordered by the Fayetteville Public Works Commission to ascertain subsequent conformance with these Contract Documents.

EVALUATION AT PLACE OF MANUFACTURE

Unless otherwise specified, all products and materials shall be subject to evaluation by the Fayetteville Public Works Commission at the place of manufacture.

The presence of the Fayetteville Public Works Commission at the place of manufacture however, shall not relieve the Contractor of the responsibility for furnishing products, materials, and equipment which comply with all requirements of these Contract Documents. Compliance is a duty of the Contractor, and said duty shall not be avoided by any act or omission on the part of the Fayetteville Public Works Commission.

SAMPLING AND TESTING

Unless otherwise specified, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the referenced testing standard as applicable to the class and nature of the article or materials considered. However, the Fayetteville Public Works Commission reserves the right to use any generally-accepted system of sampling and testing which will satisfy the Fayetteville Public Works Commission that the quality of the workmanship is in complete accordance with these Contract Documents.

Any waiver by the Fayetteville Public Works Commission of any specific testing or other quality assurance measures shall not be construed as a waiver of any requirements of these Contract Documents. The Fayetteville Public Works Commission may require a guarantee of substantial performance and/or a performance bond to ensure any necessary corrective or remedial Work, should a waiver be granted.

The Fayetteville Public Works Commission reserves the right to make independent investigations and tests. Failure of any portion of the Work to meet any of the requirements of these Contract Documents shall be reasonable cause for the Fayetteville Public Works Commission to require the removal, correction, and/or reconstruction of any such work in accordance with these Contract Documents. In addition to any other evaluation, observation or quality assurance provisions that may be specified, the Fayetteville Public Works Commission shall have the right to independently select, test, and analyze, at their expense, additional test specimens or any or all of the materials to be used. Results of such tests and analyses shall be considered along with the tests or analyses made by the Contractor to determine compliance with the applicable specifications for the materials so tested or analyzed. The Contractor shall be responsible for all costs of removal, correction, and reconstruction or repair of any such Work that fails to meet the requirements of these Contract Documents.

SITE INVESTIGATION AND CONTROL

The Contractor shall verify all dimensions in the field and shall check field conditions continuously during construction. The Contractor shall be solely responsible for any inaccuracies built into the Work due to their failure to comply with this requirement.

The Contractor shall inspect related and appurtenant Work and shall report in writing to the Fayetteville Public Works Commission any conditions which will prevent proper completion of the Work. Failure to report any such conditions shall constitute acceptance of all site conditions, and any required removal, repair, or replacement caused by unsuitable conditions shall be performed by the Contractor at their sole cost and expense.

RIGHT OF REJECTION

The Fayetteville Public Works Commission shall have the right, at all times, to reject any articles or materials to be furnished hereunder which, in any respect, fail to meet the requirements of these Contract Documents, regardless of whether the defects in such articles or materials are detected at the point of manufacture or after completion of the Work. If the Fayetteville Public Works Commission, through an oversight or otherwise, has accepted materials or Work which is defective or which is contrary to these Contract Documents, such materials, no matter in what stage or condition of manufacture, delivery, or erection, may be subsequently rejected by the Fayetteville Public Works Commission.

The Contractor shall promptly remove rejected articles or materials from the Work after notification of rejection. All costs of removal and replacement of rejected articles or materials as specified herein shall be borne by the Contractor.

WATERTIGHTNESS OF STRUCTURES

It is the intent of these Contract Documents that all work shall be performed as required to ensure proper sealing so that groundwater and/or rainwater will not leak into any repaired collection line, service lateral, or manhole.

The Contractor shall provide at its own expense all labor, material, temporary bulkheads, pumps, water, measuring devices, etc., necessary to perform the required tests.

HYDRAULIC UPLIFT ON STRUCTURES

The Contractor shall be completely responsible for any pipelines or manholes that may become buoyant before the Work is completed and accepted. The Contractor shall take all necessary steps to prevent any structures from becoming buoyant. Damage to any structures due to floating or flooding shall be repaired or replaced at the Contractor's expense.

TIME OF OBSERVATION AND TESTS

Samples and test specimens required under these Contract Documents shall be furnished and prepared for testing in ample time for the completion of the necessary tests and analyses before said articles or materials are to be used. The Contractor shall furnish and prepare all required test specimens within the scope of this Contract. The performance and cost of the required tests will be the responsibility of the Fayetteville Public Works Commission, unless otherwise specified in these Contract Documents. However, the costs of any test which shows unsatisfactory results shall be borne by the Contractor. Whenever the Contractor is ready to backfill, bury, cast in concrete, or otherwise cover any Work under the Contract, the Fayetteville Public Works Commission shall be notified not less than twenty-four hours in advance to request inspection before beginning any such Work of covering. Failure of the Contractor to notify the Fayetteville

Public Works Commission a minimum of twenty-four hours in advance of any such inspections shall be cause for the Fayetteville Public Works Commission to order a delay in the Contractor's schedule to allow time for inspections. Any remedial or corrective Work required, and all costs of such delays, including its effect upon other portions of the Work, shall be borne by the Contractor.

*** END OF SECTION ***

**DIVISION 1
01700 - PROJECT CLOSEOUT**

FINAL CLEANUP

The Contractor shall promptly remove all rubbish, unused materials, concrete forms, construction equipment, temporary structures and facilities, construction signs, tools, scaffolding, materials, supplies and equipment which may have been used in the performance of the Work. The Contractor shall broom clean paved surfaces and rake clean other surfaces of grounds. Final acceptance of the Work by the Fayetteville Public Works Commission will be withheld until the Contractor has satisfactorily complied with the foregoing requirements for final cleanup of the project site.

The Contractor shall thoroughly clean all materials, equipment and structures; all marred surfaces shall be touched up to match adjacent surfaces.

The Contractor shall remove spatter, grease, stains, fingerprints, dirt, dust, labels, tags, packing materials and other foreign items or substances from interior and exterior surfaces, equipment, signs and lettering.

The Contractor shall remove paint, clean and restore all equipment and material nameplates, labels and other identification markings.

The Contractor shall maintain cleaning until project is accepted by the Fayetteville Public Works Commission.

The Contractor shall:

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use each type of cleaning material on only those surfaces recommended by the cleaning material manufacturer.
- C. Use only materials which will not create hazards to health or property.

CLOSEOUT TIMETABLE

The Contractor shall establish dates for testing, acceptance periods, and on-site instructional periods (as required under this Contract). The dates shall be established a minimum of seven (7) calendar days prior to beginning any of the foregoing items, to allow the Fayetteville Public Works Commission sufficient time to schedule attendance at the activities.

FINAL SUBMITTALS

Before the final acceptance of the project, the Contractor shall submit to the Fayetteville Public Works Commission certain records, certifications, etc., which are specified elsewhere in these Contract Documents. Missing, incomplete or unacceptable items, as determined by the Fayetteville Public Works Commission, shall constitute grounds for withholding final payment to the Contractor. A partial list of such items appears below, but it shall be the Contractor's responsibility to submit any other items which are required in these Contract Documents:

- A. Written Test results of project components.
- B. Written guarantees, where required.
- C. Certificates of inspection and acceptance by local governing agencies having jurisdiction.
- D. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.

PUNCH LISTS

Final cleaning shall be scheduled upon completion of the project.

The Fayetteville Public Works Commission will make his final inspection whenever the Contractor has notified the Fayetteville Public Works Commission that the work is ready for the inspection. Any work not found acceptable and requiring cleaning, repair and/or replacement will be noted on the punch list. Work that has been inspected and accepted by the Fayetteville Public Works Commission shall be maintained by the Contractor, until final acceptance of the entire project.

Whenever the Contractor has completed the items on the punch list, the Contractor shall notify the Fayetteville Public Works Commission that it is ready for final inspection. This procedure will continue until the entire project is accepted by the Fayetteville Public Works Commission. The final payment will not be processed until the entire project has been accepted by the Fayetteville Public Works Commission and all of the requirements in these Contract Documents have been satisfied.

TOUCH-UP AND REPAIR

The Contractor shall repair any and all damage to existing facilities and surfaces. If in the opinion of the Fayetteville Public Works Commission the repair work is not satisfactory, the Contractor shall make repairs until the Fayetteville Public Works Commission accepts it.

MAINTENANCE AND GUARANTEE

The Contractor shall comply with all maintenance and guarantee requirements of these Contract Documents.

Replacement of earth fill, backfill, or asphalt where it has settled below the required finish elevations, shall be considered as a part of such required repair work, and any repair or resurfacing constructed by the Contractor which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair work unless the Contractor obtained a statement in writing from the affected private owner or public agency releasing the Fayetteville Public Works Commission from further responsibility in connection with such repair or resurfacing.

*** END OF SECTION ***

SECTION-D TECHNICAL SPECIFICATIONS

**DIVISION 2
SITE WORK
02110 - SITE CLEARING**

SCOPE

Work described in this section includes clearing and grubbing site, protecting adjoining property and trees as indicated on the drawings or as specified herein. The work shall include the complete removal and satisfactory disposal of all growth including trees, stumps, logs and roots; organic material, and other debris or items that interfere with construction operations. The site clearing operations shall be conducted in a manner to insure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

PROTECTION OF TREES AND VEGETATION

Trees and vegetation to be left standing shall be protected from damage incidental to clearing, grubbing, and construction operations, by the erection of timber barriers or by such other approved means. Such barriers must be placed and approved by the Engineer before construction operations can proceed. The protection shall include unnecessary cutting, breaking or skinning of roots; skinning and bruising of bark; smothering of trees by stockpiling construction materials or excavated material within the drip lines; excessive foot and vehicular traffic including parking of vehicles within drip line. Trees and vegetation receiving damage shall be repaired or replaced in a manner acceptable to the Engineer.

Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 1½ inches or more in diameter and shall be trimmed of live branches to such heights and such manner as directed. Limbs and branches to be trimmed shall be neatly cut close to the hole of the tree or main branch. Cuts more than 1½ inches in diameter thus made shall be painted with an approved tree wound paint.

CLEARING AND GRUBBING

Clearing shall consist of the felling, trimming and cutting of trees into sections, and the satisfactory disposal of the trees and other vegetation designated for removal, including down timber, snags, brush, and rubbish occurring within the areas to be cleared. Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface except such trees and vegetation as may be indicated or directed to be left standing. Clearing operations shall be conducted so as to prevent damage by falling trees to trees left standing, to existing structures and installations and to those under construction, and so as to provide for the safety of employees and others.

Grubbing shall consist of the removal and disposal of stumps, roots larger than 3 inches in diameter, and matted roots from the designated grubbing areas. This material, together with logs and other organic or metallic debris not suitable shall be excavated and removed to a depth of not less than 3 feet below any subgrade shoulder and slope surfaces in excavated areas indicated to be grubbed and in areas indicated as construction areas under this contract such as areas for buildings, roads, streets, shoulder areas, sidewalks. Depressions made by grubbing shall be filled with suitable material compacted to make the surface conform to the original adjacent surface of

the ground. The required fill material will not be measured or paid for but should be included as part of the grubbing cost. Grubbing inside the drip line of trees to be left standing shall be by hand methods.

The combined item of clearing and grubbing shall also include the removal and satisfactory disposal of fences, steps, walls, building foundations, pavement, other rubble and debris.

DISPOSAL

All timber, logs, stumps, roots, brush, rotten wood, and other debris from the clearing and grubbing operations shall be disposed of off-site in an approved disposal pit. Such approval will include the conditions covering the disposal of such logs and stumps without burning, including the disposal area off-site. The contractor will be responsible for compliance with all state and local laws and regulations. Burning of timber and other refuse is not allowed within the City of Fayetteville.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02111 - SITE CLEARING FOR PWC UTILITIES**

SCOPE

Work described in this section includes clearing and grubbing, site, protecting adjoining property and trees as indicated on the drawings or as specified herein. The work shall include the complete removal and satisfactory disposal of all growth including trees, stumps, logs and roots; organic material, and other debris or items that interfere with construction operations. The site clearing operations shall be conducted in a manner to insure minimum interference with roads and other adjacent occupied or used facilities.

PROTECTION OF TREES AND VEGETATION

Trees and vegetation to be left standing shall be protected from damage incidental to clearing, grubbing, and construction operations. The protection shall include un-necessary cutting, breaking or skinning of roots; skinning and bruising of bark; smothering of trees by stockpiling construction materials or excavated material within the drip line; excessive foot and vehicular traffic including parking of vehicles within drip line. Trees and vegetation receiving damage shall be repaired or replaced in a manner acceptable to the Engineer.

Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 1 -1/2" or more in diameter and shall be trimmed of live branches to such heights and such manner as directed. Limbs and branches to be trimmed shall be neatly cut close to the bole of the tree or main branch. Cuts more than 1-1/2" in diameter shall be painted with an approved tree wound paint.

CLEARING AND GRUBBING

Clearing and grubbing shall be performed within the permanent right-of-ways. In the interest of conserving natural resources and protecting the environment, clearing shall be kept to a minimum within the temporary right-of-ways limits. Where permanent and temporary right-of-ways are offset, the additional temporary area may be used as a "buffer" zone to aid in sediment control where possible. Clearing shall consist of cutting trees, with a stump left not more than two inches (2") above natural ground. Saleable timber shall become the property of the Contractor. Reasonable care shall be taken during construction to avoid damage to vegetation not located in the right-of-ways. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed to improve the appearance. Tree trunks receiving damage shall be treated with approved tree dressing.

Several areas along the main where a temporary easement is indicated on the plans and is located in people's yards, the Contractor shall limit clearing only as absolutely necessary for the sewer installation. Where possible, individual trees shall be worked around and preserved. These particular areas will be noted on the plans.

In the interest of erosion and sediment control, if possible, clearing and grubbing should be staged in ½ mile sections or less. In all cases, the time of disturbance between clearing and grubbing

operations and actual sewer line construction should be kept to a minimum, particularly if ditches and temporary roads are utilized for access to the project.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02211 - GRADING FOR ROADS AND DRAINAGE**

GENERAL

This section covers grading for the roadways and drives including all excavations, formation of embankments, preparation of subgrade for pavements and finishing and dressing of graded earth areas, shoulders, and ditches.

MATERIALS

Topsoil, material obtained from excavation suitable for topsoils, is defined as natural, friable soil, characteristics of representative soils in the vicinity that produce heavy growth of crops, grass, or other vegetation. Topsoil shall be free from roots, stones, and other materials that hinder grading, planting, and maintenance operations, and free from objectionable weed seeds.

Satisfactory soil materials are defined as those in accordance with AASHTO Soil Classification Groups, A-1, A-2-4, A-2-5 and A-3 (or in accordance with ASTM D2487 soil classification groups GW, GP, GM, SM, SW, SP, SC.) as determined by the Engineer. Satisfactory material shall be free from roots, organic matter, trash, debris, frozen material or stones larger than three (3) inches in any dimension.

Unsatisfactory soil materials are defined as those in accordance with AASHTO Soil Classification Groups A-2-6, A-2-7, A-4, A-5, A-6, A-7 (or in accordance with ASTM D2487 soil classification groups GC, ML, MH, CL, CH, OL, OH, and PT) as determined by the Engineer.

Materials determined by the Engineer as too wet or too soft to provide a stable subgrade, foundation, or fill will be classified as unsatisfactory regardless of soil classification. The Engineer may require the Contractor to condition the wet and/or soft soils to provide a stable subgrade, foundation, or fill. The Contractor shall recondition the materials at no additional cost to the Owner.

CONSERVATION OF TOPSOIL

Areas designated for operations that contain a blanket of soil, which is more satisfactory for the growth of grass than the embankment material to be placed, shall be stripped to a depth of approximately four (4) to six (6) inches and placed in convenient stockpiles as directed in the field, for later use as a topsoil blanket on the new graded areas specified herein, or as designated. The stripping of material for use as topsoil shall be carefully determined and only the quantity required shall be stripped and stockpiled. Material ordered stockpiled shall be placed in a satisfactory manner to afford drainage. When grading operations permit, instead of stockpiling, the topsoil shall be hauled and spread directly on the areas to receive topsoil.

Topsoil shall be placed on all shoulders, slopes, ditches, and other earth areas graded under this contract, excluding borrow areas, unless otherwise specified on the plans. Topsoil shall be uniformly placed on these areas to a compacted depth of not less than three (3) inches or more than four (4) inches. The material shall be free from clods of soil, matted roots greater than ½ inch in diameter, and any other objectionable material which might hinder subsequent grass and mowing operations. The material shall be placed, leveled, and lightly compacted with at least one

pass of a cultipacker, or other approved equipment weighing 100 to 160 pounds per linear foot of roller, to required cross sections, but shall be left one-tenth of a foot below the finished earth grade as specified in the paragraph FINISHED EXCAVATION.

BORROW EXCAVATION (Select Backfill)

Where satisfactory materials are not available in sufficient quantities from the required excavation, approved materials shall be obtained from borrow areas. Borrow excavation material shall be supplied by the Contractor from borrow areas located off-site. The work covered by this section shall consist of the excavation of approved material from borrow sources and the hauling and utilization of such material as required on the plans or directed by the Engineer. The borrow material shall be approved by the Engineer and shall not contain roots, root mats, stumps, highly plastic clay or other unsatisfactory materials. The material shall be a soil material which meets requirements of AASHTO M1 45 for soil classification A-i-a, A-i-b, A-2-A, A-3 acceptable for select backfill. All borrow material shall be in accordance with the NCDOT Standard Specification for Roads and Structures, most recent edition. Borrow excavation shall be in accordance with the NCDOT Standard Specification for Roads and Structures, most recent edition. Excess material removed within the work limits, suitable for borrow excavation, during "Unclassified Excavation" operations shall not be considered or paid for as borrow excavation.

UNDERCUT EXCAVATION

When the Owner determines that the natural soil materials in areas where fill is to be placed, or in the finished graded subgrade roadway cross section, or in areas supporting structures or pipes, are determined to have a poor supporting value, the Engineer may require the Contractor to remove the materials and backfill with approved properly compacted material to the finished graded section. The Contractor shall conduct undercut operations in such a way that the Engineer can take the necessary measurements before any backfill is placed. Any material removed and backfilled without the approval of the Engineer, and/or all necessary measurements taken, and/or to a depth, length or width exceeding the dimensions shall not be considered undercut excavation and will not be paid for such. All undercut excavation shall be in accordance with the NCDOT Standard Specification for Roads and Structures, most recent edition. Undercut excavations suitable for backfill on toes of slopes and other approved areas will not be paid for as borrow excavation.

FINISHED EXCAVATION

All areas covered by the project, including excavated and filled sections and adjacent transition areas, shall be uniformly smooth-graded. The finished surface shall be reasonably smooth, compacted, and free from irregular surface changes. The degree of finish shall be that ordinarily obtainable from blade-grader operations, except as otherwise specified. Ditches shall be finished to permit adequate drainage. The surface of areas to be turfed shall be finished to a smoothness suitable for the application of turving materials. Surfaces shall be finished not more than 0.15 foot above or below the established grade and approved cross section. In areas where the bulking of soil as a result of grassing operations will tend to retard surface drainage along the edge of pavements, the finished grades shall be left 0.1 foot below grade prior to grassing.

Newly graded areas shall be protected from traffic and from erosion, and any settlement or washing away that may occur from any cause, prior to acceptance, shall be repaired and grades re-established to the required elevations and slopes. Embankments and excavations shall be kept

shaped and drained. Ditches and drains along subgrade shall be maintained in such a manner as to drain effectively at all times. The finished subgrade shall not be disturbed by traffic of other operations and shall be protected and maintained by the Contractor in a satisfactory condition until subbase, base, or pavement is placed. The storage or stockpiling of materials on the finished subgrade shall not be permitted. No base course or pavement shall be laid until the subgrade has been checked and approved, and in no case shall base, surfacing, or pavement be placed on a muddy, spongy, or frozen subgrade. All work shall be conducted in accordance with the environmental protection requirements of the contract.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02222 - EXCAVATION AND BACKFILLING FOR UTILITY SYSTEMS**

GENERAL

Work described in this section consists of the excavation, backfill, compaction, and finish grading required to install the utility systems. The intent and purpose of these specifications is to require a complete and satisfactory installation in every respect and any defect in material or workmanship shall be cause for the replacement and correction of such defect as directed by the Public Works Commission.

RELATED SECTIONS

- A. 02305 – Pipe Bursting
- B. 02660 – Water Distribution
- C. 02730 – Sanitary Sewer Systems
- D. 02732 – Sewage Force Mains
- E. Chapter 24 of the City of Fayetteville Ordinance (most recent version)

MATERIALS

Suitable soil materials are defined as those in accordance with AASHTO Soil Classification Groups A-1, A-2-4, A-2-5 and A-3 (or in accordance with ASTM D2487 soil classification groups GW, GP, GM, SM, SW, SP, SC) as determined by the Public Works Commission. Suitable material shall be free from roots, organic matter, trash, debris, frozen material or stones larger than three (3) inches in any dimension.

Unsuitable soil materials are defined as those in accordance with AASHTO Soil Classification Groups A-2-6, A-2-7, A-4, A-5, A-6, A-7 (or in accordance with ASTM D2487 soil classification groups GC, ML, MH, CL, CH, OL, OH, and PT) as determined by the Public Works Commission. Unsuitable material as defined above shall be replaced with select material as determined by the Public Works Commission.

Suitable materials determined by the Public Works Commission as too wet or too soft to provide a stable subgrade, foundation, or fill will be deemed as unsuitable regardless of soil classification. Materials deemed unsuitable shall be conditioned or replaced, as directed by the Public Works Commission. The Contractor shall recondition and stockpile the materials at no additional cost to the Public Works Commission.

EXCAVATION

All excavation shall be to the lines and grades indicated. The work shall consist of the excavation, placement, and compaction of suitable material as outlined in this Specification and proper disposal of all unsuitable materials. During excavation, suitable material for backfilling shall be stockpiled. The stockpiles shall be protected from contamination by unsuitable excavated material or other material. If any material becomes unsuitable, such material, if directed, shall be removed and replaced with suitable on-site or imported material from approved sources at no additional cost to the Public Works Commission.

Where the line parallels a creek and/or ditch the excavated material shall be stockpiled opposite the creek, with the trench separating the two. Adequate drainage shall be provided for the stockpiles and surrounding areas by means of ditches, dikes, or other approved methods. Grading shall be done to prevent surface water from entering the excavation. Any water within the trench shall be removed.

Suitable excavated material shall be stockpiled or placed in the excavation's backfill. Excavation and filling shall be performed in a manner and sequence that will provide drainage at all times. Unauthorized over excavation shall be backfilled with select bedding material at no additional cost to the Public Works Commission. The Contractor, at their expense, shall properly dispose of all excess excavated material unless directed to place it in another area of the project by the Public Works Commission. The Contractor's obligation to remove and dispose of excess materials shall in no manner convey to him any rights of property in any material taken from any excavation.

It shall be the Contractor's responsibility to investigate the site and existing conditions. No compensation will be allowed due to excavation and/or grading being different than anticipated.

TRENCH EXCAVATION

The trench width shall be in accordance with the PWC standard details. All work shall be in accordance with the applicable OSHA regulations.

The subgrade beneath the centerline of the pipe shall provide uniform support for each section of the pipe. Stones three (3) inches or greater in any dimension, or as recommended by the pipe manufacturer, whichever is smaller, shall be removed.

Where unsuitable material is encountered at the elevation established for installation of pipe or structures, additional undercut excavation shall be done as directed by the Public Works Commission. The additional undercut excavated area shall be backfilled with stone bedding material. Unauthorized undercut excavation shall be backfilled with stone bedding material and compacted as directed by the Public Works Commission. The Contractor shall conduct undercut operations in such a way that the Public Works Commission can take the necessary measurements before any backfill is placed. Any material removed and backfilled without the approval of the Public Works Commission, and/or all necessary measurements taken, and/or to a depth, length or width exceeding the dimensions shall not be considered undercut excavation and will not be paid for such.

Where unsuitable material is encountered at the elevation established for installation of roads, parking lots, or other paved areas, additional undercut excavation shall be done as directed by the responsible agency (i.e., City of Fayetteville, Town of Hope Mills, NCDOT, etc.). The additional undercut excavated area shall be backfilled with stone bedding material. Unauthorized undercut excavation shall be backfilled with stone bedding material and compacted as directed by the responsible agency. The Contractor shall conduct undercut operations in such a way that the responsible agency can take the necessary measurements before any backfill is placed. Any material removed and backfilled without the approval of the responsible agency, and/or all necessary measurements taken, and/or to a depth, length or width exceeding the dimensions shall not be considered undercut excavation. All undercut excavation shall be in accordance with the NCDOT Standard Specification for Roads and Structures (most recent edition), or the responsible agency's specifications.

Excavation for manholes, meter vaults, or similar structures shall leave a minimum of 12-inches clear space around the structure. Removal of unsuitable material shall be as specified above. Preparation of the subgrade shall be in accordance with the applicable detail and as directed by the Public Works Commission.

PIPE LAYING

All pipe shall be installed in accordance with PWC Specification Section 02660 – Water Distribution, Specification Section 02730 – Sanitary Sewer Systems, and/or PWC Specification Section 02732 – Sewage Force Mains.

TRENCH SAFETY

All excavations shall comply with all Federal, State, and local rules and regulations. The Contractor shall have a trenching and shoring "competent" person on the job at all times when there is an open excavation. Under no circumstance shall an employee of the Public Works Commission be considered the "competent" person for the operation.

TRENCH STABILIZATION (SHORING)

The Contractor shall furnish, install, and maintain all necessary shoring to ensure a safe excavation. The method of shoring and excavation shall be in strict accordance with OSHA Regulations. The Contractor shall be responsible for installation, maintenance, and removal of all trench stabilization measures. The Contractor shall be responsible for any damage to adjacent structures resulting from the installation, maintenance, removal, or absence of trench stabilization measures.

DEWATERING

Excavations shall be kept dry at all times. Any required dewatering shall be the Contractor's responsibility. The Contractor shall be responsible for any damage to the adjacent property resulting from the installation, maintenance, discharge, and removal of the dewatering system. All discharge from the dewatering system shall be in accordance with the applicable erosion control rules and regulations.

BACKFILL

Backfill shall consist of suitable material free from debris, stone, etc. The backfill shall be brought up evenly on both sides of the pipe for the full length of the pipe. The backfill operation shall be conducted to prevent damage and/or movement of the pipe.

Backfill material in trenches shall be placed in layers not exceeding six (6) inches loose thickness to a point at least 12-inches above the pipe compacted to 90 percent maximum density. The remainder of the trench shall be backfilled in layers not exceeding six (6) inches in loose thickness compacted as specified in subparagraph COMPACTION. Each layer shall be thoroughly compacted by an approved mechanical tamping device.

Backfill material around structures shall be placed in a manner that the structure will not be damaged. No backfill shall be placed around manholes, thrust blocks, or similar structures until the concrete has been allowed to cure for three (3) days. The backfill material shall be compacted as specified in subparagraph COMPACTION.

No backfilling will be allowed when weather conditions prevent compliance with these Specifications.

BORROW EXCAVATION (Select Backfill)

Borrow excavation material shall be supplied by the Contractor when sufficient quantities of suitable materials are not available within the project limits. The borrow material shall be approved by the Public Works Commission and shall not contain roots, root mats, stumps, highly plastic clay or other unsatisfactory materials. All borrow material shall be in accordance with the NCDOT Standard Specification for Roads and Structures, most recent edition.

COMPACTION

Backfill shall be compacted in accordance with the following table as a percentage of the maximum density at optimum moisture content as determined by the Standard Proctor Test, ASTM D-698.

<u>Area</u>	<u>Percent ASTM D-698 Maximum Dry Density</u>
Around and 1' above top of pipe	95
Remaining trench (within 4' of subgrade)	95
Pavement subgrade and shoulders	
Last 1' of fill (below subgrade)	100
Last 3' of fill to 12" below subgrade	98
Base material	100
Adjacent to structures (Areas not paved)	95
Under structures	98
Utility Outfalls (Cross Country)	95

Compaction testing may be performed at the option of the PWC Project Coordinator, or as required by the responsible agency (i.e., City of Fayetteville, NCDOT, etc.). Compaction testing shall be done in accordance with the responsible agency's requirements. Deficiencies shall be corrected by the Contractor without additional cost to PWC.

FINISHED EXCAVATION

All areas covered by the project shall be uniformly graded to the established elevations and approved cross sections. Ditches shall be graded to permit proper drainage. Newly graded areas shall be protected from traffic and/or from erosion, and any settlement or washing prior to acceptance shall be repaired and the required grades re-established. Ditches and drains along the subgrade shall be maintained to drain at all times. The finished subgrade shall be protected and maintained by the Contractor. The storage or stockpiling of materials on the finished subgrade shall not be permitted. No base course or pavement shall be laid until the subgrade has

been checked and approved. All work shall be conducted in accordance with the environmental protection requirements of the Contract.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02272 - EROSION CONTROL - GENERAL PROVISIONS**

GENERAL

The Contractor shall be responsible for conducting his site grading and drainage operations in such manner as to prevent or lessen excessive soil erosion of the construction site work areas. He shall at all times provide satisfactory means to prevent or minimize the movement and washing of large quantities of soil. The Contractor is expected to review his site grading and drainage operations periodically to determine the areas most susceptible to erosion by excessive rainfall and periodically maintain all installed measures for the project duration. The Contractor shall correct any deficiencies or problem areas as directed by the Owner or the North Carolina Department of Environment and Natural Resources (NCDENR) inspector within 48 hours.

EXECUTION

The Contractor's attention is directed to the fact that unless exposed earth areas are properly cared for during construction, they may result in substantial sedimentation damage downstream from the construction area. He shall at all times provide satisfactory means to prevent or minimize the movement and washing of quantities of soil onto pavements or into adjacent ditches, swales, inlets, and drainage pipes, to avoid the possibility of these structures becoming clogged with soil. Should this happen as a result of erosion at the site of this construction, the Contractor will be required to immediately provide means for removal of the soil and/or debris from the structures to restore the proper functioning of these structures. The Contractor shall assume all responsibilities to the affected property owners for correction of all damages. The Contractor is expected to review his site grading and drainage operations periodically with the Owner with the view in mind of determining the areas most susceptible to erosion by excessive rainfall and shall take necessary temporary measures in sufficient time to minimize the washing away of the site soils that would likely occur before the areas are finished graded, topsoiled and planted. The temporary measures to be provided by the Contractor at the critical areas may consist of, but not limited to, any one or a combination of the following, or by other approved means selected by the Contractor:

Silt Fence
Gravel Construction Entrance/Exit
Inlet Protection

If any earthwork is to be suspended for any reason whatsoever for longer than 15 days, the disturbed areas shall be seeded with temporary vegetative cover or otherwise protected against excessive erosion during the suspended period. Suspension of work in any area of operation does not relieve the Contractor of the responsibility for the erosion control and temporary measures will not be considered cause for a change in the price bid.

MAINTENANCE

The Contractor shall inspect and maintain each erosion control measure until the project is stabilized and accepted. After each significant rainfall, the Contractor shall remove and dispose of silt accumulation from each individual measure. The following maintenance may be required for each specific erosion and sediment control measure:

Silt Fence: Fabric shall be removed and replaced whenever deteriorated to such an extent the effectiveness is reduced. The toe of the fabric shall be buried a minimum of 6 inches.

Gravel Construction

Entrance/Exit: Periodic top dressing with two inches (2") of graded stone. Remove all objectionable materials spilled, washed or tracked onto public roadways.

Sediment

Trap: Remove sediment and restore trap to original dimensions when accumulated silt volume equals $\frac{1}{2}$ the design depth. Replace the contaminated gravel facing.

Gravel Inlet

Protection: Remove sediment as necessary to provide adequate volume. Replace contaminated gravel facing if required.

Rip-Rap: Make repairs to dislodged stone and/or supplement as required if erosion occurs during heavy rainfalls.

REMOVAL

After the area has been stabilized and the project accepted, the Contractor shall remove all temporary erosion and sediment control measures. Silt fences shall be removed, sediment traps/pits and/or basins filled with suitable soil, compacted and seeded. The materials removed shall remain the property of the Contractor and shall be disposed of off-site, or may be reused in other locations if approved by the Owner.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02273 - TEMPORARY SILT FENCE**

GENERAL

The work covered by this section consists of furnishing, installing, maintaining and removing a water permeable filter type silt fence for the purpose of removing suspended particles from the water passing through it.

The quantity of temporary silt fence to be installed will be affected by the actual conditions which occur during the construction of the project. The quantity of temporary silt fence may be increased, decreased, or eliminated entirely at the direction of the Owner. Such variations in quantity will not be considered as alterations in the details of construction or a change in the character of the work.

MATERIALS

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 inches 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 gage. All other wires shall be at least 12½ gage.

Burlap shall be at least 36 inches wide and shall weigh at least 6.7 ounces per square yard. Other materials may be used in lieu of burlap, provided those materials have been approved by the North Carolina Department of Environment and Natural Resources (NCDENR).

Wire staples shall be No. 9 staple and shall be at least 1½ inches long.

INSTALLATION

The Contractor shall install a temporary silt fence as shown on the plans and details. The silt fence shall be constructed at the locations shown on the plans and at other locations directed by the Owner.

Posts shall be installed so that no more than 3 feet of the post shall protrude above the ground and at least 18 inches are driven into the ground. Filter fabric shall be attached to the wire fence fabric by wire or other acceptable means. The fabric shall be continual in length. The fabric shall extend into a 6"x 6" trench along the uphill side of the fence. The trench shall be backfilled and compacted. Place 6 inches of No. 57 stone along the toe of the fence to secure the fabric in place. The single stripe located approximately 6 inches from the silt fence outer edge should not be visible if the fabric and fencing are installed properly.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02274 - GRAVEL CONSTRUCTION ENTRANCE/EXIT**

GENERAL

The work covered by this section consists of furnishing, installing, maintaining and removing temporary gravel construction entrance/exits. The entrance/exit shall be located at points where vehicles enter and exit the project and as indicated on the plans to limit sediment "tracked" off the site.

Where there are differences or conflict between this specification and those requirements outlined in an approved Erosion Control Plan, the specifications in the erosion control plan shall take precedence

MATERIALS

The stone shall be two inch (2") to three inch (3") washed stone.

INSTALLATION

The Contractor shall install the gravel construction entrance as shown on the plans and details. The construction entrance shall be constructed at the locations shown on the plans and at other locations directed by the Engineer.

The area to receive the stone shall be cleared of all vegetation, roots and other objectionable materials. The subgrade shall be graded and properly compacted. Areas yielding shall be covered with engineering fabric or undercut as directed by the Engineer. The stone shall be placed, graded and compacted to a minimum depth of eight inches (8") and as shown on the plans. The minimum construction entrance dimensions shall be 50 feet in length and 12 feet in width. The construction entrance/exit shall be maintained and the stone supplemented throughout the life of the project and shall be removed upon stabilization and disposed of off-site at the Contractor's expense.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02275 - BLOCK AND GRAVEL INLET PROTECTION**

GENERAL

The Contractor shall install block and gravel inlet protection when storm drain inlets are to be made operational before permanent stabilization of the disturbed drainage area. The inlet protection applies to areas of heavy runoff and provides for overflow capacity to prevent excessive ponding; however, shallow temporary flooding should be anticipated.

INSTALLATION

The Contractor shall install the block and gravel inlet protection as shown on the detail drawing and at the locations indicated. As an option, the concrete blocks may be omitted and the entire structure made of gravel and stone. A structure made entirely of stone is commonly called a "gravel doughnut". In this case, keep the stone slope toward the inlet at 3:1 or flatter. Stone shall be washed stone with a minimum 3 inch size on the basin side for stability and 1 inch or smaller (No. 57) on the flow side.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02301 - BORING AND JACKING**

GENERAL

Installation shall be by dry boring and jacking of a smooth wall steel pipe that is true to line and grade under roadways or where indicated on the plans, all in accordance with these specifications and recommendations of the pipe manufacturer. The Contractor shall notify the Public Works Commission's Project Coordinator a minimum of seven (7) days prior to any contemplated work. All required permits and approvals shall be secured prior to commencing work.

MATERIALS

Materials to be used shall be appropriate for the installation method chosen by the contractor. All materials shall be submitted to the Public Works Commission for approval, prior to the Contractor commencing operations.

Dry Boring & Jacking

The casing pipe shall be spiral welded or smooth wall steel pipe in accordance with ASTM A53, Grade B having minimum yield strength of 35,000 psi. The carrier pipe installed for water or force main applications, within the casing pipe shall be CL 50 ductile iron restrained joint pipe. Use of pressure class ductile iron pipe for water mains is acceptable, in accordance with Specification Section 02660. Mechanical joint restraint systems (i.e., Mega-Lugs, grip-rings, field-lok gaskets, etc.) are not an acceptable means of restraint within the casing pipe for water mains or force mains.

The material for the gravity sanitary sewer carrier pipe shall be CL 50 ductile iron restrained joint pipe. All carrier pipes in sewer service shall have the appropriate lining and coating. Use of restraining gaskets (i.e., field-lok gaskets) is an acceptable means of restraint for gravity sewer mains. Use of mega-lugs (or equivalent) is not approved for restraint within casings.

The casing pipe minimum size and minimum wall thickness shall be in accordance with the following chart unless indicated otherwise on the drawings.

CARRIER PIPE (dia, in inches)	MIN CASING SIZE (inches)	WALL THICKNESS (inches)	RAILROAD WALL THICKNESS (inches)
4	10	0.188	0.188
6	12	0.250	0.281
8	16	0.250	0.281
12	24	0.250	0.375
16	30	0.312	0.469

18	30	0.312	0.469
24	36	0.375	0.532
30	42	0.500	0.625
36	48	0.500	0.688

The Contractor may substitute larger size casing pipe (particularly for sewer mains where grade and alignment are critical) with the proper wall thickness. A manual steering head or other approved guidance system is recommended for casing pipe 30 inches and larger and/or bores exceeding 100 feet in length.

INSTALLATION

Installation using the selected method shall be true to line and grade, where indicated on the plans, all in accordance with these specifications and recommendations of the pipe manufacturer. The Contractor shall notify all affected parties a minimum of seven (7) days prior to any contemplated work.

It is recommended that the Contractor perform each bore before beginning the sewer line construction. The boring shall be performed from the “upstream” to “downstream” direction maintaining the critical downstream invert elevation. Should the bore termination not be on grade, a revised plan shall be submitted to PWC Water Resources Engineering for approval. No additional payment shall be made for any required corrective actions. The boring operations shall be conducted at all times in such a manner so as not to create a hazard to nor impede the flow of traffic.

The Contractor will be responsible for any repair costs if any settlement or damage to the roadway or railroad bed resulting from the boring operation occurs within one year after completion of the work. The Contractor shall maintain proper insurance as required by the permitting agency.

The Contractor shall submit all requested information as required by the permitting agency.

Dry Boring & Jacking

The alignment and grade of the jacking shall be carefully established prior to beginning the operation. A licensed professional land surveyor shall provide staking to establish the correct alignment and grade. The licensed surveyor (or a licensed professional engineer) shall provide cut sheets to the Public Works Commission and the contractor.

Lubricants such as bentonite may be applied to the outside of the pipe to reduce frictional resistance during jacking. The boring auger shall not be a greater diameter than the outside diameter of the encasement and removal of the excavated material ahead of the pipe will be held to a minimum to prevent the formation of voids.

Voids occurring outside the encasement pipe shall be filled with 1:3 Portland cement grout and the ends of the encasement pipe closed with masonry after the carrier pipe placement. The voids shall be filled with 1:3 Portland cement grout at sufficient pressure to prevent settlement of the roadway or railroad. The method of grouting shall be as approved by the permitting agency.

If the installed casing is deemed to be unusable by the Public Works Commission and/or the permitting agency, the casing shall be abandoned by bricking each end and filling the casing with grout, or as directed by the permitting agency.

The Contractor shall locate all existing utilities in the proposed location of the jack and bore. Design of the casing shall be in accordance with PWC standards, and subject to PWC approval. The casing should have a minimum separation of 12-inches from existing utilities.

In the event two parallel casings are being installed, the minimum separation between the outside edges of each casing shall be five (5) feet, or as directed by the permitting agency. In the event of a conflict between this specification and the permitting agency's requirements, the more stringent shall apply.

The use of "back-taps" is not encouraged. The design engineer shall take all necessary steps to determine the location of existing utilities and evaluate the necessity of a back-tap. Should it be necessary to install a back-tap, the top of casing shall be a minimum of 12-inches below the bottom of the pipe to be tapped. All pipe and fittings from the tap location to the carrier pipe shall be restrained joint. Use of mechanical joint restraint systems (i.e., mega-lugs, grip-rings, etc) are allowed in such instances. The Public Works Commission shall review and approve all proposed back-tap locations.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02350 - STEEL "H" PILES**

GENERAL

The work covered by this section consists of furnishing and driving steel H piles as indicated on the plans and as directed by the Engineer, in conformity with these specifications and to the bearing and penetration required.

MATERIALS

Steel H piles shall be of the sizes and weights shown on the drawings and shall conform to the requirements of ASTM A-36. The Contractor shall submit a manufacturer's certification to the Engineer that the H piles are in accordance with the project specifications.

INSTALLATION

Steel piles shall be handled and stored by methods that will not injure the pile. The piles shall be stored above the ground on platforms, blocks, or other supports. The piles shall be kept free from dirt, grease, and other foreign matter and shall be protected in so far as practical from corrosion.

The Contractor shall furnish sufficient lengths to develop load requirements as stated on the plans. Full butt-welded splices shall be used. H piles shall be driven to a minimum penetration of 10 feet by an approved hammer developing not less than 7500 ft.-lbs. of energy per blow. The load capacity of each pile shall be determined by the following formula:

$$Ra = \frac{2 E}{S + 0.3}$$

where:

Ra = Safe load (lbs.)
E = Energy per blow (ft.-lbs.)
S = Final penetration per blow (inches)
(average of last 6 blows)

Deviation of the location of the top of the pile from that shown on the plans shall not exceed 2 inches. A suitable driving cap shall be provided to prevent undue damage to the top of the pile. Piles shall be cut off at the required elevations along a plane normal to the axis of the pile. Methods used in cutting off piles shall meet the approval of the Engineer.

SHOP PAINTING

All steel piling shall be sandblasted in the shop to a minimum of SSPC-SP6-63. All sandblasted surfaces shall receive one (1) coat of Epoxy Primer the same day that piles are blasted. The primer shall be applied at the rate of 385 sq. ft. per gallon, which will provide 1.5 mils dry film thickness. Application method of the primer can be made by brush, roller brush, and conventional or airless spray.

FIELD PAINTING

After the piles have been driven, exposed primed surfaces shall be cleaned of dust and other foreign materials prior to applying two (2) coats of Coal Tar Epoxy at the rate of 90-115 square feet per gallon, which will provide a dry thickness of 8-10 mils coat. The minimum dry film thickness for the two coats shall be 16 mils. Application may be by brush, roller, conventional air spray or airless spray.

The re-coat time for the Coal Tar Epoxy can be as little as three (3) hours, but must not exceed 24 hours. Drying time of the coating is greatly affected by the temperature and humidity. If the first coat has exceeded the allotted time, it will be necessary to treat the coating prior to application of the second coat. The Coal Tar Epoxy shall not be applied in the rain or when the temperature is lower than 50 degrees F. Damaged surface areas due to handling and field welding must be wire brushed to original surface preparation and then coated with two (2) coats of Coal Tar Epoxy with minimum dry film thickness of 16 mils as specified above.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02500 – TRAFFIC CONTROL**

GENERAL

The purpose of these specifications is to outline the Contractor's requirements for furnishing, erecting, maintaining, relocating, and removing traffic control devices for the maintenance of traffic during the Contractor's construction operations. The Contractor shall furnish all labor, materials, accessories, equipment and tools for performing all required traffic control operations.

REFERENCES

All work shall be in accordance with:

- A. The North Carolina Department of Transportation Standards and Specifications for Roads and Structures (most recent edition)
- B. The North Carolina Department of Transportation Roadway Standard Drawings (most recent edition)
- C. The Manual on Uniform Traffic Control Devices (MUTCD) – most recent edition
- D. The North Carolina Supplement to the MUTCD
- E. Section 01000 – Special Conditions, of these Contract Documents

REQUIREMENTS

TRAFFIC CONTROL PLAN

The Contractor shall submit a traffic control and phasing plan for the overall project to be reviewed and approved by the PWC Project Engineer, prior to starting construction. The Contractor shall obtain an approved copy of the traffic control plan for the overall project area prior to any excavation within roadways. The plan must indicate how traffic will be managed, signage to be used, and potential traffic patterns resulting from plan implementation. The plan shall be submitted to the PWC Project Engineer in accordance with Section 01000 "Special Conditions" and Section 01300 "Submittals" of these Contract Documents. Failure of the Contractor to submit the required traffic control plan sufficiently in advance shall not entitle the Contractor to any extension of Contract Time.

TRAFFIC CONTROL DEVICES

The Contractor working in public rights-of-way on streets open to vehicular traffic, shall be required to provide, erect, and maintain all necessary traffic control devices throughout the project area to include any connecting streets affected by construction activities. The Contractor shall provide a sufficient number of personnel, and take all precautions for the protection of the work and safety of the public. All traffic control devices in place shall be in accordance with the approved traffic control plan. All traffic control devices and device installation shall be placed and maintained in strict accordance with the resources listed above. The Contractor shall be liable for any damages resulting from using unapproved and/or inadequate work zone traffic control. Fayetteville Public Works Commission reserves the

right to stop any work for non-compliance. The Contractor shall have no claim for delay due to stoppage of work as a result of non-compliance.

TRAFFIC CONTROL PLAN AND ROAD CLOSURE NOTIFICATION

1. TRAFFIC CONTROL PLAN – The Contractor shall notify the PWC Project Engineer, in writing, by 5:00 p.m. Wednesday, indicating which roadways will be affected by the work the following week. The Contractor shall notify NCDOT of work to be done per the terms of the approved encroachment agreement. The PWC Project Engineer shall receive copies of all correspondence via fax or email (PWC fax 910-829-0203; email addresses will be provided at the pre-construction meeting).

Traffic cannot be altered without notification and approval from the appropriate agency as outlined in the above paragraph. Failure to do so will result in the Contractor not being able to work within the street the next week.

No work on the individual streets shall start until all the traffic control devices required for the particular work activity have been installed in accordance with the approved traffic control plan.

2. ROAD CLOSURE NOTIFICATION - When deemed to be in the best interest of the public, Fayetteville Public Works Commission and the Contractor, a street may be closed for a duration mutually agreed upon. The Contractor shall submit a request in writing to the PWC Project Engineer for approval to have a street closed. The PWC Project Engineer will forward the request to the appropriate agency (i.e., City, Hope Mills, NCDOT) for approval of the closure. The PWC Project Engineer will include their recommendation regarding approval or disapproval of the request. The PWC Project Engineer will respond in writing with any recommendation for approval or disapproval of the request.

The request shall be submitted a minimum of five (5) business days prior to the desired closure date. The request shall include the street name and the limits of the closure based on the points of intersection. The request shall also state the proposed duration the street is to be closed and shall include a traffic control plan showing the detour route, traffic control devices, etc. The traffic control plan submitted shall be in accordance with the requirements listed in this Specification.

Once the street closure has been approved, in writing, by the PWC Project Engineer, the Contractor accepts full responsibility for the closure, to include the installation, maintenance, and removal of all traffic control devices and all implied liability.

TRAFFIC CONTROL LOOPS

The Town of Hope Mills, City of Fayetteville, and NCDOT maintain traffic detection loops at various intersections throughout the project limits. Due to the location of the proposed utility improvements, it may be necessary for these detection loops to be damaged. The Contractor shall coordinate with the appropriate agency a minimum of three (3) days prior to excavating, in order for the agency to locate these loops, or make any necessary revisions to the traffic signal facilities.

The agency will hire a third-party contractor to repair the damaged traffic detection loops. The invoice for this work shall be submitted to the Contractor for payment. The cost for this shall be incidental to the Contract.

STEEL PLATING ROADWAYS

Steel plating shall not be used without the prior written approval of the Project Engineer. The Contractor shall submit their proposed plan to utilize steel plates a minimum of five (5) working days prior to the proposed activity. Plating shall only be considered if the trench depths are 14 feet or greater. Should plating be approved the Contractor shall adhere to the following:

1. The trench shall be adequately shored to support bridging and traffic loads.
2. The trench box shall be sealed so there are no open voids.
3. Steel plates shall rest on trench box.
4. Steel plates shall extend beyond the outer edges of the trench box on all four sides.
5. There must be a minimum of two (2) feet of compacted backfill above steel plates.
6. Compacted backfill shall match existing street grade.
7. Provide documentation that the plates are capable of supporting potential loads.

Steel plating shall not exceed two (2) consecutive calendar days in any given week. However, provided that work is progressing in that particular section of sewer the Contractor may be allowed to utilize plating for a longer duration as approved in writing by the Project Engineer.

STEEL PLATING ROADWAYS (NCDOT STREETS)

Steel plating shall not be used without the prior written approval of Fayetteville Public Works Commission Project Engineer. The Contractor shall submit their proposed plan to utilize steel plates a minimum of five (5) business days prior to the proposed activity. Should plating be approved, the Contractor shall adhere to the following:

1. The plates shall be secured against any movement from traffic. Options include “countersinking” the plates to be flush with the existing pavement, or bolting the plates to the pavement.
2. The plates shall overlap the excavation a minimum of two (2) feet on all sides.
3. The plates shall be sufficient to withstand the expected traffic loads.
4. Provide documentation that the plates are capable of supporting potential loads.

Steel plating shall not exceed two (2) consecutive calendar days in any given week. However, provided that work is progressing in that particular section of the project, the Contractor may be allowed to utilize plating for a longer duration as approved in writing by Fayetteville Public Works Commission Project Engineer.

MATERIALS

- A. The Contractor shall utilize interim pavement marking paint as specified in the North Carolina Department of Transportation Standards and Specifications for Roads and Structures (most recent edition)

- B. Traffic cones may be utilized when approved by Fayetteville Public Works Commission Project Engineer. If approved, traffic cones shall either be double stacked or weighted to prevent movement by traffic.
- C. All traffic control devices furnished by the Contractor shall remain the property of the Contractor, unless otherwise specified in these Contract Documents.

INSTALLATION

The furnishing, erecting, maintaining, relocating, and removal of traffic control devices shall be in accordance with the MUTCD (most recent edition), the requirements outlined in the approved traffic control plan, and these Contract Documents.

All traffic control devices shall be in place prior to the Contractor beginning work, removed during intervals when work is not on-going, and removed at the end of each business day (unless otherwise approved, as outlined in this specification).

The Contractor shall not obstruct or impede any traffic on adjacent streets, during the installation or removal of the traffic control devices, or during construction.

The Contractor shall not close a lane to through traffic after normal working hours and during periods of construction inactivity, unless otherwise approved in writing by Fayetteville Public Works Commission Project Engineer.

Fayetteville Public Works Commission Project Engineer may restrict the Contractor from placing lane closures during certain hours, holidays, or as deemed necessary for the convenience of the public. All lane closure types, hours of installation, and durations shall be as approved in writing by Fayetteville Public Works Commission Project Engineer.

The use of police and/or trained flaggers to control traffic through the work site shall be provided by the Contractor as required. The Contractor shall be responsible for obtaining trained personnel to direct traffic and contacting local authorities for use of police for traffic control where applicable.

INTERIM PAVEMENT MARKINGS

The Contractor shall be required to place interim pavement markings (centerlines, lane lines, edgelines, railroad, and school symbols) daily on any street with existing pavement markings that have been obliterated.

THERMOPLASTIC PAVEMENT MARKINGS

The Contractor shall be required to place thermoplastic pavement marking centerlines, lane lines, and edge lines within three (3) calendar days after the completion of the resurfacing operation.

The Contractor shall be required to place all thermoplastic pavement marking symbols (arrows, crosswalks, stop lines, school symbols, railroad symbols, raised pavement markers, etc.) within seven (7) calendar days of the completion of the project.

NCDOT STREETS

All traffic control measures for work within NCDOT road rights-of-way shall be in accordance with the approved NCDOT encroachment agreement, and as specified herein. Where there is a conflict between the requirements of this specification and the approved encroachment, the requirements of the approved encroachment shall govern.

END OF SECTION

**DIVISION 2
SITE WORK
02505 - ADJUSTMENT OF EXISTING STRUCTURES**

GENERAL

The work covered by this specification consists of the raising or lowering of existing manholes and valve boxes encountered within the limits of the project to match the adjacent finished work.

RELATED SECTIONS

- A. 02222 – Excavation and Backfilling for Utility Systems
- B. 02660 – Water Distribution
- C. 02730 – Sanitary Sewer Systems

Where conflicts occur between the specifications, the more stringent requirement shall apply.

MATERIALS

All materials shall be in strict accordance with the requirements of the Public Works Commission and as set forth in this standard.

Adjustable riser rings are not approved for use within the Public Works Commission water and/or sewer system. All manhole adjustments shall be done utilizing a concrete grade ring. If a concrete grade ring cannot be utilized, the manhole shall be broken down and rebuilt to the proper grade, in accordance with PWC standards.

INSTALLATION

Adjustment of structures shall not be performed until after placement of base course and/or any leveling course, and prior to placement of final course. All adjustments of structures shall be accomplished a minimum of 72 hours prior to placing the final surface course. All defective, damaged, or worn castings shall be replaced with new castings provided by the Public Works Commission at no cost to the Contractor. The Contractor shall be responsible for exchanging castings at the Public Works Commission's facility.

The Contractor shall take all necessary precautions to prevent debris from entering the sanitary sewer system. Any debris that falls into the manhole or valve box during adjustment shall be removed immediately.

Manholes

For all manholes that need adjustment, the Contractor shall remove all concrete grade rings to the top of the cone section. All loose material shall be removed and properly disposed of. The Contractor shall utilize new concrete grade rings to ensure that the new manhole ring and cover will be at final grade. If no concrete grade rings are required to adjust the structure to final grade, the Contractor shall set the ring and cover in a bed of clean fresh mortar.

If the manhole needs to be lowered, and there are no existing concrete grade rings, then the Contractor shall tear down the existing manhole and rebuild it, utilizing new riser and cone

sections, in order to ensure that the installed ring and cover will be at final grade. The Contractor shall remove all necessary sections of the existing manhole in order to make the adjustment.

If the manhole needs to be raised, and there are 12-inches of concrete grade rings already in place, the Contractor shall tear down the existing manhole and re-build it. The Contractor shall utilize new riser and cone sections, as required, to ensure that the installed ring and cover will be at final grade. The Contractor shall remove all necessary sections of the existing manhole in order to make the adjustment.

Valve Boxes

In order to adjust valve boxes, the top section of the valve box shall be raised or lowered as required to meet the final grade. If the height of the final grade exceeds the length of the existing top section, the Contractor shall remove the existing valve box and install a new one at final grade.

All adjustments shall be protected for at least 72 hours before the placement of any surfacing material, in order to allow the concrete to properly set. The Contractor shall be responsible for protecting the raised structure from damage due to traffic. After the 72 hours, a temporary asphalt transition shall be placed around the raised structure, to allow vehicular traffic to pass over. The asphalt transition shall extend a minimum of 18 inches from the structure in every direction. The Contractor shall be responsible for maintaining this asphalt transition until such time the final surface course is placed. Immediately prior to paving, the asphalt transition shall be removed. In the event paving is stopped for the day prior to completing the work, the Contractor shall re-install the temporary asphalt transition. The finish surface tolerance shall not vary more than 1/4" (0.25 inch) in any direction. Every effort shall be made to ensure that the surface course and castings provide as smooth a ride as possible.

END OF SECTION

**DIVISION 2
SITE WORK
02573 - PERMANENT PAVEMENT PATCH**

GENERAL

Permanent pavement patching shall be completed as indicated on the Contract Plans and in accordance with these Contract Documents. The intent and purpose of these specifications is to require a complete and satisfactory installation in every respect and any defect in material or workmanship shall be cause for replacement and correction of such defect as directed by the Public Works Commission. All materials and workmanship shall be in complete accordance with the standards and specifications of the Public Works Commission and subject to Public Works Commission inspection and approval. The materials and installation shall conform to the North Carolina Department of Transportation (NCDOT) Standards, (latest revision), the NCDOT HMA/QMS Manual (latest revision), and as specified herein.

REMOVAL

The Contractor shall cut the existing pavement to straight uniform widths parallel and perpendicular to the roadway. Jagged saw cuts will not be acceptable. The pavement shall be removed its entire depth. The Contractor shall properly dispose of all removed pavement. If the Contractor elects to mill the asphalt, the millings cannot exceed two (2) inches in size, and shall be swept into the trench and re-compacted. The removal limits shall extend a minimum of six (6) inches into solid undisturbed base course prior to patching or as directed by the Public Works Commission.

Pavement removal shall not exceed 3,000 feet total for the entire project at one time. It shall be the Contractor's responsibility to maintain the trench (swept, wetted, compacted, etc.) until paved.

PAVEMENT

Replacing the pavement shall consist of the following:

Tack Coat

All existing pavement edges shall be tacked in accordance with the North Carolina Department of Transportation Standard Specifications for Roads and Structures (latest revision).

Asphalt Surface Course

The asphalt surface course shall be Type S9.5, placed in accordance with the PWC Standard Detail M.2. All asphalt surface course shall be in accordance with the NCDOT HMA/QMS Manual (latest revision) and the North Carolina Department of Transportation Standard Specifications for Roads and Structures (latest revision).

The pavement repair shall be constructed to the line, grade, crown and cross section of the existing street. The asphalt plant mix shall be compacted to density in accordance with the HMA/QMS Manual (latest revision). The Contractor shall provide a smooth transition from the

existing pavement to the top of the backfill, so as to have no vertical drop (in any direction). The transitions shall only be removed the day of patch paving.

The permanent pavement patch shall be made within 30 days of installation of the line. If settlement should occur within one (1) year warranty period, the Contractor shall be required to remove asphalt, re-compact base and sub-base, and re-patch any areas of settlement at no expense to PWC. All repairs shall be in accordance with these Contract Documents.

Base Course

The base course shall be aggregate base course (ABC) installed to a minimum eight (8) inches thickness (compacted) and extending a minimum of six (6) inches beyond the edge of the trench as indicated on the PWC Standard Detail M.2. The base course shall be compacted to 100% maximum dry density at optimum moisture content as determined by the AASHTO T-99 as modified by NCDOT.

The Contractor, with permission of the Public Works Commission, may use asphalt concrete intermediate course, placed in a minimum four (4) inch layer extending a minimum of six (6) inches beyond the edge of the trench as indicated on the Permanent Patch Detail. The Asphalt Concrete Intermediate Course shall be in accordance with the North Carolina Department of Transportation Standard Specifications (latest revision), and the NCDOT HMA/QMS Manual (latest revision).

Prior to patch paving, the Contractor shall remove the upper ten (10) inches of backfill, if ABC is to be used or upper six (6) inches if Asphalt Concrete Intermediate Course is to be used, in the trench. All asphalt edges along the trench shall be cut straight, uniform width, parallel and perpendicular to the road with no jagged edges. The outer six (6) inches (minimum) of the trench adjacent to the newly removed asphalt shall be on undisturbed soil.

The pavement repair shall be constructed to the line, grade, crown and cross section of the existing street. The asphalt plant mix shall be compacted to density in accordance with the HMA/QMS Manual.

Maintenance shall be performed at least weekly, after a rainfall, or at the direction of the Public Works Commission. Maintenance shall include sweeping the adjoining pavement, blading, wetting and compacting the stone to insure smooth drivable surface.

END OF SECTION

**DIVISION 2
SITE WORK
02574 – TEMPORARY PAVEMENT PATCH**

GENERAL

Open cutting and replacing existing pavement shall be performed in accordance with these Contract Documents. The materials and installation shall conform to the North Carolina Department of Transportation Standard Specification (most recent edition), the NCDOT HMA/QMS Manual (most recent edition), and as specified herein. Encroachment permits will be obtained by the Public Works Commission, but all necessary insurance as required by NCDOT shall be furnished and paid for by the Contractor.

REMOVAL

The Contractor shall cut the existing pavement to straight uniform widths parallel and perpendicular to the roadway. Jagged saw cuts will not be acceptable. The pavement shall be removed its entire depth. The Contractor shall properly dispose of all removed pavement. If the Contractor elects to mill the asphalt, the millings cannot exceed two (2) inches in size, and shall be swept into the trench and re-compacted. The removal limits shall extend a minimum of six (6) inches into solid undisturbed base course prior to patching or as directed by the Public Works Commission.

Pavement removal shall not exceed 3,000 feet total for the entire project at one time. It shall be the Contractor's responsibility to maintain the trench (swept, wetted, compacted, etc.) until paved.

PAVEMENT

Replacing the pavement shall consist of the following:

Tack Coat

All existing pavement edges shall be tacked in accordance with the North Carolina Department of Transportation Standard Specifications for Roads and Structures (most recent edition).

Asphalt Surface Course

Where streets are indicated to be temporarily patched and overlaid with an asphalt surface course, the patch shall be constructed of asphalt intermediate course, Type I-19.0. The Asphalt Intermediate Course, material shall be in accordance with NCDOT Standard Specifications for Roads and Structures (most recent edition) and the NCDOT HMA/QMS Manual (most recent edition).

The pavement repair shall be constructed to the line, grade, crown and cross section of the existing street. The asphalt plant mix shall be compacted to density in accordance with the NCDOT HMA/QMS Manual (most recent edition).

The temporary pavement patch shall be a minimum three (3) inches compacted thickness and extend a minimum of six (6) inches beyond the edge of the trench in accordance with the PWC Standard Detail. No more than 24 hours prior to patch paving, the Contractor shall remove the

upper three (3) inches of backfill in the trench. All asphalt edges along the trench shall be cut straight, uniform width, parallel and perpendicular to the road with no jagged edges. The outer six (6) inches (minimum) of the trench adjacent to the newly removed asphalt shall be on undisturbed soil. The Contractor shall provide a smooth transition from the existing pavement to the top of the backfill, so as to have no vertical drop (in any direction). The transitions shall only be removed the day of patch paving.

The temporary pavement patch shall be made within thirty (30) days of installation of the line. If settlement should occur within the one (1) year warranty period, the Contractor shall be required to remove asphalt, re-compact base and sub-base, and re-patch any areas of settlement at no expense to PWC. All repairs shall be in accordance with these Contract Documents.

END OF SECTION

02575 – DRIVEWAY REPLACEMENT GENERAL

Removal and replacement of existing driveways is required as indicated in the Contract Drawings and shall conform to the requirements of this Specification and the Contract Documents. The Contractor shall furnish all labor, equipment, materials, and incidentals necessary for the removal and replacement of the driveways disturbed as part of the utility construction. The intent and purpose of these specifications is to require a complete and satisfactory installation in every respect and any defects in material or workmanship shall be cause for the replacement and correction of such defect as directed by the Public Works Commission at no expense to the Public Works Commission.

All work shall be done in accordance with the terms and conditions outlined herein, the Public Works Commission "Manual for the Design and Construction of Water and Wastewater System Extensions" (most recent edition), in accordance with the North Carolina Department of Transportation "Standard Specifications for Roads and Structures" (most recent edition), and subject to final approval and acceptance by the Public Works Commission. In case of conflicting requirements between this Specification and the above referenced documents, this Specification shall govern.

The Contractor shall provide resident's access to their driveways at all times. The Contractor shall coordinate with the resident to provide access to their home during removal and replacement of the driveway. The Contractor shall make every attempt to coordinate their efforts with the schedule and wishes of the resident.

RELATED SECTIONS

- A. 02222 – Excavation and Backfilling for Utility Systems

REMOVAL

The Contractor shall provide a neat edge along the concrete or asphalt driveway pavement being retained by sawing, straight and true, approximately two (2) inches deep before breaking away. The portion of driveway to be removed shall be as indicated on the Contract Drawings or as directed by the PWC Project Coordinator. The concrete or asphalt driveway pavement shall be removed for its entire depth, removed from the site, and disposed of at the Contractor's sole expense.

The Contractor shall remove the existing gravel drive to the limits shown on the Contract Drawings or as directed by the PWC Project Coordinator. The driveway shall be removed for its entire depth, removed from the site, and disposed of at the Contractor's sole expense.

ASPHALT DRIVES

Replacing the asphalt driveway shall consist of the following:

Base Course:

The stabilized aggregate base course shall be installed to a minimum eight (8) inches compacted thickness as indicated on the Asphalt Driveway Patch Detail. The base course shall be compacted

to 100% maximum dry density at optimum moisture content as determined by the AASHTO T-99 as modified by NCDOT. In lieu of utilizing aggregate base course, the Contractor, with approval from the City of Fayetteville, may utilize a minimum of four (4) inches of I-19.0 intermediate course.

In locations approved by the PWC Project Engineer, where the stone base course is to remain for a defined period of time prior to asphalt paving, the stone base course shall be maintained by the Contractor. Maintenance shall include sweeping the adjoining pavement, blading and/or leveling the stone, compacting and wetting the stone to insure smooth driveable surface. The Contractor shall have on the project the proper equipment to complete this work. Maintenance shall be performed at least weekly, after a rainfall, or at the direction of the PWC Project Engineer.

Tack Coat:

All existing pavement edges shall be tacked in accordance with the North Carolina Department of Transportation Standard Specifications for Roads and Structures (most recent edition).

Bituminous Concrete Surface Course:

The bituminous concrete surface course shall be Type SF9.5, placed in a two (2) inch minimum thickness or to the existing full depth thickness whichever is greater and in strict accordance with the North Carolina Department of Transportation Standard Specifications for Roads and Structures (most recent edition).

CONCRETE DRIVES

Where new concrete is to be placed against existing concrete, preformed expansion joint filler, three-quarter inches in width and of a depth extending for the full thickness of the slab, shall be used. All concrete shall have a minimum 28 day compressive strength of 3,000 psi and shall be placed to the same thickness as the removed portion except that in no case shall any new slab be less than five (5) inches thick. The concrete shall be accurately screed to produce a uniform surface, floated, and given a broom finish. All work shall be in accordance with PWC standard details and City of Fayetteville requirements.

GRAVEL DRIVES

Gravel driveways shall be restored or replaced in all locations disturbed by construction. The replacement gravel driveway shall consist of six (6) inches thick compacted Number 57 stone or aggregate base course stone, whichever matches or more closely matches the existing gravel driveway.

ACCEPTANCE

Acceptance of the installed driveways shall be based on the conformance with the requirements outlined herein, the Public Works Commission's review of the installation, and written concurrence from the property owner. The Public Works Commission will not accept any installation without

the written release from the property owner. The Contractor shall be responsible for obtaining the written release from the property owner.

WARRANTY

If settlement should occur within one (1) year, the Contractor shall repair/re-pave the area to provide a smooth transition between the new and existing driveways. The finished product shall be neat in appearance and of equal or exceeding quality of the surrounding driveway or area.

END OF SECTION

**DIVISION 2
SITE WORK
02584 - ROADWAY AND PARKING LOT MARKING**

GENERAL

The pavement markings shall be in strict accordance with both NCDOT Standard Specifications for Roads and Structures (most recent edition) and U.S. Department of Transportation, Federal Highway Administration's Manual for Uniform Traffic Control Devices for Streets and Highways.

MATERIALS

The traffic and zone marking paint shall be white, yellow or blue alkyd-chlorinated rubber chlorinated paraffin as manufactured by PPG Industries, General Paint and Chemical Company, Sherwin-Williams or an approved equal. The paint shall be in accordance with AASHTO M248, Type III.

INSTALLATION

The Contractor shall lay out all work including traffic lanes, arrows, spaces, handicap aisles, etc and other pavement markings as indicated on the Contract Drawings. Prior to the application of any paint, the pavement surface shall be cleaned of all dirt, trash and the surface shall be free of any material that would prevent adherence of paint. The paint shall be applied to a dry surface using either a template or striping machine. Stripes shall be uniform weight and width. Stripe width shall be 4 inches unless otherwise shown on the Contract Drawings.

END OF SECTION

02660 - WATER DISTRIBUTION

GENERAL

Water lines and all appurtenant items shall be constructed of materials specified and/or as indicated on the approved drawings. The intent and purpose of these specifications is to require a complete and satisfactory installation in every respect and any defects in material or workmanship shall be cause for the replacement and correction of such defect as directed by Fayetteville Public Works Commission (PWC) at no expense to Fayetteville Public Works Commission.

RELATED SECTIONS

- A. 02211 – Grading, Utilities
- B. 02222 – Excavation and Backfilling for Utility Systems
- C. 02301 – Boring And Jacking (Roadways And Railroads)

MATERIALS

MANUALLY OPERATED GATE VALVES

All manually operated gate valves four (4) inches and larger shall be ductile iron or cast iron body resilient wedge type rated for 250 psig working pressure gate valves and shall conform to American Water Works Association (AWWA) C-509/C-515 and NSF 61. All valves must open counter-clockwise equipped with a two (2) inch square operating nut. The operating nut shall have an arrow cut in the metal, indicating the direction of opening. All valves shall have a non-rising stem. All valves up to and including thirty-six (36) inch diameter shall have triple "O" ring stem seals. The design and machining of valves shall be such as to permit the replacement of the upper two (2) "O" rings without undue leakage while the valve is wide open and in service. The wedge shall be ductile iron encapsulated in nitrile rubber (for four (4) inch through 12 inch) and SBR rubber for 14-inch through 24-inch sizes.. All internal and external surfaces of the valve body and bonnet shall have a fusion bonded epoxy coating complying with ANSI/AWWA C550 applied electrostatically prior to assembly, conforming to AWWA C-550-90. All valves up to and including 36-inch diameter shall have a safe working pressure of 250 psi. Valve connections shall be as required for the piping in which they are installed. Valves shall have a clear waterway equal to the full nominal diameter of the valve. All valves shall be tested for leakage and distortion in strict accordance with the latest revision of AWWA Specification C-500.

Gate valves installed in meter vaults shall have a wheel in lieu of a square operating nut and shall also have a non-rising stem. The wheel shall have an arrow cut in the metal indicating the direction of opening. Flanges shall not be buried. An approved pit shall be provided for all flange connections.

Resilient seated tapping valves shall be furnished with the tapping flange having a raised face or lip designed to engage the corresponding recess in the tapping sleeve flange in accordance with MSS-SP60. Tapping valves without the raised face on the tapping flange are not permitted since they do not assure the proper alignment required to prevent damage by a misaligned shell cutter. The interior of the waterway in the body shall be a full opening and capable of passing a full sized shell cutter equal to the nominal diameter of the valve.

All valves shall be manufactured in strict accordance with the latest specifications of the American Water Works Association (AWWA). Valves shall be manufactured by: Mueller Company, Clow Corporation, or American Darling Company. Certification shall be furnished to Fayetteville Public Works Commission by the manufacturer that all valves are in accordance with PWC standards. Where specified on the plans and approved by Fayetteville Public Works Commission, resilient wedge gate valves may be furnished with spur gearing for valves installed in a vertical position and bevel gearing for valves installed in a horizontal position. All gate valves shall be installed in accordance with PWC standard details.

BALL VALVES

For all valves smaller than four (4) inches, ball valves shall be used. Ball valves shall be installed in accordance with PWC standard details.

Ball valves shall be all bronze construction, with tee head operator and having a removable disc. Ball valves shall have threaded connections, in accordance with PWC standard details. Ball valves shall be manufactured and tested in accordance with AWWA/ANSI C800. The valve shall be equipped with packing nut, gland, and packing material. Ball valves shall be of an approved type made from approved materials conforming to ASTM Specifications and shall also meet the approval of the Public Works Commission. The turn required to travel from fully closed to fully open on the ball valve shall be 90 degrees.

VALVE BOXES

Valve boxes shall be "slip-type" made of close-grained, gray cast iron metal painted with a protective asphaltic coating. Construction shall be in three pieces as follows: The lower of base pieces, which shall be flanged at the bottom, the upper part which shall be flanged on the lower end, and of such size as to telescope over the lower part, the upper end being constructed in the form of a socket to receive the cap or cover; and the cover or cap shall have cast on the upper surface, in raised letters, the word "WATER". All valve boxes shall be equal in quality and workmanship to those manufactured by Sigma Corporation (VB-462), Tyler Union (6855 Series), Star Pipe Products (VB-0004), or an approved equal. The valve box shall be installed in accordance with PWC standard details. The valve box shall have a 3/8-inch hole drilled in the upper part four (4) to six (6) inches from the top of the box to accommodate a 1/4-inch x 1-1/2-inch galvanized bolt for securing tracer wire.

Valve box protector rings shall be installed to protect valve boxes located outside pavement. The ring shall be constructed and installed in accordance with PWC standard details.

FIRE HYDRANTS

All fire hydrants shall be dry barrel, traffic type and conform to the latest revision of AWWA Specification C-502 except as listed below or as otherwise directed by the Public Works Commission. All working parts shall be bronzed. The size of the fire hydrants (designated by the nominal diameter of the valve opening) shall not be less than four and one-half (4 1/2) inches. All hydrants shall be able to deliver a minimum of 1,000 gallons per minute with a friction loss of not more than five (5) pounds per square inch (psi) total head loss through the hydrant. Hydrants shall be of compression type (opening shall be of such design that when the barrel is broken off the hydrant valve will remain closed and reasonably tight against leakage). All hydrants shall be mechanical joint to accommodate the spigot end of six (6) inch Pressure Class 150, AWWA

Standard, ductile iron pipe. The installation of the fire hydrant shall be in accordance with PWC standard details. Bosses (6") may be substituted for tees in pipe sizes exceeding 24 inches in diameter, with prior approval from PWC. The boss shall be welded to the bottom of the main to provide effective flushing of the system.

All hydrants shall be furnished with two (2) two and one-half (2 ½) inch nozzles and one (1) four and one-half (4 ½) inch pumper nozzle. Outlets shall have American National Standard fire hose coupling thread, in accordance with the City of Fayetteville standard, and shall be provided with nozzle caps securely chained to the body of the hydrant. The base of the hydrant shall have two (2) cast lugs suitable for use in strapping the hydrant to the connecting pipe. The operating nut shall be pentagonal in shape, finished with a slight taper to one and one-half (1 ½) inches from point to flat to conform to the standard wrench used by Fayetteville Public Works Commission. All hydrants shall open left or counter-clockwise. Hydrants shall be suitable for working pressure of 150 psi and a test pressure of twice the working pressure. Fire hydrants shall be specific models manufactured by Mueller Company (Model Centurian 200), Clow Corporation (Medallion), American Darling (Model Mark 73-1) or approved equal. The interior of the hydrant shoe shall be coated with a four (4) mil thickness FDA approved epoxy coating.

COMBINATION AIR VALVES ASSEMBLY

Combination air valves shall be of the single housing style that combines the operation features of both an air/vacuum and air release valve. The combination air valve shall have a two (2) inch inlet and one (1) inch outlet connections and an orifice diameter to be determined by the Design Engineer for each project for a maximum working pressure of 300 psi. The assembly shall be equipped with a two (2) inch cut-off valve as shown on the PWC standard detail. The combination air valve body shall be constructed of 316 stainless steel or reinforced nylon with the only exception being the Buna-N Rubber seat and gasket. Valves shall be as manufactured by Crispin (Model UX20), ARI (D-020), or approved equal. Combination air valves shall be installed in accordance with PWC standards.

WATER DISTRIBUTION PIPE

DUCTILE IRON PIPE

The raw material from all ductile iron pipe and fittings shall have an average minimum content consisting of 90% recycled iron and steel. Ductile iron pipe and fittings shall be manufactured in the United States of America in accordance with ANSI/AWWA A21.51/C151. The manufacturer of the ductile iron pipe shall be a member of the Ductile Iron Pipe Research Association (DIPRA).

All ductile iron pipe shall be designated as "Pressure Class", unless otherwise specified. The pipe furnished shall have a minimum thickness calculated in accordance with ANSI A 21.50 (AWWA C-150), with a factor of safety of two (2); a working pressure of 150 psi to 350 psi, plus 100 psi water hammer allowance; and AASHTO H-20 live truck load with 2.5 feet of cover. In no case shall "Pressure Class" pipe's nominal thickness be less than the following:

<u>SIZE</u>	<u>PRESSURE CLASS</u>	<u>NOMINAL THICKNESS (In.)</u>
4"	350	0.25
6"	350	0.25
8"	350	0.25

10"	350	0.26
12"	350	0.28
16"	250	0.30
24"	250	0.37

PUSH-ON JOINTS

Push-on joints shall be as specified and installed in accordance with AWWA C-600 and shall conform to AWWA Standard C-111. Push on joints, rubber gaskets and lubricant shall conform to ANSI A21.11. Pressure rating shall not be less than 200 psi unless otherwise specified. All ductile iron pipe shall be lined with standard thickness cement mortar lining and asphaltic seal coat in accordance with ANSI A21.4 (AWWA C-104). The pipe shall have an outside asphaltic coating as specified in AWWA Standard C-151.

RESTRAINED JOINTS

Factory Restrained Joints

Factory restrained joint pipe shall be utilized for all pipe greater than 12-inches in diameter, unless otherwise approved by Fayetteville Public Works Commission. Factory restrained joint pipe shall be furnished for the locations shown on the approved drawings. The pipe, joints, and gaskets shall be in accordance with ANSI/AWWA Standards as specified for ductile iron pipe. Factory restrained joints shall be rated for a working pressure of 350 psi for sizes up to 12-inches and 250 psi for larger sizes.

All factory restrained joint pipe shall have the restraints internal to the pipe (i.e., "boltless"). All restrained joint ductile iron pipe and fittings larger than 12-inches shall be as manufactured by U.S. Pipe's TR-Flex, Griffin Pipe Products SNAP-LOK, American Cast Iron Pipe Company's Flex-Ring Joint, or approved equal. The method of restraining the valves to the factory restrained ductile iron pipe shall be reviewed and approved by PWC on a case by case basis. The valves shall have the same working pressure as the pipe.

Flanged Joints

Flanges shall be specifically designed for each application. The flange pipe shall be in accordance with ANSI/AWWA C-115/A21.15. Threads for threaded flange pipe shall be in accordance with ANSI B2.1, shop fabricated as outlined by AWWA 115 with serrated faces furnished on the pipe, completely factory installed. Welding of flanges to the body of the pipe will not be acceptable.

Ductile iron fittings and flanges shall be in accordance with ANSI/AWWA C-110/A21.10 with a minimum working pressure of 250 psi. Gaskets shall be full faced SBR rubber per ANSI/AWWA C-111/A21.11 with a minimum 1/8 inch thickness. Linings and coatings shall be as previously outlined for all ductile iron pipe and fittings.

Mechanical Joints

Mechanical joints shall be as specified and installed in accordance with AWWA C-600 and shall conform to AWWA Standard C-111. Mechanical joints shall be of the stuffing box type and shall conform to ANSI A21.11 for four (4) inch pipe through 12-inch pipe. Mechanical joints, rubber

gaskets and lubricant shall conform to ANSI A21.11. Pressure rating shall not be less than 200 psi unless otherwise specified.

Special accessories such as mechanical joint retainer glands or mega-lugs are acceptable on pipe 12-inches and less in diameter, upon approval from Fayetteville Public Works Commission. Mega-lug and/or grip-ring restraint mechanisms will not be an acceptable method of restraint for pipe, fitting and/or valves on sizes larger than 12-inches in diameter. For mains larger than 12-inches and at locations specified by Fayetteville Public Works Commission, factory restrained joints shall be utilized, in accordance with these Specifications.

Field Lok Gaskets

Special accessories such as US Pipe's Field-LOK gasket, Ford's Uni-Ring, or Romac's Grip-Ring are acceptable on pipe 12-inches and less in diameter, upon approval from Fayetteville Public Works Commission. Mega-lug and/or grip-ring restraint mechanisms will not be an acceptable method of restraint for pipe, fitting and/or valves on sizes larger than 12-inches in diameter. For mains larger than 12-inches and at locations specified by Fayetteville Public Works Commission, factory restrained joints shall be utilized, in accordance with these Specifications.

FITTINGS

Mechanical Joint

All fittings shall be ductile iron and shall be manufactured in accordance with AWWA Standard C-110 (ANSI A21.11). Compact fittings shall be mechanically restrained, ductile iron in accordance with ANSI A 21.53 (AWWA C-153) for four (4) inch through 12 inch sizes only. Where thrust blocking is utilized, fittings shall be full body ductile iron in accordance with ANSI A 21.53 (AWWA C110).

All ductile iron fittings shall be lined with standard thickness cement mortar lining and asphaltic seal coat in accordance with ANSI A21.4 (AWWA C-104). All fittings shall have an outside asphaltic coating as specified in AWWA Standard C-151 and C-110, respectively.

Factory Restrained

Factory restrained joint fittings shall be utilized for all pipe greater than 12-inches in diameter, unless otherwise approved by Fayetteville Public Works Commission. Factory restrained joint fittings shall be furnished for the locations shown on the approved drawings. The fittings, joints, and gaskets shall be in accordance with ANSI/AWWA Standards as previously specified for ductile iron pipe. Factory restrained joints shall be rated for a working pressure of 350 psi for sizes up to 12-inches and 250 psi for larger sizes. All factory restrained joint fittings shall have the restraints internal to the fitting (i.e., "boltless"). All fittings shall be compatible with the factory restraint system. All restrained joint ductile iron fittings larger than 12-inches shall be as manufactured by U.S. Pipe's TR-Flex, Griffin Pipe Products SNAP-LOK, American Cast Iron Pipe Company's Flex-Ring Joint, or approved equal.

Bosses

Tangential welded on outlets (i.e., bosses) shall only be utilized on pipe 24-inches and larger, as approved by PWC. All bosses shall be factory welded; field fabrication is not allowed. The pipe

shall be in accordance with these specifications. Bosses shall be of the size and location indicated on the approved drawings.

AERIAL CROSSINGS

For aerial crossings, the ductile iron pipe shall be thickness class, as specified on the plans and standard details. All thickness class pipe shall be in accordance with ANSI A21.51 and AWWA C-151, with a minimum working pressure of 200 psi.

For aerial crossings which are four (4) inches to 12 inches in diameter, Class 53 manufactured factory restrained joint or Class 53 flanged ductile iron pipe shall be used in accordance with the PWC standard details. No other means of restraint are allowed for aerial crossings. For aerial crossings larger than 12 inches, or as noted specifically on the plans, Class 53 flanged ductile iron pipe shall be used in accordance with the PWC standard details.

All aerial crossings shall be designed and installed in accordance with PWC standard details.

PIPE IN CASINGS

All ductile iron pipe (regardless of diameter) within casings shall be factory restrained, in accordance with these specifications and the applicable PWC standard details. The use of any other restraints (i.e., mega-lugs, grip-rings, etc.) shall not be utilized on pipe within casings.

All restrained joint ductile pipe in casings shall be in accordance with the PWC standard details.

TRENCHLESS APPLICATIONS

All ductile iron pipe (regardless of diameter) utilized for trenchless installations (i.e., horizontal directional drilling, pipe-bursting, etc.) shall be factory restrained, in accordance with these specifications and the applicable specification section for the trenchless technology. The use of any other restraints (i.e., mega-lugs, grip-rings, etc.) shall not be utilized.

PVC PIPE

Two (2) inch water main pipe shall be manufactured using Grade 1 PVC compound material as defined in ASTM D-1784 and shall be SDR21, pressure class 200 in accordance with ASTM D 2241. Fittings for two (2) PVC pipe shall be solvent weld Schedule 80 PVC. Brass FIP x pack joint for PVC fittings shall be used to transition from PVC to brass. The pipe shall be plainly marked with the manufacturer's name, size, material (PVC) type and grade or compound, NSF seal, date of manufacture, pressure rating and reference to appropriate product standards.

All PVC pipe (4-inches through 12-inches diameter) shall be manufactured using virgin compounds as defined in ASTM D-1784, with a 4,000 psi HDB rating and designated as PVC 1120 to be in strict accordance with AWWA C-900. The pipe shall be Class 150 and conform to the thickness requirements of DR18. The pipe shall be manufactured to withstand 755 psi quick burst pressure tested in accordance with ASTM D-1599 and withstand 500 psi for a minimum of 1,000 hours tested in accordance with ASTM D-1598. The pipe joints shall be of the integral bell type with rubber gaskets and shall conform to the requirements of ASTM D-3139 or ASTM F-477.

PVC fittings are not acceptable for water mains four (4) inches or greater. Fittings and specials shall be ductile iron, bell end in accordance with AWWA C-110, 150 psi pressure rating unless otherwise shown or specified. Ductile iron fittings to PVC pipe shall be adequately supported on a firm trench foundation. Ductile iron fittings and specials shall be cement mortar lined (standard thickness) in accordance with ANSI A21.4.

Mechanical restraining systems (i.e. mega-lug, grip-ring) shall not be used on PVC pipe.

TRACING WIRE

For the purpose of locating non-metallic pipes, a continuous "detectable" tracing wire shall be installed. The wire shall be a minimum 12 gauge, single strand, coated copper or copper clad steel wire that is suitable for underground use. Splices shall be accomplished utilizing a corrosion proof wire connector. The connectors shall "lock" the wires in place and contain a dielectric sealant to prevent corrosion. The connector shall be the "Snake Bite" connector manufactured by Copperhead Industries, LLC, or approved equal. The wire shall be buried continuously along the pipe. The wire shall be secured into valve boxes such that a direct/conductive metal detector may be used to trace the pipe location. Bolts shall be used to secure the wire and the attachment location shall be readily available from finished grade without special equipment.

POLYETHYLENE PLASTIC WATER TUBING

Polyethylene (PE) plastic water tubing shall be installed in accordance with PWC standard details. All services installed in new construction shall be one continuous run of pipe with no splices from the corporation stop to the meter. The PE water tubing shall meet the requirements of ASTM D2737, AWWA C901, and NSF Standards 14 and 61. Pipe dimensions shall meet Iron Pipe Size (IPS) standards.

The PE tubing material shall be high density polyethylene conforming to the minimum requirements of cell classification 445574E, as defined and described in ASTM D3350. The resin shall have a material designation code of PE4710 by the Plastic Pipe Institute. The PE water tubing shall be SDR 7, with a minimum pressure rating of 250 psi. Fittings for the PE water pipe shall be cast brass compression fittings, made to the PE water pipe dimension. All brass fittings shall have a 300 psi minimum pressure rating.

For the purpose of locating plastic water services during trenching, a continuous tracing wire shall be installed. The wire shall be a minimum 12 gauge, single strand, coated copper or copper clad steel wire that is suitable for underground use. The wire shall be buried along the water service lateral from the main to the meter box. The wire shall extend a minimum of 12 inches into the meter boxes.

COPPER WATER TUBING

Copper water tubing shall be installed in accordance with PWC standards. All services installed shall be one continuous run of pipe with no splices from the corporation stop to the meter.

Copper water tubing shall be Type K, soft copper manufactured in accordance with ASTM B88. The minimum pressure rating for the copper water pipe shall be 655 psi. Fittings for the copper

WATER MAIN REPLACEMENT FROM ROBESON STREET TO WINSLOW

water pipe shall be brass compression fittings, made to the copper water pipe dimensions. All brass fittings shall have a 300 psi minimum pressure rating.

TAPPING SLEEVES

Tapping sleeves shall be ductile iron mechanical joint or stainless steel and have a minimum working pressure of 150 psi for all tapping of mains up to and including 24-inch diameter with a branch less than or equal to 12-inches diameter. Branch diameter greater than 12-inches on a 16-inch diameter pipe and larger shall require full body ductile iron mechanical joint tapping sleeve.

Ductile iron mechanical joint tapping sleeves shall be as manufactured by Clow, M&H, Mueller, American, or an approved equal and shall be furnished with complete joint accessories. The mechanical joint sleeve shall be compatible with type and class of pipe being tapped. The outlet flange shall be class 125 per ANSI B16.1 compatible with approved tapping valves.

Stainless steel tapping sleeves shall be as manufactured by Romac, Smith-Blair, or approved equal, and shall be furnished with all accessories. The sleeve, lugs, bolts and nuts shall be 18-8 type 304 stainless steel, as provided by the manufacturer. The outlet flange shall be ductile iron or stainless steel. The gasket shall be a grid pattern design and shall provide full circumferential sealing around pipe to be tapped. The sleeve shall include a 3/4 NPT test plug. All welds shall be passivated. The outlet flange shall be class D per AWWA C-207-ANSI 150 lb. drilling compatible with approved tapping sleeves.

The tapping sleeve and valve shall be in accordance with PWC standard details.

All tapping sleeves shall be hydrostatically pressure tested prior to the tap being accomplished. **Use of air to complete the pressure test is not acceptable.** The tapping sleeve shall be tested to 150 psi. The PWC Project Coordinator shall witness and approve the testing.

WATER SERVICE SADDLES

All water service saddles for use on two (2) inch PVC shall be one (1) inch brass saddles as manufactured by Ford, McDonald, or Mueller.

Water service saddles for one (1) and two (2) inch taps on four (4), six (6), eight (8), 12-inch and larger size PVC and asbestos-cement (AC) and also four (4) inch and larger size iron pipe shall be ductile iron with stainless steel strap(s), bolts, nuts and washers. Ford Models FS 101, FS 202; Romac Models 101S, 202S; or Smith-Blair Model 315.317 shall be used. Stainless steel straps must be pre-formed at the factory to the specified outside diameters of the pipe.

Water service saddles with a two (2) inch outlet shall be double strap.

Water service saddles for pipe sizes 12-inch through 24-inch shall be double strap.

Water service saddles for pipe sizes exceeding 24-inches shall be as specified by the PWC Water Resources Engineering Department.

INSTALLATION

GENERAL

Pipe installation shall be in strict accordance with Specification Section 02222 – Excavation and Backfilling for Utility Systems and as outlined herein.

PIPE INSTALLATION

Pipe installation shall be in accordance with the manufacturer's instructions. All pipes and fittings shall be handled to prevent damage to the protective coatings and linings.

All dust, dirt, oil, tar, or other foreign matter shall be cleaned from the jointing surfaces, and shall be lubricated with lubricant recommended by the manufacturer.

All pipe shall be installed in accordance with the approved drawings and cut sheets, unless otherwise directed by PWC.

All dead ends on new mains shall have a two (2) inch blow-off assembly as indicated on the approved drawings. The blow-off assembly shall be in accordance with PWC standard details.

For pipe sizes up to 12-inches, mechanical equipment should not be utilized to assemble the pipe. For pipe sizes over 12-inches, mechanical equipment may be utilized, in accordance with the pipe manufacturer's instructions. Any damage resulting from the use of mechanical equipment shall be replaced as directed by PWC.

Adjustments in grade by exerting force on the barrel of the pipe with excavating equipment shall not be allowed. The Contractor shall verify line and grade after assembling each joint.

When pipe installation is not in progress, the open ends of the pipe shall be closed by a water tight plug or other means approved by the PWC Project Coordinator. If water is present, the plug shall remain in place until the water is lowered to a level that allows for proper installation. No pipe shall be laid in water or where in the PWC Project Engineer's and/or PWC Project Coordinator's opinion trench conditions are unsuitable. Every precaution shall be taken to prevent material from entering the pipe while it is being installed.

ALIGNMENT AND GRADE

The Contractor shall be responsible for installing the pipe and appurtenances to proper line and grade.

All ductile iron pipe and fittings shall be installed in accordance with ANSI/AWWA C-110/A21.10. All C-900 pipe shall be installed in accordance with ASTM D-2774. The amount of deflection in the PVC or ductile iron pipe shall not exceed the applicable AWWA standards and the manufacturer's recommendations. If the required deflection exceeds the specified limitations or as determined by the Public Works Commission, mechanical joint bends shall be utilized.

Pipe passing through walls of NCDOT bridges, retaining walls, and other concrete structures shall be factory restrained joint ductile iron and be installed in casings/sleeves in accordance with NCDOT specifications. Annular space between walls and sleeves shall be filled with an approved

cement mortar that meets NCDOT specifications. The annular space between the sleeve and the pipe shall be filled with an approved mastic.

Pipe passing through the walls of meter vaults, valve pits, and storm drainage structures shall be restrained joint ductile iron, as specified by PWC. Pipe shall be installed in a casing/sleeve if determined to be necessary. Annular space between walls and sleeves shall be filled with an approved cement mortar. Annular space between pipe and sleeves shall be filled with an approved mastic. Proposed conflict boxes with storm and water shall be reviewed by the PWC Water Resources Engineer and approved on a case by case basis.

All ductile iron pipe (regardless of diameter) within casings shall be factory restrained, in accordance with these specifications and the applicable PWC standard details. The use of mechanical restraints (i.e., mega-lugs, grip-rings, etc.) shall not be utilized on pipe within casings.

When pipe is field cut, the cut end shall be smooth and at right angles to the axis of the pipe. All sharp edges shall be removed. All field cut pipe shall be beveled. The beveled end of PVC pipe shall be removed, when installing into mechanical joint ductile iron fittings.

When connecting unlike (class, material, etc.) pipe, an approved PWC fitting shall be used. All pipe shall be installed in accordance with AWWA C-600 or C-605 as applicable, for buried lines and the manufacturer's recommendations. For mechanical joint pipe and fittings, all nuts shall be torqued to the manufacturer's recommendations.

Concrete thrust blocking shall be utilized on all PVC water mains. The concrete thrust blocking shall be in accordance with PWC standard details. When thrust blocking is to be utilized, backfilling shall not occur until the concrete has time to set. No hydrostatic pressure testing shall occur until the concrete thrust blocking has cured for a minimum of five (5) calendar days.

FIRE HYDRANTS

Fire hydrants shall be installed as shown on the approved drawings. Each fire hydrant shall be connected to the main with a six (6) inch branch line and shall have a minimum of 42-inches of cover. Fittings between the valve and fire hydrant may be utilized, with prior approval from PWC. The valve shall be located at the main unless otherwise approved by PWC. Hydrants shall be set plumb with pumper nozzle facing the roadway. The hydrant branch shall not be backfilled until inspected and approved by the PWC Project Coordinator. Fire hydrants shall be installed in accordance with PWC standard details.

HYDROSTATIC TESTS

All mains and laterals shall be subjected to a hydrostatic pressure test. Each valved section maybe tested individually.

The Contractor shall furnish all labor and material, including test pumps, taps, and corporations, necessary to complete the work. Any taps which are not to be utilized shall be killed out at the main. If any taps are to be used for irrigation laterals, they shall be installed in accordance with PWC standard details. A PWC Project Coordinator shall be present and observe all valve

operation by the Contractor. Under no circumstances shall a Contractor operate any PWC-owned valves unless it is an emergency.

The duration of the pressure test shall be at least one hour or longer, as directed by the PWC Project Coordinator. The hydrostatic pressure shall be 200 psi. The pipe to be tested shall be slowly filled with water and the specified test pressure shall be applied. Before applying the specified test pressure, all air shall be expelled from the pipe. If hydrants or blow offs are not located to properly expel the air, taps shall be made as approved by PWC.

Damaged or defective materials discovered as a result of the pressure test shall be removed and replaced with new material, and the test shall be repeated until the test results are satisfactory to the Public Works Commission.

All replacement, repair or retesting shall be accomplished by the Contractor at no additional cost to the Public Works Commission. All repairs shall be reviewed and approved by PWC prior to backfill. The use of couplings, fittings, sleeves, etc. shall be reviewed and approved by PWC prior to use. The main must successfully pass the hydrostatic test prior to sterilization.

STERILIZATION

Sterilization shall be in accordance with the requirements of NCDEQ, the North Carolina Rules Governing Public Water Supply, AWWA C651, and AWWA C655 (most recent editions). The Contractor shall furnish all chlorinating equipment, sterilization solution, materials, excavation, barricades, backfilling, and any taps and corporations necessary to complete the work. The Contractor shall fully cooperate with the PWC Project Coordinator, furnish any needed assistance, and schedule the testing.

Prior to performing the hydrostatic test, water mains, laterals, and appurtenances shall be flushed to remove air, sediment, contaminants, and/or foreign matter. After completion of a successful hydrostatic test, the water system shall be disinfected by the thorough dispersion of a chlorine solution. The chlorine level shall be between 50 parts per million (ppm) and 100 ppm throughout the water system. In no case shall the chlorine level exceed 300 ppm. If the chlorine level is over 300 ppm, the system shall be completely flushed and re-chlorinated. **In no case shall chlorine be introduced into the water system in a dry solid state.**

The chlorine solution shall remain in contact with the interior surfaces of the water system for a minimum period of 24 hours and shall result in not less than 10 ppm of chlorine throughout the system. Then the water system shall be flushed with water from the existing PWC water system until the chlorine solution is dispelled. The Contractor shall take all necessary measures to prevent downstream erosion caused by flushing the lines. All erosion/damages shall be repaired at no additional expense to the Public Works Commission. All environmental regulations governing the release and/or disposal of chlorinated testing water shall be met by the Contractor. AWWA C655 defines "highly chlorinated" water as water having more than four (4) ppm. Any water with a chlorine level greater than four (4) ppm shall be de-chlorinated by the Contractor prior to being released to the environment.

If any disruption to the disinfection process occurs, or if any repair procedure is necessary then the disinfection process shall start over.

After disinfection, the water supply shall not be accepted or placed into service until bacteriological tests results or representative water samples analyzed in the Public Works Commission's laboratory are found to be satisfactory. The disinfection shall be repeated until tests indicate the absence of pollution for at least two (2) full days. The PWC Project Coordinator shall be responsible for taking the sample(s) and transporting them to the PWC laboratory.

If the initial sample taken after disinfection and flushing does not indicate that the water main is sterilized, the Contractor shall, in conjunction with the PWC Project Coordinator, flush the lines. Once flushing is complete, another sample will be taken to the Public Works Commission's laboratory for analysis. Should this second sample also fail to indicate that the main is sterilized; the Contractor shall repeat the disinfection process. This process shall be repeated until the samples are satisfactory. The Contractor shall fully cooperate with the PWC Project Coordinator, furnish any needed assistance, and schedule the testing.

END OF SECTION

**DIVISION 2
SITE WORK
02662 – FIRE HYDRANT PAINTING**

GENERAL

The object of these specifications is to provide the material and workmanship necessary to produce a first class job.

The Contractor shall paint all exposed exterior fire hydrant surfaces. Minor items not specifically specified, but necessary for proper completion of the work, shall be painted as directed by the Owner.

Painting shall be done at such times the Contractor and Engineer may agree upon in order that a dust free and neat work may be obtained. All painting shall be done in strict accordance with the paint manufacturer's recommendations and shall be satisfactory to the Engineer. Protective covering shall be utilized, as necessary and extreme care taken for protection of adjacent areas, equipment, shrubbery, or other items while painting is in progress. After painting is complete, all spilled paint drops, or other defects shall be removed from surfaces and the entire area thoroughly cleaned up. The Contractor shall submit to the Engineer, upon completion of the painting, certification from the paint manufacturer indicating that the quantity of paint, purchased for each item, was sufficient to properly coat all surfaces.

PAINT

All paint materials shall be first quality and shall be delivered on the job in the original sealed containers bearing the manufacturer's name and trademark. Paint shall conform to the requirements of Federal Spec. TT-V-51 or Military Spec. MIL-C450 or equal. The prime coat from the ground line up shall conform to Federal Spec. TT-P-86 (Type IV), Federal Spec. TT-P-636 or equal.

Thinners: Where thinning is necessary, only the products of the manufacturer furnishing the paint, and for the particular purpose, shall be allowed and all such thinning shall be done strictly in accordance with the manufacturer's instructions as well as with the full knowledge and approval of the Engineer.

SURFACE PREPARATION

All surfaces to be painted shall be prepared in a workman-like manner with the objective of obtaining a smooth, clean and dry surface. All painted surfaces shall be prepared and finished in accordance with the following specifications and shall be approved by the Engineer.

Metal: All exposed surfaces of fire hydrant and other ferrous metal items generally are to be shop primed and shall have all rust, scale, dust, grease or other deleterious substances removed by sandblasting or pickling in accordance with SSPC-SP-6. Cleaned metal shall be immediately primed to prevent new rusting. All ferrous metal items, not shop primed, shall be field cleaned by wire brushing (if approved by the Engineer) or sandblasting and immediately primed. Non-ferrous metals shall be solvent cleaned just prior to the application of prime coat or pre-treatment. Equipment not shop finished to the Engineer's satisfaction shall also be painted.

Application: Paint shall be applied evenly. Where necessary to obtain a smooth finish, the surface shall be sanded after application of the prime coat. Paint shall be applied, for each coat, at the rate specified by the manufacturer. Any difficulties in film thickness shall be corrected by the application of additional coats until the recommended thickness is obtained. If material has thickened or must be diluted for application by a spray gun, the coating shall be built-up to the same film thickness achieved with un diluted material. Additional coats of paint shall not be applied nor shall units be returned to service until paints are thoroughly dry. Paint shall not be applied in rain or damp weather or when the temperature is lower than 50°F. Painting shall be suspended when relative humidity exceeds 85% or when air temperature will drop to below 40°F within 18 hours of application.

PAINTING SCHEDULE

Schedule of colors and coating requirements are as follows: Acceptable dry mil thickness will be 4-6 for each coat. Bonnet of hydrant shall be Acrylic Enamel, Dark Green paint or approved equal. Fire hydrant barrel, caps, chain and other exterior surfaces shall be Quick Drying Acrylic Enamel Yellow Paint or approved equal.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02680 - EPOXY LINING OF WATER MAINS**

SCOPE

The intent and purpose of these specifications is to require a complete and satisfactory rehabilitation of existing water mains utilizing an epoxy lining system. The Contractor shall furnish all necessary labor, materials, equipment, services, and incidentals necessary to rehabilitate the existing water mains using epoxy lining. Any defects in material or installation shall be cause for the replacement and correction of such defect as directed by the PWC Project Engineer at no expense to the Public Works Commission.

RELATED SECTIONS

- A. Section 02222 – Excavation, Trenching, and Backfill for Utility Systems
- B. Section 02272 – Erosion Control - General Provisions
- C. Section 02660 – Water Distribution
- D. Section 02760 – Television Inspection

QUALITY ASSURANCE

The Contractor is solely responsible for quality assurance during the length of the project. The Contractor shall be responsible for any costs associated with corrective measures required to replace or repair items not meeting the quality standards specified by the Public Works Commission.

WARRANTY

The Contractor shall warrant to the Public Works Commission that the equipment used on this Contract where covered by patents or license agreements is furnished in accordance with such agreements and that the prices included herein cover all applicable royalties and fees in accordance with such license agreements. The Contractor shall defend, indemnify and hold the Public Works Commission harmless from and against any and all costs, loss, damage or expense arising out of or in any way connected with any claim of infringement of patent, trademark or violation of license agreement.

MATERIALS

EPOXY RESIN LINING

The epoxy resin and hardener shall be certified by The National Sanitation Foundation (NSF) International - Standard 61. When properly applied, it shall produce a smooth finished lining with a minimum of 40 mils dry film thickness (DFT) after 16 hours cure time. The epoxy lining shall be approved for use in potable water mains 1-inch and larger in diameter. The epoxy lining shall be a two component, solvent free, moisture tolerant, VOC, and benzyl alcohol free system.

The epoxy lining system shall be packaged in clearly distinguishable colors, which when uniformly mixed, give a distinctive third color to provide a visual check of proper mixing. The epoxy lining system shall be supplied in clearly marked containers. Each container shall be marked with a

batch number, date of manufacture, shelf life information, mix ratio and instructions for storage and safe handling.

The epoxy lining system shall be GEOPOX GX014 as manufactured by the Mercol Products LTD, Copon Hycote 162PWX by E. Wood Ltd., Hunting Waterline Epoxy 8100 by Hunting Industrial Coatings, or an approved equal.

All manufacturers of epoxy lining must be ISO 9001 or 9002 certified for the design, production, installation and service of epoxy lining for a potable water distribution system, and will be required to furnish evidence of such certification.

EQUIPMENT

The lining equipment shall be certified by the epoxy manufacturer and shall be manufactured in accordance with the latest revision of the WRc Manual – In Situ Epoxy Resin Lining - Operational Requirements and Code of Practice. The equipment shall be suitable for storing, heating, mixing and applying the epoxy material in accordance with the epoxy manufacturer's requirements. All key components on the lining application equipment shall be calibrated in accordance with the equipment manufacturer's instructions and requirements.

Each lining rig shall have facilities to store the epoxy resin and hardener separately and to heat both according to the manufacturer's instructions. The lining rig shall provide devices to recirculate the components in the reservoirs and through the lining hoses prior to lining.

The lining rig shall use suitable positive displacement pumps capable of dispensing the two components separately at the correct mix ratio. The rig shall be fitted with facilities for monitoring and recording the flow rates of both materials and the mix ratio, and provide a hard copy printout of this information. The output of the pumps shall be linked to the winch speed control to ensure that the correct thickness of lining is applied to each pipe diameter.

INSTALLATION

GENERAL

All work under this Contract shall be performed by skilled workmen experienced in similar installations, with the best current accepted practices of the building trades, and to all applicable codes.

The Contractor shall carry out their operations in strict accordance with all applicable OSHA, local and state safety standards. Though the installation process may be licensed or proprietary in nature, the Contractor shall not change any material, thickness, design values or procedural matters stated in the submittals, without the prior knowledge and written approval of the Public Works Commission. The Contractor shall submit, in writing, full details about component materials, their properties and installation procedures and abide by them fully during the entire course of work.

PIPE CLEANING

The Contractor shall clean the water mains by either the drag scrape or power bore method. The cleaning device shall be designed for the size of pipe to be cleaned. The Contractor shall furnish all the necessary tools, equipment, materials, back flow prevention devices and other appurtenances to readily complete this operation, including all dewatering of the water mains, which may not completely drain.

The Contractor shall ensure that rollers are fitted on the pipe to prevent possible damage to the pipe crown by the winch cables during drag cleaning operations.

Should drag scraping be utilized as the cleaning method, a foam swab shall be 'washed' through the cleaned pipe prior to drying and CCTV inspection. The foam swab shall be propelled through the entire length of the cleaned pipe with the use of water or compressed air.

The Contractor is required to dispose of any cleaning water and solid residue resulting from the cleaning operations in accordance with the applicable regulations and ordinances. The Contractor shall be responsible for obtaining the required approvals and permits for the disposal of the waste materials. Cleaning water shall not be discharged into storm drains, the sanitary sewer system, or onto the ground surface. The Contractor shall minimize to the view of the public, the materials removed in the cleaning operations including the flushing water.

The inside of the pipe and fittings shall be thoroughly cleaned and flushed of all material to as smooth and clean a surface as possible. All cleaned pipe and fittings shall meet the latest revision of AWWA Standard C602. Any sections of the pipe and fittings, which do not meet the above AWWA Standard, shall be re-cleaned.

The Contractor shall complete a CCTV inspection at the completion of the cleaning, prior to lining. The CCTV inspections shall be used by the Contractor to verify the degree of cleanliness of all pipe and fittings. The Contractor shall keep the Project Coordinator informed of when CCTV inspection is forthcoming so the Project Coordinator can be present. No epoxy lining shall be placed until the interior surface is inspected and found to be clean and dry. Any unknown fittings discovered during the television inspection shall be removed prior to lining the pipe and will be paid for with the "Remove Obstruction in Existing Pipe" Pay Item. The Contractor shall provide the video and output report to the Public Works Commission monthly with pay estimate. The video format and storage media shall be as approved by the Public Works Commission.

No payment will be made until all videos have been submitted and reviewed by the Public Works Commission.

Any section of the water main, such as near gate valves, short radius bends, ends of sections, and other areas that are inaccessible for machine cleaning shall be cleaned by hand. The degree of cleanliness for handwork shall be the same or better than results obtained from machine work. Rust, tubercles, deposits, old bituminous lining, etc., shall be completely removed by machine or hand in order to expose a clean surface for correct lining operations.

PIPE LINING

The Lining Supervisor and Lining Rig Operator shall be fully trained in the operation and understanding of the entire Epoxy Resin Lining application process, and shall be certified by an Approved Certifying Body.

The Contractor shall conduct pre-lining checks on the lining equipment and epoxy in accordance with the manufacturer's recommendations. Included shall be verification of pump output, mix ratio, and material temperatures. This information and all pertinent site information shall be recorded on a lining sheet form. **A separate Epoxy Record Lining form shall be completed for each separate lining run and turned over to the Public Works Commission upon completion of the lining.**

Prior to inserting the delivery hoses into the main, the epoxy components shall be pumped and re-circulated until the uniform operating temperature, specified by the epoxy manufacturer has been reached. The pumping is then discontinued, the hoses immediately pulled through the pipe, and the lining operation begun without delay.

Once the hoses are inserted, the approved static mixer and application head are connected and checked for proper operations. The correct mixing of the two-epoxy components shall be visually checked by test spraying the mixed epoxy into a container outside the pipeline and the observed epoxy color recorded on the lining record sheet.

Application of the epoxy lining may begin when the Lining Rig operator is satisfied that the material flows are established and the epoxy lining color is consistent. The minimum lining thickness of 40 mils (DFT) shall be achieved in a single application. Any lined pipes shown to have a thickness of less than 40 mils at any point on the Record Lining Sheet shall be re-lined. Epoxy lining shall not be placed when the pipe temperature is below 38 degrees Fahrenheit.

The Contractor shall dispose of all excess epoxy and cleaning agents in accordance with all applicable Local, State, and Federal rules and regulations.

CURING

Immediately after the epoxy lining has been applied, the ends of the main shall be capped in order to prevent contamination and/or water from entering the pipe. Cure time shall be in accordance with the epoxy manufacturer's specifications.

LINING FAULTS

The latest edition of the WRc Manual – In Situ Epoxy Lining - Operational Requirements and Code of Practice will govern regarding acceptable and unacceptable lining faults and suggested methods of correction. All repairs shall be reviewed and approved by the Public Works Commission, prior to the Contractor commencing the repairs.

RESTORATION

All backfill shall be in accordance with Specification Section 02222 – Excavation, Trenching, and Backfilling for Utility Systems, and the requirements outlined in these Contract Documents. All trenches and excavations shall be compacted in accordance with these Contract Documents.

Prior to backfilling lateral and access pits, the Contractor shall ensure that the new pipe and service laterals are properly supported and on the correct line and grade. Stone or other suitable material, as approved by the Public Works Commission, shall be utilized under the new pipe to provide support and prevent sagging after backfill and compaction.

All work areas and rights-of-way shall be cleaned up, properly graded and vegetated, free of debris, and left in condition satisfactory to the Public Works Commission.

LINING INSPECTION

The Contractor shall provide the PWC Project Coordinator the opportunity to visually inspect and measure the lining thickness of both ends of each lining run. The Contractor shall complete a post-installation CCTV inspection for the Public Works Commission to determine the acceptability of the installation. The CCTV inspection shall be completed prior to placing the main into service. The Contractor shall video and record the lined pipe after the curing time period using a CCTV color camera with self-contained lighting, and remote focus. Lighting for the camera shall be suitable to allow a clear picture for the entire periphery of the pipe. The speed of the camera through the main shall be at a rate that ensures the entire pipe bore can be properly inspected. The camera shall be a color pan and tilt and the picture quality and definition shall be to the satisfaction of the PWC Project Engineer.

Videos shall be standard digital video file format and shall become property of Public Works Commission upon completion of project. All videos shall be properly labeled on outside with the project name, contractor's name, date, street name and block numbers or addresses. The onscreen display shall show date cleaned and lined, date CCTV inspected, street, block numbers or addresses, pipe diameter and material, and shall show the distance traveled. The counter shall be set to zero at the beginning of each run. All required information shall be entered on the Epoxy Resin Lining sheet. A CCTV Inspection Record for each run shall be completed and submitted to the Public Works Commission.

The purpose of recording the television inspection is to supply a visual aid and audio record of the inspection that may be re-played by the Public Works Commission. Video recording playback shall be at the same speed that it was recorded. All video recordings shall be in color and shall be made in digital video file format.

Upon completion of the lining, the Contractor shall seal the ends of the lined main in order to eliminate water from entering the lined main. Any water that enters the lined main shall be removed prior to conducting the post-rehabilitation television inspection.

EQUIPMENT

The television camera used for the inspection shall be one specifically designed and constructed for such inspection. Lighting for the camera shall be suitable to allow a clear picture for the entire periphery of the pipe. The camera shall be operative in 100 percent humidity conditions. The camera, television monitor, and other components of the video system shall be capable of producing a minimum 500-line resolution video picture. Picture quality and definition shall be to the satisfaction of the Public Works Commission, and if unsatisfactory, inspection shall be performed again with the appropriate changes made as designated by the Public Works Commission, at no additional cost. The television inspection equipment shall have an accurate footage counter that shall display on the monitor, the exact distance of the camera from the centerline of the starting access pit.

PROCEDURE

The camera shall be moved through the line in either direction at a uniform rate, stopping when necessary to ensure proper documentation of the water main's condition, but in no case will the television camera be pulled at a speed greater than 30 feet per minute. Manual winches, power winches, TV cable, and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the conditions shall be used to move the camera through the water main. If during the inspection operation, the television camera will not pass through the entire water main section, the equipment shall be removed and repositioned in a manner so that the inspection can be performed from the opposite access pit. All set-up costs for the inspection shall be included in the unit prices bid. If, again, the camera fails to pass through the entire section, the Contractor shall remove any obstructions or re-clean the main. Re-cleaning shall be done at no additional cost to the Public Works Commission.

Whenever non-remote powered and controlled winches are used to pull the television camera through the line, telephones, radios, or other suitable means of communication shall be set up between the two access pits of the water main being inspected to ensure that good communications exist between members of the crew.

The camera height shall be adjusted such that the camera lens is always centered (at one-half the ID) in the pipe being inspected.

RECORD OF VIDEO AND LOGS

Prior to returning any main to service, the Contractor shall allow the Project Coordinator sufficient opportunity to examine the relevant documentation of all lining runs, to ensure compliance with the Operational Requirements and Code of Practice Manual. The Contractor and Project Coordinator shall sign off on all approved documentation. Copies of all documentation shall be submitted on a monthly basis as part of the Contractor's pay request. Pay requests will not be processed until all documentation for the area being billed is submitted.

The following completed sheets shall be provided for every lining run:

- Epoxy Resin Lining Record, to include a copy of the rig printout and dip cards.
- CCTV Inspection Record, to include video recordings

The following sheets shall be provided when circumstances dictate:

- Non-Conformance Record – to report any defects experienced during lining
- Pipe Sample Quality Record – for each pipe sample exhumed
- Spin-Up Determination Record

A copy of each record sheet is located in the Appendix of these Contract Documents. The Contractor shall copy and use these sheets for submittals. No variation of these record sheets shall be utilized, unless specifically approved in writing by the Public Works Commission.

A. Television Inspection Logs

Printed location records shall be kept which shall clearly show the location, in relation to adjacent access pits, of service connections, tees, hydrant branches, and other items of significance. Additionally, unusual conditions, offset joints, cracked or collapsed sections,

water main sections that the camera failed to pass through and reasons for the failure and other discernible features shall be recorded and a copy of such records shall be furnished to the Public Works Commission.

B. Video Recordings

The purpose of recording the inspection is to supply a visual aid and audio record of problem areas of the lines that may be re-played by the Public Works Commission. Video recording playback shall be at the same speed that it was recorded. All video recordings shall be in color. Initial pre and post video recordings shall be supplied in a standard digital video file format (i.e., mp4, mpg, or AVI) and supplied on standard portable digital media (i.e., USB flash drive, USB hard disk drive, DVD) as approved the Public Works Commission.

The Contractor shall furnish the video and logs of the pre and post video inspections to the Public Works Commission at each of the progress meetings. The Contractor shall pre-screen the videos and note any areas of concern, including, but not limited to: potential point repairs, offset joints, and obstructions that may pose problems with the lining process. The Contractor shall provide the Public Works Commission with a minimum of two weeks' notice for any potential repairs that are necessary to proceed with the work.

At the completion of each task order, the Contractor shall provide the Public Works Commission with digital videos and logs containing the pre and post tapes for all work completed during that task order. Each digital media device shall be labeled as to its contents. Labels shall include the disc number, date televised, water main segment reach designation, and street location on the disc. The digital media device shall be provided to the Public Works Commission within 30 days of completing the work authorized in the task order.

TESTING

All testing shall be in accordance with the applicable Specification Section governing water and/or sewer. All testing shall be satisfactorily completed prior to placing the system into service. All mains and laterals, to include fire hydrants, shall be tested.

Unless otherwise required by the Public Works Commission, lined water mains are not required to be hydrostatically tested. All lined water mains shall be chlorinated and disinfected, in accordance with PWC requirements.

ACCEPTANCE

Acceptance of the installed mains and laterals shall be based on conformance with the requirements herein, the Public Works Commission's review of all required construction submittals (as-builts, logs, CCTV inspection, etc.) and results of all testing.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02730 - SANITARY SEWER SYSTEMS**

GENERAL

Sanitary sewer lines and all appurtenant items shall be constructed of materials specified or indicated on the drawings. The intent and purpose of these specifications is to require a complete and satisfactory installation in every respect and any defect in material or workmanship shall be cause for the replacement and correction of such defect as directed by the Public Works Commission.

RELATED SECTIONS

- A. 02211 – Grading, Utilities
- B. 02222 – Excavation and Backfilling for Utility Systems
- C. 02732 – Sewage Force Mains

MATERIALS

SEWER MAINS

Prior to shipment each joint of pipe shall be stamped by an independent testing laboratory, certifying compliance with the specifications stated therein. Pipe sizes indicated shall be understood to be nominal inside diameter of the pipe. All sewer pipe materials shall be either PVC (as specified herein) or ductile iron (as specified herein), unless otherwise approved in writing by the Public Works Commission. Written approval shall be obtained prior to installation.

DUCTILE IRON PIPE

The raw material from all ductile iron pipe and fittings shall have an average minimum content consisting of 90% recycled iron and steel. Ductile iron pipe and fittings shall be manufactured in the United States of America in accordance with ANSI/AWWA A21.51/C151. The manufacturer of the ductile iron pipe shall be a member of the Ductile Iron Pipe Research Association (DIPRA).

All ductile iron pipe and fittings shall be in strict accordance with ANSI A21.51 and AWWA C151, Class 50 or Class 51, as applicable, in every respect. The working pressure shall be a minimum of 200 psi. Pipe shall be furnished in 18 or 20-foot lengths. All pipe joints used in open trench construction shall be furnished with "push-on" joints, unless otherwise indicated on the drawings or specified. All joints and fittings shall be in accordance with ANSI A21.11 and AWWA C111. All ductile iron interior surfaces shall be lined with two (2) coats of ceramic epoxy to produce a total minimum dry film thickness of 40 mils (Protecto401 or approved equal). The exterior pipe surfaces shall be protected with asphaltic coating as specified in AWWA C151 and C110. Specifications for the ceramic epoxy can be found in Specification Section 09802.

For aerial crossings which are 4 inches through 12 inches in diameter, manufactured restrained joint ductile iron pipe Class 53, or Class 53 flanged ductile iron pipe shall be utilized in accordance with the standard Public Works Commission detail for aerial crossings. Mega-lugs, field-lok, and gripper rings are not an allowable means of restraint for aerial crossings. For aerial crossings larger than 12 inches, or as noted specifically on the plans, flange joint ductile iron pipe, Class

53, shall be utilized in accordance with the standard Public Works Commission details. The location of flanges shall be specifically designed for each application. The flange pipe shall be in accordance with ANSI/AWWA C-115/A21.15. Threads for threaded flange pipe shall be in accordance with ANSI B2.1, shop fabricated as outlined by AWWA 115 with serrated faces furnished on the pipe, completely factory installed. Welding of flanges to the body of the pipe will not be acceptable. Ductile iron fittings and flanges shall be in accordance with ANSI/AWWA C-110/A21.10 with a minimum working pressure of 250 psi. Gaskets shall be full faced SBR rubber per ANSI/AWWA C-111/A21.11 with a minimum 1/8" thickness. Linings and coatings shall be as outlined for ductile iron pipe.

If the Public Works Commission determines that an expansion coupling is required, it shall be installed as indicated on the drawings. The expansion coupling shall not be buried.

For subsurface water crossings (i.e., streams, wetlands), restrained joint ductile iron pipe shall be utilized. No mechanical restraint systems (e.g., mega-lugs, field-lok gaskets, etc.) shall be utilized. The pipe shall be installed in a casing, in accordance with the approved Public Works Commission detail, unless otherwise specifically approved by the Public Works Commission.

PVC PIPE

PVC sewer pipe and fittings 4 inches thru 15 inches shall be in accordance with ASTM D-3034 with a standard dimension ratio (SDR) of 26 for sewer mains and laterals. Larger diameter pipe (18 inches through 27 inches) shall be in accordance with ASTM F-679, with a SDR of 26. Both pipe and fittings shall be made of PVC plastic having a cell classification of 12454 as specified in ASTM D-1784.

Pipe joining shall be push on elastomeric gasket joints only and the joints shall be manufactured and assembled in accordance with ASTM D-3212. Elastomeric seals shall meet the requirements of ASTM F-477. The pipe shall be furnished with integral bells and with gaskets that are permanently installed at the factory and in accordance with ASTM D-3212 and contain a steel reinforcing ring. PVC sewer pipe shall be made by continuous extrusion of prime green unplasticized PVC and contain identification markings as required by the applicable ASTM standard.

SEWER FITTINGS

Ductile Iron Push-on Fittings:

Ductile iron sewer fittings on PVC mains shall be deep bell, gasketed joint, and air test rated. Gasket grooves shall be machined in the factory. Material shall be ductile iron, in accordance with ASTM A536, Grade 65-45-12 and ASTM F1336. Wall thickness shall meet the requirements of AWWA C153. Gaskets shall have a minimum cross sectional area of 0.20 square inches, and conform to ASTM F477. All ductile iron fittings shall have an interior coating of Protecto 401, or approved equal. All ductile iron fittings on PVC pipe shall provide a flow line that provides a smooth transition between the materials. Ductile iron fittings shall be as manufactured by the Harrington Corporation (Harco), or approved equal.

Mechanical Joint Fittings:

Joints shall be installed in accordance with AWWA C-600 and shall conform to AWWA Standard C-111. Mechanical joints shall be of the stuffing box type and shall conform to ANSI A21.11 for four inch (4") pipe and larger. Fittings and specials shall be ductile iron and shall be manufactured in accordance with AWWA Standard C-110 (ANSI A21.11). Compact fittings shall be ductile iron in accordance with ANSI A 21.53 (AWWA C-153) for 4" thru 24" sizes only. Note: mechanical joint wyes are not included in the AWWA C-153 specification. Pressure rating shall be not less than 200 psi unless otherwise specified. All ductile iron fittings shall have an interior coating of Protecto 401, or approved equal. Mechanical joint fittings shall be utilized on ductile iron mains and ductile iron laterals. Mechanical joint fittings shall not be utilized on PVC mains, unless otherwise approved by the Public Works Commission.

PVC Fittings:

PVC fittings shall be manufactured in accordance with ASTM D-3034, F-1336, and F-679. Molded fittings shall be utilized in sizes from 4" to 8" (or larger, if available). Fabricated fittings shall only be utilized with prior approval from the Public Works Commission. Fabricated fittings are defined as those fittings that are made from pipe or a combination of pipe and molded components. All PVC fittings shall contain identification markings as required by the applicable ASTM standard. All PVC fittings shall be gasketed joint, except as indicated for interior drop structures. Plastic fittings shall be as manufactured by GPK Products, Inc., Plasti-Trends, the Harrington Corporation (Harco), or approved equal.

Ductile Iron Pipe Size x SDR26 Transition Adapter:

All ductile iron x PVC transition adapters shall be one (1) piece, bell x bell (gasket x gasket). Transition adapters shall range in size from four (4) inches through 12 inches. Transition adapters for pipe larger than 12-inches shall be as specified by the Public Works Commission. All transition adapters shall have a flow way tapered to allow a smooth transition between the ductile iron and PVC. Transition adapters shall be either PVC or ductile iron, in accordance with the following:

PVC – All PVC transition fittings shall be made from DR 18 C900 pipe stock. The C900 pipe stock shall meet the requirements of AWWA C900/C905, and have a minimum cell classification of 12454 as defined in ASTM D1784. The wall thickness shall meet or exceed DR 18. PVC transition fittings shall have SBR gaskets in accordance with ASTM F477. All six (6) inch and eight (8) inch adapters shall be molded. Molded fitting joints shall be 235 psi rated, in accordance with ASTM D3139, and shall have SBR rubber gaskets. Four (4) inch, ten (10) inch and 12 inch transition adapters shall have SBR Rieber style gaskets meeting ASTM F477. Joints shall be 235 psi rated, in accordance with ASTM D3139 for the C900 (ductile iron) bell, and in accordance with ASTM D3212 for the sewer (SRD26) bell. Molded C900 bell depths shall comply with AWWA C907. Fabricated (4-inch, 10-inch and 12-inch) bell depths and molded sewer (SDR26) bell depths shall be in accordance with ASTM F1336. PVC transition adapters shall be manufactured by the Harrington Corporation (Harco), GPK Products, or approved equal.

Ductile iron – Ductile iron transition fittings shall be deep bell, push-on joint, and air test rated. The ductile iron material shall comply with ASTM A536, Grade 65-45-12 or 80-55-06. The bell depth shall be in accordance with ASTM F1336. Gaskets shall be of SBR rubber, in accordance with ASTM F477. Transition gaskets are not allowed. All ductile iron transition fittings shall have

an interior coating of Protecto401 or approved equal. Ductile iron transition fittings shall be manufactured by the Harrington Corporation (Harco) or approved equal.

Saddles:

Sewer service saddles may be utilized for sewer lateral installations. All sewer service saddles shall be ductile iron with stainless steel straps, bolts, nuts, and washers. The nuts shall be coated to prevent galling. The saddle body shall be ductile iron, in accordance with ASTM A536, Grade 65-45-12. The gasket material shall be SBR, in accordance with ASTM D2000. Saddles for PVC or DI laterals shall have an alignment flange. Sewer service saddles shall be as manufactured by Geneco, or approved equal. All stainless steel straps shall be pre-formed at the factory, to the specified outside diameters of the pipe.

SEWER LATERALS

Ductile iron laterals – For ductile iron mains, utilize mechanical joint fittings or an approved saddle with an alignment flange (Geneco or approved equal). For PVC mains, utilize an approved saddle with an alignment flange (Geneco or approved equal) or ductile iron fittings as specified above.

PVC laterals – utilize a saddle with an alignment flange (Geneco or approved equal) on PVC or ductile iron mains; utilize a mechanical joint tee with SDR 35 transition gaskets on ductile iron mains; or utilize PVC fittings as specified above on PVC mains.

The following table summarizes the materials to be utilized for sewer main to lateral connections:

	PVC Main	DI Main
DI Lateral	DI fitting or approved saddle	MJ fitting or approved saddle
PVC Lateral	PVC fitting or approved saddle	MJ fitting with transition gasket or approved saddle

Sewer laterals shall be in accordance with these Specifications and PWC standard details S.10, S.11, and S.12.

PRECAST CONCRETE MANHOLES

Pre-cast circular reinforced concrete manhole units shall be in accordance with ASTM C-478. The tongue and groove ends of the manhole sections shall be manufactured for jointing with rubber gaskets (i.e., con-seal). An eccentric cone shall be utilized on all manholes, unless otherwise approved by the Public Works Commission.

Manhole steps shall be placed in all manholes and shall be steel reinforced (½" grade 60) copolymer polypropylene plastic steps in accordance with ASTM C-478 for material and design. The steps shall be spaced 16" on center with serrated treads and wide enough to stand on with both feet.

Manhole frames and covers shall be made of gray cast-iron, and the iron shall possess a tensile strength of not less than 18,000 psi. Cast iron shall conform to ASTM Specification A 48-83 Class 35. The frame and cover shall be manufactured by the same manufacturer. All castings shall be

in accordance with Public Works Commission standard details. Any defective castings shall be removed and replaced.

Any special linings and coatings that are specified for a manhole and installed at the production facility, in the field, or during repairs, shall be applied in accordance with the applicable special coatings specification and the manufacturer's specifications for that material.

Camlock ring and covers shall be in accordance with Public Works Commission standard details. Camlock bolt head shall be compatible with PWC standard tool for turning camlock mechanism. Camlock ring and covers shall be installed as indicated on the drawings, in accordance with PWC standard details.

SELECT BEDDING MATERIAL

Select bedding material shall be crushed stone (No. 57 or No. 5), in accordance with Public Works Commission standard details. Bedding material shall be provided for all pipe materials.

INSTALLATION

Pipe installation shall be in strict accordance with Specification Section 02222 – Excavation and Backfilling for Utility Systems and as outlined herein.

PIPE LAYING

Pipe installation shall be in accordance with the manufacturer's instructions. Proper equipment shall be utilized to perform the work in a manner satisfactory to PWC. All pipes and fittings shall be carefully lowered into the trench in such a manner to prevent damage to the protective coatings and linings. Under no circumstances shall pipe materials be dropped or dumped into the trench. Pipe shall be carried into position and not dragged.

All dust, dirt, oil, tar (other than standard coating), or other foreign matter shall be cleaned from the jointing surfaces, and the gasket, bell, and spigot shall be lubricated with lubricant recommended by the manufacturer.

The pipe shall be laid upgrade, beginning at the lower end with the tongue or spigot ends pointing in the direction of the flow to the correct line and grade, unless otherwise approved by PWC. The pipe section to be installed shall be aligned by batter board or laser beam with the last installed pipe section. Mechanical equipment should not be used to assemble the pipe. Pipe shall be assembled in accordance with the pipe manufacturer's instructions. Any damage resulting from the use of mechanical equipment shall be replaced as directed by PWC.

Adjustments in grade by exerting force on the barrel of the pipe with excavating equipment shall not be allowed. The Contractor shall verify line and grade after assembling each joint.

At any time when pipe laying is not in progress, the open ends of the pipe shall be closed by a water tight plug or other means approved by the PWC Project Coordinator. If water is in the trench, the plug shall remain in place until the trench is pumped completely dry. No pipe shall be laid in water or where in the PWC Project Engineer's and/or PWC Project Coordinator's opinion trench conditions are unsuitable. Every precaution shall be taken to prevent material from entering the pipe while it is being installed.

ALIGNMENT AND GRADE

All pipe shall be installed to the required lines and grades. Structures shall be installed at the required locations. The lines and grades of the pipe will generally be indicated by stakes parallel to the line of the pipe. The Contractor shall be responsible for installing the pipe to proper line and grade.

Pipe shall be visually inspected by shining a light between structures and /or by closed circuit television inspection. Any defects discovered, including poor alignment, shall be corrected as directed by the Public Works Commission.

The bottom of the trench shall be excavated to a minimum of four inches (4") below the outside bottom of the pipe being installed to allow adequate placement and compaction of bedding material prior to installation.

Select bedding material shall be placed a minimum of four inches (4") and a maximum of six inches (6") under the pipe for full width of the trench and halfway up the pipe on the sides. Bedding material shall be placed in layers not exceeding six inches (6") loose thickness for compacting by vibratory mechanical tamps under the haunches and concurrently on each side of the pipe for the full width of the trench. The final result shall be "Class B" bedding for rigid pipe. If the existing material under the pipe bedding material is unsuitable, the unsuitable material shall be removed and replaced with select bedding material (No. 57 or No. 5 stone), as authorized and approved by the Public Works Commission Project Coordinator.

The same material pipe shall be utilized from manhole to manhole, unless otherwise approved by PWC. If the section of pipe between manholes is 250 feet or less, no transitions will be allowed (either all PVC or all ductile iron). Should the length between manholes exceed 250 feet, only one transition will be allowed. Use of a C900 x SDR 26 adaptor shall be used to accomplish the transition. A transition is defined as the use of one C900 x SDR26 adaptor. No more than one (1) adaptor shall be utilized in any given manhole to manhole segment.

All manholes shall be constructed to Public Works Commission's standards. Installation shall be in accordance with ASTM C-891 and PWC standards.

Manholes shall be constructed of precast reinforced concrete circular sections installed on a base riser section with integral floor and shall be cored to accommodate the various pipe connections, as indicated on the drawings. Pipe connections to a manhole shall be by gasketed flexible watertight connections (boot for small diameter and A Loc for larger diameter pipe) or as approved by the Public Works Commission. The manhole size shall be in accordance with the following table, unless otherwise specified:

<u>Pipe Size</u>	<u>Manhole Diameter</u> **
24" and less	48" *
27" - 36"	60"
42"	72"

* Where interior drop structures are required, use 60" diameter as required in the Public Works Commission standard details.

** Where multiple connections or acute angles are required, larger diameter manhole may be required as indicated on the plans.

The invert channel shall be constructed of brick and mortar, in accordance with Public Works Commission standard details. **Precast inverts are not allowed.** The invert channel shall be smooth and semicircular in shape conforming to the inside of the connecting sewer section. Changes in direction of flow shall be made with a smooth curve as large as a radius as the size of the manhole will permit without a decrease in flow velocity. Changes in size and grade of the channel shall be made gradually and evenly. The invert channel walls shall be constructed to three quarters (3/4) of the height of the crown of the outlet sewer and in such a manner not to obstruct maintenance, inspection or flow in the sewers. The inverts shall have a minimum slope of one (1) percent across the bottom of the manhole. A shelf shall be provided on each side of any manhole invert channel. Inverts in manholes with standing water will not be acceptable. The shelf shall be sloped not less than 1:12 (min) and no more than 2:12 (max). The bottom of the boot for the new sewer main or lateral shall be set one inch above existing shelf unless otherwise indicated.

When used in a paved street, the ring and cover shall be set in suitable mortar surrounded by a concrete collar in accordance with Public Works Commission standard details. When used in places other than in a paved street, the ring and cover shall be set to the grade shown on the plans or directed by the Public Works Commission. In unpaved areas cam-lock ring and cover shall be used. Camlock ring and cover shall be installed in accordance with Public Works Commission standard details.

The interior manhole riser joints, lift holes and grade adjustment rings shall be sealed with non-shrinking mortar to provide a watertight manhole. Lift holes sealed by the manufacturer with plastic caps do not require mortar seal. The hardened mortar shall be smooth to rub with no sharp edges. Use of grade rings with cam-lock ring and cover are not allowed, unless approved by the PWC Project Coordinator. **Use of grade rings is not allowed for above grade adjustments.**

All exterior manhole riser joints, including the joint at the cone, shall be sealed with an external rubber sleeve. The sleeve shall be made of stretchable, self-shrinking rubber, with a minimum thickness of 30 mils. The back side of each wrap shall be coated with a cross-linked reinforced butyl adhesive. The butyl adhesive shall be a non-hardening sealant, with a minimum thickness of 30 mils. The seal shall be designed to stretch around the manhole joint and then overlap to create a fused bond between the rubber and butyl adhesive. The application shall form a continuous rubber seal for the life of the application. The sealing system shall be as manufactured by Concrete Sealants, Inc. (Con-Seal), Sealing Systems, Inc., or approved equal. The wrap shall be a minimum of six (6) inches in width, and shall be centered on the joint. All manhole joints (including the cone section to the last riser) shall be wrapped and sealed. Care shall be taken to prevent damage to the wrap during backfill operations. The manhole surface shall be prepared in accordance with manufacturer's specifications, prior to installing the joint wrap.

Materials shall not enter the sewer line during construction of the manhole. The manhole shall be kept clean of any and all debris or materials. Any debris or material that entered the manhole shall be immediately removed. This condition shall be maintained until final acceptance of the work.

CONNECTION TO EXISTING MANHOLES OR LIFT STATIONS

All connections to existing manholes and/or lift stations shall be approved by the Public Works Commission. Where new mains are to be connected to existing active sanitary sewers, the active sewers shall remain in service. Unless otherwise indicated, where new lines are connected into existing manholes, all or such portion of the manhole invert as is necessary shall be removed and a new invert shall be constructed to accommodate both new and existing flows. All work shall conform to the requirements specified for new manholes. The existing structure connection shall be cored and a flexible watertight connection (i.e., boot) installed. The boot shall be installed in accordance with Public Works Commission standard details and requirements. The Contractor shall coordinate and cooperate with the Public Works Commission's Project Coordinator.

PIPE TO MANHOLE CONNECTOR (BOOT)

A watertight, flexible pipe-to-manhole connector shall be utilized on all pipe to manhole connections, for both new and existing manholes and pipes, unless otherwise specifically authorized in writing by the Public Works Commission.

The connector assembly shall be the sole element to provide a watertight seal of the pipe to the manhole or other structure. The connector shall consist of a rubber gasket, an internal compression sleeve, and one or more external take-up clamps. The connector shall consist of natural or synthetic rubber and Series 300 non-magnetic stainless steel. No plastic components shall be allowed.

The rubber gasket shall be constructed of synthetic or natural rubber, and shall meet or exceed the requirements of ASTM C-923. The connector shall have a minimum tensile strength of 1,600 psi. The minimum cross-sectional thickness shall be 0.275 inches.

The internal expansion sleeve shall be comprised of Series 300 non-magnetic stainless steel. No welds shall be utilized in its construction.

Installation of the connector shall be performed utilizing a calibrated installation tool furnished by the connector manufacturer. Installation shall require no re-tightening after the initial installation. Installation shall be done in accordance with the manufacturer's instructions.

The external compression take-up clamps shall be Series 300 non-magnetic stainless steel. No welds shall be utilized in its construction. The clamps shall be installed utilizing a torque-setting wrench furnished by the connector manufacturer. Installation shall be done in accordance with the manufacturer's instructions.

The Contractor shall utilize the proper size connector in accordance with the connector manufacturer's recommendations. All dead-end pipe stubs shall be restrained in accordance with ASTM C-923.

The finished connection shall provide a sealing to a minimum of 13 psi, and shall accommodate a minimum pipe deflection of seven (7) degrees without the loss of seal.

The pipe to manhole connector shall be PSX: Direct Drive as manufactured by Press-Seal, or approved equal.

INSIDE DROP MANHOLE STRUCTURE

Inside manhole drop structures shall be constructed and installed in accordance with Public Works Commission standard details.

CLEANING

Prior to final inspection, all sanitary sewer laterals, mains, and manholes newly installed on the collection system shall be flushed and cleaned. During the flushing operation, the downstream manhole shall be closed with a watertight plug to protect the existing sewer main. All water and debris shall be removed and properly disposed of by the Contractor. This condition shall be maintained until the Public Works Commission issues final acceptance for the project.

TESTING

Completed sewers shall be tested in accordance with the provisions outlined below. The Contractor shall furnish all equipment, labor, materials, and pay all costs associated with the tests performed. The Contractor shall schedule all testing with the Public Works Commission's Project Coordinator, a minimum of 48 hours in advance. The Contractor shall cooperate with the Public Works Commission's Project Coordinator and furnish any needed assistance necessary to complete the required testing.

For annexation and/or retrofit projects: No testing shall be conducted prior to successful completion of the compaction testing.

For all other projects: No testing shall be completed until all utilities are installed, prior to preparation of the road subgrade. The Contractor may elect to perform testing to satisfy them that the sewer utility is installed properly prior to commencing installation of other utilities. However, such testing shall not be construed as acceptance by PWC.

The deflection/mandrel test shall not be performed until a minimum of thirty (30) calendar days after backfill operations are completed and the area graded to final contours. In lieu of waiting thirty (30) calendar days, the Contractor has the option to have an independent testing laboratory verify that compaction has been completed to achieve the maximum density as shown in the detail. The location and elevation of the compaction testing shall be determined reviewed and approved by the Public Works Commission's Project Coordinator. The Contractor shall provide the Public Works Commission with a copy of the density testing results.

Compaction testing shall be done in accordance with Specification Section 02222 – Excavation and Backfilling for Utility Systems.

Vacuum Testing Manholes:

All precast sanitary sewer manholes installed by the Contractor shall be vacuum tested for leakage. This test shall be done in accordance with ASTM C-1244 and in the presence of a Public Works Commission Project Coordinator. The Contractor shall be responsible for providing all the necessary labor, materials, equipment, testing apparatus, and all other incidentals necessary to complete the vacuum test. All testing equipment utilized shall be approved for use in vacuum testing manholes.

Each manhole shall be tested after assembly. All lift holes shall be plugged with an approved non-shrink grout. All lines, including laterals, entering the manhole shall be temporarily plugged. The Contractor should take care to ensure that the pipes and plugs are secure in place to prevent them being drawn into the manhole. The test head shall be placed directly on top of the concrete surface of the manhole following the manufacturer's recommendations, rather than to the cast iron seating ring.

Manholes may be tested either prior to backfill or post backfill at the contractor's option. For pre-backfill testing, a vacuum of 10 inches of Mercury (inches Hg) shall be drawn on the manhole, the valve on the vacuum line of the test head closed, and the vacuum pump shut off. The time shall be measured for the vacuum to drop to 9 inches of Mercury (inches Hg). The manhole is acceptable if the time for the vacuum reading to drop from 10 inches of Mercury to 9 inches of Mercury meets or exceeds the values indicated below:

<u>Manhole Depth</u>	Diameter of Manhole		
	<u>4' Diameter</u>	<u>5' Diameter</u>	<u>6' Diameter</u>
10' or less	25 sec	33 sec	41 sec
11' to 15'	38 sec	49 sec	62 sec
16' to 20'	50 sec	65 sec	81 sec
21' to 25'	62 sec	82 sec	101 sec
25' to 30'	74 sec	98 sec	121 sec

Vacuum testing backfilled manholes is not recommended in the presence of groundwater. Vacuum testing a backfilled manhole that is subjected to hydrostatic pressure may exceed the design limits of the flexible connectors and could lead to failure of the structure, joints, and/or connectors. Where groundwater is present a reduction in the vacuum pressure applied to the manhole will be required. The vacuum shall be reduced by 1 inch of Mercury for every 1 foot of hydrostatic head between 12 feet and 21 feet. A vacuum test should not be performed when the hydrostatic head exceeds 22 feet. See the chart below:

Hydrostatic Head (ft)*	12	13	14	15	16	17	18	19	20	21	22
Vacuum Pressure (in Hg)	10	9	8	7	6	5	4	3	2	1	**

*Hydrostatic head above the critical connector (critical connector is bottom most flexible connector)

**Do not perform vacuum test

If the manhole fails the initial test, the manhole shall be repaired by an approved method until a satisfactory test is obtained. All repair methods shall be approved by the Public Works Commission prior to being utilized. Retesting shall be performed until a satisfactory test is accomplished.

Mandrel Testing:

Deflection tests shall be performed on all PVC pipe installations. PVC pipe's maximum deflection after backfilling shall not exceed five (5) percent. The rigid ball or mandrel used for the deflection test shall have a diameter not less than 95 percent of the base inside diameter or average inside

diameter of the pipe depending on the type of pipe manufactured and the applicable ASTM Standard. The PVC pipe shall be measured in compliance with ASTM D2122 "Standard Test Method of Determining Dimensions of Thermoplastic Pipe and Fittings". The Contractor shall supply all labor, equipment and materials necessary to perform the test in the presence of the Public Works Commission's Project Coordinator. The test shall be performed without mechanical pulling devices. The mandrel shall be constructed so as to preclude any yield in diameter, and with a pull line on each end to facilitate withdrawal. If the deflection exceeds the allowable, the Contractor shall remove and replace the pipe.

Air Testing:

Air testing shall be performed on all mains and laterals to determine acceptability. The length of sewer subject to an air test shall be the distance between two adjacent manholes. The tests shall be conducted in accordance with the appropriate ASTM standard. The air test shall be coordinated with the Public Works Commission. The Contractor is required to supply all equipment, labor, materials and pay all costs associated with the test performed.

Air Test for PVC Pipe

The low pressure air test on PVC pipe shall be performed with satisfactory results in accordance with ASTM F1417 "Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air". The pipe, including lateral assemblies, shall be plugged and air added slowly until the internal pressure of the line is raised to 4.0 psi. After the pressure of 4.0 psi is obtained, regulate the air-supply so that the pressure is maintained between 3.5 and 4.0 psi for at least two (2) minutes, depending on air/ground temperature conditions. The pressure will drop slightly until equilibrium is obtained; however, a minimum of 3.5 psi is required. Once the 3.5 psi is maintained, the test will begin. If the pressure drops 1.0 psi within the time indicated below, the test fails.

Pipe Dia (in)	Minimum time (minutes)	Length for Min Time (ft)	Time for Longer Length (sec)
4	3:46	597	0.380L
6	5:40	398	0.854L
8	7:34	298	1.520L
10	9:26	239	2.374L
12	11:20	199	3.418L
15	14:10	159	5.342L
18	17:00	133	7.692L
21	19:50	114	10.470L
24	22:40	99	13.674L
27	25:30	88	17.306L
30	28:20	80	21.366L
33	31:10	72	25.852L
36	34:00	66	30.768L

The Contractor shall observe all safety precautions to include allowing no one in the manholes during testing, securing all plugs and providing additional plug bracing. The Contractor shall be required to furnish, install and remove after testing at no additional cost, a temporary glue cap/plug

to be airtight for all cleanout stacks to accomplish air testing. The air pressure shall never exceed 8 psi. All gauges shall be accessible outside of the manholes.

HYDROSTATIC TESTS

After the ductile iron sewer pipe has been laid within the "protected" area and backfilled to finished grade, the pipe shall be subjected to a hydrostatic pressure test. All laterals within the "protected" area shall be ductile iron. All sewers subject to hydrostatic testing shall include (1) sewers entering or crossing streams, (2) sewers located less than 100 feet from any public or private water supply source including any WS-I waters or Class I or Class II impounded reservoirs, (3) where the minimum 18 inch vertical and 10 feet horizontal separation cannot be maintained between sewers and water mains (see NC DENR Regulations), or (4) as specified and/or indicated on the drawings. The Contractor will furnish all labor and material, including test pumps, plugs, and all other incidentals for making hydrostatic tests. Hydrostatic pressure testing shall be conducted on the completed main, including the laterals.

The duration of the pressure test shall be at least one hour or longer, as directed by the Public Works Commission. The hydrostatic pressure shall be 150 psi. Each section of pipe shall be slowly filled with water and the specified test pressure based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Public Works Commission. Before applying the specified test pressure, all air shall be expelled from the pipe.

All joints showing visible leaks shall be made tight. Cracked or defective pipe, joints, laterals, and fittings discovered in consequence of the pressure test shall be removed and replaced with sound material, and the test shall be repeated until the test results are satisfactory. The requirement for the joints to remain exposed for the hydrostatic test may be waived by the Public Works Commission in certain situations. The test shall be repeated until satisfactory to the Public Works Commission.

The results of the pressure tests shall be satisfactory as specified. All replacement, repair, or retesting shall be accomplished by the Contractor. All repairs shall be reviewed and approved by the Public Works Commission prior to backfill. The use of couplings, sleeves, etc. shall be reviewed and approved by the Public Works Commission prior to use.

END OF SECTION

**DIVISION 2
SITE WORK
02771 - SEWER LATERAL REHABILITATION**

GENERAL

It is the intent of this specification to provide for the reconstruction of sanitary sewer service laterals by the installation of a resin-impregnated flexible tube within an existing sanitary sewer service lateral. This specification covers requirements and test methods for the reconstruction of a sewer service lateral pipe without excavation. The lateral pipe is remotely accessed from the sewer mainline and from a cleanout located on the sewer service lateral.

Lateral reconstruction is accomplished by the inversion and inflation of a resin impregnated, single piece lateral and main connection liner assembly. The liner assembly is pressed against the lined main pipe by inflation of a bladder and held under pressure until the thermo-set resin has cured. When fully cured, the liner shall extend over a predetermined length of the sewer service lateral and the full circumference of the main pipe connection, forming a continuous, single piece, tight fitting, corrosion resistant and non-leaking cured-in-place pipe (CIPP), inclusive with hydrophilic gasket seals.

The Contractor shall furnish all necessary labor, materials, equipment, services, and incidentals necessary to rehabilitate the sanitary sewer service using the CIPP lining method.

REFERENCES

The National Association of Sewer Service Companies (NASSCO) Guidelines: Recommended Specifications for Sewer Collection System Rehabilitation (most recent edition) are incorporated by reference into this specification.

The following ASTM Standards are incorporated by reference into this specification. The latest edition of the reference shall be used.

- A. D 790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- B. D 792 Standard Test Methods for Density and Specific Gravity of Plastics by Displacement
- C. D 2990 Standard Test Methods for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics
- D. D 5813 Cured-in-Place Thermosetting Resin Sewer Pipe
- E. F 1216 Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
- F. F 2561 Standard Practice for Rehabilitation of a Sewer Service Lateral and its Connection to the Main Utilizing a One-Piece Main and Lateral Cured-in-Place Lateral

In case of conflicting requirements between this specification and these reference documents, this specification shall govern.

RELATED SECTIONS

- A. Section 02730 – Sanitary Sewer System
- B. Section 02750 – Wastewater Flow Control
- C. Section 02760 – Television Inspection
- D. Section 02766 – Sewer Line Cleaning

SUBMITTALS

All submittals shall be provided in accordance with these Contract Documents, and the requirements outlined herein. The Contractor shall submit, in accordance with the requirements outlined in the Contract Documents, letters, shop drawings, and product data showing materials of construction. The following shall be submitted to the Public Works Commission for review and approval:

1. Test data on the solid body hydrophilic gaskets to ensure water tightness at the terminating ends of the liner assembly (main line and lateral). The hydrophilic gasket seal submittal shall include test data simulating hydration/dehydration conditions for a minimum period of 10,000 hours. Further, the test results shall successfully demonstrate and document long-term performance without deterioration, loss of material, flexibility, and expansion of the gasket during repeated cycles of hydration and dehydration.
2. Recommended cure schedule (cure and cool down).
3. Installation and cure method(s).
4. Design calculations showing the proposed liner thickness.

Upon completion of the lining, the Contractor shall submit their logs and reports from each liner installed, documenting the volume of resin, batch/order, address, etc. to the Public Works Commission.

QUALITY ASSURANCE

The Contractor is solely responsible for quality assurance during the length of the project. The Contractor shall be responsible for any costs associated with corrective measures required to replace or repair items not meeting the quality standards specified by the Public Works Commission.

Inspection of the liner may be made by any representative of the Public Works Commission after delivery. The liner shall be subject to rejection at any time on account of failure to meet any of the requirements specified, even though the sample liner may have been accepted as satisfactory at the place of manufacture. Liner rejected after delivery shall be identified as such, and shall be immediately removed from the job site.

Products used in the work of this specification shall be produced by manufacturers regularly engaged in the manufacture of cured-in-place liners for municipal wastewater systems and with a history of successful production acceptable to the Public Works Commission

The finished liner shall be continuous over the entire length of the liner insertion run and shall be free from visual defects such as foreign inclusions, dry spots, pinholes, and delamination. Allowance for longitudinal and circumferential expansion shall be taken into account when sizing

and installing the liner. All dimensions shall be field verified by the Contractor prior to installation of the liner. Field measurements shall be used to ensure maximum closure between the new liner and the original (host) pipe.

Wrinkles in the finished liner pipe shall be removed or repaired by the Contractor, at the direction of the Public Works Commission. If a void between the wrinkle and the original (host) pipe develops, the Contractor shall repair or replace that section of the pipe. Methods of repair shall be in accordance with the manufacturer's directions and submitted to the Public Works Commission for review and approval.

The liner shall be chemically resistant to trace amounts of gasoline and other oil products commonly found in municipal sewerage and soils adjacent to the sewer lateral being lined.

WARRANTY

The Contractor shall warrant to the Public Works Commission that the equipment used on this Contract where covered by patents or license agreements is furnished in accordance with such agreements and that the prices included herein cover all applicable royalties and fees in accordance with such license agreements. The Contractor shall defend, indemnify and hold the Public Works Commission harmless from and against any and all costs, loss, damage or expense arising out of or in any way connected with any claim of infringement of patent, trademark or violation of license agreement.

All CIPP liners shall be certified by the manufacturer for the specified material properties outlined in these Specifications. The Contractor shall furnish documentation from the manufacturer, warranting the liner to be free from defects in raw materials for a period of 10 years from the date of acceptance.

DELIVERY, STORAGE AND HANDLING

Care shall be taken in shipping, handling, and storage to avoid damaging the liner. Extra care shall be taken during cold weather construction. Any liner damaged in shipment shall be replaced as directed by the Public Works Commission.

Any liner showing a split or tear, or which has received a blow that may have caused damage, even though the damage may not be visible, shall be identified as rejected and immediately removed from the job site.

MATERIALS

- A. Liner Material – The liner assembly shall be continuous in length and consist of one or more layers of absorbent textile material (i.e. needle punched felt, circular knit or circular braided tubes) that meet the requirements of ASTM F 1216 and ASTM D 5813. No intermediate or encapsulated elastomeric layers shall be in the textile that may cause de-lamination in the cured in-place pipe. The textile tube and sheet shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe segments, and flexibility to fit irregular pipe sections. The wet-out textile tube and sheet shall meet ASTM F 1216 Section 7.2 as applicable, shall have a uniform thickness and 5% to 10% excess resin distribution that when compressed at installation pressures will meet or exceed the design thickness when fully cured.

- B. Mainline Liner Tube – The main sheet will be flat with one end overlapping the second end and sized accordingly to create a circular lining equal to the inner diameter of the main sewer pipe. The interior (once inverted) of the textile sheet shall be laminated with an impermeable, translucent flexible membrane. The textile sheet before insertion shall be permanently marked on the membrane as a “Lateral Identification” correlating to the address of the lateral pipe providing service.
- C. Lateral Liner Tube – The interior (once inverted) of the lateral liner tube shall be laminated with an impermeable, translucent flexible membrane. Longitudinal seams in the tube shall be stitched and thermally sealed. The lateral tube shall be continuous in length and the wall thickness shall be uniform. The lateral tube will be capable of conforming to offset joints, bells, disfigured pipe sections and pipe diameter transitions.
- D. Mainline Connection – The main tube and lateral tube shall be formed as a one-piece assembly by stitching the lateral tube to the main sheet aperture. The connecting end of the lateral tube shall be shaped to match the aperture and curvature of the main tube. The lateral tube and main tube are connected by stitching and sealing the stitching using a flexible UV cured adhesive/sealant. The main and lateral tubes are assembled in the shape of a “T” or WYE with corresponding dimensions. Submittals for the liner assembly shall include the manufacturers test protocol and tests data that certifies the connection between the liner tubes is leak-free, when subjected to a controlled vacuum leak test.
- E. Gasket Seals – The mainline connection shall include a seamless molded flange shaped end seal gasket attached to the main liner tube by the use of stainless steel snaps. The lateral tube shall include an o-ring gasket attached six inches from the upstream terminating end of the lateral tube. Only solid body gaskets shall be utilized. Soft (gun-able) gaskets shall not be allowed. Note – Hydrophilic gaskets may also be utilized at the ends of the mainline liner tube, with the prior approval of the Public Works Commission.
- F. Bladder Assembly – The liner assembly shall be surrounded by a second impermeable, inflatable, flexible translucent membrane (translucent bladder) that will contain the resin and facilitate vacuum impregnation while monitoring of the resin saturation during the resin impregnation (wet-out) procedure.

RESIN

- A. The resin shall be colorless.
- B. The resin/liner system shall conform to ASTM D 5813, Section 8.2.2.
- C. The resin shall be a corrosion resistant polyester, vinyl ester, epoxy or silicate resin and catalyst system that when properly cured within the composite liner assembly, meets the requirements of ASTM F 1216 and the physical properties herein.
- D. The resin shall produce a CIPP that complies with the structural and chemical resistance requirements as outlined in ASTM F 1216.
- E. The volume of resin shall be sufficient to fill all voids in the textile lining material at nominal thickness and diameter. The volume shall be adjusted by adding five (5) to 10 percent excess resin for the change in resin volume due to polymerization and to allow for migration of the resin into cracks and/or joints in the original (host) pipe. No dry or unsaturated area in the mainline sheet or lateral tube shall be acceptable.
- F. Initial CIPP Structural Properties:

Property	ASTM Standard	Minimum Value (psi)
Flexural Strength	D 790	4,500
Flexural Modulus	D 790	250,000

STRUCTURAL REQUIREMENTS

- A. The CIPP shall be designed as per ASTM F 1216, Appendix X.1.
- B. The CIPP design shall assume no bonding to the original (host) pipe wall.
- C. The layers of the finished CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or the probe or knife blade moves freely between the layers. If the layers separate during field sample testing, new samples will be required to be obtained from the installed pipe. Any reoccurrence may cause rejection of the work.
- D. The liner shall be designed to withstand all internal and external loads, taking into account internal pressure and external pressures, groundwater, paving, and full traffic (H-20) loading.
- E. The liner thickness design shall be based on the following criteria:
 - a. fully deteriorated conditions based on ASTM F1216, Appendix X.3, equation 6
 - b. maximum depth of bury for each segment
 - c. water table at the ground surface (i.e., full submergence)
 - d. a host pipe ovality of 2%
 - e. long term flexural modulus = 125,000 psi (based on 50% loss of initial flexural modulus over the design life)
 - f. flexural strength = 4,500 psi
 - g. a soil modulus of 800 psi
 - h. unit weight of soil = 120 pounds per cubic foot
 - i. soil $K_u' = 0.13$
 - j. full traffic (H-20) loading
 - k. safety factor = 2
- F. A CIPP product that requires binding to the original (host) pipe for any part of its structural strength shall not be allowed.

INSTALLATION

- A. The lateral and main line shall be sufficiently cleaned in order to install the liner system in accordance with these Contract Documents. Cleaning and preparation of the main and lateral shall be in accordance with PWC Specification Section 02766 – Sewer Line Cleaning and the applicable NASSCO standards.
- B. Inspection of the lateral and main shall be accomplished utilizing closed circuit television (CCTV). The inspection of the lateral shall be accomplished via lateral launching equipment or from a clean-out. An initial attempt should be made from the clean-out. In the event a clean-out is not available, or as directed by the Public Works Commission, lateral launching equipment shall be utilized.
- C. The sewer lateral and main shall be cleaned sufficiently to ensure the proper installation of the proposed liner system. Internal debris to be removed prior to installation includes, but is not limited to, broken pipe sections, solids, roots, loose gravel, tuberculation, etc.
- D. The interior of the main line and service lateral shall be carefully inspected to determine the location of any condition that would prevent proper installation, such as roots, change in pipe diameter, and collapsed or crushed pipe sections. These conditions shall be noted and presented to the Public Works Commission. The Contractor shall have experienced personnel trained in locating breaks, obstacles, and service connections by closed circuit television perform the inspection.
- E. The existing sewer service lateral shall be clear of obstructions that would prevent the proper installation of the liner assembly. Changes in the pipe diameter shall be

accommodated, provided the lateral tube is sized according to the pipe diameter and condition. Obstructions may include dropped or offset joints of no more than 20% of the inside pipe diameter.

- F. A clean-out is required to complete the installation. The Contractor shall utilize the existing clean-out located at the right-of-way line, unless otherwise directed by the Public Works Commission. If a clean-out does not exist at the right-of-way line, then the Contractor shall either utilize a clean-out on the customer side (if available), or install a clean-out or vac-a-tee at the right-of-way, as directed by the Public Works Commission. Clean-outs shall be installed in accordance with PWC requirements.
- G. The finished lateral liner shall be within 18-inches of the clean-out, unless otherwise directed by the Public Works Commission.
- H. The Contractor shall notify the property owners that their sewage service will be discontinued while the liner is being installed and cured. Notification shall be in accordance with the Special Conditions within these Contract Documents.
- I. The Contractor shall provide bypass pumping of sewage flows, as required to prevent sewage overflows, basement backups or damage to upstream facilities, where the rehabilitation work is being performed. Bypass pumping shall be in accordance with Section 02750 – Wastewater Flow Control and the Special Conditions within these Contract Documents.
- J. The installation of the liner shall be in complete accordance with the applicable provisions of these specifications and the manufacturer's installation requirements. The methods used to install and cure the liner are at the sole option of the Contractor, but shall be submitted to the Public Works Commission for approval prior to beginning work.
- K. Where required on long (generally greater than 30 feet) laterals, the lateral liner shall be overlapped, to ensure the entire length of the lateral is rehabilitated. The completed lining shall provide a watertight seal (as specified herein) at the mainline and a structural repair of the lateral over the specified length. The Contractor shall verify the lengths in the field to ensure the required overlap occurs.
- L. Curing shall be accomplished by utilizing a mixture of steam and air in accordance with the manufacturer's recommended cure schedule. The Contractor shall monitor and document that heat source temperatures during the cure and cool down cycles. Upon completion of the project, the Contractor shall submit the logs to the Public Works Commission.

TESTING

- A. For each lot (order) of material, a minimum of one (1) flat plate test sample shall be taken. Preparation of the test sample shall be in accordance with ASTM D 790. The number of tests may be increased by the Public Works Commission, and performed by the Contractor at no additional cost to the Public Works Commission, when the required tests show that the installed liner does not meet the specifications. The specimens shall be prepared utilizing the textile material and resin system utilized for the work outlined in these Contract Documents. All testing shall be paid for by the Contractor and shall be performed by an independent testing laboratory. Results of each test shall be submitted to the Public Works Commission within 30 days after the liner is installed

ACCEPTANCE

- A. Upon completion of the work, the Contractor shall conduct a final video inspection of the lined lateral and main line. The Contractor shall submit the final video inspection to the

Public Works Commission for review and approval. The video shall include sufficient documentation that the installed liner is not leaking and is open to not restrict the flow of sewage in the main and lateral.

- B. The completed liner assembly shall be smooth with minimal wrinkling.
- C. The completed CIPP liner shall be free of dry spots, lifts, and delaminated portions.
- D. The CIPP liner shall be watertight.

*** END OF SECTION ***

**DIVISION 2
SITE WORK
02831 - CHAIN LINK FENCING**

GENERAL

Where shown on the plans there shall be installed a "chain link" fence with all necessary posts, braces, top rail, gates, fabric, extension arms, and three strand barbed wire.

The erected fence shall meet the following requirements:

The enclosing fence shall have an overall fabric height of six feet (6') and an additional one foot (1') of three strand barbed wire, for a total height of seven (7'). The gates shall be seven feet (7') in overall height.

MATERIALS

Fabric: Fencing shall be chain link #9 gauge aluminized continuously woven wire 2" uniform square mesh without knots or ties, except for knuckling and barbing. Both the top and bottom edges of the fabric shall be barbed unless otherwise shown on the plans. The Contractor shall not piece together a number of short pieces of fence fabric.

Tensile Strength Test: Wire pickets of which this fabric is made to stand a tensile strength test of approximately 70,000 pounds per square inch based on the cross sectional area of the galvanized wire.

Framework: All posts and other appurtenances used in construction shall be hot-dipped, galvanized with a minimum of 1.8 oz. per square foot surface.

Line Posts: Hot dip galvanized "H" column (2" x 2 1/4") weight 4.1 pounds per linear foot, minimum carbon content 0.355. No used or open seam material will be permitted in posts or rails. (Alternate 2 1/2" O.D. galvanized pipe weight 3.65 pounds per linear foot or C-section line posts of the same dimension as H-post, 0.120 in wall thickness and fabricated from steel conforming to ASTM A-570, Grade E.) Intermediate posts shall be evenly spaced no more than 10 feet apart on center.

Top Rail: Hot dip galvanized pipe 1 5/8" O.D., weight 2.27 pounds per linear foot protected with outside sleeve type couplings at least 7 inches long. No used or open seam material will be permitted.

Terminal Posts: End, corner and pull posts hot dip galvanized pipe 3" O.D. - 5.79 pounds per linear foot. Gate posts hot dip galvanized pipe of "H" construction as specified.

Tension Wire: A bottom tension wire 7 gauge, alzd. (0.4 oz./s.f.), 6 inches above grade. Wire shall be fastened to fabric with aluminum rings at 24" on center and to each intermediate post.

Extension Arms: Hot dip galvanized. Line post arms of pressed steel malleable base; end, and corner post arms of malleable iron; gate posts to have ornamental top. Each extension arm to carry three strands of barbed wire approximately 12 inches out from fence line. Barbed wires to be securely fastened in by means of self-locking grooves. The barbed wire shall support a

minimum of 400 lbs. vertical dead load from tip of arm. The barbed wire shall be 4-point pattern composed of two strands of No. 12 1/2 gauge galvanized wire.

Gates: Frame to be galvanized pipe 2.0 inches O.D. weighing 2.27 pounds per foot. Each frame to be equipped with 3/8-inch diameter adjustable truss rods. Gateposts and corner posts shall be 3 inches O.D. weighing 5.11 pounds per foot. Gates are to be manufactured using 2" aluminum tubing in lieu of the specified Schedule 40 steel pipe. Gateposts and corner posts shall be 6 5/8" O.D. for swing gates (greater than 20 feet in length and 4" O.D. for slide gates, weighing minimum of 5.11 pounds per foot. Corner fittings to be heavy pressed steel or malleable castings. Fabric to be same as in fence. Gates to be completed with malleable ball and socket hinges, catch, stops and rest. Hinges to permit gate to swing back against fence, 180 degrees if required. Latches shall be arranged for padlocking so that the padlock will be accessible from both sides of the gate regardless of the latching arrangement.

Braces: Brace material to be hot dip galvanized and same as top rail, to be spaced midway between top rail and ground, and to extend from terminal post to first adjacent line post. Braces to be securely fastened to post by suitable connections, and then trussed from line post back to terminal post with 3/8 inch round rod equipped with a turnbuckle for adjusting.

Fittings: Hot dip galvanized. All fittings to be malleable, cast iron or pressed steel.

Fabric-Bands: Fabric to be fastened to line post with (9 gauge) fabric bands spaced approximately 18 inches apart, and to top rail with wires (9 gauge) spaces approximately 24 inches apart.

Locks: Locks will be provided by the Owner.

INSTALLATION

General: Installation shall be made in a workmanlike manner by skilled workers experienced in the erection of this type of fence and in accordance with the manufacturer's recommendations. The fence shall be erected on a previously prepared surface to the lines and grades indicated on the plans.

Post Setting: All posts shall be set plumb and in alignment into a 36-inch concrete footing of proper size and shape so as to furnish sufficient support to withstand any strain or shock ordinarily brought to bear on a fence of this character. The concrete strength shall be 3000 psi (ASTM C-94) and the foundations a minimum of 9 inches in diameter for line post and 12 inches for terminal post.

Concrete shall be thoroughly compacted so as to be free of voids and finished in a dome. Straight runs shall not exceed 500 feet between brace posts. Concrete shall cure a minimum of 72 hours before any further work is done on the posts.

Fabric: The fabric and barbed wire shall be stretched to the proper tension as recommended by the manufacturer and securely fastened to the framework members to result in a straight fence line without sagging. The bottom of the fabric shall be held as uniformly as is practicable to the finished grade.

END OF SECTION

**DIVISION 2
SITE WORK
02931 - SOD**

GENERAL

Restoration of existing lawn areas outside of the public right-of-way disturbed by construction activities shall be by installation of new sod. Restoration and sod shall be performed as soon as practical, but the time period between initial disturbance, the utility installation and sod placement shall not exceed 60 days. Sod is defined as blocks, squares, strips of turf grass and adhering soil used for vegetative planting. Sodding and preparation of the sod bed shall be performed by an experienced landscape subcontractor specializing in this type of operation unless otherwise approved by the Public Works Commission in writing.

The Contractor shall adhere to the standards set forth by the American Association of Nurseryman and the Associated Landscape Contractors of America. All personnel shall be appropriately trained with regard to the degree of involvement so to assure the Owner the highest level of workmanship. Sod species suitable in this area are hybrid bermuda, centipede and zoysia; however the sod placed for each individual's lawn shall be the same species of sod as existing. Sodding may be performed at any time of the year except frozen sod shall not be placed nor shall sod be placed on frozen ground. The Contractor shall adapt his operations to variations in weather or soil conditions as necessary for the successful establishment and growth of a vigorous, disease free and weed free sod lawn.

MATERIAL

Materials, equipment and products incorporated in the work shall be approved by the Public Works Commission. The Contractor shall submit a list of the proposed materials with samples, if required. Package materials should be delivered in unopened original containers showing weight, analysis and name of manufacturer. The Contractor shall protect the material from deterioration and/or damage

Sod shall contain 95 percent permanent grass; not more than five (5) percent weeds and undesirable grasses, good texture and free from obnoxious grasses, roots, stones and foreign materials. Sod shall be uniformly 1 ½ to 2 inches thick with a well developed fibrous root mat system in topsoil with clean cut edges. The sod shall be sufficiently dense and cut to the minimum required thickness such that if the sod is suspended by one corner, the sod will not tear apart. The sod shall be recently mowed to a height of not more than three (3) inches prior to harvest. The sod shall be supplied and maintained in a healthy condition as evidence by the grass being a normal green color in appearance, dense, and free from insects, pests, disease or injury. Sod shall be delivered to the job site within 24 hours after being cut and shall be installed within 24 hours after delivery. Any sod which is torn, broken or too dry will be rejected.

SOIL BED PREPARATION

Before landscape construction is to begin, the site shall be cleaned and disposed of brush, rubbish, stones, gravel and other foreign material within the area to be landscaped. Exposed ground surfaces disturbed during construction activities shall be graded to the original contours (allowing for the thickness of the sod) or as in the case of an altered contour such as a fill slope, graded as directed by the Public Works Commission to finish grade, or typical cross section. The

sod bed shall be excavated to such a depth that after sod placement the top of the sod shall be flush with surrounding grade or contours. Rake areas to be sodded smooth, free from unsightly variations, bumps, ridges or depressions. Do not start work until conditions are satisfactory and do not work during inclement or impending inclement weather.

The surface area to receive sod shall contain a minimum of four (4) inches of good, fertile, friable, organic natural topsoil loam as a base for laying the sod. Topsoil shall be free of clumps, brush, sticks, weeds, stones, roots, trash or other objectionable material. Contractor shall insure all topsoil to be free of plants or plant parts of quackgrass, johnson grass, nut sedge, poison ivy or other noxious weeds. The Contractor shall furnish and supplement the existing topsoil at no additional costs to the Public Works Commission providing a minimum four (4) inch thickness as specified. Soil preparation shall not be performed in frozen or extremely wet conditions. The finished topsoil bed shall be uniform in grade, with a yard like appearance. All changes in grade shall have a smooth, rounded peaks and valleys.

The soil shall be scarified or otherwise loosened to a depth of not less than five (5) inches and all clods shall be broken. The top four (4) inches shall be worked into an acceptable smooth, friable and uniformly fine texture sod bed by use of soil pulverizers, drags, harrows or by other methods approved by the Public Works Commission. Commercial grade fertilizer (8% nitrogen, 8% phosphate, 8% potash) shall be applied at a rate of 20 pounds per 100 square feet, super-phosphate at 12 pounds per 1,000 square feet and lime (dolomite limestone containing not less than 85% total carbamates) shall be applied at a rate of 25 pounds per 1,000 square feet or at a rate recommended for the type of sod being placed. Apply soil amendments within 24 hours after raking topsoil base surface and not more than 48 hours prior to laying sod. Mix thoroughly a minimum depth into the upper four (4) inches of topsoil and lightly water to aid in dissipation. Sod placement shall not begin until the soil preparation is inspected and approved by the Public Works Commission. During application of soil amendment fertilizer etc., adequate precautions shall be taken to prevent damage to existing features such as traffic, structures, landscape, trees, vegetation, utilities or any other appurtenances. The Contractor shall be required to repair or clean any damages.

PLACING SOD

The Contractor and his landscape subcontractor shall coordinate the placing of the sod to begin within 24 hours after the topsoil base preparation is completed and accepted by the Public Works Commission. Sod shall be brought to the site as near to the time of placing as possible. Store sod in the shade, and keep watered particularly in extreme hot and dry condition to insure vitality and to prevent the dropping off of soil during handling. During wet weather, the sod shall be allowed to dry sufficiently to prevent tearing. Handling shall be done in a manner which will prevent tearing, breaking, drying or other damage. Carefully place sod in rows with the longer side perpendicular to slopes and the ends staggered in each successive row in a brick-like pattern. Butt the ends and sides together tightly and do not overlap or stretch the sod. Do not leave any voids or gaps. Unavoidable gaps shall be closed with small pieces of torn or broken sod if kept moist and approved by the Public Works Commission. After the sod is laid, irrigate thoroughly to allow water to penetrate a minimum six (6) inches into the soil below the sod. Sod shall not be placed when the atmospheric temperature is below 32oF.

Tamp and roll completed sod installation with a manual roller or approved equipment to eliminate minor irregularities and to form close contact with the soil bed immediately after placing and watering. The type of rolling and tamping equipment to be used shall be submitted to the Public

Works Commission for approval prior to construction. On steep slopes 3:1 (horizontal and vertical) or greater, in drainage ditches or any areas where sod slipping may occur, anchor sod with approved wooden stakes ($\frac{1}{2}$ "x $\frac{3}{4}$ " x 12") or staples spaced not over two (2) feet apart in any direction and/or in sufficient number to prevent slippage or displacement. The anchors shall be driven flush with the surface of the sod. The wide flat side of the stake shall be driven parallel to the slope. Staking shall be done concurrently with sod placement and prior to tamping. Sod shall be laid with the long horizontal edge of the strips parallel to the contour starting at the bottom of the slope. The edge of the sod shall be turned slightly in the ground at the top of a slope and a layer of earth placed over it and compacted so as to conduct the surface water over and onto the top of the sod. Upon completion of the above described work, the surface of the sodded areas shall coincide with the finished grade and not exceed $\frac{1}{4}$ " plus or minus variation to adjoining grade or proposed contour. Extreme care shall be taken to prevent the installed sod from being torn or displaced.

MAINTENANCE

The Contractor shall, at no additional cost to the Public Works Commission, make whatever arrangements necessary to supply water of suitable quality and purity to sustain and encourage vigorous plant growth, and supply all equipment for proper delivery and application to planted areas. Water obtained from a PWC fire hydrant shall be metered and properly protected with an approved backflow prevention device. PWC must inspect and approved any connections to their water system to include the proposed water application and storage equipment. The Contractor shall not use private resident's water. The Contractor is solely responsible to provide watering of the sod. The method of application of water shall be approved by the Public Works Commission. Limit watering to early morning or late afternoon to enable to soil the absorb maximum amount of water.

Maintenance shall begin immediately after sodding operation. The Contractor shall maintain all sodded areas until sod is firmly established and as outlined below. Maintenance will include watering, fertilizer, pest control, soil amendments, disease control, erosion repair, mowing, protecting turf area from traffic (i.e. temporary fences, barriers, signs, etc.) and replacement of any dead or damaged sod.

Watering

- Water lawn areas once a day with a minimum $\frac{1}{2}$ inch water for the first three (3) weeks after area sodded.
- After the three (3) week period, water twice a week with a $\frac{3}{4}$ inch of water each time unless a comparable amount of rainfall has occurred.
- Make weekly inspections to determine moisture content of soil and supplement the above watering schedule as needed.
- Excessive runoff puddling and wilting shall be prevented.

Fertilizer and Pest Control

- Evenly spread fertilizer composite at a rate of 40 pounds per 5,000 square feet or as recommended by the manufacturer. Fertilizer shall not be applied until two (2) weeks after initial placement of the sod or prior to the advent of winter dormancy.
- Treat areas of weed and insect infestation as recommended by the treatment manufacturer.

Mowing

- The Contractor shall do mowing operations, (in yards not being mowed by residents) until provisional acceptance.
- Mowing shall be done only when the grass is dry with a rotary type mower having a blade height set not lower than one and one half (1½) inches nor higher than three (3) inches.
- Mowing operations shall be conducted at intervals, which ensure grass height does not exceed four (4) inches between mowing.
- The Contractor shall complete at least one mowing operation before the work will be considered for acceptance.

The Contractor shall protect and not allow access of vehicular traffic into any newly sodded areas and shall repair any damaged turf to original grade. Maintenance shall continue for a period of 90 days after placement or until provisional acceptance by the Public Works Commission. A written record shall be furnished to the Owner of the maintenance work performed. At least two weeks shall elapse after chemical control is applied before a request of inspection.

ACCEPTANCE

Fifteen (15) days prior to the end of the 90 day maintenance period, the Contractor shall make a written request to the Public Works Commission for an inspection and provisional acceptance of the sod. Failure to notify the Public Works Commission will not relieve the Contractor of the maintenance provisions required and the Contractor will continue to be responsible for the maintenance of the sod.

Replacement of dead sod shall be performed within seven (7) days after notification by the Public Works Commission and the maintenance period for these areas or individual lawns shall be extended for the 90 day maintenance period. Failure to replace dead sod within the specified seven (7) day period will result in the Public Works Commission having the work performed and deducting the cost from the Contract; however, the Contractor shall be responsible for the maintenance.

Final acceptance will be given upon satisfactory contract performance exhibited at final inspection and acceptance. Sodded areas are to be fully rooted prior to acceptance. The Owner shall be the sole judge as to whether or not the lawns are acceptable. Should any deficiencies be disclosed at final inspection, the Contractor shall make the necessary corrections in a timely manner and request re-inspection.

GUARANTEE

The Contractor shall guarantee a dense, vigorous stand of turf free of weeds, disease, pests or any dead areas more than one half of a square foot in size for a period of 90 days from initial placement or replacement whichever is greater. Total dead area shall not exceed one percent (1%) of total square footage for each individual resident's lawn.

END OF SECTION

**DIVISION 2
SITE WORK
02933 - LAWNS AND GRASSES (SEEDING)**

GENERAL

All exposed ground surfaces that have been disturbed during construction shall be graded to original contours as practicable, shaped to drain, and free of trash and debris. Grassing shall be accomplished as soon as practicable after sections of work are completed. Seeding and/or planting shall be performed by an experienced subcontractor specializing in this type of operation, unless otherwise approved by the Public Works Commission in writing. Disturbed sections shall not exceed one mile, without prior approval by the Public Works Commission. Grassing shall be in accordance with the Contract Documents.

PREPARATION OF THE SOIL

The surface area to receive seed shall contain a minimum of four (4) inches of good, fertile, friable, organic natural topsoil loam as a base for spreading the seed. Topsoil shall be free of clumps, brush, sticks, weeds, stones, roots, trash or other objectionable material. Contractor shall insure all topsoil to be free of plants or plant parts of quackgrass, johnson grass, nut sedge, poison ivy or other noxious weeds. The Contractor shall furnish and supplement the existing topsoil at no additional costs to the Public Works Commission providing a minimum 4-inch thickness as specified. Soil preparation shall not be performed in frozen or extremely wet conditions. The finished topsoil bed shall be uniform in grade, with a yard like appearance. All changes in grade shall have a smooth, rounded peaks and valleys.

The topsoil shall be loosened and mixed to the depth of four inches (4"). Suitable equipment (cultipackers, harrows, drags) meeting the approval of the Public Works Commission shall be used. This operation shall be accomplished by cutting on one (1) foot centers parallel to the contour of the slopes. On slopes that are steeper than 2:1, both depth preparation and degree of smoothness may be reduced, if approved by the Public Works Commission, but in all cases the slope surface shall be scarified groove, trenched or punctured so as to provide a textural plane of cut forming pockets, ridges, or trenches in which seeding material can lodge. Soil preparation shall not be performed when the soil is frozen, extremely wet or in an otherwise unfavorable working condition. The soil shall be free of any substance that might inhibit plant growth. Assistance of the local agricultural agent is recommended.

Lime shall be applied at the rate of 1/2 tons per acre. 10-20-20 commercial fertilizer shall be applied at the rate of 1,000 pounds per acre and well worked in to the top four inches (4") of topsoil. If hydroseeding, use 500 pounds of 10-10-10 fertilizer on slopes steeper than 1/2 horizontal to 1 vertical.

SEED MIXTURE AND SOWING THE SEED

Seed shall be seed certified to be the latest season's crop and shall be delivered in original sealed packages bearing the producer's guaranteed analysis for percentages of mixtures and pure live seed. The producer's seed label shall indicate it the minimum percent of pure live seed (which shall be 82.45 for Bermuda, 88 for Rye Grain), the minimum percent of germination in hard seed and maximum percent of weed seed (no more than 1 percent for Bermuda, 0.5 percent for Rye

Grain). Seed shall be labeled in conformance with U.S. Department of Agriculture rules and regulations under the Federal Seed Act and applicable State seed laws. Seed that has become wet, moldy, or otherwise damaged will not be acceptable.

The following seed mixture shall be used:

	<u>POUNDS OF SEED PER ACRE</u>		
	K-31 Fescue	Rye	Grain Centipede Common Bermuda
April 15 - Sept. 1 5	75	-	60 (hulled)
Aug. 15 - Nov. 15 5	120	-	25 (hulled)
Nov. 1 - April 1 5	120	120	25 (un-hulled)

Note: If there are differences in the seed mixture between the mixture stated in these specifications and that which is specified as part of an approved Erosion Control Plan, the seed mixture specified in the erosion control plan shall take precedence.

Where construction crosses a pasture that has been grassed, the Contractor shall re-seed the area with the same type of grass as found on the site. All highway rights-of-way, and private yards disturbed shall also be re-seeded or with the same type of grass previously found. The seed mixture specification shall be used as a guide and the Contractor is charged with the responsibility of seeding areas with the proper type of grass that matches the existing.

Seed shall be broadcast uniformly by hand or by approved sowing equipment. One half of the seed shall be sown in one direction and the remaining shall be sown at right angles to the first. Do not seed when the wind velocity exceeds five (5) miles per hour. Rake lightly into top 1/8 inch of the soil prior to compacting, with a roller not exceeding 100 pounds.

All seeded areas will be mulched with two (2) tons per acre of small grain straw or wood cellulose fiber spread uniformly, approximately 1/4 of ground should be visible to avoid smothering seedlings. Asphalt emulsion (ASTM D-977 and ASTM D-2028) shall be used to anchor the straw applied at 150 gallons per ton of straw or crimped to stabilize. Asphalt emulsion shall be required from November 1st to March 31st. The Contractor shall take sufficient precautions to prevent mulch from entering drainage structures through displacement by wind, water or other causes and promptly remove any blockage which may occur.

SPECIAL CONSIDERATIONS

Shrubbery shall be expertly removed and carefully preserved for replanting, unless otherwise directed by the Public Works Commission adequate earth ball shall be removed to guard against damage to the root system. Shrubbery shall be replanted only after all construction is complete. The excavation made for replanting shall be six inches (6") larger in every dimension than the root

ball removed. This additional space shall be filled with a mixture of one-half topsoil and one-half peat moss. Care shall be taken to set the top of the ball slightly above or flush with the surrounding surface. Any shrubbery damaged or that dies shall be replaced with an equal or better plant material at the Contractor's expense.

MAINTENANCE

The Contractor shall protect and maintain grassed areas as necessary to establish a uniform turf composed of the grasses specified. The Contractor shall re-seed any bare areas and repair all eroded areas.

Watering of seeded areas will be required during periods of dry weather to promote maximum growth. The Contractor shall supplement natural rainfall to insure a minimum of one (1) inch of rainfall weekly.

Maintenance of lawns begins immediately after the area is planted and continues for the period required to establish acceptable lawns, but not less than sixty (60) days after initial seeding, or until provisional acceptance by Owner. Maintain seeded areas by watering, fertilizing, mowing, weeding and other operations such as rolling, re-grading, replanting, aerating, and mulching as required to establish an acceptable lawn free of eroded or bare areas.

ACCEPTANCE

Fifteen (15) days prior to the end of the sixty (60) day maintenance period, the Contractor shall make a written request to the Owner for an inspection and provisional acceptance of the seeded area. Failure to notify the Owner will not relieve the Contractor of the maintenance provisions required and the Contractor will continue to be responsible for the maintenance of the seeded area.

Replacement of dead seed area(s) shall be performed within seven (7) days after notification by the Public Works Commission and the maintenance period for these areas or individual lawns shall be extended for an additional sixty (60) day maintenance period. Failure to replace seeded area(s) within the specified seven (7) day period will result in the Owner having the work performed and deducting the cost from the Contract; however, the Contractor shall be responsible for the maintenance.

Final acceptance will be given upon satisfactory contract performance exhibited at final inspection and acceptance. Seeded areas are to be fully rooted prior to acceptance. The Owner shall be the sole judge as to whether or not the lawns are acceptable. Should any deficiencies be disclosed at final inspection, the Contractor shall make the necessary corrections in a timely manner and request re-inspection.

Payment to the Contractor for seeding areas will be approved once the seed has been established and meets the requirements of this paragraph of this specification.

GUARANTEE

The Contractor shall guarantee a stand of turf is considered acceptable when a live vigorous stand of permanent grass is established with growing sprouts visible at the surface showing not less than 9 seedlings of permanent grass at least 2 inches long in each square foot, and where

no gaps larger than 4 inches in diameter occur anywhere in the lawn area. Permanent grass is defined as Common Bermuda, Centipede, and Fescue.

END OF SECTION

**DIVISION 2
SITE WORK
03301 - CONCRETE CONSTRUCTION (UTILITY)**

GENERAL

Concrete construction specified in this section shall be applicable to all "site work" and is not intended to cover general building specifications. The concrete work shall include all furnishing, hauling, fine grading and subgrade, form work, etc. and all incidentals necessary for completion of the work as it pertains.

MATERIALS

Concrete

The Contractor shall furnish and place concrete in strict accordance with the requirements of ACI 318 (most recent edition). Ready-mixed concrete from an approved mixing plan shall be used throughout the work and conform to the requirements of ASTM C-94 for batch, mixing, and transporting. Concrete shall be in accordance with the following requirements:

- | | |
|---|------------------------|
| A. Under Ground - Regular Weight Concrete | |
| 28-day compressive strength | 3000 psi |
| Coarse aggregate | 1 ½" max. size stone |
| Slump | 2" minimum, 4" maximum |
| Air Entrainment | No requirement |
| B. Walls, Slabs, Sidewalks, Curb and Gutter - Regular Weight Concrete | |
| 28-day compressive strength | 3000 psi |
| Coarse aggregate | ¾" max. size stone |
| Slump | 2" minimum, 4" maximum |
| Air Entrainment | 5 more or less 1 |

The Contractor shall submit for approval mix designs, designed and tested by an approved testing laboratory, following the requirements of ACI 318 for each class of concrete to be used on this project. Mix designs in excess of one year old shall be verified. The Contractor will be responsible for all costs involved in the mix design. Material suppliers and material proportions incorporated in the mix design and certification shall not change without written permission from the Public Works Commission.

Admixtures used to produce entrained or air shall be sulfonated hydrocarbons or neutralized vinsol resins conforming to ASTM C-260. Calcium chloride, other accelerators, or "anti-freeze" shall not be used without written approval by the Public Works Commission.

Reinforcing Steel

Reinforcing bars shall be new billet stock and shall conform to ASTM A-615, Grade 60. Bars shall be deformed to conform to ASTM A-305. The Contractor shall check and submit for approval four (4) sets of shop and erection drawings prepared by the fabricator. Reinforcement detailing and placement shall conform to ACI 318. All reinforcing bars shall be tied in place according to

approved erection drawings, using bar supports and accessories conforming to ACI 315. Laps or splices shall conform to ACI 318, and consist of the following minimum dimensions:

Tension Splices	36 Bar Diameters
Compression Splices	30 Bar Diameters

All reinforcing bars shall be tagged and stored in such manner as to be readily available at the time needed. Tag mark substitutions will not be made.

Welded wire mesh fabric reinforcing shall conform to the requirements of ASTM A-185. Lap splices shall be at least one full mesh plus 2" staggered to avoid continuous laps in either direction and securely wired or clipped.

GRADING

The Contractor shall use every effort to observe any possible misalignments in line or grade of the installed forms and will call such to the attention of the Public Works Commission promptly. The Contractor is cautioned that he shall be responsible for any damage to utility lines caused by his negligence. The Public Works Commission or his representative shall then inspect the forms and if approved, pouring operations may begin. Where unstable material exists, the Contractor shall remove such material to a depth required to provide a stable subgrade at no additional cost to the Public Works Commission.

FORM WORK

Metal forms shall be used throughout the work except for short, odd length sections and in accordance with ACI 301 and ACI 347 (most recent editions). Earth cuts may be used as forms for unexposed vertical surfaces on footings, provided the soil and workmanship allow an accurate and curable excavation. Forms shall be kept in good condition at all times. Any forms which have become out of shape or otherwise unsuitable shall be removed from the work. Forms shall be of such section and design that they will adequately support the concrete and any construction equipment used in the work. Form sections shall be provided with interlocking joints to ensure that the forms are tightly jointed together free from movement. Forms shall be held in place by metal pins, not less than eighteen (18) inches in length, with fastenings of metal and wedges to insure a correct, rigid setting.

Forms shall be of the dimension required for the designed cross-section shown on the plans. Built up sections to attain the required depth will not be permitted. Forms shall be set true to the lines and grades established by the Design Engineer or as indicated on the plans.

Forms shall be held rigidly in position and shall be of sufficient strength to resist springing out of line when concrete is placed.

PLACING CONCRETE

Prior to placing concrete, the subgrade shall be moistened and the contact side of the forms shall be cleaned and coated with a heavy oil. The Contractor shall not place any concrete without the forms, reinforcing steel and subgrade being inspected and approved by the Design Engineer. Placing of concrete is to be in accordance with ACI 304 (most recent edition). Water shall be

removed from the excavation before placing concrete and water shall be diverted to prevent washing over freshly deposited concrete.

Concrete shall be placed as not to disturb concrete already in place and in such a manner as to require the minimum amount of lateral movement. Concrete shall be deposited in the forms without segregation. A tremie shall be used when the fall exceeds five (5) feet. Care shall be taken not to upset any forms during the concrete pouring operations. Any concrete showing misalignment due to form movement shall be removed and replaced at no additional cost to the Public Works Commission.

All concrete shall be consolidated in accordance with ACI 309 (most recent edition). Mechanical vibrators shall be operated by experienced workmen. Spading and rodding may be required to supplement mechanical vibration. Consolidation shall be adequate to remove any voids and after removal of the forms, no honeycomb shall be present. Should any honeycomb be present, the Design Engineer shall determine if the honeycomb is of a minor nature, the voids may be filled with mortar as approved by the Design Engineer.

All concrete within forms shall be brought to true section by the use of an approved straight edge and shall be tamped with straight edge to bring mortar to the surface, after which it shall be floated smooth by means of wood floats. No steel floats will be permitted. After true surface of section has been obtained, and after initial set has taken place, the entire surface shall be brushed with a dampened brush. All joints and all exposed edges shall be rounded off with approved jointing and edging tools. The type of finish required will be specified in the specific item of work specified or indicated on the drawings. All exposed surfaces of retaining walls, structures, etc. shall be given a Class 2 finish with ¼ inch chamfered edges.

No more concrete shall be laid than can be properly finished and covered during the daylight, unless adequate artificial light satisfactory to the Design Engineer is provided.

Immediately after finishing operations have been completed, the entire surface of the concrete shall be sprayed with an approved curing compound. The use of liquid retarding agents shall conform to standards specified by current AASHTO or ASTM Specifications.

Cold weather concreting shall be in accordance with ACI 306 (most recent edition) and hot weather concreting shall be in accordance with ACI 305 (most recent edition). Concreting shall be done when weather conditions are favorable unless otherwise directed by the Design Engineer. Concrete operations shall be discontinued when the temperature of 40 degrees Fahrenheit is reached on a falling thermometer. No concreting shall be attempted when local weather bureaus indicate temperatures below freezing within the ensuing 24 hours unless proper precautions are made to protect concrete by covering with straw or other thermal insulation satisfactory to the Design Engineer. The Contractor shall be responsible for the quality and strength of the concrete laid during cold weather or hot weather and any concrete damaged by frost action or freezing shall be removed and replaced as directed by the Design Engineer and/or the Public Works Commission at the Contractor's expense.

Forms shall not be removed from the concrete for a minimum of 7 days, unless approved by the Design Engineer. The Contractor shall apply a curing compound or provide measures to maintain moisture for proper curing at his expense, if early form removal is approved. Immediately after the forms have been removed, all honeycomb areas shall be repaired (with one-part cement and two parts sand) and earth backfill material shall be placed adjacent to the finished concrete and

smoothed off to prevent an accumulation of standing water, subgrade saturation or under wash in the event of rain.

Both pedestrian and vehicle traffic shall be excluded from crossing the concrete for a period of 14 days by the erection and maintenance of suitable barricades. Contractor shall be responsible for any damage resulting from traffic within the 14-day period and he shall remove and replace any concrete damaged as directed by the Design Engineer and/or Public Works Commission.

MASONRY MATERIALS

Brick shall be in accordance with ASTM C-32 Grade MS laid in full beds of mortar with shove joints.

Concrete masonry blocks shall be in accordance with ASTM C-139. Blocks shall be at least 5", but not more than 8" in thickness nor less than 8" in length and of such shape that the joints can be effectively sealed and bonded with cement mortar.

Cement mortar for brick work shall be in accordance with ASTM C-270, Type M. Use Type IIA cement in accordance with ASTM C-150.

TESTING

The requirements of ACI318 (most recent edition) shall be used to control the evaluation of all concrete strengths. The strength is to be checked during construction by four (4) cylinders at the option and cost of the Public Works Commission, of which 1 shall be broken at 7 days, 2 at 28 days. If the specified strength is not achieved in 28 days, 1 reserved shall be stored and broken as specified by the Design Engineer. Cylinders shall be made and stored in accordance with ASTM C-13. Cylinders shall be for each day concrete is poured in excess of 10 cubic yards of each different type of concrete, as determined by the Design Engineer. All additional expenses required because of the failure of the materials to meet routine testing requirements, or poorly scheduled concrete deliveries, shall be borne by the Contractor.

END OF SECTION

**DIVISION 2
SITE WORK**

09804 - SPECIAL COATINGS –EPOXY LINING DUCTILE IRON PIPE AND FITTINGS

GENERAL

The interior surfaces of all ductile iron pipe and fittings in sanitary sewer service shall be fully coated with a ceramic epoxy lining. The lining system shall be a two component, amine cured novalac epoxy. The ceramic epoxy lining shall be applied to ductile iron pipe free of any other interior lining material. The finish coat shall be applied to yield a minimum dry film thickness of 40 mils for a complete lining. Any defects in the lining shall result in the pipe or fitting being replaced, at no additional cost to the Public Works Commission.

RELATED SECTIONS

- A. 02730 – Sanitary Sewer Systems
- B. 02732 – Sewage Force Mains

REFERENCES

- A. ASTM B 117 – Standard Practice for Operating Salt Spray (Fog) Apparatus
- B. ASTM C 413 – Standard Test Method for Absorption of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
- C. ASTM C 868 – Standard Test Method for Chemical Resistance of Protective Linings
- D. ASTM D 714 – Standard Test Method for Evaluating Degree of Blistering of Paints
- E. ASTM D 870 – Standard Practice for Testing Water Resistance of Coatings Using Water Immersion
- F. ASTM D 1308 – Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes
- G. ASTM D 1653 – Standard Test Methods for Water Vapor Transmission of Organic Coatings
- H. ASTM D 2240 – Standard Test Method for Rubber Property – Durometer Hardness
- I. ASTM D 2370 – Standard Test Method for Tensile Properties of Organic Coatings
- J. ASTM D 2583 – Standard Test Method ofr Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor
- K. ASTM D 2794 – Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
- L. ASTM D 4060 – Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
- M. ASTM D 4400 – Standard Test Method for Sag Resistance of Paints Using a Multinotch Applicator
- N. ASTM D 4541 – Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
- O. ASTM G 8 – Standard Test Methods for Cathodic Disbonding of Pipeline Coatings
- P. ASTM G 95 – Standard Test Method for Cathodic Disbondment Test of Pipeline Coatings
- Q. ASTM G154 – Standard Practice for Operating Fluorescent Ultraviolet Lamp Apparatus for Exposure of Nonmetallic Materials

Unless otherwise specified, references to documents shall mean the documents in effect at the time of bid. If the referenced document(s) have been discontinued by the issuing organization,

references to those documents shall mean the replacement documents or the last version of the document before it was discontinued.

Where conflicts exist between the standards and this specification, the more stringent shall apply.

MATERIALS

All ductile iron pipe and fittings shall be in accordance with the Public Works Commission standard specification 02730 – Sanitary Sewer Systems, Public Works Commission standard specification 02732 – Sewage Force Mains, and these Contract Documents.

The lining material shall be an amine cured novalac epoxy containing at least 20% by volume of ceramic quartz pigment (no silica fume, fly ash, or alumina dust). The lining shall be both coal tar (polycyclic aromatic hydrocarbons) free and hazardous air polluting solvents (HAPS) free. The lining system shall be 100% solids by volume.

The ceramic epoxy lining system shall be the Perma-Shield PL Series 431 as manufactured by Tnemec Company, Inc., Permox-CTF as manufactured by Permite Corporation, or approved equal.

The ceramic epoxy lining system shall meet the following minimum performance requirements:

- A. Abrasion (ASTM D 4060, CS-17 wheel, 1,000 grams) – 76 mg loss
- B. Adhesion (ASTM D 4541) – not less than 1,860 psi
- C. Severe Wastewater Analysis Test (150oF, 500 ppm H₂S, 4,000 ppm NaCl, 10% sulfuric acid, EIS Permeation Analysis) – Initial impedance of 11.2 (log-z). No blistering, cracking, checking, or loss of adhesion. Reduction in electrical impedance of 0.5 after 28 days of exposure.
- D. Cathodic Disbondment (ASTM G 8, 1.5 V, Classification Group A) – no more than 0.000 inch disbonded equivalent circle diameter.
- E. Dielectric Strength (ASTM D 149) – greater than 600 V per mil
- F. Hardness (ASTM D 2240) – Shore D hardness of 79
- G. Impact (ASTM D2794) – No visible cracking or delamination after 160 inch-pounds direct impact.
- H. Chemical resistance by immersion testing, in accordance with ASTM D 714, as outlined in the following table:

20% Sulfuric Acid at 77° F	2 years, no effect
25% Sodium Hydroxide at 140° F	2 years, no effect
5% Sodium Chloride at 77° F	2 years, no effect
Distilled Water at 160° F	2 years, no effect

- I. Salt Spray (ASTM B 117) – No blistering, cracking, rusting, or delamination of film. No rust creepage at scribe after 1,000 hours.
- J. Sag Resistance (ASTM D 4400) – Not less than 90 mills wet film thickness.
- K. Water Absorption (ASTM C 413) – 0.0 percent water absorption
- L. Water Vapor Transmission (ASTM D 1653, Method B, Wet Cup, Condition C) – 1.25 g/m² per 24 hour water vapor transmission and 0.09 perms water vapor permeance.

The above requirements shall be verified and tested by an approved testing laboratory. Copies of the laboratory test showing that the lining conforms to the specifications shall be furnished to the Public Works Commission upon written request and certified by the Supplier.

QUALITY ASSURANCE

The manufacturer of the specified coating system shall have a minimum of 10 years' experience in manufacturing high performance epoxy coating systems. The epoxy coating material shall be from a single manufacturer.

Application of the ceramic epoxy lining system shall be in accordance with the manufacturer's requirements. Preparation of the ductile iron pipe to be lined shall be completed by an installer approved by the lining system manufacturer.

SUBMITTALS

In accordance with these Contract Documents, the Contractor shall submit the following:

1. Manufacturer's certification that the coatings comply with the specified requirements and are suitable for the intended application.
2. Product data sheet.
3. Material Safety Data Sheet.
4. Copies of test data for all the physical, chemical, and permeation properties listed within this specification.

WARRANTY

The ceramic epoxy lining manufacturer shall warranty its products as free from material defects for a period of five (5) years. The Public Works Commission will solely determine whether the pipe should be replaced if any defects are discovered in the lining within the warranty period. All costs to replace the pipe or fitting, including but not limited to, bypass pumping, excavation, and traffic control shall be the manufacturer's responsibility.

APPLICATION OF LININGS

Application of the ceramic lining system shall be completed by an installer approved by the manufacturer of the lining system.

Surface Preparation: All interior barrel and joint surface areas which will be exposed to the sewer liquids and gases shall be prepared for lining by removing all laitance, form oil and other loose, foreign or deleterious materials which would adversely affect the bond of the lining compound of the pipe surface. All areas to receive the protective coating shall be abrasive blasted using compressed air nozzles with sand or grit media. The entire surface to be lined shall be struck with blast media so that all rust, loose oxides, etc., are removed from the surface. Any area where rust appears before lining must be re-blasted.

Qualification of Applicator and Workmen: The ceramic epoxy lining shall be applied by a competent firm with a ten (10) year history of lining sewer pipe. The workmen employed by the applicator shall be experienced and competent in the application and inspection of the lining compound to be applied. The Public Works Commission shall have the right to require the applicator to furnish bonds covering proper performance and guaranteeing the payment of all obligations arising as a result of improper materials and workmanship.

Equipment: All application equipment shall be as recommended by the suppliers of the lining compound.

Application Technique: After the surface has been thoroughly prepared for application, the interior of the pipe shall be coated with the ceramic epoxy to a minimum dry film thickness of 40 mils. No lining shall take place when the substrate or ambient temperature is below 40°F. The surface must be dry and dust free. The number of coats of lining material applied shall be as recommended by the lining manufacturer, but in no case shall it be applied above the dry film thickness per coat recommended by the lining manufacturer. The time between coats shall be that specified by the lining manufacturer.

Repair: All damaged areas or test areas shall be repaired by the lining manufacturer prior to shipment, in accordance with the manufacturer's recommendation, so that the repaired areas are equal to the undamaged lined areas in all respects.

Inspection: All pipe linings shall be checked for thickness using a magnetic film thickness gauge. The thickness testing shall be done in accordance with the method outlined in SSPC-PA-2 film thickness rating. The interior linings shall also be tested for pinholes with a non-destructive 2,500 volt test. Any defects found shall be repaired as noted above. All ceramic epoxy lined pipe and fittings shall be visually inspected for any defects, including runs, sags, or debris within the lining. All repairs shall be performed by the manufacturer prior to shipment.

Markings: Each joint, manhole unit, or fitting shall be marked with the date of application of the coating system, the date of inspection, and the numerical sequence of application on that date.

Shipping and Handling: Equipment used to handle and transport the lined pipe shall be suitably designed and operated not to damage the lining. Any damaged pipe or fitting shall be replaced at no cost to the Public Works Commission.

INSTALLATION

Cutting Pipe: The Contractor shall cut the pipe without damaging the pipe or interior ceramic epoxy coating. All cuts shall be at right angles to the pipe axis. All cut ends shall be dressed with a power grinder to remove all sharp edges. The cut ends of push-on joint pipe shall be beveled in accordance with the pipe manufacturer's instructions. All field cuts shall be coated and sealed

prior to installation. Application of the lining shall be done in accordance with the ceramic epoxy lining manufacturer's recommendations.

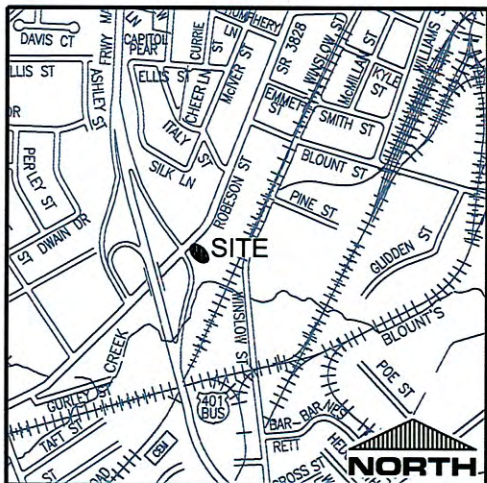
Handling: All ceramic epoxy lined pipe and fittings shall be handled only from the outside. No forks, chains, straps, hooks, cables, or other equipment shall be placed inside the pipe and fittings for lifting, positioning, or installation. The pipe and fittings shall not be dropped or unloaded by rolling. The pipe and fittings shall not strike sharp objects while moving or unloaded. Ductile iron pipe shall not be placed on grade utilizing hydraulic pressure from machinery or hammers. The use of nylon straps or other similar lifting devices are to be used.

Pipe Installation: All pipe and fittings shall be installed in accordance with PWC standard specifications 02222 – Excavation, Trenching, and Backfilling for Utility Systems, 02730 – Sanitary Sewer Systems, 02732 – Sewage Force Mains, and these Contract Documents.

END OF SECTION

APPENDICES

APPENDIX A – EASEMENTS



VICINITY MAP
(N.T.S.)

NOTES:

1. This map has been prepared for easement acquisition only.
2. This map was prepared from recorded maps & deeds by others and a partial survey.
3. Date surveyed 05/30/13.
4. Proposed Easement corners not set.
5. Proposed Temporary Construction Easement corners not set.
6. This map is not a certified survey and no reliance may be placed in its accuracy.

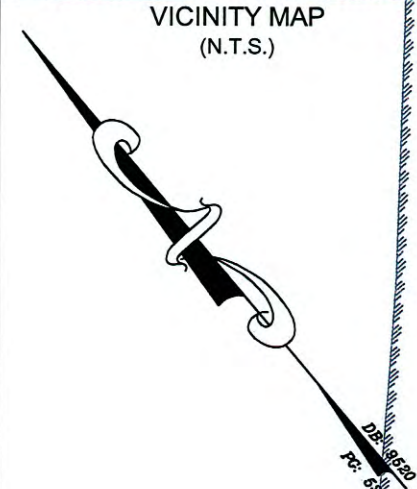
I certify that this map was drawn under my supervision from an actual survey made under my supervision; that the boundaries not surveyed are indicated as dashed lines and drawn from Deed Book 9520 Page 53; that the ratio of precision is 1: 15,000+; and that this map meets the requirements of The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600).
This 6th day of March, 2015.

Rayford

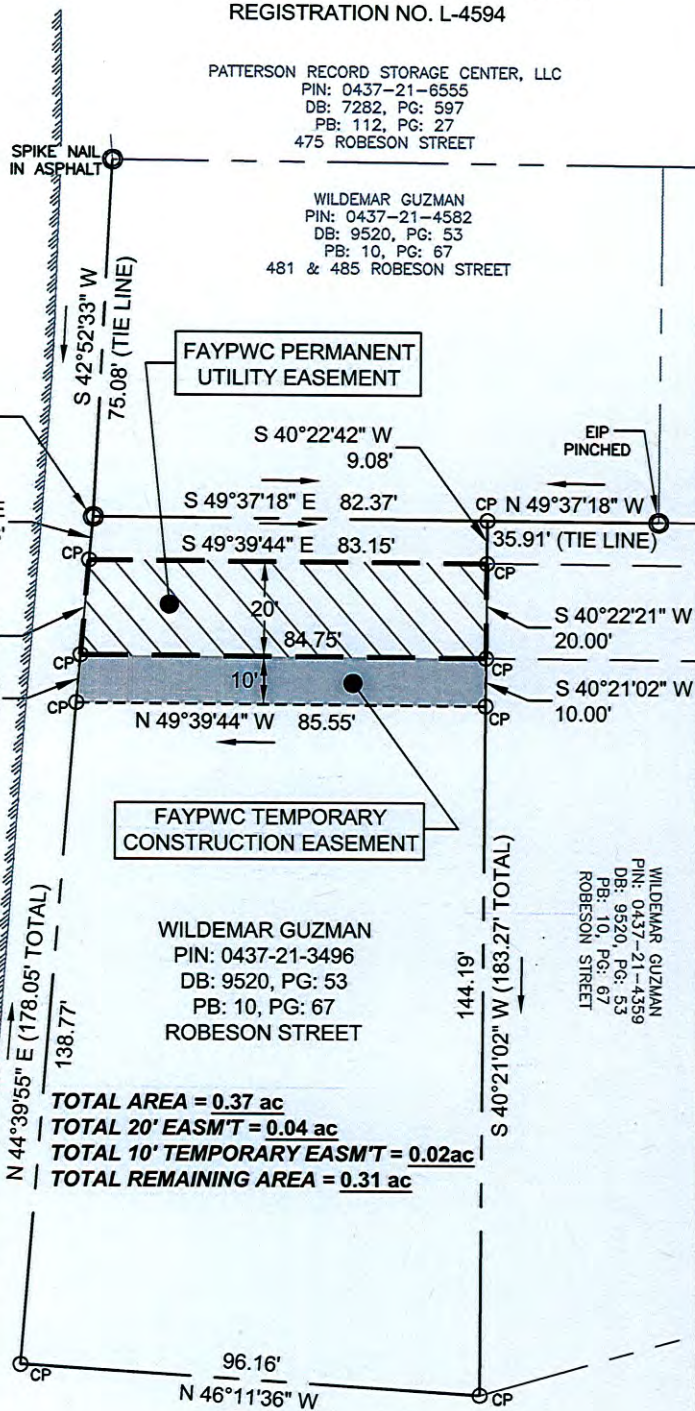
PROFESSIONAL LAND SURVEYOR
REGISTRATION NO. L-4594

PATTERSON RECORD STORAGE CENTER, LLC
PIN: 0437-21-6555
DB: 7282, PG: 597
PB: 112, PG: 27
475 ROBESON STREET

WILDEMAR GUZMAN
PIN: 0437-21-4582
DB: 9520, PG: 53
PB: 10, PG: 67
481 & 485 ROBESON STREET



ROBESON STREET
SR 3828
R/W VARIES
PAVEMENT VARIES



WILDEMAR GUZMAN
PIN: 0437-21-3496
DB: 9520, PG: 53
PB: 10, PG: 67
ROBESON STREET

WILDEMAR GUZMAN
PIN: 0437-21-4359
DB: 9520, PG: 53
PB: 10, PG: 67
ROBESON STREET

TOTAL AREA = 0.37 ac
TOTAL 20' EASM'T = 0.04 ac
TOTAL 10' TEMPORARY EASM'T = 0.02ac
TOTAL REMAINING AREA = 0.31 ac



Rayford
3/18/15

LEGEND

EXISTING IRON ROD	EIR	○
EXISTING IRON STAKE	EIS	○○○
SPIKE NAIL	CP	○○○
COMPUTED POINT		
ACRE	ac	
DEED BOOK	DB	
PLAT BOOK	PB	
PAGE	PG	
SURVEYED LINE		———
EDGE OF PAVEMENT		———
PROPERTY LINE/RIGHT-OF-WAY	RW	———
PERMANENT FAYPWC 20' UTILITY EASEMENT		▨▨▨▨
TEMPORARY FAYPWC 10' CONSTRUCTION EASEMENT		▨▨▨▨

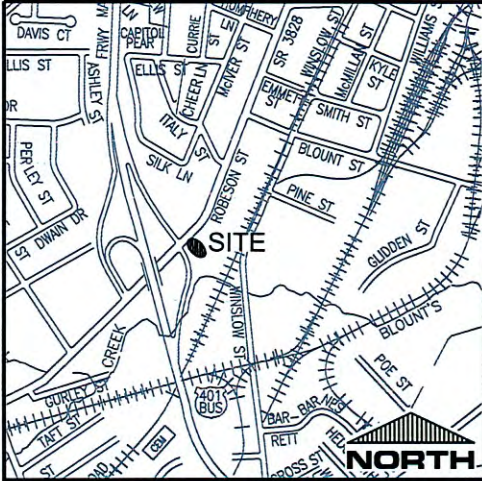
EXHIBIT "A"
FAYPWC PERMANENT UTILITY EASEMENT
AND TEMPORARY CONSTRUCTION EASEMENT
WILDEMAR GUZMAN
PIN: 0437-21-3496

FAYETTEVILLE NORTH CAROLINA
CROSS CREEK TWP. CUMBERLAND COUNTY



FWC PUBLIC WORKS COMMISSION OF THE CITY OF FAYETTEVILLE
WATER RESOURCES ENGINEERING
955 OLD WILMINGTON RD.
FAYETTEVILLE, N.C. 28301
(910) 223-4730

SURVEY/GPS BY: FAYPWC	DATE	REVISIONS	BY
LAYOUT BY: FAYPWC	DATE: 03/06/15		
PLAN/PROF. BY: BGM			
DESIGN REVIEW BY: W/R ENGR. DEPT			
APPROVED BY:			
SCALE: HOR: 1"=40' VERT: 1"= N/A	SHT: 1 OF 1	AW-14468B	



NOTES:

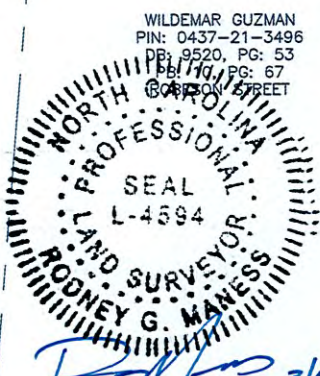
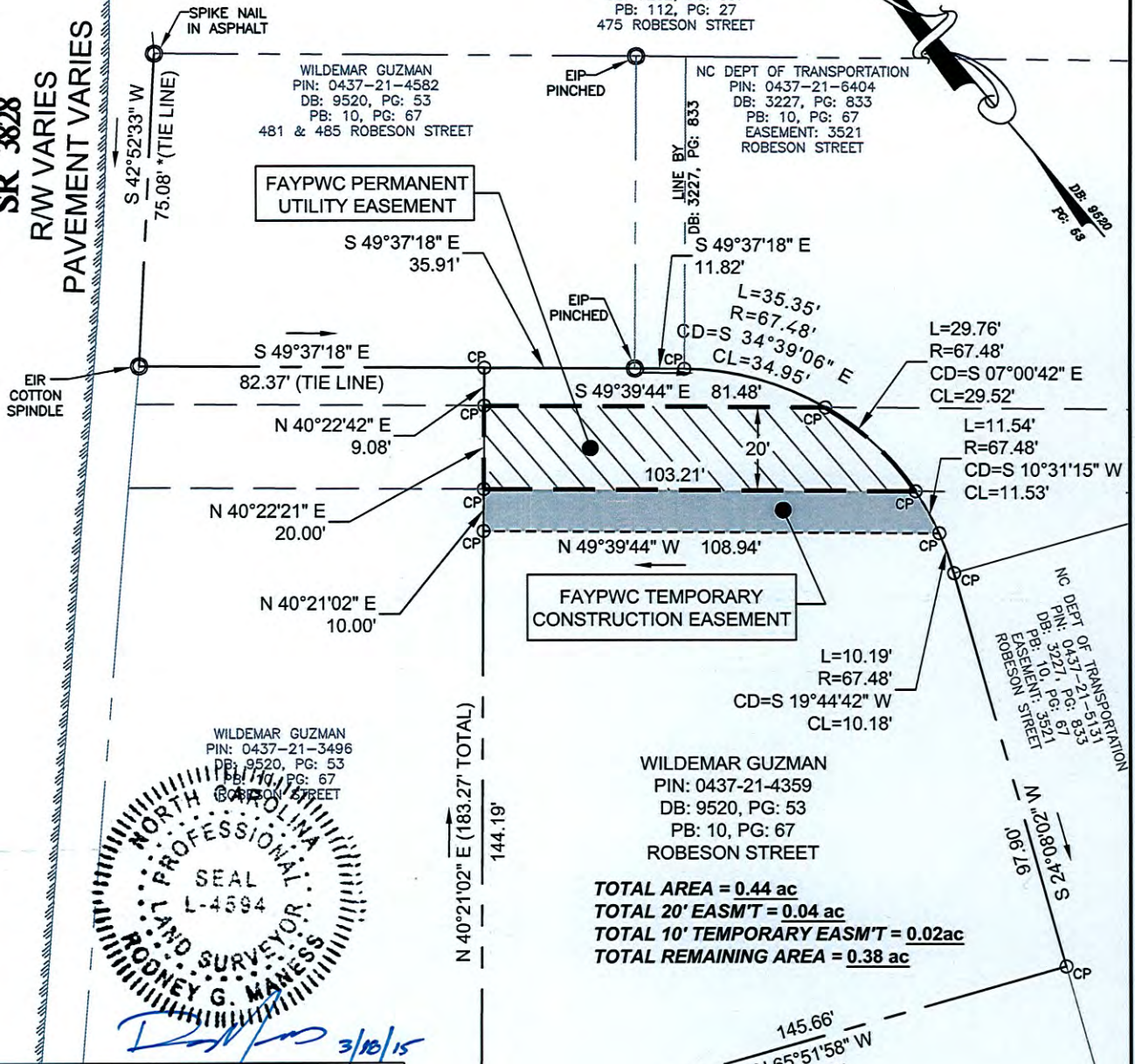
1. This map has been prepared for easement acquisition only.
2. This map was prepared from recorded maps & deeds by others and a partial survey.
3. Date surveyed 05/30/13.
4. Proposed Easement corners not set.
5. Proposed Temporary Construction Easement corners not set.
6. This map is not a certified survey and no reliance may be placed in its accuracy.

I certify that this map was drawn under my supervision from an actual survey made under my supervision; that the boundaries not surveyed are indicated as dashed lines and drawn from Deed Book 9520 Page 53; that the ratio of precision is 1: 15,000+; and that this map meets the requirements of The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600).
 This 6th day of March, 2015.

[Signature]
 PROFESSIONAL LAND SURVEYOR
 REGISTRATION NO. L-4594

VICINITY MAP (N.T.S.)

**ROBESON STREET
 SR 3828
 R/W VARIES
 PAVEMENT VARIES**



WILDEMAR GUZMAN
 PIN: 0437-21-4359
 DB: 9520, PG: 53
 PB: 10, PG: 67
 ROBESON STREET

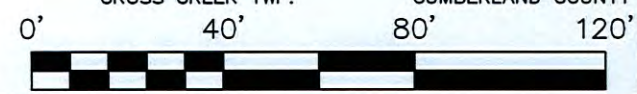
TOTAL AREA = 0.44 ac
TOTAL 20' EASM'T = 0.04 ac
TOTAL 10' TEMPORARY EASM'T = 0.02ac
TOTAL REMAINING AREA = 0.38 ac

LEGEND

EXISTING IRON ROD	EIR	○
EXISTING IRON STAKE	EIS	○○○○
SPIKE NAIL		○
COMPUTED POINT	CP	○
ACRE	ac	
DEED BOOK	DB	
PLAT BOOK	PB	
PAGE	PG	
SURVEYED LINE		—
EDGE OF PAVEMENT		—
PROPERTY LINE/RIGHT-OF-WAY	R/W	—
PERMANENT FAYPWC 20' UTILITY EASEMENT		▨
TEMPORARY FAYPWC 10' CONSTRUCTION EASEMENT		▨

EXHIBIT 'A'
**FAYPWC PERMANENT UTILITY EASEMENT
 AND TEMPORARY CONSTRUCTION EASEMENT**
WILDEMAR GUZMAN
PIN: 0437-21-4359

FAYETTEVILLE CROSS CREEK TWP. NORTH CAROLINA CUMBERLAND COUNTY



FWC PUBLIC WORKS COMMISSION OF THE CITY OF FAYETTEVILLE
WATER RESOURCES ENGINEERING
 955 OLD WILMINGTON RD.
 FAYETTEVILLE, N.C. 28301
 (910) 223-4730

SURVEY/GPS BY:	DATE	REVISIONS	BY
LAYOUT BY: FAYPWC	DATE: 03/06/15		
PLAN/PROF. BY: BGM			
DESIGN REVIEW BY: W/R ENGR. DEPT			
APPROVED BY:			
SCALE: HOR: 1"=40' VERT: 1"= N/A	SHT: 1 OF 1	AW-14468C	



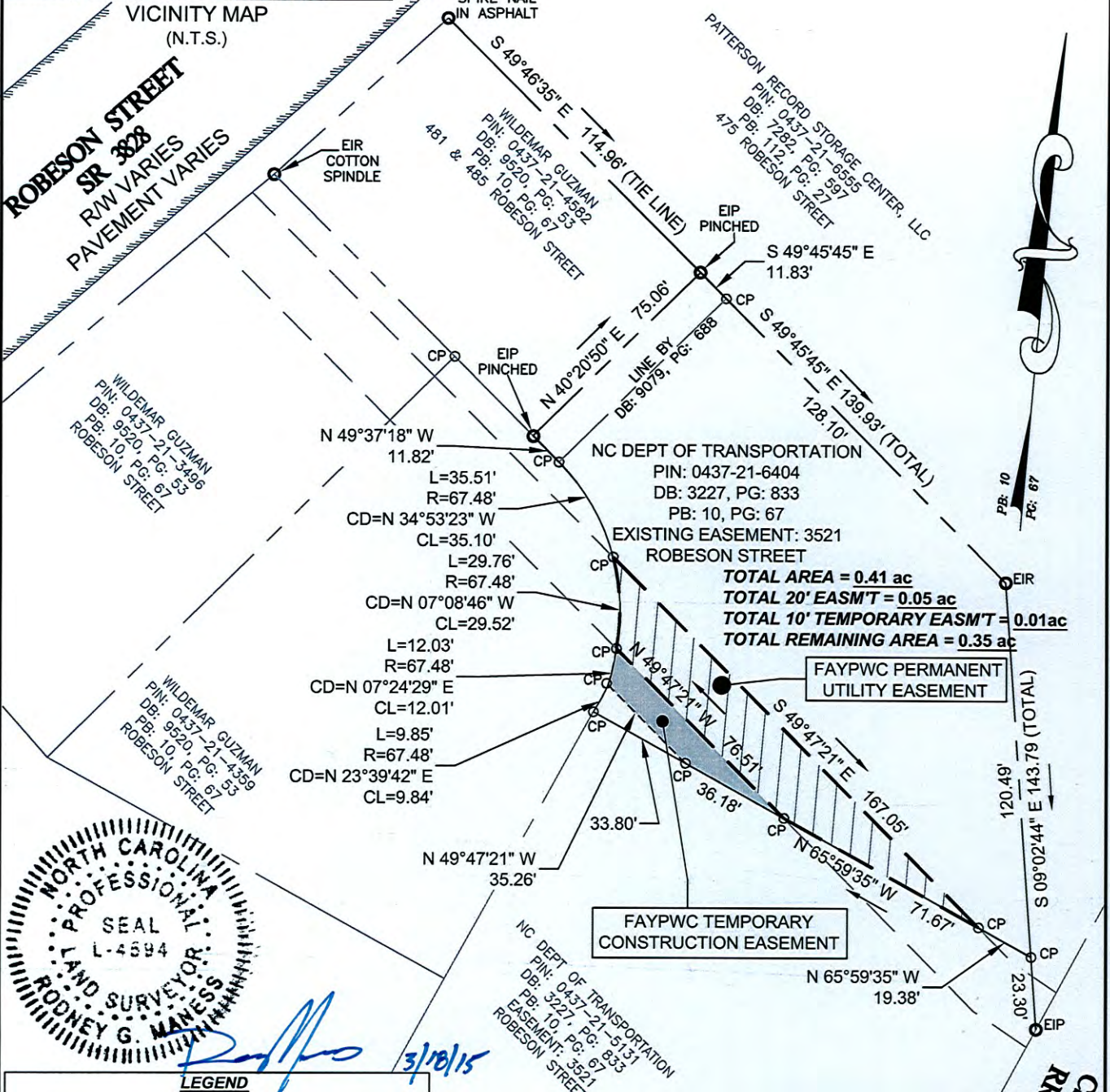
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 This 6th day of March, 2015.

[Signature]

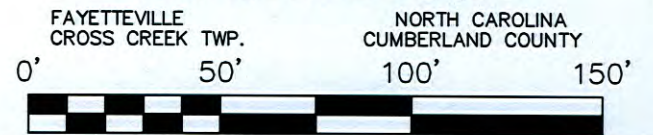
PROFESSIONAL LAND SURVEYOR
 REGISTRATION NO. L-4594



LEGEND

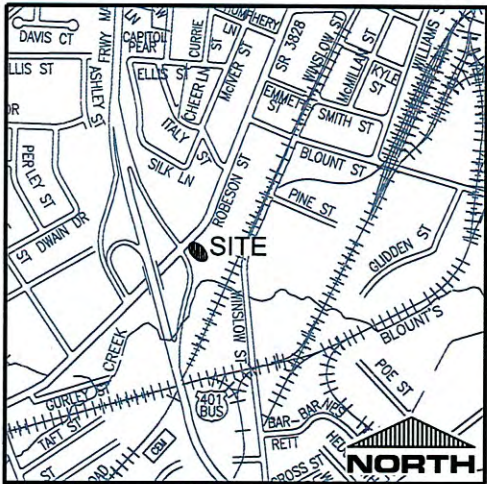
EXISTING IRON ROD	EIR	○
EXISTING IRON STAKE	EIS	○○○
SPIKE NAIL	CP	○
COMPUTED POINT		
ACRE	ac	
DEED BOOK	DB	
PLAT BOOK	PB	
PAGE	PG	
SURVEYED LINE		———
EDGE OF PAVEMENT		———
PROPERTY LINE/RIGHT-OF-WAY	R/W	———
PERMANENT FAYPWC 20' UTILITY EASEMENT		▭▭▭
TEMPORARY FAYPWC 10' CONSTRUCTION EASEMENT		▭▭▭

EXHIBIT 'A'
FAYPWC PERMANENT UTILITY EASEMENT
AND TEMPORARY CONSTRUCTION EASEMENT
NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
PIN: 0437-21-6404



FWC PUBLIC WORKS COMMISSION OF THE CITY OF FAYETTEVILLE
WATER RESOURCES ENGINEERING
 955 OLD WILMINGTON RD.
 FAYETTEVILLE, N.C. 28301
 (910) 223-4730

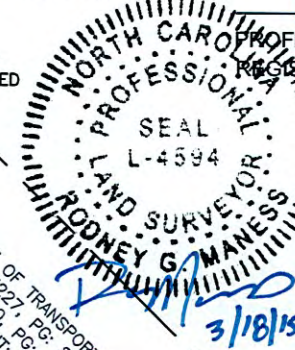
SURVEY/GPS BY: FAYPWC	DATE	REVISIONS	BY
LAYOUT BY: FAYPWC	DATE: 03/06/15		
PLAN/PROF BY: BGM			
DESIGN REVIEW BY: W/R ENGR. DEPT			
APPROVED BY:			
SCALE: HOR: 1"=50' VERT: 1"= N/A	SHT: 1 OF 1	AW-14468D	



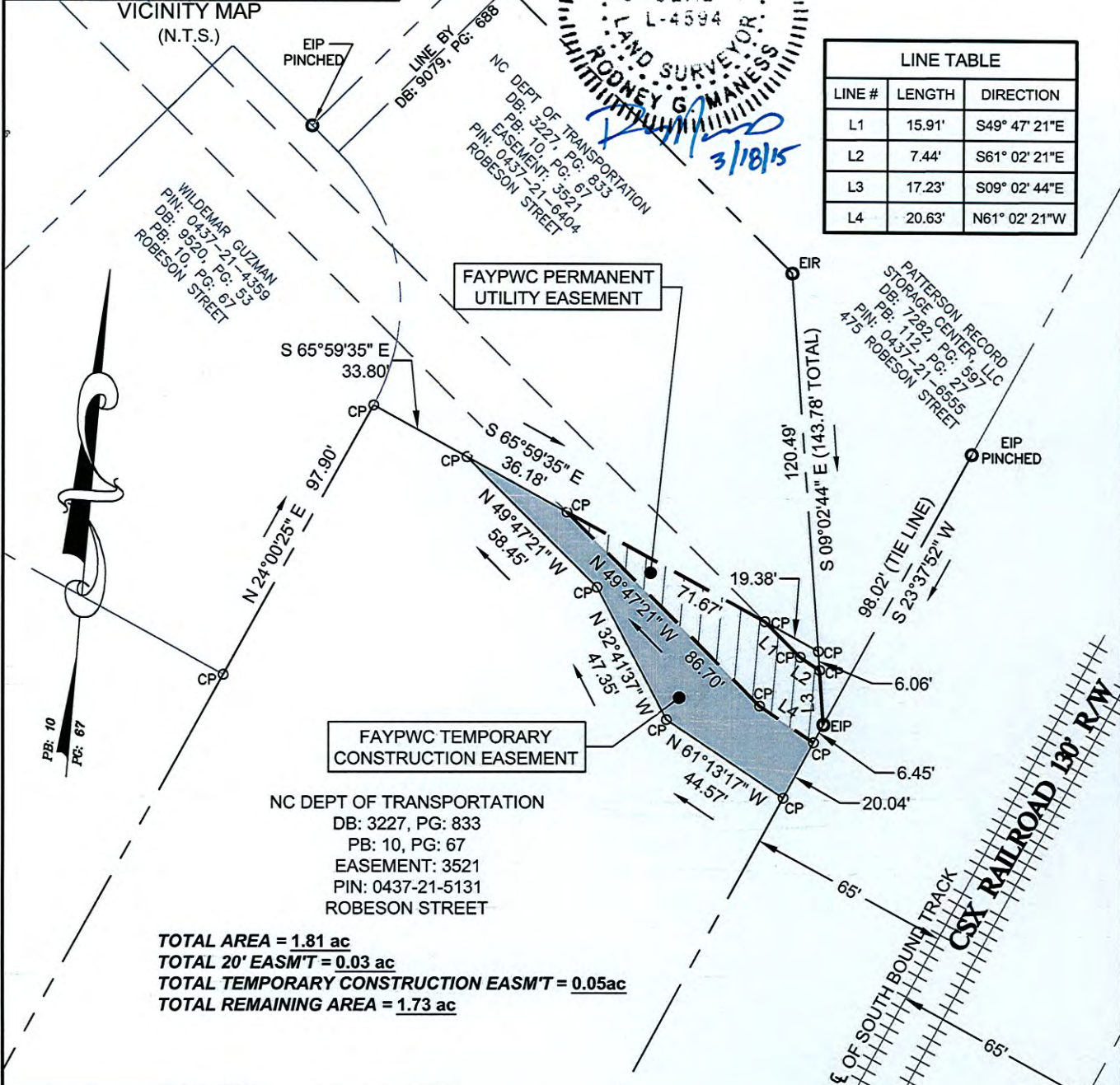
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 This 6th day of March, 2015.

Rodney G. Maness
 PROFESSIONAL LAND SURVEYOR
 REGISTRATION NO. L-4594



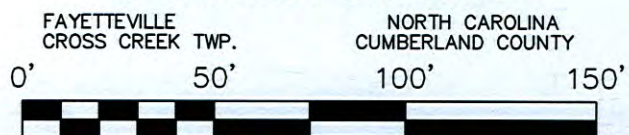
LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	15.91'	S49° 47' 21"E
L2	7.44'	S61° 02' 21"E
L3	17.23'	S09° 02' 44"E
L4	20.63'	N61° 02' 21"W



TOTAL AREA = 1.81 ac
 TOTAL 20' EASMT = 0.03 ac
 TOTAL TEMPORARY CONSTRUCTION EASMT = 0.05ac
 TOTAL REMAINING AREA = 1.73 ac

LEGEND	
EXISTING IRON ROD	EIR ○
EXISTING IRON STAKE	EIS ○
SPIKE NAIL	○
COMPUTED POINT	CP ○
ACRE	ac
DEED BOOK	DB
PLAT BOOK	PB
PAGE	PG
SURVEYED LINE	—————
EDGE OF PAVEMENT	—————
PROPERTY LINE/RIGHT-OF-WAY	R/W ————
PERMANENT FAYPWC 20' UTILITY EASEMENT	▨
TEMPORARY FAYPWC 10' CONSTRUCTION EASEMENT	■

EXHIBIT 'A'
FAYPWC PERMANENT UTILITY EASEMENT AND TEMPORARY CONSTRUCTION EASEMENT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PIN: 0437-21-5131



PWC PUBLIC WORKS COMMISSION OF THE CITY OF FAYETTEVILLE
WATER RESOURCES ENGINEERING
 955 OLD WILMINGTON RD.
 FAYETTEVILLE, N.C. 28301
 (910) 223-4730

SURVEY/GPS BY:	DATE	REVISIONS	BY
FAYPWC			
LAYOUT BY: FAYPWC	DATE: 03/06/15		
PLAN/PROF. BY: BGM			
DESIGN REVIEW BY: W/R ENGR. DEPT			
APPROVED BY:			
SCALE: HOR: 1"=50' VERT: 1"= N/A	SHT: 1 OF 1	AW-14468E	

Roadside Environmental

34. 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 (910) 364-0603.
35. 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.
36. 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.
37. 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.
38. No trees within NCDOT 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.
39. Prior to installation, the Encroaching Party shall contact the District Engineer to discuss any environmental issues associated with the installation to address concerns related to the root system of trees impacted by boring or non-utility construction of sidewalk, roadway widening, etc.

APPENDIX B – NCDOT & RAILROAD ENCROACHMENTS

NCDOT ENCROACHMENT PERMIT



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

August 25, 2022

Ms. Elaina L. Ball, CEO/General Manager
Public Works Commission
Post Office Box 1089
Fayetteville, NC 28302

SUBJECT: Encroachment Agreement on SR 3828 (Robeson Street) in the City of Fayetteville in Cumberland County (E062-026-21-00315).

Dear Sir:

Attached is an approved R/W form 16.1 and plans for the installation of one (1) 10" x 10" tapping sleeve and valve, 10'± of 10"Φ restrained joint ductile iron (RJDI) water main, one (1) 12" x 10" reducer, 12'± of 12"Φ restrained joint ductile iron (RJDI) water main, the abandonment of 20'± of 10"Φ cast iron (CI) water main (to be grout filled), 21'± of 8"Φ ductile iron (DI) sanitary sewer main, the abandonment of 21'± of 8"Φ vitrified clay (VC) sanitary sewer main (to be removed), 40'± of 1"Φ copper water service lateral and one (1) 1" meter box and lid with associated appurtenances by open asphalt cut method (50'± x 13'± - 196 square feet mill and overlay) on SR 3828 (Robeson Street) in the City of Fayetteville in Cumberland County as shown on the attached plans (PWC encroachment #18815 – BW-14468H).

Location:

Route	At a point	Towards
SR 3828	142'± southwest of the intersection of SR 3828 (Robeson Street) and US Highway 401 Business/NC Highway 87 (Martin Luther King, Jr. Freeway)	52'± to the southwest; SR 1168

This encroachment is approved subject to the following:

Pre-Construction

Contact Offices & Outside Agency issues/contacts/info

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 Mr. Troy Baker, Senior Assistant District Engineer at telephone (910) 364-0601 or email to tlbaker@ncdot.gov at the District Engineer's office.**

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. Excavation within 1000 feet of a signalized intersection will require notification by the encroaching party to the Division Traffic Engineer at telephone number (910) 364-0606 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.**
7. 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.
8. At the option of the District Engineer, a preconstruction meeting including representatives of NCDOT, the encroaching party, contractors and municipality, if applicable, shall be required. A pre-construction conference held between a municipality (or other facility owner) and a contractor without the presence of NCDOT personnel with subsequent construction commencing may be subject to NCDOT personnel ceasing any work on NCDOT right-of-way related to this encroachment until such meeting is held. Contact the District office to schedule.
- 9. A NOTIFICATION FOR UTILITY / NON-UTILITY ENCROACHMENT WITHIN NCDOT R/W form (See corresponding attachment) with the scheduled pre-construction meeting and associated construction schedule details must be completed and submitted to the District Engineer's office a minimum of one week prior to construction.**
- 10. A qualified NCDOT inspector shall be on the site at all times during construction. The encroaching party (not the utility contractor) shall make arrangements to have a qualified inspector, under the supervision of a Professional Engineer registered in North Carolina, on site at all times during construction. The registered encroaching party shall be required to submit a signed certification memo that the utility was installed in accordance with the encroachment agreement.**

Legal & Right-of-Way Issues

11. 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.
12. 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.
13. Encroaching party shall be responsible for obtaining all necessary permanent and/or temporary construction, drainage, utility and/or sight distance easements.
14. All Right of Way and easements necessary for construction and maintenance shall be dedicated to NCDOT with proof of dedication furnished to the District Engineer prior to beginning work.
15. No commercial advertising shall be allowed within NCDOT Right of Way.
16. The encroaching party shall obtain proper approval from all affected pole owners prior to attachment to any pole.
17. The installation within the Control of Access fence shall not adversely affect the design, construction, maintenance, stability, traffic safety or operation of the controlled access highway, and the utility must be serviced without access from the through-traffic roadways or ramps.

Bonds

- 18. A Continuing Indemnity Bond (#018225706) in the amount of \$100,000.00 was posted with the North Carolina Department of Transportation – Division of Highways on February 8, 2022. This bond may be used to repair any areas associated with this encroachment agreement in the event that the pavement repairs fail or settle in the opinion of the Department.**
19. The release of the bond is subject to a final inspection by NCDOT. Contact the District office to schedule a Final Inspection and to request release of the bond.

Work Zone Traffic

20. Traffic control shall be coordinated with the District Engineer and the Division Traffic Engineer, Mr. Frank West at telephone (910) 364-0606, prior to construction.

21. 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.

22. 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.
23. If the Traffic Control Supervisor determines that portable concrete barrier (PCB) is required to shield a hazard within the clear zone, then PCB shall be designed and sealed by a licensed North Carolina Professional Engineer. PCB plans and design calculations shall be submitted to the District Engineer for review and approval prior to installation.
24. 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.

25. 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**. No lane of traffic shall be closed on holidays, special events, or as directed by the engineer. Any violation of these hours will result in ceasing any further construction by the Encroaching Party or their contractor.
26. 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.
27. 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.
28. Work requiring lane or shoulder closures shall not be performed on both sides of the road simultaneously within the same area.
29. 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*.
30. At the discretion of the District Engineer, a traffic control plan shall be developed and submitted under the seal and signature of a Licensed North Carolina Professional Engineer prior to construction. The plan shall be specific to the site and adequately detailed. Issues such as the close proximity to intersections shall be addressed.
31. Temporary and final pavement markings are the responsibility of the encroaching party. Final pavement markings and sign plans shall be submitted with the encroachment request to the Division Traffic Engineer prior to construction. Final pavement markings shall be thermoplastic unless otherwise directed by the Division Traffic Engineer or District Engineer.
32. Any pavement markings that are damaged or obliterated shall be restored by the encroaching party at no expense to NCDOT.
33. Sidewalk closures shall be installed as necessary. Pedestrian traffic shall be detoured around these closures and shall be signed appropriately and in accordance with The American with Disabilities Act Accessibility Guidelines. The encroaching party must adhere to the guidelines for accommodating pedestrians in encroachment work zones as described in the NCDOT Pedestrian Work Zone Accommodations Training found at <https://www.youtube.com/watch?v=AOuYa5IW3dg&feature=youtu.be>

40. 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.
41. 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 agent.
42. 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.

STIP (or Division Managed) Projects

- 43. State Transportation Improvement Project (STIP) U-6152 is scheduled for future construction. Any encroachment determined to be in conflict with the construction of this NCDOT project shall be removed and/or relocated at the encroaching party's expense.**

Construction

General

44. 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.
45. 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.
46. Any REVISIONS marked in RED on the attached non-PE sealed plans shall be incorporated into and made part of the approved encroachment agreement.
47. 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.
48. 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.
49. 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.

50. 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.
51. 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.
52. No access to the job site, parking or material storage shall be allowed along or from the **Control of Access Roadway**.
53. 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.
54. The resetting of the Control of Access fence shall be in accordance with the applicable NCDOT standard and as directed by the Division Engineer or their representative.
55. Right of Way monuments disturbed during construction shall be referenced by a registered Land Surveyor and reset after construction.
56. All traffic signs moved during construction shall be reinstalled as soon as possible to the satisfaction of the Division Engineer or their representative.
57. 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.
58. 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.
59. All driveways disturbed during construction shall be returned to a state comparable with the condition of the driveways prior to construction.
60. Any proposed driveway connections onto NCDOT roadways will require an approved driveway permit. The approval of this encroachment agreement does not constitute approval of any proposed driveway connections. For further information, contact Mr. Troy L. Baker, Senior Assistant District Engineer at (910) 364-0601.
61. Conformance with driveway permit review should be required in conjunction with this encroachment agreement. In the event there is a conflict between the driveway permit and the encroachment agreement, the District Engineer should resolve the conflict and notify the parties involved.
62. 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.

Engineering

63. 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.**
64. Prior approval for any blasting must be obtained from the Division Engineer or their representative.
65. Regulator stations, metering stations, cathodic test stations, and anode beds are not permitted within NCDOT right of way. Header wires are permitted.
66. Non-Utility Communication and Data Transmission installations (ground mounted type or Small Cell pole-mounted type) must adhere to guidelines in the Utilities Accommodations Manual and, when located within municipal jurisdictions, are subject to review and approval by municipal ordinances and any additional municipal approval for proximity to historic districts and landmarks. All wiring and related telecommunications work shall conform to the latest regulations by the Federal Communications Commission.
67. All wiring and related electrical work shall conform to the latest edition of the National Electrical Safety Code.

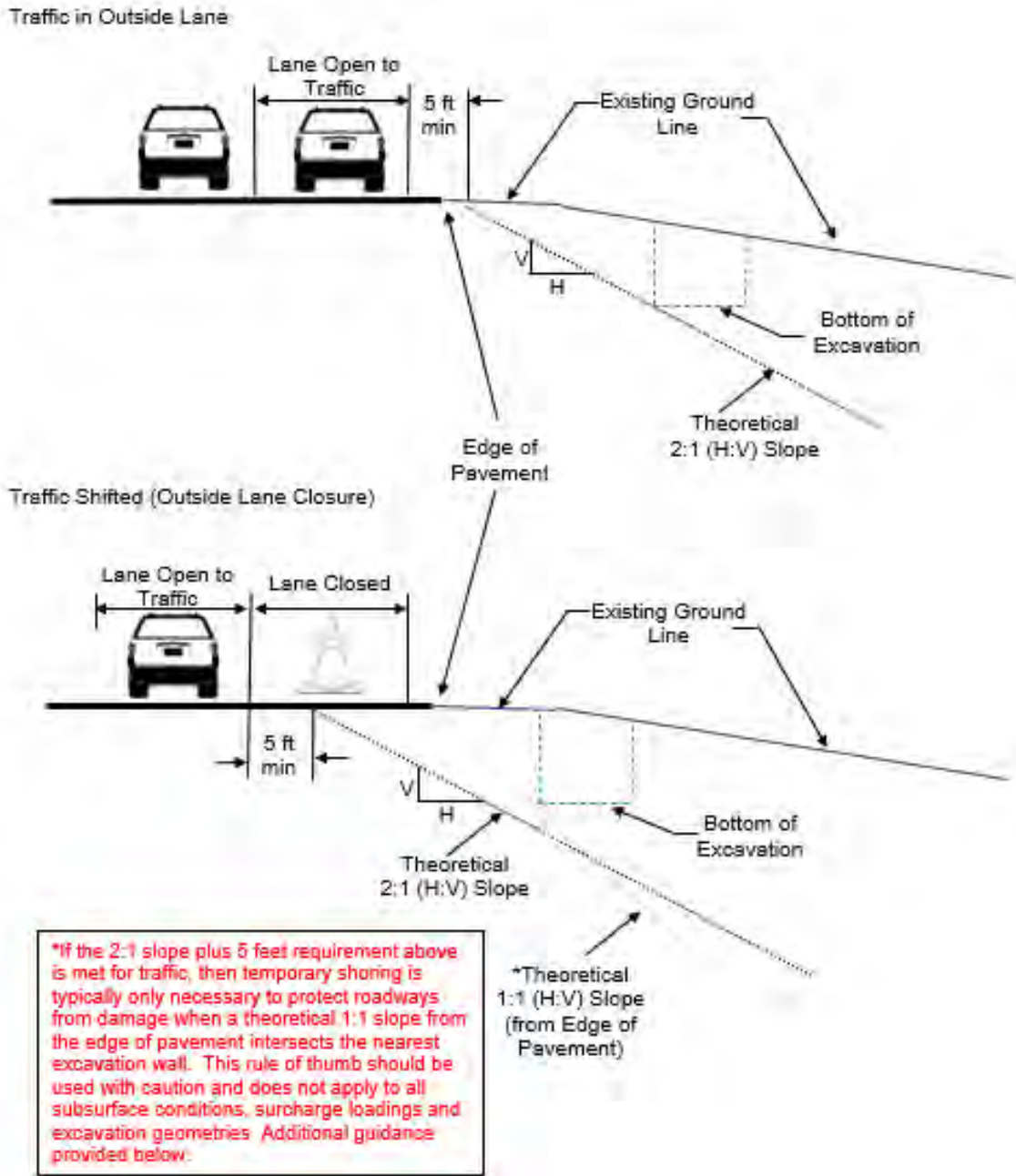
Location within R/W

68. 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 aerially.
69. Fire Hydrants shall be of the breakaway type. Hydrants shall be placed near the right of way line. In curb and gutter sections with written approval from the District, the hydrants may be placed at 6' behind the back of the curb or minimum 2' back of sidewalk.
70. Luminaire and/or utility poles and guy wires shall be set as close to the Right of Way line as practical and outside the Clear Zone in accordance with the latest version of the AASHTO Roadside Design Guide (See corresponding attachment) or made breakaway in accordance with the requirements of NCHRP Report 350. Any relocation of the utility poles from the original design due to Clear Zone requirements shall require a re-submittal for the utility design.
71. Luminaire and/or utility poles shall be set a minimum of 5'-6" behind face of any guardrail or otherwise sufficiently protected. However, standard placement may be reduced to 3'-6" behind face of guardrail when posts are spaced 3'-1 ½", or where speed limit is less than 55 MPH.

72. Hot box (aka ASSE 1060) or Safe-T-Cover type enclosures covering utility main pipe joints, backflow preventers, valves, vent pipes, cross connections, pumps, grinders, irrigation assemblies, transformers, generators, and other similar large appurtenances shall be located outside sight distance triangles and off of the NCDOT Right-of-Way.
73. Sprinkler heads shall be located a minimum of 10 feet from the edge of pavement, edge of shoulder, or back of curb whichever is greater and shall be directed so that water does not spray or drain on the roadway surface, sidewalk, or passing vehicles at any time. Upon completion of the installation and prior to activation of the system, the Encroacher shall contact the District Engineer to schedule a test of the system to verify the spray pattern. Sprinkler systems shall not be operated during periods of high wind or freezing weather, or to the extent that the subgrade adjacent to the pavement structure becomes saturated. NCDOT reserves the right to require immediate termination and removal of any sprinkler system which in its judgement and opinion adversely affects safety, maintenance, or operation of the roadway.

Excavation

74. Excavation material shall not be placed on pavement.
75. 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.
76. 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. 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.



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 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, design calculations, and subsurface investigation report.) **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 two-to-one slope plus 5 feet requirement, 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. A qualified NCDOT inspector shall be on the site at all times during construction. The encroaching party (not the utility contractor) shall make arrangements to have a qualified inspector, under the supervision of a Professional Engineer registered in North Carolina, on site at all times during construction. The registered encroaching party shall be required to submit a signed certification memo that the utility was installed in accordance with the encroachment agreement.**
 - 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.
77. All material to a depth of 8 inches below the finished surface of the subgrade shall be compacted to a density equal to at least 100% of that obtained by compacting a sample of the material in accordance with AASHTO T99 as modified by the Department. The subgrade shall be compacted at a moisture content which is approximately that required to produce the maximum density indicated by the above test method. The contractor shall dry or add moisture to the subgrade when required to provide a uniformly compacted and acceptable subgrade. The option to backfill any trenches with dirt or either #57 stone or #78 stone with consolidation with a plate tamp and without a conventional density test may be pursued with the written consent of the District Engineer. If this option is exercised, then roadway ABC stone and asphalt repair as required will also be specified by the District Engineer.

Directional bore

78. 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.

79. 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.

<u>Diameter of Drilled Hole (Backream)</u>	<u>Minimum Depth of Cover</u>
2" to 6"	5 feet
>6" to 15"	12 times hole diameter (e.g. 6-inch hole means 6 feet minimum depth)
>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.

Aerial clearances

- 80. Vertical clearance of overhead power and communication lines shall meet the National Electrical Safety Code requirements except the minimum vertical clearance shall be 18' for crossings over NCDOT roadways (24' over Fully Controlled Access roadways) and 16' for parallel installations.
- 81. In relation to the bridge, the utility line shall be located with minimum clearances as indicated on the attachment for NCDOT **Required Clearances for Aerial Installations by Encroachment Near Bridge Structures**.

Pavement Detail and Repair

- 82. The paving of this roadway shall be in accordance with the latest version of the NCDOT Standard Specifications, Sections 610, 1012 and 1020. The Contractor shall follow all procedures of the Quality Management System (QMS) for asphalt pavement - Maintenance Version (see <https://connect.ncdot.gov/resources/Materials/MaterialsResources/2018%20QMS%20Asphalt%20Manual.pdf>). The Contractor must adhere to all testing requirements and quality control requirements specified. The Contractor shall contact the NCDOT Division QA Supervisor prior to producing plant mix and make the Supervisor aware that the mix is being produced for a future NCDOT road. Contact the District Engineer to determine the NCDOT Division QA Supervisor. Only NCDOT approved mix designs will be acceptable. A Quality Control Plan shall be submitted (as Directed by the District Engineer) to the District Engineer's Office prior to asphalt production utilizing form QMS-MV1. Failing mixes and/or densities are subject to penalties including monetary payments or removal and replacement. To minimize traffic queuing in construction areas, the possibility of traffic detours may be considered when working on high traffic routes even if traffic control is used. The District Engineer may require traffic detours.

83. When paving beyond utility installation is involved or as directed by the Engineer, a Roadway certification report sealed by a Professional Engineer shall be submitted to the District Engineer's office indicating the following:

- Pavement thickness by type
- Pavement density, core and/or test locations
- Base thickness
- Base density
- Subgrade density

Test frequency and method shall be in conformance with the NCDOT *Materials and Tests Manual*. Test must be performed by a Certified Technician including name and Certification number on report.

84. "Potholing" pavement cores to expose existing utilities shall be made with an 18" diameter keyhole pavement core. Pavement core locations shall not be placed in the wheel path whenever possible. Vacuum excavation shall be utilized to expose underground utilities. Pavement cores shall be repaired within the same working day. The pavement core shall be retained and reused to fill the core hole.

The excavation shall be backfilled and compacted with select material to the bottom of the existing pavement structure or as indicated by the District Engineer. The retained core shall be placed in the hole and secured with a waterproof, mechanical joint. If the pavement core is damaged and cannot be re-used, the core may be replaced with the surface mix, S9.5B. The asphalt patch shall match the thickness of the existing asphalt or four inches, whichever is greater. All materials must be listed on the NCDOT Approved Products List (APL) found at: <https://apps.ncdot.gov/vendor/approvedproducts/>.

85. All open cuts (**if permitted**) on primary routes will require full depth patching with 5.0" of B 25.0 B (ACBC) Asphalt Concrete Base Course, 3.0" of I 19.0 B (ACIC) Asphalt Concrete Intermediate Course and 2.0" of S 9.5 B (ACSC) Asphalt Concrete Surface Course the same day as cut is made. It will also be required to mill the existing pavement surface at a depth of 2.0" and a width of 1.0' on each side of the cut to key in the patch with the existing pavement surface in accordance with the attached detail.

86. All open cuts on secondary routes will require full depth patching with 5.0" of B 25.0 B (ACBC) Asphalt Concrete Base Course, 3.0" of I 19.0 B (ACIC) Asphalt Concrete Intermediate Course and 2.0" of S 9.5 B (ACSC) Asphalt Concrete Surface Course the same day as cut is made. It will also be required to mill the existing pavement surface at a depth of 2.0" and a width of 25.0' on each side of the cut to key in the patch with the existing pavement surface in accordance with the attached detail.

87. Eight inches of ABC will be used as the base. Compaction test shall be performed at the location of every open cut that crosses NCDOT roadways. The owner will be required to have an approved laboratory furnish the District Office a copy of the test results.

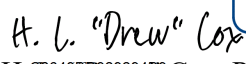
88. Pavement cuts shall be repaired the same day the cuts are made unless an asphalt patch cannot be accomplished the same day due to material availability or time restrictions. When the asphalt patch is not feasible, the following apply:
 - a. The pavement cut shall be filled to the surface with ABC stone or Flowable Fill per NCDOT's Standards and Specifications.
 - b. Once the cut is filled, a minimum ¾-inch steel plate shall be placed and pinned to prevent moving. Plates shall be designed large enough to span a minimum of 1-foot on all sides on the pavement cut.
 - c. When flowable fill is used, it shall cure for 24 hours prior to any asphalt material placement. Flowable fill bleed water shall not be present during paving operations. Paving shall not cause damage (shoving, distortion, pumping, etc.) to the flowable fill.
 - d. Install and leave "BUMP" signs according to MUTCD until the steel plate has been removed. Once the flowable fill has cured, remove the steel plate, and mill/fill according to the directions of the District Engineer.
 - e. All pavement cuts must be sealed with NCDOT approved sealant to prevent future pavement separation or cracking.
89. 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.
90. All concrete installed within NCDOT rights of way shall be constructed in accordance with the latest NCDOT **Standard Specifications for Roads and Structures** and **Roadway Standard Drawings** and Amendments or Supplementals thereto. All concrete shall be an approved NCDOT Class B mix. All materials testing results shall be provided to the District Engineer upon completion of the project.
91. All concrete sidewalk installed within NCDOT rights of way shall be constructed in accordance with the latest NCDOT **Standard Specifications for Roads and Structures** and **Roadway Standard Drawings** (Std. Dwg. No. 846.01 and 848.01) and Amendments or Supplementals thereto. All concrete shall be an approved NCDOT Class B mix. All materials testing results shall be provided to the District Engineer upon completion of the project.
92. All ADA compliant curb ramps shall be constructed in accordance with the latest NCDOT **Standard Specifications for Roads and Structures** and **Roadway Standard Drawings** (Std. Dwg. No. 848.06) and Amendments or Supplementals thereto including but not limited to the Alternate Curb Ramp Designs (Curb Ramp Details - Parallel Ramps). All concrete shall be an approved NCDOT Class B mix. All materials testing results shall be provided to the District Engineer upon completion of the project.
93. All 30" curb and gutter within NCDOT rights of way shall be constructed with Class B concrete in accordance with Section 846 of the latest NCDOT **Standard Specifications for Roads and Structures** and **Roadway Standard Drawings** (Std. Dwg. No. 846.01) and Amendment or Supplemental thereto or as directed by the engineer. All concrete testing results shall be provided to the District Engineer's office at time of project completion.

Post Construction

Close out/ Inspection

94. 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.
95. At the discretion of the District Engineer, a final inspection report may be provided to the encroaching party upon satisfactory completion of the work.
96. A written acknowledgement of the completed work by the District Engineer's office begins the one-year warranty period associated with the performance bond.
- 97. A copy of the "as-built" plan shall be submitted to the District Engineer's office in a PDF format and in a current ESRI GIS format along with an executed Certification Memo (online encroachment database) within 4 weeks of construction. The As-Built drawing(s) shall depict the horizontal and vertical locations of all utilities and associated appurtenances.**
98. A copy (in PDF format) of the completed ground water analysis shall be given to the District Engineer, including detailed drawings of the "as-built" wells showing location, depth and water level in well.

If further information or assistance is needed in reference to this project, please feel free to call Mr. Lee R. Hines, Jr. (Richie), PE, District Engineer at (910) 364-0601.

Sincerely,
DocuSigned by:

H. E. Drew Cox, PE
Division Engineer

DS
tlb

HLC:tlb

cc: <https://connect.ncdot.gov/site/Permits/Pages/All-Submissions.aspx>

DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY ENCROACHMENT AGREEMENT

-AND-

PRIMARY AND SECONDARY HIGHWAYS

Fayetteville Public Works Commission
P.O. Box 1089 Fayetteville, NC 28302
PWC Encroachment #18815

THIS AGREEMENT, made and entered into this the 25 day of August 20 22 by and between the Department of Transportation, party of the first part; and Fayetteville Public Works Commission 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) SR3828, located 142' Southwest from POI of SR3828 (Robeson Street) and US 401 Business/ NC87 MLK Jr Freeway.

with the construction and/or erection of: 52 lf of 12" RJDl water main, 21 lf of 8" DI sewer main and 40 lf of 1" water lateral installed by open cut.
This will not exceed 10' in depth as shown on PWC drawing BW-14468H (see approval letter for additional and revised quantities)

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.

DEPARTMENT OF TRANSPORTATION
DS
T.C.B.
BY: H. L. "Drew" Cox
DIVISION ENGINEER

ATTEST OR WITNESS:

Fayetteville Public Works Commission

Venus C. Durant

Venus C. Durant -Sr. Executive Assistant

PO Box 1089
Fayetteville, NC 28301

Fayetteville Public Works Commission

Elaina L. Ball

Elaina L. Ball - CEO/General Manager

Second Party PO Box 1089
Fayetteville, NC 28301

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.

TRAFFIC CONTROL AND WORK ZONE SAFETY

The Contractor shall maintain traffic during construction and provide, install, and maintain all traffic control devices in accordance with these project guidelines, the Project Special Provisions, North Carolina Department of Transportation Standard Specifications for Roads and Structures 2018, and the current edition of the Manual of Uniform Traffic Control Devices (MUTCD).

The Contractor shall utilize complete and proper traffic controls and traffic control devices during all operations. All traffic control and traffic control devices required for any operation shall be functional and in place prior to the commencement of that operation. Signs for temporary operations shall be removed during periods of inactivity. The Contractor is required to leave the project in a manner that will be safe to the traveling public and which will not impede motorists.

Traffic movements through lane closures on roads with two way traffic shall be controlled by flaggers stationed at each end of the work zone. In situations where sight distance is limited, the Contractor shall provide additional means of controlling traffic, including, but not limited to, two-way radios, pilot vehicles, or additional flaggers. Flaggers shall be competent personnel, adequately trained in flagging procedures, and furnished with proper safety devices and equipment, including, but not limited to, safety vests and stop/slow paddles.

All personnel when working in traffic areas or areas in close proximity to traffic shall wear an approved safety vest, or shirt or jacket which meets the color requirements of the Manual of Uniform Traffic Control Devices (MUTCD).

The Contractor shall comply with all applicable Federal, State, and local laws, ordinances, and regulations governing safety, health, and sanitation, and shall provide all safeguards, safety devices, and protective equipment, and shall take any other needed actions, on his own responsibility that are reasonably necessary to protect the life and health of employees on the job and the safety of the public, and to protect property in connection with the performance of the work covered by the contract.

Failure to comply with any of the requirements for safety and traffic control of this contract shall result in suspension of work as provided in subarticle 108-7(2) of the Standard Specifications.

SPECIFICATIONS FOR EROSION CONTROL

The Contractor shall seed all disturbed areas as directed by the Engineer, in accordance with Section 1660 of the Standard Specifications. Seeding and mulching shall immediately follow shoulder construction operations and in no case shall shoulder construction operations exceed seeding and mulching operations by more than two weeks without written permission of the Engineer. Failure to meet this requirement shall be cause to cease all operations until it can be met.

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 by the Engineer. All rates are in pounds per acre.

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

50#	Tall Fescue
10#	Centipede
25#	Bermudagrass (hulled)
500#	Fertilizer
4000#	Limestone

September 1 - February 28

50#	Tall Fescue
10#	Centipede
35#	Bermudagrass (unhulled)
500#	Fertilizer
4000#	Limestone

Waste and Borrow Locations

March 1 - August 31

75#	Tall Fescue
25#	Bermudagrass (hulled)
500#	Fertilizer
4000#	Limestone

September 1 - February 28

75#	Tall Fescue
35#	Bermudagrass (unhulled)
500#	Fertilizer
4000#	Limestone

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

Approved Tall Fescue Cultivars

2 nd Millennium	Duster	Magellan	Rendition
Avenger	Endeavor	Masterpiece	Scorpion
Barlexas	Escalade	Matador	Shelby
Barlexas II	Falcon II, III, IV & V	Matador GT	Signia
Barrera	Fidelity	Millennium	Silverstar
Barrington	Finesse II	Montauk	Southern Choice II
Biltmore	Firebird	Mustang 3	Stetson
Bingo	Focus	Olympic Gold	Tarheel
Bravo	Grande II	Padre	Titan Ltd
Cayenne	Greenkeeper	Paraiso	Titanium
Chapel Hill	Greystone	Picasso	Tomahawk
Chesapeake	Inferno	Piedmont	Tacer
Constitution	Justice	Pure Gold	Trooper
Chipper	Jaguar 3	Prospect	Turbo
Coronado	Kalahari	Quest	Ultimate
Coyote	Kentucky 31	Rebel Exeda	Watchdog
Davinci	Kitty Hawk	Rebel Sentry	Wolfpack
Dynasty	Kitty Hawk 2000	Regiment II	
Dominion	Lexington	Rembrandt	

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.

All areas seeded and mulched shall be tacked with asphalt. Crimping of straw in lieu of asphalt tack shall not be allowed on this project.

CRIMPING STRAW MULCH

Crimping shall be required on this project adjacent to any section of roadway where traffic is to be maintained or allowed during construction. In areas within six feet of the edge of pavement, straw is to be applied and then crimped. After the crimping operation is complete, an additional application of straw shall be applied and immediately tacked with a sufficient amount of undiluted emulsified asphalt.

Straw mulch shall be of sufficient length and quality to withstand the crimping operation.

Crimping equipment including power source shall be subject to the approval of the Engineer providing that maximum spacing of crimper blades shall not exceed 8".

Within seven (7) calendar days to fourteen (14) calendar days of completion of any phase of grading, all disturbed areas shall be planted or otherwise provided with temporary or permanent ground cover, devices, or structures sufficient to restrain erosion. The Erosion and Sediment Control plan will identify the areas that require seven (7) and/or fourteen (14) calendar day ground stabilization. The Contractor is herein advised to follow all current regulations set forth by the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) as defined in the *General Stormwater Permit for Construction Activities NCG-01000*.

U.S. Customary Units

Design Speed (mph)	Design ADT	Foreslopes			Barkslopes		
		1V:6H or flatter	1V:5H to 1V:4H	1V:3H	1V:3H	1V:5H to 1V:4H	1V:6H or flatter
≤40	UNDER 750 ^c	7-10	7-10	^a	7-10	7-10	7-10
	750-1500	10-12	12-14	^a	12-14	12-14	12-14
	1500-6000	12-14	14-16	^a	14-16	14-16	14-16
	OVER 6000	14-16	16-18	^a	16-18	16-18	16-18
45-50	UNDER 750 ^c	10-12	12-14	^a	8-10	8-10	10-12
	750-1500	14-16	16-20	^a	10-12	12-14	14-16
	1500-6000	16-18	20-26	^a	12-14	14-16	16-18
	OVER 6000	20-22	24-28	^a	14-16	18-20	20-22
55	UNDER 750 ^c	12-14	14-18	^a	8-10	10-12	10-12
	750-1500	16-18	20-24	^a	10-12	14-16	16-18
	1500-6000	20-22	24-30	^a	14-16	16-18	20-22
	OVER 6000	22-24	26-32 ^a	^a	16-18	20-22	22-24
60	UNDER 750 ^c	16-18	20-24	^a	10-12	12-14	14-16
	750-1500	20-24	26-32 ^a	^a	12-14	16-18	20-22
	1500-6000	26-30	32-40 ^a	^a	14-18	18-22	24-26
	OVER 6000	30-32 ^a	36-44 ^a	^a	20-22	24-26	26-28
65-70 ^d	UNDER 750 ^c	18-20	20-26	^a	10-12	14-16	14-16
	750-1500	24-26	28-36 ^a	^a	12-16	18-20	20-22
	1500-6000	28-32 ^a	34-42 ^a	^a	16-20	22-24	26-28
	OVER 6000	30-34 ^a	38-46 ^a	^a	22-24	26-30	28-30

Notes:

- a) When a site-specific investigation indicates a high probability of continuing crashes or when such occurrences are indicated by crash history, the designer may provide clear-zone distances greater than the clear zone shown in Table 3-1. Clear zones may be limited to 30 ft for practicality and to provide a consistent roadway template if previous experience with similar projects or designs indicates satisfactory performance.
- b) Because recovery is less likely on the unshielded, traversable 1V:3H fill slopes, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of high-speed vehicles that encroach beyond the edge of the shoulder may be expected to occur beyond the toe of slope. Determination of the width of the recovery area at the toe of slope should consider right-of-way availability, environmental concerns, economic factors, safety needs, and crash histories. Also, the distance between the edge of the through traveled lane and the beginning of the 1V:3H slope should influence the recovery area provided at the toe of slope. While the application may be limited by several factors, the foreslope parameters that may enter into determining a maximum desirable recovery area are illustrated in Figure 3-2. A 10-ft recovery area at the toe of slope should be provided for all traversable, non-recoverable fill slopes.
- c) For roadways with low volumes it may not be practical to apply even the minimum values found in Table 3-1. Refer to Chapter 12 for additional considerations for low volume roadways and Chapter 10 for additional guidance for urban applications.
- d) When design speeds are greater than the values provided, the designer may provide clear-zone distances greater than those shown in Table 3-1.

**North Carolina Department of Transportation
Subdivision Road Construction, Driveway Access, and
Encroachment Installation Certification Memo**

(Date)

(District Engineer Name & Address)

RE: CONSTRUCTION CERTIFICATION
County: _____
Driveway Permit #: _____
and/or Subdivision I.D. #: _____
and/or Encroachment #: _____
Recording Information (if applicable): _____
Route(s) and/or Street(s): _____

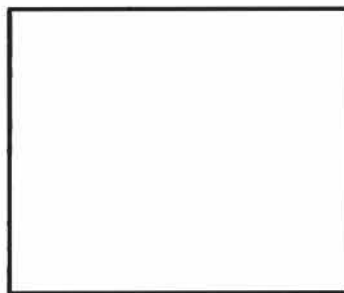
Project Name/Phase/Description: _____

I, _____, have reviewed the construction within the right-of-way and/or easements required under subject project(s) for the above development and in accordance with the design drawings approved by the North Carolina Department of Transportation (NCDOT) on the following dates:

Driveway Permit #: _____ Date: _____
and/or Subdivision I.D. #: _____ Date: _____
and/or Encroachment #: _____ Date: _____

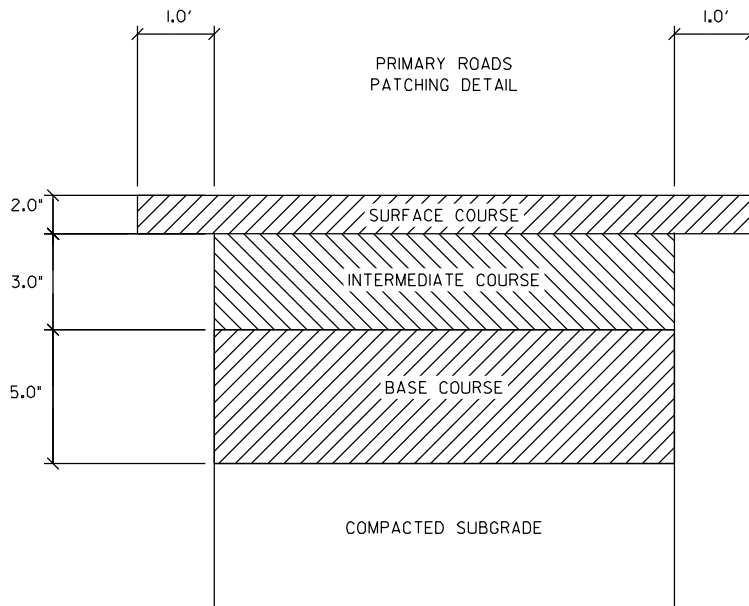
My inspection and attached testing report(s) and/or supporting documentation indicate the construction within the right-of-way and/or easements have been constructed in accordance with the standards established by current NCDOT Standard Specifications for Roads and Structures, and with the approved plans.

Name: _____
NC PE #: _____
Signature: _____



SEAL

Received by NCDOT: _____



PAVEMENT SCHEDULE

2.0" S 9.5 C

(MILLING REQUIRED ONE FOOT AT DEPTH OF 2.0"
ON EACH SIDE OF PAVEMENT CUT)

3.0" I 19.0 C

5.0" B 25.0 C

DRAWING IS NOT TO SCALE

ATTACHMENT FORM

NOTIFICATION FOR UTILITY / NON-UTILITY ENCROACHMENT WITHIN NCDOT R/W

Instructions for use:

This form must be completed in its entirety and submitted directly to the designated personnel in the District Engineer's office via email, fax or hand delivery a minimum of one week prior to construction for the encroachment. If the designated NCDOT personnel names are unknown by the person completing this form, please contact the District Engineer's office to determine that contact info.

Date: _____ Submitted by Name: _____

To: District Personnel Name: _____
District Personnel Email: _____
District Fax No.: _____

This notification is to inform you that we (encroaching party or their contractor) will begin construction work on the following project in a minimum of one week.

Encroachment number
(assigned by NCDOT) for the project: _____

Construction start date: _____

Approximate ending date: _____

Contact NCDOT inspector a minimum of 72 hrs. in advance to set-up Preconstruction meeting in the District Engineer's office or other location as directed by the District Engineer

Preconstruction meeting date & time: _____

Preconstruction meeting address: _____

Type of project: _____
[Examples: power, telecommunication, water, sewer, gas, petroleum, other (describe)]

Contact Info for this project:

Contractor Company Name: _____

Contractor Contact Name: _____

Contractor Phone Number: _____

Contractor Email: _____

NCDOT Utility Inspector Name: _____

NCDOT Utility Inspector Phone: _____

NCDOT Utility Inspector Email: _____

NCDOT Utility Project Manager Name: _____

NCDOT Utility Project Manager Phone: _____

NCDOT Utility Project Manager Email: _____



DARSWEIL L. ROGERS, COMMISSIONER
WADE R. FOWLER, JR., COMMISSIONER
EVELYN O. SHAW, COMMISSIONER
RONNA ROWE GARRETT, COMMISSIONER
ELAINA L. BALL, CEO/GENERAL MANAGER

FAYETTEVILLE PUBLIC WORKS COMMISSION
955 OLD WILMINGTON RD
P.O. BOX 1089
FAYETTEVILLE, NORTH CAROLINA 28302-1089
TELEPHONE (910) 483-1401
WWW.FAYPWC.COM

August 4, 2021

Mr. Lee R. Hines Jr., P.E.
District Engineer
Department of Transportation
Post Office Box 1150
Fayetteville, North Carolina 28302

SUBJECT: Encroachment for a – 12” RJD I water main, 8” DI sewer main and 1” copper water lateral on SR3828 (Robeson Street) Encr. #18815 for Robeson to Winslow Water Replacement. PWC Drawing BW-14468H.

Dear Mr. Hines:

The Design Engineer is: Kevin Heaphy, Public Works Commission, Kevin.Heaphy@faypwc.com, 910-223-4740

The Proposed Schedule is:

Enclosed are the following for subject extension:

1. Original of Form R/W-16.1.
2. Original of PWC Drawing BW-14468H
3. Original of Erosion Control Letter.
4. Narrative of work being requested for PWC Encroachment #18815.

Very truly yours,

PUBLIC WORKS COMMISSION

A handwritten signature in blue ink that reads 'Misty M. Manning'.

Misty M. Manning, P.E.
Water Resources Engineering Manager

MMM:swr

DARSWEIL L. ROGERS, COMMISSIONER
WADE R. FOWLER, JR., COMMISSIONER
EVELYN O. SHAW, COMMISSIONER
RONNA ROWE GARRETT, COMMISSIONER
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WWW.FAYPWC.COM

August 4, 2021

Mr. Lee R. Hines Jr., P.E.
District Engineer
Department of Transportation
Post Office Box 1150
Fayetteville, North Carolina 28302

SUBJECT: Erosion and Sediment Control – a 12” RJDI water main, 8” DI sewer main and a 1”
water lateral- SR3828(Robeson Street) - PWC Encroachment #18815

Dear Mr. Hines:

This letter is to acknowledge that the above referenced activity will disturb less than one acre. Therefore, an approved erosion and sediment control plan from NCDENR is not required. However, appropriate measures will be implemented during construction to prevent erosion and offsite sedimentation.

If there are further questions, please contact Marion Jackson (263-5036) or John Allen (223-4734).

Very truly yours,

PUBLIC WORKS COMMISSION

A handwritten signature in blue ink, appearing to read 'Misty M. Manning', is written over a blue horizontal line. To the left of the signature, the word 'Fax' is written vertically in blue ink.

Misty M. Manning, P.E.
Water Resources Engineer/Manager

MMM:swr

DARSWEIL L. ROGERS, COMMISSIONER
WADE R. FOWLER, JR., COMMISSIONER
EVELYN O. SHAW, COMMISSIONER
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TELEPHONE (910) 483-1401
WWW.FAYPWC.COM

August 4, 2021

Mr. Lee R. Hines, Jr., P.E.
District Engineer
Department of Transportation
Post Office Box 1150
Fayetteville, North Carolina 28302

SUBJECT: Narrative of work being requested for PWC Encroachment #18815


Dear Mr. Hines:

The PWC is in the process of reviewing the replacement of an existing 10" CI water main with a 12" RDJI water main and a section of 8" VC sewer main with 8" DI sewer main. This work is to replace an old existing water main that we have spot repaired in the Robeson Street Area in Cumberland County

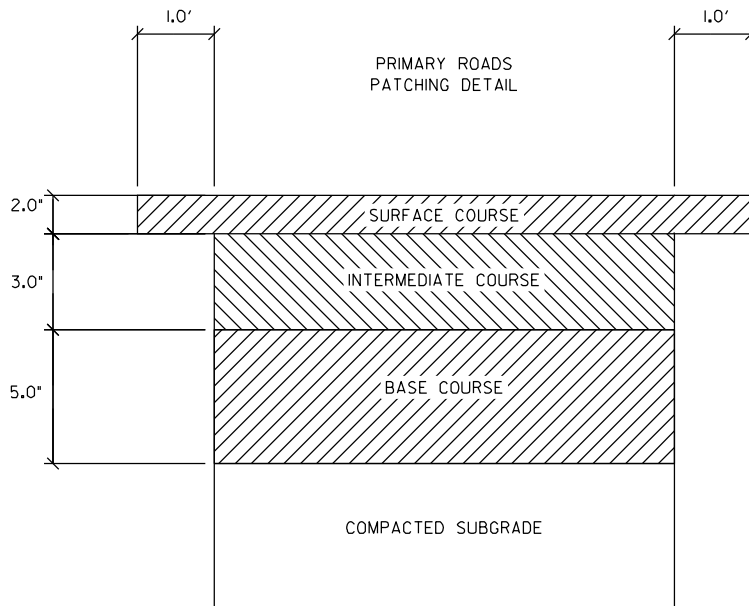
This water main installation will include 1-10" tapping valve and 1-1" water lateral. No new manholes will be installed with this project. The existing water main will be grout filled and the section of sewer to be replaced will be removed.

Very truly yours,

PUBLIC WORKS COMMISSION


For Misty M. Manning, P.E.
Water Resources Engineer/Manager

MMM:swr



PAVEMENT SCHEDULE

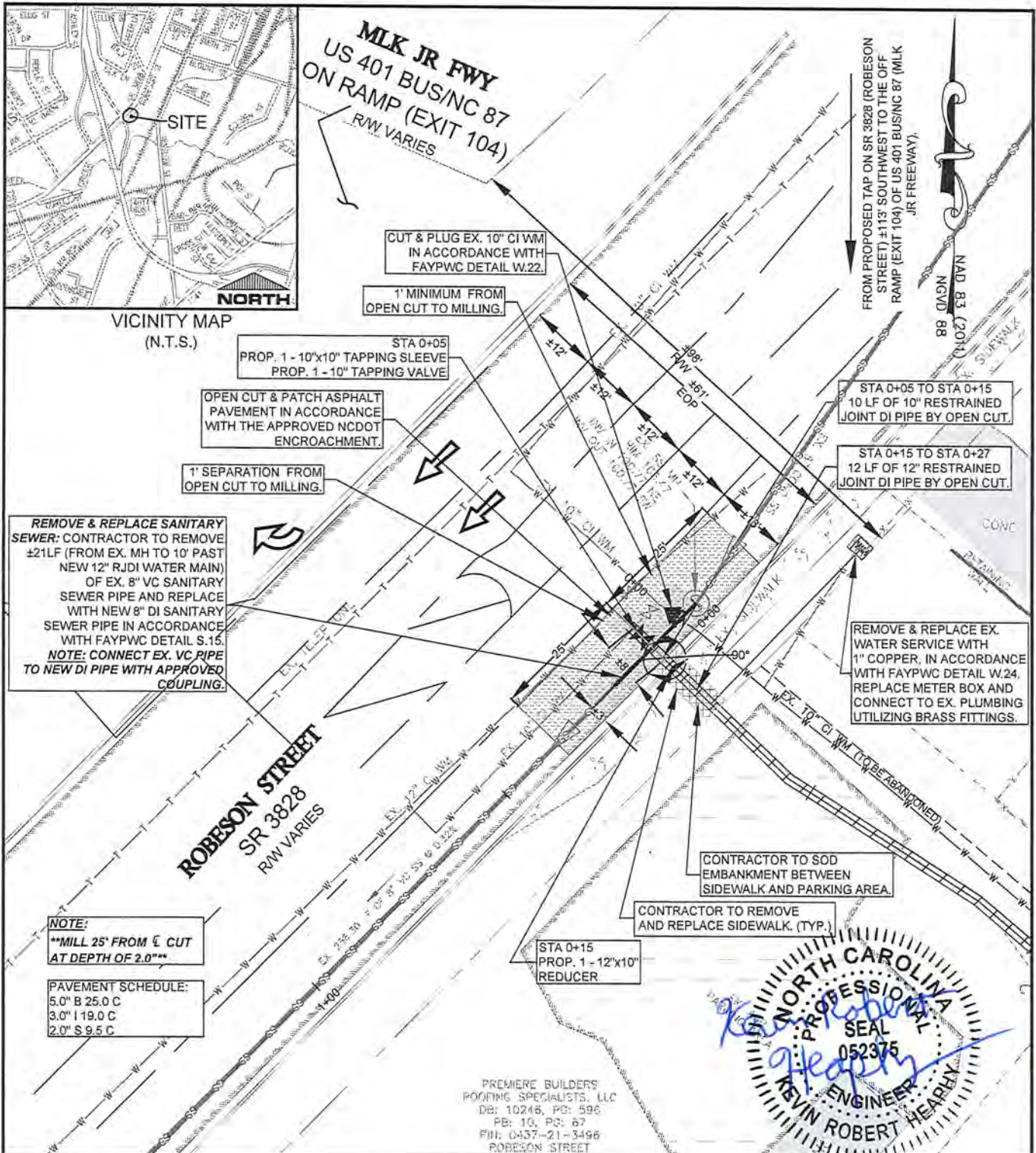
2.0" S 9.5 C

(MILLING REQUIRED ONE FOOT AT DEPTH OF 2.0"
ON EACH SIDE OF PAVEMENT CUT)

3.0" I 19.0 C

5.0" B 25.0 C

DRAWING IS NOT TO SCALE



LEGEND

OPEN CUT/PATCH ASPHALT	
OPEN CUT/PATCH SOD	
PAVEMENT MILL WORK	
RIGHT-OF-WAY (R/W)	
EDGE-OF-PAVEMENT (EOP)	
EXISTING SANITARY SEWER	
EXISTING WATER MAIN	
PROPOSED SANITARY SEWER	
PROPOSED WATER	
PROPOSED 1" WATER LATERAL	
PROPOSED 1" WATER METER	

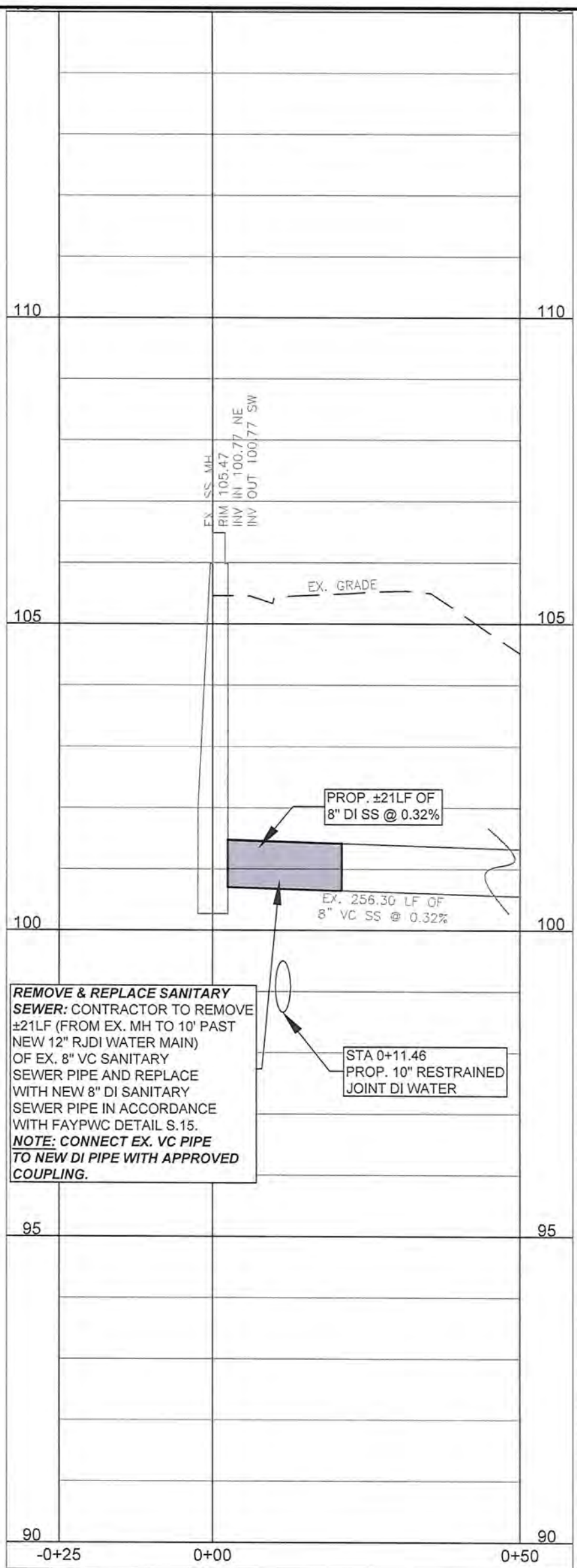
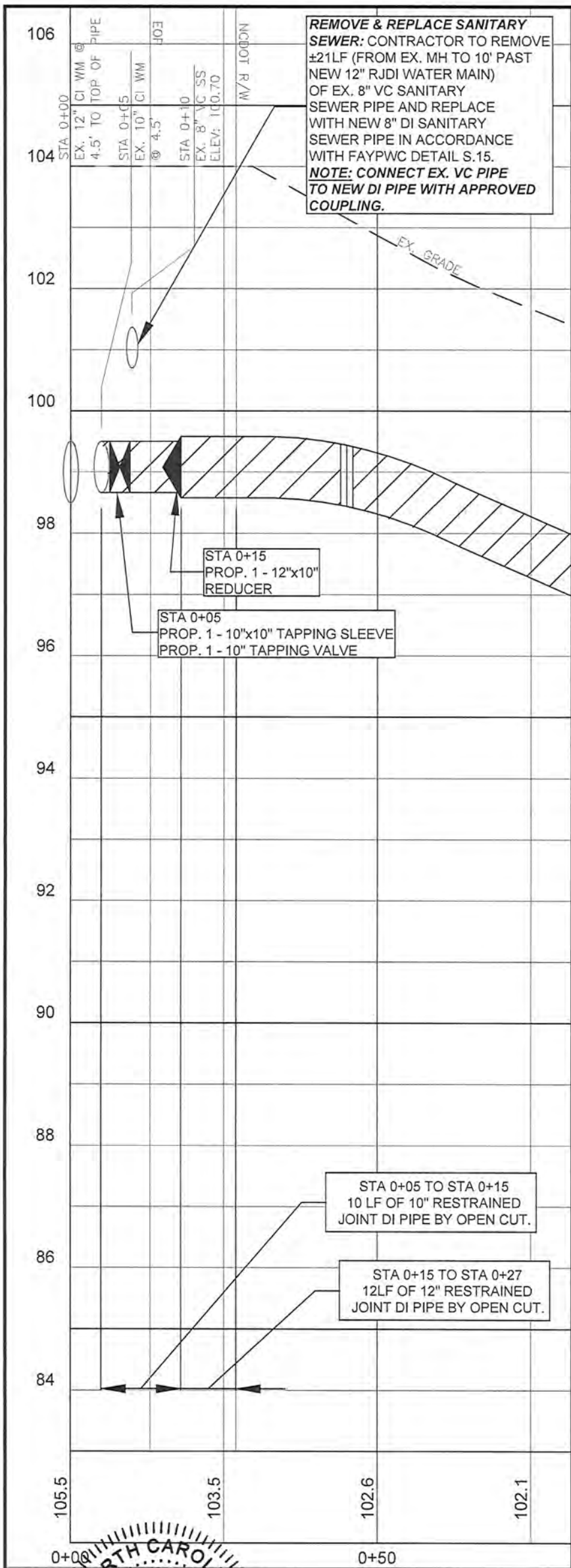
- ENCROACHMENT NOTES:**
- ±10 LF OF 10" RJDI WATER PIPE TO BE INSTALLED BY OPEN CUT WITHIN NCDOT R/W.
 - ±12 LF OF 12" RJDI WATER PIPE TO BE INSTALLED BY OPEN CUT WITHIN NCDOT R/W.
 - ±20 LF OF 10" CI WATER PIPE TO BE GROUT FILLED AND ABANDONED WITHIN NCDOT R/W.
 - ±21 LF OF 8" VC SANITARY SEWER PIPE TO BE REMOVED WITHIN NCDOT R/W.
 - ±21 LF OF 8" DI SANITARY SEWER PIPE TO BE INSTALLED WITHIN NCDOT R/W.
 - ±40 LF OF 1" COPPER WATER SERVICE LATERAL TO BE INSTALLED WITHIN NCDOT R/W.
 - 1 - 1" METER BOX WITH LID TO BE INSTALLED WITHIN NCDOT R/W.
 - ±196 SQ.FT. OF OPEN CUT AND PATCH ASPHALT PAVEMENT WITHIN NCDOT R/W.
 - ±27 SQ.FT. OF OPEN CUT AND PATCH CONCRETE SIDEWALK WITHIN NCDOT R/W.
 - ±31 SQ.FT. OF OPEN CUT AND PATCH SOD WITHIN NCDOT R/W.



**NCDOT ENCROACHMENT
FOR
SR 3828
ROBESON STREET
WATER REPLACEMENT AND ABANDONMENT
CUMBERLAND COUNTY, NORTH CAROLINA**

24hr. CONTACT: _____ PHONE: 1-910-_____ e-mail: _____ PWC ENCROACHMENT #18815

<p>FAYETTEVILLE PUBLIC WORKS COMMISSION 955 OLD WILMINGTON RD. FAYETTEVILLE, N.C. 28301 (910) 223-4730</p>	SURVEY/GPS BY: PWC	DATE	REVISIONS	BY	
	LAYOUT BY: WRE	DATE: 07/28/2021	03/2022	ADD LANE WIDTH AND EX./PROP. SS PROFILE	KH
	PLAN/PROF. BY: BGM				
	DESIGN REVIEW BY: W/R ENGR. DEPT.				
	SCALE: HOR: 1" = 20' VERT: 1" = 2'	SHT: 1 OF 2		BW-14468H	



NORTH CAROLINA
PROFESSIONAL ENGINEER
 SEAL 052375
 KEVIN ROBERT HEAPHY



NCDOT ENCROACHMENT FOR SR 3828 ROBESON STREET WATER REPLACEMENT AND ABANDONMENT CUMBERLAND COUNTY, NORTH CAROLINA

24hr. CONTACT: _____ PHONE: 1-910-_____ e-mail: _____ PWC ENCROACHMENT #18815

 FAYETTEVILLE PUBLIC WORKS COMMISSION 955 OLD WILMINGTON RD. FAYETTEVILLE, N.C. 28301 (910) 223-4730	SURVEY/GPS BY: PWC	DATE	REVISIONS	BY	
	LAYOUT BY: WRE	DATE: 07/28/2021	03/2022	ADD LANE WIDTH AND	KH
	PLAN/PROF. BY: BGM			EX./PROP. SS PROFILE	
	DESIGN REVIEW BY: W/R ENGR. DEPT.				
	SCALE: HOR: 1"= 20' VERT: 1"= 2'	SHT: 2 OF 2			BW-14468H

CSX ENCROACHMENT PERMIT

CSX895259 EXHIBIT A

CSX PROPERTY SERVICES REVIEW

No Exceptions Exceptions Noted

This review is for the general conformance with CSX utility design specifications only. Sole responsibility for all aspects of the overall design shall remain with the facility owner. This review does not constitute approval to proceed without meeting all of CSX's safety and contractual requirements.

By: 

CSXT GENERAL NOTES:

04/05/2022

1. REFER TO THE CSXT PIPELINE DESIGN & CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. THE FRONT OF THE PIPE SHALL BE PROVIDED WITH MECHANICAL ARRANGEMENTS OR DEVICES THAT WILL POSITIVELY PREVENT THE AUGER FROM LEADING THE PIPE SO THAT NO UNSUPPORTED EXCAVATION IS AHEAD OF THE PIPE. THE BORE HEAD / AUGER SET-UP (SKETCH OR PHOTOS) SHALL BE SUBMITTED BY CONTRACTOR AND ACCEPTED BY ASSIGNED CSXT DESIGNEE PRIOR TO START OF THE JACK & BORE.
3. THE OPERATION SHALL BE PROGRESSED ON A 24-HOUR BASIS WITHOUT STOPPAGE (EXCEPT FOR ADDING LENGTHS OF PIPE) UNTIL THE LEADING EDGE OF THE PIPE HAS REACHED THE RECEIVING PIT.
4. THE AUGER AND CUTTING HEAD ARRANGEMENT SHALL BE REMOVABLE FROM WITHIN THE PIPE IN THE EVENT AN OBSTRUCTION IS ENCOUNTERED.
5. PIPELINE SHALL BE PROMINENTLY MARKED AT BOTH SIDES OF THE CSXT PROPERTY LINES BY DURABLE, WEATHERPROOF SIGNS LOCATED OVER THE CENTERLINE OF THE PIPE IN ACCORDANCE WITH CSXT SPECIFICATIONS.
6. NO CONSTRUCTION OR ENTRY UPON THE CSXT CORRIDOR IS PERMITTED UNTIL THE DOCUMENT TRANSACTION IS COMPLETED, YOU ARE IN RECEIPT OF A FULLY EXECUTED DOCUMENT, AND YOU HAVE OBTAINED AUTHORITY FROM THE LOCAL ROADMASTER.
7. IF REQUIRED, A DEWATERING PLAN IN ACCORDANCE WITH CSXT SPECIFICATIONS WILL BE SUBMITTED TO THE CSXT DESIGNEE FOR REVIEW AND APPROVAL PRIOR TO ANY DEWATERING OPERATIONS.
8. BLASTING IS NOT PERMITTED UNDER OR ON CSXT PROPERTY.
9. CSXT DOES NOT GRANT OR CONVEY AN EASEMENT FOR THIS INSTALLATION.
10. ALL PERSONNEL SHALL RECEIVE SAFETY BRIEFINGS BY A CSXT FLAGMAN OR DESIGNATED CSXT DESIGNEE EACH DAY BEFORE BEGINNING WORK ON THE RIGHT OF WAY. ADDITIONAL SAFETY BRIEFINGS MAY BE REQUIRED WHEN CONDITIONS AND/OR WORK SITES ARE CHANGED.
11. AGENCY OR ITS CONTRACTOR SHALL ARRANGE AND CONDUCT ITS WORK SO THAT THERE WILL BE NO INTERFERENCE WITH CSXT OPERATIONS, INCLUDING TRAIN, SIGNAL, TELEPHONE AND TELEGRAPHIC SERVICES, OR DAMAGES TO CSXT'S PROPERTY, OR TO POLES, WIRES, AND OTHER FACILITIES OF TENANTS OF CSXT'S PROPERTY OR RIGHT-OF-WAY.
12. CONTRACTOR ACCESS WILL BE LIMITED TO THE IMMEDIATE PROJECT AREA ONLY. THE CSXT RIGHT-OF-WAY OUTSIDE THE PROJECT AREA MAY NOT BE USED FOR CONTRACTOR ACCESS TO THE PROJECT SITE AND NO TEMPORARY AT-GRADE CROSSINGS WILL BE ALLOWED.
13. ALL MATERIAL AND EQUIPMENT WILL BE STAGED TO NOT BLOCK ANY CSXT ACCESS OR MAINTENANCE ROADS. NO HOISTING OR AUXILIARY EQUIPMENT NECESSARY FOR THE PROCEDURE SHALL BE PLACED ON CSXT TRACK STRUCTURE AND / OR BALLAST SECTION. CLEAR WORKING LOCATIONS FOR EQUIPMENT USED WILL BE LAID OUT AND APPROVED BY THE CSXT FLAGGER PRIOR TO EQUIPMENT SET-UP.
14. DURING CONSTRUCTION, THE CONTRACTOR SHALL PROTECT ALL ACTIVE RAILROAD FACILITIES, INCLUDING ELECTRICAL, WATER LINES, SEWER LINES, COMMUNICATION AND SIGNAL LINES AS WELL AS UNDERGROUND PIPING. THE CONTRACTOR SHALL BE REQUIRED TO KEEP ALL EQUIPMENT AND MATERIAL A MINIMUM OF SIX (6) FEET FROM AFOREMENTIONED ELEVATED COMMUNICATION AND SIGNAL FACILITIES.
15. CONTRACTOR MUST CONDUCT ALL OF ITS WORK IN A SAFE MANNER. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH RULES, REGULATIONS, PROCEDURES AND SAFE PRACTICES OF CSXT, OSHA, THE FRA AND ALL OTHER GOVERNMENT AGENCIES HAVING JURISDICTION OVER THE PROJECT.
16. OWNER SHALL REIMBURSE CSXT DIRECTLY FOR ALL COSTS OF FLAGGING AND INSPECTION SERVICE THAT ARE REQUIRED ON ACCOUNT OF CONSTRUCTION WITHIN CSXT PROPERTY SHOWN IN THE PLANS, OR COVERED BY AN APPROVED PLAN REVISION, SUPPLEMENTAL AGREEMENT OR CHANGE ORDER. INSPECTION SERVICE SHALL NOT RELIEVE CONTRACTOR FROM LIABILITY FOR ITS WORK.
17. OWNER OR CONTRACTOR SHALL GIVE A MINIMUM OF 30 DAYS' ADVANCE NOTICE TO CSXT DESIGNEE FOR ANTICIPATED NEED FOR FLAGGING AND INSPECTION SERVICE. NO WORK SHALL BE UNDERTAKEN UNTIL THE FLAG PERSON(S) AND INSPECTOR(S) IS/ARE AT THE JOB SITE. IF IT IS NECESSARY FOR CSXT TO ADVERTISE A FLAGGING JOB FOR BID, CSXT SHALL NOT BE LIABLE FOR THE COST OF DELAYS ATTRIBUTABLE TO OBTAINING SUCH SERVICE.
18. THE RIGHT OF WAY SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE CONDITION PRIOR TO BEGINNING THE PROJECT BEFORE FINAL ACCEPTANCE WILL BE PROVIDED. PUNCH LISTS SHALL BE RESPONDED TO PRIOR TO ISSUANCE OF AN ACCEPTANCE MEMORANDUM SIGNED BY THE CSXT DESIGNEE.
19. JACKING PIT: IDENTIFY HAZARDS AND PUT CONTROLS IN PLACE PRIOR TO START OF EXCAVATION. CONTRACTOR SHALL ERECT A BARRIER AND CONSTRUCTION FENCE ALONG THE FACE OF JACKING PIT CONSTRUCTION LIMITS AND NOT ENCROACH PAST IT WHEN PREPARING THE PIT. STAKE OR MARK PIT AS NEEDED FOR DIGGING. EROSION CONTROL DEVICES SHALL BE PLACED AT THE JACKING AND RECEIVING PITS PROTECTING CSXT PROPERTY AND DITCHES TO THE SATISFACTION OF THE CSXT DESIGNEE.
20. TRENCH EXCAVATION SHALL BE OF SUCH DIMENSIONS AS TO PROVIDE AMPLE ROOM FOR CONSTRUCTION. TRENCH WIDTHS SHALL BE AT LEAST 12 INCHES WIDER THAN THE OUTSIDE DIAMETER OF THE PIPE (6-INCHES EITHER SIDE OF THE PIPE). THE BOTTOM OF THE TRENCH, IN SO FAR AS IS PRACTICAL, SHALL BE EXCAVATED TO PERMIT PROPER PLACEMENT OF THE PIPE. THE EXCAVATION FOR THE PIPELINE SHALL INCLUDE THE REMOVAL OF ANY OBSTRUCTIONS ENCOUNTERED. THE TRENCH SHALL BE EXCAVATED TO A DEPTH AT LEAST 3 INCHES BELOW THE OUTSIDE BOTTOM ELEVATION OF THE PLANNED PIPELINE. WHEN NECESSARY, ALL EXCAVATIONS SHOULD BE DEWATERED PRIOR TO AND DURING INSTALLATION AND BACKFILLING OF THE SYSTEM.
21. COMPACT ALL BACKFILL IN EXCAVATIONS AND TRENCHES TO 95% MAXIMUM DRY DENSITY AS DEFINED IN ASTM STANDARD D1557. USE CLEAN, SUITABLE BACKFILL MATERIAL, INSTALL IN SIX-INCH LIFTS AND COMPACT.
22. BEDDING MATERIAL SHALL BE GRANULAR BACKFILL IDENTICAL TO SUBBALLAST, OR A WELL GRADED CRUSHED STONE OR GRAVEL.
23. BACKFILL, COVER OR FENCE ALL EXCAVATIONS WHEN UNATTENDED. THE CSXT DESIGNEE WILL APPROVE THE PROTECTION METHOD AND THE TYPE OF FENCING MATERIAL. SET FENCING BACK AT LEAST 3 FEET (91 CENTIMETERS) FROM THE EDGES OF THE EXCAVATION. SET FENCE POSTS SECURELY IN THE GROUND AND INSURE THE FENCING IS SECURELY TIED TO POSTS WITH ZIP TIES OR SOME OTHER TIE WRAP PRODUCT.
24. TRACK MONITORING: PRIOR TO COMMENCING JACK & BORE OPERATIONS, CONTRACTOR SHALL BE REQUIRED TO CONDUCT AND SUBMIT A BASELINE SURVEY ALONG THE TOP OF EACH RAIL UNDER CSXT FLAGGER PROTECTION. ADDITIONAL SURVEY DATA SHALL BE COLLECTED AND SUBMITTED ONCE EACH DAY DURING CASING PIPE INSTALLATION, OR AS DIRECTED BY CSXT DESIGNEE. CONTRACTOR SHALL ALSO TAKE ELEVATION SHOTS AT TOP OF TIE AND TOP OF CASING PIPE BEFORE STARTING THE BORE TO VERIFY DEPTH OF COVER PROPOSED FOR THE WORK HAS BEEN MET.
25. EXCAVATION: IF THE EXCAVATION IS 5 FEET OR GREATER IN DEPTH, THE WALLS MAY BE SLOPED AT 1.5 HORIZONTAL TO 1 VERTICAL TO REDUCE THE RISK OF CAVE-INS OR SLIDES. A SAFE MANNER IN WHICH TO ENTER AND EXIT THE EXCAVATION MUST BE ESTABLISHED. THE TOE OF SLOPES IN EXCAVATION SHALL IN NO CASE BE UNDERCUT BY POWER SHOVELS, BULLDOZERS, GRADERS, BLASTING, OR IN ANY MANNER. EXCAVATION SHALL NOT BE MADE IN EXCESS OF THE AUTHORIZED CROSS-SECTION.
26. PROJECTS THAT GENERATE SOILS FROM CSXT PROPERTY MUST ADHERE TO CSXT'S SOIL MANAGEMENT POLICIES. CSXT REQUIRES SOILS GENERATED FROM ITS PROPERTY TO EITHER BE REUSED ON CSXT PROPERTY OR PROPERLY DISPOSED IN A CSXT APPROVED DISPOSAL FACILITY. CSXT ENVIRONMENTAL DEPARTMENT WILL HANDLE WASTE CHARACTERIZATION AND PROFILING INTO AN APPROVED DISPOSAL FACILITY. CSXT PROHIBITS ANY ENVIRONMENTAL SAMPLING ON ITS PROPERTY UNLESS GRANTED THROUGH AN WRITTEN ENVIRONMENTAL RIGHT-OF-ENTRY OR APPROVED IN WRITING BY THE CSXT ENVIRONMENTAL DEPARTMENT. THE MANAGEMENT OF SOILS GENERATED FROM CSXT PROPERTY SHOULD BE PLANNED FOR AND PROPERLY PERMITTED (IF APPLICABLE) PRIOR TO INITIATING ANY WORK ON CSXT PROPERTY. A LIST OF CSXT APPROVED LABORATORIES AND/OR DISPOSAL FACILITIES MAY BE OBTAINED FROM THE CSXT MANAGER ENVIRONMENTAL PROGRAMS.
27. CONTRACTOR ALSO HAS THE SOLE RESPONSIBILITY OF ASCERTAINING THAT ALL OTHER UTILITIES HAVE BEEN PROPERLY LOCATED BY COMPLYING WITH THE LOCAL "CALL BEFORE YOU DIG" REGULATION(S). CONTRACTOR SHALL SOLELY BE RESPONSIBLE FOR NOTIFYING OWNERS OF ADJACENT PROPERTIES AND OF UNDERGROUND FACILITIES AND UTILITY OWNERS WHEN PROSECUTION OF THE WORK MAY AFFECT THEM, AND SHALL COOPERATE WITH THEM IN THE PROTECTION, REMOVAL, RELOCATION AND REPLACEMENT OF THEIR PROPERTY.
28. CONTRACTOR SHALL CONDUCT "PRE-DIG" MEETING PRIOR TO CONSTRUCTION WORK, WITH ALL SUBCONTRACTORS AND WORKERS TO REVIEW THE LOCATION OF ALL UTILITIES AS MARKED OUT, EXCAVATION PROCEDURES, AND TO CONFIRM THE "ONE CALL" REQUEST. THIS PERMIT IS SUBJECT TO ANY EXISTING UTILITIES THAT MAY BE IN CONFLICT WITH THE DESIGN AND REQUIRES POTHOLES. ALL EXISTING UTILITIES ARE REQUIRED TO BE POTHOLED PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL BE PERFORMED IN ACCORDANCE WITH CSXT SPECIFICATIONS. HAND EXPOSE LINES TO A POINT OF NO CONFLICT (24 INCHES ON EITHER SIDE OF THE UNDERGROUND INSTALLATION). IF MARKED UTILITY CANNOT BE LOCATED, EXCAVATION MUST NOT PROCEED AND YOU MUST NOTIFY THE ONE CALL NUMBER OR UTILITY COMPANY TO PROVIDE ADDITIONAL INFORMATION TO DETERMINE THE EXACT LOCATION.
29. BEFORE EXCAVATING, ALL SIGNAL CABLES AND OTHER UTILITIES MUST BE LOCATED AND MARKED/FLAGGED. CONTRACTOR SHALL BE HELD LIABLE FOR ANY DAMAGES TO CSXT COMMUNICATION & SIGNAL FACILITIES.

NOTE: WORK SCHEDULE IS SUBJECT TO THE APPROVAL OF ALL REQUIRED CONSTRUCTION SUBMITTALS BY THE CSXT CONSTRUCTION REPRESENTATIVE, VERIFICATION THAT PROPOSED WORK WILL NOT CONFLICT WITH ANY CSXT U.G. FACILITIES, AND THE AVAILABILITY OF CSXT FLAGGING AND PROTECTION SERVICES. CONSTRUCTION SUBMITTALS WILL BE BASED UPON THE PROPOSED SCOPE OF WORK AND MAY INCLUDE, BUT ARE NOT LIMITED TO; PROPOSED WORK PLAN, PROJECT SCHEDULE, MEANS AND METHODS, SITE ACCESS, DEWATERING, TEMPORARY EXCAVATION/ SHORING, SOIL DISPOSITION/MANAGEMENT, TRACK MONITORING, CONCRETE PLACEMENT WORK, STRUCTURAL LIFTING/RIGGING PLANS FOR HOISTING OPERATIONS, SUBSTRUCTURE CONSTRUCTION PLANS, STEEL ERECTION PLANS, ROADWORK PLANS, ETC. NO WORK MAY BEGIN ON, OVER, OR ADJACENT TO CSXT PROPERTY, OR THAT COULD POTENTIALLY IMPACT CSXT PROPERTY, OPERATIONS OR SAFETY WITHOUT THE PRIOR COMPLETION AND APPROVAL OF THE REQUIRED AFOREMENTIONED INFORMATION AND APPROVALS.



Location: Near Winslow Street a Fayetteville, North Carolina City Street
Latitude: N35°02'41"
Longitude: W78°53'26"

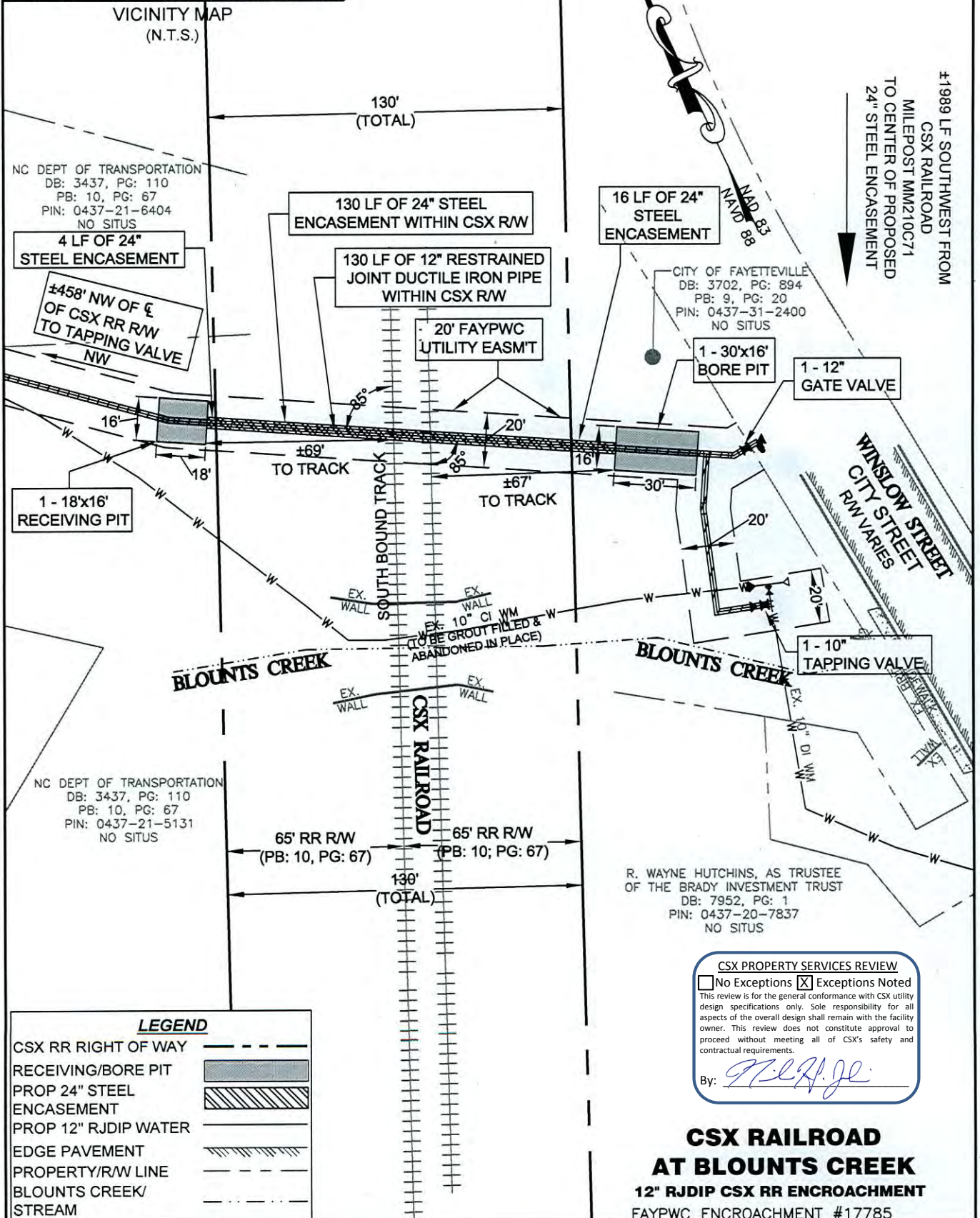
"THE FRONT OF THE CASING PIPE SHALL BE PROVIDED WITH MECHANICAL ARRANGEMENTS OR DEVICES THAT WILL POSITIVELY PREVENT THE AUGER FROM LEADING THE PIPE SO THAT NO UNSUPPORTED EXCAVATION IS AHEAD OF THE PIPE"

NOTES FOR PROPOSED:

- 130 LF OF 24" STEEL ENCASEMENT TO BE INSTALLED WITHIN CSX R/W.
- 130 LF OF 12" RESTRAINED JOINT DUCTILE IRON PIPE TO BE INSTALLED WITHIN CSX R/W.
- LATITUDE & LONGITUDE DERIVED FROM CENTER OF PROPOSED 12" RJDIP.

NOTES FOR EXISTING:

- ±143 LF OF EXISTING 10" CAST IRON PIPE TO BE GROUT FILLED AND ABANDONED IN PLACE WITHIN CSX R/W.



NC DEPT OF TRANSPORTATION
 DB: 3437, PG: 110
 PB: 10, PG: 67
 PIN: 0437-21-6404
 NO SITUS

NC DEPT OF TRANSPORTATION
 DB: 3437, PG: 110
 PB: 10, PG: 67
 PIN: 0437-21-5131
 NO SITUS

R. WAYNE HUTCHINS, AS TRUSTEE OF THE BRADY INVESTMENT TRUST
 DB: 7952, PG: 1
 PIN: 0437-20-7837
 NO SITUS

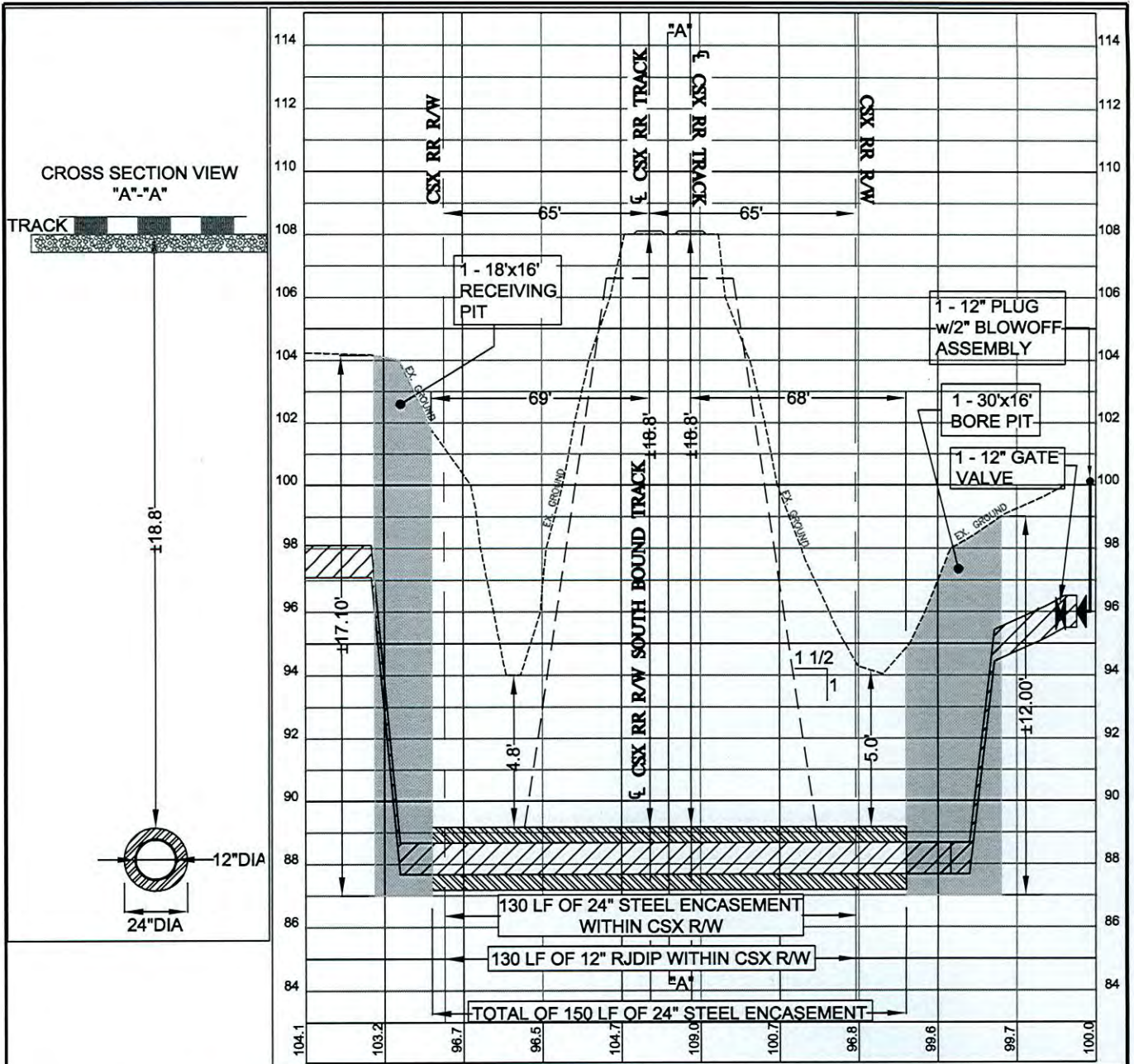
CSX PROPERTY SERVICES REVIEW
 No Exceptions Exceptions Noted
 This review is for the general conformance with CSX utility design specifications only. Sole responsibility for all aspects of the overall design shall remain with the facility owner. This review does not constitute approval to proceed without meeting all of CSX's safety and contractual requirements.
 By: *[Signature]*

LEGEND

CSX RR RIGHT OF WAY	---
RECEIVING/BORE PIT	[Shaded Box]
PROP 24" STEEL ENCASEMENT	[Hatched Box]
PROP 12" RJDIP WATER	[Dashed Line]
EDGE PAVEMENT	[Diagonal Hatched Box]
PROPERTY/R/W LINE	---
BLOUNTS CREEK/STREAM	[Dotted Line]

CSX RAILROAD AT BLOUNTS CREEK
12" RJDIP CSX RR ENCROACHMENT
 FAYPWC ENCROACHMENT #17785

PUBLIC WORKS COMMISSION OF THE CITY OF FAYETTEVILLE FWC WATER RESOURCES ENGINEERING 955 OLD WILMINGTON RD. FAYETTEVILLE, N.C. 28301 (910) 223-4730	SURVEY/GPS BY: FAYPWC	DATE: 08/11/14	REVISIONS	BY
	LAYOUT BY: FAYPWC	DATE: 04/08/14	ADJUSTED CSX RR ROW TO 65' FROM SOUTH BOUND TRACK	JPA
	PLAN/PROF BY: BGM			
	DESIGN REVIEW BY: W/R ENGR DEPT			
	APPROVED BY: <i>[Signature]</i> 8/13/14			
SCALE: HOR: 1"=50' VERT: 1"=N/A	SHT: 1 OF 3		AW-14468A	



LEGEND

CSX RR RIGHT OF WAY	---
RECEIVING/BORE PIT	[Shaded Area]
PROP 24" STEEL ENCASEMENT	[Hatched Area]
PROP 12" RJDIP WATER	[Hatched Area]
PROP 24" STEEL ENCASEMENT w/12" RJDI WATER PIPE	[Circle with Hatching]

Location: Near Winslow Street a Fayetteville, North Carolina City Street
 Latitude: N35°02'41"
 Longitude: W78°53'26"

CSX PROPERTY SERVICES REVIEW
 No Exceptions Exceptions Noted
 This review is for the general conformance with CSX utility design specifications only. Sole responsibility for all aspects of the overall design shall remain with the facility owner. This review does not constitute approval to proceed without meeting all of CSX's safety and contractual requirements.
 By: *[Signature]*

- NOTES FOR PROPOSED:**
- 130 LF OF 24" STEEL ENCASEMENT TO BE INSTALLED WITHIN CSX R/W.
 - 130 LF OF 12" RESTRAINED JOINT DUCTILE IRON PIPE TO BE INSTALLED WITHIN CSX R/W.
 - LATITUDE & LONGITUDE DERIVED FROM CENTER OF PROPOSED 12" RJDIP.

- NOTES FOR EXISTING:**
- ±143 LF OF EXISTING 10" CAST IRON PIPE TO BE GROUT FILLED AND ABANDONED IN PLACE WITHIN CSX R/W.

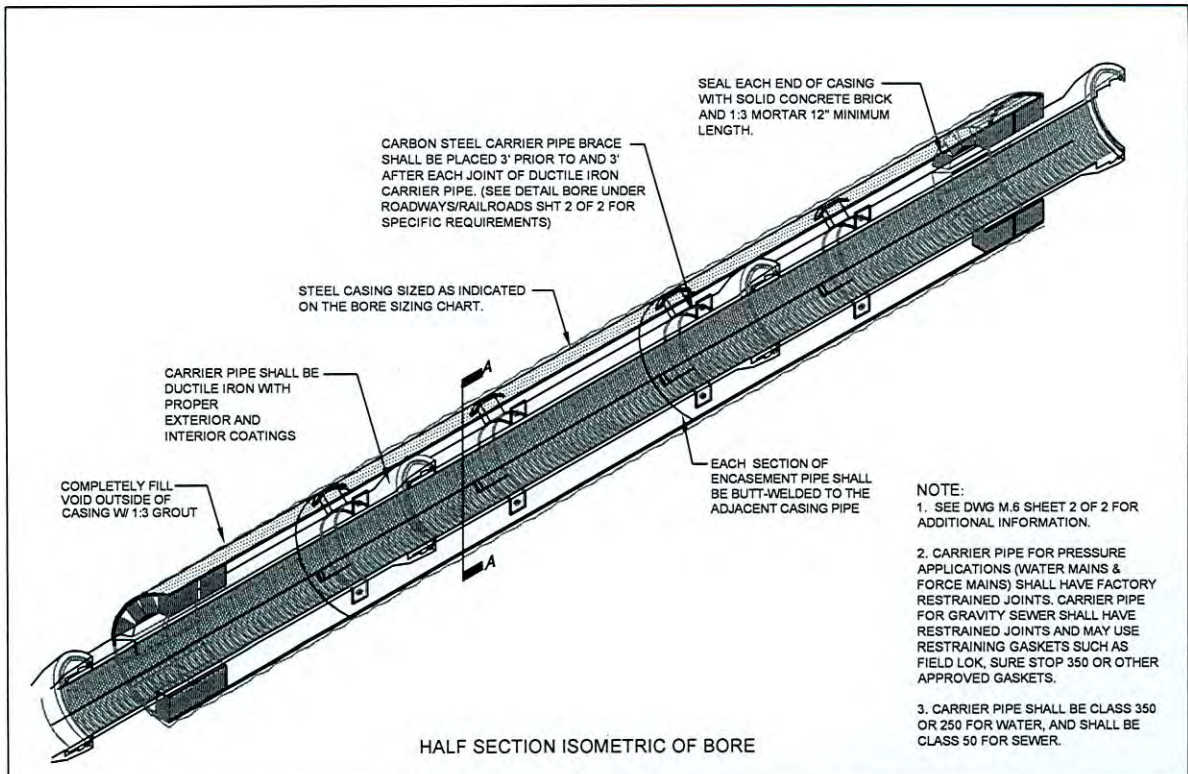
"THE FRONT OF THE CASING PIPE SHALL BE PROVIDED WITH MECHANICAL ARRANGEMENTS OR DEVICES THAT WILL POSITIVELY PREVENT THE AUGER FROM LEADING THE PIPE SO THAT NO UNSUPPORTED EXCAVATION IS AHEAD OF THE PIPE"

PIPELINE CONTENT DETAILS	
Commodity Description: <u>WATER MAIN</u>	
Maximum Operating Pressure:	CLASS 56
Is Commodity Flammable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
CARRIER/CASING PIPE DETAILS	
<i>Carrier Pipe</i>	<i>Casing Pipe</i>
Pipe Material: <u>RESTRAINED JOINT DUCTILE IRON</u>	<u>STEEL</u>
Material Specifications & Grade: <u>AWWA C151, CLASS 50</u>	<u>GRADE B</u>
Specified Minimum Yield Strength: <u>42,000psi</u>	<u>35,000psi</u>
Nominal Size Outside Diameter (Inches): <u>13.20"</u>	<u>24"</u>
Wall Thickness (Inches): <u>0.375</u>	<u>0.375</u>
Type of Seam: <u>N/A</u>	<u>FULL WELD</u>
Type of Joints: <u>RESTRAINED JOINT</u>	<u>N/A</u>
Tunnel Liner Plates Required: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	
Cathodic Protection: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	
Protective Coating: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	
Temp. Track Support or Rip-Rap Req.: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <u>Must Describe & Show on Drawing</u>	

CSX RAILROAD AT BLOUNTS CREEK
12" RJDIP CSX RR ENCROACHMENT
 FAYPWC ENCROACHMENT #17785

PUBLIC WORKS COMMISSION OF THE CITY OF FAYETTEVILLE
FAYETTEVILLE WATER RESOURCES ENGINEERING
 955 OLD WILMINGTON RD.
 FAYETTEVILLE, N.C. 28301
 (910) 223-4730

SURVEY/GPS BY: FAYPWC	DATE: 08/11/14	REVISIONS	BY
LAYOUT BY: FAYPWC	DATE: 04/08/14	ADJUSTED CSX RR ROW TO 65' FROM SOUTH BOUND TRACK	JPA
PLAN/PROF. BY: BGM			
DESIGN REVIEW BY: W/R ENGR. DEPT			
APPROVED BY: <i>[Signature]</i>			
SCALE: HOR: 1"=50' VERT: 1"=5'	SHT: 2 OF 3	AW-14468A	



NOTE:
 1. SEE DWG M.6 SHEET 2 OF 2 FOR ADDITIONAL INFORMATION.
 2. CARRIER PIPE FOR PRESSURE APPLICATIONS (WATER MAINS & FORCE MAINS) SHALL HAVE FACTORY RESTRAINED JOINTS. CARRIER PIPE FOR GRAVITY SEWER SHALL HAVE RESTRAINED JOINTS AND MAY USE RESTRAINING GASKETS SUCH AS FIELD LOK, SURE STOP 350 OR OTHER APPROVED GASKETS.
 3. CARRIER PIPE SHALL BE CLASS 350 OR 250 FOR WATER, AND SHALL BE CLASS 50 FOR SEWER.

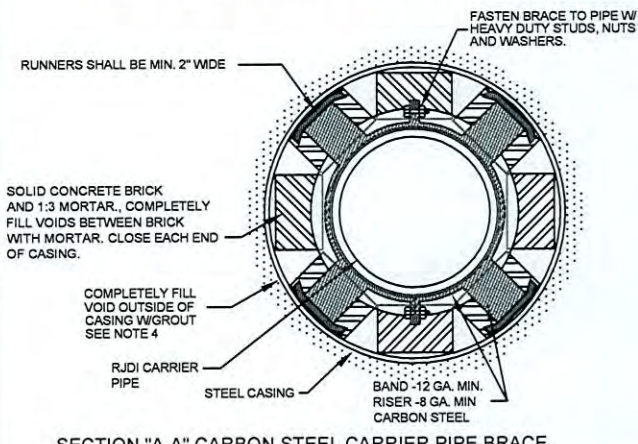
HALF SECTION ISOMETRIC OF BORE

BORE UNDER ROADWAYS/RAILROADS N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. M.6 DATE: JAN. 01, 2014	DWG. BY: PWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT			
				2.	OCT 09	Clarified restraint requirements.

2014-M6 BORE_ROAD_RAIL.dwg

CARRIER PIPE SIZE	MIN. CASING SIZE	ROADWAYS MIN. WALL THICKNESS	RAILROADS MIN. WALL THICKNESS
4"	10"	0.188"	0.188"
6"	12"	0.25"	0.281"
8"	16"	0.25"	0.281"
12"	24"	0.25"	0.375"
16"	30"	0.312"	0.469"
18"	30"	0.312"	0.469"
24"	36"	0.375"	0.532"
30"	42"	0.500"	0.625"
36"	48"	0.500"	0.688"

*CONTRACTOR MAY SUBSTITUTE A LARGER SIZE CASING PIPE HAVING THE MIN. WALL THICKNESS SHOWN FOR SEWER MAINS. ALL ADDITIONAL COSTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR BORING AND JACKING.



SECTION "A-A" CARBON STEEL CARRIER PIPE BRACE

- NOTES:**
- INSTALLATION SHALL BE DRY BORE AND JACKING OF SMOOTH WALL STEEL PIPE. JETTING OR WET BORING WITH WATER SHALL NOT BE ALLOWED.
 - SEE BORE SIZING CHART FOR CARRIER PIPE SIZE AND STEEL CASING SIZE, MIN. DIA. AND WALL THICKNESS.
 - CASING PIPE SHALL BE IN ACCORDANCE WITH ASTM A-53, GRADE B WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI.
 - EACH END OF ENCASMENT TO BE PLUGGED WITH BRICK. ALL VOIDS OUTSIDE THE CASING PIPE SHALL BE COMPLETELY FILLED WITH 1:3 PORTLAND CEMENT GROUT AT SUFFICIENT PRESSURE TO INSURE NO SETTLEMENT OF ROADWAY/ RAILROAD. METHOD OF GROUTING SHALL BE AS APPROVED BY THE PERMITTING AGENCY.
 - IT IS RECOMMENDED THAT THE BORE BE ACCOMPLISHED BEFORE PIPE CONSTRUCTION BEGINS.
 - THE BORING SHALL BE PERFORMED FROM "UPSTREAM" TO "DOWNSTREAM" DIRECTION MAINTAINING THE CRITICAL DOWNSTREAM INVERT ELEVATION. SHOULD THE BORE NOT BE ON GRADE, A REVISED PLAN SHALL BE SUBMITTED TO PWC FOR APPROVAL.
 - THE BORING OPERATION SHALL BE CONDUCTED IN A MANNER THAT THE FLOW OF TRAFFIC IS NOT IMPEDED OR IN SUCH A MANNER SO AS NOT TO CREATE A HAZARD.
 - IF AN OBSTRUCTION IS ENCOUNTERED DURING THE BORING OPERATION, THE AUGER SHALL BE WITHDRAWN THE EXCESS CASING PIPE CUT-OFF, CAPPED AND THE INTERIOR AND EXTERIOR VOIDS SHALL BE COMPLETELY FILLED W/1:3 PORTLAND CEMENT GROUT UNDER PRESSURE. NO SEPARATE PAYMENT FOR UNSUCCESSFUL BORES.
 - CONTRACTOR SHALL FIELD ADJUST AND INSTALL PROPER PIPE BRACES TO ACCOMPLISH GRADE AND INVERTS AS SHOWN ON THE DRAWINGS.
 - A MANUAL CONTROL STEERING HEAD OR OTHER GUIDANCE SYSTEM IS RECOMMENDED FOR BORES 30" DIAM. AND/OR LARGER AND FOR BORES EXCEEDING 100' IN LENGTH OR AS SPECIFIED.
 - SUBCONTRACTORS SHALL ADHERE TO ALL PERMIT REQUIREMENTS AND SHALL PROVIDE APPROVED INSURANCE CERTIFICATES AS REQUIRED.
 - CONTRACTOR SHALL EXECUTE AND PERFORM ALL REQUIREMENTS AND CONDITIONS STIPULATED BY THE PERMITTING AGENCY.
 - SEE DWG. M.6 SHEET 1 OF 2 FOR ADDITIONAL INFORMATION.
 - CARRIER PIPE FOR PRESSURE APPLICATIONS (WATER MAINS & FORCE MAINS) SHALL HAVE FACTORY RESTRAINED JOINTS. CARRIER PIPE FOR GRAVITY SEWER SHALL HAVE RESTRAINED JOINTS AND MAY USE RESTRAINING GASKETS SUCH AS FIELD LOK, SURE STOP 350 OR OTHER APPROVED GASKETS.

BORE UNDER ROADWAYS/RAILROADS N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. M.6 DATE: JAN. 01, 2014	DWG. BY: PWC APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT			
				2.	JULY 10	REVISED NOTES, SIZING CHART

2014-M6 BORE_ROAD_RAIL.dwg

"THE FRONT OF THE CASING PIPE SHALL BE PROVIDED WITH MECHANICAL ARRANGEMENTS OR DEVICES THAT WILL POSITIVELY PREVENT THE AUGER FROM LEADING THE PIPE SO THAT NO UNSUPPORTED EXCAVATION IS AHEAD OF THE PIPE"

Location: Near Winslow Street a Fayetteville, North Carolina City Street
 Latitude: N35°02'41"
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CSX RAILROAD AT BLOUNTS CREEK
12" RJDIP CSX RR ENCROACHMENT
 FAYPWC ENCROACHMENT #17785

PUBLIC WORKS COMMISSION OF THE CITY OF FAYETTEVILLE
WATER RESOURCES ENGINEERING
 955 OLD WILMINGTON RD.
 FAYETTEVILLE, N.C. 28301
 (910) 223-4730

SURVEY/GPS BY: FAYPWC	DATE: 08/11/14	REVISIONS	BY
LAYOUT BY: FAYPWC	DATE: 04/08/14	ADJUSTED CSX RR ROW TO 65' FROM SOUTH BOUND TRACK	JPA
PLAN/PROF. BY: BGM			
DESIGN REVIEW BY: W/R ENGR. DEPT.			
APPROVED BY: [Signature]	DATE: 6/19/14		
SCALE: HOR: 1"= N/A VERT: 1"= N/A	SHT: 3 OF 3	AW-14468A	

FACILITY ENCROACHMENT AGREEMENT

THIS AGREEMENT, Made and effective as of April 7, 2022, by and between CSX TRANSPORTATION, INC., a Virginia corporation, whose mailing address is 500 Water Street, Jacksonville, Florida 32202, hereinafter called "Licensor," and FAYETTEVILLE PUBLIC WORKS COMMISSION, a municipal corporation, political subdivision or state agency, under the laws of the State of North Carolina, whose mailing address is 955 Old Wilmington Road, Fayetteville, North Carolina 28301, hereinafter called "Licensee," WITNESSETH:

WHEREAS, Licensee desires to construct (unless previously constructed and designated as existing herein), use and maintain the below described facility(ies), hereinafter called "Facilities," over, under or across property owned or controlled by Licensor, at the below described location(s):

1. One (1) twelve inch (12") diameter sub-grade pipeline crossing, solely for the conveyance of potable water, located at or near Fayetteville, Cumberland County, North Carolina, Florence Division, South End Subdivision, Milepost A-210.41, Latitude N35:01:40., Longitude W78:53:25.;

hereinafter, called the "Encroachment," as shown on print(s) labeled Exhibit "A," attached hereto and made a part hereof;

NOW, THEREFORE, in consideration of the mutual covenants, conditions, terms and agreements herein contained, the parties hereto agree and covenant as follows:

1. LICENSE:

1.1 Subject to Article 17, Licensor, insofar as it has the legal right, power and authority to do so, and its present title permits, and subject to:

(A) Licensor's present and future right to occupy, possess and use its property within the area of the Encroachment for any and all purposes, including but not limited to Licensor's track(s) structure(s), power lines, communication, signal or other wires, train control system, cellular or data towers, or electrical or electronic apparatus, or any appurtenances thereto ("Licensor's Facilities") and any other facilities as now exist or which may in the future be located in, upon, over, under or across the property;

(B) All encumbrances, conditions, covenants, easements, and limitations applicable to Licensor's title to or rights in the subject property; and

(C) Compliance by Licensee and its agent or contractor ("Licensee's Contractor") with the terms and conditions herein contained;

does hereby license and permit Licensee to construct, maintain, repair, renew, operate, use, alter or change the Facilities at the Encroachment above for the term herein stated, and to remove same upon termination.

1.2 The term Facilities, as used herein, shall include only those structures and ancillary facilities devoted exclusively to the transmission usage above within the Encroachment, and as shown on attached Exhibit A.

1.3 No additional structures or other facilities shall be placed, allowed, or maintained by Licensee in, upon or on the Encroachment except upon prior separate written consent of Licensor.

1.4 The term Licensor Facilities, as used herein shall include Licensor's track(s) structures(s), power lines, communication, signal or other wires, train control system, cellular or data towers, or electrical or electronic apparatus other property, or any appurtenances thereto and any other facilities as now exist or which may in the future be located in, upon, over, under or across the property.

2. ENCROACHMENT FEE; TERM:

2.1 Licensee shall pay Licensor a one-time nonrefundable Encroachment Fee of FIVE THOUSAND ONE HUNDRED AND 00/100 U.S. DOLLARS (\$5,100.00) upon execution of this Agreement. Licensee agrees that the Encroachment Fee applies only to the original Licensee under this Agreement. In the event of a successor (by merger, consolidation, reorganization and/or assignment) or if the original Licensee changes its name, then Licensee shall be subject to payment of Licensor's current administrative and document preparation fees for the cost incurred by Licensor in preparing and maintaining this Agreement on a current basis.

2.2 However, Licensee assumes sole responsibility for, and shall pay directly (or reimburse Licensor), any additional annual taxes and/or periodic assessments levied against Licensor or Licensor's property solely on account of said Facilities or Encroachment.

2.3 This Agreement shall terminate as herein provided, but shall also terminate upon: (a) Licensee's cessation of use of the Facilities or Encroachment for the purpose(s) above; (b) removal of the Facilities; (c) subsequent mutual consent; and/or (d) failure of Licensee to complete installation within five (5) years from the effective date of this Agreement.

2.4 In further consideration for the license or right hereby granted, Licensee hereby agrees that Licensor shall not be charged or assessed, directly or indirectly, with any part of the cost of the installation of said Facilities and appurtenances, and/or maintenance thereof, or for any public works project of which said Facilities is a part. Licensee agrees it shall not assess Licensor any stormwater or drainage fee associated with such Facilities. Furthermore, Licensee shall be responsible for any stormwater or drainage fees assessed by any County or State agency managing such systems.

3. CONSTRUCTION, MAINTENANCE AND REPAIRS:

3.1 Licensee shall construct, maintain, relocate, repair, renew, alter, and/or remove the Facilities, in a prudent, workmanlike manner, using quality materials and complying with any

applicable standard(s) or regulation(s) of Licensor (CSXT Specifications), or Licensee's particular industry, National Electrical Safety Code, or any governmental or regulatory body having jurisdiction over the Encroachment.

3.2 Location and construction of Facilities shall be made strictly in accordance with design(s) and specifications furnished to and approved by Licensor and of material(s) and size(s) appropriate for the purpose(s) above recited.

3.3 All of Licensee's work, and exercise of rights hereunder, shall be undertaken at time(s) satisfactory to Licensor, and so as to eliminate or minimize any impact on or interference with the safe use and operation of Licensor's property and appurtenances thereto.

3.4 In the installation, maintenance, repair and/or removal of said Facilities, Licensee shall not use explosives on or adjacent to Licensor's property of any type or perform or cause any blasting without the separate express written consent of Licensor. As a condition to such consent, a representative will be assigned by Licensor to monitor blasting, and Licensee shall reimburse Licensor for the entire cost and/or expense of furnishing said monitor.

3.5 Any repairs or maintenance to the Facilities, whether resulting from acts of Licensee, or natural or weather events, which are necessary to protect or facilitate Licensor's use of its property, shall be made by Licensee promptly, but in no event later than thirty (30) days after Licensee has notice as to the need for such repairs or maintenance.

3.6 Licensor, in order to protect or safeguard its property, rail operations, equipment and/or employees from damage or injury, may request immediate repair or renewal of the Facilities, and if the same is not performed, may make or contract to make such repairs or renewals, at the sole risk, cost and expense of Licensee.

3.7 Neither the failure of Licensor to object to any work done, material used, or method of construction or maintenance of said Encroachment, nor any approval given or supervision exercised by Licensor, shall be construed as an admission of liability or responsibility by Licensor, or as a waiver by Licensor of any of the obligations, liability and/or responsibility of Licensee under this Agreement.

3.8 All work on the Encroachment shall be conducted in accordance with Licensor's safety rules and regulations.

3.9 Licensee hereby agrees to reimburse Licensor any loss, cost or expense (including losses resulting from train delays and/or inability to meet train schedules) arising from any failure of Licensee to make repairs or conduct maintenance as required by Section 3.5 above or from improper or incomplete repairs or maintenance to the Facilities or Encroachment.

3.10 In the event it becomes necessary for the Licensee to deviate from the approved Exhibit, Licensee shall seek prior approval from Licensor, or when applicable, an official field representative of Licensor permitted to approve changes, authorizing the necessary field changes and Licensee shall provide Licensor with complete As-Built Drawings of the

completed work. As-Built Drawings shall be submitted to Licensor in either electronic or hard copy form upon the substantial completion of the project and upon Licensor's request.

3.11 In the event of large scale maintenance/construction work to railroad bridges Licensee is required to protect power lines with insulated covers or comparable safety devices at their costs during construction/maintenance for safety of railroad employees.

4. PERMITS, LICENSES:

4.1 Before any work hereunder is performed, or before use of the Encroachment for the contracted purpose, Licensee, at its sole cost and expense, shall obtain all necessary permit(s) (including but not limited to zoning, building, construction, health, safety or environmental matters), letter(s) or certificate(s) of approval. Licensee expressly agrees and warrants that it shall conform and limit its activities to the terms of such permit(s), approval(s) and authorization(s), and shall comply with all applicable ordinances, rules, regulations, requirements and laws of any governmental authority (State, Federal or Local) having jurisdiction over Licensee's activities, including the location, contact, excavation and protection regulations of the Occupational Safety and Health Act (OSHA) (29 CFR 1926.651(b)), et al., and State "One Call" - "Call Before You Dig" requirements.

4.2 Licensee assumes sole responsibility for failure to obtain such permit(s) or approval(s), for any violations thereof, or for costs or expenses of compliance or remedy.

5. MARKING AND SUPPORT:

5.1 With respect to any subsurface installation or maintenance upon Licensor's property, Licensee, at its sole cost and expense, shall:

- (A) support track(s) and roadbed in a manner satisfactory to Licensor;
- (B) backfill with satisfactory material and thoroughly tamp all trenches to prevent settling of surface of land and roadbed of Licensor; and
- (C) either remove any surplus earth or material from Licensor's property or cause said surplus earth or material to be placed and distributed at location(s) and in such manner Licensor may approve.

5.2 After construction or maintenance of the Facilities, Licensee shall:

- (A) Restore any track(s), roadbed and other disturbed property; and
- (B) Erect, maintain and periodically verify the accuracy of aboveground markers, in a form approved by Licensor, indicating the location, depth and ownership of any underground Facilities or related facilities.

5.3 Licensee shall be solely responsible for any subsidence or failure of lateral or subjacent support in the Encroachment area for a period of three (3) years after completion of installation.

6. TRACK CHANGES:

6.1 In the event that rail operations and/or track maintenance result in changes in grade or alignment of, additions to, or relocation of track(s) or other facilities, or in the event future use of Licensor's rail corridor or property necessitate any change of location, height or depth in the Facilities or Encroachment, Licensee, at its sole cost and expense and within thirty (30) days after notice in writing from Licensor, shall make changes in the Facilities or Encroachment to accommodate such track(s) or operations.

6.2 If Licensee fails to do so, Licensor may make or contract to make such changes at Licensee's cost.

7. FACILITY CHANGES:

7.1 Licensee shall periodically monitor and verify the depth or height of the Facilities or Encroachment in relation to the existing tracks and facilities, and shall relocate the Facilities or change the Encroachment, at Licensee's expense, should such relocation or change be necessary to comply with the minimum clearance requirements of Licensor.

7.2 If Licensee undertakes to revise, renew, relocate or change in any manner whatsoever all or any part of the Facilities (including any change in voltage or gauge of wire or any change in circumference, diameter or radius of pipe or change in materials transmitted in and through said pipe), or is required by any public agency or court order to do so, plans therefor shall be submitted to Licensor for approval before such change. After approval, the terms and conditions of this Agreement shall apply thereto.

8. INTERFERENCE WITH RAIL FACILITIES:

8.1 Although the Facilities/Encroachment herein permitted may not presently interfere with Licensor's Facilities, in the event that the operation, existence or maintenance of said Facilities, in the sole judgment of Licensor, causes: (a) interference (including, but not limited to, physical or interference from an electromagnetic induction, or interference from stray or other currents) with Licensor's power lines, communication, signal or other wires, train control system, or electrical or electronic apparatus; or (b) interference in any manner, with the operation, maintenance or use of Licensor's Facilities; then and in either event, Licensee, upon receipt of written notice from Licensor of any such interference, and at Licensee's sole risk, cost and expense, shall promptly make such changes in its Facilities or installation, as may be required in the reasonable judgment of the Licensor to eliminate all such interference. Upon Licensee's failure to remedy or change, Licensor may do so or contract to do so at Licensee's sole cost.

8.2 Without assuming any duty hereunder to inspect the Facilities, Licensor hereby reserves the right to inspect same and to require Licensee to undertake repairs, maintenance or adjustments to the Facilities, which Licensee hereby agrees to make promptly, at Licensee's sole cost and expense.

9. RISK, LIABILITY, INDEMNITY:

With respect to the relative risk and liabilities of the parties, it is hereby agreed that:

9.1 To the fullest extent permitted by State law (constitutional or statutory, as amended), Licensee hereby agrees to, defend, indemnify, and hold Licensor harmless from and against any and all liability, loss, claim, suit, damage, charge or expense which Licensor may suffer, sustain, incur or in any way be subjected to, on account of death of or injury to any person whomsoever (including officers, agents, employees or invitees of Licensor), and for damage to or loss of or destruction of any property whatsoever, arising out of, resulting from, or in any way connected with the construction, repair, maintenance, replacement, presence, existence, operations, use or removal of the Facilities or any structure in connection therewith, or restoration of premises of Licensor to good order or condition after removal, EXCEPT when proven to have been caused solely by the willful misconduct or gross negligence of Licensor. HOWEVER, to the fullest extent permitted by State law, during any period of actual construction, repair, maintenance, replacement or removal of the Facilities, wherein agents, equipment or personnel of Licensee are on the railroad rail corridor, Licensee's liability hereunder shall be absolute, irrespective of any joint, sole or contributory fault or negligence of Licensor.

9.2 Licensee's Contractor shall hereby agree to, defend, indemnify, and hold Licensor harmless from and against any and all liability, loss, claim, suit, damage, charge or expense which Licensor may suffer, sustain, incur or in any way be subjected to, on account of death of or injury to any person whomsoever (including officers, agents, employees or invitees of Licensor), and for damage to or loss of or destruction of any property whosoever, arising out of resulting from, or in any way connected with the construction, repair, maintenance, replacement, presence, existence, operations, use or removal of the Facilities or any structure in connection therewith, or restoration of premises of Licensor to good order or condition after removal, EXCEPT when proven to have been caused solely by the willful misconduct or gross negligence of Licensor. HOWEVER, to the fullest extent permitted by State law, during any period of actual construction, repair, maintenance, replacement or removal of the Facilities, wherein agents, equipment or personnel of Licensee are on the railroad rail corridor, Licensee's liability hereunder shall be absolute, irrespective of any joint, sole or contributory fault or negligence of Licensor.

9.3 Use of Licensor's rail corridor involves certain risks of loss or damage as a result of the rail operations. Notwithstanding Section 9.1, Licensee expressly assumes all risk of loss and damage to Licensee's Property or the Facilities in, on, over or under the Encroachment, including loss of or any interference with use or service thereof, regardless of cause, including electrical field creation, fire or derailment resulting from rail operations. For this Section, the term "Licensee's Property" shall include property of third parties situated or placed upon

Licensor's rail corridor by Licensee or by such third parties at request of or for benefit of Licensee.

9.4 To the fullest extent permitted by State law, as above, Licensee assumes all responsibility for, and agrees to defend, indemnify and hold Licensor harmless from: (a) all claims, costs and expenses, including reasonable attorneys' fees, as a consequence of any sudden or nonsudden pollution of air, water, land and/or ground water on or off the Encroachment area, arising from or in connection with the use of this Encroachment or resulting from leaking, bursting, spilling, or any escape of the material transmitted in or through the Facilities; (b) any claim or liability arising under federal or state law dealing with either such sudden or nonsudden pollution of air, water, land and/or ground water arising therefrom or the remedy thereof; and (c) any subsidence or failure of lateral or subjacent support of the tracks arising from such Facilities leakage.

9.5 Notwithstanding Section 9.1, Licensee also expressly assumes all risk of loss which in any way may result from Licensee's failure to maintain either required clearances for any overhead Facilities or the required depth and encasement for any underground Facilities, whether or not such loss(es) result(s) in whole or part from Licensor's contributory negligence or joint fault.

9.6 Obligations of Licensee hereunder to release, indemnify and hold Licensor harmless shall also extend to companies and other legal entities that control, are controlled by, subsidiaries of, or are affiliated with Licensor, as well as any railroad that operates over the rail corridor on which the Encroachment is located, and the officers, employees and agents of each.

9.7 If a claim is made or action is brought against Licensor, and/or its operating lessee, for which Licensee may be responsible hereunder, in whole or in part, Licensee shall be notified to assume the handling or defense of such claim or action; but Licensor may participate in such handling or defense.

9.8 Notwithstanding anything contained in this Agreement, the limitation of liability contained in the state statutes, as amended from time to time, shall not limit Licensor's ability to collect under the insurance policies required to be maintained under this Agreement.

10. INSURANCE:

10.1 Prior to commencement of surveys, installation or occupation of premises pursuant to this Agreement, Licensee shall procure and shall maintain during the continuance of this Agreement, at its sole cost and expense, a policy of

- (i) Statutory Worker's Compensation and Employers Liability Insurance with available limits of not less than ONE MILLION AND 00/100 U.S. DOLLARS (\$1,000,000.00).
- (ii) Commercial General Liability coverage (inclusive of contractual liability) with available limits of not less than FIVE MILLION AND 00/100 U.S. DOLLARS

(\$5,000,000.00) in combined single limits for bodily injury and property damage and covering the contractual liabilities assumed under this Agreement and naming Licensor, and/or its designee, as additional insured. The evidence of insurance coverage shall be endorsed to provide for thirty (30) days' notice to Licensor, or its designee, prior to cancellation or modification of any policy. Mail CGL certificate, along with agreement, to CSX Transportation, Inc., Speed Code J180, 500 Water Street, Jacksonville, FL 32202. On each successive year, send certificate to RenewalCOI@csx.com.

- (iii) Business automobile liability insurance with available limits of not less than ONE MILLION AND 00/100 U.S. DOLLARS (\$1,000,000.00) combined single limit for bodily injury and/or property damage per occurrence naming Licensor, and/or its designee, as additional insured.
- (iv) The insurance policies must contain a waiver of subrogation against CSXT and its Affiliates, except where prohibited by law. All insurance companies must be A. M. Best rated A- and Class VII or better.
- (v) Such other insurance as Licensor may reasonably require.
- (vi) Licensee shall require its contractors to meet minimum insurance requirements above when performing work in relation to this agreement. Licensee will procure and review contractor's insurance certificates to confirm requirements are met. Licensor may request a copy of the insurance certificate.

10.2 If Licensee's Contractor's existing CGL policy(ies) do(es) not automatically cover Licensee's contractual liability during periods of survey, installation, maintenance and continued occupation, a specific endorsement adding such coverage shall be purchased by Licensee's Contractor. If said CGL policy is written on a "claims made" basis instead of a "per occurrence" basis, Licensee shall arrange for adequate time for reporting losses. Failure to do so shall be at Licensee's sole risk.

10.3 Licensor, or its designee, may at any time request evidence of insurance purchased by Licensee to comply with this Agreement. Failure of Licensee to comply with Licensor's request shall be considered a default by Licensee.

10.4 To the extent permitted by law and without waiver of the sovereign immunity of Licensee, securing such insurance shall not limit Licensee's liability under this Agreement, but shall be security therefor.

10.5 (A) In the event Licensee finds it necessary to perform construction or demolition operations within fifty feet (50') of any operated railroad track(s) or affecting any railroad bridge, trestle, tunnel, track(s), roadbed, overpass or underpass, Licensee shall: (a) notify Licensor; and (b) require Licensee's Contractor(s) performing such operations to procure and maintain during the period of construction or demolition operations, at no cost to Licensor,

NCDOT ENCROACHMENT PERMIT

i) Railroad Protective Liability (RPL) Insurance, naming Licensor, and/or its designee, as Named Insured, written on the current ISO/RIMA Form (ISO Form No. CG 00 35 04 13) with limits of FIVE MILLION AND 00/100 U.S. DOLLARS (\$5,000,000.00) per occurrence for bodily injury and property damage, with at least TEN MILLION AND 00/100 U.S. DOLLARS (\$10,000,000.00) aggregate limit per annual policy period. The original of such RPL policy shall be sent to and approved by Licensor prior to commencement of such construction or demolition. Licensor reserves the right to demand higher limits.

OR

ii) The CGL policy shall include endorsement ISO CG 24 17 and the Auto Liability Policy shall include endorsement ISO CA 20 70 evidencing that coverage is provided for work within 50 feet of a railroad. If such endorsements are not included, RPL insurance must be provided.

(B) At Licensor's option, in lieu of purchasing RPL insurance or the 50 foot endorsements from an insurance company (but not CGL insurance), Licensee may pay Licensor, at Licensor's current rate at time of request, the cost of adding this Encroachment, or additional construction and/or demolition activities, to Licensor's Railroad Protective Liability (RPL) Policy for the period of actual construction. This coverage is offered at Licensor's discretion and may not be available under all circumstances.

10.6 Notwithstanding the provisions of Sections 10.1 and 10.2, Licensee, pursuant to State Statute(s), may self-insure or self-assume, in any amount(s), any contracted liability arising under this Agreement, under a funded program of self-insurance, which fund will respond to liability of Licensee imposed by and in accordance with the procedures established by law.

11. GRADE CROSSINGS; PROTECTION SERVICES:

11.1 Nothing herein contained shall be construed to permit Licensee or Licensee's contractor to move any vehicles or equipment over the track(s), except at public road crossing(s), without separate prior written approval of Licensor.

11.2 If Licensor deems it advisable, during any construction, maintenance, repair, renewal, alteration, change or removal of said Facilities, to place watchmen, flagmen, or field construction managers for protection of operations of Licensor or others on Licensor's rail corridor at the Encroachment, and to keep persons, equipment or materials away from the track(s), Licensor shall have the right to do so at the expense of Licensee, but Licensor shall not be liable for failure to do so.

12. LICENSOR'S COSTS:

12.1 Any additional or alternative costs or expenses incurred by Licensor to accommodate Licensee's continued use of Licensor's property as a result of track changes or changes to Licensor's Facilities shall also be paid by Licensee.

12.2 Licensors expense for wages ("force account" charges) and materials for any work performed at the expense of Licensee pursuant hereto shall be paid by Licensee within thirty (30) days after receipt of Licensor's bill therefor. Licensor may, at its discretion, request an advance deposit for estimated Licensor costs and expenses.

12.3 Such expense shall include, but not be limited to, cost of railroad labor and supervision under "force account" rules, plus current applicable overhead percentages, the actual cost of materials, and insurance, freight and handling charges on all material used. Equipment rentals shall be in accordance with Licensor's applicable fixed rate. Licensor may, at its discretion, require advance deposits for estimated costs of such expenses and costs.

13. DEFAULT, BREACH, WAIVER:

13.1 The proper and complete performance of each covenant of this Agreement shall be deemed of the essence thereof, and in the event Licensee fails or refuses to fully and completely perform any of said covenants or remedy any breach within thirty (30) days after receiving written notice from Licensor to do so (or within forty-eight (48) hours in the event of notice of a railroad emergency), Licensor shall have the option of immediately revoking this Agreement and the privileges and powers hereby conferred, regardless of encroachment fee(s) having been paid in advance for any annual or other period. Upon such revocation, Licensee shall make removal in accordance with Article 14.

13.2 No waiver by Licensor of its rights as to any breach of covenant or condition herein contained shall be construed as a permanent waiver of such covenant or condition, or any subsequent breach thereof, unless such covenant or condition is permanently waived in writing by Licensor.

13.3 Neither the failure of Licensor to object to any work done, material used, or method of construction or maintenance of said Encroachment, nor any approval given or supervision exercised by Licensor, shall be construed as an admission of liability or responsibility by Licensor, or as a waiver by Licensor of any of the obligations, liability and/or responsibility of Licensee under this Agreement.

14. TERMINATION, REMOVAL:

14.1 All rights which Licensee may have hereunder shall cease upon the date of (a) termination, (b) revocation, or (c) subsequent agreement, or (d) Licensee's removal of the Facility from the Encroachment. However, neither termination nor revocation of this Agreement shall affect any claims and liabilities which have arisen or accrued hereunder, and which at the time of termination or revocation have not been satisfied; neither party, however, waiving any third party defenses or actions.

14.2 Within thirty (30) days after revocation or termination, Licensee, at its sole risk and expense, shall (a) remove the Facilities from the rail corridor of Licensor, unless the parties hereto agree otherwise, (b) restore the rail corridor of Licensor in a manner satisfactory to

Licensors, and (c) reimburse Licensor any loss, cost or expense of Licensor resulting from such removal.

15. NOTICE:

15.1 Licensee shall give Licensor at least thirty (30) days written notice before doing any work on Licensor's rail corridor, except that in cases of emergency shorter notice may be given. Licensee shall provide proper notification as follows:

a. For non-emergencies, Licensee shall submit online via the CSX Property Portal from Licensor's web site, via web link:
https://propertyportal.csx.com/pub_ps_res/ps_res/jsf/public/index.faces

b. For emergencies, Licensee shall complete all of the steps outlined in Section 15.1 a. above, and shall also include detailed information of the emergency. Licensee shall also call and report details of the emergency to Licensor's Rail Operations Emergency Telephone Number: 1-800-232-0144. In the event Licensor needs to contact Licensee concerning an emergency involving Licensee's Facility(ies), the emergency phone number for Licensee is: 910-223-4494.

15.2 All other notices and communications concerning this Agreement shall be addressed to Licensee at the address above, and to Licensor at the address shown on Page 1, c/o CSXT Contract Management, J180; or at such other address as either party may designate in writing to the other.

15.3 Unless otherwise expressly stated herein, all such notices shall be in writing and sent via Certified or Registered Mail, Return Receipt Requested, or by courier, and shall be considered delivered upon: (a) actual receipt, or (b) date of refusal of such delivery.

16. ASSIGNMENT:

16.1 The rights herein conferred are the privileges of Licensee only, and Licensee shall obtain Licensor's prior written consent to any assignment of Licensee's interest herein; said consent shall not be unreasonably withheld.

16.2 Subject to Sections 2 and 16.1, this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors or assigns.

16.3 Licensee shall give Licensor written notice of any legal succession (by merger, consolidation, reorganization, etc.) or other change of legal existence or status of Licensee, with a copy of all documents attesting to such change or legal succession, within thirty (30) days thereof.

16.4 Licensor expressly reserves the right to assign this Agreement, in whole or in part, to any grantee, lessee, or vendee of Licensor's underlying property interests in the Encroachment, upon written notice thereof to Licensee.

16.5 In the event of any unauthorized sale, transfer, assignment, sublicense or encumbrance of this Agreement, or any of the rights and privileges hereunder, Licensor, at its option, may revoke this Agreement by giving Licensee or any such assignee written notice of such revocation; and Licensee shall reimburse Licensor for any loss, cost or expense Licensor may incur as a result of Licensee's failure to obtain said consent.

17. TITLE:

17.1 Licensee understands that Licensor occupies, uses and possesses lands, rights-of-way and rail corridors under all forms and qualities of ownership rights or facts, from full fee simple absolute to bare occupation. Accordingly, nothing in this Agreement shall act as or be deemed to act as any warranty, guaranty or representation of the quality of Licensor's title for any particular Encroachment or segment of Rail Corridor occupied, used or enjoyed in any manner by Licensee under any rights created in this Agreement. It is expressly understood that Licensor does not warrant title to any Rail Corridor and Licensee will accept the grants and privileges contained herein, subject to all lawful outstanding existing liens, mortgages and superior rights in and to the Rail Corridor, and all leases, licenses and easements or other interests previously granted to others therein.

17.2 The term "license," as used herein, shall mean with regard to any portion of the Rail Corridor which is owned by Licensor in fee simple absolute, or where the applicable law of the State where the Encroachment is located otherwise permits Licensor to make such grants to Licensee, a "permission to use" the Rail Corridor, with dominion and control over such portion of the Rail Corridor remaining with Licensor, and no interest in or exclusive right to possess being otherwise granted to Licensee. With regard to any other portion of Rail Corridor occupied, used or controlled by Licensor under any other facts or rights, Licensor merely waives its exclusive right to occupy the Rail Corridor and grants no other rights whatsoever under this Agreement, such waiver continuing only so long as Licensor continues its own occupation, use or control. Licensor does not warrant or guarantee that the license granted hereunder provides Licensee with all of the rights necessary to occupy any portion of the Rail Corridor. Licensee further acknowledges that it does not have the right to occupy any portion of the Rail Corridor held by Licensor in less than fee simple absolute without also receiving the consent of the owner(s) of the fee simple absolute estate. Further, Licensee shall not obtain, exercise or claim any interest in the Rail Corridor that would impair Licensor's existing rights therein.

17.3 Licensee agrees it shall not have nor shall it make, and hereby completely and absolutely waives its right to, any claim against Licensor for damages on account of any deficiencies in title to the Rail Corridor in the event of failure or insufficiency of Licensor's title to any portion thereof arising from Licensee's use or occupancy thereof.

17.4 Licensee agrees to fully and completely indemnify and defend all claims or litigation for slander of title, overburden of easement, or similar claims arising out of or based upon the Facilities placement, or the presence of the Facilities in, on or along any Encroachment(s), including claims for punitive or special damages.

17.5 Licensee shall not at any time own or claim any right, title or interest in or to Licensor's property occupied by the Encroachments, nor shall the exercise of this Agreement for any length of time give rise to any right, title or interest in Licensee to said property other than the license herein created.

17.6 Nothing in this Agreement shall be deemed to give, and Licensor hereby expressly waives, any claim of ownership in and to any part of the Facilities.

17.7 Licensee shall not create or permit any mortgage, pledge, security, interest, lien or encumbrances, including without limitation, tax liens and liens or encumbrances with respect to work performed or equipment furnished in connection with the construction, installation, repair, maintenance or operation of the Facilities in or on any portion of the Encroachment (collectively, "Liens or Encumbrances"), to be established or remain against the Encroachment or any portion thereof or any other Licensor property.

17.8 In the event that any property of Licensor becomes subject to such Liens or Encumbrances, Licensee agrees to pay, discharge or remove the same promptly upon Licensee's receipt of notice that such Liens or Encumbrances have been filed or docketed against the Encroachment or any other property of Licensor; however, Licensee reserves the right to challenge, at its sole expense, the validity and/or enforceability of any such Liens or Encumbrances.

18. GENERAL PROVISIONS:

18.1 This Agreement, and the attached specifications, contains the entire understanding between the parties hereto.

18.2 Neither this Agreement, any provision hereof, nor any agreement or provision included herein by reference, shall operate or be construed as being for the benefit of any third person.

18.3 Except as otherwise provided herein, or in any Rider attached hereto, neither the form of this Agreement, nor any language herein, shall be interpreted or construed in favor of or against either party hereto as the sole drafter thereof.

18.4 This Agreement is executed under current interpretation of applicable Federal, State, County, Municipal or other local statute, ordinance or law(s). However, each separate division (paragraph, clause, item, term, condition, covenant or agreement) herein shall have independent and severable status for the determination of legality, so that if any separate division is determined to be void or unenforceable for any reason, such determination shall have no effect upon the validity or enforceability of each other separate division, or any combination thereof.

18.5 This Agreement shall be construed and governed by the laws of the state in which the Facilities and Encroachment are located.

18.6 If any amount due pursuant to the terms of this Agreement is not paid by the due date, it will be subject to Licensor's standard late charge and will also accrue interest at eighteen percent (18%) per annum, unless limited by local law, and then at the highest rate so permitted.

18.7 Licensee agrees to reimburse Licensor for all reasonable costs (including attorney's fees) incurred by Licensor for collecting any amount due under the Agreement.

18.8 The provisions of this License are considered confidential and may not be disclosed to a third party without the consent of the other party(s), except: (a) as required by statute, regulation or court order, (b) to a parent, affiliate or subsidiary company, (c) to an auditing firm or legal counsel that are agreeable to the confidentiality provisions, or (d) to Lessees of Licensor's land and/or track who are affected by the terms and conditions of this Agreement and will maintain the confidentiality of this Agreement.

18.9 Within thirty (30) days of an overpayment in a cumulative total amount of One Hundred Dollars (\$100.00) or more by Licensee to Licensor, Licensee shall notify Licensor in writing with documentation evidencing such overpayment. Licensor shall refund the actual amount of Licensee's overpayment within 120 days of Licensor's verification of such overpayment.

18.10 This Agreement may be executed in any number of counterparts, and such counterparts may be exchanged by electronic transmission. Upon execution by the parties hereto, each counterpart shall be deemed an original and together shall constitute one and the same instrument. A fully executed copy of this Agreement by electronic transmission shall be deemed to have the same legal effect as delivery of an original executed copy of this Agreement for all purposes.

19. CONTRACTOR'S ACCEPTANCE:

19.1 Licensee shall observe and abide by, and shall require Licensee's Contractors to observe and abide by the terms, conditions and provisions set forth in this Agreement. Prior to any commencement of work under this Agreement by Licensee's Contractor, Licensee shall require Licensee's Contractor to execute and deliver to Licensor the Contractor Acceptance form attached hereto as Schedule A to acknowledge Licensee's Contractor's agreement to observe and abide by terms and conditions of the Agreement.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate (each of which shall constitute an original) as of the effective date of this Agreement.

Witness for Licensor:

CSX TRANSPORTATION, INC.

Kenneth W. Clark

By: 

Print/Type Name: Catherine Adkins

Director Real Estate

Print/Type Title: Corridor Services

Witness for Licensee:

**FAYETTEVILLE PUBLIC WORKS
COMMISSION**

Kevin P. Stewart
May 1, 2022

By:  Apr 29, 2022

Who, by the execution hereof, affirms that he/she has the authority to do so and to bind the Licensee to the terms and conditions of this Agreement.

This instrument has been peaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Print/Type Name: Elaina Ball

Print/Type Title: CEO/General Manager

Rhonda Haskins
RHONDA HASKINS (Apr 28, 2022 15:36 EDT)

Apr 29, 2022

Chief Financial Officer

Tax ID No.: 56-6000841

APPENDIX C – PERMITS



EVELYN O. SHAW, COMMISSIONER
RONNA ROWE GARRETT, COMMISSIONER
DONALD L. PORTER, COMMISSIONER
CHRISTOPHER G. DAVIS, COMMISSIONER
TIMOTHY L. BRYANT, CEO/GENERAL MANAGER

FAYETTEVILLE PUBLIC WORKS COMMISSION
955 OLD WILMINGTON RD
P.O. BOX 1089
FAYETTEVILLE, NORTH CAROLINA 28302-1089
TELEPHONE (910) 483-1401
WWW.FAYPWC.COM

September 21, 2023

Misty M. Manning
Fayetteville Public Works Commission
955 Old Wilmington Road
Fayetteville Public Works Commission

Re: **PERMIT RENEWAL**
Water Main Extension
City of Fayetteville to serve
Robeson to Winslow Water Main Replacement
Cumberland County
Permit # PWC2021-W029

Dear Ms. Manning:

The Public Works Commission has received and reviewed your request to renew the subject permit, which was originally issued by PWC on **September 23, 2021**. Having completed our review and determining that there is no significant change from the originally permitted plans, the subject permit **PWC2021-W029**, is hereby renewed for one (1) 24-month period. Therefore, the new expiration date for the permit is **September 22, 2025**. **Please note that all of the terms and conditions of the original permit remain in effect.**

Upon completion of the construction or modification and in accordance with Rule .0303, the applicant shall submit a certification statement signed and sealed by a registered professional engineer stating that construction was completed in accordance with approved engineering plans and specifications, including any provisions stipulated in this letter. Prior to Final Approval, the applicant shall submit a signed certification stating that the requirements in 15A NCAC 18C .0307 (d) and (e) have been satisfied and if applicable, a completed application for an operating permit and fee. Once the certification statements and operating permit application and fee, if applicable, are received and determined adequate, the Public Works Commission will grant Final Approval in accordance with Rule .0309 (a). Therefore, no construction, alteration, or expansion of the water system shall be placed into service until the Public Works Commission has issued Final Approval.

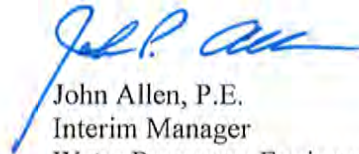
We are enclosing one (1) utility cover sheet, showing the new permit dates, as well as the Authorization to Construct. This Authorization shall be posted at the primary entrance of the job site throughout construction. The project must comply with all permit requirements as contained within the original permit approval, all requirements found in the Public Works Commission Design Manual and all regulations related to the Rules Governing Public Water Supply.

BUILDING COMMUNITY CONNECTIONS SINCE 1905

AN EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

If we can be of further assistance, please contact Mr. John Allen at (910) 223-4734.

Sincerely,
PUBLIC WORKS COMMISSION

A handwritten signature in blue ink, appearing to read "J. P. Allen", is written over the typed name and title.

John Allen, P.E.
Interim Manager
Water Resources Engineering

Enclosure
Drawing # DWS-14468

cc: **Kevin Heaphy, P.E.**
Project file



Authorization To Construct

Project Name:

Robeson to Winslow Water Main Replacement

Permit Number:

PWC2021-W029

Issued to:

Fayetteville Public Works Commission

Issue Date

September 23, 2021

Expiration Date:

September 22, 2025

****EXPIRES***

In accordance with NCAC 18C.0305, and the PWC Manual this Authorization to Construct must be posted for inspection at the primary entrance of the job site during all construction.



DARSWEIL L. ROGERS, COMMISSIONER
WADE R. FOWLER, JR., COMMISSIONER
EVELYN O. SHAW, COMMISSIONER
RONNA ROWE GARRETT, COMMISSIONER
ELAINA L. BALL, CEO/GENERAL MANAGER

FAYETTEVILLE PUBLIC WORKS COMMISSION
955 OLD WILMINGTON RD
P.O. BOX 1089
FAYETTEVILLE, NORTH CAROLINA 28302-1089
TELEPHONE (910) 483-1401
WWW.FAYPWC.COM

September 23, 2021

Misty M. Manning
Fayetteville Public Works Commission
955 Old Wilmington Rd
Fayetteville, NC 28301

Re Engineering Plans and Specifications Approval
Water Main Extension
City of Fayetteville Water System to serve
Robeson to Winslow Water Main Replacement
Cumberland County
Permit # PWC2021-W029

Dear Mrs. Manning:

Enclosed please find one copy of the "Application for Approval" together with one copy of the referenced engineering plans and specifications bearing the Public Works Commission stamp of approval and signature of the signing Authority for the referenced project. These engineering plans and specifications are approved.

You are hereby issued a permit for the installation of approximately **44 LF of 10 Inch RJD1 and factory RJD1, 633 LF of 12 Inch RJD1, DI and factory RDJI and 150 LF of 24 Inch steel encasement for Robeson to Winslow Water Main Replacement located in Cumberland County** as outlined in the engineering plans and specifications prepared by **Kevin Heaphy, PE**

This permit is valid for 24 months from the date of issuance, or until revoked and shall be subject to the conditions and limitations as specified herein. The permit may be extended if the Rules Governing Public Works Commission Local Water Supply Ordinance and site conditions have not changed. The enclosed "Authorization to Construct" certificate shall be posted at the primary entrance of the job site throughout construction of this project.

Approval must be secured from the Public Works Commission before any construction or installation

- Deviation from the approved engineering plans and specifications is necessary; or
- There are changes in site conditions affecting capacity, hydraulic conditions, operating units, the function of the water treatment processes, the quality of water to be delivered, or conditions imposed by the Public Works Commission in any approval letters.

Upon completion of the construction or modification and in accordance with Rule .0303, the applicant shall submit a certification statement signed and sealed by a registered professional engineer stating that construction was completed in accordance with approved engineering plans and specifications, including any provisions stipulated in this letter. Prior to Final Approval, the applicant shall submit a signed certification stating that the requirements in 15A NCAC 18C .0307 (d) and (e) have been satisfied and if applicable, a completed application for an operating permit and fee. Once the certification statements and operating permit application and fee, if applicable, are received and determined adequate, the Public Works Commission will grant Final Approval in accordance with Rule .0309 (a). Therefore, no

BUILDING COMMUNITY CONNECTIONS SINCE 1905

AN EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

construction, alteration, or expansion of the water system shall be placed into service until the Public Works Commission has issued Final Approval.

Prior to receiving any water meters for use on the above referenced project, PWC must have received and approved:

- The Engineer's Certification;**
- As Built Drawings;**
- The PWC project coordinator's final inspection report;**
- The developer's "Statement of Total Project Cost" summary; (The developer's "Statement of Total Project Cost" summary can be found as an exhibit in the Utility Extension Agreement with PWC.);**

If we can be of further assistance, please contact Mr. John Allen at (910) 223-4734.

Sincerely,
PUBLIC WORKS COMMISSION



Misty Manning, P.E.
Water Resources Engineer/Manager

Enclosures:

DWS-14468

cc: **Kevin Heaphy, P.E.**
Project file



FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING DEPARTMENT

APPLICATION FOR WATER SUPPLY SYSTEM EXTENSION

PWC Permit # PWC2021-1029

To: Fayetteville Public Works Commission

Misty M. Manning, P.E.

(name of board, or council, authorized official and title, or owner)

of Fayetteville Public Works Commission

(name of city, town, corporation, sanitary district, water company or other)

in the County of Cumberland, State of North Carolina authorized by law to act for

the said Fayetteville Public Works Commission

(name of city, town, corporation, sanitary district, water company or other)

and to expend its funds for the water project described below, wherewith submit for the counsel and advice of the Public

Works Commission plans and specifications prepared by Kevin Heaphy, P.E.

(engineer or firm)

of Fayetteville Public Works Commission for the installation or construction of

44' of 10" RJDI and factory RJDI, 633' of 12" RJDI, DI and Factory RDJI, and 150' of 24" steel encasement

(describe project)

Robeson to Winslow Water Main Replacement

(location of project)

in Cumberland and make application to the Public Works Commission for

(county)

the approval of said plans and specifications as related to public health and protection of public water supplies and public water systems.

These plans have been approved and accepted by the Public Works Commission.

This application is made under and in full accord with the provisions of Chapter 130A-317 of the North Carolina General Statutes, and such other statutes as related to public water systems. The applicant agrees that no change or deviation from the engineering plans and specifications approved by Public Works Commission will be made except as allowed by T15A: 18C.0306 or with the written consent and approval of Public Works Commission or its authorized representative. The applicant agrees that a professional engineer licensed to practice in the State of North Carolina shall submit a statement reflecting that adequate observations during and upon completion of construction, by the engineer or by a representative of the engineers office who is under the engineers supervision, indicates that construction was completed in accordance with approved plans and specifications.

Remarks:

Kevin Heaphy
(Signature of Applicant)

Kevin Heaphy, P.E.

(Type or Print Name Signed Above)

955 Old Wilmington Road

(Street or Box Number)

Fayetteville NC 28301
City State Zip

Status of Water System Management Plan (WSMP)

Check one of the following, and if applicable, provide the required information:

- Not Applicable (For "Unregulated" Public Water Systems that meet all criteria of the NC General Statutes 130A-314)
- The WSMP for the project, as defined in the attached engineering plans and specifications, is submitted with this application.
- The WSMP that includes this project, as defined in the attached engineering plans and specifications, was previously submitted.

Provide the Following:

Water System Name: City of Fayetteville

Owner Name: Public Works Commission

PWS I.D. No: 03-26-010

WSMP No: 12-00243

WSMP Submittal Date: March 14, 2012

County: Cumberland

By my signature below, I certify that the previously submitted WSMP contains the information required by Rule .0307 (c) for the project defined in the attached engineering plans and specifications.

NAME Misty M. Manning, P.E. TITLE PWC Water Resources Engineering Manager
 (Type or Print Name)

SIGNATURE  DATE 9/23/2021

- The WSMP for the project, as defined in the attached engineering plans and specifications, has not been submitted.
 Note: When the WSMP is submitted, the applicant must clearly identify the previously submitted project engineering plans and specifications for which the WSMP was prepared.

Status of Engineer's Report

Check one of the following, and if applicable, provide the required information:

- The Engineer's Report for the project, as defined in the attached engineering plans and specifications, is submitted with this application.
- The Engineer's Report that includes this project, as defined in the attached engineering plans and specifications, was previously submitted.

Provide the Following:

Water System Name: _____

Owner Name: _____

PWS I.D. No: _____

Engineer's Report No: _____

Engineer's Report Title: _____

Engineer's Report Submittal Date: _____

County: _____

Note: If the previously submitted Engineer's Report covered multiple projects, then attach to this Application, a letter from the engineer stating that the previously submitted Engineer's Report contains the information required by Rule .0307 (b) for the project defined in the attached engineering plans and specifications.

These plans and specifications cited in the foregoing application are approved insofar as the protection of public health is concerned as provided in the rules, standards and criteria adopted under the authority of Chapter 130A-317 of the General Statutes, with the following provisions:

This approval is given with the understanding that upon installation of such works, its operation shall be placed under the care of a competent person, and the operation shall be carried out according to best accepted practice and in accordance with the recommendations of the Public Works Commission.

The official copies of plans and specifications accompanying this application have been sealed and stamped with the serial number of this application PWC 2021-10029. Only such plans and specifications are included in this approval and any erasures, additions or alterations of the proposed improvements except those permitted will make such approval null and void.

Signed: 
(Signature of PWC Engineering Manager)



**PUBLIC WORKS COMMISSION TEMPLATE
for Engineer's Report for Water Main Extensions**

Date: September 14, 2021

Project Name: Robeson Street to Winslow Street Water Main Replacement

Water System Name: Fayetteville Public Works Commission

Water System ID: NC0326010

County of Project: Cumberland

Prepared by:

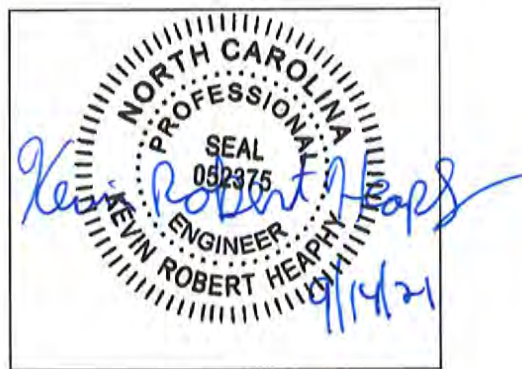
Kevin Robert Heaphy, P.E.

Water Resources Engineering

Fayetteville Public Works Commission

This form includes the minimum information needed for the Fayetteville Public Works Commission to review water main extension projects. Complex or unique design conditions must be addressed in a supplemental document as deemed appropriate by the design engineer.

Signature and seal of Professional Engineer that prepared this report:



I attest that this engineer's report has been prepared by me, or under my responsible charge, and is accurate, complete and consistent with the information supplied in the engineering calculations. I further attest that the proposed design has been prepared in accordance with 15A NCAC 18C. Although page 4 of this report incorporates data provided by others, inclusion of these materials under my seal signifies that I have reviewed this material and have judged it to be consistent with the proposed design.

Water Main Extension Engineer's Report Mandatory Information

To present data required by 15A NCAC 18C .0307(b)

Specific citations from 15A NCAC 18C are provided when data is required to confirm compliance with another regulation.

Applicant Information

Applicant name (must be a person): Kevin Robert Heaphy, P.E.

Applicant mailing address: 955 Old Wilmington Road

City: Fayetteville State: NC Zip: 28301

Applicant phone numbers: Business: 910-223-4740 Cell: 910-829-0203

Applicant e-mail address: kevin.heaphy@faypwc.com

Description of Proposed Project

Name of proposed project: Robeson Street to Winslow Street Water Main Replacement

Provide a summary of the diameter, length and material of all piping proposed in the project.

Diameter of piping	Length of piping	Material
10 -inch	44 linear feet	DI
12 -inch	633 linear feet	DI
24 -inch	150 linear feet	Steel Encasement
-inch	linear feet	
-inch	linear feet	

Location of project: (use address if available; if address is not available use existing roads and intersections, and identify municipality).

The proposed project is an expansion of the existing public water system. Yes No

The source of water for the proposed project will be provided by a separately owned public water system. Yes No

Is the project phased? Yes No

If yes, delineate all phases in plan sheets. Partial final approvals may be granted to completed phases specified in this submittal.

481 Robeson Street to Winslow Street, following Blount's Creek in an easement obtained by PWC.

Project is within the City of Fayetteville

If yes, depending on whether the water system does or does not provide fire flow; provide calculations to demonstrate that the project can provide adequate peak demand (domestic peak demand) at the minimum required residual pressure of 30 pounds per square inch gauge (psig) or can provide peak demand with fire flow (domestic peak demand plus fire flow) at the minimum pressure of 20 psig through *each* phase of construction

<p>Check here if project is a water main replacement with no additional demands. (Water main replacement consists of like size, no additional service connections, and no additional hydrants and no added fire demand.)</p>	<p><input type="checkbox"/> If box checked, proceed to page 4</p>
--	---

Provide anticipated project flows for any project that will increase demands

Does the proposed project (as designed) include any in-ground irrigation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, attach appropriate analysis to address how the system is designed to accommodate the impact of irrigation use on treated water supply, storage needs and system pressure.	
Peak hourly demand (non-fire flow) of proposed project	_____ gpm
Maximum day demand of proposed project	_____ gpd
Average day demand of proposed project	_____ gpd
Indicate the calculated pressure at maximum non-fire flow. The pressure must be at least 30 pounds per square inch gauge. You must attach calculations or summary of model results.	
_____	psig
Per Rule .0901, is the proposed project designed to carry fire protection flows for this project?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Determine minimum fire flow per North Carolina Building Code:	
Proposed Building Type per North Carolina Building Code (IA, IB, IIA, IIB, IIIA, IIIB, IV, V-A, V-B)	_____
Proposed Building Fire-Flow Calculation Area	_____ sqft
Minimum Fire Flow per North Carolina Fire Code Appendix B	_____ gpm
Minimum Fire Flow Duration	_____ hr
All fire suppression systems or appurtenances that exert a demand on proposed project must be included in calculations. Pressure must be at least 20 psig during fire flow conditions at maximum day demand.	
Flow Test Static pressure	_____ psig
Flow Test Residual pressure	_____ psig
Flow rate during fire flow test	_____ gpm
Will the building include an automatic sprinkler system	<input type="checkbox"/> Yes <input type="checkbox"/> No
Sprinkler design flow	_____ gpm
Calculated Minimum pressure during fire flow at maximum day demand. You must attach calculations or summary of model results.	
_____	psig

NOTES:

1. Supporting documentation must be attached for all *calculated* values.
2. Maps displaying the locations of the field pressure and flow tests in relation to the location of the proposed project must also be attached.
3. Summary of Model results shall include
 - a. report tables for all nodes including elevation, demand, and pressure
 - b. report tables for all pipes including diameter, start and stop nodes, length, friction factors, flowrates, and head loss
 - c. report tables for pumps including pump curve, elevation, calculated flow, and calculated head
 - d. report tables for reservoirs/tanks including elevation and flow
 - e. map or schematic of model with all components clearly identified

Key:

- gpm: gallons per minute
- gpd: gallons per day
- psig: pounds per square inch gauge

Water System-Supplied Information

Information on this page must be updated on an annual basis

Data provided by: John P. Allen, P.E. (name) Date provided: December 31, 2020

Position: Senior Engineer

Number of current connections in water system	<u>90,538</u> connections
Approved number of connections in water system	<u>90,538</u> connections <input type="checkbox"/> N/A – local government system
Current average and maximum day demand of existing system Average day demand is the one day average demand for the latest calendar year.	<u>23.531</u> average MGD <u>32.555</u> maximum MGD
Current maximum daily treated water supply of existing system Maximum daily treated water supply is the maximum quantity of treated water that can be produced and/or purchased by the system.	<u>50.0</u> maximum MGD
Total elevated storage capacity of existing system	<u>5.0 M</u> gallons
Total ground storage capacity of existing system	<u>31.50 M</u> gallons
Total hydropneumatic storage capacity of existing system	<u>N/A</u> gallons
Contractual storage with other system(s) Attach a copy of the agreement with the providing system	<u>N/A</u> gallons
Systems > 300 connections or systems < 300 connections without hydropneumatic storage:	
• Total storage volume is at least half the average annual daily demand (Rule .0805(c))	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
• Has elevated storage or meets high yield aquifer criteria (Rule.0405(d))	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
• For municipalities, at least 75,000 gallons elevated storage and at least half the average day demand combined elevated and ground finished water storage (Rule .0805(b))	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Systems with hydropneumatic storage tanks up to 300 connections:	
• Volume of hydropneumatic storage tank is sufficient to meet peak demands based on Rule .0802 and calculations in Appendix B, Figure 6	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
• For residential community systems, volume of hydropneumatic storage tank is at least 40 times the number of connections or 500 gallons, whichever is greater (Rule .0803)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
• For mobile home park systems, volume of hydropneumatic storage tank is at least 25 times the number of connections or 500 gallons, whichever is greater (Rule .0803)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
• For campground systems, volume of hydropneumatic storage tank is at least 10 times the number of connections or 500 gallons, whichever is greater (Rule .0803)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A



SUBMITTAL CHECKLIST

PROJECT NAME: **Robeson to Winslow Water Main Replacement**

Date: 9/7/2021

Property Location (vicinity) 4481 Robeson Street to Winslow Street, following Blount's Creek in an easement obtained by PWC. Also under CSX Railroad

PIN(s): Include all Parcels that make up the project property

Developer

Business Name: Fayetteville Public Works Commission

Address: 955 Old Wilmington Road

Phone: 910-223-4736

Authorized Signatory: Misty M. Manning, P.E.

Title: WRE Manager

Phone: 910-223-4736

E-mail: Misty.manning@faypwc.com

Design Engineer

Name: Kevin Heaphy, P.E.

Firm: Fayetteville Public Works Commission

Phone: 910-223-4740

E-mail: Kevin.heaphy@faypwc.com

INSTRUCTIONS: The Design Engineer shall indicate that the required items have been included with this submittal package by marking the appropriate box next to each item.

Items in Section I are required for all submittals. Items in Section II and Section III are applicable only to projects that include main extensions. If this project does not include water main extensions or sewer main extensions, the Design Engineer shall mark the box indicating "Not Applicable to this Project" in Section II and/or Section III as appropriate.

Failure to submit all required items, and errors or omissions in any item in this submittal package, will result in the application being returned as incomplete and/or additional processing and review time.

Signature of Design Engineer: Kevin Robert Heaphy

Date: 09/14/21

I. Requirements for All Submittals

All construction plans submitted for review and approval shall be signed and sealed by the Design Engineer and shall be prepared in compliance with PWC's standard guidelines, details, specifications, and all other applicable statutes as related.

If the project includes water main or sewer main extensions, the Design Engineer shall submit five (5) full sets of plans (signed and sealed for construction) for permit processing.

If the project does not include water main or sewer main extensions, the Design Engineer shall submit one (1) full set of plans (signed and sealed for construction) for "Taps Only" approval.

- A. Included **PWC Standard Specifications Checklist** – In lieu of submitting a specification book, the Project Engineer shall submit a signed and sealed original of the PWC Standard Specifications Checklist Form. The Form shall indicate which specifications will be incorporated into the Project and which specification are not applicable. A response shall be provided to each item on this list.
- If the project will incorporate any special provisions or additional specifications, the Project Engineer shall indicate so on the form, and shall submit the signed and sealed special provisions and/or additional specifications.
- B. Included **Annexation Petition** – If the project is with the Municipal Influence Area of the City of Fayetteville or the Town of Hope Mills, submit a copy of the petition for annexation.
 N/A
- C. Included **Encroachment Map(s)** – If this project will encroach upon the lands or rights-of-way of any gas utility, electric utility, railroad, or NCDOT, submit an Encroachment Map prepared in compliance with PWC guidelines and the requirements set forth by the applicable entity.
 N/A
- Encroachment Maps shall be drawn on legal size (8½" x 14") sheets unless otherwise directed by PWC staff.
- D. Included **Maps and Descriptions for Off-Site Utility Easement(s)** – If this Project involves the installation of any water or sewer mains on private property, other than that owned by the Developer of this Project, and where said mains are to be installed in areas not intended to be dedicated as public right-of-way, submit a Utility Easement Map and a legal description of the easement in Microsoft Word format.
 N/A
- The Utility Easement Map shall be signed and sealed by a North Carolina Professional Land Surveyor and shall conform to the requirements of G.S. 47-30 subsection (m).*
- The Utility Easement Map shall be drawn to scale on legal size (8½" x 14") sheets and shall show the exact location (via bearings and distances along easement perimeter and/or centerline with tie-downs to property corners, monuments, survey stations, etc.) and widths of all temporary and permanent utility easements.
- E. Included **Hydraulic Analysis** – If a hydraulic analysis is required for this project, the Design Engineer shall submit calculations along with any supporting charts, tables, maps, and relevant data to demonstrate that the proposed water system will provide a residual pressure of at least 20 psi while supplying a demand equal to the peak flow plus the fire flow.
 N/A
- The analysis shall be based upon standard hydraulic energy balance principals and shall account for friction and minor losses. To account for degradation in the system over time, *new pipes shall have a Hazen-Williams C-factor no greater than 120*. The Design Engineer may utilize software such as EPANET, Haestad, WaterCAD, or other industry standard modeling software as approved by PWC.

II. Requirements for Water Main Extensions

Not Applicable to this Project

- A. Included **Water Permit Application Form** – Submit a completed and properly executed application form. Any errors and/or omissions in this form will result in the application being returned. The Public Works Commission Water Resources Engineering Department will only accept application packages that have been fully completed with all applicable items addressed.
- For modifications to previously approved applications, clearly explain the reason for the modification. Include only the modified information in the permit application – do not duplicate project information that was included in the original permit.
- B. Included **Application Fee** – Submit a check in the amount of \$500 made payable to: "Public Works Commission".
- C. Included **Engineer's Report** – Submit one original of a completed Engineer's Report (signed & sealed), prepared in compliance with the requirements of The North Carolina Department of Environmental Quality 15A:18C.0307(b). *The Design Engineer may utilize the Engineer's Report Template form*

III. Requirements for Sanitary Sewer Main Extensions

Not Applicable to this Project

- A. Included **Sewer Application Form** – Submit a completed and properly executed application form. Any errors and/or omissions in this form will result in the application being returned. The Public Works Commission Water Resources Engineering Department will only accept application packages that have been fully completed with all applicable items addressed.
- For modifications to previously approved applications, clearly explain the reason for the modification. Include only the modified information in the permit application – do not duplicate project information that was included in the original permit.
- B. Included **Application Fee** – Submit a check in the amount of \$500 made payable to: “Public Works Commission”.
- C. Included **Location Map** – Submit an 8.5-inch by 11-inch color copy of the portion of a 7.5-minute USGS Topographic Map along with this form. The map should identify the entire project area location as well as the closest downslope surface waters as clearly as possible.
- D. Included **Certificate of Public Convenience and Necessity – (Only for systems that will be owned by a Privately Owned Public Utilities)** – Per 15A NCAC 02T .0115(a)(1) provide the Certificate of Public Convenience and Necessity from the North Carolina Utilities Commission demonstrating the Applicant is authorized to hold the utility franchise for the area to be served by the sewer extension, or Provide a letter from the North Carolina Utilities Commission’s Water and Sewer Division Public Staff stating an application for a franchise has been received and that the service area is contiguous to an existing franchised area or that franchise approval is expected.
- N/A
- E. Included **Operational Agreements – (Only for systems that will be permitted as a Privately Owned Sewer Systems)** – If the sewer will not be per 15A NCAC 02T .0115, submit a properly executed Operational Agreement
- N/A



STANDARD SPECIFICATIONS CHECKLIST

<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02111	Site Clearing for PWC Utilities
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02211	Grading for PWC Utilities (for access roads, drainage, etc.)
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02222	Excavation and Backfilling for Utilities Systems
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02272	Erosion Control (when an approved erosion control plan does not exist)
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02273	Temporary Silt Fence (when an approved erosion control plan does not exist)
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02274	Gravel Const. Ent (when an approved erosion control plan does not exist)
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02301	Boring and Jacking
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	02350	Steel "H" Piles
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	02505	Adjustments of Existing Structures
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02573	Permanent Pavement Patch
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02660	Water Distribution
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02730	Sanitary Sewer System
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	02732	Sewage Force Mains
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	02753	Submersible Pump Lift Station
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	02754	Self-Priming Lift Station
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	02755	Fiberglass Reinforced Plastic (FRP) Enclosures for Lift Stations
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	02756	Pre-Cast Concrete Enclosures for Lift Stations
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02831	Chain Link Fencing
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02931	Sod
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	02933	Lawns and Grasses (Seeding)
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	02934	Seeding Wetlands
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	03301	Concrete Construction (Utility)
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	09800	Special Coatings – Coal Tar Epoxy Manhole Lining
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	09801	Anti-Microbial Admixture
<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	N/A	09802	Special Coatings – Ceramic Epoxy
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	13446	Remote Telemetry for Lift Stations
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	16010	Electrical Systems for Lift Stations
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	16231	Standby Power Systems for Lift Stations
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	Special Provisions to the above Specifications (Must include the signed & sealed specifications)	
<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	N/A	Additional Specifications not listed above (Must include the signed & sealed specifications)	

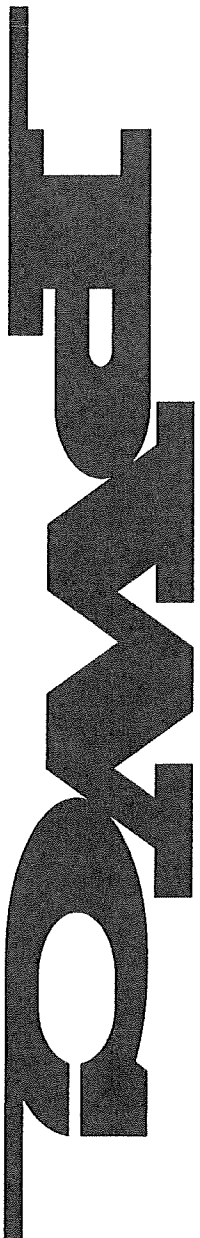
Project Name: Robeson to Winslow Water Main Replacement

Engineer: Kevin Heaphy, P.E.

I attest that I am incorporating the specifications as indicated above for this project. I have not altered the specifications as provided in the PWC Design Manual, unless indicated in the attached signed, sealed, and dated Special Provisions.



Seal, Signature & Date



Authorization To Construct

Project Name: **Robeson to Winslow Water Main Replacement**

Permit Number: **PWCC20201-W029**

Issued To: **FAYETTEVILLE PUBLIC WORKS COMMISSION**

Issue Date: **September 23, 2021**

Expiration Date: **September 23, 2023**

In accordance with NCAC 18C.0305, and the PWC Manual this Authorization to Construct must be posted for inspection at the primary entrance of the job site during all construction.

APPENDIX D – DRAWINGS

PWC

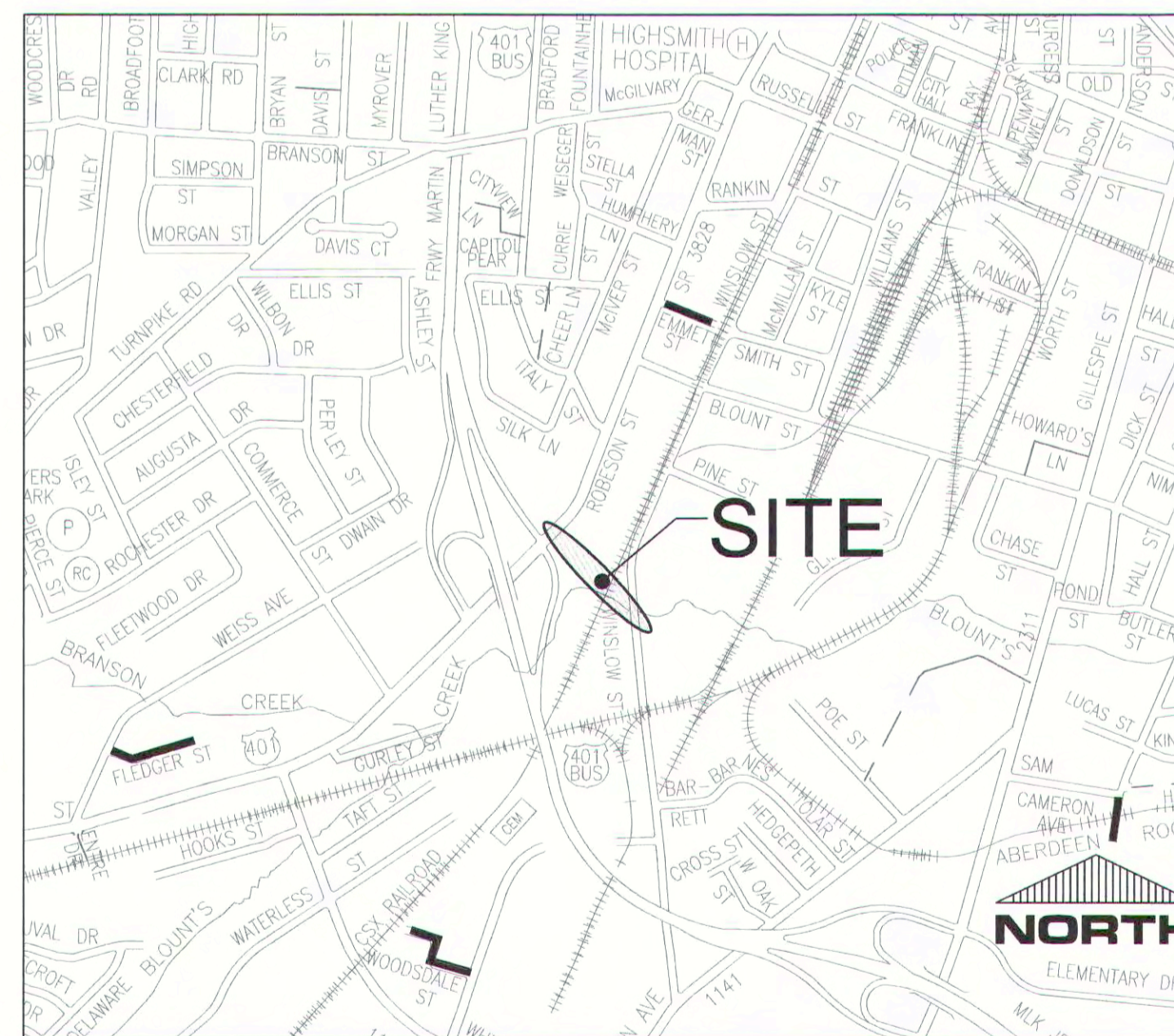
Fayetteville's

HOME TOWN UTILITY

FAYETTEVILLE, N.C.

ROBESON STREET TO WINSLOW STREET

WATER MAIN REPLACEMENT



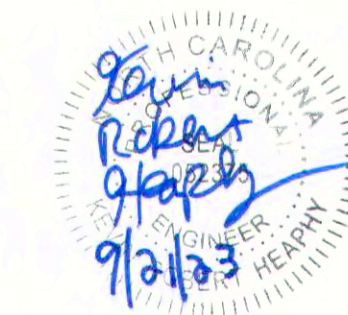
VICINITY MAP
N.T.S.



Know what's below.
Call before you dig.

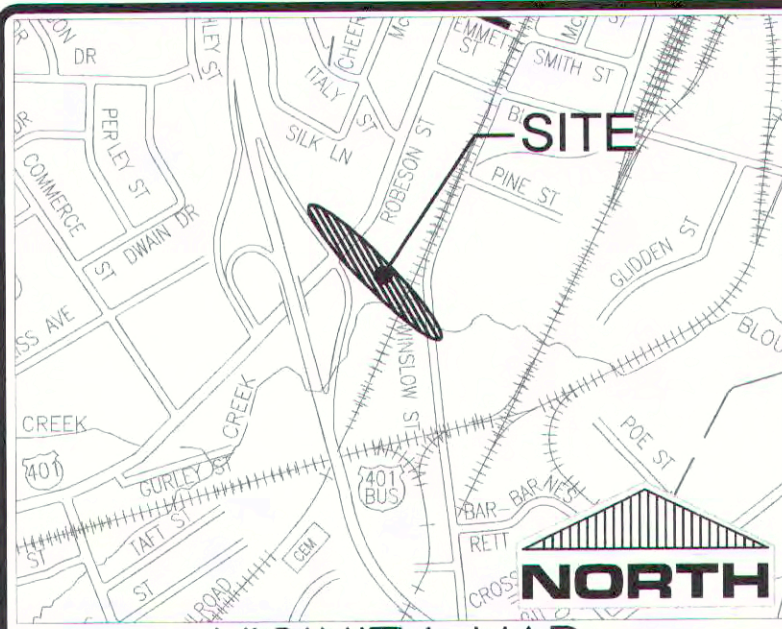
SHEET INDEX

1 OF 5	PWC COVER SHEET
2 OF 5	EROSION CONTROL SHEET
3 OF 5	W1 - ROBESON STREET TO WINSLOW STREET PLAN AND PROFILES 'A' AND 'B'
4 OF 5	D1 - STANDARD DETAILS
5 OF 5	D2 - STANDARD DETAILS



PWC FAYETTEVILLE PUBLIC
WORKS COMMISSION
WATER RESOURCES ENGINEERING
APPROVED FOR CONSTRUCTION
Date: 09/21/2023

U:\s-w\PROJECTS\ACTIVE PROJECTS\WINSLOW TO ROBESON 12 INCH WM REPLACEMENT.dwg 2023-09-19 SECOND PERMIT RENEWAL WINSLOW TO ROBESON WATER WITH EROSION CONTROL SHEET.dwg COVER 9/19/2023 10:43:59 AM mullinab



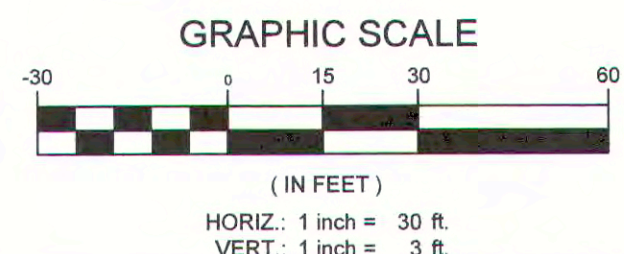
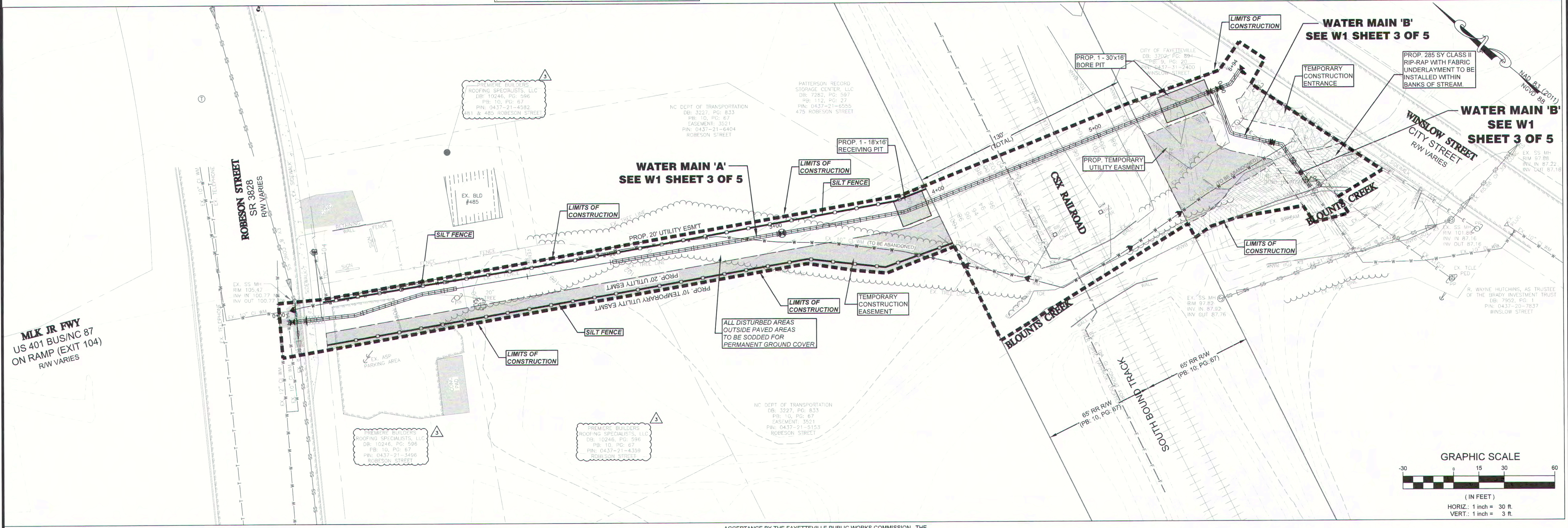
VICINITY MAP
N.T.S.

- NOTES (TYPICAL FOR ALL SHEETS)**
- THE CONTRACTOR SHALL LIMIT THEIR OPERATIONS TO THE EXISTING EASEMENTS, PUBLIC ROW, AND CONSTRUCTION LIMITS AS SHOWN.
 - ACCESS POINTS TO THE EXISTING FAYPWC UTILITY EASEMENT ARE BASED ON THE PUBLIC WORKS COMMISSION'S BEST AVAILABLE INFORMATION. THE SUCCESSFUL CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THEIR ACCESS POINTS AND NEGOTIATING WITH THE INDIVIDUAL PROPERTY OWNERS AND/OR OTHER CONTRACTORS WORKING IN THE AREA.
 - ALL ROADS ARE OWNED AND MAINTAINED BY THE CITY OF FAYETTEVILLE OR NCDOT, UNLESS OTHERWISE NOTED.
- EROSION CONTROL NOTES:**
- LIMITS OF CONSTRUCTION: 0.76 AC
 - TOTAL DISTURBED AREA: 0.76 AC
- GENERAL NOTES:**
- THE CONTRACTOR IS REQUIRED TO EXAMINE EXISTING CONDITIONS AND FAMILIARIZE THEMSELVES WITH THE SITE PRIOR TO SUBMITTING A BID.
 - THE CONTRACTOR SHALL REPLACE ANY FENCING DISTURBED AS PART OF THEIR OPERATIONS FOR THE WORK DESCRIBED WITHIN THESE CONTRACT DOCUMENTS AND PLANS. THE CONTRACTOR SHALL PROVIDE ANY TEMPORARY FENCING AS REQUIRED. FENCES SHALL BE REMOVED AND REPLACED WITH NEW MATERIALS TO RESTORE THE ITEM TO ITS ORIGINAL CONDITION OR BETTER. NO ADDITIONAL PAYMENT WILL BE MADE.
 - ONCE CONSTRUCTION HAS BEEN COMPLETED, THE CONTRACTOR IS RESPONSIBLE FOR RESTORING THE SITE TO ITS ORIGINAL CONDITION OR BETTER.

- POLLUTION PREVENTION (TYPICAL FOR ALL SHEETS)**
- EQUIPMENT UTILIZED DURING CONSTRUCTION ACTIVITY MUST BE OPERATED AND MAINTAINED IN A MANNER TO PREVENT THE POLLUTION OF SURFACE OR GROUND WATERS. FUELS, LUBRICANTS, COOLANTS, HYDRAULIC FLUIDS, OR ANY OTHER PETROLEUM PRODUCTS SHALL NOT BE DISCHARGED ON THE GROUND OR INTO SURFACE WATERS. SPENT FLUIDS SHALL NOT ENTER GROUND OR SURFACE WATERS. FLUIDS SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS. ANY SPILLED FLUIDS SHALL BE IMMEDIATELY CLEANED UP AND DISPOSED OF TO PREVENT ENTRY INTO SURFACE OR GROUND WATERS, STORM SEWERS, OR DRAINS ON PRIVATE OR PUBLIC PROPERTY. THE CONTRACTOR SHALL PROVIDE PRIMARY AND SECONDARY CONTAINMENT SYSTEMS FOR FLUID STORAGE, FUELING AND SERVICING EQUIPMENT.
 - THE CONTRACTOR, HIS SUBCONTRACTORS, AND MATERIAL SUPPLIERS ARE PROHIBITED FROM DISCHARGING ANY WASTE PRODUCTS OR OTHER UNSUITABLE MATERIALS INTO THE STORM SEWER SYSTEM OR ONTO PRIVATE PROPERTY.
 - THE CONTRACTOR SHALL CONTROL THE MANAGEMENT AND DISPOSAL OF LITTER AND SANITARY WASTE FROM THE SITE TO ENSURE THAT NO ADVERSE IMPACTS TO WATER QUALITY OCCUR.
 - THE CONTRACTOR SHALL PAY ALL COSTS OF THE CLEAN UP AND REMOVAL OF ANY SUCH UNAUTHORIZED DISCHARGE AND PAY ANY AND ALL FINES, PENALTIES, AND/OR DAMAGES.
- NOTE:**
Pursuant to G.S. 113A-57(2), the angle for graded slopes and fills shall be not greater than the angle that can be retained by vegetative cover or other adequate erosion-control devices or structures. In any event, slopes left exposed will, within 7 calendar days of completion of any phase of grading, be planted or otherwise provided with temporary or permanent ground cover, devices, or structures sufficient to restrain erosion. Pursuant to G.S. 113A(3), provisions for permanent ground cover sufficient to restrain erosion must be accomplished for all disturbed areas within 15 working days or 90 calendar days (whichever is shorter) following completion of construction or development.

- GENERAL NOTES (SEDIMENT POLLUTION CONTROL ACT)**
- MINIMUM REQUIREMENTS FOR EROSION CONTROL ARE SHOWN ON THE DRAWINGS, BASED ON THE FAYPWC PROJECT ENGINEER'S ANTICIPATED CONSTRUCTION METHODS AND SEQUENCES. INDIVIDUAL CONTRACTORS SHALL SUPPLEMENT OR PROVIDE ADDITIONAL MEASURES TO COMPLEMENT THEIR TYPE OF CONSTRUCTION TO PREVENT TRANSMITTAL OF SILT. INDIVIDUAL CONTRACTORS ARE REQUIRED TO MAINTAIN MINIMUM STANDARDS FOR EROSION CONTROL AS REQUIRED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY. ALL FEES, PENALTIES, FINES, FOR NONCOMPLIANCE AND ALL CIVIL ACTIONS RESULTING THEREFROM SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL IN NO WAY INVOLVE THE FAYETTEVILLE PUBLIC WORKS COMMISSION. THE CONTRACTOR MAY BE REQUIRED TO MODIFY OR SUPPLEMENT MEASURES AT NO ADDITIONAL COST TO THE FAYETTEVILLE PUBLIC WORKS COMMISSION. ALL EROSION CONTROL MEASURES SHALL REMAIN SERVICEABLE UNTIL THE SITE IS RESTORED AND STABILIZED. UPON SUCH TIME THE MEASURES SHALL BE REMOVED BY THE CONTRACTOR. THE SITE MUST BE RESTORED AND STABILIZED PRIOR TO THE FAYETTEVILLE PUBLIC WORKS COMMISSION RELEASING FINAL PAYMENT.
- MINIMUM MONITORING AND REPORTING REQUIREMENTS**
 - ALL SEDIMENTATION AND EROSION CONTROL FACILITIES SHALL BE INSPECTED BY THE CONTRACTOR AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT.
 - STORM WATER RUNOFF DISCHARGES SHALL BE INSPECTED BY VISUAL OBSERVATION AT THE FREQUENCY OUTLINED ABOVE. IF ANY SEDIMENTATION IS LEAVING THE SITE, CORRECTIVE ACTION SHALL BE TAKEN TO ELIMINATE THE DISCHARGE OF SEDIMENTS.
 - MAINTENANCE AND INSPECTIONS**
 - THE CONTRACTOR SHALL KEEP ALL EROSION CONTROL DEVICES AND MATERIALS IN GOOD REPAIR AND OPERATING AT OPTIMUM EFFICIENCY. THE FAYETTEVILLE PUBLIC WORKS COMMISSION RESERVES THE RIGHT, WITH 24 HOURS PRIOR NOTICE, TO REPAIR ANY EROSION CONTROL MEASURES OR MATERIALS AS REQUIRED, AND DEDUCT THE COST OF THOSE REPAIRS FROM THE CONTRACTOR'S REQUEST FOR PAYMENT.

- THE FAYETTEVILLE PUBLIC WORKS COMMISSION AND/OR NCDOT REPRESENTATIVES MAY PERIODICALLY EVALUATE THE PROJECT FOR COMPLIANCE WITH THESE REQUIREMENTS.
- THE CONTRACTOR SHALL ENSURE THAT THE STREETS WITHIN THE PROJECT ARE PROTECTED FROM MUD, SAND, STONE, LITTER OR DEBRIS IN ANY FORM. ALL MUD COLLECTED ON VEHICLE WHEELS SHALL BE REMOVED BEFORE LEAVING THE CONSTRUCTION SITE. SHOULD ANY MUD OR DEBRIS FROM THE PROJECT COLLECT ON THE STREETS, IT SHALL BE REMOVED IMMEDIATELY TO PREVENT ANY HAZARDS TO VEHICULAR OR PEDESTRIAN TRAFFIC. THE CONTRACTOR IS REQUIRED TO CLEAN THE STREETS DAILY OF CONSTRUCTION RELATED DEBRIS, DUST, AND MUD. THE CONTRACTOR SHALL CLEAN THE STORM DRAINAGE SYSTEM (AND DOWNSTREAM SYSTEMS) AFFECTED BY CONSTRUCTION RUNOFF PRIOR TO FINAL ACCEPTANCE AND PAYMENT. THE FAYETTEVILLE PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO PROCEED WITH STREET CLEANING SHOULD THE CONTRACTOR FAIL TO COMPLY WITH THIS REQUIREMENT AND DEDUCT THE COSTS FROM THE CONTRACTOR'S REQUEST FOR PAYMENT.
- PHASES OF WATER MAIN CONSTRUCTION AND ABANDONMENT**
- PHASE 1**
- INSTALL THE PROPOSED STEEL PIPES; INSTALL THE WATER MAIN ALONG ALIGNMENT 'A'; AND AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS (PROPOSED 12" GATE VALVE);
 - DISINFECT AND TEST ALL MAINS INSTALLED.
- PHASE 2**
- THE EXISTING MAINS SHALL NOT BE DISCONNECTED UNTIL THE MAINS INSTALLED IN PHASE 1 HAVE SATISFACTORILY PASSED ALL REQUIRED TESTS
 - DISCONNECT THE EXISTING 10" WATER MAIN AT THE COUPLING (STA 0+88) ON THE EXISTING AERIAL CROSSING
 - COMPLETE THE INSTALLATION OF THE PROPOSED WATER MAIN ALONG ALIGNMENT 'B' FROM STA 0+52 TO STA 0+88.
- PHASE 3**
- ABANDON EXISTING WATER MAIN AS NOTED ON THE PLANS.



- NOTE:**
- ALL DISTURBED AREA(S) AND PARTICULARLY EXPOSED SLOPES SHALL BE SEEDED, FERTILIZED AND MULCHED TO INSURE THAT GROUND COVER IS PROVIDED WITHIN 7-14 CALENDAR DAYS, FOLLOWING COMPLETION OF ANY PHASE OF GRADING. PERMANENT GROUND COVER FOR ALL DISTURBED AREA(S) WITHIN 15 WORKING DAYS - 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT. (See Ground Stabilization Table.)
 - THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 7-14 CALENDAR DAYS OF COMPLETION DEPENDING ON SLOPE OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. (See Ground Stabilization Table.)

TURFING SCHEDULE:

SEED SHALL BE CERTIFIED TO BE THE LATEST SEASON'S CROP AND SHALL BE DELIVERED IN ORIGINAL SEALED PACKAGES BEARING THE PRODUCER'S GUARANTEED ANALYSIS FOR PERCENTAGES OF MIXTURES AND PURE LIVE SEED. THE PRODUCER'S SEED LABEL SHALL INDICATE THE MINIMUM PERCENT OF PURE LIVE SEED (WHICH SHALL BE 92.45 FOR BERMUDA, 88 FOR RYE GRAIN), THE MINIMUM PERCENT OF GERMINATION IN HARD SEED, AND MAXIMUM PERCENT OF WEED SEED (NO MORE THAN 1 PERCENT FOR BERMUDA, 0.5 PERCENT FOR RYE GRAIN). SEED SHALL BE LABELED IN CONFORMANCE WITH U.S. DEPARTMENT OF AGRICULTURE RULES AND REGULATIONS UNDER THE FEDERAL SEED ACT AND APPLICABLE STATE SEED LAWS. SEED THAT HAS BECOME WET, MOLDED, OR OTHERWISE DAMAGED SHALL NOT BE ACCEPTABLE.

THE FOLLOWING SEED MIXTURE SHALL BE USED:

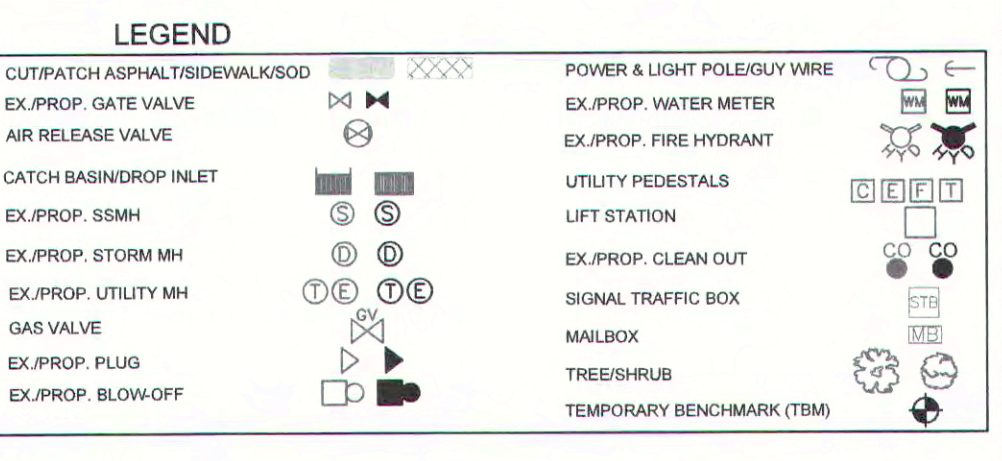
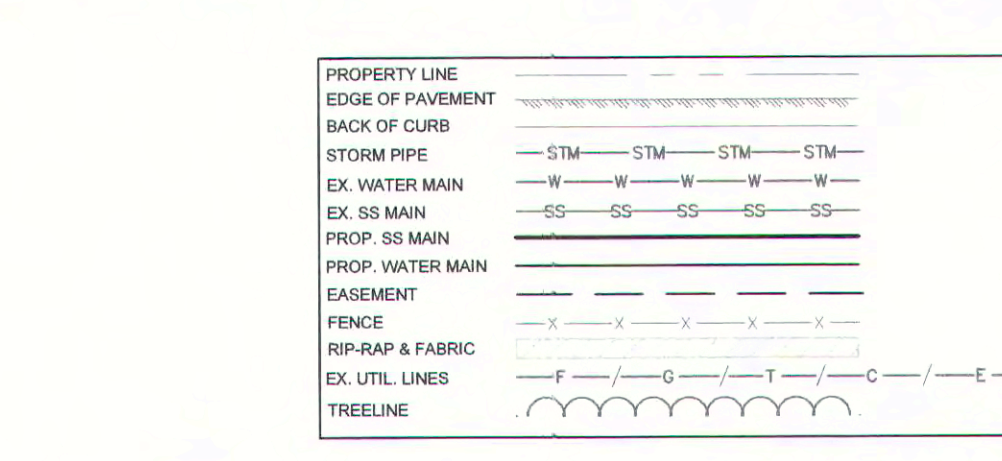
DATE	TYPE	PLANTING RATE
APRIL 15 - SEPT. 1	GERMAN MILLET	120 LBS/ACRE
AUG. 15 - NOV. 15	GRAIN RYE	120 LBS/ACRE
NOV. 1 - APRIL 1	GRAIN RYE	120 LBS/ACRE

PERMANENT SEED MIXTURE

DATE	TYPE	PLANTING RATE
APRIL 15 - SEPT. 1	K-31 FESCUE COMMON BERMUDA 60 (HULLED) LBS/ACRE CENTIPEDE 5 LBS/ACRE	70 LBS/ACRE
AUG. 15 - NOV. 15	K-31 FESCUE COMMON BERMUDA 25 (HULLED) LBS/ACRE CENTIPEDE 5 LBS/ACRE	120 LBS/ACRE
NOV. 1 - APRIL 1	K-31 FESCUE COMMON BERMUDA 25 (HULLED) LBS/ACRE CENTIPEDE 5 LBS/ACRE	120 LBS/ACRE

- TURFING NOTES:**
- THE CONTRACTOR SHALL RE-SEED DISTURBED AREAS WITH THE SAME TYPE OF GRASS AS FOUND ON THE SITE. ALL HIGHWAY RIGHTS-OF-WAY AND PRIVATE YARDS DISTURBED SHALL BE RE-SEEDED OR RE-SODDED WITH THE SAME TYPE OF GRASS PREVIOUSLY FOUND. THE SEED MIXTURE SPECIFICATION SHALL BE USED AS A GUIDE AND THE CONTRACTOR IS CHARGED WITH THE RESPONSIBILITY OF SEEDING OR SODDING AREAS WITH THE PROPER TYPE OF GRASS THAT MATCHES THE EXISTING.
 - THE CONTRACTOR SHALL CONSULT THE REGIONAL STATE EROSION CONTROL OFFICER FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE LISTED VEGETATIVE RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.
- SOIL AMENDMENTS:**
- LIME SHALL BE APPLIED AT THE RATE OF 1,000 POUNDS PER ACRE. 10-20-20 COMMERCIAL FERTILIZER SHALL BE APPLIED AT THE RATE OF 1,000 POUNDS PER ACRE AND WORKED IN TO THE TOP FOUR INCHES (4") OF TOP SOIL. IF HYDRO-SEEDING, USE 500 POUNDS PER ACRE OF 10-10-10 FERTILIZER ON SLOPES STEEPER THAN 1/2 HORIZONTAL TO 1 VERTICAL, UNLESS A SOILS TEST STATES OTHERWISE.
- MULCH:**
- ALL SEEDED AREAS SHALL BE MULCHED WITH TWO (2) TONS PER ACRE OF SMALL GRAIN STRAW OR WOOD CELLULOSE FIBER SPREAD UNIFORMLY. APPROXIMATELY ONE-QUARTER (1/4) OF THE GROUND MULCH SHOULD BE VISIBLE TO AVOID SMOTHERING SEEDINGS. ASPHALT EMULSION (IN ACCORDANCE WITH ASTM D-977 AND ASTM D-2028) SHALL BE USED TO ANCHOR THE STRAW APPLIED AT 150 GALLONS PER TON OF STRAW, OR CRIMPED TO STABILIZE. ASPHALT EMULSION SHALL BE REQUIRED FROM NOVEMBER 1ST TO MARCH 31ST. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT MUD FROM ENTERING DRAINAGE STRUCTURES AND PROMPTLY REMOVE ANY BLOCKAGE WHICH MAY OCCUR.

- ACCEPTANCE BY THE FAYETTEVILLE PUBLIC WORKS COMMISSION. THE CONTRACTOR SHALL MAINTAIN SEEDED AREAS BY WATERING, FERTILIZING, MOWING, WEEDING AND OTHER OPERATIONS SUCH AS ROLLING, RE-GRADING, REPLANTING, AERATING, AND MULCHING AS REQUIRED TO ESTABLISH AN ACCEPTABLE LAWN FREE OF ERODED OR BARE AREAS.
- UTILITY CONSTRUCTION NOTES:**
- ALL WATER MAINS, LATERALS AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS.
 - ALL CONSTRUCTION TO BE IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS.
 - CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
 - CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE FOR ALL WATER OUTAGES.
 - CONTRACTOR SHALL NOTIFY FAYETTEVILLE PWC A MINIMUM OF 48 HOURS IN ADVANCE FOR CONSTRUCTION STAKING. CONTRACTOR SHALL MAINTAIN A COPY OF THE CUT SHEET ON THE JOB SITE.
 - THE NEW WATER MAINS, LATERALS, AND APPURTENANCES SHALL BE TESTED AND DISINFECTED IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS PRIOR TO PLACING INTO SERVICE. ONCE IN SERVICE, THE CONTRACTOR SHALL TRANSFER WATER SERVICES AND ABANDON THE EXISTING MAINS.
 - CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYETTEVILLE PWC PROJECT COORDINATOR.
 - ALL NEW WATER SERVICE LATERALS SHALL BE 1" COPPER, IN ACCORDANCE WITH FAYPWC DETAIL W24.
 - WATER METERS SHALL BE LOCATED 18" INSIDE THE RIGHT-OF-WAY, UNLESS OTHERWISE DIRECTED BY FAYETTEVILLE PWC.
 - CONTRACTOR SHALL INSTALL NEW WATER METERS WHEN REPLACING WATER SERVICES.
 - CONTRACTOR SHALL ABANDON EXISTING WATER MAINS ONCE WATER SERVICES HAVE BEEN TRANSFERRED TO THE NEW WATER MAIN.
 - CONTRACTOR SHALL ABANDON EXISTING WATER SERVICES BY CUTTING THE SERVICE AT THE MAIN, PLUGGING THE CORPORATION, AND TURNING OFF THE CORPORATION. AT THE METER BOX, THE ABANDONED SERVICE IS TO BE CUT OR CRIMPED, AND BURIED A MINIMUM OF 3 FEET BELOW GRADE.
 - CONTRACTOR SHALL COORDINATE AND COMPLY WITH ALL OF THE TRAFFIC CONTROL REQUIREMENTS OF THE CITY OF FAYETTEVILLE, N.C.D.O.T., AND THESE CONTRACT DOCUMENTS.
 - CONTRACTOR SHALL SAWCUT AND PATCH ALL ASPHALT AND CONCRETE DISTURBED BY CONSTRUCTION.
 - ALL NON-PAVED AREAS SHALL HAVE SOD INSTALLED, UNLESS OTHERWISE NOTED.
 - CONTRACTOR SHALL INSTALL AND MAINTAIN ALL NECESSARY EROSION CONTROL DEVICES IN ORDER TO PREVENT ANY SEDIMENT FROM ENTERING STORM DRAINS, DITCHES, ETC. ALL EROSION CONTROL DEVICES SHALL BE IN ACCORDANCE WITH N.C. DEPARTMENT OF ENVIRONMENTAL QUALITY REQUIREMENTS. NO SEPARATE PAYMENT.
 - ALL SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS.
 - ALL NEW SEWER MAINS AND LATERALS SHALL BE DUCTILE IRON PIPE.
 - ALL DUCTILE IRON PIPE IN SANITARY SEWER SERVICE SHALL HAVE AN INTERIOR LINING OF PROTECTO 401 OR APPROVED EQUAL.
 - ALL NEW MANHOLES ARE TO BE VACUUM-TESTED IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS.
 - CONTRACTOR SHALL REPLACE ALL DAMAGED WATER SERVICES FROM MAIN TO METER. UTILIZING 1" COPPER. WATER SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH FAYPWC DETAIL W24.



GROUND STABILIZATION (temporary)

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES & SLOPES	7 DAYS	NONE
HIGH QUALITY WATER ZONES (HWZ)	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HOW ZONES)

PERMANENT SEED MIXTURE

DATE	TYPE	PLANTING RATE
APRIL 15 - SEPT. 1	K-31 FESCUE COMMON BERMUDA 60 (HULLED) LBS/ACRE CENTIPEDE 5 LBS/ACRE	70 LBS/ACRE
AUG. 15 - NOV. 15	K-31 FESCUE COMMON BERMUDA 25 (HULLED) LBS/ACRE CENTIPEDE 5 LBS/ACRE	120 LBS/ACRE
NOV. 1 - APRIL 1	K-31 FESCUE COMMON BERMUDA 25 (HULLED) LBS/ACRE CENTIPEDE 5 LBS/ACRE	120 LBS/ACRE

- MAINTENANCE:**
- THE CONTRACTOR SHALL PROTECT AND MAINTAIN GRASSED AREAS AS NECESSARY TO ESTABLISH A UNIFORM TURF COMPRISED OF THE GRASSES SPECIFIED. THE CONTRACTOR SHALL PROMPTLY RE-SEED OR RE-SOD ANY BARE AREAS AND REPAIR ALL ERODED AREAS, AT NO ADDITIONAL COST TO FAYPWC.
 - WATERING OF SEEDED AND SODDED AREAS WILL BE REQUIRED DURING PERIODS OF DRY WEATHER TO PROMOTE MAXIMUM GROWTH. THE CONTRACTOR SHALL SUPPLEMENT NATURAL RAINFALL TO ENSURE A MINIMUM OF ONE INCH OF WATER WEEKLY.
 - MAINTENANCE OF LAWNS BEGINS IMMEDIATELY AFTER THE AREA IS PLANTED AND CONTINUES FOR THE PERIOD REQUIRED TO ESTABLISH ACCEPTABLE LAWNS, BUT NOT LESS THAN SIXTY (60) CALENDAR DAYS AFTER INITIAL SEEDING, OR UNTIL FINAL ACCEPTANCE BY THE FAYETTEVILLE PUBLIC WORKS COMMISSION.

- CONSTRUCTION SEQUENCE:**
- OBTAIN PLAN APPROVAL AND ALL OTHER APPLICABLE PERMITS.
 - FLAG LIMITS OF CONSTRUCTION.
 - HOLD PRE-CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO BEGINNING CONSTRUCTION.
 - INSTALL CONSTRUCTION ENTRANCES / EXITS AS INDICATED ON PLANS.
 - INSTALL TEMPORARY SEDIMENT FENCE AS INDICATED ON PLANS.
 - INSTALL NEW MANHOLES AND 12" DUCTILE IRON SANITARY SEWER PIPE AS INDICATED ON PLANS.
 - COMPLETE FINAL GRADING OF AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED SANITARY SEWER MAIN.
 - SEEDING/GROUND STABILIZATION TO BE COMPLETED BY OTHERS.

- CONSTRUCTION SEQUENCE:**
- OBTAIN PLAN APPROVAL AND ALL OTHER APPLICABLE PERMITS.
 - FLAG LIMITS OF CONSTRUCTION.
 - HOLD PRE-CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO BEGINNING CONSTRUCTION.
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 - SEEDING/GROUND STABILIZATION TO BE COMPLETED BY OTHERS.

811

Know what's below.
Call before you dig.

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
APPROVED FOR CONSTRUCTION
Date: 09/21/2023

DATE	BY	REVISIONS
11/09/17	REVISED TEMP. CONTR. EMT	1
03/07/17	REVISED PROP. WATER MAIN 'B' AND EROSION CONTROL SHEET	2
07/28/21	REVISED PROP. WATER MAIN 'B' SURFACE	3

DATE: 02/12/2020
SURVEYED BY: FAYPWC
DRAWN BY: BGM
CHECKED BY:
SCALE: HORIZ: 1"=30'
VERT: 1"=3'

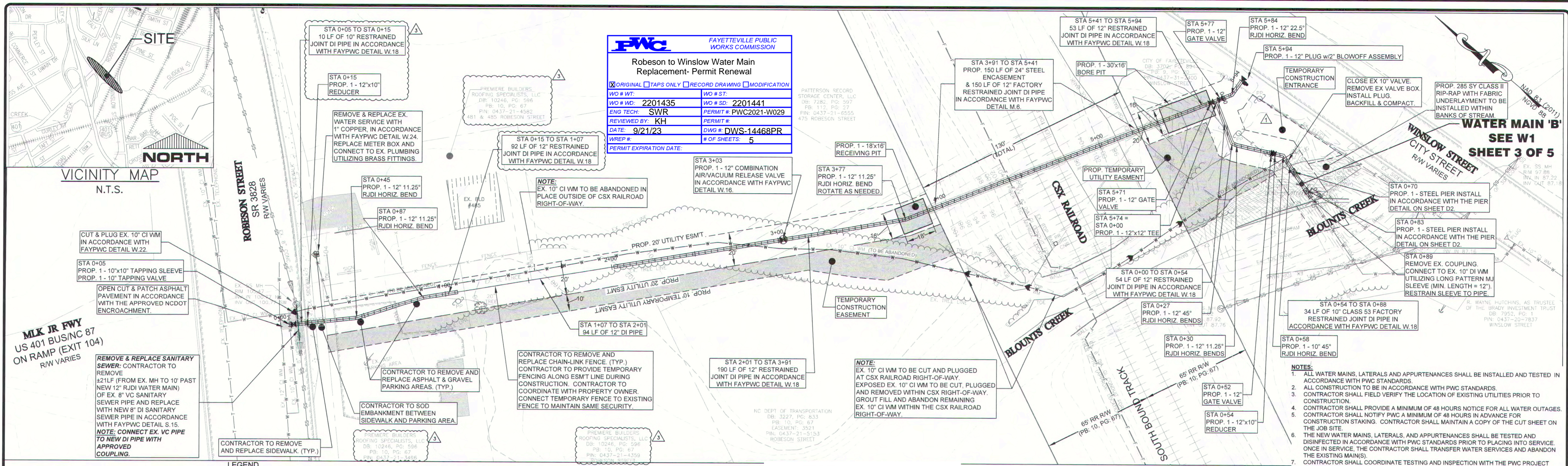


ROBESON TO WINSLOW
WATER MAIN REPLACEMENT

2 OF 5

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
C.O. Box 1089, Fayetteville, NC 28403
955 Old Wilmington Road, Fayetteville, NC 28401

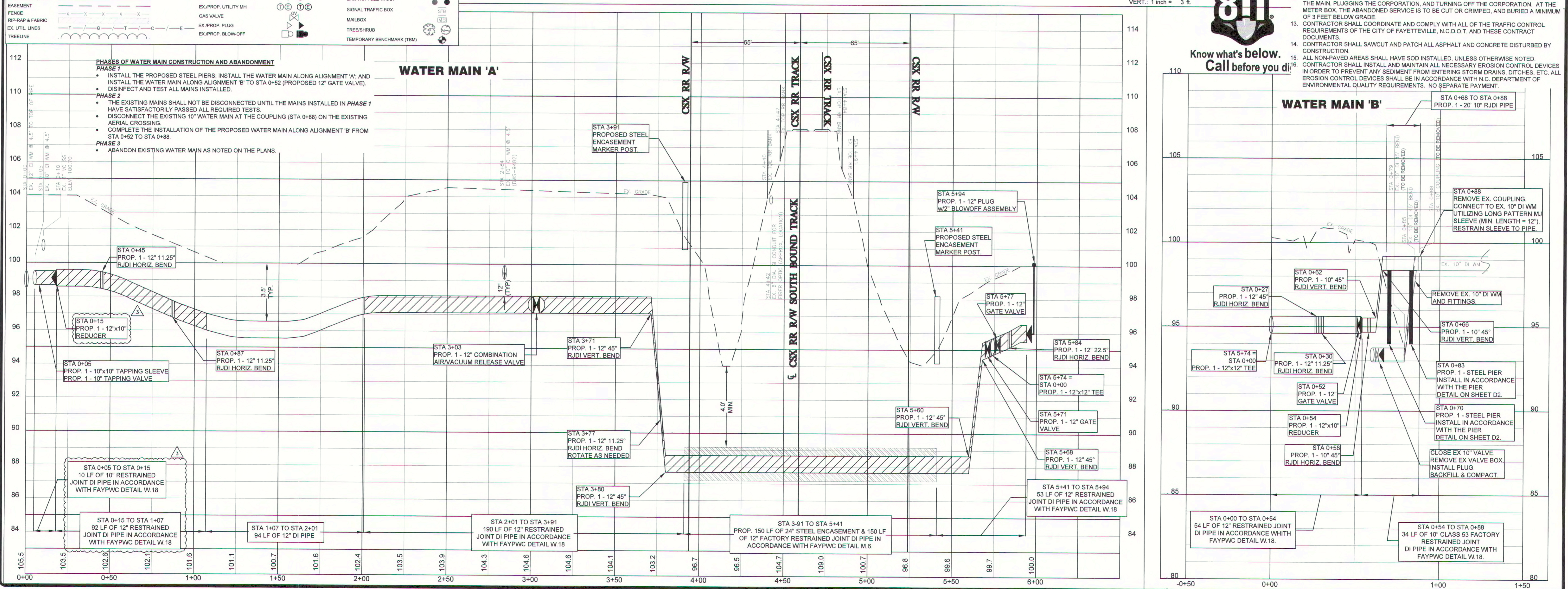
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 WATER RESOURCES ENGINEERING

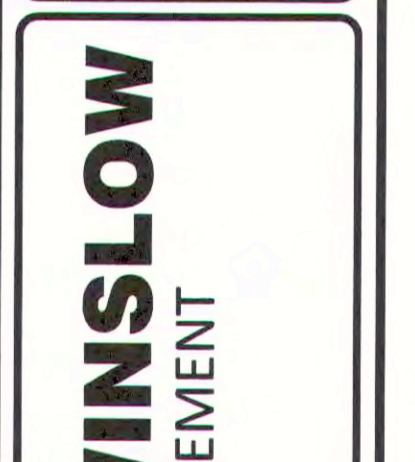
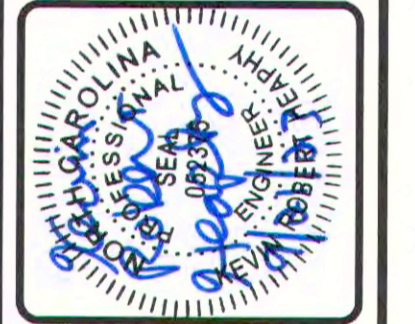
GRAPHIC SCALE
 (IN FEET)
 HORIZ: 1 inch = 30 ft
 VERT: 1 inch = 3 ft



DATE	BY
11/08/16	REVISION
05/07/17	REVISION
07/28/21	REVISION

DATE	BY
05/05/2011	REVISION
	REVISION
	REVISION

DATE	BY
05/05/2011	REVISION
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ROBESON TO WINSLOW
 WATER MAIN REPLACEMENT

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WATER RESOURCES ENGINEERING
 P.O. Box 1089, Fayetteville, NC 28302
 955 Old Wilmington Road, Fayetteville, NC 28301

W:\PROJECTS\ACTIVE PROJECTS\WINSLOW TO ROBESON 12 INCH WM REPLACEMENT\DWG\2023-09-19 SECOND PERMIT RENEWAL WINSLOW TO ROBESON WATER WITH EROSION CONTROL SHEET.dwg, W1, 9/19/2023 10:44:07 AM, mullinsb

