CONTRACT DOCUMENTS AND SPECIFICATIONS

FAYETTEVILLE PUBLIC UTILITIES
2021 WATER SYSTEM IMPROVEMENTS
WATER MAIN REPLACEMENTS

JUNE 2024
FOXPE PROJECT
1600-022
DWB22 2024-263

Prepared By:

FOXPE
ENGINEERING FOR THE WATER ENVIRONMENT

2711 Berrywood Dr
Nashville, Tennessee 37204

Prepared For:

FPU
Fayetteville Public Utilities

408 College St W
Fayetteville, TN 37334

CONTRACT DOCUMENTS A NDSPECIFICATIONS

FAYETTEVILLE PUBLIC UTILITIES
2021 WATER SYSTEM IMPROVEMENTS
WATER MAIN REPLACEMENTS

DECEMBER 2021
FOXPE PROJECT 1600-022

SEAL

Prepared By:

FOXPE
ENGINEERING FOR THE WATER ENVIRONMENT

233 Oceola Avenue #200
Nashville, Tennessee 37209

Prepared For:

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408 College St W
Fayetteville, TN 37334

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SECTION 00 1100

ADVERTISEMENT FOR BIDS

2021 Water System Improvements Water Main Replacements

FAYETTEVILLE PUBLIC UTILITIES
(Owner)

Separate sealed Bids for furnishing of all materials, labor, tools, equipment, and appliances necessary for the construction of the Water Main Replacements will be received by the Owner at 408 College St W, Fayetteville, TN, 37334, until 2:00 p.m., local time, on Thursday, July 18, 2024, and then at said office publicly opened and read aloud.

The Project consists of the construction of water mains and bridge hanger replacements and associated site work, surface restoration, and traffic control for a complete project as shown or specified in the Contract Documents.

A mandatory pre-bid meeting will be held at 10:00 a.m. local time, on Tuesday, July 9, 2024 at Fayetteville Public Utilities (address above).

Copies of the Contract Documents and Specifications, including bidding documents and requirements and Contract Drawings may be obtained from the Engineer, FOXPE LLC, Nashville, TN (Address below), upon payment of $500 for each set. This payment is not refundable. Copies may be examined at the following locations:

FOXPE LLC, 2711 Berrywood Dr, Nashville, Tennessee 37204

Builders Exchange of Tennessee (Nashville Office), 2322 Winford Ave. Nashville, TN 37211

Builders Exchange of Tennessee (Knoxville Office), 300 Clark Street Knoxville, TN 37921

Bidders must be listed on Engineer's list of plan holders who have purchased the Contract Documents, Specifications, and Drawings.

No bid may be withdrawn within 60 days after the scheduled time for receipt of bids.

Engineer shall be provided with the following information: mailing address for U.S. Postal Service, physical delivery address, telephone number, email address, and name of contact person.

This project is being funded by a State Revolving Fund loan on or after 2014 EPA Fiscal Year. The loan recipient must be in compliance with all applicable Davis-Bacon Act and American Iron and Steel requirements.

Any contract or contracts awarded by the Owner through this invitation for bids will be funded by a State Revolving Fund (SRF) loan from the State of Tennessee. State and Federal funds will be involved in this project, and, as a result, Bidders must comply with the SRF Loan Program's Disadvantaged Business Enterprises (DBE) requirements including contacting a minimum of 10 qualified DBE sub-contractors, professional service providers, vendors, and/or suppliers by

certified mail to solicit bids. The apparent successful Bidder must submit to the Owner copies of the certified letters and return receipts prior to contract award. Neither the State of Tennessee nor any of its departments, agencies, or employees is or will be a party to this Invitation for Bids or any resulting contract(s) awarded by the Owner.

All qualified Disadvantaged Business Enterprises (DBE) firms desiring to bid as a General Contractor, sub-contractor, professional service provider, supplier, or equipment vendor are encouraged to contact the Governor's Office of Diversity Business Enterprise (Go-DBE), https://www.tn.gov/generalservices/procurement/central-procurement-office--cpo-/go-dbe.html, to review bidding/contract documents. Qualified Disadvantaged Business Enterprises (DBE) firms may also contact FOXPE at the address listed above, to obtain a list of prospective bidding General Contractors or to obtain copies of bidding/contract documents.

All bidders must be licensed General Contractors as required by the Contractor's Licensing Act of 1994 of the General Assembly of the State of Tennessee and qualified for the type of construction being bid upon.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the contract, Section 3, Segregated Facility, Section 109 and E.O. 11246.

Fayetteville Public Utilities

Date:_____ Britt Dye, CEO & General Manager

SECTION 00 2100

INFORMATION FOR BIDDERS

1. RECEIPT AND OPENING OF BIDS

Fayetteville Public Utilities (herein called the "Owner"), invites Bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the location and time noted in the Advertisement for Bids. The envelopes containing the Bids shall be sealed.

The Owner may consider informal any Bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all Bids. Any Bid may be withdrawn prior to the above scheduled time for the opening of Bids or authorized postponement thereof. Any Bid received after the time and date specified shall not be considered. No Bidder may withdraw a Bid within 60 days after the actual date of the opening thereof.

2. PREPARATION OF BID

Each Bid shall be submitted on the Bid forms bound in the Contract Documents. All blank spaces for Bid prices must be filled in, in ink or typewritten, in both words and figures. (In case of discrepancy, the amount shown in words will govern.) All required enclosed certifications must be fully completed and executed when submitted.

Each Bid must be submitted in a sealed envelope, addressed to the Owner. Each sealed envelope containing a Bid must be plainly marked on the outside as 2021 Water System Improvements Water Main Replacements, and include all other information required by the state of Tennessee law.

If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the Owner at 408 College St W, Fayetteville, TN 37334.

Any and all Bids not meeting the aforementioned criteria for Bid submittal, will be declared nonresponsive, will **not** be opened, and will be returned to the Bidder unopened.

3. SUBCONTRACTS

The Bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this Contract must be acceptable to the Owner and funding agencies and shall be subject to verification by the state of Tennessee as to eligibility status.

4. FACSIMILE MODIFICATIONS

Any Bidder may modify his Bid by facsimile communication at any time prior to the scheduled closing time for receipt of Bids, provided such facsimile communication is received by the Owner prior to the closing time, and provided further, the Owner is satisfied that a written confirmation of the facsimile modification over the signature of the Bidder was

mailed prior to the closing time. The facsimile communication should not reveal the Bid price but should provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed Bid is opened. If written confirmation is not received within two days from the closing time, no consideration will be given to the facsimile modification.

5. GENERAL CONDITIONS AND REVISION OF QUANTITIES

The unit or lump sum price for each of the items in the proposal of each Bidder shall include its pro rata share of General Conditions costs so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price represents the total Bid. Any Bid not conforming to this requirement may be rejected as informal. The special attention of all Bidders is called to this provision, for should conditions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities nor extra compensation allowed, provided the net monetary value of all such addition or subtraction in quantities of such items of work (i.e., difference in cost) shall not increase or decrease the total original contract price by more than 25 percent, except for work not covered in the Drawings and Detailed Specifications as provided for under General Conditions and Supplemental General Conditions.

6. QUALIFICATIONS OF BIDDER

The Owner may make such investigations as deemed necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Conditional Bids will not be accepted.

A Bidder must purchase a set of Contract Documents (including Bidding Requirements and Documents), Specifications, and Drawings through the Engineer in order to be considered a qualified bidder. Addenda will only be sent to those who have purchased documents and are on the list of planholders maintained by FOXPE LLC.

7. BID SECURITY

Each Bid must be accompanied by a cashier's check on a duly authorized bank, certified check of the Bidder, or a bid bond prepared on the form of bid bond attached hereto, duly executed by the Bidder as principal and having as security thereon a surety company listed in the latest issue of U.S. Treasury Circular 570, in the amount of 5 percent of the Bid. Certified checks or cashier's checks shall be made payable to the Owner. Such checks or bid bonds will be returned to all except the three lowest Bidders within three days after the opening of Bids; the remaining checks or bid bonds will be returned promptly after the Owner and the accepted Bidder have executed the contract, or, if no award has been made within 60 days after the date of the opening of Bids, upon demand of the Bidder at any time thereafter, so long as he has not been notified of the acceptance of his Bid.

8. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

The successful Bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within 10 days after he has received notice of the acceptance of his Bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his Bid.

9. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

Bidder must agree to commence work on or before a date to be specified in a written Notice to Proceed of the Owner and to fully complete the Project within 1,280 consecutive calendar days thereafter. Bidder must agree also to pay as liquidated damages the sum of $1,000 for each consecutive calendar day in default as hereinafter provided in the General Conditions and Supplemental General Conditions.

10. CONDITIONS OF WORK

Each Bidder must inform himself fully of the conditions relating to the construction of the Project and the employment of labor thereof. Failure to do so will not relieve a successful Bidder of his obligation to furnish all material and labor necessary to carry out the provision of his Contract. Insofar as possible the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor or the operations of the Owner.

11. ADDENDA AND INTERPRETATIONS

No interpretation of the meaning of the Drawings, Specifications, or other prebid documents will be made to any Bidder orally.

Every request for such interpretation should be in writing via email to Dudney Fox, P.E.(dudney@foxpe.com); FOXPE LLC, at 2711 Berrywood Dr, Nashville, Tennessee 37204, and to be given consideration must be received at least five days prior to the date fixed for the opening of Bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the Specifications which, if issued, will be transmitted electronically to all prospective Bidders not later than two days prior to the date fixed for the opening of Bids, or in accordance with Tennessee statute. Failure of any Bidder to receive any such addendum or interpretation shall not relieve such Bidder from any obligation under his Bid as submitted. All addenda so issued shall become a part of the Contract Documents.

12. SECURITY FOR FAITHFUL PERFORMANCE

Simultaneously with his delivery of the executed Contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of this Contract and for the payment of all persons performing labor on the Project under this Contract and furnishing materials in connection with this Contract, as specified in the General Conditions included herein. Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

13. POWER OF ATTORNEY

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

14. NOTICE OF SPECIAL CONDITIONS

Attention is particularly called to those parts of the Contract Documents and Specifications which deal with the following:

A. Inspection and testing of materials
B. Insurance requirements
C. Wage rates (if applicable)
D. Surveys, permits, and regulations
E. State Allowances

The federal regulations enclosed or herein referred to supersede all conflicting requirements of the Contract Documents.

15. LAWS AND REGULATIONS

The Bidder's attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

16. OBLIGATION OF BIDDER

At the time of the opening of Bids, each Bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Drawings and Contract Documents (including all addenda). The failure or omission of any Bidder to examine any form, instrument, or document shall in no way relieve any Bidder from any obligation in respect of his Bid. Each bidder must inform him/herself fully of the conditions relating to the construction of the project and the employment of labor thereof. Failure to do so will not relieve a successful bidder of his/her obligation to furnish all material and labor necessary to carry out the provisions of his/her contract. Insofar as possible, the contractor, in carrying out the work, must employ such methods as will not cause any interruption of or interference with the work of any other contractor.

17. EXECUTION OF BID DOCUMENTS

The Contractor, in signing his Bid on the whole or any portion of the work, shall conform to the following requirements:

A. Bids which are not signed by individuals making them shall have attached thereto a power of attorney evidencing authority to sign the Bid in the name of the person for whom it is signed.

B. Bids which are signed for a partnership shall be signed by all of the partners or by an attorney-in-fact. If a Bid is signed by an attorney-in-fact, there should be attached to the Bid a power of attorney executed by the partners evidencing authority to sign the Bid.

C. Bids which are signed for a corporation shall have the correct corporate name thereof and the signature of the President or other authorized officer of the corporation manually written below the corporate name following the wording "By _____." Corporation seal shall also be affixed to the Bid.

18. METHOD OF AWARD - LOWEST QUALIFIED BIDDER

The Contract will be awarded to the responsive, responsible Bidder submitting the lowest Bid complying with the conditions of the Information for Bidders. Award will be made on the basis of the prices given in the Base Bid either with or without alternates at the discretion of the Owner. The Bidder to whom the award is made will be notified at the earliest possible date. The Owner reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such rejection or waiver is in its interest. Conditional bids will not be accepted.

A responsive Bidder shall be one who submits his Bid in the proper form without qualification or intent other than as called for in the Specifications and on the Contract Drawings and who binds himself on behalf of his Bid to the Owner with the proper bid bond or certified check completed and attached, and who properly completes all forms required to be completed and submitted at the time of the bidding.

A responsible Bidder shall be one who can fulfill the following requirements:

A. The Bidder shall maintain a permanent place of business. This requirement applies to the Bidder where the Bidder is a division of a corporation, or where the Bidder is 50 percent or more owned by a person, corporation, or firm.

B. The Bidder shall demonstrate that he has adequate construction management experience and sufficient equipment resources to properly perform the work under and in conformance with these Contract Documents. This evaluation will be based upon a list of completed and active projects and a list of construction equipment available to the Bidder to perform the work.

C. The Bidder shall demonstrate that he is familiar with the work under these Contact Documents. This evaluation will be based upon a list of major equipment items the Bidder proposes to furnish and a list of subcontractors the Bidder proposes to use in prosecuting the work.

D. The Bidder shall demonstrate that he has financial resources of sufficient strength to meet the obligations incident to the performance of the work covered by these Contract Documents. The Bidder shall complete the Statement of Bidder's Qualifications in the Bid forms. The ability to obtain the required Performance and Payment Bonds will not alone demonstrate adequate financial capability.

E. The Bidder may demonstrate financial capability by submitting a suitable financial statement of an Equity Partner, provided an agreement is executed binding the Bidder and said Equity Partner, jointly and severally, to fulfill all duties, obligations, and responsibilities of the Contractor under these Contract Documents if the Contract is awarded to the Bidder. The agreement shall be submitted with the Bid and shall be satisfactory to the Owner's attorney or the Bid may be declared nonresponsive.

F. The Bidder shall furnish all data required by these Contract Documents. Failure to do so may result in the Bid being declared nonresponsive. Acceptance of the Bidder's documentation and substantiation or contract award by the Owner does not relieve the Bidder of liability for nonperformance as covered in the Contract Documents, nor will the Bidder be exempted from any other legal recourse the Owner may elect to pursue.

19. EMPLOYMENT OF LOCAL LABOR

Preference in employment on the Project shall, insofar as practicable, be given to qualified local labor.

20. BID ENVELOPE

All Bidders must be licensed contractors in the State of Tennessee. In compliance with all the requirements of Chapter No. 135, Public Acts of 1945 of the General Assembly of the State of Tennessee, and House Bill No. 2180 (Public Chapter No. 882) known as the Contractor's Licensing Act of 1976 (and all amendments thereto), the envelope in which the Bid is contained must also bear on the outside the following:

A. Name of Bidder

1. Address of the Bidder;
2. Name of Project for which Bid is submitted;
3. Bidder's License Number;
4. Bidder's License Category or Classification; and
5. Bidder's License Expiration Date.

B. Name of Electrical; Plumbing; Heating, Ventilation and Air Conditioning; or Masonry Sub-Contractors

1. Contractor's License Number;
2. Contractor's License Expiration Date; and
3. License Classification.

Bid envelopes that do not bear the above information will be returned to the Bidder unopened.

A copy of the form found on the last page of this section properly completed to provide the required information as identified above shall be affixed to the front of the envelope containing the Bidder’s proposal.

21. SAFETY STANDARDS AND ACCIDENT PREVENTION

With respect to all work performed under this contract, the Contractor shall:

a. Comply with the safety standards provisions of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the

requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the "Federal Register", Volume 36, No. 75, Saturday, April 17, 1971.

b. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.

c. Maintain at his/her office or other well-known place at the job site, all articles necessary for giving first aid to the injured and shall make standing arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site. In no case shall employees be permitted to work at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.

CONTRACTOR'S IDENTIFICATION

This form shall be attached to the sealed envelope containing the Bid. Failure to provide the following information on the sealed envelope will be considered a non-responsive Bid.

BIDDER:

Name _____

Address _____

_____

_____

Tennessee License No._____

Expiration Date _____

Monetary Limit $_____

Classification _____

_____

_____

Complete the following for all applicable Electrical; Plumbing; Heating, Ventilation and Air-Conditioning; or Masonry Subcontractors:

Subcontractor: _____

_____

Tennessee License No._____

License Expiration Date _____

License Classification _____

Subcontractor: _____

_____

Tennessee License No._____

License Expiration Date _____

License Classification _____

Subcontractor: _____

_____

Tennessee License No._____

License Expiration Date _____

License Classification _____

_____

SEALED BID PROPOSAL FOR THE CONSTRUCTION OF

2021 WATER SYSTEM IMPROVEMENTS WATER MAIN REPLACEMENTS

FOR the FAYETTEVILLE PUBLIC UTILITIES

Bid Date _____ Bid Time _____

SECTION 00 4100

BID

Project Description: 2021 Water System Improvements Water Main Replacements

Proposal of_____

(hereinafter called "Bidder"), doing business as_____
(a corporation, a partnership, an individual)

to Fayetteville Public Utilities (hereinafter called "Owner").

Gentlemen:

The Bidder, in compliance with your Advertisement for Bids for the construction of this project having examined the Drawings and Specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the Contract Documents, within the time set forth therein, and at the price(s) stated below. This price(s) is to cover all expenses including overhead and profit incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in written Notice to Proceed of the Owner and to fully complete the project within 1,280 consecutive calendar days thereafter as stipulated in the Specifications. Bidder further agrees to pay as liquidated damages, the sum of $1,000 for each consecutive calendar day thereafter as hereinafter provided in the General Conditions.

Bidder acknowledges receipt of the following addenda:

_____

_____

_____

Bidder agrees to perform all the construction of the project complete with appurtenant and accessory work described in the Specifications and shown on the plans for the attached price(s).

The attached price(s) shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all Bids and to waive any informalities in the bidding.

The Bidder agrees that this Bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving Bids.

Upon receipt of written notice of the acceptance of this Bid, Bidder will execute the formal contract attached within ten days and deliver a surety bond or bonds as required by the General Conditions. The Bid security attached in the sum of 5 percent of the total Bid is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

Respectfully submitted:

_____

By_____
(Signature)

Title_____

_____

_____
(Business Address)

ATTEST:

_____

Name_____
(Please Type)

Title_____ (SEAL)

Note: Attest for a corporation must be by the corporate secretary; for a partnership by another partner; for an individual by a Notary.

SECTION 00 4143

BID SCHEDULE

FAYETTEVILLE PUBLIC UTILITIES

2021 WATER SYSTEM IMPROVEMENTS WATER MAIN REPLACEMENTS

FAYETTEVILLE, TENNESSEE

Note: Unless otherwise stated, all bid items shall be a complete installation as Specified and/or shown on Drawings.

Item No.	Description	Unit	Quantity	Unit Price	Item Total
Water Lines and Appurtenances					
1	12" Class 350 Ductile Iron Pipe Open Cut - Huntsville Highway (TDOT SR 10)	LF	5,000	$	$
2	12" Class 350 Ductile Iron Pipe Open Cut - Ardmore Highway (TDOT SR 110)	LF	3,000	$	$
3	12" Class 350 Ductile Iron Pipe Open Cut - Courthouse Square (City ROW)	LF	800	$	$
4	12" Class 350 Ductile Iron Pipe Open Cut - Courthouse Square (TDOT SR 50 & SR 431 Crossings)	LF	900	$	$
5	12" Class 350 Ductile Iron Pipe Open Cut - Thornton Taylor Pkwy & Winchester Hwy (TDOT SR 50 & SR 10)	LF	500	$	$
6	12" Class 350 Ductile Iron Pipe Open Cut - Winchester Hwy (TDOT SR 50)	LF	1,400	$	$
7	10" Class 350 Ductile Iron Pipe Open Cut - TDOT ROW	LF	100	$	$
8	12" DR18, C900 PVC Pipe Open Cut - College Street East/Mulberry Avenue (TDOT SR 50)	LF	3,300	$	$
9	8" DR18, C900 PVC Pipe Open Cut - Thornton Taylor Parkway (TDOT SR 15/10)	LF	60	$	$
10	8" DR18, C900 PVC Pipe Open Cut - Bright Avenue (TDOT SR 50/431)	LF	420	$	$
11	8" DR18, C900 PVC Pipe Open Cut - Main Avenue North (TDOT SR 50/431)	LF	1,800	$	$
12	8" DR18, C900 PVC Pipe Open Cut - TDOT ROW	LF	60	$	$
13	6" DR18, C900 PVC Pipe Open Cut - TDOT ROW	LF	2,100	$	$
14	4" DR18, C900 PVC Pipe Open Cut - TDOT ROW	LF	100	$	$
15	2" PVC, ASTM D2241, SDR 21 Open Cut - TDOT ROW	LF	600	$	$
16	2" DR9 HDPE HDD - TDOT ROW	LF	4,000	$	$
17	12" Class 350 Ductile Iron Pipe Open Cut - Molina Road	LF	3,800	$	$
18	12" Class 350 Ductile Iron Pipe Open Cut	LF	600	$	$
19	10" Class 350 Ductile Iron Pipe Open Cut	LF	500	$	$
20	8" DR18, C900 PVC Pipe Open Cut	LF	100	$	$
21	6" DR18, C900 PVC Pipe Open Cut	LF	51,000	$	$
22	4" DR18, C900 PVC Pipe Open Cut	LF	100	$	$
23	2" PVC, ASTM D2241, SDR 21 Open Cut	LF	1,400	$	$
24	2" DR9, HDPE HDD	LF	18,000	$	$
25	20" Steel Casing - Bore & Jack, 12" Class 350 Ductile Iron Carrier Pipe - Thornton Taylor Parkway (TDOT SR 15/10)	LF	140	$	$
26	20" Steel Casing - Bore & Jack, 12" Class 350 Ductile Iron Carrier Pipe - Ardmore Highway (TDOT SR 110)	LF	60	$	$
27	20" Steel Casing - Bore & Jack, 12" Class 350 Ductile Iron Carrier Pipe - Winchester Highway (TDOT SR 50)	LF	80	$	$

28	12" Steel Casing - Bore & Jack, 6" Class 350 Ductile Iron Carrier Pipe - Huntsville Highway (TDOT SR 10)	LF	100	$	$
29	12" Steel Casing - Bore & Jack, 6" Class 350 Ductile Iron Carrier Pipe - College Street West (TDOT SR 10)	LF	60	$	$
30	12" Steel Casing - Bore & Jack, 6" Class 350 Ductile Iron Carrier Pipe - Winchester Highway (TDOT SR 50)	LF	100	$	$
31	4" HDPE Casing - HDD, 2" DR9 HDPE Carrier	LF	340	$	$
32	24" x 6" Tapping Sleeve and Valve Assembly	EA	1	$	$
33	16" x 8" Tapping Sleeve and Valve Assembly	EA	1	$	$
34	12" x 12" Tapping Sleeve and Valve Assembly	EA	4	$	$
35	12" x 8" Tapping Sleeve and Valve Assembly	EA	1	$	$
36	12" x 6" Tapping Sleeve and Valve Assembly	EA	10	$	$
37	10" x 10" Tapping Sleeve and Valve Assembly	EA	1	$	$
38	10" x 6" Tapping Sleeve and Valve Assembly	EA	2	$	$
39	8" x 6" Tapping Sleeve and Valve Assembly	EA	5	$	$
40	6" x 6" Tapping Sleeve and Valve Assembly	EA	5	$	$
41	12" X 2" Tapping Saddle Assembly	EA	4	$	$
42	10" X 2" Tapping Saddle Assembly	EA	1	$	$
43	8" x 2" Tapping Saddle Assembly	EA	3	$	$
44	6" x 2" Tapping Saddle Assembly	EA	20	$	$
45	4" x 2" Tapping Saddle Assembly	EA	1	$	$
46	12" Gate Valve Assembly	EA	45	$	$
47	10" Gate Valve Assembly	EA	1	$	$
48	8" Gate Valve Assembly	EA	10	$	$
49	6" Gate Valve Assembly	EA	190	$	$
50	4" Gate Valve Assembly	EA	2	$	$
51	2" Gate Valve Assembly	EA	110	$	$
52	12" AVT EZ Valve Insertion Valve	EA	1	$	$
53	10" AVT EZ Valve Insertion Valve	EA	5	$	$
54	8" AVT EZ Valve Insertion Valve	EA	3	$	$
55	6" AVT EZ Valve Insertion Valve	EA	40	$	$
56	2" Blow-Off Hydrant and Valve Assembly	EA	4	$	$
57	Air Release Valve and Vault Assembly	EA	40	$	$
58	Ductile Iron Fittings	LB	50,000	$	$
59	Fire Hydrant and Valve Assembly - TDOT ROW	EA	20	$	$
60	Fire Hydrant and Valve Assembly	EA	70	$	$

61	Existing Fire Hydrant Reconnection	EA	5	$	$
62	Existing Fire Hydrant Rebuild	EA	8	$	$
63	Existing Fire Hydrant Removal - TDOT ROW	EA	25	$	$
64	Existing Fire Hydrant Removal	EA	65	$	$
65	Existing Valve Abandonment - TDOT ROW	EA	50	$	$
66	Existing Valve Abandonment	EA	125	$	$
67	Exploratory/Investigative Work	Crew Day	10	$	$
Service Lines & Connections					
68	2" Service Connection at Meter -- TDOT ROW	EA	3	$	$
69	2" Service Connection at Meter	EA	6	$	$
70	1" Service Connection at Meter - TDOT ROW	EA	4	$	$
71	1" Service Connection at Meter	EA	14	$	$
72	3/4" Service Connection at Meter - TDOT ROW	EA	185	$	$
73	3/4" Service Connection at Meter	EA	950	$	$
74	2" Service Connection at Main - TDOT ROW	EA	3	$	$
75	2" Service Connection at Main	EA	6	$	$
76	1" Service Connection at Main - TDOT ROW	EA	4	$	$
77	1" Service Connection at Main	EA	14	$	$
78	3/4" Service Connection at Main - TDOT ROW	EA	185	$	$
79	3/4" Service Connection at Main	EA	950	$	$
80	2" PEX Service Line, 4" DR9 HDPE Sleeve by HDD - TDOT ROW	LF	60	$	$
81	2" PEX Service Line by Open Cut - TDOT ROW	LF	30	$	$
82	2" PEX Service Line, 4" DR9 HDPE Sleeve by HDD	LF	200	$	$
83	2" PEX Service Line by Open Cut	LF	100	$	$
84	1" PEX Service Line, 2" DR9 HDPE Sleeve by HDD - TDOT ROW	LF	150	$	$
85	1" PEX Service Line by Open Cut - TDOT ROW	LF	60	$	$
86	1" PEX Service Line, 2" DR9 HDPE Sleeve by HDD	LF	300	$	$
87	1" PEX Service Line by Open Cut	LF	120	$	$
88	3/4" PEX Service Line, 2" DR9 HDPE Sleeve by HDD - TDOT ROW	LF	2,200	$	$
89	3/4" PEX Service Line by Open Cut - TDOT ROW	LF	1,200	$	$
90	3/4" PEX Service Line, 2" DR9 HDPE Sleeve by HDD	LF	12,000	$	$
91	3/4" PEX Service Line by Open Cut	LF	6,000	$	$
92	3/4" PEX Service Line by HDD (No Sleeve)	LF	4,000	$	$

Surface Restoration					
93	Final Grading and Seeding	LF	40,000	$	$
94	Sodding	SY	2,500	$	$
95	Pavement Repair - TDOT Roadway	SF	52,000	$	$
96	Pavement Repair - City/County ROW	SF	135,000	$	$
97	Pavement Repair - Driveways and Parking Lots	SF	8,000	$	$
98	Curb Repair - TDOT Roadway	LF	1,450	$	$
99	Curb Repair - City/County ROW	LF	4,000	$	$
100	Sidewalk Repair - TDOT ROW	SF	7,500	$	$
101	Sidewalk Repair - City/County ROW	SF	21,200	$	$
102	Landscaping Services	Per Day	10	$	$
Bridges & ARAP Crossings					
103	TDOT Bridge Pipe Hangers & Expansion Joint Repair: Elk River (TDOT Bridge No. 52-10-10.58)	LS	1	$	$
104	ARAP Creek Crossing No. 1	LS	1	$	$
105	ARAP Creek Crossing No. 2	LS	1	$	$
106	ARAP Creek Crossing No. 3	LS	1	$	$
107	ARAP Creek Crossing No. 4	LS	1	$	$
108	ARAP Creek Crossing No. 5	LS	1	$	$
109	ARAP Creek Crossing No. 6	LS	1	$	$
110	ARAP Creek Crossing No. 7	LS	1	$	$
111	ARAP Creek Crossing No. 8	LS	1	$	$
112	ARAP Creek Crossing No. 9	LS	1	$	$
113	ARAP Creek Crossing No. 10	LS	1	$	$
114	ARAP Creek Crossing No. 11	LS	1	$	$
115	ARAP Creek Crossing No. 12	LS	1	$	$
116	ARAP Creek Crossing No. 13	LS	1	$	$
117	ARAP Creek Crossing No. 14	LS	1	$	$
Allowances					
118	Allowances as specified in Section 01 2113	LS	1	$ 200,000.00	$ 200,000.00
TOTAL BID				$	

TOTAL BID _____ Dollars & Cents
(Words)

Unit Prices have been computed in accordance with the Contract Documents. Initially the contract price will be deemed to include for all unit price work an amount equal to the sum of the Unit Price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid Items will be based on actual quantities, determined as provided in the Contract Documents. Owner may award the project with or without alternates and alternates may be used to determine lowest responsive and responsible bidder.

Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

Each Unit Price will be deemed to include an amount considered by contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

BIDDER _____ DATE _____

BY _____ TITLE _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

EMAIL

SECTION 00 4313

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____

_____as Principal, and

_____as Surety,

are hereby held and firmly bound unto the Fayetteville Public Utilities as Owner in the penal sum of five percent of the total Bid which equals _____

_____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 Fayetteville Public Utilities a certain Bid, attached hereto and hereby made a part hereof to enter into a contract in writing for the construction of the 2021 Water System Improvements Water Main Replacements.

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 Surety have executed this bond by causing their respective names to be hereunto subscribed and their seals to be hereunto affixed by their duly authorized officers, on this the _____ day of _____, 20 __.

CONTRACTOR - **PRINCIPAL**:

_____

By _____

Name _____
(Please Type)

Title _____

ATTEST:

_____

Name _____
(Please Type)

Title _____ (SEAL)

Note: Attest for a Corporation must be by the corporate secretary; for a partnership by another partner; for an individual by a Notary.

SURETY:

_____

By _____

Name _____
(Please Type)

Title _____
(Attach Power of Attorney)

ATTEST:

_____

Name _____
(Please Type)

Title _____ (SEAL)

Note: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

SECTION 00 4513

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires. Attach all additional sheets to these Contract Documents.

1. Name of Bidder.

2. Permanent main office address.

3. When organized.

4. If a corporation, where incorporated.

5. How many years have you been engaged in the contracting business under your present firm or trade name?

6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)

7. General character of work performed by your company.

8. Have you ever failed to complete any work awarded to you? If so, where and why?

9. Have you ever defaulted on a contract? If so, where and why?

10. List the most important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.

11. List your major equipment available for this project. (Use form provided in Section 00 4514.)

12. Experience in construction work similar in importance to this project.

13. Background and experience of the principal members of your organization, including officers.

14. Credit available: $ _____

15. Give bank reference.

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Local Public Agency?

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Local Public Agency in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated this_____day of _____, 20___.

_____
Name of Bidder

By _____

Title _____

State of _____

County of _____

_____ being duly sworn deposes and says that he is

_____of _____

_____and that the answers to the foregoing

questions and all statements therein contained are true and correct. Subscribed and sworn to

before me this _____ day of _____ , 20 __ .

_____
Notary Public

My Commission Expires:

_____
(Date) (SEAL)

SECTION 00 4514

STATEMENT OF EQUIPMENT

Showing machinery and other equipment available to Contractor for prosecuting the work included in contract. (To be filled in by Contractor and submitted with Bid.)

Available Machinery and Other Equipment Kind-Size-Capacity	Location	Ownership	Date Proposed To be Placed On Work

The above is a true statement of the equipment available to the undersigned Bidder for prosecuting the work included in the contract. Where it is shown that the equipment is not owned by the Bidder, arrangements have been made with the owners to furnish the equipment.

Signed _____

Name _____

Title _____

SECTION 00 4519

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
)ss.
County of _____)

_____, being first duly sworn, deposes and says that:

1. He is _____ of _____
(owner, partner, officer, representative, or agent)

_____ , 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, has 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 has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other 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 element 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 the _____ (Local Public Agency) or any person interested in the proposed Contract; and

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 of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed)_____

_____
(Title)

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

_____

_____
(Title)
My commission expires _____
(Date) (SEAL)

SECTION 00 4544.10

PARTNERSHIP CERTIFICATE

STATE OF_____

COUNTY OF_____

On this _____ day of _____ , 20 _____, before me personally appeared

_____, known to me to be the person who executed the above instrument, who, being by me first duly sworn, did depose and say that he is a general partner in the firm of _____

and that said firm consists of himself and _____

and that he executed the foregoing instrument on behalf of said firm for the uses and purposes stated therein, and that no one except the above named members of the firm have any financial interest whatsoever in said proposed contract.

_____ Partner

_____ Partner

_____ Partner

_____ Partner

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

_____ Notary Public

My Commission Expires:

(Date) (SEAL)

NOTE: If only one partner signs, a power of attorney executed by all other partners authorizing him to act in the name of the company must be attached; otherwise, all partners must sign.

SECTION 00 4544.20

CORPORATE CERTIFICATE

I, _____, certify that I am the Secretary of the corporation named as Contractor in the foregoing proposal; that _____ _____, who signed said proposal in behalf of the Contractor was then _____ of said corporation; that said proposal was duly signed for and in behalf of said corporation by authority of its Board of Directors, and is within the scope of its corporate powers; that said corporation is organized under the laws of the State of _____.

This _____day of _____, 20 _____.

_____

(SEAL)

SECTION 00 4545

JOINT VENTURE QUESTIONNAIRE

In the event a joint venture bid is submitted, the following questions shall be answered, submitted with the bid and signed by the owner, partner, officer, representative, or agent of each joint venturer.

1. What is the separate bonding capability of each member of the joint venture?

2. What other work is in progress by the total contract dollar amount and percentage of completion for each joint venturer?

3. Are there any particular risks associated with this Contract which contributed to the decision to joint venture, and if so, what?

4. Has consideration been given to utilization of subcontract as opposed to formation of a joint venture, and if so, why was the joint venture format chosen?

5. Has either member of the joint venture been separately awarded a contract by the Fayetteville Public Utilities, and if so, what was the most recent contract awarded to each?

6. What will be the contribution of each participant in the joint venture with respect to personnel, equipment, and other resources of each company allocated to this contract?

7. What will be the specific contribution of each participant of the joint venture for the completion of work to be performed and material to be supplied under this Contract?

8. Will there be separate management for the joint venture? If not, which company will supervise, or how will the contract be supervised?

9. Why will the joint venture be more efficient than the possibility of both companies separately bidding and either company being awarded the contract separately.

10. Does the formation of the joint venture promote competition on this Contract, and if so, how?

11. Has the joint venture, or any participant therein, received any legal advice with respect to the antitrust implications of formation of a joint venture, and if so, from what attorneys?

_____	_____
Name of Joint Venturer	Name of Joint Venturer
By _____	By _____
Title _____	Title_____

State of _____

County of _____

_____being duly sworn deposes and says that he is _____of_____and

_____being duly sworn deposes and says that he is _____of_____and

that the answers to the foregoing questions and all statements therein contained are true and correct. Subscribed and sworn to before me this _____ day of _____, 20____.

_____
Notary Public

My Commission Expires:

_____ (SEAL)
(Date)

END OF SECTION

SECTION 00 4550

STATEMENT OF LICENSE CERTIFICATE

Each Contractor bidding shall fill in and sign the following:

This is to certify that _____
has fully complied with all the requirements of Chapter No. 135, Public Acts of 1945 of the General Assembly of the State of Tennessee and House Bill No. 2180 (Public Chapter No. 822), known as the Contractors Licensing Act of 1976. The Contractor's license number, other information outlined in the Instructions for Bidders, expiration date, and that part of classification applying to the Bid shall appear on the envelope containing the Bid, otherwise the Bid will not be considered.

The State Board for Licensing General Contractors issued to _____

_____Certificate No._____

which expires on _____, 20 _____.

Signed _____

Name _____

Title _____

SECTION 00 4560

ILLEGAL IMMIGRANTS

CERTIFICATE OF COMPLIANCE

EACH CONTRACTOR BIDDING SHALL FILL IN AND SIGN THE FOLLOWING:

This is to certify that _____ has fully complied with all the requirements of Chapter No. 878 (House Bill No. 111 and Senate Bill No. 411) which serves to amend Tennessee Code Annotated Title 12, Chapter 4, Part I.

All Bidders for construction services on this project shall be required to submit an affidavit (by executing this compliance document) as part of their bid, that attests that such Bidder shall comply with requirements of Chapter No. 878.

Signature _____

Print or Type Name _____

State of _____)
) ss
County of _____)

Personally appeared before me, _____ the undersigned Notary Public, _____, the within named bargainer, with whom I am personally acquainted, and known to me to be the _____ of the (President, Owner, Partner) _____, and acknowledged to me that he executed the foregoing (corporation, partnership, sole proprietorship) document for the purposes recited therein.

Witness my hand, at office, this _____ day of _____ , 20 ____ .

_____
Notary Public

My commission expires _____

SECTION 00 4570

DRUG-FREE WORKPLACE AFFIDAVIT

STATE OF _____

COUNTY OF _____

The undersigned, principal officer of _____ , an employer of five (5) or more employees contracting with _____ government to provide construction services, hereby states under oath as follows:

1. The undersigned is a principal officer of _____ hereinafter referred to as the "Company"), and is duly authorized to execute this Affidavit on behalf of the Company.

2. The Company submits this Affidavit pursuant to T.C.A. §50-9-113, which requires each employer with no less than five (5) employees receiving pay who contracts with the state or any local government to provide construction services to submit an affidavit stating that such employer has a drug-free workplace program that complies with Title 50, Chapter 9, of the Tennessee Code Annotated .

3. The Company is in compliance with T.C.A. §50-9-113.

Further affiant saith not.

_____
Principal Officer

STATE OF _____

COUNTY OF _____

Before me personally appeared _____, with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who acknowledged that such person executed the foregoing affidavit for the purpose therein contain.

Witness my hand and seal at office this _____day of _____, 20____.

_____
Notary Public

My Commission expires: _____

END OF SECTION

SECTION 00 4580

IRAN DIVESTMENT ACT

In compliance with the Iran Divestment Act (State of Tennessee 2016, Public Chapter No. 817), which became effective on July 1, 2016, certification is required of all bidders on contracts over $1,000.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party hereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to T.C.A. § 12-12-106.

I affirm, under the penalties of perjury, this statement to be true and correct.

Date	Signature of Bidder
	Company

A bid shall not be considered for award nor shall award be made where the foregoing certification has been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor. The Fayetteville Public Utilities may award a bid to a bidder who cannot make the certification, on case-by-case basis, if:

1. The investment activities in Iran were made before July 1, 2016, the investment activities in Iran have not been expanded or reviewed on or after July 1, 2016, and the person has adopted, publicized, and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or

2. The Fayetteville Public Utilities makes a determination that the goods or services are necessary to perform its functions and that, absent such an exemption, the political subdivision will be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

This form must be completed and accompany the bid documents.

AFFIDAVIT REGARDING NON-BOYCOTT OF ISRAEL

In compliance with the Contractor Affidavit Regarding Non-Boycott of Israel (State of Tennessee 2022, Public Chapter No. 775, the Act), which became effective on July 1, 2022, certification is required of all bidders on contracts over $250,000 or greater or when the contractor has 10 or more employees.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party hereto certifies that it is not currently engaged in, and covenants that it will not, for the duration of the Contract, engage in a Boycott of Israel as that term is defined in Tenn. Code Ann §12-4-127.

I affirm, under the penalties of perjury, this statement to be true and correct.

Date	Signature of Bidder
	Company

SECTION 00 5100

NOTICE OF AWARD

To: _____

_____

_____

Project Description: The site of the proposed work is the 2021 Water System Improvements Water Main Replacements in Fayetteville, Tennessee. The project consists of construction of water mains and bridge hanger replacements and associated surface restoration and traffic control for a complete project as shown or specified in the Contract Documents.

The Owner has considered the Bid submitted by you for the above described work in response to its Advertisement for Bids dated _____ , 20 ___ , and Information for Bidders.

You are hereby notified that your bid has been accepted for items in the amount of

$ _____.

You are required by the Information for Bidders to execute the Contract and furnish the required Contractor's Performance Bond, Payment Bond and certificates of insurance within ten calendar days from the date of this notice to you.

If you fail to execute said Contract and to furnish said bonds within ten 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 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 _____ , 20 ____ .

By_____

Name_____

Title_____

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged by_____

_____, this the _____day of _____, 20___.

By_____

Name_____

Title_____

SECTION 00 5200

CONTRACT

THIS CONTRACT, made this _____ day of _____, 20_____by and between Fayetteville Public Utilities, Fayetteville, Tennessee, hereinafter called "Owner" and _____ _____ doing business as a_____hereinafter called "Contractor"

(Corporation, Individual, or Partnership)

WITNESSETH: That for and in consideration of the payments and agreements hereafter mentioned:

1. The Contractor will commence and complete the 2021 Water System Improvements Water Main Replacements.
2. The Contractor will furnish all of the material, supplies, tools. equipment, labor and other services necessary for the completion of the work described herein.
3. The Contractor will commence the work required by the Contract Documents within 10 calendar days after the contract start date of the written Notice to Proceed and will complete the work within 1,280 consecutive calendar days unless the periods of completion are extended otherwise by the Contract Documents. The Contractor further agrees to pay as liquidated damages, the sum of $1,000 for each consecutive calendar day in default thereafter as hereinafter provided in the General Conditions.
4. Contractor agrees to perform all of the Work described in the Contract Documents and comply with the terms therein for the sum of $_____or as shown in the Bid Schedule.
5. The term "Contract Documents" means and includes the following:

    a. Advertisements for Bids
    b. Information for Bidders
    c. Bid
    d. Bid Bond
    e. Contract
    f. General Conditions
    g. Supplemental General Conditions
    h. Payment Bond
    i. Performance Bond

j. Notice of Award

k. Notice to Proceed

l. Change Order(s)

m. Drawings prepared by FOXPE LLC, number G1.0 through C45.0

n. Specifications prepared or issued by FOXPE LLC, dated June 2024

o. Addenda:

No. _____, dated _____, 20____

No. _____, dated _____, 20____

No. _____, dated _____, 20____

6. The Owner will pay to the Contractor in the manner and at such times as set forth in the General Conditions and Supplemental General Conditions such amounts as required by the Contract Documents.

7. This Contract shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Contract in six (6) copies each of which shall be deemed an original on the date first above written.

OWNER:
Fayetteville Public Utilities

By _____

Name _____

Title _____

WITNESS:

_____

Name _____

Title _____
(Please Print or Type)

(SEAL)

CONTRACTOR:

_____

By _____

Name_____

Title_____
(Please Type)

ATTEST:

_____

Name _____

Title _____ (SEAL)
(Please Type)

Note: Attest for a Corporation must be by the corporate secretary; for a partnership by another partner; for an individual by a Notary.

SECTION 00 5500

NOTICE TO PROCEED

To: _____

_____

_____

Project Description: The site of the proposed work is the Fayetteville Public Utilities in Fayetteville, Tennessee. The project consists of the 2021 Water System Improvements Water Main Replacements.

You are hereby notified to commence work in accordance with the Contract dated _____ _____, 20 ___ , on or before _____ ____ , 20 ___ , and you are to complete the work within 1,280 consecutive calendar days thereafter. The date of completion of all work is therefore _____ ____, 20 __ .

Dated this _____ day of _____, 20 ___.

Fayetteville Public Utilities

By _____

Name _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by _____

_____, this the _____ day of _____, 20 _____.

By _____

Name _____

Title _____

SECTION 00 6113.13

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that _____

_____
(Name and Address of Contractor)
_____ of the State of _____
(Corporation, Partnership, or Individual)
the "Principal," and _____

_____the "Surety,"
(Name and Address of Surety)

are held and firmly bound unto the Fayetteville Public Utilities, the "Owner," existing under and by virtue of the laws of the State of Tennessee, in the sum of _____
_____($)
in lawful money of the United States, for the payment of which sum in lawful money of the United States well and truly to be made we do hereby bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally.

The condition of this obligation is such that whereas Principal has entered into a certain Contract with the Owner, dated as of the _____ day of _____ , 20 __ , which is by reference incorporated in and made a part hereof as fully as if copied here verbatim, for the following work: 2021 Water System Improvements Water Main Replacements.

NOW, THEREFORE, if the Principal shall in all respects comply with and perform all the terms and conditions of the Contract (which includes the Drawings, Specifications, and Contract Documents) and such alterations as may be made in said contract as the documents therein provide for, during the original term thereof and any extensions thereof which may be granted by the Owner, with or without notice to Surety, and during the one-year warranty period, and if Principal shall satisfy all claims and demands and shall indemnify and save harmless the Owner against and from all costs, expenses, damages, injury, or conduct, want of care, skill, negligence, or default, including compliance with performance guarantees and patent infringement by the Principal, then this obligation shall be void; otherwise Principal and Surety jointly and severally agree to pay to Owner any difference between the sum to which the Principal would be entitled on completion of the contract and that which the Owner may be obliged to pay for the completion of the work by contract or otherwise, together with any damages, direct or indirect, or consequential, which Owner may sustain on account of such work, or on account of the failure of the Principal to keep and execute all provisions of the Contract.

Principal and Surety further bind themselves, their heirs, executors, administrators, and assigns, jointly and severally, that if the Principal shall keep and perform its agreement to repair or replace defective work or equipment during the warranty period of one (1) year as provided, then this paragraph shall be void; but if default shall be made by Principal in the performance of its contract to so repair or replace said work, then this paragraph shall be in effect and Owner shall have and recover from Principal and its Surety damages for all defective conditions arising by reason of defective materials, work, or labor performed by or on the account of Principal and

it is further understood and agreed that this obligation shall be a continuing one against the Principal and Surety hereon, and that successive recoveries may be had hereon for successive breaches until the full amount shall have been exhausted; and it is further understood that the obligation therein to maintain said work shall continue throughout said maintenance period, and the same shall not be changed, diminished, or in any manner affected from any cause during said time; and to fully save and hold the Owner harmless for any damages it may be caused to pay on account of injury to person, loss of life or damage to property.

And the Surety, for value received, hereby stipulates and agrees that the obligations of the Surety and this Bond shall in no way be impaired or affected by any extension of time, modification, omission, addition, or change in or to the contract, the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provision thereof, or by any assignment subletting or other transfer thereof, or of any part thereof, of any work to be performed, or of any moneys due to become due thereunder; and the said Surety does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts, and transfer, and hereby stipulates and agrees that any and all things done and omitted to be done by and in relation to executors, administrators, successors, assignees, subcontractors, and other transferees shall have the same effect as to said Surety as though done or omitted to be done by and in relation to the Principal.

IN WITNESS WHEREOF, the Principal and Surety have executed this Bond by causing their respective names to be hereunto subscribed and their seals to be hereunto affixed by their duly authorized officers, on this the _____ day of _____ , 20 __ .

CONTRACTOR - PRINCIPAL:

_____

By _____

Name _____
(Please Print or Type)

Title _____

ATTEST:

_____

Name _____
(Please Print or Type)

Title _____ (SEAL)

Note: Attest for a corporation must be by the corporate secretary; for a partnership by another partner; for an individual by a Notary.

SURETY:

_____

By _____

Name _____
(Please Print or Type)

(Attach Power of Attorney)

WITNESS:

_____

Name _____
(Please Print or Type)

Title _____ (SEAL)

Note: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

SECTION 00 6113.16

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that_____
(Name and Address of Contractor)

_____

_____of the State of _____
(A Corporation, a partnership, or Individual)
the "Principal," and _____
(Name and Address of Surety)
_____the "Surety,"

are held and firmly bound unto the Fayetteville Public Utilities, the "Owner," existing under and by virtue of the laws of the State of Tennessee, in the sum of _____

_____ ($ _____)

in lawful money of the United States, for the payment of which sum in lawful money of the United States well and truly to be made we do hereby bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally.

The condition of this obligation is such that whereas Principal has entered into a certain Contract with the Owner, dated as of the _____ day of _____ , 20 __ , which is by reference incorporated in and made a part hereof as fully as if copied here verbatim, for the following work: 2021 Water System Improvements Water Main Replacements.

NOW, THEREFORE, if the Principal shall fully pay for all the labor and materials used by said Principal or any immediate or remote subcontractor or furnisher of labor or materials under him in the performance of the work in lawful money of the United States as the same shall become due, including all amounts due for materials, lubricants, oil, gasoline, electricity, coal and coke, repairs on machinery, equipment, and tools, consumed or used in connection with performance of the work and all insurance premiums and other charges incurred under said contract, then this obligation shall be void; otherwise to remain in full force and effect.

Principal and Surety further bind themselves, their heirs, executors, administrators, and assigns, jointly and severally, that they shall promptly make payments of all taxes, licenses, assessments, contributions, penalties, and interest thereon, when, and if, the same may be lawfully due the State of Tennessee, or any County, Municipality, or political subdivision thereof by reason of and directly connected with the performance of the Contract, or any part thereof.

And the Surety, for value received, hereby stipulates and agrees that the obligations of the Surety and this Bond shall in no way be impaired or affected by any extension of time, modification, omission, addition, or change in or to the contract, the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provision thereof, or by any assignment subletting or other transfer thereof, or of any part thereof, of any work to be performed, or of any moneys due to become due thereunder; and the said Surety does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts, and transfer, and hereby

stipulates and agrees that any and all things done and omitted to be done by and in relation to executors, administrators, successors, assignees, subcontractors, and other transferees shall have the same effect as to said Surety as though done or omitted to be done by and in relation to the Principal.

IN WITNESS WHEREOF, the Principal and Surety have executed this Bond by causing their respective names to be hereunto subscribed and their seals to be hereunto affixed by their duly authorized officers, on this the _____ day of _____ , 20 ___ .

CONTRACTOR - PRINCIPAL:

_____

By _____

Name _____
(Please Print or Type)

Title _____

ATTEST:

_____

Name _____
(Please Print or Type)

Title _____ (SEAL)

Note: Attest for a corporation must be by the corporate secretary; for a partnership by another partner; for an individual by a Notary.

SURETY:

_____

By _____

Name _____
(Please Print or Type)

Title _____
(Attach Power or Attorney)

WITNESS:

_____

Name _____

Title_____ (SEAL)

Note: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

SECTION 00 6363

CHANGE ORDER

Order No._____

Date: _____

Agreement Date: _____

NAME OF PROJECT: 2021 Water System Improvements Water Main Replacements
OWNER: Fayetteville Public Utilities
CONTRACTOR: _____

The following changes are hereby made to the Contract Documents:

Change to Contract Price

Original Contract Price	$_____
Current Contract Price adjusted by previous Change Order	$_____
The Contract Price due to this Change Order will be increased/decreased by:	$ _____
The new Contract Price including this Change Order will be	$ _____

Change to Contract Time

The Contract Time will be increased/decreased by _____ calendar days.

The date for completion of all work will be _____ (date).

Justification

_____

_____

Approvals Required

To be effective this Order must be approved by the Federal agency if it changes the scope or objective of the Project, or as may otherwise be required by the Supplemental General Conditions.

Accepted by: _____ (CONTRACTOR)

Recommended by: _____ FOXPE LLC

Ordered by: _____ Fayetteville Public Utilities

U.S. Environmental Protection Agency

CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILTITY MATTERS

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement 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 statues or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and

(d) 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.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

_____

Typed Name & Title of Authorized Representative

_____

Signature of Authorized Representative Date

____ I am unable to certify to the above statements. My explanation is attached.

CERTIFICATION BY PROPOSED PRIME OR SUBCONTRACTOR REGARDING EQUAL EMPLOYMENT OPPORTUNITY

_____

Name of Prime Contractor **Project Number**

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246, Part II, Section 203 (b), 30 F.R. 12319-25). Any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicated that the prime or subcontractor has not filed a compliance report due under applicable instruction, such contractor shall be required to submit a compliance report.

CONTRACTOR'S CERTIFICATION

Contractor's Name: _____

Address: _____

_____

_____

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause. Yes □ No □

2. Compliance Reports were required to be filed in connection with such contract or subcontract. Yes □ No □

   If yes, state what reports were filed and with what agency.

   _____

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100. Yes □ No □

4. If answer to Item 3 is NO, please explain in detail on reverse side of this certification.

Certification - The information above is true and complete to the best of my knowledge and belief. (A willfully false statement is punishable by law-U.S. Code, Title 18, Section 1001.)

_____

Name and title of signer (Please type)

_____ _____

Signature **Date**

Tenn. Code Ann. § 66-34-103

Copy Citation

Current through the 2021 Regular and First, Second, and Third Extraordinary Sessions of the 112th General Assembly.

66-34-103. Withholding of **retainage** — Violations — Penalties.

(a) All construction contracts on any project in this state, both public and private, may provide for the withholding of **retainage**; provided, however, that the **retainage** amount may not exceed five percent (5%) of the amount of the contract.

(b) The owner, whether public or private, shall release and pay all retainages for work completed pursuant to the terms of any contract to the prime contractor within ninety (90) days after completion of the work or within ninety (90) days after substantial completion of the project for work completed, whichever occurs first. As used in this subsection (b), "work completed" means the completion of the scope of the work and all terms and conditions covered by the contract under which the **retainage** is being held. The prime contractor shall pay all retainages due any remote contractor within ten (10) days after receipt of the retainages from the owner. Any remote contractor receiving the **retainage** from the prime contractor shall pay to any lower-tier remote contractor all retainages due the lower-tier remote contractor within ten (10) days after receipt of the retainages.

(c) Any default in the making of the payments is subject to those remedies provided in this part.

(d) If an owner or prime contractor withholds **retainage** that is for the use and benefit of the prime contractor or its remote contractors pursuant to § 66-34-104(a) and (b), then neither the prime contractor nor any of its remote contractors are required to deposit additional retained funds into an escrow account in accordance with § 66-34-104(a) and (b).

(e)

(1) It is an offense for a person, firm, or corporation to fail to comply with subsection (a) or (b) or § 66-34-104(a).

(2)

(A) A violation of this subsection (e) is a Class A misdemeanor, subject to a fine only of three thousand dollars ($3,000).

(B) Each day a person, firm, or corporation fails to comply with subsection (a) or (b) or § 66-34-104(a) is a separate violation of this subsection (e).

(C) Until the violation of this subsection (e) is remediated by compliance, the punishment for each violation is consecutive to all other violations.

(3) In addition to the fine imposed pursuant to subdivisions (e)(2)(A) and (B), the court shall order restitution be made to the owner of the retained funds. In determining the appropriate amount of restitution, the formula stated in § 40-35-304 must be used.

(4) This subsection (e) does not apply to the state, any department, board, or agency thereof, including the University of Tennessee, all counties and municipalities, and all departments, boards, or agencies thereof, including all school and education boards, and any other subdivision of the state.

History

Acts 2007, ch. 201, § 3; 2008, ch. 804, § 3; 2012, ch. 609, § 1; 2020, ch. 749, § 16.

Content Type: Statutes and Legislation

Terms: retainage

Narrow By: custom: custom Sources: TN - Tennessee Code Annotated

Date and Time: Jan 04, 2022 01:13:07 p.m. EST

Tenn. Code Ann. § 66-34-104

Copy Citation

Current through the 2021 Regular and First, Second, and Third Extraordinary Sessions of the 112th General Assembly.

66-34-104. Retention of portion of contract price in escrow — Applicability — Mandatory compliance.

(a) Whenever, in any contract for the improvement of real property, a certain amount or percentage of the contract price is retained, that retained amount must be deposited in a separate, interest-bearing, escrow account with a third party which must be established upon the withholding of any **retainage**.

(b) As of the time of the withholding of the retained funds, the funds become the sole and separate property of the prime contractor or remote contractor to whom they are owed, subject to the rights of the person withholding the **retainage** in the event the prime contractor or remote contractor otherwise entitled to the funds defaults on or does not complete its contract.

(c) If the party withholding the retained funds fails to deposit the funds into an escrow account as provided in this section, then the party shall pay the owner of the retained funds an additional three hundred dollars ($300) per day as damages, not as a penalty, for each and every day that the retained funds are not deposited into an escrow account. Damages accrue from the date retained funds were first withheld and continue to accrue until placed into a separate, interest-bearing escrow account or otherwise paid.

(d) The party with the responsibility for depositing the retained amount in a separate, interest-bearing escrow account with a third party has the affirmative duty to provide written notice that the party has complied with this section to any prime contractor upon withholding the amount of retained funds from each and every application for payment, including:

(1) Identification of the name of the financial institution with which the escrow account has been established;

(2) Account number; and

(3) Amount of retained funds that are deposited in the escrow account with the third party.

(e) Upon satisfactory completion of the contract, to be evidenced by a written release by the owner, prime contractor, or remote contractor owing the **retainage**, all funds accumulated in the escrow account together with all interest on the account must be paid immediately to the prime contractor or remote contractor to whom the funds and interest are owed.

(f) If the owner, prime contractor, or remote contractor, as applicable, fails or refuses to execute the release provided for in subsection (e), then the prime contractor or remote contractor, as applicable, may seek equitable relief, including injunctive relief, as provided in § 66-34-602, against the owner, prime contractor, or remote contractor. Relief may not be sought against the person holding the **retainage** as an escrow agent, and that person bears no liability for the nonpayment of the **retainage**; however, a court may issue an order to the person holding **retainage** to pay any sums held in trust pursuant to § 66-34-205. The person paying the sums pursuant to a court order bears no liability to the owner, prime contractor, or remote contractor for the payment. All other claims, demands, disputes, controversies, and differences that may arise between the owner, prime contractor, or prime contractors, and remote contractors may be, upon written agreement of all parties concerned, settled by arbitration conducted pursuant to the Uniform Arbitration Act, compiled in title 29, chapter 5, part 3, or the Federal Arbitration Act (9 U.S.C. § 1 et seq.), as may be applicable.

(g) Subsections (c), (d), and (j) do not apply to the state and any department, board, or agency thereof, including the University of Tennessee; counties and municipalities, and all departments, boards, or agencies thereof, including all school and education boards; and any other subdivision of the state.

(h) This section applies to all prime contracts and all subcontracts thereunder for the improvement of real property when the contract amount of the prime contract is five hundred thousand dollars ($500,000) or greater, notwithstanding the amount of the subcontracts.

(i) Compliance with this section is mandatory, and shall not be waived by contract.

(j) Failure to deposit the retained funds into an escrow account as provided in this section, within seven (7) days of receipt of written notice regarding the failure, is a Class A misdemeanor.

History

Acts 1975, ch. 345, §§ 1-4; T.C.A., §§ 64-1148 — 64-1151; Acts 1985, ch. 340, §§ 1, 2; 1986, ch. 551, § 9; 2007, ch. 189, § 43; 2007, ch. 201, §§ 1, 2; T.C.A. § 66-11-144; Acts 2008, ch. 804, §§ 1, 2; 2010, ch. 875, §§ 1, 2; 2012, ch. 609, §§ 2-5; 2020, ch. 749, § 17.

Content Type: Statutes and Legislation

Terms: retainage

Narrow By: custom: custom Sources: TN - Tennessee Code Annotated

Date and Time: Jan 04, 2022 01:14:09 p.m. EST

Print

Tenn. Code Ann. § 66-34-203

Copy Citation

Current through the 2021 Regular and First, Second, and Third Extraordinary Sessions of the 112th General Assembly.

66-34-203. Withholding of payment or retainage by owner.

This chapter does not prevent the owner from reasonably withholding payment or a portion of a payment to the prime contractor, as long as the withholding is in accordance with the written contract between the owner and the prime contractor. The owner may also withhold a reasonable amount of retainage as specified in the written contract between the owner and the prime contractor, as long as the retainage amount does not exceed five percent (5%) of the amount of the contract.

History

Acts 1991, ch. 45, § 1; 2007, ch. 201, § 4; 2020, ch. 749, § 20.

Content Type:

Terms:

Narrow By: -None-

Date and Time: Jan 04, 2022 01:15:43 p.m. EST

Print

Disadvantaged Business Enterprise (DBE) Requirements
for
State Revolving Fund Loans Awarded after May 27, 2008

GUIDANCE DOCUMENT

Items included in the Guidance Document:

- **General Contract Administration Provisions Table**
- **Six Good Faith Efforts, Purpose and Definitions Table**
- **List of DBE Forms for Loans Awarded After May 27, 2008**

GENERAL CONTRACT ADMINISTRATION PROVISIONS—www.epa.gov			
Requirement	**Circumstance**	**Responsible Party:**	**Submitted To:**
A **Loan Recipient** must be notified in writing by its **Prime Contractor** prior to any termination of a **DBE Subcontractor** for convenience by the **Prime Contractor**.	Termination of a **DBE Subcontractor** for convenience by the **Prime Contractor**	**Prime Contractor**	**Loan Recipient**
A **Loan Recipient** must require its **Prime Contractor** to pay its **Subcontractor** for satisfactory performance no more than 30 days from the **Prime Contractor's** receipt of payment from the **Loan Recipient**.	**DBE Subcontractor's** satisfactory performance	**Loan Recipient** **Prime Contractor**	**DBE Subcontractor**
If a **DBE Subcontractor** fails to complete work under the subcontract for any reason, the **Loan Recipient** must require the **Prime Contractor** to employ the **Six Good Faith Efforts** (see Table below) if soliciting a replacement **Subcontractor**.	**DBE Subcontractor** fails to complete work under the subcontract for any reason and will be replaced	**Loan Recipient** **Prime Contractor**	**SRF Loan Program**
A **Loan Recipient** must require its **Prime Contractor** to employ the **Six Good Faith Efforts** (see Table below) even if the **Prime Contractor** has achieved its fair share objectives.	Employment of the **Six Good Faith Efforts**	**Loan Recipient** **Prime Contractor**	**SRF Loan Program**
Inclusion, completion, and/or transmittal of required **DBE Forms** as instructed below: **Loan Recipient Requirements** **Bidder Requirements** **DBE Participation/Certification Summary** **Advertisement for Bids and Publisher's Affidavit** 10 Certified Letters and Return Receipts to certified **DBEs** **Good Faith Letter** **Prime Contractor's Notice Letter** for EPA Form 6100-2 **EPA Form 6100-2** **EPA Form 6100-3** **EPA Form 6100-4**	---	**Loan Recipient** **Prime Contractor** **DBE Subcontractor**	See instructions below and on Forms

SIX GOOD FAITH EFFORTS—www.epa.gov	
PURPOSE	The Good Faith Efforts are required methods employed by all EPA financial assistance agreement recipients to ensure that all disadvantaged business enterprises (DBEs) have the opportunity to compete for procurements funded by EPA financial assistance dollars.
Definitions	
EFFORT 1	Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local and Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
EFFORT 2	Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
EFFORT 3	Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
EFFORT 4	Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
EFFORT 5	Use the services and assistance of the Small Business Administration (SBA) and the Minority Business Development Agency of the Department of Commerce.
EFFORT 6	If the **Prime Contractor** awards subcontracts, require the **Prime Contractor** to take the steps in the Good Faith Efforts 1 through 5 (above) and in the General Contract Administration Provisions (above).

Disadvantaged Business Enterprise (DBE) Requirements
for
State Revolving Fund Loans Awarded after May 27, 2008

GUIDANCE DOCUMENT

DBE FORMS FOR SRF LOANS AWARDED AFTER MAY 27, 2008—www.epa.gov				
Form	**Requirement**	**Provided By:**	**Completed By:**	**Submitted To:**
List of certified **DBE** contractors, subcontractors, supplies vendors, equipment vendors, and service providers	Keep list with project files/information for duration of project	**SRF Loan Program**	---	---
Loan Recipient's Requirements regarding DBEs	Include this information sheet in the Information for Bidders section of bid documents	**SRF Loan Program**	---	To be included in the contract specifications book
Bidder's Requirements regarding DBEs	Include this information sheet in the Information for Bidders section of bid documents	**SRF Loan Program**	---	To be included in the contract specifications book
Loan Recipient's Certification and Summary of **DBE** Participation	To be completed and submitted with the Authority-to-Award/ Bid Package. The SRF Loan Program must be notified of any changes, additions, or deletions to the contract during construction.	**SRF Loan Program**	**Loan Recipient**	**SRF Loan Program**
Advertisement for Bids and **Publisher's Affidavit**	**DBE** solicitation information must be included in the actual advertisement for bids. A Publisher's Affidavit (signed, original, notarized certification of publication) denoting the actual published date of the advertisement will be submitted to the SRF Loan Program as part of the Authority-to-Award/Bid Package documents.	An example advertise-ment with appropriate **DBE** language is supplied to the Loan Recipient by the **SRF Loan Program**	**Loan Recipient**	A copy of the actual advertisement and a Publisher's Affidavit will be submitted to the **SRF Loan Program** as part of the Authority-to-Award/Bid Package documents
10 Certified Letters and **Return Receipts** to potential certified DBE subcontractors, supplies vendors, service providers, and/or equipment vendors	These certified letters and copies of the corresponding return mail receipts are submitted with the completed **Loan Recipient's DBE Participation and Certification Summary Form.**	**Prime Contractor and/or Loan Recipient**	**Loan Recipient**	SRF Loan Program as part of the Authority-to-Award/Bid Package documents
Good Faith Letter	If **no DBE** participation is obtained for the contract, the "Good Faith" letter must be written.	Form letter provided by the **SRF Loan Program**	**Loan Recipient**	**SRF Loan Program**

Disadvantaged Business Enterprise (DBE) Requirements
for
State Revolving Fund Loans Awarded after May 27, 2008

GUIDANCE DOCUMENT

DBE FORMS FOR SRF LOANS AWARDED AFTER MAY 27, 2008—www.epa.gov				
Form	**Requirement**	**Provided By:**	**Completed By:**	**Submitted To:**
Prime Contractor's Notice Letter for EPA Form 6100-2	The **Prime Contractor** must submit the Notice Letter to verify that Form 6100-2 was supplied to all **DBE Subcontractors** participating in the contract.	**SRF Loan Program**	**Prime Contractor**	**Loan Recipient** for inclusion in the Authority-to-Award / Bid / Proposal package
EPA Form **6100-2**	**Loan Recipient** required to have **Prime Contractors** provide form to **DBE Subcontractors** This form gives a **DBE Subcontractor** the opportunity to describe the work the **DBE Subcontractor** received from the **Prime Contractor**, how much the **DBE Subcontractor** was paid, and any other concerns the **DBE Subcontractor** might have.	**Loan Recipient** **Prime Contractors**	**DBE Subcontractors**	**EPA DBE Coordinator** at the conclusion of **DBE Subcontractor** participation in the project (Address on Form)
EPA Form **6100-3**	**Loan Recipient** required to have **Prime Contractors** provide form to **DBE Subcontractors** This form captures an intended **Subcontractor's** description of work to be performed for the **Prime Contractor** and the price of the work submitted to the **Prime Contractor**.	**Loan Recipient**	**Prime Contractors** **DBE Subcontractors**	**Loan Recipient** for inclusion in the Authority-to-Award / Bid / Proposal package
EPA Form **6100-4**	**Loan Recipient** required to have **Prime Contractors** complete the form This form captures the **Prime Contractor's** intended use of an identified **DBE Subcontractor** and the estimated dollar amount of the subcontract.	**Loan Recipient**	**Prime Contractors**	**Loan Recipient** for inclusion in the Authority-to-Award / Bid / Proposal package

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's Requirements for Solicitation and Documentation
of
Disadvantaged Business Enterprises (DBE) Participation
on State Revolving Fund (SRF) Projects

A goal-oriented system has been established to promote **Disadvantaged Business Enterprises (DBE)** participation by providing construction services, professional services, supplies, and/or equipment on SRF Loan-funded water and wastewater projects. It is the Loan Recipient's responsibility to ensure that Bidders make a good faith effort during the bidding phase to solicit for subcontractor participation by **DBE** subcontractors, service professionals, suppliers, and/or equipment vendors on all SRF-funded projects.

DEFINITIONS

DBE - Minority Business Enterprise (MBE): A qualified socially and economically disadvantaged minority-owned business certified by any State or Federal agency, such as the Tennessee Department of Transportation, U.S. EPA's Office of Small and Disadvantaged Business Utilization, or the U.S. Small Business Administration.

DBE - Women's Business Enterprise (WBE): A qualified independent business at least 51% owned by a woman or women and certified by any State or Federal agency such as the Tennessee Department of Transportation, U.S. EPA's Office of Small and Disadvantaged Business Utilization, or the U.S. Small Business Administration.

Fair-Share Goals: The MBE fair-share goal is 2.6% for construction and 5.2% for supplies, services, and equipment. The WBE fair share goal is 2.6% for construction and 5.2% for supplies, services, and equipment.

INSTRUCTIONS TO LOAN RECIPIENTS

Pre-Bid Requirements

Loan Recipients must include the SRF Loan Program's "Bidder's Requirements for Solicitation and Documentation of **DBE** Participation on SRF-Funded Projects" information sheet in the Information for Bidders section of bid documents. Loan Recipients must also ensure that Bidders take the following affirmative steps that constitute a good-faith effort to secure **DBE** participation:

- Include certified **DBEs** on solicitation lists whenever they are potential sources,
- Divide construction contracts into subcontracts, when economically feasible, to encourage maximum participation by **DBEs**,
- Establish delivery schedules, where requirements of the work permit, that encourage participation by **DBEs**,
- Use the services and assistance of the Office of Minority Business Enterprises of the U.S. Department of Commerce, or the U.S. EPA's Office of Small and Disadvantaged Business Utilization. For assistance or information, Bidders may be referred to:

Tennessee Department of Transportation
Small Business Development
505 Deaderick Street, Suite 1800
Nashville, TN 37243-0347
(615) 741-3681
http://www.tdot.state.tn.us/construction/DBE%20list/dbe_list.pdf

Mr. W. Clinton Smith, District Director
U.S. Small Business Administration
50 Vantage Way, Suite 201
Nashville, TN 37228
(615) 736-5881
http://pro-net.sba.gov/

Ms. Jeanette L. Brown, Director
U.S. Environmental Protection Agency
Office of Small and Disadvantaged Business Utilization
1200 Pennsylvania Avenue, N.W. (1230A)
Washington, D.C. 20460
(202) 564-4100 http://www.epa.gov/osdbu/

POST-BID REQUIREMENTS

Whether or not DBE participation was obtained, the Loan Recipient must complete the **"Loan Recipient's Certification and Summary"** form for every contract detailing whether or not **DBE** participation of subcontractors, professional service providers, suppliers, and/or equipment vendors was obtained. The **"Loan Recipient's Certification and Summary"** form must be submitted to the Administrative Section of the SRF Loan Program prior to the award of any construction contract(s) along with the newspaper **advertisement**, a **Publisher's Affidavit**, and **return receipts** and copies of the **certified letters** that were mailed to a minimum of 10 qualified **DBEs**.

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's Requirements for Solicitation and Documentation
of
Disadvantaged Business Enterprises (DBE) Participation
on State Revolving Fund (SRF) Projects

If DBE participation was obtained, the **"Loan Recipient's Certification and Summary"** form must clearly indicate whether **DBE** participation was obtained from either a subcontractor, professional service provider, supplier, and/or equipment vendor participation; identify the **DBE** firm(s) to be used; and certify that the **DBE** firm(s) is a certified **DBE**. In addition to the **"Loan Recipient's Certification and Summary"** form, the Loan Recipient must include in the submittal to the SRF Loan Program, copies of the **Prime Contractor's Notice Letter for EPA Form 6100-2**, **EPA Form 6100-3**, and **EPA Form 6100-4**.

If no DBE participation was obtained, the Loan Recipient must submit a separate letter documenting that a "**good-faith effort**" was made to secure **DBE** participation. This letter is submitted along with the above-mentioned **"Loan Recipient's Certification and Summary"** form, newspaper **advertisement**, **Publisher's Affidavit**, **return receipts,** and copies of the **certified letters.** The SRF Loan Program provides a template to the Loan Recipient for this letter.

This documentation is the only form of documentation that will be accepted by the SRF Loan Program. Failure to provide the required documentation may result in a delay of the SRF Loan Program's approval of the Authority-to-Award/Bid Package, thereby delaying the award of the construction contract(s).

The Loan Recipient should direct all inquiries regarding the SRF Loan Program's requirements for **DBE** solicitation and documentation to ask.SRF@tn.gov.

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's Good Faith Effort Letter for DBE Participation

(Insert on Loan Recipient's Letterhead)

(Date)

Mr. Adeniyi Bakare, Director
State Revolving Fund Loan Program
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 12th Floor
Nashville, TN 37243

RE: Good Faith Effort – Disadvantaged Business Enterprises (DBE) Participation
City/County/UD/Authority (??? County), Tennessee
Loan No. SRF/CWA/CGA/DWF/DWA/DGA 20??-???
Contract No. ????, Contract Description

Dear Mr. Bakare:

This letter is to inform you that the City/County/UD/Authority did, in good faith, encourage Disadvantaged Business Enterprises (DBE) to participate in the above referenced project by placing a special notice to Disadvantaged Business Enterprises (DBE) firms in both the invitation to bid and the public advertisement for bids. The City/County/UD/Authority, through the consulting engineer, (A/E Consulting Firm), sent a copy of the invitation to bid and a set of contract documents to the Office of Minority Business Enterprises. The City/County/UD/Authority also sent certified letters, return receipts requested, to a minimum of ten (10) DBE potential subcontractors, professional service providers, suppliers, and equipment vendors requesting DBE participation through their office, A/E, or their contractor. The consulting engineer on this project is (Name), (Firm).

We have not received any DBE participation; we believe we have done a good faith effort.

If you have any questions, please don't hesitate to contact us.

Sincerely,

(Authorized Representative Name)
(Authorized Representative Title)

cc: (A/E Consultant Name and Firm)

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's Certification and Summary
of
Disadvantaged Business Enterprises (DBE) Participation

SRF Loan Recipient: _____ SRF Loan No. _____

INSTRUCTIONS TO SRF LOAN RECIPIENTS

The SRF Loan Recipient's Authorized Representative must clearly indicate the Contractor's **Disadvantaged Business Enterprises (DBE)** participation results by placing a check in the appropriate box below. The remainder of the form must be completed if **DBE (Minority Business Enterprise-MBE or Women's Business Enterprise –WBE)** participation was obtained. The form must be signed and dated and returned to Adeniyi Bakare, SRF Director.

The **completed Form** must be accompanied by **copies of the certified letters** sent from the selected Bidder to a minimum of 10 qualified DBE potential subcontractors, supplies vendor, services provider, and/or equipment vendors, and **copies of the corresponding return mail receipts**.

The SRF Loan Program must be notified of any changes, additions, or deletions to the contract during construction.

☐ **No, Disadvantaged Business Enterprises (DBE) participation was not obtained for this SRF-funded project.** I certify that a good-faith effort was made to solicit **DBE** participation in accordance with the four affirmative steps outlined in the SRF Loan Program's Requirements for Solicitation and Documentation of **DBE** Participation on SRF-Funded Projects. A letter documenting that a good–faith effort was made to secure **DBE** participation has been provided to the SRF Loan Program.

OR

☐ **Yes, Disadvantaged Business Enterprises (DBE) participation was obtained for this SRF-funded project.** I certify that the **DBE** firms participating in this SRF-funded project are qualified in accordance with the SRF Loan Program's Requirements for Solicitation and Documentation of **DBE** Participation on SRF-Funded Projects. Below is a listing of firms to be utilized and the amounts of their respective participation.

1. **DBE type (circle one): Subcontractor, Supplies Vendor, Service Provider, Equipment Vendor**
DBE Name: _____
Address: _____
Subcontract Amount: $ _____ **MBE** ___ **WBE** ___ **% of Contract $:** _____ **%**

2. **DBE type (circle one): Subcontractor, Supplies Vendor, Service Provider, Equipment Vendor**
DBE Name: _____
Address: _____
Subcontract Amount: $ _____ **MBE** ___ **WBE** ___ **% of Contract $:** _____ **%**

3. **DBE type (circle one): Subcontractor, Supplies Vendor, Service Provider, Equipment Vendor**
DBE Name: _____
Address: _____
Subcontract Amount: $ _____ **MBE** ___ **WBE** ___ **% of Contract $:** _____ **%**

4. **DBE type (circle one): Subcontractor, Supplies Vendor, Service Provider, Equipment Vendor**
DBE Name: _____
Address: _____
Subcontract Amount: $ _____ **MBE** ___ **WBE** ___ **% of Contract $:** _____ **%**

PARTICIPATION SUMMARY

Total SRF Loan Amount: $ _____ **Total Construction Contract Amount: $** _____

Total MBE Participation: $ _____ **Total WBE Participation: $** _____

_____ _____
Signature and Title of SRF Loan Recipient's Authorized Representative Date

STATE REVOLVING FUND LOAN PROGRAM

Bidder's Requirements for Solicitation and Documentation of Disadvantaged Business Enterprises (DBE) Participation

A goal-oriented system has been established to promote **Disadvantaged Business Enterprises (DBE)** participation by providing construction services, professional services, supplies, and/or equipment on SRF Loan-funded water and wastewater projects. It is the Bidder's responsibility to make a good faith effort to secure participation by **DBE** subcontractors, professional service providers, suppliers, and/or equipment vendors.

DEFINITIONS

DBE - Minority Business Enterprise (MBE): A qualified socially and economically disadvantaged minority-owned business certified by any State or Federal agency, such as the Tennessee Department of Transportation, U.S. EPA's Office of Small and Disadvantaged Business Utilization, or the U.S. Small Business Administration.

DBE - Women's Business Enterprise (WBE): A qualified independent business at least 51% owned by a woman or women and certified by any State or Federal agency such as the Tennessee Department of Transportation, U.S. EPA's Office of Small and Disadvantaged Business Utilization, or the U.S. Small Business Administration.

Fair-Share Goals: The MBE fair-share goal is 2.6% for construction and 5.2% for supplies, services, and equipment. The WBE fair share goal is 2.6% for construction and 5.2% for supplies, services, and equipment.

INSTRUCTIONS TO BIDDERS

Pre-Bid Requirements

All Bidders must send letters by certified mail with return receipt requested to a minimum of 10 certified **DBE** subcontractors, professional service providers, suppliers, and/or equipment vendors to solicit their subcontract participation in the work. Lists of certified **DBE** firms may be obtained from various State and Federal agencies, including the following:

Tennessee Department of Transportation
Small Business Development
505 Deaderick Street, Suite 1800
Nashville, TN 37243-0347
(615) 741-3681
http://www.tdot.state.tn.us/dbedirectinternet/Vendor.aspx

Mr. W. Clinton Smith, District Director
U.S. Small Business Administration
50 Vantage Way, Suite 201
Nashville, TN 37228
(615) 736-5881
http://pro-net.sba.gov/

U.S. Environmental Protection Agency
Office of Small and Disadvantaged Business Utilization
1200 Pennsylvania Avenue, N.W. (1230A)
Washington, D.C. 20460
(202) 564-4100
http://www.epa.gov/osdbu/

Post-Bid Requirements

Whether or not DBE participation was obtained, the successful Bidder (Prime Contractor) must maintain supporting documents such as certification lists, solicitation documents, letters of intent, contracts, etc., for the duration of the project.

If DBE participation was obtained, the apparent successful Bidder must identify to the Loan Recipient all **DBE** firms to be utilized on the contract and the respective **DBE** type--subcontractors, supplies vendors, service providers, and/or equipment vendors (see "Loan Recipient's Certification and Summary" form)**.** Copies of the State's or Federal agency's **DBE** certification list(s) identifying that the **DBE** firms are certified minority or women's business enterprises must be provided to the Loan Recipient. In addition, copies of the **Prime Contractor's Notice Letter for EPA Form 6100-2**, **EPA Form 6100-3** (to be co-completed by the Prime Contractor and each DBE subcontractor**)**, and **EPA Form 6100-4** must also be provided to the Loan Recipient prior to tentative loan award. The Prime Contractor must provide **EPA Form 6100-2** to each **DBE** utilized on the contract.

If no DBE participation was obtained by the apparent successful Bidder, it remains the responsibility of the Prime Contractor to provide documentation to the Loan Recipient, prior to contract award, that a good faith effort was made to obtain **DBE** participation. Copies of the **certified letters** sent to a minimum of 10 qualified **DBE** potential subcontractors, supplies vendors, service providers, and/or equipment vendors and the corresponding **return mail receipts** are the only documentation of a good-faith effort that will be acceptable to the Loan Recipient.

*Failure to provide the required certified letters, return receipts, State or Federal agency **DBE** certification list(s), **Prime Contractor's Notice Letter for EPA Form 6100-2**, **EPA Form 6100-3**, and **EPA Form 6100-4** to the Loan Recipient may delay the contract award until the required documentation has been provided to and accepted by the Loan Recipient.*

STATE REVOLVING FUND LOAN PROGRAM

Contractor Receipt Letter – Form 6100-2

(Please Insert on Contractor Letterhead)

(Date)

Mr. Adeniyi Bakare, Director
State Revolving Fund Loan Program
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 12th Floor
Nashville, TN 37243

RE: Receipt and Distribution of EPA Form 6100-2
Disadvantaged Business Enterprise (DBE) Participation
(City/County/UD/Authority) (??? County), Tennessee
Loan No. SRF/CWA/CGA/DWF/DWA/DGA 20??-???
(Contract Name and/or Number)

Dear Mr. Bakare:

This letter is to inform you the EPA Form 6100-2 was received from the (City/County/UD/Authority) and was then given to all DBE Subcontractors as required who are going to provide either construction, services, supplies, or equipment for this project.

If you have any questions concerning this notification, please contact us at (Phone No., e-mail, etc.).

Sincerely,

(Contractors Authorized Representative)
(Title)

cc: (Consulting Engineer for the contract)
(City/County/UD/Authority's Authorized Representative)

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Participation Form

An EPA Financial Assistance Agreement Recipient must require its prime contractors to provide this form to its DBE subcontractors. This form gives a DBE[1] subcontractor[2] the opportunity to describe work received and/or report any concerns regarding the EPA-funded project (e.g., in areas such as termination by prime contractor, late payments, etc.). The DBE subcontractor can, as an option, complete and submit this form to the EPA DBE Coordinator at any time during the project period of performance.

Subcontractor Name	Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity:	

Contract Item Number	Description of Work Received from the Prime Contractor Involving Construction, Services , Equipment or Supplies	Amount Received by Prime Contractor

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Participation Form

Please use the space below to report any concerns regarding the above EPA-funded project:

Subcontractor Signature	Print Name
Title	**Date**

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractors bid or proposal package.

Subcontractor Name	Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity:	

Contract Item Number	Description of Work Submitted to the Prime Contractor Involving Construction, Services , Equipment or Supplies	Price of Work Submitted to the Prime Contractor

DBE Certified By: ___ DOT ___ SBA ___ Other: _____	Meets/ exceeds EPA certification standards? ___ YES ___ NO ___ Unknown

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Performance Form

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	**Date**

Subcontractor Signature	Print Name
Title	**Date**

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE[1] subcontractors[2] and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Issuing/Funding Entity:		

I have identified potential DBE certified subcontractors	___ YES	___ NO
If yes, please complete the table below. If no, please explain:		

Subcontractor Name/ Company Name	**Company Address/ Phone/ Email**	**Est. Dollar Amt**	**Currently DBE Certified?**

Continue on back if needed

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	**Date**

Certified Disadvantaged Business Enterprises (DBE) List

Using Governor's Diversity Business Office and State DOT and CCR DBE Directories to Find Certified WBEs and MBEs

Here are the links:

https://tn.diversitysoftware.com/FrontEnd/VendorSearchPublic.asp?TN=tn&XID=1215

www.osdbu.dot.gov/DBEProgram/StateDOTDBESites.cfm

CCR can be used to search for SBA SDBs. Since the SBA SDB certification is considered acceptable under the EPA DBE Program, firms found using the following search criteria can count toward EPA MBE/WBE fair share objectives.

Access the CCR search page at www.bpn.gov/CCRSearch/Search.aspx

http://www.epa.gov/osbp/dbe_team.htm

Appendix 5: Sample Certifications

The following information is provided as a sample letter of **step** certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx
2. Xxxx
3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

The following information is provided as a sample letter of certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the following products and/or materials shipped/provided to the subject project are in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx
2. Xxxx
3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

Appendix 4: Sample Construction Contract Language

ALL CONTRACTS MUST HAVE A CLAUSE REQUIRING COMPLIANCE WITH THE AIS REQUIREMENT. THIS IS AN EXAMPLE OF WHAT COULD BE INCLUDED IN ALL CONTRACTS IN PROJECTS THAT USE SRF FUNDS. EPA MAKES NO CLAIMS REGARDING THE LEGALITY OF THIS CLAUSE WITH RESPECT TO STATE OR LOCAL LAW:

The Contractor acknowledges to and for the benefit of the City of _____ ("Purchaser") and the _____ (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contactor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

Appendix 1: Information Checklist for Waiver Request

The purpose of this checklist is to help ensure that all appropriate and necessary information is submitted to EPA. EPA recommends that States review this checklist carefully and provide all appropriate information to EPA. This checklist is for informational purposes only and does not need to be included as part of a waiver application.

Items	✓	Notes
General • Waiver request includes the following information: — Description of the foreign and domestic construction materials — Unit of measure — Quantity — Price — Time of delivery or availability — Location of the construction project — Name and address of the proposed supplier — A detailed justification for the use of foreign construction materials • Waiver request was submitted according to the instructions in the memorandum • Assistance recipient made a good faith effort to solicit bids for domestic iron and steel products, as demonstrated by language in requests for proposals, contracts, and communications with the prime contractor		
Cost Waiver Requests • Waiver request includes the following information: — Comparison of overall cost of project with domestic iron and steel products to overall cost of project with foreign iron and steel products — Relevant excerpts from the bid documents used by the contractors to complete the comparison — Supporting documentation indicating that the contractor made a reasonable survey of the market, such as a description of the process for identifying suppliers and a list of contacted suppliers		
Availability Waiver Requests • Waiver request includes the following supporting documentation necessary to demonstrate the availability, quantity, and/or quality of the materials for which the waiver is requested: — Supplier information or pricing information from a reasonable number of domestic suppliers indicating availability/delivery date for construction materials — Documentation of the assistance recipient's efforts to find available domestic sources, such as a description of the process for identifying suppliers and a list of contacted suppliers. — Project schedule — Relevant excerpts from project plans, specifications, and permits indicating the required quantity and quality of construction materials • Waiver request includes a statement from the prime contractor and/or supplier confirming the non-availability of the domestic construction materials for which the waiver is sought • Has the State received other waiver requests for the materials described in this waiver request, for comparable projects?		

Implementation

The Act states:

Sec. 436. (a)(1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j–12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.

(2) In this section, the term ''iron and steel products'' means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

(b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the ''Administrator'') finds that—

(1) applying subsection (a) would be inconsistent with the public interest;

(2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or

(3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

(d) This section shall be applied in a manner consistent with United States obligations under international agreements.

(e) The Administrator may retain up to 0.25 percent of the funds appropriated in this Act for the Clean and Drinking Water State Revolving Funds for carrying out

the provisions described in subsection (a)(1) for management and oversight of the requirements of this section.

(f) This section does not apply with respect to a project if a State agency approves the engineering plans and specifications for the project, in that agency's capacity to approve such plans and specifications prior to a project requesting bids, prior to the date of the enactment of this Act.

The following questions and answers provide guidance for implementing and complying with the AIS requirements:

Project Coverage

1) What classes of projects are covered by the AIS requirement?

All treatment works projects funded by a CWSRF assistance agreement, and all public water system projects funded by a DWSRF assistance agreement, from the date of enactment through the end of Federal Fiscal Year 2014, are covered. The AIS requirements apply to the entirety of the project, no matter when construction begins or ends. Additionally, the AIS requirements apply to all parts of the project, no matter the source of funding.

2) Does the AIS requirement apply to nonpoint source projects or national estuary projects?

No. Congress did not include an AIS requirement for nonpoint source and national estuary projects unless the project can also be classified as a 'treatment works' as defined by section 212 of the Clean Water Act.

3) Are any projects for the construction, alteration, maintenance, or repair of a public water system or treatment works excluded from the AIS requirement?

Any project, whether a treatment works project or a public water system project, for which engineering plans and specifications were approved by the responsible state agency prior to January 17, 2014, is excluded from the AIS requirements.

4) What if the project does not have approved engineering plans and specifications but has signed an assistance agreement with a CWSRF or DWSRF program prior to January 17, 2014?

The AIS requirements do not apply to any project for which an assistance agreement was signed prior to January 17, 2014.

5) What if the project does not have approved engineering plans and specifications, but bids were advertised prior to January 17, 2014 and an assistance agreement was signed after January 17, 2014?

If the project does not require approved engineering plans and specifications, the bid advertisement date will count in lieu of the approval date for purposes of the exemption in section 436(f).

6) What if the assistance agreement that was signed prior to January 17, 2014, only funded a part of the overall project, where the remainder of the project will be funded later with another SRF loan?

If the original assistance agreement funded any construction of the project, the date of the original assistance agreement counts for purposes of the exemption. If the original assistance agreement was only for planning and design, the date of that assistance agreement will count for purposes of the exemption only if there is a written commitment or expectation on the part of the assistance recipient to fund the remainder of the project with SRF funds.

7) What if the assistance agreement that was signed prior to January 17, 2014, funded the first phase of a multi-phase project, where the remaining phases will be funded by SRF assistance in the future?

In such a case, the phases of the project will be considered a single project if all construction necessary to complete the building or work, regardless of the number of contracts or assistance agreements involved, are closely related in purpose, time and place. However, there are many situations in which major construction activities are clearly undertaken in phases that are distinct in purpose, time, or place. In the case of distinct phases, projects with engineering plans and specifications approval or assistance agreements signed prior to January 17, 2014 would be excluded from AIS requirements while those approved/signed on January 17, 2014, or later would be covered by the AIS requirements.

8) What if a project has split funding from a non-SRF source?

Many States intend to fund projects with "split" funding, from the SRF program and from State or other programs. Based on the Act language in section 436, which requires that American iron and steel products be used in any project for the construction, alteration, maintenance, or repair of a public water system or treatment works receiving SRF funding between and including January 17, 2014 and September 30, 2014, any project that is funded in whole or in part with such funds must comply with the AIS requirement. A "project" consists of all construction necessary to complete the building or work regardless of the number of contracts or assistance agreements involved so long as all contracts and assistance agreements awarded are closely related in purpose, time and place. This precludes the intentional splitting of SRF projects into separate and smaller contracts or assistance agreements to avoid AIS coverage on some portion of a larger

project, particularly where the activities are integrally and proximately related to the whole. However, there are many situations in which major construction activities are clearly undertaken in separate phases that are distinct in purpose, time, or place, in which case, separate contracts or assistance agreement for SRF and State or other funding would carry separate requirements.

9) What about refinancing?

If a project began construction, financed from a non-SRF source, prior to January 17, 2014, but is refinanced through an SRF assistance agreement executed on or after January 17, 2014 and prior to October 1, 2014, AIS requirements will apply to all construction that occurs on or after January 17, 2014, through completion of construction, unless, as is likely, engineering plans and specifications were approved by a responsible state agency prior to January 17, 2014. There is no retroactive application of the AIS requirements where a refinancing occurs for a project that has completed construction prior to January 17, 2014.

10) Do the AIS requirements apply to any other EPA programs, besides the SRF program, such as the Tribal Set-aside grants or grants to the Territories and DC?

No, the AIS requirement only applies to funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j–12)

Covered Iron and Steel Products

11) What is an iron or steel product?

For purposes of the CWSRF and DWSRF projects that must comply with the AIS requirement, an iron or steel product is one of the following made primarily of iron or steel that is permanently incorporated into the public water system or treatment works:

Lined or unlined pipes or fittings;
Manhole Covers;
Municipal Castings (defined in more detail below);
Hydrants;
Tanks;
Flanges;
Pipe clamps and restraints;
Valves;
Structural steel (defined in more detail below);
Reinforced precast concrete; and
Construction materials (defined in more detail below).

12) What does the term 'primarily iron or steel' mean?

'Primarily iron or steel' places constraints on the list of products above. For one of the listed products to be considered subject to the AIS requirements, it must be made of greater than 50% iron or steel, measured by cost. The cost should be based on the material costs.

13) Can you provide an example of how to perform a cost determination?

For example, the iron portion of a fire hydrant would likely be the bonnet, body and shoe, and the cost then would include the pouring and casting to create those components. The other material costs would include non-iron and steel internal workings of the fire hydrant (i.e., stem, coupling, valve, seals, etc). However, the assembly of the internal workings into the hydrant body would not be included in this cost calculation. If one of the listed products is not made primarily of iron or steel, United States (US) provenance is not required. An exception to this definition is reinforced precast concrete, which is addressed in a later question.

14) If a product is composed of more than 50% iron or steel, but is not listed in the above list of items, must the item be produced in the US? Alternatively, must the iron or steel in such a product be produced in the US?

The answer to both question is no. Only items on the above list must be produced in the US. Additionally, the iron or steel in a non-listed item can be sourced from outside the US.

15) What is the definition of steel?

Steel means an alloy that includes at least 50 percent iron, between .02 and 2 percent carbon, and may include other elements. Metallic elements such as chromium, nickel, molybdenum, manganese, and silicon may be added during the melting of steel for the purpose of enhancing properties such as corrosion resistance, hardness, or strength. The definition of steel covers carbon steel, alloy steel, stainless steel, tool steel and other specialty steels.

16) What does 'produced in the United States' mean?

Production in the United States of the iron or steel products used in the project requires that all manufacturing processes, including application of coatings, must take place in the United States, with the exception of metallurgical processes involving refinement of steel additives. All manufacturing processes includes processes such as melting, refining, forming, rolling, drawing, finishing, fabricating and coating. Further, if a domestic iron and steel product is taken out of the US for any part of the manufacturing process, it becomes foreign source material. However, raw materials such as iron ore, limestone and iron and steel scrap are not covered by the AIS requirement, and the

material(s), if any, being applied as a coating are similarly not covered. Non-iron or steel components of an iron and steel product may come from non-US sources. For example, for products such as valves and hydrants, the individual non-iron and steel components do not have to be of domestic origin.

17) Are the raw materials used in the production of iron or steel required to come from US sources?

No. Raw materials, such as iron ore, limestone, scrap iron, and scrap steel, can come from non-US sources.

18) If an above listed item is primarily made of iron or steel, but is only at the construction site temporarily, must such an item be produced in the US?

No. Only the above listed products made primarily of iron or steel, permanently incorporated into the project must be produced in the US. For example trench boxes, scaffolding or equipment, which are removed from the project site upon completion of the project, are not required to be made of U.S. Iron or Steel.

19) What is the definition of 'municipal castings'?

Municipal castings are cast iron or steel infrastructure products that are melted and cast. They typically provide access, protection, or housing for components incorporated into utility owned drinking water, storm water, wastewater, and surface infrastructure. They are typically made of grey or ductile iron, or steel. Examples of municipal castings are:

Access Hatches;
Ballast Screen;
Benches (Iron or Steel);
Bollards;
Cast Bases;
Cast Iron Hinged Hatches, Square and Rectangular;
Cast Iron Riser Rings;
Catch Basin Inlet;
Cleanout/Monument Boxes;
Construction Covers and Frames;
Curb and Corner Guards;
Curb Openings;
Detectable Warning Plates;
Downspout Shoes (Boot, Inlet);
Drainage Grates, Frames and Curb Inlets;
Inlets;
Junction Boxes;
Lampposts;
Manhole Covers, Rings and Frames, Risers;

Meter Boxes;
Service Boxes;
Steel Hinged Hatches, Square and Rectangular;
Steel Riser Rings;
Trash receptacles;
Tree Grates;
Tree Guards;
Trench Grates; and
Valve Boxes, Covers and Risers.

20) What is 'structural steel'?

Structural steel is rolled flanged shapes, having at least one dimension of their cross-section three inches or greater, which are used in the construction of bridges, buildings, ships, railroad rolling stock, and for numerous other constructional purposes. Such shapes are designated as wide-flange shapes, standard I-beams, channels, angles, tees and zees. Other shapes include H-piles, sheet piling, tie plates, cross ties, and those for other special purposes.

21) What is a 'construction material' for purposes of the AIS requirement?

Construction materials are those articles, materials, or supplies made primarily of iron and steel, that are permanently incorporated into the project, not including mechanical and/or electrical components, equipment and systems. Some of these products may overlap with what is also considered "structural steel". This includes, but is not limited to, the following products: wire rod, bar, angles, concrete reinforcing bar, wire, wire cloth, wire rope and cables, tubing, framing, joists, trusses, fasteners (i.e., nuts and bolts), welding rods, decking, grating, railings, stairs, access ramps, fire escapes, ladders, wall panels, dome structures, roofing, ductwork, surface drains, cable hanging systems, manhole steps, fencing and fence tubing, guardrails, doors, and stationary screens.

22) What is not considered a 'construction material' for purposes of the AIS requirement?

Mechanical and electrical components, equipment and systems are not considered construction materials. Mechanical equipment is typically that which has motorized parts and/or is powered by a motor. Electrical equipment is typically any machine powered by electricity and includes components that are part of the electrical distribution system.

The following examples (including their appurtenances necessary for their intended use and operation) are NOT considered construction materials: pumps, motors, gear reducers, drives (including variable frequency drives (VFDs)), electric/pneumatic/manual accessories used to operate valves (such as electric valve actuators), mixers, gates, motorized screens (such as traveling screens), blowers/aeration equipment, compressors, meters, sensors, controls and switches, supervisory control and

data acquisition (SCADA), membrane bioreactor systems, membrane filtration systems, filters, clarifiers and clarifier mechanisms, rakes, grinders, disinfection systems, presses (including belt presses), conveyors, cranes, HVAC (excluding ductwork), water heaters, heat exchangers, generators, cabinetry and housings (such as electrical boxes/enclosures), lighting fixtures, electrical conduit, emergency life systems, metal office furniture, shelving, laboratory equipment, analytical instrumentation, and dewatering equipment.

23) If the iron or steel is produced in the US, may other steps in the manufacturing process take place outside of the US, such as assembly?

No. Production in the US of the iron or steel used in a listed product requires that all manufacturing processes must take place in the United States, except metallurgical processes involving refinement of steel additives.

24) What processes must occur in the US to be compliant with the AIS requirement for reinforced precast concrete?

While reinforced precast concrete may not be at least 50% iron or steel, in this particular case, the reinforcing bar and wire must be produced in the US and meet the same standards as for any other iron or steel product. Additionally, the casting of the concrete product must take place in the US. The cement and other raw materials used in concrete production are not required to be of domestic origin.

If the reinforced concrete is cast at the construction site, the reinforcing bar and wire are considered to be a construction material and must be produced in the US.

Compliance

25) How should an assistance recipient document compliance with the AIS requirement?

In order to ensure compliance with the AIS requirement, specific AIS contract language must be included in each contract, starting with the assistance agreement, all the way down to the purchase agreements. Sample language for assistance agreements and contracts can be found in Appendix 3 and 4.

EPA recommends the use of a step certification process, similar to one used by the Federal Highway Administration. The step certification process is a method to ensure that producers adhere to the AIS requirement and assistance recipients can verify that products comply with the AIS requirement. The process also establishes accountability and better enables States to take enforcement actions against violators.

Step certification creates a paper trail which documents the location of the manufacturing process involved with the production of steel and iron materials. A step certification is a process under which each handler (supplier, fabricator, manufacturer,

processor, etc) of the iron and steel products certifies that their step in the process was domestically performed. Each time a step in the manufacturing process takes place, the manufacturer delivers its work along with a certification of its origin. A certification can be quite simple. Typically, it includes the name of the manufacturer, the location of the manufacturing facility where the product or process took place (not its headquarters), a description of the product or item being delivered, and a signature by a manufacturer's responsible party. Attached, as Appendix 5, are sample certifications. These certifications should be collected and maintained by assistance recipients.

Alternatively, the final manufacturer that delivers the iron or steel product to the worksite, vendor, or contractor, may provide a certification asserting that all manufacturing processes occurred in the US. While this type of certification may be acceptable, it may not provide the same degree of assurance. Additional documentation may be needed if the certification is lacking important information. Step certification is the best practice.

26) How should a State ensure assistance recipients are complying with the AIS requirement?

In order to ensure compliance with the AIS requirement, States SRF programs must include specific AIS contract language in the assistance agreement. Sample language for assistance agreements can be found in Appendix 3.

States should also, as a best practice, conduct site visits of projects during construction and review documentation demonstrating proof of compliance which the assistance recipient has gathered.

27) What happens if a State or EPA finds a non-compliant iron and/or steel product permanently incorporated in the project?

If a potentially non-compliant product is identified, the State should notify the assistance recipient of the apparent unauthorized use of the non-domestic component, including a proposed corrective action, and should be given the opportunity to reply. If unauthorized use is confirmed, the State can take one or more of the following actions: request a waiver where appropriate; require the removal of the non-domestic item; or withhold payment for all or part of the project. Only EPA can issue waivers to authorize the use of a non-domestic item. EPA may use remedies available to it under the Clean Water Act, the Safe Drinking Water Act, and 40 CFR part 31 grant regulations, in the event of a violation of a grant term and condition.

It is recommended that the State work collaboratively with EPA to determine the appropriate corrective action, especially in cases where the State is the one who identifies the item in noncompliance or there is a disagreement with the assistance recipient.

If fraud, waste, abuse, or any violation of the law is suspected, the Office of Inspector General (OIG) should be contacted immediately. The OIG can be reached at 1-

888-546-8740 or OIG_Hotline@epa.gov. More information can be found at this website: http://www.epa.gov/oig/hotline.htm.

28) How do international trade agreements affect the implementation of the AIS requirements?

The AIS provision applies in a manner consistent with United States obligations under international agreements. Typically, these obligations only apply to direct procurement by the entities that are signatories to such agreements. In general, SRF assistance recipients are not signatories to such agreements, so these agreements have no impact on this AIS provision. In the few instances where such an agreement applies to a municipality, that municipality is under the obligation to determine its applicability and requirements and document the actions taken to comply for the State.

Waiver Process

The statute permits EPA to issue waivers for a case or category of cases where EPA finds (1) that applying these requirements would be inconsistent with the public interest; (2) iron and steel products are not produced in the US in sufficient and reasonably available quantities and of a satisfactory quality; or (3) inclusion of iron and steel products produced in the US will increase the cost of the overall project by more than 25 percent.

In order to implement the AIS requirements, EPA has developed an approach to allow for effective and efficient implementation of the waiver process to allow projects to proceed in a timely manner. The framework described below will allow States, on behalf of the assistance recipients, to apply for waivers of the AIS requirement directly to EPA Headquarters. Only waiver requests received from states will be considered. Pursuant to the Act, EPA has the responsibility to make findings as to the issuance of waivers to the AIS requirements.

Definitions

The following terms are critical to the interpretation and implementation of the AIS requirements and apply to the process described in this memorandum:

Reasonably Available Quantity: The quantity of iron or steel products is available or will be available at the time needed and place needed, and in the proper form or specification as specified in the project plans and design.

Satisfactory Quality: The quality of iron or steel products, as specified in the project plans and designs.

Assistance Recipient: A borrower or grantee that receives funding from a State CWSRF or DWSRF program.

Step-By-Step Waiver Process

Application by Assistance Recipient

Each local entity that receives SRF water infrastructure financial assistance is required by section 436 of the Act to use American made iron and steel products in the construction of its project. However, the recipient may request a waiver. Until a waiver is granted by EPA, the AIS requirement stands, except as noted above with respect to municipalities covered by international agreements.

The waiver process begins with the SRF assistance recipient. In order to fulfill the AIS requirement, the assistance recipient must in good faith design the project (where applicable) and solicit bids for construction with American made iron and steel products. It is essential that the assistance recipient include the AIS terms in any request for proposals or solicitations for bids, and in all contracts (see Appendix 3 for sample construction contract language). The assistance recipient may receive a waiver at any point before, during, or after the bid process, if one or more of three conditions is met:

1. Applying the American Iron and Steel requirements of the Act would be inconsistent with the public interest;
2. Iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
3. Inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

Proper and sufficient documentation must be provided by the assistance recipient. A checklist detailing the types of information required for a waiver to be processed is attached as Appendix 1.

Additionally, it is strongly encouraged that assistance recipients hold pre-bid conferences with potential bidders. A pre-bid conference can help to identify iron and steel products needed to complete the project as described in the plans and specifications that may not be available from domestic sources. It may also identify the need to seek a waiver prior to bid, and can help inform the recipient on compliance options.

In order to apply for a project waiver, the assistance recipient should email the request in the form of a Word document (.doc) to the State SRF program. It is strongly recommended that the State designate a single person for all AIS communications. The State SRF designee will review the application for the waiver and determine whether the necessary information has been included. Once the waiver application is complete, the State designee will forward the application to either of two email addresses. For CWSRF waiver requests, please send the application to: cwsrfwaiver@epa.gov. For DWSRF waiver requests, please send the application to: dwsrfwaiver@epa.gov.

Evaluation by EPA

After receiving an application for waiver of the AIS requirements, EPA Headquarters will publish the request on its website for 15 days and receive informal comment. EPA Headquarters will then use the checklist in Appendix 2 to determine whether the application properly and adequately documents and justifies the statutory basis cited for the waiver – that it is quantitatively and qualitatively sufficient – and to determine whether or not to grant the waiver.

In the event that EPA finds that adequate documentation and justification has been submitted, the Administrator may grant a waiver to the assistance recipient. EPA will notify the State designee that a waiver request has been approved or denied as soon as such a decision has been made. Granting such a waiver is a three-step process:

1. Posting – After receiving an application for a waiver, EPA is required to publish the application and all material submitted with the application on EPA's website for 15 days. During that period, the public will have the opportunity to review the request and provide informal comment to EPA. The website can be found at: http://water.epa.gov/grants_funding/aisrequirement.cfm

2. Evaluation – After receiving an application for waiver of the AIS requirements, EPA Headquarters will use the checklist in Appendix 2 to determine whether the application properly and adequately documents and justifies the statutory basis cited for the waiver – that it is quantitatively and qualitatively sufficient – and to determine whether or not to grant the waiver.

3. Signature of waiver approval by the Administrator or another agency official with delegated authority – As soon as the waiver is signed and dated, EPA will notify the State SRF program, and post the signed waiver on our website. The assistance recipient should keep a copy of the signed waiver in its project files.

Public Interest Waivers

EPA has the authority to issue public interest waivers. Evaluation of a public interest waiver request may be more complicated than that of other waiver requests so they may take more time than other waiver requests for a decision to be made. An example of a public interest waiver that might be issued could be for a community that has standardized on a particular type or manufacturer of a valve because of its performance to meet their specifications. Switching to an alternative valve may require staff to be trained on the new equipment and additional spare parts would need to be purchased and stocked, existing valves may need to be unnecessarily replaced, and portions of the system may need to be redesigned. Therefore, requiring the community to install an alternative valve would be inconsistent with public interest.

EPA also has the authority to issue a public interest waiver that covers categories of products that might apply to all projects.

EPA reserves the right to issue national waivers that may apply to particular classes of assistance recipients, particular classes of projects, or particular categories of iron or steel products. EPA may develop national or (US geographic) regional categorical waivers through the identification of similar circumstances in the detailed justifications presented to EPA in a waiver request or requests. EPA may issue a national waiver based on policy decisions regarding the public's interest or a determination that a particular item is not produced domestically in reasonably available quantities or of a sufficient quality. In such cases, EPA may determine it is necessary to issue a national waiver.

If you have any questions concerning the contents of this memorandum, you may contact us, or have your staff contact Jordan Dorfman, Attorney-Advisor, State Revolving Fund Branch, Municipal Support Division, at dorfman.jordan@epa.gov or (202) 564-0614 or Kiri Anderer, Environmental Engineer, Infrastructure Branch, Drinking Water Protection Division, at anderer.kirsten@epa.gov or (202) 564-3134.

Attachments

"General Decision Number: TN20240124 01/05/2024

Superseded General Decision Number: TN20230124

State: Tennessee

Construction Type: Heavy
Including Water and Sewer Line Construction

Counties: Giles, Houston, Humphreys, Lawrence, Lewis, Lincoln, Marshall, Maury, Moore, Perry, Van Buren, Warren and Wayne Counties in Tennessee.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number | Publication Date
0 | 01/05/2024

ENGI0369-011 05/01/2013

	Rates	Fringes
Operating Engineers: Bulldozer and Crane	$ 24.47	10.85

SUTN2009-123 12/02/2009

	Rates	Fringes
ELECTRICIAN	$ 20.06	0.00
LABORER: Common or General	$ 9.18 **	0.50
LABORER: Flagger	$ 10.50 **	0.00
LABORER: Pipelayer	$ 9.96 **	0.30
OPERATOR: Backhoe/Excavator/Trackhoe	$ 13.36 **	0.75
TRUCK DRIVER: Dump Truck	$ 11.68 **	0.70

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($17.20) or 13658 ($12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses

(29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date

for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

EMPLOYEE RIGHTS
UNDER THE DAVIS-BACON ACT

FOR LABORERS AND MECHANICS EMPLOYED ON FEDERAL OR FEDERALLY ASSISTED CONSTRUCTION PROJECTS

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

PREVAILING WAGES — You must be paid not less than the wage rate listed in the Davis-Bacon Wage Decision posted with this Notice for the work you perform.

OVERTIME — You must be paid not less than one and one-half times your basic rate of pay for all hours worked over 40 in a work week. There are few exceptions.

ENFORCEMENT — Contract payments can be withheld to ensure workers receive wages and overtime pay due, and liquidated damages may apply if overtime pay requirements are not met. Davis-Bacon contract clauses allow contract termination and debarment of contractors from future federal contracts for up to three years. A contractor who falsifies certified payroll records or induces wage kickbacks may be subject to civil or criminal prosecution, fines and/or imprisonment.

APPRENTICES — Apprentice rates apply only to apprentices properly registered under approved Federal or State apprenticeship programs.

PROPER PAY — If you do not receive proper pay, or require further information on the applicable wages, contact the Contracting Officer listed below:

or contact the U.S. Department of Labor's Wage and Hour Division.

For additional information:

1-866-4-USWAGE

(1-866-487-9243) TTY: 1-877-889-5627

WWW.WAGEHOUR.DOL.GOV

U.S. Department of Labor | Employment Standards Administration | Wage and Hour Division

WH 1321(Revised April 2009)

DERECHOS DEL EMPLEADO
BAJO LA LEY DAVIS-BACON

PARA OBREROS Y MECÁNICOS EMPLEADOS EN PROYECTOS DE CONSTRUCCIÓN FEDERAL O CON ASISTENCIA FEDERAL

LA SECCIÓN DE HORAS Y SUELDOS DEL DEPARTAMENTO DE TRABAJO DE EEUU

SALARIOS PREVALECIENTES
No se le puede pagar menos de la tasa de pago indicada en la Decisión de Salarios Davis-Bacon fijada con este Aviso para el trabajo que Ud. desempeña.

SOBRETIEMPO
Se le ha de pagar no menos de tiempo y medio de su tasa básica de pago por todas las horas trabajadas en exceso de 40 en una semana laboral. Existen pocas excepciones.

CUMPLIMIENTO
Se pueden retener pagos por contratos para asegurarse que los obreros reciban los salarios y el pago de sobretiempo debidos, y se podría aplicar daños y perjuicios si no se cumple con las exigencias del pago de sobretiempo. Las cláusulas contractuales de Davis-Bacon permiten la terminación y exclusión de contratistas para efectuar futuros contratos federales hasta tres años. El contratista que falsifique los registros certificados de las nóminas de pago o induzca devoluciones de salarios puede ser sujeto a procesamiento civil o criminal, multas y/o encarcelamiento.

APRENDICES
Las tasas de aprendices sólo se aplican a aprendices correctamente inscritos bajo programas federales o estatales aprobados.

PAGO APROPIADO
Si Ud. no recibe el pago apropiado, o precisa de información adicional sobre los salarios aplicables, póngase en contacto con el Contratista Oficial que aparece abajo:

o póngase en contacto con la Sección de Horas y Sueldos del Departamento de Trabajo de EEUU.

Para obtener información adicional:

1-866-4-USWAGE
(1-866-487-9243) TTY: 1-877-889-5627

WWW.WAGEHOUR.DOL.GOV

U.S. Wage and Hour Division

Project Wage Rate Sheet

U.S. Department of Housing and Urban Development
Office of Labor Relations

PROJECT NAME:	**WAGE DECISION NUMBER/MODIFICATION NUMBER:**
PROJECT NUMBER:	**PROJECT COUNTY:**

WORK CLASSIFICATION	**BASIC HOURLY RATE (BHR)**	**FRINGE BENEFITS**	**TOTAL HOURLY WAGE RATE**	**LABORERS FRINGE BENEFITS:**		**$**
				GROUP #	**BHR**	**TOTAL WAGE**
Bricklayers			**$**			
Carpenters			**$**			**$**
Cement Masons			**$**			**$**
Drywall Hangers			**$**			**$**
Electricians			**$**			**$**
Iron Workers			**$**			**$**
Painters			**$**	**OPERATORS FRINGE BENEFITS:**		**$**
				GROUP #	**BHR**	**TOTAL WAGE**
Plumbers			**$**			
Roofers			**$**			**$**
Sheet Metal Workers			**$**			**$**
Soft Floor Layers			**$**			**$**
Tapers			**$**			**$**
Tile Setters			**$**	**TRUCK DRIVERS FRINGE BENEFITS:**		**$**
				GROUP #	**BHR**	**TOTAL WAGE**
OTHER CLASSIFICATIONS						
			$			**$**
			$			**$**
			$			**$**

ADDITIONAL CLASSIFICATIONS (HUD Form 4230-A)

WORK CLASSIFICATION	**BASIC HOURLY RATE**	**FRINGE BENEFITS**	**TOTAL HOURLY WAGE RATE**	**DATE OF HUD SUBMISSION TO DOL**	**DATE OF DOL APPROVAL**
			$		
			$		
			$		
			$		

STATE REVOLVING FUND LOAN PROGRAM

Bidder's Requirements

Davis-Bacon Act Wage Determination

The Loan Recipient must ensure the bidder is in compliance with the Davis-Bacon Act as outlined below. Additionally, ten (10) days prior to the scheduled bid opening date, the wage rates need to be checked to ensure they have not changed.

The Davis-Bacon Act as amended, requires that each contract over $2,000 to which the United States or the District of Columbia is a party for the construction, alteration, or repair of public buildings or public works shall contain a clause setting forth the minimum wages to be paid to various classes of laborers and mechanics employed under the contract. Under the provisions of the Act, contractors or their subcontractors are to pay workers employed directly upon the site of the work no less than the locally prevailing wages and fringe benefits paid on projects of a similar character. The Davis-Bacon Act directs the Secretary of Labor to determine such local prevailing wage rates.

The **wage determination** (including any additional **classifications** and **wage rates** conformed) **and** a Davis-Bacon poster (WH-1321) **must be posted on the work site at all times** by the contractor and its subcontractors in a prominent and accessible place where it can be easily seen. The WH-1321 poster **may be obtained at no charge** from offices of the Wage and Hour Division.

With each **pay estimate** submitted, the contractors **must submit** a certification stating that workers have been paid the current prevailing wage rates for each classification according to the Davis-Bacon wage rate schedule currently in effect for this project.

Wage Determinations

A "wage determination" is the listing of wage rates and fringe benefit rates for each classification of laborers and mechanics which the Administrator of the Wage and Hour Division of the U.S. Department of Labor has determined to be prevailing in a given area for a particular type of construction (e.g., building, heavy, highway, or residential).

Extensions of Wage Determinations

When a general wage determination has not been awarded within 90 days after bid opening, the head of the contracting/assisting agency may request an extension of the 90 day period from the Wage and Hour Administrator. When, due to unavoidable circumstances, a project wage determination expires before award but after bid opening, the head of the contracting/assisting agency may request an extension of the expiration date of the project wage determination in the bid specifications instead of issuing a new wage determination.

Extension requests should be supported by a written finding including a brief statement of the factual support, that extension of the expiration date of the determination is necessary and proper in the public interest to prevent injustice or undue hardship or to avoid serious impairment in the conduct of Government business.

The Administrator of the Wage and Hour Division of the U.S. Department of Labor will either grant or deny the request for an extension after consideration of all the circumstances, including an examination to determine if the previously issued rates remain prevailing. If a request for the extension of a project wage determination is denied, a new wage determination will be issued to replace an expired project wage determination.

Additional information concerning the Davis-Bacon Act and current wage rate determinations can be obtained at the following sites: www.gpo.gov/davisbacon/referencemat.html and www.wdol.gov/ .

Wage Rate Requirements Under FY 2010 Appropriations

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2010 appropriation , the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor’s web site, www.dol.gov.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the

contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA , the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or

indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees--

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the

apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency

recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may by appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for

the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. **Contract Provision for Contracts in Excess of $100,000.**

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such

laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient**,** upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing hat the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's Requirements

Davis-Bacon Act Wage Determination

The Loan Recipient must ensure the bidder is in compliance with the Davis-Bacon Act as outlined below. Additionally, ten (10) days prior to the scheduled bid opening date, the wage rates need to be checked to ensure they have not changed.

The Davis-Bacon Act as amended, requires that each contract over $2,000 to which the United States or the District of Columbia is a party for the construction, alteration, or repair of public buildings or public works shall contain a clause setting forth the minimum wages to be paid to various classes of laborers and mechanics employed under the contract. Under the provisions of the Act, contractors or their subcontractors are to pay workers employed directly upon the site of the work no less than the locally prevailing wages and fringe benefits paid on projects of a similar character. The Davis-Bacon Act directs the Secretary of Labor to determine such local prevailing wage rates.

The specifications must incorporate a clause stating that the current Davis-Bacon wage rate is required **(**with the Davis-Bacon links and information).

The Bid Advertisement **must include** a clause that the **Davis-Bacon wage rates** are a requirement. (Refer to the ADVERTISEMENT FOR BIDS EXAMPLE – DBE, ARRA)

If modifications to the existing **wage rates** occur **ten (10) days** prior to the Bid Opening Date, the Loan Recipient **must** incorporate the proper **wage rates** into the plans and specifications by Addendum. All Bidders **must** be informed that this addendum **must** be incorporated into the plans and specifications that they have received.

However, if these modifications occur **less than ten (10) days** prior to the Bid Opening Date, these modifications **shall be effective unless** the agency **finds** that there is not a reasonable time still available before the Bid Opening to notify bidders of the modifications. (A report of this **finding** shall be inserted in the contract file.)

The **wage determination** (including any additional **classifications** and **wage rates** conformed) **and** a Davis-Bacon poster (WH-1321) **must be posted on the work site at all times** by the contractor and its subcontractors in a prominent and accessible place where it can be easily seen. The WH-1321 poster **may be obtained at no charge** from offices of the Wage and Hour Division.

With each **pay estimate** submitted, the contractors **must** certify that workers have been paid the current prevailing wage rates for each classification according to the Davis-Bacon wage rate schedule currently in effect for this project.

The loan recipients **must keep a file** in which all documentation **must be filed** for the current classifications and wage rates (under the Davis-Bacon Act) for the construction of their projects. This file must be kept for three (3) years after the project is completed and **will** be subject to audit by the State of Tennessee and the Environmental Protection Agency (EPA).

Wage Determinations

A "wage determination" is the listing of wage rates and fringe benefit rates for each classification of laborers and mechanics which the Administrator of the Wage and Hour Division of the U.S. Department of Labor has determined to be prevailing in a given area for a particular type of construction (e.g., building, heavy, highway, or residential).

Extensions of Wage Determinations

When a general wage determination has not been awarded within 90 days after bid opening, the head of the contracting/assisting agency may request an extension of the 90 day period from the Wage and Hour Administrator. When, due to unavoidable circumstances, a project wage determination expires before award but after bid opening, the head of the contracting/assisting agency may request an extension of the expiration date of the project wage determination in the bid specifications instead of issuing a new wage determination.

Extension requests should be supported by a written finding including a brief statement of the factual support, that extension of the expiration date of the determination is necessary and proper in the public interest to prevent injustice or undue hardship or to avoid serious impairment in the conduct of Government business.

The Administrator of the Wage and Hour Division of the U.S. Department of Labor will either grant or deny the request for an extension after consideration of all the circumstances, including an examination to determine if the previously issued rates remain prevailing. If a request for the extension of a project wage determination is denied, a new wage determination will be issued to replace an expired project wage determination.

Additional information concerning the Davis-Bacon Act and current wage rate determinations can be obtained at the following sites: www.gpo.gov/davisbacon/referencemat.html and www.wdol.gov/ .

Wage Rate Requirements Under FY 2010 Appropriations

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2010 appropriation , the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in §

5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's web site, www.dol.gov.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the

contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g.,

the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA , the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees--

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or

with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the

apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may by appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for

the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. **Contract Provision for Contracts in Excess of $100,000.**

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such

laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient**,** upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing hat the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's and Contractor's Guidance

FY2010 and After

Tracking and Reporting

For tracking and reporting purposes, the **Loan Recipient** is responsible for the following:

- Ensuring that the Contractor is in compliance with the Davis Bacon provisions of ARRA
- The loan recipients **must keep a file** in which all documentation **must be stored** for the current classifications and wage rates (under the Davis-Bacon Act) for the construction of their projects. This file must be kept for three (3) years after the project is completed and **will** be subject to audit by the State of Tennessee and the Environmental Protection Agency (EPA).
- Any additional tracking and reporting requirements from EPA

For tracking and reporting purposes, the **Contractor** is responsible for the following:

- Achieving and maintaining compliance with the Davis Bacon provisions of ARRA
- Submitting with each **pay estimate** a certification stating that workers have been paid the current prevailing wage rates for each classification according to the Davis-Bacon wage rate schedule currently in effect for this project
- Any additional tracking and reporting requirements from EPA

Please contact ask.SRF@tn.gov to obtain details.

NOTICE

THIS ENTITY IS A RECIPIENT OF STATE AND FEDERAL FUNDS. IF YOU HAVE KNOWLEDGE OF ANY ACTIVITY WHICH YOU CONSIDER TO BE ILLEGAL, IMPROPER, OR WASTEFUL, PLEASE CALL THE STATE COMPTROLLER'S TOLL-FREE HOTLINE:

1-800-232-5454

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor
Nashville, TN 37243
Toll Free Number: 1-888-891-8332 (TDEC)

NOTICE OF INTENT (NOI) FOR GENERAL NPDES PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES (TNR100000)

Site or Project Name:		**NPDES Tracking Number: TNR**
Street Address including city or zip code or Location:		Construction Start Date:
		Estimated End Date:
Site Description:		Latitude (dd.dddd):
		Longitude (-dd.dddd):
County(ies):	MS4 Jurisdiction (if applicable):	Acres Disturbed:
		Total Acres:
Are there any streams ☐ and/or wetlands ☐ on or adjacent to the construction site? If wetlands are located on-site and may be impacted, attach wetlands delineation report. If an Aquatic Resource Alteration Permit has been obtained for this site, what is the permit number?		ARAP Number:
Receiving waters:		
Include the SWPPP with the NOI ☐ SWPPP Included		Include a site location map ☐ Map Included

Name of Site Owner or Developer (Site-Wide Permittee): (correct legal name of person, company, or entity that has operational or design control over construction plans and specifications)			
For corporate entities only, provide the Tennessee Secretary of State (SOS) Control Number:			
Site Owner or Developer Contact Name: (individual responsible for site)	Title or Position: (the party who signs the certification below):		
Mailing Address:	City:	State:	Zip:
Phone:	E-mail:		

Optional Contact Name:	Title or Position:		
Mailing Address:	City:	State:	Zip:
Phone:	E-mail:		

Owner or Developer Certification: (must be signed by president, vice-president or equivalent, or ranking elected official) (Primary Permittee)		
I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.		
Owner or Developer Name: (print or type):	Signature:	Date:

Contractor(s) Certification: (must be signed by president, vice-president or equivalent, or ranking elected official) (Secondary Permittee)		
I certify under penalty of law that I have reviewed this document, any attachments, and the SWPPP referenced above. Based on my inquiry of the construction site owner/developer identified above and/or my inquiry of the person directly responsible for assembling this NOI and SWPPP, I believe the information submitted is accurate. I am aware that this NOI, if approved, makes the above-described construction activity subject to NPDES permit number TNR100000, and that certain of my activities on-site are thereby regulated. I am aware that there are significant penalties, including the possibility of fine and imprisonment for knowing violations, and for failure to comply with these permit requirements. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.		
Primary contractor name, address, and SOS control number (if applicable): (print or type)	Signature:	Date:
Primary contractor name, address, and SOS control number (if applicable): (print or type)	Signature:	Date:
Primary contractor name, address, and SOS control number (if applicable): (print or type)	Signature:	Date:

NOTICE OF INTENT (NOI) FOR GENERAL NPDES PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES (TNR100000)

Purpose of this form - A completed notice of intent (NOI) must be submitted to obtain coverage under the Tennessee General NPDES Permit for Discharges of Stormwater Associated with Construction Activity (permit). **Requesting coverage under this permit means that an applicant has obtained and examined a copy of this permit, and thereby acknowledges applicant's claim of ability to be in compliance with permit terms and conditions.** This permit is required for stormwater discharge(s) from construction activities including clearing, grading, filling, and excavating (including borrow pits) of one or more acres of land. This form should be submitted at least 30 days prior to the commencement of land disturbing activities, or no later than 48 hours prior to when a new operator assumes operational control over site specifications or commences work at the site.

The appropriate permit application fee must accompany the NOI and is based on total acreage to be disturbed by an entire project, including any associated construction support activities (e.g., equipment staging yards, material storage areas, excavated material disposal areas, borrow or waste sites):

(i) Projects equal to or greater than 150 acres	$10,000
(ii) Projects equal to or greater than 50 acres and less than 150 acres	$6,000
(iii) Projects equal to or greater than 20 acres and less than 50 acres	$3,000
(iv) Projects equal to or greater than 5 acres and less than 20 acres	$1,000
(v) Projects equal to or greater than 1 acre and less than 5 acres	$250
(vi) Projects seeking subsequent coverage under an actively covered larger common plan of development or sale	$100

There is no fee for sites less than 1 acre. A separate annual maintenance fee is also required for construction activities that exceed 1 year under general permit coverage. Tennessee Rules, Chapter 0400-40-11-.02(b)(12)).

Who must submit the NOI form? Per Section 2 of the permit, all site operators must submit an NOI form. "Operator" for the purpose of this permit and in the context of stormwater associated with construction activity means any person associated with a construction project who meets either or both of the following two criteria: (1) The person has operational or design control over construction plans and specifications, including the ability to make modifications to those plans and specifications. This person is typically the owner or developer of the project or a portion of the project (e.g. subsequent builder), or the person that is the current landowner of the construction site. This person is considered the primary permittee; or (2) The person has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a SWPPP for the site or other permit conditions. This person is typically a contractor or a commercial builder who is hired by the primary permittee and is considered a secondary permittee.

Owners, developers, and all contractors that meet the definition of the operator in subsection 2.2 of the permit shall apply for permit coverage on the same NOI, insofar as possible. After permit coverage has been granted to the primary permittee, any separate or subsequent NOI submittals must include the site's previously assigned permit tracking number and the project name. The site-wide site-specific SWPPP shall be prepared in accordance with the requirements of part 5 of the permit and must be submitted with the NOI unless the NOI being submitted is to only add a contractor (secondary permittee) to an existing coverage. Artificial entities (e.g., corporations or partnerships excluding entities not required to register) must submit the TN Secretary of State, Division of Business Services, control number. The Division reserves the right to deny coverage to artificial entities that are not properly registered and in good standing with the TN Secretary of State.

Notice of Coverage - The division will review the NOI for completeness and accuracy and prepare a notice of coverage (NOC). Stormwater discharge from the construction site is authorized as of the effective date of the NOC.

Complete the form - Type or print clearly, using ink and not markers or pencil. Answer each item or enter "NA," for not applicable, if a particular item does not fit the circumstances or characteristics of your construction site or activity. If you need additional space, attach a separate piece of paper to the NOI form. **The NOI will be considered incomplete without a permit fee, a map, and the SWPPP.**

Describe and locate the project - Use the legal or official name of the construction site. If a construction site lacks street name or route number, give the most accurate geographic information available to describe the location (reference to adjacent highways, roads, and structures, e.g., intersection of state highways 70 and 100). Latitude and longitude (expressed in decimal degrees) of the center of the site can be located on USGS quadrangle maps. The maps can be obtained at the USGS World Wide Web site: http://www.usgs.gov/; latitude and longitude information can be found at numerous other web sites. Attach a copy of a portion of a 7.5-minute topographic map, a city map, or a county map showing location of site, with boundaries at least one mile outside the site boundaries. Provide estimated starting date of clearing activities and completion date of the project, and an estimate of the number of acres of the site on which soil will be disturbed, including borrow areas, fill areas, stockpiles and the total acres. For linear projects, give location at each end of the construction area.

Give name of the receiving waters - Trace the route of stormwater runoff from the construction site and determine the name of the river(s), stream(s), creek(s), wetland(s), lake(s) or any other water course(s) into which the stormwater runoff drains. Note that the receiving water course may or may not be located on the construction site. If the first water body receiving construction site runoff is unnamed ("unnamed tributary"), determine the name of the water body that the unnamed tributary enters.

An ARAP may be required - If your work will disturb or cause alterations of a stream or wetland, you must obtain an appropriate Aquatic Resource Alteration Permit (ARAP). If you have a question about the ARAP program, contact your local Environmental Field Office (EFO).

Submitting the form and obtaining more information - Note that this form must be signed by the company President, Vice-President, or a ranking elected official in the case of a municipality, for details see subpart 2.5. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit the completed NOI form (keep a copy for your records) to the appropriate EFO for the county(ies) where the construction activity is located, addressed to **Attention: Stormwater NOI Processing** or use MyTDEC Forms for electronic submittal.

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	8383 Wolf Lake Drive, Bartlett	38133-4119	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305-4316	Chattanooga	1301 Riverfront Parkway, Suite 206	37402-2013
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)
DIVISION OF WATER RESOURCES
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Inspection Form)

Site or Project Name:		**NPDES Tracking Number: TNR**
Primary Permittee Name:		Date of Inspection:
Current approximate <u>disturbed</u> acreage:	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector:
Current weather/ground conditions:	Rainfall total since last inspection:	Inspector's TNEPSC Certification Number:
Site Assessment ☐ Yes ☐ No	Assessor's TN PE registration number:	Assessor's TNEPSC Level II/CPESC number:

Check the box if the following items are on-site:	
☐	Notice of Coverage (NOC)
☐	Stormwater Pollution Prevention Plan (SWPPP)
☐	Weekly inspection documentation
☐	Site contact information
☐	Rain Gage
Off-site Reference Rain Gage Location	

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly? If "No," describe below in Comment Section				
1.	Are all applicable EPSCs installed and maintained per the SWPPP per the current phase?		☐ Yes	☐ No
2.	Are EPSCs functioning correctly at all disturbed areas/material storage areas? (permit section 5.5.3)		☐ Yes	☐ No
3.	Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts? (permit section 5.5.3.5 and 6.3.2)		☐ Yes	☐ No
4.	Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track-out? (permit section 5.5.3.1)		☐ Yes	☐ No
5.	If applicable, have discharges from dewatering activities been managed by appropriate controls? (permit section 4.1.3) If "No," describe below the measure to be implemented to address deficiencies.	☐ N/A	☐ Yes	☐ No
6.	If construction activity at any location on-site has temporarily/permanently ceased, was the area stabilized within 14 days? (permit section 5.5.3.4) If "No," describe below each location and measures taken to stabilize the area(s).	☐ N/A	☐ Yes	☐ No
7.	Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from wash waters, exposure of materials and discharges from spills and leaks per section 4.1.4? If "No," describe below the measure to be implemented to address deficiencies.	☐ N/A	☐ Yes	☐ No

Site or Project Name:	**NPDES Tracking Number: TNR**
Primary Permittee Name:	Date of Inspection:

8.	If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies. (permit section 1.2.2)	☐ N/A	☐ Yes	☐ No
9.	Have all previous deficiencies been addressed? If "No," describe the remaining deficiencies in the Comments section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☐ N/A	☐ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, describe the problem and summarize corrective actions to be taken. Otherwise, describe any pertinent observations:

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 5.5.3.11 (g) and 8.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title :	Signature:	Date:
Primary Permittee Name and Title:	Signature:	Date:

Construction Stormwater Inspection Certification Form (Inspection Form)

Purpose of this form / Instructions

An inspection, as described in subsection 5.5.3.9. of the General Permit for Stormwater Discharges from Construction Activities ("Permit"), shall be performed at the specified frequency and documented on this form. Inspections shall be performed at least 72 hours apart. Where sites or portion(s) of construction sites have been temporarily stabilized, or runoff is unlikely due to winter conditions (e.g., site covered with snow or ice), such inspection only has to be conducted once per month until thawing results in runoff or construction activity resumes.

Inspections can be performed by:

a) a person with a valid certification from the "Fundamentals of Erosion Prevention and Sediment Control Level I" course,
b) a licensed professional engineer or landscape architect,
c) a Certified Professional in Erosion and Sediment Control (CPESC), or
d) a person who has successfully completed the "Level II Design Principles for Erosion Prevention and Sediment Control for Construction Sites" course.

Qualified personnel, as defined in subsection 5.5.3.10 of the Permit (provided by the permittee or cooperatively by multiple permittees) shall inspect disturbed areas of the construction site that have not been permanently stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, locations where vehicles enter or exit the site, and each outfall.

Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the site's drainage system. Erosion prevention and sediment control measures shall be observed to ensure that they are operating correctly.

Outfall points (where discharges leave the site and/or enter waters of the state) shall be inspected to determine whether erosion prevention and sediment control measures are effective in preventing significant impacts to receiving waters. Where discharge locations are inaccessible, nearby downstream locations shall be inspected. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

Based on the results of the inspection, any inadequate control measures or control measures in disrepair shall be replaced or modified, or repaired as necessary, before the next rain event if possible, but in no case more than 7 days after the need is identified.

Based on the results of the inspection, the site description identified in the SWPPP in accordance with section 5.5.1 of the Permit and pollution prevention measures identified in the SWPPP in accordance with section 5.5.2 of the Permit, shall be revised as appropriate, but in no case later than 7 days following the inspection. Such modifications shall provide for timely implementation of any changes to the SWPPP, but in no case later than 14 days following the inspection.

All inspections shall be documented on this Construction Stormwater Inspection Certification form. Alternative inspection forms may be used as long as the form contents and the inspection certification language are, at a minimum, equivalent to the Division's form and the permittee has obtained a written approval from the Division to use the alternative form. Inspection documentation will be maintained on site and made available to the Division upon request. Inspection reports must be submitted to the Division within 10 days of the request.

Trained certified inspectors shall complete inspection documentation to the best of their ability. Falsifying inspection records or other documentation or failure to complete inspection documentation shall result in a violation of this permit and any other applicable acts or rules.

DRINKING WATER STATE REVOLVING FUND

IDENTIFICATION SIGN

All plans and specifications for each project approved shall contain provisions for requiring the general contractor to provide identification signs. The signs shall conform to the following basic features:

1. The following diagram shall be used as a design:

SAFE DRINKING WATER FOR TENNESSEE

DEPARTMENT OF ENVIRONMENT AND CONSERVATION

GOVERNOR
BILL LEE

CITY OF

COMMISSIONER
DAVID SALYERS

MAYOR

STATE REVOLVING FUND PROJECT

DWSRF LOAN: $ _____

PRINCIPAL FORGIVENESS: $ _____

2. The sign shall be a 4'0" X 8'0" sheet of exterior grade plywood and shall be built so as to remain erected during the entire construction phase of the project.

3. The background of both sides shall be white. The lettering shall be black and shall be large enough to take advantage of the full size of the plywood. The stars shall be white set on a blue field and surrounded by a white ring placed inside a state map in red with a stripe of white and blue on the right side. The sign shall be bordered by a one-inch blue stripe.

Revised: MARCH 11, 2019

CONSTRUCTION START NOTIFICATION

INSTRUCTIONS: **WHEN THE CONSTRUCTION START DATE FOR A PROJECT IS KNOWN, COMPLETE THIS FORM AND EMAIL, MAIL OR FAX TO:**

Crystal Stacey
Columbia Field Office
Division of Water Resources
1421 Hampshire Pike
Columbia TN 38401
Fax (931) 380-3397
Email Address: Columbia.EFO_ADM@tn.gov

Water System - _____

County - _____

Project Name - _____

DW Project Number - _____

Start Construction Date - _____

Estimated Completion - _____

Will this project require interruption of water service? _____ **Yes**
_____ **No**

Number of Customers Affected _____

SECTION 00 6516

CERTIFICATE OF SUBSTANTIAL COMPLETION

Project: 2021 Water System Improvements Water Main Replacements

Agreement Date:_____ ____, 20 ____

Contractor: _____

_____

_____

Owner: Fayetteville Public Utilities
408 College St W
Fayetteville, TN 37334

Engineer: FOXPE LLC
2711 Berrywood Dr
Nashville, Tennessee 37204

A walk-through inspection of the project was conducted on_____ _____, 20 __ , with representatives of the Contractor, Owner, and Engineer participating. A final Punch List of work remaining to be completed or deficiencies noted was prepared.

ENGINEER: The work performed under this contract has been reviewed and found to the Engineer's best knowledge, information, and belief to be substantially complete as of _____.

By: _____ Title: _____ Date: _____

CONTRACTOR: The Contractor will complete or correct all work noted on the list of remaining work items dated __ , and supplements issued thereto within ___ days of the substantial completion date unless time is extended by Owner. The failure to include any items on the list does not alter the responsibility of the Contractor to complete all work in accordance with the Contract Documents.

By: _____ Title: _____ Date: _____

OWNER: The Owner accepts the work as substantially complete and accepts full possession thereof including the responsibilities for security, maintenance, and insurance.

By: _____ Title: _____ Date: _____

SECTION 00 6519

PROJECT CLOSE OUT FORMS

The following forms must be fully filled out by the Contractor and properly executed prior to release of final payment:

1. Certificate of Property Restoration

2. Affidavit of Payment

3. Affidavit of Release of Liens

4. Consent of Surety for Final Payment

5. Final Waiver of Lien

   (To be executed by each and every subcontractor and supplier of materials.)

SECTION 00 6519.10

CERTIFICATE OF PROPERTY RESTORATION

Date _____

I, _____, easement property owner, agree that the Contractor for this project, _____

_____, has cleaned up and restored to my satisfaction my property at _____

_____ where the property was disturbed during construction.

Signed _____

Witness _____

END OF SECTION

SECTION 00 6519.13

AFFIDAVIT OF PAYMENT

To: _____
(Owner)

WHEREAS, the undersigned has been employed _____ _____ to furnish labor and materials for _____ _____ work, under a contract _____ for the improvement of the property described as _____ in the _____ of _____ , County of _____ _____, State of _____ of which _____ _____ is the Owner.

NOW, THEREFORE, this _____ day of _____, 20 _____. The undersigned, as the Contractor for the above-named Contract pursuant to the Conditions of the Contract hereby certifies that, except as listed below, he has paid in full or has otherwise satisfied all obligations for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or his property might in any way be held responsible.

EXCEPTIONS: (If none, write "None." If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each exception.)

ATTACHMENTS:

1. Consent of Surety to Final Payment. (Whenever Surety is involved, Consent of Surety is required.)
2. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
3. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers.
4. Contractor's Affidavit of Release of Liens.

_____(SEAL)
CONTRACTOR (Name of sole ownership, corporation or partnership)

_____(SEAL)
(Signature of Authorized Representative)

(Affix corporate seal here)

TITLE:_____

SECTION 00 6519.16

AFFIDAVIT OF RELEASE OF LIENS

To: _____
(Owner)

WHEREAS, the undersigned has been employed by_____to furnish labor and materials for_____

_____work, under a contract _____
for the improvement of the property described as _____

_____ _____in the _____ of _____ County of _____, _____ State of _____ of which _____

_____ is the Owner.

NOW, THEREFORE, this _____day of _____, 20_____.

The undersigned, as the Contractor for the above-named Contract pursuant to the conditions of the Contract hereby certifies that to the best of his knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services, who have or may have liens against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS: (If none, write "None." If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each exception.)

ATTACHMENTS:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.

2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers.

_____(SEAL)

CONTRACTOR (Name of sole ownership, corporation or partnership)

_____(SEAL)

(Affix corporate seal here)

(Signature of Authorized Representative)

TITLE: _____

SECTION 00 6519.19

CONSENT OF SURETY FOR FINAL PAYMENT

Project Name _____

Location _____

Project No. _____ Contract No._____

Type of Contract _____

Amount of Contract _____

In accordance with the provisions of the above-named contract between the Owner and the Contractor, the following named surety:

_____

_____

on the Payment Bond of the following named Contractor:

_____

_____

hereby approves of final payment to the Contractor, and further agrees that said final payment to the Contractor shall not relieve the surety company named herein of any of its obligations to the following named Owner: as set forth in said surety company's bond:

_____

_____

IN WITNESS WHEREOF, the surety company has hereunto set its hand and seal this _____ day of _____, 20_____.

_____
(Name of Surety Company)

_____
(Affix corporate (Signature of Authorized Representative)

seal here) Title: _____

SECTION 00 6519.27

FINAL WAIVER OF LIEN

To: _____
(Owner)

WHEREAS, the undersigned has been employed by (A) _____

to furnish labor and materials for (B) _____

_____ work,

under a contract (C) _____

for the improvement of the premises described as (D) _____

_____

in the _____ (City-Village) of _____

County of _____, State of _____

of which _____

_____is the Owner.

NOW, THEREFORE, this _____ day of _____ 20____, for and in consideration of the sum of (E) _____

Dollars paid simultaneously herewith, the receipt whereof is hereby acknowledged by the undersigned, the undersigned does hereby waive and release any lien rights to, or claim of lien with respect to and on said above-described premises, and the improvements thereon, and on the monies or other considerations due or to become due from the Owner, or account of labor, services, material, fixtures, apparatus or machinery heretofore or which may hereafter be furnished by the undersigned to or for the above-described premises by virtue of said contract.

(F) _____ (SEAL)
(Name of sole ownership, corporation or partnership)

_____(SEAL)
(Affix corporate seal here) (Signature of Authorized Representative)

TITLE: _____

INSTRUCTIONS FOR FINAL WAIVER

A. Person or firm with whom you agreed to furnish either labor, or services, or materials.
B. Fill in nature and extent of work; strike the word labor or the word materials if not in your contract.
C. If you have more than one contract on the same premises, describe the contract by number if available, date, and extent of work.
D. Furnish an accurate enough description of the improvement and location of the premises so that it can be distinguished from any other property.
E. Amount shown should be the amount actually received and equal to that amount of contract as adjusted.
F. If waiver is for a corporation, corporate name should be used, corporate seal affixed and title of officer signing waiver should be set forth; if waiver is for a partnership, the partnership name should be used, partner should sign and designate himself as partner.

SECTION 00 7200

GENERAL CONDITIONS

1. DEFINITIONS

1.1. Wherever used in the **CONTRACT DOCUMENTS**, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

1.2. **ADDENDA** - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS, AND SPECIFICATIONS by additions, deletions, clarifications or corrections.

1.3. **BID** - The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the Work to be performed.

1.4. **BIDDER** - Any person, firm or corporation submitting a BID for the WORK.

1.5. **BONDS** - Bid, Performance, and Payment Bonds and other instruments of security, furnished by the CONTRACTOR and his surety in accordance with the CONTRACT DOCUMENTS.

1.6. **CHANGE ORDER** - A written order to the CONTRACTOR authorizing an addition, deletion or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing an adjustment in the CONTRACT PRICE OR CONTRACT TIME.

1.7. **CONTRACT DOCUMENTS** - The contract, including Advertisement For Bids, Information For Bidders, BID, Bid Bond, Agreement, Payment Bond, Performance Bond, NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, and ADDENDA.

1.8. **CONTRACT PRICE** - The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.

1.9. **CONTRACT TIME** - The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.

1.10. **CONTRACTOR** - The person, firm, or corporation with whom the OWNER has executed the Agreement.

1.11. **DRAWINGS** - The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.

1.12. **ENGINEER** - The person, firm, or corporation named as such in the CONTRACT DOCUMENTS.

1.13. **FIELD ORDER** - A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME during construction.

1.14. **NOTICE OF AWARD** - The written notice of the acceptance of the BID from the OWNER to the successful BIDDER.

1.15. **NOTICE TO PROCEED** - Written communication issued by the OWNER to the CONTRACTOR authorizing him to proceed with the WORK and establishing the date of commencement of the WORK.

1.16. **OWNER** - A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the WORK is to be performed.

1.17. **PROJECT** - The undertaking to be performed as provided in the CONTRACT DOCUMENTS.

1.18. **RESIDENT PROJECT REPRESENTATIVE** - The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.

1.19. **SHOP DRAWINGS** - All drawings, diagrams, illustrations, brochures, schedules, and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER, or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.

1.20. **SPECIFICATIONS** - A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards, and workmanship.

1.21. **SUBCONTRACTOR** - An individual, firm or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.

1.22. **SUBSTANTIAL COMPLETION** - That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in

accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purposes for which it is intended.

1.23. **SUPPLEMENTAL GENERAL CONDITIONS** - Modifications to General Conditions required by a Federal agency for participation in the PROJECT and approved by the agency in writing prior to inclusion in the CONTRACT DOCUMENTS, or such requirements that may be imposed by applicable state laws.

1.24. **SUPPLIER** - Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a specific design, but who does not perform labor at the site.

1.25. **WORK** - All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.

1.26. **WRITTEN NOTICE** - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address or delivered in person to said party or his authorized representative on the WORK.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

2.1. The CONTRACTOR may be furnished additional instructions and detail drawings, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.

2.2. The additional drawings and instruction thus supplied will become a part of the CONTRACT DOCUMENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail drawings and instructions.

3. SCHEDULES, REPORTS, AND RECORDS

3.1. The CONTRACTOR shall submit to the OWNER such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the CONTRACT DOCUMENTS for the WORK to be performed.

3.2. Prior to the first partial payment estimate the CONTRACTOR shall submit construction progress schedules showing the order in which he proposes to carry on the WORK, including dates at which he will start the various parts of the WORK, estimated date of completion of each part and, as applicable:

3.2.1. The dates at which special detail drawings will be required; and

3.3. Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

4. DRAWINGS AND SPECIFICATIONS

4.1. The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNER.

4.2. In case of conflict between the DRAWINGS and SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over scale dimensions, and detailed DRAWINGS shall govern over general DRAWINGS.

4.3. Any discrepancies found between the DRAWINGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

5. SHOP DRAWINGS

5.1. The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWING shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWING which substantially deviates from the requirement of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER.

5.2. When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has reviewed, checked, and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.

5.3. Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWING or submission has been approved by the ENGINEER. A copy of each approved SHOP DRAWING and each approved sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

6. MATERIALS, SERVICES AND FACILITIES

6.1. It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.

6.2. Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.

6.3. Manufactured supplies, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer.

6.4. Material, supplies, and equipment shall be in accordance with samples submitted by the CONTRACTOR and approved by the ENGINEER.

6.5. Materials, supplies, or equipment to be incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

7. INSPECTION AND TESTING

7.1. All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.

7.2. All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.

7.3. The CONTRACTOR shall provide at his expense the testing and inspection services required by the CONTRACT DOCUMENTS.

7.4. If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing, or approval.

7.5. Inspections, tests, or approvals by the ENGINEER or others shall not relieve the CONTRACTOR from his obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.

7.6. The ENGINEER and his representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participating Federal or State agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection or testing thereof.

7.7. If any WORK is covered contrary to the written instructions of the ENGINEER it must, if requested by the ENGINEER, be uncovered for his observation and replaced at the CONTRACTOR'S expense.

7.8. If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request will uncover, expose, or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction. If, however, such WORK is not found to be defective, the CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction, and an appropriate CHANGE ORDER shall be issued.

8. SUBSTITUTIONS AND "OR-EQUALS"

8.1. Whenever a material, article, or piece of equipment is identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality, and function may be considered. The CONTRACTOR may recommend the use of an "or-equal" manufacturer or supplier or substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalogue number, and if, in the sole opinion of the ENGINEER, such material, article, or piece of equipment is of equal substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Factors to be considered, but not limited to, include materials of construction, quality, durability, appearance, strength, design characteristics, reliability, performance, experience, economy of operation, and availability of responsive service.

8.2. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS for substitute and "or-equal" items and shall be appropriately modified by a CHANGE ORDER. The CONTRACTOR warrants that if substitutes or "or-equals" are approved, no major changes in the function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute, or "or-equal" item will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME. The CONTRACTOR shall be solely responsible for any changes to the design required to accommodate the use of substitute items, including reimbursement of the OWNER for ENGINEERS documented costs. Reimbursement of ENGINEERS cost to evaluate substitute items shall not depend on the final acceptability of substitute items. OWNER may require CONTRACTOR to furnish at CONTRACTORS expense a special performance guarantee or other surety with respect to any substitute. The CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" item at CONTRACTORS expense.

8.3. The ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to this paragraph. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute or "or-equal" item. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute shall be ordered, installed, or utilized until ENGINEERS review is complete, which

will be evidenced by a CHANGE ORDER in the case of a substitute or an approved Shop Drawing for an "or-equal". ENGINEER will advise CONTRACTOR in writing of any negative determination.

9. PATENTS

9.1. The CONTRACTOR shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and save the OWNER harmless from loss on account thereof. Except that the OWNER shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, however, if the CONTRACTOR has reason to believe that the design process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the ENGINEER.

10. SURVEYS, PERMITS, REGULATIONS

10.1. The OWNER shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of benchmarks adjacent to the WORK as shown in the CONTRACT DOCUMENTS. From the information provided by the OWNER, unless otherwise specified in the CONTRACT DOCUMENTS, the CONTRACTOR shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations, and cut sheets.

10.2. The CONTRACTOR shall carefully preserve benchmarks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

10.3. Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses, and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the OWNER, unless otherwise specified. The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR observes that the CONTRACT DOCUMENTS are at variance therewith, he shall promptly notify the ENGINEER in writing and any necessary changes shall be adjusted as provided in Section 13. CHANGES IN THE WORK.

11. PROTECTION OF WORK, PROPERTY, AND PERSONS

11.1. The CONTRACTOR will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways,

structures, and utilities not designated for removal, relocation or replacement in the course of construction.

11.2. The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury, or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER or the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.

11.3. In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury, or loss. He will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall be issued covering the changes and deviations involved.

12. SUPERVISION BY CONTRACTOR

12.1. The CONTRACTOR will supervise and direct the WORK. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the WORK.

13. CHANGES IN THE WORK

13.1. The OWNER may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

13.2. The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles him to a change in CONTRACT PRICE or TIME, or both, in which event he shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered

change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days. The CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER.

14. CHANGES IN CONTRACT PRICE

14.1. The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:

(a) Unit prices previously approved.

(b) An agreed lump sum.

(c) The actual cost for labor, direct over-head, materials, supplies, equipment, and other services necessary to complete the work. In addition there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual cost of the WORK to cover the cost of general overhead and profit. In no case shall the value of materials, supplies, equipment, and other services exceed actual cost or as identified in RS Means or equivalent, latest edition.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1. The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.

15.2. The CONTRACTOR will proceed with the WORK at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.

15.3. If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, then the CONTRACTOR will pay to the OWNER the amount for liquidated damages as specified in the BID for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS.

15.4. The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following, and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.

15.4.1. To any preference, priority, or allocation order duly issued by the OWNER.

15.4.2. To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a CONTRACT with the OWNER, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

15.4.3. To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.

16. CORRECTION OF WORK

16.1. The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in the construction or not and the CONTRACTOR shall promptly replace and re-execute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.

16.2. All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CONTRACTOR does not take action to remove such rejected WORK within ten (10) days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

17. SUBSURFACE CONDITIONS

17.1. The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:

17.1.1. Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS; or

17.1.2. Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.

17.2. The OWNER shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless he has given the required WRITTEN NOTICE, provided that the OWNER may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

18. SUSPENSION OF WORK, TERMINATION AND DELAY

18.1. The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR,

by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which notice shall fix the date on which WORK shall be resumed. The CONTRACTOR will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.

18.2. If the CONTRACTOR is adjudged a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganized under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials, or equipment or if he disregards laws, ordinances, rules, regulations, or orders of any public body having jurisdiction of the WORK or if he disregards the authority of the ENGINEER, or if he otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment, and machinery thereon owned by the CONTRACTOR, and finish the WORK by whatever method he may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

18.3. Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.

18.4. After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the Contract. In such case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.

18.5. If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and presentation, then the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK executed and all expenses sustained. In addition,

and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon then (10) days WRITTEN NOTICE to the OWNER and the ENGINEER stop the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

18.6. If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

19. PAYMENTS TO CONTRACTOR

19.1. At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER'S title to the material and equipment and protect his interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing his reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within ten (10) days of presentation to him of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate. The OWNER shall retain an amount not exceeding ten (10) percent of each payment limited to five (5) percent of the total contract amount until final completion and acceptance of all work covered by the CONTRACT DOCUMENTS. On completion and acceptance of a part of the WORK on which the price is stated separately in the CONTRACT DOCUMENTS, payment may be made in full, including retained percentages, less authorized deductions.

19.2. The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site.

19.3. Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or substantially completed portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.

19.4. The OWNER shall have the right to enter the premises for the purpose of doing work not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNER.

19.5. Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted by him under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK.

19.6. The CONTRACTOR will indemnify and save the OWNER or the OWNER'S agents harmless from all claims growing out of the lawful demands of SUBCONTRACTORS, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged where upon payment to the CONTRACTOR shall be resumed, in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, his Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.

19.7. If the OWNER fails to make payment thirty (30) days after approval by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the CONTRACTOR.

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1. The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligations under the CONTRACT DOCUMENTS or the Performance BOND and Payment BONDS.

21. INSURANCE

21.1. The CONTRACTOR shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S execution of the WORK, whether such execution be by himself or by any SUBCONTRACTOR or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

21.1.1. Claims under workmen's compensation, disability benefit, and other similar employee benefit acts:

21.1.2. Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees:

21.1.3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees:

21.1.4. Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other person; and

21.1.5. Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

21.2. Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverages afforded under the policies will not be canceled unless at least fifteen (15) days prior WRITTEN NOTICE has been given to the OWNER.

21.3. The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, liability insurance as hereinafter specified:

21.3.1. CONTRACTOR'S General Public Liability and Property Damage Insurance including vehicle coverage issued to the CONTRACTOR and protecting him from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the CONTRACT DOCUMENTS, whether such operations be by himself or by any SUBCONTRACTOR under him, or anyone directly or indirectly employed by the CONTRACTOR or by a SUBCONTRACTOR under him. Insurance shall be written with a limit of liability of not less than $1,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident: and a limit of liability of not less than $1,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than $500,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than $500,000 aggregate for any such damage sustained by two or more persons in any one accident.

21.3.2. The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the PROJECT to the full insurable value thereof for the benefit of the OWNER, the CONTRACTOR, and SUBCONTRACTORS as their interest may appear. This provision shall in no way release the CONTRACTOR or CONTRACTOR'S surety from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.

21.4. The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, in accordance with the provisions of the laws of the state in which the work is performed. Workmen's Compensation Insurance, including occupational disease provisions, for all of his employees at the site of the PROJECT and in case any work is sublet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous work under this contract at the site of the PROJECT is not protected under Workmen's Compensation statue, the CONTRACTOR shall provide, and shall cause each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of his employees not otherwise protected.

21.5. The CONTRACTOR shall secure, if applicable, "All Risk" type Builder's Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the CONTRACT TIME, and until the WORK is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, the ENGINEER, and the OWNER.

22. CONTRACT SECURITY

22.1. The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with a Performance Bond and a Payment Bond in penal sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by the CONTRACTOR of all undertakings, covenants, terms, conditions, and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed and named on the current "Department of the Treasury's Listing of Approved Sureties (Department Circular 570)." The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the listing of approved sureties, CONTRACTOR shall within ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further

payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNER.

23. ASSIGNMENTS

23.1. Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign, or otherwise dispose of the Contract or any portion thereof, or of his right, title, or interest therein, or his obligations thereunder, without written consent of the other party.

24. INDEMNIFICATION

24.1. The CONTRACTOR will indemnify and hold harmless the OWNER and the ENGINEER and their agents and employees from and against all claims, damages, losses, and expenses including attorney's fees arising out of or resulting from the performance of the WORK, provided that any such claims, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom: and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

24.2. In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way be any limitation on the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under workmen's compensation acts, disability benefit acts or other employee benefits acts.

24.3. The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or approval of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs, or SPECIFICATIONS.

25. SEPARATE CONTRACTS

25.1. The OWNER reserves the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK and shall properly connect and coordinate his WORK with theirs. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.

25.2. The OWNER may perform additional WORK related to the PROJECT by himself, or he may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are parties to such Contracts (or the OWNER, if he is performing the additional WORK himself), reasonable opportunity for the introduction and storage of materials and equipment

and the execution of WORK, and shall properly connect and coordinate his WORK with theirs.

25.3. If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entitles him to an extension of the CONTRACT TIME, he may make a claim therefor as provided in Sections 14 and 15.

26. SUBCONTRACTING

26.1. The CONTRACTOR may utilize the services of specialty SUBCONTRACTORS on those parts of the WORK which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.

26.2. The CONTRACTOR shall not award WORK to SUBCONTRACTOR(S), in excess of fifty (50%) percent of the CONTRACT PRICE, without prior written approval of the OWNER.

26.3. The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of his SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

26.4. The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS in so far as applicable to the WORK of SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.

26.5. Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

27. ENGINEER'S AUTHORITY

27.1. The ENGINEER shall act as the OWNER'S representative during the construction period. He shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed. He shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The ENGINEER will make visits to the site and determine if the WORK is proceeding in accordance with the CONTRACT DOCUMENTS.

27.2. The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship, and execution of the WORK. Inspections may be made at the factory or fabrication plant of the source of material or equipment supply.

27.3. The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

27.4. The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

28. LAND AND RIGHTS-OF-WAY

28.1. Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS, unless otherwise mutually agreed.

28.2. The OWNER shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.

28.3. The CONTRACTOR shall provide at his own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

29. GUARANTY

29.1. The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one (1) year from the date of SUBSTANTIAL COMPLETION. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION of the system that the completed system is free from all defects due to faulty materials or workmanship and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance BOND shall remain in full force and effect through the guarantee period.

30. DISPUTES

30.1. If the parties are unable to resolve a dispute, claim, or controversy relating to this Contract by direct discussions or by voluntary nonbinding mediation, the OWNER and the CONTRACTOR may pursue their respective remedies at law or equity.

31. TAXES

31.1. The CONTRACTOR will pay all sales, consumer, use and other similar taxes required by the law of the place where the WORK is performed.

END OF SECTION

SECTION 00 7300

SUPPLEMENTAL GENERAL CONDITIONS

1. DEFINITIONS

1.1. The following shall be added to the definitions listed in the General Conditions:

(a) APPROVED - shall mean as approved, directed, required or permitted by the Engineer, unless specified otherwise.

(b) CITY, COUNTY, OR AUTHORITY – Fayetteville Public Utilities, Fayetteville, Tennessee

(c) CONTRACT DOCUMENTS - The Contract Documents shall also include Certificate of Owner's Attorney, General Conditions, Supplemental General Conditions, funding agency requirements, EEO and MBE/WBE requirements, wage rate decisions, and all other certificates, regulations and documents herein bound.

(d) ENGINEER -FOXPE LLC, or its lawfully designated successor.

(e) OWNER - Fayetteville Public Utilities, Fayetteville, Tennessee

(f) OWNER'S ATTORNEY – John T Bobo

(g) SUBSTANTIAL COMPLETION - The determination as to whether the project is sufficiently complete so it can be utilized for its intended purposes will be based upon a consideration of completion items and submittals specified in the Specifications.

(h) SUPPLEMENTAL GENERAL CONDITIONS - Also such modifications to the General Conditions as the Owner or Engineer may deem necessary.

(i) The SITE is the location of the proposed WORK as shown on the Drawings.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

2.1. (RESERVED)

3. SCHEDULES, REPORTS, AND RECORDS

3.1. Each such schedule is to be subject to change from time to time in accordance with the progress of the work.

3.2. The Contractor shall also furnish on forms to be supplied by the Owner and/or his Engineer:

(a) a detailed estimate giving a complete breakdown of a lump sum contract price and

(b) periodic itemized estimates of work done for the purpose of making partial payments thereon.

The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the Contract Price.

4. DRAWINGS AND SPECIFICATIONS

4.1. The Drawings, Specifications and Addenda shall form part of this Contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. The table of contents, titles, headings, running headlines and marginal notes contained in the Contract Documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect, limit, or cast light on the interpretation of the provisions to which they refer.

4.2. Upon award of the Contract, the Contractor upon request will be supplied free of charge up to six complete sets of the Drawings and Specifications. If the Contractor requests additional prints or specifications, they will be furnished to him at cost at the Contractor's expense.

4.3. The Contractor shall keep on the job a copy of the Drawings and Specifications and shall at all times give the Owner and Engineer access thereto. Anything mentioned in the Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Specifications shall be of like effect as if shown or mentioned in both.

4.4. The Contractor shall not take advantage of any errors or omission which may exist in the Drawings and Specifications but shall immediately call them to the attention of the Engineer whose prompt interpretation or correction thereof shall be conclusive.

5. SHOP DRAWINGS

5.1. After checking and verifying all field measurements, the Contractor shall submit to the Engineer for review one electronic PDF set of all Shop Drawings, which shall have been checked by and stamped with the approval of Contractor and identified as the Engineer may require. The data shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction and the like to enable the Engineer to review the information as required.

5.2. The Contractor shall also submit for the Engineer's review with such promptness as to cause no delay in work, all samples required by the Contract Documents. All samples will have been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended.

5.3. At the time of each submission, the Contractor shall in writing call the Engineer's attention to any deviations that the Shop Drawing or sample may have from the requirements of the Contract Documents.

5.4. The Engineer will review with reasonable promptness those Shop Drawings and samples submitted in accordance with the Contractor's approved Submittal Schedule, but his review shall be only for general conformance with the information given in the Contract Documents. The Contractor shall make any corrections required by the Engineer and shall return the required number of corrected copies of Shop Drawings and resubmit new samples. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by the Engineer on previous submissions. Contractor's stamp of approval on any Shop Drawing or sample shall constitute a representation to the Owner and the Engineer that the Contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, or he assumes full responsibility for doing so, and that he has reviewed or coordinated each Shop Drawing or sample with the requirements of the work and the Contract Documents.

5.5. Engineer's review of Shop Drawings or samples shall not relieve the Contractor from his responsibility for any deviations from the requirements of the Contract Documents unless the Contractor has in writing called the Engineer's attention to such deviation at the time of submission and the Engineer has concurred in writing with the specific deviation, nor shall any review by the Engineer relieve the Contractor from responsibility for errors or omissions in the Shop Drawings.

5.6. Once approved, the Contractor shall submit four paper sets of all Shop Drawings.

6. MATERIALS, SERVICES AND FACILITIES

6.1. Any work necessary to be performed after regular working hours, on Sundays or on legal holidays, shall be performed without additional expense to the Owner.

6.2. The Contractor warrants that he has good title to all materials, supplies, and equipment used by him in the work.

6.3. All materials required in the work may be stored on the site upon which the project is to be constructed, subject to approval by the Engineer, but all such materials, tools, and machinery shall be neatly and compactly stored in such a manner as to not interfere with traffic and to cause the least inconvenience to the property owners. All fire hydrants must at all times be kept free and unobstructed, and water and gas shut-off boxes, underground power and telephone line manholes must not be covered by such materials.

6.4. Materials, tools, and machinery shall not be piled or placed against trees unless the trees shall be amply protected against injury therefrom. All materials, tools, machinery, etc., stored upon public thoroughfares must be provided with warning lights at night to warn the traffic of such obstruction.

6.5. The Contractor shall make his own arrangements for delivery and handling of equipment and materials as he may require for the prosecution of the work. The location of all temporary lines, roadways and similar facilities shall be subject to

the approval of the Engineer, and these shall be located and operated so as not to interfere with other work carried on by the Owner or by other contractors.

6.6. It is agreed that any temporary power lines, roadways or other facilities which the Contractor furnishes, installs, maintains, and removes at the completion of the work, may be used by the Owner or any of its contractors at such reasonable time or times as may be directed by the Engineer. Likewise, it is provided that similar facilities of other contracts will become available to the Contractor under similar conditions.

6.7. Adequate sanitary facilities shall be provided by the Contractor. All such sanitary facilities shall conform to the requirements of the respective State and County Departments of Public Health.

6.8. Office space and furnishings for the Resident Project Representative, if required, will be as specified in the Specifications. If required, office space must be provided before the Contractor's first partial payment estimate will be approved. No separate payment shall be made for office space.

6.9. Contractor shall furnish six hard hats which shall be made available to authorized representatives and agents of the Owner and any interested governmental agency while visiting the job site.

7. INSPECTION AND TESTING

7.1. Where testing and inspection of materials or equipment are required by the Contract supplying the applicable materials and equipment, as no separate payment will be made for these services. The laboratory or inspection agency shall be approved by the Owner.

7.2. Where mill tests of materials are required by the Engineer under the Contract Documents, Contractor shall furnish certified copies of such mill tests.

7.3. Where shop equipment performance tests are specified, the Engineer shall be permitted to witness such tests. In the absence of a witnessed test, certified copies of shop tests shall be submitted at the discretion of the Engineer. Cost of Engineer's services and any travel and associated room and board to witness this test will be borne by the Contractor.

7.4. No payment will be made to the Contractor for samples taken for tests such as concrete cylinders, etc., where testing is required by the Contract Documents.

8. SUBSTITUTIONS AND “OR-EQUALS”

8.1. The Owner, through the Engineer, will consider proposals for substitution of materials, equipment, and methods or “or-equal” items only when such proposals are accompanied by full and complete technical data and all other information required to evaluate the proposed substitution.

8.2. The Contractor shall not substitute materials, equipment, or methods unless such substitution or “or-equal” item has been specifically approved for this project by the Engineer.

8.3. The Contract, if awarded, will be on the basis of materials, equipment, and methods defined and specified in the Contract Documents, Specifications, and Drawings, or substitute or “or-equal” materials and equipment as defined in paragraph 8 of the General Conditions approved by the Engineer and identified by Addendum. Request for Engineer’s clarification of materials and equipment considered “or-equal” prior to the Effective Date of the Agreement must be received by the Engineer at least 10 days prior to the date for receipt of bids. Request for Engineer’s clarification of materials and equipment considered as substitutes prior to the Effective Date of the Agreement must be received by the Engineer at least 15 days prior to the date for receipt of bids. Each request must conform to the requirements of the General Conditions and shall be made only by the bidding Contractor. The burden of proof of the merit of the proposed item is upon the Contractor and the Engineer’s decision of approval or disapproval will be final. If Engineer approves any proposed “or-equal” or substitute item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidding Contractors shall not rely upon approvals in any other manner.

8.4. The Contractor shall verify prior to bidding that all specified items will be available in time for installation during orderly and timely progress of the project.

8.5. In the event specified items will not be so available, the Contractor shall notify the Engineer prior to receipt of bids.

8.6. Costs of delays because of non-availability of specified items, when such delays could have been avoided by the Contractor, will be back charged as necessary and shall not be borne by the Owner.

8.7. In cases where experience clauses are used, an alternate bond or cash deposit may be accepted from manufacturers which do not meet the specified experience period. The bond or cash deposit provided by the manufacturer or supplier will guarantee replacement of the equipment or process in the event of failure or unsatisfactory service. The period of time for which the bond or cash deposit is required shall be the same as the experience period of the time specified.

9. PATENTS

9.1. License and/or royalty fees for the use of a process which is authorized by the Owner of the project must be reasonable and paid to the holder of the patent, or his authorized licensee, directly by the Owner and not by or through the Contractor.

10. SURVEYS, PERMITS, REGULATIONS

10.1. The baseline and benchmark, if applicable, are indicated on the Drawings. The Contractor shall be responsible for all surveying required for laying out and constructing the Work.

10.2. The Contractor shall procure all permits and licenses, pay all charges or fees, and give all notices necessary for the completion of the work.

11. PROTECTION OF WORK, PROPERTY AND PERSONS

11.1. In order to protect the lives and health of his employees under the Contract, the Contractor shall comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., and shall maintain an accurate record of all cases of death, occupational disease and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract.

11.2. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances and methods, and for any damage which may result from their failure or their improper construction, maintenance, or operation.

11.3. The Contractor shall, at his own expense, shore up and protect any buildings, bridges, or other public or private structures which may be encountered or endangered in the prosecution of the work, and that may not be otherwise provided for, and he shall repair and make good any damages to such property by reason of his operations. All existing fences which were removed by the Contractor due to prosecution of the work shall be replaced by the Contractor. No extra payment will be made for said work or materials.

11.4. Contractor shall repair or replace at his own expense any existing water pipes, power and communication lines, or other public utilities, roads, drainpipes, sewers, drainage ditches and all plantings (including grass) that are damaged during construction. The site shall be left in its present condition after all cleanup work has been done. Any damage to drainage or water pipes, local sewers, or plantings (including grass, utilities, roads, parking space, or other structures) shall be repaired and replaced immediately in the condition found. Such repairs and replacement shall be at the expense of the Contractor.

11.5. Contractor shall preserve all governmental markers (e.g. U.S.G.S., T.V.A., etc.), and none such will be removed or disturbed without prior approval of the Engineer. Any removal and replacement of such markers shall be at the expense of the Contractor.

11.6. The Contractor shall employ watchmen on the work as necessary to protect the work from damage, vandalism, etc., and shall, when necessary, erect and maintain such strong and suitable barriers and such lights as will effectually prevent the happening of any accident to health, limb or property. Lights shall be maintained between the hours of one-half hour before sunset and one-half hour after sunrise.

11.7. Contractor will be required, at his own expense, to do everything necessary to support, protect and sustain all sewer, water or gas pipe; service pipes; electric lights; power, telephone, or telegraph poles; conduits; and other fixtures laid across or along the site of the work. The Engineer, as well as the company or

the corporation owning said poles, pipes or conduits, must be notified by the Contractor before any such fixtures are removed or molested. In case any of the said sewer, gas, or water pipes; service pipes; electric lights; power, telephone or telegraph poles; conduits; or other fixtures are damaged, they shall be repaired by the authorities having control of the same, and the expense of said repairs shall be deducted from the monies due or to become due the Contractor under this Contract.

11.8. Should it become necessary to temporarily change the position or remove any poles, electric conduits, water pipes, gas pipes, or other pipes or wires, the Contractor shall notify the Engineer and company or the corporation owning said poles, pipes or conduits of the location and circumstances, and shall cease work if necessary, until satisfactory arrangements have been made by the owners of the said poles, pipes, conduits, or wires to properly care for the same. No claims for damages will be allowed on account of any delay occasioned thereby. The entire cost of such temporary changes or removal must be included in the unit or lump sum prices bid for the various items of work under this Contract.

11.9. In the event of temporary suspension of work, or during inclement weather, or whenever the Engineer shall direct, the Contractor will, and will cause his subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Engineer, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his subcontractors to so protect the work, such materials shall be removed and replaced at the expense of the Contractor.

11.10. Before, during, and after installation, the Contractor shall furnish and maintain satisfactory protection to all equipment against injury by weather, flood or breakage, thereby permitting the work to be left in a perfect condition at the completion of the contract. No extra payment will be made for this work but the entire cost of the same shall be included in the price bid for the construction of the work done under this contract.

11.11. All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall strictly conform with the manufacturer's instructions.

11.12. Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

12. SUPERVISION BY CONTRACTOR

12.1. It is understood that the Contractor's representative shall be one who can be continued in that capacity for the particular job involved unless he ceases to be

on the Contractor's payroll. Changes in supervision must be approved by the Engineer.

13. CHANGES IN THE WORK

13.1. All Change Orders, including a change in technical design or an increase in cost, must be approved by the Owner, the Engineer and those governmental agencies whose approval is required.

13.2. Before executing any Change Order involving adjustment of the contract price, where necessary and desirable, the Contractor shall first obtain the consent of his surety.

13.3. No claim for extra work or cost shall be allowed unless the same was done in pursuance of a written order of the Engineer approved by the Owner. When the work is performed under the terms of the General Conditions, the Contractor shall furnish satisfactory bills, payrolls, and vouchers covering all items of cost and when requested by the Owner, give the Owner access to accounts relating thereto.

13.4. The location of utility lines, pavements, and other appurtenant construction shown on the Drawings may be raised or lowered, may be moved from one location to another, or may be lengthened or shortened by the Owner because of clearances needed, easement changes, design changes, or any other reason. In such case, the Contractor shall be entitled to payment for the work based on the unit prices shown in the Bid Schedule. No additional payment will be allowed because of such changes unless the Contractor notifies the Owner in writing prior to commencing that portion of the work and an appropriate change order is prepared.

13.5. If additional time is requested on account of a change in the work, the documentation of the basis for the requested time shall include a detailed justification and calculation relating the time extension to the project schedule and critical path. Any time extensions claimed for abnormal weather must be supported by historical weather records for the period in question. Generally, for changes that do not directly affect work elements on the critical path of the project, additional time will be granted only in proportion to the cost of the change over the original contract price.

13.6. Failure to submit the written notice or failure to document the basis for the change in contract price or time within the times specified shall bar the Contractor from all future claims for a change in contract price or an extension of time on account of the change.

13.7. Changes in contract price will not be granted in connection with so-called “Acts of God” or nature (i.e., floods, storms, earthquakes, etc.).

14. CHANGES IN CONTRACT PRICE

14.1. For any change in contract price, the Contractor shall submit a detailed price breakdown sufficient to permit analysis of all material, labor, equipment,

subcontract, and overhead costs, as well as profit, regardless of whether the change is an increase or a decrease in price. Any amounts claimed by subcontractors must be supported by a similar price breakdown.

14.2. The change in contract price shall be deemed to cover all costs, overhead, and profit attributable to the change, including any delays or impacts related thereto. There will be no reservation of rights for future or further increases in contract price in connection with a particular change.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1. The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain, and said amount shall be retained from time to time by the Owner from current periodic estimates.

15.2. The Owner will suffer financial loss if the project is not Substantially Completed on the date set forth in the Contract Documents. The Contractor and his Surety shall be liable for and shall pay to the Owner the sums stipulated in the Bid or Contract as fixed, agreed, and liquidated damages for each calendar day of delay until the project is Substantially Completed.

16. CORRECTION OF WORK

16.1. If, in the opinion of the Engineer, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the work injured or not performed in accordance with the Contract Documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as, in the judgment of the Engineer, shall be equitable.

16.2. If Engineer considers it necessary or advisable that the work be observed by the Engineer or inspected or tested by others, the Contractor, at the Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the work in question, furnishing all necessary labor, material and equipment. If it is found that such work is defective, the Contractor shall pay all claims, costs, losses and damages caused by, arising out of or resulting from such uncovering, exposure, observation, inspection and testing and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and the Owner shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, may make a claim therefore as provided herein. If, however, such work is not found to be defective, the Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, the Contractor may make a claim therefore as provided herein.

17. SUBSURFACE CONDITIONS

17.1. Owner and Engineer make no representations or guarantee, either expressed or implied, about any subsurface conditions that may be encountered within the scope of the project. The Contractor should satisfy himself/herself by on-site inspections, core-drillings or other methods of the subsurface conditions that may be encountered. The risk of encountering and correcting such subsurface conditions shall be borne solely by the Contractor, and the Contract price shall include the cost of performing the work complete-in-place.

17.2. The Engineer may have made certain subsurface explorations in the vicinity of the work to be constructed under this Contract. These borings were made only for the Engineer's information in designing the project. Copies of these logs of borings and their locations will be provided to prospective Bidders upon request. These logs of borings are furnished only as information to Bidders for whatever interpretation and use they desire to make of conditions found when the borings were made. The Owner and Engineer do not warrant that the same conditions exist between borings and the Bidder shall satisfy himself as to the nature of the subsurface conditions throughout the project. If the Bidder wishes to make borings at any location, he shall be afforded the opportunity to do so. Cost of such borings shall be at the Bidder's expense.

18. SUSPENSION OF WORK, TERMINATION, AND DELAY

18.1. In the event a portion of the work is delayed or interrupted, the Contractor shall continue to prosecute those portions of the work unaffected by the delay or interruption.

18.2. In the event of a delay or interruption in the work, the Contractor shall make reasonable and appropriate adjustments in his job site resources (manpower and equipment) to minimize the overall cost impact of the delay or interruption.

18.3. In the event of a delay or interruption in the work due to the failure of the Owner or Engineer to act within the time specified in the Contract Documents, or if no time is specified, within a reasonable time, the Contractor shall so notify the Engineer in writing immediately upon becoming aware of the delay. The Contractor shall submit a detailed justification for any claim for adjustment in contract price or extension in contract time on account of the delay or interruption as soon as the price or time impact can be quantified, but in no case later than 30 days following the end of the delay or interruption. Failure to submit the written notification or the justification within the time specified shall bar the Contractor from all future claims for adjustment in contract price or time on account of the delay.

19. PAYMENTS TO CONTRACTOR

19.1. No separate payment will be made for any items specified in the General Conditions or Supplemental General Conditions. Payments for such items shall be included in the unit price and lump sum prices bid by the Contractor for items listed in the Bid Schedule.

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1. (RESERVED)

21. INSURANCE

21.1. Each insurance policy shall be renewed at least 30 days before the expiration date thereof.

21.2. Insurance must be carried by a recognized insurance company licensed to do business in the state in which the project is constructed and approved by the Owner's Attorney.

21.3. The Contractor's and his Subcontractor's Public Liability and Property Damage Insurance shall provide protection in the amounts specified in Paragraph 21.3.1 of the General Conditions and as further specified in the Special Conditions (if included) against the following special hazards:

(a) Blasting damage

(b) Damage to existing structures

(c) Damage to private driveways, walks, shrubbery, plantings, etc.

(d) Damage to public utilities, electric, water, telephone, gas, sewerage, etc.

(e) Damage to U.S. Government markers.

21.4. The Contractor shall not commence work under this Contract until he has obtained all the insurance required and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on his subcontract until the insurance required of the subcontractor has been so obtained and approved.

21.5. In the event any insurance coverage should be canceled or allowed to lapse, Contractor will not be permitted to work until adequate and satisfactory insurance is in effect. Failure to keep insurance policies in effect WILL NOT be cause for any claims for extension of time under this Contract.

21.6. Limits of liability for general public liability and property damage insurance shall not be less than:

(a)	Bodily Injury	$1,000,000 each person $1,000,000 each occurrence
(b)	Property Damage	$500,000 each occurrence $500,000 aggregate

21.7. Limits of liability for comprehensive motor vehicle liability and property damage insurance.

(a)	Bodily Injury	$1,000,000 each person $1,000,000 each occurrence

(b) Property Damage $250,000 each occurrence

21.8. The Contractor shall provide builder's risk insurance to protect the Contractor and the Owner against risks of damage to buildings, structures, materials, and equipment not otherwise covered under installation floater insurance, from the perils of fire and lightning, the perils included in the standard extended coverage endorsement, and the perils of vandalism and malicious mischief. The amount of such insurance shall be not less than the insurable value of the work at completion less the value of the materials and equipment insured under installation floater insurance. If the work does not include the construction of building structures, builder's risk insurance may be omitted providing the installation floater insurance fully covers the work.

21.9. The Contractor shall provide installation floater insurance to protect the Contractor and the Owner from all insurable risks of physical loss or damage to materials, products and equipment not otherwise covered under builder's risk insurance while in warehouses or storage areas, during installation, during testing, and after the work is completed. Equipment such as pumps, motors, engine-generators, compressors, process equipment, switchgear, transformers, panel boards, control equipment, and other similar equipment shall be insured under installation floater insurance when the aggregate value of the equipment exceeds $10,000.

21.10. If the work does not include the construction of building structures or installation of equipment, the builder’s risk insurance and installation floater insurance may be omitted.

22. CONTRACT SECURITY

22.1. A Payment Bond in the amount of 100 percent of the contract price and a Performance Bond in the amount of 100 percent of the contract price shall be required in the form set forth in the Contract Documents.

23. ASSIGNMENTS

23.1. In case the Contractor assigns all or any part of any monies due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to the Contractor shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for the performance of the work called for in this contract.

24. INDEMNIFICATION

24.1. (RESERVED)

25. SEPARATE CONTRACTS

25.1. (RESERVED)

26. SUBCONTRACTING

26.1. The Contractor shall not award any work to any Subcontractor without prior written approval of the Owner, which approval will not be given until the Contractor submits to the Owner a written statement concerning the proposed award to the Subcontractor, which statement shall contain such information as the Owner may require.

27. ENGINEER'S AUTHORITY

27.1. The Engineer may appoint such resident project representatives as he may desire. Scope of the resident project representative's authority will extend to all parts of the work and to the preparation and manufacture of the materials to be used. A resident project representative is placed on the work to keep the Engineer and Owner informed as to the progress of construction and the manner in which it is being done and also to call to the attention of the Contractor any deviation from the Drawings and Specifications.

27.2. The resident project representatives have the authority to reject defective material or work that is being improperly done subject to the final decision of the Engineer. The resident project representatives are not authorized to revoke, alter, enlarge, or relax the provisions of these conditions, nor are they authorized to approve or accept any portion of the completed work, or to issue instructions contrary to the Drawings and Specifications.

27.3. The Contractor may request written instructions from the Engineer upon any important items which lie within the resident project representative's jurisdiction.

28. LAND AND RIGHTS-OF-WAY

28.1. In the event all land and rights-of-way have not been obtained as herein contemplated before construction begins, the Contractor shall begin the work upon such land and rights-of-way as the Owner may have previously acquired, and no claim for damages whatsoever will be allowed by reason of the delay in obtaining the remaining land and rights-of-way. Should the Owner be prevented or enjoined from proceeding with the work, or from authorizing its prosecution, either before or after the commencement, by reason of any litigation, or by reason of its inability to procure any lands or rights-of-way for the work, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay, or to withdraw from the Contract except by consent of the Owner; but time for completion of the work will be extended to such time as the Owner determines will compensate for the time lost by such delay such determination to be set forth in writing.

29. GUARANTY

29.1. (RESERVED)

30. DISPUTES

30.1. (RESERVED)

31. TAXES

31.1. (RESERVED)

32. CONFLICTING CONDITIONS

32.1. Any provision in any of the Contract Documents which may be in conflict or inconsistent with any of the paragraphs in the General Conditions or the Federal Regulations shall be void to the extent of such conflict or inconsistency except if when and as clarified by the Supplemental General Conditions. Interpretations of any conflicts not clarified may be requested by the Contractor in writing to the Engineer. In the event of conflicts between funding agency documents, the more restrictive will apply.

32.2. In case of unresolved conflict between items of the Contract Documents, the following order of precedence shall govern, with the higher item taking precedence over a lower item:

(a) Contract (including Supplemental Agreements and Change Orders thereto)
(b) Addenda
(c) Bid Proposal
(d) Supplemental General Conditions
(e) General Conditions
(f) Specifications
(g) Governing Standard Specifications
(h) Schedules on Drawings
(i) Notes on Drawings
(j) Details on Drawings
(k) Large Scale Drawings
(l) Small Scale Drawings
(m) Dimensions Given in Figures
(n) Scaled Dimensions

32.3. In the event of any discrepancy between any drawing and the figure written thereon, the figures, unless obviously incorrect, shall be taken as correct.

33. REQUIRED PROVISIONS DEEMED INSERTED

33.1. Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract shall forthwith be physically amended to make such insertion or correction.

34. PROHIBITED INTEREST

34.1. No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this Contract or to any benefit that may arise

therefrom, but this provision shall not be construed to extend to this Contract if made with a corporation for its general benefit.

34.2. No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve, or to take part in negotiating, making, accepting or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the Project, shall become directly or indirectly interested personally in this Contract or in any part hereof. No officer, employee, architect, attorney, engineer or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the Project, shall become directly or indirectly interested personally in this contract or in any part thereof, any material, supply contract, subcontract, insurance contract, or any other contract pertaining to the Project.

35. USE OF PREMISES AND REMOVAL OF DEBRIS

35.1. The Contractor expressly undertakes at his own expense:

(a) To take every precaution against injuries to persons or damage to property;

(b) To store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other contractors;

(c) To place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work;

(d) To clean up frequently all refuse, rubbish, scrap materials and debris caused by these operations, to the end that at all times the site of the Work shall present a neat, orderly and workmanlike appearance;

(e) Before final payment to remove all surplus material, false work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations, and to put the site in a neat, orderly condition;

(f) To effect all cutting, fitting or patching of his work required to make the same to conform to the Drawings and Specifications and, except with the consent of the Engineer, not to cut or otherwise alter the work of any other contractor.

36. ESTIMATE OF QUANTITIES

36.1. Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the Contract Documents including the proposal, they are given for use in comparing Bids, and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the

Owner to complete the Work contemplated by this Contract, and such increase or decrease shall in no way nullify this Contract, nor shall any such increase or decrease give cause for claims or liability for damages.

37. CONTRACTOR'S OBLIGATIONS

37.1. The Contractor shall in good workmanlike manner perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete the Work required by this Contract, within the time herein specified, in accordance with the provisions of this Contract and said Specifications and in accordance with the Drawings covered by this Contract and all supplemental drawings, and in accordance with the directions of the Engineer as given from time to time during the progress of the Work. He shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required. The Contractor shall observe, comply with and be subject to all terms, conditions, requirements, and limitations of the Contract and Specifications and shall do, carry on, and complete the entire work to the satisfaction of the Engineer and the Owner.

37.2. The Contractor shall restore disturbed areas to original or better condition.

37.3. When work performed under this Contract is in areas where easements and working agreements have been obtained by the Owner on private properties, it shall be the responsibility of the Contractor to protect trees, shrubs, gardens, etc., insomuch as is possible and to restore said properties to the satisfaction of the property owners, said protection and restoration shall include but not be limited to the fencing off of trees and shrubs, transplanting of trees and shrubs, etc., replacing topsoil removed with topsoil of equal or better quality, re-grassing, and replacing fences. All expenses for said protection and restoration shall be borne by the Contractor, and no separate payment shall be made for this work.

37.4. When work is done on private property in easements and working agreements obtained by the Owner, the Contractor shall furnish affidavits from the property owners attesting to the fact that their property has been satisfactorily restored before that portion of the work will be considered for final payment.

38. PAYMENTS BY CONTRACTOR

38.1. The Contractor shall pay (a) for all transportation and utility services not later than the 20th day of the calendar month following that in which services are rendered, (b) for all materials, tools, and other expendable equipment to the extent of 90 percent of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools, and equipment are delivered at the site of the Project, and the balance of the cost thereof not later than the 30th day following the completion of that part of the Work in or on which such materials, tools, and equipment are incorporated or used, and (c) to each of his subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his subcontractors to the extent of each subcontractor's interest therein.

39. INFORMATION TO BE FURNISHED

39.1. Contractor shall fill out all questionnaire forms completely in preparing his Bid and after award shall supply to the Engineer all pertinent information required.

40. WAIVER

40.1. It is expressly understood and agreed that any waiver granted by the Engineer or the Owner of any term, provision or covenant of this Contract shall not constitute a precedent nor breach of the same or any other terms, provisions or covenants of this Contract.

40.2. Neither the acceptance of the Work by the Owner nor the payment of all or any part of the sum due the Contractor hereunder shall constitute a waiver by the Owner of any claim which the Owner may have against the Contractor or surety under this Contract or otherwise.

41. CONNECTING OF EXISTING WORK

41.1. Contractor shall remove such existing masonry and piping as is necessary in order to make the proper connections to these structures at the locations shown. Also, he shall make the necessary pipeline, roadway, and other connections at the several points in order that on completion of the Contract, all required flows may flow through the several pipelines and structures. No extra payment shall be made for this work, but the entire cost of the same shall be included in the price bid for the various items of the Work to be done under this Contract.

42. PROGRAM AND METHOD OF CONSTRUCTION

42.1. The order or sequence of execution of the Work and the general arrangements of the construction plant to be installed shall at all times be subject to the review of the Engineer. If at any time before the commencement or during the progress of the Work, or any part of it, such features, and appliances used or to be used appear to the Engineer as insufficient, or improper, he may order the Contractor to improve their character, and the Contractor shall conform to such orders, but the failure of the Engineer to demand any increase of safety, efficiency, adequacy, or any improvement shall not release the Contractor from his obligation to secure the safe conduct and quality of the Work specified.

43. BUILDINGS AND SHANTIES

43.1. No shanties, camps, or buildings for the housing of men employed on the Work shall be erected on land owned or leased by the Owner unless a permit, in writing, is secured from the Owner allowing their construction. Should permission be asked and granted, the Contractor must comply with all regulations regarding the construction and maintenance of such buildings.

44. CONSTRUCTION METHODS AND PROTECTION OF PROPERTIES

44.1. Cooperation with Utilities - The Contractor shall be cooperative at all times with all utilities, or their duly authorized agent or contractor, installing or connecting

new services and shall coordinate all phases of the work with said utilities to avoid unnecessary delays or complications.

44.2. Damage to Property

(a) The Contractor is warned to prevent excessive dust or air pollution that may disfigure or soil any public or private facilities. The use of water sprinklers or other approved devices to reduce dust will be necessary if such is the case. Additionally, in cases of heavy rains or storms, every effort shall be made to prevent mud or water which may result due to the construction from accumulating on or damaging any property or any private owner.

(b) Contractor shall use special care in working in areas where the right-of-way crosses private property. Contractor shall also replace, at his/her own expense, any existing water pipes, power lines, communication lines, or other public utilities, roads, drainpipes, sewers, drainage ditches, and all plantings including grass and/or sod on private property. The site shall be left in its present condition after all cleanup work has been done. Any damage to drainage pipes, water pipes, local sewers, plantings (including grass and/or sod), utilities, roads, parking space, or other structures shall be repaired and replaced immediately in the condition found. Such repairs and replacement shall be at the expense of the Contractor.

44.3. Existing Sanitary, Combined and/or Storm Sewers

(a) Whenever existing sewers are broken or damaged as a result of traffic or excavation by the Contractor, the maintenance, replacement, and/or repairs to the damaged existing sanitary, combined, and/or storm sewer shall be the Contractor's responsibility, except as otherwise provided for on the Drawings and in the Contract Documents, or as authorized by the Engineer, and the expense of maintaining, repairing, replacing, or connecting to existing sewers shall be borne by the Contractor.

(b) No separate payment will be made for handling sewage from existing sewers or interrupted connections, since it shall be the responsibility of the Contractor to maintain services until such time as the proposed or relocated sewers can be constructed. If the Contractor should damage any existing sewer, such that it affects the public interest, health, or general welfare, the Contractor shall replace or repair that sewer at his/her own expense as directed by the Engineer.

(c) Contractor shall make all connections to existing sewerage facilities as shown on the Drawings.

45. SEWAGE, SURFACE, AND FLOOD FLOWS

45.1. The Contractor shall furnish all the necessary equipment, shall take all necessary precautions and shall assume the entire cost of handling any sewage, seepage, storm, surface, and flood flows which may be encountered at any time during the construction of the Work. The manner of providing for these flows shall meet the

approval of the Engineer, and the entire cost of said work shall be included in prices bid for the various items of the Work to be done under this Contract.

45.2. The Contractor will minimize siltation and bank erosion during construction.

45.3. During the period of construction, the Contractor shall cooperate with the Owner's employees in maintaining all existing collection, pumping, and treatment facilities in operation. The cost of any temporary conveyances or bypass pumping shall be included in the price bid for other items of work under this Contract, as no separate payment will be made.

45.4. The Contractor shall not discharge or allow discharge of pollutants, as defined in the Clean Water Act, including fill and sediment, into waters of the State or United States, including wetlands, unless authorized by an appropriate State or Federal permit. This prohibition specifically applies to silt and sediment in storm water runoff and in water pumped from trenches and excavations.

45.5. In the event that pollutants are discharged or otherwise released to the environment as the result of the Contractor's negligence or unlawful conduct, it is understood and agreed that the Contractor shall bear all risks associated with such release(s), shall indemnify the Owner and the Engineer from any liabilities resulting from the release(s), and shall not make any claim for additional compensation for delays or damage resulting from such release(s).

46. OBSTRUCTIONS ENCOUNTERED

46.1. In addition to showing the structures to be built under this Contract, the Drawings show certain information obtained by the Owner regarding the pipelines and other structures which exist along the site of the Work, both at and below the surface of the ground. The Owner expressly disclaims any responsibility for the accuracy or completeness of the information given on the Drawings with regard to existing structures and pipelines, and the Contractor will not be entitled to any extra compensation on account of inaccuracy or incompleteness of such information, said structures and pipelines being shown only for the convenience of the Contractor who must verify the information to his own satisfaction. The giving of this information upon the Drawings will not relieve the Contractor of his obligations to support and protect all pipelines and other structures which may be encountered during the construction of the work and to make good all damages done to such pipelines and structures as provided in these Supplemental General Conditions.

47. USE OF STREETS

47.1. During the progress of the Work, the Contractor shall make ample provision for both vehicular and foot traffic on any public road and shall indemnify and save harmless the Owner from any expense whatsoever due to his operations over said roadways. The Contractor shall also provide free access to all fire hydrants, water and gas valves located along the line of his work. Gutters and waterways must be kept open or other provisions made for the removal of storm water. Street intersections may be blocked only one-half at a time, and the Contractor shall lay and maintain temporary driveways, bridges and crossings such as in the

opinion of the Engineer are necessary to reasonably accommodate the public and to provide access to needed private driveways. In the event of the Contractor's failure to comply with these provisions, the Owner may cause the same to be done and will deduct the cost of such work from any monies due or to become due the Contractor under this Contract, but the performance of such work by the Owner or at its insistence shall serve in no way to release the Contractor from his general or particular liability for the safety of the public or the Work.

47.2. Required line crossings of all streets and roads shall be done in accordance with the applicable state Department of Transportation procedures.

47.3. Contractor will be permitted to close a street when necessary for the proper prosecution of the work. The Contractor shall keep the Police and Fire Department continuously informed as to his intentions to close streets and give the Police Department sufficient notice in order that "No Parking" signs may be placed at the proper time to clear the street for construction.

47.4. The Contractor shall maintain property barricades and flagmen to detour traffic.

47.5. At all times the Contractor is responsible for damage to city and county streets as a result of their use in this project. The streets must be kept clear of all dirt, stone, or other debris. All debris, dirt, etc., whether caused by rains, storms, spillage from trucks or otherwise, shall be kept out of sewers. The Contractor is responsible for and may not plead ignorance of city and county ordinances and amendments thereto that may affect this use of streets or sewers.

48. CONSULTING AND RESIDENT OBSERVATION SERVICES DURING CONSTRUCTION

48.1. In providing the Owner with consulting services and resident project representation during construction, the Engineers and their employees do not assume any duty to supervise construction means or methods and safety procedures followed by any contractor, subcontractor and/or their respective employees or to any other person; nor for any public liability or for property damage caused through acts of the Contractor, subcontractor and/or their respective employees or any other person.

49. SAFETY AND HEALTH REGULATIONS

49.1. The Contractor shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54).

49.2. Contractor shall allow free access to any Department of Labor Representative for inspection purposes.

50. ACCESS BY REPRESENTATIVES OF GOVERNMENTAL AGENCIES

50.1. The authorized representatives and agents of all governmental agencies involved in this project shall have access to the work at all times and shall be permitted to

inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. Contractor shall provide proper facilities for the access and inspection of the work by such persons.

51. LOCAL AND STATE LAWS

51.1. The Contractor shall abide by all local and State laws or ordinances to the extent that such requirements do not conflict with Federal laws or regulations.

52. NEW JOB OPPORTUNITIES (WHERE REQUIRED BY FUNDING AGENCY ONLY)

52.1. The Contractor shall:

(a) To the maximum extent practicable, follow hiring and employment practices which will assure that performance of the Work results in new job opportunities for the unemployed and the underemployed; and

(b) Insert or cause to be inserted the same or similar provisions in each construction subcontract.

53. CONSTRUCTION RESTRICTIONS

53.1. Heavy construction machinery shall not be used within 500 feet of residential areas between the hours of 06:30 pm and 6:30 am except as otherwise provided herein.

53.2. No blasting or drilling shall be performed within 500 feet of residential areas between the hours of 06:30 pm. and 6:30 am.

54. LEAD BASE PAINT AND JOINT SEALERS

54.1. No lead-based paints, protective coatings or joint sealers may be used on this project.

55. ASPHALT

55.1. Pursuant to the conditions as set out in the Specifications for hot asphaltic concrete binder and surface courses with particular reference to the limitations or temperature and weather conditions, the Owner may at its option and upon written notice, suspend the Contract over the winter and bad weather months. The Contract may then be resumed when weather conditions will permit the application of the above pavement, at the discretion of the Engineer. The notice to resume said contract shall be in writing. The suspended period will in no way be counted against the Contractor's allotted time to do the entire work.

55.2. This provision does not relieve the Contractor of the responsibility to maintain existing work already completed or any other responsibilities of the Contract; nor shall the Contractor, upon the basis of this fair notice herein; be eligible to make claim for or receive any damages for loss of overhead, plant expense, or anticipated profits, nor any other expenses incurred due to delay.

56. ABANDONMENT OR TERMINATION OF CONTRACT

56.1. For contracts over $10,000, the Owner reserves the right to abandon the Contract if it will be in the Owner's best interest. The Contractor will be paid a fair payment, as negotiated with the Owner, for the work completed to date.

57. EVIDENCE OF PAYMENT

57.1. Contractor may be asked to present acceptable evidence from time to time that all bills have been paid for labor, materials, and equipment for which payment on account has been made in monthly estimates. Before final payment is made, Contractor shall, if required by the Owner, present sworn affidavit that all labor, materials, equipment, and service engaged for the work have been paid in full and that there are no outstanding debts or liens on any portions of the work.

58. ACCESSIBILITY OF RECORDS (PROJECTS WITH FEDERAL FUNDS ONLY)

58.1. The Owner, representatives of applicable federal agencies, the Comptroller General of the United States, or any of their duly authorized representatives, for a period of three years beyond completion of the Contract, shall have access to any books, documents, papers, and records of the Contractor which are directly pertinent to this Project for the purpose of making audit, examination, excerpts, and transcriptions of contracts in excess of $10,000.

59. WORK WEEK, OVERTIME PAY, SHOW-UP PAY, AND ON-CALL PAY

59.1. All work performed under this Contract shall be performed on a 40-hour work week basis and shall include not only the prime Contractor but any and all subcontractors. The 40-hour work week shall be established by the Contractor at the Pre-construction Conference. Any deviation from the established work week will be approved in advance in writing by the Owner. Any additional cost incurred by the Owner due to deviations from the established work week will be borne by the Contractor. The Contractor shall provide written acknowledgment that he will pay any overtime cost incurred by the Owner at the time of requesting an increase in the 40-hour work week.

59.2. The Contractor will be assessed for each hour of overtime incurred by the Engineer’s field representative(s) as a result of extended work hours (i.e., a total of more than 40 hours per calendar week) by the Contractor or his subcontractors.

59.3. If the Contractor advises the Engineer’s field representative(s) that he will work on a particular day and subsequently decides not to work and does not so advise the representative(s) before he departs for the job site, the Contractor will be assessed an amount equal to 2 hours of the representative’s time for “show-up” pay plus round-trip travel time and mileage. Show-up pay will not be assessed in the event of inability to work due to unanticipated inclement weather.

59.4. If the Contractor requests that the Engineer’s field representative(s) be available to work on a weekend or a holiday but does not actually commit to work, the

SECTION 00 7373

SUPPLEMENTAL GENERAL CONDITIONS FOR TENNESSEE

A. LOCAL AND STATE LAWS

Senate Bill No. 1726 (Public Acts 1978 [Chapter 692]), known as the Underground Utility Damage Prevention Act (and all amendments thereto), enacted by the General Assembly of the State of Tennessee, is in its entirety to be considered a part of these documents.

B. TENNESSEE WATER QUALITY CONTROL ACT OF 1977

Tennessee Code Annotated (TCA) 69-3-108, Rule 1200-4-10-.05 (General NPDES Permit for Storm Water Discharges Associated with Construction Activity) requirements, in their entirety, shall be considered a part of these documents.

C. CONTRACTORS LICENSING ACT OF 1976

House Bill No. 2180 (Public Chapter No. 882) known as the Contractors Licensing Act of 1976 (and all amendments thereto), enacted by the General Assembly of the State of Tennessee, is in its entirety to be considered a part of these Specifications.

D. BLASTING - T.C.A. §68-105-103

Persons who conduct blasting operations must notify Department of Commerce and Insurance at least 72 hours prior to the commencement of the operation. Civil penalties may be imposed for failure to comply.

E. ESCROW ACCOUNT OF CONTRACTOR RETAINAGE (Contracts over $500,000)

1. Tennessee Code Annotated (TCA) 66-34-104 as amended (Public Chapter No. 340) House Bill No. 966 and Senate Bill No. 388. If applicable, the Owner will set up separate escrow account for deposit of retainage due Contractor in accordance with TCA 66-34-104 and amendments. These requirements shall be a part of these Specifications in their entirety.

2. TCA 66-34-104. Retention of Portion of Contract Price in Escrow — Applicability — Mandatory Compliance

    (a) Whenever, in any contract for the improvement of real property, a certain amount or percentage of the contract price is retained, that retained amount shall be deposited in a separate, interest bearing, escrow account with a third party which must be established upon the withholding of any retainage.

    (b) As of the time of the deposit of the retained funds, the funds shall become the sole and separate property of the prime contractor or remote contractor to whom they are owed, subject to the rights of the person withholding the retainage in the event the prime contractor or remote contractor otherwise entitled to the funds defaults on or does not complete its contract.

(c) In the event that the party withholding the retained funds fails to deposit the funds into an escrow account as provided herein, such party shall be responsible for paying the owner of the retained funds an additional three-hundred-dollar ($300) penalty per day for each and every day that such retained funds are not deposited into such escrow account.

(d) The party with the responsibility for depositing the retained amount in a separate, interest-bearing, escrow account with a third party shall have the affirmative duty to provide written notice that it has complied with the requirements of this section to any prime contractor upon withholding the amount of retained funds from each and every application for payment, including:

1. Identification of the name of the financial institution with whom the escrow account has been established;

2. Account number; and

3. Amount of retained funds that are deposited in the escrow account with the third party.

(e) Upon satisfactory completion of the contract, to be evidenced by a written release by the owner or prime contractor owing the retainage, all funds accumulated in the escrow account together with all interest on the account shall be paid immediately to the prime contractor or remote contractor to whom the funds and interest are owed.

(f) In the event the owner or prime contractor, as applicable, fails or refuses to execute the release provided for in subsection (c), then the prime contractor or remote contractor, as applicable, may seek any remedy in a court of proper jurisdiction and the person holding the fund as escrow agent shall bear no liability for the nonpayment of the fund to the prime contractor or remote contractor; provided, however, that all claims, demands, disputes, controversies, and differences that may arise between the owner, prime contractor or prime contractors, and remote contractor or remote contractors regarding the funds may be, upon written agreement of all parties concerned, settled by arbitration conducted pursuant to the Tennessee Uniform Arbitration Act, compiled in title 4, chapter 5, part 3, or the Federal Arbitration Act, 9 U.S.C. § 1, et seq., as may be applicable.

(g) In contracts to which the state or any department, board or agency of the state, including the University of Tennessee, is a party, interest shall be paid on the retained amounts at the same rate interest is paid on the funds of local governments participating in the local government investment pool established pursuant to § 9-4-704, for the contract period.

(h) The provisions of this section shall be applicable to the state, any department, board or agency of the state, including the University of Tennessee, and all counties and municipalities and all departments,

boards or agencies of the counties and municipalities, including all school and education boards, and any other subdivision of the state.

(i) This section shall be applicable to all prime contracts and all subcontracts thereunder for the improvement of real property when the contract amount of such prime contract is five hundred thousand dollars ($500,000) or greater, notwithstanding the amount of such subcontracts.

(j) Compliance with this section shall be mandatory and may not be waived by contract.

(k) Failure to deposit the retained funds into an escrow account as provided herein, within seven (7) days' receipt of written notice regarding such failure, is a class A misdemeanor.

[Acts 1975, ch. 345, §§ 1-4; TCA, §§ 64-1148—64-1151; Acts 1985, ch. 340, §§ 1, 2; 1986, ch. 551, § 9; 2007, ch. 189, § 43; 2007, ch. 201, §§ 1, 2; TCA § 66-11-144; Acts 2008, ch. 804, §§ 1, 2; 2010, ch. 875, § § 1, 2; 2012, ch. 609, § § 2-5.]

3. TCA 66-34-203. Withholding of Payment or Retainage by Owner

Nothing in this chapter shall prevent the owner from reasonably withholding payment or a portion of a payment to the contractor; provided, that such withholding is in accordance with the provisions of the written contract between the owner and the contractor. The owner may also withhold a reasonable amount of retainage as specified in the written contract between the owner and the contractor; provided, however, that the retainage amount may not exceed five percent (5%) of the amount of the contract.

[Acts 1991, ch. 45, § 1; 2007, ch. 201, § 4.]

4. TCA 66-34-103. Withholding of Retainage — Violations — Penalties

(a) All construction contracts on any project in this state, both public and private, may provide for the withholding of retainage; provided, however, that the retainage amount may not exceed five percent (5%) of the amount of the contract.

(b) The owner, whether public or private, shall release and pay all retainages for work completed pursuant to the terms of any contract to the prime contractor within ninety (90) days after completion of the work or within ninety (90) days after substantial completion of the project for work completed, whichever occurs first. As used in this subsection (b), work completed shall be construed to mean the completion of the scope of the work and all terms and conditions covered by the contract under which the retainage is being held. The prime contractor shall pay all retainages due any subcontractor within ten (10) days after receipt of the retainages from the owner. Any subcontractor receiving the retainage from the prime contractor shall pay to any subcontractor or material supplier all retainages due the subcontractor or material supplier within ten (10) days after receipt of the retainages.

(c) Any default in the making of the payments shall be subject to those remedies provided in this part.

(d) In the event that an owner or prime contractor withholds retainage that is for the use and benefit of the prime contractor or its subcontractors pursuant to § 66-34-104(a) and (b), neither the prime contractor nor any of its subcontractors shall be required to deposit additional retained funds into an escrow account in accordance with § 66-34-104(a) and (b).

(e) (1) It is an offense for a person, firm, or corporation to fail to comply with subsection (a) or (b) or § 66-34-104(a).

(2) (A) A violation of this subsection (e) is a Class A misdemeanor, subject to a fine only of three thousand dollars ($3,000).

(B) Each day a person, firm or corporation fails to comply with subsection (a) or (b) or § 66-34-104(a) is a separate violation of this subsection (e).

(C) Until the violation of this subsection (e) is remediated by compliance, the punishment for each violation shall be consecutive to all other such violations.

(3) In addition to the fine imposed pursuant to subdivisions (e)(2)(A) and (B), the court shall order restitution be made to the owner of the retained funds. In determining the appropriate amount of restitution, the formula stated in § 40-35-304 shall be used.

[Acts 2007, ch. 201, § 3; 2008, ch. 804, § 3; 2012, ch. 609, § 1.]

F. CONFLICTS BETWEEN DOCUMENTS

In the event of conflicts between funding agency documents, the more restrictive shall apply.

SECTION 01 1100
SUMMARY OF WORK

1. GENERAL

1.1 SCOPE

A. The work described in these Contract Documents consists of furnishing, delivering, and installing all materials, equipment, and products for the construction of water mains and bridge hanger replacements and associated surface restoration and traffic control for a complete project as shown or specified in the Contract Documents.

B. Furnish all materials, power, equipment, tools, labor, transportation, and other items necessary or convenient to the Contractor for the installation of the equipment, materials, and products specified or described in these Contract Documents and for the completion of all work to be performed by the Contractor as specified herein.

C. The work includes, but is not limited to, the following major work elements:

1. Construction of water mains
2. Replacement of water services
3. Horizontal directional drilling (HDD)
4. Bore & Jack (B&J) casing installation
5. Replacement of bridge hangers
6. Asphalt and concrete paving
7. Sidewalk restoration
8. Surface restoration
9. Traffic control
10. Earthwork
11. Coordination with affected FPU customers
12. Disinfection

1.2 PROJECT COORDINATION

A. The Contractor shall be responsible for project coordination, which includes but is not limited to the following:

1. Work of employees and subcontractors under contract to him. Conduct work to ensure compliance with schedules.
2. Submission of all invoices, progress schedules, progress reports, progress estimates, and other data needed in support of requests for payment.
3. Product and equipment deliveries adequate to maintain the schedule of construction. Report noncompliance to Owner with a recommendation for remedy.
4. Obtaining and use of all temporary structures, offices, storage sheds, and utilities.
5. Obtaining any required building permits, special permits, and approvals from all authorities having jurisdiction.

6. Testing laboratory activities associated with Contractor's scope of work.
7. Check-out of systems and equipment and start-up operations.
8. Work and operations between the Contractor and all trades in such a manner that no union labor dispute of jurisdiction arises regarding unloading, handling, installations, and connections to utilities and otherwise of the various items in the various trades.

B. Coordination with Ongoing Operations:

1. One week prior to construction activities, the Contractor shall notify property owners adjacent to work areas in writing of proposed construction. The written notification shall include a brief description of activities to be accomplished, schedule of events, and an emergency contact phone number for the contractor's project superintendent.
2. The Contractor shall notify affected utility customers at least 24 hours before interrupting the customer's service.
3. The existing water mains shall remain in operation at all times during the construction. At no time shall water service be interrupted except for connection of the new service. Service outage longer than 30 minutes shall be approved by the Owner and Engineer.
4. Traffic control shall be provided at all times in accordance with the MUTCD.
5. All work within TDOT rights-of-way shall be in accordance with the TDOT permit and requirements.
6. All work being performed shall be properly barricaded, flagged, and always notified for protection of the public. No open excavations shall be allowable overnight without appropriate public safety measures.
7. No lanes shall be closed without prior approval from Fayetteville Public Utilities (FPU). FPU shall be notified of lane closures a minimum of 48 hours in advance. During lane closures, priority shall be given to school buses and emergency vehicles to minimize impact to their operation.
8. At least one (1) lane shall remain open to traffic at all streets where work is being performed, unless noted otherwise.
9. All work shall be performed in accordance with The Fayetteville Municipal Code. Work shall not be performed in residential areas between the hours of 6:00 p.m. and 7:00 a.m., except in a case of urgent necessity in the interest of public health and safety with FPU permission.
10. All service lines under improved surfaces intended for vehicular traffic shall be cased. Casing shall be installed via HDD or a similar trenchless method. Road cuts or open cutting of improved surfaces intended for vehicular traffic is not allowable for service lines and no payment will be allowed for surface restoration associated with such service lines unless Engineer approval is provided.
11. All services and service lines around the Square shall reconnect to the existing PEX line using compression fittings in areas where the sidewalk has recently been replaced. Do not disturb, cut, or alter newly placed sidewalks, curbs, or any other decorative feature around the Square. No payment will be allowed for surface restoration of newly placed sidewalks, curbs, or any other decorative features.

1.3 SUBSTANTIAL COMPLETION

A. The work will not be considered to be fully functional and usable by the Owner for its intended purposes and will not be considered substantially complete until the following items are submitted:

1. Copies of final Operation and Maintenance Manuals in conformance with Section 01 7823, Operating and Maintenance Data.
2. Copies of Equipment Start-up Report and Certification Report forms signed by authorized factory representatives on items of process, mechanical, and control equipment in conformance with Section 01 3200, Schedules and Reports.
3. Delivery of specified spare parts and copies of signed Spare Parts Inventory Report forms in accordance with Section 01 3200, Schedules and Reports.
4. Training of Owner's operators and maintenance personnel as specified in the appropriate specification sections.
5. Delivery of specified keys for all permanent locks.
6. Copies of specified inspection and test reports and certifications on materials.
7. Copies of written warranties on equipment and products in accordance with Section 01 7836, Warranties and Bonds.

B. In addition to the above submissions, the work will not be considered to be fully functional and useful by the Owner for its intended purposes and will not be accepted as substantially complete until all of the following components and/or items have been completed:

1. Foundations and structures, including railings and gratings.
2. Process and mechanical equipment pumping systems.
3. Process and mechanical piping and valving, including pressure and leak testing.
4. Alarm, control systems, telemetry, and instrumentation.
5. Electrical panels and equipment.
6. Electrical and control wiring and conduits.
7. Check-out and start-up of equipment and controls, including telemetry, communication, and alarm systems, if provided.
8. Fencing. (Where damaged)
9. Roadways, parking areas, and stone surfaces.
10. Slope protection and riprap.
11. Signage and identification.
12. The following items, unless waived in writing by the Owner due to inclement weather:
    a. Finish grading.
    b. Seeding and mulching.
    c. Pavements. (Where damaged)
    d. Sidewalks. (Where damaged)

1.4 FINAL COMPLETION

A. The work under these Contract Documents will not be considered for final acceptance as complete until all of the following items have been completed or submitted:

1. Any items not completed at the time of substantial completion, including all remaining punch list items.
2. Final cleanup.
3. Restoration of all disturbed or damaged properties.
4. Executed project close-out documents included with the Contract Documents.
5. Record drawings.
6. As-built surveys, if required by the Specifications.

1.5 ACCEPTANCE AND START-UP OF OPERABLE COMPONENTS

A. Because of the need to maintain operation during construction, it may be necessary to accept as substantially complete and start-up operable components of the project at various times prior to the completion and acceptance of the entire project.

B. An “operable component” of the project, as used herein, shall mean a complete process subsystem capable of independent operation and shall include all associated structures, equipment, piping, controls, etc.

C. Acceptance and start-up of operable components shall not relieve the Contractor of his obligation to substantially complete the project within the Contract Time.

1.6 OWNER’S CONTINUED OCCUPANCY OF EXISTING FACILITIES

A. The Contractor shall perform his obligations as set forth in these Contract Documents in a manner that will not unduly hinder or jeopardize the continued operation or reliability of the Owner’s water system in any way.

B. Construction activities or operations for which there is no alternative to a temporary shutdown or hindrance to the operation of the water system shall be carefully coordinated in advance with the water plant superintendent through or in cooperation with the Engineer.

1.7 TEMPORARY SHUTDOWNS

A. The costs of temporary dewatering, pumping, piping, etc. shall be included in the lump sum price bid for the work. No separate payment will be made.

B. All construction activities requiring a temporary shutdown of the system shall be clearly shown on the Contractor’s Progress Schedule. The Contractor shall furnish the Engineer and Owner with a written description of the work to be accomplished during the proposed shutdown, a written work plan, and an estimate of the duration of the shutdown at least ten (10) working days prior to the scheduled shutdown for review and approval.

C. Construction activities shall be planned and executed as required to minimize the duration of shutdowns.

D. Procurement. Contractor shall order and obtain all equipment, parts, valves, and materials needed for the work prior to any shutdown.

1.8 VIDEO

A. Prior to construction, Contractor shall color video record the entire project site including the route of any linear construction, all easements and right-of-way, and the route of all service lines where included in the construction. The Contractor shall identify the line designation and station number or mileage, all natural landmarks, the street address of the area in view if available, and any other areas, structures, fences, trees, landscaping, etc., subject to potential disturbance. The Contractor shall provide the Owner with one (1) copy of the video with audio comments.

END OF SECTION

SECTION 01 2113

ALLOWANCES

1. GENERAL

1.1. ALLOWANCES IN CONTRACT SUM

A. Include allowances stated in the Contract Documents in the Contract Sum.

B. Use of the allowances shall be authorized in writing by the Engineer and approved by the Owner.

1.2. ADMINISTRATION OF ALLOWANCES

A. Contractor's duties in selection of products or provision of services under allowances.

1. Assist the Engineer and Owner in determining qualified suppliers or installers.

2. Obtain bids from suppliers and installers when requested by the Engineer.

3. Make appropriate recommendations for consideration by the Engineer.

B. Adjustment of Costs

1. Should the net cost be more or less than the specified amount of the allowance, the Contract Sum will be adjusted accordingly by Change Order.

2. At Contract Close Out, reflect approved changes to the Contract Sum in the final application for payment.

3. The Contractor will be limited to a maximum mark-up for overhead and profit of 15 percent on allowance items.

1.3. SPECIFIED ALLOWANCES

A. Furnish and install the equipment or systems identified in the Bid Schedule, Section 00 4143, under Allowances and as specified herein and shown on the Drawings that have been pre-selected by the Owner. Detailed scope of supply and pricing information for the Suppliers identified are provided in the Appendix to these documents. This equipment cost allowance only covers the equipment and items specified and included in the scope. Equipment handling, installation, startup, overhead and profit, terms and conditions, taxes and any other items required for a complete and functional installation shall be provided by the Contractor under the lump sum base bid for the project.

B. Owner specified miscellaneous items not covered in contract documents.

1. Include lump sum allowance of $200,000.

2. This allowance is provided to cover the cost of unspecified and necessary repairs to existing equipment and appurtenances discovered during the work, including Owner or Engineer requested improvements not specified herein.

3. Such work shall be directed and approved by a field order.

END OF SECTION

SECTION 01 2200

MEASUREMENT AND PAYMENT

1. GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplemental Conditions and other Division 1 specification sections, apply to this section.

1.2. LUMP SUM PRICES

A. Lump sum prices shall include all items of work shown on the Drawings, specified, or otherwise required or necessary for complete, working systems including work, services, fees, equipment or material not specifically listed, overhead, profit, and applicable taxes.

B. A “Schedule of Values” is required to facilitate payment for partial completion of lump sum items as the project progresses.

1.3. UNIT PRICES

A. This section specifies administrative and procedural requirements for unit prices.

1. A unit price is an amount proposed by Bidders and stated in the Bid Schedule as a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the estimated quantities of work required by the Contract Documents are increased or decreased.
2. Payment will be made only for those items listed in the Bid Schedule. All other items not specifically listed shall be deemed incidental and cost of same shall be included in other items of work.
3. Unit prices include all necessary material, overhead, profit and applicable taxes.
4. Refer to individual specification sections for construction activities requiring the establishment of unit prices. Methods of measurement and payment for unit prices are specified in Part 3 of this section.
5. Improved surfaces include surfaces intended for vehicular transportation, sidewalks, retaining walls, and other similar structures. Examples include asphalt paved surfaces, concrete surfaces, and gravel driveways and roadways.
6. Unimproved surfaces include all other surfaces not defined as improved.
7. Temporary surface restoration includes, but is not limited to, temporary seeding and straw necessary for erosion control and soil stabilization, gravel or crusher run on improved surfaces, and any other measures necessary to maintain pedestrian or vehicular access until the permanent surface restoration is completed.

B. The Drawings, Specifications, and the Bid Schedule contain requirements for materials, methods, and suppliers described under each unit price.

2. PARTIAL PAYMENT

A. Partial payment may be made for stored material on site, providing:

1. The material meets the specifications outlined elsewhere in these documents.
2. The material is stored according to the recommendations of the Engineer and/or manufacturer and the requirements of these Specifications.
3. The Contractor submits copies of all invoices for the stored materials delivered to the site.

3. MEASUREMENT AND PAYMENT

3.1. MEASUREMENT AND PAYMENT - LUMP SUM

A. Measurement and payment for all items of work shown on the Drawings, specified, or otherwise required or necessary for complete, working systems shall be made at the lump sum prices listed in the Bid Schedule. No separate payment shall be made for items of work, services, fees, or equipment not specifically listed, but payment for those items shall be included in the payment for items listed.

3.2. MEASUREMENT AND PAYMENT - UNIT PRICE

A. Water Lines and Appurtenances

1. Water Line Piping. Size, material, ratings, and installation method as indicated on the Drawings and Specifications. Includes applicable excavation, earthwork, piping, pipe restraint, tracer wire, embedment, earth backfill, gravel backfill, flowable fill in TDOT rights-of-way as required, temporary surface restoration, disinfection, testing, slope protection and erosion control, traffic control, and cleanup and disposal. No separate measurement or payment will be made for rock excavation. Payment items for cased or HDD installation include casing, carrier piping, spacers, end caps, temporary surface restoration, disinfection, testing, slope protection and erosion control, traffic control, cleanup and disposal, and pits for a complete installation. Linear footage is measured along the centerline of the installed pipe without deduction for fittings and valves. 5% of this unit price item will be payable when pressure testing, disinfection, and bacteriological testing are completed. 15% of this unit price item will be payable upon completion of cleanup and disposal. 80% of this unit price item will be payable upon completion of all other specified and required elements. Payment will be made at the respective unit price bid for the sizes specified.

2. Tapping Sleeve and Valve Assembly. Complete installation as indicated on the Drawings and Specifications. Includes excavation, tapping sleeve, valve, valve box, concrete collar, cover, concrete bearing block, extension stem, joint restraint, testing, temporary surface restoration, traffic control, and all

other required appurtenances for a complete installation. Payment will be made at the respective unit price bid for the sizes specified.

3. Tapping Saddle Assembly. Complete installation as indicated on the Drawings and Specifications. Includes excavation, tapping saddle, brass nipple, corp stop, temporary surface restoration, traffic control, and all other required appurtenances for a complete installation. Payment will be made at the respective unit price bid for the sizes specified.

4. Gate Valve Assembly. Complete installation as indicated on the Drawings and Specifications. Includes valve, valve box, concrete collar, cover, concrete bearing block, extension stem, joint restraint, temporary surface restoration, and all other required appurtenances for a complete installation. Payment will be made at the respective unit price bid for the sizes specified.

5. Insertion Valves. Complete installation as indicated on the Drawings and Specifications. This item includes excavation, temporary surface restoration, traffic control and all associated materials, labor, equipment, inspection, testing, and incidentals. Payment will be made at the respective unit price bid for the sizes specified.

6. 2" Blow-Off Hydrant and Valve Assembly. Complete installation as indicated on the Drawings and Specifications. Includes hydrant, hydrant lateral, fittings, valve, valve box, concrete collar, cover, concrete bearing blocks, extension stem, joint restraint, temporary surface restoration, and backfill for a complete installation.

7. Air Release Valve and Vault. Complete installation as indicated on the Drawings and Specifications. Includes temporary surface restoration and testing for a complete installation. This is a lump sum pay item.

8. Fire Hydrant and Valve Assembly. Complete installation as indicated on the Drawings and Specifications. Includes excavation, hydrant, hydrant lateral, fittings, valve, valve box, concrete collar, cover, concrete bearing blocks, extension stem, joint restraint, all other required appurtenances, backfill (including flowable fill in TDOT rights-of-way as required), traffic control, and temporary surface restoration. Also includes removal and disposal of existing hydrant, shutoff gate valve associated with hydrant, valve stem, and valve box for a complete installation.

9. Existing Fire Hydrant Reconnection. Complete installation as indicated on the Drawings and Specifications. Includes excavation, reconnection to existing hydrant, replacement hydrant lateral, fittings, valve, valve box, concrete collar, cover, concrete bearing blocks, extension stem, joint restraint, all other required appurtenances, backfill, traffic control, and temporary surface restoration. Also includes removal and disposal of existing shutoff gate valve associated with hydrant, valve stem, and valve box for a complete installation.

10. Existing Fire Hydrant Removal. Complete removal and disposal of existing hydrant and valve where indicated on the Drawings. Includes excavation,

hydrant, valve, valve stem, and valve box abandonment, backfill, and temporary surface restoration.

11. Ductile Iron Fittings. Complete installation as indicated on the Drawings and Specifications. Includes ductile iron AWWA C-153 compact fittings including bolts, gaskets, joint restraints, and other incidental attachments. Payment at the AWWA published weights of the fitting only.

12. Existing Valve Abandonment. Complete removal and disposal of existing valves where indicated on the Drawings. Includes excavation, valve, valve stem, valve box, backfill, traffic control, and temporary surface restoration.

13. Exploratory/Investigative Work. Includes exploratory and investigative work at the direction of the Owner or Engineer and includes all materials, equipment, and labor. To be used on a case-by-case basis with Owner approval only. Payment shall be made per 8-hour day (or the pro-rated portion thereof) of work performed as directed by the Owner.

B. Service Lines & Connections

1. Service Connection at Meter. Complete installation as indicated on the Drawings and Specifications. Includes excavation, meter box and lid, ball valve, adapters, connection to existing meter, backfill, temporary surface repair, and final grading and seeding. Payment will be made at the respective unit price bid for the sizes specified.

2. Service Connection at Main. Complete installation as indicated on the Drawings and Specifications. Includes excavation, service saddle, corporation stop, adapters, backfill, temporary surface repair, traffic control, and final grading and seeding. Payment will be made at the respective unit price bid for the sizes specified.

3. PEX Service Line. Complete installation as indicated on the Drawings and Specifications. Includes excavation, PEX service line piping, tracer wire, backfill, temporary surface repair, final grading and seeding, disinfection, testing, slope protection and erosion control, traffic control, and cleanup and disposal. No separate measurement or payment will be made for rock excavation. Linear footage is measured along the centerline of the installed service line. Payment will be made at the respective unit price bid for the sizes specified.

4. PEX Service Line - HDD. Complete installation as indicated on the Drawings and Specifications. Includes pit excavation, backfill, temporary surface restoration, final grading and seeding, HDD, PEX service line piping, tracer wire, disinfection, testing, slope protection and erosion control, traffic control, and cleanup and disposal. No separate measurement or payment will be made for rock excavation. Linear footage is measured along the centerline of the installed service line. Payment will be made at the respective unit price bid for the sizes specified.

5. HDPE Service Line Sleeve by HDD, PEX Carrier. Complete installation as indicated on the Drawings and Specifications. Includes excavation, directional drilling, PEX service line piping, HDPE DR9 service line sleeve installed via HDD, tracer wire, backfill, temporary surface restoration, final grading and seeding, disinfection, testing, slope protection and erosion control, traffic control, and cleanup and disposal. No separate measurement or payment will be made for rock excavation. Linear footage is measured along the centerline of the installed service line. Payment will be made at the respective unit price bid for the sizes specified.

C. Surface Restoration

1. Final Grading and Seeding. Includes surface restoration (in kind), final grading, seeding, and straw in all unimproved areas. Linear footage is measured along the centerline of the installed pipe. This item is only associated with the Water Line Piping pay items in unimproved areas (3.2.A.1 of this Section).

2. Sodding. Includes surface restoration, final grading, and sod to restore areas to existing condition. Sod surface restoration to be used on a case-by-case basis with Owner direction and approval only. Payment shall be made per square foot of sod successfully placed and acceptable to the Owner.

3. Pavement Repair. Type and location as indicated on the Drawings and in the Specifications. Includes all Federal, State, and Local DOT permit requirements and traffic control. Includes re-striping as needed to match pre-construction conditions. All edges to be saw cut and neat. Square footage is measured for the final pavement repair only. No separate payment will be allowed for replacing or repairing unpaved, crushed stone, gravel or chert street surfaces, driveways, or parking areas. No separate payment will be allowed for temporary pavement patches.

4. Curb Repair. Linear footage is measured for the final curb repair. Curbs removed or damaged by the Contractor shall be replaced to match adjacent surfaces and restore the area to pre-construction conditions. Existing curb shall be sawcut clean on each side of section to be removed. Includes all Federal, State, and Local DOT permit requirements and traffic control. Includes any barricades and safety measures to protect the public. No separate payment will be allowed for temporary patches.

5. Sidewalk Repair. Square footage is measured for the final sidewalk repair. Sidewalks removed by the Contractor shall be replaced to match adjacent surfaces and restore the area to pre-construction conditions. Existing sidewalks shall be sawcut clean on each side of section to be removed. Includes all Federal, State, and Local DOT permit requirements and traffic control. Includes any barricades and safety measures to protect the public. No separate payment will be allowed for temporary patches.

6. Landscaping Services. Includes surface restoration, final grading, seeding, straw, sod, and labor to restore easement areas to existing condition.

Landscaper Services to be used on a case-by-case basis with Owner approval only. Payment shall be made per 8-hour day (or the pro-rated portion thereof) of work performed as directed by the Owner.

D. Bridges & Creeks

1. TDOT Bridge Pipe Hangers & Expansion Joint Repair. Complete installation as indicated on the Drawings and Specifications. Includes all State DOT requirements for utility crossings. Extent of pay item is the complete replacement of all existing pipe hangers. Includes new pipe hangers, removal of existing hangers, and all associated appurtenances and anchorage. This is a lump sum pay item.

2. ARAP Creek Crossing. Complete installation as indicated on the Drawings and Specifications. Includes excavation, piping, fittings, pipe restraint, concrete encasement, pipe embedment, backfill, temporary and permanent surface restoration, pumping equipment, flow diversion, cofferdams, dewatering, sediment traps, silt boom, and all State and Federal agency permit requirements. This is a lump sum pay item.

END OF SECTION

SECTION 01 2976

APPLICATIONS FOR PAYMENT

1. GENERAL

1.1. REQUIREMENTS INCLUDED

A. Submit Applications for Payment to the Engineer.

1.2. RELATED DOCUMENTS

A. Contract between Owner and Contractor.

B. General Conditions: Progress Payments, Retainages and Final Payment.

C. Section 01 7800, Project Closeout.

1.3. FORMAT AND INFORMATION REQUIRED

A. Review preliminary application with resident project representative.

B. Submit applications typed on forms acceptable to the Owner.

C. Provide itemized data on application:

1. Format, schedules, line items, unit prices, units completed by month and project-to-date, and values.

2. Documentation of employee wages, as requested.

1.4. PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

A. Application Form

1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.

2. Fill in summary of dollar values to agree with respective totals indicated.

3. Fill in summary of dollar values to agree with respective totals indicated.

B. Continuation Sheets

1. Fill in total list of all scheduled component items of work, with item number and scheduled dollar value for each item.

2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored. Round off values to nearest dollar, or as specified for the Bid Schedule.

3. List each Change Order executed prior to date of submission. List by Change Order number and description, as for an original component item of work.

4. To receive approval for payment on component material stored on site, submit copies of the original paid invoices with the application for payment along with the material location report (see Section 01 3200, Schedules and Reports).

1.5. SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

A. Substantiating Data. When the Owner or the Engineer requires substantiating data, submit suitable information, with a cover letter identifying:

1. Project.

2. Application number and date.

3. Detailed list of enclosures.

4. For stored products:

a. Item number and identification as shown on application.

b. Description of specific material.

B. Submit one copy of data and cover letter for each copy of application.

1.6. PREPARATION OF APPLICATION FOR FINAL PAYMENT

A. Fill in application form as specified for progress payments.

1.7. SUBMITTAL PROCEDURE

A. Submit Applications for Payment to the Engineer at the times stipulated in the Contract.

B. Number: Six copies of each application.

1.8. PROCESSING OF PERIODIC APPLICATIONS FOR PAYMENT

A. No applications for payment for work under this Contract will be processed until the Contractor's Preliminary Construction Schedule, Submittal Tabulation, and Schedule of Values are submitted in accordance with the requirements of Section 01 3200, Schedules and Reports.

B. No further applications for payment will be processed after the due date of the Contractor's Construction Schedule and Submittal Schedule until both schedules are submitted in conformance with the requirements of Section 01 3200, Schedules and Reports.

C. No applications will be processed for stored materials unless the application is accompanied with copies of original paid invoices and the Material Location Report specified in Section 01 3200, Schedules and Reports.

D. No applications for more than 80 percent of the Contract Price will be approved until copies of draft Operation and Maintenance Manuals are submitted in conformance with Section 01 7823, Operating and Maintenance Data.

E. No further applications for payment will be processed after the expiration of the Contract Time, including approved extensions thereof, until the date of Substantial Completion as described in these Contract Documents.

2. PRODUCTS (Not Used)

3. EXECUTION (Not Used)

END OF SECTION

SECTION 01 3119

PROJECT MEETINGS

1. GENERAL

1.1. SCOPE

A. This section specifies administrative and procedural requirements for project meetings including but not limited to:

1. Preconstruction Conference.
2. Pre-Installation Conferences.
3. Coordination Meetings.
4. Progress Meetings.

B. Construction schedules are specified in another Division 1 section.

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and other Division 1 specification sections, apply to this section.

1.3. PRECONSTRUCTION CONFERENCE

A. Attend and participate in a preconstruction conference and organizational meeting at the project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.

B. Attendees. The Owner, Engineer and their consultants, the contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the work.

C. Agenda. Discuss items of significance that could affect progress including such topics as:

1. Tentative construction schedule.
2. Critical work sequencing.
3. Designation of responsible personnel.
4. Procedures for processing field decisions and Change Orders.
5. Procedures for processing Applications for Payment.
6. Distribution of Contract Documents.
7. Submittal of shop drawings, product data and samples.

8. Preparation of record documents.
9. Use of the premises.
10. Office, work and storage areas.
11. Equipment deliveries and priorities.
12. Safety procedures.
13. First aid.
14. Security.
15. Housekeeping.
16. Working hours.

1.4. PRE-INSTALLATION CONFERENCES

A. Conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Engineer of scheduled meeting dates.

1. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:

a. Contract documents.
b. Options.
c. Related change orders.
d. Purchases.
e. Deliveries.
f. Shop drawings, product data and quality control samples.
g. Possible conflicts.
h. Compatibility problems.
i. Time schedules.
j. Weather limitations.
k. Manufacturer's recommendations.
l. Compatibility of materials.
m. Acceptability of substrates.
n. Temporary facilities.
o. Space and access limitations.
p. Governing regulations.
q. Safety.
r. Inspection and testing requirements.
s. Required performance results.
t. Recording requirements.
u. Protection.

2. Record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Engineer.

3. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene the conference at the earliest feasible date.

1.5. COORDINATION MEETINGS

A. Conduct project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.

B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.6. PROGRESS MEETINGS

A. Conduct progress meetings at the project site at regularly scheduled intervals but not less than monthly. Notify the Owner and Engineer of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.

B. Attendees. In addition to representatives of the Owner and Engineer, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

C. Agenda. Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the project.

1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the contract time.

2. Contractor's Submittal Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Submittal Schedule, whether on time or ahead or behind schedule. Determine how submittals behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to

ensure that current and subsequent activities will be completed within the contract time.

3. Review the present and future needs of each entity present, including such items as:

    a. Interface requirements.
    b. Time.
    c. Sequences.
    d. Deliveries.
    e. Off-site fabrication problems.
    f. Access.
    g. Site utilization.
    h. Temporary facilities and services.
    i. Hours of work.
    j. Hazards and risks.
    k. Housekeeping.
    l. Quality and work standards.
    m. Change Orders.
    n. Documentation of information for payment requests.

D. Reporting. No later than 5 days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

1. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

2. PRODUCTS (Not Applicable)

3. EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 3200

SCHEDULES AND REPORTS

1. GENERAL

1.1. SUMMARY

A. General. This section specifies administrative and procedural requirements for schedules and reports required for proper performance of the work.

B. Coordination. Each prime Contractor shall closely coordinate scheduling and reporting with the scheduling and reporting of other prime Contractors.

C. Schedules required include:

1. Preliminary Construction Schedule, including Submittals Tabulation.
2. Contractor's Construction Schedule.
3. Submittal Schedule.
4. Schedule of Values.

D. Reports required include:

1. Daily Construction Reports.
2. Material Location Reports.
3. Field Correction Reports.
4. Spare Parts Inventory Reports.
5. Equipment Start-up Report and Certifications.

E. Project meeting minutes are included in Section 01 3119, Project Meetings.

F. Inspection and test reports are included in Section 01 4500, Quality Control Services.

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplemental Conditions and other Division 1 specification sections, apply to this section.

1.3. PRELIMINARY CONSTRUCTION SCHEDULE

A. Bar Chart Schedule. Submit a preliminary horizontal bar chart type construction schedule within 7 days of the date established for commencement of the work.

B. Bar Chart Schedule. The Contractor for General Construction shall submit a preliminary horizontal bar chart type construction schedule, with a copy to each prime Contractor, within 7 days of the date established for commencement of the work. Within 5 working days of this submittal, each other prime Contractor shall

submit a matching preliminary horizontal bar chart schedule showing their construction operations sequenced and coordinated with general construction.

1. Provide a separate time bar for each significant construction activity. Coordinate each element on the schedule with other construction activities. Schedule each construction activity in proper sequence. Provide a continuous vertical line to identify the first working day of each week.

2. Indicate completion of the work in advance of the date established for substantial completion.

3. If adjustments are necessary for sequencing and coordination of the work, the Contractor for general construction shall arrange a meeting with the other prime Contractors at the earliest possible date. At this meeting each prime Contractor shall negotiate reasonable adjustments to their schedules.

C. Submittal Tabulation. With the submittal of the preliminary construction schedule, include a tabulation by date of submittals required during the first 90 days of construction. List those submittals required to maintain orderly progress of the work, and those required early because of long lead time for manufacture or fabrication.

1. At the Contractor's option, submittal dates may be shown on the schedule, in lieu of being tabulated separately.

1.4. CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Bar Chart Schedule. Prepare a comprehensive, fully developed, horizontal bar chart type Contractor's construction schedule based on the preliminary construction schedule and on whatever updating and feedback was received since the start of the project.

B. Bar Chart Schedule. The Contractor for general construction shall secure time commitments for performing critical construction activities from each of the other prime Contractors and shall prepare a combined construction schedule for the entire project. The Schedule shall be a comprehensive, multi-sheet, integrated, fully developed horizontal bar chart type schedule based on the preliminary construction schedules and reflecting updating and feedback received since the start of the project.

1. Submit the schedule within 30 calendar days of the date established for commencement of the work, unless a longer time has been requested and approved.

2. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week.

a. If practical, use the same breakdown of units of the work as indicated in the "Schedule of Values."

3. For significant construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within the time bar. As work progresses, place a contrasting mark in each bar to indicate actual completion percentage.

4. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data clearly for the entire construction period.

    a. Show the activities of each prime contract on a separate sheet.

    b. Prepare a simplified summary sheet indicating the combined construction activities of the prime contracts.

5. Secure time commitments for performing critical elements of the work from parties involved. Coordinate each element on the schedule with other portions of the work; include minor elements involved in the overall sequence of the work. Show each construction activity in proper sequence. Indicate graphically sequences necessary for completion of related portions of the work. Show critical path activities or elements.

6. Coordinate the Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests and other required schedules and reports.

7. Indicate completion of the work in advance of the date established for substantial completion. Indicate substantial completion on the schedule to allow ample time for the Engineer's administrative procedures necessary for certification of substantial completion.

C. Work Stages. Use crosshatched bars to indicate important stages of construction for each major portion of the work.

D. Such stages include, but are not necessarily limited to:

1. Subcontract awards.
2. Purchases.
3. Mockups.
4. Fabrication.
5. Sample testing.
6. Deliveries.
7. Installation.
8. Testing.
9. Adjusting.
10. Curing.
11. Start-up and placement into final use and operation.

E. Distribution. Following the Engineer's response to initial submittal of the Contractor's construction schedule, print and distribute copies to the Engineer,

Owner, separate contractors, subcontractors, suppliers, fabricators, and other parties required to comply with scheduled dates.

1. Post copies of the schedule in the project meeting room and temporary field office.

2. When revisions are made, distribute the updated schedule to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in performance of construction activities.

F. Schedule Updating. Revise the schedule immediately after each meeting or other activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.5. SUBMITTAL SCHEDULE

A. Prepare a complete submittal schedule concurrent with the development of the Contractor's construction schedule. Submit the schedule within 30 calendar days of the date established for commencement of the work, unless a longer period has been requested and approved.

1. Coordinate submittal schedule with the list of subcontracts, Schedule of Values, and the list of products specified in Section 01 6000, Materials and Equipment, as well as the Contractor's construction schedule.

2. Prepare the schedule in chronological order; include submittals listed on the tabulation of submittals required during the first 90 days of construction. Provide the following information on the schedule:

   a. Schedule date for the first submittal.
   b. Related section number.
   c. Submittal category.
   d. Name of subcontractor.
   e. Description of the part of the work covered.
   f. Scheduled date of the Engineer's final release or approval.

3. Scheduled submittal dates shall be staggered.

4. Items of a critical nature shall be prioritized and so noted.

5. Scheduled final release or approval dates shall be coordinated with construction schedule.

B. Distribution. Following the Engineer's response to initial submittal, print and distribute the schedule to the Engineer, Owner, separate Contractors, subcontractors, suppliers, fabricators, and other parties required to comply with submittal dates indicated.

1. Post copies in the project meeting room and temporary field office.

2. When revisions are made, distribute the updated schedule to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned part of the work and are no longer involved in the performance of construction activities.

C. Schedule Updating. Revise the schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.6. SCHEDULE OF VALUES

A. Prepare and submit a schedule of values established in the Agreement within 15 days of the date established for commencement of the work.

1. Refer to Section 01 2200, Measurement and Payment, for a listing of categories of work where unit prices are required.

2. Refer to individual specification sections for portions of the work where the establishment of unit prices is required. Methods of measurement and pricing are specified in these sections.

B. Prepare the schedule in tabular form, including the following items:

1. Name of the part of the work.
2. Related specification section.
3. Name of subcontractor assigned.
4. Unit of measurement.
5. Price per unit.

C. Distribution. Distribute to the Owner, Engineer, and each party involved in performance of the portion of the work, where established unit prices could come into force and effect.

D. Following review by the Owner and Engineer, revise the schedule of values to correct any elements which the Owner and Engineer find unacceptable. After revision, the schedule of values shall be submitted for further review.

1.7. REPORTS

A. Daily Construction Reports. Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Engineer at weekly intervals:

1. List of subcontractors at the site.
2. List of separate contractors at the site.
3. Approximate count of personnel at the site.
4. High and low temperature, general weather conditions.
5. Accidents (refer to accident reports).
6. Meetings and significant decisions.
7. Unusual events (refer to special reports).

8. Stoppages, delays, shortages, losses.
9. Meter readings and similar recordings.
10. Emergency procedures.
11. Orders and requests of governing authorities.
12. Change Orders received, implemented.
13. Services connected, disconnected.
14. Equipment or system tests and start-ups.
15. Partial completions, occupancies.
16. Substantial completions authorized.

B. Material Location Reports. At monthly intervals prepare a comprehensive list of materials delivered to and stored at the site. The list shall be cumulative, showing materials previously reported plus items recently delivered. Include with the list a statement of progress on and delivery dates for all materials or items of equipment being fabricated or stored away from the building site. Submit copies of the list to the Engineer at monthly intervals.

C. Field Correction Report. When the need to take corrective action that requires a departure from the Contract Documents arises, prepare a detailed report including a statement describing the problem and recommended changes. Indicate reasons the Contract Documents cannot be followed. Submit a copy to the Engineer immediately.

D. Spare Parts Inventory Report. Document in writing on forms provided by the Engineer delivery to the Owner of specified spare parts. Include the manufacturer's name, part name, number, and quantity delivered. Reports shall be signed by representatives of the Contractor, Owner, and Engineer. Reports are due prior to substantial completion.

1.8. LOGS

A. RFI Log. Maintain a tabular log of all Requests for Information (RFI). Number RFIs in a sequential manner. Note date of request and date of response for each. Update the RFI log monthly and distribute at the monthly progress meeting.

B. Shop Drawing and Product Data Submittal Log. Maintain a tabular log of all shop drawing and product data submittals. Number submittals in a sequential manner. Note dates of initial submittal, first return, resubmittal, second or final return along with Engineer’s action noted for each submittal. Update the shop drawing submittal log monthly and distribute at the monthly progress meeting.

C. Change Order Request/Proposal Log. Maintain a tabular log of all change order requests/proposals. Number change order requests/proposals in a sequential manner. Note date of submittal, brief description of covered work, proposed price, requested number of days (if applicable), and status (denied/approved/pending). For those that are approved, indicate in which change order they are included. Update the log monthly and distribute at the monthly progress meeting.

D. O & M Manual Log. Maintain a tabular log of all O & M Manual submittals. Number submittals in a sequential manner. Note dates of initial submittal, first return, resubmittal, second or final return along with Engineer's action noted for each submittal. Update the O & M Manual submittal log monthly and distribute at the monthly progress meeting.

1.9. EQUIPMENT START-UP REPORT AND CERTIFICATION

A. An experienced, authorized service representative of the manufacturer of each item of equipment shall visit the site of the work and inspect, check, adjust if necessary, and approve the equipment installation. In each case, the equipment manufacturer's representative shall be present when the equipment is placed in operation and shall revisit the job site as often as necessary until all trouble is corrected and the equipment installation and operation are satisfactory in the opinion of the Engineer.

B. Each equipment manufacturer's representative shall furnish to the Owner, through the Engineer, a written report certifying that the equipment (1) has been properly installed and lubricated; (2) is in accurate alignment; (3) is free from any undue stress imposed by connecting piping or anchor bolts; and (4) has been operated under full load conditions and that it operated satisfactorily. Work will not be accepted as substantially complete until executed Equipment Start-up Report and certification forms have been submitted in accordance with the requirements of this section.

C. Properly coordinate the visits by the manufacturer's representatives, particularly where the operation of an item of equipment is dependent on the operation of other equipment. Prior to calling the manufacturer's representative, ensure that all necessary related equipment, structures, piping, and electrical work is complete. Pay for any revisits to the site by the manufacturer's representative made necessary due to the Contractor's failure to properly coordinate the visits.

D. Secure the services of the manufacturer's representative at the site of the work for as long as is necessary to check the installation and place the equipment in satisfactory operation.

2. PRODUCTS (Not Applicable)

3. EXECUTION

3.1. PAYMENT

A. No requests for payment for work under this Contract will be processed until the Contractor's Preliminary Construction Schedule, Submittals Tabulation, and Schedule of Values are submitted and found acceptable by the Owner and Engineer in conformance with the requirements of this section.

B. No further requests for payment will be processed after the due date of the Contractor's Construction Schedule and Submittal Schedule until both schedules are submitted in conformance with the requirements of this section.

C. If payment is being requested for stored materials, the material location report must be included with the request for payment.

END OF SECTION

SECTION 01 3233

CONSTRUCTION PHOTOGRAPHS

1. GENERAL

1.1. SUMMARY

A. General. This section specifies administrative and procedural requirements for construction photographs.

B. Costs. Costs for photographs and associated items shall be included in the lump sum bid price or unit prices contained for other items of work. No separate payment shall be allowed, with the exception of additional photographs, which is addressed elsewhere in this section.

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplemental Conditions or General Provisions and other Division 1 specification sections, apply to this section.

1.3. SUBMITTALS

A. Digitally Stored Photographs. Contractor shall provide digital photographs created and stored in a standard format. Transmittal may be electronic and shall occur no less frequently than monthly. Photographs must be received by the Engineer before partial payment requests can be processed.

1.4. QUALITY ASSURANCE

A. Engage a qualified, experienced photographer to take photographs during construction.

B. Associated Services. Cooperate with the photographer's work. Provide reasonable auxiliary services as requested, including access to and use of temporary facilities including temporary lighting.

2. PRODUCTS

2.1. PHOTOGRAPHIC COPIES

A. The photographs shall be taken with a digital camera capable of being programmed to show the date the photo was taken on the front of the photograph.

B. Identification. Provide date on front of the photo per the previous paragraph. The following information shall be provided with each photograph:

1. Name of the Project.
2. Name and address of the photographer.

3. Name of the Engineer.
4. Name of the Contractor.
5. Provide notation of vantage point marked for location and direction of shot on a key plan of the site.

3. EXECUTION

3.1. PHOTOGRAPHIC REQUIREMENTS

A. Take at least 4 color photographs in accordance with requirements indicated, to best show the status of construction and progress since taking the previous photographs.

1. Frequency: Take photographs daily as the work progresses. Submit to Engineer monthly coinciding with the cutoff date associated with each Application for Payment.

2. Vantage Points: The photographer shall select the vantage points for each shot each month to best show the status of construction and progress since the last photographs were taken.

3. Description: A description of each photograph shall be noted.

B. Additional Photographs. From time to time the Engineer may issue requests for additional photographs, in addition to periodic photographs specified. Additional photographs will be paid for by the Owner or Engineer, and are not included in the contract sum or an allowance.

END OF SECTION

SECTION 01 3323

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

1. GENERAL

1.1. SUMMARY

A. This section specifies administrative and procedural requirements for submittal of shop drawings, product data, and samples to verify that products, materials, and systems proposed for use comply with provisions of the Contract Documents.

B. Shop drawings are required for all materials, products, and equipment furnished on this project, unless otherwise specified.

C. Standard information prepared without specific reference to the project is not considered to be shop drawings. Where multiple products are included, specific notation to that model or product being proposed for this project shall be clearly noted. Products not being provided shall similarly be marked out.

D. Coordination drawings are a special type of shop drawing that show the relationship and integration of different construction elements that require close and careful coordination during fabrication or during installation to fit in the restricted space provided or to function as intended.

E. Product data include, but are not limited to, the following:

1. Manufacturer's product specifications.
2. Manufacturer's installation instructions.
3. Standard color charts.
4. Catalog cuts.
5. Roughing-in diagrams and templates.
6. Standard wiring diagrams.
7. Printed performance curves.
8. Operational range diagrams.
9. Mill reports.
10. Standard product operating and maintenance manuals.

F. Samples include, but are not limited to, the following:

1. Partial sections of manufactured or fabricated components.
2. Small cuts or containers of materials.
3. Complete units of repetitively used materials.
4. Swatches showing color, texture, and pattern.
5. Color range sets.
6. Components used for independent inspection and testing.

G. Administrative Submittals. Refer to other Division 1 sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:

1. Permits.
2. Applications for payment.
3. Performance and payment bonds.
4. Insurance certificates.
5. Listing of subcontractors.

H. Inspection and Test Reports. Submittal of inspection and test reports is included under Section 01 4000, Quality Control Services.

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplemental Conditions and other Division 1 specification sections, apply to this section.

1.3. CONTRACTOR'S RESPONSIBILITY

A. It is the duty of the Contractor to check all drawings, data, and samples prepared by or for him before submitting them to the Engineer for review. Each and every copy of the Drawings and data shall bear Contractor's stamp showing that they have been so checked. Shop drawings submitted to the Engineer without the Contractor's stamp will be returned to the Contractor for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal from requirements of the Contract Documents.

B. The Contractor shall determine and verify:

1. Field measurements.
2. Field construction criteria.
3. Catalog numbers and similar data.
4. Conformance with Specifications.
5. Coordination with related project elements, including verification of all dimensions to provide a complete system

C. Do not begin any of the work covered by a drawing, data, or a sample returned for correction until a revision or correction thereof has been reviewed and accepted by the Engineer.

D. Submit to the Engineer all drawings and schedules sufficiently in advance of construction requirements to provide no less than 21 calendar days for checking and appropriate action from the time the Engineer receives them.

E. Stagger shop drawing submittals and indicate priority for critical delivery items on the shop drawing submittal schedule.

F. Initial submittals shall be made in PDF format with delivery to the Engineer to be made electronically wherever possible. Submit four, final approved copies for the Engineer plus the number of copies the Contractor requires of descriptive or product data submittals to complement shop drawings (up to a maximum of eight copies). The Engineer will retain four sets.

G. Contractor shall be responsible for and bear all cost of damages which may result from the ordering of any material or from proceeding with any part of the work prior to the review by Engineer of the necessary shop drawings.

1.4. ENGINEER'S REVIEW OF SHOP DRAWINGS

A. The Engineer's review of drawings, data, and samples submitted by the Contractor is for general conformance with the design concept of the project and for general compliance with the information given in the Contract Documents. The Engineer's review and exception, if any, will not constitute an approval of dimensions, quantities, and details of the material, equipment, device, or item shown.

B. The review of drawings and schedules shall not be construed:

1. As permitting any departure from the Contract requirements;

2. As relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;

3. As approving departures from details furnished by the Engineer, except as otherwise provided herein.

C. If the drawings or schedules as submitted describe variations and show a departure from the Contract requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in contract price or time for performance, the Engineer may return the reviewed drawings without noting an exception.

D. When reviewed by the Engineer, each of the shop drawings will be identified as having received such review, being so stamped and dated. Shop drawings stamped "REVISE AND RESUBMIT" and with required corrections shown will be returned to the Contractor for correction and resubmittal.

E. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing or on resubmitted shop drawings, to revisions other than the corrections requested by the Engineer on previous submissions. Make any corrections required by the Engineer.

F. If the Contractor considers any correction indicated on the Drawings to constitute a change to the Contract Drawings or Specifications, the Contractor shall give written notice thereof to the Engineer.

G. The Engineer will review a submittal/resubmittal a maximum of 3 times, after which the cost of review will be borne by the Contractor. The cost of engineering will be equal to the Engineer's charges to the Owner under the terms of the Engineer's agreement with the Owner.

H. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

I. No partial submittals will be reviewed. Submittals not complete will be returned to the Contractor and will be considered "Rejected" until resubmitted.

1.5. SUBMITTAL PROCEDURES

A. Coordination. Coordinate preparation and processing of submittals with performance of the work. Transmit each submittal to the Engineer sufficiently in advance of scheduled performance of related construction activities to avoid delay.

1. Coordinate each submittal with other submittals and related activities that require sequential activity including:

    a. Testing.
    b. Purchasing.
    c. Fabrication.
    d. Delivery.

2. Coordinate transmittal of different types of submittals for the same element of the work and different elements of related parts of the work so that processing will not be delayed by the Engineer's need to review submittals concurrently for coordination.

    a. The Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are forthcoming.

    b. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Engineer sufficiently in advance of the work to permit processing.

B. Submittal Preparation. Prepare and submit shop drawings in accordance with the following:

1. Attach a submittal cover sheet to each copy of a shop drawing. The submittal cover sheet shall contain the following information:

    a. Project name and Owner’s name.
    b. Contractor’s name and address.
    c. Engineer’s name and address.
    d. Specification section and title.

e. Drawing reference number.
f. Submittal number.
g. Space to indicate the results of the Contractor's review.
h. Space to indicate any deviations from the Contract Documents or comments by the Contractor.
i. Space approximately 8 inches wide and 4 inches high for the Engineer to indicate the results of his review and any comments.

2. Each shop drawing submittal shall be assigned a sequential number, beginning with the number 1. Resubmittals shall be identified by a number suffix (i.e., 1.1, 1.2, etc.).

C. Submittal Transmittal. Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Engineer, and to other destinations, as indicated, by use of a transmittal form. Submittals received from sources other than the Contractor will be returned to the sender without action. A separate transmittal shall be used for each shop drawing submittal.

1.6. SHOP DRAWINGS

A. The term "shop drawings," when used in the Contract Documents, shall be considered to mean Contractor's plans for material and equipment which become an integral part of the Project. These drawings shall be complete and detailed. Shop drawings shall consist of fabrication, erection and setting drawings and schedule drawings, manufacturer's scale drawings, and wiring and control diagrams. Cuts, catalogs, pamphlets, descriptive literature, and performance and test data shall be considered only as support to required shop drawings as defined above.

B. Drawings and schedules shall be checked and coordinated with the work of all trades involved before they are submitted for review by the Engineer. Contractor shall indicate whether the shop drawing complies with or deviates from the requirement of the Contract Documents.

C. If drawings show deviations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall clearly mark and describe such deviation in his letter of transmittal. If the Contractor fails to describe such variations, he shall not be relieved of the responsibility for executing the Work in accordance with the Contract, even though such drawings have been reviewed.

D. Data on materials and equipment include, without limitation, materials and equipment lists, catalog data sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.

E. Installation List. When requested by the Engineer, manufacturers or equipment suppliers who propose to furnish equipment or products shall submit an installation list to the Engineer along with the required shop drawings. The installation list shall include at least five installations where identical equipment

has been installed for similar purposes and similar applications and ownership and has been in operation for a period of at least 1 year.

F. Color. Only the Engineer will utilize the color "red" in marking shop drawing submittals.

G. Before final payment is made, the Contractor shall furnish to Engineer five sets of record drawings, all clearly revised, complete and up-to-date showing the permanent construction as actually made for all reinforcing and structural steel, miscellaneous metals, process and mechanical equipment, yard piping, electrical system and instrument system.

1.7. SAMPLES

A. Furnish, for the approval of the Engineer, samples required by the Contract Documents or requested by the Engineer. Samples shall be delivered to the Engineer as specified or directed. The Contractor shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in work until approved by the Engineer.

1.8. SPECIFIC SUBMITTAL REQUIREMENTS

A. Submit coordination drawings where required for integration of different construction elements. Show construction sequences and relationships of separate components where necessary to avoid conflicts in utilization of the space available.

B. Highlight, encircle, or otherwise indicate deviations from the Contract Documents on the shop drawings.

C. Do not permit shop drawing copies without an appropriate final stamp or other marking indicating the action taken by the Engineer to be used in connection with construction.

D. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit shop drawings on sheets at least 8½ by 11 inches but no larger than 30 by 40 inches.

1.9. PRODUCT DATA

A. Collect product data into a single submittal for each element of construction or system. Mark each copy to show which choices and options are applicable to the Project.

B. Where product data have been printed to include information on several similar products, some of which are not required for use on the project, or are not included in this submittal, mark copies to clearly indicate which information is applicable.

C. Where product data must be specially prepared for required products, materials, or systems, because standard printed data are not suitable for use, submit as "shop drawings," not "product data."

D. Include the following information in product data:
   1. Manufacturer's printed recommendations.
   2. Compliance with recognized trade association standards.
   3. Compliance with recognized testing agency standards.
   4. Application of testing agency labels and seals.
   5. Notation of dimensions verified by field measurement.
   6. Notation of coordination requirements.

E. Submittals. Submit two copies of each required product data submittal; submit two additional copies where copies are required for maintenance manuals. The Engineer will retain one copy and will return the other marked with the action taken and corrections or modifications required. Initial submittals shall be made in PDF format and delivered electronically.

F. Distribution. Furnish copies of final product data submittal to manufacturers, subcontractors, suppliers, fabricators, installers, governing authorities and others as required for performance of the construction activities. Show distribution on transmittal forms.

   1. Do not proceed with installation of materials, products and systems until a copy of product data applicable to the installation is in the installer's possession.

   2. Do not permit use of unmarked copies of project data in connection with construction.

1.10. ENGINEER'S ACTION

A. Action Stamp: The Engineer will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:

   1. Final Unrestricted Release: Where submittals are marked "REVIEWED," that part of the work covered by the submittal may proceed, provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.

   2. Final-But-Restricted Release: When submittals are marked "REVIEWED EXCEPTIONS AS NOTED," that part of the work covered by the submittal may proceed, provided it complies with both the Engineer's notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.

   3. Returned for Resubmittal: When submittal is marked "REVISE AND RESUBMIT," do not proceed with that part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise

or prepare a new submittal in accordance with the Engineer's notations; resubmit without delay. Repeat if necessary to obtain a different action mark.

a. Do not permit submittals marked "REVISE AND RESUBMIT" to be used at the project site, or elsewhere where construction is in progress.

4. Rejected: When submittal is marked "REJECTED," the materials, equipment, and/or methods identified in the submittal do not comply with the Contract requirements and shall not be incorporated into the work. No resubmittal of the same materials, equipment, and/or methods shall be made.

5. Other Action: Where a submittal is primarily for information or record purposes, for special processing or other Contractor activity, the submittal will be returned, marked "Action Not Required."

2. PRODUCTS (Not Applicable)

3. EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 4213

ABBREVIATIONS

1. GENERAL

1.1. GENERAL

A. Wherever in these Specifications and Contract Documents the abbreviations, or pronouns in place of them are used, the intent and meaning shall be interpreted as specified herein.

1.2. ABBREVIATIONS

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturer's Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies
AFBMA	Anti-Friction Bearing Manufacturers Association
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALSC	American Lumber Standard Committee
ANSI	American National Standards Institute
AMCA	Air Moving and Conditioning Association
APA	American Plywood Association
APHA	American Public Health Association
API	American Petroleum Institute
APWA	American Public Works Association
ARC	Appalachian Regional Commission
AREA	American Railroad Engineering Association
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers' Association

AWS	American Welding Society
AWWA	American Water Works Association
BIA	Brick Institute of America
CFR	Code of Federal Regulations
CRSI	Concrete Reinforcing Steel Institute
CTI	Cooling Tower Institute
DIPRA	Ductile Iron Pipe Research Association
EIA	Electronic Industries Association
EPA	Environmental Protection Agency
EPD	Georgia Environmental Protection Division
FM	Factory Mutual
FmHA	Farmers Home Administration
FS	Federal Specifications
HEI	Heat Exchange Institute
IBC	International Building Code
IEEE	Institute of Electronic and Electrical Engineers
IES	Illuminating Engineering Society
IPCEA	Insulated Power Cable Engineers Association
IPC	Institute of Printed Circuits
ISA	Instrument Society of America
MBMA	Metal Building Manufacturers Association
MSS	Manufacturers Standardization Society of the Valve and Fitting Industry
MUTCD	Manual on Uniform Traffic Control Devices
NAAMM	National Association of Architectural Metal Manufacturers
NACE	National Association of Corrosion Engineers
NAPF	National Association of Piping Fabricators
NBFU	National Board of Fire Underwriters
NBS	National Bureau of Standards
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NRMA	National Ready-Mix Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
SBC	Southern Building Code Congress International, Inc.
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSCRB	Standard Specification Construction of Roads and Bridges, Department of Transportation, State of Georgia
SSPC	SSPC: The Society for Protective Coatings

SSRBC	Standard Specifications for Road and Bridge Construction, Tennessee Department of Transportation
SSRS	Standard Specifications for Roads and Structures, latest edition, North Carolina Department of Transportation, Division of Highways
TCA	Tile Council of America
TDEC	Tennessee Department of Environment and Conservation
TEMA	Tubular Exchangers Manufacturers Association
UBC	Uniform Building Code
UL	Underwriters Laboratories
USDC	United States Department of Commerce
WEF	Water Environment Federation

END OF SECTION

SECTION 01 4219

APPLICABLE CODES AND STANDARDS

1. GENERAL

1.1. GENERAL

A. All materials, equipment, fabrication, and installation practices shall comply with the following applicable codes and standards, unless the Contractor's quality standards establish more stringent quality requirements or as required in drawings and specifications, as determined by the Engineer.

1. Pressure Piping and Tubing

ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
AWWA	American Water Works Association
DIPRA	Ductile Iron Pipe Research Association
NAPF	National Association of Piping Fabricators
NSF	NSF International
PPI	Plastic Pipe Institute
Unibell	PVC Pipe Association

2. Materials

AASHTO	American Association of State Highway and Transportation Officials
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials

3. Painting and Surface Preparation

NACE	National Association of Corrosion Engineers
SSPC	SSPC: The Society for Protective Coatings

4. Gear Reducers and Bearings

AFBMA	Anti-Friction Bearing Manufacturers Association
AGMA	American Gear Manufacturers Association

5. Ventilating Fans

AMCA	Air Moving and Conditioning Association
PFMA	Power Fan Manufacturers Association

6. Electrical and Instrumentation

EIA	Electronic Industries Association
IEEE	Institute of Electrical and Electronic Engineers
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
UL	Underwriter's Laboratories

7. Aluminum Structures

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturers Association

8. Steel Structures

AISC	American Institute of Steel Construction
API	American Petroleum Institute
AWWA	American Water Works Association
SJI	Steel Joist Institute

9. Concrete Structures

ACI	American Concrete Institute

10. Welding

ASME	American Society of Mechanical Engineers
AWS	American Welding Society

11. Safety

OSHA	Occupational Safety and Health Act

12. General Building Construction

FM	Factory Mutual Fire Insurance Corporation
IBC	International Building Code by the International
Code	Council
NFPA	National Fire Protection Association

13. Subgrades and Pavement

SSCRB	Standard Specification Construction of Roads and Bridges, Department of Transportation, State of Georgia, 1993 Edition, and Supplemental Specifications
SSRBC	Standard Specifications for Road and Bridge Construction, Tennessee Department of Transportation

SSRS Standard Specifications for Roads and Structures, latest edition, North Carolina Department of Transportation, Division of Highways.

14. Ductwork and Sheet Metal Work

SMACNA	Sheet Metal and Air Conditioning Contractors National Association

15. Plumbing

AGA	American Gas Association
NSF	NSF International
PDI	Plumbing Drainage Institute
SPC	SBCC Standard Plumbing Code

16. Refrigeration, Heating, and Air Conditioning

ARI	American Refrigeration Institute
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers

17. Pressure Vessels

ASME	American Society of Mechanical Engineers

18. Wood

AF&PA	American Forest & Paper Association
AWPA	American Wood Preservers' Association

19. Pumps & Pumping Stations

HI	Hydraulic Institute

20. Railroads

AREMA	American Railway Engineering and Maintenance-of-Way Association

21. Miscellaneous

NASSCO	National Association of Sewer Service Companies

In addition, all work shall comply with the applicable requirements of local codes, utilities, and other authorities having jurisdiction.

B. All material and equipment, for which a UL Standard, an AGA approval, or an ASME requirement is established, shall be so approved and labeled or stamped. Label or stamp shall be conspicuous and not covered, painted, or otherwise obscured from visual inspection.

END OF SECTION

SECTION 01 4500

QUALITY CONTROL SERVICES

1. GENERAL

1.1. SCOPE OF WORK

A. This section specifies administrative and procedural requirements for quality control services.

B. Quality control services include inspections and tests and related actions including reports, performed by independent agencies, governing authorities, and the Contractor. They do not include contract enforcement activities performed by the Engineer.

C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.

1. Specific quality control requirements for individual construction activities are specified in the sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.

2. Inspections, tests, and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with Contract Document requirements.

3. Requirements for the Contractor to provide quality control services required by the authorities having jurisdiction are not limited by provisions of this section.

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplemental Conditions and other Division 1 specification sections, apply to this section.

1.3. RESPONSIBILITIES

A. Contractor Responsibilities. Provide inspections, tests, and similar quality control services, specified in individual specification sections and required by governing authorities, except where they are specifically indicated to be the Owner's responsibility, or are provided by another identified entity; these services include those specified to be performed by an independent agency and not by the Contractor. Costs for these services shall be included in the contract sum.

1. Employ and pay an independent agency to perform specified quality control services.

2. The Owner will engage and pay for the services of an independent agency to perform inspections and tests specified as the Owner's responsibility.

3. Retesting: The Contractor is responsible for retesting where results of required inspections, tests, or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.

    a. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

4. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:

    a. Providing access to the Work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.

    b. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.

    c. Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories.

    d. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.

    e. Security and protection of samples and test equipment at the project site.

B. Owner Responsibilities. The Owner will employ and pay for the services of an independent agency, testing laboratory, or other qualified firm to perform services which are the Owner's responsibility.

C. Duties of the Testing Agency. The independent testing agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual specification sections shall cooperate with the Engineer and Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests. The testing agency shall be acceptable to and approved by the Engineer.

    1. The agency shall notify the Engineer and Contractor promptly of irregularities or deficiencies observed in the work during performance of its services.

    2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents, or approve or accept any portion of the work.

    3. The agency shall not perform any duties of the Contractor.

D. Coordination. The Contractor and each agency engaged to perform inspections, tests, and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition, the Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

1. The Contractor is responsible for scheduling times for inspections, tests, taking samples, and similar activities.

1.4. SUBMITTALS

A. The independent testing agency shall submit to the Engineer, in duplicate, a certified written report of each inspection, test, or similar service.

1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.

2. Report Data: Written reports of each inspection, test, or similar service shall include, but not be limited to:

a. Date of issue.
b. Project title and number.
c. Name, address, and telephone number of testing agency.
d. Dates and locations of samples and tests or inspections.
e. Names of individuals making the inspection or test.
f. Designation of the work and test method.
g. Identification of product and specification section.
h. Complete inspection or test data.
i. Test results and an interpretation of test results.
j. Ambient conditions at the time of sample-taking and testing.
k. Comments or professional opinion as to whether inspected or tested work complies with Contract Document requirements.
l. Name and signature of laboratory inspector.
m. Recommendations on retesting.

1.5. QUALITY ASSURANCE

A. Qualification for Service Agencies. Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.

1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state in which the project is located.

2. PRODUCTS (Not Applicable)

3. EXECUTION

3.1. REPAIR AND PROTECTION

A. General. Upon completion of inspection, testing, sample-taking, and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes.

B. Protect construction exposed by or for quality control service activities, and protect repaired construction.

C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION

SECTION 01 5000

TEMPORARY FACILITIES AND CONTROLS

1. GENERAL

1.1. DESCRIPTION OF REQUIREMENTS

A. General Contractor shall provide temporary services and facilities for use by all Prime Contractors and the Engineer except as otherwise herein specified. Do not remove temporary facilities until authorized use of permanent facilities.

1.2. USE CHARGES

A. Usage charges for temporary services or facilities shall be paid by the General Contractor.

1.3. WATER FOR TESTING

A. As an exception to the above, necessary amounts of water for initial flushing and testing piping systems will be furnished by the Owner at no cost to the Contractor, subject to requirements which the Owner may impose.

1.4. REGULATIONS AND LIMITATIONS

A. Comply with requirements of local laws and regulations governing construction and local industry standards, in the installation and maintenance of temporary services and facilities.

B. The Contractor shall be limited to work within the property limits of the site and shall be responsible for and take necessary precautions to avoid damage to all adjacent property.

1.5. TEMPORARY UTILITY INSTALLATION

A. Engage the local utility company to install temporary services. As early as possible change to use of permanent service, to enable removal of the temporary utility and eliminate possible interference with completion of the work.

B. Water Service. Provide temporary potable water supply at the plant site for construction purposes. Use of Owner's hydrants is prohibited for this purpose.

C. Electrical Power Service. Provide weather-tight, grounded temporary electrical service entrance and distribution system, with ground-fault circuit interrupters and ground-fault interrupter features of proper types, sizes, electrical ratings and characteristics to fulfill project requirements. Comply with applicable requirements of NEMA, NECA and UL standards and governing regulations. Install temporary lighting of adequate illumination levels to perform the work specified. Temporary electric service for construction purposes shall be for use by all prime contractors.

D. Temporary Heat. Provide temporary heat where needed for performance of work, for curing or drying of recently installed work or for protection of work in place from adverse effects of low temperatures or high humidity. Provide UL or FM tested and labeled heating units known to be safe and without adverse effect upon work in place or being installed. Maintain a minimum temperature of 45°F (7°C) in permanently enclosed portions of the building and areas where finished work has been installed.

Except where use of the permanent heating system is available and authorized, provide properly vented self-contained LP gas or fuel oil heaters with individual space thermostatic control for temporary heat. Do not use open burning or salamander type heating units.

1.6. STAGING AREAS

A. Space available on site for trailers, materials storage, and staging is limited. The staging area may be shown on the plans and will not be expanded.

B. If additional space is required, the Contractors are responsible for leasing or otherwise securing the necessary space, off-site.

1.7. TEMPORARY ROADS AND PAVING

A. Provide temporary graveled roads and graveled parking facilities during the course of the work. Locate in the same locations as permanent facilities.

B. Coordinate temporary drives with grading and compaction of the sub-grade, installation and stabilization of sub-base, and installation of base and finish courses of permanent paving.

C. Construct and maintain temporary roads to support loading and to withstand exposure to traffic. Provide a graded and well compacted, well drained sub-grade, and a gravel paving course of a well graded sub-base material not less than 3 inches thick, roller compacted to a level, smooth surface.

D. Delay installation of the final course of permanent paving in areas exposed to temporary use, until immediately before substantial completion.

E. Completely remove temporary roadways in areas not to receive permanent paving, prior to seeding.

1.8. SANITARY FACILITIES

A. Sanitary facilities include temporary toilets for construction personnel of all prime contractors.

1. Supply toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each facility. Provide appropriate covered waste containers for used materials.

2. Toilets: Install single occupant self-contained toilet units of the chemical, aerated recirculation or combustion type, properly vented and fully enclosed with glass fiber reinforced polyester shell. Use of pit-type privies will not be permitted.

3. Provide separate toilet facilities for male and female construction personnel at ground level. Use of plant facilities is prohibited.

D. Drinking Water. Provide tap-dispenser bottled-water type drinking water units for personnel of all prime contractors and subcontractors.

1.9. SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Maintain site in a safe, lawful and publicly acceptable manner. Each prime contractor shall be responsible for security of their own office and storage facilities.

1.10. BARRICADES, WARNING SIGNS, AND LIGHTS

A. Comply with recognized standards and code requirements for erection of substantial barricades, where needed to prevent accidents. Paint with appropriate colors, graphics, and warning signs to inform personnel at the site and the public, of the hazard being protected against. Provide lighting where needed, including flashing red lights were appropriate.

1.11. MAINTENANCE

A. Operate and maintain temporary services and facilities in good operating condition and in a safe and efficient manner until removal is authorized. Do not overload services or facilities. Protect from damage by freezing temperatures and similar elements. Do not allow unsanitary conditions, public nuisances or hazardous conditions to develop or persist on the site.

1.12. TERMINATION AND REMOVAL

A. Remove each temporary service and facility promptly when need has ended, or when replaced by use of a permanent facility, but no later than substantial completion. Complete, or, if necessary, restore permanent work delayed because of interference with the temporary service or facility. Repair damaged work, clean exposed surfaces, and replace work which cannot be repaired.

B. At substantial completion, clean and renovate permanent services and facilities that have been used to provide temporary services and facilities during the construction period.

1.13. SAFETY MEASURES

A. In addition to complying with safety requirements set forth in the General Conditions, the Contractor shall:

1. Inform himself of and fully comply with all applicable requirements of OSHA in the performance of work required under this contract.

2. The Contractor shall adhere to the rules, regulations, and interpretations of the Secretary of the Department of Labor relating to safety and health for construction which are hereby incorporated into these requirements.

END OF SECTION

SECTION 01 5213

FIELD OFFICES AND SHEDS

1. GENERAL

1.1. DESCRIPTION

A. Provide field offices and sheds as described below.

B. Field offices shall be at sites designated by the Owner.

2. PRODUCTS

2.1. CONTRACTOR'S FIELD OFFICE

A. Provide a field office with the following minimum facilities:

1. A weather-sealed structure suitably anchored for bad weather.
2. High-speed internet service.
3. Adequate lighting, heating, air conditioning, and ventilation.
4. Sufficient filing cabinets for the project record documents.

2.2. ENGINEER'S FIELD OFFICE

A. The General Contractor shall provide and maintain a 200-square-foot-minimum field office for the exclusive use of the Engineer.

B. Field Office shall be a separate weather-tight structure with:

1. Suitable anchoring for bad weather.
2. Heating and air conditioning.
3. Outside door with lock.
4. At least two windows, suitably arranged for ventilation.
5. Adequate electric lighting.
6. At least one wall receptacle on each wall.
7. High speed internet service.
8. Contractor shall pay all charges for the following utilities:
   a. Heating
   b. Electricity
   c. Water

d. Internet Service

C. Contractor shall provide the following:

1. One flat-top office desk (2½ by 4½ feet) with drawers on each end.

2. One 3 by 6-foot drawing table.

3. Four straight chairs.

4. Two 4-drawer, steel filing cabinets with lock and keys.

5. One large metal wastebasket.

6. One plan rack.

7. One wall-mounted fire extinguisher.

8. One water cooler/bottled water.

9. One printer/copier/scanner capable of 8½ by 11 to 11 by 17-inch copies. Contractor shall be responsible for maintaining printer/copier/scanner throughout contract period.

10. Continuous inventory of expendable supplies for above items.

11. Extra hard hats for on-site visitors.

D. Provide adequate sanitary facilities.

E. Field Office shall be ready for occupancy within 30 days after notice to proceed with construction, unless an extension of time is granted by the Engineer.

2.3. SHEDS

A. Storage platforms and sheds shall be provided for materials that require protection from the weather.

B. Sheds shall be substantially constructed.

END OF SECTION

SECTION 01 6000

MATERIALS AND EQUIPMENT

1. GENERAL

1.1. SUMMARY

A. This section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the project.

1. Multiple Prime Contracts: Provisions of this section apply to the construction activities of each prime Contractor.

B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section 01 3200, Schedules and Reports.

C. Standards. Refer to Section 01 4219, Applicable Codes and Standards, for applicability of industry standards to products specified.

1.2. RELATED DOCUMENTS

A. Drawings and general provision of the Contract, including General and Supplemental Conditions or General Provisions and other Division 1 Specification sections, apply to this section.

1.3. DEFINITIONS

A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "system," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.

1. "Products" are items purchased for incorporation in the work, whether purchased for the project or taken from previously purchased stock. In all cases, products shall be new and unused. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

a. "Named products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.

2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined, or otherwise fabricated, processed, or installed to form a part of the work.

3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

1.4. QUALITY ASSURANCE

A. Source Limitations. To the fullest extent possible, provide products of the same kind, from a single source.

B. Compatibility of Options. When the Contractor is given the option of selecting between two or more products for use on the project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

1. Each prime Contractor is responsible for providing products and construction methods that are compatible with products and construction methods of other prime or separate Contractors.

2. Equipment Nameplates: Provide a permanent nameplate of each item of service-connected or power-operated equipment. Locate on an easily accessible surface. The nameplate shall contain the following information and other essential operating data:

a. Name of product and manufacturer.
b. Model and serial number.
c. Capacity.
d. Speed.
e. Ratings.

1.5. PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.

5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

6. Store heavy materials away from the project structure in a manner that will not endanger the supporting construction.

7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

2. PRODUCTS

2.1. PRODUCT SELECTION

A. General Product Requirements. Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.

1. Provide products complete with all accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and for the intended use and effect.

2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

B. Product Selection Procedures. Product selection is governed by the Contract Documents and governing regulations. Procedures governing product selection include the following:

1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.

2. Semi-proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.

a. Where products or manufacturers are specified by name, accompanied by the term "or equal" or "or approved equal," comply with the Contract Document provisions concerning "substitutions" and “or-equals” to obtain approval for use of an unnamed product.

3. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" and “or-equals” to obtain approval for use of an unnamed product.

4. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.

5. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.

    a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

6. Compliance with Standards, Codes, and Regulations: Where the Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.

7. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer to comply with other specified requirements. The Engineer will select the color, pattern, and texture from the product line selected.

2.2. SHOP PRIMING AND PAINTING

A. Shop prime and/or shop finish all shop fabricated equipment prior to shipping.

B. Surface preparation, primers, finishes, number of coats, and film thicknesses shall comply with applicable provisions of Section 09 9100, Painting (if included), unless alternative procedures and materials are accepted by the Engineer during shop drawing and product data review.

C. Prepare and finish electrical and mechanical equipment prior to final assembly. Do not sandblast or paint assembled equipment or machined interior surfaces of equipment.

D. Coat interior, inaccessible surfaces of equipment with an epoxy system suitable for the lifetime of the equipment at anticipated operating conditions and temperatures, unless otherwise specified or accepted.

E. Coat exterior and accessible interior surfaces with an appropriate epoxy system, unless otherwise specified or accepted.

3. EXECUTION

3.1. INSTALLATION OF PRODUCTS

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work.

1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION

SECTION 01 6500

TRANSPORTATION AND HANDLING

1. GENERAL

1.1. SCOPE

A. Provide transportation of all equipment, materials, and products furnished under these Contract Documents to the site of the work. In addition, provide preparation for shipment and storage, unloading, handling and re-handling, short-term storage, extended storage, storage facilities, maintenance and protection during storage, preparation for installation, and all other work and incidental items necessary or convenient to the Contractor for the satisfactory prosecution and completion of the work.

1.2. TRANSPORTATION

A. Suitably box, crate, or otherwise protect all equipment during transportation.

B. Ship and deliver all equipment in the largest assembled sections practical or permitted by carrier regulations to minimize the number of field connections.

C. Ensure that the equipment is assembled and transported in such a manner so as to clear buildings, power lines, bridges, and similar structures encountered during shipment or delivery to the site of the work.

D. Ensure that the weights of the assembled sections do not exceed the capacity of the cranes or hoisting equipment where equipment will be installed using existing cranes or hoisting equipment.

E. Small items and appurtenances such as gauges, valves, switches, instruments, and probes which could be damaged during shipment shall be removed from the equipment prior to shipment and packaged and shipped separately. All openings shall be plugged or sealed to prevent the entrance of water or dirt.

F. Paint temporary shipping braces and supports orange or yellow for easy identification.

1.3. HANDLING

A. Carefully handle all equipment, materials, and products to prevent damage or excessive deflections during unloading or transportation. All equipment, materials, and products damaged during transportation or handling shall be repaired or replaced by the Contractor at no additional cost to the Owner prior to being incorporated into the work.

B. Strictly follow lifting and handling drawings and instructions furnished by the manufacturer or supplier. Eyebolts or lifting lugs furnished on the equipment shall be used in handling the equipment. Shafts and operating mechanisms shall not be used as lifting points. Spreader bars or lifting beams shall be used when

the distance between lifting points exceeds that permitted by standard industry practice. Slings and chains shall be padded as required to prevent damage to protective coatings and finishes.

C. Under no circumstances shall equipment or products such as pipe, structural steel, casting, reinforcement, lumber, piles, poles, etc., be thrown or rolled off of trucks onto the ground.

D. Handle items such as nonmetallic pipe, nonmetallic conduit, flagpoles, and lighting poles using nonmetallic slings or straps.

END OF SECTION

SECTION 01 6600

STORAGE AND PROTECTION

1. GENERAL

1.1. SCOPE

A. Equipment shall be received, inspected, unloaded, handled, stored, maintained, and protected by the Contractor in a suitable location on or off site, if necessary, until such time as installation is required.

B. Storage and protection of Contractor-furnished equipment shall be in strict conformance with the requirements of the applicable provisions of the General Conditions of these Specifications.

1.2. STORAGE

A. Provide satisfactory storage facilities which are acceptable to the Engineer. In the event that satisfactory facilities cannot be provided on site, satisfactory warehouse, acceptable to the Engineer, will be provided by the Contractor for such time until the equipment, materials, and products can be accommodated at the site.

B. Equipment, materials, and products which are stored in a satisfactory warehouse acceptable to the Engineer will be eligible for progress payments as though they had been delivered to the job site.

C. Maintain and protect all equipment, materials, and products placed in storage and bear all costs of storage, preparation for transportation, transportation, re-handling, and preparation for installation.

D. Equipment and products stored outdoors shall be supported above the ground on suitable wooden blocks or braces arranged to prevent excessive deflection or bending between supports. Items such as pipe, structural steel, and sheet construction products shall be stored with one end elevated to facilitate drainage.

E. Building products and materials such as cement, grout, plaster, gypsum-board, particleboard, resilient flooring, acoustical tile, paneling, finish lumber, insulation, wiring, etc., shall be stored indoors in a dry location, unless otherwise permitted in writing by the Engineer. Building products such as rough lumber, plywood, concrete block, and structural tile may be stored outdoors under a properly secured waterproof covering.

F. Tarps and other coverings shall be supported above the stored equipment or materials on wooden strips to provide ventilation under the cover and minimize condensation. Tarps and covers shall be arranged to prevent ponding of water.

1.3. EXTENDED STORAGE

A. In the event that certain items of major equipment have to be stored for an extended period of time, the Contractor shall provide satisfactory long-term storage facilities which are acceptable to the Engineer. The Contractor shall provide all special packaging, protective coverings, protective coatings, power, nitrogen purge, desiccants, lubricants, and exercising necessary or recommended by the manufacturer to properly maintain and protect the equipment during the period of extended storage.

END OF SECTION

SECTION 01 7329

CUTTING AND PATCHING

1. GENERAL

1.1. DEFINITIONS

A. Cutting and patching includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition.

B. Refer to other sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.

1.2. STRUCTURAL WORK

A. Do not cut-and-patch structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio. Submit proposal and request and obtain Engineer's approval before proceeding with cut-and-patch of structural work.

1.3. OPERATIONAL/SAFETY LIMITATIONS

A. Do not cut-and-patch operational elements and safety components in a manner resulting in decreased performance, shortened useful life, or increased maintenance. Submit proposals and requests and obtain Engineer's approvals before proceeding with cut-and-patches.

1.4. VISUAL/QUALITY LIMITATIONS

A. Do not cut-and-patch work exposed to view (exterior and interior) in a manner resulting in noticeable reduction of aesthetic qualities, as judged by Engineer.

B. Engage qualified personnel skilled in cutting, patching, removal, and replacement of specialized equipment and finish surfaces.

1.5. LIMITATIONS ON APPROVALS

A. Engineer's approval to proceed with cutting and patching does not waive right to later require removal/replacement of work found to be cut-and-patched in an unsatisfactory manner, as determined by the Engineer.

2. PRODUCTS

2.1. GENERAL

A. Use materials for cutting and patching that are identical to existing materials. If identical materials are not available or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual

effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

3. EXECUTION

3.1. INSPECTION

A. Before cutting, examine surfaces to be cut and patched and conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.

3.2. TEMPORARY SUPPORT

A. To prevent failure, provide temporary support of work to be cut.

3.3. PROTECTION

A. Protect other work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for that part of the project that may be exposed during cutting and patching operations.

B. Avoid interference with use of adjoining areas or interruption of free passage to adjoining area.

C. Take precautions not to cut existing pipe, conduit, or duct serving existing building or equipment but scheduled to be relocated until provisions have been made to bypass them.

3.4. CUTTING

A. Use the cutting methods that are least likely to damage work to be retained or adjoining work. Where possible, review proposed procedures with the original installer; comply with original installer's recommendations.

B. Where cutting is required, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine such as a carborundum saw or core drill. Cut holes and slots neatly to size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut and drill from the exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.

3.5. PATCHING

A. Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.

B. Restore exposed finish of patched areas, and where necessary extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and refinishing.

3.6. REPAIR OF DAMAGE

A. Repair equipment and finish surfaces damaged as the result of the work of this contract to the satisfaction of the Owner or replace with new material at no additional cost to the Owner.

END OF SECTION

SECTION 01 7423

FINAL CLEANING

1. GENERAL

1.1. SUMMARY

A. This section specifies administrative and procedural requirements for final cleaning at Substantial Completion.

1. Special cleaning requirements for specific elements of the work are included in appropriate sections of Divisions 2 through 48.

B. General project closeout requirements are included in Section 01 7800, Project Closeout.

C. Multiple Prime Contracts. Except as otherwise indicated, each prime Contractor is responsible for final cleaning his own work.

D. Environmental Requirements. Conduct cleaning and waste disposal operations in compliance with local laws and ordinances. Comply fully with federal and local environmental and anti-pollution regulations.

1. Do not dispose of volatile wastes such as mineral spirits, oil or paint thinner in storm or sanitary drains.

2. Burning or burying of debris, rubbish or other waste material on the premises will not be permitted without the owner's permission. If allowed, all required permits shall be the responsibility of the Contractor.

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplemental Conditions or General Provisions and other Division 1 Specification sections, apply to this section.

2. PRODUCTS

2.1. MATERIALS

A. Cleaning Agents. Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property, or that might damage finished surfaces.

3. EXECUTION

3.1. FINAL CLEANING

A. General. Provide final cleaning operations when indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of work to the condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

B. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion for the entire project or a portion of the project.

1. Clean the project site, yard and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste materials, litter and foreign substances. Sweep paved areas broom clean. Remove petrochemical spills, stains and other foreign deposits. Rake grounds that are neither planted nor paved, to a smooth even-textured surface.

2. Remove tools, construction equipment, machinery and surplus material from the site.

3. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

4. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.

5. Broom clean concrete floors in unoccupied spaces.

6. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

7. Remove labels that are not permanent labels.

8. Touch-up and otherwise repair and restore marred exposed finishes and surfaces. Replace finishes and surfaces that can not be satisfactorily repaired or restored, or that show evidence of repair or restoration. Do not paint over "UL" and similar labels, including mechanical and electrical name plates.

9. Wipe surfaces of mechanical and electrical equipment, elevator equipment and similar equipment. Remove excess lubrication, paint and mortar droppings and other foreign substances.

10. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

11. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills. Clean ducts, blowers, and coils if units were operated without filters during construction.

12. Clean light fixtures, lamps, globes and reflectors to function with full efficiency. Replace burned out bulbs, and defective and noisy starters in fluorescent and mercury vapor fixtures.

13. Leave the project clean and ready for occupancy.

C. Compliances. Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from the site and dispose of in a lawful manner.

1. Where extra materials of value remain after completion of associated construction have become the Owner's property, dispose of these materials as directed.

END OF SECTION

SECTION 01 7800

PROJECT CLOSEOUT

1. GENERAL

1.1. SUMMARY

A. This section specifies administrative and procedural requirements for project closeout, including but not limited to:

1. Inspection procedures.
2. Project record document submittal.
3. Operating and maintenance manual submittal.
4. Submittal of warranties.
5. Final cleaning.

B. Closeout requirements for specific construction activities are included in the appropriate sections in Divisions 2 through 49.

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplemental Conditions and other Division 1 specification sections, apply to this section.

1.3. SUBSTANTIAL COMPLETION

A. Preliminary Procedures. Before requesting inspection for certification of substantial completion, complete the following. List exceptions in the request.

1. Advise Owner of pending insurance change-over requirements.

2. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements

3. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

B. Inspection Procedures. On receipt of a request for inspection, the Engineer will either proceed with inspection or advise the Contractor of unfulfilled requirements. The Engineer will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Engineer will repeat inspection when requested and assured that the work has been substantially completed.

2. Results of the completed inspection will form the basis of requirements for substantial completion.

C. Reinspection Procedure. The Engineer will reinspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Engineer.

1. Upon completion of reinspection, the Engineer will prepare a certificate of final acceptance or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

2. If necessary, reinspection will be repeated.

1.4. FINAL ACCEPTANCE

A. Preliminary Procedures. Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

2. Submit an updated final statement, accounting for final additional changes to the contract sum.

3. Submit a certified copy of the Engineer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Engineer.

4. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.

5. Obtain and submit releases enabling the Owner unrestricted use of the work and access to services and utilities; include occupancy permits, operating certificates, and similar releases.

6. Submit record drawings, final project photographs, damage or settlement survey, property survey, and similar final record information.

7. Deliver any specified tools, spare parts, extra stock, and similar items.

8. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.

9. Submit all project close out forms completed and executed.

10. Submit operation and maintenance data.

11. Submit spare parts list.

12. Submit project record drawings (mark-up of plans showing revisions during construction).

13. Submit a final liquidated damages settlement statement, if required.

14. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

15. Drawings: Provide specially prepared drawings where necessary to supplement manufacturer's printed data to illustrate the relationship of component parts of equipment or systems, or to provide control or flow diagrams. Coordinate these drawings with information contained in project record drawings to ensure correct illustration of the completed installation.

2. PRODUCTS (Not Applicable)

3. EXECUTION

3.1. CLOSEOUT PROCEDURES

A. Operating and Maintenance Instructions. Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:

1. Maintenance manuals.
2. Record documents.
3. Spare parts and materials.
4. Tools.
5. Lubricants.
6. Fuels.
7. Identification systems.
8. Control sequences.
9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. Maintenance agreements and similar continuing commitments

B. A list of available instruction dates shall be submitted to the Owner through the Engineer at least two weeks in advance of the earliest proposed date for each instruction program. The Engineer will, within three business days, notify the Contractor of the Owner’s preferred date. To the maximum extent possible, instruction of related equipment systems will be conducted concurrently. The final coordination of the instruction is the sole responsibility of the Contractor.

C. Demonstrate the following procedures as part of instruction for operating equipment.

1. Start-up.

2. Shutdown.
3. Emergency operations.
4. Noise and vibration adjustments.
5. Safety procedures.
6. Economy and efficiency adjustments.
7. Effective energy utilization.

3.2. FINAL CLEANING

A. General. General cleaning during construction is required by the General Conditions.

B. Cleaning. Employ experienced workers or professional cleaners for final cleaning. Clean all work areas to original condition or to satisfaction of Owner and Engineer.

1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.

2. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

C. Removal of Protection. Remove temporary protection and facilities installed for protection of the work during construction.

D. Compliance. Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

1. Where extra materials of value remaining after completion of associated work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION

SECTION 01 7823

OPERATING AND MAINTENANCE DATA

1. GENERAL

1.1. SUMMARY

A. This section specifies administrative and procedural requirements for operating and maintenance manuals including the following:

1. Preparation and submittal of operating and maintenance manuals for building operating systems or equipment.

2. Preparation and submittal of instruction manuals covering the care, preservation, and maintenance of architectural products and finishes.

3. Instruction of the Owner's operating personnel in operation and maintenance of building systems and equipment.

B. Special operating and maintenance data requirements for specific pieces of equipment or building operating systems are included in the appropriate sections of Divisions 2 through 49.

C. Preparation of shop drawings and product data are included in Section 01 3323, Shop Drawings, Product Data and Samples.

D. General closeout requirements are included in Section 01 7800, Project Closeout.

E. General requirements for submittal of project record documents are included in Section 01 7839, Project Record Documents.

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplemental Conditions and other Division 1 specification sections, apply to this section

1.3. QUALITY ASSURANCE

A. Operation and Maintenance Manual Preparation. In preparation of operation and maintenance manuals, use personnel thoroughly trained and experienced in operation and maintenance of the equipment or system involved.

1. Where written instructions are required, use personnel skilled in technical writing to the extent necessary for communication of essential data.

2. Where Drawings or diagrams are required, use drafters capable of preparing Drawings clearly in an understandable format.

B. Instructions for the Owner's Personnel. For instruction of the Owner's operating and maintenance personnel, use experienced instructors thoroughly trained and experienced in the operation and maintenance of the building equipment or system involve

1.4. SUBMITTALS

A. Submittal Schedule. Comply with the following schedule for submittal of operating and maintenance manuals.

1. Prior to the 80 percent completion point on the work, submit two draft copies of each manual to the Engineer for review. Include a complete index or table of contents of each manual. Draft submittal shall be in PDF format, and transmittal shall be electronic.

2. Prior to substantial completion, make corrections or modifications to comply with the Engineer's comments and submit the specified number of copies of each approved manual to the Engineer.

3. Number: Four final copies of each manual.

B. Form of Submittal. Prepare operating and maintenance manuals in the form of an instructional manual for use by the Owner's operating personnel. Organize into suitable sets of manageable size. Where possible, assemble instructions for similar equipment into a single binder.

1. Binders: For each manual, provide heavy-duty, commercial quality, 3-ring, vinyl-covered loose-leaf binders, in thickness necessary to accommodate contents, sized to receive 8½- by 11-inch paper. Provide a clear plastic sleeve on the spine to hold labels describing the contents. Provide pockets in the covers to receive folded sheets.

   a. Where two or more binders are necessary to accommodate data, correlate data in each binder into related groupings in accordance with the project manual Table of Contents. Cross-reference other binders where necessary to provide essential information for proper operation or maintenance of the piece of equipment or system.

   b. Identify each binder on the front and spine, with the typed or printed title "OPERATION AND MAINTENANCE MANUAL," project title or name, and subject matter covered. Indicate the volume number for multiple-volume sets of manuals.

2. Dividers: Provide heavy paper dividers with celluloid covered tabs for each separate section. Mark each tab to indicate contents. Provide a typed description of the product and major parts of equipment included in the section on each divider.

3. Protective Plastic Jackets: Provide protective transparent plastic jackets designed to enclose diagnostic software for computerized electronic equipment.

4. Text Material: Where written material is required as part of the manual, use the manufacturer's standard printed material, or if it is not available, specially prepared data, neatly typewritten, on 8½- by 11-inch, 20-pound white bond paper.

5. Drawings: Where drawings or diagrams are required as part of the manual, provide reinforced, punched binder tabs on the drawings and bind in with the text.

    a. Where oversized drawings are necessary, fold the drawings to the same size as the text pages and use as a fold-out.

    b. If drawings are too large to be used practically as a fold-out, place the drawing, neatly folded, in the front or rear pocket of the binder. Insert a typewritten page indicating the drawing title, description of contents, and drawing location at the appropriate location in the manual.

1.5. MANUAL CONTENT

A. In each manual include information specified in the individual specification section, and the following information for each major component of building equipment and its controls:

1. General system or equipment description.
2. Design factors and assumptions.
3. Copies of applicable shop drawings and product data.
4. System or equipment identification, including:
    a. Name of manufacturer.
    b. Model number.
    c. Serial number of each component.
5. Operating instructions.
6. Emergency instructions.
7. Wiring diagrams.
8. Inspection and test procedures.
9. Maintenance procedures and schedules.
10. Precautions against improper use and maintenance.
11. Copies of warranties.
12. Repair instructions including spare parts listing.
13. Sources of required maintenance materials and related services.
14. Manual index.

B. Organize each manual into separate sections for each piece of related equipment. As a minimum, each manual shall contain a title page, a table of contents, copies of product data supplemented by drawings and written text, and copies of each warranty, bond, and service contract issued.

1. Title Page: Provide a title page in a transparent plastic envelope as the first sheet of each manual. Provide the following information:

a. Subject matter covered by the manual.
b. Name and address of the project.
c. Date of submittal.
d. Name, address, and telephone number of the Contractor.
e. Name and address of the Engineer.
f. Cross reference to related systems in other operating and maintenance manuals.

2. Table of Contents: After the Title Page, include a typewritten table of contents for each volume, arranged systematically according to the project manual format. Include a list of each product included, identified by product name or other appropriate identifying symbol and indexed to the content of the volume.

    a. Where more than one volume is required to accommodate data for a particular system, provide a comprehensive table of contents for all volumes in each volume of the set.

3. General Information: Provide a general information section immediately following the Table of Contents, listing each product included in the manual, identified by product name. Under each product, list the name, address, and telephone number of the subcontractor or installer, and the maintenance contractor. Clearly delineate the extent of responsibility of each of these entities. In addition, list a local source for replacement parts and equipment.

4. Product Data: Where manufacturer's standard printed data is included in the manuals, include only sheets that are pertinent to the part or product installed. Mark each sheet to identify each part or product included in the installation. Where more than one item in a tabular format is included, identify each item, using appropriate references from the Contract Documents. Identify data applicable to the installation and delete references to information that is not applicable.

5. Written Text: Where manufacturer's standard printed data is not available, and information is necessary for proper operation and maintenance of equipment or systems, or it is necessary to provide additional information to supplement data included in the manual, prepare written text to provide necessary information. Organize the text in a consistent format under separate headings for different procedures. Where necessary, provide a logical sequence of instruction for each operating or maintenance procedure.

6. Drawings: Provide specially prepared drawings where necessary to supplement manufacturer's printed data to illustrate the relationship of component parts of equipment or systems, or to provide control or flow diagrams. Coordinate these drawings with information contained in project record drawings to ensure correct illustration of the completed installation.

7. Do not use original record documents as part of the operating and Maintenance Manuals.

8. Warranties, Bonds, and Service Contracts: Provide a copy of each warranty, bond, or service contract in the appropriate manual for the information of the Owner's operating personnel. Provide written data outlining procedures to be followed in the event of product failure. List circumstances and conditions that would affect validity of the warranty or bond.

1.6. INSTRUCTION OF THE OWNER'S PERSONNEL

A. Prior to substantial completion, instruct the Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Provide instruction at mutually agreed upon times.

1. For equipment that requires seasonal operation, provide similar instruction during other seasons.

2. Use operation and maintenance manuals as the basis of instruction for each piece of equipment or system. Review contents in detail to explain all aspects of operation and maintenance.

B. Training shall be conducted by an experienced, authorized service representative of the manufacturer.

2. PRODUCTS (Not Applicable).

3. EXECUTION (Not Applicable).

END OF SECTION

SECTION 01 7836

WARRANTIES AND BONDS

1. GENERAL

1.1. SUMMARY

A. This section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.

1. General closeout requirements are included in Section 01 7800, Project Closeout.

2. Specific requirements for warranties for the work and products and installations that are specified to be warranted, are included in the individual sections of Divisions 2 through 49.

B. Disclaimers and Limitations. Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

C. Separate Prime Contracts: Each Prime Contractor is responsible for warranties related to its own contract.

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplemental Conditions and other Division 1 specification sections, apply to this section

1.3. DEFINITIONS

A. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.4. WARRANTY REQUIREMENTS

A. Standard Warranty: Warrant all equipment, materials, products, and workmanship provided under these Contract Documents for a period of 12 months after the date of substantial completion established by the Engineer.

B. Related Damages and Losses: When correcting warranted work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work.

C. Reinstatement of Warranty: When work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty.

D. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents. Complete warranty work as soon as possible after receipt of notice from the Owner for a warranty claim. The Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefitted from use of the work through a portion of its anticipated useful service life.

E. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights, and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

   1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

   2. If the required repairs or replacements have not been completed or if positive and good faith efforts have not been made to complete the repairs or replacements within 30 consecutive calendar days after receipt of notice from the Owner of the warranty claim, the Owner shall be authorized to proceed with the repairs or replacements and the cost thereof shall be assessed against the Contractor's Performance Bond. Evidence of positive and good faith efforts shall include, as a minimum, joint visits by the Contractor and affected equipment vendors and manufacturers, and certified copies of purchase orders or invoices.

F. The Owner reserves the right to refuse to accept work for the project where a special warranty, certification, or similar commitment is required on such work or part of the work, until evidence is presented that entities required to countersign such commitments are willing to do so.

G. Multiple Equipment Failures. In the event of multiple equipment failures of major consequence prior to the expiration of the one-year warranty described above, disassemble, inspect, and modify or replace the affected equipment as necessary to prevent further occurrences. As used herein, "multiple equipment failures" shall be interpreted to mean two or more successive failures of the same kind in the same item of equipment or failures of the same kind in two or more items of similar equipment. Major equipment failures may include, but are not limited to, cracked or broken housings, piping, or vessels, excessive deflections, bent or broken shafts or structural members, broken or chipped gear teeth,

overheating, premature bearing failure, excessive wear, or excessive leakage around seals. Should multiple equipment failures occur in a given item or type of equipment, disassemble, inspect, modify or replace, as necessary, all equipment of the same size and type, and re-warrant for 12 months.

1.5. SUBMITTALS

A. Submit written warranties to the Engineer prior to the date certified for substantial completion. If the Engineer's Certificate of Substantial Completion designates a commencement date for warranties other than the date of substantial completion for the work, or a designated portion of the work, submit written warranties upon request

1. When a designated portion of the work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Engineer within 15 days of completion of that designated portion of the work.

B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier, or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Engineer for approval prior to final execution.

1. Refer to individual sections of Divisions 2 through 49 for specific content requirements, and particular requirements for submittal of special warranties.

C. Form of Submittal. At final completion, compile 2 copies of each required warranty and bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Contract Documents.

1. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

2. PRODUCTS (Not Applicable).

3. EXECUTION (Not Applicable).

END OF SECTION

SECTION 01 7839

PROJECT RECORD DOCUMENTS

1. GENERAL

1.1. SUMMARY

A. This section specifies administrative and procedural requirements for project record documents.

B. Project record documents required include:

1. Marked-up copies of Contract Drawings.
2. Marked-up copies of approved shop drawings.
3. Newly prepared drawings
4. Marked-up copies of Specifications, Addenda, and Change Orders.
5. Marked-up product data submittals.
6. Construction photographs.
7. Field records for variable and concealed conditions.

C. Specific record copy requirements that expand requirements of this section are included in the individual sections of Division 2 through 49.

D. General project closeout requirements are included in Section 01 7800, Project Closeout.

E. Maintenance of Documents and Samples. Store record documents and samples in the field office apart from Contract Documents used for construction. Do not permit project record documents to be used for construction purposes. Maintain record documents in good order, and in a clean, dry, legible condition. Make documents and samples available at all times for inspection by the Engineer.

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplemental Conditions and other Division 1 specification sections, apply to this section.

1.3. RECORD DRAWINGS

A. Mark-up Procedure. During the construction period, maintain a set of black-line prints of Contract Drawings and shop drawings for project record document purposes.

1. Mark these Drawings to indicate the actual installation where the installation varies appreciably from the installation shown originally. Give particular attention to information on concealed elements which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:

a. Dimensional changes to the Drawings.
b. Revisions to details shown on the Drawings
c. Depth of rock.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Locations of concealed internal utilities.
i. Changes made by Change Order.
j. Details not on original Contract Drawings.

2. Mark completely and accurately record prints of Contract Drawings or shop drawings, whichever is most capable of showing actual physical conditions. Where shop drawings are marked, show cross-reference on Contract Drawings location.

3. Mark record sets with red erasable colored pencil; use other colors to distinguish between changes for different categories of the work at the same location.

4. Mark important additional information which was either shown schematically or omitted from original Drawings.

5. Note construction change directive numbers, alternate numbers, Change Order numbers, and similar identification.

6. Responsibility for Markup: Where feasible, the individual or entity who obtained record data, whether the individual or entity is the installer, subcontractor, or similar entity, is required to prepare the mark-up on record drawings.

   a. Accurately record information in an understandable drawing technique.

   b. Record data as soon as possible after it has been obtained. In the case of concealed installations, record and check the mark-up prior to concealment.

7. At time of final acceptance, submit record drawings to Engineer for Owner's records. Organize into sets, bind, and label sets for Owner's continued use.

1.4. RECORD SPECIFICATIONS

A. Maintain one copy of the project Specifications, including addenda and modifications issued, for project record document purposes during the construction period.

1. Mark the Specifications to indicate the actual installation where the installation varies substantially from that indicated in Specifications and modifications issued. Note related project record drawings information, where applicable. Give particular attention to substitutions, selection of

product options, and information on concealed installations that would be difficult to identify or measure and record later.

1.5. RECORD PRODUCT DATA

A. Maintain one copy of each product data submittal for project record document purposes during the construction period.

1. Mark project data to indicate the actual product installation where the installation varies substantially from that indicated in product data submitted. Include significant changes in the product delivered to the site, and changes in manufacturer's instructions and recommendations for installation.

2. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

3. Note related Change Orders and mark-up of record drawings, where applicable.

4. Upon completion of mark-up, submit a complete set of record product data to the Engineer for the Owner's records.

5. Where record product data are required as part of maintenance manuals, submit marked-up product data as an insert in the manual, instead of submittal as record product data.

1.6. MISCELLANEOUS RECORD SUBMITTALS

A. Refer to other specification sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Immediately prior to final acceptance, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. Submit to the Engineer for the Owner's records.

1. Categories of requirements resulting in miscellaneous records include, but are not limited to the following:

a. Field records on excavations and foundations.
b. Field records on underground construction and similar work.
c. Survey showing locations and elevations of underground lines.
d. Invert elevations of drainage piping.
e. Surveys establishing building lines and levels.
f. Authorized measurements utilizing unit prices or allowances.
g. Inspections and certifications by governing authorities.
h. Leakage and pressure test.
i. Disinfection test results.
j. Final inspection and correction procedures.

2. PRODUCTS (Not Applicable)

3. EXECUTION

3.1. RECORDING

A. Post changes and modifications to the documents as they occur. Contractor shall wait until the end of the project. The Engineer will periodically review record documents to ensure compliance with this requirement.

END OF SECTION

SECTION 01 7843

SPARE PARTS

1. GENERAL

1.1. SUMMARY

A. This section specifies administrative, procedural, and storage requirements for spare parts for the various systems specified under these Contract Documents.

1.2. DEFINITIONS

A. "Spare parts" are products that are finished, refined, or otherwise fabricated to be used as direct replacements of parts or whole units of the finished project (i.e., installed in equipment, electrical or mechanical, etc.).

1.3. DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

6. Store heavy materials away from the project structure in a manner that will not endanger the supporting construction.

7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

1.4. EXTENDED STORAGE

A. In the event items of major equipment must be stored for an extended period of time, provide satisfactory long-term storage facilities which are acceptable to the Engineer. Provide all special packaging, protective coverings, protective coatings, power, nitrogen purge, desiccants, and lubricants necessary or recommended by the manufacturer to properly maintain and protect the equipment during the period of extended storage.

1.5. IDENTIFICATION

A. Clearly mark and identify all parts with manufacturer's name and number and the equipment to which it belongs. Each part or box shall be separately identified.

1.6. TURNOVER OF SPARE PARTS TO OWNER

A. Provide Owner's representative with a complete inventory of all spare parts specified for installed systems. This inventory shall show:

1. Specification name and number.
2. Item number.
3. Description of items(s).
4. Quantity specified.
5. Storage location.

1.7. SPARE PARTS SUPPLIED

A. Supply all spare parts specifically listed in the individual equipment specification section and all spare parts that are customarily provided with each specified piece of equipment.

1.8. SPARE PARTS INVENTORY FORM

A. Create an inventory form listing all part numbers. Alternate forms may be used with Engineer's approval.

END OF SECTION

SECTION 31 1100

SITE CLEARING

1. GENERAL

1.1. SUMMARY

A. This section includes the following:

1. Protection of existing trees.
2. Removal of trees and other vegetation.
3. Topsoil stripping.
4. Clearing and grubbing.
5. Removing above-grade improvements.
6. Removing below-grade improvements.

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of Contract apply to this section.

1.3. PROJECT CONDITIONS

A. Traffic. Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.

B. Protection of Existing Improvements. Provide protections necessary to prevent damage to existing improvements indicated to remain in place.

1. Protect improvements on adjoining properties and on Owner's property.

2. Restore damaged improvements to their original condition, as acceptable to property owners.

C. Protection of Existing Trees and Vegetation. For existing trees and other vegetation indicated to remain in place, protect against unnecessary cutting, breaking, or skinning of roots; skinning or bruising of bark; smothering of trees by stockpiling construction materials or excavated materials within drip line; excess foot or vehicular traffic; or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

2. PRODUCTS (Not Applicable)

3. EXECUTION

3.1. SITE CLEARING

A. General. Remove trees, shrubs, grass, and other vegetation, improvements, or obstructions as required to permit installation of new construction. Remove similar items elsewhere on-site or premises as specifically indicated. "Removal" includes digging out and disposing of stumps and roots. Stumps and roots may be buried on- site at spoil location noted on Drawings. Other areas may also be used upon approval of the Engineer.

1. Cut minor roots and branches of trees indicated to remain in a clean and careful manner, where such roots and branches obstruct installation of new construction.

B. Topsoil. Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, and without weeds, roots, and other objectionable material.

1. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.

   a. Remove heavy growths of grass from areas before stripping.
   b. Where existing trees are indicated to remain, leave existing topsoil in place
      within drip lines to prevent damage to root system.

2. Stockpile topsoil in storage piles in areas indicated or directed. Construct storage piles to provide free drainage of surface water. Cover storage piles, if required, to prevent wind erosion.

C. Clearing and Grubbing. Clear site of trees, shrubs, and other vegetation, except for those indicated to be left standing.

1. Completely remove stumps, roots, and other debris protruding through ground surface.

2. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.

   a. Place fill material in horizontal layers not exceeding 6 inches loose depth, and thoroughly compact to density equal to adjacent original ground.

D. Burning on Owner's Property. Burning will be permitted only at designated areas and times directed by Owner. Provide full-time monitoring of burning materials until fires are extinguished. Obtain all state and local permits required for burning and comply with all state and local codes.

END OF SECTION

SECTION 31 2000

EARTHWORK

1. GENERAL

1.1 SCOPE

A. This section includes earthwork and related operations, including but not limited to clearing and grubbing the construction site; dewatering; excavating all classes of material encountered; pumping, draining, and handling of water encountered in the excavations; handling, storage, transportation, and disposal of all excavated and unsuitable material; construction of fills and embankments; backfilling around structures and pipe; backfilling all trenches and pits; compacting; all sheeting, shoring, and bracing; preparation of subgrades; surfacing and grading; and any other similar, incidental, or appurtenant earthwork operation which may be necessary to properly complete the work.

B. Provide all services, labor, materials, and equipment required for all earthwork and related operations necessary or convenient to the Contractor for furnishing a complete work as shown on the Drawings or specified in these Contract Documents.

1.2 GENERAL

A. The elevations shown on the Drawings as existing are taken from the best available data and are intended to give reasonable, accurate information about the existing elevations. They are not precise, and the Contractor should satisfy himself as to the exact quantities of excavation and fill required.

B. Perform earthwork operations in a safe and proper manner taking appropriate precautions against all hazards.

C. Maintain in good condition at all times all excavated and fill areas for structures, trenches, fills, topsoil areas, embankments, and channels until final acceptance by the Owner. Repair all damage caused by erosion or other construction operations using material of the same type as the damaged materials.

D. If soil borings are available for the area of this work, they will be on file at the Owner's address where they will be made available for review or may be included as an appendix to these Specifications. This information is made available for such use as Contractor may choose to make of it in the preparation of his bid, but the Owner gives no guarantee, either expressed or implied, that it represents a true or complete cross section of all of the

material to be encountered in performing the excavation and earthwork on this project.

E. Earthwork operations within the rights-of-way of the State Department of Transportation, the County Road Department, and the respective cities shall be conducted in accordance with the requirements and provisions of the permits issued by those agencies for the construction within their respective rights-of-way. Such requirements and provisions, where applicable, shall take precedence over and supersede the provisions of these Specifications.

F. Control grading to prevent water running into excavations. Obstruction of surface drainage shall be avoided and a means shall be provided whereby storm water can be uninterrupted in existing gutters, other surface drains, or temporary drains. Material for backfill or for protection of excavation in public roads from surface drainage shall be neatly placed and kept shaped so as to cause the least possible interference with public travel. Free access must be provided to all fire hydrants, valves, meters, and private drives.

G. No classification of excavated materials will be made and no separate payment for rock removal shall be allowed. Excavation and trenching work shall include the removal and subsequent handling of all materials excavated or otherwise removed in performance of the contract work, regardless of the type, character, composition, or condition thereof, no separate payment shall be allowed.

H. Tests for compaction and density shall be conducted through the Contractor by an independent testing laboratory selected by him and acceptable to the Engineer. Costs of compaction tests performed by an independent testing laboratory shall be paid for directly by the Contractor. Make all necessary excavations and supply any samples of materials necessary for conducting compaction and density tests. Pay the cost of all retests made necessary by the failure of materials to conform to the requirements of these Contract Documents.

I. All earthwork operations shall comply with the requirements of OSHA Construction Standards, Part 1926, Subpart P, "Excavations, Trenching, and Shoring," and Subpart O, "Motor Vehicles, Mechanized Equipment, and Marine Operations," and shall be conducted in a manner acceptable to the Engineer.

J. It is understood and agreed that a thorough investigation by the Contractor has been made of the surface and subsurface conditions of the site and any special construction problems which might arise as a result of nearby watercourses and floodplains, particularly in areas where construction activities may encounter water-bearing sands and gravels or limestone solution channels. Provide all services, labor, equipment, and materials necessary or convenient for completing the work.

2. PRODUCTS (Not applicable)

3. EXECUTION

3.1 INITIAL SITE PREPARATION

A. Preparatory to beginning construction operations, remove from the site all vegetative growth, trees, brush, stumps, roots, debris, and any other objectionable matter, including fences, buildings, and other structures shown on the Drawings in the construction areas which are designated for removal or which, if left in place, would interfere with the proper performance or completion of the contemplated work, would impair its subsequent use, or would form obstructions therein.

B. Grub and remove stumps and roots to a depth not less than 5 feet below grade. Fill all holes or cavities which extend below the subgrade elevation of the proposed work with compacted layers of crushed rock or earth backfill conforming to the requirements specified here for backfill. Do not incorporate organic material from clearing operations in excavation backfill or embankment material.

C. Exercise special precautions for the protection and preservation of trees, cultivated shrubs, sod, fences, buildings, and other structures located in the construction area but not within designated clearing limits as shown on the Drawings or within the limits of embankments, excavations, or proposed structures. Repair or replace any of the aforementioned items damaged by Contractor's operation or construction activities.

D. Remove and dispose of any excess material resulting from clearing or site preparation operations. Dispose of such materials in a manner acceptable to the Engineer and at an approved location where such materials can be lawfully placed.

3.2 DEWATERING

A. Provide and maintain at all times during construction ample means and devices with which to promptly remove and properly dispose of all water from any source entering the excavations or other parts of the work. Dewatering shall be accomplished by methods which will ensure a dry excavation and preservation of the final lines and grades of the bottoms of excavations. Methods of dewatering may include sump pumps, well points, deep wells, or other suitable methods which do not damage or weaken structures, foundations, or subgrades. Shallow excavations may be dewatered using open ditches, provided such ditches are kept open and free-draining at all times. The actual dewatering methods used shall be acceptable to the Engineer.

B. Do not place concrete or mortar in water nor allow water to rise over newly placed concrete or mortar for at least 24 hours after placement, unless specifically authorized by the Engineer. No concrete structure shall be exposed to unequal hydrostatic forces until the concrete has reached its specified 28-day strength. Do not allow water to rise above bedding during pipe-laying operations. Exercise care to prevent damage to pipelines or structures resulting from flotation, undermining, or scour. Dewatering operations shall commence when ground or surface water is first encountered and shall be continuous until water can safely be allowed to rise in accordance with the provisions of this section. Protect excavations from the entrance of surface water to the extent possible by the use of dikes and/or covers.

C. Standby pumping equipment shall be on the jobsite. A minimum of 1 standby unit (a minimum of 1 for each 10 in the event well points are used) shall be available for immediate installation should any pumping unit fail. The design and installation of well points or deep wells shall be suitable for the accomplishment of the work. Submit drawings or diagrams on proposed well point or deep well dewatering systems to the Engineer for review.

D. If foundation soils are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, excavate and replace the affected areas with crushed rock at no cost to the Owner.

E. Dispose of the water from the work in a suitable manner without damage to adjacent property. Conveyance of the water shall not interfere with traffic flow or treatment facilities operation. Do not drain water into work built or under construction without prior consent of the Engineer. The Contractor will be held responsible for the condition of any pipe or conduit which he may use for drainage purposes, and all such pipes or conduits shall be left clean and free of sediment.

F. Provide sedimentation and desilting basins as necessary or when directed by the Engineer to prevent the entrance of excessive or injurious amounts of sand and silt from surface runoff or dewatering operations into storm drains or receiving waters. The system used for desanding or desilting the water shall be a baffled structure and shall provide not less than 5 minutes detention time and shall be designed to have a "flow-through" velocity not exceeding 0.2 foot per second at the anticipated peak flow. The method of desanding or desilting and the point of disposal shall be subject to the approval of the Engineer.

G. Dispose of water safely and in accordance with applicable Environmental Protection Agency, U.S. Army Corps of Engineers, and State Water Quality Control Division standards and permits.

3.3 SHEETING, SHORING, AND BRACING

A. The sides of all excavations shall be sufficiently sheeted, shored, and braced as necessary to prevent slides, cave-ins, settlement, or movement of the banks; to maintain the excavation clear of all obstructions; and to provide safe working conditions. Wood or steel sheeting shall be used in wet, saturated, or flowing ground. All sheeting, shoring, and bracing shall have sufficient strength and rigidity to withstand the pressure exerted and to maintain shape and position under all circumstances.

B. Correctly assessing the need for sheeting, analyzing the stresses induced, and maintaining regulatory compliances shall be totally the responsibility of the Contractor. Since the Engineer does not dictate or determine the Contractor's sequence or limits of excavation, the Engineer assumes no responsibility for sheeting and shoring. The Contractor must employ or otherwise provide for adequate professional structural and geotechnical engineering supervision to assess the need for sheeting and shoring and design same. Results of sheeting and shoring analysis and design shall be submitted to the Engineer on request.

C. Excavations adjacent to existing or proposed buildings and structures, or in paved streets or alleys, shall be sheeted, shored, and braced adequately to prevent undermining beneath or subsequent settlement of such structures or pavements. Underpinning of adjacent structures shall be done when necessary to maintain structures in safe condition. Any damage to structures or pavements occurring through settlements, water or earth pressures, slides, caves, or other causes due to failure or lack of sheeting or bracing, or improper bracing or occurring through negligence or fault of the Contractor in any other manner shall be repaired by the Contractor at his own expense.

D. Sheeting, shoring, or bracing materials shall not be left in place unless otherwise specified or shown on the Drawings or ordered by the Engineer in writing. Such materials shall be removed in such manner that no danger or damage will occur to new or existing structures or property, public or private, and so that cave-ins or slides will not take place. Trench sheeting shall be left in place until backfill has been brought to a level 12 inches above the top of the pipe. It shall then be cut off and the upper portion removed. Sheeting for structures shall be left in place until backfill has been brought to a level 12 inches above the top of the bottom footing. It shall then be cut off and the upper portion removed.

E. All holes and voids left in the work by the removal of sheeting, shoring, or bracing shall be filled and thoroughly compacted.

3.4 EXCAVATION

A. General

1. Excavation shall include the removal of all material from an area necessary for the construction of a pipeline or structure. Excavations shall provide adequate working space and clearances for the work to be performed therein.

2. All material excavated below the bottom of concrete walls, footings, and foundations shall be replaced, by and at the expense of the Contractor, with Class B concrete to the lines and grades shown on the Drawings, except where otherwise shown on the Drawings, specified herein, or authorized by the Engineer.

3. Where quicksand, soft clay, spongy or swampy earth, or other materials unsuitable for subgrade or foundation purposes are encountered below the excavation limits, they shall be removed and disposed of to the level of suitable material. Areas so excavated shall be backfilled with Class B concrete or with compacted layers of crushed rock, sand, or other approved material conforming to the requirements specified herein for backfill to the lines and grades shown on the Drawings.

4. Place barriers at each end of all excavation and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations. Place lights along excavations from sunset each day to sunrise of the next day until the excavations are backfilled. Barricade all excavations in such a manner as to prevent persons from falling or walking into any excavation.

B. Rock Excavation

1. Rock encountered in the process of excavation for structures shall be uncovered and stripped of all loose materials over the entire limits of excavation.

2. Rock encountered for removal in a trench section shall be uncovered for a distance of not less than 50 feet.

3. Excavate rock and large boulders in trenches over the horizontal limits of excavation and to depths as shown on the Drawings.

4. Backfill the space below grade for pipelines to the proper grade with compacted layers of crushed rock or sand conforming to the requirements specified herein for backfill. Where pipe sewers are constructed on concrete cradles, excavate rock to the bottom of the cradle as shown on the Drawings.

5. Excavate rock under structures to lines and grades shown on the Drawings. Unless specified otherwise, where rock excavation has been carried below grade, the Contractor shall backfill to grade with Class B concrete at his own expense.

6. Where rock foundation is obtained at grade for over 50 percent of the area of any one structure, the portion of the foundation that is not rock shall be excavated below grade to reach a satisfactory foundation of rock. The portion below grade shall be backfilled with Class B concrete.

7. Where rock foundation is obtained at grade for less than 50 percent of any one structure and satisfactory rock cannot be found over the remaining area by reasonable additional excavation, the rock shall be removed for a depth of 12 inches below grade and the space below grade shall be backfilled to the proper grade with compacted layers of crushed rock conforming to the requirements specified herein for backfill.

8. Drilling and blasting operations, if allowed, shall be conducted with due regard for the safety of persons and property in the vicinity and in strict conformity with requirements of all ordinances, laws, and regulations governing blasting and the use of explosives. Conduct rock excavation near existing pipelines or other structures with the utmost care to avoid damage. Promptly repair injury or damage to other structures and properties to the satisfaction of the Owner by the Contractor at his own expense. The Contractor is advised to hire qualified consultants to perform a "pre-blast survey" in area where damage could occur due to blasting; all expenses for such survey must be borne by the Contractor, and no separate payment for same will be made.

9. Complete rock excavation for all structures and adjacent trenches under this Contract and any other rock excavation directed by the Engineer before construction of any structure is started in the vicinity.

C. Borrow Excavation

1. Wherever the backfill of excavated areas or the placement of embankments or other fills requires specified material not available at the site or material in excess of suitable material available from the authorized excavations, such materials shall be obtained from other sources. This may require the opening of borrow pits at points not immediately accessible from the work. In such cases make suitable arrangements with the property owner and pay all costs incident to the borrowed material including royalties, if any, for the use of the material. Before a borrow pit is opened, the quality and suitability of the material to be obtained therefrom shall be approved by the Engineer.

2. Borrow pits shall be cleared, grubbed, and finish-graded in accordance with the requirements specified herein.

D. Roadway Excavation. Roadway excavation shall consist of excavation for roadways and parking areas in conformity with lines, grades, cross sections, and dimensions shown on the Drawings. After shaping to line, grade, and cross section, the subgrade shall be rolled until compacted to a

depth of at least 6 inches to 100 percent of the maximum density at optimum water content as determined by AASHTO T99, Method A. This operation shall include any reshaping and wetting required to obtain proper compaction. All soft or otherwise unsuitable material shall be removed and replaced with suitable material.

E. Trench Excavation

1. Trench excavation shall consist of the removal of materials necessary for the construction of water, sewer, and other pipelines and all appurtenant facilities including manholes, inlets, outlets, headwalls, collars, concrete saddles, piers, and pipe protection called for on the Drawings.

2. Excavation for pipelines shall be made in open cut unless shown otherwise on the Drawings. Trenches shall be cut true to the lines and grades shown on the Drawings or established by the Engineer on the ground. The banks of trenches shall be cut in vertical, parallel planes equidistant from the pipe centerline. From an elevation 12 inches above the top of the pipe to the bottom of the trench, the horizontal distances between vertical planes for different sizes of pipe shall not exceed those shown on the Drawings. When sheeting is used, the width of the trench shall be considered as the distance between the inside faces of the sheeting. The bottom of the trench shall be cut carefully to the required grade of the pipe except where bedding materials or cradles are shown, in which case the excavation shall extend to the bottom of the bedding or cradles as shown on the Drawings. Minimum pipe cover shall be as shown on the Drawings or specified in these Contract Documents.

3. Unless specified elsewhere herein or shown on the Drawings, the minimum trench width shall be the diameter of the pipe plus 12-inches clear space on each side. Unless specified elsewhere herein or shown on the drawings, the minimum cover over the top of the pipe shall be 30-inches.

4. The use of a motor-powered trenching or sawing machine will be permitted, but full responsibility for the preservation, replacement, and/or repair of damage to any existing utility services and private property shall rest solely with the Contractor. Tailings from rock trenching shall not be used as pipe embedment or backfill and shall be disposed of by the Contractor.

5. Bell holes for bell and spigot pipe and/or mechanical joint pipe shall be excavated at proper intervals so the barrel of the pipe will rest for its entire length upon the bottom of the trench. Bell holes shall be large enough to permit proper installation of all joints in the pipe. Bell holes shall not be excavated more than 10 joints ahead of pipe laying. No part of any bell or coupling shall be in contact with the trench bottom, trench walls, or granular embedment when the pipe is jointed.

6. Excavation for manholes, outlets, collars, saddles, piers, and other pipeline structures shall conform to the additional requirements specified herein for structural excavation.

7. Pipe trenches shall not be excavated more than 400 feet in advance of pipe laying and all work shall be performed to cause the least possible inconvenience to the public. Adequate temporary bridges or crossings shall be constructed and maintained where required to permit uninterrupted vehicular and pedestrian traffic.

8. Wherever pipe trenches are excavated below the elevation shown on the Drawings, the Contractor, at his own expense, shall fill the void thus made at the proper grade with Class B concrete or with compacted layers of crushed rock or sand conforming to the requirements specified herein for backfill, unless otherwise specified herein or shown on the Drawings.

9. In all cases where materials are deposited along open trenches, they shall be placed so that no damage will result to the work and/or adjacent property in case of rain or other surface wash.

F. Structural Excavation

1. Structural excavation shall consist of the removal of all materials necessary for the construction of structures, including tanks, foundations, footings, wet wells, dry wells, box culverts, flumes, channels, buildings, and other miscellaneous structures.

2. The bottoms of structural excavations shall be true to the lines and grades shown on the Drawings. Faces of excavations shall not be undercut for extended footings. Except as provided herein for excavation of unsuitable material or rock, where the excavation is carried below the subgrade elevation shown on the Drawings, the Contractor shall backfill the void thus made to the proper grade with Class B concrete at his own expense.

3.5 BACKFILLING

A. Materials for backfilling shall conform to the following requirements or as specifically noted on the drawing:

1. Select Earth Backfill: Fine, sound, loose earth containing optimum moisture content for compaction to 90 percent of maximum density, free from all wood, vegetable matter, debris, and other objectionable material, and having scattered clods, stones, or broken concrete less than 1 1/2-inches in maximum dimension except that the maximum particle size shall be 3/4-inch when used with PVC or other flexible thermoplastic pipe.

2. Common Earth Backfill: Sound, loose earth containing optimum moisture content for compaction to 90 percent of maximum density, free from all wood, vegetable matter, debris, and other objectionable material, and having scattered clods, stones, or broken concrete and pavement less than 6 inches in maximum dimension.

3. Sand: Natural or imported sand conforming to ASTM D 1073.

4. Crushed Stone: Washed size 67 stone as noted or specified herein.

5. Class B Concrete: Class B concrete as specified elsewhere in these Specifications or on the Drawings.

B. General

1. Earth backfill shall be compacted to not less than 90 percent of the maximum density as determined by ASTM D 698 at a moisture content within 3 percentage points, unless otherwise specified herein. Crushed stone and sand shall be compacted to not less than 83 percent of the solid volume density as determined from the bulk specific gravity by AASHTO T-84 and T-85 and the dry weight of the aggregate.

2. Material that is too dry for adequate compaction shall receive a prior admix of sufficient water to secure optimum moisture content. Material having excessive water content shall not be placed at any time.

3. Backfill material required to be compacted shall be placed in horizontal layers not to exceed 6 inches in thickness (before compaction) and compacted in place by ramming, tamping, or rolling, unless otherwise specified herein. Compaction shall be accomplished by power-driven tools and machinery wherever possible. Compaction and consolidation of sand and crushed stone backfill shall be accomplished using vibrating equipment in a manner acceptable to the Engineer.

C. Backfilling Trenches

1. The backfilling of sewers, water, and other pipeline trenches shall be started immediately after the construction of same has been inspected, tested, and approved by the Engineer. Select backfill or crushed stone as shown on the Drawings or specified herein shall be placed in the trench under and on each side of the pipe in 6-inch layers for the full width of the trench and thoroughly and uniformly compacted by ramming and/or tamping to a minimum of 90 percent of the maximum density determined as specified herein. Select earth backfilling or crushed stone as shown on the Drawings or specified herein shall start above the pipe bedding. Sufficient select backfill or crushed stone as shown on the Drawings shall be placed around the pipe and compacted to provide a cover of not less than 12 inches over the top of the pipe. Mechanical compactors or tampers shall not be used within 12 inches of pipe. Compaction in this area shall be accomplished by

hand methods. Backfilling shall proceed simultaneously on both sides of the pipe to prevent lateral displacement. Final backfill shall be as specified herein or shown on the Drawings.

2. Caution shall be used during backfill operations for PVC or other flexible thermoplastic pipe to prevent pipe deformation. PVC or other flexible thermoplastic pipe shall not be subjected to roller or wheel loads until a minimum of 30 inches of backfill has been placed over the top of the pipe. A hydrohammer shall NOT be used until a minimum depth of 48 inches of backfill has been placed over the top of the pipe.

3. In streets and alleys, across sidewalks and driveways, and at any other improved areas subject to vehicular traffic or other superimposed loads, crushed rock backfill shall be placed and compacted in 12-inch layers from the bottom of the trench upward for the full depth of the trench. Crushed rock backfill shall be compacted by use of a hydrohammer or approved vibratory compactor. The top 6 inches of the finished subgrade shall be equal to not less than 100 percent of the maximum density as determined by ASTM D 698 at a moisture content of within 3 percentage points of optimum. When field tests show failure to meet the density requirement, the subgrade shall be loosened by disking, harrowing, or other approved methods to a depth of not less than 6 inches, then reshaped and re-compacted as indicated in this paragraph.

4. Trenches under concrete slabs and footings of structures shall be completely backfilled with compacted sand or crushed rock or filled with Class B concrete as shown on the Drawings.

5. All backfilling shall be done in such a manner that the pipe or structure over or against which it is being placed will not be disturbed or injured. Any pipe or structure injured, damaged, or moved from its proper line or grade during backfilling operations shall be removed and repaired to the satisfaction of the Engineer and then re-backfilled.

D. Backfilling Around Structures

1. Unless otherwise noted, backfilling around structures shall consist of common earth backfill placed in 6-inch layers and compacted by tamping to a minimum of 90 percent of the maximum density determined as specified herein for the full depth of the excavation from the bottom to the finished grade. No backfill shall be placed against concrete structures until the concrete has reached its specified 28-day compressive strength. Where practical, compaction of structural backfill shall be accomplished by power-driven tamping equipment.

2. Where crushed rock mats under slabs and foundations are called for on the Drawings, excavate below grade to the depth of the crushed rock mat as shown on the Drawings and install a compacted crushed rock bed. This shall be finished to a true line or plane and even with the subgrade of the concrete foundations, piers, footings, or slabs.

Before placing any crushed stone, remove all loose earth or debris. This crushed rock mat shall extend 12 inches beyond all slabs and foundations or to edges of sheet piling.

3. Crushed rock mats 12 inches or less in thickness shall be constructed of compacted layers of crushed rock conforming to Section 903.23, Size 7 (½-inch to No. 4), of the SSRBC.

4. Crushed rock mats of thickness greater than 12 inches shall have the top 12 inches constructed of compacted layers of crushed rock as specified above. That portion below the top 12 inches shall be constructed of compacted layers of crushed rock conforming to Section 903.05, Class A, with a modified gradation of 6 inches to dust as received from the crusher.

5. The use of earth backfill to support footings, foundations, and structures shall not be permitted, unless otherwise shown on the Drawings.

3.6 FILLS AND EMBANKMENTS

A. Fills and embankments shall consist of all earth fills except backfills in trenches or around structures. Unless special material is specified or shown on the Drawings, material for fills and embankments shall consist of excavated material from structures or of a mixture of such excavated materials and materials borrowed from other sources by the Contractor. All material used for fills and embankments shall be free from wood, vegetable matter, debris, soft or spongy earth or clay, large rock, or other objectionable material and shall be acceptable to the Engineer.

B. Materials shall be placed in the fill or embankment in successive layers 8 inches or less in thickness before compaction, each layer being approximately horizontal and extending to the full limit of the required cross section, and shall be compacted over the entire surface to not less than 95 percent of the maximum density as determined by ASTM D 698 at a moisture content of within 3 percentage points of optimum. The process shall be repeated for each layer of material until the fill or embankment conforms to the plan lines, grades, and cross sections. The degree of compaction and moisture content required, the method of tamping, and the equipment used shall be approved by the Engineer.

C. The area over which the fill or embankment is to be constructed shall first be cleared of all vegetation, debris, and other objectionable material and, if the ground is in a loose, uncompacted condition, it shall be compacted to a minimum 95 percent of maximum density determined as specified herein.

D. No material shall be placed beyond the sloping lines of embankment unless so ordered by the Engineer. Material allowed to be placed beyond the lines of embankment shown on the Drawings will be compacted as required above unless otherwise authorized by the Engineer.

E. Material for embankments or roadway fills shall be placed in 6-inch maximum lifts and shall be compacted by rolling with power rollers weighing not less than 10 tons, with sheepsfoot rollers, with vibrating rollers, or with pneumatic tire rollers, as required to accomplish the work. While and as each layer is deposited, water shall be applied in sufficient amount to ensure optimum moisture to secure the compaction specified.

F. The use of trucks, carryalls, scrapers, tractors, or other heavy hauling equipment shall not be considered as rolling in lieu of rollers, but the traffic of such hauling equipment shall be distributed over the fill in such a manner as to make the use of the compaction afforded thereby as an addition to compaction by the use of rollers.

G. Wherever a trench passes through a fill or embankment, the fill or embankment material shall be placed as compacted to an elevation 12 inches above the top of the pipe before the trench is excavated.

H. Subgrades for all roadbeds shall meet the requirements of Subsection 2.5 C.4.

3.7 DISPOSAL OF WASTE AND UNSUITABLE MATERIALS

A. All materials removed by excavation which are suitable for the purpose shall be used to the extent possible for backfilling pipe trenches, foundations, and footings and for making embankment fills or for such other purposes as may be shown on the Drawings. All materials not used for such purposes shall be considered as waste materials and the disposal, thereof shall be made at the Contractors expense in a manner and at locations approved by the Engineer.

B. Waste materials shall be spread in uniform layers and neatly leveled and shaped. Spoil banks shall be provided with sufficient and adequate openings to permit surface drainage of adjacent lands.

C. Unsuitable materials, consisting of wood, vegetable matter, debris, soft or spongy clay, peat, and other objectionable material so designated by the Engineer, shall be removed from the work site and disposed of at the Contractors expense, in a manner and at a location approved by the Engineer.

D. No unsuitable or waste material shall be dumped on private property unless written permission is furnished by the owner of the property and unless a dumping permit is issued from the local jurisdiction.

E. The Contractor is responsible for any and all permits and other requirements, such as sediment runoff control necessitated by the disposal of waste material.

3.8 FINAL GRADING

A. After other earthwork operations have been completed, the sites of all structures, roads, and embankments shall be graded within the limits and to the elevations shown on the Drawings. Grading operations shall be so conducted that materials shall not be removed or loosened beyond the required limits. The finished surfaces shall be left in smooth and uniform planes such as are normally obtainable from the use of hand tools. If Contractor is able to obtain the required degree of evenness by means of mechanical equipment, the use of hand labor methods will not be required. Neatly trim and finish slopes and ditches to slopes shown on the Drawings unless otherwise approved by the Engineer.

B. Grade and dress all finished ground surfaces to present a surface varying not more than plus or minus 0.10 foot as regards local humps or depressions, unless otherwise specified or shown on the Drawings, and shall be acceptable to the Engineer.

C. When specific grading requirements are not shown on the drawings, the contractor shall grade all areas within the limits of construction, or otherwise disturbed by construction, to drain and to match the existing, adjacent ground.

3.9 TOPSOIL

A. All areas to be planted with trees or shrubs, or with sprigged grass as shown on the plans, shall be prepared by grading to a smooth, even surface to a level 4 inches below the elevation of the finished grade shown on the Drawings. It shall then be brought to a neat and finished grade by the addition of 4 inches of approved topsoil.

B. Topsoil removed from the construction area may be stockpiled and reused or topsoil may be obtained from approved borrow areas. If obtained from borrow areas, make suitable arrangements with the property owner and pay all costs incident to the borrowed material including royalties.

3.10 SETTLEMENT

A. The Contractor shall be responsible for all settlement of backfill, fills, and embankments which may occur within 1 year after final acceptance of the work by the Owner.

B. Make, or cause to be made, all repairs or replacements made necessary by settlement within 30 days after receipt of written notice from the Engineer or Owner.

3.11 DUST CONTROL

A. The Contractor shall use all means necessary to control dust on and near the work and all off-site borrow areas.

B. The Contractor shall thoroughly moisten all surfaces as required to prevent dust being a nuisance to the public, neighbors and concurrent performance of work on the site.

END OF SECTION

SECTION 31 2500

SLOPE PROTECTION AND EROSION CONTROL

1. GENERAL

1.1. SCOPE

A. This section shall consist of temporary control measures that may be required during the life of the Contract to control erosion and water pollution using berms, dikes, dams, sediment basins, fiber mats, netting, mulches, grasses, slope drains, temporary silt fences, and other control devices.

B. The erosion control measures discussed in this Section shall be installed per the approved Stormwater Pollution Prevention Plan (SWPPP) for the project and as shown on the design drawings. The Contractor is responsible for implementing the sediment and erosion control aspects of the Work in compliance with requirements of the Tennessee Erosion and Sediment Control Handbook.

2. PRODUCTS

2.1. TEMPORARY BERMS

A. A temporary berm is constructed of compacted soil, with or without a shallow ditch, at the top of fill slopes or transverse to centerline on fills.

B. These berms are used temporarily at the top of newly constructed slopes to prevent excessive erosion until permanent controls are installed or slopes stabilized.

2.2. TEMPORARY SLOPE DRAINS

A. A temporary slope drain is a facility consisting of stone gutters, fiber mats, plastic sheets, concrete or asphalt gutters, half-round pipe, metal pipe, plastic pipe, sod, or other material acceptable to the Engineer that may be used to carry water down slopes to reduce erosion.

2.3. SEDIMENT STRUCTURES

A. Sediment basins, ponds, and traps are prepared storage areas constructed to trap and store sediment from erodible areas to protect properties and stream channels below the construction areas from excessive siltation.

2.4. CHECK DAMS

A. Check dams are barriers composed of logs and poles, large stones, sandbags, or other materials placed across a natural or constructed drain way.

B. Stone check dams shall not be utilized where the drainage area exceeds 50 acres. Log and pole structures shall not be used where the drainage area exceeds 5 acres.

2.5. TEMPORARY SEEDING AND MULCHING

A. Temporary seeding and mulching are measures consisting of seeding, mulching, fertilizing, and matting utilized to reduce erosion. All cut and fill slopes, including waste sites and borrow pits, shall be seeded when and where necessary to eliminate erosion.

2.6. BRUSH BARRIERS

A. Brush barriers shall consist of brush, tree trimmings, shrubs, plants, and other approved refuse from the clearing and grubbing operation.

B. Brush barriers are placed on natural ground at the bottom of fill slopes, where the most likely erodible areas are located, to restrain sedimentation particles.

2.7. BALED HAY OR STRAW CHECKS

A. Baled hay or straw erosion checks are temporary measures to control erosion and prevent siltation. Bales shall be either hay or straw containing 5 cubic feet or more of material.

B. Baled hay or straw checks shall be used where the existing ground slopes toward or away from the embankment along the toe of slopes, in ditches, or other areas where siltation, erosion, or water run-off is a problem.

2.8. TEMPORARY SILT FENCES

A. Silt fences are temporary measures utilizing woven wire or other approved material attached to posts with filter cloth composed of burlap, plastic filter fabric, etc., attached to the upstream side of the fence to retain the suspended silt particles in the run-off water.

9. EROSION CONTROL BLANKET

A. Erosion control blanket are utilized on cut and fill slopes to protect the slopes from erosion until a permanent vegetative cover can be established. The material shall consist of Curlex blankets by American Excelsior Company or approved equal. All netting shall be 100% biodegradable, Curlex FiberNet or Engineer approved equal. The type will be dependent upon the slopes to be protected.

3. QUALIFICATIONS

3.1. PRECONSTRUCTION CONFERENCE

A. Schedules and Methods of Operation. No work shall be started until the following erosion control schedules and methods of operation have been accepted by the Engineer.

1. Submit for acceptance the schedule for accomplishment of temporary and permanent erosion control work as applicable for clearing and grubbing,

slope protection, grading, bridges and other structures at watercourses, construction, and paving.

2. Submit for acceptance the proposed method of erosion control on haul roads and borrow pits and the plan for disposal of waste materials.

3.2. CONSTRUCTION REQUIREMENTS

A. The Contractor shall limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow, and fill operations. The Contractor shall provide immediate, permanent, or temporary pollution control measures to prevent contamination of adjacent streams or other watercourses, lakes, ponds, or other water impoundment. Such work may involve the construction of temporary berms, dikes, dams, sediment basins, or slope drains, and the use of temporary mulches, mats, seeding, or other control devices or methods as necessary to control erosion. Cut and fill slopes shall be permanently stabilized, seeded and mulched as the excavation proceeds.

B. The Contractor shall incorporate all erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. Temporary pollution control measures shall be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent pollution control features; or that are needed temporarily to control erosion that develops during normal construction practices but are not associated with permanent control features on the project.

C. Where erosion is likely to be a problem, clearing and grubbing operations should be so scheduled and performed that grading operations and permanent erosion control features can follow immediately thereafter if the project conditions permit; otherwise, erosion control measures may be required between successive construction stages. Preconstruction vegetation ground cover shall not be destroyed, removed, or disturbed more than 20 calendar days prior to grading or earth moving unless approval is granted otherwise.

D. Contractor shall limit the area of excavation, borrow, and embankment operations in progress commensurate with the Contractor's capability and progress to keep the finish grading, mulching, seeding, and other such permanent pollution control measures current in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified.

E. Under no conditions shall the amount of surface area or erodible earth material exposed at one time by excavation or fill within the project area exceed 5 acres without prior approval by the Engineer.

F. The Engineer may increase or decrease the amount of surface area of erodible earth material to be exposed at one time by clearing and grubbing, excavation, and borrow and fill operations as determined by his analysis of project conditions.

G. The Contractor shall control surface water run-on/runoff by intercepting and diverting stormwater down or cross gradient away from Work areas using dikes, ditches, curb walls, pipes, sumps, slope drains, or other approved means.

H. Where construction vehicles access routes intersect public roads, make provisions to mitigate the transport of mud, soil, or dust onto the public roads.

I. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply

3.3. CONSTRUCTION MANAGEMENT TECHNIQUES

A. Clearing and grubbing must be held to the minimum necessary for grading and equipment operation.

B. Construction must be sequenced to minimize the exposure time of cleared surface area.

C. Construction must be staged or phased for large projects. Areas of one phase must be stabilized before another phase can be initiated. Stabilization shall be accomplished by temporarily or permanently protecting the disturbed soil surface from rainfall impacts and runoff.

D. Erosion and sediment control measures must be in place and functional before earth moving operations begin and must be constructed and maintained throughout the construction period. Temporary measures may be removed at the beginning of the workday but must be replaced at the end of the workday.

E. All control measures shall be checked, and repaired as necessary, weekly in dry periods and within 24 hours after any rainfall of 0.5 inch within a 24-hour period. During prolonged rainfall, daily checking and repairing is necessary. The Contractor shall maintain records of checks and repairs.

F. A specific individual shall be designated to be responsible for erosion and sediment controls on each project site.

3.4. CONSTRUCTION OF EROSION CONTROL FEATURES

A. Temporary Berms. A temporary berm shall be constructed of compacted soil, with a minimum width of 24 inches at the top and a minimum height of 12 inches with or without a shallow ditch, constructed at the top of fill slopes or transverse to centerline on fills. Temporary berms shall be graded to drain to a compacted outlet at a slope drain. The area adjacent to the temporary berm in the vicinity of the slope drain must be properly graded to enable this inlet to function efficiently and with minimum ponding in this area. All transverse berms required on the downstream side of a slope drain shall extend across the grade to the highest point at approximately a 10-degree angle with a perpendicular to centerline. The top width of these berms may be wider and the side slope flatter on transverse berms to allow equipment to pass over these berms with minimum disruptions. When practical and until final roadway elevations are approached,

embankments should be constructed with a gradual slope to one side of the embankment to permit the placement of temporary berms and slope drains on only one side of the embankment.

B. Temporary Slope Drains

1. Temporary slope drains shall consist of stone gutters, fiber mats, plastic sheets, concrete or asphalt gutters, half-round pipe, metal pipe, plastic pipe, flexible rubber, or other materials which can be used as temporary measures to carry water accumulating in the cuts and on the fills down the slopes prior to installation of permanent facilities or growth of adequate ground cover on the slopes.

2. Fiber matting and plastic sheeting shall not be used on slopes steeper than 4:1 except for short distances of 20 feet or less.

3. All temporary slope drains shall be adequately anchored to the slope to prevent disruption by the force of the water flowing in the drains. The base for temporary slope drains shall be compacted and concavely formed to channel the water or hold the slope drain in place. The inlet end shall be properly constructed to channel water into the temporary slope drain. Energy dissipaters, sediment basins, or other approved devices shall be constructed at the outlet end of the slope drains to reduce erosion downstream. An ideal dissipater would be dumped rock or a small sediment basin which would slow the water as well as pick up some sediment. All temporary slope drains shall be removed when no longer necessary and the site restored to match the surroundings.

C. Sediment Structures

1. Sediment structures shall be utilized to control sediment at the foot of embankments where slope drains outlet, at the bottom as well as in the ditch lines atop waste sites, and in the ditch lines or borrow pits. Sediment structures may be used in most drainage situations to prevent excessive siltation of pipe structures. All sediment structures shall be at least twice as long as they are wide.

2. When use of temporary sediment structures is to be discontinued, all sediment accumulation shall be removed, and all excavation backfilled and properly compacted. The existing ground shall be restored to its natural or intended condition.

D. Check Dam

1. Utilize check dams to retard stream flow and catch small sediment loads. Materials utilized to construct check dams are varied and should be clearly illustrated or explained in the Contractor's erosion control plan.

2. Key all check dams into the sides and bottom of the channel a minimum depth of 2 feet. A design is not needed for check dams, but some typical designs are shown in the standard plans.

3. Do not use stone check dams where the drainage area exceeds 50 acres. Log and pole structures should generally not be used where the drainage area exceeds five acres.

E. Temporary Seeding and Mulching. Perform seeding and mulching in accordance with Section 32 9219, Seeding.

F. Brush Barriers. Brush barriers shall consist of brush, tree trimmings, shrubs, plants, and other approved refuse from the clearing and grubbing operation. The brush barriers shall be constructed approximately parallel to original ground contour. Each brush barrier shall be compressed to an approximate height of 3 to 5 feet and approximate width of 5 to 10 feet. The embankment shall not be supported by the construction of brush barriers.

G. Baled Hay or Straw Erosion Checks. Hay or straw shall be embedded in the ground 4 to 6 inches to prevent water flowing underneath. The bales shall also be anchored securely to the ground by wooden stakes driven through the bales into the ground. Bales can remain in place until they rot, or be removed after they have served their purpose, as determined by the Engineer. Keep the checks in good condition by replacing broken or damaged bales immediately after damage occurs.

H. Temporary Silt Fences

1. Temporary silt fences shall be placed on the natural ground, at the bottom of fill slopes, in ditches, or other areas where siltation is a problem. Silt fences are constructed of wire mesh fence with a covering of burlap or some other suitable material on the upper grade side of the fence and anchored into the soil.

2. Maintain the silt fence in a satisfactory condition for the duration of the project or until its removal. The silt accumulation at the fence may be left in place and seeded or removed. The silt fence becomes the property of the Contractor whenever the fence is removed.

I. Erosion Control Blanket

1. Erosion control blankets shall be installed in accordance with manufacturers recommendations to include anchor trenches, bedding, overlapping, and blanket anchoring.

3.5. MAINTENANCE

A. The erosion control features installed by the Contractor shall be acceptably maintained by the Contractor until no longer needed or permanent erosion control methods are installed. Any materials removed shall become the property of the Contractor.

B. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to maintain properly, the

contractor shall immediately correct the damages that have occurred and install needed measures as required by the Engineer.

3.6. REMOVAL

A. At the conclusion of the Work, remove all erosion and sediment control materials.

B. Remove erosion and sediment control materials in such a way as to minimize ground disturbance and the potential for future erosion and/or sediment transport. Fill, compact, and stabilize all disturbed ground, including trenches associated with the removal of erosion and sediment controls, as directed by Engineer.

3.7. EROSION CONTROL OUTSIDE PROJECT AREA

A. Temporary erosion control shall include construction work outside the project area where such work is necessary because of construction such as borrow pit operations, haul roads, and equipment storage sites. Bid price in such cases shall include all necessary clearing and grubbing, construction incidentals, maintenance, and site restoration when no longer needed. All erosion and sediment control shall be performed by the Contractor at his own expense.

END OF SECTION

SECTION 31 4900

UTILITY LINE CROSSINGS OF STREAMS

1. GENERAL

1.1. SCOPE

A. When the activity is located in waters which are not navigable pursuant to Section 10 of the Rivers and Harbors Act of 1899, excavation and fill activities shall be separated from flowing waters. All surface water flowing toward the excavation or fill work shall be diverted, piped, or flumed to the downstream side of the work. This can be accomplished through utilization of cofferdams or constructed berms in conjunction with a pipe or flume. Cofferdams must be constructed of sand bags, clean rock, steel sheeting, or other non-erodible material.

B. Where the activity is located in waters defined as navigable pursuant to Section 10 of the Rivers and Harbors Act of 1899, excavation and fill work may be accomplished within the water column.

C. New utility line crossings shall be located such as to avoid permanent alteration or damage to the integrity of the stream channel. Large trees, steep banks, rock outcroppings, etc., should be avoided.

D. In case of proposed gravity sewer lines and other utility lines which follow the stream gradient or otherwise parallel the stream channel, the number of crossings shall be minimized.

E. The alignment of new utility line crossings shall intersect the stream channel as close to 90 degrees or as perpendicular as possible, and in no case less than a 45 degree angle from the center line of the stream.

F. In case of small streams with a bedrock stream bed which must be blasted to form a trench, provision shall be made to prevent the loss of stream flow to fracturing of the bedrock. These provisions shall include as a minimum sealing the bottom of the trench with concrete and complete concrete encasement of the pipeline.

G. Temporary erosion control measures must be in place before earthmoving operations begin, maintained throughout the construction period and repaired, if necessary, after rainfall. Straw or hay bales and/or silt fence must be installed along the base of all fills and cuts, on the downhill side of stock piled soil, and along stream banks in cleared areas to prevent erosion into streams. They must be installed parallel to the stream channel, entrenched and staked, and extend the width of the area to be cleared. The bales and/or silt fence may be removed at the beginning of the work day, but must be replaced at the end of the workday.

H. Backfill activities must be accomplished in a manner which stabilizes the stream bed and banks to prevent erosion. Backfill materials shall consist of suitable

materials free of contaminants. All contours must be returned to pre-project conditions. The completed work may not disrupt or impound stream flow.

I. Slurry water pumped from work areas and excavations must be held in settling basins or treated by filtration prior to its discharge into surface waters. Water must be held in sediment basins until at least as clear as the receiving waters. Sedimentation basins shall not be located closer than 25 feet from the top bank of a stream. Sediment basins and traps shall be properly designed according to the size of the drainage areas or volume of water to be treated.

J. Checkdams shall be utilized where run-off is concentrated. Clean rock, log, sandbag, or straw bale checkdams shall be properly constructed to detain run-off and trap sediment.

K. Clearing, grubbing, and other disturbance to riparian vegetation shall be limited to the minimum necessary for slope construction and equipment operations. Unnecessary vegetation removal is prohibited. All disturbed areas shall be properly stabilized as soon as practicable.

L. Streams shall not be used as transportation routes for heavy equipment. Crossings must be limited to one point and erosion control measures must be utilized where the stream banks are disturbed. Where the stream bed is not composed of rock, a pad of clean rock must be used at the crossing point. All temporary fill must be completely removed after the work is completed.

M. Construction debris must be kept from entering the stream channel.

N. All spills of petroleum products or other chemical pollutants must be reported to the appropriate emergency management agency and measures shall be taken immediately to prevent the pollution of waters of the State, including groundwater.

O. Upon achievement of final grade, the disturbed streambank shall be stabilized with riprap or other suitable material. All other disturbed soils must be stabilized and re-vegetated within 30 days by sodding or seeding and mulching. Seed to be utilized shall include combination of annual grains and grasses, legumes, and perennial grasses. Lime and fertilizer shall be applied as needed to achieve a vegetative cover.

P. Upon completion of construction, the stream shall be returned as nearly as possible to its original, natural conditions.

1.2. LIABILITY FOR NONCOMPLIANCE

A. The Contractor shall be liable to the Owner for any civil penalties or damages incurred by the Owner resulting from the Contractor's failure to comply with this section.

END OF SECTION

SECTION 32 1000
NEW AND REPLACEMENT PAVING

1. GENERAL

1.1. SUMMARY

A. This section includes provisions for hot-mixed asphalt paving and mineral aggregate subbase over prepared subgrade for trench width, full pavement width paving, and other areas as shown on the Drawings.

B. Prepared subgrade is specified in Section 31 2000, Earthwork.

C. Proof rolling of prepared subgrade is included in this section.

D. Saw-cutting of edges of existing pavement is required to minimize subsidence of the pavement into the trench and to minimize the width of pavement replacement.

E. Asphalt pavement patches shall utilize infrared techniques

1.2. RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplemental Conditions and Division 1 Specification sections, apply to this section.

1.3. SUBMITTALS

A. Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.

1. Material certificates signed by material producer and Contractor, certifying that each material item complies with or exceeds specified requirements.
2. Pavement marking plan indicating lane separations and defined parking spaces. Note dedicated handicapped spaces with international graphics symbol.

1.4. SITE CONDITIONS

A. Weather Limitations. Apply prime and tack coats when ambient temperature is above 50°F (10°C) and when temperature has not been below 35°F (1°C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

B. Construct hot-mixed asphalt surface course when atmospheric temperature is above 40°F (4°C) and when base is dry. Base course may be placed when air temperature is above 30°F (-1°C) and rising.

C. Grade Control. Establish and maintain required lines and elevations.

2. PRODUCTS

2.1. MATERIALS

A. General. Use locally available materials and gradations that exhibit a satisfactory record of previous installations.

B. Coarse Aggregate. Sound, angular crushed stone, crushed gravel, or properly cured crushed blast furnace slag, complying with ASTM D 692-00.

C. Fine Aggregate. Sharp-edged natural sand or sand prepared from stone, properly cured blast furnace slag, gravel, or combinations thereof, complying with ASTM D 1073-99.

D. Mineral Filler. Rock or slag dust, hydraulic cement, or other inert material complying with ASTM D 242.

E. Asphalt Cement. ASTM D 3381 for viscosity-graded material; ASTM D 946 for penetration-graded material.

F. Prime Coat. Cut-back asphalt type, ASTM D 2027; MC-30, MC-70, or MC-250.

G. Tack Coat. Emulsified asphalt; ASTM D 977.

H. Mineral Aggregate Subbase. SSRBC, Section 303, Type A (Class A aggregate, Grading D).

I. Geotextile Fabric. 6 oz/sy, woven, polypropylene fabric; Mirafi, Inc., Type 600x, or equal.

J. Lane Marking Paint. Alkyd-resin type, ready-mixed complying with AASHTO M 248, Type I.

1. Color: White.
2. Color: Yellow.

2.2. TYPES OF PAVEMENT

A. Replace all existing pavement in streets, driveways, or parking areas which is removed, destroyed, or damaged by construction of improvements as specified herein, as shown on the Drawings, or as called for in the Bid Schedule. Unless otherwise shown or specified, all paved surfaces shall be replaced in kind or as required by permit. Unless shown or specified otherwise, a minimum of 2” of asphaltic concrete or 4” portland cement shall be utilized over a minimum compacted mineral aggregate base course. Restoration shall extend a minimum of 12” outside the extents of trench width. Materials, equipment, and construction methods used for paving work shall conform to the Specifications applicable to the particular type required for replacement, repair, or new pavements.

B. Where sewerage or water lines and appurtenances are constructed in or across unpaved, chert, or crushed stone surfaced streets, roadways, driveways, or parking areas, repair or replace the surface removed or damaged with a minimum of 6 inches of crushed stone in accordance with Section 401, "Mineral Aggregate Surface," SSRBC.

C. In no case shall paving repair be commenced without prior approval of the Engineer of the type of pavement, the equipment to be used, and the method or procedure to be used.

D. The pavement mixture shall not be spread until the designated surface has been previously cleaned and prepared, is intact, firm, properly cured, dry, and the tack coat has been applied.

3. EXECUTION

3.1. SURFACE PREPARATION

A. Remove loose material from compacted subgrade surface immediately before applying subbase.

B. Roll prepared subgrade surface to check for unstable areas and areas requiring additional compaction.

C. Do not begin paving work until deficient subgrade areas have been corrected and are ready to receive subbase.

D. Place mineral aggregate subbase and compact in accordance with the applicable SSRBC specifications to provide a minimum of 6 inches or as shown on Drawings. Subbase thickness greater than 8 inches shall be placed in two or more layers.

E. Roll prepared subbase surface to check for unstable areas and areas requiring additional compaction.

F. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving.

G. Prime Coat. Apply at rate of 0.20 to 0.50 gallon per square yard over compacted subbase. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile components.

H. Tack Coat. Apply to contact surfaces of previously constructed asphalt or portland cement concrete and surfaces abutting or projecting into hot-mixed asphalt pavement. Distribute at rate of 0.05 to 0.15 gallon per square yard of surface.

I. Allow to dry until at proper condition to receive paving.

J. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

3.2. PLACING MIX

A. General. Place hot-mixed asphalt mixture on prepared surface, spread, and strike off. Spread mixture at minimum temperature of 225°F (107°C). Place areas inaccessible to equipment by hand. Place each course to required grade, cross-section, and compacted thickness.

B. Paver Placing. Place in strips not less than 10 feet wide, unless otherwise acceptable to Engineer. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete base course for a section before placing surface course.

C. Immediately correct surface irregularities in finish course behind paver. Remove excess material forming high spots with shovel or lute.

D. Joints. Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density, and smoothness as other sections of hot-mixed asphalt course. Clean contact surfaces and apply tack coat.

E. Curbs. Construct curbs over compacted pavement surfaces. Apply a light tack coat unless pavement surface is still tacky and free from dust.

F. Place curb materials to cross-section indicated or, if not indicated, to local standard shapes, by machine or by hand in wood or metal forms. Tamp hand-placed materials and screed to smooth finish. Remove forms as soon as material has cooled.

3.3. ROLLING

A. General. Begin rolling when mixture will bear roller weight without excessive displacement.

B. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

C. Breakdown Rolling. Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling and repair displaced areas by loosening and filling, if required, with hot material.

D. Second Rolling. Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been evenly compacted.

E. Finish Rolling. Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained 95 percent laboratory density.

F. Patching. Remove and replace paving areas mixed with foreign materials and defective areas. Cut out such areas and fill with fresh, hot-mixed asphalt. Compact by rolling to specified surface density and smoothness. Make repairs and seal using infrared sealing methods.

G. Protection. After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.4. TRAFFIC AND LANE MARKINGS

A. General. Provide traffic and lane markings in all areas where markings have been damaged due to trench width pavement. On full width pavement, provide markings in all areas were markings were present at beginning of project or where markings are designated to be provided on the Drawings.

B. Cleaning. Sweep and clean surface to eliminate loose material and dust.

C. Striping. Use chlorinated-rubber base traffic lane-marking paint, factory-mixed, quick-drying, and non-bleeding.

D. Do not apply traffic and lane marking paint until layout and placement have been verified with Engineer.

E. Apply paint with mechanical equipment to produce uniform straight edges. Apply at manufacturer's recommended rates to provide minimum 12 to 15 mils dry thickness.

3.5. WHEEL STOPS

A. General. Secure wheel stops to hot-mixed asphalt surface with not less than two ¾-inch-diameter galvanized steel dowels embedded in precast concrete at ⅓ points. Size length of dowel to penetrate at least ½ hot-mixed asphalt depth.

3.6. FIELD QUALITY CONTROL

A. General. Testing in-place hot-mixed asphalt courses for compliance with requirements for thickness and surface smoothness will be done by Owner's testing laboratory. Repair or remove and replace unacceptable paving as directed by Engineer.

B. Thickness. In-place compacted thickness tested in accordance with ASTM D 3549 will not be acceptable if exceeding following allowable variations:

1. Base Course: plus or minus 1/2 inch.
2. Surface Course: plus or minus 1/4 inch.

C. Surface Smoothness: Test finished surface of each hot-mixed asphalt course for smoothness, using 10-foot straightedge applied parallel with and at right angles

to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness:

1. Base Course Surface: 1/4 inch.

2. Wearing Course Surface: 3/16 inch.

3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is ¼ inch.

D. Check surface areas at intervals as directed by Engineer.

END OF SECTION

SECTION 32 9219

SEEDING

1. GENERAL

1.1. SCOPE

A. The work covered by this section consists of furnishing all labor, equipment, and material required to place topsoil, seed, commercial fertilizer, agricultural limestone, and mulch material, including seedbed preparation, harrowing, compacting, and other placement operations on graded earthen areas as described herein and/or shown on the Drawings. In general, seeding operations shall be conducted on all newly graded earthen areas not covered by structures, pavement, or sidewalks; all cleared or grubbed areas which are to remain as finish grade surfaces; and on all existing turf areas which are disturbed by construction operations and which are to remain as finish grade surfaces. Areas disturbed by borrow activities shall also be seeded according to these Specifications.

B. Temporary Seeding and Erosion Control

1. This practice is applicable on areas subject to erosion for up to 12 months or until establishment of finished grade or permanent vegetative cover. Temporary vegetative measures shall be coordinated with permanent measures to assure economical and effective stabilization.

2. Temporary seeding shall be applied to exposed soil surfaces which are not to be fine-graded for periods from 15 days to one year. Such areas include denuded areas, soil stockpiles, dikes, dams, sides of sediment basins, temporary roadbanks, backfilled and rough graded utility line trenches, and disturbed areas along utility lines, etc.

3. Temporary seeding shall be in accordance with the temporary seeding schedule and shall meet the same requirements for seed bed preparation and mulching with the exception that lime and fertilizer need not be applied unless the soil is very low fertility and low pH.

1.2. QUALITY ASSURANCE

A. Prior to seeding operations, furnish to the Engineer labels or certified laboratory reports from an accredited commercial seed laboratory or a state seed laboratory showing the analysis and germination of the seed to be furnished. Acceptance of the seed test reports shall not relieve the Contractor of any responsibility or liability for furnishing seed meeting the requirements of this section.

B. Prior to topsoil operations, obtain representative samples and furnish soil test certificates including textural, pH, and organic ignition analysis from the State University Agricultural Extension Services or other certified testing laboratory.

2. PRODUCTS

2.1. TOPSOIL

A. Place a minimum of 4 inches of topsoil over all graded earthen areas and over any other areas to be seeded. Sources of topsoil shall be approved by the Engineer prior to disturbance.

B. Topsoil shall be a friable loam containing a large amount of humus and shall be original surface soil of good, rich, uniform quality, free from any material such as hard clods, stiff clay, hardpan, partially disintegrated stone, pebbles larger than 1/2 inch in diameter, lime, cement, bricks, ashes, cinders, slag, concrete, bitumen or its residue, boards, sticks, chips, or other undesirable material harmful or unnecessary to plant growth. Topsoil shall be reasonably free from perennial weeds and perennial weed seeds, and shall not contain objectionable plant material, toxic amounts of either acid or alkaline elements, or vegetable debris undesirable or harmful to plant life.

C. Topsoil shall be natural topsoil without admixture of subsoil material, and shall be classifiable as loam, silt loam, clay loam, sandy loam, or a combination thereof. The pH shall range from 5.5 to 7.0. Topsoil shall contain not less than 5 percent nor more than 20 percent, by weight, of organic matter as determined by loss on ignition of samples oven-dried to 65°C.

2.2. SEED

A. Deliver seed in new bag or bags that are sound and labeled in accordance with the U.S. Department of Agriculture Federal Seed Act.

B. All seed shall be from the last crop available at time of purchase and shall not be moldy, wet, or otherwise damaged in transit or storage.

C. Seed shall bear the grower's analysis testing to 98 percent for purity and minimum 85 percent for germination. At the discretion of the Engineer, samples of seed may be taken for check against the grower's analysis.

D. Species, rate of seeding, fertilization, and other requirements are shown in the Seeding Requirements Table.

2.3. FERTILIZER AND LIMING MATERIALS

A. Fertilizer and liming materials shall comply with applicable state, local, and federal laws concerned with their production and use.

TEMPORARY SEEDING REQUIREMENTS TABLE					
			Rates per 1,000 Square Feet		
Area	Sowing Season	Species	Seed	Fertilizer*	Limestone**
All Areas	4/15 to 8/15	Sudangrass (Sorghum Sudanese)	1.5 lbs.	10 lbs. 10-20-20	100 lbs.
	8/16 to 4/14	Annual Ryegrass (Lolium Temulentum)	1 lb.	10 lbs. 10-20-20	100 lbs.
*Fertilizer is not required on fertile soils. Apply on very low fertility soil. **Apply limestone on highly acidic soils (pH 5.5 and lower).					

B. Commercial fertilizer shall be a ready-mixed material and shall be equivalent to the grade or grades specified in the Seeding Requirements Table. Container bags shall be labeled with the name and address of the manufacturer, brand name, net weight, and chemical composition.

C. Agricultural limestone shall be a pulverized limestone with a calcium carbonate content not less than 85 percent by weight. Agricultural limestone shall be crushed so that at least 85 percent of the material will pass a No. 10 mesh screen and 50 percent will pass a No. 40 mesh screen.

2.4. MULCH MATERIAL

A. All mulch materials shall be air-dried and reasonably free of noxious weeds and weed seeds or other materials detrimental to plant growth.

B. Mulch shall be composed of wood fiber, straw, or stalks, as specified herein. Mulch shall be suitable for spreading with standard mulch-blowing equipment.

PERMANENT SEEDING REQUIREMENTS TABLE

			Rates per 1,000 Square Feet		
Area	Sowing Season	Species	Seed	Fertilizer	Limestone
Flat to rolling terrain with slopes less than 3:1	3/1 to 6/1	Kentucky 31 Fescue Ladino White Clover*	4 lbs. 1/4 lb.	30 lbs. 6-12-12	100 lbs.
	8/1 to 11/1	Kentucky 31 Fescue Ladino White Clover* Annual Ryegrass	4 lbs. 1/4 lb. 2 lbs.	30 lbs. 6-12-12	100 lbs.
Embankments with slopes greater than 3:1	3/1 to 6/1	Hulled Sericea Lespedeza* Kentucky 31 Fescue Weeping Lovegrass	1 lb. 3 lbs. 1/4 lb.	30 lbs. 6-12-12	100 lbs.
	8/1 to 11/1	Unhulled Sericea Lespedeza* Kentucky 31 Fescue Annual Ryegrass	1 lb. 3 lbs. 2 lbs.	30 lbs. 6-12-12	100 lbs.
*Requires inoculation.					

C. Straw mulch shall be partially decomposed stalks of wheat, rye, oats, or other approved grain crops.

D. Stalks shall be the partially decomposed, shredded residue of corn, cane, sorghum, or other approved standing field crops. and liming materials shall comply with applicable state, local, and federal laws

2.5. MULCH BINDER

A. Mulch on slopes exceeding a 3 to 1 ratio shall be held in place by the use of an approved erosion control fabric, such as Curlex I as manufactured by American Excelsior Company, or approved equal. Fabric shall consist of strips of biodegradable paper interwoven with yarn that is subject to degradation by ultraviolet light.

2.6. INOCULANTS FOR LEGUMES

A. All leguminous seed shall be inoculated prior to seeding with a standard culture of nitrogen-fixing bacteria that is adapted to the particular seed involved.

2.7. WATER

A. Water shall be clean, clear, and free from any objectionable or harmful chemical qualities or organisms and shall be furnished by the Contractor.

3. EXECUTION

3.1. SECURING AND PLACING TOPSOIL

A. Topsoil shall be secured from areas where topsoil has not been previously removed, either by erosion or mechanical methods. Topsoil shall not be removed to a depth in excess of the depth approved by the Engineer.

B. The area or areas from which topsoil is secured shall possess such uniformity of soil depth, color, texture, drainage, and other characteristics as to offer assurance that when removed the product will be homogeneous in nature and will conform to the requirements of these Specifications.

C. All areas from which topsoil is to be secured shall be cleaned of all sticks, boards, stones, lime, cement, ashes, cinders, slag, concrete, bitumen or its residue, and any other refuse which will hinder or prevent growth.

D. When securing topsoil from a designated pit or elsewhere, should strata or seams of material occur which do not come under the requirements for topsoil, such material shall be removed from the topsoil or if required by the Engineer, the pit shall be abandoned.

E. Before placing or depositing topsoil upon any area, all improvements within the area shall be completed, unless otherwise approved by the Engineer.

F. The areas in which topsoil is to be placed or incorporated shall be prepared before securing topsoil for use.

3.2. SEEDBED PREPARATION

A. Before fertilizing and seeding, the topsoil surfaces shall be trimmed and worked to true line free from unsightly variations, bumps, ridges, and depressions, and all

detrimental material, roots, and stones larger than 3 inches in any dimension shall be removed from the soil.

B. Not earlier than 24 hours before the seed is to be sown, the soil surface to be seeded shall be thoroughly cultivated to a depth of not less than 2 inches with a weighted disc, tiller, pulvimixer, or other equipment, until the surface is smooth and in a condition acceptable to the Engineer.

C. If the prepared surface becomes eroded as a result of rain or for any other reason, or becomes crusted before the seed is sown, the surface shall again be placed in a condition suitable for seeding.

D. Ground preparation operations shall be performed only when the ground is in a tillable and workable condition, as determined by the Engineer.

3.3. FERTILIZATION AND LIMING

A. Following seedbed preparation, fertilizer shall be applied to all areas to be seeded so as to achieve the application rates shown in the Seeding Requirements Table.

B. Fertilizer shall be spread evenly over the seedbed and shall be lightly harrowed, raked, or otherwise incorporated into the soil for a depth of 1/2 inch.

C. Fertilizer need not be incorporated in the soil as specified above when mixed with seed in water and applied with power sprayer equipment. The seed shall not remain in water containing fertilizer for more than 30 minutes when a hydraulic seeder is used.

D. Agricultural limestone shall be thoroughly mixed into the soil according to the rates in the Seeding Requirements Table. The specified rate of application of limestone may be reduced by the Engineer if pH tests indicate this to be desirable. It is the responsibility of the Contractor to obtain such tests and submit the results to the Engineer for adjustment in rates.

3.4. SEEDING

A. Seed of the specified group shall be sown as soon as preparation of the seedbed has been completed. No seed shall be sown during high winds, nor until the surface is suitable for working and is in a proper condition. Seeding shall be performed during the dates shown in the Seeding Requirements Table unless otherwise approved by the Engineer. Seed mixtures may be sown together, provided they are kept in a thoroughly mixed condition during the seeding operation.

B. Seeds shall be uniformly sown by any approved mechanical method to suit the slope and size of the areas to be seeded, preferably with a broadcast type seeder, windmill hand seeder, or approved mechanical power-drawn seed drills. Hydroseeding and hydromulching may be used on steep embankments, provided full coverage is obtained. Care shall be taken to adjust the seeder to the proper rate before seeding operations are started and to maintain the

adjustment during seeding. Seed in hoppers shall be agitated to prevent segregation of the various seeds in a seeding mixture.

C. Immediately after sowing, the seeds shall be covered and compacted to a depth of 1/8 to 3/8 inch by a cultipacker or suitable roller.

D. Leguminous seeds shall be inoculated prior to seeding with an approved and compatible nitrogen-fixing inoculant in accordance with the manufacturer's mixing instructions.

3.5. MULCHING

A. All seeded areas shall be uniformly mulched in a continuous blanket immediately after seeding. The mulch shall be applied so as to permit some sunlight to penetrate and air to circulate, and at the same time shade the ground, reduce erosion, and conserve soil moisture. Approximately 25 percent of the ground shall be visible through the mulch blanket.

B. One of the following mulches shall be spread evenly over the seeded areas at the following application rates:

1. Wood Fiber 1,400 lbs/acre
2. Straw 4,000 lbs/acre
3. Stalks 4,000 lbs/acre

These rates may be adjusted at the discretion of the Engineer at no additional cost to the Owner, depending on the texture and condition of the mulch material and the characteristics of the seeded area.

C. Mulch on slopes greater than a 3 to 1 ratio shall be held in place by the use of an approved erosion control fabric. Fabric shall be installed immediately after seeding and fertilizing area (mulch shall not be used under fabric).

D. Erosion control fabric shall be installed and applied in accordance with the manufacturer's recommendations. Any fabric which becomes torn, broken loose from securing staples, or undermined shall be immediately and satisfactorily repaired. Areas where seed is washed out before germination shall be fertilized, reseeded, and restored. Any required restoration work shall be performed without additional compensation.

3.6. WATERING

A. Maintain the proper moisture content of the soil to ensure adequate plant growth until a satisfactory stand is obtained. If necessary, watering shall be performed to maintain an adequate water content in the soil.

B. Watering shall be accomplished by hoses, tank truck, or sprinklers in such a way to prevent erosion, excessive runoff, and overwatered spots.

3.7. MAINTENANCE

A. Upon completion of seeding operations, the Contractor shall clear the area of all equipment, debris, and excess material, and the premises shall be left in a neat and orderly condition.

B. Maintain all seeded areas without additional payment until final acceptance of the work by the Owner. Re-grading, re-fertilizing, re-liming, reseeding, or re-mulching shall be done at Contractor's expense. Seeding work shall be repeated on defective areas until a satisfactory uniform stand is achieved. Damage resulting from erosion, gullies, washouts, or other causes shall be repaired by filling with topsoil, compacting, and repeating the seeding work.

END OF SECTION

SECTION 33 0513.16

PRECAST CONCRETE STRUCTURES

1. GENERAL

1.1 SCOPE

A. Furnish all labor, materials, equipment, and incidentals required to install rectangular, monolithic, or sectional precast water and wastewater structures, pipe connectors, and accessories as specified herein.

1.2 RELATED SECTIONS

A. Section 31 2000 - Earthwork

1.3 REFERENCES

A. Prestressed Concrete Institute. Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products.

B. National Precast Concrete Association. Quality Control Manual for Precast Concrete Plants.

C. American Society for Testing and Materials (ASTM)

1. ASTM C 478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
2. ASTM C 890 - Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
3. ASTM C 891 - Standard Practice for Installation of Underground Precast Concrete Utility Structures.
4. ASTM C 923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipe and Laterals.
5. ASTM C 913 - Standard Specifications for Precast Concrete Water and Wastewater Structures.

D. American Association of State Highway and Transportation Officials Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets (AASHTO M198).

E. American Concrete Institute Building Code Requirements for Reinforced Concrete (ACI 318).

F. Occupational Safety and Health Administration Standard 1926.704 - Requirements for Precast Concrete.

1.4 SUBMITTALS SHALL BE AS FOLLOWS

A. Copy of certificate or report showing that the precast concrete manufacturer conforms to Article 1.5 - Qualifications.

B. Schedule of precast concrete structure sections to be provided on the project, charting the following items, when applicable:

1. Sheet number where the precast structure plan and profile is shown on the plans.
2. Line number (when there is more than one line on the project).
3. Precast structure station number.
4. Invert elevation of the influent and effluent line as indicated on the plans.
5. Top elevation of the precast structure frame as indicated on the plans.
6. Top elevation of precast structure base slab as calculated.
7. Total height of precast structure required from top of base slab to top of frame.
8. Total height of assembled base, risers, and cone or top provided from top of base to top of top.
9. Manufacturer's part number or catalog number and number required of each base, riser, and top provided for the precast structure.
10. Each pipe size and type and its connector's part number, distance from top of base slab, and horizontal distances from inner wall corners of precast structure.

C. Detail of each precast concrete structure section to be provided showing or charting the following:

1. Manufacturer's part number or catalog number.
2. Inside dimensions.
3. Lay length excluding base slab.
4. Wall thickness and base or top thickness where applicable.
5. Handling weight.
6. Wire size, spacing, and area provided per vertical foot.
7. Reinforcing bar size and spacing.
8. Design loads.
9. Concrete mix number and design strength.
10. Height, width, slope, and annular space of the tongue and groove.

D. Pipe connector details and material specifications.

E. Joint material detail, material specifications and calculations showing that the joint material cross section is greater than the joint's annular space times its height.

F. Lifting device and hole detail.

G. Submit the following at the request of the Engineer or Owner:

1. Structural analysis and design calculations for precast components, performed in accordance with applicable codes and standards, showing that allowable stresses will not be exceeded. A registered professional engineer must seal all calculations.
2. Calculations or test results verifying that the lifting device components and holes are designed in accordance with OSHA Standard 1926.704.
3. Concrete 28-day compression strength results for everyday production of precast components for the project was performed showing the required strength according to the guidelines established in ACI 318.
4. Reinforcing and cement mill reports for materials used in the manufacture of precast components for this project.
5. The above test reports for similar precast components recently produced, submitted prior to production of precast components for this project.

1.5 QUALIFICATIONS

A. The precast manufacturer shall comply with one of the following requirements:

1. Manufacture precast components for the project in a plant certified in the Prestressed Concrete Institute's (PCI) Plant Certification Program.
2. Manufacture precast components for the project in a plant certified in the National Precast Concrete Association's (NPCA) Plant Certification Program.
3. Retain an independent testing or consulting engineering firm approved by the Engineer for precast plant inspection. The basis for plant inspection shall be the National Precast Concrete Association Quality Control Manual or the Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products. The above firm shall inspect the precast plant 2 weeks prior to and at 1-week intervals during production of materials for this project and issue a report, certified by a registered engineer that materials, methods, products, and quality control meet the requirements of the above quality control manuals.

B. The precast manufacturer shall have a recognized quality improvement process installed at the manufacturing facility.

C. The precast manufacturer shall provide engineering certification as to the structural adequacy of any precast component, if requested.

D. All concrete compressive strength testing shall be performed in a laboratory inspected by the CCRL of the National Bureau of Standards.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Maintain materials and surrounding air temperature to minimum 50°F prior to, during, and 48 hours after completion of masonry, grouting or concreting work.

2. PRODUCTS

2.1 MATERIALS

A. Concrete shall conform to ASTM C 478 and as follows:

1. Compressive Strength: 5,000 psi minimum at 28 days.
2. Air Content: 4 percent minimum.
3. Alkalinity: Adequate to provide a life factor, Az = Calcium carbonate equivalent times cover over reinforcement, no less than 0.35 for bases, risers and tops.
4. Cementitious Materials: Minimum of 564 pounds per cubic yard.
5. Coarse Aggregates: ASTM C 33. Sound, crushed, angular stone only. Smooth or rounded stone shall not be used.
6. Fine Aggregates: ASTM C 33. Free from organic impurities.
7. Chemical Admixtures: ASTM C 494. Calcium chloride or admixtures containing calcium chloride shall not be used.
8. Air Entraining Admixtures: ASTM C 260.

B. Reinforcing steel shall be ASTM A 615 Grade 60 deformed bar, ASTM A82 wire or ASTM A 185 welded wire fabric.

C. Lifting loops shall be ASTM A 416 steel strand. Lifting loops made from deformed bars shall not be allowed.

D. Butyl rubber sealant shall conform to Federal Specification SS-S-210A, AASHTO M-198, Type B - Butyl Rubber and as follows: maximum of 1% volatile matter and suitable for application temperatures between 10 and 100°F.

E. Butyl rubber with bentonite sealant shall conform to Federal Specification SS-S-210A, ASTM D 297, and containing no asphaltics as follows: maintaining 99% solids with a maximum of 1% volatile matter and suitable for application temperatures between 5 and 125°F.

F. Epoxy gels used for interior patching of wall penetrations shall be a 2-component, solvent-free, moisture-insensitive, high modulus, high-strength, structural epoxy paste adhesive meeting ASTM C 881, Type I and II, Grade 3, Class B and C, Epoxy Resin Adhesive.

2.2 COMPONENTS

A. Precast component fabrication and manufacture shall be as described in this paragraph and as described in the paragraphs for the specific components.

1. Precast structures shall be manufactured in conformance with ASTM C 913. Wall and inside slab finishes resulting from casting against forms standard for the industry shall be acceptable, except form ties

through the wall of the product are not allowed. Exterior slab surfaces shall have a float finish. Small surface holes, normal color variations, normal form joint marks, minor depressions, chips and spalls will be tolerated. Dimensional tolerances shall be those set forth in the appropriate references and specified below.

2. Joint surfaces for joints between precast structure components shall be keyways or tongue and grooves manufactured to the joint surface design and tolerance requirements of ASTM C 913.
3. Lift holes and inserts used for handling precast structures shall be sized for a precision fit with the lift devices, shall not penetrate through the precast structure wall, and shall comply with OSHA Standard 1926.704.

B. Precast base sections shall have the base slab cast monolithically with the walls.

C. Precast riser sections. The minimum lay length of precast riser sections shall be 36 inches.

D. Precast cone sections shall have an inside diameter at the top of 24 inches. The width of the top ledge shall be no less than the wall thickness required for the cone section. Concentric cones shall be used only for shallow manholes.

E. Precast top sections. Flat slab top sections shall be designed for HS-20 traffic loadings as defined in ASTM C 890. Transition top sections shall provide for transition to other diameter risers, cones, and flat slab top sections with a joint equal to that of a riser section. Venting of top sections shall be as shown on the details.

F. Pipe to manhole connectors shall conform to ASTM C 923. On large diameter flexible pipes, provisions for control of the pipe outside diameter to within the tolerances of the connector shall be made.

G. Joints shall be sealed internally between the tongue and the groove and additionally around the external perimeter of the joint as follows:

1. External seals shall consist of a polyethylene backed flat butyl rubber sheet no less than 1/16-inch thick and 6 inches wide applied to the outside perimeter of the joint.
2. Joints with a perimeter greater than or equal to 18 feet shall be internally sealed with butyl rubber/bentonite sealant.
3. Joints with a perimeter less than 18 feet shall be internally sealed with butyl rubber sealant.

H. Manhole rings, covers, hatches and doors, frames and grate to be provided as equal to those shown on the precast structure details. Materials shall be cast iron, steel, or aluminum as conforming to details per application. For dimensions of castings see precast top details.

I. The precast manufacturer shall provide lifting devices complying with OSHA Standard 1926.704 for handling the precast components. The design of lifting devices shall comply with ASTM C 913, Paragraph 5.8 standards.

2.3 CONFIGURATION

A. Precast concrete structures are to be constructed as specified and as shown on the detail drawings.

B. The number of joints shall be minimized. Use no more than two sections up to 8 feet of depth and no more than one additional section for each 4 feet of depth.

C. Provide inverts conforming to the details shown on the Drawings when rectangular sewer manholes are required.

D. Round transition assemblies shall conform to ASTM C 478.

3. EXECUTION

3.1 EXAMINATION

A. Inspect precast components prior to unloading from the delivery truck.

3.2 DELIVERY, STORAGE, AND HANDLING

A. Coordinate delivery with the manufacturer. Handle and store the precast components in accordance with ASTM C 891 and the manufacturer's recommendations using methods that will prevent damage to the components and their joint surfaces.

3.3 PLACING PRECAST CONCRETE SECTIONS

A. Excavate the required depth and remove materials that are unstable or unsuitable for a good foundation. Prepare a level, compacted foundation extending 6 inches beyond the precast base and follow ASTM C 891 excavation standards.

B. Set base plumb and level, aligning pipe opening with pipe invert.

C. Thoroughly clean bells and spigots to remove dirt and other foreign materials that may prevent sealing. Unroll the butyl sealant rope directly against base of spigot. Leave protective wrapper attached until sealant is entirely unrolled against spigot. Do not stretch. Overlap from side to side, not top to bottom.

D. Set risers and tops, aligning internal wall surfaces, so that proper alignment is achieved taking particular care to clean, prepare, and seal joints.

E. Fill the void between horizontal joint surfaces with a sand cement grout around the outside perimeter, when recommended by the manufacturer.

F. After joining manhole sections, apply the butyl sealant sheet around the outside perimeter of the joint.

G. Lift holes leaving less than 2 inches of wall thickness shall be plugged from the outside using a sand cement mortar. Lift holes penetrating the wall shall be additionally sealed with an interior application of an epoxy gel _ inch thick extending 2 inches beyond the penetration.

H. Vacuum test the assembled precast structure after completing pipe connections and sealing but before backfilling or placing frame and cover as follows:

1. Plug pipes with suitably sized and rated pneumatic or mechanical pipeline plugs. Place plugs a minimum of 6 inches beyond the precast wall and brace to prevent displacement of the plugs or pipes during testing.
2. Position the vacuum tester head assembly to seal against the interior surface of the top of the top section and inflate according to the manufacturer's recommendations.
3. Draw a vacuum of 10 inches of mercury, close the valve on the vacuum line, and shut off the vacuum pump.
4. Measure the time for the vacuum to drop to 9 inches of mercury. The precast structure shall pass when the time to drop to 9 inches of mercury meets or exceeds the following:

Structure Area in Plain View (square feet)	10	20	30	40	50	80
Seconds	60	75	90	105	120	150

5. If the precast structure fails the test, remove the head assembly and coat the interior with a soap and water solution and repeat the vacuum test for approximately 30 seconds. Leaking areas will have soapy bubbles. After the necessary repairs are made, repeat the test until the precast structure passes.

I. Perform the final finishing to the manhole interior by filling all chips or fractures greater than ½ inch in length, width or depth and depressions more than ½ inch deep in inverts with a sand cement mortar. Grout joints according to manufacturer's specifications. Clean the interior of the precast structure, removing all dirt, spills, or other foreign matter.

END OF SECTION

SECTION 33 0523

HORIZONTAL DIRECTIONAL DRILLING

1. GENERAL

1.1 SCOPE OF WORK

A. Furnish all labor, materials, equipment, and incidentals required to install HDPE pressure pipe by horizontal directional drilling at locations shown on the Drawings. Casings and spacers shall be provided where shown on the Drawings or as required by DOT requirements.

1.2 RELATED WORK

A. Section 33 1113.24 - High Density Polyethylene Pipe for Pressure Applications

1.3 SUBMITTALS

A. Shop drawings shall be submitted to the Engineer for approval in accordance with these Specifications and shall include directional drilling methods with entry and exit angles; description of cuttings settlement pit, slurry containment pit, site layout plan; cuttings and slurry disposal plan; and dimensions and data for HDPE pipe.

B. Submit complete shop drawings and engineering data on all piping and accessories to the Engineer in accordance with the requirements of Section 01 3323 - Shop Drawings, Product Data, and Samples.

2. PRODUCTS

2.1 MATERIALS

A. Pipe and accessories shall be as specified in these Specifications and as shown on the Drawings.

3. EXECUTION

3.1 TECHNIQUE

A. Pilot Hole

1. Contractor may (as required) drill a pilot hole at a prescribed angle from horizontal and continue along a proposed design profile.

2. The drill path will be monitored by electronic means and the data transmitted to the surface where calculations are made as to the cutter head location.

B. Pre-Ream. After completing the pilot hole, the hole is reamed out to the required size.

C. Pullback. After reaming out the hole, the Contractor shall install the product pipeline.

D. Unless otherwise noted, the minimum depth to the top of the pipe for pressure pipe installations shall be 30 inches and the minimum depth to service lines shall be 18 inches. The maximum depth shall be 6 feet. Tolerances shall be +/- 6 inches vertically and +/- 5 feet horizontally. Pipe shall extend to a minimum of 5 feet for the edge of pavement or sidewalk unless otherwise noted on the drawings.

3.2 GEOTECHNICAL INVESTIGATION

A. The Contractor shall provide such geotechnical investigations as he may deem necessary to accomplish the work. This investigation shall be at no additional cost to the Owner.

3.3 DRILLING SLURRY - CONTAINMENT, RECYCLING AND DISPOSAL

A. Material Safety Data Sheets (MSDS) shall be provided to the Engineer for all materials used.

B. Containment and Recycling. All slurries and cuttings shall be contained and recycled where appropriate or disposed properly.

C. Inadvertent returns of slurry material shall be the sole responsibility of the Contractor. Slurry shall be kept from entering stream channel.

D. Disposal. Spent slurry shall be disposed of at Contractor’s expense. After cleanup, the site shall be graded, dressed, and seeded.

3.4 PIPE CLEANING AND TESTING

A. After installation of the pipeline, thoroughly clean the pipeline by running a pig through the pipeline.

B. Pressure testing shall be performed in accordance with Specification Section 33 1113.24.

3.5 HDPE PIPE CONNECTIONS

A. Connection to other piping materials, fittings, valves, and accessories shall be in accordance with Specification Section 33 1113.24. The HDPE pipe shall be allowed to relax for four (4) hours following the installation and prior to any connections being made.

3.6 TRACER WIRE

A. Install tracer wire in all HDD applications.

END OF SECTION

SECTION 33 0523.16

UTILITY PIPE JACKING

1. GENERAL

1.1 SCOPE

A. The work covered by this section includes furnishing all labor, materials, service, and equipment required to properly complete pipeline construction under roadsand railroads, as described herein and/or shown on the Drawings.

1.2 SHOP DRAWINGS AND ENGINEERING DATA

A. Complete engineering data and product information shall be submitted to the Engineer in accordance with the requirements of these Specifications in accordance with the requirements of Section 01 3323 - Shop Drawings, Product Data, and Samples.

B. Boring and jacking casings is deemed to be specialty Contractor work. The Contractor shall provide evidence of experience for the installer performing the work as required by the general conditions. A minimum of five continuous years of experience in steel casing construction is required of the casing installer. Evidence of this experience must be provided with shop drawings for review and approval by the Engineer.

1.3 QUALITY ASSURANCE

A. Submit to the Engineer written evidence that the pipe furnished under this Specification is in conformance with the material and mechanical requirements specified herein. Certified copies of independent laboratory test results or mill test results from the casing supplier may be considered evidence of compliance provided such tests are performed in accordance with the appropriate ASTM or AWWA testing standards by experienced, competent personnel. The Contractor furnish test reports from an independent testing laboratory on samples of pipe materials.

1.4 GUARANTEE

A. Provide a guarantee against defective materials and workmanship in accordance with the requirements of Section 01 7836, Warranties and Bonds.

1.5 STORAGE AND PROTECTION

A. All materials shall be stored and protected with strict conformance to the manufacturer's recommendations and as approved by the Engineer. Store and protect in accordance with the requirements of Section 01 6600.

1.6 TRANSPORTATION

A. Provide transportation of all equipment, materials, and products furnished under this section in accordance with the requirements of Section 01 6500.

2. PRODUCTS

2.1 MATERIALS

A. Steel casing pipe, sizes 8 inches through 54 inches, shall be straight seam welded steel pipe conforming to ASTM A 139, Grade B of the latest standard specification. Casing shall have a minimum of 35,000 psi yield strength and 60,000 psi ultimate strength and meet the American Railway Engineering Association specifications, Chapter 1 Part 5.3. Casing wall thickness shall be as shown on the drawings. If no casing wall thickness is shown on the drawings, then the requirements of the applicable DOT or railroad owner shall apply.

B. An end-of-casing boot shall be used on each end of the casing to seal the space between the carrier and casing pipe. End seals shall be minimum 1/8-inch-thick neoprene wraps secured with stainless steel bands. End seals shall be APS Model AC or approved equal unless otherwise shown on the drawings.

C. Spacers shall be used on the carrier pipe as shown on the drawings. Three spacers shall be utilized on each section of carrier pipe unless noted otherwise. Spacers shall be non-metallic, GPT Ranger II or approved equal unless otherwise shown on the drawings.

D. If carrier pipe is indicated to be ductile iron, pipe shall be restrained joint TR Flex or approved equal unless otherwise indicated on the drawings. Joint restraints shall be fully extended to remove slack and engage restraint.

3. EXECUTION

3.1 GENERAL

A. The Contractor shall be fully responsible for the successful installation.

B. Interpretation of available soil investigation reports and data, investigating the site, and determination of the soil conditions is the sole responsibility of the Contractor.

C. Any solidification of embankments, boring headings, or sides shall be the Contractor's responsibility and shall be done at his own expense.

D. Bored installations shall have a bored-hole diameter essentially the same as the outside diameter of the casing pipe to be installed.

E. The casing pipe shall be jacked into the boring as soon as possible after the boring is made. Lengths of casing pipe as long as practical shall be used. Joints between sections shall be completely welded as recommended for joining the particular type of pipe.

F. Once the jacking procedure has begun, it should be continued without stopping until completed, subject to weather and conditions beyond the control of the Contractor.

G. Care shall be taken to ensure that casing pipe installed by boring and jacking or open-cut method will be at the proper alignment and grade as shown on the Drawings. All casing shall be true to line and grade; dips or doglegs in the casing pipe shall not be allowed. Any adjustments, re-boring, or additional work or materials shall be at no additional cost to the Owner. The maximum depth for casings shall be 8-feet for all pressure pipe installations, unless otherwise noted onthe drawings. Minimum depths shall be as shown on the drawings, otherwise shall be 3-feet under unimproved surfaces and 4-feet under all improved surfaces used for vehicular transport. The alignment allowance, unless noted otherwise, shall be
+/- 0.5-feet vertical and +/- 3-feet horizontal.

H. Maintain and operate pumps, well points, and drainage system equipment to keep work dewatered at all times.

I. Adequate sheeting, shoring, and bracing for embankments, operating pits, and other appurtenances shall be placed and maintained to ensure that work proceeds safely and expeditiously. Upon completion of the required work, the sheeting, shoring, and bracing shall be left in place, cut off, or removed, as designated by the Engineer.

J. Trench excavation; mining for tunnels; all classes and types of excavation; the removal of rock, muck, and debris; the excavation of all working pits; and backfill requirements of Section 31 2000, Earthwork, are included under this section.

K. After the casing pipe is installed, install the carrier pipe, exercising care at all times to protect the interior of the casing pipe and to maintain tight, full-seated joints in the carrier pipe. The carrier pipe shall be installed at the proper line and grade without any sags or high spots.

L. The carrier pipe shall be held concentric and centered with the casing pipe by the use of manufactured casing spacers spaced radially around the pipe and secured together so that they remain firmly in place. The spacing of such blocks longitudinally in the casing pipe may not be greater than 10 feet. Three casing spacers shall be used for each joint section of carrier pipe.

3.2 HIGHWAY CROSSINGS

A. The Contractor shall be held responsible and accountable for the coordinating and scheduling of all construction work within the highway right-of-way. The Contractor shall be responsible for all repairs to the highway right-of-way and surfaces to the applicable DOT requirements.

B. Work along or across the highway department rights-of-way shall be under the supervision of the Engineer and DOT department engineer.

C. Encasement shall extend 5 feet beyond the highway embankment or back of side ditch, unless otherwise shown on the drawings. On curbed portions of conventional highways, the casing pipe shall extend to the back of curb or sidewalk.

D. All installations shall be designed to leave free flows in drainage ditches, pipes, culverts, or other surface drainage facilities of the highway, street, or its connections.

E. All trench excavation within the right-of-way, but not under pavement, shall be backfilled by tamping in 6-inch layers.

F. All surplus material shall be removed from the right-of-way and the excavation finished flush with surrounding ground.

G. Grout backfill shall be used for unused holes or abandoned pipes.

H. Boring, jacking, or driving of carrier or casing pipes under existing highways shall be accomplished without jetting, sluicing, or wet boring.

3.3 RAILWAY CROSSINGS

A. The Contractor shall be held responsible and accountable for the coordinating and scheduling of all construction work within the railway right-of-way. The Contractor shall be responsible for all repairs to the railway right-of-way and surfaces to the applicable AREMA requirements.

B. Work along or across the highway department rights-of-way shall be under the supervision of the Engineer and railway designated engineer. The requirements and recommendations of AREMA Chapter 1 Part 4 and 5 apply.

END OF SECTION

SECTION 33 1113.13

DUCTILE IRON PIPE AND FITTINGS

PART 1 GENERAL

1.1 SCOPE

A. The work covered by this section includes furnishing all labor, equipment, and materials required to furnish, install, and field pressure test ductile iron piping, including all fittings, wall pipe and sleeves, couplings, tappings, anchor blocks, and accessories, as specified herein and/or shown on the Drawings.

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

B. American National Standards Institute/American Water Works Association (ANSI/AWWA) Publications

1. ANSI/AWWA C104/A21.4 Cement-Mortar Lining for Ductile Iron Pipe
2. ANSI/AWWA C105/A21.5 Polyethylene Encasement for Ductile-Iron Pipe Systems
3. ANSI/AWWA C110/A21.10 Ductile Iron and Grey-Iron Fittings, 3-Inch through 48-Inch, for Water and Other Liquids
4. ANSI/AWWA C111/A21.11 Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings
5. ANSI/AWWA C115/A21.15 Flanged Ductile Iron Pipe with Ductile Iron or Grey Iron Threaded Flanges
6. ANSI/AWWA C116/A21.16 Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces
7. ANSI/AWWA C150/A21.50 Thickness Design of Ductile Iron Pipe
8. ANSI/AWWA C151/A21.51 Ductile Iron Pipe, Centrifugally Cast, for Water
9. ANSI/AWWA C153/A21.53 Ductile Iron Compact Fittings, 3-Inch through 24-Inch and 54-Inch through 64-Inch, for Water Service
10. ANSI/AWWA C600 Installation of Ductile Iron Water Mains and Their Appurtenances

C. American Society of Mechanical Engineers / American National Standards Institute (ASME/ANSI) Publications

1. ASME/ANSI B16.1-98 Cast Iron Flanges and Flanged Fittings

D. National Association of Pipe Fabricators (NAPF) Publications

1. NAPF 500-03-01 Solvent Cleaning
2. NAPF 500-03-04 Abrasive Blast Cleaning of Ductile Iron Pipe

1.3 QUALITY ASSURANCE

A. Submit to the Engineer written evidence that the pipe furnished under this Specification is in conformance with the material and mechanical requirements specified herein. Certified copies of independent laboratory test results or mill test results from the pipe supplier may be considered evidence of compliance provided such tests are performed in accordance with the appropriate ASTM or AWWA testing standards by experienced, competent personnel. In case of doubt as to the accuracy or adequacy of mill tests, the Engineer may require that the Contractor furnish test reports from an independent testing laboratory on samples of pipe materials.

1.4 SHOP DRAWINGS AND ENGINEERING DATA

A. Submit complete shop drawings and engineering data on all piping and accessories to the Engineer in accordance with the requirements of Section 01 3323 - Shop Drawings, Product Data, and Samples.

B. Shop drawings shall indicate piping layout in plan and section and shall be completely dimensioned. The Drawings shall include a complete schedule of all pipe, fittings, valves, specials, hangers, and supports. Special castings shall be clearly detailed showing all pertinent dimensions.

Pipe Size	Pressure Class (psi)	Wall Thickness in Inches
3-Inch Ductile Iron	350	0.25
4-Inch Ductile Iron	350	0.25
6-Inch Ductile Iron	350	0.25
8-Inch Ductile Iron	350	0.25
10-Inch Ductile Iron	350	0.26
12-Inch Ductile Iron	350	0.28
14-Inch Ductile Iron	250	0.28
16-Inch Ductile Iron	250	0.3
18-Inch Ductile Iron	250	0.31
20-Inch Ductile Iron	250	0.33
24-Inch Ductile Iron	200	0.33
30-Inch Ductile Iron	150	0.34
36-Inch Ductile Iron	150	0.38

C. Furnish the Engineer with lists, in duplicate, of all pieces of pipe and fittings in each shipment received. These lists shall give the serial or mark number, weight, class, size, and description of each item received.

1.5 STORAGE AND PROTECTION

A. Equipment and products stored outdoors shall be supported above the ground on suitable wooden blocks or braces arranged to prevent excessive deflection or bending between supports. Items such as pipe, structural steel, and sheet construction products shall be stored with one end elevated to facilitate drainage.

1.6 SHOP PAINTING

A. All ductile iron pipe and fittings which will be installed underground or in a concealed space shall be cleaned and provided with a asphaltic coal-tar coating applied at the factory, unless otherwise specified herein. Coal tar coating shall be as specified in Section 09 9100 or equivalent.

B. All ductile iron pipe and fittings which will be installed above ground, in exposed areas, or which is immersed shall be cleaned and provided with a prime coat applied at the factory. Prime coat shall be as specified in Section 09 9100 or equivalent.

1.7 GUARANTEE

A. Provide a guarantee against defective materials and workmanship in accordance with the requirements of Section 01 7836, Warranties and Bonds.

1.8 ACCEPTABLE MANUFACTURERS

A. Ductile iron pipe and fittings must be the products of member companies of the Ductile Iron Pipe Research Association (DIPRA). Products from manufacturers who are not DIPRA member companies shall not be utilized in the work covered by these Specifications.

PART 2 PRODUCTS

2.1 GENERAL

A. No broken, cracked, deformed, misshapen, imperfectly coated, or otherwise damaged or defective pipe or fittings shall be used. All such material shall be removed from the site of the work.

B. Minimum pipe wall thickness and pressure class of pipe shall be as follows, unless otherwise shown on the Drawings or directed by the Engineer:

2.2 DUCTILE IRON PIPE

A. Ductile iron pipe shall be designed in accordance with ANSI/AWWA C150/A21.50, "Thickness Design of Ductile Iron Pipe," using 60,000-psi tensile strength, 42,000-psi

yield strength, and 10 percent elongation. Additionally, ring bending stress is limited to 48,000 psi to provide a 2.0 safety factor based upon ultimate bending stress.

B. Ductile iron pipe shall be manufactured in accordance with ANSI/AWWA C151/A21.51, "Ductile Iron Pipe Centrifugally Cast for Water," and shall be made of ductile iron having a minimum tensile strength of 60,000 psi, a minimum yield strength of 42,000 psi, and 10 percent minimum elongation.

2.3 DUCTILE IRON FITTINGS

A. All fittings shall conform in every respect to ANSI/AWWA C110/A21.10, "Ductile Iron Compact Fittings for Water Service" or ANSI/AWWA C153/A21.53, "2-Inch through 24-Inch for Water and Other Liquids."

B. All fittings shall be for pressure rating of 250 psi, unless otherwise shown on the Drawings, directed, or specified herein.

C. Flanged fittings, in general, shall be ANSI pattern using long radius elbows except where space limitations prohibit the use of same. Design of all fittings, whether long or short pattern, shall be as indicated or dimensioned on the Drawings. Special fittings, wall pipes, and sleeves shall conform to the dimensions and details shown on the Drawings.

2.4 JOINTS FOR DUCTILE IRON PIPE AND FITTINGS

A. General
   1. Joints for ductile iron pipe and fittings shall be mechanical joints, flanged joints, push-on joints, or bell and spigot joints, as shown on the Drawings or specified herein.
   2. All ductile iron pipe laid underground shall be joined using mechanical joints or push-on type joints, unless otherwise shown on the Drawings, specified, or directed.

B. Mechanical Joints
   1. Mechanical joints shall consist of a bolt joint of the stuffing box type as detailed in ANSI A21.10 and described in ANSI A21.11.
   2. Mechanical joints shall be thoroughly bolted in accordance with the manufacturer's recommendations with Tee Head Bolts and bolts of high strength, low-alloy steel having a minimum yield point strength of 40,000 psi and an ultimate tensile strength of 70,000 psi.
   3. Gaskets, bolts, and nuts shall conform to ANSI A21.11. Gaskets shall be neoprene, SBR, or rubber of such quality that they will not be damaged by the liquid or gases with which they will come into contact.
   4. Glands shall be of high strength ductile iron.

C. Flanged Joints
   1. Flanged joints shall conform to ANSI B16.1, Class 125, in accordance with Table 10.23 of ANSI A21.10, unless otherwise indicated.

2. Flanged joints shall be bolted with through stud or tap bolts of required size as directed. Bolts and nuts shall conform in dimensions to the American Standard heavy series. Nuts shall be hexagonal, cold pressed. Bolts and nuts shall be zinc plated, cold pressed, steel machine bolts, conforming to ASTM A 307, Grade B. Cadmium plating shall be by an approved process and shall be between 0.003 and 0.0005 inch thick. After each joint has been made, all bolts, heads, and nuts shall be coated with two coats of coal tar epoxy (total of 16-mil dry film thickness [DFT]), or approved equal coating.
3. Gaskets shall be full face type, 1/8 inch thick, conforming to the requirements of AWWA C111. Gaskets for air piping shall be 300F rated FKM high temperature gaskets.
4. Flanges on ductile iron pipe shall be screw type. Pipe threads shall be of such length that with flanges screwed home, the end of the pipe shall project beyond the face line of the flange. Flange and pipe shall then be machined to give a flush finish to the pipe and the flange and surface shall be normal to the axis of the pipe. Ductile iron flanges shall be of such design that the flange neck completely covers the threaded portion of the pipe to protect same against corrosion. All pipe with screw type flanges shall be assembled, faced, and drilled at the point of manufacture, unless otherwise approved by the Engineer.
5. Where tap or stud bolts are required, flanges shall be drilled and tapped accordingly.

D. Push-On Joints
1. Push-on joints shall conform to ANSI A21.11. Details of the joint design shall be in accordance with the manufacturer's standard practice.
2. Gaskets shall be in accordance with ANSI A21.11 and shall be of such quality that they will not be damaged by the liquid or gases with which they will come into contact.

2.5 PIPE COATINGS AND LININGS

A. All ductile iron pipe and fittings buried underground shall have a standard asphaltic coal tar outside coating conforming to ANSI/AWWA C151/A21.51. All exposed or immersed ductile iron pipe and fittings shall have an outside shop prime coat of epoxy coating as specified in Section 09 9100.

B. All ductile iron pipe and fittings used for water or wastewater shall have cement mortar lining of standard thickness in accordance with ANSI A21.4.

C. Where a special lining is indicated on the Drawings for resistance to corrosive wastewater, all ductile iron pipe and fittings shall have a ceramic filled, amine-cured, epoxy lining. Coating shall be Protecto 401, Series 431 Perma-Shield PL, by Tnemec, or Engineer approved equal. Coating shall be applied at 40-mil DFT. Follow manufacturer's recommendations for lining bell sockets, spigot ends, flange faces, etc., and for touch up and repair of field cuts.

D. No lining shall be provided for ductile iron piping and fittings used for air. Gaskets for air pipework shall be FKM high temperature rated.

2.6 PIPE COUPLINGS

A. Pipe couplings shall be installed where shown on the Drawings, required for installation, or directed by the Engineer.

2.7 WALL PIPE AND WALL SLEEVES

A. Furnish and install ductile iron wall pipe or wall sleeves where ductile iron piping connects with or passes through concrete walls or floors and in locations where small piping and electric wiring and conduits connect with or pass-through concrete walls or floors.

B. Where wall pipes or sleeves are to be installed flush with the wall or slab, the flange or MJ bell shall be tapped for studs. Where the flange or bell will project beyond the wall, the projection shall be sufficient to allow for installation of connecting bolts.

2.8 SPARE PARTS

A. Furnish 4 spare gaskets for each size and type of joint requiring the use of a gasket. Furnish 8 bolts and nuts of each size and type used for ductile iron pipe joints.

PART 3 EXECUTION

3.1 LAYING

A. Proper and suitable tools and appliances for safe and convenient handling and laying of pipe and fittings shall be used. Great care shall be taken to prevent the pipe coating from being damaged, particularly cement linings on the inside of the pipes and fittings. Any damage shall be remedied as directed by the Engineer.

B. Carefully examine all pipe and fittings for defects just before laying and no pipe or fitting shall be laid which is defective. If any defective pipe or fitting is discovered after having been laid, it shall be removed and replaced in a satisfactory manner with a sound pipe or fitting by the Contractor at his own expense.

C. Thoroughly clean all pipes and fittings before they are laid and keep clean until they are used in the completed work. Open ends of pipe shall be kept plugged with a bulkhead during construction.

D. Pipe laid in trenches shall be laid true to line and grade on a firm and even bearing for its full length at depths and grades as shown on the Drawings. Adequate precautions shall be taken to prevent flotation of pipelines prior to backfilling. Installation of ductile iron pipe in underground pressure piping systems shall conform to the requirements of AWWA C600. Excavation of trenches, embedment, and backfilling around pipes shall conform to the requirements of Section 31 2000, Earthwork and as shown on the drawings. Embedment shall be select earth and final backfill shall be common earth for unimproved areas. Embedment and final backfill shall be #67 crushed stone for improved areas. Embedment shall be #67 crushed stone in rock trenches.

E. All ductile iron piping laid underground shall have a minimum of 30-inches of cover above the top of the pipe unless otherwise shown on the Drawings.

F. All elbows, tees, branches, crosses, and reducers in pressure piping systems shall be adequately restrained against thrust. Underground pressure piping shall be restrained by thrust restrained joints (EBAA Meg-A-Lug or Engineer approved equal). Install restraints in accordance with manufacturer's recommendations. Install number of restraints recommended by manufacturer for size of pipe, type of fitting, and type of soil, or as shown on the Drawings.

G. All ductile iron pipes entering buildings or basins shall be adequately supported between the structure and undisturbed earth as shown on the Drawings to prevent breakage resulting from settlement of backfill around the structure.

H. Wall pipe and wall sleeves shall be accurately located and securely fastened in place before concrete is poured. All wall pipe and wall sleeves shall have wall collars properly located to be in the center of the wall where the respective pipes are to be installed.

I. Wall pipe and wall sleeves shall be installed when the wall or slab is constructed. Blocking out or breaking of the wall for later insertion shall not be permitted.

J. Cutting or weakening of structural members to facilitate pipe installation shall not be permitted. All piping shall be installed in place without springing or forcing.

K. Sufficient couplings and flanged joints shall be provided to facilitate equipment installation and removal.

L. Exposed ductile iron piping shall be supported as shown on the Drawings or specified herein.

3.2 CUTTING

A. Whenever pipe requires cutting to fit the lines, the work shall be done in such manner as to leave a smooth end at right angles to the axis of the pipe. When a piece of pipe is cut to fit into the line, no payment will be made for the portion cut off and not used.

B. Whenever existing pipe requires cutting to install new fittings, the work shall be done in such manner as to leave a smooth end at right angles to the axis of the pipe and special care shall be exercised to guard against breaking or splitting the existing piping.

C. All cutting of ductile iron pipe shall be done with a cutting saw. All burrs shall be removed from the inside and outside edges of all cut pipe.

3.3 JOINING

A. Mechanical Joints
   1. The successful operation of the mechanical joint specified requires that the spigot be centrally located in the bell and that adequate anchorage be provided where abrupt changes in direction and dead ends occur.
   2. The surfaces with which the rubber gasket comes in contact shall be brushed thoroughly with a wire brush just prior to assembly to remove all loose rust or foreign material which may be present and to provide clean surfaces which shall be brushed with a liberal amount of soapy water or other approved lubricant just prior to slipping the gasket over the spigot end and into the bell. Lubricant shall be brushed over the gasket prior to installation to remove loose dirt and lubricate the gasket as it is forced into its retaining space.
   3. Joint bolts shall be tightened by the use of approved wrenches and to a tension recommended by the pipe manufacturer. When tightening bolts, it is essential that the gland be brought up toward the pipe flange evenly, maintaining approximately the same distance between the gland and the face of the flange at all points around the socket. This may be done by partially tightening the bottom bolt first, then the top bolt, next the bolts at either side, and last, the remaining bolts. This cycle shall be repeated until all bolts are within the range of acceptable torques. If effective sealing is not attained at the maximum torque indicated above, the joint shall be disassembled and reassembled after thorough cleaning. Overstressing of bolts to compensate for poor installation shall not be permitted.
   4. After installation, bolts and nuts in buried or submerged piping shall be given 2 heavy coats of a bituminous paint.

B. Flanged Joints
   1. All flanges shall be true and perpendicular to the axis of the pipe. Flanges shall be cleaned of all burrs, deformations, or other imperfections before joining. Flanged joints shall be installed so as to ensure uniform gasket compression. All bolting shall be pulled up to the specified torque by crossover sequence. Where screwed flanges are used, the finished pipe edge shall not extend beyond the face of the flange, and the flange neck shall completely cover the threaded portion of the pipe.
   2. Connections to equipment shall be made in such a way that no strain is placed on the equipment flanges. Connecting flanges must be in proper position and alignment and no external force may be used to bring them together properly.
   3. After installation, bolts and nuts in buried or submerged piping shall be given 2 heavy coats of a bituminous paint.

C. Push-On Joints and Flexible Restrained Joints
   1. The inside of the bell and the outside of the pipe from the plain end to the guide stripe must be wiped clean immediately before assembling the pipe joint. Then the rubber gasket shall be inserted into a groove or shaped recess in the bell. Both the bell and spigot ends to be joined shall be wiped again to ensure they are thoroughly clean. A liberal coating of special lubricant furnished by the pipe manufacturer shall be applied to the outside of the pipe from the plain end to the yellow guide stripe and to the inside of the gasket. The plain end shall be centered in the bell and the spigot pushed home. Wherever possible the pipe shall be socketed by hand; however, jacking may be required to push the spigot

in place on the larger sizes of pipe. The completed joint shall be permanently sealed and watertight.

2. Whenever the pipe is cut in the field, the cut end shall be conditioned so it can be used in making up a joint by filing or grinding the cut end to remove burrs or sharp edges that might damage the gasket.

D. Permissible Deflection of Joints

1. Deflection of ductile iron pipe at joints for long radius curves or for avoiding obstacles shall be permitted only upon approval of the Engineer.
2. Where deflection of Push on or Mechanical joints is permitted, such deflection shall be made in accordance with and shall not exceed 80 percent of the maximum deflection angle provided in Tables 3 and 4 of AWWA C600-05.
3. Where deflection of flexible restrained joints is permitted or necessary for pipe installation during horizontal directional drilling, such deflection shall not exceed 50 percent of the maximum deflection angle provided in Table 3 of AWWA C600.

E. Joints of Dissimilar Metals. When a flanged joint consists of a ductile iron flange mated to a steel or alloy flange, the steel flanges shall be flat-faced and furnished with full-faced gaskets, insulating bushings, and stainless-steel bolts.

3.4 CUT-INS TO EXISTING PIPING

A. Cut-ins to existing ductile iron piping for installation of new mechanical joint fittings and valves shall be made using ductile iron cutting-in sleeves, in general and unless otherwise shown.

B. Cutting-in sleeves shall have a pressure rating not less than that of the existing pipeline and shall be furnished with a mechanical joint end on one end and a plain end on the other.

3.5 DRILLING AND TAPPING

A. Wherever required, ductile iron pipe and fittings shall be drilled and tapped to receive drainage or any other piping. All holes shall be drilled accurately at right angles to the axis of any pipe or fitting. Where plugs are drilled, holes shall be at right angles to the face of the plug.

B. Where the size of the pipe to be connected is such as to require bosses for connection and when the pipe wall thickness is too thin to permit the effective length of pipe threads to be utilized as necessary for the size pipe being connected by threads, furnish such pipe with cast-on bosses suitable for drilling, tapping, and connecting such pipe. Alternately, where shown or specified, a tapped saddle clamp may be used in lieu of a cast-on boss. Saddle clamp shall be of the heavy-duty type with O-ring gaskets and 2 heavy U-bolt clamps.

C. All tapping shall be carefully and neatly done by skilled workmen with suitable tools.

D. Where connections are made between new and old piping, the connections shall be made in a thorough and workmanlike manner using proper fittings and specials to suit actual conditions.

E. Cut-ins to existing and operating pipelines shall be done at times agreeable to the Owner upon approval of the Engineer.

F. Existing pipelines that may be cut or damaged during the performance of work under this item shall be repaired, reconnected, and returned to service in equal or better condition in which they were found and in accordance with the requirements of this Specification.

G. No separate payment will be made for drilling, tapping, making connections, cut-ins, repairs to damaged existing pipelines, and reconnections in existing pipelines.

3.6 AIR RELIEF AND FLUSHING

A. Expel all air from the pipe before applying the specified hydrostatic test. If hydrants, blow-offs, or air release valves are not available at the high points, make the necessary taps at points of highest elevation before the test is made and insert plugs after the test has been completed.

B. Thoroughly flush the lines after expelling all the air to remove foreign material in the pipe during installation. Flush the lines at hydrants and blow-offs to maintain a minimum velocity in the main of 2.5 fps.

3.7 HYDROSTATIC TESTING

A. After all piping has been placed, backfilled, and flushed, each run of newly laid pipe, or any valved section thereof, shall be tested by the Contractor in the presence of the Engineer, and tests shall be continued until all leaks have been made tight to the satisfaction of the Engineer.

B. All piping shall be subject to a hydrostatic gauge pressure equal to 150 percent of the maximum operating pressure of the pipe section under test or 150 psig, whichever is greater, based on the elevation of the lowest point of the section of pipe under test and corrected to the elevation of the test gauge. The test shall be maintained for a minimum of two consecutive hours. The test pressure shall not exceed the rated pressure of the valves when the pressure boundary of the test section includes closed gate or butterfly valves.

C. The specified test pressure shall be applied by means of a pump connected to the pipe.

D. Allow the system to stabilize at the test pressure before conducting the test.

E. The hydrostatic test (AWWA C600) shall be based upon leakage and pressure. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe or any valved section thereof to maintain pressure within 5 psi of

the specified test pressure after the pipe has been filled with water and the air has been expelled. Leakage shall not be measured by a drop in pressure in a test section over a period of time.

1. Allowable leakage: No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

   $$L = \frac{SD\sqrt{P}}{133200}$$

   Where:
   L = allowable leakage, in gallons per hour
   S = length of pipe tested, in feet
   D = nominal diameter of the pipe, in inches
   P = average test pressure during the leakage test, in pounds per square inch (gauge)

   This formula is based on an allowable leakage of 11.65 gpd/mi/in of nominal diameter at a pressure of 150 psi.
2. When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078 gal/h/in of nominal valve size shall be allowed.
3. When hydrants are in the test section, the test shall be made against the main valve in the hydrant.

F. Acceptance of Installation. Acceptance shall be determined on the basis of allowable leakage. If any test of laid pipe discloses leakage greater than that specified, repairs or replacements shall be corrected at the Contractor's expense by tightening, replacing packing or gaskets, or replacing defective portions of the piping system. Caulking will not be permitted. If the defective portion cannot be located, the Contractor, at his expense, shall remove and reconstruct as much of the original work as necessary to obtain an acceptable installation.

G. All visible leaks are to be repaired regardless of the amount of leakage.

H. The Contractor shall bear the complete cost of the tests, including set-up, labor, temporary piping, blocking, gauges, bulkheads, water, and any other materials required to conduct the tests.

END OF SECTION

SECTION 33 1113.23

POLYVINYL CHLORIDE PIPE FOR PRESSURE APPLICATIONS

1. GENERAL

1.1. SCOPE OF WORK

A. Furnish all labor, materials, equipment and incidentals required and install PVC piping in the locations shown on the Drawings and as specified herein.

1.2. RELATED WORK

A. The following sections contain requirements that relate to this section:

1. Section 33 1216: Valves.
2. Section 33 1113.13: Ductile Iron Pipes and Fittings.

1.3. DESCRIPTION OF SYSTEM

A. Plastic pipe shall be used for pressure piping in water mains, sewage force mains, and process piping.

B. Install piping in the locations shown on the Drawings.

C. 304SS or PVC ball valves, nipples and fittings shall be used in pressure applications less than 2-inches in diameter.

D. Use ductile iron mechanical joint valves and fittings in all pressure applications 2-inches in diameter and larger.

1.4. QUALIFICATIONS

A. All PVC pipe shall be furnished by a single manufacturer who is fully experienced, reputable, and qualified in the manufacture of the items to be furnished. The equipment shall be designed, constructed, and installed in accordance with ASTM and AWWA methods and shall comply with these Specifications.

1.5. SUBMITTAL

A. Submit shop drawings to the Engineer for approval in accordance with these Specifications and include dimensioning and technical specification for all piping to be furnished.

B. Submit samples of all materials specified herein to the Engineer for approval when requested.

1.6. PIPE MARKING

A. All PVC pipe shall be marked with the following information:

3. Manufacturer's name or trademark.
4. Nominal pipe size and OD base.
5. AWWA or ASTM material code designation.
6. Dimension ratio.
7. AWWA pressure class.
8. AWWA or ASTM specification designation (AWWA C900, ASTM D 2241, ASTM D 1785, Schedule 40 or 80).
9. Product record code.
10. Certification seal(s), if required.

1.7. RECEIVING, HANDLING, AND STORAGE

A. Receive, handle, and store PVC pipe in accordance with AWWA Manual No. M23, "PVC Pipe Design and Installation," except that all PVC pipe stored longer than one week shall be covered with an opaque material.

2. PRODUCTS

2.1. MATERIALS

A. Pipe shall meet ASTM D 2241, "Standard Specification for Polyvinyl Chloride (PVC) Plastic Pipe (SDR-PR)"; AWWA C900, Class 100; or ASTM D 1785, Schedule 40 or 80. Length shall be 20 feet. Pipe shall be green for sewage and blue for water. Pipe shall be provided as shown on the Drawings and specified herein, otherwise shall be C900 DR18 or ASTM D 2241 DR21. Pipe specifications as provided in 00 4143 Bid Schedule shall take precedence over this paragraph.

B. Potable water service certification shall be NSF No. 14, "National Sanitation Foundation Standard No.14 for Thermoplastic Materials, Pipe, Fittings, Valves, Traps and Joining Materials."

C. Gasket shall be ASTM F 477, "Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe." Gaskets for pipe 6-inch and larger shall be supplied with retainer rings.

D. Push-on joint shall be ASTM D 3139, "Standard Specification for Joints for Plastic Pressure Pipe Using Flexible Elastomeric Seals."

E. PVC material 12454-B (PVC 1120) shall be ASTM D 1784, "Standard Specification for Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPC) Compounds."

F. Fittings for water mains and sewage force mains 4-inches in diameter and larger shall be short or long body ductile iron and be equipped with mechanical thrust restraint per Section 33 1113.33, Ductile Iron Pipe and Fittings.

G. Valves and fittings for buried pressure applications less than 2-inches in diameter shall be Schedule 40 PVC (pressure rated) with glued joints or 304SS, as noted on the drawings. If not noted on the drawings, 304SS ball valves, nipples, and fittings shall be used. All PVC ball valves shall be of the true union type, Spears Industrial, Hayward TBH Series, or Engineer approved equal. Restrain by means of concrete thrust blocks or as shown on the drawings. Solvent cement joints shall be made in a two-step process with primer conforming to ASTM F 656 and solvent cement conforming to ASTM D 2564.

H. Pipe in sizes less than 2-inches shall be Schedule 80 in accordance with ASTM D 1785 unless otherwise shown on the Drawings or specified herein. Solvent cement joints shall be made in a two-step process with primer conforming to ASTM F 656 and solvent cement conforming to ASTM D 2564.

I. Pipe in sizes 2-inches through 12-inches shall be SDR 21 with 200 psi pressure rating in accordance with ASTM D 2241 unless otherwise shown on the Drawings or specified herein for sewage service. Pipe in sizes 4-inches through 60-inches shall be SDR 18 with 235 psi pressure rating in accordance with AWWA C900 unless otherwise shown on the Drawings or specified herein for water service. Pipe in sizes 2-inches through 3-inches shall be SDR 21 with 200 psi pressure rating in accordance with ASTM D 2241 unless otherwise shown on the Drawings or specified herein for water service.

J. PVC pipe installed inside of structures or used to transport liquid or gaseous chlorine shall have threaded joints. Solvent welding of field joints will not be permitted. PVC for threaded joints shall be Schedule 80, NSF approved and shall conform to the latest requirements of Commercial Standard CS 207 and ASTM D 1785 for Schedule 80 water pressure ratings. Fittings shall comply with the requirements of ASTM D 2464 for molded, Schedule 80, screwed fittings.

K. PVC pipe conveying material with operating temperatures that exceed 140°F, shall be chlorinated polyvinyl chloride (CPVC) in accordance with ASTM D 1784, Type 4, Grade1, Class 23477-B.

L. Threaded joints shall be made with American Standard IPS threads. All joints shall be made up with Teflon thread tape or thread dope or with pipe manufacturer's recommended joint compound for use with chlorine solutions.

3. EXECUTION

3.1. INSTALLATION

A. Alignment and Grade. Lay and maintain all pipe at the established lines and grades. Install fittings, valves, air vents, and hydrants at the required locations with valve and hydrant stems level or as shown on the Drawings.

B. Trench Construction

1. Stockpiling Excavated Material. Stockpile all excavated material in a manner that will not endanger the work or obstruct sidewalks and driveways. Hydrants under pressure, valve-pit covers, valve boxes, curb-stop boxes, fire and police call boxes, and other utility controls shall be kept accessible.

2. Trench Depth. Provide minimum of 48-inches of cover in traffic areas and 30-inches of cover in non-traffic areas, unless noted otherwise.

3. Trench Width. Trench width at the ground surface may vary depending on depth, type of soil, and position of surface structures.

    a. For construction with a backhoe or trencher the minimum clear width of the trench, sheeted or unsheeted, measured at the springline of the pipe shall be 12-inches of clear space on each side of the pipe or as shown on the Drawings. If the maximum recommended trench width must be exceeded or if the pipe is installed in a compacted embankment, then pipe embedment shall be compacted to a point of at least 2 1/2 pipe diameters from the pipe on both sides of the pipe or to the trench walls, whichever is less.

    b. Quantities of crushed stone embedment in rock trenches shall be based upon the actual width of trench, not to exceed 2 feet plus the pipe outside diameter, unless authorized by the Engineer.

C. Dewatering. Where conditions are such that running or standing water occurs in the trench bottom or the soil in the trench bottom displays a "quick" tendency, remove the water by pumps and other suitable means (such as well points or pervious underdrain bedding) until the pipe has been installed and the backfill has been placed to a sufficient height to prevent flotation of pipe.

D. Preparation of Trench Bottom. Construct the trench bottom to provide a firm, stable, and uniform support for the full length of the pipe. Provide bell holes at each joint to permit proper assembly and pipe support. Backfill to grade any part of the trench bottom excavated below grade and compact as required to provide firm pipe support. When an unstable subgrade condition is encountered that could provide inadequate pipe support, additional trench depth shall be excavated and refilled with suitable foundation material. Remove ledge rock, boulders, and large stones to provide 6-inches of cushion on all sides of the pipe and accessories.

E. Laying of Pipe. To prevent damage, use proper implements, tools, and equipment for placement of the pipe in the trench. Under no circumstances shall pipe or accessories be dropped into the trench. Remove all foreign matter or dirt from the pipe interior. Assemble pipe joints with care. When pipe laying is not in progress, open ends of installed pipe shall be closed to prevent entrance of trench water, dirt, foreign matter, or small animals into the pipeline.

F. Pipe Embedment and Backfill

    a. Install PVC pipe with embedment and backfill in accordance with details and descriptions as shown in the Drawings. If the Drawings do not describe embedment and backfill requirements, comply with the following:

        1. Native Earth Embedment: PVC pipe shall be installed with #67 crushed stone providing uniform longitudinal support under the pipe. Work backfill material under the sides of the pipe to provide satisfactory haunching. Initial backfill material shall be crushed stone and placed to a minimum depth of 12 inches over the top of the pipe as shown on the Drawings. Carefully select and place all pipe embedment material. Exclude from the embedment material sharp stones and crushed rock (larger than 3/4 inch) which could cause significant scratching or abrasion of the pipe. Compact bedding and initial backfill to a minimum of 90 percent standard proctor.

2. Rock Trench Embedment: In areas having rock trenches, PVC pipe shall be installed with # 67 crushed stone providing uniform longitudinal support under the pipe. Work backfill material under the sides of the pipe to provide satisfactory haunching. Initial backfill material shall be crushed stone and placed to a minimum depth of 12 inches over the top of the pipe as shown on the Drawings. Carefully select and place all pipe embedment material. Exclude from the embedment material sharp stones and crushed rock (larger than 3/4 inch) which could cause significant scratching or abrasion of the pipe. Compact bedding and initial backfill to a minimum of 90 percent standard proctor.

3. Final Backfill: After placement and compaction of pipe embedment materials and initial backfill, the balance of backfill materials may be machined placed. The material shall contain no large stones or rocks, frozen material or debris. Exercise proper compaction procedures to provide required 90 percent density, standard proctor. Final backfill shall be # 67 crushed stone in improved areas and common earth in unimproved areas.

4. Select tailings form a rock trencher shall only be used as approved by the Engineer.

C. Furnish a full-face resilient gasket when a joint consists of a PVC flange and a flat-faced metal flange.

D. Install PVC valves with the flow arrow in the proper direction. Union nuts on PVC valves shall be tightened only hand tight in accordance with manufacturer's instructions. Furnish spare o-ring seals and seats with each PVC valve.

E. Service line taps into PVC pipe shall be made using tapping saddle constructed for use on PVC pipe. Saddles shall be constructed of epoxy coated ductile iron, Ford FC202 or equal and have all stainless-steel bolts or screws and a resilient rubber gasket to provide a positive, watertight seal, unless otherwise noted on the Drawings.

3.2. TESTING

A. All piping shall be hydrostatic tested to the rated pressure class of the pipe being tested, or 150 psi, whichever is less.

Procedure	Pressure	Test Duration (hours)
Simultaneous Pressure and Leaking Tests	150% of working pressure at point of test, but not less than 125% of normal working pressure at highest elevation	2
Separate Pressure Test	150% of working pressure at point of test, but not less than 125% of normal working pressure at highest elevation	1
Separate Leakage Test	150% of normal average working pressure of segmented test	2

Source: Recommended Standard for the Installation of Polyvinyl Chloride (PVC) Pressure Pipe, UNI-B-3, Uni-Bell Plastic Pipe Association.

B. Buried Pipe

2. To prevent floating of the pipe, place sufficient backfill prior to filling pipe with water and subsequent field testing. Where local conditions require that the trenches be backfilled immediately after the pipe has been laid, the testing may be performed after backfilling has been completed, but before placement of permanent surface.
3. At least seven days shall elapse after the last concrete thrust or reaction blocking, if used, has been cast with normal (Type I) portland cement. The elapsed time may be reduced to three days with the use of a high-early-strength (Type III) portland cement. It is suggested that testing be conducted first on short lengths of installed pipeline, thereby permitting the installer to verify that proper installation and joint assembly techniques have been employed.

C. Procedure. The following procedure is based on the assumption that the pressure and leakage tests will be performed at the same time. Separate tests may be made if desired, in which case the pressure test shall be performed first. Apply the specified test pressure by means of a pump connected to the pipe. Maintain the test pressure for the specified time (by additional pumping if necessary). While the line is under pressure, carefully examine the system and all exposed pipe, fittings, valves, and hydrants for leakage. Repair or replace all defective elements and repeat the test until all visible leakage has been stopped and the allowable leakage requirements have been met.

1. Test Method. The installer may perform simultaneous pressure and leakage tests, or he may perform separate pressure and leakage tests on the installed system at test durations and pressures specified below.
4. Allowable Leakage

a. The duration of each leakage test shall be 2 hours, unless otherwise specified, and during the test the main shall be subjected to the pressure required in the following table.

ALLOWABLE LEAKAGE FOR AWWA PVC PIPE
Average Test Pressure in Line (psi)
(Allowable Leakage per 1,000 Feet or 50 Joints [gal/hr])

Nominal Pipe Size (in)	50	100	150	200	250
4	0.19	0.27	0.33	0.38	0.43
6	0.29	0.41	0.50	0.57	0.64
8	0.38	0.54	0.66	0.76	0.85
10	0.48	0.68	0.83	0.96	1.07
12	0.57	0.81	0.99	1.15	1.28

b. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within 5 psi of the specified leakage test pressure after the pipe has been filled with water and the air in the pipeline has been expelled. No installation shall be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{ND\sqrt{P}}{7400}$$

Where:

L = allowable leakage, gph
N = number of joints in the length of pipeline tested
D = nominal diameter of the pipe, inch
P = average test pressure during the leakage test, psig

c. Leakage values determined by the above formula are to be found in the preceding table.

D. Take all precautions necessary to protect any equipment that might be damaged by the pressures used in the tests. Delicate equipment shall be valved off, removed, or otherwise protected.

E. Securely anchor and restrain all piping against movement prior to application of test pressures. All joints, fittings, and valves will be left open where possible. Carefully examine all exposed pipe, fittings, valves, and joints during the pressure test.

F. Expel all air from piping before applying the specified test pressure. If hydrants, blowoffs, or air release valves are not available at the high places, make the necessary taps at points of highest elevation before the test is made and insert plugs after the test has been completed

G. Excessive leakage developing during the test shall be corrected at the Contractor's expense. If the defective portion cannot be located, the Contractor, at his expense, shall remove and reconstruct as much of the original work as necessary to obtain a facility meeting the specified leakage limits.

H. Contractor shall bear the complete cost of the tests, including set-up, labor, temporary piping, blocking, gauges, bulkheads, water, air, soap solutions, and any other materials required to conduct the tests.

I. All pipe used for gaseous chlorine shall be tested with ammonia solution as recommended by the manufacturer of the chlorination equipment.

3.3. CLEANUP

A. After completing each section of the sewer line, remove all debris and construction materials and equipment from the site of the work, grade and smooth over the surface of both sides of the line, and leave the entire right-of-way in a clean and neat condition. Unless otherwise called for on the Drawings, restore all disturbed areas to as close to its original condition as possible. Restoration shall include, but not be limited to, grassing and replacing of shrubbery, trees, fences, and other improvements which have been disturbed.

B. Complete cleanup and restoration as soon as practical but in no case later than 30 calendar days after each section of line is installed.

END OF SECTION

SECTION 33 1113.24
HIGH DENSITY POLYETHYLENE PIPE FOR PRESSURE APPLICATIONS

1. GENERAL

1.1 SUMMARY

A. This section includes furnishing all labor, materials, equipment to install high density polyethylene (HDPE) pipe and fittings as shown on the Drawings and/or as specified herein.

1.2 QUALIFICATIONS

A. All HDPE pipe and fittings shall be furnished by a single manufacturer who is fully experienced, reputable, and qualified in the manufacture of the items to be furnished. The equipment shall be designed, constructed, and installed in accordance with ASTM methods and shall comply with these Specifications.

1.3 SUBMITTAL

A. Shop drawings shall be submitted to the Engineer for approval in accordance with Section 01 3323: Shop Drawings, Product Data, and Samples, and shall include dimensioning and technical specification for all piping to be furnished.

B. Submit samples of all materials specified herein to the Engineer for approval when requested.

1.4 PIPE MARKING

A. All HDPE pipe shall be marked with the following information:

1. Manufacturer's name or trademark.
2. Nominal pipe size and OD base.
3. ASTM material code designation.
4. Dimension ratio (DR).
5. Type, Class, and Grade.

1.5 RECEIVING, HANDLING, AND STORAGE

A. Care shall be taken during transportation of the pipe that it is not cut, kinked or otherwise damaged.

B. Ropes, fabric, or rubber protected slings and straps shall be used when handling pipes.

C. Chains, cables, or hooks inserted into the pipe ends shall not be used.

D. Two slings spread apart shall be used for lifting each length of pipe. Pipe or fittings shall not be dropped onto rocky or unprepared ground.

E. The handling of the joined pipeline shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects.

F. Slings for handling the pipeline shall not be positioned at butt fused joints.

G. Sections of the pipes with cuts and gouges shall be removed and the ends of the pipeline rejoined.

H. Pipes shall be stored on wooden sleepers, spaced suitably and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between the supports.

I. Stacking of the polyethylene pipes shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperatures conditions.

2. PRODUCTS

2.1 MATERIALS

A. The pipe and fittings supplied under this Specification shall be high performance, high molecular weight, high density polyethylene pipe as manufactured in accordance with AWWA C906 for sizes 4-inch through 24-inch and in conformance with ASTM D 3350-06.

B. The pipe material designation shall be PE4710. Minimum cell classification value of the pipe material shall be 445474C in conformance with ASTM D 3350.

C. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material.

D. The fittings and adapter supplied under this Specification shall be molded from a polyethylene compound having a cell classification equal to or exceeding the compound used in the pipe or shall be manufactured using a polyethylene compound having a cell classification equal to or exceeding the cell classification of the pipe supplied under this Specification. To ensure compatibility of polyethylene materials, all fittings supplied under this Specification shall be of the same manufacturer as the pipe being supplied.

2.2 PHYSICAL PROPERTIES OF PIPE COMPOUND

A. Density. The density shall be 0.947 - 0.955 gms/cm^3 when tested in accordance with ASTM D 1505.

B. Melt Flow. Melt flow shall be not greater than 0.15 gms/10 min. when tested in accordance with ASTM D 1238 - Condition E.

C. Flex Modulus. Flexural Modulus shall be 110,000 psi to less than 160,000 psi when tested in accordance with ASTM D 790.

D. Tensile Strength at Yield. Tensile strength at yield shall be 3,000 psi to less than 3,500 psi when tested in accordance with ASTM D 638.

E. ESCR. Environmental stress crack resistance shall be in excess of 5,000 hours with zero failures when tested in accordance with ASTM D 1693 - Condition C.

F. Hydrostatic Design Basis shall be 1,600 psi at 23°C when tested in accordance with ASTM D 2837.

2.3 PIPE SIZE

A. Pipe supplied under this specification shall have ductile iron pipe size (DIPS) outside diameter unless otherwise specified.

B. The dimension ratio (DR) of the pipe supplied shall be DR 13.5 or DR 17 as shown on the Drawings. Pipe specifications as provided in 00 4143 Bid Schedule shall take precedence over this paragraph.

2.4 CERTIFICATION

A. The Owner or the Engineer may request certified lab data to verify the physical properties of the materials supplied under this Specification or may take random samples and have them tested by an independent laboratory.

3. EXECUTION

3.1 INSTALLATION

A. Thermal Butt-Fusion Joints. Pipes shall be joined to one another, to polyethylene fittings, and to the flanged, mechanical, and plain end adapters by means of thermal butt-fusion. The butt fusion equipment used in the joining procedures shall be capable of meeting all conditions recommended by the pipe manufacturer and required by PPI including requirements relating temperature, alignment, and interfacial fusion pressure. Butt fusion joining shall produce a joint weld strength equal to or greater than the tensile strength of the pipe itself. Polyethylene pipe lengths, fittings, adapters, and flanged or mechanical connections to be joined by thermal-butt fusion shall be of the same type, grade, and class of polyethylene compound and supplied from the same raw material supplier. All butt-fusion joints shall be de-beaded inside and out.

B. Mechanical Joints (MJ). Connections to ductile iron fittings and valves shall be by a polyethylene MJ adapter, with stainless steel stiffeners, retaining glands, gaskets, and joint restraint for a complete installation. MJ hardware

shall be EBBA Iron, or Engineer approved equal. Glands, material assembly and bolting shall be in accordance with ANSI A21.11 (AWWA C111); full face rubber gasket shall be included in the kit.

C. Plain End (PE). Plain end connections of the polyethylene pipe to ductile iron or PVC pipe shall be restrained by adapters, including HDPE bell fittings as required. Adapters shall include a stainless-steel stiffeners (in both HDPE and PVC pipes), extended T-bolts, retaining glands, and gaskets for a complete installation. Hardware shall be EBBA Iron, or Engineer approved equal. Glands, material assembly and bolting shall be in accordance with ANSI A21.11 (AWWA C111); full-face rubber gasket shall be included in the kit.

D. Polyethylene wall anchor fittings and concrete anchors shall be utilized as shown on the Drawings and at all pipe material transitions, fittings, and valves.

E. Flanged Joints. Connections of the polyethylene pipe to flanged accessories, other flanged piping systems, or flanged equipment shall be through flanged connections consisting of the following:

1. A polyethylene flanged connection thermally butt-fused to the end(s) of the pipe.

2. A stainless steel back-up flange shall be sized to ANSI B16.1 outside diameter and drilling pattern.

3. Bolts and nuts shall be high strength, low –alloy steel having a minimum yield point strength of 40,000 psi and an ultimate tensile strength of 70,000 psi.

4. Full face rubber gaskets shall conform to AWWA C111.

5. Flange adapters utilized for ductile iron and PVC piping shall not be utilized.

F. All HDPE piping shall be adequately supported, anchored, and restrained.

3.2 TRENCHING AND BACKFILL

A. Locate pipe as per the line and grade shown on the Drawings.

B. Grade trench bottom to provide smooth, firm, stable, and rock-free foundation throughout the length of the pipe.

C. Provide bedding and backfill as shown on Drawings or as Specified herein.

D. Install tracer wire in the bottom of ditch, while locating tape will be a maximum of 12 inches from top of finished grade. Sections of tracer wire shall be joined using splice kits and all joints shall be wrapped to prevent corrosion. Tracer

wire shall be brought, with ample slack, into valve boxes, clean out boxes, and vacuum/air relief boxes.

E. Install pipe according to manufacturer's instructions.

F. Lift and roll pipe into position. Do not drag or drop pipe over prepared bedding.

G. Install backfill at sides and over top of pipe as shown on Drawings.

3.3 INSPECTION

A. Inspect the pipe for defects before installation and fusion. Defective, damaged or unsound pipe shall be rejected.

B. Inspect each joint after fusion.

3.4 TESTING

A. Leak Testing. Hydrostatic leak testing shall be conducted in accordance with ASTM F 2164, "Field Leak Testing of PE Pressure Piping Systems Using Hydrostatic Pressure." Test pressure shall be as indicated on the Drawings or shall be 150 psi if not noted.

B. Expel all air from piping before applying the specified test pressure. If hydrants, blow-offs, or air release valves are not available at the high places, make the necessary taps at points of highest elevation before the test is made and insert plugs after the test has been completed.

C. Excessive leakage developing during the test shall be corrected at the Contractor's expense. If the defective portion cannot be located, the Contractor, at his expense, shall remove and reconstruct as much of the original work as necessary to obtain a facility meeting the specified leakage limits.

D. Contractor shall bear the complete cost of the tests, including set-up, labor, temporary piping, blocking, gauges, bulkheads, water, air, soap solutions, and any other materials required to conduct the tests.

END OF SECTION

SECTION 33 1113.25

CROSSLINKED POLYETHYLENE PIPE

1. GENERAL

1.1. SCOPE OF WORK

A. Furnish all labor, materials, equipment and incidentals required and install crosslinked polyethylene (PEX) piping in the locations shown on the Drawings and as specified herein.

1.2. RELATED WORK

A. The following sections contain requirements that relate to this section:

1. Section 33 0523: Horizontal Directional Drilling
2. Section 33 1113.13: Ductile Iron Pipes and Fittings
3. Section 33 1113.23: PVC Pipe for Pressure Applications
4. Section 33 1113.24: HDPE Pipe for Pressure Applications

1.3. DESCRIPTION OF SYSTEM

A. Plastic pipe shall be used for pressure piping in water service lines.

B. Install piping in the locations shown on the Drawings.

1.4. QUALIFICATIONS

A. All PEX pipe shall be furnished by a single manufacturer who is fully experienced, reputable, and qualified in the manufacture of the items to be furnished. The equipment shall be designed, constructed, and installed in accordance with ASTM and AWWA methods and shall comply with these Specifications.

1.5. SUBMITTAL

A. Submit shop drawings to the Engineer for approval in accordance with these Specifications and include dimensioning and technical specification for all piping to be furnished.

B. Submit samples of all materials specified herein to the Engineer for approval when requested.

1.6. PIPE MARKING

A. All PEX pipe shall be marked with the following information:

1. Manufacturer's name or trademark.
2. Nominal pipe size and OD base.

3. AWWA or ASTM material code designation (AWWA C904, ASTM F 876, ASTM F 877).
4. Dimension ratio.
5. NSF
6. AWWA pressure class.

1.7. RECEIVING, HANDLING, AND STORAGE

A. Receive, handle, and store PVC pipe in accordance with manufacturer's recommendations. All PEX pipe shall be covered with an opaque material.

1.8. REFERENCES

A. ASTM F876 – Standard Specification for Crosslinked Polyethylene (PEX) Tubing

B. ASTM F2023 – Standard Test Method for Evaluating the Oxidative Resistance of Crosslinked Polyethylene (PEX) Tubing and Systems to Hot Chlorinated Water

C. ASTM F2080 – Standard Specification for Cold-Expansion Fittings with Metal Compression-Sleeves for Crosslinked Polyethylene (PEX) Pipe

D. ASTM F2657 - Standard Test Method for Outdoor Weathering Exposure of Crosslinked Polyethylene (PEX) Tubing

E. AWWA C904 – Crosslinked Polyethylene (PEX) Pressure Pipe, 1/2 in. (12 mm) Through 3 in. (76 mm), for Water Service

F. AWWA C800 – Underground Service Line Valves and Fittings

G. NSF/ANSI 14 – Plastic Piping System Components and Related Materials

H. NSF/ANSI 61 – Drinking Water System Components – Health Effects

2. PRODUCTS

2.1. MATERIALS

A. All pipe shall be high-density crosslinked polyethylene manufactured using the high-pressure peroxide method of crosslinking (PEXa). Pipe shall conform to AWWA C904, ASTM F876, ASTM F877, NSF/ANSI 14, and NSF/ANSI 61. Pipe shall be provided as shown on the Drawings and specified herein.

B. Pipe shall be SDR9 and rated for continuous operation of 200 psi at 73° F and 100 psi at 180° F.

C. Pipe to be manufactured using a high-pressure peroxide method with a minimum degree of crosslinking of 70-89% when tested in accordance with ASTM D2765, Method B.

D. Pipe to be tested for resistance to hot chlorinated water in accordance with ASTM F2023. Pipe to have a minimum extrapolated time-to-failure of 50 years, calculated in accordance with section 13.3 of F2023 and listed as "3306" per the ASTM F876 standard.

E. Pipe to be manufactured in an ISO 9001 certified production facility.

F. Bend Radius:

1. The minimum bend radius for cold bending of the pipe shall not be less than five (5) times the outside diameter.
2. Bends with a radius less than this shall require the use of a bending template as supplied by the pipe manufacturer or hot air.

G. Pipe to have a co-extruded UV Shield made from UV-resistant polyethylene. Pipe to have minimum recommended UV exposure time of 12 months when tested in accordance with ASTM F2657 and evaluated in accordance with ASTM F876.

H. Compression joint fittings shall be manufactured in accordance with AWWA C800. Fittings must meet the pressure requirements of the PEX pipe at 73°F (23°C) when used with stainless steel or plastic inserts.

I. Cold-expansion compression-sleeve fittings shall be in accordance with ASTM F2080.

J. Pipe color shall be blue.

3. EXECUTION

3.1. INSTALLATION

A. Install in accordance with manufacturer's published installation manual and/or published guidelines and final shop drawings. At connections and fittings, use a plastic pipe cutter to ensure square (90°) and clean cuts, and join pipes immediately or cap ends of pipe to seal from contaminants.

B. Service pipe shall not be installed by open cut except in unimproved locations with Engineer approval.

1. Bores shall be adequate to accommodate the pipe without causing an excessive void around the pipe. The face of the bore shall be a distance of five feet from the edge of pavement or back of curb on either side of the roadway unless approved by the Engineer.

C. Construction

1. Stockpiling Excavated Material. Stockpile all excavated material in a manner that will not endanger the work or obstruct sidewalks and driveways. Hydrants under pressure, valve-pit covers, valve boxes, curb-stop boxes, fire and police call boxes, and other utility controls shall be kept accessible.
2. Pipe Depth. Provide minimum of 24 inches of cover in traffic areas and 18 inches of cover in non-traffic areas.
3. Preparation of Trench Bottom. Construct the trench bottom to provide a firm, stable, and uniform support for the full length of the pipe. Backfill to grade any part of the trench bottom excavated below grade and compact as required to

provide firm pipe support. When an unstable subgrade condition is encountered that could provide inadequate pipe support, additional trench depth shall be excavated and refilled with suitable foundation material. Remove ledge rock, boulders, and large stones to provide 6-inches of cushion on all sides of the pipe and accessories.

4. Laying of Pipe. To prevent damage, use proper implements, tools, and equipment for placement of the pipe in the trench. Under no circumstances shall pipe or accessories be dropped into the trench. Remove all foreign matter or dirt from the pipe interior. Assemble pipe joints with care. When pipe laying is not in progress, open ends of installed pipe shall be closed to prevent entrance of trench water, dirt, foreign matter, or small animals into the pipeline.

D. Taps shall only be made after the water main is under pressure. No taps on dry mains will be allowed unless approved by the Engineer. Taps shall be on an angle of 45 degrees to a perpendicular through the centerline of the pipe.

E. Water service lines shall be flushed immediately after it has been installed. Follow specified disinfection requirements.

3.2. CLEANUP

A. After completing each service connection, remove all debris and construction materials and equipment from the site of the work, grade and smooth over the surface of both sides of the line, and leave the entire right-of-way in a clean and neat condition. Unless otherwise called for on the Drawings, restore all disturbed areas to as close to its original condition as possible. Restoration shall include, but not be limited to, seed and straw and replacing of shrubbery, trees, fences, and other improvements which have been disturbed.

B. Complete cleanup and restoration as soon as practical but in no case later than 10 calendar days after each section of line is installed.

END OF SECTION

SECTION 33 1216

VALVES

1 GENERAL

1.1 SCOPE

A. The work covered by this section includes furnishing all labor, equipment, and materials required to furnish and install all metal valves, including operators, boxes, and accessories, as specified herein, shown on the Drawings, or required for proper completion of the work under these Contract Documents.

B. The Contractor's attention is called to the fact that all valves, especially in the smaller sizes, are not necessarily shown completely on the Drawings, which are more or less schematic. Furnish and install all valves indicated or required for proper operation of the equipment or services requiring such valves.

1.2 SHOP DRAWINGS AND ENGINEERING DATA

A. Submit complete shop drawings and engineering data to the Engineer in accordance with the requirements of Section 01 3323 - Shop Drawings, Product Data and Samples.

1.3 STORAGE AND PROTECTION

A. Store and protect valves and accessories in accordance with the requirements of the valve manufacturer or as directed by the Engineer.

B. Completely drain valves prior to shipment. Protect ends of flanged and mechanical joint valves with full size wooden baffles securely bolted to the valve ends. Size of baffles shall be at least equal to outside diameter of flange. Secure valves 24 inches in size and larger to a wooden skid to facilitate handling and storage.

1.4 SHOP PAINTING

A. Clean, shop prime, and shop paint valves and accessories in accordance with the requirements of these Specifications.

B. All interior and exterior nonmachined, nonbearing ferrous surfaces on iron body valves, gates, and accessories shall be blast cleaned and painted at the factory with two coats of asphaltic varnish conforming to Federal Specification TT-V-51c, unless otherwise specified. Exterior nonmachined, nonbearing ferrous surfaces on valve operators and on nonsubmerged or nonburied butterfly and eccentric plug valves shall be blast cleaned and painted at the factory with one coat of zinc chromate primer conforming to Federal Specification TT-P-645 and one coat of compatible alkyd enamel. Other paint systems may be proposed by the valve supplier, subject to the Engineer's approval.

1.5 OPERATION AND MAINTENANCE DATA

A. Submit complete operation and maintenance data on the valves in accordance with the requirements of Section 01 7823, Operating and Maintenance Data.

1.6 QUALITY ASSURANCE

A. The valve manufacturers shall furnish a written certification to the Engineer that all valves and operators furnished comply with all applicable requirements of the governing AWWA standards specified herein.

1.7 GUARANTEE

A. Provide a guarantee against defective equipment and workmanship in accordance with the requirements of Section 01 7836, Warranties and Bonds.

2 PRODUCTS

2.1 GENERAL

A. All castings, regardless of material, shall be free from surface defects, swells, lumps, blisters, sandholes, or other imperfections.

B. All valves shall have the name of the manufacturer, rated working pressure, and size of the valve cast upon the body or bonnet in raised letters. Alternately, the name of the valve manufacturer, rated working pressure, and size may be stamped on a stainless steel identification plate permanently attached to the valve body or bonnet. Valves specified to conform with AWWA requirements shall have the letters "AWWA" cast upon the valve body or bonnet in raised letters.

C. Valves and operating mechanisms shall be of the proper size and dimensions to fit the pipe connections thereto and shall be installed in the position and within the space shown on the Drawings.

D. The direction of rotation of the operator to open the valve shall be to the left (counterclockwise), unless otherwise specified. Each valve body or operator shall have cast thereon the word OPEN and an arrow indicating the direction to open.

E. A union or coupling shall be provided within 2 feet on each side of a threaded end valve unless the valve can be otherwise easily removed from the piping. This shall not apply to soldered end valves in copper plumbing.

F. All exposed bolts and nuts on buried or submerged valves and operators shall be brass or stainless steel for corrosion resistance. Exposed bolts and nuts on exposed valves and operators shall be of corrosion-resistant materials or shall be zinc or cadmium plated.

G. Valves and operators shall be of the proper size to fit the pipe connections and shall fit in the position and space as shown on the Drawings.

H. Valve operators shall be of sufficient size and capacity to seat, unseat, and operate the valve under the maximum specified differential pressure. Where no maximum differential pressure is specified, the operator shall be designed for a differential pressure equal to the maximum working pressure of the valve. Additional allowances shall be made for the lubricating and/or scale-forming tendencies of the fluid.

2.2 GATE VALVES

A. All gate valves smaller than 2-inches and those larger than 24-inches shall be of the single disc, double sealed, solid tapered wedge type, unless otherwise specified. Gate valves in sizes 2 through 24-inches shall be of the single disc, resilient seated type, unless otherwise specified. Valves shall have non-rising stems and be capable of being repacked under pressure when valve is fully open. Minimum working pressures shall be 200 psi for valves through 14-inches in size and 150 psi for valves 16-inches and larger.

B. Gate valves smaller than 2-inches shall be bronze body, bronze fitted valves, and have 150-pound, cast bronze body, union bonnet, PTFE-impregnated asbestos packing, and threaded ends per ANSI B2.1. Bronze shall conform to ASTM B62. Brass for nuts and gland shall conform to ASTM V16. Valve discs shall be reversible. For use in copper plumbing, furnish gate valves with solder ends per ANSI B16.18.

C. Gate valves larger than 24-inches in water and wastewater shall be iron body, bronze mounted valves conforming in all respects to the applicable material and dimensional requirements of AWWA C500. Gate valves shall have an 0-ring or self-adjusting chevron packing stem seal, and 125-pound flanged ends per ANSI B16.1, except for valves to be buried underground, which shall have mechanical joint ends per ANSI A21.11 (AWWA C111). Body seat rings shall be ASTM B62 bronze and be screwed into the body so as to be field replaceable. Disc faces and all moving parts shall be bronze or bronze mounted. Cast iron for body and bonnet shall conform to ASTM A126, Grade B.

D. Gate valves in sizes 2 through 24-inches for use in water and wastewater shall be of the ductile iron body, resilient seated type, manufactured in conformance with AWWA C509. Gate shall be of ductile iron with bonded resilient seat and integral flush drain. Minimum working pressure shall be 200 psi when unbalanced pressure is applied to either side of the gate. Gate valves shall have a minimum of two 0-ring stem seals; one above and one below the integral stem collar. The area between the 0-rings shall be filled with permanent lubricant. Valve shall have no metal fasteners or screws exposed in the wetted portion of the valve. All ferrous surfaces shall be shot-blasted to a white metal finish. All interior and exterior valve surfaces, including the interior of the gate and all bolt holes shall be coated with an epoxy coating in accordance with AWWA C550. The minimum thickness of the coating shall be 8 mils. Valve ends shall be of the type required for the installation as specified herein or shown on the Drawings and meet the requirements as specified in Paragraph C of this section.

E. Gate valves 3-inches in size and larger in steam service shall have 125-pound cast iron body, bronze trim, and outside stem and yoke.

F. Furnish gate valves with nut, wrench, chain, or handwheel operators as shown on the Drawings. Unless otherwise shown or specified, valves shall have operators as specified in this section. Extension stems, floor stands, and valve boxes and covers shall be furnished where shown or required.

G. Resilient wedge valves for buried service 16-inch diameter and larger shall have bevel gear operators, unless otherwise noted.

2.3 BUTTERFLY VALVES

A. Unless otherwise shown or specified, butterfly valves shall be of the resilient seated, tight-closing type and conform in all respects to the applicable material and dimensional requirements of AWWA C504. Wafer-type butterfly valves in sizes 24-inches and larger shall conform to all general requirements of AWWA C504 except laying length. Butterfly valves shall operate from fully open to fully closed with a 90-degree rotation of the valve stem.

B. Valves shall be designed for the working pressures and/or pressure class designations shown on the Drawings or specified in these Specifications. If a working pressure or pressure rating is not given, the following requirements shall apply:

Service	AWWA Pressure Rating
Low Pressure Air	25B
Wastewater or Sludge	150B
Potable or Plant Water	150B

C. Wafer type valves shall have a pressure rating of not less than 150 psi. Valves shall be drip-tight and bubble-tight at rated pressure differential across the valve in both directions.

D. Valve body shall be one-piece, constructed of cast iron conforming to ASTM A126, Class B. The diameter of the opening shall be not less than the diameter of the corresponding pipe size. Unless otherwise specified, valve body shall be of the short- body style in accordance with Table 2 of AWWA C504. This requirement shall not apply to wafer type valves. No part of the valve internals shall extend beyond the valve ends when the valve is in the closed position. Short-body valves shall have 125-pound flanged ends per ANSI B16.1. Wafer type valves shall be designed to fit between 125- pound flanges per ANSI B16.1.

E. Disc shall be cast bronze conforming to ASTM B143, Alloy 1A, cast iron conforming to ASTM A126, Class B, Ni-Resist cast iron conforming to ASTM A436, Type 1 or 2, or Ni-resist ductile iron conforming to ASTM A439, Type D2. When used in wastewater or raw water, disc shall be streamlined with no exterior ribbing or openings.

F. Shafts shall be polished stainless steel conforming to ASTM A276, Type 304 or Type 316. All keys and pins used in securing valve disc to shafts shall be stainless steel or monel.

G. Valve seat shall be one-piece, molded synthetic rubber, Buna-N (Hycar) for wastewater and Buna-N or neoprene for air. Where temperatures exceed 180°F, EPT or Viton seats shall be used. Retaining rings, if used, shall be stainless steel. The method of mounting valve seat shall conform to the applicable requirements of AWWA C504, Section 3.5. Valve seats in sizes 24-inches and larger shall be field replaceable without necessity of chipping, burning, or cutting. Seats secured with retaining rings shall be fully adjustable. Metal seat mating surfaces shall be smoothly contoured and polished 18-8 stainless steel or monel. Alloy cast iron will not be acceptable as a seat mating surface. Sprayed or plated seat mating surfaces will not be acceptable.

H. Shaft seals shall be 0-ring or self-adjusting chevron packing of Buna-N or neoprene. Shaft seals shall conform to the requirements of AWWA C504, Section 3.7, and shall be of a design that allows replacement of the seal without removing the valve shaft. Alternately, pull-down packing is acceptable if the packing is adjustable and replaceable without removing valve operator.

I. Valve bearings shall be self-lubricating, sleeve-type bearings of corrosion resistant materials. Bearing load shall not exceed 2,500 psi. Provide valves 24-inches in size and larger with an adjustable, two-way thrust bearing to center the disc in the valve and allow the valve to be installed with the valve stem vertical. Bearing shall be easily accessible for adjustment.

J. Where the valve is installed adjacent to a fitting, flow meter, another valve, or similar items, furnish a spool piece or adaptor coupling as a spacer so that valve disc does not interfere with the operation of the adjacent meter or valve or contact cement linings on pipe or fittings.

K. Furnish valve with a lever operator, rotary manual operator, electric motor operator, or pneumatic cylinder operator as shown on the Drawings. Unless otherwise shown or specified, furnish a lever operator on valves 6-inches and smaller and a rotary manual operator on valves 8-inches and larger. Furnish extension stem and floorstand where shown or required.

L. Butterfly valves for drinking water service shall be coated interior and exterior with 10 mils, minimum, of TNEMEC Potapox 20, fully compliant with AWWA C550.

M. Butterfly valves shall be as manufactured by Dezurik, Pratt, Golden Anderson, or Engineer approved equal.

2.4 TWO-WAY PLUG VALVES

A. Two-way plug valves, unless otherwise shown or specified, shall be of the eccentric, non-lubricated type with resilient, neoprene-faced or epoxy-coated plugs providing drip-tight shut-off at rated pressure. Port area shall not be less than 100 percent of the corresponding full pipe area in sizes 16- inches and smaller and 100 percent of the corresponding full pipe area in valves 18- inches and larger. Two-way valves shall operate from fully open to fully closed with a 90-degree rotation of the valve stem.

B. Valves shall be designed for a working pressure of not less than 175 psi in sizes through 16-inches and 150 psi in sizes 18-inches and larger. Valves shall be drip-tight at rated pressure differential in both directions.

C. Valves shall have bodies of ASTM A126, Grade B or ASTM A48, Grade 40 cast iron. Valves 4-inches and larger in size shall have bolted bonnet.

D. Body seats for resilient-faced plugs shall be welded in and contain a minimum of 90 percent nickel. Welded-in seats shall conform to the applicable requirements of AWWA C507, Section 3.2 and AWWA C504, Section 3.5.

E. Plugs without a resilient coating or facing shall be epoxy coated and shall have a field replaceable, full-circle rubber seat securely attached to the plug. Body seats shall be nylon coated.

F. Shaft seal shall be of the self-adjusting or split-V type of Buna-N and shall comply with the applicable requirements of AWWA C504, Section 3.7 and AWWA C507, Section 3.2. Seals requiring adjustment shall be adjustable and replaceable without bonnet or shaft removal.

G. Supply bearings in both the upper and lower journals. Bearings shall be permanently lubricated and replaceable with stainless steel, bronze, or specially coated corrosion resistant sleeves and bushings. Bearings shall conform to the applicable requirements of AWWA C504, Section 9 and AWWA C507, Section 8.

H. Valves sized 2 1/2-inches and smaller shall have threaded ends per ANSI B2.1. End connections for valves sized 3-inches and larger shall be 125-pound flanged per ANSI B16.1, except for valves to be buried underground, which shall have mechanical joint ends per ANSI A21.11 (AWWA C111). Flanged end valves in sizes 12-inches and smaller shall have a laying length equal to that of an AWWA gate valve of the same size.

I. Valves intended for buried or submerged service shall be sealed against the entrance of water and dirt.

J. Furnish valves with a lever operator, rotary manual operator, or electric motor operator as shown on the Drawings. Unless otherwise shown or specified, a lever operator shall be furnished on valves 6-inches and smaller, and a rotary manual operator with handwheel shall be furnished on valves 8-inches and larger. Extension stem, floorstand, and valve box shall be furnished where shown or required.

K. Two-way plug valves shall be DeZurik, Golden Anderson, or Engineer approved equal.

2.5 CURB STOPS AND CORPORATION STOPS

A. Curb stops shall be of all-bronze construction with straight-through unobstructed pattern flow, PTFE-coated plug, top and bottom 0-ring plug seals, 0-ring port seals, and solid tee handle. Valves shall be suitable for 175 psi minimum working pressure. A quarter turn shall operate the valve from fully open to fully

closed position. Valves shall comply with the applicable requirements of AWWA C800.

B. Furnish curb stops with cast iron foot pieces to permit the curb box to rest on a solid surface without bearing on the curb stop or piping.

C. Curb boxes shall be of cast iron, have a 2-inch inside diameter, and be of the extension type with lid and plug. One compatible steel shut-off rod of suitable length shall be furnished. Coat curb boxes and bases with a suitable bituminous coating.

D. Corporation stops for service line connections shall be precision fitted, individually lapped, ground joint key stops of all bronze construction. For tapped connections to water mains, inlet threads shall be of the steep taper, corporation stop type. Corporation stops shall conform to the applicable requirements of AWWA C800.

2.6 AIR RELEASE VALVES

A. Air release valves shall have nylon or stainless steel body and cover, stainless steel float, stainless steel or bronze trim, and Buna-N seat. All other attaching parts or internal parts shall be stainless steel.

B. Valve shall be designed for a working pressure of 0 to 150 psi unless otherwise shown or specified and shall be equipped with an orifice appropriate to the venting needs of the pipeline.

C. Sewage valves shall be equipped with an elongated body, a 2-inch NPT inlet connection, and a 1/2-inch NPT outlet connection and shall be provided with 2-inch inlet shut-off valve, 1-inch blow-off valve, and 1/2-inch back-flush valve with quick-disconnect coupling and flushing hose with quick-disconnect connections.

D. Air release valves shall be installed in valve pit, complete with tapping saddle and connecting line to main, gate valve, etc., and at the location(s) shown on the Drawings. Valves 2- inches and smaller shall have NPT screwed inlet. Combination air vacuum/air release valves shall be ARI, or Engineer approved equal.

2.7 PRESSURE REDUCING VALVES FOR WATER

A. Pressure reducing valves shall automatically reduce a higher inlet pressure to a preset, steady outlet pressure. The reducing valve shall be very sensitive to slight pressure changes and immediately control the main valve to maintain the desired pressure. Valve outlet pressure shall be adjustable between 3 and 30 psi.

B. The main valve shall be direct acting, single seated, spring-loaded, diaphragm-actuated, globe type valve. When the downstream pressure exceeds the pressure setting, the main valve shall close drip-tight. Piston actuators will not be acceptable. Main valve shall be guided at two locations. No external packing glands shall be used and the diaphragm shall not be used as a seating surface.

C. Pressure reducing valves sized 2-inches and smaller shall have cast bronze body; stainless steel seat ring; PTFE, Buna-N, or composition disc and diaphragm; and outside screw adjustment. Valves shall be suitable for 230-psi inlet pressure. Valves shall be furnished with threaded ends per ANSI B2.1.

D. Pressure reducing valves 3-inches and larger shall have cast iron body, bronze trim, bolted cover, and pilot-controlled main valve. The pilot control system shall be external, connected to the valve with union fittings. Pressure setting shall be adjustable by a single screw adjustment enclosed in a tamperproof housing. Valve shall be suitable for an inlet pressure of not less than 175 psi. Valves sized 2 1/2-inches shall have threaded ends per ANSI B2.1. Valves 3-inches and larger shall have 125-pound, flanged ends per ANSI B16.1. Valve body and cover shall be of cast iron conforming to ASTM A48. Valve trim and pilot control shall be of ASTM B61 or B62 bronze. Pilot control trim shall be stainless steel. Pilot valve shall be supplied with an integral strainer constructed of heavy and fine mesh monel screens to protect the pilot control system from foreign particles. Pilot-controlled valves shall be GA Industries Fig. 45-D, or Engineer approved equal.

E. A separate Y-pattern strainer with threaded or bolted cleanout shall be furnished and installed immediately upstream of each pressure reducing valve. Area through the screen shall be not less than 4 times the full pipe area. Strainers shall have a pressure rating not less than that of the protected pressure regulating valve.

F. A 2-inch pressure gauge with tee-head, bronze gauge cock shall be installed on the upstream and downstream side of each pressure regulating valve unit. Pressure gauges on the upstream side shall have a range of approximately 0 to 160 psi. Pressure gauges on the downstream side shall have a range of approximately 0 to 80 psi.

2.8 BALL VALVES

A. Ball valves shall be of the quarter turn type with full pipe size opening through the valve. Ball valves shall be suitable for a differential working pressure in either direction of not less than 400 psi.

B. Ball valves shall have a three-piece, bolted body designed to allow the interior portion of the valve to be removed without disturbing adjacent piping.

C. Unless otherwise specified or required, ball valves shall have brass body, self-aligning brass ball, blowout-proof brass stem, reinforced PTFE seats and seals, plastic-coated plated steel handle, and threaded ends per ANSI B2.1.

D. In stainless steel piping, or where specified, valve shall have a forged Type 316 stainless steel body, ball, and trim.

2.9 CHECK VALVES

A. Check valves shall be of the swing type suitable for use in either horizontal or vertical piping, unless otherwise shown or specified. Disc shall swing entirely clear of the path of flow when in the open position. All internal parts shall be readily accessible and easily replaced in the field.

B. Check valves in sizes 2 1/2-inches and smaller shall be Y-pattern, regrinding, bronze body, and bronze mounted valves. Valves shall have 200-pound cast bronze body, renewable bronze disc, screwed cap, and threaded ends per ANSI B2.1. Bronze for body and cap shall conform to ASTM B61. Brass nuts and pin shall conform to ASTM B16. Valves shall have a hinge bumper capable of preventing the valve from sticking in the open position and an arrow cast on the valve body to indicate direction of flow.

C. Check valves in sizes 3-inches and larger shall be iron body, bronze mounted valves conforming to AWWA C508, epoxy-coated inside and outside. Valves shall have 125-pound cast iron body, bolted and gasketed cover, stainless steel or bronze hinge pin, rubber faced, renewable, bronze or cast iron resilient disc, renewable bronze seat ring, outside lever and adjustable weight, and 125-pound flanged ends per ANSI B16.1. Cast iron for body and cap shall conform to ASTM A126, Grade B. Bronze for disc and seats shall conform to ASTM B584. Iron body check valves shall be Golden Anderson, or Engineer approved equal.

D. Valves shall be installed with pressure under the disc.

E. Check valves in air or gas piping sized 2 1/2-inches or smaller shall be bronze, swing type check valves conforming to the requirements of Item B above, except that the disc shall have a replaceable, resilient seat of Buna-N or PTFE. Bronze check valves for air or gas service shall be Nibco Fig. T-453-W, Kennedy Fig. 442, or equal.

F. Check valves in air or gas piping sized 3-inches and larger shall be of the double plate, spring-loaded, clapper type with cast iron body, aluminum, bronze or bronze plates, stainless steel hinge pin and springs, and Buna-N seats. When operating temperatures exceed 180°F, Viton seats shall be used. Check valves shall be wafer style bodies suitable for mounting between two 125-pound ANSI B16.1 flanges. Check valves shall be rated for a working pressure of not less than 150 psi. Install clapper style check valves in horizontal piping with the pin in a vertical position.

2.10 HOSE BIBBS

A. Hose bibbs shall be angle hose valves of bronze construction suitable for 125 psi minimum working pressure. Valves shall have a renewable PTFE or resilient disc and shall be furnished with a 3/4-inch male hose outlet connection. Body and bonnet shall be ASTM B62 bronze. Valves shall be furnished with a suitable cap and chain. Inlet connection shall be threaded per ANSI B2.1.

2.11 ALTITUDE VALVES

A. Altitude valves shall be single-acting, hydraulically operated, pilot actuated, diaphragm or piston type globe valves designed for ground level control of water level in storage tanks. Valve shall be of the non-throttling differential type and shall be air and water cushioned on closing to prevent surges on shutoff. Valve shall be suitable for 175 psi working pressure. Operating point and closing speed shall be adjustable.

B. Valve shall have a cast iron body and bolted bonnet conforming to ASTM A126, Class B, bronze pilot control valve and main valve trim, resilient seat disc, stainless steel pilot trim, and reinforced synthetic rubber diaphragm. Seat ring, disc, and diaphragm shall be removable without removing the valve from the line. Piston type valves shall be constructed with removable resilient seals and guides to prevent metal-to-metal contact. No external packing glands shall be used and the diaphragm shall not be used as a seating surface. Main valve stem shall be guided at both ends. Pilot control shall be three-way, hydraulically balanced, diaphragm type.

C. An indicator rod shall be provided to show valve position. A fine mesh stainless steel or Monel strainer shall be provided in the control piping. A 4 1/2-inch pressure gauge calibrated in both psi and feet of water shall be provided on both sides of the altitude valve.

D. Valve shall be furnished with 125-pound flanged ends per ANSI B16.1.

E. A standard repair kit shall be supplied for the altitude valve. Kit shall include liner cap, seat ring, cover gasket, indicator packing, vent packing, and piston cup for main valve, seat ring, lower packing, upper packing, stem gasket, and diaphragm for pilot.

F. Altitude valves shall be GA Industries Figure 3200-D; or approved equal.

2.12 FLAP VALVES

A. Flap valves shall be designed to withstand the stresses resulting from high-head seating applications and to maintain sensitivity to unseating heads.

B. Flap valves shall have iron bodies and shall be bronze mounted. Valves shall be furnished with bronze hinge pins, flap rings, and seat rings.

C. Valves shall be furnished with 125-pound flanged ends per ANSI B 16.1.

2.13 KNIFE GATE VALVES

A. Knife gate valves shall be of the flanged wafer type with outside stem and yoke and a metal-seated, knife-blade gate with a beveled edge designed to push aside or cut through solids in its path. Knife gate valve shall have full round port opening and shall have a working pressure of at least 125 psi in sizes 10-inches and smaller and 50 psi in sizes 12-inches and larger. Valves shall be capable of providing bi-directional, drip tight shutoff.

B. Knife gate valves shall have a heavy, one-piece body and end flanges of steel or cast iron. Valves shall be lined throughout with stainless steel, including the chest and packing areas. Liner shall extend beyond flange to form raised face mating surface. Knife gate shall be of ground and polished stainless steel of sufficient thickness to resist deformation of rated pressure across the gate. A full circle, raised-face seat with machined gate jambs at the sides and bottom shall be provided to hold the gate and assure positive seating. Seat shall have a neoprene or Buna-N elastomer D shaped ring recessed into the face of the valve

seat for a driptight shutoff. All wetted parts of the valve shall be of Type 304 stainless steel.

C. Knife gate shall be sealed with a minimum of four rings of PTFE or neoprene-impregnated asbestos packing. Gland shall be of corrosion-resistant material or shall be specially coated for corrosion resistance. Gland bolts and nuts shall be stainless steel.

D. A heavy, fabricated, angular steel yoke assembly with stainless steel rising stem and bronze yoke sleeve shall be provided on the valve. Valve shall be provided with handwheel operator or extension stem and floorstand as shown on the Drawings. Valves 24-inches and larger shall have a geared operator.

E. Ends of the valve shall be flanged and shall be drilled to mate with 125-pound cast iron flanges per ANSI B16.1.

F. Knife gate valves shall be Orbinox, Dezurik, Fabri-Valve, or Engineer approved equal.

2.14 MANUAL VALVE OPERATORS

A. All gate valves shall be furnished with manual operators as follows, unless otherwise shown or specified:

B. Operating nuts for buried or submerged valves shall be standard 2-inch square nuts and shall conform to AWWA C500, Section 19. Extension stems, valve boxes, and stem guides shall be furnished where shown, specified, or required for proper operation.

C. Manual rotary operators for buried or submerged service shall be totally enclosed and completely sealed to prevent the entrance of water and dirt. Buried or submerged operators shall be finished on the outside with a bituminous or other approved coating. Rotary operators for buried or submerged service shall be capable of withstanding 300 foot-pounds of torque on the operating nut or handwheel. A corrosion-resistant, dial type valve position indicator shall be provided at the operating nut on the extension stem of buried operators to provide a remote indication of valve position.

D. All manual rotary and lever operators shall be capable of seating or unseating the valve disc under the most adverse conditions in the particular application with not more than an 80-pound pull on the handwheel or lever. Valve operators shall be capable of holding the valve in any position between fully open and fully closed without creeping or fluttering. Operators shall be provided with adjustable, mechanical, stop-limiting devices to prevent over-travel of the valve disc in the open and closed positions. Manual rotary and lever operators shall comply with all applicable requirements of AWWA C540, Sections 11.1, 11.2, and 11.3.

2.15 VALVE BOXES

A. All buried valves shall be provided with three-piece, cast iron, extension sleeve type valve boxes suitable for the depth of cover shown on the Drawings.

B. Valve boxes shall not be less than 5- inches in diameter, shall have a minimum thickness of 3/16-inch at any point, and shall be provided with suitable cast iron bases and covers. Covers shall have cast thereon an appropriate name designating the service for which the valve is intended ("W" for water, "S" for drain or waste lines). Covers in roadways shall be of the deep locking type.

C. All parts of valve boxes, bases, and covers shall be heavily coated with a suitable bituminous finish.

D. Valves and boxes shall be set plumb. Each valve box shall be placed directly over the valve it serves with the top of the box flush with the finished grade.

2.16 T-HANDLE OPERATING WRENCH

A. Furnish two T-handle, steel valve operating wrenches with sockets compatible with standard 2-inch square valve operating nuts.

B. The operating wrenches shall be at least 36-inches in length.

2.17 SPARE PARTS

A. Furnish the following spare parts where applicable for the valves specified herein:

1. Stem packing	One set each type and size of valve
2. Renewable stainless steel or bronze seat ring	One each type and size of valve
3. 0-ring stem or shaft seals	One set each type and size of valve
4. Resilient seat or disc	One each type and size of valve
5. Shaft bearings or bushings	One set each type and size of valve
6. Hinge pin, disc, spring, and disc bolts	One set each type and size of check valve
7. Gaskets	One set each type and size of valve
8. Special tool or seat wrench required for valve servicing and maintenance	One each

B. Suitably protect spare parts against corrosion and impact to withstand long-term storage. All parts shall be clearly labeled and identified by manufacturer's name and number and the valve to which they belong.

3 EXECUTION

3.1 FACTORY TESTS

A. Test all valves at the point of manufacture for proper and unobstructed operation and for leakage and adequacy of design.

B. Test iron body gate valves in accordance with AWWA C500, Section 5.

C. Test butterfly and plug valves in accordance with AWWA C504, Section 5.

D. Test iron body check valves in accordance with AWWA C508, Section 5.

E. All other valves shall be given an operation test, a leakage test at rated pressure differential, and a hydrostatic test at two times rated pressure. During the hydrostatic test, there shall be no leakage through the metal, the end joints, or the shaft or stem seal, nor shall any part be permanently deformed. During the leakage test, leakage shall not exceed that permitted by ANSI 816.104, Class IV for metal seated valves and Class VI for resiliently seated valves.

3.2 INSTALLATION

A. Install all valves in strict conformance with the Drawings and approved Shop Drawings and manufacturer's instructions.

B. Install all underground valves using a concrete valve box with cast iron frame and cover or in a cast iron valve box as specified herein.

C. Install valves in such a way that operators and packing are easily accessible. Valves with field replaceable seats shall be installed with sufficient clearance to permit removal of valve bonnet and stem without removing valve from the line.

D. Field measure and carefully coordinate stem size and threading where new operators are to be installed on existing valves.

3.3 FIELD TESTING

A. Following installation, test all valves under the anticipated operating conditions. The ability of the valves to operate properly without leakage, binding, sticking, fluttering, or excessive operating torque shall be demonstrated to the satisfaction of the Engineer. At Contractor's expense, adjust and/or replace any valve as necessary to ensure satisfactory operation.

END OF SECTION

SECTION 33 1300

DISINFECTING OF WATER UTILITY DISTRIBUTION

1. GENERAL

1.1 SCOPE

A. The work covered by this section includes furnishing all labor, equipment, materials, and chemicals required to disinfect and test all water utility distribution facilities in accordance with the procedures specified herein.

B. Samples shall be taken by methods and personnel approved by the Engineer.

C. Disinfect all piping, valves, meters, and any surfaces that shall be in contact with potable water, upon completion of the construction and installation of equipment.

D. No portion of new work shall be placed in service until disinfection has been completed and approved by the Engineer. Should the initial treatment fail to result in acceptable water, the chlorination procedure shall be repeated until satisfactory results are obtained.

1.2 STANDARDS

A. Procedures for disinfecting potable water lines, unless otherwise modified herein, shall conform to the requirements of AWWA C651, latest edition.

B. Tennessee Department of Environment and Conservation.

1.3 SHOP DRAWINGS

A. Submit complete flushing and disinfection plan for approval by the Engineer in accordance with Section 01 3323 – Shop Drawings, Product Data, and Samples.

B. Plan shall indicate flushing points, chemical injection points, and bacteriological testing sample points. Plan shall also indicate all equipment and materials to be used, a detailed procedure, and a proposed laboratory testing facility.

C. Upon completion of all flushing, disinfection, and bacteriological testing requirements, Contractor shall submit a Fayetteville Public Utilities “New Line Worksheet” (provided below) detailing the work performed.

Fayetteville Public Utilities
Water Department

New Line Worksheet

Date Flushed: _____

Line Location: _____

Conditions:

Pipe Type: _____ and Depth: _____ (in)
Pipe Diameter: _____ (in) and Length: _____ (ft)

Cleaning/Flushing/ and Disinfection Procedures

Were pipe materials sprayed or swabbed with 1% chlorine solution? _____
Location of flushing hydrant? _____
Disinfection Method: _____ _____
Disinfectant Used: _____ Quantity: _____ _
Dosage: _____ mg/L (see formulas below) Contact Time: 24 hrs
Feed Location: _____
Pre Chlorine Residual _____ Post Chlorine Residual _____

Pipe dia. In feet = dia. in inches / 12 = _____ / 12 = _____dia. in feet

Million Gallons = 0.785x_____(dia._in_ft).x_____(dia. in ft)x_____(length in ft) x 7.48) = MG(million gallons)
1,000,000

LBS. of HTH = ____(mg/L desired dosage) X_____(MG) X 8.34 / (% purity) = LBS. of HTH

Contractor/Foreman Signature: _____

Bacteriological

The number of sample taps will be dependent upon the overall length of the pipe; one will be at the beginning, one every 1200 ft thereafter, and one at the end. Sample taps will also be located on branches greater than 20 ft.
Total # of sample taps: _____ Total # samples collected: _____

Note: Contact time of 16 hours is required. Samples can be taken 16 hours apart, or 15 minutes apart after the 16 hour contact time.

Date Sampled:_____
Distribution Operator Signature: _____

Note: Attach bacteriological sample results when received.

2. PRODUCTS

2.1 DISINFECTION AGENT

A. The disinfection agent shall be chlorine.

3. EXECUTION

3.1 DISINFECTION PROCEDURE

A. Disinfection of new potable water lines shall be accomplished by the following method:

1. Continuous-Feed Method. After construction and preliminary flushing, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 25 mg/l free chlorine. At the end of not less than 24 hours, the treated water in all portions of the main shall have a residual of not less than 10 mg/l free chlorine.

    a. Direct-feed chlorinators which operate solely from gas pressure in a chlorine cylinder shall not be used for the application of chlorine.

2. Prior to disinfection, the main shall be filled with potable water and flushed.

    a. Flushing velocity in the main shall not be less than 3.0 ft/sec

3. Valves and hydrants in the treated section shall be operated at least five (5) times during the chlorination process to ensure disinfection of the appurtenances.

4. Following the applicable detention periods, the heavily chlorinated water shall be flushed until the chlorine concentration is acceptable for domestic use. Federal, state, and local regulatory agencies must be contacted to determine provisions for the disposal of heavily chlorinated water. If there is any possibility that the chlorinated discharge will cause damage to the environment, a neutralizing chemical per ANSI/AWWA C655 shall be applied to the water to be wasted to thoroughly neutralize the residual chlorine.

5. A chlorine residual will be tested at each service connection. Service line shall be flushed until the system chlorine residual is obtained.

3.2 BACTERIOLOGICAL TESTS

A. After final flushing, and before placing main into service, the Contractor shall collect samples for bacteriological testing and submit to the

bacteriological laboratory of the State Health Department or to a local municipal water plant laboratory as directed by the Engineer.

B. Samples shall be collected in one of the following two methods:

1. Collect an initial sample and then resample again after a minimum of 16 hours. Both sets of samples must pass for the main to be approved for release.

2. Let main sit for at least 16 hours after flushing without any water use. Collect two sets of samples a minimum of 15 minutes apart while the sampling taps are left running. Both sets of samples must pass for the main to be approved for release.

C. Sets of samples shall be collected every 1,200 feet of the new water main, plus one set from the end of the line and at least one from each branch greater than one pipe length.

1. If trench water has entered the main during construction or if in the opinion of the Engineer excessive quantities of dirt or debris have entered the main, bacteriological samples shall be taken at intervals of approximately 200 feet, and the sampling location shall be identified. Samples shall be taken of water than has stood in the new main for at least 16 hours after final flushing.

3.3 DISINFECTION PROCEDURES WHEN CUTTING INTO OR REPAIRING EXISTING PIPE (CONTROLLED PIPE REPAIR)

A. Disinfection of existing lines where repaired or cut into shall be accomplished by the following method:

1. All new pipe materials, all exposed portions of existing interior pipe surfaces, and all handheld tools used to make the repair or tie in shall be disinfected by spraying or swabbing with a minimum 1 percent chlorine solution.

2. After completion of the repair or tie in, the water main shall be flushed to scour the pipe and obtain three volumes of water turnover. The water shall also have a measurable chlorine residual and run visually clear.

3. If the pipe is depressurized (below 20 psi), bacteriological tests shall be performed after flushing as described above in Section 3.2.

END OF SECTION

APPENDICES

Tracking Number TNR182748

NOTICE OF COVERAGE UNDER THE GENERAL NPDES PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (CGP)

Tennessee Department of Environment and Conservation
Division of Water Resources
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, TN 37243

Under authority of the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.) and the delegation of authority from the United States Environmental Protection Agency under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251, et seq.):

Name of the Construction Project: **2021 Water System Improvements -Contract 1 (4.68 acres)**

Master Tracking Number at the Site: **TNR182748**
Permittee Name: **Fayetteville Public Utilities**
Project Name: **2021 Water System Improvements - Contract 1**
Contractor(s): **no contractor**
is authorized to discharge: storm water associated with construction activity
from site located at: **1st Ave., 2nd Ave., 3rd Ave. & Boonshill Rd, Lincoln County**
to receiving waters named: **Norris Creek and Elk River**
in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

Likely presence of threatened or endangered species in one mile radius: **NO**
Likely presence of threatened or endangered species downstream: **YES**

Additional pollution prevention requirements apply for discharges into waters which TDEC identifies as:

- **Exceptional Tennessee Waters: NO**

Your coverage under the CGP shall become effective on **May 9, 2022**, and shall be terminated upon receipt of Notice of Termination.

A copy of the CGP can be obtained from
https://www.tn.gov/content/tn/environment/permit-permits/water-permits1/npdes-permits1/npdes-stormwater-permitting-program/npdes-stormwater-construction-permit.html

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Columbia Environmental Field Office
1421 Hampshire Pike
Columbia, TN 38401
Phone 931-380-3371 Statewide 1-888-891-8332 Fax 931-380-3397

May 10, 2022

Mr. Britt Dye
CEO/General Manager
Fayetteville Public Utilities
e-copy: bdye@fpu-tn.com
408 College Street
Fayetteville, TN 37334

Subject: **NPDES Construction General Permit Tracking No. TNR182748**
Master Tracking Number: TNR182748
2021 Water System Improvements -Contract 1
Fayetteville Public Utilities
Fayetteville, Lincoln County, Tennessee

Dear Mr. Dye:

You recently submitted a Notice of Intent (NOI) form as part of an application package to obtain coverage under a General NPDES Permit for Storm Water Discharges Associated with Construction Activity. The Division of Water Resources (the division) acknowledges receipt of the most recent version of the application for the above referenced project on March 25, 2022. After review, the application was deemed to be complete on May 9, 2022. Enclosed is the Notice of Coverage (NOC) form which shows the site name and location, receiving stream, effective date of coverage, etc.

Contractor Information

You have not identified a contractor on the NOI. You must identify a primary contractor, or contractor otherwise responsible for sediment and erosion controls on the construction site, if appropriate, and submit a revised NOI to this office prior to beginning earth clearing operations onsite. When submitting the NOI, please include the above referenced permit tracking number.

Storm Water Pollution Prevention Plan (SWPPP)

You have submitted a Storm Water Pollution Prevention Plan (SWPPP) as required by Section 1.4.2 of the CGP. Please note that the division has not performed an engineering review of the SWPPP and does not certify whether the SWPPP adequately provides for the pollution prevention requirements at the site as described in the general permit. The division acknowledges that you have submitted a SWPPP that appears to include the required components of a SWPPP. It is the responsibility of all site operators to design, implement, and maintain measures that are sufficient to prevent pollution at the referenced site, and to remain in compliance with the terms and conditions of the general permit.Yes

Threatened and Endangered Species

The receiving stream for the construction site for which the NOI was submitted has Federal or State listed threatened and endangered species in the area, or downstream of your project. Stormwater discharges and stormwater discharge-related activities that are not protective of legally protected listed or proposed threatened or endangered aquatic fauna in the receiving stream(s); or discharges or activities that would result in a 'take' of a Federally listed endangered or threatened fish or wildlife species are not authorized by the General Permit. If the division finds that stormwater discharges or stormwater related activities are likely to result in any of the above effects, the division will deny the coverage under this general permit unless and until project plans are changed to protect the listed species. In addition, discharges from your construction site that result in harm to such species may incur additional fines and penalties from the US Fish and Wildlife Service and/or the Tennessee Wildlife Resources Agency.

Annual Maintenance Fee and Termination of Permit Coverage

Effective July 1, 2014, permit fees for the General Permit have been revised. In addition to new application fee amounts, annual maintenance fees are now required for projects that exceed one year of coverage. Permittees wishing to terminate coverage must submit a completed notice of termination (NOT) form, which is available on the division's construction stormwater webpage at https://www.tn.gov/content/tn/environment/permit-permits/water-permits1/npdes-permits1/npdes-stormwater-permitting-program/npdes-stormwater-construction-permit.html.

The division will review the NOT for completeness and accuracy and, when necessary, investigate the site for which the NOT was submitted. The division will notify the applicant that either the NOT form was received and accepted, or that the permit coverage is not eligible for termination and has not been terminated. If applicable, the notification will include a summary of existing deficiencies.

We appreciate your attention to the general construction storm water permit and its requirements. A copy of the CGP can be obtained from https://www.tn.gov/content/tn/environment/permit-permits/water-permits1/npdes-permits1/npdes-stormwater-permitting-program/npdes-stormwater-construction-permit.html. We believe this does make a difference to the quality of state waters. If you have any questions, please contact Ms. Alex Wilson at (931) 287-3595 or by e-mail at *alex.wilson@tn.gov*.

Sincerely,

Sherry R. Glass

Sherry R. Glass, Environmental Manager
Division of Water Resources
Columbia Environmental Field Office

FOXPE
ENGINEERING FOR THE WATER ENVIRONMENT

STORMWATER POLLUTION PREVENTION PLAN

2021 WATER SYSTEM IMPROVEMENTS – CONTRACT 1
FAYETTEVILLE, LINCOLN COUNTY, TENNESSEE

PREPARED FOR:

FAYETTEVILLE PUBLIC UTILITIES
P.O. BOX 120, 408 WEST COLLEGE STREET
FAYETTEVILLE, TN 37334

PREPARED BY:

FOXPE, LLC
233 OCEOLA AVENUE
SUITE 200
NASHVILLE, TN 37209
www.foxpe.com

OCTOBER 2021

2021 WATER SYSTEM IMPROVEMENTS - CONTRACT 1
FAYETTEVILLE, LINCOLN COUNTY, TENNESSEE

STORMWATER POLLUTION PREVENTION PLAN CERTIFICATION

In Compliance with NPDES General Permit TNR100000

Pollution Prevention Plan Manager: Dudney Fox, PE
Off-Site Telephone No: 615.476.0706
Email: dudney@foxpe.com

"I certify under penalty of law that I have reviewed this document and any attachments. Based on my inquiry of the construction site owner/developer above, and/or my inquiry of the person responsible for assembling this Stormwater Pollution Prevention Plan, I believe the information submitted is accurate. I am aware that this Plan, if approved, makes the above-described construction activity subject to NPDES Permit number TNR100000, and that certain activities on-site are thereby regulated. I am aware that there are significant penalties, including the possibility of fine and imprisonment for knowing violations, and for failure to comply with these permit regulations."

Dudney Fox, PE - Principal	615.476.0706
Name and Official Title	Telephone
Signature	10/25/21
	Date Signed

REVISIONS RECORD

This document will be revised occasionally to reflect new team members, telephone number changes, changes to the content of the Stormwater Pollution Prevention Plan (SWPPP), and other modifications. This page will allow the plan holders to maintain a current, up-to-date version of the SWPPP. When a section is modified, deleted, or replaced, the plan holder should indicate the date of the revision on the affected pages as well as updating the listing below.

REVISION NUMBER	REVISION DATE	AFFECTED PAGES	REASON FOR UPDATE

EMERGENCY RESPONSE AGENCIES AND GENERAL CONTACT INFORMATION 2021 WATER SYSTEM IMPROVEMENTS FAYETTEVILLE, LINCOLN COUNTY, TENNESSEE	
Local Emergency/Ambulance Service	911
Lincoln County Emergency Management Agency	931.438.1575
Local Police – Lincoln County Sheriff Department	931.433.9821
Fayetteville Fire Department	931.433.6563
Nashville/Emergency Management Agency	615.862.8530
National Response Center	800.424.8802
Tennessee Department of Environment and Conservation	
Columbia Environmental Field Office	931.380.3371 fax 931.380.3397
Water Resources Manager	931.490.3945
Solid Waste Division, Remediation Program	615.532.0900
Tennessee Emergency Management Agency (24hr)	615.741.0001
US EPA Region IV, Emergency Response Branch (24 hr.) Atlanta, Georgia	404.562.8700
Project Coordinator – TBD Principal Contractor – TBD	
Surveyor - Fayetteville Public Utilities	931.433.1522
Engineer - FOXPE, LLC – Dudney Fox, PE	615.476.0706

TABLE OF CONTENTS

APPENDICES

1.0 GENERAL INFORMATION

1.1 Introduction

This document presents a Stormwater Pollution Prevention Plan (SWPPP) for the construction activities related to the 2021 Water System Improvements Project located in Lincoln County, Tennessee. The intent of this project is to replace existing system elements needed to provide pressure and flow more efficiently and reliably to the service area. The system has several miles of asbestos cement and galvanized pipe which require particular attention. Asbestos cement (AC) pipe undergoes internal calcium leaching over time, which leads to a reduction in effective cross-section and the loss of mechanical strength, creating pipe softening and increased potential for leaks. This site-specific SWPPP has been prepared in accordance with the State of Tennessee National Pollutant Discharge Elimination System (NPDES) permit. For reference purposes, a copy of the General Permit has been included in the Appendix A. All parties having responsibilities on this project should be aware of the contents of this Plan and will be able to access a copy of the Plan. This SWPPP has been prepared by FOXPE, LLC for Fayetteville Public Utilities. The project team will consist of Britt Dye - CEO and General Manager of Fayetteville Public Utilities (FPU), Mr. Dudney Fox, PE will serve as Pollution Prevention Manager, and the Construction Project Manager who has not been identified at this time.

The procedures within this SWPPP shall be followed to provide protection of public health, welfare, and the environment as related to construction activities. These procedures are described in the following sections. The primary goals of this SWPPP will be to:

- Describe the construction erosion prevention activities involved in the construction of the 2021 Water System Improvements Project;
- Describe the practices that will be implemented to prevent or control the impacts of construction activities in local waterbodies;
- Create an implementation schedule to ensure that the practices described in this SWPPP are in fact implemented and to evaluate the plan's effectiveness in protecting the local environment during construction activities and future erosive flow conditions.

The principal contractor, **TBD**, will be performing all aspects of site preparation, grading, excavation, and implementation of environmental controls during the construction process. The contractor will be responsible for installation and maintenance of the required erosion and sediment controls. Revisions to this plan are made when such activities require additional permitting or when activities change such that there is an increased potential to adversely affect the waters of the State.

The General Permit does not authorize stormwater or other discharges that would result in a violation of Tennessee water quality standards. Discharges covered under this permit that cause a violation of a water quality standard are a violation of the general permit. The principal contractor is responsible for taking all necessary actions to ensure that discharges and construction activities do not cause or contribute to the violation of a water quality standard.

The General Permit does not authorize the discharge of process water. Only those non-stormwater discharges identified in the General Permit are authorized.

1.2 TDEC Documentation

As required, a Notice of Intent (NOI) has been completed and submitted with the SWPPP. A copy of the NOI and the SWPPP will be maintained at the construction site in a prominent and safe place for viewing during normal business hours. A copy of the Notice of Coverage (NOC) issued by the Director of the Tennessee Division of Water Pollution Control (DWPC) and the telephone number and address of a person who can be contacted for information will also be maintained at the construction site. A copy of the NOI and Notice of Coverage (NOC), upon receipt, will be included in Appendix B.

When the construction site has been finally stabilized and all stormwater discharges from construction activities that are authorized by this permit are eliminated, the Pollution Prevention Manager shall submit a Notice of Termination (NOT) within 30 days after all permit authorized construction activities have been completed. The terms and conditions of the permit will remain in effect until a completed Notice of Termination is submitted to TDEC. Coverage under the permit will be deemed terminated upon approval by TDEC. Appendix B contains a copy of the Notice of Termination Form.

1.3 Plan Revision and Updates

This SWPPP will be updated as required by the State of Tennessee NPDES Construction General Permit. The SWPPP will be updated whenever any of the following conditions are present:

- Whenever there is a change in design, construction, operation, or maintenance that can potentially cause a discharge to pollute the waters of the State;
- Whenever the SWPPP becomes ineffective in eliminating or significantly minimizing pollutants from significant materials;
- Whenever a new operator (normally a contractor or subcontractor) must be identified to implement a component of the SWPPP; and/or
- If legally protected state or federally listed flora or fauna (or species proposed for such protection) are identified and measures necessary

to avoid a negative impact to their continued survival are to be implemented.

2.0 PROJECT LOCATION AND DESCRIPTION

Project	FPU 2021 Water System Improvements Fayetteville, Tennessee
Owner	Fayetteville Public Utilities Water and Sewer Department 408 West College Street Fayetteville, TN 37334 931.433.1522 Contact: Britt Dye
Contractor	(Enter Contractor Here) -TBD (Enter Contractor Address Here) (Enter Contractor's Contact Info Here)

2.1 Project Location

Based on GPS data, a central location for the project is at approximate Latitude 35.1520° North and Longitude 86.5702° West. The project is located throughout FPU's service area, both inside and outside of the Fayetteville City Limits. The overall construction site is approximately 90,000 linear feet. 65,100 linear feet are proposed to be open cut. The area of the project that will encounter disturbance of surface soils is approximately 4.68 acres and will run along the length of the proposed alignments. The majority of the project will occur in already paved areas and any disturbed paving shall be repaved. Locations of proposed construction are shown on the drawings in Appendix C.

2.2 Project Description

Fayetteville Public Utilities (FPU) plans to make improvements to their water system. The major components of the project include:

- Installing approximately 90,000 LF of replacement water mains;
- Installation of all valving, fire hydrants, and customer service connections as required;
- Erosion control measures will be installed in accordance with the Tennessee Department of Environment and Conservation (TDEC) approved site-specific Stormwater Pollution Prevention Plan (SWPPP).

2.2.1 2021 Water System Improvements – Contract 1

The construction of the 2021 Water System Improvements project will be performed over the course of approximately 1,200 days in the following general order.

- Mobilize equipment and materials to the site;
- Clear and grub areas as necessary;
- Install erosion control measures;
- Perform open-cut excavation for installation of waterlines and appurtenances, including 12 ARAP creek crossings;
- Backfill excavations;
- Testing and disinfection of water lines;
- Perform grading restoring original lines and grade;
- Stabilize disturbed soils and banks;
- Conduct final cleanup and final stabilization activities; and
- Demobilize equipment, remaining materials, and personnel from the project site.

2.3 General Soil Description

The project site is located in the central to south central portion of Lincoln County. The project area is typically gently sloping with mostly Loamy Alluvium and Clayey Residuum soils. Soils on the narrow ridgetops and the upper part of the side slopes are formed in clayey residuum weathered from limestone. Soils on the lower parts are derived from interbedded sedimentary rock and/or weathered limestone. Depth to rock typically ranges from about one foot to more than 6 feet. The soils consist of Armour, Egam, Etowa, and Lindell soils mixed with soils of minor extent including Arrington, and rock outcroppings.

2.4 General Location / Site Map

Civil design plans produced for the construction activities have been attached as Appendix C. These drawings provide details for erosion control measures that will be implemented during these activities. Details and notes are shown on Sheets C44.0 & C45.0 and illustrate the following as applicable:

I. Existing topography of the project site area.
II. General drainage patterns after construction activities have been completed.
III. Temporary silt fence locations.

IV. The locations of major structural and non-structural erosion control measures.

2.5 Outfall Points

Given the nature of the work, there will not be any defined outfalls for this project. Surface water will generally drain from the excavated trench line. Surface water along each section generally drains to the southwest.

2.6 Discharges

There are no discharges associated with industrial activities impacting the project site.

2.7 Aquatic Resources Alterations

An Aquatic Resources Alterations Individual Permit including twelve (12) creek crossings is required for this project. The application has been submitted and is currently under review.

2.8 Receiving Waters

Drainage from the project area flows into the Fayetteville City storm sewer system, Tanyard Branch, Timber Lake, and Norris Creek, eventually discharging into the Elk River.

2.9 Inventory of Potential Materials Exposed to Stormwater

Disturbed soil and fill rock will be the main source of potential pollutants on the Site given the nature of the construction activities. The likely pollutants include Total Suspended Solids (TSS) related to eroded soils after vegetation has been removed and debris associated with clearing.

3.0 BEST MANAGEMENT PRACTICES

3.1 Erosion and Sediment Control Goals

Details that relate to construction of the Site's erosion and sediment controls have been developed for this SWPPP and are included in the construction drawings in Appendix C. The drawings indicate areas of soil disturbance, surface drainage patterns, and the locations of erosion and sediment control structures and implementation methods. In general, sediment control structures and methods will be implemented where potential runoff will flow across disturbed areas and exit the construction site. Stormwater control measures may include

the following: temporary and permanent erosion control matting, rock check dams, diversion structures, silt fence, curb inlet protection, etc.

Stormwater controls may also follow the examples and specifications of the ***Tennessee Erosion & Sediment Control Handbook***.

Erosion prevention and sediment control measures will be designed according to the size and slope of disturbed drainage areas with the goal of detaining runoff and trapping sediment. In addition, erosion prevention and sediment controls will be designed to control the rainfall and runoff from a 5-year, 24-hour storm, as a minimum.

The Pollution Prevention Plan Manager is the specific individual designated to be responsible for erosion and sediment controls on this project. Other controls may be added at the discretion of the Pollution Prevention Plan Manager. In general, erosion and sediment control should proceed considering the following:

- All control measures will be selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the control will be replaced or modified.
- If sediment escapes the construction site, off-site accumulations of sediment that have not reached a stream will be removed at a frequency sufficient to minimize off-site impacts. Fugitive sediment that has escaped the construction site(s) will be removed so that it is not subsequently washed into streams by the next rain and/or so that it does not pose a safety hazard to users of access roads. For any sediment from the Site that has reached and collected in a stream, TDEC will be consulted concerning remediation of the stream before the actions are taken.
- Sediment will be removed from sediment control structures when design capacity has been reduced by 50%.
- Litter, construction debris, and construction chemicals exposed to stormwater will be picked up prior to anticipated storm events (e.g., forecasted by local weather reports), or otherwise prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, daily pick-up, etc.).
- Offsite erodible material storage areas (also including overburden and stockpiles of dirt, etc.) used primarily by the permitted project are considered a part of the project and will be maintained through use of Best Management Practices to maintain the quality of the surrounding

environment. Cost estimates for maintaining offsite material storage areas will be included in the fee calculation.

The selected contractor will be responsible for maintaining a rain gauge (or will use a reference site to record the daily amount of precipitation) and the following records on or near site:

- The dates when major grading activities occur;
- The dates when construction activities temporarily or permanently cease on a portion of the site;
- The dates when stabilization measures are initiated; and
- Inspection records and rainfall records.

3.2 Earth Stabilization Practices

Existing vegetation will be preserved where attainable and disturbed portions of the Site must be stabilized. Stabilization practices may include temporary seeding, permanent seeding, mulching, geotextiles, protection of trees, preservation of mature vegetation, and other appropriate measures. In general, the practices that will be followed include:

- Temporary and/or Permanent Stabilization - Topsoil stockpiles and disturbed portions of the Site where construction activity temporarily ceases for at least 15 days will be stabilized.
- Vegetative Stabilization - The use of vegetation for permanent stabilization of areas will be used, as much as practical, to reduce the rate of stormwater flow and supplement pollutant attenuation.
- Timing of Controls/Measures – Silt fences, erosion eels, and rock check dams will be installed as appropriate and as shown on the plans prior to clearing or grading. Sediment control measures will be maintained throughout the construction period as appropriate (temporary measures may be removed at the beginning of the workday, but must be replaced at the end of the workday). Vegetative ground cover present prior to grading or earth moving will not be destroyed, removed, or disturbed more than 10 calendar days prior to the event. Clearing and grubbing will be held to the minimum necessary for grading and equipment operation. Construction will be sequenced to minimize the exposure time of disturbed surface areas. Stabilization will be accomplished by temporarily or permanently protecting the disturbed soil surface from rainfall impacts and runoff.

3.3 Erosion and Sediment Control Structures

Structural practices will be implemented to divert flows from exposed soils, temporarily retain flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the Site. The following subsections describe the sequence of major construction activities that are planned for the site and the structural practices that will be associated with each activity. The Contractor is responsible for implementation and maintenance of these controls. Project plans and specifications provide additional information regarding requirements for erosion and siltation control and the protection of the waters of the state and the United States. Stormwater controls may also follow the examples and specifications of the *Tennessee Erosion & Sediment Control Handbook*.

3.3.1 Clearing and Grubbing

Structural practices may include construction entrances, rock check dams installed in drainage ditches, temporary silt fencing, and earthen berms along the construction perimeter. Rock check dams will be constructed from riprap with an upstream layer of smaller aggregate for additional filtering as indicated in the project plans. These items will be installed prior to and during clearing operations.

3.3.2 Grading and Excavation

The work associated with this project will include trenching, installation of new pipe, backfill of trench, and final grading. Stabilization methods will include the installation of stabilizing erosion control mats (as needed) and seeding and mulching as construction allows. Temporary or permanent stabilization will be completed within 14 days of final grading or earth moving activities.

Structural practices may include temporary rock check dams within drainage ditches, temporary and permanent erosion control mats along excavated trench, wattles around storm drains, and utilizing mulch and seed as required. This will include the final dressing of the trench, placement of topsoil, seed, and mulch. Provide outlet protection (e.g. machine rip- rap) at outfalls (if encountered) to reduce energy.

3.3.3 Final Stabilization

All permanent structural practices have been completed at this phase of the project. All silt fencing and temporary controls will be removed to prevent them from becoming pollutants after final stabilization has been achieved. Final stabilization shall be achieved when 75% of earthen areas are covered by vegetation.

3.4 Post-Construction

There are no project-derived pollutants anticipated after construction operations have been completed. The stabilized site should not present a significant increase in runoff or pollutants into the receiving waterway. Maintenance of stormwater management measures is not required by the permit after discharges associated with construction activities have been eliminated from the site.

3.5 Pollutant Controls

Such procedures will include debris removal from drainage structures and trash removal and disposal from construction areas. Typically, solid or liquid spills from over-the-road vehicles are kept from entering waters of the state by cooperative efforts of the Contractor, the Tennessee Department of Safety, the Tennessee Emergency Management Agency, and others. However, no special structures are included in this project to address pollutants associated with spills.

Materials needed for construction at the proposed site must also be controlled to prevent pollution of the receiving waters. These items include, but are not limited to, storage and dispensing of the following:

- Fertilizers and Lime
- Diesel fuel and Gasoline Machinery
- Lubricants (Oil and Grease)

If a fueling station is to be used on the project site, pollution prevention measures (procedures, secondary containment, etc.) will be used to minimize the risk of contamination to waters of the state. Soils at fueling stations should be checked daily by the operator for signs of spillage or staining of the soil. Any fixed and mobile fueling station/tank storage and associated loading/fueling areas shall have a containment system to prevent runoff resulting from potential spills or tank rupture. Machinery should be serviced or repaired to prevent leaks of fluids from construction machinery.

The Contractor will be responsible for compliance with all applicable EPA and TDOT guidelines regarding equipment-related fluids as well as all National Fire Protection Association regulations and spill prevention control and countermeasure regulations (40 CFR 112) regarding flammable liquids. No construction materials are expected to produce pollutant runoff if effectively managed.

3.6 Waste Materials

Waste material (earth and rock) not required for project construction will be stock piled onsite and stabilized until removed.

3.7 Inspections

The inspection schedule and documentation procedures have been designed to ensure that vegetation, erosion, sediment control measures, and other protective measures identified in the Erosion Control Plan and the SWPPP are kept in good and effective operating condition. A stormwater Inspection form template is provided in Appendix D. Copies of completed inspection forms shall be kept in Appendix E of the onsite document.

3.8 Schedule

Stormwater from this project will ultimately discharge into the Upper Elk Watershed. This SWPPP will conduct inspections in accordance with all the current CGP's requirements. The schedule for inspections will be as follows:

- Before anticipated storm events (or series of events such as intermittent showers over one or more days).
- Within 24 hours after the end of a storm event of 0.5 inches or greater.
- Weekly inspections are to be performed in accordance with the current CGP's requirements during any construction and thereafter until the site is fully stabilized (at least 75% vegetation cover of earthen areas).
- Based on the results of the inspection, any inadequate control measures or control measures in disrepair shall be replaced or modified, or repaired as necessary, before the next rain event if possible, but in no case more than 7 days after the need is identified.
- Based on the results of the inspection, the site description identified in this SWPPP in accordance with the NPDES CGP and pollution prevention measures identified in this SWPPP in accordance with the NPDES CGP of this permit shall be revised as appropriate, but in no case later than 7 days following the inspection. Such modifications shall provide for timely implementation of any changes to the SWPPP, but in no case later than 14 days following the inspection.

3.8.1 Documentation Requirements

Inspections will be documented in writing and include the following:

- Scope of the inspection;
- Name(s) and title or qualifications of personnel making the inspection;

- Date(s) of the inspection;
- Major observations relating to implementation of the SWPPP (including the location[s] of discharges of sediment or other pollutants from the site and of any control device that failed to operate as designated or proved inadequate for a particular location); and
- Actions taken to replace, modify, or repair any control measures identified as inadequate or in disrepair during inspections.

The Construction Stormwater Inspection form template in Appendix D should be used to document inspection components. A qualified person or their designated representative must complete and sign the reports. All reports will be maintained for three (3) years. Copies of the completed inspection forms shall be kept in Appendix E of the onsite document.

3.8.2 Areas to be Inspected

Qualified personnel will inspect disturbed areas of the construction site that have not been finally stabilized for evidence of, or the potential for, pollutants to enter the drainage system. These areas include, but are not limited to, the following:

- Disturbed areas and areas used for storage of materials that are exposed to precipitation;
- Erosion and sediment control measures identified in the SWPPP;
- Outfall points (where discharges from the site enter streams or wet weather conveyances). Where outfall locations are inaccessible, nearby downstream locations shall be inspected if possible;
- Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking; and
- Fueling station(s) on-site, if applicable.

3.8.3 Repair, Modification, and Revision

Based on the inspection results, any inadequate control measures or control measures in disrepair will be replaced, modified, or repaired as soon as practicable (before the next rain event if possible, and in no case more than seven days after the need is identified.) If the site description and pollution prevention measures in the SWPPP need to be revised based on the results of the inspection, those revisions will be completed as appropriate but no later than 14 calendar days following the inspection identifying the need.

3.9 Maintenance and Repairs

Maintenance needs identified in inspections or by other means shall be accomplished before the next storm event if possible, but in no case more than seven days after the need is identified. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable.

The Pollution Prevention Plan Manager will coordinate maintenance and repair activities and will complete the maintenance reports. Records of all repairs will be retained for three years.

3.10 Final Stabilization

After final stabilization has been achieved (where 75% of earthen areas are covered by vegetation) all silt fencing and temporary controls will be removed to prevent them from becoming pollutants.

4.0 ACCESSIBILITY AND RECORDS RETENTION

Copies of this stormwater pollution prevention plans, and all reports required by this permit, and records of all data used to complete the NOI and the NOT to be covered by this permit, will be retained for a period of at least one year from the date the notice of termination is filed.

A copy of the SWPPP required by this permit will be retained at the construction site (or other local location accessible to the director and the public) from the date construction commences to the date of termination of permit coverage. Permittees with day-to-day operational control over pollution prevention plan implementation shall have a copy of the SWPPP available at a central location onsite for the use of all operators and those identified as having responsibilities under the plan whenever they are on the construction site. Once coverage is terminated, copies of all records will be maintained for a period of three years.

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102

June 1, 2022

Britt Dye
Fayetteville Public Utilities
408 College Street West
Fayetteville, Lincoln County, TN

Subject: **§401 Water Quality Certification**
Aquatic Resource Alteration Permit Application NRS 21.306
Fayetteville Water Line Upgrades

Location: Fayetteville, Lincoln County, TN

Mr. Dye,

We have reviewed and approved your Aquatic Resource Alteration Permit for waterbody impacts associated with waterline upgrades in Fayetteville, TN. Authorized impacts are 12 water utility line crossings through use of open-cut trenching within the Upper Elk River Watershed.

The planned activity was reviewed, and the Division has reasonable assurance that the activity as proposed in accordance with all permit conditions herein will not violate applicable water quality standards and has issued the attached permit (enclosed). This permit may also serve as a §401 water quality certification (pursuant to 40 C.F.R. §121.2).

The state of Tennessee may modify, suspend, or revoke this authorization should the state determine that the activity results in more than an insignificant violation of applicable water quality standards or violation of the TWQCA. Failure to comply with permit terms may result in penalty in accordance with T.C.A. §69-3-115.

It is the responsibility of the permittee to read and understand all permit conditions before the project begins. If you need any additional information or clarification, please contact me at 615-454-7993 or by e-mail at Robert.J.Wayne@tn.gov.

The §401 Water Quality Certification Justifications and Citations related to the procedural requirements of §121.7(d) can be found at https://www.tn.gov/environment/permit-permits/water-permits1/aquatic-resource-alteration-permit--arap-.html. A paper copy of the certifications and justifications can also be obtained by contacting water.permits@tn.gov or calling (615) 532-0359.

Sincerely,

Robert Wayne,
Natural Resources Unit
Enclosure: §401 Water Quality Certification

Cc: Chad Augustin, TDEC Columbia EFO
USACE – Nashville District
Scott Adkisson, FOX PE scott@foxpe.com

AQUATIC RESOURCE ALTERATION PERMIT NRS 21.306

Pursuant to §401 of *The Federal Clean Water Act* (33 U.S.C. 1341), any applicant for a Federal license or permit to conduct any activity which may result in any discharge into the waters of the U.S., shall provide the federal licensing or permitting agency a certification from the State in which the discharge originates or will originate. Accordingly, the Division of Water Resources requires reasonable assurance that the activity will not violate provisions of *The Tennessee Water Quality Control Act of 1977* (T.C.A. §69-3-101 et seq.) or provisions of §§301, 302, 303, 306 or 307 of *The Clean Water Act*.

Subject to conformance with accepted plans, specifications and other information submitted in support of the application, pursuant to 33 U.S.C. 1341 the State of Tennessee hereby certifies the activity described below. This shall serve as authorization under T.C.A. §69-3-101 et seq.

PERMITTEE Fayetteville Public Utilities
c/o Britt Dye
408 College Street West
Fayetteville, Lincoln County, TN

AUTHORIZED WORK: Authorized temporary stream impacts are 12 water utility line crossings through use of open-cut trenching within the Upper Elk River Watershed.

LOCATION:

Various Locations
Fayetteville, Lincoln County TN

EFFECTIVE DATE: June 1, 2022

EXPIRATION DATE: May 31, 2027

M Lee Barker

for Jennifer Dodd
Director, Division of Water Resources

Contents

PART I

Authorized Work:

Stream Crossing 1 - Unnamed Tributary to Norris Creek
Old Mulberry Road CC-1
Latitude: 35.1650 Longitude: -86.5549
a. Temporary impacts associated with one water utility line crossing through open-cut trench

Stream Crossing 2 - Unnamed Tributary to Norris Creek
Old Mulberry Road-2 CC-2
Latitude: 35.1650 Longitude: -86.5530
a. Temporary impacts associated with one water utility line crossing through open-cut trench

Stream Crossing 3 – Cotton Mill Branch
Shelbyville Highway CC-3
Latitude: 35.1583 Longitude: -86.5610
a. Temporary impacts associated with one water utility line crossing through open-cut trench

Stream Crossing 4 – Tanyard Branch
Bright Avenue CC-4
Latitude: 35.1579 Longitude: -86.5720
a. Temporary impacts associated with one water utility line crossing through open-cut trench

Stream Crossing 5 – Tanyard Branch
Washington Street CC-5
Latitude: 35.1542 Longitude: -86.5726
a. Temporary impacts associated with one water utility line crossing through open-cut trench

Stream Crossing 6 - Unnamed Tributary to Elk River
William Battle Boulevard CC-6
Latitude: 35.1502 Longitude: -86.5874
a. Temporary impacts associated with one water utility line crossing through open-cut trench

Stream Crossing 7 - Unnamed Tributary to Elk River
Timberlake Drive CC-7
Latitude: 35.1407 Longitude: -86.5494
a. Temporary impacts associated with one water utility line crossing through open-cut trench

Stream Crossing 8 - Unnamed Tributary to Elk River
Timberlake Trail CC-8
Latitude: 35.1394 Longitude: -86.5472
a. Temporary impacts associated with one water utility line crossing through open-cut trench

Stream Crossing 9 - Unnamed Tributary to Elk River
Molina Road CC-9
Latitude: 35.1268 Longitude: -86.5733
a. Temporary impacts associated with one water utility line crossing through open-cut trench

Stream Crossing 10 - Unnamed Tributary to Elk River
Ardmore Highway CC-10
Latitude: 35.1163 Longitude: -86.5725

a. Temporary impacts associated with one water utility line crossing through open-cut trench

Stream Crossing 11 - Unnamed Tributary to Wells Creek
Huntsville Highway CC-11
Latitude: 35.1124 Longitude: -86.5662

a. Temporary impacts associated with one water utility line crossing through open-cut trench

Stream Crossing 12 - Unnamed Tributary to Wells Creek
Wells Road CC-12
Latitude: 35.1080 Longitude: -86.5668

a. Temporary impacts associated with one water utility line crossing through open-cut trench

Special Conditions:

a. Unless stated otherwise, all work shall be accomplished in conformance with the accepted plans, specifications, data, and other information submitted in support of application NRS 21.306.

b. The portion of any waters located outside the project area shall be protected with no disturbance permitted, and clearly labeled as such with appropriate demarcation.

c. The portion of any waters, including wetlands, located outside the project area shall be clearly labeled as protected and that no disturbance is permitted.

d. The alignment of new utility line crossings shall intersect the stream channels as close to 90 degrees or as perpendicular as possible. Alignment shall be no less than a 45 degree angle from the centerline of the stream.

e. New utility line crossings shall be located in a manner to avoid permanent alteration or damage to the integrity of the stream channel. Large trees, steep banks, rock outcroppings, etc., should be avoided.

f. The utility line crossings shall be designed to prevent the impoundment or loss of normal or base flows. Concrete caps, rock, and earthen cover or similar must be placed below streambed elevations. Base flow is the usual or normal flow of the stream that is supplied primarily by groundwater from springs and seeps, but not affected by rapid runoff during and after rainfall.

g. In the case of streams with bedrock streambeds, special provisions shall be made to prevent the loss of stream flow due to fracturing of the bedrock.

h. Permanent vegetative stabilization of all disturbed areas using native species must be initiated within 14 days of project completion (see also *Landscaping with Natives* at tneppc.org). Non-native, non-invasive annuals may be used as cover crops until native species can be established.

i. Written notice of the commencement of authorized work shall be provided to the TDEC Columbia Environmental Field Office prior to, or within 24 hours after the authorized work has commenced.

j. The permittee shall submit drawings of record that reflect the "as-constructed" condition of all authorized alterations to waters of the state. The drawings shall include sufficient information, including photographic documentation, to demonstrate conformance with the approved plans, specifications, and special conditions of this permit. The report shall be submitted within 90 days of completion of the project.

k. Clearing, grubbing, and other disturbance to riparian vegetation shall be kept at the minimum necessary for construction and equipment operations. Unnecessary native riparian vegetation

removal, including tree removal, is prohibited. Native riparian vegetation must be reestablished in all areas of disturbance outside of any permanent authorized structures after work is completed. Coverage under this permit does not serve to waive any local riparian buffer protection requirement, and permittees are responsible for obtaining any necessary local approval.

l. Check dams or other in-stream treatments for erosion and sediment control are not authorized to be placed within streams.

m. Temporary stream crossings shall not be constructed in a manner that would permanently disrupt the movement of fish and aquatic life.

n. The use of monofilament-type erosion control netting or blanket is prohibited. To minimize wildlife entanglement and plastic debris pollution, temporary erosion, and sediment control products that either do not contain netting, or that contain netting manufactured from 100 percent biodegradable non-plastic materials such as jute, sisal, or coir fiber shall be specified. Netting used in these products should have a loose-weave wildlife-safe design with movable joints between the horizontal and vertical twines, allowing the twines to move independently. Degradable, photodegradable, UVdegradable, oxo-degradable, or oxo-biodegradable plastic netting (including polypropylene, nylon, polyethylene, and polyester) are not acceptable alternatives.

o. Construction shall be conducted in the dry to the maximum extent practicable, by diverting flow utilizing cofferdams, berms, and/or temporary channels or pipes. Temporary diversion channels shall be protected by non-erodible material and lines to the expected high-water level.

p. If any stream channel or adjoining stream channel fails to meet the assessment criteria to be classified as a stream, corrective action or additional mitigation will be required. Permittee is responsible for any permanent reduction or loss of instream flow resulting from authorized activities.

q. The permittee shall notify this office of project completion within thirty (30) days of completion.

r. Best Management Practices (BMPs) for erosion prevention and sediment control shall be stringently implemented throughout the construction period to prevent sediments, oils, or other project-related pollutants from being discharged into waters of the state. All spills must be reported to the appropriate emergency management agency, and measures shall be taken immediately to prevent the pollution of waters of the state, including groundwater, should a spill occur.

s. Streambeds shall not be used as transportation routes for construction equipment. Temporary stream crossings shall be limited to one point in the construction area and EPSC measures shall be utilized where stream banks are disturbed.

t. Equipment staging and maintenance areas shall be developed a sufficient distance from any water to ensure that oil, gas, other petroleum products, and other hazardous materials do not enter the waters.

u. Instream work by heavy equipment shall be kept to a minimum. Equipment shall be free of noticeable leaks of fluids and oils; e.g., hydraulic, transmission, crankcase, and engine coolant, fluids, and oils.

General Conditions:

a. It is the responsibility of the applicant to convey all terms and conditions of this permit to all contractors. A copy of this permit, approved plans, and any other documentation pertinent to the activities authorized by this permit shall be maintained on site at all times during periods of construction activity.

b. Work shall not commence until the applicant has received the federal §404 permit from the U. S. Army Corps of Engineers, a §26a permit from the Tennessee Valley Authority or authorization under a

Tennessee NPDES Storm Water Construction Permit where necessary. The applicant is responsible for obtaining these permits.

c. All work shall be carried out in such a manner as will prevent violations of water quality criteria as stated in Rule 0400-40-03-.03 of the Rules of the Tennessee Department of Environment and Conservation. This includes, but is not limited to, the prevention of any discharge that causes a condition in which visible solids, bottom deposits, or turbidity impairs the usefulness of waters of the state for any of the uses designated by Rule 0400-40-04. These uses include fish and aquatic life (including trout streams and naturally reproducing trout streams), livestock watering and wildlife, recreation, irrigation, industrial water supply, domestic water supply, and navigation.

d. Impacts to waters of the state other than those specifically addressed in the plans and this permit are prohibited. All streams, springs and wetlands shall be fully protected prior, during and after construction until the area is stabilized. Any questions, problems or concerns that arise regarding any stream, spring, or wetland either before or during construction, shall be addressed to the Division of Water Resource's Columbia Environmental Field Office (931-380-3371), or the permit coordinator in the division's Natural Resources Unit (615-454-7993).

e. Adverse impact to formally listed state or federal threatened or endangered species or their critical habitat is prohibited.

f. This permit does not authorize adverse impacts to cultural, historical, or archeological features or sites.

PART II

Duty to Reapply

If any portion of the permitted activities, including the authorized impacts to water resources, compensatory mitigation requirements, or post-project monitoring is not completed before the expiration date of this permit **the applicant must apply for permit re-issuance**. The permittee shall submit such information and forms as are required to the director of the Division of Water Resources at least ninety (90) days prior to its expiration date. Such applications must be properly signed and certified.

Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

Other Information

If the permittee becomes aware that he/she failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Director, then he/she shall promptly submit such facts or information.

Changes Affecting the Permit
Transfer/Change of Ownership

a. This permit may be transferred to another party, provided there are no activity or project modifications, no pending enforcement actions, or any other changes which might affect the permit conditions contained in the permit, by the permittee if:

b. The permittee notifies the Director of the proposed transfer at least 30 days in advance of the proposed transfer date;

c. The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage, and contractual liability between them; and

d. The Director does not notify the current permittee and the new permittee, within 30 days of her intent to modify, revoke, reissue, or terminate the permit, or require that a new application be filed rather than agreeing to the transfer of the permit.

e. The permittee must provide the following information to the division in their formal notice of intent to transfer ownership:

1. the permit number of the subject permit;
2. the effective date of the proposed transfer;
3. the name and address of the transferor;
4. the name and address of the transferee;
5. the names of the responsible parties for both the transferor and transferee;
6. a statement that the transferee assumes responsibility for the subject permit;
7. a statement that the transferor relinquishes responsibility for the subject permit;
8. the signatures of the responsible parties for both the transferor and transferee, and;
9. a statement regarding any proposed modifications to the permitted activities or project, its operations, or any other changes which might affect the permit conditions contained in the permit.

Change of Mailing Address

The permittee shall promptly provide to the Director written notice of any change of mailing address. In the absence of such notice the original address of the permittee will be assumed to be correct.

Noncompliance
Effect of Noncompliance

All discharges shall be consistent with the terms and conditions of this permit. Any permit noncompliance constitutes a violation of applicable State and Federal laws and is grounds for enforcement action, permit termination, permit modification, or denial of permit reissuance.

Reporting of Noncompliance

24-Hour Reporting

a. In the case of any noncompliance which could cause a threat to public drinking supplies, or any other discharge which could constitute a threat to human health or the environment, the required notice of non-compliance shall be provided to the Division of Water Resources in the appropriate Environmental Field Office within 24-hours from the time the permittee becomes aware of the circumstances. (The Environmental Field Office should be contacted for names and phone numbers of environmental response personnel).

b. A written submission must be provided within five (5) days of the time the permittee becomes aware of the circumstances unless this requirement is waived by the Director on a case-by-case basis. The permittee shall provide the Director with the following information:

1. A description of the discharge and cause of noncompliance;

2. The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and
3. The steps being taken to reduce, eliminate, and prevent recurrence of the non-complying discharge.

Scheduled Reporting

For instances of noncompliance which are not reported under subparagraph a. above, the permittee shall report the noncompliance by contacting the permit coordinator, and provide all information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the violation and the anticipated time the violation is expected to continue.

Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to the waters of Tennessee resulting from noncompliance with this permit, including but not limited to, accelerated or additional monitoring as necessary to determine the nature and impact of the noncompliance. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

Liabilities
Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Notwithstanding this permit, the permittee shall remain liable for any damages sustained by the State of Tennessee, including but not limited to fish kills and losses of aquatic life and/or wildlife, as a result of the discharge of pollutants to any surface or subsurface waters. Additionally, notwithstanding this Permit, it shall be the responsibility of the permittee to conduct its discharge activities in a manner such that public or private nuisances or health hazards will not be created.

Liability under State Law

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or the Federal Water Pollution Control Act, as amended.

This permit does not preclude requirements of other federal, state, or local laws. This permit also serves as a State of Tennessee Aquatic Resource Alteration Permit (ARAP) pursuant to the Tennessee Water Quality Control Act of 1977 (T.C.A. §69-3-101 et seq.).

The State of Tennessee may modify, suspend, or revoke this permit or seek modification or revocation should the state determine that the activity results in more than an insignificant violation of applicable water quality standards or violation of the act. Failure to comply with permit terms may result in penalty in accordance with T.C.A. §69-3-115.

An appeal of this action may be made as provided in T.C.A. § 69-3-105(i) and Rule 0400-40-07-.04(9) by submitting a petition for appeal:

1. The petition must be filed within 30 days after public notice of the issuance of the permit.

2. The petition must specify the basis for the appeal and state a claim for relief based on an alleged violation of the Tennessee Water Quality Control Act or the rules promulgated thereunder. Third

parties shall specify facts sufficient to establish that they have satisfied the statutory and regulatory preconditions and otherwise have standing to appeal.

3. The petition should be addressed to the technical secretary of the Tennessee Board of Water Quality, Oil and Gas at the following address: Jennifer Dodd, Director, Division of Water Resources, William R. Snodgrass - Tennessee Tower, 312 Rosa L. Parks Avenue, Nashville, Tennessee 37243-1102, or you may submit such petition electronically to TDEC.Appeals@tn.gov. Any hearing would be in accordance with T.C.A. §§ 69-3-110 and 4-5-301 et seq.

FINAL PERMIT RATIONALE

Aquatic Resource Alteration Permit NRS21.306

June 1, 2022

Permit Writer: Robert Wayne

I. SUMMARY

Name of applicant:

Fayetteville Public Utilities

408 College Street West

Fayetteville, Lincoln County, TN

Contact: Britt Dye

Phone: 931-433-1522

Activity Location: Multiple Stream Crossings
Fayetteville, Lincoln County, TN
Latitude: 35.1650, Longitude: -86.7394

Nature of Business: Water Utility Line Upgrades

Authorized Activity: Authorized stream impacts are 12 water utility line crossings through use of open-cut trenching within the Upper Elk River Watershed.

II. PERMIT STATUS

ARAP NRS 21.306 issued: June 1, 2022

ARAP NRS 21.306 expires: May 31, 2027

Application Received: **10/25/2021, and updated 2/14/2022, 3/1/2022**

Application Complete: **3/25/2022**

Status of Waters

Stream Name / Segment ID: Norris Creek/ TN06030003059_1000

Designated Use	Use Support	Causes	Sources
livestock watering & wildlife	fully supporting		
irrigation	fully supporting		
recreation	not assessed		
fish and aquatic life	fully supporting		

Assessment Date: n/a

The affected waters have been assessed and determined to be supporting the designated use for fish and aquatic life and to have available parameters for habitat. The affected waters are not known Exceptional Tennessee Waters.

Stream Name / Segment ID: Miscellaneous Tributaries to the Elk River / TN06030003001_0999

Designated Use	Use Support	Causes	Sources
livestock watering & wildlife	not assessed		
irrigation	not assessed		
recreation	not assessed		
fish and aquatic life	not assessed		

Assessment Date: n/a

The affected waters have not been assessed. The affected waters are not known Exceptional Tennessee Waters.

Stream Name / Segment ID: Wells Creek / TN06030003001_0999 TN06030003010_0800

Designated Use	Use Support	Causes	Sources
livestock watering & wildlife	not assessed		
irrigation	not assessed		
recreation	not assessed		
fish and aquatic life	not assessed		

Assessment Date: n/a

The affected waters have not been assessed. The affected waters are not known Exceptional Tennessee Waters.

Alternatives Analysis and Selection of Least Impactful Practicable Alternative

The stated purpose of the project is to upgrade older large and small water mains. Due to the age of the current infrastructure many of the waterlines are failing and need continual maintenance or replacement.

The applicant provided the following alternatives in addition to the chosen alternative with the submitted permit application.

Alternatives to the creek crossings are listed below.

a) *Do not replace the older pipes in areas where creek crossings are required.*

b) *Abandon older pipes that cross creeks but when installing new pipe, dead end the pipes on either side of the creek.*

c) *Cross the creeks in the streets*

Alternative a) is not a viable solution. These older pipes need to be replaced.

Alternative b) is not a sensible solution because if pipes were dead ended on either side of the creeks, the system would in many cases be losing the looped circulation of the system that provides for good water movement and prevents water from becoming stagnant. A water piping system which is looped also aids in providing stable water pressure.

Alternative c) could be adopted, but this alternative would add significant cost to the project in the form of pavement restoration and traffic control. This alternative is also contrary to one of the goals that FPU is trying to accomplish. That goal is to try to keep the water mains out of the streets and paving wherever possible. This greatly reducing costs and difficulty if a repair is eventually necessary.

FPU is planning to install all creek crossings by open cut methods. The only alternative to installation by open cut is to install by horizontal directional drilling (HDD). Due to the cost of directional drilling pipes 6-inches and larger in diameter, as compared with the cost of installation by open cut, FPU has elected to install all the proposed creek crossings utilizing open cut methods.

Based on the available information, the Division has determined that the authorized activities are the least impactful practical alternative that will accomplish the project purpose.

Social or Economic Justification Information

The applicant provided the following social and economic justification with the submitted permit application.

Fayetteville Public Utilities (FPU) has an extensive water system within and in the area surrounding the City of Fayetteville. The system provides potable water to approximately 19,000 customers. The water system infrastructure includes a raw water intake and water treatment plant, water storage tanks, booster pump stations, and a vast network of underground water supply piping.

Much of the underground water piping was installed in the mid 1900's and the materials these pipes are composed of are a reflection on their age. Much of the pipe is cast iron, asbestos cement, and galvanized steel pipe. Many of these older water main pipes are failing and FPU spends a great deal of its time and financial resources repairing these pipes to keep the system operational.

FPU has been planning a large water main replacement project for some time. The goal of the project is to replace as many of the older water mains composed of the materials noted above with ductile iron, PVC,

or HDPE water main pipe, depending on the pipe diameter needed. When the project is completed, FPU will be providing water with a piping system that can be expected to be durable and long lasting.

The proposed creek crossings are a necessary component in the replacement of the older pipes. There are creeks throughout the city and the surrounding area and many of these older pipes cross these creeks. Replacing these pipes will require that these creeks be crossed again to install the new water main piping.

Antidegradation

In accordance with the Tennessee Antidegradation Statement (Rule 0400-40-03-.06), the Division has determined that the authorized activities, if compliant with the permit terms and conditions, will result in no more than de minimis degradation to water quality.

For more information, please reference Tennessee's Antidegradation Statement which is found in Chapter 0400-40-03 of the Rules of the Tennessee Department of Environment and Conservation.

Location and Design Details:

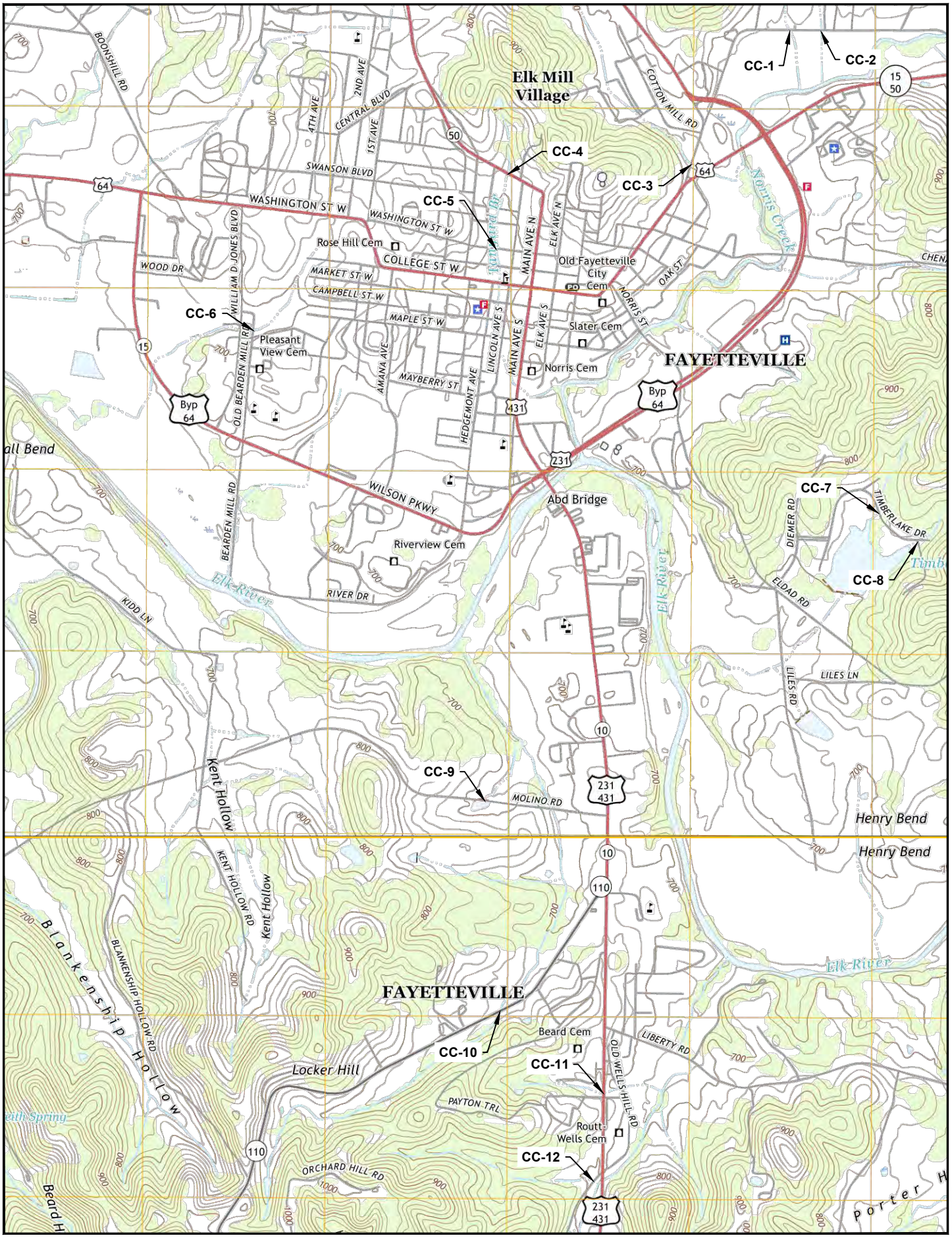
MAPPING COURTESY OF:
GOOGLE MAPS

SCALE: 1" = 10 MILES (+/-)

FPU
Fayetteville Public Utilities

FAYETTEVILLE PUBLIC UTILITIES
FAYETTEVILLE, TENNESSEE
WATER SYSTEM IMPROVEMENTS - CONTRACT 1
FIGURE 1
VICINITY MAP

FOXPE
ENGINEERING FOR THE WATER ENVIRONMENT
233 OCEOLA AVENUE #200
NASHVILLE, TENNESSEE 37209
FOXPE.COM

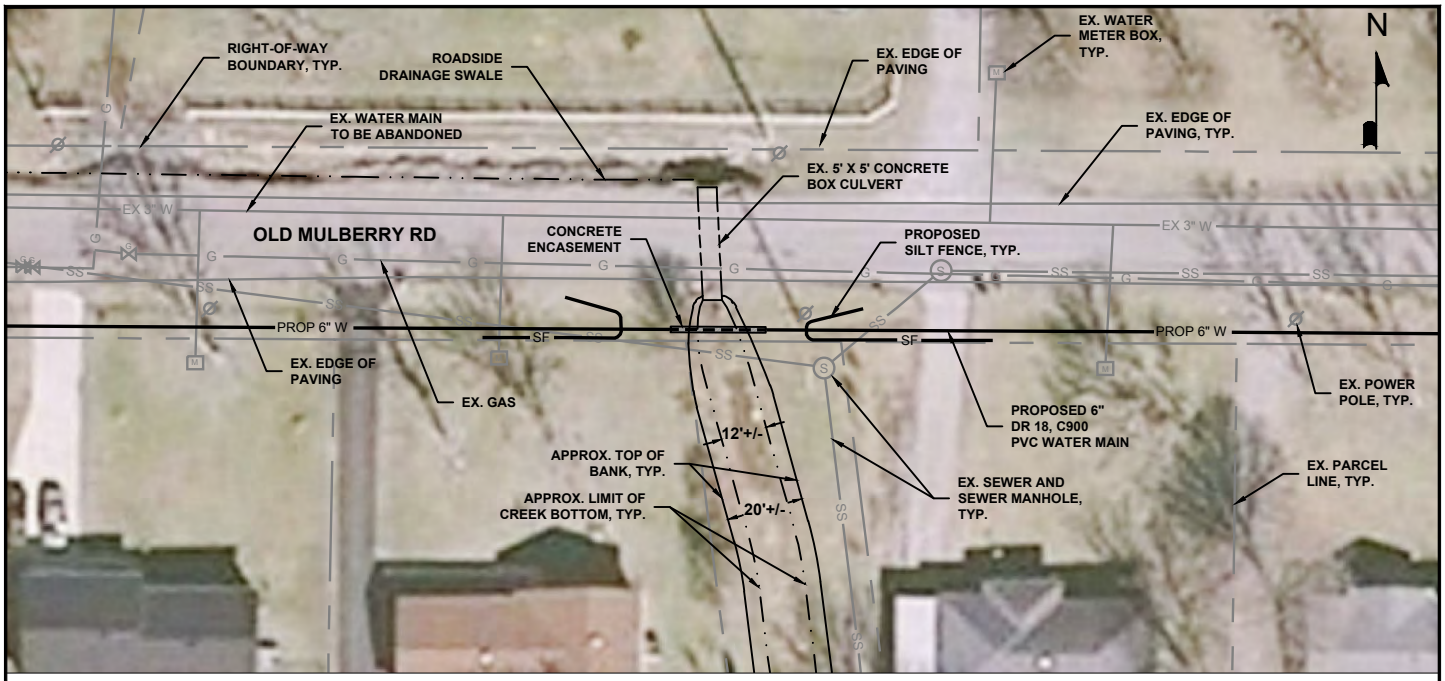


PORTIONS OF 2019 USGS LINCOLN AND FAYETTEVILLE QUADRANGLES
COURTESY OF:
UNITED STATES GEOLOGIC SURVEY
NOT TO SCALE

FPU
Fayetteville Public Utilities

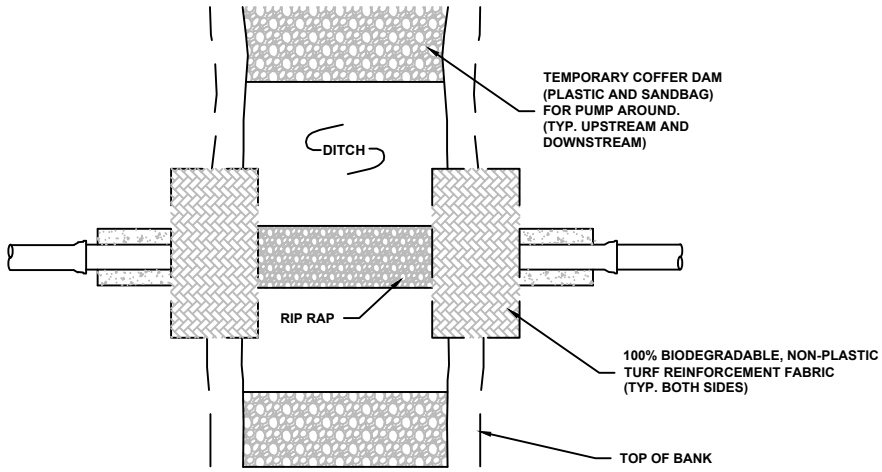
FAYETTEVILLE PUBLIC UTILITIES
FAYETTEVILLE, TENNESSEE
WATER SYSTEM IMPROVEMENTS - CONTRACT 1
FIGURE 2
USGS TOPO & LOCATION MAP

FOXPE
ENGINEERING FOR THE WATER ENVIRONMENT
233 OCEOLA AVENUE #200
NASHVILLE, TENNESSEE 37209
FOXPE.COM

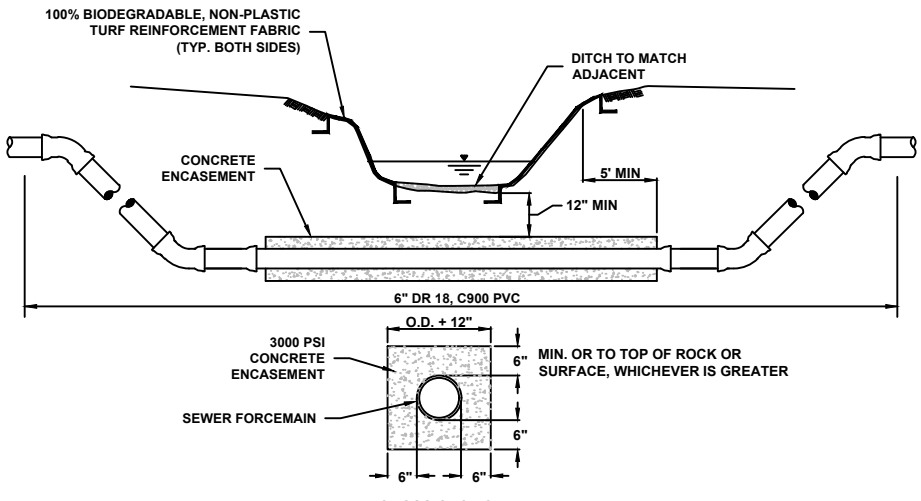


OLD MULBERRY RD CREEK CROSSING (CC-1)

SCALE: 1" = 50'



PLAN VIEW

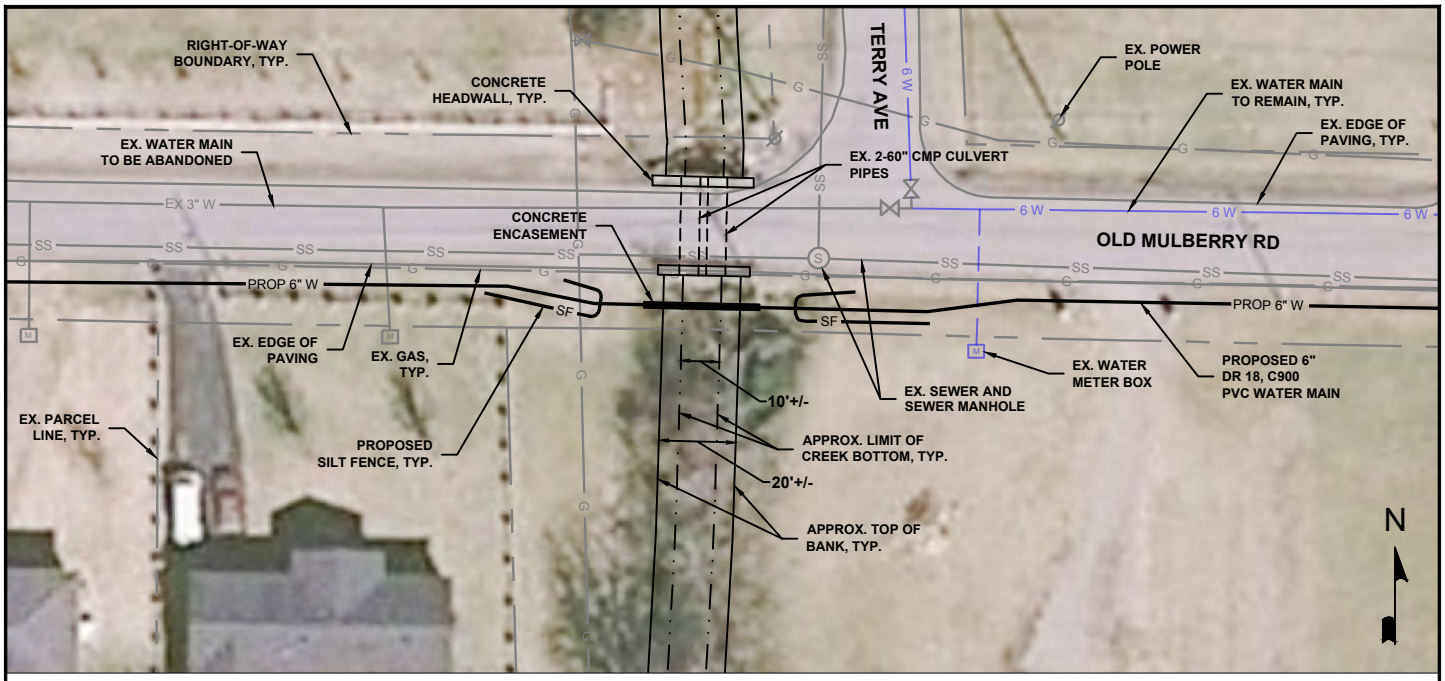


CROSS-SECTION

OLD MULBERRY RD CREEK CROSSING - OPEN CUT DETAILS

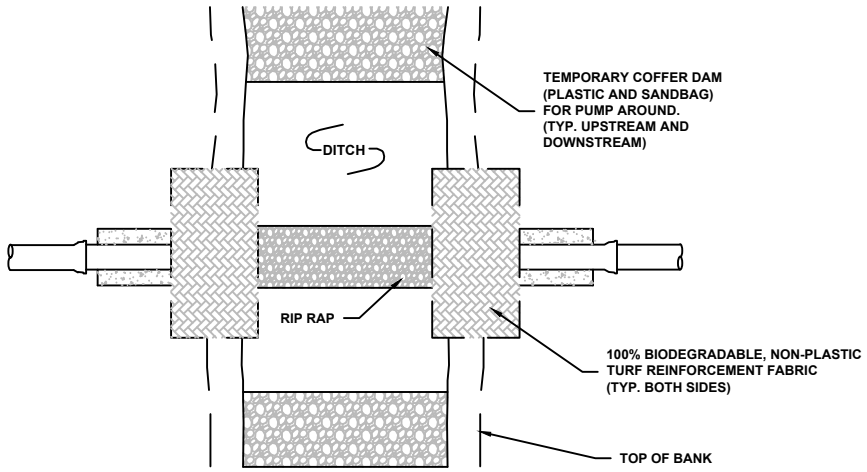
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 3 OLD MULBERRY RD CREEK CROSSING (CC-1)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

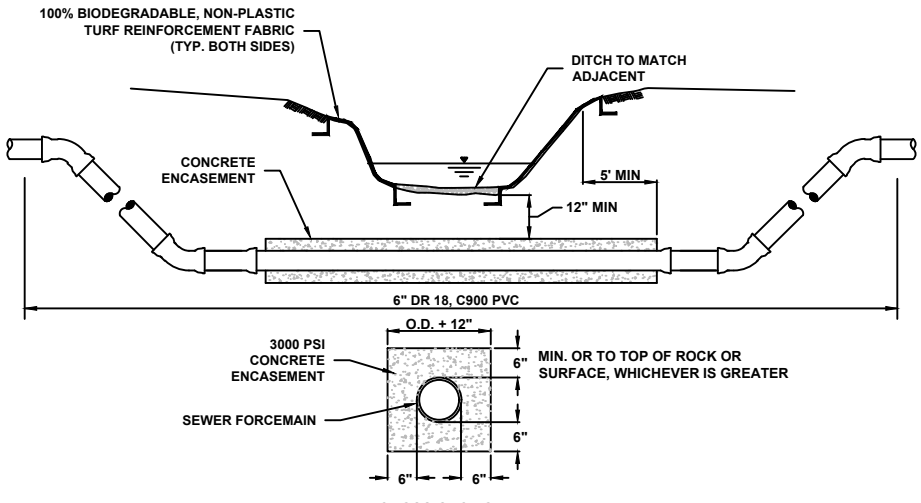


OLD MULBERRY RD-2 CREEK CROSSING (CC-2)

SCALE: 1" = 50'



PLAN VIEW

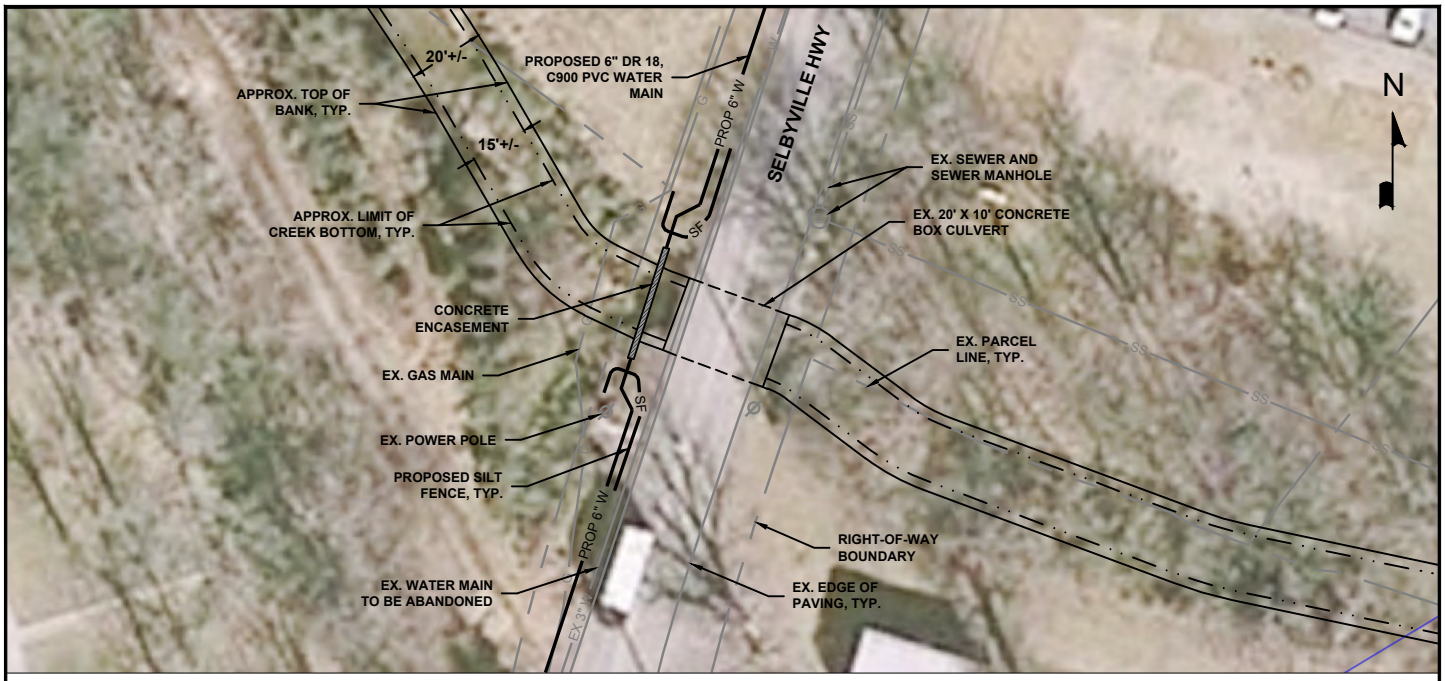


CROSS-SECTION

OLD MULBERRY RD-2 CREEK CROSSING - OPEN CUT DETAILS

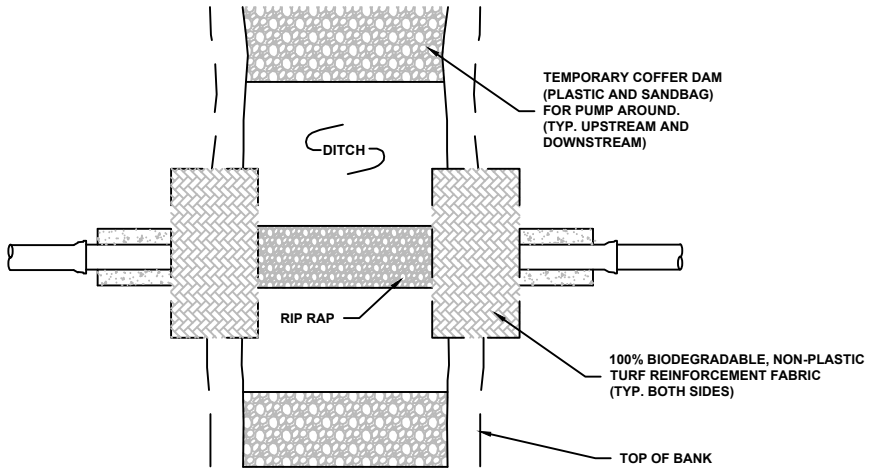
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 4 OLD MULBERRY RD-2 CREEK CROSSING (CC-2)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

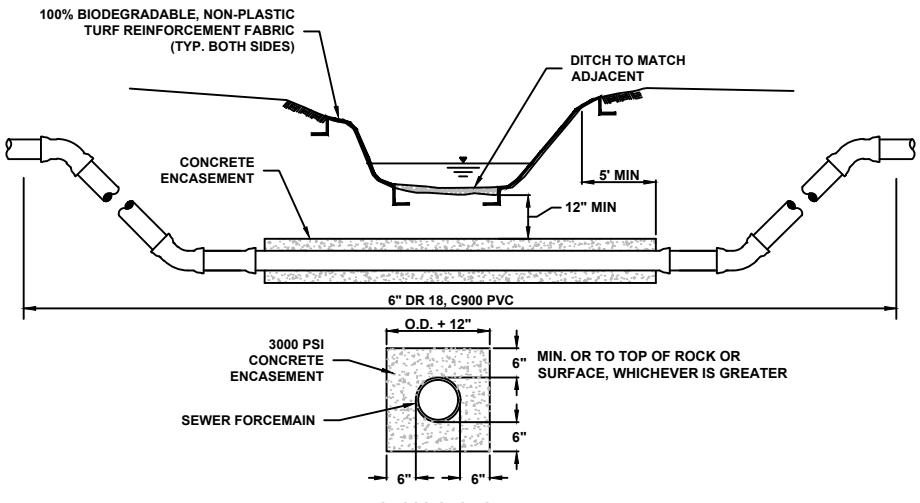


SHELBYVILLE HWY. CREEK CROSSING (CC-3)

SCALE: 1" = 50'



PLAN VIEW

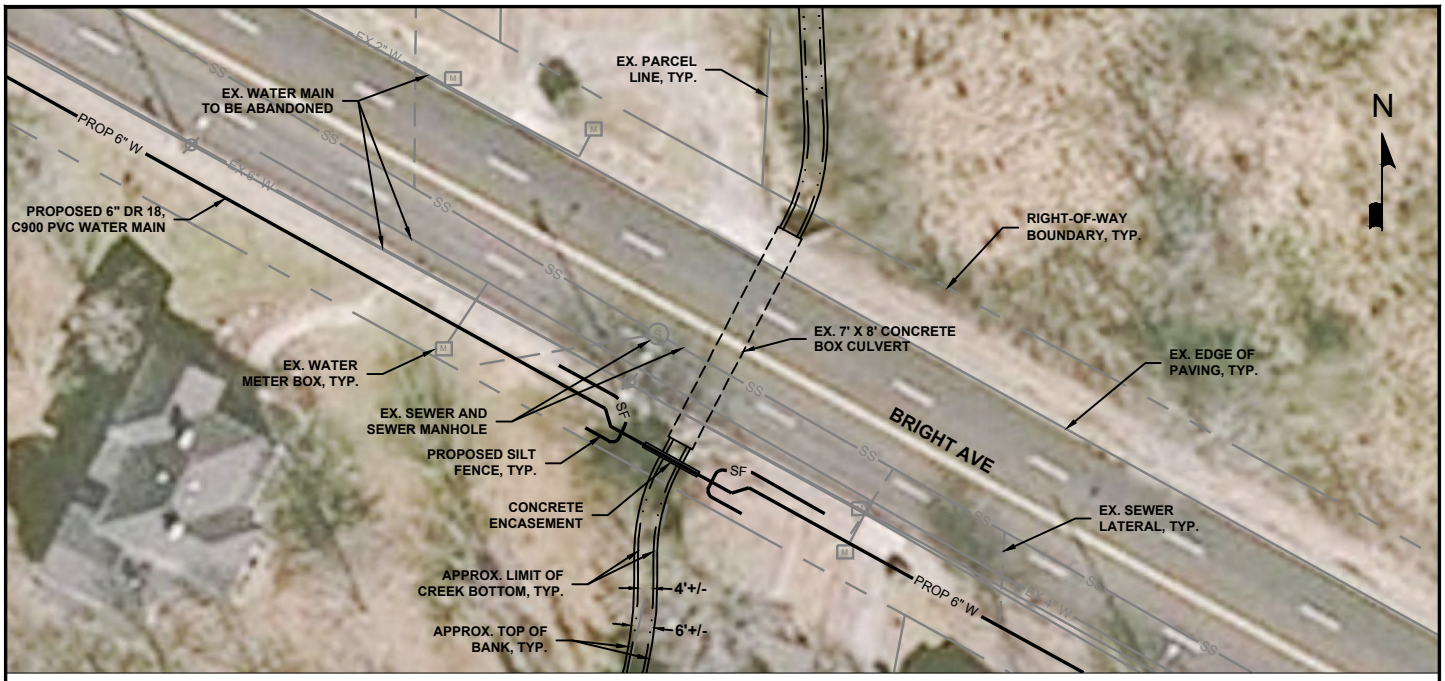


CROSS-SECTION

SHELBYVILLE HWY. CREEK CROSSING - OPEN CUT DETAILS

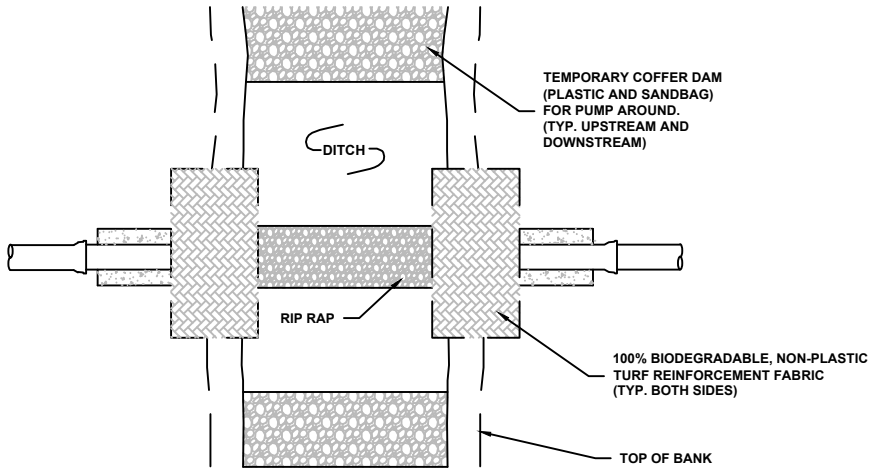
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 5 SHELBYVILLE HIGHWAY CREEK CROSSING (CC-3)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

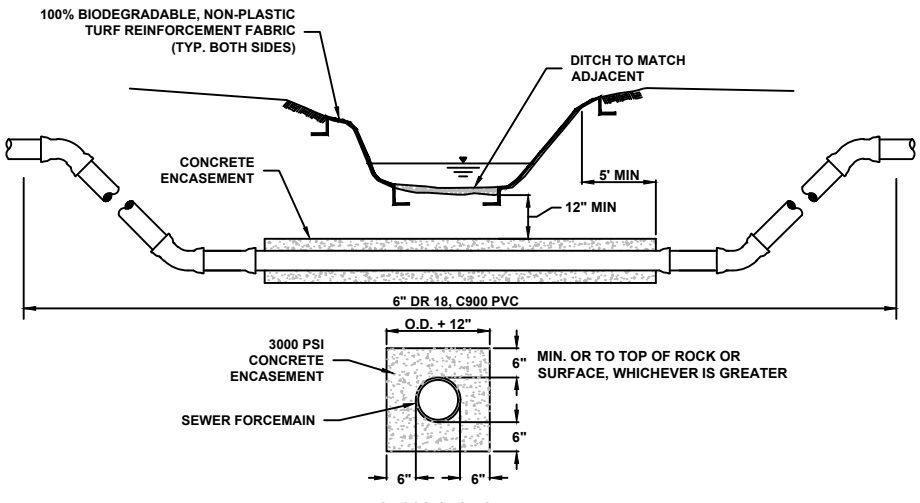


BRIGHT AVE. CREEK CROSSING (CC-4)

SCALE: 1" = 50'



PLAN VIEW

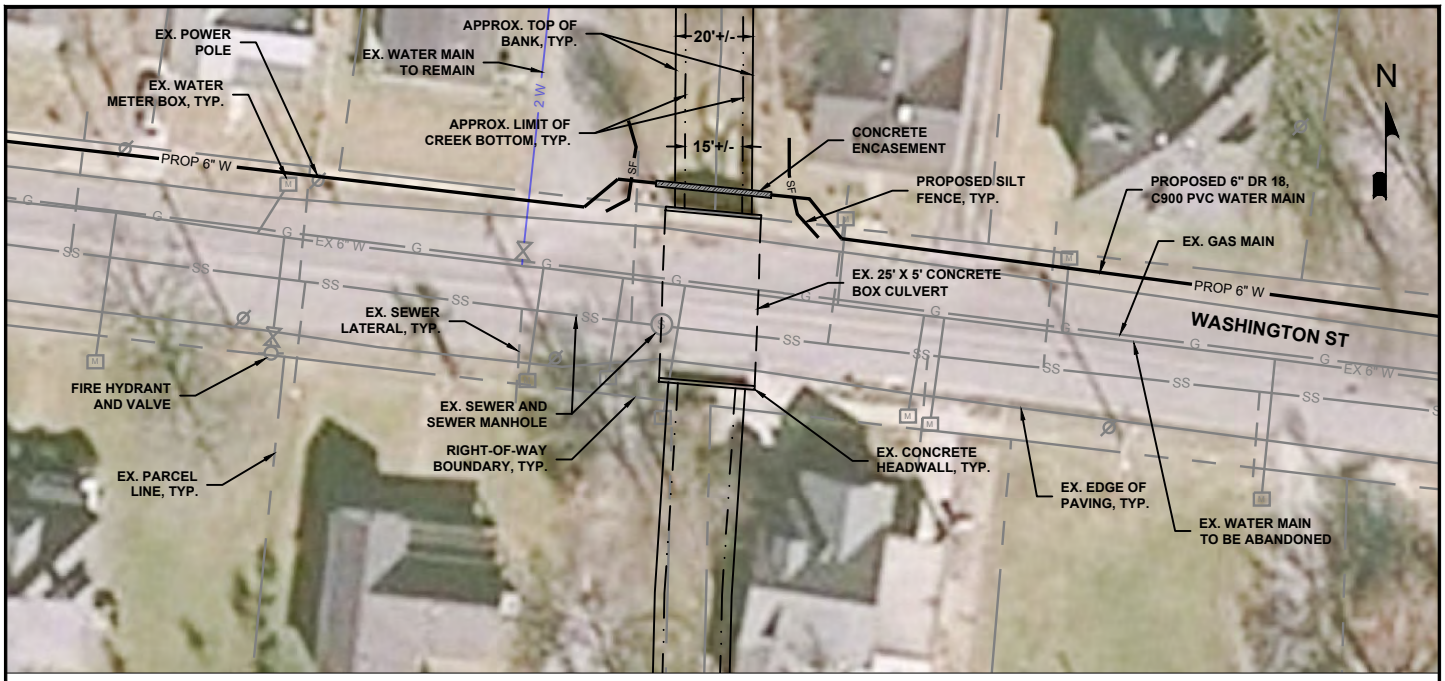


CROSS-SECTION

BRIGHT AVE. CREEK CROSSING - OPEN CUT DETAILS

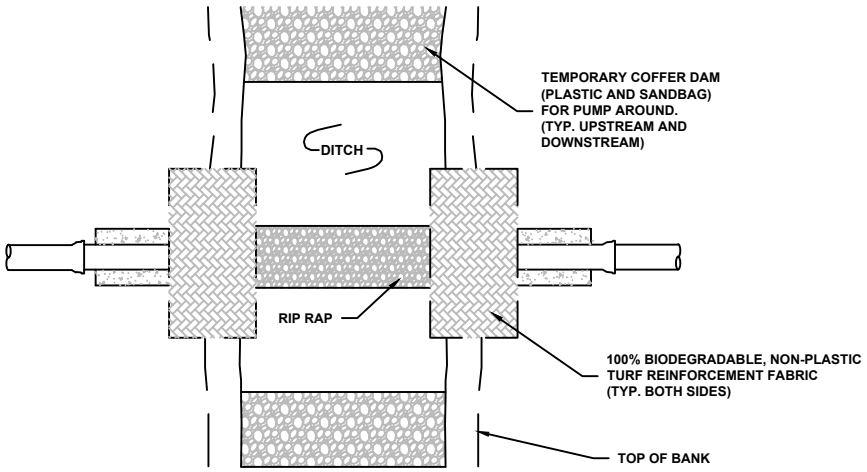
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 6 BRIGHT AVENUE CREEK CROSSING (CC-4)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

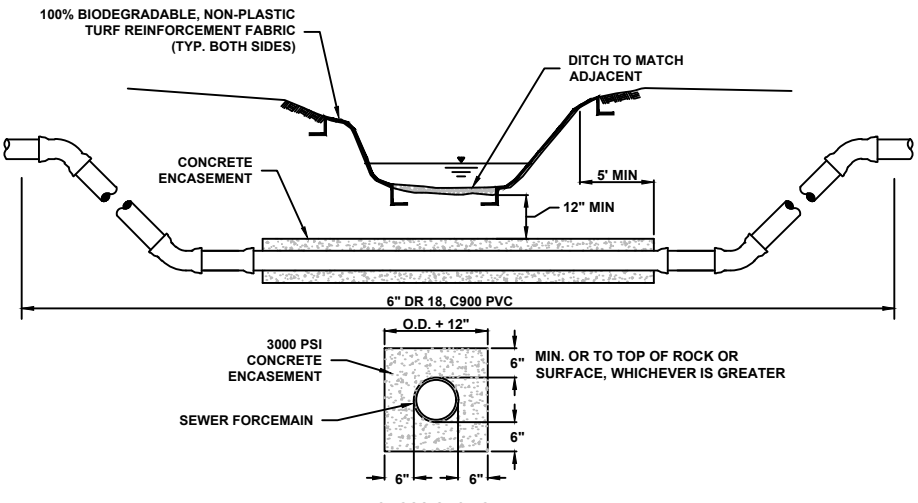


WASHINGTON ST. CREEK CROSSING (CC-5)

SCALE: 1" = 50'



PLAN VIEW

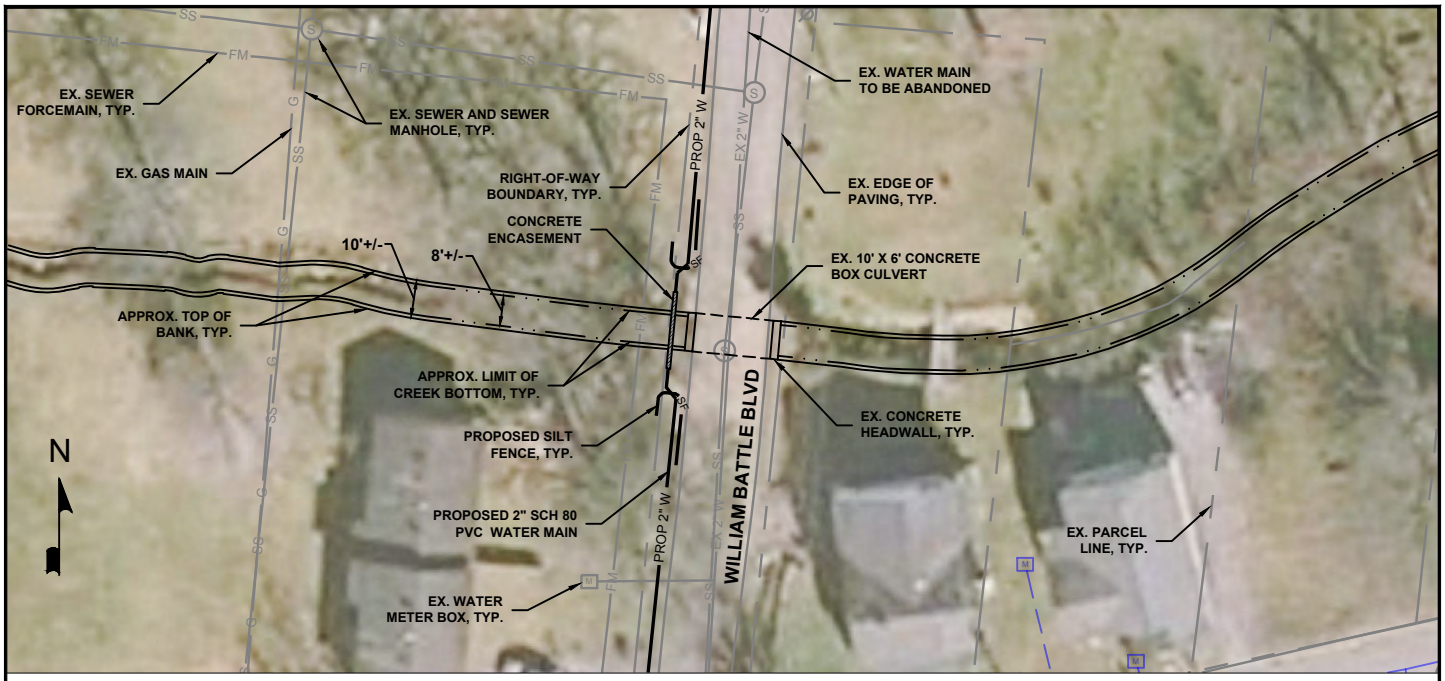


CROSS-SECTION

WASHINGTON ST. CREEK CROSSING - OPEN CUT DETAILS

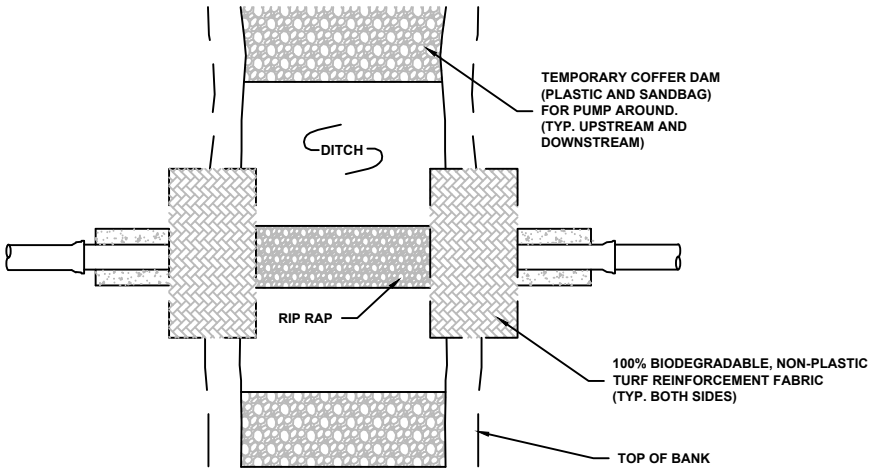
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 7 WASHINGTON STREET CREEK CROSSING (CC-5)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

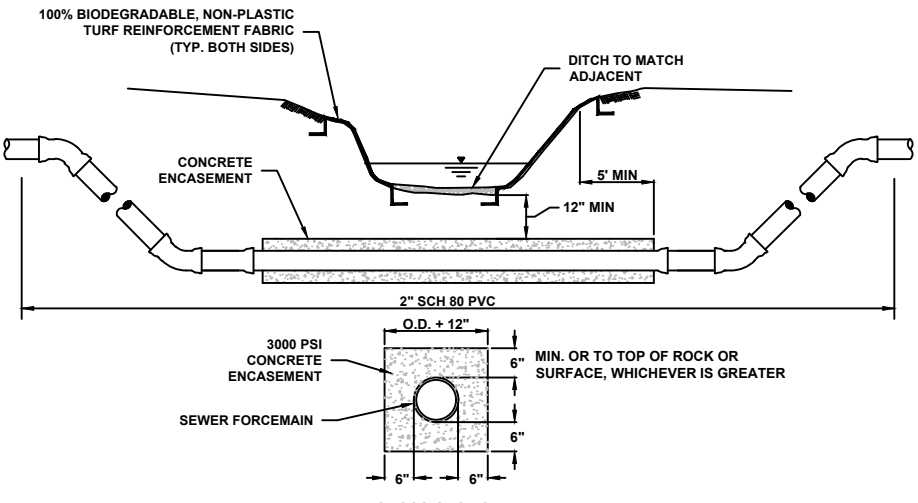


WILLIAM BATTLE BLVD CREEK CROSSING (CC-6)

SCALE: 1" = 50'



PLAN VIEW

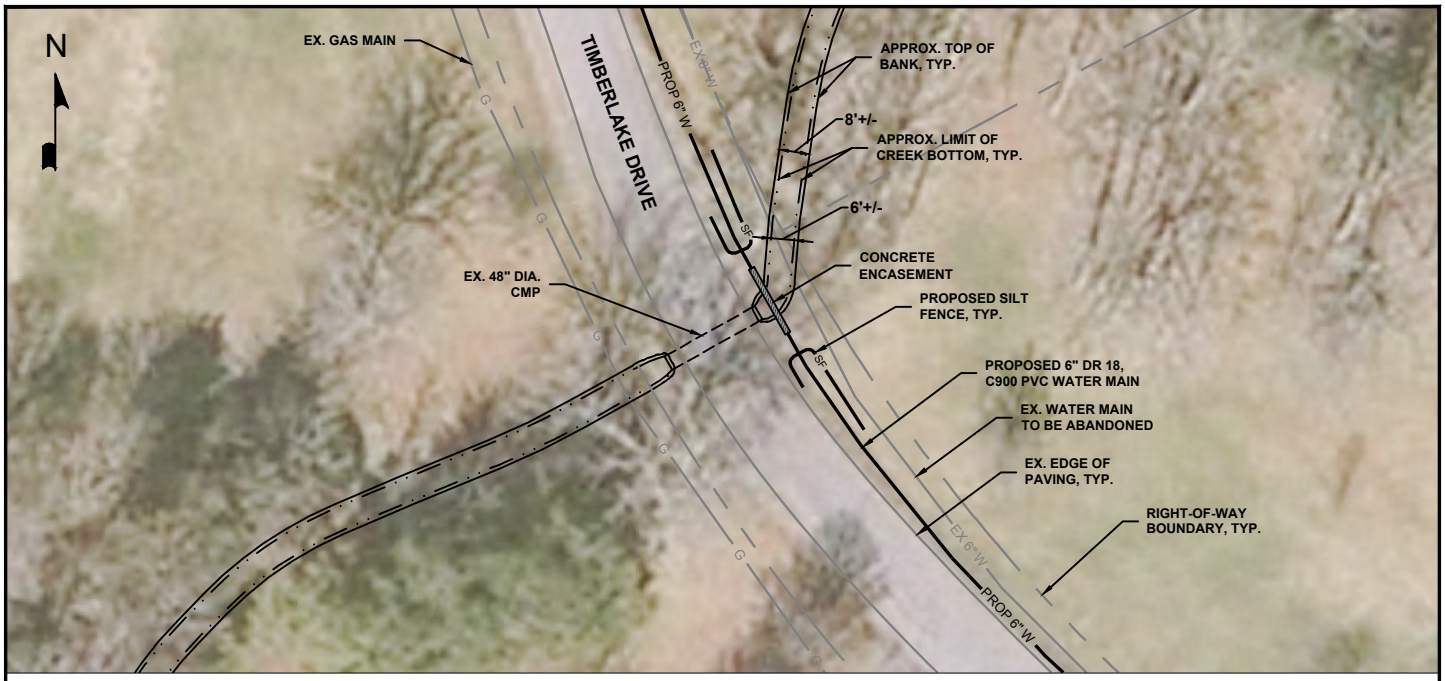


CROSS-SECTION

WILLIAM BATTLE BLVD CREEK CROSSING - OPEN CUT DETAILS

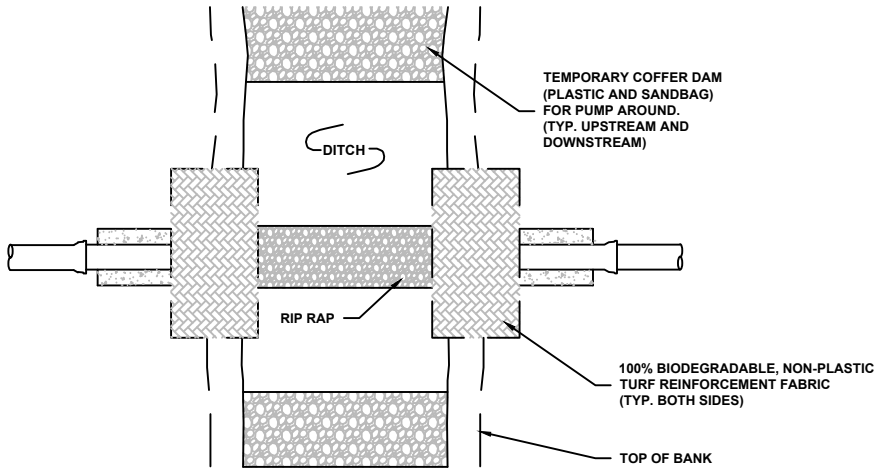
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 8 WILLIAM BATTLE BLVD CREEK CROSSING (CC-6)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

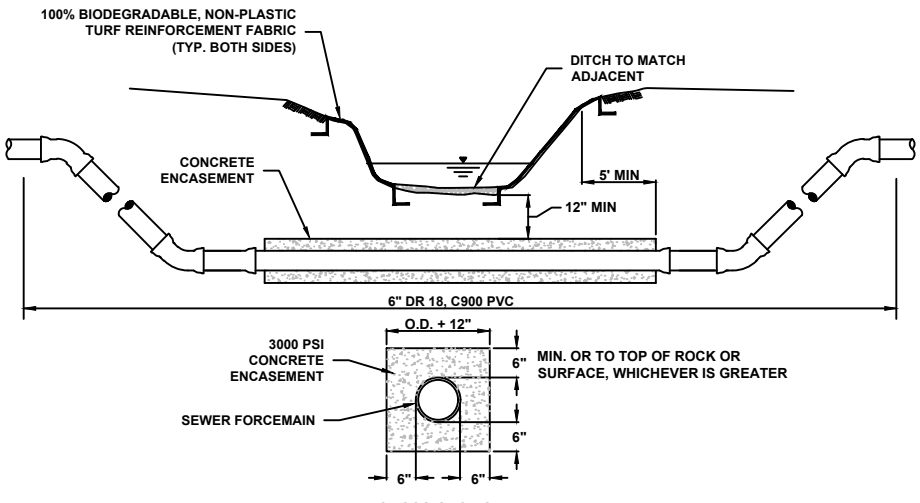


TIMBERLAKE DR. CREEK CROSSING (CC-7)

SCALE: 1" = 50'



PLAN VIEW

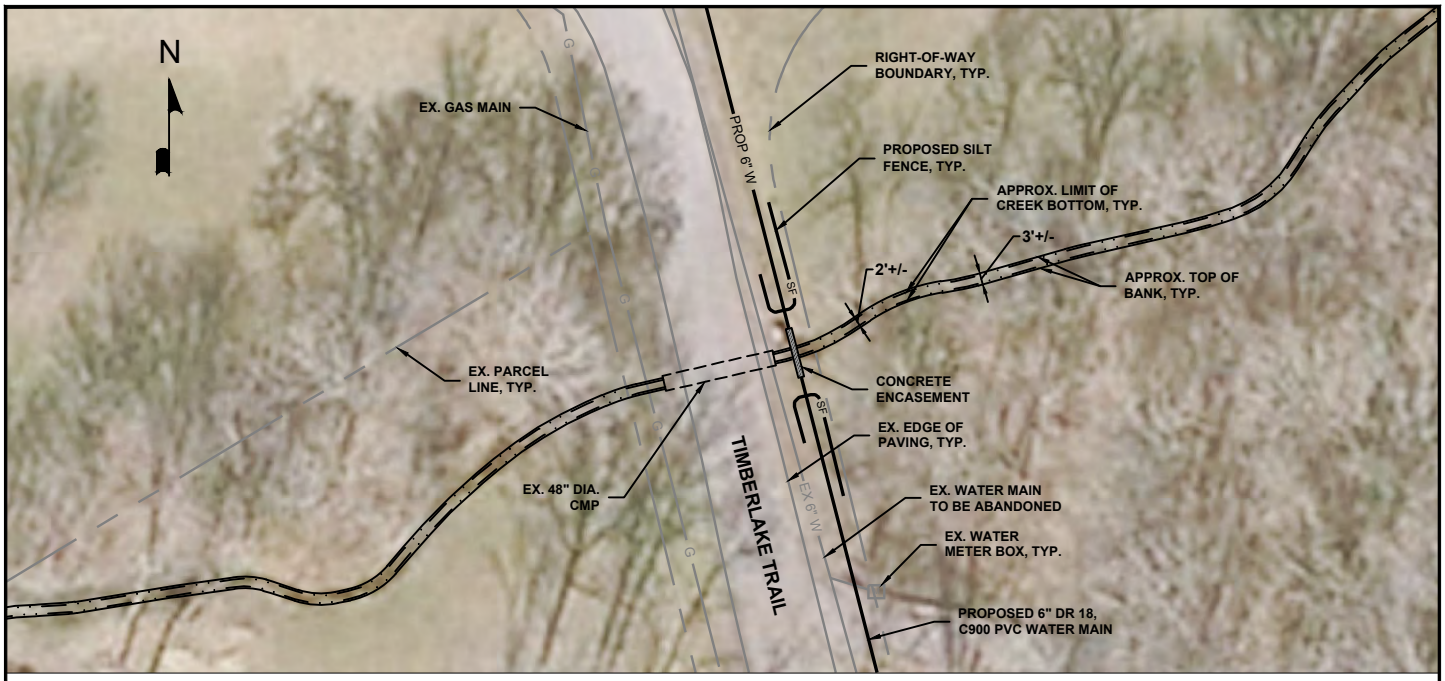


CROSS-SECTION

TIMBERLAKE DR. CREEK CROSSING - OPEN CUT DETAILS

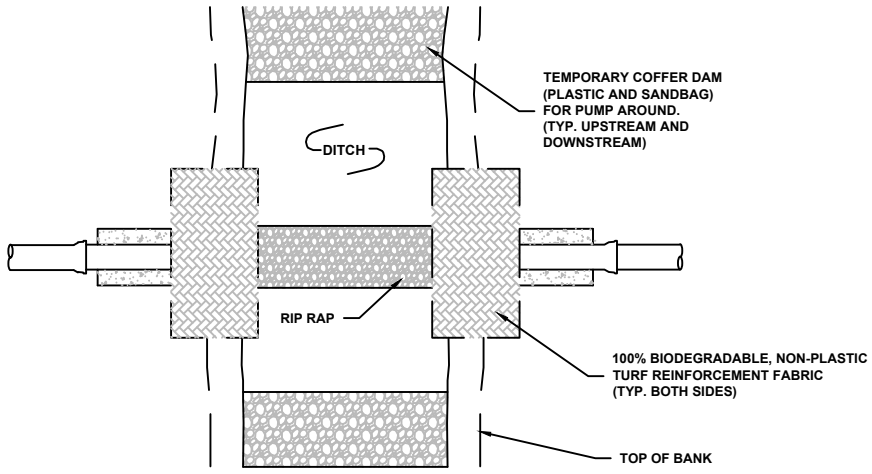
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 9 TIMBERLAKE DRIVE CREEK CROSSING (CC-7)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

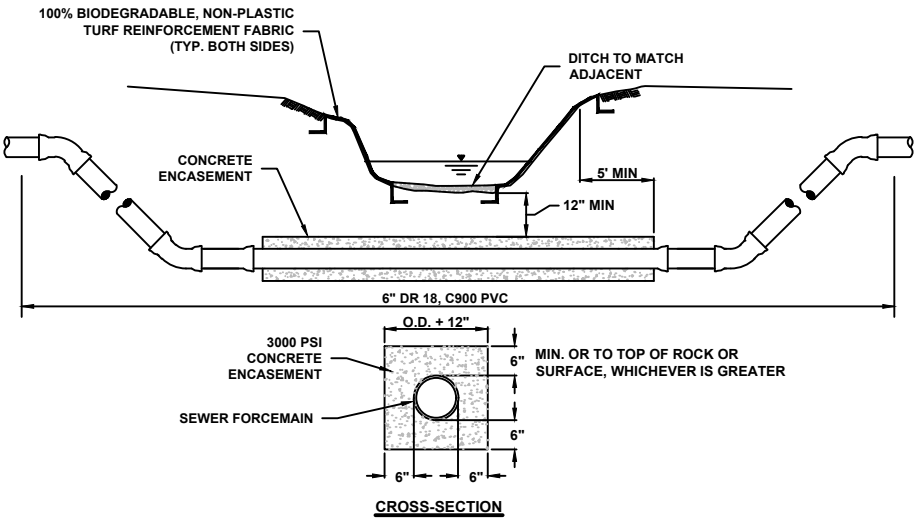


TIMBERLAKE TRAIL CREEK CROSSING (CC-8)

SCALE: 1" = 50'



PLAN VIEW

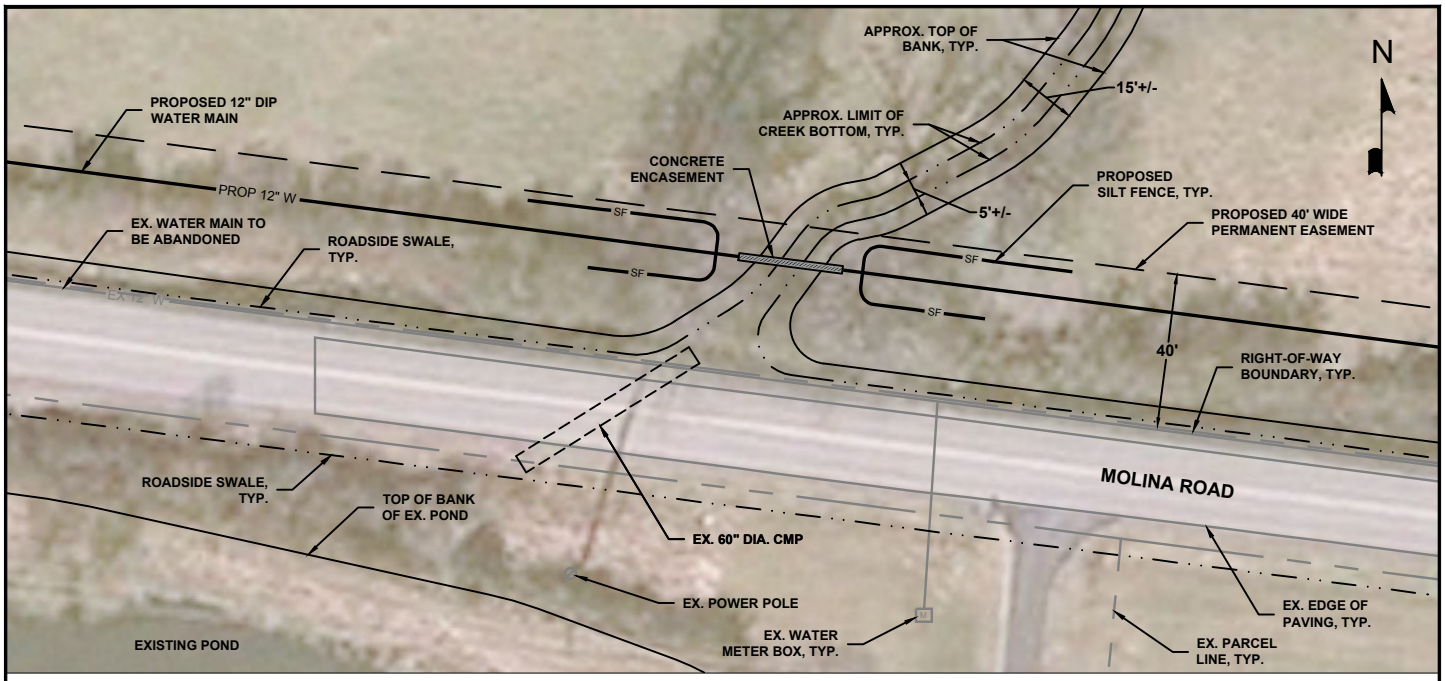


CROSS-SECTION

TIMBERLAKE DR. CREEK CROSSING - OPEN CUT DETAILS

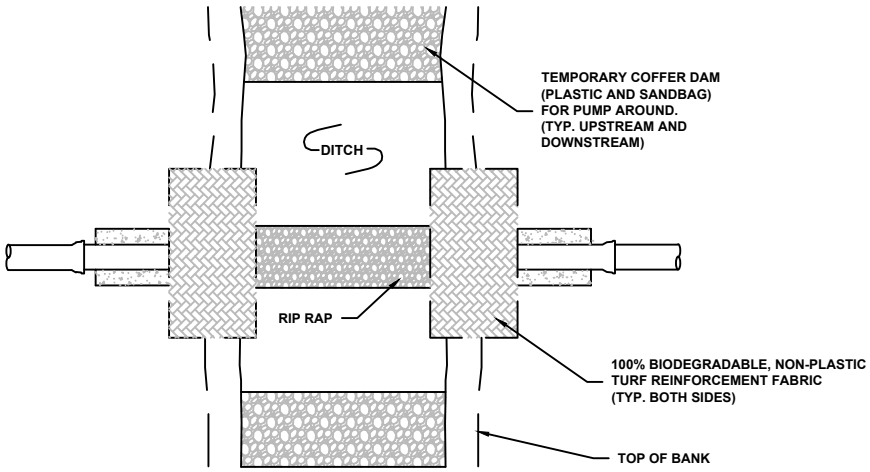
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 10 TIMBERLAKE TRAIL CREEK CROSSING (CC-8)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

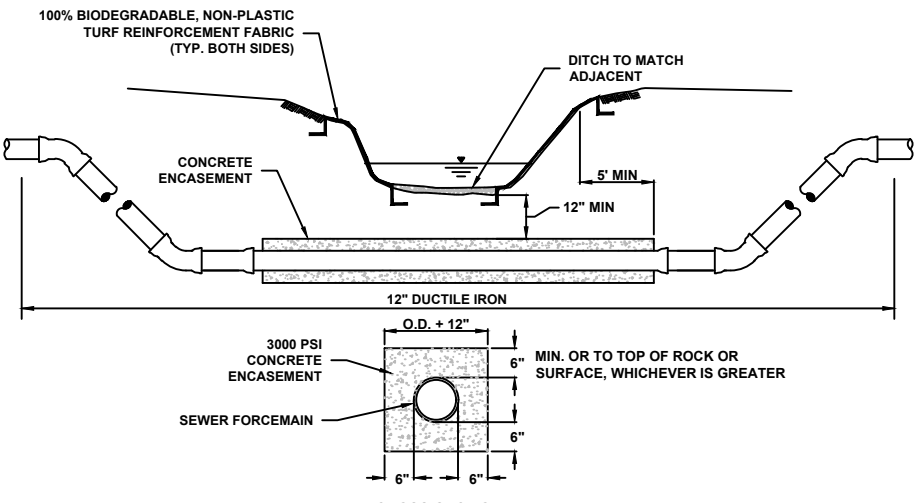


MOLINA RD CREEK CROSSING (CC-9)

SCALE: 1" = 50'



PLAN VIEW

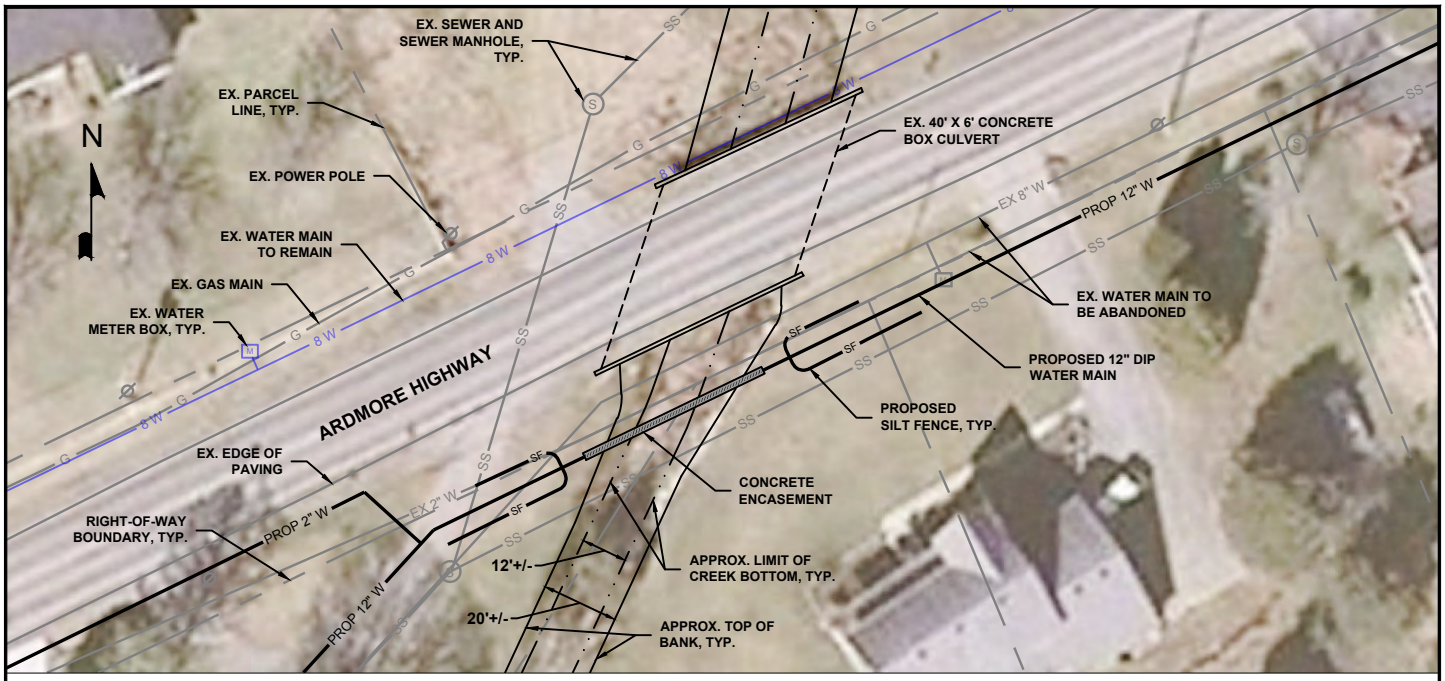


CROSS-SECTION

MOLINA RD CREEK CROSSING - OPEN CUT DETAILS

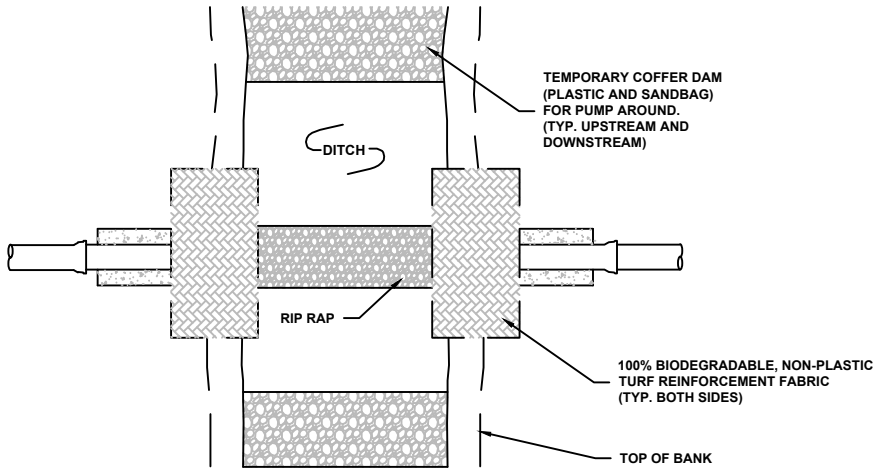
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 11 MOLINA ROAD CREEK CROSSING (CC-9)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

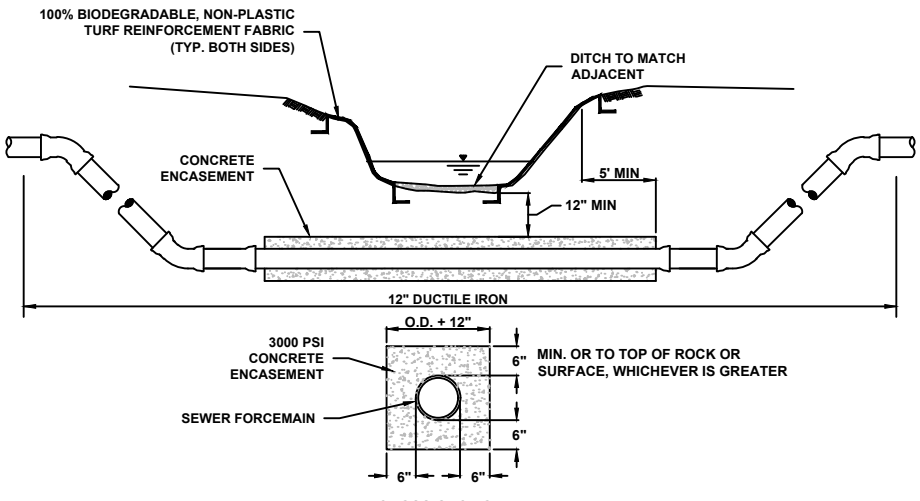


ARDMORE HWY CREEK CROSSING (CC-10)

SCALE: 1" = 50'



PLAN VIEW

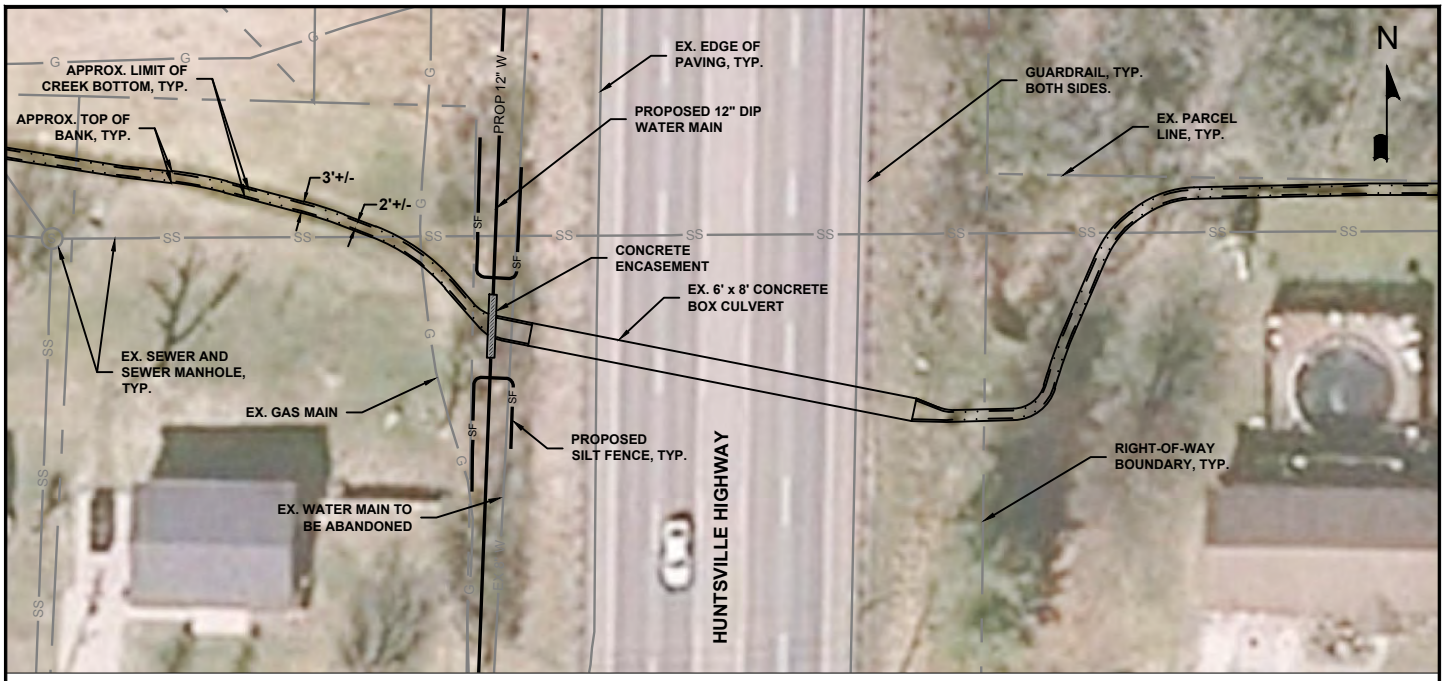


CROSS-SECTION

ARDMORE HWY CREEK CROSSING - OPEN CUT DETAILS

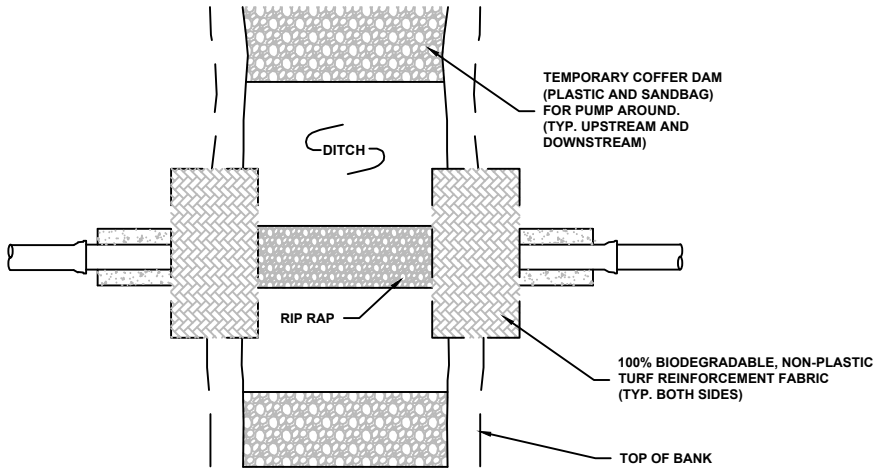
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 12 ARDMORE HIGHWAY CREEK CROSSING (CC-10)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

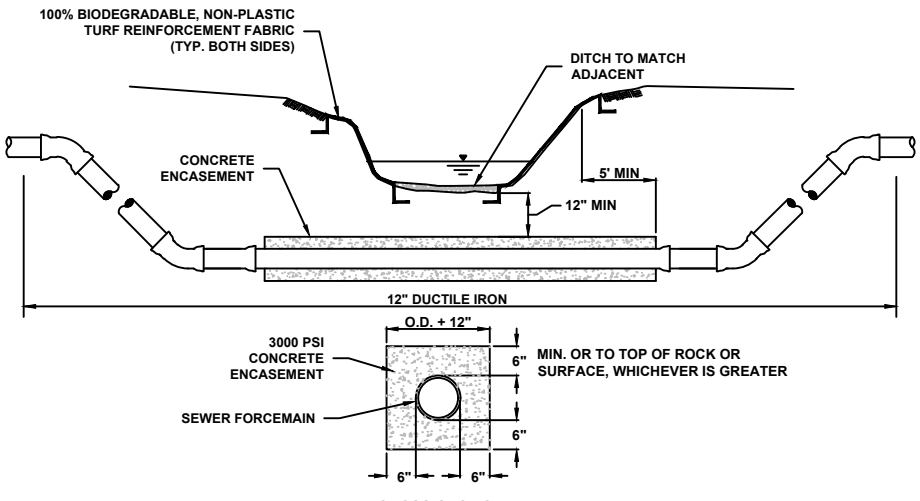


HUNTSVILLE HWY CREEK CROSSING (CC-11)

SCALE: 1" = 50'



PLAN VIEW

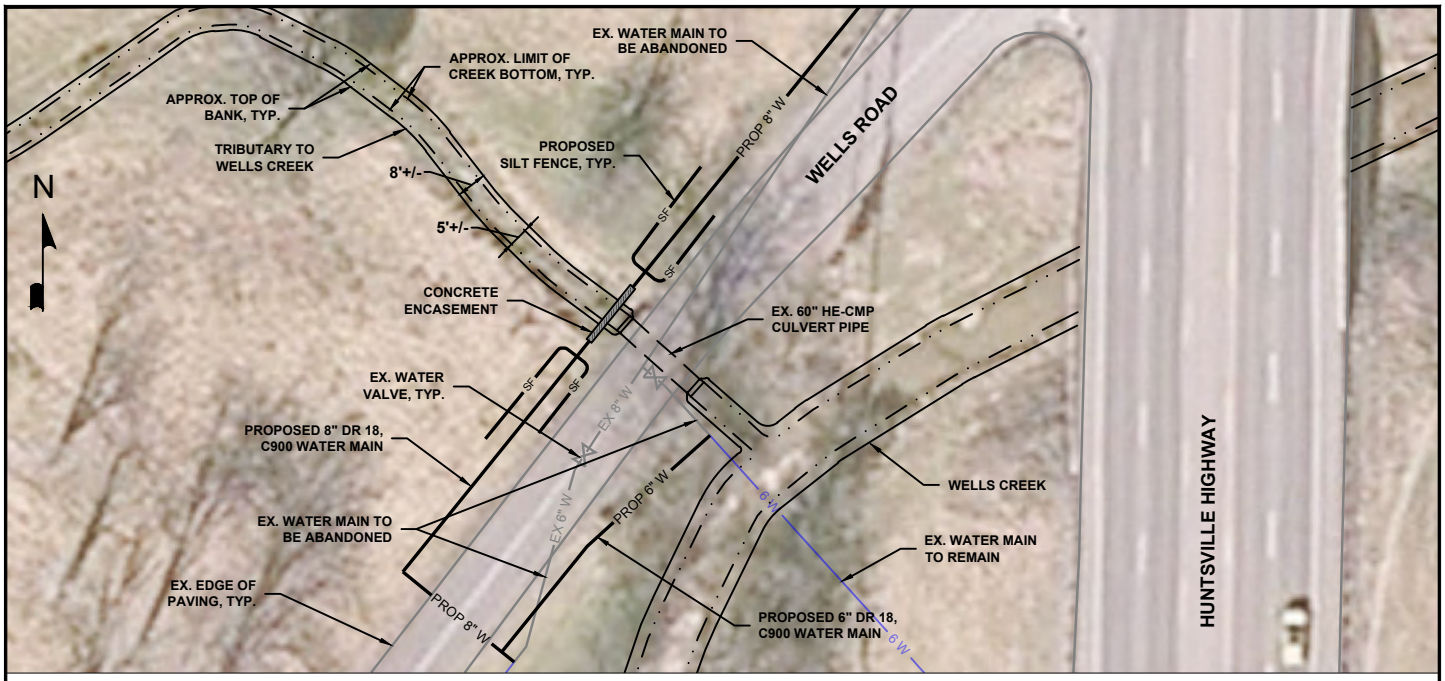


CROSS-SECTION

HUNTSVILLE HWY CREEK CROSSING - OPEN CUT DETAILS

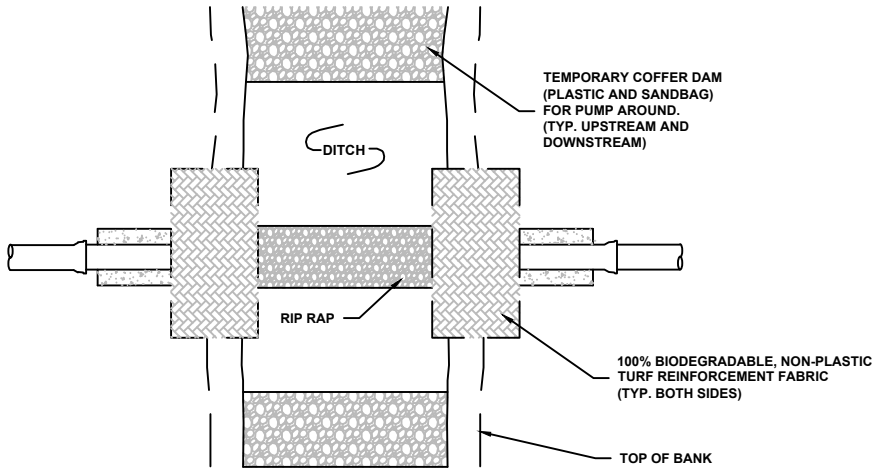
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 13 HUNTSVILLE HWY CREEK CROSSING (CC-11)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

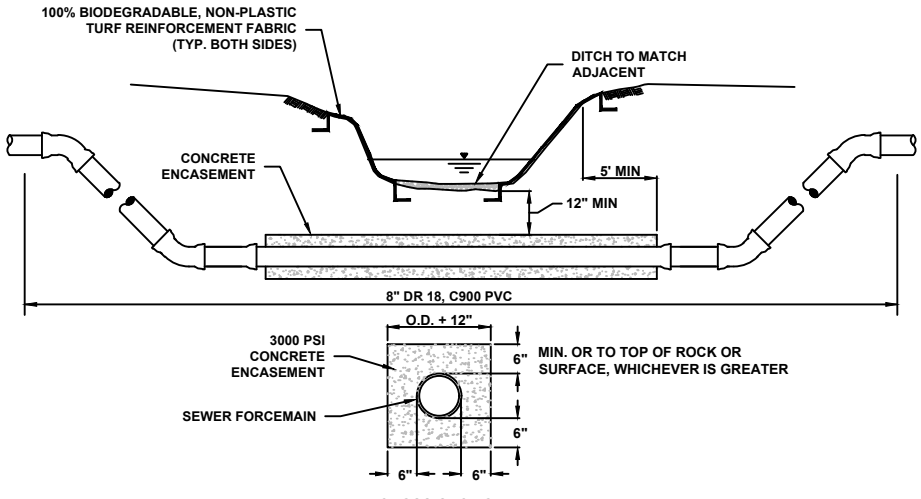


WELS ROAD CREEK CROSSING (CC-12)

SCALE: 1" = 50'



PLAN VIEW



CROSS-SECTION

WELLS ROAD CREEK CROSSING - OPEN CUT DETAILS

NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 14 WELLS RD CREEK CROSSING (CC-12)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
REGULATORY DIVISION
2424 DANVILLE ROAD SW, SUITE N
DECATUR, AL 35603

April 25, 2022

SUBJECT: File No. LRN-2021-00957, Fayetteville Public Utilities, Water Main Replacement Crossing Multiple Tributaries to the Elk River, Lincoln County, TN

Fayetteville Public Utilities
C/o Mr. Britt Dye
408 College Street West
Fayetteville, TN 37334

Dear Mr. Dye:

This correspondence is in regard to your pre-construction notification (PCN) to replace existing water utility lines via trench cut on multiple tributaries in the Elk River watershed in Fayetteville, TN. This project has been assigned number (LRN-2021-00957). Please refer to this number in all communication concerning this matter.

The individual utility crossings proposed in the PCN are listed below:

Table 1: Crossing Locations

	Latitude	Longitude	Aquatic Resource	Impact Type	NWP	Authority	Impacts Stream- Linear foot (lf)
Location #1	35.1650	-86.5549	UT to Norris Creek	Stream	3	404	12
Location #2	35.1650	-86.5530	UT to Norris Creek	Stream	3	404	20
Location #3	35.1583	-86.5610	Cotton Mill Branch	Stream	3	404	20
Location #4	35.1579	-86.5610	Tanyard Branch	Stream	3	404	6
Location #5	35.1542	-86.5726	Tanyard Branch	Stream	3	404	20
Location #6	35.1504	-86.5874	UT to Elk River	Stream	3	404	10

Location #7	35.1407	-86.5494	UT to Elk River	Stream	3	404	8
Location #8	35.139	-86.5472	UT to Elk River	Stream	3	404	3
Location #9	35.1268	-86.5733	UT to Elk River	Stream	3	404	15
Location #10	35.1163	-86.5725	UT to Elk River	Stream	3	404	20
Location #11	35.1124	-86.5662	UT to Wells Creek	Stream	3	404	3
Location #12	35.1080	-86.5668	UT to Wells Creek	Stream	3	404	8

Based on the information you provided, Nationwide Permit (NWP) **3**, Maintenance, which became effective February 25, 2022 [86 FR 73522], authorizes your proposal as depicted in the plans provided in the PCN dated November 2, 2021. In order for this authorization to be valid, you must ensure the work is performed in accordance with the enclosed *NWP 3, Terms and Conditions*, and the *2021 Nationwide Permit General Conditions*.

This verification is valid until March 14, 2026, unless the NWP authorization is modified, suspended, or revoked prior to that date. Furthermore, if you commence or are under contract to commence this activity before the date of NWP expiration, modification, or revocation, you will have 12 months from the date of expiration, modification or revocation to complete the activity under the present terms and conditions of the NWP. This will apply to all NWPs unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 330.4(e) and 33 CFR 330.5(c) or (d).

This NWP 3 verification does not obviate your responsibility to obtain and abide by all other federal, state and local permits or approvals required. This NWP verification should not be considered as an approval of the design features of any activity authorized or an implication that such construction is considered adequate for the purpose intended. In addition, it does not grant any property rights or exclusive privileges and does not authorize any injury to the property or rights of others. Failure to comply with all terms and conditions of this NWP verification invalidates this authorization and could result in a violation of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act.

Upon completing the authorized work, you must fill out and return the enclosed *Certificate of Compliance with Department of the Army Permit* form. Thank you for your cooperation during the permitting process. If you have any questions, please contact me at (256) 350-5620 or via e-mail adam.w.mchann@usace.army.mil.

Sincerely,

Adam W. McHann
Regulatory Specialist
Regulatory Division, West Branch
U.S. Army Corps of Engineers

Enclosures

Enclosure 1 – NWP 3, Terms and Conditions
Enclosure 2 – 2021 Nationwide Permit General Conditions
Enclosure 3 – Compliance Certification

cc:

Scott Adkisson (FOXPE, LLC)

3. **Maintenance**. (a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This NWP also authorizes the removal of previously authorized structures or fills. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project. This NWP also authorizes the removal of accumulated sediment and debris within, and in the immediate vicinity of, the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(b) This NWP also authorizes the removal of accumulated sediments and debris outside the immediate vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.). The removal of sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer under separate authorization.

(c) This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After conducting the maintenance activity, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

(d) This NWP does not authorize maintenance dredging for the primary purpose of navigation. This NWP does not authorize beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

Notification: For activities authorized by paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 32). The pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. (Authorities: Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (Sections 10 and 404))

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for maintenance.

US Army Corps of Engineers ®
Nashville District

2021 Nationwide Permit General Conditions

The following General Conditions must be followed in order for any authorization by NWP to be valid:

State of Tennessee Regional General Conditions (Applicable to ALL Nationwide Permits):

1. Except for NWP 3 Maintenance, a PCN is required for all proposed activities in *Exceptional Tennessee Waters* and/or *Outstanding National Resource Waters*. A list of known Exceptional Tennessee Waters and Outstanding National Resource Waters can be obtained from the Tennessee Department of Environment and Conservation's website: https://tn.gov/environment/article/wr-water-resources-data-viewer . A map of known Exceptional Tennessee Waters and Outstanding National Resource Waters can be obtained from the Tennessee Department of Environment and Conservation's website: http://tdeconline.tn.gov/dwr/ .

National General Conditions:

1. Navigation.
(a) No activity may cause more than a minimal adverse effect on navigation.
(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.
(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures and fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers.
(a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.
(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion

in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/ .

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species.

(a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide Web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties.

(a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register

of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required then the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require preconstruction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory

mitigation required. If restored riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality.

(a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a residential subdivision is constructed under NWP 29, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the residential subdivision under NWP 29 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 29 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or is not authorized by NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification.

(a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. Prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or streams and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:*

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) All NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an

unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

US Army Corps
of Engineers ®
Nashville District

COMPLIANCE CERTIFICATION

YOU ARE REQUIRED TO SUBMIT THIS SIGNED CERTIFICATION REGARDING THE COMPLETED ACTIVITY AND ANY REQUIRED MITIGATION

I hereby certify that the work authorized by **Permit No. LRN-2021-00957,** and any required mitigation was done in accordance with the Corps authorization, including any general, regional, or special conditions.

_____
Permittee Signature

_____
Date

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative.

Submit this signed certification to the address below:

☐ U.S Army Corps of Engineers
Regulatory Division
3701 Bell Road
Nashville, TN 37214-2660

☐ East Regulatory Field Office
501 Adesa Parkway
Suite 250
Lenoir City, TN 37771

☒ West Regulatory Field Office
2424 Danville Road, Suite N
Decatur, AL 35603

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
REGION 3 RIGHT OF WAY DIVISION

6601 CENTENNIAL BOULEVARD
NASHVILLE, TENNESSEE 37243-0360
(615) 350-4200

BUTCH ELEY
DEPUTY GOVERNOR &
COMMISSIONER OF TRANSPORTATION

BILL LEE
GOVERNOR

Authorization Date: SEPTEMBER 07, 2022

Britt Dye
Fayetteville Public Utilities ,
P.O. Box 120 ,
Fayetteville, TN 37334

PERMIT NO.: GA-2007067350-2022 GA: $50,000.00
DESCRIPTION: To excavate and replace water services across the entire city of Fayetteville.

Route	Begin LM	Ending LM	County	Start Long/Lat	End Long/Lat
10	10.67	0	Lincoln	-86.569642, 35.143111	-86.569642, 35.143111
10	10.68	0	Lincoln	-86.569642, 35.143111	-86.569642, 35.143111
110	21.93	0	Lincoln	-86.566209, 35.118427	-86.566209, 35.118427
15	17.28	0	Lincoln	-86.569642, 35.143111	-86.569642, 35.143111
273	18.50	0	Lincoln	-86.569642, 35.143111	-86.569642, 35.143111

Dear Britt Dye:

Enclosed is an approved drawing covering the installation of the above referenced facilities. This permit was approved **09/07/2022**. The performance of this work will be covered under terms of the enclosed permit or general agreement between the utility and the Department of Transportation and the attached Permit Notes.

Please make sure your work forces have a copy of this approved drawing on hand at all times while working on the state rights-of-way. The attached notes are approval conditions to this permit and drawings.

In accordance with the State's Rules and Regulations, the Utility shall provide appropriate signing at all times during the construction and maintenance of facilities; therefore, signs must be in place before construction begins.

Please notify the District Utility Inspector at least three working days prior to the proposed date to begin work, of the date construction will begin in order to determine if a preconstruction conference is needed and to arrange proper inspection.

DISTRICT UTILITY CONTACT:
Name: Jarrod Bonar
Address: 2099 Fayetteville Hwy Belfast TN 37019

Phone: 931-270-5031
Fax:
Cell 615-854-5414

The Utility must notify the District Utility Inspector upon completion of the installation in order that a final inspection can be made to facilitate the release of the bond. This permit expires one year from date of issuance.

Regards,

David E. Smith

David E Smith
TDOT Region 3 Utility Office
6601 Centennial Blvd Nashville TN 37243

Enclosure:
CC: Jarrod Bonar

Conditions:

1 Note: Utility Poles to be installed behind Guardrail, where Right-of-Way exists, requires a minimum clearance of 4 feet for Clear-Zone.
Comments:
2 Note: The permit proprietor will be responsible for the repair of any damage to the roadway or TDOT appurtenances caused by utility construction.
Comments:
3 Note: The Permit Proprietor is to ensure that all Parties associated with this project complies with all “Rules and Regulations for Accommodating Utilities within Highway Rights-of-Ways.”
Comments:
4 Note: All installations and repairs are to be installed in compliance to TDOT’S “Rules and Regulations for Accommodating Utilities within Highway Rights-of Ways”.
Comments:
5 Note: The Permit Proprietor is responsible for all erosion and sediment control required for the Utility installation
Comments:
6 Note: The T.D.O.T. inspector must be notified at least three (3) days before the commencement of the work to arrange proper inspection to ensure a valid permit.
Comments:
7 Note: T.D.O.T. Utility Inspector must be present during the performance of work within the State Right-of-Way to ensure the validity of this permit.
Comments:
8 Note: T.D.O.T. approved drawings and permit must be present at the job site while work is in progress.
Comments:
9 Tenessee811. Dial 811 for Utility locates
Comments:
10 Note: Flaggers and workers in work zones shall wear Safety apparel meeting the requirements of ISEA “American National Standard for High Visibility Apparel” Refer to the latest edition of the “MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.” (MUTCD), Section 6E.02
Comments:
11 Note: Delineator cones or barrels required along with the proper signage to close shoulders or lanes for Work-Zones or Buffer-Zones according to the latest edition of the “MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.” (MUTCD)
Comments:
12 Note: Signing and Traffic Control Must be in conformance with the latest edition of the “MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.” (MUTCD)
Comments:
13 Note: Machinery, materials and workers are not to be located in the roadway, shoulders or in the clear-zones without proper traffic control measures in compliance with the MUTCD requirements. D)
Comments:
14 Note: Stay Out Of Wetlands.
Comments:
15 Note: All logs, stumps, and other construction related debris must be removed from the Right-of-Ways.
Comments:
16 Note: The highway shoulder must not be disturbed.
Comments:
17 Note: The highway fill slopes must not be disturbed.
Comments:
18 Note: Rule 1680-6-1-.06,(f) Pedestals, fire hydrants, markers, or other above Ground utility appurtenances installed as a part of Underground utility facilities shall be located at or as near the highway Right-of-Way lines as practical. In all cases they must be outside the Clear-Zone.
Comments:
19 Note: Underground Pneumatic Piercing tools (Hammerhead Mole, Hole-Hog, etc..,) shall not be used for boring under State Routes.
Comments:
20 Note: All casings and conduits installed under State Routes shall meet or exceed the minimum AASHTO requirements.

Comments:

21 Note: All steel casings must have continuous welds around every joint.
Comments:

22 Note: The Utility installation must be installed with 36” or more of cover where installed within 5 feet of the drainage ditch.
Comments:

23 Note: Buried installation shall not go over culverts or other TDOT structures.
Comments:

24 Note: All side roads must be bored where installation is within the state Right-of-Way.
Comments:

25 Note: The Pipeline or Transmission line shall be identified by a permanent marker at the Right-of-Way lines or as near thereto as possible.
Comments:

26 Note: Stub poles or guy wires to ground anchors shall not be placed between a pole and the traveled way where they encroach upon the Clear-Zone.
Comments:

27 Note: All vertical road crossings must meet the minimum requirements of the latest edition Of the National Electrical Safety Code or maintain a minimum clearance of 18 feet.
Comments:

28 Note: Applicant is responsible for identifying, surveying, and staking the State highway right-of-way boundary in the above-described work area, and for maintaining said staking for the duration of the installation of Applicant’s facilities. Applicant is responsible for acquiring all utility rights-of-way or easements outside the State highway right-of-way as may be needed to perform the installation and maintenance of its facilities, and is responsible for any damages caused by trespass or installation or maintenance of facilities outside the State highway right-of-way.
Comments:

29 APPROVED AS NOTED BY:_David E. Smith _____ TDOT REGION ___3___ UTILITY DEPARTMENT DATE:_____September 7, 2022_____
Comments:

30 Note: Prior to commencing work under this agreement, the Utility shall have adequate and appropriate general liability insurance providing liability coverage in an amount not less than $1,000,000 dollars per occurrence and $300,000 per claimant.
Comments:

SR 15 NEW
ACTIVE Project - PIN # 132991.00 from 17.280 to 23.600
Work Type – RESURFACING

APPROVED

By David E. Smith at 2:43 pm, Sep 07, 2022

FPU Fayetteville Public Utilities®

fpu-tn.com
P.O. Box 120
408 College Street W.
Fayetteville, TN 37334
Phone: (931) 433-1522
Fax: (931) 433-0646
Toll Free: 1-800-379-2534

Electric • Water/Sewer • Natural Gas • Internet/Digital Phone

April 6, 2022

Mr. David E. Smith
Tennessee Department of Transportation
Utilities Office
6601 Centennial Boulevard
Nashville, TN, 37243-0360

Submitted via e-mail

Regard: Application Forms and Drawings
Fayetteville Public Utilities
2021 Water Main Replacements Project
US & State Routes, Lincoln County, Fayetteville, TN

Dear Mr. Smith:

Please find attached PDF copies of the Environmental Form, Encroachment Forms, and 11 x 17 inch construction drawings for the project referenced above. The project has not been bid at this time, so a Contractor has not been selected. When the project is awarded, we will secure a Traffic Control Letter from the Contractor and forward a copy to your office.

The purpose of the proposed project is to install new water mains to replace existing water mains that are in disrepair and are composed of cast iron, asbestos cement, and galvanized steel. Water main being proposed in US and/or State rights-of-way will be composed of ductile iron, DR18 C900 PVC, and DR9 HDPE. Water line is being proposed for installation in all US and State routes within and immediately surrounding the City of Fayetteville. The sizes of the proposed pipe are 12", 8", 6", 4", and 2". The methods of installation include open cut, horizontal directional drilling (HDD), and bore and jack. Because of the scope of the project and the number of different pipe sizes, we have prepared a spreadsheet which summarizes the routes, pipe sizes, latitudes & longitudes, etc. Please find a copy of the spreadsheet attached.

Fayetteville Public Utilities has an active General Agreement with TDOT dated April 22, 1992.

This work will be completed in accordance with the "Rules and Regulations For Accommodating Utilities Within Highway Rights-of-Way".

Sincerely,

Britt Dye
CEO/General Manager
cc: Dudney Fox, FOXPE LLC

Environmental Agreement for Utility Projects

I, the undersigned representative of the Utility named below, state the following:

1. The Utility desires to construct the project described below (the named project).
2. The Utility is aware that it may be required by law to obtain one or more environmental permits prior to constructing the named project; that determining which permits are necessary and obtaining those permits are the sole responsibility of the Utility; and that the activities of the Utility in constructing the named project are not covered under any permit associated with TDOT construction activities.
3. The Utility agrees that if the total area of disturbed land associated with the construction of the named project is planned to, or does at any time actually exceed one (1) acre, the Utility shall obtain coverage under the *National Pollutant Discharge Elimination System General Permit For Discharges Of Stormwater Associated With Construction Activities.*
4. The Utility agrees that during all phases of construction of the named project, the Utility shall implement and maintain appropriate Erosion Prevention and Sediment Control (EPSC) measures, as published in the TDOT *Standards and Specifications* and/or the Tennessee Department of Environment and Conservation (TDEC) *Erosion and Sediment Control Handbook.*
5. The Utility agrees that it shall comply with all State and Federal laws, rules, regulations and permit terms and conditions applicable to the construction of the named project.

Utility Name: Fayetteville Public Utilities

Utility Address: 408 College Street West, Fayetteville, TN 37334

Utility Phone: (931) 433-1522 **Fax:**

Project Description: Fayetteville Public Utilities (FPU) is proposing to replace existing water mains and services throughout out their service area. Proposed pipe varies in size from 2 through 12 inches in diameter. Because of the extent of the proposed work area and the various pipe sizes, we have prepared a spreadsheet which lists all of the relevant information concerning the proposed work. The spreadsheet is attached.

Representative Name: Britt Dye, CEO/General Manager

(SIGNATURE) 04 / 06 / 2022 (DATE)

Notice to Utilities

When a utility performs work along the highway rights-of-way, either by a State utility permit or due to a construction project, the utility shall be subject to and must comply with ALL of the following:

1. Section 404 of the Federal Clean Water Act (33 U.S.C. 1344) as defined in 33 CFR, Part 323, latest edition, which can currently be found on pages 2079-2080 of the Federal Register dated January 15, 2002.
   (**U.S. Army Corps of Engineers Nationwide Permit Number 12 (Utility Line Activities)**)
2. The Tennessee Water Quality Control Act of 1977, as amended (**Tennessee Code Annotated Section 69-3-105**) which is outlined in the Rules of the Tennessee Department of Environment and Conservation, Division of Water Pollution Control, and its **General Aquatic Resource Alteration Permit for Utility Line Crossings of Streams**
3. Section 402, also referred to as the **National Pollutant Discharge Elimination System (NPDES),** which is outlined in the Rules of the Tennessee Department of Environment and Conservation, Water Pollution Control – Storm Water Office, implements the EPA Phase I and Phase II regulations to address storm water runoff in Tennessee. Under the NPDES program any person responsible for the discharge of a pollutant or pollutants from one acre or more of land disturbance, into any waters of the United States, from any point source must apply for and obtain a permit.
4. Section 26a of the TVA Act requiring that TVA approval be obtained before any construction activities can be carried out that affect navigation, flood control, or public lands along the shoreline of the TVA reservoirs or in the Tennessee River or its tributaries (any streams or wetlands in the drainage basin of the Tennessee River).
5. Section 209 (Project Erosion and Siltation Control) of the Tennessee Department of Transportation's "Standard Specifications for Road and Bridge Construction" and any related Special Provisions of that section.
6. In addition to complying with the rules and regulations identified in (1) - (5), consideration should also be given to Class V Injection Well Permit requirements where utility work may affect runoff into a sinkhole, and Reelfoot Watershed Permit requirements where utility work affects streams, springs or wetlands in the drainage basin of the Reelfoot Lake.
7. Any regulatory permit requirements or conditions previously issued within the permits received by TDOT for highway construction, i.e. survival of trees specified as replacement or mitigation, must remain undisturbed or replaced exactly as stated by the requirements.

The regulatory agencies may be contacted at the following addresses:

Tennessee Department of Environment and Conservation..... Phone: 615.532.0625
Division of Water Pollution Control; Natural Resources Section
7th Floor L & C Annex, 401 Church Street
Nashville, TN 37243-1534

(For the Cumberland River and Tennessee River Valleys): ..... Phone: 615-369-7500
Regulatory Branch
U.S. Army Corps of Engineers, Nashville District
3701 Bell Road
Nashville, TN 37214

(For the Mississippi River Valley):..... Phone: 901-544-0736
Regulatory Branch
U.S. Army Corps of Engineers, Memphis District
167 North Main Street, Room B-202
Memphis, Tennessee 38103-1894

Pipeline Encroachments

The following information is required to accompany all plans for pipeline encroachments.

		Carrier Pipe	Casing Pipe
1.	Contents to be handled	Potable Water	N/A
2.	Outside Diameter	13.20"	20"
3.	Pipe material	Ductile Iron	Steel
4.	Pipe Specification and grade	ANSI/AWWA C151/A21.51	ASTM A-139, Grade B
5.	Wall thickness	0.28"	0.375"
6.	Design Pressure	350 psi	N/A
7.	Actual Working Pressure	40 – 80 psi	N/A
8.	Type of joint	Gasketed Push-On	Welded
9.	Coating	Asphaltic-Outside	None
10.	Method of installation	Open Cut	Bore & Jack
11.	Protection at end of casing	N/A	Neoprene End Seals

Both Ends __X__ One end _____ Type APS Model AC or Equal

12. Cover: Finished grade to top of casing or carrier 3'-6" min.

Bottom of ditch or toe of slope to top of carrier to casing 3'-6" min.

13. Cathodic protection N/A

14. Size and height of casing vent N/A

15. Distance from casing vent to edge of nearest traffic lane N/A

Pipeline Encroachments

The following information is required to accompany all plans for pipeline encroachments.

		Carrier Pipe	Casing Pipe
1.	Contents to be handled	Potable Water	N/A
2.	Outside Diameter	9.05"	N/A
3.	Pipe material	PVC	N/A
4.	Pipe Specification and grade	DR18, C900	N/A
5.	Wall thickness	0.503"	N/A
6.	Design Pressure	235 psi	N/A
7.	Actual Working Pressure	40 – 80 psi	N/A
8.	Type of joint	Gasketed Push-On	N/A
9.	Coating	None	N/A
10.	Method of installation	Open Cut	N/A
11.	Protection at end of casing	N/A	N/A

Both Ends ____ One end _____ Type _____

12. Cover: Finished grade to top of casing or carrier _____3'-6" min._____

    Bottom of ditch or toe of slope to top of carrier to casing _____3'-6" min._____

    _____

13. Cathodic protection _____N/A_____

14. Size and height of casing vent _____N/A_____

15. Distance from casing vent to edge of nearest traffic lane _____N/A_____

Pipeline Encroachments

The following information is required to accompany all plans for pipeline encroachments.

		Carrier Pipe	Casing Pipe
1.	Contents to be handled	Potable Water	N/A
2.	Outside Diameter	6.90"	12"
3.	Pipe material	PVC	Steel
4.	Pipe Specification and grade	DR18, C900	ASTM A-139, Grade B
5.	Wall thickness	0.503"	0.25"
6.	Design Pressure	235 psi	N/A
7.	Actual Working Pressure	40 – 80 psi	N/A
8.	Type of joint	Gasketed Push-On	Welded
9.	Coating	None	None
10.	Method of installation	Open Cut	Bore & Jack
11.	Protection at end of casing	N/A	Neoprene End Seals

Both Ends __X___ One end _____ Type APS Model AC or Equal

12. Cover: Finished grade to top of casing or carrier _____3'-6" min._____

Bottom of ditch or toe of slope to top of carrier to casing _____3'-6" min._____

_____

13. Cathodic protection _____N/A_____

14. Size and height of casing vent _____N/A_____

15. Distance from casing vent to edge of nearest traffic lane _____N/A_____

Pipeline Encroachments

The following information is required to accompany all plans for pipeline encroachments.

		Carrier Pipe	Casing Pipe
1.	Contents to be handled	Potable Water	N/A
2.	Outside Diameter	4.80"	N/A
3.	Pipe material	PVC	N/A
4.	Pipe Specification and grade	DR18, C900	N/A
5.	Wall thickness	0.267"	N/A
6.	Design Pressure	235 psi	N/A
7.	Actual Working Pressure	40 – 80 psi	N/A
8.	Type of joint	Gasketed Push-On	N/A
9.	Coating	None	N/A
10.	Method of installation	Open Cut	N/A
11.	Protection at end of casing	N/A	N/A

Both Ends ____ One end _____ Type _____

12. Cover: Finished grade to top of casing or carrier _____3'-6" min._____

    Bottom of ditch or toe of slope to top of carrier to casing _____3'-6" min._____

    _____

13. Cathodic protection _____N/A_____

14. Size and height of casing vent _____N/A_____

15. Distance from casing vent to edge of nearest traffic lane _____N/A_____

Pipeline Encroachments

The following information is required to accompany all plans for pipeline encroachments.

		Carrier Pipe	Casing Pipe
1.	Contents to be handled	Potable Water	N/A
2.	Outside Diameter	2.375"	4.500"
3.	Pipe material	HDPE	HDPE
4.	Pipe Specification and grade	DR9	DR9
5.	Wall thickness	0.264"	0.500"
6.	Design Pressure	250 psi	N/A
7.	Actual Working Pressure	40 – 80 psi	N/A
8.	Type of joint	Heat Fused	Heat Fused
9.	Coating	None	None
10.	Method of installation	HDD	HDD
11.	Protection at end of casing	N/A	Neoprene End Seals

Both Ends __X___ One end _____ Type APS Model AC or Equal

12. Cover: Finished grade to top of casing or carrier _____3'-6" min._____

Bottom of ditch or toe of slope to top of carrier to casing _____3'-6" min._____

_____

13. Cathodic protection _____N/A_____

14. Size and height of casing vent _____N/A_____

15. Distance from casing vent to edge of nearest traffic lane _____N/A_____

Pipeline Encroachments

The following information is required to accompany all plans for pipeline encroachments.

		Carrier Pipe	Casing Pipe
1.	Contents to be handled	Potable Water	N/A
2.	Outside Diameter	1.125”	2.375”
3.	Pipe material	PEX	HDPE
4.	Pipe Specification and grade	ASTM F876	DR9
5.	Wall thickness	0.125”	0.264”
6.	Design Pressure	160 psi	N/A
7.	Actual Working Pressure	40 – 80 psi	N/A
8.	Type of joint	Poly Crimp	Heat Fused
9.	Coating	None	None
10.	Method of installation	Open Cut	HDD
11.	Protection at end of casing	N/A	Neoprene End Seals

Both Ends __X___ One end _____ Type APS Model AC or Equal

12. Cover: Finished grade to top of casing or carrier _____3’-6” min._____

    Bottom of ditch or toe of slope to top of carrier to casing _____3’-6” min._____

    _____

13. Cathodic protection _____N/A_____

14. Size and height of casing vent _____N/A_____

15. Distance from casing vent to edge of nearest traffic lane _____N/A_____

Pipeline Encroachments

The following information is required to accompany all plans for pipeline encroachments.

		Carrier Pipe	Casing Pipe
1.	Contents to be handled	Potable Water	N/A
2.	Outside Diameter	0.875”	2.375”
3.	Pipe material	PEX	HDPE
4.	Pipe Specification and grade	ASTM F876	DR9
5.	Wall thickness	0.097”	0.264”
6.	Design Pressure	160 psi	N/A
7.	Actual Working Pressure	40 – 80 psi	N/A
8.	Type of joint	Poly Crimp	Heat Fused
9.	Coating	None	None
10.	Method of installation	Open Cut	HDD
11.	Protection at end of casing	N/A	Neoprene End Seals

Both Ends __X___ One end _____ Type APS Model AC or Equal

12. Cover: Finished grade to top of casing or carrier _____3’-6” min._____

    Bottom of ditch or toe of slope to top of carrier to casing _____3’-6” min._____

    _____

13. Cathodic protection _____N/A_____

14. Size and height of casing vent _____N/A_____

15. Distance from casing vent to edge of nearest traffic lane _____N/A_____

Fayetteville Public Utilities 2021 Water Line Replacements Project
Inventory of Proposed Pipe/Work in TDOT Right-of-Way

US/State Rt Numbers	Local Road Name	Prop. Pipe Size	Pipe Type	Lat/Long Start (deg)		Lat/Long End (deg)		Prop. Location of Pipe	Total Length (ft)	Install Method	Sheet Number (s)
US 64/SR 15	Pulaski Hwy	2"	DR9 HDPE	35.1664 N	-86.6259 E	35.1665 N	-86.6245 E	Cased Bore Under Road & Outside Paving	680	HDD	C1.0
US 64/SR 15	Pulaski Hwy	1" (Serivce)	PEX	35.1668 N	-86.6263 E	35.1664 N	-86.6259 E	Outside Paving	180	Open Cut	C1.0
US 431/SR 50	Lewisburg Hwy	1" (Service)	PEX	35.1597 N	-86.5754 E	35.1592 N	-86.5750 E	Outside Paving	250	Open Cut	C5.0
US 431/SR 50	Lewisburg Hwy	6"	DR18 C900 PVC	35.1592 N	-86.5750 E	35.1589 N	-86.5746 E	Outside Paving	164	Open Cut	C5.0
US 431/SR 50	Bright Ave (south side)	8"	DR18 C900 PVC	35.1569 N	-86.5700 E	35.1574 N	-86.5711 E	In Paving	395	Open Cut	C11.0
US 431/SR 50	Bright Ave (south side)	6"	DR18 C900 PVC	35.1574 N	-86.5711 E	35.1587 N	-86.5739 E	Outside Paving (in paving across intersections)	965	Open Cut	C11.0, C10.0, C5.0
US 431/SR 50	Bright Ave (north side)	2"	DR9 HDPE	35.1577 N	-86.5712 E	35.1575 N	-86.5712 E	Cased Bore Under Road & Outside Paving	120	HDD/Open Cut	C11.0
US 431/SR 50	Bright Ave (north side)	2"	DR9 HDPE	35.1581 N	-86.5721 E	35.1589 N	-86.5739 E	Outside Paving (in paving across intersection)	617	HDD/Open Cut	C11.0, C5.0
US 431/SR 50	Main Ave North	8"	DR18 C900 PVC	35.1569 N	-86.5700 E	35.1523 N	-86.5707 E	In Paving	1695	Open Cut	C11.0, C17.0, C24.0
US 431	Main Ave South	12"	DIP	35.1523 N	-86.5707 E	35.1513 N	-86.5708 E	In Paving	390	Open Cut	C24.0
US 431	Main Ave South	12"	DIP	35.1513 N	-86.5708 E	35.1512 N	-86.5706 E	In Paving (road crossing at Market Street)	65	Open Cut	C24.0
US 431	Huntsville Hwy	6"	DR18 C900 PVC	35.1457 N	-86.5716 E	35.1457 N	-86.5717 E	In Paved Shoulder	30	Open Cut	C31.0
US 431/US 231/SR 10	Huntsville Hwy	12" (existing)	DIP	35.1426 N	-86.5695 E	35.1418 N	-86.5689 E	Replace Hangers on Ex. Water Line Under Elk River Bridge	355	N/A	C33.0
US 431/US 231/SR 10	Huntsville Hwy	12"	DIP	35.1260 N	-86.5661 E	35.1260 N	-86.5661 E	In Paving (Molina Road intersection)	10	Open Cut	C36.0
US 431/US 231/SR 10	Huntsville Hwy	12"	DIP	35.1206 N	-86.5662 E	35.1083 N	-86.5665 E	Outside Paving (in paving across intersections)	4485	Open Cut	C37.0, C39.0, C40.0
SR 110	Ardmore Hwy (west side)	12"	DIP	35.1218 N	-86.5669 E	35.1177 N	-86.5702 E	Outside Paving	1785	Open Cut	C37.0
SR 110	Ardmore Hwy (east side)	12"	DIP	35.1177 N	-86.5702 E	35.1160 N	-86.5730 E	Cased Bore Under Road & Outside Paving	1140	Bore & Jack/Open Cut	C39.0
SR 110	Ardmore Hwy (east side)	2"	DR9 HDPE	35.1189 N	-86.5689 E	35.1177 N	-86.5700 E	Outside Paving (in paving across intersection)	580	HDD	C37.0
SR 110	Ardmore Hwy (east side)	2"	DR9 HDPE	35.1160 N	-86.5730 E	35.1146 N	-86.5766 E	Outside Paving	1185	HDD	C39.0, C38.0
US 64/SR 50	Mulberry Ave (west side)	6"	DR18 C900 PVC	35.1575 N	-86.5613 E	35.1571 N	-86.5615 E	Outside Paving (connect to existing in paving)	178	Open Cut	C13.0
US 64/SR 50	Mulberry Ave (east side)	12"	DIP	35.1570 N	-86.5616 E	35.1532 N	-86.5650 E	In Paving	1755	Open Cut	C13.0, C19.0, C18.0
US 64/SR 50	Mulberry Ave (crossing)	2"	DR9 HDPE	35.1550 N	-86.5634 E	35.1550 N	-86.5635 E	Cased Bore Under Road and Connect On Adams St	40	HDD/Open Cut	C19.0
US 64/SR 50	Mulberry Ave (crossing)	12"	DIP	35.1532 N	-86.5650 E	35.1532 N	-86.5651 E	Cross Mulberrry Ave (south of Washington St East)	18	Open Cut	C18.0
US 64/SR 50	Mulberry Ave (west side)	12"	DIP	35.1532 N	-86.5651 E	35.1569 N	-86.5700 E	In Paving	650	Open Cut	C18.0, C25.0
US 64/SR 50	College St East	12"	DIP	35.1569 N	-86.5700 E	35.1523 N	-86.5707 E	In Paving	1255	Open Cut	C25.0, C24.0
US 64/SR 50	College St East	12"	DIP	35.1521 N	-86.5692 E	35.1520 N	-86.5692 E	Cross College St East (at Elk Ave)	62	Open Cut	C24.0
US 64	College St West	2"	DR9 HDPE	35.1523 N	-86.5707 E	35.1528 N	-86.5747 E	In Paving	1215	HDD	C24.0, C23.0
US 64	College St West	6"	DR18 C900 PVC	35.1528 N	-86.5747 E	35.1527 N	-86.5747 E	Cross College St East (at Bellview Ave North)	55	Open Cut	C23.0
US 64	College St West	2"	DR9 HDPE	35.1529 N	-86.5759 E	35.1531 N	-86.5772 E	Outside Paving	385	HDD	C16.0
US 64	College St West	6"	DR18 C900 PVC	35.1532 N	-86.5797 E	35.1532 N	-86.5799 E	Outside Paving (connect to existing in paving)	50	Open Cut	C15.0
US 64	Washignton St West	3/4"	PEX	35.1557 N	-86.5815 E	35.1560 N	-86.5840 E	Transfer Services from South Side to North	8 @ 52 each	HDD (2" DR9 HDPE Casing)	C9.0, C8.0
US 64	Washignton St West	6"	DR18 C900 PVC	35.1560 N	-86.5841 E	35.1563 N	-86.5869 E	In Paving	835	Open Cut	C8.0
US 64/SR 50/SR15	Winchester Hwy	6"	DR18 C900 PVC	35.1637 N	-86.5363 E	35.1636 N	-86.5372 E	Outside Paving (includes 6" cap and 3/4" PEX services)	16	Open Cut	C7.0
US 64/SR 50/SR15	Winchester Hwy	2"	DR9 HDPE	35.1634 N	-86.5400 E	35.1634 N	-86.5400 E	Outside Paving	24	Open Cut	C7.0
US 64/SR 50	Winchester Hwy	12"	DIP	35.1596 N	-86.5573 E	35.1594 N	-86.5571 E	Crossing Beneath Winchester Highway Overpass	80	Open Cut	C7.0
US 64 Bypass/US 231/SR 15/SR 10	Thornton Taylor Pkwy	12"	DIP	35.1595 N	-86.5558 E	35.1591 N	-86.5565 E	Outside Paving and Cased Bore Under Road	235	Open Cut/Bore & Jack	C7.0
US 64 Bypass/SR 15/SR 10	Thornton Taylor Pkwy	12"	DIP	35.1494 N	-86.5581 E	35.1494 N	-86.5581 E	Outside Paving (install 12" insertion valve on ex. 12" water)	10	Open Cut	C29.0
US 64 Bypass/SR 15/SR 10	Thornton Taylor Pkwy	8"	DR18 C900 PVC	35.1458 N	-86.5640 E	35.1457 N	-86.5641 E	Outside of Paving	48	Open Cut	C29.0
US 64 Bypass/SR 15	Wilson Pkwy	N/A	N/A	35.1424 N	-86.5712 E	35.1424 N	-86.5712 E	Outside of Paving (test pit to verify connection)	8	Open Cut	C33.0

FOXPE
ENGINEERING FOR THE WATER ENVIRONMENT

April 14, 22022

Sent via e-mail

Mr. Nail Alammori
Tennessee Department of Transportation
Structures Division – Bridge Inspection
James K. Polk Bldg. 12th Floor
505 Deaderick St.
Nashville, TN 37243

Re: Fayetteville Public Utilities (FPU)
2021 Water Main Replacements
Fayetteville, Lincoln County, TN

Dear Mr. Alammori,

I spoke and exchanged e-mails with you approximately one year ago regarding the project referenced above. We are now in the process of submitting our utility permit application to TDOT. I spoke with David Smith this morning concerning our submission to his department and he advised me to submit the portion of our drawings to your department first. He asked that we secure approval from your office prior to submitting our application documents to him.

There are currently 12-inch water mains hanging beneath both spans of the bridge over Elk River on Huntsville Highway (US 431, US 231, SR 10). The hangers which support the 12-inch water main under the span for southeast to northwest vehicle movement (bridge number 52SR0150022) are showing signs of deterioration and FPU is proposing to replace them as part of a much larger water main replacement project. The water main under the bridge will not be replaced. New hangers will be installed, and the old hangers will be removed. There is also a minor leak in the same water main approximately five (5) to ten (10) feet northwest of the southeasterly abutment. That leak will be repaired as part of the project. A plan view drawing and a detail drawing for this work is attached.

In addition, we will be crossing twelve (12) streams as part of the overall project. Three (3) of these crossings are in TDOT rights-of-way, outside the paving. David asked that I submit the figures for these three (3) crossings to you to ensure your office has no objections to the proposed work. They are attached. All project creek crossings are currently in the TDEC ARAP permitting process.

The decimal degree latitudes and longitudes of each of the three (3) creek crossings are below.

US/State Route	Local Road Name	Latitude	Longitude
US 431/SR 50	Bright Avenue	35.1579º	-86.5720º
SR 110	Ardmore Highway	35.1163º	-86.5725º
US 431/US 231/SR 10	Huntsville Highway	35.1124º	-86.5668º

If you have any questions, please feel free to contact me by phone at 615-829-4918.

Sincerely,

Scott Adkisson,
Project Manager

MATCHLINE - SHEET C31.0

MATCHLINE - SHEET C32.0

MAIN AVENUE SOUTH

HUNTSVILLE HWY (US 431)

WILSON PKWY (US 64 BYPASS/US 231/SR 10/SR 15)

DAVIDSON STREET EAST

DAVIDSON STREET WEST

SUNSET DRIVE

ELK RIVER

CONTRACTOR TO TEST PIT TO SEE IF EX. 8" & EX. 12" WATERLINES ARE INTER-CONNECTED. REPORT FINDINGS TO ENGINEER IMMEDIATELY.

BEGIN WORK/ END WORK: 35.1424 N -86.5712 E

EX. 8" WATER TO REMAIN

EX. 12" WATER TO REMAIN

EX. RIGHT-OF-WAY, TYP.

EX. 12" WATER TO REMAIN

BEGIN WORK: 35.1426 N -86.5695 E

TDOT BRIDGE NO.: 52SR0150022

REPLACE PIPE HANGERS UNDER BRIDGE DECK. SEE SHEET C41.0

EX. 12" WATERLINE TO REMAIN. PIPE HANGERS ARE TO BE REPLACED WITH NEW HANGERS OF SAME TYPE.

EX. RIGHT-OF-WAY, TYP.

TDOT BRIDGE NO.: 52SR0150021

REPAIR LEAK IN PIPE JOINT JUST NORTH OF ABUTMENT PENETRATION

END WORK: 35.1418 N -86.5689 E

EX. 12" WATER TO REMAIN

GENERAL NOTES:

1. EX. PROPERTY LINES, EDGE OF PAVEMENT, & UTILITIES DERIVED FROM GIS DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION. MAJOR CONFLICTS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.
2. EROSION CONTROL MEASURE SHALL BE IN ACCORDANCE W/ LOCAL, STATE, & FEDERAL REQUIREMENTS. SEE SHEET C44.0 FOR ALL EROSION & SEDIMENT CONTROL DETAILS.

ABANDONMENT NOTES:

1. ALL EX. WATERLINE TO BE REPLACED SHALL BE ABANDONED IN PLACE UNLESS NOTED OTHERWISE.
2. INSTALL WATER TIGHT CAPS ON OPEN ENDS OF ALL PIPE TO BE ABANDONED.
3. HYDRANTS AND HYDRANT LEADS ON WATERLINES TO BE ABANDONED ARE TO BE REMOVED & SCRAPPED OFF SITE.
4. VALVES & VALVE BOXES ON WATERLINES TO BE ABANDONED IN STATE STREETS ARE TO REMOVED. INSTALL WATER TIGHT CAPS ON OPEN PIPE ENDS.
5. VALVE BOXES ON WATERLINES TO BE ABANDONED IN CITY STREETS ARE TO BE FILLED WITH CONCRETE.

GRAPHIC SCALE

50 0 25 50 100

SCALE: 1" = 50'

FOXPE
ENGINEERING FOR THE WATER ENVIRONMENT
233 OCEOLA AVENUE #200
NASHVILLE, TENNESSEE 37209
FOXPE.COM

J. DUDNEY FOX
REGISTERED ENGINEER
AGENT OF
STATE OF TENNESSEE

PROJECT
FAYETTEVILLE PUBLIC UTILITIES
2021 WATER SYSTEM IMPROVEMENTS WATER MAIN REPLACEMENTS
1600-022

LOGO
FPU Fayetteville Public Utilities

NORTH

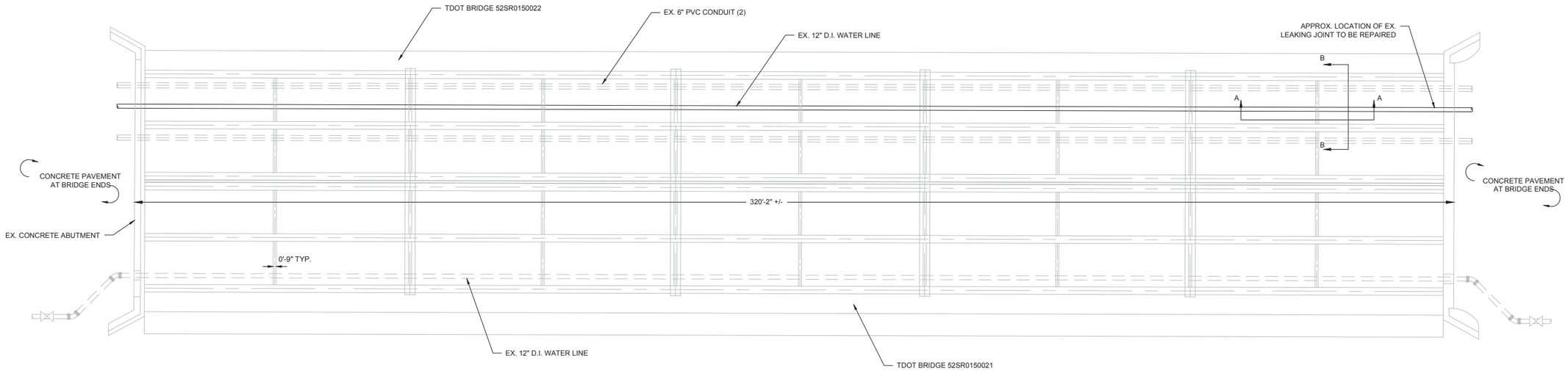
DRAWN BY: CAJ

APPROVED BY: JDF

DATE	ISSUE
03/28/21	IFA

TITLE
PLAN VIEW

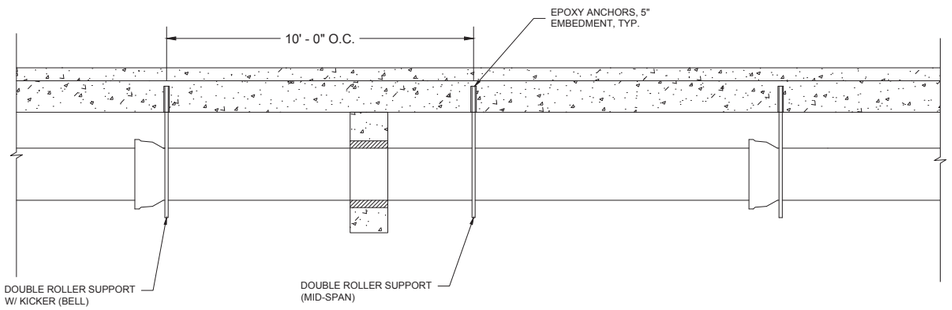
DRAWING NO.
C33.0



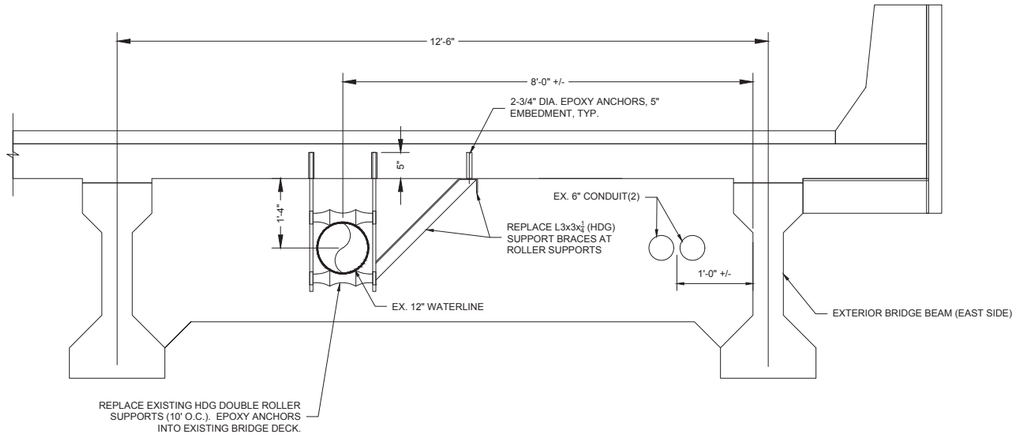
DETAIL

TDOT ELK RIVER BRIDGE CROSSING PLAN (HUNTSVILLE HWY - US 431/US 231/SR 10)
NOT TO SCALE

NOTES:
1. DOUBLE ROLLER SUPPORTS SHALL BE HDG COOPER B-LINE B3122A OR APPROVED EQUAL.
2. EPOXY TO BE HILTI HIT-HY 200 SAFE SET SYSTEM OR APPROVED EQUAL. CLEAN HOLES PER MANUFACTURER RECOMMENDATIONS.



SECTION A - A



SECTION B - B

DETAIL

TDOT ELK RIVER BRIDGE CROSSING SECTIONS
SCALE: 3/4" = 1'-0"

FOXPE
ENGINEERING FOR THE WATER ENVIRONMENT
233 OCEOLA AVENUE #200
NASHVILLE, TENNESSEE 37209
FOXPE.COM

J. DUDNEY FOX — REGISTERED ENGINEER — STATE OF TENNESSEE

PROJECT
FAYETTEVILLE PUBLIC UTILITIES
2021 WATER SYSTEM IMPROVEMENTS WATER MAIN REPLACEMENTS
1600-022

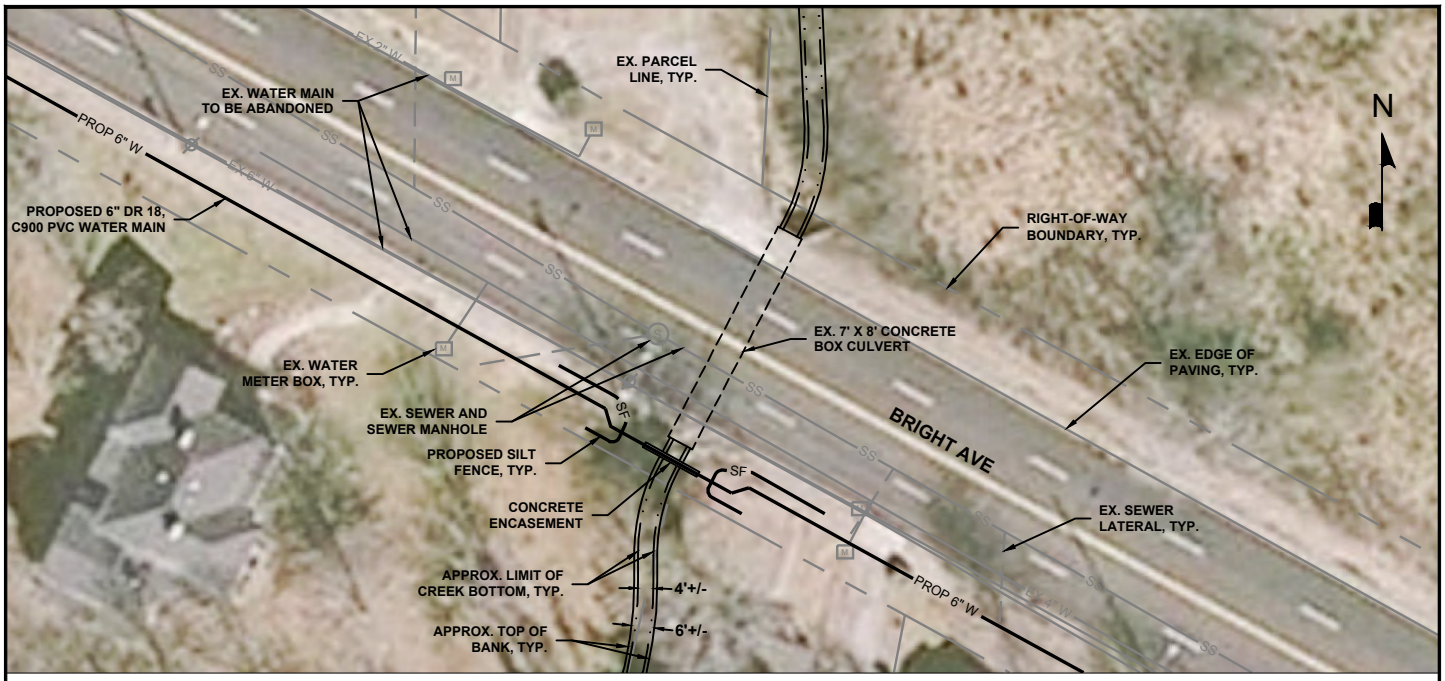
LOGO
FPU Fayetteville Public Utilities

NORTH	DRAWN BY
	CAJ
	APPROVED BY
	JDF

DATE	ISSUE
03/28/21	IFA

TITLE
BRIDGE CROSSING DETAILS

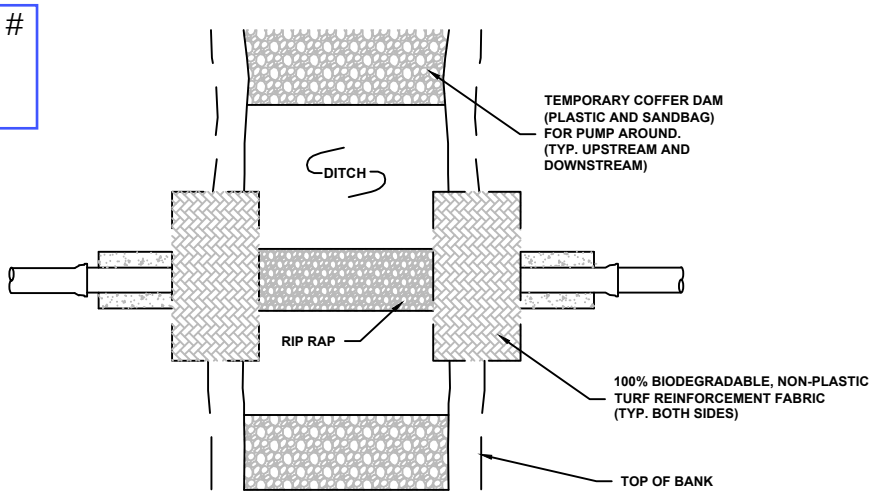
DRAWING NO.
C41.0



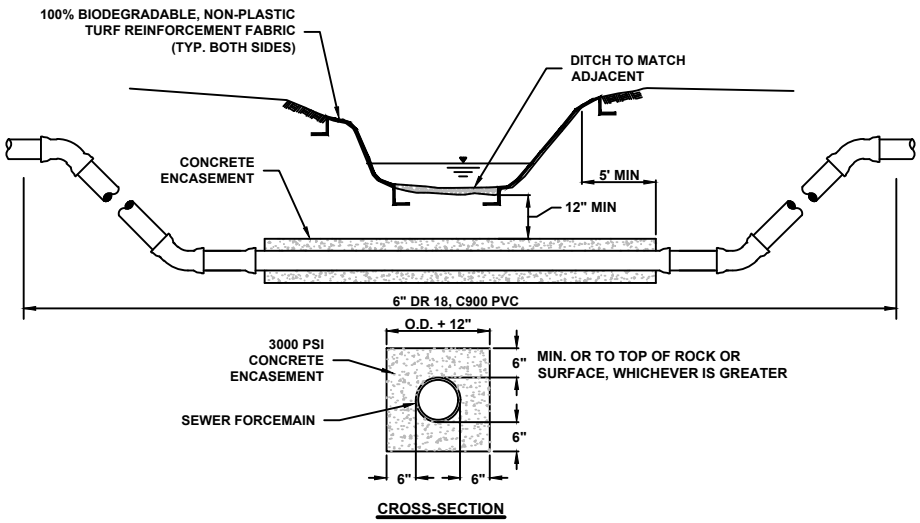
BRIGHT AVE. CREEK CROSSING (CC-4)

SCALE: 1" = 50'

Small Structure ID. #
52CULV03033
52-SR50-11.98



PLAN VIEW

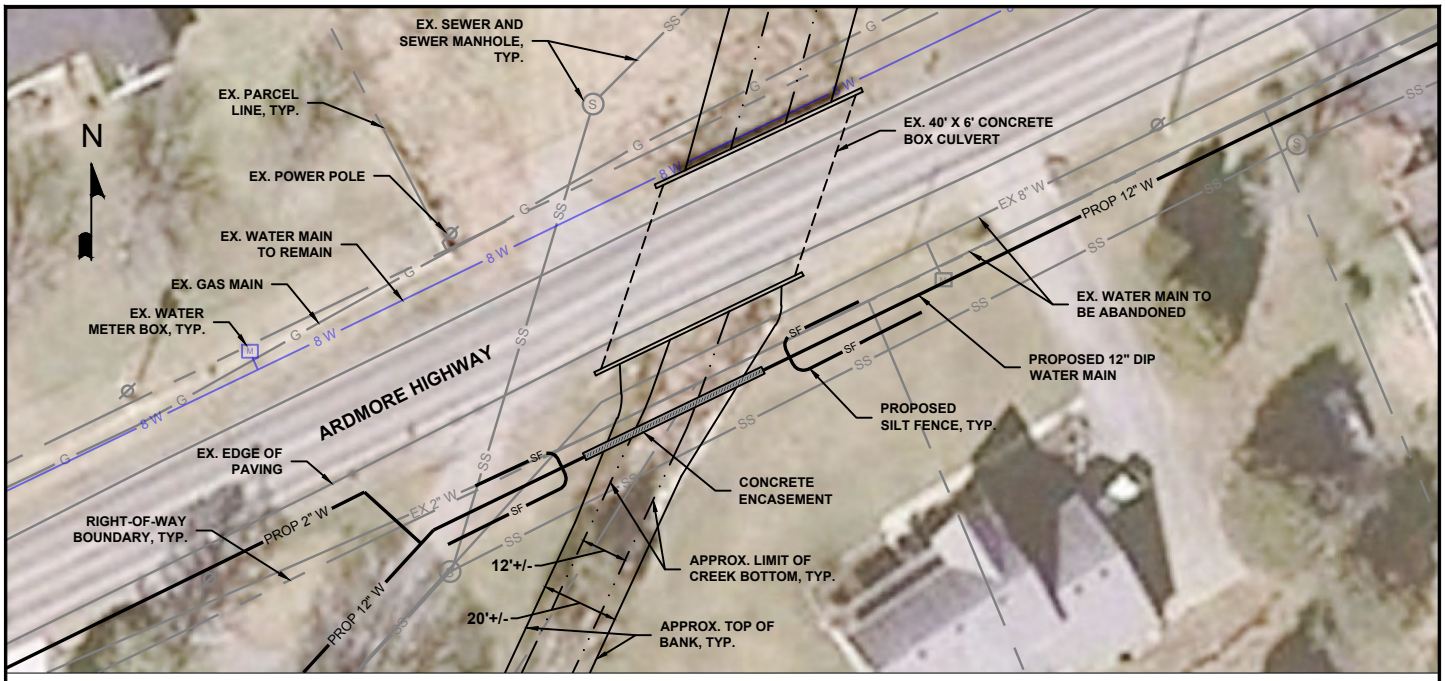


CROSS-SECTION

BRIGHT AVE. CREEK CROSSING - OPEN CUT DETAILS

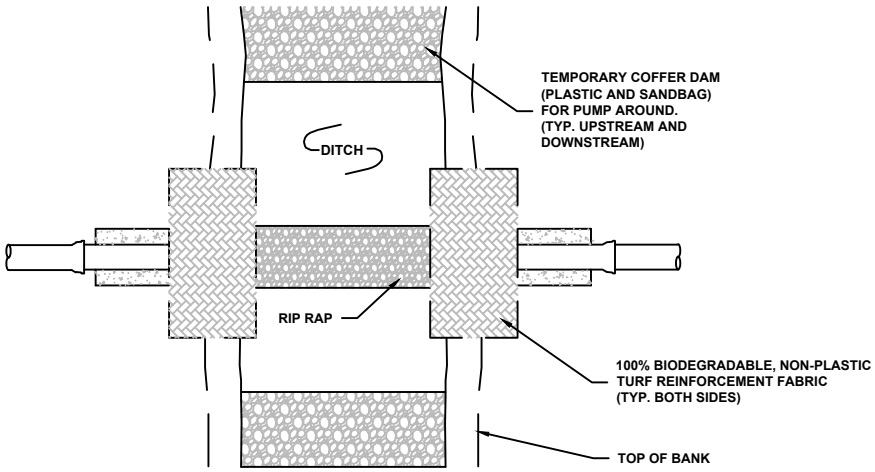
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 6 BRIGHT AVENUE CREEK CROSSING (CC-4)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

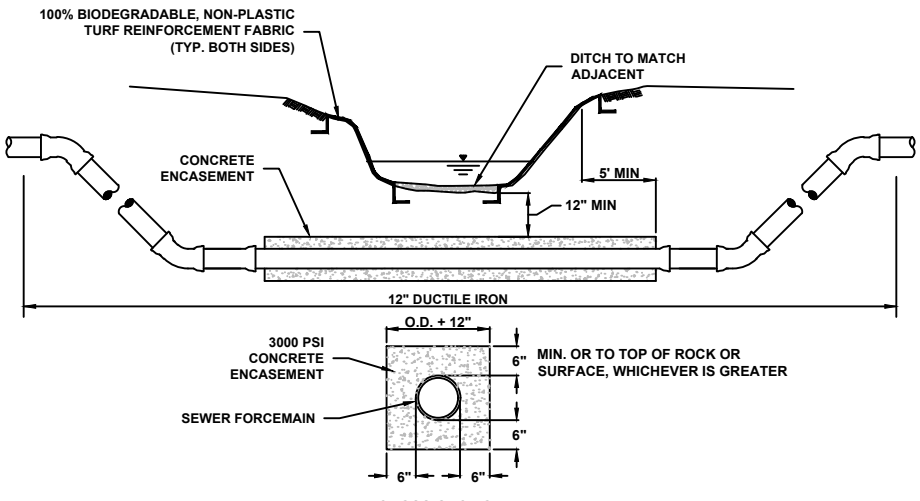


ARDMORE HWY CREEK CROSSING (CC-10)
SCALE: 1" = 50'

Culvert ID. # 52SR1100003



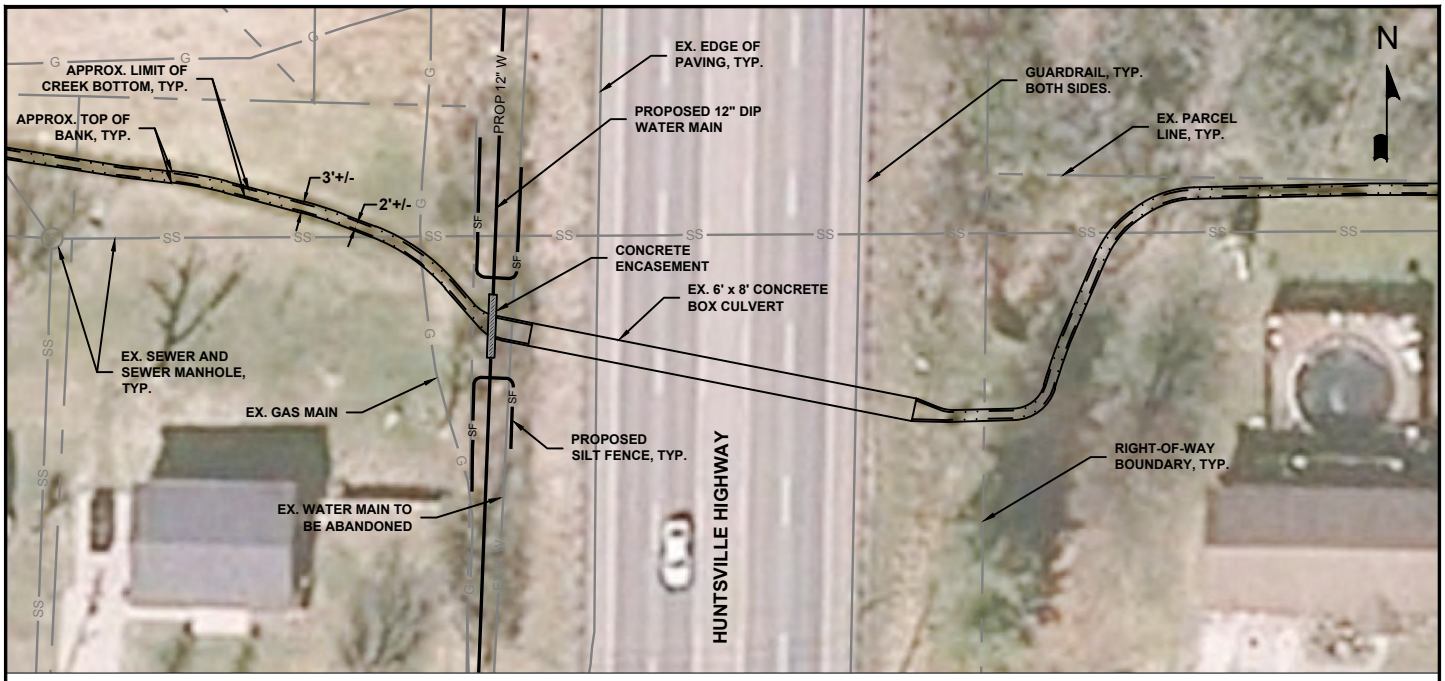
PLAN VIEW



CROSS-SECTION

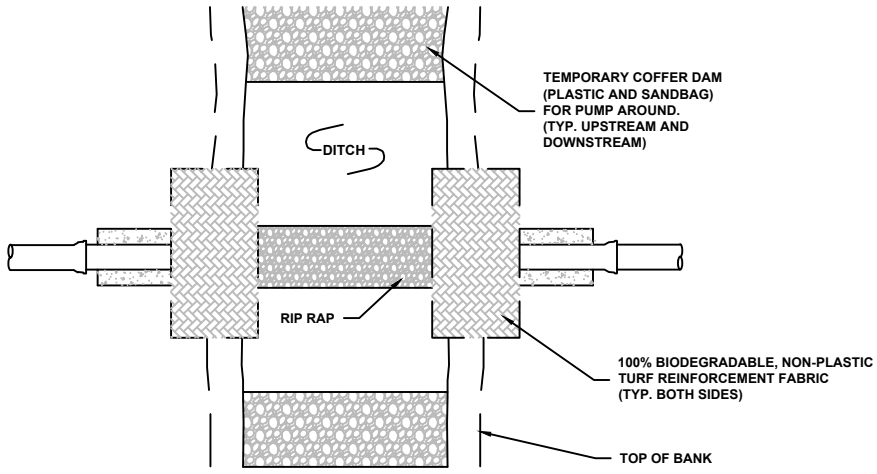
ARDMORE HWY CREEK CROSSING - OPEN CUT DETAILS
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 12 ARDMORE HIGHWAY CREEK CROSSING (CC-10)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

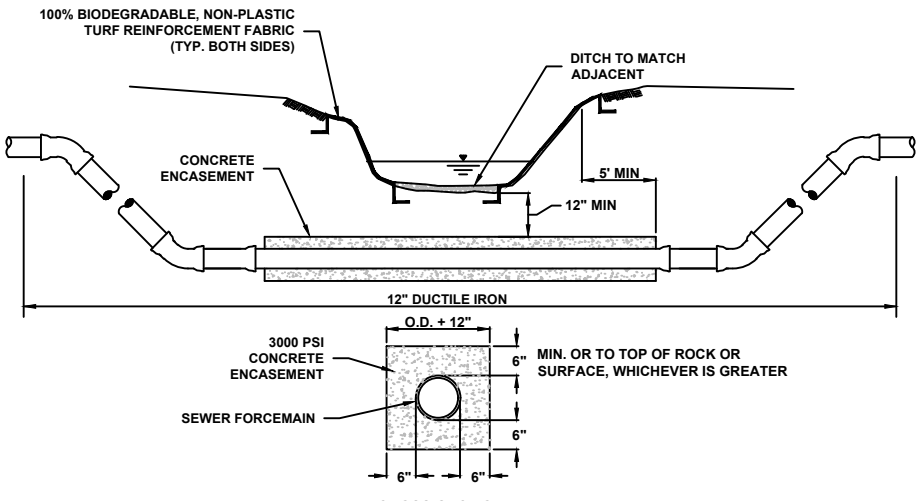


HUNTSVILLE HWY CREEK CROSSING (CC-11)
SCALE: 1" = 50'

Small Structure ID. #
52CULV01021
52-SR010-8.54



PLAN VIEW



CROSS-SECTION

HUNTSVILLE HWY CREEK CROSSING - OPEN CUT DETAILS
NTS

SCALE: AS SHOWN	FPU Fayetteville Public Utilities	FAYETTEVILLE PUBLIC UTILITIES FAYETTEVILLE, TENNESSEE WATER SYSTEM IMPROVEMENTS - CONTRACT 1 FIGURE 13 HUNTSVILLE HWY CREEK CROSSING (CC-11)	FOXPE ENGINEERING FOR THE WATER ENVIRONMENT 233 OCEOLA AVENUE #200 NASHVILLE, TENNESSEE 37209 FOXPE.COM

FOXPE

Scott Adkisson <scott@foxpe.com>

RE: [EXTERNAL] Fwd: Fayetteville Public Utilities - 2021 Water Main Replacements

1 message

Nail Alammori <Nail.Alammori@tn.gov> Fri, May 6, 2022 at 7:35 AM
To: Scott Adkisson <scott@foxpe.com>
Cc: Tom Quinn <Tom.Quinn@tn.gov>, Bryan Liner <Bryan.Liner@tn.gov>

Good morning,

Your proposal to replace hangers and do repairs to the existing utility line under bridge # 52SR0150022 and install a new utility line near structures # 52SR1100003, 52CULV01021 and 52CULV03033 has been approved by TDOT Structures.

Please make sure to include a copy of the attached approved proposals when submitting your application to TDOT Right of Way & Utilities Office for a work permit.

Thank you,

TN TDOT Department of Transportation

Na'il Alammori | Transp. Project Spec. Sr.

Structures Division **-** Bridge Inspection

James K. Polk Bldg. 12th Floor

505 Deaderick St., Nashville, TN 37243

p. (615) 741- 7315

Nail.Alammori@tn.gov

tn.gov/tdot

From: Scott Adkisson <scott@foxpe.com>
Sent: Friday, April 29, 2022 1:51 PM
To: Nail Alammori <Nail.Alammori@tn.gov>
Subject: Re: [EXTERNAL] Fwd: Fayetteville Public Utilities - 2021 Water Main Replacements

Nail,

I have added a note to each of the three (3) ARAP drawings. Please let me know if these will suffice.