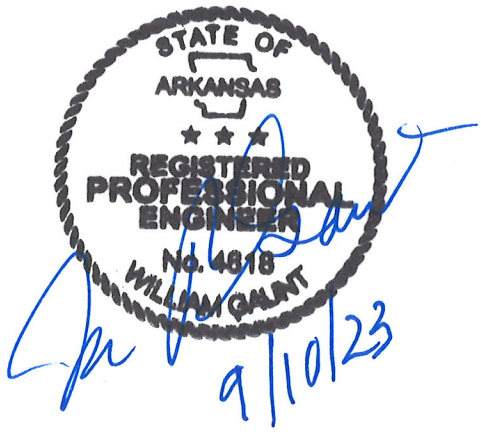
PROJECT MANUAL

WATER LINE REPLACEMENT AND EXTENSIONS

CITY OF DERMOTT, AR
PROJECT NO. DW-204



May 2023

Prepared By: Gaunt Engineers, Inc.
3256 West Hillsboro ~ El Dorado, AR 71730
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ADDENDUM NO. 1
CITY OF DERMOTT
WATER LINE REPLACEMENT AND EXTENSIONS
10 January 2024

INSTRUCTIONS

PROJECT MANUAL:

Section 00312 – Bid

Replace the existing bid schedule with the attached bid schedule (Placed meter, coppersetter, and box in extension areas into same bid item; added clarifications to meter and certain other bid item descriptions; included a second deductive alternative; and revised quantities in accordance with changes to plans).

Section 00711 – Notice to Proceed

Replace the existing Section 00711 with the attached Section 00711 (Corrected project duration and liquidated damages to match bid form).

PLANS:

Replace sheets 2 – 6, 16, 22 – 25, and 37 – 38 with the attached sheets. (Revised placement of insertion valves and connection at tank).

PREPARED BY:

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ADDENDUM NO. 2
CITY OF DERMOTT
WATER LINE REPLACEMENT AND EXTENSIONS

12 January 2024

INSTRUCTIONS

PROJECT MANUAL:

Section 00312 – Bid

Replace the existing page 00312-4 with the attached page 00312-4 (fixed issue to clarify quantity for bid item no. 19).

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ADDENDUM NO. 3
CITY OF DERMOTT
WATER LINE REPLACEMENT AND EXTENSIONS

15 January 2024

INSTRUCTIONS

The bid opening will be **Friday, January 19 at 1:15 p.m.** The location (211 E. Iowa St. / P.O. Box 371, Dermott, AR 71638) is unchanged.

PREPARED BY:

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Document 00010
TABLE OF CONTENTS

Section 00022
ADVERTISEMENT FOR BIDS

City of Dermott
P.O. Box 371
Dermott, AR 71638

Separate sealed BIDS for the construction of **approximately 95,000 linear feet of water lines and appurtenances** will be received by the **City of Dermott** at **211 E. Iowa St. (physical), P.O. Box 371 (mailing), Dermott, AR 71638** until **1:15 P.M.** on **Friday, January 19, 2024**, and then at said office publicly opened and read aloud.

The CONTRACT DOCUMENTS may be examined at the following locations

Gaunt Engineers, Inc. 3256 West Hillsboro, El Dorado, AR 71730
Dermott City Administration Building, 211 E. Iowa St., Dermott, AR
www.gauntengineers.net

Copies of the CONTRACT DOCUMENTS may be obtained at the office of **Gaunt Engineers, Inc.** Located at **3256 West Hillsboro, El Dorado, AR** upon **nonrefundable** payment of **$150.00** for each set.

Each BIDDER must deposit with his BID, security in the amount, form and subject to the conditions provided in the Information For Bidders.

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.

No BIDDER may withdraw his BID within 60 days after the actual date of the opening thereof.

17 December 2023
Date

Walter Jordan
Mayor

Document 00112
INFORMATION FOR BIDDERS

BIDS will be received by the **City of Dermott** (herein called the "OWNER") at **211 E. Iowa St. (physical), P.O. Box 371 (mailing), Dermott, AR 71638** until **1:15 p.m., Friday, January 19, 2024**, and then at said office publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to **the City of Dermott** at **211 E. Iowa St. (physical), P.O. Box 371 (mailing), Dermott, AR 71638**

Each sealed envelope containing a BID must be plainly marked on the outside as BID for the **Water Line Replacement and Extensions** and the envelope should bear on the outside the BIDDER'S name, address, and license number if applicable, and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at **P.O. Box 371, Dermott, AR 71638**

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required.

The OWNER may waive any informalities or minor defects 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. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve the contractor from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a Bid bond payable to the OWNER for five percent of the total amount of the BID. As soon as the BID prices have been compared, the OWNER will return the BONDS of all except the three lowest responsible BIDDERS. When the Agreement is executed the bonds of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the payment BOND and performance BOND have been executed and approved, after which it will be returned. A certified check may be used in lieu of a BID BOND.

A performance BOND and a payment BOND each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BONDS or payment BONDS and performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement, and obtain the performance BOND and payment BOND within ten (10) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER within ten (10) days of receipt of acceptable performance BOND, payment BOND and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw the signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER AND CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the agreement without further liability on the part of either party.

The BIDDER must present satisfactory evidence that he has been regularly engaged in the type of work BID upon, giving the length of time so engaged, and that he is fully prepared with the necessary capital, material, machinery, and expert workmen to perform the contract.

The attention of prospective BIDDERS is directed to Act 150 of the 1965 Acts of Arkansas, being an "Act Regulating the Practice of Contracting in the State of Arkansas". When the project presented for BID is financed in whole with State funds and is estimated to cost

$20,000.00 or more, the prospective BIDDER must show evidence of license with the "Contractor's Licensing Board" for the State of Arkansas before a proposal form will be furnished.

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 Agreement and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted.

Award will be made to the lowest responsible BIDDER.

All applicable laws, ordinances and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to its BID.

Further, the BIDDER agrees to abide by the requirements set forth in the GENERAL CONDITIONS.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when required to do so by the OWNER.

Inspection trips for prospective BIDDERS will leave from the office of the **City of Dermott** at **211 E. Iowa St., Dermott, AR**.

The ENGINEER is **Gaunt Engineers, Inc.** The ENGINEER'S address is **3256 West Hillsboro, El Dorado, AR 71730**.

END OF DOCUMENT

Document 00312
BID FORM

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as _____*. To the **City of Dermott** (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the construction of **Water Line Replacement and Extensions** in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID each party thereto certifies as to its own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the PROJECT within **330** consecutive calendar days thereafter. BIDDER further agrees to pay as liquidated damages, the sum of **$550.00** for each consecutive calendar day thereafter as provided in Section 15 of the General Conditions.

BIDDER acknowledges receipt of the following ADDENDUM:

Addendum 1 – January 10, 2024

_____

_____

* Insert "a corporation", "a partnership", or "an individual" as applicable.

NOTE: When completing this BID, Unit Prices or Lump Sum Prices are to be shown in both words and figures. In case of a discrepancy, the price shown in WORDS will govern.

BID SCHEDULE

BIDDER agrees to perform all the work described in the CONTRACT DOCUMENTS for the following unit prices or lump sums:

NOTE: Bids shall include sales tax and all other applicable taxes & fees.

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
1	12" Water Main - Class 200, 200 psi PVC, SDR-21 - including clearing, trench, backfill & 10 gauge tracing wire & risers	2,369	LF		
			Dollars ($_____)		$_____
2	10" Water Main - Class 200, 200 psi PVC, SDR-21 - including clearing, trench, backfill & 10 gauge tracing wire & risers	582	LF		
			Dollars ($_____)		$_____
3	8" Water Main - Class 200, 200 psi PVC, SDR-21 - including clearing, trench, backfill & 10 gauge tracing wire & risers	5,240	LF		
			Dollars ($_____)		$_____
4	6" Water Main - Class 200, 200 psi PVC, SDR-21 - including clearing, trench, backfill & 10 gauge tracing wire & risers	41,256	LF		
			Dollars ($_____)		$_____
5	4" Water Main - Class 200, 200 psi PVC, SDR-21 - including clearing, trench, backfill & 10 gauge tracing wire & risers	23,439	LF		
			Dollars ($_____)		$_____
6	3" Water Main - Class 200, 200 psi PVC, SDR-21 - including clearing, trench, backfill & 10 gauge tracing wire & risers	24,616	LF		
			Dollars ($_____)		$_____
7	2" Water Main - Class 200, 200 psi PVC, SDR-21 - including clearing, trench, backfill & 10 gauge tracing wire & risers	90	LF		
			Dollars ($_____)		$_____

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
8	4" Water Main - Field-lock gasket, fused PVC pipe, or SDR-11 Polyethelene Pipe - including clearing, trench, backfill & 10 gauge tracing wire & risers	1,605	LF		
			Dollars ($_____)		$_____
9	1" Service Line - CTS, Class 250 - Including clearing, trench, backfill, compaction and cleanup	9,491	LF		
			Dollars ($_____)		$_____
10	3/4" Service Line - CTS, Class 250 - Including clearing, trench, backfill, compaction and cleanup	1,898	LF		
			Dollars ($_____)		$_____
11	12" Gate Valve w/Box & Conc collar, complete in place	2	EA		
			Dollars ($_____)		$_____
12	8" Gate Valve w/Box & Conc collar, complete in place	8	EA		
			Dollars ($_____)		$_____
13	6" Gate Valve w/Box & Conc collar, complete in place	70	EA		
			Dollars ($_____)		$_____
14	4" Gate Valve w/Box & Conc collar, complete in place	9	EA		
			Dollars ($_____)		$_____
15	3" Gate Valve w/Box & Conc collar, complete in place	34	EA		
			Dollars ($_____)		$_____

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
16	2" Gate Valve w/Box & Conc collar, complete in place	7	EA		
			Dollars ($_____)		$_____
17	4" Gate Valve in Manhole, with sampling corp stops as shown on plans, complete in place	2	EA		
			Dollars ($_____)		$_____
18	Water Sampling Station including 3/4" corp stop and saddle, complete in place	12	EA		
			Dollars ($_____)		$_____
19	12" Uncased Bore - pay quantity for bore equal to pavement width plus 10', excluding carrier pipe	137	LF		
			Dollars ($_____)		$_____
20	10" Uncased Bore - pay quantity for bore equal to pavement width plus 10', excluding carrier pipe	176	LF		
			Dollars ($_____)		$_____
21	8" Uncased Bore - pay quantity for bore equal to pavement width plus 10', excluding carrier pipe	510	LF		
			Dollars ($_____)		$_____
22	6" Uncased Bore - pay quantity for bore equal to pavement width plus 10', excluding carrier pipe	6,634	LF		
			Dollars ($_____)		$_____
23	4" Uncased Bore - pay quantity for bore equal to pavement width plus 10', excluding carrier pipe	2,461	LF		
			Dollars ($_____)		$_____

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
24	3" Uncased Bore - pay quantity for bore equal to pavement width plus 10', excluding carrier pipe	2,416	LF		
			Dollars ($_____)		$_____
25	1" Uncased Bore - pay quantity for bore equal to pavement width plus 10', excluding carrier pipe	4,780	LF		
			Dollars ($_____)		$_____
26	5 1/4" Fire Hydrant Assy including 6" Gate Valve w/Box & Conc collar as shown on plans, complete in place	76	EA		
			Dollars ($_____)		$_____
27	4 1/2" Fire Hydrant Assy including 4" Gate Valve w/Box & Conc collar as shown on plans, complete in place	4	EA		
			Dollars ($_____)		$_____
28	Remove Existng Fire Hydrant and Deliver to Owner and cap existing line	82	EA		
			Dollars ($_____)		$_____
29	2" Blow-Off Assembly, including post hydrant, shut-off valve, connection to main line, and appurtenances, as shown on plans, complete in place	7	EA		
			Dollars ($_____)		$_____
30	12x12 Tapping Sleeve, complete in place (Gate valve to be paid for separately)	1	EA		
			Dollars ($_____)		$_____
31	10x8 Tapping Sleeve, complete in place (Gate valve to be paid for separately)	1	EA		
			Dollars ($_____)		$_____

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
32	6x6 Tapping Sleeve, complete in place (Gate valve to be paid for separately)	1	EA		
			Dollars ($_____)		$_____
33	Wet Connection, complete in place (not included for insertion valves and tapping sleeves and valves)	25	EA		
			Dollars ($_____)		$_____
34	Cut, Plug and Abandon Water Lines	39	EA		
			Dollars ($_____)		$_____
35	Water Valve Signs, complete in place	131	EA		
			Dollars ($_____)		$_____
36	Asphalt & concrete pavement repair	329	SY		
			Dollars ($_____)		$_____
37	Gravel for Road and Driveway Repair	469	CY		
			Dollars ($_____)		$_____
38	2" Corp Stop & Saddle, complete in place including reconnection of meter to system	12	EA		
			Dollars ($_____)		$_____
39	1" Corp Stop & Saddle, complete in place including reconnection of meter to system	190	EA		
			Dollars ($_____)		$_____
40	3/4" Corp Stop & Saddle, complete in place including reconnection of meter to system	190	EA		
			Dollars ($_____)		$_____

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
41	12" Insertion Valves	1	EA		
			Dollars ($_____)		$_____
42	10" Insertion Valves	1	EA		
			Dollars ($_____)		$_____
43	8" Insertion Valves	2	EA		
			Dollars ($_____)		$_____
44	6" Insertion Valves	9	EA		
			Dollars ($_____)		$_____
45	Install new radio read meter, coppersetter, meter box, and lid - 5/8", complete in place (must be compatible with existing radio read meter)	23	EA		
			Dollars ($_____)		$_____
46	Replace existing coppersetter with new 5/8" coppersetter, complete in place (meter to remain in place)	50	EA		
			Dollars ($_____)		$_____
47	Replace existing meter box with new 5/8" meter box and lid, complete in place (meter to remain in place)	50	EA		
			Dollars ($_____)		$_____
48	Repair of mislocated main water line	50	EA		
			Dollars ($_____)		$_____
49	Repair of mislocated water service line	80	EA		
			Dollars ($_____)		$_____

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
50	Storm Water Pollution Prevention, install & maintain during construction	1	LS		
			Dollars	($_____)	$_____
51	Trench safety as required by OSHA (29 CFR, Part 1926, Subpart P). Contractor's Certification of Compliance will be required for each payment under this item.	1	LS		
			Dollars	($_____)	$_____
52	Mobilization, Project Sign and Miscellaneous	1	LS		
			Dollars	($_____)	$_____
				Total Bid Amount	$_____

DEDUCTIVE ALTERNATIVE NO. 1:

NOTE: Unit prices in deductive alternatives must be the same unit prices used in base bid.

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
1	Delete - 12" Water Main - Class 200, 200 psi PVC, SDR-21 - including clearing, trench, backfill & 10 gauge tracing wire & risers	2,369	LF		
			Dollars	($_____)	$_____
2	Delete - 8" Water Main - Class 200, 200 psi PVC, SDR-21 - including clearing, trench, backfill & 10 gauge tracing wire & risers	438	LF		
			Dollars	($_____)	$_____
3	Delete - 6" Water Main - Class 200, 200 psi PVC, SDR-21 - including clearing, trench, backfill & 10 gauge tracing wire & risers	5,300	LF		
			Dollars	($_____)	$_____

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
4	Delete - 3" Water Main - Class 200, 200 psi PVC, SDR-21 - including clearing, trench, backfill & 10 gauge tracing wire & risers	2,320	LF		
			Dollars	($_____)	$_____
5	Delete - 12" Gate Valve w/Box & Conc collar, complete in place	2	EA		
			Dollars	($_____)	$_____
6	Delete - 8" Gate Valve w/Box & Conc collar, complete in place	3	EA		
			Dollars	($_____)	$_____
7	Delete - 6" Gate Valve w/Box & Conc collar, complete in place	4	EA		
			Dollars	($_____)	$_____
8	Delete - 3" Gate Valve w/Box & Conc collar, complete in place	5	EA		
			Dollars	($_____)	$_____
9	Delete - 2" Gate Valve w/Box & Conc collar, complete in place	1	EA		
			Dollars	($_____)	$_____
10	Delete - Water Sampling Station including 3/4" corp stop and saddle, complete in place	3	EA		
			Dollars	($_____)	$_____
11	Delete - 12" Uncased Bore - pay quantity for bore equal to pavement width plus 10', excluding carrier pipe	137	LF		
			Dollars	($_____)	$_____

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
12	Delete - 6" Uncased Bore - pay quantity for bore equal to pavement width plus 10', excluding carrier pipe	529	LF		
			Dollars	($_____)	$_____
13	Delete - 3" Uncased Bore - pay quantity for bore equal to pavement width plus 10', excluding carrier pipe	147	LF		
			Dollars	($_____)	$_____
14	Delete - 1" Uncased Bore - pay quantity for bore equal to pavement width plus 10', excluding carrier pipe	362	LF		
			Dollars	($_____)	$_____
15	Delete - 5 1/4" Fire Hydrant Assy including 6" Gate Valve w/Box & Conc collar as shown on plans, complete in place	5	EA		
			Dollars	($_____)	$_____
16	Delete - 2" Blow-Off Assembly, including post hydrant, shut-off valve, connection to main line, and appurtenances, as shown on plans, complete in place	1	EA		
			Dollars	($_____)	$_____
17	Delete - 12x12 Tapping Sleeve, complete in place (Gate valve to be paid for separately)	1	EA		
			Dollars	($_____)	$_____
18	Delete - 6x6 Tapping Sleeve, complete in place (Gate valve to be paid for separately)	1	EA		
			Dollars	($_____)	$_____

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
19	Delete - 1" Corp Stop & Saddle, complete in place including reconnection of meter to system	13	EA		
			Dollars	($_____)	$_____
20	Delete - 3/4" Corp Stop & Saddle, complete in place including reconnection of meter to system	17	EA		
			Dollars	($_____)	$_____
21	Delete - 12" Insertion Valves	1	EA		
			Dollars	($_____)	$_____
22	Add - 12x6 Tapping Sleeve, complete in place (Gate valve to be paid for separately)	2	EA		
			Dollars	($_____)	$_____
23	Add - 12x3 Tapping Sleeve, complete in place (Gate valve to be paid for separately)	2	EA		
			Dollars	($_____)	$_____
24	Add - Wet Connection, Complete in Place (Not included for insertion valves and tapping sleeves and valves)	2	EA		
			Dollars	($_____)	$_____

Amount Deducted $_____

Reduced Bid (Base bid less Deductive Alternative No. 1) $_____

DEDUCTIVE ALTERNATIVE NO. 2:

NOTE: Unit prices in deductive alternatives must be the same unit prices used in base bid.

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
1	Delete - 10" Insertion Valves	1	EA		
			Dollars	($_____)	$_____

Item No.	Item Description	Est Qty	Unit	Unit Price	Total Amount
2	Delete - 8" Insertion Valves	2	EA		
			Dollars	($_____)	$_____
3	Delete - 6" Insertion Valves	9	EA		
			Dollars	($_____)	$_____
4	Add - Wet Connection, Complete in Place (Not included for insertion valves and tapping sleeves and valves)	12	EA		
			Dollars	($_____)	$_____
				Amount Deducted	$_____
				Reduced Bid (Base bid less Deductive Alternative 1 & 2)	$_____

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, taxes, fees, etc. to cover the finished work of the several kinds called for.

All materials shall meet Buy America requirements as specified in 23 U.S.C. 313 and 23 CFR 635.410.

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 10 days and deliver a Surety Bond or Bonds as required in the General Conditions. The bid security attached in the sum of 5% of the total contract price 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:

_____	_____
Bidder	Address
_____	_____
Signature	Date
_____	_____
Title	AR License Number
_____	_____
	Telephone Number

(SEAL - If Bid is by a Corporation)

ATTEST:_____

END OF DOCUMENT

Document 00412
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 City of Dermott** as OWNER in the penal sum of _____

_____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 20_____.

The Condition of the above obligation is such that whereas the Principal has submitted to **the City of Dermott** a certain Bid, attached hereto and hereby made a part hereof to enter into a contract in writing, for the **Water Line Replacement and Extensions**

NOW, THEREFORE,

(a) If said BID shall be rejected, or

(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 faithful performance of said contract, and for the payment of all persons performing labor furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

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

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

_____ (L.S.)
Principal

_____
Surety

By:_____

IMPORTANT - 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.

END OF DOCUMENT

Document 00422
STATEMENT OF BIDDER'S QUALIFICATIONS

(To be submitted by the BIDDER **ONLY** upon the specific request of the OWNER).

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.

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 more important projects recently completed by your company, stating the approximate cost for each and month and year completed. _____

    _____
11. List you major equipment available for this contract and designate whether owned or leased: _____

    _____
12. Experience in construction work similar in importance to this PROJECT: _____

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

_____

_____

14. Give bank reference: _____

15. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the OWNER?_____

16. Give bonding agent and limit: _____

_____
(Name of Bidder)

By:_____

Title: _____

State of _____

County of _____

_____ Being duly sworn deposes and says that he is

_____ of _____
(name of organization)

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 on the _____ day of _____, 20____.

END OF DOCUMENT

Document 00512
AGREEMENT

THIS AGREEMENT, made this _____ day of_____, 20___, by and between the **the City of Dermott** hereinafter called "OWNER" and _____doing business as _____(*an individual, a partnership, or a corporation)** hereinafter called "CONTRACTOR".

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

1. The CONTRACTOR will commence and complete the construction of the **Water Line Replacement and Extensions**
2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS on or before a date to be specified in the NOTICE TO PROCEED and will complete the same within **330** calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.
4. The 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 included the following:
   - (A) Advertisement for BIDS
   - (B) Information for BIDDERS
   - (C) Bid
   - (D) Bid Bond
   - (E) Agreement
   - (F) Arkansas Performance & Payment Bond
   - (G) Certification of Owner's Attorney
   - (H) Notice of Award
   - (I) Notice to Proceed
   - (J) General Conditions
   - (L) DRAWINGS prepared by Gaunt Engineers, Inc. numbered 1 through ___, (excluding Title Page) and dated _____.

(M) SPECIFICATIONS prepared or issued by Gaunt Engineers, Inc. dated _____.

(N) ADDENDA:
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 such amounts as required by the Contract Documents.
7. This Agreement 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 Agreement in **Five (5)** copies, each of which shall be deemed an original on the date first above written.

Owner: **City of Dermott**

By: _____
(Signature)

Name: **Walter Jordan**

Title: **Mayor**

(SEAL)

_____
(Signature) (Date)

Name: _____
(Please Type)

Title: _____

Contractor: _____

By: _____

Name: _____
(Please Type)

Title: _____
(Please Type)

Address: _____

_____

ATTEST:

_____
(Signature) (Date)

Name: _____
(Please Type)

END OF DOCUMENT

Document 00612
ARKANSAS STATUTORY PERFORMANCE AND PAYMENT BOND

WE, _____
(state whether individual, partnership or corporation)

As Principal, hereinafter called Principal, and _____

as Surety, hereinafter called Surety, are held and firmly bound unto the **City of Dermott**

as Obligee, hereinafter called **OWNER**, in the amount of

_____ ($_____), for the payment whereof

Principal and Surety bind themselves, their heirs, personal representatives, successors and

assigns, jointly and severally, firmly by these presents.

Principal has by written agreement dated _____ entered into a contract

with OWNER for **Water Line Replacement and Extensions,** which contract is by reference

made a part hereof, and is hereinafter referred to as the Contract.

The condition of this obligation is such that if Principal shall faithfully perform the contract on his part and shall fully indemnify and save harmless OWNER from all cost and damage which it may suffer by reason of failure so to do and shall fully reimburse and repay OWNER all outlay and expense which OWNER may incur in making good any such default and, further, that if Principal shall pay all persons all indebtedness for labor or materials furnished or performed under said Contract, failing which such persons shall have a direct right of action against Principal and Surety, jointly and severally, under this obligation, subject to OWNER'S priority, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

This bond is given in accordance with the following laws of the State of Arkansas: Act 368 of 1929 as amended and Act 351 of 1953 as amended.

No suit shall be brought on this bond outside the State of Arkansas and no suit shall be brought on this bond except by OWNER after six months from the date final payment is made on the Contract. The six-month period of limitation is waived with respect to OWNER and it is agreed that OWNER may bring suit on this bond any time before suit against Principal would be barred.

Any alterations which may be made in the terms of the Contract, or in the work to be done under it, or the giving by Owner of any extension of time for the performance of the Contract, or any other forbearance on the part of either Owner or Principal to the other shall not in any way release Principal and Surety or Sureties, or either or any of them, their heirs, personal representatives, successors or assigns, from their liability hereunder, notice to Surety or Sureties of any such alteration, extension or forbearance being hereby waived.

In no event shall the aggregate liability of Surety exceed the sum set out herein.

Executed this _____ day of _____, 20_____

_____
Principal

By: _____

_____
Surety

By: _____

NOTE:

1. This bond form is mandatory. No other form will be acceptable.
2. The date of the bond must not be prior to the date of the contract.
3. Any surety executing this bond must appear on the U.S. Treasury Department most current list (Circular 570 as amended) and be authorized to transact business in the State of Arkansas.
4. This bond should be filed with the Circuit Court of the County where the work is to be performed, prior to start of construction.

END OF DOCUMENT

Document 00690
CERTIFICATE OF OWNER'S ATTORNEY

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

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

_____

Date: _____

NOTE: Delete phrase "performance and payment bonds" when not applicable.

END OF DOCUMENT

Document 00710
NOTICE OF AWARD

TO: _____

_____

_____

PROJECT & DESCRIPTION: **Water Line Replacement and Extension, City of Dermott, Arkansas**

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 Agreement and furnish the required CONTRACTOR'S Performance BOND, Payment BOND and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

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

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

Dated this _____ day of _____, 20___.

By: _____ By: **City of Dermott**
Signature Owner

Title: **Mayor**

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged this ____day of_____, 20___.

By: _____ By: _____
Signature Company Name

Title: _____

END OF DOCUMENT

Document 00711
NOTICE TO PROCEED

TO: _____ Date: _____

_____

_____

Project Name: **Water Line Replacement and Extension**

Project Location: **City of Dermott, Arkansas**

You are hereby notified to commence WORK on the referenced contract in accordance with the Agreement dated _____ on or before_____, and are to fully complete the WORK within **330** consecutive calendar days thereafter. Your contract completion date is therefore _____. The Agreement provides for assessment of the sum of **$550.00** as liquidated damages for each consecutive calendar day after the above established contract completion date that the WORK remains incomplete.

Please return an acknowledged copy of the NOTICE TO PROCEED to the OWNER.

_____
Owner

By: _____
Signature

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged this ____day of_____, 20__.

By: _____ By: _____
Signature Company Name

Title: _____

END OF DOCUMENT

Document 00800
GENERAL CONDITIONS

1.0 DEFINITIONS

1.1 Wherever used in the CONTRACT DOCUMENTS, the following terms shall have the meanings indicated and 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 surety, furnished by the CONTRACTOR and the CONTRACTOR'S 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 parts 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, issued by the ENGINEER to the CONTRACTOR 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/her to proceed with the WORK and establishing the date for commencement of the WORK.

1.16 OWNER - A public or quasi-public body or authority, corporation, association, partnership, or an 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 SPECIFICATION - 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 CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.

1.22 SUBSTANTIAL COMPLETION - That date 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 special 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 their last given address, or delivered in person to said party or their authorized representative on the WORK.

2.0 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 instructions 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.

3.0 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 the CONTRACTOR proposes to carry on the WORK, including dates at which the various parts of the WORK will be started, estimated date of completion of each part and, as applicable:

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

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

3.3 The CONTRACTOR shall also submit a schedule of payments that the CONTRACTOR anticipates will be earned during the course of the WORK.

4.0 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 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 discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

5.0 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 DRAWINGS 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.

6.0 MATERIALS, SERVICE 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 articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

6.4 Materials, 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.

7.0 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 The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.

7.3 The CONTRACTOR shall provide at the CONTRACTOR'S 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 and 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, test, or approvals by the engineer or others shall not relieve the CONTRACTOR from the obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.

7.6 The ENGINEER and the ENGINEER'S 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 or 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 the ENGINEER'S 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.

8.0 SUBSTITUTIONS

8.1 Whenever a material, article, or piece of equipment is identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalogue numbers, 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 shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENT by reference to brand name or catalogue number, and if, in the 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. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes 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 will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME.

9.0 PATENTS

9.1 The CONTRACTOR shall pay all applicable royalties and license fees, and 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 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, the CONTRACTOR shall be responsible for such loss unless the CONTRACTOR promptly gives such information to the ENGINEER.

10.0 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 bench marks 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 pipe locations and other working points, lines, elevations and cut sheets.

10.2 The CONTRACTOR shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, shall be charged with the resulting expense and shall be responsible for any mistake 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, the CONTRACTOR shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 13, CHANGES IN THE WORK.

11.0 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. The CONTRACTOR will take all necessary precautions for the safety of, will provide the 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, 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. The CONTRACTOR will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. The CONTRACTOR 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 part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone directly or indirectly employed by any of them or anyone of whose acts any of them liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER, of 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 instructions or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury or loss. The CONTRACTOR 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 thereupon be issued covering the changes and deviations involved.

12.0 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.

13.0 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 the CONTRACTOR to a change in CONTRACT PRICE or TIME, or both, in which event the CONTRACTOR 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.

14.0 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.

15.0 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, act 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.

16.0 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 reexecute 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.

17.0 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 it is found 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 the required WRITTEN NOTICE has been given; provided that the OWNER may, if the OWNER determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

18.0 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 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 makes a general assignment for the benefit of its creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of its property, or if CONTRACTOR files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment or disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or disregards the authority of the ENGINEER, or 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 its 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 the OWNER 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 cost 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 it 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 ten (10)days written notice to the OWNER and the ENGINEER stop the WORK until paid all amounts then due, in which event and upon resumption of the WORK CHANGE ORDER 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 not 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.

19.0 PAYMENT 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 OWNER, as will establish the OWNER'S title to the material and equipment and protect the OWNER'S interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing approval of payment, and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in

writing the 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 of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate less the retainage. The retainage shall be an amount equal to 10% of said estimate until 50% of the work has been completed. At 50% completion, further partial payments shall be made in full to the CONTRACTOR and no additional amounts may be retained unless the ENGINEER certifies that the job is not proceeding satisfactorily, but amounts previously retained shall not be paid to the CONTRACTOR. At 50% completion or any time thereafter when the progress of the WORK is not satisfactory, additional amounts may be retained but in no event shall the total retainage be more than 10% of the value of the work completed. Upon substantial completion of the work, any amount retained may be paid to the CONTRACTOR. When the WORK has been substantially completed except for WORK which cannot be completed because of weather conditions, lack of materials or other reasons which in the judgment of the OWNER are valid reasons for non-completion, the OWNER may make additional payments, retaining at all times an amount sufficient to cover the estimated cost of the WORK still to be completed.

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 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 demand of SUBCONTRACTORS, laborers, workmen, mechanics, material men, 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 whereupon 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, the CONTRACTOR'S 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.

20.0 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 accepted 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 its sureties from any obligations under the CONTRACT DOCUMENTS or the Performance and Payment BONDS.

21.0 INSURANCE

21.1 The CONTRACTOR shall purchase and maintain such insurance as will protect it 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 the CONTRACTOR, any SUBCONTRACTOR, for 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 employees;

21.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than 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 filled 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 the CONTRACTOR'S 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 the CONTRACTOR 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 the CONTRACTOR or by any SUBCONTRACTOR employed by the CONTRACTOR or anyone directly or indirectly employed by the CONTRACTOR or by a SUBCONTRACTOR employed by the CONTRACTOR. Insurance shall be written with a limit of liability of not less than $500,000 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 $500,000 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 $200,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than $200,000 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 the CONTRACTOR'S 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 the CONTRACTOR'S 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 its 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 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, and the OWNER.

22.0 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 list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 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 list of Surety Companies accepted on Federal Bonds, 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 payment shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNER.

23.0 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 any right, title or interest therein, or any obligations thereunder, without written consent of the other party.

24.0 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, any 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 by 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, its agents or employees arising out of the CHANGE ORDERS, designs or SPECIFICATIONS.

25.0 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 the 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 or the OWNER 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 the OWNER is performing the additional WORK) reasonable opportunity for the

introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate the 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 believes that the performance of such additional WORK by the OWNER or others involves it in additional expense or entitles it to an extension of the CONTRACT TIME, the CONTRACTOR may make a claim thereof as provided in Section 14 and 15.

26.0 SUBCONTRACTING

26.1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTS 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 its SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as the CONTRACTOR is for the acts and omissions of persons directly employed by it.

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 insofar as applicable to the WORK of SUBCONTRACTORS and 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.

27.0 ENGINEER'S AUTHORITY

27.1 The ENGINEER shall act as the OWNER'S representative during the construction period, shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed, and 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 at the factory or fabrication plant of the source of material 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.

28.0 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 described the lands owned and rights-of-way acquired.

28.3 The CONTRACTOR shall provide at its 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.

29.0 GUARANTEE

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 the damage of other part 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.

30.0 ARBITRATION

30.1 All claims, disputes, and other matters in question arising out of, or relating to, the CONTRACT DOCUMENTS or the breach thereof, except for claims which have been waived by the making an acceptance of final payment as provided by Section 20, shall be

decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. This agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof.

30.2 Notice of the demand for arbitration shall be filed in writing with the owner party to the CONTRACT DOCUMENTS and with the American Arbitration Association, and a copy shall be filed with the ENGINEER. Demand for arbitration shall in no event be made on any claim, dispute, or other matter in question which would be barred by the applicable statute of limitations.

30.3 The CONTRACTOR will carry on the WORK and maintain the progress schedule during any arbitration proceedings, unless otherwise mutually agreed in writing.

31.0 TAXES

31.1 The CONTRACTOR will pay all sales, consumer, use, and other similar taxes required by the laws of the place where the WORK is performed.

32.0 REGULATORY REFERENCES

32.1 All references in the Plans and Specifications to any Rules, Regulations, or Standards shall be understood to refer to the most recent revisions thereof.

CONTRACTOR'S AFFIDAVIT

STATE OF: _____

COUNTY OF: _____

The undersigned, being duly sworn on oath, deposes and says that he is _____ of _____, the contractor for _____ work designated as Project _____ situated at _____ owned by _____ and that all parties who have furnished labor material, or both or any other items to the undersigned for use on the said work and all parities having contracts or sub-contracts with the undersigned for specific portions of said work have been paid in full with the exception of the following exception:

_____

_____

_____

The undersigned further states that there are no other contracts of obligations for labor or materials outstanding which were used in completing this project.

The undersigned makes this affidavit for the purpose of procuring from the owner a final payment upon this contract for all work completed in accordance with the plans and specifications of the owner.

Signed this ____ day of _____, 20__.

_____
Contractor

By: _____

Title: _____

Subscribed and Sworn to before me
This ____ day of _____, 20__

_____
Notary Public

My Commission expires on the _____ day of _____, 20__

Section 01310
SUBMITTALS

PART 1 - GENERAL

1.01 Requirements

A. Submit Construction Contract Schedule, Shop Drawings, samples, and manufacturers' certificates required by the Contract Documents.

1.02 Related Requirements

A. Definitions and additional responsibilities of parties: General Conditions and Modifications to General Conditions.

B. Submittal requirements for specific work: The respective specifications sections.

1.03 Procedures

A. Deliver submittals to Engineer. All submittals shall include the following:
1. Date and submittal number.
2. Project title and number (if applicable)
3. Names of contractor, subcontractor, supplier and manufacturer
4. Identification of Product being supplied
5. Location of where Product is to be installed
6. Applicable Specification section number and / or drawing number

B. Sequentially number transmittal letters beginning with number one. Use original number for resubmittals with an alphabetic suffix (i.e., 2A for the first resubmittal of submittal 2, or 15C for the third resubmittal of submittal 15, etc.)

C. On Shop Drawings, identify Project, Contractor, Subcontractor, major supplier; identify pertinent Drawings sheet and detail number, and Specification section number, as appropriate. Identify deviations from Contract Documents. Provide space for Contractor and Engineer review stamps.

D. Shop drawings submittals shall contain the Contractor's signature or stamp confirming his review of the submittal, verification of products, field measurements and construction criteria, and coordination of the information within the submittal with requirements of the Work and of the Contract Documents.

E. After Engineer review of submittal, revise and resubmit as required, identifying changes made since previous submittal.

F. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.

1.04 Shop Drawings

A. Present drawings in a clear and thorough manner, showing pertinent dimensions and identifying details by reference to sheet and detail, and schedules shown on the Drawings.

B. Submit the number of copies which Contractor, subcontractor, and supplier require plus three copies for the Engineer.

1.05 Illustrations and Brochures

A. Preparation:
1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Include special installation instructions.

1.06 Samples

A. Samples for Selection:
1. Submitted to Engineer for aesthetic, color, or finish selection.
2. Submit samples of finishes in custom colors selected, textures, and patterns for Engineer selection.
3. After review, produce duplicates and distribute in accordance with 1.03 - Procedures above.

B. Include identification on each sample, with full Project information.

C. Submit a minimum of two samples, one of which will be retained by Engineer.

1.07 Manufacturer’s Certification

A. Submit certificates, in duplicate, in accordance with requirements of each Specification Section.

1.08 Notifications

A. Notify the Engineer, in writing at the time of submission, of any deviations in the submittals from requirements of the Contract Documents. Identify deviations from contract documents BY clouding submittal drawings and itemize and detail on separate 8-1/2 by 11-inch sheets entitled “DEVIATIONS FOR _____.”

B. Notify the Engineer, in writing at the time of resubmission, of changes made on resubmittals other than those previously requested by the Engineer.

PART 2 - PRODUCTS -

All iron and steel products shall meet “American Iron and Steel” requirements.

PART 3 - EXECUTION - (NOT USED)

END OF SECTION

Section 01326
CONSTRUCTION SCHEDULE (BAR CHART)

PART 1 - GENERAL

1.01 Section Includes

A. Provide an initial Construction Schedule as required by this section for the Work. Do not start construction until Project Manager reviews the schedule.

1.02 Form and Content of Initial Construction Schedule

A. Bar Chart:
1. Show major construction activities such as pipe laying, by traffic control phases or other approved key areas; tunnel construction, pavement removal, pavement replacement, pressure testing, chlorination, clean up and punch list as separate activities on the schedule.
2. Show week duration for each activity.
3. Show separate activities for each Shop Drawing and Product Data submittal critical to timely completion. Show submittal dates and dates Project Manager needs to provide approved submittals.
4. Provide separate horizontal bar for each activity. List start and finish date for each activity at left side of diagram.
5. Horizontal Time Scale: Identify first work day of each week.
6. Scale and Spacing: Notes must be legible. Allow space for notations and future revisions.
7. Order of Listings: Order bar chart listings by phases or other approved groups of activities that are contiguous. List activities in chronological order within each phase or group.

B. Narrative Description:
1. Submit narrative descriptions of anticipated work sequences as indicated by the sequence of activities presented in the schedule.
2. Discuss any activity that affects the public (such as phases of traffic control), interaction with specific forces of the Owner (such as valve operation, chlorination and testing) or other associated contractors.

1.03 Progress Revisions

A. Submit progress revisions or necessary information to complete and process Payment Applications. When required, re-submittals for rejected revisions must be submitted and reviewed prior to the following month's processing of a Payment Application. The following month's Payment Application will not be processed until the re-submittal is reviewed and required progress revisions are received.

B. Provide a narrative report to describe:
   1. Major changes in scope.
   2. Revised projections in progress, completion, or changes in activity duration.
   3. Other identifiable changes.
   4. Problem areas, anticipated delays, and the impact on schedule.
   5. Corrective action recommended and its effect.
   6. Effect of changes on schedules or other contractors.
   7. Product delivery lead times.

C. Include additional data with Bar Chart described in Paragraph 1.03A of this Section:
   1. Show original dates for each activity in the approved initial progress schedule by narrow bar next to a wider bar for the current schedule.
   2. Show date each activity actually started or finished when an event has occurred. Clearly identify actual dates in two right-most columns in left portion of an 11 by 17 inch chart.
   3. Indicate the percentage progress to the date of submittal for each activity.

1.04 Submittals

A. Submit the initial progress schedule within 15 days after award of contract. Project Manager will review the schedule and return a reviewed copy within 21 days after receipt.

B. Cut-off dates for progress revisions may be as early as the 20th of the month to avoid delaying processing of Payment Applications. Use the cut-off date for the first approved revision for further revisions.

C. When required, re-submit within seven days after return of review copy.

D. Include connecting lines between bars in the schedule to indicate the sequence that activities will be accomplished. Connecting lines when the activity's start or finish is modified will identify impact of preceding or succeeding activities.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION - (NOT USED)

END OF SECTION

Section 01785
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 Section Includes

A. Maintenance and submittal of record documents and Samples.

1.02 Maintenance of Documents and Samples

A. Maintain one record copy of documents at the job site.

B. Store record documents and Samples in field office, if a field office is required by the Contract, or in a secure location. Provide files, racks, and secure storage for record documents and Samples.

C. Label each document “PROJECT RECORD” in neat, large, printed letters.

D. Maintain record documents in a clean, dry, and legible condition. Do not use record documents for construction purposes. Do not use permit drawings to record Modifications to the Work.

E. Keep record documents and Samples available for inspection by owner, Project Manager and/or Project Inspector.

F. Bring record document to progress review meetings for viewing by Project Manager and, if applicable, Design Consultant.

1.03 Recording

A. Record information legibly with red ink pen on a set of drawings, concurrently with construction progress. Maintain an instrument on site at all times for measuring elevations accurately. Do not conceal work until required information is recorded.

B. Contract Drawings and Shop Drawings: Mark each item to record completed Modifications, or when minor deviations exist, the actual construction including:
   1. Measured depths of elements of foundation in relation to finish first floor datum.
   2. Measured horizontal locations and elevations of Underground Facilities and appurtenances, referenced to permanent surface improvements.
   3. Elevations of Underground facilities referenced to a benchmark utilized for the work.
   4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   5. Dimensions and details of field changes.

6. Changes made by Modifications.
7. Details not on original Drawings.
8. References to related Shop Drawings and Modifications.

C. Survey all joints of water mains at the time of construction. Record on Drawings, water main invert elevation, elevation top of manway, and centerline horizontal location relative to baseline.

D For large diameter water mains, mark specifications and addenda to record:
1. Manufacturer, trade name, catalog number and Supplier of each Product actually installed.
2. Changes made by Modification or field order.
3. Other matters not originally specified.

E. Annotate Shop Drawings to record changes made after review.

1.04 Submittals

A. At closeout of the contract, deliver Project record documents to Project Manager.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION - (NOT USED)

END OF SECTION

Section 02545
GRAVEL SURFACING (PIT GRAVEL)

PART 1 - GENERAL

1.01 Work Included

A. Prepare sub-grade to receive gravel surfacing course for driveway and parking area.

B. Place, distribute and level gravel surfacing course.

C. Provide compaction as required.

1.02 Related Work

A. Section 02112 - Demolition

B. Section 02200 - Earthwork.

1.03 Unit Price

Payment for the various unit price items shall include the cost of all materials, labor, equipment, tools and incidental items necessary to complete the work.

A. The cost for Gravel Surfacing shall be paid for on a cubic yard basis if listed as a separate item in the Bid Schedule.

B. The cost for Gravel Surfacing shall be included in the unit price for the related item if not listed as a separate item in the Bid Schedule.

1.04 Reference Standards - (All reference to standard specifications shall be the latest revision to said specification).

A. American Society for Testing and Materials (ASTM):
   1. ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3)
   2. ASTM D1557- Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (56,000 ft-lbf/ft^3)
   3. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

B. Arkansas State Highway and Transportation Department - Standard Specification for Highway Construction

1. Section 303 – Aggregate Base Course

PART 2 - PRODUCTS

2.01 Material

A. Pit gravel shall be used and shall be defined by the following gradation requirements:

Grade Requirements

Size of Sieve Total Retained	Pit Gravel
2" Sieve	0 - 05
1-1/2" Sieve	0 - 15
3/4" Sieve	0 - 40
3/8" Sieve	20 - 60
#4 Sieve	40 - 70
#10 Sieve	55 - 80
Total Passing	
#40 Sieve	10 - 35
#200 Sieve	03 - 15

The fraction passing the #200 sieve shall not be greater than two- thirds (2/3) the fraction passing the #40 sieve. The fraction passing the #40 sieve shall have a plasticity index not greater than ten (10).

The contractor shall have the necessary tests performed at his own expense to insure that the stone course meets specifications. The blending of materials on the above requirements will not be permitted.

PART 3 - EXECUTION

3.01 Sub-Grade Preparation

A. Ensure grading of the sub-grade to the required elevation.

B. Scarify to a depth of six inches the sub-grade where the surface course is to be placed.

C. Water and thoroughly mix sub-grade until optimum moisture content is obtained when deficiency of moisture content exists. When excess moisture exists, rework and aerate sub-grade until optimum moisture content is obtained.

D. Recompact the sub-grade to a minimum of 95% of the maximum dry density at or near the optimum moisture content as determined by the Standard Proctor Test per ASTM D698.

E. Before final rolling, shape the entire area to the required cross section, adding additional sub-soil as required and compact the sub-grade surface to the required density.

3.02 Placement of Surface Course

A. Place the surface course material over the prepared sub-grade in accordance with the construction methods described in Section 303 of the AHTD Standard Specifications for Highway Construction.

B. Material is to be spread and compacted the same day that the material is delivered to the site.

C. Add water during compaction to bring the base course materials to optimum moisture content. When excess moisture exists, rework the surface course material until optimum moisture content is obtained.

D. Place surface course, uniformly spread, to depths indicated on the drawings.

E. For compacted depths exceeding five (5) inches, place material in two (2) courses of equal depth.

F. Maintain the surface course in a satisfactory condition until accepted.

3.03 Field Quality Control

A. Testing laboratory will make in-place tests of density and moisture content of the sub-grade in accordance with ASTM D6938.

END OF SECTION

Section 02555
ASPHALT CONCRETE HOT MIX

PART I GENERAL

1.01 Work Included

A. Furnish and place asphalt pavement.

1.02 Related Work

A. Section 02245 – Lime Stabilization

B. Section 02510 – Gravel Surfacing & Subgrade Preparation

C. Section 02550 - Prime and Tack Coat

1.03 Unit Price

Payment for the various unit price items shall include the cost of all materials, labor, equipment, tools and incidental items necessary to complete the work.

A. Asphalt concrete surface course: Surface course shall be paid for at the contract unit price per square yard of asphalt placed.

B. Asphalt concrete binder course: Binder course shall be paid for at the contract unit price per square yard of asphalt placed.

1.04 Referenced

A. Standard specification for Highway Construction, Arkansas State Highway and Transportation Department, latest edition.

1.05 System Performance

A. Paving: Designed for movement of trucks up to 78,000 lbs.

1.06 Submittals

A. Contractor to develop mix design in accordance with AHTD requirements of Section 404.0.

B. Submit proposed mix design for review prior to commencement of work.

1.07 Quality Assurance

A. Work shall be performed in accordance with Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 1988 edition.

B. Mixing Plant shall be conforming to and approved by Arkansas State Highway and Transportation Department.

PART 2 PRODUCTS

2.01 Materials

A. Mineral aggregate of Type 1 shall contain a mineral filler composed of limestone dust, Portland cement or hydrated lime complying with the requirements of AASHTO M 17.

B. Mineral aggregate in Type 2, 3, and 4 shall contain minor filler complying with the requirements of AASHTO M 17.

C. Mixes shall contain a heat stable anti-strip additive.

D. Materials shall comply with AHTD requirements of Section 409.

E. Unless otherwise specified, the mixture used shall be Type 2.

2.02 Asphalt Mix

A. The asphalt mixture shall conform to the following requirements:

BINDER COURSE DESIGN REQUIREMENTS

	MAX MIX PERCENT PASSING			Tolerance
SIEVE	TYPE 1	TYPE 2	TYPE 3	(%)
1 1/2"			100	
1 1/4"	100	100		
1"	92-100	92-100		
3/4"	75-97	75-97	70-90	±7
1/2"	55-85	55-85		
No. 4	35-60	35-60	35-60	±7
No. 10	20-45	20-45	20-38	±4
No. 20	14-35	14-35		±4
No. 40	10-30	10-30	10-25	±4
No. 80	6-20	6-20		±4

No. 200	4-10	4-10	0-7	±2
Asphalt Content	3.7-7.0	3.7-7.0	3.7-7.0	0.4
No. of Blows	75	50	50	
Min. Marshall Stability, lbs.	1500	1000		
Marshall Flow, 1/100"	7-16	7-16	7-16	
% Voids	3.0-6.0	3.0-6.0	3.0-6.0	
Min. % VMA	13	13	12	
Min. Water Sensitivity Ratio, %	75	70	70	
% Anti-strip	As required	As required	As required	
% Mineral Filler	2-4			

SURFACE COURSE DESIGN REQUIREMENTS

	MAX MIX PERCENT PASSING				Tolerance
SIEVE	TYPE 1	TYPE 2	TYPE 3	TYPE 4	(%)
3/4"	100	100			
1/2"	85-100	85-100	100	100	
No. 4	55-80	55-80	60-80	95-100	±7
No. 10	35-60	35-60	40-60	75-95	±4
No. 20	22-45	22-45	22-47	45-62	±4
No. 40	15-35	15-35	15-40	30-55	±4
No. 80	8-22	8-22	8-24	15-30	±4
No. 200	4-10	4-10	4-10	5-12	±2
Asphalt Content	4.5-7.5	4.5-7.5	4.5-7.5	6.0-10.0	0.4
No. of Blows	75	50	50	50	
Minimum Marshall Stability, lbs.	1750	1000	1000	750	
Marshall Flow, 1/100"	7-16	7-16	7-16		
% Voids	3.0-5.0	2.5-5.0	2.0-5.0		
Minimum % VMA	14	4	15		
Minimum Water Sensitivity Ratio, %	75	70	70		
% Anti-strip	As required	As required	As Required	As Required	
% Mineral Roller	2-4			4-6	

2.03 Asphalt Mixing Plant

A. The equipment used shall comply with AHTD requirements as defined in section 409.

B. The Engineer may inspect the plant operations at any time.

2.04 Minimum Quality Control

A. Aggregate samples will be tested for gradation in accordance with AASHTO T 11, T 27, and T 30 as applicable.

B. Asphalt mixtures will be tested using extraction tests to be performed in accordance with AASHTO T 164.

PART 3 EXECUTION

3.01 Inspection

A. The Engineer will inspect all equipment to make sure that the equipment will satisfactorily perform the work and that the equipment is in good working order.

B. Contractor shall inspect the base to make sure that the prime coat or tack coat has sufficiently cured.

C. Contractor shall inspect the base to make sure that the equipment can negotiate all rough areas and still lay a surface that will conform with the grades and other requirements.

D. Contractor shall inspect the base for excessive moisture or soft areas.

3.02 Preparation

A. Complete all required corrections to the existing pavement or base including:
1. Filling all pot holes, sags and depressions
2. Alterations to the existing crown.

B. Accomplish corrections by placing asphalt binder or surface course mixtures at the locations and in the manner directed by the Engineer.

C. Prime or tack all existing surfaces prior to placing asphalt.

D. Reprime or retack, prior to laying asphalt, all areas that have had excessive traffic or when the surface has been damaged.

E. Use clean sand to blot excess primer.

F. Remove excessive joint or crack filler on existing pavement surfaces.

G. Contact surfaces of curbing, gutters, manholes and other structures shall be painted with a thin coating of rapid curing cut-back asphalt or emulsified asphalt.

H. When asphalt course is to be laid over previously laid course, apply a tack coat when the surface was placed more than 72 hours earlier or when the surface has excessive dirt or foreign material.

I. Apply tack coat when directed by Engineer even if the lapse time is less than 72 hours.

J. Establish edge of asphalt course by string or chalk line for a distance of not less than 500 feet ahead of the spreading equipment.

3.03 Transportation

A. Transport in vehicles with clean, tight beds.

B. Insulate vehicle beds and cover material with canvas when mixture is hauled more than 15 miles or when placed between November 1 and April 1.
1. Insulating material shall be at least 3/4" thick and shall cover ends, sides and bottom of truck bed.

C. Sufficient haul vehicles and plant production rate shall be maintained to provide a continuous operation at the site.

3.04 Spreading and Finishing

A. Mixture shall be delivered to the paver within the recommended temperature range as determined by the approved mix design.

B. Material shall not be placed at a temperature of lower than 250 F.

C. Longitudinal joints of one layer shall offset joints immediately below by approximately 6 inches.

D. Top longitudinal joint shall be at the center line of roadway.

E. All material shall be placed with a paver unless the area is inaccessible to the paver.

F. Hand spread in inaccessible areas.

G. Uniformly distribute and compact mixture in front of the screed for the full width being paved.

H. Finished surface shall be smooth and of uniform texture.

I. Screed or strike-off assembly shall effectively produce a finished surface of the required evenness and texture without tearing, shoving or gouging the mixture.

J. Speed of the paver shall match the plant production rate so as to provide a smooth operation.

3.05 Rolling and Density Requirements

A. Compact mixture as soon as it will bear the weight of the roller without undue displacement.

B. Contractor to develop a rolling pattern acceptable to the Engineer.

C. Vibratory roller shall not be used on courses less than 1 1/2" thick.

D. Roll longitudinal joint first.

E. Rolling shall start longitudinally at the lower edge and proceed towards the higher portion.

F. Alternate passes of the roller shall terminate at least 3 feet from any proceeding stop.

G. Speed of the roller shall be slow enough to avoid displacement of the hot mixture and in no case, more than 3 mph.

H. Rolling shall continue until all roller marks are eliminated.

I. Roll in a manner and frequency to obtain required density.

J. Keep roller moist to prevent adhesion of the asphalt mixture.

3.06 Joints

A. Transverse joints shall be formed by cutting back on the previous run to expose the full depth of the course.

B. Brush coat of asphalt material shall be used on the contact surface just prior to placing additional material.

C. Roller shall not pass over the unprotected end of freshly laid asphalt.

3.07 Tolerances

A. Finished surface shall show no variation more than 1/8" when checked with a 10' straight edge.

3.08 Field Quality Control

	SURFACE COURSE			
	TYPE 1	TYPE 2	TYPE 3	TYPE 4
Mini Marshall Stability, lbs.	1500			
Min Density, % Theoretical	92.0	92.0	92.0	92.0
Max Moisture% (Roadway)	0.75	0.75	0.75	0.75

In accordance with AHTD Test Method No. 454.

	BINDER COURSE		
	TYPE 1	TYPE 2	TYPE 3
Min Marshall Stability, lbs.	1500		
Min Density, % Theoretical	92.0	92.0	92.0
Max Moisture, % (Roadway)	0.75	0.75	0.75

In accordance with AHTD Test Method No. 454.

3.09 Protection

A. Immediately after placement of asphalt, barricade area to keep traffic off of freshly laid asphalt until the asphalt has sufficiently cooled.

B. Barricade areas to receive a second layer so as to eliminate the need for a tack coat between layers.

3.10 Clean-Up – Restoration of Area

A. Remove all excess asphalt from shoulders and R-O-W.

B. Remove all trash and other debris from R-O-W.

END OF SECTION

Section 02610A
PIPE & FITTINGS (WATER LINES)

PART 1 - GENERAL

1.01 Work Included

A. This section covers the material specifications for the various types of pipe and fittings called for in other sections of these specifications.

1.02 Related Sections - Not Used

1.03 References - (All reference to standard specifications shall be the latest revision to said specification)

A. AWWA C104 – Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water

B. AWWA C110 – Ductile-Iron and Gray-Iron Fittings

C. AWWA C111 - Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

D. AWWA C115 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges

E. AWWA C150 - Thickness Design of Ductile-Iron Pipe

F. AWWA C151 – Ductile Iron Pipe, Centrifugally Cast, for Water

G. AWWA C200 – Steel Water Pipe 6 Inch (150 Mm) and Larger

H. ASTM A123 – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

I. ASTM A139 – Standard Specification for Electric Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over)

J. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

K. ASTM D2239 – Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR PR) Based on Controlled Inside Diameter

L. ASTM D2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure Rated Pipe (SDR Series)

M. ASTM D2513 – Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing and Fittings

N. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals

O. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

1.04 Unit Prices

A. The cost of all the pipe and fittings are to be included in the various lump sum or unit price items listed in the other sections unless specified in the Bid Schedule.

PART 2 - PRODUCTS

2.01 General Requirements

A. Material To Be Furnished - The inclusion of certain materials does not imply that all materials specified herein are acceptable on a particular project. The plans and actual bid items may specify particular products for a particular area of a project.

2.02 Water Pipe Material

A. Ductile Iron Pipe AWWA C150 & 151
   l. Class 51 for 3" & 4" and class 50 for all other push-on and mechanical joint pipe unless designated otherwise on the plans.
   2. Class 53 for flanged fittings.
   3. Inside coating of cement-mortar lining – AWWA C104.
   4. Outside coating of varnish.
   5. Joints - Buried.
      a. Push-on joint with rubber gaskets-AWWA C111, unless otherwise noted on plans.
   6. Joints - Exposed
      a. Mechanical joints with rubber gaskets AWWA C111
   7. Joints - Above Ground
      a. Flanged Joints - AWWA C115
   8. Class of pipe to be stenciled on all pipes & fittings
   9. Fittings: AWWA C110

a. 2" - 14": Classified at 250 PSI unless specified otherwise on the plans or in the specifications.
b. Over 14": Classified at 250 PSI unless specified otherwise on the plans or in the specifications.

B. PVC (Polyvinyl Chloride)
1. Sizes 2" through 4" - have a pressure rating of 200 PSI at 23° C (73° F) and have a Standard Dimension Ratio (SDR) number of 21.
2. Sizes 6" and larger - have a pressure rating of 200 PSI at 23° C (73° F) and have a Standard Dimension Ratio (SDR) number of 21.
3. All PVC pipe shall be PVC 1120 pressure pipe made from class 12454-A or 12454-B material as defined by ASTM D1784 with outside diameter dimensions of steel or cast-iron pipe.
4. Joints
a. Gasket: Single rubber, continuous molded, ring gasket of vulcanized natural or vulcanized synthetic rubber conforming to ASTM F477 & ASTM D3139.
b. Push-on, bell and spigot joint (couplings will not be accepted)
c. The gasket and the angular recess shall be so designed and shaped that the gasket is locked in place against displacement as the joint is assembled. Gasket dimensions shall be in accordance with manufacturer's standard design dimensions and tolerances and shall be of such size and shape as to provide an adequate compressive force against the plain end and socket after assembly to effect a positive seal under all combinations of joint and gasket tolerances. The joint shall be designed to withstand the same pressure as required for the pipe. All plain ends should be extended into the socket. The joint shall be designed so as to provide for the thermal expansion or contraction experienced with a temperature change of at least 75^{o}F.
5. Fittings
a. 2" - 4" - push on made of the same type of material as the pipe and having the same pressure rating.
b. 6" and larger - short or long bodied cast iron fittings using a mechanical joint system with hardened or duck tipped type of rubber gaskets in accordance with AWWA C110 and C111.
6. Markings: Stencil the following information on all pipe and fittings:
a. Normal size
b. Type of material
c. SDR or class
d. Manufacturers Name
e. NSF (National Sanitation Foundation) Seal of Approval for water products (NSF Standard No. 14).

C. PE (Polyethylene)
1. Sizes ½" through 2" – The pipe shall have a Standard Dimension Ratio (SDR) number of 9.
2. Sizes 3" through 8" – The pipe shall have a Standard Dimension Ratio (SDR) number of 11.
3. All PE pipe shall be PE 2306, 2466 or 3408 pipe as defined by ASTM D2239.
4. Joints – All joints to be fused welded in accordance with ASTM specification.
5. Lengths – Manufacturer's standard lengths of 18 to 20 feet.
6. Fittings – Use PE fittings with the same SDR ratio as the pipe on which it is installed.

D. Galvanized Pipe:
1. Schedule 40, manufactured in accordance with ASTM A123 and ASTM A53.
2. Working pressure of fittings equal to or exceeding that of the pipe.
3. Threads: IPS.

E. Encasement Pipe:
1. Steel: Smooth wall, manufactured in accordance with ASTM A139 (Grade B) or AWWA C200 (Grade B), with ends prepared for welded joints.
   a. Up to 14" - Minimum thickness of 3/16".
   b. Over 14" - Minimum thickness of 1/4".
2. PVC: Minimum SDR 26 Class 160.

END OF SECTION

Section 02640
VALVES & HYDRANTS

PART 1 - GENERAL

1.01 Work Included

A. Providing valves and fire hydrants for water distribution line construction.

1.02 Related Work

A. Section 02660 - Water Distribution Lines

1.03 Unit Prices

A. The cost of valves shall be included in the lump sum or unit price for the related item if not listed as a separate item in the Bid Schedule.

B. Gate Valves: Complete work of providing gate valve and valve box will be measured on a per each basis and will be paid for at the unit price bid per each for "Gate Valve w/Box" of the sizes listed in the Bid Schedule, which price shall be full compensation for excavation and backfill, concrete for thrust blocking, if necessary, and all materials, labor, tools, equipment, and incidentals necessary to complete the work.

C. Combination Tapping Sleeve & Gate Valve: Complete work of providing combination tapping sleeve gate valve and valve box will be measured on a per each basis and will be paid for at the unit price bid per each for “Tapping Sleeve & Gate Valve w/ Box” of the sizes listed in the Bid Schedule, which price shall be full compensation for excavation and backfill, concrete for thrust blocking if necessary, and all materials, labor, tools, equipment, and incidentals necessary to complete the work.

D. Insertion Valve: Complete work of providing insertion valve and valve box will be measured on a per each basis and will be paid for at the unit price bid per each for “Insertion Valve w/ Box” of the sizes listed in the Bid Schedule, which price shall be full compensation for excavation and backfill, concrete for thrust blocking if necessary, and all materials, labor, tools, equipment, and incidentals necessary to complete the work.

E. Altitude Valves: Complete work of installing altitude valve will be paid for on a per each basis and will be paid for at the unit price bid per each for "Altitude Valve" of the types and sizes listed in the Bid Schedule, which price shall be full compensation for excavation and backfill, concrete for thrust blocking if necessary, and all materials, labor, tools, equipment, and incidentals necessary to complete the work.

F. Check Valves: Complete work of providing check valves will be measured on a per each basis and will be paid for at the unit price bid per each for “check valves” of the sizes listed in the Bid Schedule, which price shall be full compensation for excavation and backfill, concrete for thrust blocking, if necessary, and all materials, labor, tools, equipment, and incidentals necessary to complete the work.

G. Air Release Valves: Complete work of providing air release valve and valve box will be measured on a per each basis and will be paid for at the unit price bid per each for "Air Release Valve w/Box" of the sizes listed in the Bid Schedule, which price shall be full compensation for excavation and backfill, concrete for thrust blocking, if necessary, and all materials, labor, tools, equipment, and incidentals necessary to complete the work.

H. Fire Hydrant Assembly: Completely installed fire hydrant assembly will be paid for on a per each basis and will be paid for at the unit price bid per each for "Fire Hydrant Assembly w/Gate Valve" of the types and sizes listed in the Bid Schedule, which price shall include fire hydrant, lead pipe and fittings, pipe connection, gate valve, gaskets and lubricants, concrete thrust blocking, drainage fill, excavation and backfill, and all other materials, labor, tools, and equipment necessary for a complete installation.

I. Post Hydrants: Completely installed post hydrant assembly will be paid for on a per each basis and will be paid for at the unit price bid per each for "Post Hydrant Assembly w/Gate Valve" of the types and sizes listed in the Bid Schedule, which price shall include post hydrant, lead pipe, pipe connection, gate valve, gaskets and lubricants, concrete thrust blocking, drainage fill, excavation and backfill, and all other materials, labor, tools, and equipment necessary for a complete installation.

1.04 Reference Standards - (All reference to standard specifications shall be the latest revision to said specification).

A. American Water Works Association (AWWA):
   1. AWWA C500 – Metal Seated Gate Valves for Water Supply Service
   2. AWWA C502 – Dry-Barrel Fire Hydrants
   3. AWWA C508 – Swing-Check Valves for Waterworks Service, 2 In. through 24 In. (50-mm through 600-mm) NPS
   4. AWWA C509 – Resilient-Seated Gate Valves for Water Supply Service
   5. AWWA C512 – Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service

B. American Society for Testing and Materials (ASTM)
   1. ASTM A48 – Standard Specification for Gray Iron Castings.

C. Federal Law 111-380 – All materials and components to comply with federal definition of “lead free.”

PART 2 - PRODUCTS

2.01 Material

All iron and steel products shall meet "American Iron and Steel" requirements.

A. Gate Valve with Double Disc
1. Conform to AWWA C500
2. Design Working Pressure: 200 psi.
3. Bronze mounted iron bonnet, non-rising stem, double-disc parallel seat type, 0-ring stem seals.
4. 2 inch x 2 inch square operating nut for mechanical joint valves and hand wheel for flanged valves.
5. Valves shall open when operating nut is turned counterclockwise.
6. Valves shall be as manufactured by the Mueller Company, or approved equal.
7. Valves are to either mechanical joint for buried service or flanged for above ground service.

B. Gate Valves with Resilient Seat
1. Conform to AWWA C509
2. Design Working Pressure: 200 psi.
3. Have a resilient rubber seat ring mounted on the front of the valve disc and securely attached with stainless steel screws.
4. 2 inch x 2 inch square operating nut for mechanical joint valves and hand wheel for flanged valves.
5. Valves shall open when operating nut is turned counterclockwise.
6. Valves shall be as manufactured by the Mueller Company, or approved equal.
7. Valves are to either mechanical joint for buried service or flanged for above ground service.

C. Combination Tapping Sleeve & Valve
1. Tapping sleeve to conform to ANSI B16.1
2. Design Working Pressure: 200 psi.
3. Sleeve to be ductile iron or stainless steel.
4. Valve to conform to Section A of this specification
5. Sleeve to have duck-tipped end gaskets
6. Sleeve & valves to be mechanical joint
7. Sleeve & valve shall be Mueller Company H-615, H-619, or H-610; Romac SST with ductile flange; or approved equal.

D. Insertion Valve
1. Insertion Valve to conform to American Iron and Steel Requirements
2. Design Working Pressure: 250 psi.
3. Sleeve to be stainless steel

4. Valve to conform to Section A of this specification
5. Valve to be an H2361 Permaseal resilient wedge insertion gate valve as manufactured by Mueller or approved equal.

E. Altitude Valves – One Way Flow:
1. Manufacturer:
   a. Cla-Val Co. - Clayton 210-01 or approved equal
   b. Manufacturer that can prove that his equipment is equal and who has a minimum of five (5) years of satisfactory manufacturing and operational experience.
2. Provide hydraulically operated, diaphragm-actuated valve.
3. Provide main valve body and cover of cast iron (ASTM A48).
4. Provide main valve trim of brass (QQ-B-626).
5. Provide diaphragm of Buna N Synthetic Rubber or approved equal.
6. Maximum working pressure of 175 psi.
7. Flanged end connections.

F. Check Valves
1. Conform to AWWA C508.
2. Design working pressure: 250 psi.
3. Lever and weight operated.
4. Mueller A-2600-6-01 or A-2600-20-01 or approved equal

G. Wafer-Style Check Valves
1. To allow flow in only one direction
2. To be constructed of elastomeric material
3. To be inserted between two mating flanges; flange to be 125#ANSI standard flat face.
4. Maximum backpressure limits by nominal size:
   a. 0″ to 3″ - 175 psi.
   b. 4″ to 8″ - 150 psi
   c. 10″ to 12″ - 100 psi
   d. 14″ to 24″ - 75 psi
   e. 30″ and larger – 50 psi

H. Valve Boxes:
1. Mueller Co., #M-10364, 562-A, or equal.
2. Two-piece, sliding type, 5-1/4" shaft, 24-36 inch extensions.
3. Drop cover with work "WATER" cast into top surface.

I. Air-Release
1. Conform to AWWA C512
2. Installed prior to check valve
3. Cast iron body
4. Stainless steel float

5. APCO 142-55 or approved equal

J. Fire Hydrants (AWWA C502)
1. Standard fire hydrant, improved type with traffic flange.
2. Working pressure: 150 psi
3. Size of valve opening: 5-1/4 inch.
4. Diameter of inlet connection: 4 inch.
5. Type of inlet connection: Mechanical Joint.
6. Hose Connections: 2-1/2 inch size; Two
7. Nozzle thread: ASA Standard.
8. Nozzle cap chains: Two.
9. Nozzle cap washers: Rubber.
10. Operating threads: Oil or grease lubricated with "O" ring seals.
11. Seat Rings: Bronze to bronze.
12. Direction to turn to open: Counterclockwise.
13. Shape and size of operating and nozzle cap nut: 1/4 inch from flat to point.
14. Color above ground - Barrel and Dome: Red.
15. Color - Nozzle Caps and top nut including shield: Red.
16. Fire Hydrants shall be Mueller Super Centurion model A-423 or AVK Series 2780, or approved equal.

K. Post Hydrants
1. 2" diameter post flushing hydrant as manufactured by
   a. Gil Industries of Pensacola, Florida
   b. Kupferle of St. Louis, Missouri
   c. or approved equal.
2. Working pressure: 150 psi
3. Size - 2 inch inside diameter.
4. Line Valve - provide gate valve as specified in paragraphs A or B in Supply Line.
5. Type of inlet connection: Screwed.
6. Hose Connections - One 2-1/2 size connection.
7. Nozzle thread: ASA Standard.
8. Provide nozzle cap chain.
9. Provide rubber nozzle cap washer.
10. Provide traffic breakable union at ground level.
11. 2-1/2" nozzle to extend above the ground approximately 24 inches

L. Concrete and Steel for Thrust Blocks & Collars: Refer to Section 03001.

M. Wrenches:
1. Provide one (1) valve wrench for each 20 valves set. (Provide a minimum of one wrench.)
2. Provide one (1) fire hydrant wrench for each five (5) fire hydrants. (Provide a minimum of one wrench.)

N. Sampling Station: Sampling Station shall be Kupferle Foundry # 88-SS (Stainless Steel) Eclipse Sampling Station or approved equal.

PART 3 - EXECUTION

3.01 Installing Valves

A. Setting Valves:
1. Place valves in pipe lines at points designated.
2. Cut pipes to proper length and bevel ends as specified in this section.
3. Place valve with stem vertical with clearance for installation of valve box.
4. Place valve on firm soil or on blocking as shown on Detail Drawings.
5. For tapping sleeves, contractor to complete the installation without interfering with existing service.

B. Jointing Valves:
1. Joint valves in accordance with methods of jointing pipes as specified in this section.
2. Joint valves with mechanical joint ends as specified in this section for mechanical joint pipe and fittings.

C. Setting Valve Boxes:
1. Install valve boxes over operating nut of each valve.
2. Ensure that box is of adequate length to reach finish ground or paved surface.
3. Provide valve stem extension on valve when height to finished surface exceeds five (5) feet.

3.02 Setting Fire Hydrants

A. Thoroughly clean hydrants before setting, removing all dirt and foreign matter from the barrel and the bottom section up to the main valve. Place main valve in the "closed" position and ensure that waste outlet is free of any obstructions.

B. Locate hydrants a safe distance from driveways, roadways, and narrow-type sidewalks and in a manner to provide complete accessibility, and set plumb with nozzles at proper elevation.

C. Unless otherwise directed, place the large diameter nozzle at right angles to the street, with no portion of the nozzle cap less than eighteen (18) inches from back of the curb or edge of pavement.

D. If necessary, rotate the hydrant barrel or nozzle section at the flanged joint to obtain the desired nozzle position as specified by the Engineer.

E. Support the bowl or bottom of the hydrant firmly on the bottom of excavation and brace against unexcavated earth on the back side. Brace the hydrant against undisturbed soil with poured concrete blocking, or use other restraining devices approved by the Engineer.

F. Provide a drainage bed under and around the base of the hydrant of at least six (6) cubic feet in volume and extending at least six (6) inches above the drain outlet using gravel drainage fill.

G. Backfill and tamp around hydrant barrels in continuous operation.

END OF SECTION

Section 02660
WATER DISTRIBUTION LINES

PART 1 - GENERAL

1.01 Work Included

A. Provide water line pipe, fittings, and appurtenances.

B. Provide encasement pipe for road crossings.

1.02 Related Work

A. Section 02610A – Pipe & Fittings (Water Lines)

B. Section 02640 – Valves and Hydrants

C. Section 02644 – Master Meter Station

D. Section 02661 – PVC Line Tracing Facilities

E. Section 02665 – Water Service Lines, Connections & Meters.

1.02 Unit Prices

A. Water Lines: Completed and accepted water line will be measured by the linear foot or pipe with the total length of each segment being determined by measuring parallel to the far end of the last pipe section laid. Measurement will be made through valves and fittings. Payment will be made at the unit price bid per linear foot for the various sizes and type of water line which price shall include excavation and backfill for water line, the gaskets and lubricant, fittings, blocking, and all other materials, labor, tools, equipment, and incidentals necessary to complete the work.

B. Blow-Off Assemblies: Completed and accepted blow-off assemblies will be measured on a per each basis and will be paid for at the unit price bid per each for "Blow-Off Assemblies", which price shall be full compensation for excavating and backfilling; blocking; furnishing all materials; assembling and installing; and for all other labor, tools, equipment, and incidentals necessary to complete the Work.

C. Roadway and Railroad Bore: Completed and accepted bore and encasement pipe installation will be measured on a linear foot basis and will be paid for at the unit price bid per linear foot for bore and encasement pipe of the size and

type of encasement pipe designated for each crossing, which price shall be full compensation for furnishing and installing encasement pipe; for excavating and backfilling; for final grading and clean-up; and for all labor, materials, tools, equipment, and incidentals necessary to complete the Work.

D. Pavement Repairs: Completed and accepted Work of cutting and replacing asphalt and concrete pavement will be measured on a per square yard basis and will be paid for at the unit price bid per square yard for "Asphalt and Concrete Drive Repair". Maximum pay width for repair will be 36 inches plus the nominal diameter of the pipe. All repairs beyond the maximum pay width shall be completed at the Contractor's expense. The unit price for each type of paving repair shall include all labor, materials, tools, equipment and incidentals necessary to cut and replace the pavement.

E. Gravel Surface Repairs: Completed repairs of gravel-surfaced drives and streets will be paid for by the cubic yard of gravel used which price shall be full compensation for all labor, tools, materials, equipment, and incidentals necessary to complete the work. Payment will be based on gravel tickets submitted by the Contractor and verified by the inspector.

F. Wet Connections: At designated locations as shown on the plans, the Contractor is to tie into existing water lines. When the connection does not include a tapping valve and sleeve and when the proposal lists wet connections as a bid item, the Contractor will be paid the unit price for "Wet Connections" which payment shall be full compensation for furnishing all labor, tools, and equipment necessary to make the connections.

G. PE Adaptor: Unless “PE Adaptor” is listed as a separate item in the bid schedule, the cost of PE adaptors shall be included in the various lump sum or unit price of related items. The cost shall include the PE fitting, mechanical joint fitting, and the necessary time and materials for a complete transition from fused PE pipe to mechanical joint PVC or ductile iron pipe.

1.04 Reference Standards - (All reference to standard specifications shall be the latest revision to said specification).

A. Arkansas State Highway and Transportation Department
   1. Standard Specification for Highway Construction:
      a. Section 407 – Asphalt Concrete Hot Mix Surface Course
      b. Section 303 – Aggregate Base Course

B. American Society for Testing and Materials (ASTM):
   1. ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft^3)

C. American Water Works Association (AWWA):
   1. AWWA C600 – Installation of Ductile Iron Water Mains and Their Appurtenances
   2. AWWA C604 – Installation of Steel Water Pipe – 4 Inch (100mm) and Larger
   3. AWWA C605 – Underground Installation of PVC Pressure Pipe and Fittings for Water
   4. AWWA C651 – Disinfecting Water Mains

D. Other:
   1. Recommended Standards for Water Works (Ten State Standards)
   2. Arkansas Board of Health Rules and Regulations Pertaining to Public Water Systems

PART 2 - PRODUCTS

2.01 Materials, Pipe – Refer to Section 02610A – Pipe & Fittings (Water Lines)

A. Ductile Iron

B. PVC (Polyvinyl Chloride)

C. PE (Polyethylene)

D. Galvanized Pipe

E. Encasement Pipe

2.02 Materials, Miscellaneous

A. Select Backfill Material: Soil excavated from trench or sub-soil from site that is free of rocks larger than 3/4" in greatest dimension that could cause significant scratching or abrasion of the pipe, and free of frozen soil, large clumps of soil, muddy soil, organic matter and foreign materials.

B. Drainage Fill Material: Refer to Section 03001.

C. Concrete: Refer to Section 03001.

D. Asphalt Mix: Comply with provisions of Standard Specifications for Highway Construction of Arkansas State Highway & Transportation Department Section 407 for Asphalt Concrete Hot Mix Surface Course.

E. Gravel Surfacing: Comply with provisions of Standard Specifications for Highway Construction of Arkansas State Highway & Transportation Department Section 303 for class 2 aggregate base course.

2.03 Valves and Hydrants – Refer to Section 02640 – Valves & Hydrants

A. Gate Valves

B. Combination Tapping Sleeve & Valve

C. Altitude Valves

D. Check Valves

E. Air Release Valve

F. Fire Hydrants

G. Post Hydrants

2.04 Equipment

A. Master Meter: Refer to Section 02644 and Drawings.

2.05 Water

A. The Contractor is to furnish the water needed for filling, flushing and testing the lines.

PART 3 - EXECUTION

3.01 Coordination & Protection

A. Notify water operator of intended sequence of construction and modify to meet operator's requirements.

B. Notify water operator 24 hours prior to disrupting any existing water service.

C. Expose other utilities in congested areas by hand.

D. Protection of Vegetation: The contractor shall not remove or disturb any vegetation except that required for the excavation of the Work. In developed areas the contractor shall protect all shrubs, bushes, trees and flowers.

Landscape plants damaged by the Contractor shall be replaced at the Contactor's expense.

E. Clearing Right-of-Way: In undeveloped areas, the Contractor shall clear enough brush and small trees to allow the Contractor to install the pipe. If the Contractor cannot install the pipe without removing merchantable timber, the Contractor shall notify the Engineer prior to clearing the right-of-way.

F. Disposal of Brush: All brush, damaged trees, stumps and other debris is to be removed from the pipe line right-of-way prior to final inspection and disposed of to the Engineer's satisfaction.

G. Removal and Replacement of Fence: It is the Contractor's responsibility to remove and replace any fences which interfere with the Work. Temporary fencing shall be maintained if necessary for the control of livestock until permanent fences can be reconstructed.

H. Location and Protection of Utilities and Structures: The approximate location of surface and subsurface structures known to the Owner are shown on the plans. This information is shown for the guidance of the Contractor and the Owner does not guarantee the accuracy or correctness of the locations of such structures as shown. Furthermore, there may be structures that are not shown. It shall be the responsibility of the Contractor to satisfy himself as to the actual location and nature of subsurface structures.

I. The Contractor shall make necessary exploratory excavations to determine the location of underground structures such as pipes, drains, conduits, and other structures. He shall be responsible for contacting the Owners of such structures before excavating in the vicinity of these facilities and shall be guided by their instructions.

3.02 Excavation - Trench

A. Excavate to lines and grades shown on Drawings or as established at the site.

B. When excavation is carried below that required, fill space with concrete, approved gravel, or compacted select material.

C. Provide sheeting and shoring where necessary to protect workmen, the Work, or adjacent property.
   1. Leave shoring in place until backfill has proceeded to point where it can be safely removed.

D. Minimum trench width measured at the pipe spring line shall be four (4) inches greater than the outside diameter of the pipe. Maximum trench width

at the top of the pipe shall not exceed the outside diameter of the pipe plus two feet.

E. If the above defined trench widths must be exceeded or if the pipe is installed in a compacted embankment, pipe embedment shall be compacted with mechanical tampers to a point at least 2.5 pipe diameters from the pipe on both sides of the pipe or to the trench walls, whichever is less.

F. If necessary, to reduce earth load on trench banks to prevent sliding and caving, trench banks may be sloped except for the last 2 feet of trench which cannot be wider than the width specified in paragraph 3.02(A).

G. Excavate to depth that will provide minimum 30 inch cover over top of pipe where required by the landowner. The minimum cover shall be 36 inches. The extra work shall be performed at no additional expenses to any party.

H. If soil at trench bottom is mucky, or too soft to properly support pipe or in such a condition that it cannot be properly shaped and graded, excavate to a minimum depth of 6 inches below normal pipe subgrade elevation and refill with drainage fill material or tamped select material.

I. Where water occurs in trenches, excavate to depth of 6 inches below grade and backfill with drainage fill material to point approximately 1/6 of internal pipe diameter or 2 inches, whichever is greater, above grade. Pump water out of trench from sump below gravel so as to hold water level below bottom of pipe until joints have been placed and pipe firmly bedded in position.

J. Do not excavate more than 300 feet ahead of pipe installation and backfill.

K. Direct surface run-off water away from trenches into existing drainage structures and ditches in such a manner as to prevent flooding of streets or private property.

L. Pile excavated material in a manner that will not endanger the Work and that will avoid obstructing sidewalks and driveways. Keep street drainage swales clear or make other satisfactory provisions for street drainage.

M. Dispose of excess material and material unsuitable for backfilling in a manner approved by the Owner.

N. Rock Excavation: Where rock is encountered, excavate trench 6" below grade and fill with gravel or crushed stone. Rock excavation is defined as rocks or pieces of rock one (1) cubic yard in volume and a formation which cannot be excavated without power excavations or power shovels without continuous and systematic blasting.

3.03 Bedding and Backfilling of Water Lines

A. Bedding of Pipe:
1. Grade trench bottom or bedding material to provide support of the full length of the pipe at the designated slope of line.
2. Trench bottom is to be smooth and free of stones greater than 1/2" in diameter.
3. Lay pipe as specified in this section.
4. Bring material up evenly on each side of pipe to centerline of pipe along full width of trench.

B. Backfilling Trench:
1. Begin backfilling immediately after pipe laying and embedment.
2. Place select material to a point 12 inches above top of pipe in such a manner as to minimize voids.
3. Backfill trenches not under structures or paving area with material from trench excavation or other approved material:
   a. Do not use material of a perishable, spongy, or otherwise unsuitable nature and do not place rocks larger than six (6) inches in greatest dimension within 36 inches of top of pipe.
   b. Do not place rocks larger than 3/4" in greatest dimension that could cause significant scratching or abrasion to the pipe within 12 inches of top of pipe.
   c. Leave trench slightly mounded above top of pipe to allow for settlement.
4. Under structures or paving areas, backfill trench from the top of the initial bedding to the top of subgrade with select material or other approved cohesive material:
   a. Place material in uniform layers of not more than 6-inch loose thickness and compact each layer up to a point twelve (12) inches below subgrade to a density of 92% of optimum standard proctor density as determined by ASTM D 698.
   b. Compact remaining 12 inches to 95% of the maximum density.

C. Maintaining Trenches:
1. Maintain top of trenches during guarantee period of contract, adding material as backfill material settles.
2. Maintain road and sidewalk crossings until pavement has been placed.

3.04 Separation of Water and Sewer Lines

A. Do not lay water lines closer horizontally than 10 feet from any sanitary sewer line.

B. Where water lines cross gravity sewer lines, lay with a minimum of 18 inches vertical separation between pipe barrels. If this distance must unavoidable be reduced, the water line or sewer line must be encased in watertight pipe with sealed watertight ends extending at least ten feet either side of the crossing. Any joint in the encasement pipe is to be mechanically restrained. Where a water line must unavoidable pass beneath the sewer line, at least 18 inches of separation must be maintained between the outside of the two pipes in addition to the preceding encasement requirements.

3.05 Laying Pipe

A. General:
1. Carefully inspect each joint of pipe before it is placed in trench, makings sure no foreign material is inside pipe.
2. Lower pipe carefully into trench one length at a time in such a manner that spigot and bell will not become contaminated.
3. If cutting of pipe is necessary, make cut straightly and smoothly without damage to pipe, removing all burrs.
4. Lay pipe with bell facing direction of laying.
5. Do not lay pipe in water or when trench conditions or weather is unsuitable for such Work.
6. Place pipe on bedding prepared as specified in this Section.
7. Lay pipe in straight and true alignment without sharp bends or severe breaks in grade.
8. Do not allow deflection at joints to exceed the maximum deflection recommended by pipe manufacturer.
9. At end of each day's Work or when laying of pipe must be discontinued for a significant period, close open ends of pipe temporarily to prevent foreign matter and water from entering.

B. Jointing push-on joint pipe:
1. Check inside of pipe barrel for cleanliness.
2. Thoroughly clean bell and spigot ends of pipe, especially the gasket seat, using wire brush as necessary.
3. Clean and insert rubber gasket in seat within bell.
4. Apply lubricant as recommended by pipe manufacturer.
5. Insert spigot end into bell of pipe to which connection is being made and force to firm contact with shoulder of bell.
6. Bed pipe as required in Section 3.03 and begin initial backfilling immediately after each joint has been laid and jointed.
7. All cut pieces of pipe that enter a push-on bell are to be beveled at 30 degrees for at least 1/8 inch.

C. Jointing Mechanical Joint Pipe and Fittings:

1. Thoroughly clean, using soapy water and cloth, the plain ends of the pipe and the bell ends of the pipe and fittings, removing all foreign materials from the bells, especially in the gasket seats.
2. Place cast or malleable iron follower ring on the plain end of the pipe or fittings, followed by the rubber gasket which has been thoroughly cleaned and lubricated with the soapy water.
3. Place the plain end of the pipe in the bell to which the connection is to be made and push to firm contact with shoulder of bell.
4. Advance the rubber gasket into the bell and seat in the gasket seat. Bring the follower ring into contact with the rubber ring and enter all bolts and start nuts. Give pipe necessary deflection up to maximum recommended by the manufacturer.
5. Make joint tight by advancing nuts with a wrench on bolts 180 degrees apart until a tight joint is made. Tighten bolts to the following torque range:

5/8" Bolts	45-60 ft. lbs.
3/4" Bolts	75-90 ft. lbs.
1" Bolts	85-l00 ft. lbs.
1-1/4" Bolts	105-120 ft. lbs.

D. Jointing Flange Joint Pipe and Fittings.

1. Thoroughly clean faces of all flanges and remove all burrs or imperfections with a steel brush.
2. Place rubber gasket of 1/16 inch minimum thickness between flanges.
3. Clean and lubricate all bolts and nuts prior to tightening.
4. Prevent strain on flanges when aligning and tightening bolts.
5. Tighten bolts alternately on opposite sides to the torque listed above for mechanical joints.

3.06 Roadway and Railroad Bores

A. Bore and encase all roadway and railroad crossings designated on the plans.

B. Encasement must be jacked into a bored tunnel. Contractor shall not use an excessive amount of water that will wash out voids or holes under the road. No roadways designated on the plans to be bored will be open cut.

C. Encasement pipe for all state highway and railroad crossings will be steel pipe. Encasement pipe for all county roads designated on the plans to be bored may be SDR 26 Class 160 PVC pipe.

D. Cables or jacks shall not be in direct contact with the casing but shall be padded.

3.07 Concrete Thrust Blocks

A. General: Brace securely against undisturbed earth to hold in correct position all changes in direction of the pipe line, plugs, elbows, tees, valves on the end of lines, fire hydrants and reducers. Brace by pouring blocks of concrete as shown on Detail Drawings. Use concrete having a 28-day compressive strength of at least 3,000 psi.

B. Place concrete for thrust blocks against undisturbed soil and on dry bottom excavation. Hand shape the excavation and remove loose material. Use forms to confine the concrete to the areas needed.

C. Do not place concrete around any part of a joint so that it interferes with the removal of any joint accessories such as bolts, followers, threads, collars, and couplings. Do not restrict fire hydrant drains.

D. Strike off top of concrete thrust block with a wood straight edge or float.

E. Do not place concrete when temperature is below 40 degrees F and dropping or below 35 degrees F if the temperature is rising.

F. Do not use admixtures in the concrete mix without the approval of the Engineer.

G. Place concrete only in the presence of the Engineer.

H. Do not place backfill over concrete thrust blocks before the concrete has attained initial set.

I. Do not install thrust blocks with less than 6 inches between the pipe or appurtenance and undisturbed soil in the direction of thrust.

J. Clean surfaces of pipe or appurtenances where concrete is to be in direct contact.

K. Ensure that the area of contact of the thrust blocks is sufficient to resist the thrust. Use as a guide, the following suggested safe soil bearing values:

Suggested Safe Bearing Values

Type of Soil	Tons/Sq. Ft.
Solid Rock	25
Hard Slate	6
Medium Shale	4
Soft Shale	2
Dry Clay Gravel	4

Soft Clay	1.5
Dry Sand or Loam	2.5
Wet Clay	0.75

L. Where the soil in the wall of the excavation is unstable or is in a recent fill area, use the following procedures either singly or in a combination:
1. Make thrust blocks of adequate size to restrain pipe or appurtenance by mass alone.
2. Extend excavation deep enough to contact firm soil and bring block up to pipe or appurtenance so that block acts as a beam and will provide restraint required.
3. Construct anchor blocks in a firm soil and extend tie rods to pipe or appurtenance.

M. For vertical bends, ensure that thrust blocks are adequate to resist the thrust by mass alone when the thrust is upward.

N. Ensure that thrust blocks are adequate to restrain the pipe line and appurtenances at the specified test pressure. Refer to the following table which lists the resultant thrust at certain fittings at a test pressure of 100 psi:

Thrust Per 100 psi Pressure
Thrust (tons)

Fitting	6"	8"	12"	16"	20"	24"	30"	36"	42"	48"
11.25°	0.3	0.5	l.l	2.0	3.1	4.4	6.9	10.0	13.6	17.7
15°	0.4	0.7	l.5	2.6	4.1	5.9	9.2	13.3	18.1	23.6
22.50°	0.6	1.0	2.2	3.9	6.1	8.8	13.8	19.9	27.0	35.3
30°	0.7	1.3	2.9	5.2	8.1	11.7	18.3	26.3	35.9	46.8
45°	1.1	1.9	4.3	7.7	12.0	17.3	27.1	39.0	53.0	69.2
90°	2.0	3.6	8.0	14.2	22.2	32.0	50.0	72.0	98.0	128.0
Plug (Dead End)	1.4	2.5	5.7	10.1	15.7	22.6	35.3	50.3	69.3	90.5

3.08 Installing Valves

A. Refer to Section 02640

3.09 Setting Fire Hydrants

A. Refer to Section 02640

3.10 Pavement Repairs

A. General: Remove the minimum amount of street, driveway, sidewalk, parking lot, or other pavement required to permit installation of the pipe lines or

appurtenances. Score all pavement surfaces in straight lines with suitable equipment before removal. Score concrete surfaces with a suitable concrete saw unless all material is removed between existing concrete joints. The Contractor shall repair street to the specification and satisfaction of the Owner.

B. Asphaltic or Concrete Pavement: Backfill trench as specified in this Section. Replace the surface to its original condition by repairing and replacing the base and surface. Refer to Detail Drawing for construction details for replacement of both type surfaces.

C. Gravel Surfaced Drives and Streets: Either strip the existing gravel surface and place in stockpile and replace after backfilling the trench, or provide new gravel. (Stripping and replacing the existing gravel will not be considered a pay item.)

3.11 Filling Pipe Lines

A. After the pipelines and appurtenances have been installed, all concrete thrust blocking has cured adequately, and upon approval of the Engineer, fill the pipe lines with water.

B. Open the valve operated to fill the pipe lines slowly and do not fully open.

C. Expel all air from the pipe line by opening fire hydrants, blow-offs, and/or other openings installed at the pipe line crests.

3.12 Cleaning Pipe Lines

A. All sections of lines greater than 2,000 feet are to be cleaned by running a "cleaning pig" through each line. The "pig" shall be the Polly-Pig Blue Devil manufactured by Knapp, Inc., Houston, Texas, or approved equal. The "pig" is to be at least two percent (2%) larger in diameter than the inside diameter of the pipe.

B. Before disinfection and hydrostatic pressure and leakage testing, also clean lines by flushing.

C. Provide drainage at blow-off points so as not to create a nuisance and to avoid property damage.

3.13 Hydrostatic and Leakage Test

A. General: After the pipe lines or isolated sections of the lines have been filled with water, perform hydrostatic and leakage tests in the presence of the Engineer and in conformance with the requirements of Section 7.3 of AWWA

C605. Furnish all necessary pressure gauges, meters, and pumps. Make all taps and connections necessary to perform the tests.

B. Hydrostatic Test: Increase the pressure in the filled lines to test pressure by means of a pump. The pump shall have the following features:
   1. Designed so that the required test pressures can be attained.
   2. Equipped with a by-pass pipe between the pump suction and discharge. By-pass shall be equipped with an in-line valve and a valve exhaust outlet.
   3. The pump discharge shall be equipped with the following in the order listed from the pump outward:
      a. Pump by-pass outlet.
      b. Check valve arranged so as to prevent flow back toward pump.
      c. Adjustable pressure regulating device capable of maintaining discharge pressure at a constant level.
      d. Valved exhaust outlet.
      e. Section of flexible hose - length sufficient that ends of hose rests on ground.
      f. Straight meter coupling - 1/2" M.I.P. x 3/4" F.I.P.
      g. 5/8" Meter.
      h. Straight meter coupling - 1/2" M.I.P. x 3/4" F.I.P.
      i. Outlet for pressure gauge. Outlet shall be equipped with valve and surge dampening device. Connection for gauge shall be 1/4" F.I.P.
   4. The pump suction shall be equipped with the following from the pump outward:
      a. Pump by-pass outlet.
      b. Suction pipe.
      c. End strainer to prohibit entry of foreign matter if pump suction is connected to a vessel instead of on a water main.

C. Provide all other necessary connections for connecting pump to suction source and the main to be tested.

D. The test shall be at such a pressure that no part of the line shall have a pressure less than 100 pounds per square inch, or less than 50% above normal working pressure, whichever is greater. The duration of the hydrostatic test shall be two (2) hours or as specified by the Engineer.

E. The source of water for the pump suction shall be a water pipe line in the Owner's distribution system.

F. All interior valves including valves on fire hydrants and other appurtenances shall be open during all tests.

G. After the specified test pressure has been applied to test the entire pipe line in the presence of the Engineer, giving particular attention to that part of the pipe line and those appurtenances that are exposed, repair and correct all leaks and defects found during the test.

H. Leakage Test: After the hydrostatic test has been made, make a leakage test under the same pressure conditions as specified for the hydrostatic test. Each leakage test shall be of two (2) hours duration or longer, if necessary, to satisfy the Engineer that leakage in the line meets the specifications.

I. The construction of the line shall be such that leakage shall be no greater than the allowable leakage as required in Section 7.3.6 of AWWA Specification C605. The maximum leakage per hour shall be as calculated from the following formula:

1. All Rubber Gasket or 0-Ring Joints: $Q = (\underline{LD\sqrt{P}}) \div 148{,}000$
   Q = Quantity of makeup water in (gallons/hour)
   L = Length of pipe sections being tested
   D = Nominal diameter of pipe (inches).
   P = Average test pressure during hydraulic test (psi/gauge).

J. If any test of pipe laid discloses leakage greater than the allowable leakage as calculated from the above formulas or table, the Contractor shall, at his expense, locate the leak or leaks and perform whatever work and/or replace whatever material that is required in order to remedy the defect and stop the leak. All corrective work shall be approved by the Engineer.

K. Stop all known leaks regardless of this test requirement.

L. Retest after repair and place the system in service.

3.14 Disinfecting Pipe Lines & Appurtenances

A. Conform to the requirements of AWWA Standard C651. Blow-off and sample points will be designated by the Engineer. Utilize fire hydrants as blow-off points whenever possible. However, fire hydrants are not satisfactory for sample points. Openings for sample points shall be 3/4" copper riser pipe which extends well above the surface.

B. There are three (3) acceptable methods of disinfection: Continuous Feed Method using liquid chlorine or calcium hypochlorite, the Slug Method using liquid chlorine or calcium hypochlorite, and the Tablet Method using calcium hypochlorite. The Slug Method applied to large mains and shall be used only upon the approval of the Engineer. Use liquid chlorine only when the Contractor has suitable equipment available and employees are familiar with

the physiological, chemical, and physical properties and are properly trained and equipped to handle any emergency that may arise.

1. When the Continuous Feed or Slug Method is to be used, thoroughly flush the pipe lines and appurtenances prior to disinfecting. Open and close all valves in sections of mains being sterilized at least twice during the sterilizing period. Handle all chlorine compounds in accordance with manufacturer's recommendations. Breathing of chlorine gas can be fatal. Do not allow hypochlorite solutions to come into contact with the skin or clothing. Containers used for mixing hypochlorite solution shall be clean and dry.
2. When the Continuous Flow or Tablet Method is used, the final concentration of chlorine inside the main shall be 50 parts per million. The concentration of chlorine entering the pipe line when the Slug Method is used shall be at least 300 to 400 parts per million. Calcium hypochlorite shall contain 70% available chlorine by weight either in tabular or granular form.

C. When the Continuous Feed or Slug Method is used and the source of chlorine is calcium hypochlorite, prepare a solution of hypochlorite and water by mixing thoroughly in a suitable container. The mix shall contain one pound of calcium hypochlorite per gallon of water. Provide a suitable pump for pumping this solution into the pipe lines to be disinfected. This pump shall be equipped with a flow measuring device.

D. When liquid chlorine is used, the equipment for injection shall consist of a solution feed chlorinator in combination with a booster pump for injecting the chlorine-gas water solution into the pipe line. Do not introduce chlorine-gas directly from the supply cylinder. The pump shall be equipped with a flow measuring device. During application of any chlorine solution, assure that the solution does not flow back into the distribution system.

E. Use the following procedures for disinfecting by the Continuous Flow Method:

1. Regulate the flow through the pipe line and the solution flow so that the required concentration of chlorine is attained. Measure the flow through the main by using a pivot gauge or meter.
2. Make the introduction of the solution continuous until the desired concentration is attained throughout the pipe line system. Check the concentration by the Drop Dilution Method.
3. After the required concentration has been attained, operate all internal valves in order to assure that the solution comes in contact with all appurtenances.
4. Allow the solution to remain in the pipe line system for 24 hours, after which thoroughly flush the pipe lines. Check the chlorine concentration before flushing. If the concentration is less than 25 parts

per million, repeat the disinfecting procedure as directed by the Engineer.

F. Use the same procedure for disinfecting by the Slug Method as for the Continuous Flow Method except regulate the flow rates so that the specified concentration of chlorine is in contact with all parts of pipe line for at least three (3) hours.

G. Use the following procedure for disinfecting by the Tablet Method:
1. Place five gram calcium hypochlorite tablets in each section of pipe, in hydrants, hydrant branches, and in other appurtenances in sufficient quantities to produce the specified chlorine concentration after the introduction of water. Place the tablets in the top of the pipe with Permatex No. 1 or other approved adhesive. If tablets are placed in the pipe before jointing, mark the location of the tablets on the outside of the pipe to assure that the pipe is not rotated. Place the tablets so that they are not damaged during the laying operation.
2. After the pipe lines and appurtenances have been installed, fill very slowly so that the tablets are not dislodged.
3. Apply the procedures outlined in the paragraphs above.

H. After final flushing, collect samples of water from the sample points and deliver to the controlling government agency for analysis as to bacterial purity. Take two (2) consecutive samples 24 hours apart. Before a line or section of line can be considered safe, two series of consecutive samples must be tested with negative results.

3.15 Cleaning Up

A. During construction and after the construction work is completed, clean up all rubbish, debris and unused material and remove to a point designated by the Engineer. Restore all sidewalks, streets, pavement and other property, private or public, disturbed or damaged, to their former condition to the satisfaction of the Owner.

END OF SECTION

Section 02661
PVC LINE TRACING FACILITIES

PART 1 - GENERAL

1.01 Work Included

A. Furnish and install copper tracing wire on pipe so that the PVC line can be located at a later date.

B. Furnish and install tracer wire stations / risers.

1.02 Related Work

A. Section 02660 – Water Line Distribution

1.03 Unit Price

A. The cost of all the tracer wire and stations / risers are to be included in the various lump sum or unit price items listed in the other sections unless specified separately in the bid schedule.

B. Tracing Wire: If listed separately, completed and accepted water line tracing wire shall be paid for at the unit price listed in the bid schedule which price shall be full compensation for furnishing the material, installing the material, completing spot checks to make sure the equipment works, and for all labor, tools, equipment and incidentals necessary for a complete installation.

C. Tracer Wire Stations / Risers: If listed separately, completed and accepted tracer wire stations / risers shall be paid for at the unit price listed in the bid schedule which price shall include installation of and furnishing the station wire, connections, labels, and all applicable appurtenances.

D. Pipe Locator Equipment: The contractor shall furnish pipe locator equipment for use with the trace wire. Payment shall include the cost of the transmitter, receiver, and miscellaneous equipment necessary to use the equipment with the trace wire specified.

PART 2 - PRODUCTS

2.01 Trace Wire

A. Furnish 10 gauge solid copper wire with E insulation suitable for direct bury. Nylon insulation is not acceptable.

B. Provide wire in rolls sufficient in length to eliminate all wire splices in the ground.

2.02 Tracer Wire Station / Riser

A. Tracer wire stations / risers to be Rhino Triview TracerPed Tracer Wire Station or approved equal.

B. Tracer wire stations / risers to have external tracer wire access points.

C. Tracer wire stations / risers shall be blue for potable water with standard decals for water line tracer application.

2.03 Pipe Locator

A. Equipment shall be H2-4000 D Portable Underground Cable Detector or approved equal.

PART 3 - EXECUTION

3.01 Trace Wire Placement

A. Install wire as line is being laid.

B. Lay trace wire on top of pipe, do not wrap. Secure in place with tape as required so that wire stays in place during backfill.

C. Connect all wires in trace wire risers. No buried splices will be allowed.

D. Install wire risers a minimum of every 1,000 feet.

3.02 Trace Wire Stations / Risers

A. Install the station / riser so that it extends from the water line to 18 inches above the ground.

B. Thread both wires through the station / riser pipe and connect to terminals as recommended by manufacturer.

3.03 Maintenance of Trace Wire Risers

A. Maintain the trace wire stations / risers until the completed project is accepted.

B. Replace all trace wire stations / risers that are damaged prior to the final inspection regardless of how or by whom they were damaged.

END OF SECTION

Section 02665
WATER SERVICE LINES, CONNECTIONS & METERS

PART I - GENERAL

1.01 Work Included

A. Provide water service lines, corporation stops, connections to main lines, meters, trenching and backfill.

B. Provide new radio read meters.

C. Provide radio read software.

D. Provide bores and encasement pipe for road crossing.

E. Provide paved surface repairs to disturbed areas.

1.02 Related Work

A. Section 02660 - Water Distribution Lines

1.03 Unit Prices

The unit prices for the various items of work includes all material, labor, tools, equipment, and incidental items necessary to perform the various units of work.

A. Service Lines: The cost of cleaning the right-of-way, excavating the trench, furnishing the pipe, installing the pipe, backfilling the ditch, compacting the ditch and cleaning up the area will be paid for by the unit price listed in the proposal for the various types and sizes of service lines.

B. Corporation Stops and Saddles: The cost of furnishing and installing corporation stops and for tapping the main line will be paid for by the unit price listed in the proposal. This price shall include the cost of the saddles if required. If corporation stops are not included in the proposal, the cost of installation shall be included in the various other unit price items.

C. Meter Replacement: The cost of removing the existing meter and furnishing a new radio read meter and any other items needed to replace the existing meter shall be paid for by the unit price listed in the Bid Schedule for “Install New Radio Read Meter” for the various sizes of meters.

D. Relocation of Existing Meter: The cost to remove the existing water meter, yoke, box; and to reinstall the meter, yoke, box and to provide new clamps and couplings shall be paid for at the unit price listed in the proposal for "Relocation of Existing Meters". The cost for a new corporation stop and service tubing will be paid for under the other unit price items.

E. Meters, Coppersetters & Meter Boxes: The cost of furnishing a meter, coppersetter, meter box, locking shut-off valve, check valve, clamps, coupling, installation of this material, and any other items needed to install a meter complete with coppersetter and meter box shall be paid for by the unit price listed in the proposal for the various sizes of meters.

PART 2 - PRODUCTS

2.01 Meter

A. Approved Manufacturers
1. Badger Meter as used in existing system: Recordall Disc meter with HR-E High Resolution Encoder and Orion LTE-M Endpoint

B. Guarantee and Qualification of Manufacturer
1. 10 year guarantee on register against defects in materials and workmanship.
2. Manufacturer shall have actively engaged in the manufacturer of all parts of their meter and shall have a minimum of five (5) years of satisfactory operating experience with their meter.
3. All meters guaranteed against defects in material and workmanship for a period of one (1) year from acceptance of the job.

C. Construction
1. Contractor to furnish the type and size of meter designated on the plans and bid schedule.
2. Bronze outer casing with a separate measuring chamber which can be easily removed.
3. Meter to have cast in the outer casing the size and direction of flow through the meter.
4. Register to have large sweeping hand enclosed in a hermetically sealed, tamper proof unit.
5. Measuring chamber to be bronze or penton.
6. External stainless steel strainer.
7. All external bolts to be of corrosion resistant material and be easily removed.

2.02 Meter Boxes & Lids - Meter box shall be concrete box with lid as specified in paragraph D.

A. Manufactured by Brooks Products, Inc., 36H-12 or approved equal.

B. Size - large enough to hold meter plus sufficient working room. (10'x17' minimum for 5/8' meter 17" X 28" box for 1" meter)

C. Boxes subject to traffic loads shall have cast iron cover.

D. Hinged cast iron reading lid located in the center of the box.

E. 11 inches minimum depth of box.

2.03 Coppersetters - Yokes

A. Conform to AWWA C 800

B. Setter shall be a Ford Meter Box Co. V-172-7W packjoint both sides or approved equal.
1) Angle ball valve on water system side.
2) Padlocking wing on water system side.
3) Single check valve on customer’s side.

2.04 Corporation Stops

A. Corporation stops shall be Ford Meter Box Co. F1000 with pack joint coupling or approved equal.

2.05 Saddles

A. Saddles to be used on all galvanized, plastic, or asbestos cement pipe.

B. Saddles shall be manufactured by Mueller (single - strap), Hays Manufacturing Co., Ford Meter Box S-70 or approved equal.

C. Threads will be corporation stop threads.

D. Service clamps shall have 250 psi working pressure.

2.06 Service Line

A. Copper Pipe:
1. Type "K", soft tempered, seamless pipe for underground installation.

2. Manufactured in accordance with ASTM B88 and Federal Specification WW-T-799.

B. Polyethylene:
1. Ultra high molecular weight, high density polyethylene resin conforming to ASTM D 2239, Type III, Grade III, Class C.
2. Meet the requirements of the National Sanitation Foundation Testing Laboratories.
3. Minimum of 2% carbon black.
4. Class 200 psi with Standard Thermoplastic Pipe Dimension Ratio (SDR) not more than seven (9).
5. Markings: As a minimum, the pipe shall have the following markings applied at intervals specified in ASTM D 2239.
   a. Nominal pipe size.
   b. Type of plastic.
   c. SDR or class.
   d. Manufacturer.
   e. NFS (National Sanitation Foundation) seal of approval.

C. Galvanized Pipe:
1. Schedule 40, manufactured in accordance with ASTM A-120 and ASTM A53.
2. Working pressure equaling or exceeding that of the main pipe.
3. Threads: IPS.

D. Encasement Pipe:
1. Steel: Smooth wall, manufactured in accordance with ASTM A-139 (Grade B), ASTM A-2111 or AWWA C202 (Grade B), with ends prepared for welded joints.
2. PVC: Minimum SDR 26 Class 160 with gasket joints.

2.07 Water

A. Contractor is to furnish the water needed for filling, flushing, and testing the lines.

PART 3 - EXECUTION

3.01 Excavation & Backfill

A. Minimum of 18" deep at all locations outside public right-of-way.

B. Minimum of 30" deep inside public right-of-way.

C. Excavation and backfill to be done in the same manner as the excavation and backfill for the main line as specified in Section 02660.

3.02 Installation

A. Laid straight and connections made in accordance with the details shown on the plans.

B. Pipe shall be connected by use of flared type fittings or packed joint coupling approved by Engineer.

C. All crimped pipe shall be removed and replaced at the Contractor's expense.

D. Install 12" long ¾-inch diameter tail piece on the customer side of the meter.

E. Remove existing meters.

F. Install new radio read meters and replace any gaskets, fittings, or packing necessary to eliminate all leaks.

3.03 Roadway and Railroad Bores

A. Bore in the same manner as specified for the main lines in Section 02660.

3.04 Pavement Repairs

A. Pavement repairs to be made in the same manner specified in Section 02660.

END OF SECTION

Section 03001
CONCRETE WORK

PART 1 - GENERAL

1.01 Work Included

A. Formwork, complete with required shoring, bracing and anchorage.

B. Concrete reinforcing, complete with required supports, spacers, and related accessories.

C. Cast-in-place concrete.

1.02 Payment

A. Unless a pay item is included in the bid schedule, the cost of the concrete work shall be included in the other lump sum or unit price items.

1.03 Quality Assurance

A. Perform cast-in-place concrete work in accordance with ACI 301, unless specified otherwise in this Project Manual.

B. Keep copy of ACI 301-72 (latest edition) in field office for duration of project.

1.04 Testing Agency

A. Field testing of the concrete mix will be performed by an independent testing laboratory.

B. Provide free access to work and cooperate with the appointed laboratory.

C. Tests of cement and aggregates may be performed to ensure conformance with requirements stated herein.

1.05 Reference Standards - (All reference to standard specifications shall be the latest revision to said specification)

A. ACI-301-72 (Latest Revised Edition), Specifications for Structural Concrete for Buildings.

B. ACI Manual of Concrete Practice, Parts 1, 2 and 3.

C. ANSI/ASTM A1064– Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete

D. ANSI/ASTM A615 – Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

E. ANSI/ASTM C31 – Making and Curing concrete Test Specimens in the Field

F. ANSI/ASTM C33 – Concrete Aggregates

G. ANSI/ASTM C39 – Test Method for Compressive Strength of Cylindrical Concrete Specimens

H. ANSI/ASTM C42 – Test Method for Obtaining Testing Drilled and Sawed Beams of Concrete

I. ANSI/ASTM C94 – Ready-Mixed Concrete

J. ANSI/ASTM C150 – Portland Cement

1.06 Environmental Requirements

A. Allowable Concrete Mix Temperatures: ACI 301-72
1. Cold Weather: Minimum 35° F and rising or Minimum 40° F and falling.
2. Hot Weather: Maximum 100° F if falling or Maximum 95° F and rising.

B. Do not place concrete during rain, sleet, or snow, unless protection is provided.

C. Keep accurate thermometer in area where work is proceeding.

PART 2 - PRODUCTS

2.01 Cement

A. Portland Cement: ASTM C150, Type 1.

B. Use one brand and type of cement throughout project unless otherwise specified.

2.02 Admixtures

A. Add air entraining agent as indicated in ACI 301, Table 3.4.1.

B. Use of accelerating admixtures such as salts, chemicals, or other foreign materials in cold weather will not be allowed. Use no other admixtures without prior approval of the Engineer.

C. Use of set-retarding admixtures during hot weather will not be allowed.

2.03 Strength (ACI 301 3.2)

A. Provide concrete of following strength: Compressive Strength (28 Day): 3,000 psi, except where noted otherwise in the Contract Documents.

2.04 Air Entrainment

A. Add air entraining agent to concrete mix for concrete work exposed to exterior.

2.05 Slump

A. Contractor shall provide slump cone and test slump for each load of concrete.

B. Minimum slump for all concrete work: Three (3) inches.

C. Slump for consolidation by vibration: Four (4) inches maximum.

D. Slump for slabs and consolidation other than by vibration: Five (5) inches maximum.

2.06 Proportions (ACI 301 3.8)

A. Selection of proportions for normal weight concrete: Method 1, Method 2, or Method 3, Contractor's Option.

B. Fine aggregate shall conform to the requirements of ASTM C33, latest edition, and shall consist of clean, fresh water sand graded uniformly to conform to paragraph 4 of ASTM C33.

C. Coarse aggregate shall conform to the requirements of ASTM C33, latest edition, using standard grading size 1-1/2" to No. 4 of washed gravel or crushed stone meeting requirements above and soundness requirements of ASTM C33.

D. Water: Clean and free of injurious amounts of oils, acids, alkalis, organic materials, or other deleterious substances.

2.07 Reinforcing Steel (ACI 301 5.2)

A. Reinforcing Steel: 60 ksi yield grade; deformed billet steel bars, ASTM A615; plain finish.

B. Welded Steel Wire Fabric: Plain type, ASTM A1064; in coiled rolls, plain finish, 6x6 - W1.4 or 6x6 - W2.9 x W2.9 as shown on drawings.

PART 3 - EXECUTION

3.01 General

A. Notify Engineer at least 24 hours before the planned time to pour concrete.

B. Inspection:
1. Ensure that excavations and form work are completed and within the allowed tolerances.
2. Ensure that ice and excess water are removed, no frost is present, and ground is not frozen.
3. Check that reinforcement is secured in place.

C. Install concrete work in accordance with ACI 301 except as amended by this Section.

3.02 Formwork (ACI 301 4.2)

A. Obtain Engineer's review for use of earth forms. When using earth forms, hand-trim sides and bottoms, and remove loose dirt prior to placing concrete.

B. Tolerances for Formed Services: Comply with ACI 301, Table 4.3.1

3.03 Form Surfaces Preparation (ACI 301 4.4)

A. Apply form release agent on formwork in accordance with manufacturer's recommendations. Apply prior to placing reinforcing steel, anchoring devices and embedded parts.

3.04 Finishing Formed Surfaces

A. Formed Surface Finishes: Provide rough form finish (ACI 301 10.2.1) at all surfaces not exposed to view. Provide smooth rubbed finish (ACI 301 10.3.1) at all surfaces exposed to view.

3.05 Removal of Forms (ACI 301 4.5)

A. Do not remove forms, shores, and bracing until concrete has gained sufficient strength to carry its own weight, construction loads, and design loads which are liable to be imposed upon it. Verify strength of concrete by compressive test results.

3.06 Placing Reinforcing

A. Reinforcing shall be unpainted and uncoated, free from rust or scale and shall be cleaned and straightened before being shaped and in position.

B. Position reinforcing accurately and tie securely.

C. Support footing reinforcement on concrete brick bats or concrete grout at maximum three (3) feet on center each way to insure proper depth from bottom.

D. Wire dowels to longitudinal bars and place top bars.

E. Provide three (3) inches of concrete between reinforcing and the ground, unless detailed otherwise, where concrete is poured against the ground.

F. If, after removal of forms, concrete surfaces are to be in contact with the ground or exposed to the weather:
1. Bars larger than No. 5: Protect with 2 inches of concrete.
2. No. 5 Bars and Smaller: Protect with 1-1/2 inches of concrete.

G. Concrete covering for any reinforcing at surfaces not exposed directly to the ground or weather: Protect with 1-1/2 inches of concrete.

3.07 Mixing Concrete

A. Concrete shall be ready-mix and shall conform to ASTM C94, latest issue.

B. Concrete shall be mixed until there is a uniform distribution of the materials and the mass is homogeneous in consistency and color.

3.08 Placing Concrete

A. Convey concrete from mixer to final position by method which will prevent separation or loss of material.

B. Maximum height of concrete free fall: Sixty (60) inches.

C. Regulate rate of placement so concrete remains plastic and flows into position.

D. Deposit concrete in continuous operation until panel or section is completed.

E. Do not use concrete that has set and do not re-temper or use concrete that has been mixed for more than 1-1/2 hours.

3.09 Consolidating Concrete

A. Use mechanical vibrating equipment for consolidation.

B. Vertically insert and remove hand-held vibrators at points 18 inches to 30 inches apart, inserting to within 6 inches of bottom of freshly poured concrete.

C. Do not use vibrators to transport concrete in forms.

D. Minimum vibrator frequencies: 6,000 impulses per minute.

E. Vibrate concrete minimum amount required for consolidation.

F. Make sure the concrete is thoroughly worked around the reinforcing, the embedded items, and into corners of the forms.

3.10 Curing

A. Cure tops of foundations: Use moisture-retaining coverings as approved by the Engineer in accordance with ACI 308.

3.11 Welding (ACI 301 5.3)

A. Welding Reinforcing Steel: Not Allowed.

3.12 Construction Joints

A. Install construction joints in accordance with ACI 301 6.1.

3.13 Inserts, Embedded Parts and Openings

A. Provide formed openings where required for pipes, conduits, sleeves and other work to be embedded in and passing through concrete members.

B. Coordinate work of other sections and cooperate with trade involved in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.

3.14 Repair of Surface Defections (ACI 301 9.1)

A. Allow Engineer to inspect concrete surfaces immediately upon removal of forms.

B. Modify or replace concrete not conforming to required lines, detail, and elevations.

C. Repair or replace concrete not properly placed resulting in excessive honeycombing and other defects. Do not patch, repair, or replace exposed architectural concrete except upon express direction of Engineer.

3.15 Field Quality Control

A. Three (3) concrete tests cylinders will be taken by the testing laboratory for every 50 cubic yards, or fraction thereof, of concrete placed. Not less than one (1) set of test cylinders shall be taken for each day's pour.

B. Compression Test Cylinders: Test cylinders shall be cast on the project site by the contractor.
1. Make cylinders according to ASTM C31.
2. Make additional sets of test cylinders for curing under job conditions:
   (a) When it is needed to determine when to remove forms.
   (b) When to put a structure into service.
   (c) When temperature extremes are expected during the curing period.
3. Make test cylinders in the presence of the Engineer.
4. Properly mark prepared test cylinders and fill out the card supplied by the testing laboratory with instructions on when to make test breaks and where to send the test results.
5. Transport in a protected condition, each set of prepared and marked test cylinders to the designated testing laboratory for curing and testing as soon as the cylinders can be transported without damage.

C. Compression Testing Concrete Cylinders ASTM C39: by commercial testing laboratory.
1. Cure cylinders in laboratory until time for testing.
2. Test each set of cylinders at 7 days, 14 days, and 28 days after pouring.
3. Tabulation of breakage schedule and action: Specified Strength of 3,000 psi at 28 Days

	Test Break	Action
7 Day:	Less than 2400 psi	Contractor notify Engineer
	2400 - 3000 psi	Break 28 Day Cylinder

	Over 3000 psi	Stop Testing
14 Day:	Less than 3000 psi	Contractor notify Engineer
	3000 to 3500 psi	Break 28 Day Cylinder
	Over 3500 psi	Stop Testing
28 Day:	Less than 3000 psi	Contractor to notify Engineer; investigate reason for low break and report in writing to Engineer.

4. For testing cylinders for specified compressive strength other than 3,000 psi, see the Engineer.

D. In case of low compression test results:
   1. Engineer will have the right to order change in the mix design, costs to be borne by the Contractor.
   2. Engineer will have the right to order core tests of the concrete in accordance with ASTM C42, or load tests of the structure, the costs to be borne by the contractor for either test.

3.16 Protection of Completed Work

A. During curing period, protect the concrete from damaging mechanical disturbances, water flow, loading, shock, and vibration.

END OF SECTION

Stormwater Pollution Prevention Plan (SWPPP) for Construction Activity for Large Construction Sites

National Pollutant Discharge Elimination System (NPDES)
General Permit # ARR150000

Prepared for:
City of Dermott
Water System Replacement

Date:
July 2023

Prepared by:
Gaunt Engineers, Inc.

Revised date: 10/20/2016

Project Name and Location: Water System Replacement, Dermott, AR

Property Parcel Number (*Optional*): _____

Operator Name and Address: Construction Contractor (TBD)

A. Site Description
   a. Project description, intended use after NOI is filed: Water distribution line installation including piping, valves, meters, and applicable appurtenances
   b. Sequence of major activities which disturb soils: Clearing (if required); excavation and/or boring for water line installation, and backfill
   c. Total Area[1]: 9.5 Acres Disturbed Area[2]: 9.5 Acres
   d. Soils Information:
      i. Runoff Coefficient Pre-Construction (See Appendix A) : 0.50
      ii. Runoff Coefficient Post-Construction (See Appendix A) : 0.50
      iii. Describe the soil or the quality of any discharge from the site: The ground consists of silt loams with 0 to 1 percent slopes

B. Responsible Parties

Be sure to assign all SWPPP related activities to an individual or position; even if the specific individual is not yet known (i.e. contractor has not been chosen).

Individual/Company	Phone Number	Service Provided for SWPPP (i.e., Inspector, SWPPP revisions, Stabilization Activities, BMP Maintenance, etc.)
Gaunt Engineers, Inc.	870-862-4231	Original SWPPP
To Be Determined	TBD	Inspector
To Be Determined	TBD	Stabilization Activities
To Be Determined	TBD	BMP Maintenance
To Be Determined	TBD	SWPPP Revisions

C. Receiving Waters
   a. The following waterbody (or waterbodies) receives stormwater from this construction site: Bayou Bartholomew, thence to Ouachita River
   b. Is the project located within the jurisdiction of an MS4? ☐ Yes ☒ No
      i. If yes, Name of MS4: _____
   c. Ultimate Receiving Water:

☐ Red River	☐ White River
☒ Ouachita River	☐ St. Francis River
☐ Arkansas River	☐ Mississippi River

[1]Increases in total acreage require an additional acreage request, an updated SWPPP and a $200 modification fee to be submitted to ADEQ.

[2]Increases in only disturbed acreage require an additional acreage request and an updated SWPPP to be submitted to ADEQ.

D. Documentation of Permit Eligibility Related to the 303(d) list and Total Maximum Daily Loads (TMDL) (https://www.adeq.state.ar.us/water/planning/)
   a. Does the stormwater enter a waterbody on the 303(d) list or with an approved TMDL? ☒Yes ☐No
   b. If yes:
      i. Waterbody identified on 303(d) list: Ouachita River, Bayou Bartholomew,
      ii. Pollutant addressed on 303(d) list or TMDL: Mercury, Turbidity, Chloride, Sulfates, Total Dissolved Solids, Sulfates, *E. coli*
      iii. This specific project ,or generally construction activity i.e. surface erosion, is identified on 303(d) list or associated assumptions and allocations identified in the TMDL for the discharge: ☒Yes ☐No (Surface Erosion)
      iv. Additional controls implemented: Silt fencing will be placed in locations indicated on the map. Streams and creeks will be crossed by directional boring.

E. Attainment of Water Quality Standards After Authorization
   a. The permittee must select, install, implement, and maintain BMPs at the construction site that minimize pollutants in the discharge as necessary to meet applicable water quality standards. In general, except in situations explained below, the SWPPP developed, implemented, and updated to be considered as stringent as necessary to ensure that the discharges do not cause or contribute to an excursion above any applicable water quality standard.
   b. At any time after authorization, the Department may determine that the stormwater discharges may cause, have reasonable potential to cause, or contribute to an excursion above any applicable water quality standard. If such a determination is made, the Department will require the permittee to:
      i. Develop a supplemental BMP action plan describing SWPPP modifications to address adequately the identified water quality concerns and submit valid and verifiable data and information that are representative of ambient conditions and indicate that the receiving water is attaining water quality standards; or
      ii. Cease discharges of pollutants from construction activity and submit an individual permit application.

   I understand and agree to follow the above text regarding the attainment of water quality standards after authorization. ☒Yes ☐No

F. Site Map Requirements (Attach Site Map):

a. Pre-construction topographic view;
b. Direction of stormwater flow (i.e., use arrows to show which direction stormwater will flow) and approximate slopes anticipated after grading activities;
c. Delineate on the site map areas of soil disturbance and areas that will not be disturbed under the coverage of this permit;
d. Location of major structural and nonstructural controls identified in the plan;
e. Location of main construction entrance and exit;
f. Location where stabilization practices are expected to occur;
g. Locations of off-site materials, waste, borrow area, or equipment storage area;
h. Location of areas used for concrete wash-out;
i. Location of all surface water bodies (including wetlands) with associated natural buffer boundary lines. Identify floodplain and floodway boundaries, if available;
j. Locations where stormwater is discharged to a surface water and/or municipal separate storm sewer system if applicable,
k. Locations where stormwater is discharged off-site (should be continuously updated);
l. Areas where final stabilization has been accomplished and no further construction phase permit requirements apply;
m. A legend that identifies any erosion and sediment control measure symbols/labels used in the site map and/or detail sheet; and
n. Locations of any storm drain inlets on the site and in the immediate vicinity of the site.

G. Stormwater Controls
   a. Initial Site Stabilization, Erosion and Sediment Controls, and Best Management Practices:
      i. Initial Site Stabilization: Silt fencing will be installed prior to construction in the specific areas mentioned
      ii. Erosion and Sediment Controls: Silt fencing will be installed in accordance with manufacturers' instructions and will intercept runoff from excavation areas. Any stored excavation material shall also be protected with silt fencing.
      iii. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the operator will replace or modify the control for site situations: ☒Yes ☐No
           If No, explain: _____
           _____

iv. Off-site accumulations of sediment will be removed at a frequency sufficient to minimize off-site impacts: ☒Yes ☐No

If No, explain: _____

_____

v. Sediment will be removed from sediment traps or sedimentation ponds when design capacity has been reduced by 50%: ☒Yes ☐No

If No, explain: _____

_____

vi. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges: ☒Yes ☐No

If No, explain: _____

_____

vii. Off-site material storage areas used solely by the permitted project are being covered by this SWPPP: ☒Yes ☐No

If Yes, explain additional BMPs implemented at off-site material storage area: The location of off-site storage areas will be determined by the contractor and will be protected with silt fencing.

b. Stabilization Practices

i. Description and Schedule: Areas of utility line excavation will be backfilled as soon as the line is laid. All disturbed areas will be stabilized immediately after construction activity in the area has temporarily or permanently ceased.

ii. Are buffer areas required? ☒Yes ☐No

If Yes, are buffer areas being used? ☒Yes ☐No

If Yes, describe natural buffer areas: Creek crossings will be bored. Bore pits and stored excavation material shall be protected with silt fencing.

If No, explain why not:_____

_____

iii. A record of the dates when grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included with the plan. ☒Yes ☐No

If No, explain: _____

_____

iv. Deadlines for stabilization:
1. Stabilization procedures will be initiated 14 days after construction activity temporarily ceases on a portion of the site.
2. Stabilization procedures will be initiated immediately in portions of the site where construction activities have permanently ceased.

c. Structural Practices
i. Describe any structural practices to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site: Silt fencing will be installed and maintained around areas of excavation until backfilling and stabilization have occurred.
ii. Describe Velocity Dissipation Devices: No velocity dissipation devices are required as there is no concentrated flow area serving two or more acres. Storm water run-off is controlled by natural sheet flow.
iii. Sediment Basins:
Are 10 or more acres draining to a common point? ☐Yes ☒No
Is a sediment basin included in the project? ☐Yes ☒No
If Yes, what is the designed capacity for the storage?
☐3600 cubic feet per acre = : _____
or
☐10 year, 24 hour storm = :_____
☐ Other criteria were used to design basin: _____
_____
If No, explain why no sedimentation basin was included and describe required natural buffer areas and other controls implemented instead: No sedimentation basin is required as is no common drainage point serving ten or more acres.

H. Other Controls
a. Solid materials, including building materials, shall be prevented from being discharged to Waters of the State: ☒Yes ☐No
b. Off-site vehicle tracking of sediments and the generation of dust shall be minimized through the use of:
☐A stabilized construction entrance and exit
☒Vehicle tire washing
☐Other controls, describe: _____
_____
c. Temporary Sanitary Facilities: Portable toilets – all sanitary waste will be collected as required by local regulations.

d. Concrete Waste Area Provided:

☐ Yes

☐ No. Concrete is used on the site, but no concrete washout is provided.
Explain why: _____

_____

☒ N/A, no concrete will be used with this project

e. Fuel Storage Areas, Hazardous Waste Storage, and Truck Wash Areas: Fuel storage areas shall be located by the contractor as required, and fuel tanks shall be placed in a bermed area. Hazardous waste shall be stored in a portable hazardous waste container and disposed of in accordance with federal and local regulations. A truck wash area will be identified as required by the contractor, and silt fencing will be installed around this area.

I. Non-Stormwater Discharges

a. The following allowable non-stormwater discharges comingled with stormwater are present or anticipated at the site:

☐ Fire-fighting activities;
☒ Fire hydrant flushings;
☒ Water used to wash vehicles (where detergents or other chemicals are not used) or control dust in accordance with Part II.A.4.H.2;
☒ Potable water sources including uncontaminated waterline flushings;
☐ Landscape Irrigation;
☐ Routine external building wash down which does not use detergents or other chemicals;
☒ Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled materials have been removed) and where detergents or other chemicals are not used;
☐ Uncontaminated air conditioning, compressor condensate (See Part I.B.13.C of the permit);
☒ Uncontaminated springs, excavation dewatering and groundwater (See Part I.B.13.C of the permit);
☐ Foundation or footing drains where flows are not contaminated with process materials such as solvents (See Part I.B.13.C of the permit);

b. Describe any controls associated with non-stormwater discharges present at the site: Discharges from effluent pumps used for dewatering shall pass through a filter bag and shall not traverse disturbed soils or other pollutant sources prior to being discharged from the construction site.

J. Permanent Controls for Post-Construction Stormwater Management:

Describe measures installed during the construction process to control pollutants in stormwater discharges that will occur after construction operations have been completed: All construction sites will be restored to existing pre-construction conditions. Post-construction storm water management will be by overland sheet flow, the same as pre-construction.

K. Applicable State or Local Programs: The SWPPP will be updated as necessary to reflect any revisions to applicable federal, state, or local requirements that affect the stormwater controls implemented at the site. ☒Yes ☐No

L. Inspections

a. Inspection frequency:

☐Every 7 calendar days

or

☒At least once every 14 calendar days and within 24 hours of the end of a storm even 0.25 inches or greater (a rain gauge must be maintained on-site)

b. Inspections:

Completed inspection forms will be kept with the SWPPP.

☒ADEQ's inspection form will be used (See Appendix B)

or

☐A form other than ADEQ's inspection form will be used and is attached (See inspection form requirements Part II.A.4.L.2)

c. Inspection records will be retained as part of the SWPPP for at least 3 years from the date of termination.

d. It is understood that the following sections describe waivers of site inspection requirements. All applicable documentation requirements will be followed in accordance with the referenced sections.

i. Winter Conditions (Part II.A.4.L.4)

ii. Adverse Weather Conditions (Part II.A.4.L.5)

M. Maintenance:

The following procedures to maintain vegetation, erosion and sediment control measures and other protective measures in good, effective operating condition will be followed: All control measures will be inspected at least once every 14 calendar days and within 24 hours of the end of a storm event 0.25 inches or greater. All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 4 hours of report. Built-up sediment will be removed from silt fencing when it has reached one-third of the height of the fence. Silt fencing will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground. Temporary and permanent seeding, sodding, and planting will be inspected for bare spots, washouts, and healthy growth. A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the inspector is attached. The site superintendent will select the appropriate individual(s) who will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance report.

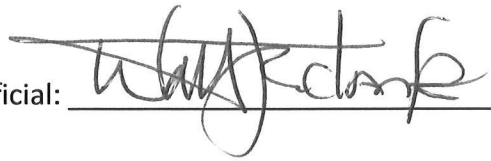
Any necessary repairs will be completed, when practicable, before the next storm event, but not to exceed a period of 3 business days of discovery, or as otherwise directed by state or local officials.

N. Employee Training:

The following is a description of the training plan for personnel (including contractors and subcontractors) on this project: Four hours of training will be provided to individuals selected for inspection and maintenance responsibilities (contractors and subcontractors) after the pre-construction conference. They will be trained by a knowledgeable and qualified trainer in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used in good working order.
**Note, Formal training classes given by Universities or other third-party organizations are not required, but recommended for qualified trainers; the permittee is responsible for the content of the training being adequate for personnel to implement the requirements of the permit.

Certification

"I certify under penalty of law that this document and all attachments such as Inspection Form were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted 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 for knowing violations."

Signature of Responsible or Cognizant Official: 

Title: Mayor, City of Dermott Date: _____