

RESOLUTION
22-032
To Advertise

The Board of County Commissioners, Pittsburg County, met in regular session on Monday, August 23, 2021.

WHEREAS, the Board of County Commissioners wish to re-advertise for the following:

the Swinging Bridge Project, located 0.25 miles south of Savage Road,
Job Piece No. 32927(04) in District 2:

A bid package containing complete specifications and an "Invitation to Bid" are available at the Pittsburg County Clerk's Office, 115 E. Carl Albert Pkwy, Room 103, McAlester, Oklahoma 74501 or online at pittsburg.okcounties.org.

THEREFORE, each competitive bid submitted to the County must be accompanied with an affidavit for filing with the competitive bid form, as required by 19 O.S. § 421.1(C).

Sealed bids will be received and filed with the Pittsburg County Clerk until Friday, September 17, 2021 at 5:00 p.m. All bids received after 3:00 p.m. on Friday, September 17, 2021 WILL NOT BE OPENED. Bids will be opened on Monday, September 20, 2021 at 10:00 a.m. in the Board of County Commissioners Conference Room, 115 E. Carl Albert Pkwy, McAlester, Oklahoma. The Board of County Commissioners, Pittsburg County, reserves the right to reject any and all bids and re-advertise.

BOARD OF COUNTY COMMISSIONERS
PITTSBURG COUNTY, OKLAHOMA

ATTEST:



CHAIRMAN

Ross Selinger

VICE CHAIRMAN

[Signature]

MEMBER

[Signature]

COUNTY CLERK

Pope Trammell

CONTRACT AND SPECIFICATIONS
FOR THE

**SWINGING BRIDGE WATER MAIN
RELOCATION**

to serve the users of

**SARDIS LAKE WATER AUTHORITY
PITTSBURG COUNTY, OKLAHOMA**

For

**THE
SARDIS LAKE WATER AUTHORITY
&
PITTSBURG COUNTY, OKLAHOMA**

MAY 2021

**BY
VAUGHN ENGINEERING, LLC
4100 SILVER CREEK ROAD
FORT WORTH, TEXAS 76108**



PROJECT #21192

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ADVERTISEMENT FOR BIDS

Advertisement for Bids
Addenda
Information for Bidders

ADVERTISEMENT FOR BIDS

Sardis Lake Water Authority c/o Pittsburg County, Oklahoma

Owner

P.O. Box 430 / 115 East Carl Albert Pkwy

Address

Clayton, Oklahoma 74536 / McAlester, Oklahoma 74501

Separate sealed BIDS for the construction of: **Swinging Bridge Water Main Relocation**

1,700 L.F. of 3" Water Main and Appurtenances

10 L.F. of 2" Water Main and Appurtenances

will be received by Pittsburg County Commissioners at the meeting place of The County Commission, 115 East Carl Albert Pkwy, McAlester, Oklahoma, until 3:00 p.m., C.S.T. on September 17th, 2021, and then at said office publicly opened and read aloud at the County Commissioner's Meeting on September 20, 2021 at 10:00 a.m., C.S.T.

The CONTRACT DOCUMENTS may be examined at the following locations:

Office of the County Commissioners

Southwest Construction News Service; 3616 NW 58th St., Oklahoma City, OK 73112

Electronic copies of the CONTRACT DOCUMENTS may be obtained at the Office of the Engineer by sending a requesting email to office@vaughneng.com. There is no deposit required for electronic copies. Each Bidder shall deposit with his bid, security in the amount for and subject to the conditions stated in the Information for Bidders.

The Owner reserves the right to waive any informalities or to reject any or all bids.

No bidder may withdraw his bid within thirty days after the actual date of the opening thereof.

August 26th, 2021

DATE

Ross Selman

Presiding Commissioner

(RESERVED FOR ADDENDA)

INFORMATION FOR BIDDERS

BIDS will be received by Pittsburg County Commissioners and Sardis Lake Water Authority herein called the ("Owner"), at office of The County Commission, 115 East Carl Albert Pkwy, McAlester, Oklahoma 74501 until 3:00 P.M., local time on September 17th, 2021 and then at said location, publicly opened and read aloud at the County Commissioner's Meeting on September 20th, 2021 at 10:00 a.m. C.S.T.

Each BID must be submitted in a sealed envelope, addressed to:

Pittsburg County Commissioners / Sardis Lake Water Authority
115 East Carl Albert Pkwy
McAlester, Oklahoma 74501

Each sealed envelope containing a BID must be plainly marked on the outside as BID for:

Swinging Bridge Water Main Relocation

and outside of the envelope shall bear the BIDDER'S name, address, 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:

Pittsburg County Commissioners / Sardis Lake Water Authority
115 East Carl Albert Pkwy
McAlester, Oklahoma 74501

ALL BIDS shall be stated 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 bidders.

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.

BIDDERS shall 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 declare that there was a misunderstanding concerning the nature of the WORK to be done or the quantities of WORK.

Prior to bidding, the Owner shall provide bidders with all information that is pertinent to and delineates and describes the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain 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 (5) 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 (3) 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 PERFORMANCE and PAYMENT BOND have been executed and approved, after which it can be returned. A certified check may be used in lieu of a BID BOND.

A PERFORMANCE BOND, MAINTENANCE BOND and a PAYMENT/STATUTORY BOND, each in the amount of 100 percent of the contract price and each with a corporate surety approved by the Owner, will be required for the faithful performance of the contract. An escrow bond or qualified bond is not acceptable.

Attorneys-in-fact who sign bid bonds are payment bonds, maintenance bonds and performance bonds must file with each bond a certified copy of their Power of Attorney bearing the effective date.

The party to whom the contract is awarded will be required to execute the agreement and obtain the performance bond, maintenance bond and statutory 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, maintenance bond, statutory 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-day period or within the period mutually agreed upon, the contractor may terminate the agreement without further liability on the part of either party.

A condition 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 throughout the contract.

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 with respect to its bid.

When alternate bids are taken, they will be listed in numerical order with the highest priority being number one, second priority being number two, etc.

When alternates are used, the low bidders will be selected by the lowest and best bid, considering all bids, which include the selected alternate bids.

The alternates will be listed in consecutive priority order to remain within the funds available for the project.

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

Will not be conducted

The engineer is Vaughn Engineering, Greg A. Vaughn, P.E.

Address: 4100 Silver Creek Road, Fort Worth, Texas 76108 (817) 975-1367

Email Address: office@vaughneng.com

SPECIAL NOTE TO BIDDERS:

As a part of the bid on this project, the successful bidder will be required to meet all requirements of the Underground Facilities Damage Prevention Act when engaged in work within the public right-of-way in the same manner as in private right-of-way.

Contractor shall comply with the BUY AMERICA requirements of the Federal Regulations (23 U.S.C. 313 and 23 CFR 635.410). The Contractor shall provide to the Utility Owner a completed **“Certificate of Materials Origin”** form for each steel or iron product incorporated into the project.

B

BIDDER'S PROPOSAL

Bidder's Proposal
Schedule of Bids
Business Relationship Affidavit
Noncollusion Affidavit
Bid Bond

BIDDER'S PROPOSAL
For The
SWINGING BRIDGE WATER MAIN RELOCATION
To serve
THE SARDIS LAKE WATER AUTHORITY
PITTSBURG COUNTY, OKLAHOMA

Pittsburg County, Oklahoma
Water Distribution
Sardis Lake Water Authority

PLACE: Pittsburg County Commissioner's Office
DATE: Due Sep. 17th / Opened Sep. 20th, 2021

Proposal of _____

(hereinafter called "Bidder"), organized and existing under the laws of the State of _____

, doing business as _____*, to The

Pittsburg County Commissioners, Pittsburg County, Oklahoma (hereinafter called "Owner").

In compliance with your Advertisement for Bids, Bidder hereby proposes to perform all work for the construction of Swinging Bridge Water Main Relocation in strict accordance with the contract documents within the time set forth therein and at the listed at the unit prices shown for each bid item on the following Schedule of Bids. (The Schedule of Bids attached lists the various divisions of construction contemplated in the Plans and Specifications, together with an estimate of the units of each. With these units as the basis, the bidder will extend each item, using the cost he inserts in the unit column. Any total cost found inconsistent with the unit cost when the bids are examined will be deemed in error and corrected to agree with the unit cost which shall be considered correct.)

By submission of this bid, each Bidder certifies and stipulates that this proposal is made in good faith, without collusion or connection with any other person or persons bidding for the same work, and that it is made in pursuance of and subject to all the terms and conditions of the Information for Bidders, the Contract Agreement, General Conditions, Supplemental General Conditions, Special Conditions, Federal Requirements, General Specifications, the Detailed Specifications, and the Plans pertaining to the work to be done, all of which have been examined by the undersigned.

The unit prices must be specified in both words and figures, e.g. \$100.00, one hundred dollars. In case of discrepancy, the amount shown in words will govern.

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

Accompanying this proposal is a certified check or standard bid bond in the sum of _____
** dollars
(\$ _____) in accordance with the Information for Bidders.

The undersigned bidder agrees to execute the Agreement and a performance bond and a payment bond for the amount of the total of this bid within 10 calendar days from the date when the written notice of the award of the contract is delivered to him at the address given on this proposal. The bid security attached in the sum of \$ _____ is to become the property of the Owner in the event the contract and bonds are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby. The name and address of the corporate surety with which the Bidder proposes to furnish the specified performance bond and payment bond is as follows:

The undersigned bidder agrees to abide by the requirements of Executive Order No. 11246, as amended. He agrees to execute the Equal Opportunity Clause as part of the Construction Contract. If the proposed contract is for \$50,000 or more and the bidder has 50 or more employees, he further agrees to develop a written affirmative action compliance program and, if he has 100 or more employees, to file the report required after the contract award.

All the various phases of work enumerated in the Detailed Specifications with their individual jobs and overhead, whether specifically mentioned or included by implication or appurtenant thereto, are to be performed by the Contractor under one of the items listed in the Schedule of Bids, irrespective of whether or not it is named in said list.

Payment for work performed will be in accordance with the Schedule of Bids subject to changes as provided for in the Construction Agreement.

The Contractor acknowledges the following addenda to the plans and specifications:

- No. _____, dated _____
- No. _____, dated _____

Award will be made to the lowest responsive responsible BIDDER.

Unbalanced bidding to increase early construction payments on the basis of percent completion of large cost items is not acceptable.

Contractor shall comply with the BUY AMERICA requirements of the Federal Regulations (23 U.S.C. 313 and 23 CFR 635.410). The Contractor shall provide to the Utility Owner a completed **“Certificate of Materials Origin”** form for each steel or iron product incorporated into the project.

** 5% amount bid

The Bidder hereby agrees to commence work under this contract within 10 days after receiving a Notice to Proceed from the Board and to Substantially complete all work within 60 consecutive calendar days thereafter as stipulated in the specifications. If the Contractor shall fail to complete the work within the Contract Time, or extension of time granted by OWNER, then the Contractor will pay the OWNER the amount of liquidated damages in the amount of \$200.00 for each calendar day that the Contractor shall be in default after the time stipulated in the contract documents. The bidder shall also have all work completed and ready for final payment in accordance with the General Conditions within 15 calendar days after the date of Substantial Completion. After Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified in the above paragraph for completion and readiness for final payment or any extension granted by OWNER, CONTRACTOR shall pay OWNER \$100.00 for each calendar day that expires after the time specified in the above paragraph for completion of all work and readiness for final payment.

The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding. The Bidder also agrees that this bid shall be good and may not be withdrawn for a period of 60 calendar days after the bid opening.

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

(Contractor)

BY: _____

(Title)

Employer I.D. Number

(Business Address)

Telephone Number

Date

ATTEST:

Secretary/Witness

SCHEDULE OF BIDS
Swinging Bridge Water Main Relocation
Sardis Lake Water Authority
Pittsburg County, Oklahoma

Item #	Estimated Quantity	Description and Price in Words	Unit Price Each*	Total*
1.	Lump Sum	Bonding, Mobilization, and Stormwater Pollution Prevention Plan Implementation furnished and completed for _____ _____ Dollars and _____ cents.		
2.	1,000 L.F.	3" DR 11, Polyethylene Pipe, Water Main with Tracer Wire installed by open-cut for _____ _____ Dollars and _____ cents per lineal foot.		
3.	700 L.F.	3" DR 11, Polyethylene Pipe, Water Main with Tracer Wire installed by directional bore for _____ _____ Dollars and _____ cents per lineal foot.		
4.	10 L.F.	2" PVC, Class 250, Water Main with Tracer Wire installed for _____ _____ Dollars and _____ cents per lineal foot.		
5.	1 EA.	2" Gate Valve with Valve Box and marker furnished and installed for _____ _____ Dollars and _____ cents each.		
6.	1 EA.	2" Blow-off Valve Assembly furnished and installed for _____ _____ Dollars and _____ cents each.		
7.	200 LB.	Ductile Iron Fittings with all accessories furnished and installed for _____ _____ Dollars and _____ cents per pound.		
8.	1 EA.	6" X 3" Tapping Sleeve, 3" Gate Valve and Valve Box furnished and installed for _____ _____ Dollars and _____ cents each.		
9.	50 L.F.	3" Encased County Road Crossing installed for _____ _____ Dollars and _____ cents per lineal foot.		
10.	1 EA.	Connection to Existing Main furnished and installed for _____ _____ Dollars and _____ cents each.		

BIDDER'S NAME: _____

SCHEDULE OF BIDS
Swinging Bridge Water Main Relocation
Sardis Lake Water Authority
Pittsburg County, Oklahoma

Item #	Estimated Quantity	Description and Price in Words	Unit Price Each*	Total*
11.	10 EA.	2" Cut and Cap Existing Main furnished and installed for _____ Dollars and _____ cents each.		
12.	100 L.F.	Bedding Material furnished and installed for _____ Dollars and _____ cents per lineal foot.		
13.	5 C.Y.	Rock Excavation completed for _____ Dollars and _____ cents per cubic yard.		
14.	1 L.S.	Provide a 500-Foot, 2" DR-11, Polyethylene Pipe for a temporary water main furnished, sterilized and connected; then after completion of construction, salvaged to the Sardis Lake Water Authority; furnished, installed and salvaged for _____ Dollars and _____ cents.		

* The unit prices and total price must be specified in both words and figures, e.g., \$100.00, one-hundred dollars. In case of discrepancy, the amount shown in words will govern.

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the complete project.

TOTAL AMOUNT BASE BID.....\$ _____

BID ADJUSTMENT ITEM (Addition) or (Deduction).....\$ _____

TOTAL AMOUNT BASE BID.....\$ _____

To allow the Contractor to make last minute adjustments to the Schedule of Bids, the "Bid Adjustment Item" is provided for lump sum changes after the Schedule of Bids has otherwise been completed. The BIDDER shall clearly state whether the "Bid Adjustment Item" is an addition or a deduction. Once the bids are opened, the apparent low bidder shall file with the Owner a distribution of the addition or deletion item into the appropriate bid items within 24 hours of the Bid Opening.

BIDDER'S NAME: _____

BUSINESS RELATIONSHIPS AFFIDAVIT

STATE OF OKLAHOMA

)

) ss.

COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the nature of any partnership, joint venture, or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, engineer, or other party to the project is as follows:

Affiant further states that any such business relationship presently in effect or which existed within (1) year prior to the date of this statement between any officer or director of the bidding company and any officer or director of the architectural or engineering firm or other party to the project is as follows:

Affiant further states that the names of all persons having any such business relationships and the positions they hold with their respective companies or firms are as follows:

(If none of the business relationships hereinabove mentioned exist, affiant should so state)

Subscribed and sworn to before me this _____ day of _____, 2021.

Notary Public

My Commission Expires

Note: This form is to be submitted with the BID.

NONCOLLUSION AFFIDAVIT

STATE OF OKLAHOMA)
) ss.
COUNTY OF _____)

_____, of lawful age, being first
duly sworn, on oath says that (s)he is the agent authorized by the bidder to submit the attached
bid. Affiant further states that the bidder has not been a party to any collusion among bidders in
restraint of freedom of competition by agreement to bid at a fixed price or to refrain from
bidding; or with any state official or employee as to quantity, quality or price in the prospective
contract, or any other terms of said prospective contract, or in any discussions between bidders
and any state official concerning exchange of money or other thing of value for special
consideration in the letting of a contract.

SUBSCRIBED AND SWORN to before me this _____ day of _____, 2021.

Notary Public

My Commission Expires:

The review of this affidavit will be made no later than the review and approval of the completed
contract documents.

NOTE: This form is to be submitted with the BID.

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 Pittsburg County Commissioners, Pittsburg County,
Oklahoma, 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, our heirs, executors, administrators, successors and assigns.

Signed, this _____ day of _____, 20__.

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

Swinging Bridge Water Main Relocation

NOW, THEREFORE.

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

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

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

Surety

Surety's Agent

Principal

Seal

Note: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570, as amended) as authorized to transact business in Oklahoma and have underwriting authority in an amount equal to or greater than the bid amount.

C

CONTRACT AGREEMENT

Contract Agreement
Performance Bond
Statutory Bond (Use of Trusts, Authorities, RWD's)
Maintenance Bond
Insurance Requirements
Certificate of Insurance
State of Oklahoma Hold Harmless Clause
Notice of Award
Notice to Proceed

CONTRACT AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 2021, by and between The Pittsburg County Commissioners, Pittsburg County, Oklahoma hereinafter called "OWNER" and _____ doing business as a (corporation, L.L.C., partnership or individual) of _____, County of _____, State of _____ hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements herein after mentioned, to be made and performed by the OWNER:

1. The CONTRACTOR will commence and complete the construction of

Swinging Bridge Water Main Relocation

Pittsburg County, Oklahoma

~~2. The CONTRACTOR will furnish all of the materials, supplies, tools, equipment, labor, and other services necessary for the construction and completion of the PROJECT described herein.~~

3. The CONTRACTOR hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the OWNER and to fully complete the project as follows:
The Work will be substantially completed within **60** calendar days after the date when the Contract Completion Time commences to run as provided in the General Conditions, and all work completed and ready for final payment in accordance with the General Conditions within **15** calendar days after the date of Substantial Completion.

4. *Liquidated Damages.* OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in the paragraph above, plus any extensions allowed in accordance with the General Conditions. They also recognize the delays, expense and difficulties involved in proving the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER two hundred dollars (\$200.00) for each calendar day that expires after the time specified in the above paragraph for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified in the above paragraph for completion and readiness for final payment or any extension granted by OWNER, CONTRACTOR shall pay OWNER one hundred dollars (\$100.00) for each calendar day that expires after the time specified in the above paragraph for completion of all work and readiness for final payment.

5. 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 for the Base Bid.

6. The term "CONTRACT DOCUMENTS" means and includes the following:

- | | |
|--------------------------------------|-------------------------------|
| (A) Advertisement For Bids, | (B) Information For Bidders, |
| (C) Bidder's Proposal, | (D) Schedule of Bids, |
| (E) Business Relationships Affidavit | (F) Noncollusion Affidavit |
| (G) Claim for Invoice Affidavit, | (H) Bid Bond, |
| (I) Insurance Requirements, | (J) General Conditions, |
| (K) Special Conditions, | (L) General Provisions, |
| (M) Statutory Bond, | (N) Performance Bond, |
| (O) Maintenance Bond, | (P) Certificate of Insurance, |

- (Q) Notice of Award,
- (S) Change Orders,

- (R) Notice to Proceed,
- (T) Other Regulatory Requirements,

(U) DRAWINGS prepared by Vaughn Engineering numbered 1 through 5, and dated May 2021,

(V) SPECIFICATIONS prepared or issued by Vaughn Engineering, dated May 2021,

(W) ADDENDA:

No. _____, dated _____, 2021,

No. _____, dated _____, 2021,

(X) OTHER ATTACHMENTS

7. 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.

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

9. Contractor shall comply with the Underground Facilities Damage Prevention Act (63 O.S. 42.1 et seq.).

10. Contractor shall comply with the BUY AMERICA requirements of the Federal Regulations (23 U.S.C. 313 and 23 CFR 635.410). The Contractor shall provide to the Utility Owner a completed **“Certificate of Materials Origin”** form for each steel or iron product incorporated into the project.

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

OWNER: Sardis Lake Water Authority c/o Pittsburg County Commissioners, Pittsburg Co., Oklahoma

BY: _____

Name: Ross Selman

(SEAL)

Title: Presiding Commissioner

ATTEST:

Name: Hope Trammell

Title: County Clerk

CONTRACTOR:

BY: _____

(SEAL)

Name: _____

ATTEST:

(Please Type)

Title: _____

Name: _____

(Please Type)

Address: _____

Title: _____

PERFORMANCE BOND

_____ as Principal, and _____, a corporation organized under the laws of the State of _____, as surety, are held and firmly bound unto The Pittsburg County Commissioners, Pittsburg County, Oklahoma, in the penal sum of _____ Dollars (\$_____), in lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves and each of us, our heirs, executors, administrators, trustees, successors and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that, whereas said Principal entered into a written contract with The Pittsburg County Commissioners, Pittsburg County, Oklahoma, dated _____, 2021, for Swinging Bridge Water Main Relocation, all in compliance with the plans and specifications therefor, made a part of said contract and on file in the office of The Sardis Lake Water Authority, 161552 Highway 2 North, Clayton, Oklahoma 74536.

(Name and Address of Agency)

NOW, THEREFORE, if said Principal shall, in all particulars, well, truly and faithfully perform and abide by said contract and each and every covenant, condition and part thereof and shall fulfill all obligations resting upon said Principal by the terms of said contract and said specifications and if said Principal shall protect and save harmless said Pittsburg County, Pushmataha County Commissioners and Sardis Lake Water Authority from any pecuniary loss resulting from the breach of any of the items, covenants and conditions of said contract resting upon said Principal, then this obligation shall be null and void, otherwise to be and remain in full force and effect.

It is further expressly agreed and understood by the parties hereto that no changes or alterations in ~~said contract and no deviations from the plan or mode of procedures herein fixed~~ shall have the effect of releasing the sureties, or any of them, from the obligations of this Bond.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly-authorized officers and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its Attorney-In-Fact, duly authorized to do so, the day and year set forth below.

Dated this _____ day of _____, 2021.

PRINCIPAL:

By: _____

ATTEST:

SURETY:

By: _____

Attorney-In-Fact

STATUTORY BOND

No. _____

We, _____, as Principal, and _____, a corporation organized under the laws of the State of _____, as Surety, are held and firmly bound unto the State of Oklahoma in the amount of _____ Dollars (\$ _____) for the payment of which we hereby bind ourselves, our heirs, executors, administrators and assigns, jointly and severally, firmly by these presents.

Dated this _____ day of _____, 2021,

WHEREAS, the said _____ did on _____ enter into a certain contract with The Pittsburg County Commissioners, Pittsburg County, Oklahoma for the construction of Swinging Bridge Water Main Relocation;

AND WHEREAS, this bond is given in compliance with Oklahoma Statutes Annotated, 194, Title 61, Sections 1 and 2, as amended;

NOW, THEREFORE, the condition of the above obligation is such that, if the Principal shall pay ~~all indebtedness incurred for labor, materials or rental of machinery or equipment furnished in the~~ construction of said public building or in making said public improvements, then this obligation shall be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF we have hereunto set our hands and seals the day and year first above written.

By: _____
Bonding Company

ATTEST (If by corporation)

By: _____
Attorney

MAINTENANCE BOND
(Defect Bond)

_____, as Principal, and _____, a corporation organized under the laws of the State of _____ and authorized to transact business in the State of Oklahoma, as Surety, are held and firmly bound unto _____ The Pittsburg County Commissioners, Pittsburg Co., Oklahoma and The Sardis Lake Water Authority, (City, Town or Trust Authority)

in the penal sum of _____ Dollars (\$ _____) in lawful money of the United States of America, said sum being equal to one hundred percent (100%) of the contract price, for payment of which, well and truly to be made, we bind ourselves and each of us, our heirs, executors, administrators, trustees, successors and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that, whereas said Principal entered into a written contract with _____ The Pittsburg County Commissioners, Pittsburg County, Oklahoma (City, Town or Trust)

dated _____, 2021, for _____ Swinging Bridge Water Main Relocation

all in compliance with the plans and specifications therefor, made a part of said contract and on file in the office of _____ The Pittsburg County Commissioners / The Sardis Lake Water Authority;

NOW, THEREFORE, if said Principal shall pay or cause to be paid to _____ The Pittsburg County Commissioners, Pittsburg County / The Sardis Lake Water Authority, Clayton, Oklahoma all damage, loss and expense which may _____ (City, Town or Trust Authority)

result by reason of defective materials and/or workmanship in connection with said work occurring within a period of one (1) year from and after the acceptance of said project by _____

_____ The Sardis Lake Water Authority, Clayton, Pushmataha County, Oklahoma, (City, Town or Trust Authority)

then this obligation shall be null and void, otherwise to be and remain in full force and effect.

It is further expressly agreed and understood by the parties that no changes or alterations in said contract and no deviations from the plan or mode of procedures herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this Bond.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly-authorized officers and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its Attorney-In-Fact, duly authorized so to do, the day and year set forth below.

DATED this _____ day of _____, 2021.

PRINCIPAL:

By: _____

ATTEST:

SURETY:

By: _____

Attorney-In-Fact

INSURANCE REQUIREMENTS

Name of Insured: Pittsburg County, Sardis Lake Water Authority & Vaughn Engineering, LLC.

Description of Work: Relocation of an existing water main and appurtenances

Location of Work: Swinging Bridge Road, Pittsburg County, Oklahoma

<u>Kind of Insurance</u>	<u>Minimum Coverage</u>	<u>Expected Dates Coverage Needed</u>	
		<u>From</u>	<u>To</u>
Workers' Compensation	Legal Amount	<u>Sep. '21</u>	<u>Dec. '21</u>
General Public Liability and property Damage, Including Vehicle Coverage:			
Bodily Injury - Each Person	\$500,000	<u>Sep. '21</u>	<u>Dec. '21</u>
Bodily Injury - Each Accident	\$500,000	<u>Sep. '21</u>	<u>Dec. '21</u>
Property Damage - Each Person	\$200,000	<u>Sep. '21</u>	<u>Dec. '21</u>
Property Damage - Aggregate Limit	\$1,000,000	<u>Sep. '21</u>	<u>Dec. '21</u>
Builder's Risk (If Required)	Full Coverage	<u>N/A</u>	

Note: This covers all motor-driven vehicles such as cars, trucks, graders, etc.

In the event of any material change or cancellation of said policies, the insurance company will give fifteen (15) days' written notice to Pittsburg County, Vaughn Engineering, LLC. and The Sardis Lake Water Authority, Owner.

Statements such as "**will endeavor to**" and "**but failure to notify Owner shall impose no obligation or liability of any kind upon the company**" shall not be allowed.

Coverage shall be indicated by checking all boxes applicable. Insurance shall cover any hazards involved with the planned construction. Special coverage for blasting operations shall be listed separately on the certificates.

The Owner and the Engineer shall be listed as the certificate holders.

Reserved for

CERTIFICATE OF INSURANCE

**STATE OF OKLAHOMA
HOLD HARMLESS CLAUSE**

Contractor shall, within limitations placed on such entities by State law, save harmless the State of Oklahoma, its agents, officers and employees from all claims and actions and all expenses defining same that are brought as a result of any injury or damage sustained by any person or property in consequence of any act or omission by the Contractor. Contractor shall, within limitations placed on such entities by State law, save harmless the State of Oklahoma, its agents, officers and employees from any claim or amount recovered as a result of infringement of patent, trademark or copyright or from any claim or amounts arising or recovered under Workers' Compensation law or any other law. In any agreement with any subcontractor or any agent for Contractor, Contractor will specify that such subcontractors or agents shall hold harmless the State of Oklahoma, its agents, officers and employees for all the hereinbefore-described expenses, claims action or amounts recovered.

NOTICE OF AWARD

TO: _____

PROJECT DESCRIPTION:

Swinging Bridge Water Main Relocation
Pittsburg County, Oklahoma

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated September, 2021, and Information for Bidders.

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

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance and Payment BONDS 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 ENGINEER and OWNER.

Dated this _____ day of _____, 2021.

The Pittsburg County Commissioners
Pittsburg County, Oklahoma
Owner

By: _____
Ross Selman

Title: Presiding Commissioner

ACCEPTANCE OF NOTICE

Receipt of the NOTICE OF AWARD is hereby acknowledged by _____,
this _____ day of _____, 2021.

By: _____

Title: _____

NOTICE TO PROCEED

TO: _____

Date: _____
Project: Swinging Bridge Water Main Relocation
Pittsburg County, Oklahoma

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 2021 on or before _____, 2021 and you are to complete the WORK within 60 consecutive calendar days thereafter. The date of completion of all WORK is therefore _____, 2021.

The Pittsburg County Commissioners
Pittsburg County, Oklahoma
Owner

By: _____
Ross Selman

Title: Presiding Commissioner

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____,
this _____ day of _____, 2021.

By: _____

Title: _____

Employer Identification Number _____

GC

GENERAL CONDITIONS

General Conditions
Enumeration of Plans and Specifications
Special Conditions
Special Conditions Pertaining to Hazards, Safety Standards
and Accident Prevention
General Provisions

GENERAL CONDITIONS

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3.0	Additional Instructions and Detail Drawings	GC - 4
4.0	Materials, Services and Facilities	GC - 4
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10.0	Subcontracting	GC - 7
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12.0	Engineer's Authority	GC - 7
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1.0 DEFINITIONS

1.0.1 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:

1.1 ADDENDA

1.1.1 Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions or deletions, clarifications, or corrections.

1.2 AGREEMENT/CONTRACT

1.2.1 The written agreement between the OWNER and CONTRACTOR covering the WORK to be performed; the other CONTRACT DOCUMENTS are attached to the AGREEMENT.

1.3 BID

1.3.1 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

1.4.1 Any person, firm, or corporation submitting a BID for the WORK.

1.5 BONDS

1.5.1 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

1.6.1 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

1.7.1 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, these GENERAL CONDITIONS, SPECIAL CONDITIONS, SPECIFICATIONS, ADDENDA and other documents and attachments.

1.8 CONTRACT PRICE

1.8.1 The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.

1.9 CONTRACT TIME

1.9.1 The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.

1.10 CONTRACTOR

1.10.1 The person, firm, or corporation with whom the OWNER has executed the Agreement.

1.11 DRAWINGS

1.11.1 The parts of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and that have been prepared or approved by the ENGINEER.

1.12 ENGINEER

1.12.1 The person, firm, or corporation named as such in the CONTRACT DOCUMENTS.

1.13 FIELD ORDER

1.13.1 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 for clarification or interpretation.

1.14 NOTICE OF AWARD

1.14.1 The written notice of the acceptance of the BID from the OWNER to the successful BIDDER.

1.15 NOTICE TO PROCEED

1.15.1 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

1.16.1 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

1.17.1 The undertaking to be performed as provided in the CONTRACT DOCUMENTS.

1.18 RESIDENT PROJECT REPRESENTATIVE

1.18.1 The authorized representative of the OWNER and ENGINEER who is assigned to the PROJECT site or any part thereof.

1.19 SHOP DRAWINGS

1.19.1 All drawings, diagrams, illustrations, brochures, schedules or other data which are prepared by the CONTRACTOR, SUBCONTRACTOR, manufacturer, SUPPLIER or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.

1.20 SPECIAL CONDITIONS

1.20.1 All special requirements applicable to the work and the project site.

1.21 SPECIFICATIONS

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

1.22 SUBCONTRACTOR

1.22.1 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.

1.23 SUBSTANTIAL COMPLETION

1.23.1 That date certified by the ENGINEER when construction of the PROJECT or as specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, to the point the PROJECT or specified part can be utilized for the purposes intended.

1.24 SUPPLEMENTAL GENERAL CONDITIONS

1.24.1 Modifications to General Conditions required by a Federal or State agency for participation in the PROJECT and approved by the agency in writing prior to inclusion in the CONTRACT DOCUMENTS, or such requirements imposed by applicable state laws.

1.25 SUPPLIER

1.25.1 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.

1.26 WORK

1.26.1 All labor, materials and equipment necessary to perform the construction required by the CONTRACT DOCUMENTS and all materials and equipment to be incorporated in the PROJECT.

1.27 WRITTEN NOTICE

1.27.1 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 DRAWINGS AND SPECIFICATIONS

- 2.1 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.
- 2.2 In case of conflict between DRAWINGS and SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over general DRAWINGS.
- 2.3 Any discrepancies found between the DRAWINGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

3.0 ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

- 3.1 The CONTRACTOR may be furnished additional instructions and detail drawings by the ENGINEER as needed to perform the WORK required by the CONTRACT DOCUMENTS.
- 3.2 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.

4.0 MATERIALS, SERVICES AND FACILITIES

- 4.1 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.
- 4.2 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.
- 4.3 Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.
- 4.4 Materials, supplies, and equipment shall be in accordance with samples submitted by the CONTRACTOR and approved by the ENGINEER.
- 4.5 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.

5.0 SURVEYS, PERMITS, REGULATIONS

- 5.1 The OWNER shall furnish all boundary surveys and establish all baselines for locating the principal component parts of the WORK 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.
- 5.2 The CONTRACTOR shall carefully preserve bench marks, reference points and stakes. In cases of willful or careless destruction, the CONTRACTOR shall be charged with the resulting expense and shall be responsible for any mistake that may be caused by their unnecessary loss or disturbance.
- 5.3 Temporary permits and licenses necessary for the performance of the WORK shall be paid and secured by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITION or SPECIAL CONDITIONS. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be paid and secured 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 shown and specified. If the CONTRACTOR observes that the CONTRACT DOCUMENT are at variance therewith, the CONTRACTOR shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 18, CHANGES IN THE WORK.

6.0 PROTECTION OF WORK, PROPERTY, AND PERSONS

- 6.1 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, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- 6.2 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 be 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.

- 6.3 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.

7.0 SUBSURFACE CONDITIONS

- 7.1 The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:
- 7.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS; or
- 7.1.2 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.
- 7.2 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.

8.0 ASSIGNMENTS

- 8.1 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.

9.0 SEPARATE CONTRACTS

- 9.1 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.
- 9.2 The OWNER may perform additional WORK related to the PROJECT or the OWNER may let other contracts 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.

- 9.3 If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves it in additional expense or entitles it to an extension of the CONTRACT TIME, the CONTRACTOR may make a claim thereof as provided in Sections 17 and 19.

10.0 SUBCONTRACTING

- 10.1 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.
- 10.2 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.
- 10.3 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.
- 10.4 The CONTRACTOR shall utilize appropriate provisions 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.
- 10.5 Nothing contained in this CONTRACT shall create any contractual relation between any ~~SUBCONTRACTOR and the OWNER.~~

11.0 LAND AND RIGHTS-OF-WAY

- 11.1 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.
- 11.2 The OWNER shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.
- 11.3 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.

12.0 ENGINEER'S AUTHORITY

- 12.1 The ENGINEER shall act as the OWNER'S representative during the construction period. The ENGINEER 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.

- 12.2 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.
- 12.3 The ENGINEER will not be responsible for the construction methods, controls, techniques, sequences, procedures or construction safety.
- 12.4 The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

13.0 SUPERVISION BY CONTRACTOR

- 13.1 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.

14.0 CONTRACT SECURITY

- 14.1 The CONTRACTOR shall within ten (10) days after 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 the prompt payment by CONTRACTOR to all persons supplying labor and materials in the performance of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by 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 a surety on any such BOND ever 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 substitute an acceptable BOND(S) 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.

15.0 INSURANCE

15.1 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, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

15.1.1 Claims under workmen's compensation, disability benefit and other similar employee benefit acts;

15.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of employees;

15.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than employees;

15.1.4 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

15.1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

15.2 Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. **These Certificates shall contain a provision that coverages afforded under the policies will not be canceled unless at least fifteen (15) days prior WRITTEN NOTICE has been given to the OWNER.**

~~15.3 The CONTRACTOR shall procure and maintain, at the CONTRACTOR'S own expense, during the CONTRACT TIME, Liability insurance as hereinafter specified:~~

~~15.3.1 The **OWNER and the ENGINEER** shall be named and protected in the CONTRACTOR'S liability insurance policy from all claims arising out of or in connection with any operations conducted in connection with this contract by the CONTRACTOR or his SUBCONTRACTORS. 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 \$2,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than \$1,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$1,000,000 for all property damage sustained by any one person in any one accident; and a limit of liability of~~

not less than \$2,000,000 aggregate for any such damage sustained by two or more persons in any one accident.

- 15.3.2 The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage insurance for 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 obligation under the CONTRACT DOCUMENTS to fully complete the PROJECT.
- 15.4 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 statute, the CONTRACTOR shall provide, and shall cause each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of its employees not otherwise protected.
- 15.5 The CONTRACTOR shall secure, if applicable, "All Risk" type Builder's Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the CONTRACT TIME, and until the WORK is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR and the OWNER.

16.0 INDEMNIFICATION

- 16.1 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.
- 16.2 In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way 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.

16.3 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 preparation or approval of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs or SPECIFICATIONS.

17.0 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

17.1 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.

17.2 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.

17.3 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 of the amount stated in the AGREEMENT for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS.

17.4 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.

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

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

17.4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 17.4.1 and 17.4.2 of this article.

18.0 CHANGES IN THE WORK

18.1 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.

18.2 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.

19.0 CHANGES IN CONTRACT PRICE

19.1 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:

19.1.1 Unit prices previously approved.

19.1.2 An agreed lump sum.

20.0 CORRECTION OF WORK

20.1 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. The CONTRACTOR shall promptly replace and re-execute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.

20.2 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.

21.0 SUSPENSION OF WORK, TERMINATION, AND DELAY

21.1 The OWNER may suspend the WORK or any portion thereof for a period not to exceed ninety (90) days or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which shall fix the date on which WORK shall be resumed. The CONTRACTOR will resume that WORK on the fixed date. 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.

21.2 If the CONTRACTOR is adjudged as bankrupt or insolvent, or makes a general assignment to the benefit of its creditors, or if a trustee or receiver is appointed for the CONTRACTOR or any of his property, or if CONTRACTOR files a petition to take advantage of any debtor's act or to reorganize under bankruptcy or applicable laws, or repeatedly fails to supply adequate skilled workers, suitable materials or equipment, or consistently fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment, or disregards laws, ordinances, rules, regulations or orders of a public body having jurisdiction over 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 costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

- 21.3 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.
- 21.4 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.
- 21.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by ~~the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and~~ presentation, then the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER terminate the CONTRACT and recover from the OWNER payment for all WORK executed and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon 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 ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.
- 21.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an ~~adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both,~~ shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

22.0 PAYMENT TO CONTRACTOR

- 22.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER'S title to the material and equipment and protect 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.
- 22.2 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. The CONTRACTOR shall provide receipts or lien waivers to the ENGINEER for the previous month's materials stored at the following month's progress meeting. If the receipts or lien waivers are not provided by that meeting, the ENGINEER or OWNER shall have the option to deduct the amount of the previous month's amount of materials stored.
- 22.3 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.
- 22.4 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.

- 22.5 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.
- 22.6 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.
- 22.7 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.

23.0 ACCEPTANCE OF FINAL PAYMENT AS RELEASE

- 23.1 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.
- 23.2 Before final payment is released, the CONTRACTOR shall provide the OWNER with a lien waiver for the total amount of the CONTRACT. The CONTRACTOR shall also provide lien waivers from all SUBCONTRACTORS listed by the CONTRACTOR.

24.0 GUARANTEE

- 24.1 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 unless otherwise stated in the CONTRACT DOCUMENTS. 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 parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance BOND shall remain in full force and effect through the guarantee period.

25.0 SCHEDULES, REPORTS AND RECORDS

- 25.1 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.
- 25.2 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:
 - 25.2.1 The dates at which special detail drawings will be required; and
 - 25.2.2 Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.
- 25.3 The CONTRACTOR shall also submit a schedule of payments that the CONTRACTOR anticipates will be earned during the course of the WORK.

26.0 SHOP DRAWINGS

- 26.1 The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the performance of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWING shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWING which substantially deviates from the requirement of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER.
- 26.2 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.
- 26.3 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.

27.0 SUBSTITUTIONS

27.1 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 unless otherwise stated. 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 CONTRACTOR DOCUMENTS by reference to brand name or catalogue number, and if, in the opinion of the ENGINEER, such materials, 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.

28.0 PATENTS

28.1 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 and ENGINEER harmless from loss on account thereof. 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.

29.0 INSPECTION AND TESTING

29.1 ~~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.~~

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

29.3 The CONTRACTOR shall provide at the CONTRACTOR'S expense the testing and inspection services required by the CONTRACT DOCUMENTS.

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

29.5 Inspections, tests, 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.

- 29.6 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.
- 29.7 If any WORK is covered contrary to the 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.
- 29.8 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.

30.0 PREVAILING WAGE LAW

30.1 GENERAL STATEMENT

- 30.1.1 On projects involving Public Works or Public Funds, it is the statutory policy of the State of Arkansas that: a wage not less than the prevailing hourly rate of wages for Work of a similar character in the locality in which the Work is performed shall be paid to all workmen employed by or on behalf of any public body engaged in Public Works, exclusive of maintenance Work. In compliance with Arkansas State Law, the following stipulations are made a part of this Contract:

30.2 SCHEDULE OF OCCUPATIONAL CLASSIFICATIONS

- 30.2.1 The schedule of occupational classifications and minimum hourly wage rates applicable to this Project are bound in these Contract Documents and made a part thereof.

30.3 PREVAILING RATES FOR LEGAL HOLIDAYS AND OVERTIME

- 30.3.1 The general prevailing rate for legal holidays and overtime Work, as determined by the Division of Labor Standards and as set forth in the Contract Documents, shall be paid to all workers.

30.4 PENALTY FOR NON-COMPLIANCE

- 30.4.1 The Contractor shall forfeit as a penalty to the State, county, city and county, city, town, district, or other political subdivision on whose behalf the Contract is made or awarded, \$10.00 for each workman employed, for each calendar day, or portion thereof, such worker is paid

less than the said stipulated rates for any Work done under the Contract, by him or by any subcontractor under him.

30.5 BONDS

30.5.1 All Bonds furnished by this Contractor shall include such provisions as will guarantee the faithful performance of the prevailing hourly wage clause as provided by this Contract.

30.6 PREVAILING WAGE RATES POSTED

30.6.1 A clearly legible statement of all prevailing hourly wage rates to be paid all workmen employed, in order to execute this Contract, shall be kept posted in a prominent and easily accessible place at the site of the Work by each Contractor and subcontractor engaged on this Project. Such notice shall remain posted during the full time that any workmen shall be employed on the Project.

30.7 CONTRACTOR'S AFFIDAVIT OF COMPLIANCE

30.7.1 Before final payment can be made for this Project, the Contractor must file an affidavit stating that he fully complied with the Prevailing Wage Law. No payment can be made unless and until this affidavit is filed in proper form and order.

30.8 NO CONTRACT PRICE CHANGE

30.8.1 The Contractor is advised of the fact that the prevailing hourly rate of wages, State or Federal, is subject to change during the life of this Contract, and such change shall not be the basis of any claim by the Contractor against the Owner nor will deductions be made by the Owner against sums due the Contractor by reason of any such change, or by overtime expenses incurred or by reason of penalties levied against the Contractor for non-compliance with the applicable regulations. ~~The Contractor shall pay the prevailing wage rates as established,~~ amended, changed or revised throughout the Contract for the amount bid and for the Contract or Bid Price awarded. There shall be no increase or decrease in the Contract or Bid Price as a result of any changes made in the wage rates made in the wage rates by the Department of Labor and Industrial Relations or by any court decision relevant to the wage rates. The Contractor shall pay the prevailing wage rates and shall comply with all requirements of the Department of Labor and Industrial Relations concerning wage rates paid to workmen for Work previously performed under the Contract or remaining to be performed under the requirements of the Contract; and any such changes in the wage rates shall not be a basis for any claim against the Owner for a change in the Contract of Bid price or amounts.

30.9 PREVAILING HOURS STANDARD

30.9.1 The "prevailing hours of labor" for all classifications of laborers, workmen and mechanics to be employed in the Work are eight (8) hours per day and forty (40) hours per week.

30.10 PREVAILING WAGE STATUTES

30.10.1 The Contractor shall comply with all of the State of Arkansas' statues dealing with and relating to the prevailing wage law and Public moneys.

31.0 ARBITRATION BY MUTUAL AGREEMENT

- 31.1 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 23, may be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association if the parties mutually agree. Any 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.
- 31.2 Notice of the request for arbitration shall be filed in writing with the other party to the CONTRACT DOCUMENTS and a copy shall be filed with the ENGINEER. Request 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.
- 31.3 The CONTRACTOR will carry on the WORK and maintain the progress schedule during any arbitration proceedings, unless otherwise mutually agreed in writing.

32.0 TAXES

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

ENUMERATION OF PLANS, SPECIFICATIONS

1.0 ENUMERATION OF PLANS, SPECIFICATIONS

Following are the Plans, Specifications which form a part of this contract, as set forth in the General Conditions, "Contract and Contract Documents";

DRAWINGS:

General Construction: Nos. 1 Through 5

SPECIFICATIONS:

General Specifications: Nos. GS-1 through GS-7

Detailed Specifications: Nos. DS-1 to DS-19

2.0 STATED ALLOWANCES

2.1 Pursuant to the General Conditions, the Contractor shall include the following cash allowances in his proposal:

2.1.1 For ____ (Page ____ of Specifications) \$ _____

2.1.2 For ____ (Page ____ of Specifications) \$ _____

2.1.3 For ____ (Page ____ of Specifications) \$ _____

3.0 SPECIAL HAZARDS

3.1 The Contractor's and his Subcontractor's Public Liability and Property Damage Insurance shall provide adequate protection against the following special hazards: Blasting Operations.

4.0 CONTRACTOR'S AND SUBCONTRACTOR'S PUBLIC LIABILITY, VEHICLE AND LIABILITY AND PROPERTY DAMAGE INSURANCE

As required in the General Conditions, the Contractor's Public Liability Insurance and Vehicle Insurance shall be in an amount not less than \$1,000,000 for injuries, including accidental death, to any one person, and subject to the same limit for each person, in an amount not less than \$500,000 on account of one accident, and the Contractor's Property Damage Insurance in an amount not less than \$500,000.

The Contractor shall either require each of his subcontractors to procure and to maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage of the type and in the same amounts as specified in the preceding paragraph, or insure the activities of his subcontractors in his own policy.

5.0 PHOTOGRAPHS OF PROJECT

As provided in the General Conditions, the Contractor will furnish photographs in the number, type, and stage as enumerated below: **Not Required.**

6.0 SCHEDULE OF OCCUPATIONAL CLASSIFICATIONS AND MINIMUM HOURLY WAGE RATES AS REQUIRED IN THE GENERAL CONDITIONS

Contained in the Instructions to Bidders and the Appendix.

7.0 BUILDER'S RISK INSURANCE

As provided in Bonds and Certificates, the Contractor will/will not* maintain Builder's Risk Insurance (fire and extended coverage) on a 100 percent completed value basis on the insurable portions of the project for the benefit of the Owner, the Contractor, and all subcontractors, as their interests may appear.

END OF SECTION

SPECIAL CONDITIONS

1.0 STARTING POINT

- 1.1 Contractor shall begin by installing the temporary water line across the existing bridge. After safe, potable water, then the directional boring can proceed.

2.0 QUALITY OF WORK

- 2.1 All work shall be first class work and shall have a good appearance. The Work shall also be functional for its intended purpose for which it was designed.
- 2.2 All work found not to be first class shall be replaced if so desired by the Owner.

3.0 CONTRACTOR'S SUPERINTENDENT

- 3.1 The Contractor's representative shall be pleasant and have the ability to work with all parties. The representative shall communicate and coordinate all actions with the Engineer or Engineer's Representative and District Personnel.

4.0 PUBLIC FACILITIES

- 4.1 Contractor shall furnish all of the public facilities needed for his personnel.

5.0 BUY AMERICAN CLAUSE

Contractor shall comply with the BUY AMERICA requirements of the Federal Regulations (23 U.S.C. 313 and 23 CFR 635.410). The Contractor shall provide to the Utility Owner a completed "**Certificate of Materials Origin**" form for each steel or iron product incorporated into the project.

SPECIAL CONDITIONS PERTAINING TO HAZARDS, SAFETY STANDARDS AND ACCIDENT PREVENTION

1. Lead-Based Paint Hazards (Applicable to Contract for Construction or Rehabilitation of Residential Structures):

The construction or rehabilitation of residential structures is subject to the U.S. Department of Housing and Urban Development Lead-Based Paint regulations, 24 CFR 35. The Contractor and subcontractors shall comply with the provisions for the elimination of lead-based paint hazards under Subpart B of said regulations. The Owner will be responsible for the inspections and certifications required under Section 35.14(f) thereof.

2. Use of Explosives:

- a. When the use of explosives is necessary for the performance of the work, the Contractor shall observe all local, State and Federal laws in purchasing and handling explosives. The Contractor shall take all necessary precautions to protect completed work, neighboring property, waterlines or other underground structures. Where there is danger to structures or property from blasting, the charges shall be reduced and the material shall be covered with suitable timber, steel or rope mats.
- b. At least eight (8) hours before blasting is done, the Contractor shall notify all owners of public utility property of the intent to use explosives close to such property. Any supervision or direction of use of explosives by the Engineer does not in any reduce the responsibility of the Contractor or his surety for damages that may be caused by such use.

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1.0 GENERAL

- 1.1 It shall be the responsibility of the Contractor(s) to familiarize themselves with all parts of a complete set of Plans and Specifications. Failure to understand the Contract Documents shall not relieve any responsibility of the Contractor(s) fulfillment of the Contract in any respect.
- 1.2 The Work proposed and included in these Specifications shall include the furnishing of all labor, materials, and supervision necessary for the complete installation of systems, as specified herein or as shown on the Plans, simultaneously with all necessary auxiliaries and appurtenances included in the Work.
- 1.3 The Contractor shall furnish and install complete systems, ready to operate. The Contractor shall supply all miscellaneous items and accessories required for installations, even if each such item or accessory is shown or not on the Plans or mentioned in these Specifications.

2.0 CONTRACTOR DEFINITION

- 2.1 Where the word "Contractor" is stated in connection with the Work included in these Specifications, reference is made to the Contractor who is engaged to execute the Work included under that Section of the Specifications. This Contractor may be either the Prime Contractor, General Contractor or his Subcontractor.

3.0 INTENT

- 3.1 The Contractor(s) shall furnish all labor and materials, equipment and transportation necessary for the proper execution of the work which is the intent of the Plans and Specifications. The work required (related to other trades) is shown in its majority on the Plans. The Contractor shall thoroughly examine the Plans and Specifications relating to other trades in order to include all necessary work. Additional compensation will not be considered for a failure to properly interpret the responsibilities to other trades. The Contractor(s) shall complete all work shown on the Plans, described in the Specifications and all included incidental documents. The Engineer has the authority to make any reasonable changes in locations indicated without additional compensation to the Contractor(s).
- 3.2 In certain cases, the Plans are diagrammatic. Therefore, offsets, fittings, valves, and accessories could be not shown. Work should be planned around building details and other trades.

4.0 INSPECTION OF SITE

- 4.1 The Contractor(s) before submitting his proposal shall inspect the work-site of the proposed construction and become fully aware as to the facilities, difficulties, and restrictions accompanying the execution of the Work. Additional compensation will not be allowed for work or items omitted from the Contractor's proposal because of his failure to apprise himself of the conditions affecting the performance or necessary to carry on and complete satisfactorily the Work included in the Contract.
- 4.2 Determination of soil conditions shall be before bidding. The Plans and Specifications do not imply as to condition of soil to be encountered in the Work.

5.0 CONFLICT

- 5.1 If a conflict occurs between the Drawings and Specifications, the most stringent provisions shall control. If a conflict occurs between the General Specifications of the Contract or any modifications thereof and the Detailed Specifications, the Detailed Specifications shall control. The Plans and Specifications shall complement one another. Any work required by one, but not the other, shall be completed as though required by both.
- 5.2 If interferences between trades occur, the Engineer will decide whose work shall take precedence, regardless of work that could be installed.

6.0 CODES, STANDARDS AND REGULATIONS

- 6.1 All workmanship and materials specified shall meet the codes, standards and regulations having jurisdiction over the work in every respect. If a difference between the various codes, specifications, local ordinances, industry standards and other regulations occurs, the situation shall be brought to the attention of the Engineer. Either the most stringent or the regulation or standard selected by the Engineer shall govern.
- 6.2 The Contractor shall arrange for all inspection and testing of systems by the authorities as required by local codes and ordinances. The Contractor shall obtain and deliver to the Engineer final certificates of acceptance from all authorities.
- 6.3 If the Contractor performs any work that does not comply with the requirements of the applicable codes, standards and regulations, he will bear all costs associated with the deficiencies.
- 6.4 Unless otherwise stated in a specific General Specification section, the following codes, standards and regulations in effect on the date of the invitation to bid will be considered a part of these specifications:

State Public Health Department Regulations
State Plumbing Code
Local, City, State and Federal Codes and Standards
American Society for Testing Materials
American Water Works Association Standards
National Electrical Code
National Electrical Safety Code
OSHA-Occupational Safety and Health Standards
Manual of Accident Prevention in Construction-Associated General Contractors
American Association of State-Highway and Transportation Officials Specifications
Arkansas Fire Prevention Code
National Electrical Manufacturers Association
National Fire Protection Association
American Society of Mechanical Engineers
Air Conditioning and Refrigeration Institute

7.0 PERMITS AND FEES

- 7.1 The Contractor shall furnish all necessary notices and all permits, pay all taxes, file all necessary plans and obtain all necessary approvals in connection with the Work required for the Project, unless otherwise noted for a specific item in the Specifications.
- 7.2 Work shall be inspected and executed in accordance with local and state codes, laws, ordinances, rules and regulations applicable to the type of work. Any fees in connection with the Work are to be paid by the Contractor.
- 7.3 Also the Contractor shall arrange with City, County or State, in accordance with ordinances covering work, for complete inspection and pay all charges associated with these ordinances.

8.0 UTILITIES LOCATIONS AND CONNECTIONS

- 8.1 Utility's location and elevation given on the Plans are from utility maps or other reliable sources. These are offered as only a general guide with no guarantee as to accuracy. The Contractor shall verify the location and elevation of all utilities affecting work.
- 8.2 The Contractor shall coordinate with proper authorities and utility companies for service connections, verifying locations and arrangements.
- 8.3 The Contractor shall install meters as shown on Plans when not furnished by the utility company and shall include meter loops and bypasses.
- 8.4 Voltage shown on the Plans and elsewhere in these Specifications has been gotten from the serving utility company. Before ordering equipment and beginning the job, the Contractor shall verify the voltage with the utility company. The Engineer shall be notified immediately, if the voltage differs from that shown on the Plans and in the Specifications. The Contractor shall provide and install an acceptable and operable system at no additional cost to the Owner, if the Engineer is not notified before equipment is ordered or construction has begun.

9.0 TEMPORARY CONSTRUCTION POWER

- 9.1 The Contractor shall install and furnish temporary power, water, heating, and lighting as required for construction and safety purposes. To obtain and pay for all utility charges shall be the General or Prime Contractor responsibility.

10.0 PLANS

- 10.1 In general, the accompanying Plans indicate the approximate locations of pipes, pumps, fans, duct work, feeders, circuits, outlets, switches, etc., except in cases where specific notes are shown. Exact locations of appurtenances shall be by references to the general plans and detailed shop drawings, by building measurements, and in cooperation with other Contractors and the Engineer.
- 10.2 Exact locations are subject to the Engineer's approval and may differ a reasonable amount from the locations shown on the Plans without additional compensation to the Contractor.

10.3 Major changes resulting in labor or material savings shall initiate only in accordance with a Contract Change Order. Major deviations shall initiate only when necessary to avoid interferences and only after drawings showing the proposed deviations are submitted to and approved by the Engineer.

11.0 MATERIALS

11.1 The Contractor shall provide new and excellent materials and equipment. Where the Underwriters' Laboratories have established standards and issued labels for a particular group, class, or type of equipment, the Underwriters' label shall be required for all equipment in that category. Each component supplied shall have a nameplate giving the name and address of the manufacturer, catalog number and designation.

11.2 When the words "or approved equivalent" are used in the Specifications or on the Plans, it will be understood that the Engineer is the sole judge of what is equivalent. In cases where more than one manufacturer or material is specified, the Contractor shall be permitted to furnish any of those specified. However, power equipment, panels, transformers, safety switches, etc., should be from the same manufacturer. The intention is not to discriminate against an "equal" product of other manufacturers, but to definitely set a standard of quality and shall not limit competition. Any proposed substitution shall be submitted for comparison. No substitution will be assumed acceptable without specific written authorization from the Engineer. If a substitution is accepted and the substitution proven defective or otherwise unsatisfactory for the intended service within the warranty period, the Contractor shall replace the substitution with the equipment or material specified originally. If this occurs, the Specifications require him to replace the equipment or material at no additional cost to the Owner.

11.3 The Engineer shall be the final decision as to whether or not a specific piece of equipment meets specifications.

11.4 Where the furnished substitute equipment requires larger, more or differently arranged connections, ~~such connections will be installed without additional cost to the Owner to complete satisfaction of~~ the Engineer.

12.0 WORKMANSHIP

12.1 All Work shall be installed in a careful, neat, safe and workmanlike manner by craftsmen skilled in the various trades.

13.0 SUPERINTENDENT

13.1 The Contractor shall provide an experienced, competent Superintendent who is in charge of all work and shall be at the work-site during all installations.

14.0 STANDARDS

14.1 The Contractor shall install all work such that the many unit components will function as a complete workable system. This shall include any accessories required to make such installations. The Contractor shall install all work in compliance with acceptable industry standards, except if other standards or procedures are specified herein exceed the industry standards.

- 14.2 The Contractor shall install and arrange any exposed work specified under these specifications such as devices, fixtures, panels, safety switches, etc., to fit in and harmonize with work otherwise specified to the satisfaction of the Engineer.

15.0 COORDINATION AND COOPERATION

- 15.1 The Contractor shall coordinate all work with architectural, structural, mechanical, electrical, and other trades to insure proper execution of the work, insure general progress for the entire project and to avoid delaying any other Contractor. The Contractor shall cooperate with all trades so that the Work will not be hindered, handicapped or delayed. The Contractor shall assist other trades for space conditions to permit satisfactory work installation. Extra compensation will not be allowed for any remedial work required to eliminate interferences due to lack of coordination and cooperation by the Contractor.

16.0 STORAGE OF MATERIALS

- 16.1 All materials and apparatus shall be protected by the Contractor to prevent damage to them. Unless approved by the Engineer, material or apparatus shall not be exposed to the elements or stored outside. Apparatus shall be covered with tarps or other protective coverings. Pallets and other methods shall be provided to raise materials above the floor. As directed barriers or guard rails shall be provided to protect the materials. If the Contractor fails to comply with the above statements to the complete satisfaction of the Engineer or his representative, that would be sufficient cause for rejection of the piece of apparatus exposed or otherwise unprotected.
- 16.2 The Contractor shall keep the ends of the pipe and conduits (including those extending through roofs) and openings in equipment closed with caps or plugs to prevent foreign materials from entering them during construction.

17.0 DAMAGED AND DEFECTIVE WORK

- 17.1 The Contractor shall remove and replace at his expense damaged and defective Work as directed by the Engineer. All repairs shall utilize new materials or a completely new piece of equipment shall be furnished and installed as directed by the Engineer.

18.0 SAFETY

- 18.1 The Contractor will provide all necessary precautions for the safety of life and property. All construction work shall comply with the standards of the Occupational Safety and Health Act. The Contractor shall install an approved ground-fault interrupter devices on all electrical construction devices consuming power, including temporary lighting systems.

19.0 CLEAN UP

- 19.1 The Contractor shall keep his work area clean constantly. The Contractor shall remove all equipment, excess materials and debris from the area and leave clean upon completion of Work. The Contractor shall protect all equipment during painting, plastering, cutting or drilling and any like operation which could damage equipment. Upon completion of the Work, the Contractor shall remove all equipment, excess material, scrap and debris from the work-site. The work-site shall look clean and finished.

20.0 SUBMITTAL OF CATALOG DATA AND SHOP DRAWINGS

- 20.1 The Contractor shall submit to the Engineer for review shop drawings for all equipment and materials for installation on the project. Equipment or materials shall not be installed until the Shop Drawings have been approved, even though the material submitted is identical to that specified originally. Consideration for materials substituted will not be approved if Shop Drawings are not received within 30 days after the award of the Construction Contract, unless otherwise allowed.
- 20.2 The Contractor will assume any additional charges, including engineering charges and charges for changes in the work, resulting from substitutions.
- 20.3 Rough-in materials including pipe, wire, conduits, connectors, and boxes can be submitted in a list form. The list shall include the names of manufacturers and catalog type or number. All other equipment and material shall be submitted with detailed drawings. Prints or drawings shall be permanent reproductions and not Thermo-fax copies. The total of Shop Drawings and lists submitted shall not be less than five (5).
- 20.4 If the Contractor proposes to submit items other than those specified, he shall include submittals of both the specified item and the proposed "equal item" and the "proposed substitution" shall be clearly marked.
- 20.5 Where the Specifications or Plans state that the Work shall be installed in accordance with the manufacturer's specifications; recommendations or directions, copies of the same shall be submitted to the Engineer for review.

21.0 MANUALS

- 21.1 The Contractor shall provide to the Engineer three (3) copies of bound manuals for the Work ten (10) days prior to final acceptance of the completion of the project. The manuals shall include ~~copies of all corrected and approved shop drawings, schedules, catalog data, illustrations,~~ performances curves and rating data, wiring and control diagrams, manufacturers recommendations, operating and maintenance instructions, including safe operating procedures and requirements, spare parts lists and other pertinent information for the specified equipment and systems. The manual shall also include a typewritten schedule of each motor; giving nameplate data, switch and fuse or breaker sizes, voltage and phase at motor terminals.

22.0 TESTS AND ADJUSTMENTS

- 22.1 The Contractor shall demonstrate and test each and every system in the presence of and to the complete satisfaction of the Engineer, the Engineer's representative and the Owner. Prior to the demonstration, the Contractor shall start all equipment and make necessary tests and adjustments to achieve a first class operating condition of the system.
- 22.2 ~~The Contractor shall furnish all services, instruments, equipment and personnel required for the tests. In addition, the Contractor shall submit a typewritten test report to the Engineer for approval prior to final acceptance where applicable and recorded data is taken.~~
- 22.3 No piping, work fixtures or equipment shall be concealed or covered until they have been inspected and approved by a representative of the Engineer. All work shall be installed completely and tested

as required by this section, the State Ordinances and State Safety Orders. These tests shall be repeated, upon request, to the complete satisfaction of those making an inspection. Tests will be applied for a minimum period of four hours or until tests are completed.

- 22.4 Upon installation completion of the equipment, the Contractor shall coordinate with other trades to start all equipment, make necessary adjustments and tests to achieve a first-class operating system condition.
- 22.5 All defects and failures shall be corrected to the satisfaction of the Engineer or his representative.

23.0 AS-BUILT DRAWINGS

- 23.1 Before the project will be finally accepted, a set of permanent "as-built" drawings shall be submitted to the Engineer. The Contractor shall certify accuracy by an endorsement. The "as built" drawings must be correct in every detail to ensure that the Owner can properly operate, maintain, and repair exposed and concealed Work.
- 23.2 All underground Work shall be dimensioned. All change orders, field changes, equipment, circuit numbers, motors, feeders, breakers and starters shall be **CLEARLY** indicated on the Drawings. "As built" drawings shall be submitted on tracings, sepias or other reproducible forms, unless directed otherwise.

24.0 GUARANTEE

- 24.1 The Contractor shall furnish to the Engineer a typewritten guarantee to the effect that all work or equipment installed under this Contract shall be free from any or all defects for a period of one (1) year from the date of final acceptance or period as stated in the Detailed Specifications. Should any defect develop in any system or piece of equipment within this period, due to faulty equipment, poor installation or workmanship, the Contractor will agree to repair or replace same with new and like material without additional compensation as a part of the warranty.

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**GENERAL
SPECIFICATIONS**

GENERAL SPECIFICATIONS

WATER MAIN INSTALLATION

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1.0 GENERAL

- 1.1 All pipe shall be of the type, weight, class and/or designed working pressures shown on the plans, described in the Detailed Specifications or as described in the proposal and accepted by the Owner. The Contractor shall, unless otherwise specified, furnish all equipment, tools and labor necessary to do the work required under this contract as specified.
- 1.2 This shall include, but shall not be limited to the following: haul and distribute the pipe, fittings, valves, hydrants and excavate the trenches and pits to the required dimensions, excavate all bell holes, construct and maintain all bridges for traffic, brace and support the adjoining ground or structures where necessary, handle all drainage or ground water, provide barricades, guards and warning lights, lay and test pipe, fittings, valves, hydrants and accessories, backfill and consolidation of the trenches and pits, restore the roadway surface unless otherwise stipulated, remove surplus excavated material, clean the work site, and maintain the street or other surface over the trenches as specified.
- 1.3 The Contractor shall also furnish all equipment, tools, labor and materials required to rearrange branch connections to sewer mains, or to rearrange sewers, conduits, ducts, pipes or other structures in accordance with the contract drawings and stipulations included therein.

1.4 PERSONAL PROPERTY

- 1.4.1 The Contractor shall inform affected property owners, even though easements have been obtained, before construction occurs on their property.
- 1.4.2 The Contractor shall move equipment through existing openings when possible. If no access is possible, the Contractor shall obtain permission from the Owner before cutting fences. The Contractor shall install a "sturdy" gate or wire gap at the opening until cleanup operations are complete. Upon completion of the project, the gate or wire gap shall be removed and the fences shall be repaired to original or better condition. An original or better condition includes obtaining proper wire tensions to corner posts on both sides of the cut. Refer to typical detail for proper wire repair.

2.0 MATERIAL SPECIFICATIONS

2.1 INSPECTION AND REJECTION OF PIPE

- 2.1.1 The quality of all materials, the process of manufacture, and the finish pipe shall be subject to inspection and approval by the Engineer. Such inspection may be made at the place of manufacture or at the site after delivery, or both places. The pipe shall be subject to rejection any time that the materials have failed to meet any of the specification requirements. This can happen even though satisfactory samples may have been accepted at the place of manufacture.
- 2.1.2 The Engineer shall have the right to cut cores from such pieces of the finished pipe as he desires for such inspection and tests as he may wish to apply. Holes left by the removal of cores shall be filled in an approved manner by and at the expense of the manufacturer of the pipe.

2.1.3 Any pipe which has been damaged after delivery will be rejected. If such pipe has already been laid, it shall be removed and replaced at the Contractor's expense.

2.2 ULTRA BLUE MOLECULAR ORIENTED POLYVINYL CHLORIDE (PVC) PIPE

2.2.1 This specification designates the general requirements and installation of Ultra Blue Molecular Oriented Polyvinyl Chloride (PVC) pipe and fittings used for conveying potable water under pressure. All PVC shall be rubber gasket O-ring joint pipe.

2.2.2 SIX-INCH and LARGER PVC PIPE

- a. The pipe shall be manufactured from National Sanitation Foundation (NSF) approved materials that conforms to ASTM D-1784, latest revision, Class 12454-B resins, and the pipe shall be stamped with the NSF seal of approval and permanently marked.
- b. The pipe shall have a pressure rating of at least 200 psi at 73° F. and conform to the requirements of specifications ASTM D-2241 and Product Standard PS 22-70 as amended and/or revised and with Standard Dimension Ratio SDR-21. Pipe with extruded bells shall be furnished in not more than 20 foot lengths. Pipe with double gasket type couplings may be furnished in 40 foot joints. Only molded and machined double gasket couplings shall be allowed in pipe in 20 foot and longer joints.
- c. Provision shall be made for expansion and contraction at each joint by use of a gasket type joint.
- d. The pipe shall be permanently marked by the manufacturer and coded for the date, batch and shift in which the pipe was made along with other required marking as set forth in ASTM and PS standard specifications.
- e. The pipe manufacturer shall furnish to the Engineer certified copies of test results performed in accordance with the following paragraphs of Appendix A-4 of ASTM 2513, latest revision, "Recommended In-Plant Quality Control Program for Plastic Pipe and Fittings."
 - A-4.1 Introduction
 - A-4.2 Material
 - A-4.3 Pipe Tests
 - A-4.5 Method of Tests
 - A-4.6 Marking
- f. The pipe manufacturer shall be a member of the Plastic Pipe Institute or American Water Works Association (AWWA), and shall have manufactured the pipe and joint proposed for use for not less than five (5) years.
- g. All fittings and specials used in connection with the pipe shall conform to AWWA short or long bodied ductile-iron fittings using a mechanical joint system with hardened or duck tipped type of rubber gaskets in accordance with AWWA Specifications C-110 and C-111, latest revisions. The fittings shall be coated with 6-8 mils thickness of fusion bonded epoxy conforming to the requirements of AWWA Specification C-550 and C116/A21.116, latest revision. The pipe and fittings shall be installed in accordance with the recommendations of the pipe manufacturer and Engineer or his representative. The use of torque type wrench shall be mandatory to tighten up the glands as required.

2.2.3 RUBBER GASKET JOINT PIPE

- a. Gasket joint pipe and couplings shall conform to the specifications previously outlined. The rubber O-ring joints for plastic pressure pipe shall conform with the latest requirements of ASTM D 3139, latest revisions. The joint shall have been tested and approved by the NSF and certification of that approval shall be submitted.

2.2.4 CONTRACTOR'S GUARANTEE

- a. Pipe furnished by the Contractor shall be guaranteed against rot, electrolytic corrosion and production defects.

2.2.5 PIPE BEDDING

- a. Ultra Blue Molecular Oriented Polyvinyl chloride (PVC) pipe shall be bedded in accordance with the provisions of these general specifications, using material excavated from the trench and obtained along the right-of-way insofar as is practical. Where required by the Engineer or his representative, bedding material shall be hauled in and used. This material shall consist of fine river sand, silt loam or a No. 6 gradation (ASTM C33, latest revision) of a quality approved by the Engineer. The maximum particle size shall not exceed $\frac{3}{4}$ inch. At least 30% of the material shall pass the $\frac{1}{2}$ inch sieve. Embedment shall be hand placed. Special care shall be exercised in the bedding and backfilling of PVC pipe.

2.3 POLYVINYL CHLORIDE (PVC) PIPE

- 2.3.1 This specification designates the general requirements and installation of Polyvinyl Chloride (PVC) pipe and fittings used for conveying potable water under pressure. All PVC shall be rubber gasket O-ring joint pipe, except for the Schedule 80 PVC chlorine injection line.

2.3.2 FOUR-INCH and SMALLER DIAMETER PVC PIPE

- a. The pipe and fittings shall be manufactured from National Sanitation Foundation (NSF) approved Class 12454-A or 12454-B, PVC conforming to the resin specifications ASTM D 1784 as amended and/or revised and shall be stamped with the NSF seal of approval and permanently marked.
- b. The pipe shall have a pressure rating of at least 200 psi at 73° F. and conform to the requirements of specifications ASTM D 2241, latest revisions, and Product Standard, PS 22-70, latest revisions, and with Standard Dimension Ratio SDR-21 unless otherwise noted on the Plans or in the Detailed Specifications.
- c. Provision shall be made for expansion and contraction at each joint by use of a gasket type joint and integral bell or equivalent.
- d. Schedule 80 PVC pipe shall meet all the requirements of SDR pipe and shall conform in all respects to the Commercial Standards CS-207-60, latest revision. The outer diameter shall equal that of ductile iron pipe.

- e. All fittings and specials used in connection with the pipe shall conform to AWWA short or long bodied ductile-iron fittings using a mechanical joint system with hardened or duck tipped type of rubber gaskets in accordance with AWWA Specifications C-110 and C-111, latest revisions. The fittings shall be coated with 6-8 mils thickness of fusion bonded epoxy conforming to the requirements of AWWA Specification C-550 and C116/A21.116, latest revision. The pipe and fittings shall be installed in accordance with the recommendations of the pipe manufacturer and Engineer or his representative. The use of torque type wrench shall be mandatory to tighten up the glands as required.
- f. The pipe manufacturer shall be a member of the Plastic Pipe Institute or American Water Works Association (AWWA).

2.3.3 SIX-INCH and LARGER PVC PIPE

- a. The pipe shall be manufactured from National Sanitation Foundation (NSF) approved materials that conforms to ASTM D-1784, latest revision, Class 12454-A or 12454-B (PVC 1120) resins, and the pipe shall be stamped with the NSF seal of approval and permanently marked.
- b. The pipe shall have a pressure rating of at least 200 psi at 73° F. and conform to the requirements of specifications ASTM D-2241 and Product Standard PS 22-70 as amended and/or revised and with Standard Dimension Ratio SDR-21. Pipe with extruded bells shall be furnished in not more than 20 foot lengths. Pipe with double gasket type couplings may be furnished in 40 foot joints. Only molded and machined double gasket couplings shall be allowed in pipe in 20 foot and longer joints.
- c. Provision shall be made for expansion and contraction at each joint by use of a gasket type joint.
- d. The pipe shall be permanently marked by the manufacturer and coded for the date, batch and shift in which the pipe was made along with other required marking as set forth in ASTM and PS standard specifications.
- e. The pipe manufacturer shall furnish to the Engineer certified copies of test results performed in accordance with the following paragraphs of Appendix A-4 of ASTM 2513, latest revision, "Recommended In-Plant Quality Control Program for Plastic Pipe and Fittings."

A-4.1 Introduction
 A-4.3 Pipe Tests
 A-4.6 Marking

A-4.2 Material
 A-4.5 Method of Tests

- f. The pipe manufacturer shall be a member of the Plastic Pipe Institute or American Water Works Association (AWWA), and shall have manufactured the pipe and joint proposed for use for not less than five (5) years.
- g. All fittings and specials used in connection with the pipe shall conform to AWWA short or long bodied ductile-iron fittings using a mechanical joint system with hardened or duck tipped type of rubber gaskets in accordance with AWWA Specifications C-110 and C-111, latest revisions. The fittings shall be coated with 6-8 mils thickness of fusion bonded

epoxy conforming to the requirements of AWWA Specification C-550 and C116/A21.116, latest revision. The pipe and fittings shall be installed in accordance with the recommendations of the pipe manufacturer and Engineer or his representative. The use of torque type wrench shall be mandatory to tighten up the glands as required.

2.3.4 RUBBER GASKET JOINT PIPE

- a. Gasket joint pipe and couplings shall conform to the specifications previously outlined. The rubber O-ring joints for plastic pressure pipe shall conform with the latest requirements of ASTM D 3139 and ASTM 1869, latest revisions. The joint shall have been tested and approved by the NSF and certification of that approval shall be submitted.

2.3.5 CONTRACTOR'S GUARANTEE

- a. Pipe furnished by the Contractor shall be guaranteed against rot, electrolytic corrosion and production defects.

2.3.6 PIPE BEDDING

- a. Polyvinyl chloride (PVC) pipe shall be bedded in accordance with the provisions of these general specifications, using material excavated from the trench and obtained along the right-of-way insofar as is practical. Where required by the Engineer or his representative, bedding material shall be hauled in and used. This material shall consist of fine river sand, silt loam or a No. 6 gradation (ASTM C33, latest revision) of a quality approved by the Engineer. The maximum particle size shall not exceed $\frac{3}{4}$ inch. At least 30% of the material shall pass the $\frac{1}{2}$ inch sieve. Embedment shall be hand placed. Special care shall be exercised in the bedding and backfilling of PVC pipe.

2.4 DUCTILE IRON PIPE

2.4.1 Ductile iron pipe and fittings as furnished by the Contractor shall be installed according to the manufacture's recommendations and these specifications.

2.4.2 PIPE

- a. Unless otherwise shown on the plans or specified in the technical specifications, ductile iron pipe shall be of the class shown on the plans or stipulated in the proposal.
- b. Ductile iron pipe shall meet the requirements of AWWA C151, latest revision, "Ductile Iron Pipe, Centrifugally Cast, for Water or Other Liquids," and AWWA C150, latest revision, "Thickness Design of Ductile-Iron Pipe."
- c. All flanged ductile iron pipe shall conform to AWWA C115, latest revision, "Flanged Cast-Iron and Ductile-Iron Pipe with Threaded Flanges."

2.4.3 FITTINGS

- a. All fittings used on ductile iron pipe shall conform to AWWA C110, latest revision, "Ductile-Iron Fittings, 3 inches through 48 inches, for Water and Other Liquids" or C153, latest revision, "Ductile-Iron Compact Fittings, 3 inches through 16 inches, for Water and

Other Liquids." The fittings shall be coated with 6-8 mils thickness of fusion bonded epoxy conforming to the requirements of AWWA Specification C-550 and C116/A21.116, latest revision.

2.4.4 JOINTING

- a. Joints for ductile iron pipe shall be in accordance with AWWA Specification C111, latest revision, "Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings."

2.4.5 LAYING

- a. Ductile iron pipe shall be laid in accordance with AWWA C600, latest revision, "Installation of Ductile-Iron Water Mains and Appurtenances."

2.4.6 LINING

- a. Ductile iron pipe shall be lined in accordance with AWWA C104, latest revision, "Cement Mortar Lining for Ductile Iron Pipe and Fittings for Water."

2.5 HDPE POLYETHYLENE PIPE

2.5.1 High Density Polyethylene Water transmission and distribution pipe shall meet the specifications and requirements of AWWA C906, latest revision, in sizes 2" to 10" and be joined by means of a zero leak rate, butt fusion and approved mechanical joints. The polyethylene pipe and fittings shall be made from prime virgin resins exhibiting a cell classification of PE 345434C as defined in ASTM D3350 with an established hydrostatic design basis of 1600 psi for water at 73° F. The resin shall be listed by the PPI in its pipe grade registry "TR-4". Pipe O.D. sizes shall be the same as ductile iron pipe.

2.5.2 **The net pressure capability shall be the working pressure rating as follows:**

DR 13.5 = Class 200 DR 11 = Class 250 DR 9 = Class 350

2.5.3 The wall thickness shall follow the DR system prescribed in AWWA C906. The pipe is to be joined by heat fusion or mechanical joints systems proven for HDPE pipe. Both pipe and fittings must be NSF approved, be listed and marked. All pipe is to be welded using the manufacturer's recommended procedures.

2.5.4 All pipe and fittings shall be marked as prescribed by AWWA C906, latest revision, which includes the nominal size, O.D. base, DR, pressure class, WPR, manufacturer's name, manufacturer's production code; including day, month and year extruded. All pipe and fittings shall have a date stamp less than six (6) months old.

2.6 VALVES

2.6.1 The resilient seat gate valves shall mostly comply with the latest revision of AWWA C509, and shall be UL listed and FM approved. All valves shall have been tested to 250 psig working pressure and 500 psig hydrostatic test pressure (AWWA). Certification of test shall be provided upon demand. The valves shall be non-rising stem for buried applications unless otherwise shown on the plans or in the Detailed Specifications.

- 2.6.2 The valves shall be open left and be provided with a 2" square operating nut. The valves shall have stainless steel bolts for the stuffing box and bonnet. The valves stem shall be lead free and be made of stainless steel with rolled threads. A bronze stem is unacceptable. The structural design of the valves shall be such that if excessive torque is applied to the stem in the closing direction with the disc seated, failure shall be the ductile iron flange on the top of the valve. The stem material shall provide a yield strength of 64,000 psi.
- 2.6.3 The valves shall have a stuffing box that is O-ring sealed. Two O-rings shall be placed above and one O-ring below the stem thrust collar. The thrust collar shall be factory lubricated. Valves without at least three stem O-rings are unacceptable. The valve disc and guidelugs shall be ductile iron and shall be fully (100%) encapsulated in **EPDM rubber** material. The disc shall have a cast low zinc bronze stem nut to prevent twisting or angling of the stem. Designs with loose stem nuts are unacceptable.
- 2.6.4 The NRS valves shall be AVK series 25 or approved equivalent. When mains are to be tapped under pressure, tapping valves shall conform to the above specifications and shall be fitted with a hub extension for connection to tapping saddle.

2.7 VALVE BOXES

- 2.7.1 Unless otherwise shown on the plans, all underground valves shall include a valve box. The cost of such valve box shall be included in the unit price bid for valves of the various sizes, complete in place.
- 2.7.2 Unless otherwise specified in the Detailed Specifications, the valve box shall be of an extension-type, cast iron box, consisting of three (3) pieces, suitable for the depth of covering over the pipe lines as shown on the plans. The valve box shall have a diameter of not less than five (5) inches and the minimum thickness of metal shall not be less than ~~three-sixteenths (3/16) of an inch.~~ The valve boxes shall be painted inside and out with asphaltum paint. Covers shall be recessed, flush with top and marked with the word "WATER" in raised letters.
- 2.7.3 Valve boxes shall be mounted vertically, centered over the valve nut, to provide easy access with a valve wrench and have a non-binding operation. A valve box shall be provided for every valve which has no gearing or operating mechanism or in which the gearing or operating mechanism is fully protected with a cast iron grease case.
- 2.7.4 A two (2) feet square by six (6) inch thick concrete collar shall also be constructed around all valve boxes as shown on the plans.

2.8 FIRE HYDRANTS

- 2.8.1 Unless otherwise specified on the plans or in the Detailed Specifications, fire hydrants shall be classified according to the diameter of the pipe and the number and size of hose connections. Caps and nozzles shall be threaded to the National Standard thread for the sizes shown on the plans or specified in the proposal.

- 2.8.2 Fire hydrant lengths shall be adjusted by a hydrant riser to correspond to the depth of the trench of established grades, and the cost of such risers shall be included in the price set out in the proposal for the hydrant complete in place.
- 2.8.3 The hydrant shall be equipped with a breakable coupling at the aboveground line unless otherwise specified on the plans or in the proposal. The hydrant shall be designed so as to make repairs to a broken hydrant without excavating the hydrant. The upper section of the barrel shall contain hose and pumper nozzles as specified.
- 2.8.4 The inlet to the hydrant shall be an elbow or hydrant shoe with a ball flange to fit branch from the main unless otherwise stated in the Detailed Specifications. The hydrant shoe shall be completely epoxy lined and coated. Drain openings shall be provided in the hydrant shoe to drain the hydrant after use.
- 2.8.5 The operating stem shall be made of epoxy coated steel and shall be sheathed in bronze or other suitable material where it passes through the stuffing box. All working parts, including main valve assembly, shall be removable through the barrel without excavating. The main valve shall be one piece and shall be fully encapsulated with **EPDM rubber**. The stem shall be unable to be removed from the main valve without the removal of a stainless steel pin. All steel and ductile iron materials shall be epoxy coated inside and out. The operating nut shall be ductile iron and shall cover the top of the hydrant to prevent weather from entering the top of hydrant. The hydrant shall utilize grease instead of oil.
- 2.8.6 The six (6) inch hydrants shall all have one standard pump nozzle and two 2½-inch hose nozzles and shall be an AVK series 27 with auxiliary gate valve or approved equivalent. The four (4) inch hydrants shall have two 2½-inch hose nozzles and shall be an AVK series 27 with auxiliary gate valve or approved equivalent.
- 2.8.7 Each fire hydrant shall be tested to 300 pounds hydrostatic pressure supplied from the inlet side; first with main valve closed for testing valve seat; second, with main valve open for testing of drain valves and strength of entire hydrant. All fire hydrants shall receive two coats of shop paint. One coat shall be as specified by the Engineer.

2.9 FLUSH HYDRANTS

- 2.9.1 Flush hydrants shall have a compression shut-off valve, a 1½ inch pentagon operating nut and one 2½-inch hose nozzle with National Standard threads that open left. This hydrant shall be a Mueller A-411 or approved equivalent. The installation of flush hydrants shall be as specified for a regular fire hydrant.

3.0 HYDROSTATIC TESTING of WATER MAINS

3.1 GENERAL

- 3.1.1 To prevent pipe movement, sufficient backfill shall be placed prior to filling the pipe with water and field testing. When local conditions require that the trenches be backfilled immediately after the pipe has been laid, the testing may be carried out after backfilling has been completed but before placement of permanent surfacing. The Contractor shall ensure

that thrust blocking or other types of restraining systems will provide adequate restraint prior to pressurizing the water main.

3.2 **CROSS-CONNECTION CONTROL**

3.2.1 When existing water mains are used to supply test water, they should be protected from backflow contamination by temporarily installing a double check-valve assembly between the test and supply main or by other means approved by the Engineer. Prior to pressure and leakage testing, the temporary backflow protection should be removed and the main under test isolated from the supply main.

3.3 **PVC PRESSURE AND LEAKAGE TEST**

3.3.1 **PROCEDURE**

- a. The following procedure is based on the assumption that the pressure and leakage tests will be performed at the same time. Separate tests can be performed, if desired. If separate tests are made, the pressure test shall be completed first. Tests shall be performed only after the pipeline has been properly filled, flushed, and purged of all air. The specified test pressure shall be applied by means of an approved pumping assembly connected to the main in a manner satisfactory to the Engineer.
- b. The test pressure shall not exceed pipe or thrust-restraint design pressures. If necessary, the test pressure shall be maintained by additional pumping for the specified time during which the system and all exposed pipe, fittings, valves, and hydrants shall be carefully examined for leakage. All visible leaks shall be stopped. All defective elements shall be repaired or removed and replaced. The test repeated until the allowable leakage requirements have been met.

3.3.2 **TEST METHOD**

- a. The Contractor can perform simultaneous pressure and leakage tests or perform separate pressure and leakage tests on the installed water mains at test durations and pressures specified in Table 2. Tests shall be witnessed by the Engineer or his representative and the equipment used for the test shall be subject to the approval of the Engineer.
- b. Any testing performed not witnessed by the Engineer or his representative shall be retested from the start of the test.

TABLE 2 System Test Methods

Procedure	Pressure	Duration of Test
Simultaneous Pressure and leakage Tests	150% of Working pressure* at point of test, but not less than 125% of normal working pressure at lowest elevation.	2 hr.
Separate Pressure Test	150 % of working pressure* at point of test, but not less than 125% of normal working pressure at lowest elevation.	1 hr.
Separate Leakage Test	150% of working pressure* of segment tested.	2 hr.

*Working pressure is defined as maximum anticipated sustained operating pressure.

3.3.3 ALLOWABLE LEAKAGE

- a. The Contractor shall furnish the gauges and measuring device for the leakage test, pump, pipe, connections, and all other necessary apparatus, unless otherwise specified, and shall furnish the necessary assistance to conduct the test.
- b. The duration of each leakage test shall be two (2) hours, unless otherwise specified. During the test, the pipeline shall be subjected to the pressure listed in Table 2.
- c. Leakage shall be defined as the quantity of water that must be supplied into the pipe section being tested to maintain a pressure within 5 psi of the specified leakage-test pressure after the pipe has been filled with water and the air in the pipeline has been expelled.
- d. No installation will be accepted if the leakage is greater than that determined by the following formula:

$$Q = LD \sqrt{P} \div 148,000$$

Where:

- Q = quantity of makeup water, in gallons per hour
- L = length of pipe section being tested, in feet
- D = nominal diameter of the pipe, in inches
- P = average test pressure during the hydraulic test, in PSI (gauge)

- e. This formula is based on an allowable leakage of 10.5 gpd/mi/in of nominal diameter at a pressure of 150 psi.
- f. When testing against closed metal-seated valves, an additional leakage per closed valve of 0.078 gph/in of nominal valve size shall be allowed.
- g. When hydrants are in the test section, the test shall be made against closed hydrant valves.
- i. All visible leaks shall be repaired, regardless of the amount of leakage.

3.4 DUCTILE IRON PRESSURE AND LEAKAGE TEST

3.4.1 TEST RESTRICTIONS

- a. Test pressure shall not be less than 1¼ times the working pressure at the highest point along the test section.
- b. Test Pressure shall not exceed pipe or thrust-restraint design pressures.
- c. The hydrostatic test shall be at least a two (2) hour duration.
- d. Test pressure shall not vary by more than ±5 psi (35 MPa or 0.35 bars) for the duration of the test.
- e. Valves shall not be operated in either direction at differential pressure exceeding the rated valve working pressure. Use of a test pressure greater than the rated valve pressure can result in trapped test pressure between the gates of a double-disc gate valve. For tests at these pressures, the test setup should include provision, independent of the valve, to reduce the line pressure to the rated valve pressure on completion of the test. The valve can then be opened enough to equalize the trapped pressure with the line pressure, or fully opened, if desired.
- f. Test pressure shall not exceed the rated pressure of the valves when the pressure boundary of the test section includes closed, resilient-seated gate valves or butterfly valves.

3.4.2 PRESSURIZATION

- a. After the pipe has been laid, all newly laid pipe or any valved section thereof shall be subjected to a hydrostatic pressure of at least 1½ times the working pressure at the point of testing. ~~Each valved section of pipe shall be slowly filled with water, and the specified~~ test pressure, based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Owner. Valves shall not be operated in either direction at differential pressures above the rated pressure. Good practice allows the system to stabilize at the test pressure before conducting the leakage test.

3.4.3 AIR REMOVAL

- a. Before applying the specified test pressure, air shall be expelled completely from the pipe, valves, and hydrants. If permanent air vents are not located at all high points, the contractor shall install corporation stopcocks at such points so that the air can be expelled as the line is filled with water. After all the air has been expelled, the corporation stopcocks shall be closed and the test pressure applied. At the conclusion of the pressure test, the corporation stopcocks shall be removed and plugged or left in place at the discretion of the Owner.

3.4.4 EXAMINATION

- a. Any exposed pipe, fittings, valves, hydrants, and joints shall be examined carefully during the test. Any damaged or defective pipe, fittings, valves, hydrants, or joints that are