

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS, that

(Name of Contractor)

(Address of Contractor)

a _____ hereinafter called PRINCIPAL and
(Corporation, Partnership, or Individual)

(Name of Surety)

hereinafter call SURETY, are held and firmly bound unto:

Morgan County Water District
(Name of Owner)

408 Prestonsburg Street, West Liberty, Kentucky 41472
(Address of Owner)

hereinafter called OWNER, and unto all persons, firms and corporations who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns in the total aggregate penal sum of _____, Dollars (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the PRINCIPAL entered into a certain contract with the OWNER, dated the _____ day of _____, 2005, a copy of which is hereto attached and made a part for the construction of: _____

Phase 10 B
Water Line Extensions

NOW, THEREFORE, if the PRINCIPAL shall promptly make a payment to all parsons, firms, and corporations furnishing materials for or performing labor in prosecution of the WORK provided for in such contract, and any authorized extensions or modifications thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and for all labor cost incurred in such WORK including that by a SUBCONTRACTOR, and to any mechanic or material man lien holder whether it acquires its lien by operation of State or Federal law, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the SUBCONTRACTORS, and persons, firms and corporations having a direct contract with the PRINCIPAL or its SUBCONTRACTORS

PROVIDED, FURTHER, that the said SURETY for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be preformed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on the BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the WORK or to the SPECIFICATIONS.

PROVIDE FURTHER, that no suit or action shall be commenced hereunder by any claimant. (a) Unless claimant, other than one having direct contract with the PRINCIPAL, shall have given written notice to any two of the following the PRINCIPAL, the OWNER, or SURETY above named within ninety (90) days after such a claimant did or preformed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating the materials were furnished, or for whom the work or labor was done or preformed. Such notice shall be served by mailing the same registered mail or certified mail, postage prepaid, in an envelope addressed to the, PRINCIPAL, OWNER, or SURETY, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by public officer. (b) After the expiration of one (1) year following the date of which PRINCIPAL ceased work on said CONTRACT, is being understood, however, that if any limitation embodied in the BOND is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the CONTRACT as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND, the contract shall include any alteration, addition, extension or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

WITNESS WHEREOF, this instrument is executed in _____ counterparts,

Each of which shall be deemed an original, this the _____ day of _____.

Attest:

Principal

(Principal) Secretary

(SEAL)

By

(Address)

Witness as to Principal

(Address)

Surety

Attest:

Witness as to Surety

By

Attorney-in-Fact

(Address)

(Address)



NOTE: Date of BOND must not be prior to date of CONTRACT. If CONTRACTOR is partnership, all partners should execute BOND. IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS that

(Name of Contractor)

(Address of Contractor)

a _____ hereinafter called Principal, and
(Corporation, Partnership, or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety are held and firmly bound unto _____

Morgan County Water District

(Name of Owner)

408 Prestonsburg Street, West Liberty, KY 41472

(Address of Owner)

hereinafter called OWNER, in total aggregate penal sum of _____

Dollars (_____)

In lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 2005 ____, a copy of which is hereto attached and made a part hereof for the construction of:

Phase 10 B Water Line Extensions

Morgan County Water District

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said contract during original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the SURETY and during the one year guaranty period and if the PRINCIPAL shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force

PROVIDED, FURTHER, that the said SURETY for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on the BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the WORK or to the SPECIFICATIONS

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the CONTRACT as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND, the contract shall include any alteration, addition, extension or modification of any character whatsoever

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts,

Each of which shall be deemed an original, this the _____ day of _____

Attest:

(Principal) Secretary

Principal

(SEAL)

By

(Address)

Witness as to Principal

(Address)

Surety

Attest:

Witness as to Surety

By

Attorney-in-Fact

(Address)

(Address)

NOTE: Date of BOND must not be prior to date of CONTRACT.

If CONTRACTOR is partnership, all partners should execute BOND IMPORTANT Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

CONTRACT AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 2005 by and between

Morgan County Water District

(Owner)

acting through its Chairman hereinafter called the OWNER and
(Mayor, Utility Commission, Chairman)

_____ doing business as _____

(Contractor)

(an individual, partnership, corporation)

of the city of _____, _____ County, State of _____

hereinafter called CONTRACTOR.

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

The CONTRACTOR will commence and complete the construction of

Phase 10 B Water Line Extensions

Morgan County Water District

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.

The CONTRACTOR will commence work under this contract on or before the date to be specified by the Owner, in a written "Notice to Proceed" and will fully complete the project within 180 consecutive calendar days thereafter. The CONTRACTOR further agrees to pay as liquidated damages, the sum of \$500 for each consecutive calendar day that the work remains incomplete after the expiration date of this contract, as modified by Change Order.

The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT

DOCUMENTS for the sum of _____, or as shown in the Bid Schedule, Pages CON-4 thru CON-8

The term "CONTRACT DOCUMENTS" means and includes the following SPECIFICATIONS prepared or issued by Cann-Tech, LLC.

Title	Designation	Total Pages
Advertisement for Bids	AD	3
Instructions to Bidders	IB	2
General Conditions	GC	17
Labor Regulations	LR	1
Performance and Payment Bond	PB	5
Contract Agreement	CON	9
Notice of Award	NA	1
Notice to Proceed	NP	1
Change Order Format	CO	2
Special Conditions	SC	2
Technical Specifications	SEE BELOW	SEE BELOW

Technical Specifications

DIVISION	A	B	C	D	E	F
PAGES	4	2	4	4	6	6

Drawings prepared by Cann-Tech, LLC numbered 1 through XX and dated September 2005

The following ADDENDA are included as part of this Contract

ADDENDUM NO _____

DATE _____

The OWNER shall make progress payments as the work is completed, in accordance with the appropriate Articles of the General Conditions.

Final payment shall be due thirty (30) days after completion and acceptance of the work.

Before issuance of final certificate, the Contractor shall submit evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work have been paid.

If, after the work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and the Engineer so certifies, the Owner shall, upon certification of the Engineer and without terminating the contract, make payment of the balance due for that portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

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

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

(SEAL)
ATTEST:

Name
(Please Type or Print)

CONTRACTOR

By _____
Name _____
(Please Type or Print)

Address _____

Employer ID Number _____

(SEAL)
ATTEST

Name _____
(Please Type or Print)

OWNER

By _____
Name _____
(Please Type or Print)

**PHASE 10 B
WATER LINE EXTENSIONS
MORGAN COUNTY WATER DISTRICT
SEPTEMBER 2005**

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as

(Insert "a corporation", "a partnership," or "an individual" as applicable)

To the Morgan County Water District (hereinafter called "OWNER")

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all work for the construction of Phase 10 B Water Line Extension in strict accordance with the Contract Documents, within the time set forth therein, and at the prices stated below

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

BIDDER hereby agrees to commence work under this contract on or before a date to be specified in the Notice to Proceed and to fully complete the project within 180 calendar days thereafter. BIDDER further agrees to pay as liquidated damages, the sum of \$500 for each consecutive calendar day that the work remains uncompleted after the expiration date of the contract.

BIDDER acknowledges receipt of the following Addenda:

Addendum No. _____ Addendum No. _____ Addendum No. _____

The BIDDER hereby proposes to furnish and do all that is required by the contract to which this refers for the construction of all structures listed at the prices shown for each bid item on the following Bid Schedule. (The Bid Schedule 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).

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

The undersigned BIDDER does hereby declare and stipulate that this proposal is made in pursuance of and subject to all terms and conditions of the Instructions to Bidders, the Construction Contract, the Technical Specifications, and the Plans pertaining to the work to be done, all of which have been examined by the undersigned

Accompanying this proposal is a certified check or standard bid bond (5% of the Total Bid) in the sum of _____ Dollars (\$ _____) in accordance with the Instructions to Bidders

Bid Sheet 2 of 5

The undersigned BIDDER agrees to execute the contract and Performance and Payment Bond for the amount of the total of this bid within 10 calendar days from the date when the written Notice of Award of the contract is delivered to him at the address given in this proposal. The name and address of the corporate surety with which the BIDDER proposes to furnish the specified Performance and Payment Bond is as follows:

All the various phases of work enumerated in the Technical Specifications with their individual jobs and overhead, whether specifically mentioned, included by implication or appurtenant thereto, are to be performed by the Contractor under one of the items listed in the Bid Schedule, irrespective of whether it is named in said list.

Payment for work performed will be in accordance with the Bid Schedule, subject to changes as provided for the Construction Contract.

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 agrees that this bid shall be good and may not be withdrawn for a period of 90 calendar days after the scheduled closing time for receiving bids.

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

The waterline work will be prioritized in the special conditions. There is a base bid consisting of roads that shall be completed first, and there is also an alternate bid consisting of roads that will be completed in order of priority after the base bid roads are completed. Some or all of the alternate bid roads may or may not be completed. The contract will be awarded based on the total bid amount; that is, the base bid plus the alternated bid.

BID SCHEDULE

No.	Item	Quantity	Unit	Unit Price	Total
1	6-Inch PVC SDR 21 Class 200-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	23,200	L.F.		
2	6-Inch PVC SDR 17 Class 250-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	45,350	L.F.		
3	6-Inch C-900 Class 200 psi, Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	26,450	L.F.		
4	4-Inch PVC SDR 21 Class 200-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	22,375	L.F.		
5	4-Inch PVC SDR 17 Class 250-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	4,025	L.F.		
6	4-Inch C-900 Class 200-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	8,100	L.F.		
7	2-Inch PVC SDR 21 Class 200-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	2,922	L.F.		
8	12-Inch Steel Casing Unclassified Bore & Jack Under Existing Paved Roadway (Water Line Not Included)	135	L.F.		
9	10-Inch Steel Casing Unclassified Bore & Jack Under Existing Paved Roadway (Water Line Not Included)	320	L.F.		
10	8-Inch Steel Casing Unclassified Bore & Jack Under Existing Paved Roadway (Water Line Not Included)	185	L.F.		
11	8-Inch Steel Casing Unclassified Open Cut Under Existing Gravel Roadway (Water Line Not Included)	20	L.F.		
12	Creek Crossing Type B (See Detail in Plans)	320	L.F.		
13	6-Inch Gate Valve & Box AWWA NRS, Conc. Pad, Indication Post, Complete in Place (This Item Does Not Include Gate Valves for Blowoff Assemblies)	17	EA		
14	4-Inch Gate Valve & Box AWWA NRS, Conc. Pad, Indication Post, Complete in Place (This Item Does Not Include Gate Valves for Blowoff Assemblies)	10	EA		
15	2-Inch Gate Valve & Box AWWA NRS, Conc. Pad, Indication Post, Complete in Place (This Item Does Not Include Gate Valves for Blowoff Assemblies)	1	EA		
16	Fire Hydrant, 3 Nozzle, Including Fitting, Concrete Thrust Blocking, Gate Valve, Complete in Place	6	EA		
17	6-Inch Blowoff Assembly, Including Fitting, Concrete Thrust Blocking, Gate Valve, Complete in Place	5	EA		

BID SCHEDULE (Continued)

18	4-Inch Blowoff Assembly, Including Fitting, Concrete Thrust Blocking, Gate Valve, Complete in Place	6	EA		
19	2-Inch Blowoff Assembly, Including Fitting, Concrete Thrust Blocking, Gate Valve, Complete in Place	2	EA		
20	Meter Setting Same Side, Including Sensus Meter, Meter Box, Coppersetter, Corp Stop, PRV, Yoke, and 10-foot Service Tubing From the Corp Stop to the Meter Setting as Shown on the Standard Details, Complete in Place	48	EA		
21	Meter Setting Opposite Side, Including Sensus Meter, Meter Box, Coppersetter, Corp Stop, PRV, Yoke, and 70-foot Service Tubing From the Corp Stop to the Meter Setting as Shown on the Standard Details, Complete in Place	48	EA		
22	Creek Crossing Meter Setting, Including Sensus Meter, Meter Box, Coppersetter, Corp Stop, PRV, Yoke, and necessary Service Tubing From the Corp Stop to the Meter Setting as Shown on the Standard Details, Complete in Place	2	EA		
23	Additional Service Tubing, 200 psi HDPE Tubing (3/4 in and 1-in)	200	L.F.		
24	Connection to Existing Line (Includes dry taps and wet taps)	12	EA		
25	Pressure Reducing Valve and Vault (Main Line) Including Fittings, Concrete Thrust Blocking, Gate Valves, Complete In Place	1	EA		
26	Gravel Replacement	7,740	L.F.		
27	Bituminous Pavement and Concrete Replacement	50	L.F.		
28	6-inch Joint Restraints	25	EA		
29	4-inch Joint Restraints	25	EA		
BID TOTAL (Sum of items 1 through 29)			\$		

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

(Name of Corporation, Partnership, Individual)

(Business Address)

(Date)

(Phone and FAX Number)

(Agent's Signature)

(Title)

BID BOND

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

As Principal, and _____

As OWNER in the penal sum of _____ for the payment of which,

well and truly to be made, we hereby jointly and severally bind ourselves, successors, and assigns Signed,

this ____ day of _____, 20____.

The condition of the above obligation is such that whereas the Principal has submitted to _____

A certain BID attached hereto and hereby made a part hereof to enter into a contract in writing, for the _____

NOW, THEREFORE,

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

The Surety for value received hereby stipulates and agrees that the obligates 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 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 hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal (L.S.)

Surety

By: _____

IMPORTANT- Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is locate

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the duly authorized and acting legal representative of the Morgan County Water District do hereby certify as follows

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

Date: _____

(Attorney's Signature)

NOTICE OF AWARD

To _____

Project Description _____

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for BIDS dated 5:30PM on Thursday, October 6, 2005 and Instructions to Bidders.

You are hereby notified that your BID has been accepted for items in the amount of _____ in accordance with the BID Schedule.

You are required by the Instructions to Bidders to execute the Agreement and furnish the required Contractor's Performance Bond and Payment Bond within ten calendar days from the date of this Notice to you.

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

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

Dated this _____ day of _____, 2005

Morgan County Water District
Owner

By _____

Title Chairman

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by

_____ This the _____ of _____, 2005

Contractor _____ Title _____

NOTICE TO PROCEED

TO _____ DATE _____

PROJECT Phase 10 B

Water Line Extensions

You are hereby notified to commence work in accordance with the Agreement dated _____, 2005 on or before _____, 2005 and you are to complete the WORK within 180 consecutive calendar days thereafter. The date of completion of all WORK is therefore _____, 2005

Morgan County Water District
OWNER

By _____

Title Chairman

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

_____ This the _____ of _____, 2005

Contractor Title

UNITED STATES DEPARTMENT OF AGRICULTURE
RURAL DEVELOPMENT AND
FARM SERVICE AGENCY

CONTRACT CHANGE ORDER

ORDER NO.
DATE
STATE
COUNTY

CONTRACTOR _____

OWNER _____

To _____
(Contractor)

You are hereby requested to comply with the following changes from the contract plans and specifications

Description of Changes (Supplemental Plans and Specifications Attached)	DECREASE in Contract Price	INCREASE in Contract Price
TOTALS		
NET CHANGE IN CONTRACT PRICE		

JUSTIFICATION:

The amount of the Contract will be (Increased) By The Sum Of: _____

Dollars (\$) _____)

The amount of the Contract will be (Decreased) By The Sum Of: _____

Dollars (\$) _____)

The Contract Period Provided for Completion Will Be (Increased): _____

Days

This document will become a supplement to the contract and all provisions will apply hereto

Requested _____
(Owner)

(Date)

Recommended _____
(Owner's Architect/Engineer)

(Date)

Accepted _____
(Contractor)

(Date)

Approved by Agency _____
(Name and Title)

(Date)

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to U.S. Department of Agriculture, Clearance Officer, STOP 76 02, 1400 Independence Avenue, S.W., Washington, D.C. 20250-7602. Please DO NOT RETURN this form to this address. Forward to the local USDA office only. You are not required to respond to this collection of information unless it displays a currently valid OMB control number.

CHANGE ORDERS

These items shall be followed when the Contractor prepares a request for Change Order.

- 1) Describe the proposed Changes in detail.
- 2) Estimate the decrease or increase to the Owner resulting from the Change Order using contract unit prices if applicable. If contract unit prices are not applicable, show breakdown of contract labor, equipment and materials.
- 3) Submit to the Engineer, Owner and Funding Agency for review and approval in writing before proceeding. Any work performed outside the Scope of Work without prior written approval will be at the Contractors sole responsibility

SPECIAL CONDITIONS

1. PROJECT FUNDING - Funding for this project is being provided by Kentucky Infrastructure Authority
2. PROJECT INSPECTION - The Project Inspection will be provided by the Engineer, who will provide a full time resident inspector. The Contractor shall not backfill any water line, and/or appurtenances, until the Inspector has seen it
3. METER SETTINGS -- **The meters for the project shall be Sensus Meters.** New meters located on the same side of highway will include 10-feet of service tubing. New meters located on the opposite side of the highway will include 70-feet of service tubing. All meters shall include a pressure regulator and shall be set in a 21 inch meter box
4. CONFLICTING SECTIONS/STATEMENTS IN CONTRACT DOCUMENTS - If any provisions in these Contract Documents is in conflict and/or is inconsistent with any other section or provision, then the most stringent shall apply per the interpretation of the Engineer.
5. CONTRACTOR'S INSURANCE CERTIFICATE - The Contractor's insurer must provide the Insurance Certificate to the Engineer consistent with the Bid Documents. The Contractor shall be insured for the duration of the contract period.
6. SILTATION AND SOIL EROSION - The Contractor shall make every effort during construction to minimize silting and soil erosion. Compliance with Kentucky Division of Water regulations and policies is expected.
7. MATERIALS OF CONSTRUCTION -- The Morgan County Water District has standardized around certain items, namely, meters, meter boxes, lids etc. The material supplied on this project shall be compatible with the equipment of the water district. The Contractor shall contact the Water District prior to bidding to discuss and become familiar with the equipment that the water district uses.
8. THRUST BLOCKING - The Contractor shall include in his bid the cost of providing ready mix concrete for all fittings, valves etc. which require thrust blocking. Sackrete will not be allowed. Concrete for thrust blocking is not a pay item and is to be included in the unit price bid for the pipe.
9. COORDINATION OF CONSTRUCTION -- Construction work by other contractors could be occurring at the same time as the proposed work. The Contractor work to coordinate activities with other Contractors. Any conflicts with other contractors shall be immediately brought to the attention of the Engineer.
10. ROUGH CLEANUP -- The Contractor will be required to provide rough cleanup on a daily basis as this project progresses. Rough cleanup is defined as removal of all large rock not suitable for backfill and removal of any trees that have been taken down and that the project be mounded up with final backfill material
11. COMPLETION TIME - Time allowed for completion of this project is **180 days**. This completion date is critical and will be strictly adhered to. Rain days will only be allowed if the Contractor can clearly demonstrate that the rainfall was ABOVE the normal anticipated average rainfall of any given month. In order for this to happen a rain gauge must be kept on the project site and the rainfall data recorded daily.

12. APPROVAL OF QUANTITIES - At the end of each day the Contractor's job representative and the Owner's Representative must get together to discuss, measure and do whatever is required for both parties to reach an agreement on the quantities installed that day. The daily quantities will then be tallied to reach the monthly totals
13. RESIDENTIAL DRIVEWAYS - All paved driveways shall be free bored for the installation of the water line. No paved driveways shall be open cut. Free boring is not a pay item and shall be included in the unit price bid for the pipe.
14. CREEK CROSSINGS - Creek crossings shall be installed where shown on the plans. The crossings shall be made as shown on the details. The crushed stone for the creek crossings is not a pay item, and the concrete for the creek crossings is not a pay item.
15. ON-SITE SEPTIC SYSTEMS - It is the Contractor's responsibility to ascertain the location of home septic systems by contacting the landowner prior to beginning construction on that particular parcel. Any damage caused by the Contractor shall be repaired to the satisfaction of the Owner, Engineer, Homeowner and the local Health Department. Where these septic systems are encountered within 10 feet proximity of the water lines they must be encased in concrete. Any concrete required will not be a pay item.
16. SHOP DRAWINGS - Shop drawings must be submitted to, and approved by, the Engineer prior to any purchase or installation of materials. The Contractor and the Resident Inspector must have an approved stamped shop drawing of every piece of material to be supplied and installed on this project. Installation of any material that has not been approved may be removed and replaced with approved materials.
17. FITTINGS - All fittings and gate valves shall be iron body and specified. The Contractor shall minimize the use of fittings where possible but not to extent that the pipe is over deflected.
18. LINE LOCATION - Where the water line is on state right of way, generally it shall be placed three feet from the back of the roadway ditch or along the toe of the slope in the case of elevated roadways. See the attached letter from the Kentucky Transportation Cabinet for specific requirements. Except for buried water line, there shall be no valves, meters, or obstructions of any kind located in the ditchline.
19. ROAD PRIORITY / BIDDING - Following is a tentative priority list of the roads and geographical areas; it may be subject to change. Construction shall not begin on these roads until it is approved by the owner and the engineer
 1. Gordon Ford, Steele, and River Roads (Sheets 15, 16, 17, 18, and 19)
 2. KY 589, KY 3344, and KY 1260 (Sheets 1 through 14)
 3. KY 1002, Patrick, and Russell Lewis Roads (Sheets 20, 21, 22, and 23)
 4. Greasy Creek Road (Sheets 24, 25, and 26)
 5. Bays Bend Road (Sheets 27, 28, and 29)
 6. KY 985, Sam Dunn Road (Sheets 30 and 31)
 7. Blackwater Road (Sheet 32)
20. FLUSHING OF LINES - The contractor is required to pay for all the water that they use to flush the water lines. They will be responsible to pay for the water used for flushing at a rate of \$2.50 per 1,000 gallons.

TECHNICAL SPECIFICATIONS

WATER LINE EXTENSIONS

TECHNICAL SPECIFICATIONS

SECTION A

GENERAL INFORMATION AND REQUIREMENTS

1 GENERAL

1.1 These technical specification include descriptions of materials which may or may not be used on this project.

1.1.1 The Contractor shall carefully read the Special Provisions for statements concerning other specifications which may be applicable to the Project.

1.2 Materials shall be of the types and constructed on the materials specified herein when identified on Plans, Bid Form or Measurement for Payment. Materials and accessories shall be of new and unused material and shall be installed in accordance with manufacturer's specification and/or as shown on the plans.

1.3 The Contractor shall be responsible for the safe storage and handling of all material furnished to or by him, and accepted by him, until it has been incorporated into the completed project and the project has been accepted by the Owner.

1.3.1 The Contractor shall handle all materials and equipment in such manner to avoid damage. All material and equipment whether moved by hand, skidways, hoists or other means shall be handled in such a manner to avoid dropping or bumping against other material or equipment.

1.3.2 In distributing material at the site of work, each piece shall be unloaded as near as possible to final installation point to minimize the number of times it must be handled.

2 PROTECTION OF UNDERGROUND AND SURFACE STRUCTURES AND OTHER PROPERTY

2.1 GENERAL

Temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, and other obstruction encountered in the progress of the work shall be furnished at the Contractor's expense incidental to the project.

2.2 Obstruction by Other Utilities

2.2.1 Existing underground utilities shown on the plans are shown in approximate locations based on information furnished by others. Prior to beginning construction of proposed facilities the Contractor shall accurately locate existing underground utilities

by whatever means necessary including excavation where required. The Contractor shall notify the Engineer where utilities, so located will interfere with proposed construction.

2.2.2 Where the limits of construction of the proposed work enhances work encroaches upon existing utilities, the Contractor, where possible, shall provide temporary support or protection satisfactory to the owner of the utility

to permit continuation of proposed construction and no additional payment authorized

- 2.2.3 Where existing utilities are encountered which prohibit construction of proposed facilities unless relocated the Contractor shall so notify the Engineer unless the plans provide for their relocation. Relocation shall be accomplished in a manner acceptable to the owner of the utility, and shall be furnished at the Contractor's expense incidental to the project

2.3 Property Protection

- 2.3.1 Extreme care shall be taken to protect trees, fences, poles, crops and all other property from damage unless their removal is authorized by the Engineer. Any damaged property shall be restored to as good or better than original condition and shall meet with the approval of the Engineer and Owner.
- 2.3.2 The Contractor has the right to fully utilize the easement unless specifically stated otherwise on the plans or by the Engineer. If any irreplaceable trees, fences, poles or crops, such as tobacco, corn, soy beans and such (excluding pasture land), occur on the easement the Contractor shall obtain the engineer's and Owner's approval prior to removing or otherwise causing damage to any of these items.
- 2.3.3 Beyond the limits of the easement the contractor shall be responsible for any damage caused by his operation and/or his personnel.

3. INCIDENTAL ITEMS OF CONSTRUCTION

3.1 Barricades, Guards, and Safety Provisions

- 3.1.1 To protect the public from injury and to avoid property damage, adequate barricades, construction signs, warning lights and guards shall be placed and maintained by the Contractor during the progress of construction work until it is safe for the public to use the construction site.
- 3.1.2 The Contractor shall provide and maintain all safety facilities and devices required by the Occupational Safety and Health Act (OSHA). The Engineer is not responsible for safety provisions furnished or used by the Contractor nor will the Engineer advise or direct safety operation of the Contractor.

3.2 Traffic and Utility Control

- 3.2.1 All excavations shall be conducted in a manner to cause the least interruption to traffic. The Contractor shall provide suitable bridges at streets and driveways where traffic must cross excavated areas
- 3.2.2 Driveways and other private and public access routes shall not be kept blocked or closed by the Contractor for more than a reasonable period of time without prior written approval from the property owner or controlling authority
- 3.2.3 Existing fire hydrants, valve pit covers, valve boxes, meter boxes, curb-stop boxes, fire or police call boxes or other utility controls shall be kept unobstructed and accessible during the construction period

3.3 Maintenance of Utility Service and Flow of Drains

- 3.3.1 Adequate provisions shall be made for the maintenance of flow in sewers (storm or sanitary), drains, water lines and gas lines and electrical lines encountered during construction
- 3.3.2 No valve, switch or other control device of any utility system within the construction area shall be operated by the Contractor without approval of the utility except in cases of an emergency. All utility customers which will be affected by the operation of any utility valve or control device shall be notified by the Contractor in sufficient time for each customer to make arrangements for the period of no service. Each customer shall be advised as to the time service will be off and probable time when it will be resumed.

3.4 Fencing

- 3.4.1 When the pipe line is being constructed through fields where livestock is being held the contractor shall provide, either temporary fencing or stationing of personnel, adequate protection to livestock from machinery and open trenches. The Contractor shall take all precautions necessary to insure that all animals are not isolated.
- 3.4.2 Where pipe line crosses fences in good condition and the work area is easily accessible through gates, the Contractor shall excavate or tunnel beneath the fences.
- 3.4.3 When it is necessary to cut existing fences, new end posts shall be installed one each side of the construction easement and old fence thoroughly stapled to these new posts before cutting fence.

After pipe is installed at this point and backfill is completed, a new fence of galvanized wire (No. 9 guage) shall be stretched between the new posts and thoroughly stapled to existing post

and any new intermediate posts necessary to provide a good fence. Replacement of fences shall be on an in kind basis and shall be considered incidental to installation of the pipe line

4 SUMMARY

4.1 The Contractor shall furnish at the site of Work, all materials, labor and equipment necessary to complete the Work in accordance with the terms of the Contract and as required hereunder. He shall make the required excavation for installing the water lines and all other appurtenant structures; do all ditching, diking, pumping, bailing and draining or otherwise lowering and disposing of water encountered in the excavation necessary for rendering the foundation firm, dry and adequate for installing the water lines and appurtenances; do, as required, all sheeting, shoring, bracing, coffer damming and supporting; provide all lighting, barricades, signs, flagmen and watchmen; make all provisions necessary to maintain and protect, buildings, paved surfaces, fences, trees, shrubs, piles, water pipes, gas pipes, sewers, water courses, surface drains, railroads, railways and other structures in, on, across or adjacent to the Work and repair all damage done to them where and as required; provide all temporary bridges, detours or other means of maintaining travel, both vehicular and pedestrian; construct all concrete, brick and like work; lay all water connections; set in place all iron and other metal work; backfill all trenches; restore walks, grass pots, shrubs, trees, flowers, fences, paved surface, etc. damaged or disturbed; clear away all rubbish and surplus materials; furnish all materials,

tools, implements, machines, tracks, pumps, forms, supplies and labor required to build and put in complete and acceptable working order the water lines and appurtenances covered by the Contract Documents and described by the plans and specifications.

TECHNICAL SPECIFICATIONS

SECTION B

RELATED PIPING MATERIALS AND EQUIPMENT

1 GENERAL DESCRIPTION

1.1 All materials necessary for the completion of the work shall be furnished by the Contractor, as approved by the engineer to meet the requirements of the Plans and Specifications. Any materials found to be defective or not meeting the Specifications shall be rejected and replaced by approved materials at no additional cost to the Owner.

1.2 Concrete Materials

Materials used in all concrete construction shall be governed by the Concrete Section of these Technical Specifications.

2. BACKFILL MATERIALS

2.1 General

The following materials shall be used to backfill any trenches so designated and in any situation shown on the Plans where such materials are specified.

2.2 Sand or Sandy Materials

Sandy backfill in trenches for water lines, property service connection, and structures within the limits of existing or proposed paved surfaces and sand or sandy materials for other miscellaneous construction purposes not specified herein shall consist of natural, crushed, or conglomerate sand containing not more than twenty (20) percent clay.

2.3 Coarse Aggregates

Coarse aggregates shall conform to Kentucky Bureau of highways Standard Specifications (Latest Edition) Section 806, and shall be of the size and type as indicated on the Plans or Specifications.

2.4 Selected Excavated Materials

Backfill in trenches for water lines, property service connections, and structures outside the limits of existing or proposed paved surfaces, and in other specified locations shall be made with selected excavated materials taken from the trench excavation. The specified makeup of this material shall be governed by the Plans or Section e-1.17 of these Technical Specifications.

3 PAVING MATERIALS

3.1 General

All materials used for pavement replacement shall conform to requirements and regulations of the local governments and to Sections 401 and 806 of the Kentucky Bureau of Highways Standard Specification (Latest Edition) except for basis of payment.

3.2 Concrete Surface

Materials used in the construction of the concrete surface shall conform to Section 501.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition)

3.3 Bituminous Concrete Surface

Materials used in construction of the bituminous concrete surface shall conform to Section 402.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.4 Bituminous Concrete Base

Materials used in construction of the bituminous concrete base shall conform to Section 403.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.5 Bituminous Tack Coat

The material for the bituminous tack coat shall be type SS-1h and shall conform to Section 806 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.6 DGA Base

Materials used for the compacted dense graded aggregate base shall conform to Section 303.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

TECHNICAL SPECIFICATIONS

SECTION C

PIPE MATERIALS

1. GENERAL

1.1 These Specifications describe several types of pipe which may or may not apply to the current project. All types listed herein will be acceptable alternates if no indication is other wise given either on the Plans or in other sections of these Specifications.

1.2 Selected pipe materials will be identified either on the Plans, or Bid Form, in Special provision, or in Measurement for Payment. The Contractor shall thoroughly familiarize himself with each of the items identified above and base his bid on the pipe material given therein.

1.3 Handling of Pipe and Accessories

1.3.1 Pipe and accessories shall be unloaded at the point of delivery, hauled to, and distributed at the site of the Project by Contractor in such a manner to avoid damage to the materials. Whether moved by hand, skidways, or hoists, materials shall not be dropped or bumped against pipe or accessories already on the ground or against any other object.

1.3.2 In distributing material at the construction site, each piece shall be unloaded as near the installation point as possible.

1.3.3 Pipe shall be handled in such a manner as to avoid damage to the ends. When such damaged pipe cannot be repaired to the Engineer' satisfaction, it shall be replaced at the Contractor's expense. The interior of all pipe and accessories shall be kept free from dirt and foreign matter at all times. The interior of all pipe and accessories shall checked for dirt and debris and, if necessary, thoroughly cleaned before use in the Project.

2. ASBESTOS CEMENT PRESSURE PIPE

2.1 Scope

This article covers the design, manufacturer, and testing of asbestos cement pressure pipe for sizes four (4") inch through forty-two (42") inch, nominal inside diameter.

2.1.1 The Contractor shall review the Plans and Bid Forms for information describing the Type, Class, and size of asbestos cement pressure pipe require on the Project.

2.2 Specific Requirements

2.2.1 Scope

The design, manufacturer, and inspection of asbestos cement pressure pipe shall conform to all requirements of AWWA Standard Specification designation AWWA C400 latest revision for sizes four (4") inch through sixteen (16") inch and designation AWWA C402 latest revision for sizes eighteen (18") inch through forty-two (42") inch.

3. CAST IRON PIPE AND FITTINGS

3.1 Scope

This article covers the design, manufacture and testing of cast iron pipe centrifugally cast in metal molds and cast iron fittings for pipe sizes three (3") inch through forty-eight (48") inch

3.2 Specific Requirements

Cast iron pipe shall be centrifugally cast in metal molds and shall be furnished cement lined unless otherwise noted on the Plans or in other sections of the Specification. Cast iron pipe shall be furnished with rubber-gasket push-on joints except as may otherwise be noted on the Plans or in difficult working areas and approval of the Engineer.

3.2.1 Thickness design of cast iron shall conform in all aspects to the requirements of ANSI-AWWA C101 latest revision.

3.2.2 Manufacture and testing of cast iron pipe centrifugally cast in metal molds shall comply with the requirements of the National Standard Institute and American Water Works Association designation A 21.6/AWWA C106 latest revisions.

3.2.3 Cement mortar lining shall conform to the requirements of ANSI/AWWA C104/A 21.4, latest revision for Cement-Mortar Lining for Ductile Iron Pipe and Gray Iron Pipe and Fittings for Water.

3.2.4 Fittings and joints for cast iron pipe shall conform to the latest revisions of ANSI/AWWA C110 "Cast Iron and Ductile Iron Fittings, Three (3") Inches through Forty-Eight (48") Inches, for Water and Other Liquids", ANSI/AWWA C111/A 21.11 "Rubber-Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings", and ANSI/AWWA C115 21.15 "Flanged Cast Iron and Ductile Iron Pipe with Threaded Flanges".

4. DUCTILE IRON PIPE AND FITTINGS

4.1 Scope

This article covers the design, manufacture, and testing of ductile iron centrifugally cast in metal molds and ductile iron fittings.

4.2 Specific Requirements

Ductile iron pipe shall be centrifugally cast in metal molds and shall be furnished cement lined unless otherwise noted on the Plans or in other sections of these Specifications. Ductile iron pipe shall be furnished with rubber gasket push-on joints except as may otherwise be noted on the Plans or in difficult working areas with approval of the Engineer.

4.2.1 Thickness design of ductile iron shall conform in all aspects to the requirements of ANSI/AWWA C150/A 21/50 latest revision.

4.2.2 Manufacture and testing of ductile iron pipe shall conform in all respects to the requirements of the latest revisions of ANSI/AWWA C151/A 21.51.

4.2.3 Cement Mortar Lining -- See ART. 3.2.3 above.

4.2.4 Fittings and Joints -- See ART. 3.2.4 above.

5. PVC (POLYVINYL CHLORIDE) PRESSURE PIPE

5.1 Scope

This article covers the design, manufacture and testing of PVC 1120 manufactured of Class 12454-A or Class 12454-B resin material with a hydrostatic-design-basis (HDB) rating of 4,000 psi at 73.4 degree F (23 degree

5.2 Specific Requirements

PVC pressure pipe shall be furnished, constructed of materials and to the specifications of this section. The types of PVC pipe permitted for use on the Project will be as noted on the Plans, Bid Documents or other sections of these Specifications. The selected pipe will be designated either as PVC (ASTM) or PVC (AWWA) followed by an appropriate pressure rating. The Contractor shall thoroughly review the Plans and other sections of these Specifications for the type of PVC pipe selected for the Project. All PVC pipe shall be NSF approved.

5.2.1 PVC (ASTM) pipe shall be furnished and installed when designated on the Plans or in the Bid Documents. When selected, by the Engineer, for use on the Project PVC (ASTM) pipe shall be designated, manufactured and tested to conform with the latest revision of the American Society for Testing and Materials designated ANSI/ASTM D-2241.

5.2.2 PVC (AWWA) pipe shall be furnished and installed when designated on the Plans or in the Bid Documents. When selected, by the Engineer, for use on the Project, PVC (AWWA) pipe shall be designated, manufactured, and tested in conformance to the latest revision of the American Waterworks Association designation AWWA C900

5.2.3 PVC pipe joints shall be rubber gasket push-on joints either constructed integrally with the pipe or as a separate coupling constructed on the same material and to the same pressure Specifications as the pipe.

5.2.4 PVC (ASTM) pipe shall be furnished as SDR 26, 21, and 17 for Class 160 psi, 200 psi and 250 psi respectively.

5.2.5 PVC (AWWA) pipe shall be furnished as SDR 25, 18, and 14 for Class 100 psi, 150 psi and 200 psi respectively.

5.2.6 PVC (AWWA) pipe shall be furnished with outside dimensions (O.D.) equal to that for ductile iron and cast iron pipe.

5.2.7 Fittings for PVC (ASTM) pipe may be either PVC, cast or ductile iron. Those for PVC (AWWA) pipe shall be ductile iron.

6. POLYETHYLENE PIPE AND FITTINGS

6.1 Scope

This section covers the design, manufacture and testing of polyethylene high density pressure pipe manufactured of grade P34 resin material with a hydrostatic – design basis (HDB) rating of 1,600 psi at 73.4 degree F (23 degrees C)

6.2 Specific Requirements

The Contractor shall furnish and install high density polyethylene pipe meeting these Specifications at the locations indicated on the Plans and in other sections of these Specifications

- 6.2.1 High density polyethylene pipe shall be manufactured and tested in conformance to the requirements of the latest revision of the American Society for Testing and Materials designation ASTM D-3350 "Polyethylene Plastic Pipe and Fittings Materials".
- 6.2.2 High density Polyethylene pipe shall have a grade designation of PE 3406 and a cell classification designation of PE 355434C.
- 6.2.3 High density polyethylene pipe shall be joined by means of butt fusion.
- 6.2.4 Fittings for high density polyethylene pipe shall be manufactured of the same materials as the pipe. Unless otherwise indicated, all fittings shall be joined to the pipe by butt fusion techniques.

7. BALL AND SOCKET RIVER CROSSING PIPE

7.1 Scope

This article covers the design, manufacture, and testing of Ductile Iron Ball and Socket River Crossing pipe.

7.2 Specific Requirements

Joints for ductile iron river crossing pipe shall be flexible, ball and socket type, boltless joints with rubber gaskets conforming to the ANSI Specification for "Rubber-Gasket joints for Ductile Iron Pressure Pipe and Fittings", A 21.11 (AWWAC11), Latest Revision.

TECHNICAL SPECIFICATIONS

SECTION D

PIPING APPURTENANCES

1 CRADLES AND ENCASEMENT

1.1 General

The cradle or encasement, as required to support the pipe, shall be of crushed stone or concrete and shall be installed as specified in the Pipe Work Section of these Specifications, and as shown on the Plans.

1.2 Crushed Stone Cradle

In all cases where the bedding is not specified the pipe is to be laid in crushed stone cradle. The crushed stone to be used shall be Kentucky Highway No. 9 or No. 78 Crushed Stone, as specified by the Kentucky Bureau of Highways Standard Specifications (Latest Revision).

1.3 Concrete Cradle, Encasement, or Cap

Where a concrete cradle, encasement, or cap is required, concrete shall conform to the Concrete Section of these Technical Specifications. Dimensions shall be as shown on the plans.

1.4 Concrete Thrust Blocks and Anchor Blocks

Where concrete thrust blocks and anchor blocks are required (i.e. at all pipe bends and fittings), concrete as specified in the Concrete Section of these Technical Specifications shall be used.

1.5 Special Concrete Structures and Vaults

Cast in place concrete structures shall be constructed of concrete conforming to the Concrete Section of these Technical Specifications to the dimensions and grades as shown on the Plans

1.6 Valves and Related Appurtenances

1.6.1 General

All valves and related appurtenances shall be installed as shown on the Plans and specified in these Technical Specifications. Material Specifications shall be as described below. Any materials found defective, not meeting the specifications, or improperly installed, shall be rejected and so marked and shall be replaced by materials approved by the Engineer, at no additional cost to the Owner

1.7 Gate Valves

Gate valves shall be non-rising stem, iron body, bronze mounted, double disc, parallel seat type with o-ring stem seals. Unless otherwise specified the valves shall be suitable for 0-150 PSI operating pressures. Valves which are to be buried for outside use shall be furnished with a 2 inch operating nut and shall have mechanical joint ends. Other valves shall have either flanged or mechanical joint ends and shall be operated by handwheel or chain-wheel operator as shown on the Plans. All valves shall conform to the AWWA Standard C 500, Latest Revision, relative to materials, manufacture, dimensions, inspections, testing, and markings

1.8 Gate Valves Boxes

Each buried gate valve shall be provided with a 5 1/4" shaft, slide-type, two-piece cast iron valve box. The box shall be of the length as necessary to conform to the depth of the valve. Any extension sections necessary shall be provided with the valve box. Unless shown otherwise on the Plans, the valve box cover shall be marked "Water".

1.9 Check Valves

Check valves shall be iron body, bronze mounted. They shall be outside weight and lever type (unless specified otherwise by the Engineer or indicated as such on the Plans) with bronze seat, hinge and guide busting. Unless otherwise indicated, check valves for interior use shall be flanged and those for exterior use shall be mechanical joint.

1.10 Automatic Air Release Valves

Air release valves shall be of the type, which will automatically release air which accumulates in the pipe system. The body and cover shall be case iron and the float shall be stainless steel. Unless otherwise indicated the valves shall be suitable for use in lines having an average working pressure of 150 psi.

1.11 Manual Air Release Valves

See "Detail Sheet" Plan Sheet for description of the manual air release valves.

1.12 Air Valve Pit

Air valves shall be installed in a pit as shown on the Plan Details.

1.13 Blowoff Assemblies

Blowoff assemblies shall be installed in accordance with the details and Specifications at the locations shown on the Plans or as directed by the Engineer for the purpose of removing any obstacles or impurities from the main. The blowoff assembly shall be connected to the main with a typical tapping saddle and corporation stop. The piping shall be 2 inch VC installed as shown in the details with a 2 inch iron body bronze mounted gate valve and 2 piece case iron valve box and lid marked "Water". The lid shall be secured with a pentagon lock nut.

1.14 Fire Hydrants

New fire hydrants shall be of the dry barrel type and be installed where indicated on the Drawings or otherwise directed by the Engineer. Hydrants shall be installed in such a manner as to be completely accessible and in such a position as to minimize possibilities for damage from vehicles or to pedestrians. Hydrants shall be set plumb with nozzles at least 18" above grade. The barrel shall be turned so that the pumper nozzle will face the street. When placed behind curb, the hydrant shall be set so the nozzle will be at least 12 inches from the gutter face of the curb, or at least 5 feet from the edge of the street or road where no curb exists.

Hydrants shall be supported upon a poured-in-place block of concrete as detailed. Such block shall not interfere with joint maintenance nor with proper hydrant drainage, but shall insure zero movement between the hydrant and the main.

Fire hydrants shall conform in all respects to the current Standards of the AWWA. They shall have a 6" inlet and be equipped with two (2) 2-1/2" hose nozzles and one (1) pumper nozzle. nozzles shall be standard to local governmental agencies' requirements. Each hydrant shall be equipped with traffic damage repair kits and hydrant wrenches provided for every five (5) hydrants.

1.15 Service Piping

Unless otherwise noted on plans service piping shall be high density 3/4" Polyethylene (PE 3408) tubing or approved equal.

The piping shall be Type III C 5 P 34 as designated in ASTM-D-1248 ("Polyethylene Plastics Molding and Extrusion Materials") and shall be classified as a PE 335433 according to ADTM D-3350 ("Polyethylene Plastics Pipe and Fittings Materials").

1.16 Connection to Main

Service pipe connections to the main shall be made with a tapping saddle and corporation stop as shown in the Plans.

1.17 Setters

Setters shall be Ford 70 Series with 90° brass angle meter valve and 90° coupling sized for 5/8" x 3/4" and 3/4" meter, or approved equal.

1.18 Meters

The meters for the project shall be Sensus Meters. All water meters shall be 5/8" x 3/4", plastic or bronzed bodied, of the magnetic oscillating piston or rotating piston type with a working pressure of 150 psi and shall conform to the AWWA specifications for Cold Water Meters.

The main case shall be frost-proof with a single, hinged lid cover with raised characters indicating the direction of flow and manufacturers serial number. Strainers with an effective area at least double that of the main case inlet shall be of a non-corrosive material and should fit tightly against the main case.

The measuring chamber shall be of a non-corrosive material and shall be securely positioned in the main casing. Discs shall be straight reading U.S. Gallons type with a measuring capacity of 999,999 gallons. All parts shall be as non-corrosive as possible and completely encased and hermetically sealed.

Measuring accuracy shall conform to AWWA Standard C 700, latest edition. Testing will be done at Engineers request and any meter found defective shall be returned to the manufacturer for replacement or repair at manufacturer's expense.

1.19 Meter Boxes and Covers

All meters shall be installed in new concrete boxes unless otherwise shown on the plans or approved by the Engineer.

The box shall be a precast concrete vault 18" I.D. and 24" in height. The cast iron lid shall have an 11 1/2" minimum opening with "Water Meter" stamped on top.

1.20 Back Flow Preventers

Back Flow preventers shall be angle check valves installed on customer side of meter. Such valves shall be brass or ductile iron with stainless steel spring. Type shall be Ford, Mueller, or approved equal.

1.21 Connection to Customer Service Line

All connections to the customers existing service line shall be made at the meter. Setter connection only unless otherwise directed by the Engineer.

TECHNICAL SPECIFICATIONS

SECTION E

PIPING WORKMANSHIP AND CONSTRUCTION METHODS

1 EXCAVATIONS AND GRADING

1.1 General

This section shall include all clearing and grubbing, site preparation, excavating of earth and other material, filling, site restoration and grading, and other allied work necessary for the construction required for the project.

Any construction methods not specifically outlined in these specifications will be governed by the Kentucky Bureau of Highway Standard Specifications (Latest Revision)

1.2 Site Preparation

Prior to commencing construction operations the contractor shall make all the provisions necessary to assure the protection of all existing improvements, both public and private. He shall protect trees, shrubs, plantings, and grassed areas and shall make provisions for maintaining public travel in an acceptable manner.

1.3 Protection of Existing Improvements

Before any excavation is started, adequate protection shall be provided for all lawns, trees, shrubs, landscape work, fences, sidewalks, hydrants, utility poles, streets, alley and driveway paving, curbs, storm sewers, ditches, headwalls, catch basins, surface inlets and all other improvements that are to remain in place. Such protection shall be provided as long as necessary to prevent damage from Contractor's operations. Shrubs, bushes, small trees and flowers, which have to be removed to permit excavation for the water lines, shall be protected and replanted or replaced when backfill is complete.

The Contractor shall exercise every precaution to prevent damage to property within the outside easements. He shall remove all debris and rock from the site and restore the ground surfaces, replace or repair all driveways, buildings, fences, retaining walls, etc., which are removed or damaged during construction.

Repairs, restoration or replacement of any improvements damaged or removed, whether shown on the plans or not, shall be the obligation of the Contractor at no additional cost to the owner.

1.4 Maintenance of Public Travel

Maintenance of all traffic shall be in accordance with any requirements of the local road department(s) and/or the Kentucky Department of Transportation. It is the responsibility of the Contractor coordinate all work with and notify the above-named agencies, and to provide all necessary signs, barricades, lights, flagmen, and other items for maintenance of traffic.

Public travel shall be maintained, unrestricted, wherever and whenever possible. Detours shall be provided when so directed by the appropriate agency. Adequate precautions shall be taken to provide for the safety of both vehicular and pedestrian traffic. Emergency vehicles shall be provided access to construction area at all times.

Unless specifically directed otherwise by the Engineer, no more than five hundred (500') feet of trench shall be opened ahead of the pipe laying, and not more than five hundred (500') feet of open ditch shall be left behind the pipe laying. All barricades, lanterns, watchmen, and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions, shall be provided by and at the expense of the contractor.

When so required, or when directed by the Engineer, only one-half (1/2) of the street crossing and road crossings shall be excavated before placing temporary bridges over the side excavated for the convenience of the traveling public.

All backfilled ditches shall be maintained in such manner that they will offer no hazard to the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged at the direction of the Engineer. Excavated materials shall be disposed of as to cause the least interference, and in every case the disposition of excavated materials shall be satisfactory to the Engineer.

1.5 Drainage

The Contractor shall make provisions for handling all flows in existing creeks, ditches, sewers and trenches by pipes, flumes or other approved methods at all times when natural functioning of said creeks, ditches, sewers and drains. The Contractor shall at all times during construction provide and maintain sufficient equipment for the disposal of all water which enters the excavation, both in open cut trenches and in tunnels, to render such excavation firm and dry, until the structures to be built thereon are completed.

1.6 Excavation

1.6.1 General

Materials of excavation shall be unclassified and shall include whatever materials are encountered to the depth of the plans, stated in the specifications, or directed by the Engineer.

1.7 Disposal of Unsuitable Materials

Excavated materials which are either surplus and not required or are unsuitable for backfilling shall be removed from the site of operations as soon as excavated.

All excavated materials so removed shall be disposed of, at no additional cost to the owner, on sites acquired by the Contractor and approved by the Engineer.

1.8 Storage of Suitable Materials

Excavated materials suitable and required for backfill shall be stored in neat piles adjacent to the excavation in a manner so as to interfere as little as possible with traffic, but shall not be placed at such heights above or closeness to the sidewalls of the excavation to endanger such operations due to slides or cave-ins.

1.9 Open Cut Excavation for Structures

In excavation for masonry and concrete structures, the required width shall be such as to permit forms to be constructed in the proper manner and to permit proper backfilling on completion of the structures.

Depth of excavation for footings shall be as shown on the drawings and/or as directed by the Engineer to obtain sufficient bearing

1.10 Open Cut Excavation for Pipeline Trenches

Open Cut excavation, either in earth or rock, shall be safely supported and of sufficient width and depth to provide adequate room for the construction or installation of the work to the lines and dimensions called for by the plans

Before laying the pipe, the trench shall be opened far enough ahead to reveal obstructions that may be necessitate changing the alignment of the pipeline.

1.11 Trench Dimension

Excavations for water pipe in both earth and rock shall have a minimum allowance trench width as shown on the details which will permit good workmanship in laying the pipe and fittings, boring and jacking and compaction of backfill at he sides of the pipe, and shall be subject to the approval of the Engineer.

The maximum allowance trench width shall be no greater than $2' - 0'' +$ the outside pipe diameter except where such dimensions may prohibit any other construction such as the boring and jacking of service connections under paved surfaces.

Subgrade – the depth of excavation below the pipe – shall be 3" minimum in earth trench and 6" in rock trench unless other wise stated in the plans and Specifications or approved by the Engineer.

1.12 Shoring, Sheering and Bracing

The Contractor shall furnish, place, and maintain adequate sheeting and bracing as may be required to support the sides of the excavation and prevent any movements of earth which could, in any way, diminish the width of the excavation to less than that necessary for proper construction, cause damage to the waterline or structures, utilities, pavements, or walks, or cause injury to workmen or others through movement of the adjacent earth banks, or to otherwise damage or delay the work.

The design and installation of all sheeting, sheet piling, bracing and shoring shall be based on computations of pressure exerted by the materials to be retained under existing conditions. Adequate and proper shoring of all excavations shall be the entire responsibility of the Contractor, however, the Engineer may require the submission of shoring plans (accompanied by supporting computations) for approval prior to the Contractor undertaking any portion of the work.

1.13 Blasting

When blasting is required for the removal of rock, every precaution shall be used for the protection of persons and private and public property. The method of blasting will be as determined by the Contractor, subject to the approval of the engineer, prior to construction.

The Contractor shall comply wit hall laws, regulations, and ordinances of the local governmental agencies and the Commonwealth of Kentucky relating to the transportation, storage and use of any and all explosives or blasting agents. Compliance with all of the above stated regulations and submittal of the method of blasting as stated above does not in any way relieve the contractor of responsibility for any damage caused by the blasting. Any damage thus caused shall be promptly and satisfactorily repaired by the Contractor at no additional cost to the owner.

1.14 Unauthorized Excavation

Whenever the excavation is carried beyond or below the lines and grades given by the Engineer, the Contractor at his own expense shall refill such excavated space with such material and in such a manner as will insure stability of the structure involved.

1.15 Removal of Water

The Contractor, at his own expense, shall provide adequate facilities for promptly removing water from all excavations. No water lines shall be laid in a trench which is holding water.

1.16 Backfill, Embankment, and Grading

1.16.1 General

This section includes the filling of the excavated trenches and spaces around the completed structures or pipelines to the original grades or to finished grades as indicated on the plans.

1.16.2 Trench Backfilling in Unpaved Areas

Backfilling of Trenches in open cut shall be commenced as soon as possible after the distribution main and service taps to the main have been completed, and all jointing and alignment has been approved by the Engineer.

Selected excavated material containing no rock shall be carefully and solidly tamped around the pipe from the tip of the cradle or encasement up to a plane at least one (1) foot above the exterior of the pipe or structure. The filling of the trench shall be carried on simultaneously on both sides of the pipe in such a manner that the completed pipe line, except as may be necessary in tamping or backfilling, shall not be permitted, until the trench has been backfilled to that height.

The Contractor may use any type of earth moving equipment he has at his disposal, provided such equipment is in satisfactory condition, and of such type and capacity that the work may be accomplished properly, the grading schedule maintained, and the required density obtained. Any questionable suitability problems related to earth moving equipment shall be resolved by the Engineer.

The selected excavated backfill materials used between the plane one (1) foot above the ground surface may include rock fragments taken from the excavation.

In backfill containing rock, no rock fragment shall be larger than 1 cubic foot in size and all rock fragments shall be mixed with sufficient earth materials to completely eliminate all voids, subject to the approval of the Engineer. The amount of rock in the backfill shall not exceed 33% of the total backfill. Rock fragments and surplus earth materials not used in the back fill shall be removed from the site of the work.

In filling the remainder of the trench, from the plane one (1) foot above the pipe to the top of the trench, the backfill material may be shoveled into the trench without compacting, and heaped over whenever, in the opinion of the Engineer, this method of backfilling may be used without inconvenience to the public.

Before final acceptance, the Contractor will be required to level off all trenches where backfill material has been piled up, or to bring the trench up to the level of the surrounding street, roadway, or terrain where necessary, also, the removal from the streets, roadways, and private property of all excess earth or other materials.

1.16.3 Trench Backfilling in Paved Areas

In areas where street paving is to be replaced, trenches shall be backfilled up to one (1) foot above the top of pipe or structure using the methods described above for unpaved areas. Backfill above this level shall be placed in layers not exceeding eighteen (18) inches and firmly tamped into place by tampers or rammers to 95% of Standard Proctor Maximum Density. In lieu of tamping the trench may be backfilled with granular material and puddled and jetted under the direction of the Engineer.

1.16.3 Backfill Around Structures

Sandy backfill material or selected excavated materials containing no rock shall be placed in uniform layers around air valve pits or other structures and shall be thoroughly tamped and compacted.

1.16.4 Backfill Around Iron Pipe

Selected excavated materials composed of clay, sand, gravel or other materials non-injurious to iron pipe shall be used for backfilling within 24 inches of iron pipe. Cinders, rubbish and other materials which would be injurious to iron pipe shall not be used in such backfilling.

1.17 Restoration of Ground Surfaces and Cleanup

1.17.1 General

All ground surfaces in public rights-of-way, easements and on private property that have been damaged or destroyed by the Contractor's operations shall be restored to original contours and in accordance with the following specifications.

1.17.2 Restoration of Grassed Areas with Sod

Where so designated, all established grassed areas shall be restored with sod containing grasses of comparable quality. Sod shall be placed and rolled so that the final elevations of the area being restored are the same as existed prior to the beginning of construction. Sod shall be pegged where necessary, and shall be watered and cared for to assure its survival until final acceptance of the project.

1.17.3 Restoration of Grassed Areas with Seed and Mulch

The Contractor shall seed and mulch all disturbed areas, unless otherwise specified, in the following manner: Rye or Fescue Seeding – The ground shall be loosened approximately 3 inches deep with a disc or harrow; fertilized with 25 pounds of 10-10-10, or equivalent, and 100 pounds of agricultural lime per 1,000 square feet; sown at a rate of 75 pounds per acre with an approved grade of perennial rye or Kentucky No. 31 Fescue grass seed that will provide early

growth during the season in which it was planted. The seed shall be well raked or boarded into the soil.

The time of application of the seed and fertilizer shall be at the discretion of the Engineer.

Unless otherwise permitted by the Engineer, vegetable materials for mulching shall be wheat, oat, barley or rye straw only. All material shall be reasonably free from weed seeds, foreign material, and other grasses and chaff, and shall contain no Johnson Grass. The straw shall be reasonable bright in color and shall not be musty, mouldy, caked or of otherwise low quality. It shall be dry on delivery.

Unless otherwise specified, the bituminous material to be used for "tying down" straw mulch shall be a slow setting emulsified asphalt. It shall be non-toxic to plants.

Mulch net shall be used, if directed by the Engineer, to hold mulch in place until turf is established. The net shall be made of a tightly twisted kraft paper yarn, leno woven with a warp count of one pair of yarns per two (2) inches and a filling count of two per inch. Salvage edges and center shall be reinforced with polyethylene filament. The material shall have a minimum width of 45 inches.

1.18 Cleanup

Before final acceptance of the work, the Contractor shall satisfactorily clean all areas within the limits of his operations including the street surfaces, walks, gutters, fences, lawns, private property and structures, leaving them in as neat, clean and usable condition as originally found. He shall remove all machinery, tools, surplus materials, temporary buildings and other structures from the site of work. He shall remove all organic matter and materials containing organic matter from all areas and places used by him during construction. All sewers, manholes, inlets, etc., shall be cleared of all scaffolding, sedimentation, debris, rubbish and dirt.

Where the Contractor's operations have resulted in filling existing ditches, clogging existing culverts, damaging existing bridges, ground surfaces, sidewalks, driveways, etc., the Contractor shall reditch, clean culverts, repair or replace bridges, ground surfaces, sidewalks, driveways, etc., so as to return them to a condition as good as or better than existed prior to the beginning of his operations.

The Contractor's cleanup operations, which include repair, restoration or replacement of ground surfaces and existing improvements and the removal of rock, shall be performed continuously during the construction operations.

TECHNICAL SPECIFICATIONS

SECTION F

PIPING WORK

1. PIPEWORK

1.1 General Description

After the trench is excavated to subgrade as specified, it shall be filled to the proper depth with crushed stone or concrete as specified to provide a firm and satisfactory bed, hereafter referred to as the cradle or encasement, for the entire length of the pipe barrel. Pipe of designated class and required size shall be laid to form a closed joint with the next adjoining pipe, bringing the inverts continuously to the required depth of cover shown on the plans. The pipe shall be laid in an upstream direction, with bells upstream, unless otherwise permitted or directed.

In no case shall water be allowed to rise in or above the pipe before the joint has become thoroughly set. No walking on or working over the pipes after they are laid, except as may be necessary in placing and compacting the backfill, will be permitted until they are covered with backfill to a depth of one (1) foot.

The trench backfill shall be placed in accordance with backfill requirements of these Technical Specifications.

1.2 Cradle and Encasement

The cradle or encasement, as required to support and protect the water pipe, shall be of crushed stone or concrete and shall be installed as specified herein or as directed by the Engineer to the dimensions as shown on the plans.

1.2.1 Crushed Stone Cradle

Where indicated on the plans water main shall be installed with a crushed stone cradle.

Where the water pipe is to be laid in a crushed stone cradle, the crushed stone to be used shall be Kentucky Highway No. 9 or No. 78 crushed stone, as specified by the Kentucky Bureau of Highways. The crushed stone shall be deposited in the excavated trench to depth shown on plans, allowing for the pipe wall thickness and providing "bell holes" for making joints, where pipe is of the bell and spigot type. The pipe shall be laid to the depth as shown on the plans and crushed stone shall be carefully deposited around the pipe up to a plane through the centerline of the pipe as indicated on the plan details.

1.2.2 Concrete Cradle

Where a concrete cradle is required as additional support for the water pipe, concrete, as specified in the concrete section of these Technical Specifications and section 601 of the Kentucky Bureau of Highways Standard Specifications, shall be used. First, the water pipe shall be laid accurately to the depth indicated on the plans, setting the pipe upon concrete blocks or saddles installed to provide both vertical and lateral supports for the pipe. The supporting of pipe on wooden blocks will not be permitted.

1.2.3 Concrete Encasement

Where a concrete encasement is specified, concrete, as specified in the Concrete Section of these Technical Specifications and Section 601 of the Kentucky Bureau of Highways Standard Specifications, shall be used. The water pipe shall be laid and reported in accordance with the specifications for water pipe and concrete cradle, as heretofore specified, and the concrete deposited around the pipe at the required width and depth to a plane at least 6 inches over the top of the pipe, as indicated on the Plan Details. Proper bracing of the pipe shall be provided to prevent its being floated by the concrete encasement.

1.3 Metered Service Connections

Metered service connections shall be installed to the point where the line from the customer's residence or business joins the meter setter. The service piping shall be ¾" polyethylene tubing as noted in the Piping Appurtenances Section of these Technical Specifications. They shall be installed as shown on the plans or as directed by the Engineer.

1.4 Meter Boxes and Other Structures

Meter boxes shall be constructed as shown on the Plan Details. The concrete vault shall be placed on concrete bricks, with 6" crushed stone placed in the bottom for drainage.

The cast iron lid shall be set flush with existing ground or ½" maximum above ground. Backfill shall be carefully tamped around both vault and lid. Vaults placed in sidewalks, driveways, or other paved surfaces shall have lids placed flush with existing paved surfaces.

Service line depth shall be the same as the main water line with the exception that the service line may be brought up to a sufficient depth to enter the vault within 5' of the side of the vault.

Air release valve vaults shall be Type III 24" diameter Reinforced Concrete Pipe barrels set on 8 concrete bricks with 6" crushed stone in bottom for drainage. The lid shall be cast iron stamped "water" with 24 I.D. opening. Backfill shall be carefully tamped around vault and lid. The lid shall be flush or ½" maximum above existing ground in unpaved areas and flush with paved surfaces.

1.5 Branches and Fittings

Branches and Fittings shall be provided and laid as where directed.

Tapping saddles or other fittings for property service connections shall be placed on the water main at such points as to result in the property service connection having the shortest length possible between the water main and the property line unless otherwise indicated on the plans or directed by the Engineer.

1.6 Pipe Cutting

Pipe may be cut in any manner specified by the pipe manufacturer, but only when authorized and approved by the Engineer. Where a pipe is cut the Contractor shall remove the old section of pipe satisfactorily to the Engineer.

1.7 Pipe Handling and Installation

All procedures for receiving, handling, storing, and installing pipe used in the project, unless specified in these Technical Specifications, shall be governed by the Standards listed below with the approval of the Engineer.

Ductile Iron Pipe - The manufactures printed instructions

Polyvinyl Chloride Pipe - The manufactures printed instructions.

Polyethylene Pipe - The manufactures printed instructions.

1.8 Pressure Pipe Thrust Blocking

Concrete thrust blocks shall be provided to prevent movement of pipe or appurtenances in response to the forces developed by the pressure of the piping system. In general, thrust blocking shall be provided where the pipeline changes direction (e.g. tees, bends, elbows, crosses, etc.), changes size (e.g. reducers), stops at dead ends, and/or has an appurtenance (e.g. valve or hydrant) attached at which thrust develops when closed. Thrust blocks shall be sized according to the plans.

1.9 Highway and Railroad Crossings

Steel casing pipe for road and railroad crossings shall be bored and/or jacked in place to the depth shown on the plans. Casing pipe shall also be laid in open cut where indicated on the drawings. All joints between lengths shall be solidly butt-welded with a smooth non-obstructing joint inside. The casing pipe shall be installed without bends. The water line pipe shall be installed after the casing pipe is in place, and shall be braced within the casing with structural steel members welded into place or other Engineer approved method to preclude possible floatation.

Railroad crossing material and installation shall be in strict accordance with American Railway Engineering Association Specifications.

At each end of the casing pipe, the water line pipe shall be wrapped with two layers of roofing felt. The wrapping shall extend a minimum of 12 inches in each direction from the end of the casing pipe. After the water line has been installed, inspected, tested and wrapped as specified, both ends of the casing pipe shall be closed with brick or concrete block masonry in a manner acceptable by the Engineer.

Weep holes shall be provided in the closure at the lower end of the casing pipe to facilitate drainage and shall be located within the granular pipe bedding material. Granular bedding is not required under the open cut casing pipe; however, the Contractor shall insure that casing pipe does not bear directly on rock.

1.10 Creek Crossings

River and creek crossings shall be accomplished in a method determined by the Contractor and approved by the Engineer to the lines and grades as shown on the plans. Piping shall be ductile iron or polyethylene pipe as per the pipe materials section of these Technical Specifications and as approved by the Engineer. There are two types of creek crossings which shall be as shown on the plans and where indicated on the plans.

1.11 Pipeline Testing

1.11.1 General

Testing at the Contractor's expense of any water line section may be requested at any time by the Engineer to determine that the section is watertight.

1.12 Visual Inspection

During the final inspection the Engineer may inspect any section of the water lines by various methods at his disposal to determine whether the completed lines are true to line and grade as laid out or as shown on the Plans.

1.13 Hydrostatic Tests

After the pipe is laid and the line flushed, it shall be filled with water with care being exercised to expel all air from the pipe. During the test period all pipe, valves, fittings, and joints shall be examined carefully for defects. Any observed leaks or defective pipe shall be satisfactorily repaired or replaced, at the expense of the Contractor and the test repeated until the section tested is within the limits prescribed hereinafter. The entire distribution system or parts thereof shall be tested under hydrostatic pressure of 150 psi, or pressure class of the pipe which ever is greater, for a period of 4 hours, if joints are exposed, or for an 8 hour period if joints are covered. Repairs shall be made using approved materials and new replacement fittings, specials, or gaskets where leakages occur.

Leakage shall be measured by an approved calibrated meter through which all the water required to maintain test pressure shall be pumped. All testing shall be performed in the presence of the Engineer. Allowable leakage shall not exceed 10 gallons per 24 hours per inch of diameter per mile of pipe, at the specified test pressure.

Tests shall be completed in accordance with the latest edition of AWWA C-600 except a modified herein.

1.14 Flushing

Any foreign material left in piping during construction shall be removed by flushing system prior to testing. Flushing should be accomplished by partially opening and closing valves and hydrants several times under expected line pressure with flow velocities adequate to flush foreign material out of valves and hydrants.

1.15 Disinfection

1.15.1 General

Thoroughly disinfect all water pipe on potable water lines prior to being placed in service. Follow the applicable provisions of the procedure established for the disinfection of the cast iron pipe as set forth in the latest edition of AWWA C651 entitled "Disinfecting Water Mains"

1.15.2 During the Construction

Workmen shall be required to use utmost care to see that the surface of parts of the structures, the inside of pipes, fittings, jointing materials, valves, and specials which come in contact with the local water system's water, are maintained in a sanitary condition. Every effort shall be made to keep the inside

of the pipe, fittings, and valves free of all foreign matter, sticks, dirt, rocks. As each joint of pipe is being laid, it shall be swabbed so that all foreign matter is removed. All fittings and exposed open ends of pipe shall be blocked or capped until the line is completed.

When the entire pipe line or certain selected sections thereof have been completed, tested and made ready for turning over to the local water system, ready for use, the line or section of line shall be thoroughly sterilized according to the following procedure: The new pipe shall be disinfected by introducing HTH, perchloron, or a similar hypochlorite solution, through taps made by the Contractor as directed by the Engineer. The water shall be turned into the mains slowly to allow a thorough mixing of solution which shall be brought to a strength of 50 parts per million of available chlorine. All valves shall then be closed and the sterilizing solutions permitted to remain in the pipe line sections for not less than 24 hours. At the end of the 24 hour period the water in the line must have a minimum chlorine residual of 25 parts per million, or the process shall be repeated until the residual of 25 ppm is maintained. After the required chlorine residual has been maintained the mains shall be flushed thoroughly until a chlorine residual not to exceed one (1) part per million is obtained.

No water line shall be put in service either permanently or temporarily until it has been thoroughly disinfected to the satisfaction of the Engineer. The Contractor shall be responsible for all bacteriological testing should this be required by the Engineer.

1.16 Restoration of Paved Surfaces

1.16.1 General Description

After all excavations within the limits of paved surfaces have been properly backfilled and compacted in accordance with the Plans and Specifications, the paved surfaces shall be restored to a condition as good as or better than existed prior to the beginning of the work, in accordance with the following Specifications.

1.17 City, County, and State Paved Surfaces

Streets, alleys, sidewalks, curbs, and gutters originally constructed by ordinance or maintained by the City, and highways, roads, and walks constructed and/or maintained by the Kentucky Department for Transportation or County, which are wholly or partially removed, damaged or disturbed by the Contractor's operations, shall be promptly restored to a condition as good as or better than existed prior to the beginning of the work. Such restoration shall be performed in accordance with the pertinent Specifications and standards of the City, the County, or the Kentucky Department of Transportation as applicable.

1.18 Other Paved Surfaces

Streets, alleys, driveways, sidewalks, curbs, and gutters, not constructed or maintained by the City, the Kentucky Department of Transportation, or the County, but paved with asphalt, concrete, cinders, crushed stone, waterbound macadam, oilbound macadam, or heterogeneous paving materials, which are wholly or partially removed, damaged or disturbed by the Contractor's operations, shall be restored with like or better materials, acceptable to the Engineer, to a condition as good as or as better than existed prior to the beginning of the work, so that the movement of traffic, both vehicular and pedestrian, through the restored way shall be as free, safe and unimpeded as before.

1.19 Asphalt Roadway Paving

Existing asphalt paving in roadways shall be restored with base, binder and surfacing of the dimensions as shown in the plans. All material shall conform to the Materials section of these Technical Specifications and construction methods shall conform to Sections 300 and 400 of the Kentucky Bureau of Highways Standard Specifications with the approval of the Engineer.

1.20 Concrete Roadway Paving

Existing concrete paving in roadways shall be restored with the dimensions shown in the plan details. All materials shall conform to the Materials section of these Technical Specifications and construction methods shall conform to Section 500 of the Kentucky Bureau of Highways Standard Specifications with the approval of the Engineer.

1.21 Driveway Replacement

For the restoration of all paved driveways disturbed by the installation of the water lines, the materials and dimensions shall be equivalent to the original paving. However, in no case shall the dimensions be less than (a) 6" DGA base and 6" Class "A" Concrete for concrete driveways and (b) 6" DGA base and 2" Bituminous Surface for asphalt driveways.

PHASE 10 B
WATER LINE EXTENSIONS
MORGAN COUNTY WATER DISTRICT
SEPTEMBER 2005

Proposal of Engineer's Estimate (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as

(Insert "a corporation", "a partnership," or "an individual" as applicable)

To the Morgan County Water District (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all work for the construction of Phase 10 B Water Line Extension in strict accordance with the Contract Documents, within the time set forth therein, and at the prices stated below.

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

BIDDER hereby agrees to commence work under this contract on or before a date to be specified in the Notice to Proceed and to fully complete the project within 180 calendar days thereafter. BIDDER further agrees to pay as liquidated damages, the sum of \$500 for each consecutive calendar day that the work remains uncompleted after the expiration date of the contract.

BIDDER acknowledges receipt of the following Addenda:

Addendum No. _____ Addendum No. _____ Addendum No. _____

The BIDDER hereby proposes to furnish and do all that is required by the contract to which this refers for the construction of all structures listed at the prices shown for each bid item on the following Bid Schedule. (The Bid Schedule 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).

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

The undersigned BIDDER does hereby declare and stipulate that this proposal is made in pursuance of and subject to all terms and conditions of the Instructions to Bidders, the Construction Contract, the Technical Specifications, and the Plans pertaining to the work to be done, all of which have been examined by the undersigned

Accompanying this proposal is a certified check or standard bid bond (5% of the Total Bid) in the sum of _____ Dollars (\$ _____) in accordance with the

Instructions to Bidders

The undersigned BIDDER agrees to execute the contract and Performance and Payment Bond for the amount of the total of this bid within 10 calendar days from the date when the written Notice of Award of the contract is delivered to him at the address given in this proposal. The name and address of the corporate surety with which the BIDDER proposes to furnish the specified Performance and Payment Bond is as follows:

All the various phases of work enumerated in the Technical Specifications with their individual jobs and overhead, whether specifically mentioned, included by implication or appurtenant thereto, are to be performed by the Contractor under one of the items listed in the Bid Schedule, irrespective of whether it is named in said list.

Payment for work performed will be in accordance with the Bid Schedule, subject to changes as provided for the Construction Contract.

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 agrees that this bid shall be good and may not be withdrawn for a period of 90 calendar days after the scheduled closing time for receiving bids.

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

The waterline work will be prioritized in the special conditions. There is a base bid consisting of roads that shall be completed first, and there is also an alternate bid consisting of roads that will be completed in order of priority after the base bid roads are completed. Some or all of the alternate bid roads may or may not be completed. The contract will be awarded based on the total bid amount, that is, the base bid plus the alternated bid.

BID SCHEDULE

No.	Item	Quantity	Unit	Unit Price	Total
1	6-Inch PVC SDR 21 Class 200-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	23,200	L.F.	7.00	162,400
2	6-Inch PVC SDR 17 Class 250-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	45,350	L.F.	7.50	340,125
3	6-Inch C-900 Class 200 psi, Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	26,450	L.F.	9.00	238,050
4	4-Inch PVC SDR 21 Class 200-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	22,375	L.F.	6.50	145,437.50
5	4-Inch PVC SDR 17 Class 250-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	4,025	L.F.	7.00	28,175.00
6	4-Inch C-900 Class 200-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	8,100	L.F.	8.00	64,800
7	2-Inch PVC SDR 21 Class 200-psi Furnishing, Trenching, Laying and Backfilling (Unclassified Excavation)	2,922	L.F.	5.00	14,610.00
8	12-Inch Steel Casing Unclassified Bore & Jack Under Existing Paved Roadway (Water Line Not Included)	135	L.F.	100.00	13,500.00
9	10-Inch Steel Casing Unclassified Bore & Jack Under Existing Paved Roadway (Water Line Not Included)	320	L.F.	80.00	25,600.00
10	8-Inch Steel Casing Unclassified Bore & Jack Under Existing Paved Roadway (Water Line Not Included)	185	L.F.	70.00	12,950.00
11	8-Inch Steel Casing Unclassified Open Cut Under Existing Gravel Roadway (Water Line Not Included)	20	L.F.	50.00	1,000.00
12	Creek Crossing Type B (See Detail in Plans)	320	L.F.	70.00	22,400.00
13	6-Inch Gate Valve & Box AWWA NRS, Conc. Pad, Indication Post, Complete in Place (This Item Does Not Include Gate Valves for Blowoff Assemblies)	17	EA	500.00	8,500.00
14	4-Inch Gate Valve & Box AWWA NRS, Conc. Pad, Indication Post, Complete in Place (This Item Does Not Include Gate Valves for Blowoff Assemblies)	10	EA	400.00	4,000.00
15	2-Inch Gate Valve & Box AWWA NRS, Conc. Pad, Indication Post, Complete in Place (This Item Does Not Include Gate Valves for Blowoff Assemblies)	1	EA	300.00	300.00
16	1-Inch Hydrant 3 Nozzle Including Fitting, Concrete Thrust Blocking Gate Valve, Complete in Place	6	EA	2500.00	15,000.00
17	6-Inch Blowoff Assembly Including Fitting, Concrete Thrust Blocking Gate Valve, Complete in Place	5	EA	700.00	3,500.00

BID SCHEDULE (Continued)

18	4-Inch Blowoff Assembly, Including Fitting, Concrete Thrust Blocking, Gate Valve, Complete in Place	EA	6	3600.00	600.00	1000.00	500.00	1000.00
19	2-Inch Blowoff Assembly, Including Fitting, Concrete Thrust Blocking, Gate Valve, Complete in Place	EA	2	1000.00	500.00	1000.00	500.00	19,200.00
20	Meter Setting Same Side, Including Sensus Meter, Meter Box, Copperstop, Corp Stop, PRV, Yoke, and 10-foot Service Tubing From the Corp Stop to the Meter Setting as Shown on the Standard Details, Complete in Place	EA	48	1000.00	400.00	500.00	500.00	24,000.00
21	Meter Setting Opposite Side, Including Sensus Meter, Meter Box, Copperstop, Corp Stop, PRV, Yoke, and 70-foot Service Tubing From the Corp Stop to the Meter Setting as Shown on the Standard Details, Complete in Place	EA	48	1000.00	500.00	500.00	500.00	1000.00
22	Creek Crossing Meter Setting, Including Sensus Meter, Meter Box, Copperstop, Corp Stop, PRV, Yoke, and necessary Service Tubing on the Standard Stop to the Meter Setting as Shown on the Standard Details, Complete in Place	LF	200	4.00	2000.00	24,000.00	800.00	800.00
23	Additional Service Tubing, 200 psi HDPE Tubing and (3/4 in and 1-in)	EA	12	8000.00	24,000.00	8000.00	8000.00	8000.00
24	Connection to Existing Line (Includes dry taps and wet taps)	EA	1	8000.00	8000.00	8000.00	8000.00	8000.00
25	Pressure Reducing Valve and Vault (Main Line) Including Fittings, Concrete Thrust Blocking, Gate Valves, Complete in Place	LF	7,740	4.00	30,960.00	1250.00	1250.00	1250.00
26	Gravel Replacement	EA	50	50.00	1250.00	50.00	50.00	1250.00
27	Bituminous Pavement and Concrete Replacement	EA	25	50.00	1250.00	50.00	50.00	1250.00
28	6-inch Joint Restraints	EA	25	50.00	1250.00	50.00	50.00	1250.00

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130,000 Conf.
120,000 Conf.
140,000 TRML

BID BOND

WE HEREBY PRESENTS, that we, the undersigned

Principal and

As Owner in the penal sum of _____ for the payment of which,

well and truly to be made, we hereby jointly and severally bind ourselves, successors, and assigns. Signed,

this _____ day of _____, 20____

The condition of the above obligation is such that whereas the Principal has submitted to

A certain BID attached hereto and hereby made a part hereof to enter into a contract in writing, for the

NOW, THEREFORE,

(a) If said BID shall be rejected, or

(b) If said BID shall be accepted and the principal shall execute and deliver a contract in the Form

of Contract attachment hereto (properly completed in accordance with said BID) and shall

furnish a BOND for faithful performance of said contract, and for the payment of all persons

performing labor, furnishing materials in connection therewith, and shall in all other respects

perform the agreement created by the acceptance of said BID, then this obligation shall be

void, otherwise the same shall remain in force and effect; it being expressly understood and

agreed that the liability of the Surety for any and all claims hereunder shall, in no event,

exceed the penal amount of this obligation as herein stated.

The Surety for value received hereby stipulates and agrees that the obligations of said Surety and its BOND

shall be in no way impaired or affected by any extension of the time within which the OWNER may accept

such BID; and said Surety does hereby waive notice of any 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 hereto affixed and these presents to be signed

by their proper officers, the day and year first set forth above.

(L.S.)

Principal

Surety

By

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