

**Logan Todd Regional Water Commission**  
**Water System Expansion to Springfield TN**  
**Contract No. 3 – 24” Water Pipeline to Springfield**

**ADDENDUM No. 4**

April 25, 2018

This ADDENDUM to plans, specifications and bidding documents for the subject project modifies the referenced items to the extent described herein. Items not modified by this ADDENDUM remain unchanged and in full effect. Bidders are required to acknowledge receipt of this ADDENDUM on the Bid Form.

1. Documents: Bid Form: **Replace** the entire Bid Form with the revised version attached. (Attachments: 6 pages)
2. Technical Specifications: Section 01-100 “Summary of Work”: **Replace** Paragraph 8.0 “Working Hours” as follows (Attachments: none):

*The Contractor may work on this project during the daylight hours, Monday through Friday, except legal holidays, when weather conditions permit. Work inside TDOT right-of-way is forbidden on weekends in accordance with the Tennessee encroachment permit. If the Contractor wishes to work at other times in unrestricted areas, he may do so if approved by the Engineer and if the request to do so is made at least 48 hours in advance.*

3. Technical Specifications: Section 01-210 “Materials Purchased Directly by Owner/Commission”: **Replace** Paragraph 2.0 “Products” as follows (Attachments: none):

*The Owner/Commission shall purchase directly ductile iron pipe and casing pipe. The Bidder’s unit price for installation of such pipeline or casing pipe shall include all costs of materials necessary for a complete installation, but it shall EXCLUDE sales tax for the materials specified as follows:*

- a. *Ductile iron pipe (including modified pipe joints with welded nozzles or tap/boss)*
- b. *Ductile iron pipe restraining gaskets.*
- c. *Steel casing pipe.*

*All other materials required for the Project are to be purchased and supplied by the Contractor, and will be subject to applicable taxes.*

4. Technical Specifications: Section 02-200 “Water Main Materials” (Attachments: none):

**Add** Sentence to Paragraph 1.0 “General:

*Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (AIS requirement) does not apply to this project.*

**Modify** Paragraphs 7.0 (Butterfly Valves), 8.0 (Combination Air Valves) and 9.0 (Intermediate Air Release Valves) to indicate that Valmatic is an additional approved manufacturer.

5. Technical Specifications: Section 02-300 “Water Main Construction”: **Replace** Paragraph 4.3 “Backfilling Under Pipe in Rock” as follows (Attachments: none):

4.3 *Backfilling Under Pipe in Rock*

*Where trench is excavated in rock or shale, a 6” space below pipe shall be backfilled with approved bedding material (#9, #10 or #11 pipe bedding, or uniform soil meeting the approval of the Engineer) to form a cushion for pipe and appurtenances.*

6. Technical Specifications: Section 02-400 “Water Line Testing and Acceptance”: **Add** the following paragraph to the end of Item 1.1 “Pressure and Leakage Tests”:

“In the event that a valve is not located at the end of a test section of pipeline, the CONTRACTOR shall provide and install a temporary cap to allow for testing of the referenced water line. No additional compensation shall be made for these necessary items.”

7. Technical Specifications: Section 02-500 “Water Main Measurement and Payment”: **Replace** Paragraph 2.0 “Water Mains” as follows (Attachments: none):

2.0 WATER MAINS

- A. Measurement - Water mains shall be measured for payment by horizontal measurements or station distances along the centerline of the pipe to the nearest 1 foot. Water main size shall be based on nominal pipe diameter as shown on the Plans.
- B. Payment - Water mains shall be paid for on the basis of the respective unit prices bid per linear foot for pipe of the various sizes. Partial payments for water line installations shall be based upon the following percentages:

<u>Status</u>	<u>Maximum Percentage of Bid Price</u>
Line installed and backfilled only	70%
Line installed, backfilled, debris/rock removed, & rough clean-up completed	80%
Line installed, backfilled, debris removed, rough clean-up, & successfully tested	90%
Line installed, backfilled, successfully tested & <b>surface prepared for final seeding</b>	100%

The foregoing partial payments will be subject to retainage.

Payment for furnishing and installing the water mains shall constitute compensation in full for furnishing all labor, tools, equipment and materials and installing the water mains complete, including incidental work such as location and protection of existing utilities, clearing, excavation (including rock), dewatering trenches, bedding with crushed stone in accordance with Specifications, fittings, thrust blocks, driveway and private road crossings and bores (including surface and pavement restoration), tracer wire (where required) backfilling, disposal of surplus excavated material, the removal of existing timber, structures and piping to be relocated or abandoned; also sheeting, diking, well pointing, bailing, dewatering; the furnishing, placing and removal of bulkheads, and restoration of any utilities, parkways, trees, turf, shrubbery, culverts, fences, and other surface features, and testing.

Backfill shall be in accordance with Section 02-300, and the cost thereof shall be included in the appropriate bid price. Where the water line is to be installed under roadways, railroads, creeks, or other special crossings for which a specific pay item is provided, payment based on the measured quantity and unit cost of the work shall be made in addition to the base unit cost for the designation of pipe provided as compensation for the additional work associated with the installation.

8. Contract Documents: Appendix: **Add** Appendix 7 – Landowner’s Affidavit of Final Acceptance and Release template form for applicable use (Attachment: 1 page).

9. Contract Documents: Appendix: **Add** Appendix 8 – Pre-Bid Meeting Attendance List (Attachment: 4 pages).
10. Drawings: Detail Sheet D-1 “Water Line Details”: **Replace** Detail 1 - “Concrete Thrust Blocks” with the attached modified illustration. (Attachments: 1 page)
11. Drawings: Detail Sheet D-1 “Water Line Details”: **Replace** Detail 9 - “Wetland Crossing X-Section” with the attached modified illustration. (Attachments: 1 page)
12. Drawings: Detail Sheet D-2 “Water Line Details”: **Replace** Detail 5 - “Wide Stream Crossing” with the attached modified illustration. (Attachments: 1 page)
13. Drawings: Detail Sheet D-3 “Red River Crossing”: **Add** Note 20 - “General Notes on River Crossing” as follows. (Attachments: none)
20. Blasting at the Red River crossing is not forbidden at the stream crossing per the US Army Corp of Engineers, but a blasting plan must be submitted to and approved in advance by the US Army Corp of Engineers, Regulatory Division in Nashville, TN {Contact Lisa Morris at 615-369-7506}. Blasting mats will be required.

END OF ADDENDUM NO. 4 TEXT  
 This ADDENDUM consists of a total of 17 pages.



**BID FORM**

Project Identification: Logan Todd Regional Water Commission's  
Water System Expansion to Springfield, TN

Contract Identification: Contract No. 3 – 24" Water Pipeline to Springfield

**ARTICLE 1 – BID RECIPIENT**

1.01 This Bid is Submitted to: Logan Todd Regional Water Commission  
248 Tower Street; P.O. Box 400  
Guthrie, Kentucky 42234

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in the Bid and in accordance with the other terms and conditions of the Bidding Documents.

1.03 The undersigned Bidder acknowledges that the OWNER reserves the right to purchase certain materials directly from the Contractor's Vendor in order to take advantage of sales tax savings. For those materials, the Contractor will be responsible for negotiating the purchase price, delivery arrangements, payment terms and all other details of the transaction with a materials vendor of his choosing, as long as the materials purchased comply fully with the Specifications, and the terms do not conflict with the requirements set forth herein.

The Bidder's unit price for the installation of the proposed work shall include all costs of materials (i.e. those purchased by the Contractor and those that may be purchased by the OWNER) necessary for a complete installation. Sales tax shall be included with the Bidder's unit prices for all materials NOT purchased directly by the Owner. See Technical Specification 01-210.

**ARTICLE 2 – BIDDER'S ACKNOWLEDGMENTS**

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

**ARTICLE 3 – BIDDER'S REPRESENTATIONS**

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

- Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

#### **ARTICLE 4 – BIDDER'S CERTIFICATION**

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

**ARTICLE 5 – BASIS OF BID**

5.01 Bidder will compete the Work in accordance with the Contract Documents for the following prices:

Logan Todd Regional Water Commission Transmission Line					
Item No.	Item	Quantity	Units	Unit Price	Total Price
001	24-inch Class 250 DIP water line, in place and ready for use, including testing and clean up. <i>{Note pay limits per Spec 02-500, Section 2.0}</i>	26,985	LF	\$ _____	\$ _____
002	24-inch Restraining Gaskets for Class 250 Ductile Iron Pipe, installed in designated areas, in place, complete and ready for use.	140	EA	\$ _____	\$ _____
003	24-inch Class 200 DIP water line, in place and ready for use, including testing and clean up. <i>{Note pay limits per Spec 02-500, Section 2.0}</i>	71,523	LF	\$ _____	\$ _____
004	24-inch Restraining Gaskets for Class 200 Ductile Iron Pipe, installed in designated areas, in place, complete and ready for use.	200	EA	\$ _____	\$ _____
005	24-inch Class 350 DIP water line, in place and ready for use, including testing and clean up. <i>{Note pay limits per Spec 02-500, Section 2.0}</i>	239	LF	\$ _____	\$ _____
006	24-inch Restraining Gaskets for Class 350 Ductile Iron Pipe, installed in designated areas, in place, complete and ready for use.	14	EA	\$ _____	\$ _____
007	Red River Crossing, in place and ready for use Including restraint collars & slope stabilization. <i>{in accordance with Spec 02-500, Section 20.0}</i>	239	LF	\$ _____	\$ _____
008	Final Cleanup of affected line route ( <u>Exclude Bores &amp; paved areas</u> ) in accordance with Spec 02-500, Sect. 3.0 <i>{Note minimum unit price stipulation.}</i>	95,700	LF	\$ _____ <i>{\$2.00 Minimum}</i>	\$ _____
009	Steel cased Railroad bore, 36" casing (excluding 24" carrier) in place, complete & ready for use.	320	LF	\$ _____	\$ _____
010	Steel cased Highway bore, 36" casing (excluding 24" carrier) in place, complete & ready for use.	1,400	LF	\$ _____	\$ _____
011	Open Cut, Cased Road Crossing, 36" casing (excluding 24" carrier) in place, complete & ready for use.	165	LF	\$ _____	\$ _____

EJCDC® C-410, Bid Form for Construction Contracts.

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012	Pavement Replacement & Backfill of affected uncased pipeline route in accordance with Detail 2, Sheet D-2.	1,127	LF	\$ _____	\$ _____
013	Wide Stream Crossings of affected uncased pipeline route in accordance with TDEC/ACOE Permit and Detail 5, Sheet D-2.	220	LF	\$ _____	\$ _____
014	Wide Stream Crossings of affected pipeline route with 36" steel casing in accordance with TDEC/ACOE Permit and Detail 5, Sheet D-2.	140	LF	\$ _____	\$ _____
015	Shallow Ditch/Creek Crossing of affected uncased pipeline route in accordance with TDEC/ACOE permit and Detail 4, Sheet D-2.	585	LF	\$ _____	\$ _____
016	Wetland Crossing & Restoration of affected uncased pipeline route in accordance with TDEC/ACOE permit and Detail 9, Sheet D-1.	3,520	LF	\$ _____	\$ _____
017	Air Release Valve (2") & Box, including applicable fittings, in place, complete and ready for use.	13	EA	\$ _____	\$ _____
018	Combination Air Valve (3") & Vault including applicable fittings, in place, complete and ready for use.	5	EA	\$ _____	\$ _____
019	Large Flush Hydrant, including 6" gate valve, in place, complete and ready for use.	3	EA	\$ _____	\$ _____
020	Intermediate Blowoff Assembly, including 6" gate valve, in place, complete and ready for use.	3	EA	\$ _____	\$ _____
021	24" butterfly valve and box, including applicable fittings, in place, complete and ready for use.	6	EA	\$ _____	\$ _____
022	24" gate valve and box, including applicable fittings, in place, complete and ready for use.	1	EA	\$ _____	\$ _____
023	Remove appurtenance &/or connect to exist. 24-inch line/valve with applicable piping and fittings, in place, complete and ready for use	1	EA	\$ _____	\$ _____
024	Construction Staking, Layout, and Record Survey and Drawings. {in accordance with Spec 01-900}	1	LS	\$ _____	\$ _____

**TOTAL AMOUNT OF BID**

\$ \_\_\_\_\_

5.02 Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

5.03 SUPPLEMENTAL UNIT PRICES: The following Supplemental Unit Prices will apply in the event that additions to or deductions from the work required in the Bid are ordered. A single price shall be bid for each item. OWNER reserves the right to accept or reject these prices by inclusion in or omission from the Contract Documents to be executed after the award of the Contract.

Item No.	Item Description	Units	Unit Bid Price
S1	Unclassified undercut, where ordered by the Engineer.	CY	\$ _____.
S2	No. 57 aggregate refill, where ordered by the Engineer.	Ton	\$ _____.
S3	Class "B" concrete refill or for thrust blocks, where specifically ordered by the Engineer	CY	\$ _____.
S4	Polyethylene Wrap of Ductile Iron Pipe, excluding pipe, where ordered by Engineer.	LF	\$ _____.
S5	Miscellaneous Waterline Marker installed, where ordered by Engineer	EA	\$ _____.

5.04 MATERIALS PURCHASED DIRECTLY BY OWNER: Provide bid pricing for materials to be purchased directly by the Owner (reference Specification Section 01-900). Contractor has included in the unit bid prices for the work under part 5.01, the following material costs.

Material Item	Vendor	Units	Unit Price
24-inch Class 200 Ductile Iron Pipe		LF	\$ _____
24-inch Class 250 Ductile Iron Pipe		LF	\$ _____
24-inch Class 350 Ductile Iron Pipe		LF	\$ _____
24-inch Restraining Gaskets for Ductile Iron Pipe		EA	\$ _____
36-inch Steel Casing Pipe		LF	\$ _____

**ARTICLE 6 – TIME OF COMPLETION**

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

**ARTICLE 7 – ATTACHMENTS TO THIS BID**

7.01 The following documents are attached to and made a condition of the Bid:

- A. Required Bid security in the form of a Bid Bond (EJCDC No. C-430) or Certified Check (circle type of security provided);
- B. If Bid amount exceeds \$10,000, signed Compliance Statement (RD 400-6). Refer to specific equal opportunity requirements set forth in the Supplemental General Conditions;
- C. If Bid amount exceeds \$25,000, signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions (AD-1048);
- D. If Bid amount exceeds \$100,000, signed RD Instruction 1940-Q, Exhibit A-1, Certification for Contracts, Grants, and Loans;
- E. List of Subcontractors.
- F. Statement of Experience
- G. Statement pursuant to the Iran Divestment Act
- H. Copy of the Bidder's State of Tennessee Contractors License.

**ARTICLE 8 – DEFINED TERMS**

8.01 The terms used in this Bid with the initial capital letters have the meanings indicated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

**ARTICLE 9 – BID SUBMITTAL**

9.01 This Bid submitted by:

Signature	Business
Printed or Typed Name	Bidder's Business Address
Title	City, State, Zip Code
Employer's Tax ID No.	Business Phone No.                      Business Fax No.
Business Email Address	Cell Phone No.                      Other Contact No.

9.02 Bid submitted on \_\_\_\_\_, 2018.

Seal below (if required)

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

**LANDOWNER'S AFFIDAVIT OF  
FINAL ACCEPTANCE AND RELEASE**

BEFORE ME, the undersigned LANDOWNER(S) hereby accepts the post-construction conditions of his or her property as it was affected by the construction of the **Water Line Expansion to Springfield TN** (Contract No. 1) (the "Project"). The undersigned hereby releases \_\_\_\_\_, (the "Contractor"), and the **Logan Todd Regional Water Commission** (the "Owner") from any further remedial work requirements resulting from the construction of the Project. Furthermore, the LANDOWNER(S) acknowledges that he or she has communicated to the CONTRACTOR all of his or her disturbance concerns, and these disturbance concerns have been duly rectified to the LANDOWNER'S complete and total satisfaction and approval.

The LANDOWNER(S) shall hold harmless and indemnify the **LOGAN TODD REGIONAL WATER COMMISSION** (the Owners) and \_\_\_\_\_, (the "Contractor") from any future claims of disturbance arising from the Project.

\_\_\_\_\_  
Signature of Landowner 1

\_\_\_\_\_  
Signature of Landowner 2 (if applicable)

\_\_\_\_\_  
Signature of Landowner 3 (if applicable)

**CONTRACTOR ATTEST:**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name & Title

\_\_\_\_\_  
Contractor

Logan Todd Regional Water Commission  
Springfield Water Supply Project

**Pre-Bid Meeting - All Contracts**

April 25, 2018 - 2:00 pm  
Attendance List

Name	Representing	E-mail	Phone No.
Mike McGhee	McGhee Engineering, Inc.	Mike.McGhee@mcgheeengineering.com	(270) 483-9985 (O) - (270) 878-0499 (C)
DON WINDMILLER	CUMMINS INC	DONALD.S.WINDMILLER@cummins.com	812-499-0456
Brian G. Tuley	DeLaney Associates	Brian@delaneyassociates.com	505-342-4944
Emily Wiesner	Layne	emily.wiesner@layne.com	502-522-0817
Kevin Bauldicker	CARDWELL TANKS	kgb@laynes.com	502-522-0817
Brian Himes	Wood	brian.himes@woodgroup.com	615-815-5503
Ed Shortt	National Water Services	Edward.Shortt@nws.com	423-389-6612
CHASE TURL	S.T. LOUIS CONSTRUCTION	CHASE.T@STLOUIS.COM	832-767-4964
Lane Williams	Eutaw Construction	lwilliams@eutaw.com	662-436-2211
Darryl Presley	EUTAW const	D.Presley@EUTAW.COM	662-661-0274
Steve Smith	VULCAN MATERIALS	smiths@vulcanmail.com	931-614-5556
Don Nason	CB&I	DON.NASON@cbi.com	678-428-6680
CRADIS WILSEY	REYNOLDS	Craig.Wilsey@reynolds.com	618-898-7235
GARY GOFF	GARNEY	garneywashville@garney.com	615-356-7925
Jim Williamson	ACIACB	jwilliamson@americanwva.com	615/390-3524

Logan Todd Regional Water Commission  
Springfield Water Supply Project

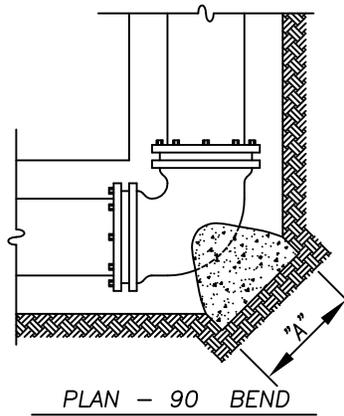
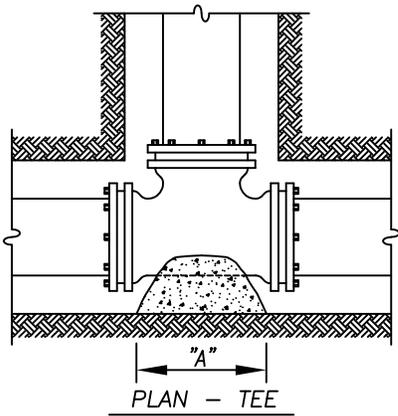
**Pre-Bid Meeting - All Contracts**

April 25, 2018 - 2:00 pm  
Attendance List

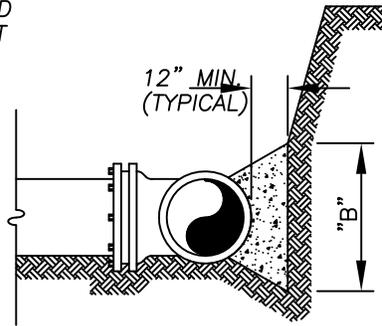
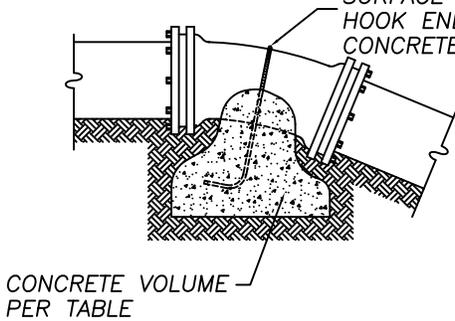
Name	Representing	E-mail	Phone No.
Mike Youree	US Pipe	myouree@uspipe.com	317-719-0821
Phil Hasewood	MOORE CONSTRUCTION	philip@mooreconst.com	931-320-2593
Joe Finlay	Twin States Utilities Inc.	jfinlay@twinstatesinc.com	870-427-0710
CHUCK ADAMS	TWIN STATES UTILITIES INC.	cadams@twinstatesinc.com	270-407-8366
Steve Townsend	COBE AND MAIN	Steve.Townsend@cobmail.com	220-256-1205
Bo Ellison	Cumberlano Pipers Inc	bellison@cumberlano.com	559-699-9349
Jon McIllean	McWANE	Jon.McIllean@mcwane.com	502-472-6647
MIKE BOND	KWIGIT ELECTRIC	MIKE@KWIGIT-ELEC.COM	870 726 7910
Jim Rish	JSS Construction	Jim@JSSConstruct.com	615-533-2808
Tim Julian	EVAPAR/GENERAC	tjulian@evapar.com	812-549-4100
PETER FISACKERLY	PTL Fabricables	peter.f@ptlfab.com	931-251-4779
Garrett Bolton	PTL Fab	GBolton@ptlfab.com	270 484 8899
Joseph E. Lehrs	T&H Construction of Asheville	joe.lehrs@tandhconstruction.net	931/528-006X
Roy Mundy	McWANE Ductile	roy.mundy@mcwane.com	859-461-8585
Jim Vancey	McWane Ductile	jim.vancey@mcwane.com	423.260.347X







GRADE 60 REBAR - SIZE PER TABLE. COAT EXPOSED SURFACE WITH EPOXY PAINT HOOK ENDS & EMBED IN CONCRETE 12" MIN.



ELEV. - GRAVITY THRUST BLOCK

TYP. SECTION

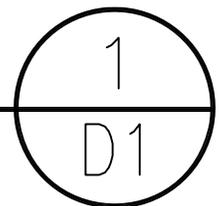
PIPE SIZE	MINIMUM BEARING AREA ("A"x"B") IN SQUARE FEET					MIN. CONC. VOLUME IN CUBIC FEET		REBAR SIZE
	TEE OR DEAD END	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	ALL FTGS.	VALVES	
2", 3" & 4"	1	1	1	1	1	1	1	#4
6"	2	2	1	1	1	2	2	#4
8"	3	4	2	1	1	4	4	#5
10"	4	6	3	2	1	6	6	#5
12"	6	9	5	2	1	9	9	2-#5
16"	11	16	9	4	2	21	21	2-#6
20"	17	24	13	7	3	41	27	2-#8
24"	25	35	19	10	5	70	34	2-#9
30"	39	54	30	15	8	136	41	2-#11
36"	55	78	43	22	11	235	54	2-#11

NOTES

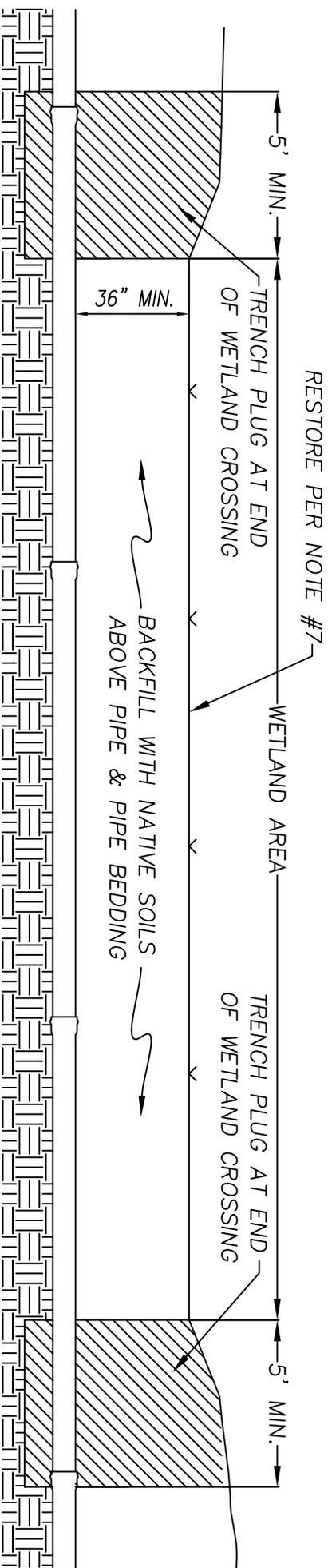
1. CONCRETE FOR THRUST BLOCKS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
2. KEEP CONCRETE CLEAR OF JOINTS, GLAND BOLTS, ETC.
3. CONCRETE THRUST BLOCKS SHALL BE CAST AGAINST SOUND, UNDISTURBED EARTH.
4. BEARING AREAS ARE BASED ON 4,000 PSF SOIL BEARING CAPACITY. WEAKER SOILS MAY REQUIRE LARGER THRUST BLOCKS.
5. THRUST BLOCK BEARING AREAS MAY BE REDUCED IN ROCK SUBJECT TO ENGINEER'S APPROVAL.
6. VALVES REQUIRE ONE REBAR STRAP AS SHOWN IN THE TABLE AT EACH END OF THE VALVE.
7. WHERE CONTRACTOR SUSPECTS THAT UNSUITABLE BEARING CONDITIONS EXIST, NOTIFY ENGINEER PRIOR TO CASTING THRUST BLOCK.
8. THRUST BLOCKS ARE NOT REQUIRED AT BURIED, RESTRAINED FITTINGS UNLESS ORDERED BY THE ENGINEER (SEE SUPPLEMENTAL BID ITEM).
9. ALL FITTINGS SHALL BE EQUIPPED WITH RESTRAINT GLAND (ROMAC GRIPRINGS OR EQUAL)

# CONCRETE THRUST BLOCKS

NOT TO SCALE







RESTORE PER NOTE #7

GENERAL NOTES

1. TRENCH PLUG SHALL CONSIST OF CLAY CONTAINING NO MORE THAN 15% STONE, NOT LARGER THAN 2" DIA. CLAY SHALL BE PLACED IN 6" LIFTS & COMPACTED BY MECHANICAL TAMPER TO NO LESS THAN 95% MAX. DENSITY.
2. TRENCH PLUGS SHALL BE INSTALLED AT EDGES OF ALL WETLANDS TO PREVENT TRENCH FROM DRAINING AREA.
3. TRENCH WIDTH AND DISTURBANCE SHALL BE KEPT TO A MINIMUM. RESTORE ORIGINAL GRADES THRU WETLANDS.
4. PROTECT AND PRESERVE VEGETATION TO THE MAXIMUM EXTENT POSSIBLE. MOUNDING OF FILL MATERIAL TO ALLOW FOR SETTLEMENT IN TRENCH IS PERMITTED.
5. MINIMIZE EROSION & PRECLUDE ITS ENTERING WETLAND AREA.
6. BACKFILL: THE TOP 6" OF TOPSOIL SHALL BE STRIPPED & SALVAGED PRIOR TO TRENCHING. AFTER TRENCHING, THE UPPER 6" OF BACKFILL SHALL BE RETURNED WITH THE NATIVE TOPSOIL. TOP 2" SHALL NOT BE COMPACTED.
7. PERMANENT RESTORATION SEEDING: RESEED DISTURBED AREAS WITH NATIVE WETLAND SEED. LEAVE NO BARE SPOTS AND MULCH WITH SMALL GRAIN STRAW. THE OWNER WILL PLANT TREE SEEDLINGS AFTER PROJECT COMPLETION.

# WETLAND CROSSING X-SECTION

NOT TO SCALE

