

*Fayette*  
COUNTY

"WHERE QUALITY  
IS A LIFESTYLE"

**PURCHASING DEPARTMENT**  
140 STONEWALL AVENUE WEST, STE 204  
FAYETTEVILLE, GEORGIA 30214  
PHONE: 770-305-5420  
[www.fayettecountyga.gov](http://www.fayettecountyga.gov)

Invitation to Bid #961-B  
**ANNUAL WATERLINE EXTENSIONS**  
(July 1, 2015 – June 30, 2016)

Prepared for  
FAYETTE COUNTY WATER SYSTEM  
Lee Pope – Director



**For Information regarding this project, contact:**

Trina C. Barwicks, Contract Administrator  
Fayette County Purchasing Department  
140 Stonewall Ave. W., Suite 204  
Fayetteville, GA 30214  
Direct: (770) 305-5314  
Fax: (770) 719-5515  
Email: [tbarwicks@fayettecountyga.gov](mailto:tbarwicks@fayettecountyga.gov)

April 24, 2015

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## Bidding Requirements

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FAYETTEVILLE, GEORGIA 30214  
PHONE: 770-305-5420  
[www.fayettecountyga.gov](http://www.fayettecountyga.gov)

**INVITATION FOR BIDS**

Fayette County, Georgia is seeking bids for an annual contract from qualified firms or contractors to perform water system infrastructure installation that will be ordered on an as-needed basis.

Bids should be on the attached Bid Schedule. Be sure to include the **bid number** and **reference** along with your company's name and address on the **sealed** envelope in which the bid is returned.

Bids must be submitted to:

FAYETTE COUNTY PURCHASING DEPARTMENT  
140 STONEWALL AVENUE WEST, SUITE 204  
FAYETTEVILLE, GEORGIA 30214

**BID #961-B**

**REFERENCE: ANNUAL CONTRACT FOR WATERLINE EXTENSION, 2015-2016**

All questions and inquiries concerning the invitation for bids listed above shall be addressed to: Trina Barwicks, Contract Administrator of Purchasing, 140 Stonewall Avenue, Suite 104, Fayetteville, Georgia 30124 from 8:00 a.m. to 5:00 p.m. The telephone number is (770) 305-5420 or email address [tbarwicks@fayettecountyga.gov](mailto:tbarwicks@fayettecountyga.gov). Questions may be submitted until **10:00 a.m. EST on Friday, May 22, 2015**. Any deviation from this procedure for questions or information pertaining to this invitation for bids may result in your bid being rejected.

Bids will be received at the above address until **3:00 p.m., Thursday, May 28, 2015** in the Purchasing Department, Suite 204. Bids will be opened at approximately **3:00 p.m., May 28, 2015** and then at said office publicly the Bidder's Names, Total Weighted Bid, confirmation of Bid Bond submittal, and confirmation of signature will be read aloud. Bids must be signed to be considered. Late bids will not be considered. Faxed bids will not be considered.

INVITATION FOR BIDS

For the complete list of specifications, requirements and relevant information, Invitation for Bids #961-B Annual Contract for Waterline Extensions for Fayette County, 2015-2016, is available for download on the Fayette County website at:

[http://www.fayettecountyga.gov/purchasing/bids\\_and\\_proposals.asp](http://www.fayettecountyga.gov/purchasing/bids_and_proposals.asp)

If the invitation for bids listed above is downloaded from the Fayette County website, it is the responsibility of the individual or company that downloads the invitation for bids to continue to check the Fayette County website for any addenda that might be issued and posted on the Fayette County website. Fayette County shall not be responsible for any information that any individual or company fails to get in an addendum that is posted on the Fayette County website but is not downloaded. However, if the Fayette County Purchasing Department mails or emails the invitation for bids to a company or individual, we will keep a record of those vendors and all addenda will be mailed or emailed to those companies or individuals.

\*\*\*\*\*

**Bids will be posted on the Fayette County website within 3 business days after the bid opening.**

**There is no set time for an award to be made. If an award is not made within 45 days of the bid opening, an update will be posted on the Fayette County website.**

**If the County awards this bid, once everything has been received by that company and the award has been completed, that information will also be posted on the Fayette County website. Please keep this procedure in mind.**

\*\*\*\*\*

The County reserves the right to reject or accept any or all bids and to waive technicalities, informalities, and minor irregularities in bids received.

Sincerely,



Ted L. Burgess  
Director of Purchasing

## INFORMATION FOR BIDDERS

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

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

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

The NOTICE TO PROCEED shall be issued for individual projects authorized by the OWNER as outlined in Section 01010, Summary of the Project, of these specifications.

A conditional, qualified or obviously unbalanced BID will not be accepted.

Award of the Contract will be made to the lowest responsible BIDDER on the basis of the lowest weighted bid amount for the Contract, which is defined in the Bid Schedule.

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

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

Further, the BIDDER agrees to abide by the requirements under Executive Order No. 11246, as amended, including specifically the provisions of the equal opportunity clause set forth in the SUPPLEMENTAL GENERAL CONDITIONS.

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

The ENGINEER is: CH2M HILL Inc.,

6600 Peachtree Dunwoody Road, 400 Embassy Row, Suite 600, Atlanta, Georgia 30328

CHECKLIST OF REQUIRED DOCUMENTS

**CHECKLIST OF REQUIRED DOCUMENTS**

(Please Return this Checklist with Your Bid)

**BID #961-B**

**REFERENCE: ANNUAL CONTRACT FOR WATERLINE EXTENSION, 2015-2016**

Be sure to include with your bid or proposal:

- Bid Schedule \_\_\_\_\_
- Work Authorization Documents: Contractor Affidavit \_\_\_\_\_
- Bid bond \_\_\_\_\_
- Company information – on the Statement of Bidder Qualifications \_\_\_\_\_
- References – on Project Information form (minimum of three) \_\_\_\_\_

**BID**

Bid 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 FAYETTE COUNTY, GEORGIA (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the construction of ANNUAL CONTRACT FOR WATERLINE EXTENSIONS FOR FAYETTE COUNTY, GEORGIA (JULY 1, 2015 THRU JUNE 30, 2016) 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 each individual NOTICE TO PROCEED and to fully complete the PROJECT within the consecutive calendar days as outlined in Section 01010, Summary of Project of these specifications. BIDDER further agrees to pay as liquidated damages, the sum of \$250 for each consecutive day thereafter as provided in Section 15 of the General Conditions.

BIDDER acknowledges receipt of the following ADDENDUM:

\_\_\_\_\_  
\_\_\_\_\_

BIDDER agrees to perform all the work described in the CONTRACT DOCUMENTS for the following unit prices or lump sum as provided in the Bid Schedule (See Section 01010 for more information):



BID SCHEDULE

**BID SCHEDULE**

NOTES: BIDS shall include sales tax and all other applicable taxes and fees.  
See page 10 for total Weighted Bid Price Formula.

No.	Item	Unit	Est. Quantity	Unit Price	Total Price
1	Mobilization - Primary (See Specification Section 01010)	EA.	10	\$	\$
1A	Mobilization - Secondary (See Specification Section 01010)	EA.	1	\$	\$
2	20" Diameter (Dia.) Class 300 Ductile Iron Pipe (DIP), complete (see Specification Section 02713)	L.F.	100	\$	\$
3	16" Dia. Class 300 DIP, complete	L.F.	100	\$	\$
4	12" Dia. Class 300 DIP, complete	L.F.	600	\$	\$
5	10" Dia. Class 300 DIP, complete	L.F.	600	\$	\$
6	8" Dia. Class 300 DIP, complete	L.F.	5000	\$	\$
7	6" Dia. Class 300 DIP, complete	L.F.	600	\$	\$
8	Ductile Iron (DI) Fittings, complete including hydrant tees, gaskets & hardware, (see Specification 02713) Weight based on Star Pipe Products Weight Guide, or ENGINEER-approved equivalent	TON	10.0	\$	\$
9	Fire Hydrant Assembly, complete including 6" gate valve, valve box, hydrant lead pipe, restraining devices, concrete & crushed stone	EA.	20	\$	\$
10	<b>30" Dia. Steel Casing &amp; 20" Dia. Carrier Pipe w/Casing Spacers</b>				
10A	Bore & Jack	L.F.	40	\$	\$
10B	Placed in open trench	L.F.	20	\$	\$
11	<b>24" Dia. Steel Casing &amp; 16" Dia. Carrier Pipe w/Casing Spacers</b>				
11A	Bore & Jack	L.F.	40	\$	\$
11B	Placed in open trench	L.F.	20	\$	\$
12	<b>16" Dia. Steel Casing &amp; 12" Dia. Carrier Pipe w/Casing Spacers</b>				
12A	Bore & Jack	L.F.	40	\$	\$
12B	Placed in open trench	L.F.	20	\$	\$
13	<b>16" Dia. Steel Casing &amp; 10" Dia. Carrier Pipe w/Casing Spacers</b>				
13A	Bore & Jack	L.F.	40	\$	\$
13B	Placed in open trench	L.F.	20	\$	\$
14	<b>14" Dia. Steel Casing &amp; 8" Dia. Carrier Pipe w/Casing Spacers</b>				
14A	Bore & Jack	L.F.	200	\$	\$
14B	Placed in open trench	L.F.	60	\$	\$
15	<b>10" Dia. Steel Casing &amp; 6" Dia. Carrier Pipe w/Casing Spacers</b>				
15A	Bore & Jack	L.F.	65	\$	\$
15B	Placed in open trench	L.F.	10	\$	\$

No.	Item	Unit	Est. Quantity	Unit Price	Total Price
16	2" Dia. Combination Vacuum/Air Release Valve (C/ARV), complete Including saddle tap for, 20" Dia. pipe, manhole, stone bedding, all accessories and clean up	EA.	1	\$	\$
17	2" Dia. C/ARV, complete Including saddle tap for, 16" Dia. pipe, manhole, stone bedding, all accessories and clean up	EA.	1	\$	\$
18	2" Dia. C/ARV, complete Including saddle tap for, 12" Dia. pipe, manhole, stone bedding, all accessories and clean up	EA.	1	\$	\$
19	2" Dia. C/ARV, complete Including saddle tap for, 10" Dia. pipe, manhole, stone bedding, all accessories and clean up	EA.	1	\$	\$
20	Freebore for 20" pipe w/out casing, complete	L.F.	60	\$	\$
21	Freebore for 16" pipe w/out casing, complete	L.F.	60	\$	\$
22	Freebore for 12" pipe w/out casing, complete	L.F.	60	\$	\$
23	Freebore for 10" pipe w/out casing, complete	L.F.	60	\$	\$
24	Freebore for 8" pipe w/out casing, complete	L.F.	500	\$	\$
25	Freebore for 6" pipe w/out casing, complete	L.F.	100	\$	\$
26	20" Dia. Gate Valve (GV) w/box & valve marker, complete	EA.	1	\$	\$
27	16" Dia. GV w/box & valve marker, complete	EA.	1	\$	\$
28	12" Dia. GV w/box & valve marker, complete	EA.	3	\$	\$
29	10" Dia. GV w/box & valve marker, complete	EA.	3	\$	\$
30	8" Dia. GV w/box & valve marker, complete	EA.	10	\$	\$
31	6" Dia. GV w/box & valve marker, complete	EA.	1	\$	\$
32	Clearing and Grubbing, complete w/ grinding, haul off and cleanup (see Specification 02110)	ACRE	2.0	\$	\$
33	Pavement Repair (in-kind)	S.Y.	50	\$	\$
34	Trench Rock Excavation, complete including backfill with suitable material	C.Y.	100	\$	\$
35	Unsuitable Materials, complete including backfill with suitable material and disposing offsite of unsuitable material	C.Y.	200	\$	\$
36	3/4" Short-Side service tie-ins, including copper service pipe, meter box, & all misc. hardware (Owner to provide 3/4" meter & backflow preventer)	EA.	10	\$	\$
37	3/4" Long-Side service tie-ins, complete as described in Item 36, including road bore	EA.	10	\$	\$

BID SCHEDULE

No.	Item	Unit	Est. Quantity	Unit Price	Total Price
38	1" Short-Side Service Tie in, complete, as described in Item 36	EA.	5	\$	\$
39	1" Long-Side service tie-ins, complete as described in Item 36, including road bore	EA.	10	\$	\$
40	2" Short-Side Service Tie in, complete, as described in Item 36	EA.	1	\$	\$
41	2" Long-Side service tie-ins, complete as described in Item 36, including road bore	EA.	1	\$	\$
42A	Grassing (DS3), complete including maintenance and temporary grassing (DS2)	ACRE	5.0	\$	\$
42B	Sod Replacement (DS4), complete	S.F.	3,000	\$	\$
43	Silt Fence (Sd1), complete	L.F.	5,000	\$	\$
44	Ditch Checks (Cd), complete	EA.	100	\$	\$
45	Rip-Rap (St), GDOT Type 3	TON	100	\$	\$
46	Mulch Mat (Ss), complete	S.Y.	2500	\$	\$
47	Concrete Encasement, complete	C.Y.	10	\$	\$
48	Concrete Thrust Blocking, complete	C.Y.	20	\$	\$
49	<i>Omitted</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
50	<i>Omitted</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
51	<i>Omitted</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
52	20" x 10" Wet Tap, complete w/tapping sleeve, 10" GV and all misc. hardware	EA.	1	\$	\$
53	20" x 8" Wet Tap, complete as described in Item 52, w/8" GV	EA.	1	\$	\$
54	20" x 6" Wet Tap, complete as described in Item 52, w/6" GV	EA.	1	\$	\$
55	<i>Omitted</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
56	<i>Omitted</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
57	16" x 10" Wet Tap, complete as described in Item 52, w/10" GV	EA.	1	\$	\$
58	16" x 8" Wet Tap, complete as described in Item 52, w/8" GV	EA.	1	\$	\$
59	16" x 6" Wet Tap, complete as described in Item 52, w/6" GV	EA.	1	\$	\$
60	<i>Omitted</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
61	12" x 10" Wet Tap, completeas described in Item 52, w/10" GV	EA.	1	\$	\$
62	12" x 8" Wet Tap, complete as described in Item 52, w/8" GV	EA.	1	\$	\$
63	12" x 6" Wet Tap, complete as described in Item 52, w/6" GV	EA.	1	\$	\$

No.	Item	Unit	Est. Quantity	Unit Price	Total Price
64	10" x 10" Wet Tap, complete as described in Item 52, w/10" GV	EA.	1	\$	\$
65	10" x 8" Wet Tap, complete as described in Item 52, w/8" GV	EA.	1	\$	\$
66	10" x 6" Wet Tap, complete as described in Item 52, w/6" GV	EA.	1	\$	\$
67	8" x 8" Wet Tap, complete as described in Item 52, w/8" GV	EA.	1	\$	\$
68	8" x 6" Wet Tap, complete as described in Item 52, w/8" GV	EA.	1	\$	\$
69	6" x 6" Wet Tap, complete as described in Item 52, w/6" GV	EA.	1	\$	\$
70	Stabilization Stone or Crusher Run for gravel driveway repair	TON	200	\$	\$
71	<b>REPAIR OF EXISTING WATERLINE W/OWNER PROVIDED MATERIALS INCLUDING TRAVEL TIME TO AND FROM SITE</b>				
71A	Trackhoe	HOUR	300	\$	\$
71B	Rubber Tire Backhoe	HOUR	150	\$	\$
71C	5 Man Crew	HOUR	200	\$	\$
71D	3 Man Crew	HOUR	200	\$	\$
72	3/4" Short-Side service tie-in to existing waterline (outside limits of any project being installed), complete as described in Item 36	EA.	20	\$	\$
73	3/4" Long-Side service tie-in to existing waterline (outside limits of any project being installed), complete as described in Item 36, including road bore	EA.	20	\$	\$
74	1" Short-Side service tie-in to existing waterline (outside limits of any project being installed), complete as described in Item 36	EA.	10	\$	\$
75	1" Long-Side service tie-in to existing waterline (outside limits of any project being installed), complete as described in Item 36, including road bore	EA.	10	\$	\$

BID SCHEDULE

No.	Item	Unit	Est. Quantity	Unit Price	Total Price
76	<b>OVERDEPTH TRENCH EXCAVATION, BACKFILL &amp; COMPACTION FOR WATERMAIN INSTALLATIONS DEEPER THAN SIX FEET (6')</b>				
76A	6' - 8' Trench Depth	L.F.	500	\$	\$
76B	8' - 10' Trench Depth	L.F.	100	\$	\$
76C	10' - 12' Trench Depth	L.F.	100	\$	\$
76D	12' - 14' Trench Depth	L.F.	100	\$	\$
77	Payment & Performance Bonds	L.S.	L.S.	L.S.	\$
78	Material Not Provided by Owner See Section 01010 Summary of Work, Part 4.00 Payment	--	----	----	----
TOTAL OF BASE BID (Total of all Bid Items)					\$

Contract Amount will equal Total Base Bid.

**Award of Bid** will be based on the following formula:

$$\begin{aligned} & (0.75) \times (\text{Sum of High Priority Bid Items}) \\ & + (0.25) \times (\text{Sum of Low Priority Bid Items}) \\ & = \text{Total Weighted Bid Price} \end{aligned}$$

---

HIGH PRIORITY BID ITEMS (HPBI):

Bid Items 1, 5-9, 14a, 14b, 24, 30-39, 42-48, 70-71d & 77.

TOTAL HPBI      \$ \_\_\_\_\_

LOW PRIORITY BID ITEMS (LPBI):

All other Bid Items.

TOTAL LPBI      \$ \_\_\_\_\_

---


$$\begin{aligned} \text{Total Weighted Bid:} & \quad (0.75) \times \$ \text{_____ (HPBI)} \\ & + (0.25) \times \$ \text{_____ (LPBI)} \\ \text{TOTAL WEIGHTED BID . . . . .} & = \$ \text{_____} \end{aligned}$$

Respectfully Submitted:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company

\_\_\_\_\_  
Name (Please Print)

\_\_\_\_\_  
Address

\_\_\_\_\_  
Title

\_\_\_\_\_  
Address

\_\_\_\_\_  
Georgia Utility Contractor's License Number

\_\_\_\_\_  
Date

SEAL - (if BID is by a corporation)

AS-BUILT QUANTITIES

**AS-BUILT QUANTITIES**

For Bidder information only:

2012/2013 As-Built Contract Value was approximately: \$ 539,000

2013/2014 As-Built Contract Value was approximately: \$ 701,000

2014/2015 As-Built Contract Value: \$ 251,000, in-progress, to date

**BID BOND**

KNOW ALL PERSONS BY THESE PRESENTS: that we, the undersigned as Principal, and as Surety, are hereby held and firmly bound unto Fayette County, Georgia as OWNER in the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) for the payment of which, well and truly to be made, we hereby jointly 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 Fayette County, Georgia a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for: Bid #961-B, ANNUAL CONTRACT FOR WATERLINE EXTENSIONS FOR FAYETTE COUNTY, GEORGIA (JULY 1, 2015 THRU JUNE 30, 2016).

NOW, THEREFORE,

(a) If said BID shall be rejected, or

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

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



BID BOND

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

\_\_\_\_\_  
Principal L.S.

Surety: \_\_\_\_\_

By: \_\_\_\_\_

Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

Address: \_\_\_\_\_

\_\_\_\_\_

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 project is located.

### STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information desired. Attach all additional sheets to this statement. (Sample "Project Information Form" contained at the end of this Section.)

1. Name of Bidder: \_\_\_\_\_

2. Authorized Representative:

Printed Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

3. Permanent main office address, phone numbers, and email address of primary contact:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. When organized: \_\_\_\_\_

5. If a Corporation, where incorporated: \_\_\_\_\_

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

7. Contracts on hand. (Complete a "**Project Information Form**", for each Contract on hand.)

8. General description of type of work performed by your company:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_

STATEMENT OF BIDDER'S QUALIFICATIONS

\_\_\_\_\_

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

\_\_\_\_\_

11. Have you ever refused to sign a Contract at the original bid? If so, where and why?

\_\_\_\_\_

12. Attach a list of the most important projects recently completed by your company which are similar in scope to this Project. (Complete a **"Project Information Form"**, for each Project listed.)

13. Names, background and experience of the principal members of your organization, including officers:

Name	Position	Years Experience
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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

I, \_\_\_\_\_, certify that I am the \_\_\_\_\_ of the Bidder, and that the answers to the foregoing questions and statements contained therein are true and correct.

CONTRACTOR: \_\_\_\_\_  
(Company Name)

BY: \_\_\_\_\_  
(Authorized Signature)

NAME/TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

SUBSCRIBED AND SWORN BEFORE ME ON THIS \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires: \_\_\_\_\_.

STATEMENT OF BIDDER'S QUALIFICATIONS

**PROJECT INFORMATION FORM**

(Use additional sheets as necessary and please type all information)

Project Title: \_\_\_\_\_

Project Location: \_\_\_\_\_

Construction Type/Project Description: \_\_\_\_\_

Project Owner:

Owner Name: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Construction Contract Administrator, Engineer/Architect, or Construction Manager:

Company Name: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Contract Amount:

Initial (Bid Price): \_\_\_\_\_

Final Contract Price: \_\_\_\_\_

Explain Reasons for Variances: \_\_\_\_\_

Contract Time

Initial: \_\_\_\_\_

Final: \_\_\_\_\_

Explain Reasons for Variances: \_\_\_\_\_

Completion Date: \_\_\_\_\_

**Contract Forms**

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AGREEMENT

STATE OF GEORGIA

COUNTY OF FAYETTE

**AGREEMENT**

THIS AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between  
Fayette County, Georgia, hereinafter called "OWNER" and

\_\_\_\_\_ doing business as (an individual), or (a partnership), or (a  
corporation) hereinafter called "CONTRACTOR".

WITNESSETH

For and in consideration of the payments and agreements herein after mentioned:

1. The CONTRACTOR will commence and complete the construction of ANNUAL CONTRACT FOR WATERLINE EXTENSIONS FOR FAYETTE COUNTY, GEORGIA (JULY 1, 2015 THRU JUNE 30, 2016)
2. The CONTRACTOR will furnish all of the materials, supplies, tools, equipment, labor, and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within 21 calendar days after the date of each NOTICE TO PROCEED and will complete the same within the calendar days in accordance with Section 01010, Summary of Project, of these Specifications.
4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the Unit Prices as shown in the BID Schedule.
5. The terms "CONTRACT DOCUMENTS" MEANS and includes the following:
  - A. Invitation for Bids
  - B. Information for Bidders
  - C. BID
  - D. BID Schedule

- E. BID BONDS
- F. Agreement
- G. Performance BOND
- H. Payment BOND
- I. General Terms and Conditions
- J. General, Supplemental, and Special Conditions
- K. Affidavits
- L. Notice of Award
- M. Notice to Proceed
- N. DRAWINGS prepared by ENGINEER, will be issued for each portion of the project when authorized by the OWNER.
- O. Standard Construction Details included herein (see Appendix).
- P. Specification included herein (see Appendix) or issued by ENGINEER
- Q. ADDENDA:

No. \_\_\_\_\_, dated \_\_\_\_\_, 20\_\_\_\_.

No. \_\_\_\_\_, dated \_\_\_\_\_, 20\_\_\_\_.

No. \_\_\_\_\_, dated \_\_\_\_\_, 20\_\_\_\_.

- 6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.
- 7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.
- 8. Any dispute which may arise under this agreement shall be resolved under the laws of the State of Georgia and venue shall be proper in Fayette County, Georgia.



AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed or caused to be executed by their duly authorized official, this Agreement in Quintuplicate (5) copies shall be deemed an original on the date first above written.

OWNER: Board of Commissioners of Fayette County

BY: \_\_\_\_\_

NAME: Charles Oddo

TITLE: Chairman, Board of Commissioners

(SEAL)

ATTEST: \_\_\_\_\_

NAME: Floyd Jones

TITLE: County Clerk

CONTRACTOR: \_\_\_\_\_  
(Company Name)

BY: \_\_\_\_\_  
(Authorized Signature)

NAME/TITLE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_  
\_\_\_\_\_

EMPLOYER IDENTIFICATION NUMBER: \_\_\_\_\_

(SEAL)

ATTEST: \_\_\_\_\_

NAME/TITLE: \_\_\_\_\_

(By Corporate Secretary w/ Corporate Seal if Incorporated.  
By Notary w/Seal otherwise)

**PERFORMANCE BOND**

KNOW ALL PERSONS BY THESE PRESENT: that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

a \_\_\_\_\_, herein called Principal, and

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Address of Surety)

herein called Surety, are held and firmly bound unto

Fayette County, Georgia

(Name of Owner)

245 McDonough Road, Fayette, Georgia 30214

(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.

THIS CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, a copy of which is hereto attached and made a part hereof for the construction of:

Bid #961-B, ANNUAL CONTRACT FOR WATERLINE EXTENSIONS FOR  
FAYETTE COUNTY, GEORGIA (JULY 1, 2015 THRU JUNE 30, 2016)

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 the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the

PERFORMANCE BOND

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 which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

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 WORK to be performed thereunder or the SPECIFICATIONS accompanying same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that it is expressly agreed that the 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, or the Contract shall include any alteration, addition, extension, or the modification of any character whatsoever.

IN WITNESS WHEREOF, this instrument is executed in four counterparts, each one of which shall be deemed an original, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

(SEAL)

ATTEST:

\_\_\_\_\_  
Principal (Secretary)

\_\_\_\_\_  
(Witness as to Principal)

\_\_\_\_\_  
Address

\_\_\_\_\_  
Principal

By: \_\_\_\_\_

\_\_\_\_\_  
Address

ATTEST:

\_\_\_\_\_  
(Witness to Surety)

\_\_\_\_\_  
(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 project is located.

Surety companies must present financial statements for the prior three (3) years as proof of financial responsibility. The Owner reserves the right to review said financial statements and reject any surety not deemed financially able to assume the responsibility of this contract.

Such bond shall not be deemed accepted until approved by Owner's Attorney.

PAYMENT BOND

**PAYMENT BOND**

KNOW ALL PERSONS BY THESE PRESENTS: that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

a \_\_\_\_\_, herein called Principal, and

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Address of Surety)

herein called Surety, are held and firmly bound unto

Fayette County, Georgia

(Name of Owner)

245 McDonough Road, Fayette, Georgia 30214

(Address of Owner)

hereinafter called OWNER, and unto all persons, firms, and corporations who or which may furnish labor, or who furnish material s 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.

THIS CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, a copy of which is hereto attached and made a part hereof for the construction of:

Bid #961-B, ANNUAL CONTRACT FOR WATERLINE EXTENSIONS FOR  
FAYETTE COUNTY, GEORGIA (JULY 1, 2015 THRU JUNE 30, 201)

NOW, THEREFORE, if the PRINCIPAL shall promptly make payment to all persons, firms, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extensions or modification 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 WORK to be performed thereunder or the SPECIFICATIONS accompanying same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no suit or action shall be commenced hereunder by any claimant: (a) Unless claimant, other than one having a direct contract with the PRINCIPAL, shall have given written notice to any two of the following : The PRINCIPAL, the OWNER, or the SURETY above named within ninety (90) days after such claimant did or performed the last of the work or labor, if furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by 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 a public officer. (b) After the expiration on 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.

PAYMENT BOND

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 SURETY 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

IN WITNESS WHEREOF, this instrument is executed in four counterparts, each one of which shall be deemed an original, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

(SEAL)

ATTEST:

\_\_\_\_\_  
Principal (Secretary)

\_\_\_\_\_  
(Witness as to Principal)

\_\_\_\_\_  
Address

\_\_\_\_\_  
Principal

By: \_\_\_\_\_

\_\_\_\_\_  
Address

ATTEST:

\_\_\_\_\_  
(Witness to Surety)

\_\_\_\_\_  
(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 project is located.

Surety companies must present financial statements for the prior three (3) years as proof of financial responsibility. The Owner reserves the right to review said financial statements and reject any surety not deemed financially able to assume the responsibility of this contract.

Such bond shall not be deemed accepted until approved by Owner's Attorney.



**Conditions of the Contract**

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## GENERAL TERMS AND CONDITIONS

1. **Definitions:** The term “contractor” as used herein and elsewhere in these specifications shall be used synonymously with the term “successful bidder.” The term “county” shall mean Fayette County, Georgia.
2. **Bid is Offer to Contract:** Each bid constitutes an offer to become legally bound to a contract with the county, incorporating the invitation to bid and the bidder’s bid. The binding offer includes compliance with all terms, conditions, special conditions, specifications, and requirements stated in the invitation to bid, except to the extent that a bidder takes written exception to such provisions. All such terms, conditions, special conditions, specifications, and requirements will form the basis of the contract. The bidder should take care to answer all questions and provide all requested information, and to note any exceptions in the bid submission. Failure to observe any of the instructions or conditions in this invitation to bid may result in rejection of the bid.
3. **Binding Offer:** Each bid shall constitute a firm offer that is binding for ninety (90) days from the date of the bid opening, unless the bidder takes exception to this provision in writing.
4. **Bidder’s Questions:** The Fayette County Purchasing Department must receive questions about this invitation to bid in writing at least 72 hours before the scheduled bid opening, excluding Saturdays, Sundays, and holidays. The county will post answers to questions and/or other information concerning the invitation to bid in the form of an addendum on the county’s website at [www.fayettecountyga.gov](http://www.fayettecountyga.gov). It is the responsibility of the prospective bidder to check the website for any addenda issued for this invitation to bid.
5. **References:** Include with your bid a list of three (3) jobs that your company has done that are of the same or similar nature to the work described in this invitation to bid, on the form provided. Include all information as requested on the form.
6. **Bid Submission:** Submit your bid, along with any addenda issued by the county, in a sealed opaque envelope with the following information written on the outside of the envelope:
  - a. The bidder’s company name,
  - b. The bid number, which can be found in the cover letter to the invitation to bid document or on the web site, and
  - c. The “reference” which identifies the bid, which can be found in the cover letter or the web site.

Mail or deliver one (1) unbound original bid (paperclip or binder clip acceptable, no staples), signed in ink by a company official authorized to make a legal and binding offer, to:

Fayette County Government  
 Purchasing Department  
 140 Stonewall Avenue West, Suite 204  
 Fayetteville, GA 30214  
 Attention: Contracts Administrator

You may submit bids in person, by U.S. mail, or by a commercial carrier. Do not submit bids by facsimile, e-mail, or other electronic means. Once submitted, all bids become the property of Fayette County.

7. **Bid Preparation Costs:** The bidder shall bear all costs associated with preparing the bid.
8. **Late Bids:** Bids not received by the time and date of the scheduled bid opening will not be considered, unless the delay is a result of action or inaction by the county.
9. **Alternate Bids:** Do not submit alternate bids or options, unless requested or authorized by the county in the Invitation to Bid. If a responder submits more than one bid without being requested

GENERAL TERMS AND CONDITIONS

- or authorized to do so, the county may disqualify the bids from that responder, at the county's option.
10. **Bid Corrections or Withdrawals:** The bidder may correct a mistake, or withdraw a bid, before the bid opening by sending written notification to the Director of Purchasing. Bids may be withdrawn after the bid opening only with written authorization from the Director of Purchasing.
  11. **Defects or Irregularities in Bids:** The county reserves the right to waive any defect or irregularity in any bid received. In case of an error in extension of prices or totals in the bid, the unit prices shall govern.
  12. **Prices Held Firm:** Prices quoted shall be firm for the period of the contract, unless otherwise specified in the bid. All prices for commodities, supplies, equipment, or other products shall be quoted FOB Destination, Fayette County or job site.
  13. **Quantities are Estimates:** Quantities listed herein are estimates for the period specified. This will be an indefinite-quantity type of contract, with County requirements fulfilled on an 'as ordered' basis. No guarantee to purchase the amounts shown is intended or implied. The County reserves the right to order larger or smaller quantities at the prices stated in the bid of the successful bidder.
  14. **Brand Name:** If items in this invitation for bid have been identified, described or referenced by a brand name or trade name description, such identification is intended to be described, but not restrictive and is to indicate the quality and characteristics of products that may be offered. Alternative products may be considered for award if clearly identified in the bid. Items offered must meet required specifications and must be of a quality which will adequately serve the use and purpose for which intended.
  15. **Bidder Substitutions:** Bidders offering substitutions or deviations from specifications stated in the invitation to bid, shall list such substitutions or deviations on the "Exceptions to Specifications" sheet provided, or on a separate sheet to be submitted with the bid. The absence of such list shall indicate that the bidder has taken no exception to the specifications. The evaluation of bids and the determination as to equality and acceptability of products or services offered shall be the responsibility of the county.
  16. **Samples:** When the county requires samples as part of the bid and vendor selection process, bidders must provide requested samples within the time allotted, and at no cost to the county unless otherwise specified. Any goods provided under contract shall conform to the sample submitted. The county will return samples only at the bidder's request, and at the bidder's expense, if they are not destroyed by testing.
  17. **Non-Collusion:** By responding to this invitation to bid, the bidder represents that the bid is not made in connection with any competing bidder, supplier, or service provider submitting a separate response to this invitation to bid, and is in all respects fair and without collusion or fraud.
  18. **Arrears:** Bids will not be accepted from any person, firm, or corporation who is in arrears in any debt or obligation to Fayette County.
  19. **Bid Evaluation:** Award will be made to the lowest responsive, responsible bidder, taking into consideration payment terms, vendor qualifications and experience, quality, references, any exceptions listed, and/or other factors deemed relevant in making the award. The county may make such investigation as it deems necessary to determine the ability of the bidder to perform, and the bidder shall furnish to the county all information and data for this purpose as the county may request. The county reserves the right to reject any bid item, any bid, or all bids, and to re-advertise for bids.
  20. **Partial Award:** The County reserves the right to make award by bridge, by group of bridges, by any combination of bridges, or by lump sum award. The award will be made in the best interest of the county. Bidders may restrict their bids to consideration of a lump sum award or other restriction only by so indicating on the pricing sheet or the "Exceptions to Specifications" sheet included in the

invitation to bid. Bidders who do not restrict consideration of their bids in this manner shall be expected to accept any portion of the bid awarded. The county reserves the right to award multiple contracts for the products or services sought by this invitation to bid.

21. **Secondary Contracts:** The County may award a secondary contract to the responsive, responsible bidder making the second lowest bid. Considerations in selecting a secondary contract will be the same as for the primary contract.
22. **Discounts:** Cash discounts offered will be a consideration in awarding the bid, but only if they give the county at least 15 days from receipt of invoice to pay. For taking discounts, time will be computed from the date of acceptance at destination or the date a correct invoice is received, whichever is the later date. Payment is deemed made, for the purpose of earning the discount, on the date of the check. For payment of full invoice price, minimum terms of net 30 are preferred.
23. **Trade Secrets - Confidentiality:** A bid is a public record, except for material which qualifies as trade secret information. To keep this information confidential, a bidder must submit trade secret materials in a separate, sealed envelope marked "Trade Secret – Confidential and Proprietary Information – Do Not Disclose Except for the Purpose of Evaluating this Bid." Each page in the envelope should be stamped or otherwise marked designating it as trade secrets or confidential. Do not attempt to designate the entire bid as a trade secret, and do not attempt to designate pricing information as a trade secret, as doing so may result in your bid being disqualified. See O.C.G.A. 50-18-72 as amended by 2012 H.B. 397 for specific Georgia law on this subject.
24. **Trade Secrets – Internal Use:** In submitting a bid, the bidder agrees that the county may reveal any trade secret materials contained in the bid to all county staff and officials involved in the selection process, and to any outside consultant or other third parties who may assist in the selection process. The bidder agrees to hold harmless the county and each of its officers, employees, and agents from all costs, damages, and expenses incurred in connection with refusing to disclose any material which the bidder has designated as a trade secret.
25. **Contract Execution & Notice to Proceed:** After the Board of Commissioners makes an award, all required documents are received by the county, and the contract is fully executed with signature of both parties, the county will issue a written Notice to Proceed. The county shall not be liable for payment of any work done or any costs incurred by any bidder prior to the county issuing the Notice to Proceed.
26. **Term of Contract:** The term of this agreement shall be a period of one year from July 1, 2015 through June 30, 2016. Thereafter, this agreement may be renewed by the County for two (2) additional one-year renewal terms (each a "Renewal Term" and together with the Initial Term, the "Term"), which renewal will be by letter or other written correspondence from the County to the Contractor ninety (90) days prior to expiration of the Initial Term or the then-current Renewal Term. If the County fails to provide notice of renewal, this Agreement will terminate at the end of the Initial Term or the then-current Renewal Term. This agreement is subject to the multi-year contractual provisions of O.C.G.A. 3-0-13(a).
27. **Insurance:** The successful bidder shall, without expense to the county, carry the following insurance, to be in effect throughout the term of the contract, in at least the amounts and limits as follows:
  - a. **General Liability Insurance:** \$1,000,000 combined single limit per occurrence, including bodily and personal injury, destruction of property, and contractual liability.
  - b. **Automobile Liability Insurance:** \$1,000,000 combined single limit each occurrence, including bodily injury and property damage liability.
  - c. **Worker's Compensation & Employer's Liability Insurance:** Workers Compensation as required by Georgia statute.

GENERAL TERMS AND CONDITIONS

Before a contract with the successful bidder is executed, the successful bidder shall provide Certificates of Insurance for all required coverage. The certificate shall list an additional insured as follows:

Fayette County Board of Commissioners  
140 Stonewall Avenue West  
Fayetteville, GA 30214

28. **Unauthorized Performance:** The County will not compensate the contractor for work performed unless the work is authorized under the contract, as initially executed or as amended.
29. **Assignment of Contract:** Assignment of any contract resulting from this invitation to bid will not be authorized.
30. **Indemnification:** The successful bidder shall defend and indemnify the county and all its officers, agents and employees against any suits, actions, or other claims brought on account of any injuries or damages to any person, persons, or property resulting from any negligent act or fault of the successful bidder, or of any agent, employee, subcontractor or supplier in the performance of any contract which may be awarded. The successful bidder shall pay any judgment with cost which may be obtained against the county growing out of such injury or damages.
31. **Patent Indemnity:** The contractor guarantees to save the county, its agents, officers, or employees harmless from liability of any nature or kind for use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, articles or appliances furnished or used in the performance of the contract, for which the contractor is not the patentee, assignee or licensee.
32. **Severability:** The invalidity of one or more of the phrases, sentences, clauses or sections contained in the contract shall not affect the validity of the remaining portion of the contract. If any provision of the contract is held to be unenforceable, then both parties shall be relieved of all obligations arising under such provision to the extent that the provision is unenforceable. In such case, the contract shall be deemed amended to the extent necessary to make it enforceable while preserving its intent.
33. **Delivery Failures:** If the contractor fails to deliver contracted goods or services within the time specified in the contract, or fails to replace rejected items in a timely manner, the county shall have authority to make open-market purchases of comparable goods or services. The county shall have the right to invoice the contractor for any excess expenses incurred, or deduct such amount from monies owed the contractor. Such purchases shall be deducted from contracted quantities.
34. **Substitution of Contracted Items:** The contractor shall be obligated to deliver products awarded in this contract in accordance with terms and conditions specified herein. If a contractor is unable to deliver the products under the contract, it shall be the contractor's responsibility to obtain prior approval of the ordering agency to deliver an acceptable substitute at the same price quoted in the contractor's original bid. In the event any contractor consistently needs to substitute or refuses to substitute products, the County reserves the right to terminate the contract or invoke the "Delivery Failures" clause stated herein.
35. **Termination by Either Party:** This contract may be terminated by either party with 30 days' written notice.
36. **Termination for Cause:** The County may terminate the contract for cause by sending written notice to the contractor of the contractor's default in the performance of any term of this agreement. Termination shall be without prejudice to any of the county's rights or remedies by law.
37. **Termination for Convenience:** The County may terminate the contract for its convenience at any time with 30 days' written notice to the contractor. In the event of termination for convenience, the county will pay the contractor for services performed. The county will compensate partially

completed performance based upon a signed statement of completion submitted by the contractor, which shall itemize each element of performance completed.

38. **Bid Bond:** You must include a bid bond equal to five percent (5%) of the total amount bid. Bid bonds shall be provided by a surety which appears on Georgia's list of approved sureties administered by the State Insurance Commissioner, or the U.S. Treasury's list of approved bond sureties (Circular 570).
39. **Performance and Payment Bonds:** Prior to execution of a contract, the successful bidder shall submit the performance and payment bonds to the County each equal to 100 percent of the contract value, provided by a surety which appears on Georgia's list of approved sureties administered by the State Insurance Commissioner, or the U.S. Treasury's list of approved bond sureties (Circular 570).

GENERAL CONDITIONS

**GENERAL CONDITIONS**

- |  |  |
|--|--|
| 1. Definitions                                 | 14. Time for Completion and Liquidated Damages |
| 2. Additional Instructions and Detail Drawings | 15. Correction of Work                         |
| 3. Schedules, Reports, and Records             | 16. Subsurface Conditions                      |
| 4. Drawings and Specifications                 | 17. Suspension of Work, Termination, and Delay |
| 5. Shop Drawings                               | 18. Payments to CONTRACTOR                     |
| 6. Materials, Services, and Facilities         | 19. Acceptance of Final Payment as Release     |
| 7. Inspection and Testing                      | 20. Separate Contracts                         |
| 8. Substitutions                               | 21. Subcontracting                             |
| 9. Surveys, Permits, Regulations               | 22. Engineer's Authority                       |
| 10. Protection of Work, Property, Persons      | 23. Land and Rights-of-Way                     |
| 11. Supervision by CONTRACTOR                  | 24. Guaranty                                   |
| 12. Changes in Work                            |  |
| 13. Changes in Contract Price                  |  |

1. DEFINITIONS

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

- A. ADDENDA - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications, or corrections.
- B. BID - The offer or proposal of the BIDDER submitted on the pre scribed form setting forth the prices for the WORK to be performed.
- C. BIDDER - Any person, firm, or corporation submitting a BID for the WORK.
- D. BONDS - Bid, Performance, and Payment Bonds and other instruments of surety, furnished by the CONTRACTOR and the CONTRACTOR'S surety in accordance with the CONTRACT DOCUMENTS.
- E. CHANGE ORDER - A written order to the CONTRACTOR authorizing an addition, deletion, or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing an adjustment in the CONTRACT PRICE or CONTRACT TIME.
- F. CONTRACT DOCUMENTS - The contract, including Advertisement for BIDS, Information for BIDDERS, BID, BID BOND, Agreement, Payment BOND, Performance BOND, NOTICE OF \_AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, AND ADDENDA.

- G. CONTRACT PRICE - The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.
- H. CONTRACT TIME - The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.
- I. CONTRACTOR - The person, firm, or corporation with whom the OWNER has executed the Agreement.
- J. DRAWINGS - The parts of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.
- K. ENGINEER - The person, firm, or corporation named as such in the CONTRACT DOCUMENTS.
- L. FIELD ORDER - A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.
- M. NOTICE OF AWARD - The written notice of the acceptance of the BID from the OWNER to be the successful BIDDER.
- N. NOTICE TO PROCEED - Written communication issued by the OWNER to the CONTRACTOR authorizing him/her to proceed with the WORK and establishing the date for commencement of the WORK.
- O. OWNER - A public or quasi-public body or authority, corporation, association, partnership, or an individual for whom the WORK is to be performed.
- P. PROJECT - The undertaking to be performed as provided in the CONTRACT DOCUMENTS.
- Q. RESIDENT PROJECT REPRESENTATIVE - The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.
- R. SHOP DRAWINGS - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.
- S. SPECIFICATIONS - A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.
- T. SUBCONTRACTOR - An individual, firm or corporation having a direct contract with CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.
- U. SUBSTANTIAL COMPLETION - That date certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in



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

V. SUPPLEMENTAL GENERAL CONDITIONS - Modifications to General Conditions.

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

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

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

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

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

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

3. SCHEDULES, REPORTS AND RECORDS

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

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

1. The dates at which special detail drawings will be required; and
2. Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

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

4. DRAWINGS AND SPECIFICATIONS

A. The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all

incidental WORK necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNER.

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

#### 5. SHOP DRAWINGS

- A. The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWINGS shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWINGS which substantially deviates from the requirement of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER.
- B. When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has reviewed, checked and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.
- C. Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWING or submission has been approved by the ENGINEER. A copy of each approved SHOP DRAWING and each approved sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

#### 6. MATERIALS, SERVICES AND FACILITIES

- A. It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.
- B. Materials supplied by the CONTRACTOR and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.
- C. Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

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- D. Materials, supplies, and equipment shall be in accordance with samples submitted by the CONTRACTOR and approved by the ENGINEER.
- E. Materials, supplies, or equipment to be incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which any interest is retained by the seller.

7. INSPECTION AND TESTING

- A. All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.
- B. The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.
- C. The CONTRACTOR shall provide at the CONTRACTOR'S expense the testing and inspection services required by the CONTRACT DOCUMENTS.
- D. If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.
- E. Inspections, tests, or approvals by the ENGINEER or others shall not relieve the CONTRACTOR from the obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.
- F. The ENGINEER and the ENGINEER'S representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participating Federal or State agency shall be permitted to inspect all work, materials, payrolls, records or personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection or testing thereof.
- G. If any WORK is covered contrary to the written instructions of the ENGINEER it must, if requested by the ENGINEER, be uncovered for the ENGINEER'S observation and replaced at the CONTRACTOR'S expense.
- H. If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, if, however, such WORK is not found to be defective, the CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly

attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate CHANGE ORDER shall be issued.

8. SUBSTITUTIONS

- A. Whenever a material, article, or piece of equipment is identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalogue numbers, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalogue number, and if, in the opinion of the ENGINEER, such material, article, or piece of equipment is of equal substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are approved, no major changes in the function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME.
- B. The ENGINEER and/or OWNER reserves the right to reject any proposed substitution based upon quality or price comparison with specified equipment. The ENGINEER and/or OWNER may also reject any proposed substitution based on previous, unsatisfactory experience with equipment or materials from proposed manufacturer. In the case of such a rejection, the CONTRACTOR shall provide the specified equipment or another approved substitution, at no additional cost to the CONTRACT. CONTRACTOR shall not assume that the terms "or equal" constitutes an automatic approval of a proposed substitution.

9. SURVEYS, PERMITS, REGULATIONS

- A. The OWNER shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of bench marks adjacent to the WORK as shown in the CONTRACT DOCUMENTS. From the information provided by the OWNER, unless otherwise specified in the CONTRACT DOCUMENTS, the CONTRACTOR shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pipe locations and other working points, lines, elevations and cut sheets.
- B. The CONTRACTOR shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, shall be charged with the resulting expense and shall be responsible for any mistake that may be caused by their unnecessary loss or disturbance.
- C. Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the OWNER, unless otherwise specified. The CONTRACTOR shall give all

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notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR observes that the CONTRACT DOCUMENTS are at variance therewith, the CONTRACTOR shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 13, CHANGES IN THE WORK.

10. PROTECTION OF WORK, PROPERTY, AND PERSONS

- A. The CONTRACTOR will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR will take all necessary precautions for the safety of, will provide the necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- B. The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. The CONTRACTOR will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. The CONTRACTOR will notify OWNERS of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone of whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER, of the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.
- C. In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instructions or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury or loss. The CONTRACTOR will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

11. SUPERVISION BY CONTRACTOR

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

12. CHANGES IN THE WORK

- A. The OWNER may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.
- B. The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles the CONTRACTOR to a change in CONTRACT PRICE or TIME, or both, in which event the CONTRACTOR shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE OR TIME within thirty (30) days. The CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER for further instruction from the OWNER.

13. CHANGES IN CONTRACT PRICE

- A. The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:
  - 1. Unit prices previously approved.
  - 2. An agreed lump sum.

14. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

- A. The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.
- B. The CONTRACTOR will proceed with the WORK at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.
- C. If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, then the CONTRACTOR will pay to the OWNER the amount for liquidated damages as specified in the BID for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS. In addition to Liquidated Damages, the CONTRACTOR shall reimburse the ENGINEER for additional inspection and engineering services required due to overrun of the contract time, or the overrun of approved extension of contract time. This will be paid at 2.5 times the direct expense to the ENGINEER and will be withheld from the CONTRACTOR'S monthly pay request. The OWNER will pay the ENGINEER directly from the withheld amount.

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- D. The CONTRACTOR shall not be charged with liquidated damages or any excess cost or any payment to the ENGINEER when the delay in completion of the WORK is due to the following and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.
1. To any preference, priority or allocation order duly issued by the OWNER.
  2. To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and
  3. To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 15.D.1 and 15.D.2 of this article.

15. CORRECTION OF WORK

- A. The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in the construction or not, and the CONTRACTOR shall promptly replace and re-execute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.
- B. All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CONTRACTOR does not take action to remove such rejected WORK within ten (10) days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

16. SUBSURFACE CONDITIONS

- A. The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:
1. Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS; or
  2. Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.
- B. The OWNER shall promptly investigate the conditions, and if it is found that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless the required WRITTEN NOTICE has been given; provided that the OWNER may, if the OWNER determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

17. SUSPENSION OF WORK, TERMINATION, AND DELAY

- A. The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which shall fix the date on which WORK shall be resumed. The CONTRACTOR will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.
- B. If the CONTRACTOR is adjudged as bankrupt or insolvent, or makes a general assignment for the benefit of its creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of its property, or if CONTRACTOR files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment or disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or disregards the authority of the ENGINEER, or otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and its surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR, and finish the WORK by whatever method the OWNER may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.
- C. Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.
- D. After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the contract. In such case the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.
- E. If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and presentation, then the CONTRACTOR may, after ten (10) days from



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delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER terminate the contract and recover from the OWNER payment for all WORK executed and all expenses sustained. In addition and in lieu of terminating the contract, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days WRITTEN NOTICE to the OWNER and the ENGINEER stop the WORK until paid all amounts then due, in which event and upon resumption of the WORK CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

- F. If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

18. PAYMENT TO CONTRACTOR

- A. At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER title to the material and equipment and protect the OWNER'S interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing approval of payment, and present the partial payment estimates to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing the reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and re-submit the partial payment estimate. The OWNER will, within ten (10) days of presentation of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate less the retainage. The retainage shall be an amount equal to 10% of said estimate until 50% of the WORK has been completed. At 50% completion, no additional retainage will be withheld, such that total retainage will be gradually reduced from 10% at 50% completion to 5% at 100% completion. At 50% completion or any time thereafter when the progress of the WORK is not satisfactory, additional amounts may be retained but in no event shall the total retainage be more than 10% of the value of the WORK completed. The retainage amount withheld in the CONTRACTOR'S Application for Payments shall be invested by the Owner at the current market rate for the duration of the Project. If the Project is completed within the time limits specified and at the Contract Price specified, subject to any authorized modification thereto, the interest earned on the retainage shall be paid to the CONTRACTOR. Any expenses charged by the financial institution for the retainage investment account will be deducted from the interest earned on the account. Payment of the interest to the CONTRACTOR shall be made with the final payment, after the Engineer certifies that the Work, including incomplete minor items remaining after

substantial completion, has been completed. If the CONTRACTOR does not satisfy the time and/or price conditions, the Owner will retain the interest earned on retainage. When the WORK has been substantially completed except for WORK which cannot be completed because of weather conditions, lack of materials or other reasons which in the judgment of the OWNER are valid reasons for non-completion, the OWNER may make additional payments, retaining at all times an amount sufficient to cover the estimated cost of the WORK still to be completed.

- B. The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site.
- C. Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or substantially completed portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.
- D. The OWNER shall have the right to enter the premises for the purpose of doing WORK not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNER.
- E. Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK.
- F. The CONTRACTOR will indemnify and save the OWNER or and the OWNER'S agents harmless from all claims growing out of the lawful demand of SUBCONTRACTORS, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, the CONTRACTOR'S Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.
- G. If the OWNER fails to make payment thirty (30) days after approval by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to

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each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the CONTRACTOR.

19. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

- A. The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final or otherwise, shall not release the CONTRACTOR or its sureties from any obligations under the CONTRACT DOCUMENTS or the Performance and Payment BONDS.

20. SEPARATE CONTRACTS

- A. The OWNER reserves the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate the WORK with theirs.
  - 1. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.
- B. The OWNER may perform additional WORK related to the PROJECT or the OWNER may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTOR'S who are parties to such Contracts (or the OWNER, if the OWNER is performing the additional WORK) reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate the WORK with theirs.
- C. If the performance of additional WORK by other CONTRACTOR'S or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves it in additional expense or entitles it to an extension of the CONTRACT TIME, the CONTRACTOR may make a claim thereof as provided in Sections 14 and 15.

21. SUBCONTRACTING

- A. The CONTRACTOR may utilize the services of specialty SUBCONTRACTS on those parts of the WORK which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.
- B. The CONTRACTOR shall not award WORK to SUBCONTRACTOR(s), in excess of fifty (50%) percent of the CONTRACT PRICE, without prior written approval of the OWNER.

- C. The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of its SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as the CONTRACTOR is for the acts and omissions of persons directly employed by it.
- D. The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.
- E. Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

## 22. ENGINEER'S AUTHORITY

- A. The ENGINEER shall act as the OWNER'S representative during the construction period, shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed, and shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The ENGINEER will make visits to the site and determine if the WORK is proceeding in accordance\_\_with the CONTRACT DOCUMENTS.
- B. The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship, and execution of the WORK. Inspections may be at the factory or fabrication plant of the source of material supply.
- C. The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.
- D. The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

## 23. LAND AND RIGHTS-OF-WAY

- A. Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS, unless otherwise mutually agreed.
- B. The OWNER shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.
- C. The CONTRACTOR shall provide at its own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

GENERAL CONDITIONS

24. GUARANTEE

- A. The CONTRACTOR shall guarantee all materials supplied by the CONTRACTOR and equipment furnished and WORK performed for a period of one (1) year from the date of SUBSTANTIAL COMPLETION. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION of the system that the completed system is free from all defects due to faulty materials supplied by the CONTRACTOR or workmanship and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of the damage of other parts of the system resulting from such defects.
- B. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance BOND shall remain in full force and effect through the guarantee period.

## SUPPLEMENTAL CONDITIONS

### 1. CONTRACT CHANGES

- A. All changes which affect the cost of the construction of the project must be authorized by means of a Contract Change Order. The Contract Change Order will include extra work, work for which quantities have been altered from those shown in the bidding schedule, as well as decreases or increases in the quantities of installed units which are different than those shown in the Bidding Schedule because of final measurements. All changes should be recorded on a contract change order as they occur so they may be included in the partial payment estimate. All contract change orders must be approved by the ENGINEER and OWNER.

### 2. EQUAL OPPORTUNITY CLAUSE

- A. The contractor will not discriminate against any employee or applicant for employment because of race, color, creed, sex, age, marital status, or national origin. The CONTRACTOR will take affirmative action to ensure that employees are treated during employment without regard to their race, color, creed, sex, age, marital status or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The CONTRACTOR agrees to post in conspicuous places, available to employee s and applicants for employment, notices setting forth the provisions of this equal opportunity clause.
- B. The CONTRACTOR will, in all solicitations or advertisements for employees placed by or on behalf of the CONTRACTOR, state that all qualified applicants will receive consideration for employment without regard to race, color, creed, sex, age, marital status, or national origin.

### 3. PROTECTION OF LIVES AND PROPERTY

- A. In order to protect the lives and health of its employees under the Contract, the CONTRACTOR shall comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General CONTRACTORs of America, Inc., and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment or work under the Contract.
- B. The CONTRACTOR alone shall be responsible for the safety, efficiency, and adequacy of its plant, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance, or operation.

### 4. NO OFFICIAL OF THE OWNER WHO IS AUTHORIZED IN SUCH CAPACITY AND ON BEHALF OF THE OWNER TO NEGOTIATE, MAKE, ACCEPT, OR APPROVE, OR TO TAKE PART IN NEGOTIATING, MAKING, ACCEPTING, OR APPROVING ANY ARCHITECTURAL, ENGINEERING, INSPECTING, CONSTRUCTION OR-MATERIAL SUPPLY CONTRACT OR ANY SUBCONTRACT IN CONNECTION WITH THE CONSTRUCTION OF THE PROJECT, SHALL BECOME DIRECTLY OR INDIRECTLY INTERESTED PERSONALLY IN THIS CONTRACT OR IN ANY PART THEREOF. NO

SUPPLEMENTAL CONDITIONS

- OFFICER, EMPLOYEE, ARCHITECT, ATTORNEY, ENGINEER, OR INSPECTOR OF OR FOR THE OWNER WHO IS AUTHORIZED IN SUCH CAPACITY AND ON BEHALF OF THE OWNER WHO IS IN ANY LEGISLATIVE, EXECUTIVE, SUPERVISORY, OR OTHER SIMILAR FUNCTIONS IN CONNECTION WITH THE CONSTRUCTION OF THE PROJECT, SHALL BECOME DIRECTLY OR INDIRECTLY INTERESTED PERSONALLY IN THIS CONTRACT, OR IN ANY PART THEREOF, ANY MATERIAL SUPPLY CONTRACT, SUBCONTRACT, INSURANCE CONTRACT, OR ANY OTHER CONTRACT PERTAINING TO THE PROJECT.
5. THE ENGINEER MAY WITHHOLD OR, ON ACCOUNT OF SUBSEQUENTLY DISCOVERED EVIDENCE, NULLIFY THE WHOLE OR PART OF ANY APPROVED PARTIAL PAYMENT ESTIMATE TO SUCH EXTENT AS MAY BE NECESSARY TO PROTECT THE OWNER FROM LOSS ON ACCOUNT OF:
- A. Defective work not remedied.
  - B. Claims filed or reasonable evidence indicating probable filing of claims.
  - C. Failure of CONTRACTOR to make payments properly to subcontractors or for material or labor.
  - D. A reasonable doubt that the WORK can be completed for the balance then unpaid.
  - E. Damage to another contractor.
  - F. Performance of work in violation of the terms of the CONTRACT DOCUMENTS.
6. WHERE WORK ON UNIT PRICE ITEMS ARE SUBSTANTIALLY COMPLETE BUT LACK CLEAN-UP AND/OR CORRECTIONS ORDERED BY THE ENGINEER, AMOUNTS SHALL BE DEDUCTED FROM UNIT PRICES IN PARTIAL PAYMENT ESTIMATES TO AMPLY COVER SUCH CLEAN-UP AND CORRECTIONS.
7. WHEN THE ABOVE GROUNDS IN (5) AND (6) ARE CURED, PAYMENT SHALL BE MADE FOR AMOUNTS WITHHELD BECAUSE OF THEM.

## SPECIAL CONDITIONS

### 1. DESCRIPTION OF WORK

The work in this Contract includes the installation of the proposed water lines, valves, fire hydrants, tie-ins, bored crossings, and miscellaneous appurtenances. Also included will be all miscellaneous associated construction as well as grassing, erosion control and clean-up.

It is the intent of these Plans and Specifications that the CONTRACTOR shall perform all incidental items of Work and furnish all items of incidental material, except materials to be supplied by the OWNER, and equipment required to construct the completed Project even though such items are not covered in detail in the Contract Documents.

Due to the nature of the project and the potential for unforeseen conditions, it is anticipated that some additional work may be required. An allowance for additional work in an amount to be determined by the ENGINEER will be included in each project authorized by the OWNER, to be used to cover Change Orders resulting from such additional work. These allowances apply only to additional work not shown on the Drawings or required by the Specifications. Should such additional work become evident during the conduct of the work, a cost to correct such work shall be established and if the OWNER agrees to incorporate the work in this Contract, a Change Order will be issued. The amount of the Change Order will be deducted from the appropriate allowance. At the end of the job, if any allowance remains unused, a Change Order will be issued decreasing the Contract amount by the amount of the unused allowance.

### 2. COORDINATION OF WORK

The individual CONTRACTOR is responsible for the proper coordination of the Work. The OWNER and the ENGINEER will assist in coordinating the Work schedules, but will not be responsible for proper cooperation and coordination of any Work. The OWNER will be not be liable for claims of additional compensation due to delays beyond the OWNER'S control. Any additional work, expense or delay due to lack of coordination will be the sole responsibility of the CONTRACTOR.

### 3. SPECIAL NOTICE

Bidders are required to inform themselves fully of the laws, ordinances, and conditions relating to the Work. Prior to beginning each phase of the project, Bidders are requested to visit the site and inform themselves as to all conditions, and failure to do so will in no way relieve the successful bidder or bidders from the necessity of furnishing any materials or performing any work that may be required to complete the work in accordance with the true intent and meaning of the Plans and Specifications without additional cost to the OWNER.

### 4. SUBSURFACE CONDITIONS

It is not represented that the Plans show all underground structures, and whenever necessary the CONTRACTOR shall make all explorations and excavations for such purposes, at his own expense. Any subsurface information furnished is for the general information of the bidders and is not guaranteed. Unforeseen conditions shall not constitute a claim for increased compensation under the terms of the Contract, nor constitute a basis for cancellation thereof.

### 5. INTERRUPTION OF WATER SERVICE AND SHUT OFFS

The Fayette County Water System will handle the work of the operation of gate valves and other controls without cost to the CONTRACTOR upon receipt of a written approval from the ENGINEER, and



SPECIAL CONDITIONS

no valve or other control shall be operated by the CONTRACTOR without official approval. The OWNER reserves the right to choose the most convenient time to interrupt the Water Treatment Plant Service in order to complete any water line tie-ins. No compensation will be made to the CONTRACTOR for any delays caused by the OWNER'S choice of timing for tie-in procedures. The CONTRACTOR shall notify the OWNER 48 hours prior to any needs for interruption of water service. Whenever a fire hydrant is to be blocked or shut off, the CONTRACTOR must give written notice to the respective Fayette County Fire Department or County officials and obtain written concurrence.

6. UTILITIES AND DRAINS MAINTAINED

Existing utilities and services shall be protected and maintained by all necessary measures in working condition and if damaged, shall be restored to the same condition as when found at no increase in Contract Price.

7. LINES AND GRADES

The ENGINEER will furnish sufficient bench marks and dimensions to enable the CONTRACTOR to layout the necessary construction lines from the information shown on the Plans. The CONTRACTOR shall be responsible for the preservation of all points and elevations furnished and shall bear the expense of setting same if, through negligence or carelessness on his part, they are destroyed.

The CONTRACTOR shall satisfy himself as to the accuracy all elevations and points furnished and shall not take advantage of any errors that may have been made. All lines and grades shall be subject to checking by the ENGINEER, but this checking shall in no way relieve the CONTRACTOR from his responsibility for their correctness. The CONTRACTOR shall provide such stakes, material, etc., and such field men, and assistance as the ENGINEER may require to establish bench marks and checking and measuring the work.

8. WARNING AND SIGNALS

The CONTRACTOR shall be responsible for all signals to the public while the work is in progress, and shall keep amber lights during the entire night at such points as may be necessary; and he shall provide watchmen, signboards, fences, etc., and shall take any precautions that may be necessary to protect life and property.

9. CONSTRUCTION EQUIPMENT

The CONTRACTOR shall provide all necessary equipment in good repair for the expedient construction of the work. Any equipment not adapted for the work, or in such repair as to be dangerous to the work or workers shall not be used.

10. TRAFFIC CONTROL

The CONTRACTOR shall provide, erect, and maintain, all necessary barricades, suitable and sufficient lights, danger signals, signs, and other control devices, and take all necessary precautions for the protection of the work and the safety of the public. All traffic control measures shall be in compliance with the Manual for Uniform Traffic Control Devices (M.U.T.C.D.), latest edition.

11. SANITARY PROVISIONS

The CONTRACTOR shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees as necessary to comply with the Regulations of the State Board of Health and all local ordinances. No nuisances will be permitted.

12. SPECIAL INSPECTION

Representative of the OWNER and the ENGINEER shall have access to the work whenever it is in preparation or progress, and the CONTRACTOR will provide proper facilities for such access and inspection.

13. PLANS AND SPECIFICATIONS

The ENGINEER shall furnish to the CONTRACTOR, free of charge, six (6) copies of the Plans and Specifications. If additional copies are desired by the CONTRACTOR, they will be furnished at his expense. The CONTRACTOR shall keep one copy of the Plans and Specifications on the site of the work in good order, available to the ENGINEER and to their representatives. All Plans, Specifications, and copies thereof furnished by the ENGINEER are their property. They are not to be used on other work, and with the exception of the signed Contract Set are to be returned to them on request, at the completion of the work.

14. ENVIRONMENTAL PROTECTION

During construction the CONTRACTOR shall provide silt barriers, and/or other preventive measures as may be required by governing laws or ordinances to prevent siltation and soil erosion. All such work shall be done without additional cost to the OWNER.

The CONTRACTOR will restore all disturbed areas to their present or better condition upon completion of construction.

15. TIME OF WORK

No work shall be done between 6:00 p.m. and 7:00 a.m., nor on Sundays or legal holidays, without the written permission of the OWNER. However, maintenance or emergency work during these hours may be done without prior permission.

Overtime Notice: If the CONTRACTOR for his convenience and at his own expense should desire to carry on his own work at night or outside regular hours, he shall submit written notice to the ENGINEER and he shall allow ample time for satisfactory arrangements to be made for inspecting the work in progress. The ENGINEER will be the sole judge of whether on-site inspection is required. The CONTRACTOR will pay the ENGINEER an amount equal to 3.0 times the direct salary cost of the resident inspector for such work, said amount to be deducted from the payments to the CONTRACTOR by the OWNER.

16. REQUIREMENTS FOR THE GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT OF 2006

See the following pages

STATE OF GEORGIA

FAYETTE COUNTY

**GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT OF 2006**

WITNESSETH:

1. Pursuant to the Georgia Security and immigration Compliance Act of 2006, the Contractor understands and agrees that compliance with the requirements of O.C.G.A. §13-10-91 and Georgia Department of Labor Rule 300-10-1-.02 are conditions of this Agreement. The Contractor further agrees that such compliance shall be attested by the Georgia Department of Labor through execution of the contractor affidavit. The Contractor's fully executed affidavit is attached hereto as Exhibit "A" and is incorporated into this Agreement by reference herein.
2. The Contractor understands and agrees that, in the event the Contractor employs or contracts with any subcontractor of subcontractors in connection with this Agreement, the Contractor shall:
  - a. Secure from each such subcontractor and sub-subcontractor an attestation of the subcontractor's compliance with O.C.G.A. § 13-10-91 and Georgia Department of Labor Rule 300-10-1.02 by causing each such subcontractor to execute the subcontractor affidavit required by Georgia Department of Labor Rule 300-10-1.08, which is attached hereto as Exhibit "B", or a substantially similar subcontractor affidavit. The Contractor further understands and agrees that the Contractor shall require the executed subcontractor and each such subcontractor. The Contractor agrees to maintain records of each subcontractor attestation required hereunder for inspection by the Department at any time.

EXHIBIT 'A'

Part 1 of 1

**CONTRACTOR AFFIDAVIT UNDER O.C.G.A § 13-10-91(b) (1)**

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of Fayette County, Georgia has registered with, is authorized - to use and uses the Federal Work Authorization Program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91 (b). Contractor hereby attests that its Federal Work Authorization User Identification Number and date of authorization are as follows:

\_\_\_\_\_  
Federal Work Authorization User Identification Number

\_\_\_\_\_  
Date of Authorization

\_\_\_\_\_  
Name of Contractor

Bid #961-B, ANNUAL CONTRACT FOR WATERLINE EXTENSIONS FOR FAYETTE COUNTY, GEORGIA  
(JULY 1, 2015 THRU JUNE 30, 2016)

\_\_\_\_\_  
Name of Project

Fayette County, Georgia  
\_\_\_\_\_  
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ in (city) \_\_\_\_\_, (state) \_\_\_\_\_.

\_\_\_\_\_  
Printed Name and Title of Authorized Officer of Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires: \_\_\_\_\_.

EXHIBIT 'B'

Part 1 of 1

**SUBCONTRACTOR AFFIDAVIT UNDER O.C.G.A. § 13-10-91(b)(3)**

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with \_\_\_\_\_ on behalf of Fayette County, Georgia has registered with is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned subcontractor will continue to use the Federal Work Authorization Program throughout the contract period and the undersigned subcontractor with the information required by O.C.G.A. § 13-10-91(b). Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five business days of receipt. If the undersigned subcontractor receives notice of receipt of an affidavit from any sub-subcontractor that has contracted with a sub-subcontractor to forward, within five business days of receipt , a copy of such notice to the contractor. Subcontractor hereby attests that its Federal Work Authorization User Identification Number and date of authorization are as follows:

\_\_\_\_\_  
Federal Work Authorization User Identification Number

\_\_\_\_\_  
Date of Authorization

\_\_\_\_\_  
Name of Subcontractor

Bid #961-B, ANNUAL CONTRACT FOR WATERLINE EXTENSIONS FOR FAYETTE COUNTY, GEORGIA  
(JULY 1, 2015 THRU JUNE 30, 2016)

Name of Project

Fayette County, Georgia  
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ in (city) \_\_\_\_\_, (state) \_\_\_\_\_.

\_\_\_\_\_  
Printed Name and Title of Authorized Officer of Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires: \_\_\_\_\_.

**CERTIFICATE OF OWNER'S ATTORNEY**

I, the undersigned, \_\_\_\_\_, the duly authorized and acting legal representative of Fayette County, Georgia, do hereby certify as follows:

I have examined the attached Contract (s), Performance and Payment Bonds, and Surety Bond 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 for the county; 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

\_\_\_\_\_  
Dennis Davenport  
County Attorney

## Technical Specifications

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**Division 01**

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SECTION 01010

SUMMARY OF PROJECT

**SECTION 01010**  
**SUMMARY OF PROJECT**

**Part 1.00 GENERAL**

**1.01 SECTION INCLUDES**

- A. This section describes the project and the work to be performed under this contract. Detailed requirements and extent of work will be shown separately on drawings to be given to the contractor.

**1.02 ORGANIZATION AND INTERPRETATION OF CONTRACT DOCUMENTS**

- A. Specifications included in these Contract Documents establish the performance, quality requirements, location and general arrangement of materials and equipment, and establish the minimum standards for quality of workmanship and appearance.
- B. A part of the work that is necessary or required to make each installation satisfactory and operable for its intended purpose, even though it is not specifically included in the Specifications or on the drawings, shall be performed as incidental work as if it were described in the specifications and shown on the drawings.

**1.03 DESCRIPTION OF PROJECT**

- A. General:
  - 1. The owner intends to award a contract of approximately one year in duration for miscellaneous water line extensions within Fayette County.
  - 2. The contract period will end at the conclusion of the OWNER'S fiscal year, June 30, 2016. Work authorized prior to June 30, 2016 may be extended beyond June 30, 2016 as necessary.
- B. Extent of work
  - 1. The OWNER anticipates that the total amount of work could approach or exceed the quantities shown in the Bid Schedule. However, the OWNER cannot and does not make any representations that any work will be undertaken as part of this contract during the contract period.
  - 2. Water Line extensions will be made as the need occurs and as authorized by the OWNER in a separate Notice To Proceed to be given to the contractor for each project so authorized. Multiple extensions in separate locations may be included in each project.
  - 3. The minimum length of any project authorized by the OWNER will be 600 linear feet.
  - 4. The work in this contract is not all inclusive and the OWNER may undertake other water line work outside of this contract at the OWNER'S sole discretion.

**1.04 TIME OF CONSTRUCTION**

- A. Notice To Proceed

1. The owner will issue a separate Notice To Proceed for each project as it occurs. Multiple extensions at various locations within the county may be included on one Notice To Proceed.
2. The contractor will have 21 calendar days after the date of the Notice To Proceed to begin construction. The Contract Time will begin to accrue after the Begin Construction Date, or after the contractor actually begins construction, whichever occurs first.
3. Contract Time will be the greater of 30 calendar days or one calendar week for each 1,500 linear feet (or fraction thereof) of water line included in the scope of work.
4. For example, 9,500 linear feet of water line construction will have a contract time of 49 calendar days.

## **Part 2.00 PRODUCTS (NOT USED)**

## **Part 3.00 EXECUTION (NOT USED)**

## **Part 4.00 PAYMENT**

### **4.01 GENERAL**

- A. Payment for work authorized by the OWNER will be made at the unit prices shown in the Bid Schedule.
- B. The unit prices shown in the Bid Schedule will be honored by the contractor thru the completion of any contract work awarded prior to June 30, 2016.
- C. Payment for the Payment & Performance Bonds will be included in the first water line project authorized by the OWNER. Should no work be authorized during the contract period, the OWNER will reimburse the contractor for the Payment and Performance Bonds at the price shown on the Bid Schedule.
- D. "Primary Mobilization" will be paid once for each separate Notice To Proceed.
- E. "Secondary Mobilization" will be paid for each additional waterline extension included in a single Notice to Proceed.(Example: For a single Notice to Proceed, which includes three separate water line extensions, the CONTRACTOR shall be paid for ONE (1) Primary Mobilization and TWO (2) Secondary Mobilizations.
- F. Mobilization will not be paid for Warranty Work, Corrective Measures and/or Punchlist Items.
- G. Mobilization will not be paid for Hourly Waterline Repair Work. These costs will be paid for as part of the hourly rates for labor and equipment, including travel time to and from the repair location.
- H. Mobilization will not be paid for Service Connections on existing waterlines.

SECTION 01010

SUMMARY OF PROJECT

- I. Materials supplied by the CONTRACTOR, for repairs to existing waterlines(as described in Bid Item #71), shall be paid for At Cost + 10%. CONTRACTOR shall submit invoices for such material s with the monthly Pay Request.
- J. The CONTRACTOR shall provide the following equipment at no additional cost, as required for each project:
  - 1. Traffic Cones/barrels - up to 20 of each.  
Add'l paid for at rental rate + 10%.
  - 2. Steel Plates for asphalt repair - 2 each.  
Add'l paid for at rental rate + 10%.
  - 3. Signage for work zone and traffic control.  
Excludes digital Variable Message Boards.
  - 4. Dewatering Pumps.
  - 5. Portable Generator.
  - 6. Work lights for night time repair work.
- K. The CONTRACTOR shall be responsible for repair or replacement of damaged private goods within the public right of way, including, but not limited to, mailboxes, fencing, or irrigation lines. If such items are damaged by the CONTRACTOR while executing this contract, the CONTRACTOR shall not be paid for repair or replacement of said items. Final acceptance of project is subject to approval of restoration from parcel owner.

**END OF SECTION**

**Division 02**

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SECTION 02011

TEST REQUIREMENTS

**SECTION 02011  
TEST REQUIREMENTS**

**Part 1.00 GENERAL**

**1.01 MATERIALS**

- A. Materials furnished for all construction shall be subject to test at all times by the ENGINEER, and samples or specimens selected for test shall be furnished at no cost.

**1.02 CERTIFICATION REQUIRED**

- A. Aggregates
  - 1. Approval of the source of supply by the ENGINEER and certificate by supplier that the specifications have been met.
- B. Cement
  - 1. Certified mill tests that all cement meets the applicable specifications and that it is not more than 90 days from date of manufacture to incorporation into the work.
- C. Reinforcing steel
  - 1. Certified mill tests that all steel meets the applicable specifications.

**Part 2.00 EXECUTION**

**2.01 WATERLINE HYDROSTATIC, PRESSURE, AND LEAKAGE TESTS**

- A. As per Section 02713

**2.02 SOIL COMPACTION TEST**

- A. Compaction testing will be performed by a recognized testing laboratory and the cost borne by the OWNER. Material failing to meet the required test will be removed and replaced at the CONTRACTOR'S expense.
- B. CONTRACTOR shall make readily available any portion of the work which, at the judgment of the OWNER or the ENGINEER, requires testing.

**2.03 SPECIAL TEST SPECIMENS REQUIRED**

- A. Concrete
  - 1. An approved testing laboratory shall make and furnish four standard concrete test cylinders made from each major pour. One will be for seven day test and one for twenty-eight day test. The other two will be held in reserve. The cost of actual testing will be borne by the OWNER. Three certified copies of each test will be furnished to the ENGINEER. Defective concrete will be removed and replaced at the CONTRACTOR'S expense.

**END OF SECTION**

**SECTION 02110  
CLEARING AND GRUBBING**

**Part 1.00 GENERAL**

**1.01 DESCRIPTION**

- A. Work included: Clear and grub a maximum 20' wide strip, centered along the waterline alignment, as required for all work shown on the Drawings and specified herein.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplemental General Conditions, and Sections in Division 1 of these Specifications.

**1.02 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

**Part 2.00 PRODUCT HANDLING**

**2.01 MATERIALS**

- A. Provide materials, not specifically described but required for proper completion of the work of this Section, as selected by the CONTRACTOR subject to the approval of the ENGINEER.

**Part 3.00 EXECUTION**

**3.01 SURFACE CONDITIONS**

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

**3.02 PROTECTION**

- A. Protect existing utilities indicated or made known.
- B. Protect trees and shrubs, where indicated to remain, by providing a fence around the tree or shrub of sufficient distance away and of sufficient height so trees and shrubs will not be damaged in any way as part of this Work.
- C. Protection of person and property:
  - 1. Barricade open depressions and holes occurring as part of this Work, and post warning lights on property adjacent to or with public access.
  - 2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.

SECTION 02110

CLEARING AND GRUBBING

- 3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by operations under this Section.
- D. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.
- E. Maintain access to the site at all times.

3.03 CLEARING

- A. Clean out roots 1" in diameter and larger to a depth of at least 18" below the existing ground surface or subgrade of new graded surface, whichever is lower. Treat roots remaining in the soil with a weed killer approved by the ENGINEER.

3.04 CONSERVATION OF TOPSOIL

- A. After the area has been cleared of vegetation, strip the existing topsoil to the depth necessary to provide at least 6" depth of topsoil in areas to be grassed.
- B. Stockpile in an area clear of new construction.
- C. Maintain the stockpile in a manner which will not obstruct the natural flow of drainage.
  - 1. Maintain stockpile free from debris and trash.
  - 2. Keep the topsoil damp to prevent dust and drying out.

3.05 DISPOSAL

- A. General:
  - 1. Remove brush, grass, roots, trash, and other material from clearing operations.
  - 2. Dispose of away from the site in a legal manner.
  - 3. Do not store or permit debris to accumulate on the job site.
- B. If applicable laws and regulations permit, combustible materials may be burned on the site. It shall be the CONTRACTOR'S responsibility to obtain all required permits for burning.
- C. Debris from burning and combustible materials and residue shall be removed from site at no additional cost to the OWNER.

3.06 UTILITIES

- A. Coordinate with utility companies and agencies as required.
- B. Where utility cutting, capping, or plugging is required, perform such work in accordance with requirements of the utility company or governmental agency having jurisdiction.

**Part 4.00 PAYMENT**

4.01 GENERAL

- A. CONTRACTOR and ENGINEER shall visit proposed waterline extensions, prior to work, in order to establish limits of clearing and grubbing. Width of clearing shall be 20' maximum, unless previously authorized by the ENGINEER.

- B. Clearing and grubbing shall be paid for at the unit price shown in the Bid Schedule.
- C. Clearing of individual trees shall be paid for at the following equivalent price per acre:
  - 1. <12" Dia.: 1/8 acre
  - 2. 12"-24" Dia.: 1/4 acre
  - 3. >24" Dia.: 3/8 acre

**END OF SECTION**



SECTION 02221

TRENCHING, BACKFILLING, AND COMPACTING

**SECTION 02221  
TRENCHING, BACKFILLING, AND COMPACTING**

**Part 1.00 GENERAL**

**1.01 DESCRIPTION**

- A. Work included: Trench, backfill, and compact as specified herein and as needed for installation of underground utilities associated with the work.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

**1.02 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the engineer.

**Part 2.00 PRODUCTS**

**2.01 SOIL MATERIALS**

- A. Fill and backfill materials:
  - 1. Provide soil materials free from organic matter and deleterious substances, containing no rocks or lumps over 6" in greatest dimension, and with not more than 15% of the rocks or lumps larger than 2-3/8" in their greatest dimension.
  - 2. Fill material is subject to the approval of the ENGINEER, and is that material removed from excavations or imported from off-site borrow areas, predominantly granular, non-expansive soil free from roots and other deleterious matter.
  - 3. Do not permit rocks having a dimension greater than 3" in the upper 12" of fill.
  - 4. Cohesionless material used for backfill: Provide sand free from organic material and other foreign matter, and as approved by the ENGINEER.

**2.02 OTHER MATERIALS**

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the CONTRACTOR subject to the approval of the ENGINEER.

**Part 3.00 EXECUTION**

**3.01 SURFACE CONDITIONS**

- A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

**3.02 FINISH ELEVATIONS AND LINES**

- A. Comply with Lines and Grades Shown on the Plans.

**3.03 PROCEDURES**

- A. Utilities:
  - 1. Unless shown to be removed, protect active utility lines shown on the drawings or otherwise made known to the CONTRACTOR prior to trenching. If damaged, repair or replace at no additional cost to the OWNER.
  - 2. If active utility lines are encountered, and are not shown on the Drawings or otherwise made known to the CONTRACTOR, promptly take necessary steps to assure that service is not interrupted.
  - 3. If service is interrupted as a result of work under this Section, immediately restore service by repairing the damaged utility at no additional cost to the OWNER.
  - 4. If existing utilities are found to interfere with the permanent facilities being constructed under this Section, immediately notify the ENGINEER and secure his instructions.
  - 5. No additional payment will be made due to delays caused by existing utilities.
  - 6. Do not proceed with permanent relocation of utilities until written instructions are received from the ENGINEER.
- B. Protection of persons and property:
  - 1. Barricade open holes and depressions occurring as part of the Work, and post warning lights or signs on property adjacent to or with public access.
  - 2. Maintain warning devices during the construction period and remove upon completion.
  - 3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by operations under this Section.
- C. Dewatering:
  - 1. Remove all water, including rain water, encountered during trench and sub-structure work to an approved location by pumps, drains, and other approved methods.
  - 2. Keep trenches and site construction area free from water.
- D. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.
- E. Maintain access to adjacent areas at all times.

SECTION 02221

TRENCHING, BACKFILLING, AND COMPACTING

3.04 TRENCHING

- A. Provide sheeting and shoring necessary for protection of the Work and for the safety of personnel.
  - 1. Prior to backfilling, remove all sheeting.
  - 2. Do not permit sheeting to remain in the trenches except when, in the opinion of the ENGINEER, field conditions or the type of sheeting or methods of construction such as use of concrete bedding are such as to make removal of sheeting impracticable. In such cases, the ENGINEER may permit portions of sheeting to be cut off and remain in the trench.
- B. Open Cut or Trenching:
  - 1. Excavate for utilities by open cut or trenching.
  - 2. Where it becomes necessary to excavate beyond the limits of normal excavation lines in order to remove boulders or other interfering objects, backfill the voids remaining after removal of the objects as directed by the ENGINEER.
  - 3. When the void is below the subgrade for the utility bedding, use suitable earth materials and compact to the relative density directed by the ENGINEER, but in no case to a relative density less than 90%.
  - 4. When the void is in the side of the utility trench or open cut, use suitable earth or sand compacted or consolidated as approved by the ENGINEER, but in no case to a relative density less than 80%.
  - 5. Remove boulders and other interfering objects, and backfill voids left by such removals, at no additional cost to the OWNER.
  - 6. Excavating for appurtenances:
    - a. Excavate for manholes and similar structures to a distance sufficient to leave at least 12" clear between outer surfaces and the embankment or shoring that may be used to hold and protect the banks.
    - b. Over depth excavation beyond such appurtenances that has not been directed will be considered unauthorized. Fill with sand, gravel, or lean concrete as directed by the ENGINEER, and at no additional cost to the OWNER.
- C. Trench to the minimum width necessary for proper installation of the utility, with sides as nearly vertical as possible. Accurately grade the bottom to provide uniform bearing for the utility.
- D. Depressions:
  - 1. Dig bell holes and depressions for joints after the trench has been graded. Provide uniform bearing for the pipe on prepared bottom of the trench.
  - 2. Except where rock is encountered, do not excavate below the depth indicated or specified.
  - 3. Where rock is encountered, excavate rock to a minimum over depth of 6" below the trench depth and backfill with No. 57 crushed stone.
- E. Where utility runs traverse public property or are subject to governmental or utility company jurisdiction, provide depth, bedding, cover, grassing, and other requirements

as set forth by legally constituted authority having jurisdiction, but in no case less than the depth shown in the Contract Documents.

- F. Where trenching occurs in existing lawns, remove turf in sections and keep damp. Replace turf upon completion of the backfilling.
- G. Cover:
  - 1. Provide minimum trench depth to maintain a minimum cover over the top of the installed item below the finish grade or subgrade, as shown on the plans.
  - 2. Where the minimum cover is not provided, encase the pipes in 6 inches thick concrete. Provide concrete with a minimum 28 day compression strength of 3,000 psi.

### 3.05 REMOVAL OF UNSUITABLE BEDDING MATERIAL

- A. Notify the ENGINEER should unsuitable bedding materials be found.
- B. Do not excavate unsuitable materials until proper measurements have been taken by the ENGINEER for quantity determination.
- C. Replace unsuitable material s with suitable backfill or No. 57 crushed stone, backfilled in accordance of this Section of the Specifications.
- D. No payment will be made for over depth excavation not approved by the ENGINEER or for unsuitable material s caused by negligence of the CONTRACTOR to adequately keep the trench dry.

### 3.06 ROCK CLASSIFICATION

- A. Rip Rock: Any material that cannot be removed by scrapers, loaders, pans, dozers, or graders, and requires the use of a single-tooth ripper mounted on crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds.
- B. Trench Blast Rock: Any material that cannot be excavated with a single-tooth ripper mounted on a crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds (Caterpillar D-SK dozer or 977 front-end loader or equivalent); and occupying an original volume of at least one (1) cubic yard or by a backhoe having a bucket curling force rated at not less than 25,700 pounds (Caterpillar Model 225 or equivalent); and occupying an original volume of at least one-half cubic yard.
- C. Rock excavation procedure must be approved by the ENGINEER before removal.
- D. Blasting operations shall be conducted in strict accordance with all applicable governmental ordinances and regulations by persons licensed to use explosives.
- E. No payment will be made for over depth excavation or stabilization stone due to over depth excavation.

### 3.07 ASPHALT PAVEMENT REPLACEMENT

- A. General:
  - 1. Where open cut of paved roads or paved parking areas is shown on the plans, all materials and construction methods shall conform to the Georgia

SECTION 02221

TRENCHING, BACKFILLING, AND COMPACTING

Department of Transportation's Standard Specifications for Construction of Roads and Bridges.

2. Roadway edges and/or miscellaneous pavement damaged due to construction or equipment will be repaired to Georgia Department of Transportation Standards and Specifications.

B. Procedures:

1. Existing pavement to be saw cut.
2. Replace base with 8" of High Early strength concrete in accordance with Public Works Specifications
3. Replace pavement with 2" of hot mix asphaltic concrete type "E" in accordance with Public Works Specifications.

3.08 BACKFILLING

A. General:

1. Do not completely backfill trenches until required pressure and leakage tests have been performed, and until the utilities systems as installed conform to the requirements specified in the pertinent Sections of these Specifications.
2. Except as otherwise specified or directed for special conditions, backfill trenches to the ground surface with selected material approved by the ENGINEER.
3. Reopen trenches which have been improperly backfilled, to a depth as required for proper compaction. Refill and compact as specified, or otherwise correct to the approval of the ENGINEER
4. Do not allow or cause any of the Work performed or installed to be covered up or enclosed by work of this Section prior to required inspections, tests, and approvals.
5. Should any of the Work be so enclosed or covered up before it has been approved, uncover all such Work and, after approvals have been made, refill and compact as specified, all at no additional cost to the OWNER.

B. Lower Portion of Trench:

1. Deposit approved backfill and bedding material in layers of 6" maximum thickness, and compact with mechanical tampers to the density of the adjacent soil, or 95% maximum density, whichever is greater, as specified herein, until there is a cover of not less than 12" over utility lines.
2. Take special care in backfilling and bedding operations to not damage pipe and pipe coatings.

C. Remainder of Trench:

1. Except for special materials for pavements, backfill the remainder of the trench with material free from stones larger than 6" or 1/2 the layered thickness, whichever is smaller, in any dimension.
2. Deposit backfill material in a minimum of two lifts, and compact each layer to the minimum density per ASTM D-698 as follows:
  - a. Under roadways, paved parking areas, driveways, and sidewalks use 6" layers compacted to 95% maximum density.

- b. Under unpaved driveways and parking areas use 6" layers compacted to 90% maximum density.
- c. Under turfed or seeded lawn areas use 12" layers compacted to 85% maximum density.
- d. Under other areas use layers suitable to obtain a density equal to adjacent soil.
- D. Adjacent to buildings: Mechanically compact backfill within ten feet of buildings.
- E. Consolidation of Backfill by jetting with water may be permitted, when specifically approved by the ENGINEER, in areas other than building and pavement areas.
- F. Settlement of trench shall be restored to grade with additional backfill.
- G. Restore all grassing, shrubbery, fences, driveways, etc., to at least their condition prior to construction.

### 3.09 TEST FOR DENSITY-MOISTURE

- A. If, in the opinion of the ENGINEER, proper compaction is not being obtained the contractor may be required to provide field density-moisture content tests performed by an approved commercial testing lab at no cost to the OWNER.
- B. The minimum number of tests under pavement shall be one per lift of backfill per 100' of trench or fraction thereof and one per lift per 200' of trench or fraction thereof in other areas.

### 3.10 PIPE JACKING OR BORING UNDER HIGHWAYS OR RAILROADS

- A. Perform no work until satisfactory arrangements have been made with the Transportation Department, OWNER, or Railroad.
- B. Install casing pipe in accordance with the Standard Details or the American Railway Engineering Association's Specifications, Part 5, Pipelines, as applicable.
- C. Casing pipe shall conform to ASTM A53 and/or A106. Casing shall have exterior coal tar coating. The following is the steel casing sizing table:

Carrier Pipe Dia.	Casing Dia.	Wall Thickness (under Railroad)	Wall Thickness (under highway)
6"	10"	0.312"	0.250"
8"	14"	0.312"	0.250"
10"	16"	0.312"	0.250"
12"	16"	0.312"	0.250"
14"	20"	0.375"	0.250"
16"	24"	0.375"	0.250"
18"	24"	0.375"	0.250"
20"	30"	0.500"	0.312"
24"	30"	0.500"	0.312"

- D. Jack or bore other locations shown on the plans in accordance with this Section of the Specifications.

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- E. If after two attempts to bore and jack, the bore and jack cannot be completed due to underground conditions, the CONTRACTOR may complete the installation by the open cut method of installation except in State of Georgia Rights-of- Way.

3.11 TUNNELING OPERATIONS

- A. The CONTRACTOR may, at his option or if required to complete the installation beneath State Highways, at an additional cost to be negotiated with the OWNER, tunnel pipes into position using procedures approved by the ENGINEER and the governmental agencies having jurisdiction.

3.12 FIELD QUALITY CONTROL

- A. The ENGINEER will inspect and approve open cuts and trenches before installation of utilities, and will make the following tests:
  - 1. Assure that trenches are not backfilled until all tests have been completed;
  - 2. Check backfilling for proper layer thickness and compaction;
  - 3. Verify that test results conform to the specified requirements, and that sufficient tests are performed;
  - 4. Assure that defective work is removed and property replaced.

**Part 4.00 MEASUREMENTS AND PAYMENT**

4.01 GENERAL

- A. Only items listed in the Bid Schedule shall be measured for payment.
- B. The ENGINEER shall make all measurements.
- C. All work shall be measured before concealing or made accessible by uncovering if concealed prior to measurement at no additional cost to the OWNER.

4.02 MEASUREMENT AND PAYMENT

- A. Trenching, rip-rock, backfilling, and compaction shall not be measured for payment. The cost of this item shall be included in the price bid for size and class of pipe, complete.
- B. Unsuitable materials will be measured for payment. Payment will be made at the unit price shown in the proposal, including excavation of unsuitable materials, removal from site and backfill with suitable material and/or stabilization stone.
- C. Blast rock shall be measured for payment. Payment will be by the cubic yard based upon a depth of 6 inches maximum beneath the pipe and a width of the nominal pipe diameter plus 24 inches. Payment shall include backfill with suitable material.
- D. Rock shall be stripped of overburden for measurement before excavating and no rock excavated or loosened before measurement will be allowed or paid for as rock, unless other acceptable methods of measurement have been established in advance. All measurement will be done by ENGINEER.
- E. Any damage to the work due to the CONTRACTOR'S rock removal operations, including shattering of the material beyond and the required excavation lines, or damage to surrounding structures, shall be repaired at the expense of any by the CONTRACTOR.

- F. Boring and jacking will be paid at the unit amount shown in the Bid, including Steel carrier pipe.
1. Should bore and jacking be unsuccessful after two attempts, payment will be based upon the lineal feet of the longest bore plus asphalt pavement replacement required to complete the installation from the end of the longest bore. The unit amount paid per linear foot of the bore will be based upon the lump sum price bid divided by the total footage of the size bore shown on the Bid Schedule.
- G. Asphalt pavement replacement for roads and paved parking areas will be measured along the centerline of the utility line. Pavement will be made on a square yard basis at the unit price shown in the Bid Schedule complete, including base concrete, topping and materials. Payment width shall be a maximum of the pipe diameter plus 48 inches.
- Roadway edges and/or miscellaneous pavement damaged due to construction equipment will not be measured for payment unless specifically called for on Contract Drawings. The cost of this item shall be included in the unit price bid for the respective size and class of pipe.
- H. No measure or payment shall be made for driveway pavement or concrete repairs. The cost of this item shall be included in the unit price bid for the respective size and class of pipe including materials.
- I. Free bores shall be paid at the unit prices shown in the Bid Schedule.
- J. Concrete encasement shall be measured for payment and paid at the unit price shown in the Bid Schedule.

**END OF SECTION**



SECTION 02272

EROSION, SILTATION, AND DUST CONTROL

**SECTION 02272**  
**EROSION, SILTATION, AND DUST CONTROL**

**Part 1.00 GENERAL**

**1.01 WORK INCLUDED IN THIS SECTION**

- A. Prevention of erosion, sedimentation, and dust emission caused by construction. Avoid damage to downstream property.
- B. CONTRACTOR shall comply with all requirements of the N.P.D.E.S. Storm Water Discharge Permits, when applicable.

**Part 2.00 PROCEDURE**

**2.01 EROSION AND SILT**

- A. At the construction site, erosion and siltation will be controlled by preserving existing vegetation wherever possible, construction of terraces on the downhill side of the disturbed area to slow down and collect water and silt, with silt fence and hay bales stacked and secured at runoff points to slow the flow and retain silt. Dust will be controlled by keeping dry areas damp by sprinkling or other means. Temporary or final grassing will be installed as soon as practical; however, all disturbed areas shall be stabilized within 7 days or as instructed by the ENGINEER or OWNER.
- B. Excavation for water lines will be limited to 200 feet of open trench at any one time for a line. Silt fence and hay bales will be required where erosion may occur.
- C. Area shall be restored to original condition or better per Construction Drawings or as instructed by the ENGINEER or OWNER. Where permanent grassing cannot be planted as soon as excavation and backfilling of trenches is completed, interim grassing will be required.

**Part 3.00 PAYMENT**

**3.01 MEASUREMENT AND PAYMENT**

- A. Only items specifically identified on the Bid Schedule will be measured for payment.

**END OF SECTION**

## SECTION 02485

### GRASSING

#### **Part 1.00 GENERAL**

##### **1.01 DESCRIPTION**

- A. Work included: Provide ground cover on all areas disturbed by construction within 48 hours of disturbing activities and as needed for a complete and proper installation.
- B. Limits of disturbance shall be no more than 2' beyond the immediate area required for completion of work, staging of equipment and materials and loading and movement of equipment. Payment for areas beyond these limits will require prior approval by the ENGINEER.
- C. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplemental General Conditions, and Sections in Division 1 of these Specifications.

##### **1.02 QUALITY ASSURANCE**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Standards:
  - 1. State of Georgia seed laws, rules and regulations.
  - 2. Georgia Plant Food Act.
  - 3. Georgia Department of Transportation (D.O.T.), Standard Specification Section 890.

##### **1.03 SUBMITTALS**

- A. Product Data: Within 60 calendar days after the CONTRACTOR has received the OWNER'S Notice of Proceed, submit:
  - 1. Complete materials list of items proposed to be provided under this Section.
  - 2. Complete data on source, size and quality.
  - 3. Sufficient data to demonstrate compliance with the specified requirements.
- B. Certificates:
  - 1. Require certificates required by law to accompany shipments.
  - 2. Upon completion of the installation, deliver certificates to the ENGINEER.

SECTION 02485

GRASSING

**Part 2.00 PRODUCTS**

2.01 FERTILIZER

- A. Fertilizer shall meet the requirements of Georgia Plant Food Act.

2.02 LIME

- A. Agricultural Lime shall be ground dolomite limestone meeting the requirements of D.O.T. Section 882.02.

2.03 SEED

- A. Kentucky 31 Tall Fescue; minimum purity 98%.
- B. Bermuda grass; unhulled minimum purity 98%.

2.04 MULCH

- A. Mulch for grassing shall be in accordance with (D.O.T. Section 893.02.)

2.05 SOD

- A. Existing sods shall be replaced in kind.

**Part 3.00 EXECUTION**

3.01 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of the Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 SPREADING TOPSOIL

- A. Upon completion of finish grading, perform fine grading required in seeded areas, using soil obtained from the site.

3.03 SOWING TUR GRASS

- A. Preparation:
  - 1. Seed all areas within the limits of the work.
  - 2. Remove any stones over 1" in size, sticks, roots or deleterious materials from site. Plow, disc, harrow and till soil to a depth of 4" to 6".
  - 3. CONTRACTOR shall have a soil test made to determine what pH adjustments shall be made. If pH of soil is below 6.0, add agricultural limestone at a rate of 50 pounds per 1,000 sq. ft. spread uniformly over entire area.

- B. Seeding:
  - 1. Uniformly distribute seed over designated areas using mechanical spreader. Sow half of seed with spreader moving in one direction the remainder with spreader moving at right angle to first sowing.
  - 2. Cover seed lightly with minimum 1/4" of soil by hand raking.
  - 3. Mulch seeded areas having slopes of four to one or greater with straw mulch.
  - 4. Seeded areas shall be lightly watered upon completion. CONTRACTOR is responsible for protection of all seeded areas from vehicular and pedestrian traffic or other common disturbances. Seeded areas will be kept moist until germination is complete and new growth is vigorous.
- C. Time:
  - 1. Kentucky 31 Tall Fescue shall be seeded between 15 Feb and 30 Apr or 16 Aug and 15 Nov.
  - 2. Unhulled Bermuda shall be seeded between 01 May and 15 Aug.
  - 3. Temporary grassing shall be used between planting seasons.

#### 3.04 MAINTENANCE

- A. Maintain planting, starting with the planting operations and continuing for 6 weeks after planting is complete and approved by the ENGINEER.
- B. Work Included:
  - 1. Watering, weeding, erosion repair and mowing necessary to keep the materials in a healthy growing condition and to keep the planted areas neat and attractive throughout the maintenance period.
  - 2. Provide equipment and means for proper application of water to those planted areas not equipped with an irrigation system.
  - 3. Protect planted areas against damage, including erosion and trespassing, by providing and maintaining proper safeguards.
- C. Replacements:
  - 1. At the end of the maintenance period, all grasses shall be in healthy growing condition.
  - 2. At end of 6 weeks maintenance period, ENGINEER shall inspect grass and if at the time a sufficient coverage of grass is apparent, CONTRACTOR may be relieved of his responsibility for grass. Otherwise, he will be required to replant unacceptable areas.
  - 3. CONTRACTOR shall guarantee viability and thrifty growth for a period of one year following acceptance of initial germination. 90% coverage is acceptable if void areas are generally broadcast and do not exceed one square yard in area.

#### 3.05 PAYMENT

- A. Only items specifically identified on the Bid Schedule will be measured for payment.

#### END OF SECTION

SECTION 02713

WATER DISTRIBUTION SYSTEM

**SECTION 02713**  
**WATER DISTRIBUTION SYSTEM**

**Part 1.00 GENERAL**

1.01 DESCRIPTION

- A. Work included: Provide water distribution system as shown on the Drawings, specified herein, and needed for a complete and proper installation.
- B. Related Work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.02 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirement and the methods needed for proper performance of the work of this Section.

1.03 SUBMITTALS

- A. Product Data: Within 35 calendar days after the CONTRACTOR has received the OWNER'S Notice to Proceed, submit:
  - 1. Materials list of items proposed to be provided under this Section;
  - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
  - 3. Names and addresses of the nearest service and maintenance organization that readily stocks repair parts;
  - 4. Manufacturer's recommended installation procedures which, when approved by the ENGINEER, will become the basis for accepting or rejecting actual installation procedures used on the Work.
  - 5. Submittals for each product must be approved before installation. ENGINEER reserves the right to refuse payment for installation of non-approved materials.

**Part 2.00 PRODUCTS**

2.01 PIPE AND FITTINGS

- A. General:
  - 1. Pipe materials larger than 12": Use ductile iron pipe unless otherwise indicated or approved in advance by the ENGINEER.
  - 2. Pipe materials 4" to 12": Use ductile iron unless otherwise indicated or approved in advance by the ENGINEER.

3. Minimum line size for water mains shall be 8" diameter unless approved in advance by ENGINEER.
- B. Pipe:
1. Ductile iron pipes:
    - a. Comply with ANSI A-21.51, with the class and size as shown on the drawings or in the Bid Schedule.
    - b. Use cement mortar lining complying with ANSI A-21.4 or AWWA C205, standard thickness, and where buried, shall have an exterior bituminous coating.
    - c. Above ground or interior pipe and fittings shall be primed at the factory.
- C. Joints:
1. Ductile Iron Pipe:
    - a. Exterior buried joints to be mechanical joints of the stuffing box type complying with ANSI A-21. 11 as modified by ANSI A-21.51 for ductile iron pipe, with push-on joints complying with ANSI A-21.51 for ductile iron;
    - b. Use rubber gaskets and lubricant complying with applicable requirements of ANSI A-21.11.
    - c. Interior or above ground joints to be flanged per ANSI A21.15. Gaskets for flanged joints to be rubber with cloth inserts or approved equal.
    - d. Restrained Joint Pipe (RJP) shall be used where specifically called for on the drawings. Restrained joint piping shall be such that it provides a positive restraint against endwise separation due to thrust from internal pressure. Restrained joint shall be designed for a working pressure up to 250 psi. Restraining mechanism shall be easily assembled and disassembled. Restrained joint pipe shall have an allowable deflection of one (1) degree, or more. Restrained joint pipe shall be in accordance with ANSI A-21.51. Above ground RJP shall be factory primed to receive specified environmental coating.
- D. Fittings and Specials:
1. Ductile Iron Pipe:
    - a. Use fittings and specials suitable with the class as shown on the drawings or in the proposal.
    - b. For use with mechanical joint pipe, restrained joint or flanged pipe, comply with ANSI A-21.10 for full body fittings and with ANSI A-21.53 for compact fittings.
    - c. For use with push-on joint pipe, comply with ANSI A21. 10, A-21.11 and A-21.53.
    - d. Use cement mortar lining complying with ANSI A-21.4, standard thickness.

SECTION 02713

WATER DISTRIBUTION SYSTEM

- E. Valves
  - 1. Gate Valves:
    - a. Use gate valves designed for 150 psi service and size as shown on the drawings or in the proposal.
    - b. Provide connections as required for the piping in which they are installed.
    - c. Provide a clear waterway equal to the full nominal diameter of the valve, opened by turning counter clockwise.
    - d. Provide an arrow on the operating nut or wheel, cast in metal, indicating direction of opening.
  - 2. Valves 8" and larger:
    - a. Provide valve box with extension and marked cover.
  - 3. Valve operators shall conform to AWWA C504 and shall be designed to hold valve in any intermediate position between fully open and fully closed without creeping or fluttering.
    - a. Manual valve operators shall be of worm gear or traveling nut type and shall be fully enclosed. Units furnished for buried service shall be fully gasketed and furnished with a ground level valve position indicator unless otherwise indicated. Above ground operators shall have a suitable indicator arrow to give valve position at any point from fully open to fully closed. Valves shall close with a clockwise rotation of handwheel. Manual operators shall require at least 30 turns of handwheel to rotate 90 degrees. Extended bonnets and floorstands shall be provided where indicated.
  - 4. In-line valves shall be spaced at a maximum distance of 1800' unless approved in advance by the ENGINEER.
  - 5. Acceptable Products:
    - a. AWWA C509 compliant, to be approved by ENGINEER prior to installation.

2.02 OMITTED

2.03 VALVE BOXES

- A. Valves 3" and larger:
  - 1. Use service box of cast iron, extension type of the required length, with screw adjustment.
  - 2. Provide the word "WATER" cast into the cover.
  - 3. Acceptable Products:
    - a. Alhambra Foundry Company, Alhambra, California:
      - 1) For valves 6" and smaller: Model A-3004;
      - 2) For valves 8" and larger: Model 3005.

2.04 FIRE HYDRANTS

- A. Fire hydrants shall be cast iron, bronze mounted with 4-1/4" minimum valve opening and 6-1/2" minimum internal diameter with mechanical joint and connections. Hydrants

shall have two 2-1/2" hose nozzles and one 4-1/2" steamer nozzle. Threads on nozzles and operating nut shall be furnished in accordance with OWNER'S standards. Hydrants shall be 30 to 36 inches above grade. Hydrants shall be Mueller Catalogue No. A-421, M & H Style 129, or approved equal, meet AWWA Standard Specifications, conform to Georgia Fire Insurance Commission Standards, and meet local fire department requirements and shall be complete with auxiliary valve. Hydrants shall be painted silver, or as required to match existing hydrants within the local water system. Fire hydrants shall be spaced at a maximum distance of 600' unless approved in advance by the ENGINEER and the local Fire Marshal. Fire hydrants shall be located at the end of all dead end mains.

2.05 CONCRETE VALVE MARKERS

- A. 5" square by 4'-6' long with 4 #2 reinforcing rods

2.06 AIR VACUUM RELEASE VALVES

- A. Use APCO Model 143C, Universal, Anderson, or approved equal.

**Part 3.00 EXECUTION**

3.01 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 FIELD MEASUREMENT

- A. Make necessary measurements in the field to assure precise fit of items in accordance with the approved design.

3.03 HANDLING

- A. Handle pipe accessories so as to ensure delivery trench in sound, undamaged condition:
  - 1. Carry pipe into position; do not drag.
  - 2. Use pinch bars or tongs for aligning or turning the pipe only on the bare end of the pipe.
- B. Thoroughly clean interior of pipe and accessories before lowering pipe into trench. Keep clean during laying operations by plugging or other method approved by the ENGINEER.
- C. Before installation, inspect each piece of pipe and each fitting for defects:
  - 1. Material found to be defective before or after laying: Replace with sound material meeting the specified requirements, and without additional cost to the OWNER.



SECTION 02713

WATER DISTRIBUTION SYSTEM

- D. Rubber gaskets: Store in a cool dark place until just prior to time of installation.

3.04 PIPE CUTTING

- A. Cut pipe neatly and without damage to the pipe.
- B. Unless otherwise recommended by the pipe manufacturer, and authorized by the ENGINEER, cut pipe with mechanical cutter only.
  - 1. Use wheel cutters when practicable.

3.05 LOCATING

- A. Minimum cover over water mains shall be 48". The ENGINEER shall be notified in advance regarding field conditions which may reduce cover below 48".
- B. Locate water pipe at least ten feet away, horizontally, from sewer pipes.
  - 1. Where bottom of the water pipe will be at least 12" above top of the sewer pipe, locate water pipe at least six feet away, horizontally, from the sewer pipe.
- C. Where water lines cross under gravity-flow sewer lines, fully encase the sewer pipe in concrete for a distance of at least ten feet each side of the crossing, or provide pressure pipe with no joint located within 36" of the crossing.
  - 1. Cross water lines in cases above sewage force mains or inverted siphons at least 24" above the sewer line.
  - 2. Encase in concrete those joints in the sewer main closer, horizontally, than 36" to the crossing.

3.06 JOINT DEFLECTION

- A. Ductile Iron Pipe:
  - 1. Maximum allowable deflection will be given in AWWA C600.
  - 2. If alignment requires deflection exceeding limits given in AWWA C600 furnish special bends or a sufficient number of shorter lengths of pipe to provide angular deflections within the limits shown.

3.07 PLACING AND LAYING

- A. General:
  - 1. Lower pipe and accessories into trench by means of derrick, ropes, belt slings, or other equipment approved by the ENGINEER.
  - 2. Do not dump or drop any of the materials of this Section into the trench.
  - 3. Except where necessary in making connections to other lines, lay pipe with the bells facing in the direction of laying.
  - 4. Rest the full length of each section of pipe solidly on the pipe bed, with recesses excavated to accommodate bells, couplings, and joints.
  - 5. Take up and relay pipe that has the grade or joint disturbed after laying.

6. Do not lay pipe in water, or when trench conditions are unsuitable for the work; keep water out of the trench until jointing is completed.
7. Securely close open ends of pipe, fittings, and valves when work is not in progress.
8. Where any part of coating or lining is damaged, repair to the approval of the ENGINEER and at no additional cost to the OWNER.

B. Connections:

1. Use specials and fittings to suit the actual conditions where connections are made between new work and existing mains. Use only those specials and fittings approved by the utility having jurisdiction.

C. Sleeves:

1. Where pipe passes through walls of valve pits or structures, provide cast iron wall sleeves (unless wall pipe is called for).
2. Fill annular space between walls and sleeves with rich cement mortar.
3. Fill annular space between pipe and sleeves with mastic.

### 3.08 JOINTING

A. Joints:

1. Ductile iron pipe, mechanical joints, restrained joints, and push-on type joints: Install in accordance with AWWA C600, modified as necessary by the recommendation of the manufacturer to provide for special requirements of ductile iron pipe.
2. Make connections between different types of pipe and accessories with transition fittings.
3. Rubber gaskets: Handle, lubricate necessary, and install in strict accordance with the recommendations of the manufacturer.

### 3.09 SETTING VALVES, VALVE BOXES, AND FIRE HYDRANTS

A. General:

1. Center valve boxes on the valves, setting plumb.
2. Tamp earth fill around each valve box to a distance of four feet on all sides, or to the undisturbed trench face if less than four feet.
3. Tighten stuffing boxes, and fully open and close each valve to assure that all parts are in working condition.

B. Fire Hydrants:

1. Locate as shown on plans.
2. Expose 30" to 36" of hydrant above the ground. Furnish hydrant extensions as required, at no additional cost to the OWNER.
3. Install crushed stone around base of hydrant to insure drainage.
4. Hydrants to be installed complete with tie rods, accessory valve, and thoroughly compacted backfill around hydrants.

SECTION 02713

WATER DISTRIBUTION SYSTEM

5. Hydrants shall be painted silver to match existing hydrants within the local water system.

3.10 THRUST BLOCKS

- A. General:
  1. Provide thrust blocks, or metal tie rods and clamps or lugs, on plugs, caps, tees, and bends deflecting 11-1/4 degrees or more either vertically or horizontally, and on water lines 6" in diameter or larger.
  2. Provide concrete thrust blocking with a compressive strength of 3,000 psi in 28 days.
  3. Sackrete and other hand-mix concrete is not acceptable.
- B. Installation:
  1. Locate thrust blocking between solid ground and the fitting to be anchored.
  2. Unless otherwise shown or directed by the ENGINEER, place the base and thrust bearing sides of thrust blocking directly against undisturbed earth.
  3. Sides of thrust blocking not subject to thrust may be placed against forms.
  4. Place thrust blocking so the fitting joints will be accessible for repair.
  5. Protect steel rods and clamps by galvanizing or by coating with bituminous paint.

3.11 TESTING AND INSPECTING

- A. Closing Uninspected Work: Do not allow or cause any of the work of this Section to be covered up or enclosed until after it has been completely inspected and tested, and has been approved by the ENGINEER.
- B. Hydrostatic Tests:
  1. Where any section of a water line is provided with concrete thrust blocking for fittings, do not make hydrostatic tests until at least five days after installation of the concrete thrust blocking, unless otherwise directed by the ENGINEER.
  2. Devise a method for disposal of waste water from hydrostatic tests, and for disinfection, as approved in advance by the ENGINEER.
- C. Pressure Tests:
  1. After the pipe is laid, the joints completed, fire hydrants permanently installed, and the trench partially backfilled leaving the joints exposed for examination, subject the newly laid piping and valved sections of water distribution and service piping to a hydrostatic pressure of 200 psi, for 1 hour.
  2. Open and close each valve several times during the test.
  3. Carefully examine exposed pipe, joints, fittings, and valves.
  4. Replace or remake joints showing visible leakage.
    - a. Remove cracked pipe, defective pipe, and cracked or defective joints, fittings, and valves. Replace with sound material and repeat the test until results are satisfactory.
    - b. Make repair and replacement without additional cost to the owner.

D. Leakage Test:

1. Conduct leakage test after the pressure test has been completed satisfactorily.
2. Duration of each leakage test: At least two hours.
3. During the test, subject water lines to a pressure of 200 psi.
4. Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved or approved section thereof, necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.
  - a. No piping installation will be accepted until the leakage is less than the number of gallons per hour as determined by the formula:

$$L = 0.00054 N \times D \times \text{sq. root of } P$$

Where:

- b. L = allowable leakage in gallons per hour;
- c. N = number of joints in length of pipe under test;
- d. D = nominal diameter of pipe in inches ; and
- e. P = average test pressure in lbs. per sq. inch.
- f. The allowable leakage in gallons per hour, per joint, at 200 psi average test pressure shall be in accordance with Table I.
- g. Should any test of pipe disclose leakage greater than that specified in Table I, locate and repair the defective joint or joints until the leakage is within the specified allowance, and at no additional cost to the OWNER.

5. Table I:

Diameter	Leakage In Gallons	Diameter	Leakage In Gallons
2"	0.0153	12"	0.0916
3"	0.0229	14"	0.1069
4"	0.0305	16"	0.1222
6"	0.0458	18"	0.1375
8"	0.0611	20"	0.1527
10"	0.0764	24"	0.1833

E. Time for Making Test:

1. Except for joint material setting, or where concrete reaction backing necessitates a five day delay, pipelines jointed with rubber gaskets, mechanical, or push-on joints, or couplings may be subjected to hydrostatic pressure, inspected, and tested for leakage at any time after partial completion of backfill.
2. Cement pipe and cement mortar lined pipe may be filled with water as recommended by the manufacturer before being subjected to the pressure test and subsequent leakage test.
3. ENGINEER shall be present during testing procedure. CONTRACTOR shall contact ENGINEER 24 hours prior to requested test period. CONTRACTOR shall be responsible for filling and pressurizing the section of line to be tested, prior to the scheduled test period.

SECTION 02713

WATER DISTRIBUTION SYSTEM

- F. Disinfection:
  - 1. Before acceptance of the potable water system, disinfect each unit of completed water supply, distribution, and service line in accordance with AWWA C651.
  - 2. Perform all such tests and disinfection in a manner approved by governmental agencies having jurisdiction.
  - 3. Furnish two copies of Certificate of Disinfection to the ENGINEER.

**Part 4.00 MEASUREMENT AND PAYMENT**

4.01 GENERAL

- A. All work required under this section of the specifications shall be measured for payment.
- B. The ENGINEER shall make all measurements.
- C. All work shall be measured before concealing or made accessible by uncovering if concealed prior to measurement at no additional cost to the OWNER.

4.02 MEASUREMENT & PAYMENT

- A. Pipe shall be measured from center of fitting to center of fitting or end of pipe in place. Payment shall be made at the unit price bid per foot including all excavation, trenching, backfilling, clean-up, tie-ins except wet taps, gaskets, couplings, testing and sterilization, and jointing accessories.
- B. Galvanized iron, steel, PVC, or copper fittings, sleeves, adaptors will not be measured for payment. The unit price bid for the respective class and size pipe shall include compensation for these items.
- C. Concrete subgrade or blocking will be measured for payment. Payment will be made at the unit price shown on the Bid Schedule.
- D. Miscellaneous items not specifically mentioned above shall be measured and paid at the unit price shown in the proposal. Where the proposal does not show any item necessary for a complete installation, the cost of the item shall be included in the unit price shown of the respective class and size of pipe.

**END OF SECTION**

**Division 03**

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SECTION 03301

CONCRETE

**SECTION 03301**

**CONCRETE**

**Part 1.00 GENERAL**

**1.01 WORK INCLUDED IN THIS SECTION**

- A. Furnish all labor, materials, and equipment to do all the concrete work shown on the drawings or specified.

**Part 2.00 PRODUCTS**

**2.01 CONCRETE**

- A. Cement shall be Type I Portland Cement meeting the American Society of Testing & Materials Specification C-150. Aggregate shall meet ASTM- 633 requirements with the maximum size of coarse aggregate being 1 inches. Mixing water shall be clean and free of acids, alkalis, oil or vegetable matter.
- B. Compressive strength of concrete shall be 3,000 psi, except where 4,000 psi is specifically called for on the drawings, at 28 days in accordance with ASTM-C-39 specification requirements.
- C. Sackrete and other hand-mix concrete will not be acceptable.
- D. Submit mix design to ENGINEER for approval.

**2.02 GROUT**

- A. Grout shall consist of one part cement to two parts sand.

**2.03 EXPANDING GROUT**

- A. Expanding grout shall have non-shrink, non-metallic characteristics. Grout shall be Five Star Grout as manufactured by U.S. Grout Corp. or approved equal.

**2.04 REINFORCEMENT**

- A. Reinforcement shall be intermediate or hard grade steel meeting ASTM-A-15 or A-16 specifications. Deformations shall comply with ASTM-A-305 requirements and bends shall comply with American Concrete Institute Code. Steel shall be free from scale, oil, dirt, and defects.

2.05 FORMS

- A. Forms shall be 5 ply form grade structural plywood or prefabricated wood or steel free from excessive holes or other imperfections. They shall be watertight and braced to produce correctly aligned concrete.

2.06 FORM TIES

- A. Form ties shall have a minimum working strength of 3000 pounds, break back 1 inches from the surface and be of a design approved by the ENGINEER. Form ties shall have a positive waterstop protection at the center of the wall.

2.07 FORM OIL

- A. Oil shall be light colored, non-staining mineral oil.

2.08 CHAMFER STRIPS

- A. Chamfer strips shall be dressed on all sides, free from warp, knotholes or other defects.

**Part 3.00 EXECUTION**

3.01 CONCRETE

- A. Place all concrete in daylight and as near its final resting place as possible in such a manner as to prevent separation of the aggregate or displacement of the reinforcing steel. No concrete will be deposited when the temperature is below 40°F.
- B. Determine that all sleeves, conduit, inserts, frames, etc., are in place and properly located before placing concrete.
- C. Compact with an approved type mechanical vibrator having a frequency of not less than 3,000 vibrations per minute. The proper number shall be provided to properly execute the work including spare units in case of mechanical failure. Walls shall be well spaded to produce watertight concrete free from air pockets or honeycomb.
- D. Cure all concrete by covering with burlap or Sisal Kraft and keeping wet for a period of seven days or use an approved membrane compound.
- E. Imperfect or damaged work shall be satisfactorily replaced as directed by the ENGINEER in such a manner that the strength, watertightness, or appearance of the structure is not impaired.

3.02 REINFORCEMENT

- A. Place reinforcing steel accurately and support adequately to avoid displacement. No lapped bars will be allowed and all steel must be free of dirt, scale, oil or any foreign



SECTION 03301

CONCRETE

coating before placing concrete. Torches will not be allowed for cutting reinforcement steel.

3.03 FORMS

- A. Forms shall be set to line and grade, adequately braces, to prevent deflection and produce concrete conforming to shape and dimensions indicated on the drawings. Forms shall be tight enough to prevent leakage of mortar and coated with an approved form oil.
- B. Excavation for foundations shall be made to the lines and grades shown on the drawings. Any areas undercut will be filled with concrete at no increase in concrete price.
- C. Clean and remove all foreign material from forms and excavations and dampen surfaces before pouring concrete.

3.04 TESTS

- A. Submit test report and obtain ENGINEER'S approval of concrete mix before beginning concrete work. Frequent slump tests shall be made and maximum slump shall be four inches.
- B. Four test cylinders will be made of each pour by a recognized laboratory approved by the ENGINEER.

3.05 INSPECTION

- A. All form work, placing of reinforcing, and incidental preparations for concrete placing must be inspected and approved by the ENGINEER. The CONTRACTOR will notify the ENGINEER 48 hours prior to needing an inspection. Concrete not formed as shown on plans, is porous, has a defective surface, or lacks required strength shall be removed from the job site or repaired as directed by the ENGINEER.

3.06 PAYMENT

- A. No separate measurement or payment will be made for concrete unless specifically shown as an item in the Bid.

**END OF SECTION**

## Appendix

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## Water System Notes and Requirements

*Where Quality Is A Lifestyle*

1. All materials and installation shall be in accordance with Fayette County Water System and AWWA standards and specifications.
2. New Water Main to be installed after curb and gutter has been constructed and must be located 7' from the back of the curb.
3. Ductile Iron Pipe (D.I.P.) shall be minimum pressure class 300 cement mortar lined, per ANSI C151/A21.51. All fittings shall be mechanical joint Ductile Iron per ANSI A21.10 or A21.53. All service piping shall be copper.
4. Provide Thrust Restraint (Thrust Blocks or Restrained Joints) at all bends, Tees, Crosses and End of Lines. (EOL) Side forms shall be used to prevent encasement of bolts.
5. Service Taps shall not be located beneath pavement.
6. Long side services shall be sleeved with PVC material or better to preserve the integrity of roads for future maintenance.
7. Contractor shall flag Water Line and Service locations to prevent damage by other Utility Contractors.
8. Proper compaction is required throughout the project. (95% pervious, 98% impervious)
9. Unsuitable soil materials shall be replaced with Suitable Materials.
10. New Water Line shall be pressure tested for 2 hours at 200 P.S.I. Unacceptable leakage shall be repaired and water line shall be retested prior to acceptance by Fayette County Water System.
11. All Double Water Services shall be 1" Type "K" Copper and Single Services shall be ½" Type "K" Copper.
12. Top of curbs shall be permanently marked and painted Blue at Main and Service Crossings, as well as, Valve and Meter Locations.
13. All Fire Hydrants shall be operational prior to allowing combustible construction.
14. Meter Boxes shall be placed 9' from back of curb. Location of meters shall not be encased in asphalt or concrete. Alternate locations will be approved by F.C.W.S.
15. Set Meter Boxes .2' above top of Curb elevation. Meter boxes shall have radio read lids conforming to Fayette County Water System standards. Mark Meter Boxes with a 4' long PVC pipe painted blue.
16. Waterline contractor shall provide traffic control, including signage and flagmen, while working within the Right of Way of any existing road.
17. Waterline contractor performing any work within an existing right of way must comply with the MUTCD 2003 Edition with Revisions Number 1 and 2 Incorporated, dated December 2007. Flaggers must possess a current certification card. Documentation shall be available upon request by any County Employee.
18. Water to be provided by Fayette County Water System.
19. All tie-ins shall be coordinated with Fayette County Water System. Existing valves shall be operated by County personnel only.



## Water System Notes and Requirements

*Where Quality Is A Lifestyle*

20. Contractor must notify Fayette County Water System 24 hours prior to beginning construction or requesting inspections. All work must be inspected prior to backfill and compaction. Any work covered prior to inspection is subject to rejection until it has been exposed and inspected by Fayette County Water Personnel.
21. No trenches or pits are to be left open overnight or through a weekend. If crew vacates job site during daytime hours, a properly constructed, highly visible barricade must be erected.
22. While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees.
23. Means of egress from trench excavations. A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees.
24. Contact Matt Bergen at the Fayette County Water System to schedule a preconstruction meeting prior to beginning any work. Phone: 770-320-6020 Fax: 770-719-5576
25. All contractors must have a Certified Competent Person on site while work is being performed. Documentation shall be available upon request by any County Employee.
26. All contractors performing any Land Disturbing Activity shall have attended the GSWCC Sub Contractor Awareness Course when working in a common development where the primary permittee has obtained a Level 1A Certification. The primary permittee is required to have a Level 1A Certified representative on site at all times. Documentation shall be available upon request by any County Employee.
27. Any contractor performing any Land Disturbing Activity under contract for Fayette County Water System shall be considered the primary permittee for each project. The contractor shall be required to have a GSWCC Level 1A Certified representative on site at all times. Documentation shall be available upon request by any County Employee.
28. Before release of the Water Lines, 2 Certified As – Builts (24 X 36) must be submitted along with 2 signed Final Plats or Final Site Plans. One electronic copy of each document should be sent to the inspector upon acceptance.

# CERTIFICATION STATEMENT

Utility Company Name: \_\_\_\_\_

1. Insert stated exemption and your commitment to apply the minimum Best Management Practices as established within O.C.G.A 12-7-1.

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2. Insert a statement as to the applicability or exemption of State Water Buffer variances.

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3. Check "Yes" if copies of the executed variance are attached.

☐ YES executed variance is attached.

4. This Certification Statement must be completed by a representative possessing current design professional credentials as defined in the GAR100002 permit. A form signed by an unauthorized person will not be valid.

Printed Name: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Certification ID: \_\_\_\_\_

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**Sec. 19-87.** The Fayette County Water System shall comply with Chapter 391-3-5-13 of the Georgia Rules for Safe Drinking Water and U.S. Environmental Protection Agency Cross-Connection Manual which pertain to cross-connections, and establish an effective, ongoing program to control these undesirable water uses.

**Sec. 19-88.** It shall be unlawful for any person to cause a cross-connection, auxiliary intake, by-pass, or inter-connection to be made; or to allow a cross-connection auxiliary intake, by-pass, or inter-connection to exist for any purpose whatsoever.

**Sec. 19-89.** Any person whose premises are supplied with water from the public water supply, and who also has on the same premises a separate source of water supply or stores water in an uncovered or unsanitary storage reservoir from which the water stored is circulated through a piping system, shall file a statement of the non-existence of unapproved or unauthorized cross-connections, auxiliary intakes, by-passes, or inter-connections with the Director of the Fayette County Water System. Such statement shall also contain an agreement that no cross-connection, auxiliary intake, by-pass, or inter-connection will ever be permitted upon the premises.

**Sec. 19-90.** The Director of the Fayette County Water System or his designated representative, shall require the use of an approved protective device on the service line serving all premises to assure that any contamination that may originate in the customer's premises is contained therein. The protective device shall be a backflow preventer approved by the Director of the Fayette County Water System as to manufacture, model, and size. The method of installation of all backflow protective devices shall be approved by the Director of the Fayette County Water

System prior to installation and shall comply with the criteria set forth by the Director of the Fayette County Water System. The installation shall be at the expense of the owner or occupant of the premises.

The Fayette County Water System shall have the right to inspect and test the device or devices on an annual basis or whenever deemed necessary by the Director of the Fayette County Water System or his designated representative. Water service shall not be disrupted to test the device without the knowledge of the occupant of the premises.

Where the use of water is critical to the continuance of normal operations or protection of life, property, or equipment, duplicate units shall be provided to avoid the necessity of discontinuing water service to test or repair the protective device or devices. Where only one unit is installed and the continuance of service is critical, the Director of the Fayette County Water System shall notify, in writing, the occupant of the premises of plans to discontinue water service and shall arrange for a mutually acceptable time to test and/or repair the device. These repairs shall be made by qualified personnel, acceptable to the Fayette County Water System.

**Sec. 19-91.** The Director of the Fayette County Water System or authorized representative is hereby authorized to enter, at any reasonable time, any property served by a connection to the Fayette County Water System for the purpose of inspecting the piping system or systems thereof for cross-connections, auxiliary intakes, by-passes, or inter-connection. On request, the owner, lessee, or occupant of any property so served shall furnish to the inspecting party, any and all pertinent information regarding the piping system or systems on such property. The refusal of such information or refusal of access, when requested, shall be deemed evidence of the presence of cross-connections.

*“If excavation is required within 1,000 feet of any existing traffic signal, contact Glen Cranshaw, at phone number 706-646-7600, before any excavation occurs. Appropriate measures shall be taken to protect those wires during performance of the work. The work authorized by this permit may not begin until traffic signal activation wires/interconnect have been located and identified. Any traffic signal facilities damaged will be replaced by the Utility Owner to the satisfaction of the Department.”*



# METER & FIRE LINE PRICES

METER SIZE	METER CHARGE	TAP FEE	MINIMUM BILL
5/8" X 3/4	\$900.00	\$400.00	\$16.00
1"	\$1200.00	\$400.00	\$10.00
1-1/2	\$1700.00	\$400.00	\$15.00
2"	\$2000.00	\$400.00	\$20.00
4"	\$10000.00	\$400.00	\$30.00
6"	\$15000.00	\$400.00	\$35.00
8"	\$20000.00	\$400.00	\$40.00

FIRE LINE	DDC	TAP FEE
6"	\$5000.00	\$400.00
8"	\$8400.00	\$400.00

# Meter and Fireline Prices

3/4" -	\$900.00 + \$400 Accessibility Fee
1" -	\$1200.00 + \$400 Accessibility Fee
1-1/2" -	\$1700.00 + \$400 Accessibility Fee
2" -	\$2000.00 + \$400 Accessibility Fee
4" -	\$10,000.00 + \$400 Accessibility Fee
6" -	\$15,000.00 + \$400 Accessibility Fee
8" -	\$20,000.00 + \$400 Accessibility Fee

## Fire Line Only

6" -	\$5,000.00 + \$400 Accessibility Fee
8" -	\$8,400.00 + \$400 Accessibility Fee

These prices do not represent sole costs associated to line extensions for Residential or Commercial Customers. Road Frontage may be applicable in a Residential domestic use only setting. In Commercial, Industrial and Irrigation settings, the owner is responsible for installation and material costs along with meter and accessibility fees. Meter and backflow would be purchased from FCWS. Please call if you have any questions.

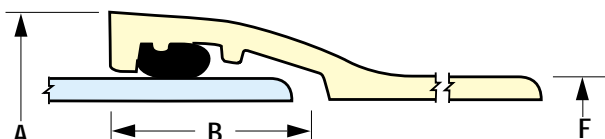


## Push-On Joint Pipe

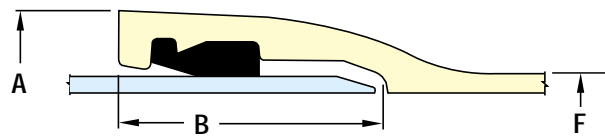
## Griffin Push-On Joint Ductile Iron Pipe

The **TYTON JOINT®** and **FASTITE JOINT®** designs incorporate a single rubber sealing gasket assuring a tight, permanent seal. The “push-on” type joint is easy to assemble and fast to install. The push-on design eliminates the need for glands and fasteners. The rubber gasket fits inside the contour of the bell socket, which seats the gasket. The plain-end (spigot) of each pipe is beveled to further ease assembly.

TYTON JOINT® Pipe 3" — 24"



FASTITE JOINT® Pipe 30" — 48"



Nominal Pipe Size (inches)	“F” Pipe O.D. (inches)	“A” Pipe Bell O.D. (inches)	“B” Depth of Bell (inches)	Maximum Joint Deflection Angle (degrees)	Maximum Deflection per Joint (inches)	
					18 ft. Laying Length	20 ft. Laying Length
3	3.96	5.46	3.00	5	19	21
4	4.80	6.52	3.15	5	19	21
6	6.90	8.66	3.38	5	19	21
8	9.05	10.82	3.69	5	19	21
10	11.10	12.91	3.75	5	19	21
12	13.20	15.05	3.75	5	19	21
14	15.30	17.67	5.00	5	19	21
16	17.40	19.79	5.00	5	19	21
18	19.50	21.91	5.00	5	19	21
20	21.60	24.03	5.50	5	19	21
24	25.80	28.21	5.95	5	19	21
30	32.00	34.95	6.50	5	na	21
36	38.30	41.37	6.50	4	na	17
42	44.50	48.25	7.50	3	na	12
48	50.80	54.73	8.00	3	na	12

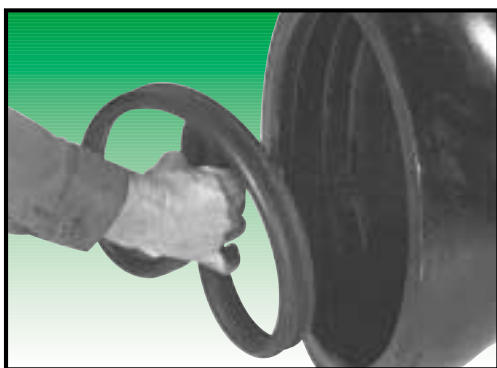


## Push-On Joint Pipe

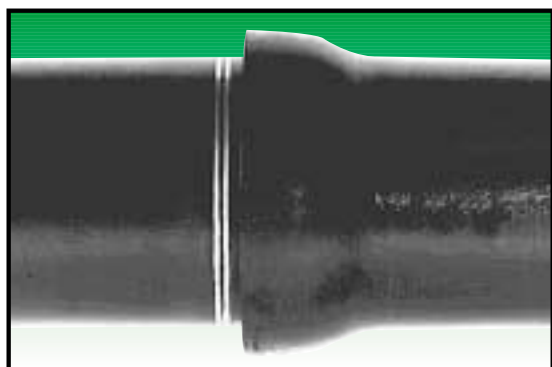
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### Griffin Push-On Joint Ductile Iron Pipe Push-On Joint Assembly

1. Thoroughly remove all traces of foreign material from the gasket groove and bell socket. Foreign material under the gasket may cause a leak. Make a small loop in the gasket and insert in socket. For pipe sizes larger than 20", it may be necessary to make 2 loops in the gasket (6 and 12 o'clock). Assure that the gasket faces the correct direction and is properly seated. **Note:** in cold weather, gaskets should be warmed to facilitate installation.



3. Make sure the plain-end is beveled per Griffin Pipe recommendations. Square or sharp edges may damage or roll the gasket causing a leak. The plain-end should be in reasonably straight alignment and carefully guided into the socket. After contacting the gasket, the joint is completed by pushing the pipe until fully seated in the socket. The spigot stripes are used for reference to indicate proper assembly.



2. Apply pipe lubricant to the exposed surface of gasket and the plain-end of the pipe. Do not apply lubricant to the bell socket or the surface of the gasket in contact with the bell socket. Make sure the plain-end does not contact the ground to avoid having dirt adhere to the lubricant. Lubricant should extend up to the spigot stripes on the plain-end.



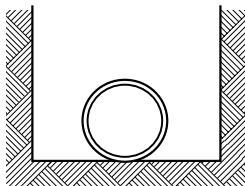
4. Small pipe can be pushed into the bell with a long bar. Larger pipe requires additional force such as a jack, come-along or backhoe. When using a backhoe the pipe can be swung into position while fastened to the backhoe bucket with a sling. The pipe can then be pulled/pushed into the socket while attached to the sling. Alternately, the sling can be removed after positioning the pipe and the backhoe bucket can be used to push on the bell face for proper insertion. Care should be taken not to damage the bell when using this method.



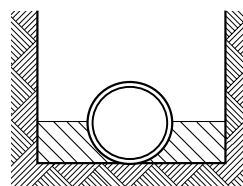
## Push-On Joint Pipe

page 3 of 6

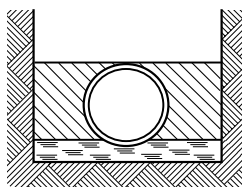
### Griffin Push-On Joint Ductile Iron Pipe Standard Trench Laying Conditions



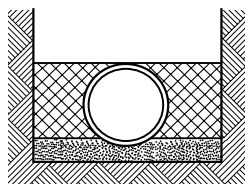
Type 1\* Flat-bottom trench† with loose backfill



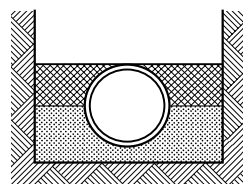
Type 2 Flat-bottom trench† with backfill lightly consolidated to centerline of pipe



Type 3 Pipe bedded in 4-in. (100-mm) minimum loose soil‡ with backfill lightly consolidated to top of pipe



Type 4 Pipe bedded in sand, gravel or crushed stone to depth of 1/8 pipe diameter, 4 in. (100mm) minimum with backfill compacted to top of pipe. (Approximately 80% Standard Proctor, AASHTO§ T-99)



Type 5 Pipe bedded to its centerline in compacted granular material, 4 in. (100mm) minimum under pipe. Compacted granular or select material‡ to top of pipe. (Approximately 90 percent Standard Proctor, AASHTO§ T-99)

Note: Consideration of the pipe-zone embedment conditions included in this figure may be influenced by factors other than pipe strength. For additional information on pipe bedding and backfill, see ANSI/AWWA C600.

\* For pipe sizes 14 in. (356mm) and larger, consideration should be given to the use of laying conditions other than Type 1.

† “Flat-bottom” is defined as undisturbed earth.

‡ “Loose soil” or “select material” is defined as native soil excavated from the trench, free of rocks, foreign materials and frozen earth.

§ American Association of State Highway and Transportation Officials, 444 N. Capital St. N.W., Suite 225, Washington, DC 20001





## Push-On Joint Pipe

### Push-On Joint Pipe with TYTON JOINT® Pressure & Special Thickness Classes

Pipe Dimensions					Pipe Weights				
Nominal Pipe Size (in.)	Pressure Class	Thickness Class	Pipe Thickness (in.)	Pipe O.D. (in.)	Weight of pipe barrel per foot (lbs.)	18-foot Laying Lengths		20-foot Laying Lengths	
						Weight per length (lbs.)	Average weight per foot** (lbs.)	Weight per length (lbs.)	Average weight per foot** (lbs.)
3	350	51	0.25	3.96	8.9	168	9.3		
		52	0.28		9.9	186	10.3		
		53	0.31		10.9	204	11.3		
		54	0.34		11.8	220	12.2		
		55	0.37		12.8	238	13.2		
		56	0.40		13.7	254	14.1		
4	350		0.25	4.80	10.9	206	11.4		
		51	0.26		11.3	214	11.9		
		52	0.29		12.6	237	13.2		
		53	0.32		13.8	259	14.4		
		54	0.35		15.0	280	15.6		
		55	0.38		16.1	300	16.7		
6	350	50	0.25	6.90	16.0	303	16.8	335	16.8
		51	0.28		17.8	335	18.6	371	18.6
		52	0.31		19.6	368	20.4	407	20.3
		53	0.34		21.4	400	22.2	443	22.1
		54	0.37		23.2	433	24.1	479	24.0
		55	0.40		25.0	465	25.8	515	25.8
8	350	56	0.43	9.05	26.7	496	27.6	549	27.5
			0.25		21.1	400	22.2	442	22.1
		50	0.27		22.8	430	23.9	476	23.8
		51	0.30		25.2	473	26.3	524	26.2
		52	0.33		27.7	518	28.8	574	28.7
		53	0.36		30.1	562	31.2	622	31.1
10	350	54	0.39	11.10	32.5	605	33.6	670	33.5
		55	0.42		34.8	646	35.9	716	35.8
		56	0.45		37.2	689	38.3	764	38.2
			0.26		27.1	514	28.6	568	28.4
		50	0.29		30.1	568	31.6	628	31.4
		51	0.32		33.2	623	34.6	690	34.5
12	350	52	0.35	13.20	36.2	677	37.6	750	37.5
		53	0.38		39.2	731	40.6	810	40.5
		54	0.41		42.1	784	43.6	868	43.4
		55	0.44		45.1	838	46.6	928	46.4
		56	0.47		48.0	890	49.4	986	49.3
			0.28		34.8	657	36.5	727	36.3
12	350	50	0.31	13.20	38.4	722	40.1	799	40.0
		51	0.34		42.0	787	43.7	871	43.6
		52	0.37		45.6	851	47.3	943	47.1
		53	0.40		49.2	916	50.9	1015	50.8
		54	0.43		52.8	981	54.5	1087	54.3
		55	0.46		56.3	1044	58.0	1157	57.9
		56	0.49		59.9	1109	61.6	1229	61.5

Standard Dimensions and Weights per ANSI/AWWA C151

\*\* "Average weight per foot" shown in tables includes the weight of the bell



## Push-On Joint Pipe

### Push-On Joint Pipe with TYTON JOINT® Pressure & Special Thickness Classes

Pipe Dimensions					Pipe Weights				
Nominal Pipe Size (in.)	Pressure Class	Thickness Class	Pipe Thickness (in.)	Pipe O.D. (in.)	Weight of pipe barrel per foot (lbs.)	18-foot Laying Lengths		20-foot Laying Lengths	
						Weight per length (lbs.)	Average weight per foot** (lbs.)	Weight per length (lbs.)	Average weight per foot** (lbs.)
14	250		0.28	15.30	40.4	780	43.3	861	43.1
	300		0.30		43.3	832	46.2	919	45.6
	350		0.31		44.7	858	47.6	947	47.4
		50	0.33		47.5	908	50.4	1003	50.1
		51	0.36		51.7	984	54.7	1087	54.4
		52	0.39		55.9	1059	58.8	1171	58.6
		53	0.42		60.1	1135	63.0	1255	62.8
		54	0.45		64.2	1209	67.2	1337	66.9
		55	0.48		68.4	1284	71.3	1421	71.0
		56	0.51		72.5	1358	75.4	1503	75.2
16	250		0.30	17.40	49.3	948	52.6	1047	52.3
	300		0.32		52.5	1006	55.9	1111	55.6
	350	50	0.34		55.8	1065	59.2	1177	58.9
		51	0.37		60.6	1152	64.0	1273	63.7
		52	0.40		65.4	1238	61.9	1369	68.5
		53	0.43		70.1	1323	73.5	1463	73.2
		54	0.46		74.9	1409	78.3	1559	78.0
		55	0.49		79.7	1495	83.1	1655	82.8
		56	0.52		84.4	1580	87.8	1749	87.5
18	250		0.31	19.50	57.2	1096	60.9	1210	60.5
	300		0.34		62.6	1193	66.3	1318	65.9
	350		0.36		66.2	1258	69.9	1390	69.5
		50	0.35		64.4	1225	68.1	1354	67.7
		51	0.38		69.8	1322	73.4	1462	73.1
		52	0.41		75.2	1420	78.9	1570	78.5
		53	0.44		80.6	1517	84.3	1678	83.9
		54	0.47		86.0	1614	89.7	1786	89.3
		55	0.50		91.3	1709	94.9	1892	94.6
		56	0.53		96.7	1807	100.4	2000	100.0
20	250		0.33	21.60	67.5	1289	71.6	1424	71.2
	300	50	0.36		73.5	1397	77.6	1544	77.2
	350		0.38		77.5	1469	81.6	1624	81.2
		51	0.39		79.5	1505	83.6	1664	83.2
		52	0.42		85.5	1613	89.6	1784	89.2
		53	0.45		91.5	1721	95.6	1904	95.2
		54	0.48		97.5	1829	101.6	2024	101.2
		55	0.51		103.4	1936	107.6	2142	107.1
		56	0.54		109.3	2042	113.4	2260	113.0
24	200		0.33	25.80	80.8	1542	85.7	1704	85.2
	250		0.37		90.5	1717	95.4	1898	94.9
	300		0.40		97.7	1846	102.6	2042	102.1
	350		0.43		104.9	1976	109.8	2186	109.3
		50	0.38		92.9	1760	97.8	1946	97.3
		51	0.41		100.1	1889	104.9	2090	104.5
		52	0.44		107.3	2019	112.2	2234	111.7
		53	0.47		114.4	2147	119.3	2376	118.8
		54	0.50		121.6	2276	126.4	2520	126.0
		55	0.53		128.8	2406	133.7	2664	133.2
		56	0.56		135.9	2534	140.8	2806	140.3

Standard Dimensions and Weights per ANSI/AWWA C151

\*\* "Average weight per foot" shown in tables includes the weight of the bell



## Push-On Joint Pipe

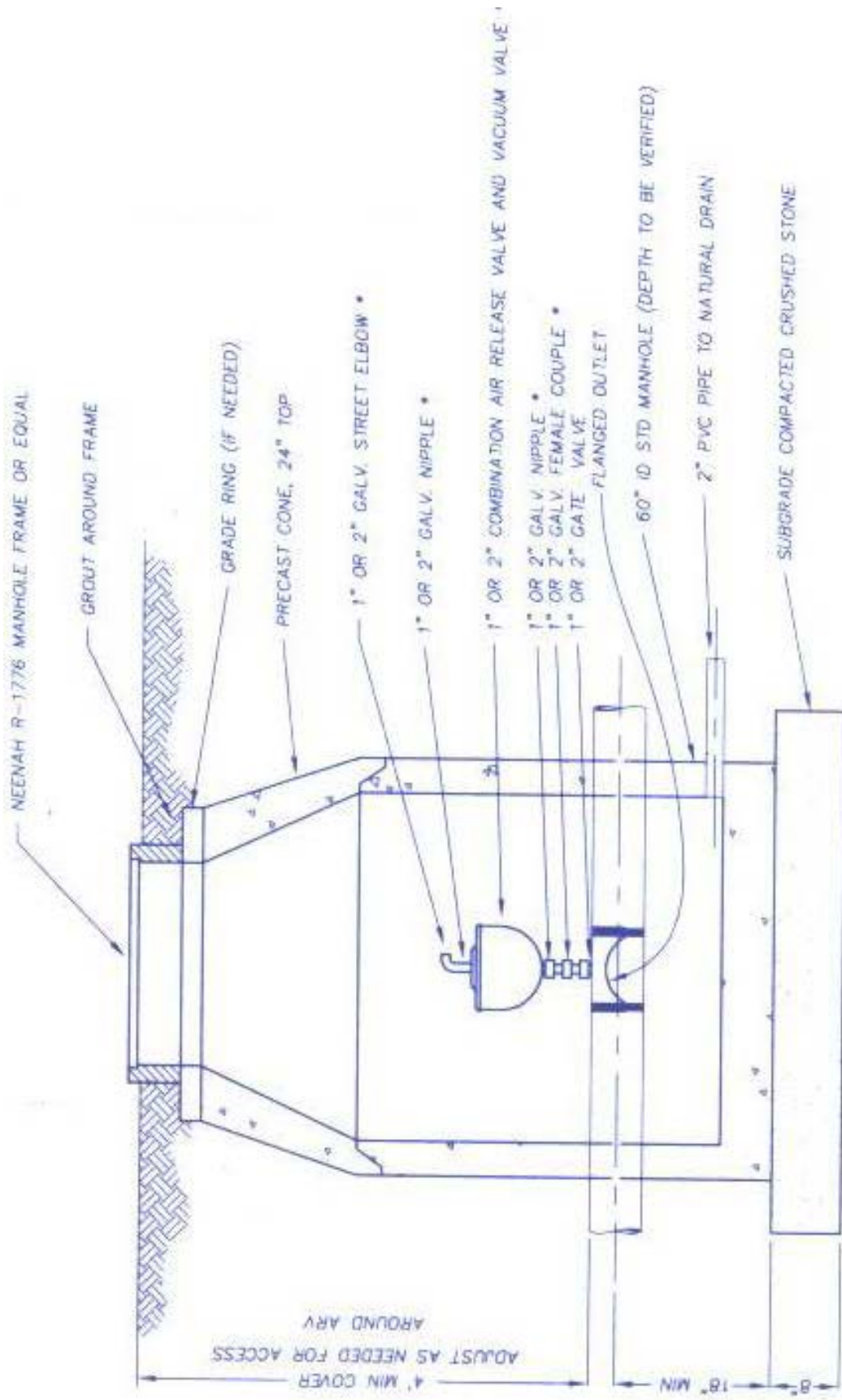
### Push-On Joint Pipe with FASTITE JOINT® Pressure & Special Thickness Classes

Pipe Dimensions					Pipe Weights				
Nominal Pipe Size (in.)	Pressure Class	Thickness Class	Pipe Thickness (in.)	Pipe O.D. (in.)	Weight of pipe barrel per foot (lbs.)	18-foot Laying Lengths		20-foot Laying Lengths	
						Weight per length (lbs.)	Average weight per foot** (lbs.)	Weight per length (lbs.)	Average weight per foot** (lbs.)
30	150		0.34	32.00	103.5			2240	112.0
	200		0.38		115.5			2480	124.0
	250		0.42		127.5			2720	136.0
	300		0.45		136.5			2900	145.0
	350		0.49		148.4			3138	156.9
		50	0.39		118.5			2540	127.0
		51	0.43		130.5			2780	139.0
		52	0.47		142.5			3020	151.0
		53	0.51		154.4			3258	162.9
		54	0.55		166.3			3496	174.8
		55	0.59		178.2			3734	186.7
		56	0.63		190.0			3970	198.5
36	150		0.38	38.30	138.5			2983	149.2
	200		0.42		152.9			3271	163.6
	250		0.47		170.9			3631	181.6
	300		0.51		185.3			3919	196.0
	350		0.56		203.2			4277	213.9
		50	0.43		156.5			3343	167.2
		51	0.48		174.5			3703	185.2
		52	0.53		192.4			4061	203.1
		53	0.58		210.3			4419	221.0
		54	0.63		228.1			4775	238.8
		55	0.68		245.9			5131	256.6
		56	0.73		263.7			5487	274.3
42	150		0.41	44.50	173.8			3761	188.1
	200		0.47		198.9			4263	213.2
	250		0.52		219.9			4683	234.2
	300		0.57		240.7			5099	255.0
	350		0.63		265.7			5599	280.0
		50	0.47		198.9			4263	213.2
		51	0.53		224.0			4765	238.2
		52	0.59		249.1			5267	263.4
		53	0.65		274.0			5765	288.2
		54	0.71		298.9			6263	313.2
		55	0.77		323.7			6759	338.0
		56	0.83		348.4			7253	362.7
48	150		0.46	50.80	222.6			4836	241.8
	200		0.52		251.3			5410	270.5
	250		0.58		280.0			5984	299.2
	300		0.64		308.6			6556	327.8
	350		0.70		337.1			7126	356.3
		50	0.51		246.6			5316	265.8
		51	0.58		280.0			5984	299.2
		52	0.65		313.4			6652	332.6
		53	0.72		346.6			7316	365.8
		54	0.79		379.8			7980	399.0
		55	0.86		412.9			8642	432.1
		56	0.93		445.9			9302	465.1

Standard Dimensions and Weights per ANSI/AWWA C151

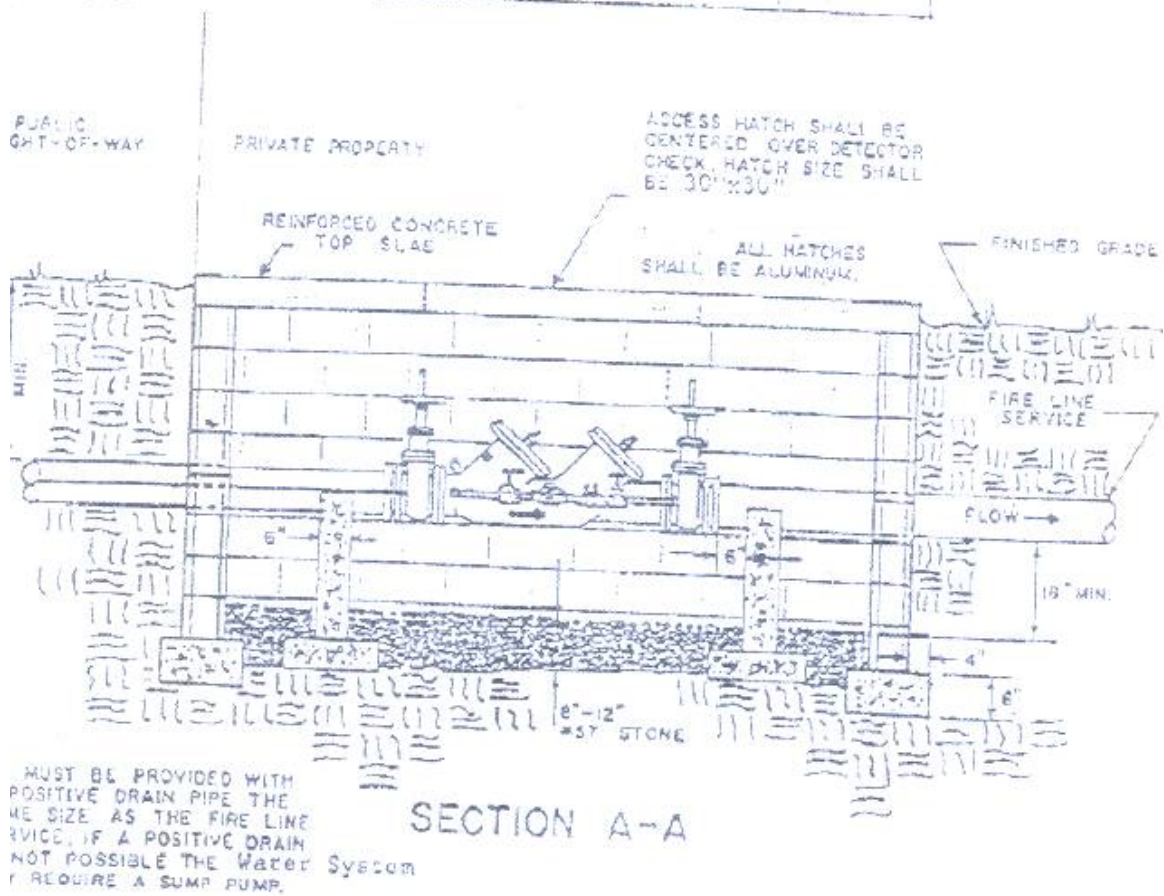
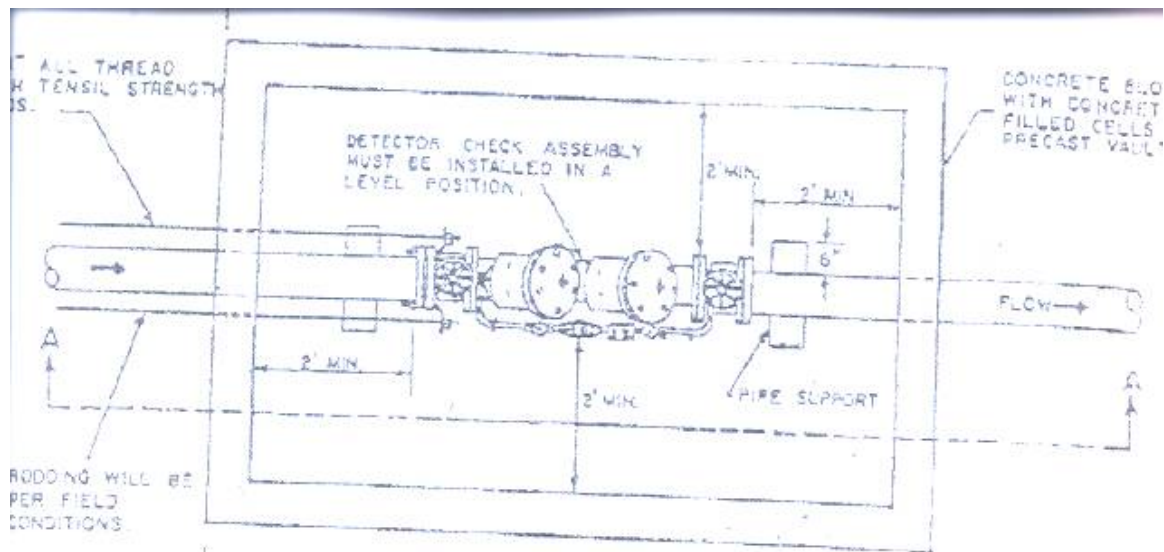
\*\* "Average weight per foot" shown in tables includes the weight of the bell



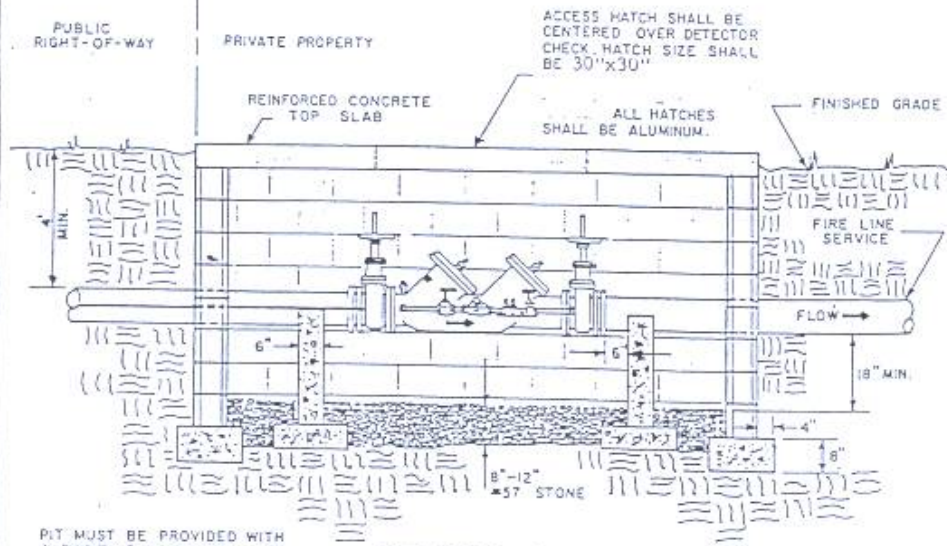
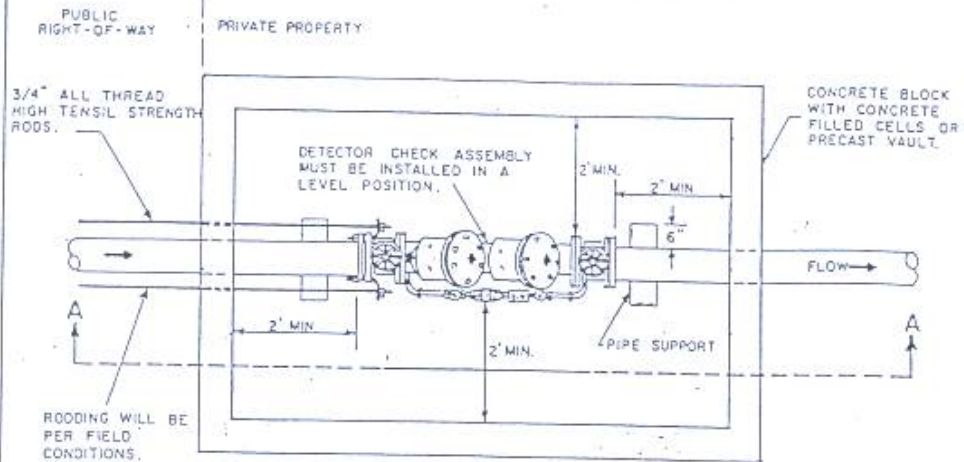


**AIR RELEASE & VACUUM VALVE ASSEMBLY**

(NOT TO SCALE)



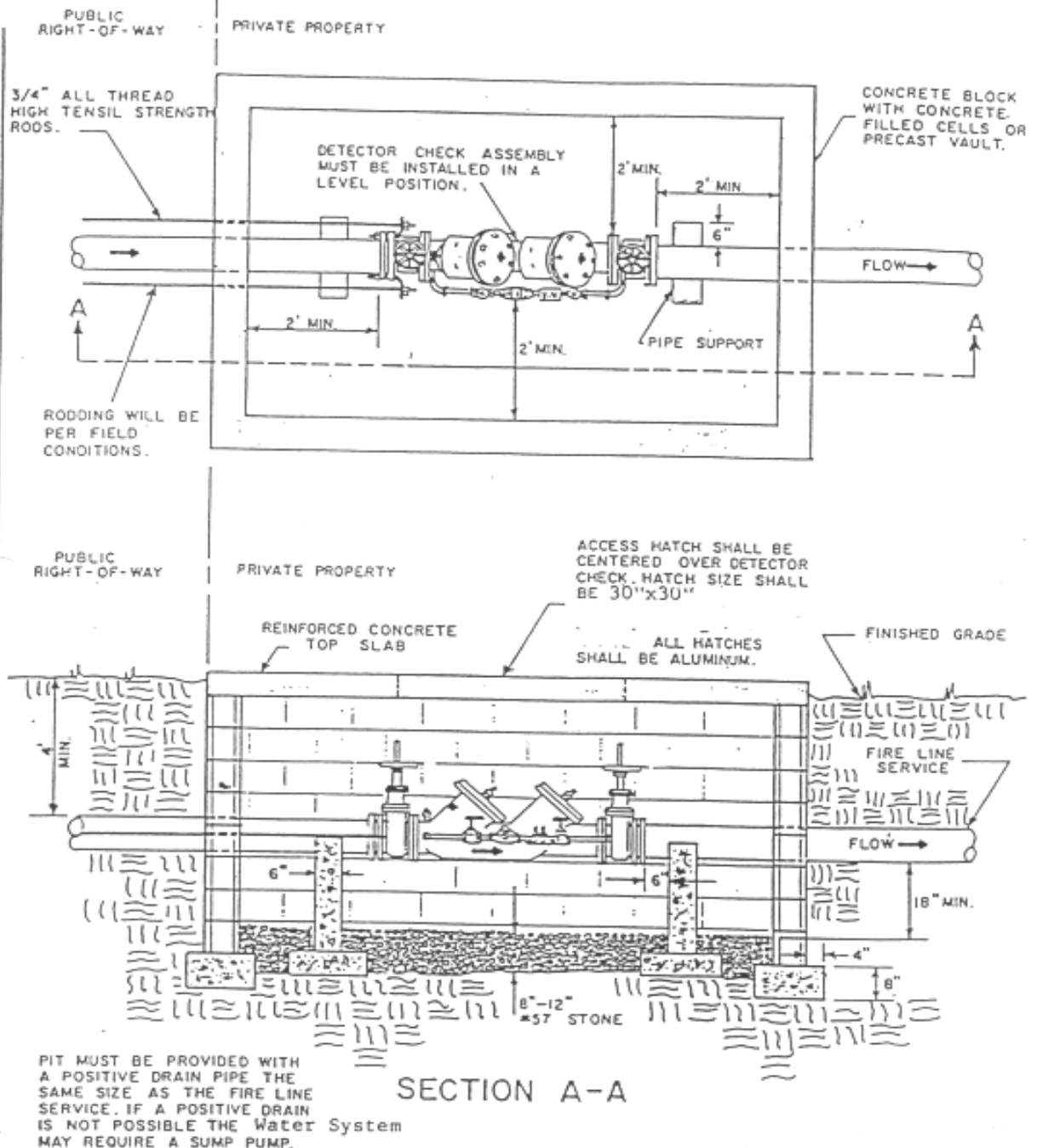
# TYPICAL DETECTOR CHECK INSTALLATION

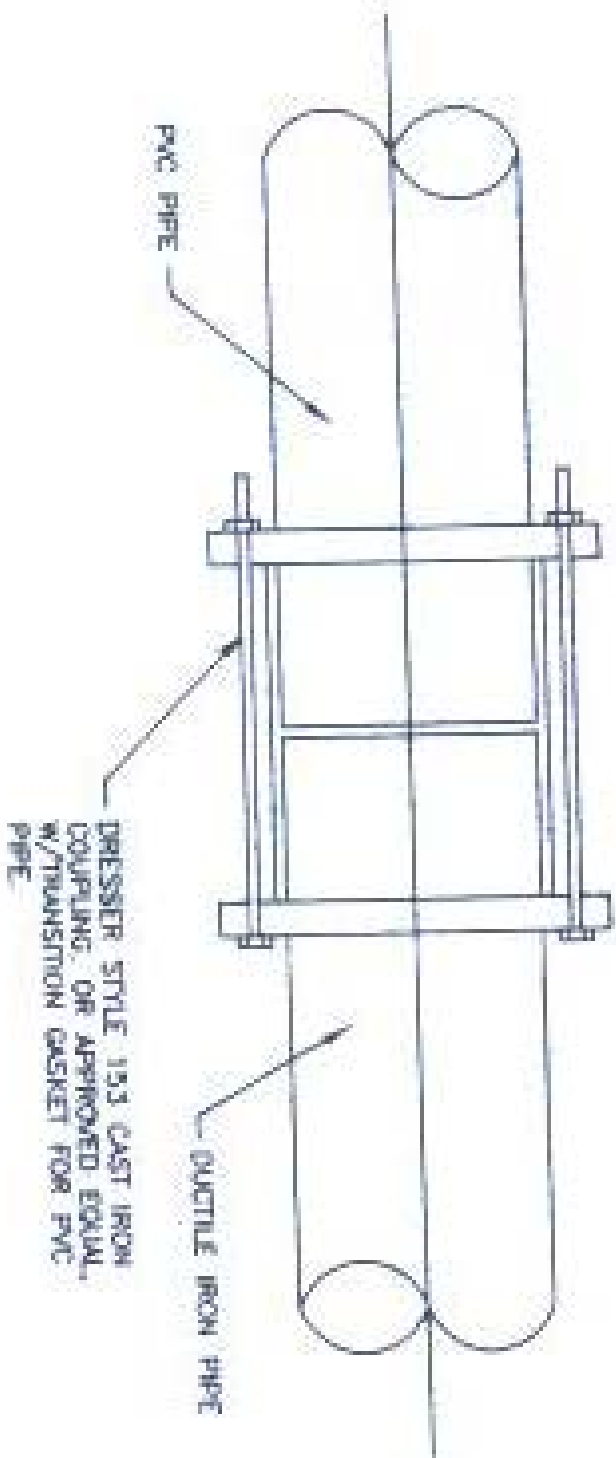


PIT MUST BE PROVIDED WITH A POSITIVE DRAIN PIPE THE SAME SIZE AS THE FIRE LINE SERVICE. IF A POSITIVE DRAIN IS NOT POSSIBLE THE Water System MAY REQUIRE A SUMP PUMP.

SECTION A-A

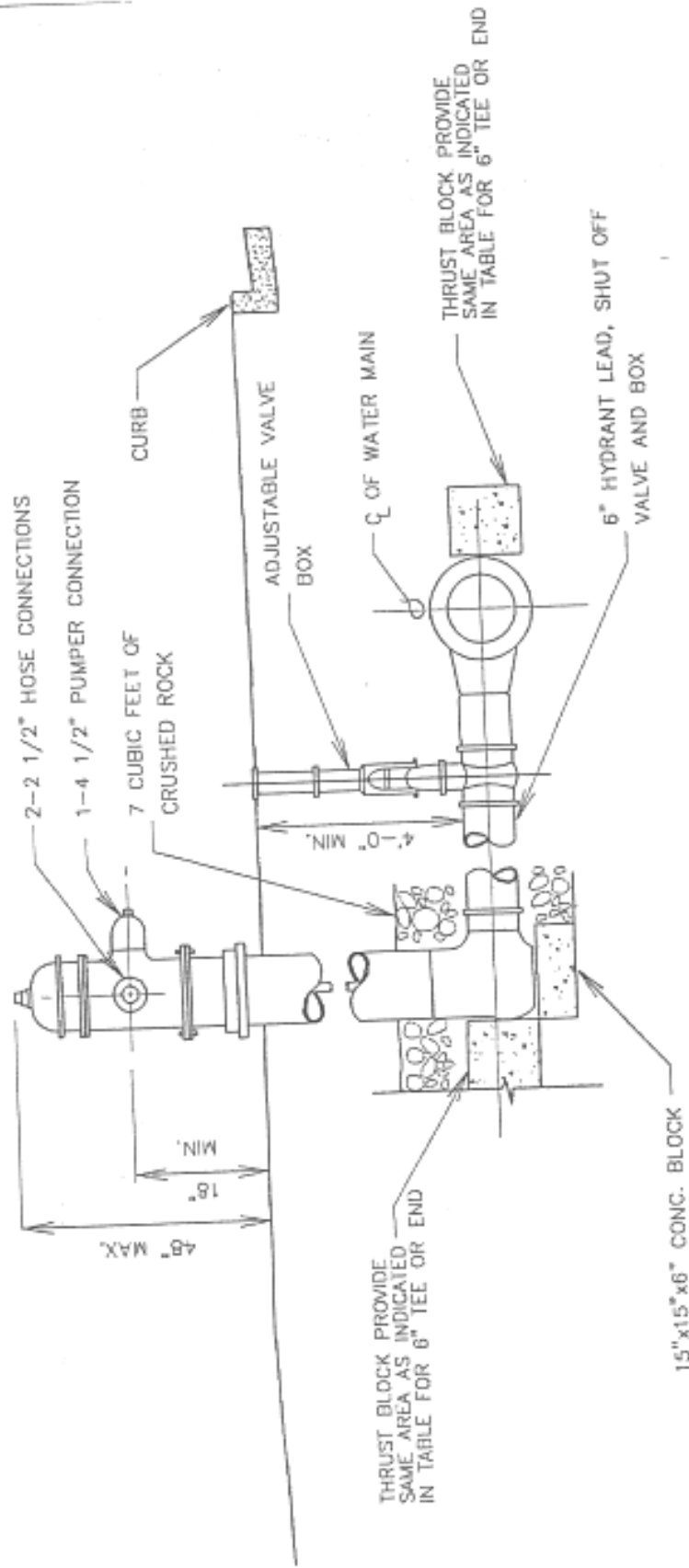
# TYPICAL DETECTOR CHECK INSTALLATION





## DETAIL - DUCTILE IRON TO PVC CONNECTION

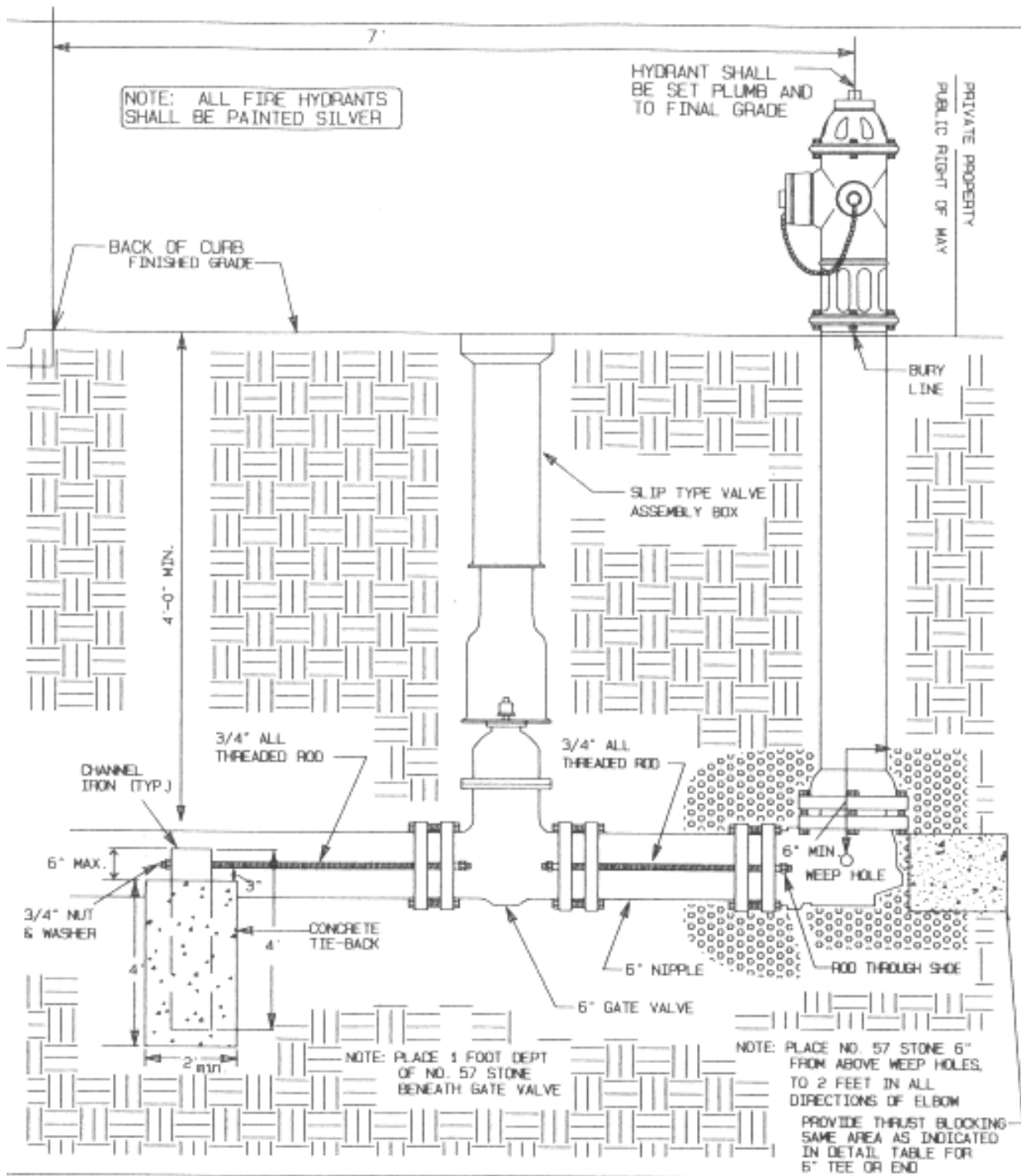
N.T.S.



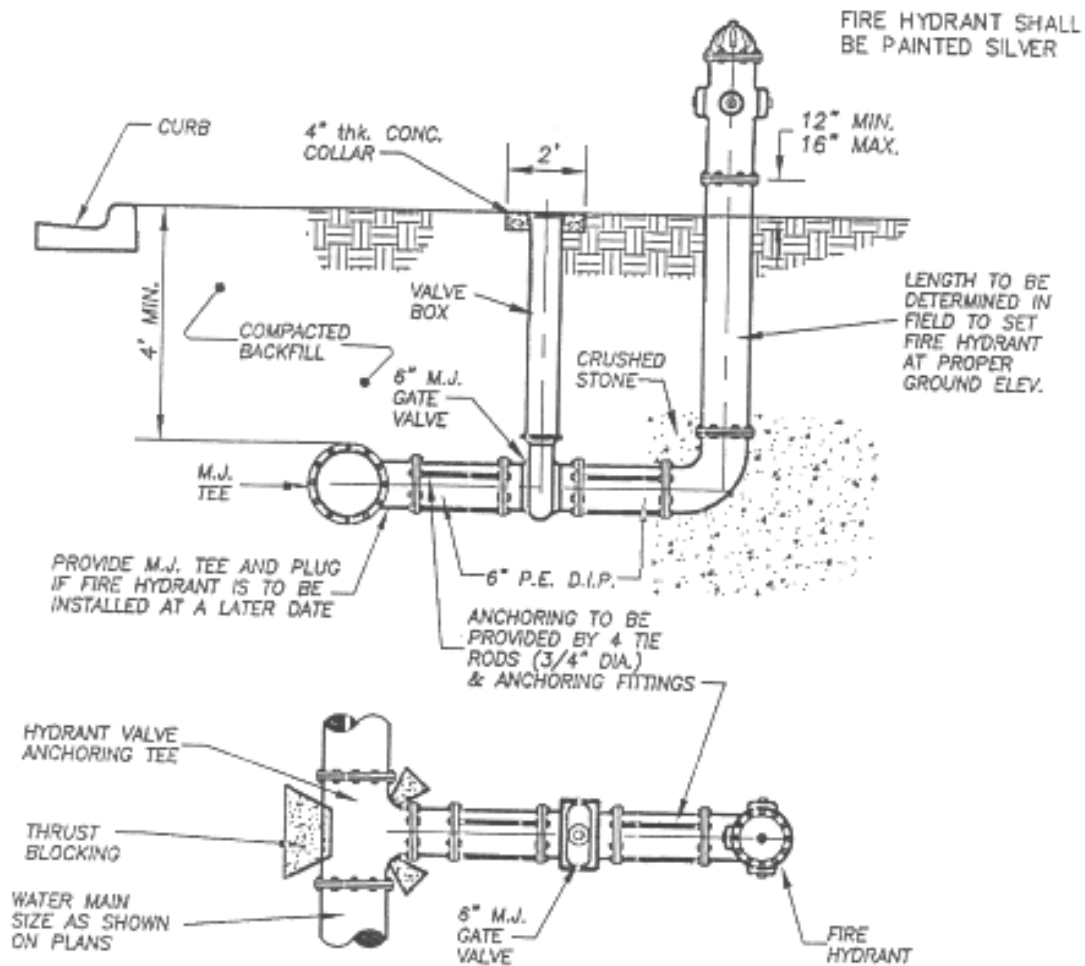
## TYPICAL FIRE HYDRANT

NOT TO SCALE





TYPICAL CUL-DE-SAC  
FIRE HYDRANT DETAIL



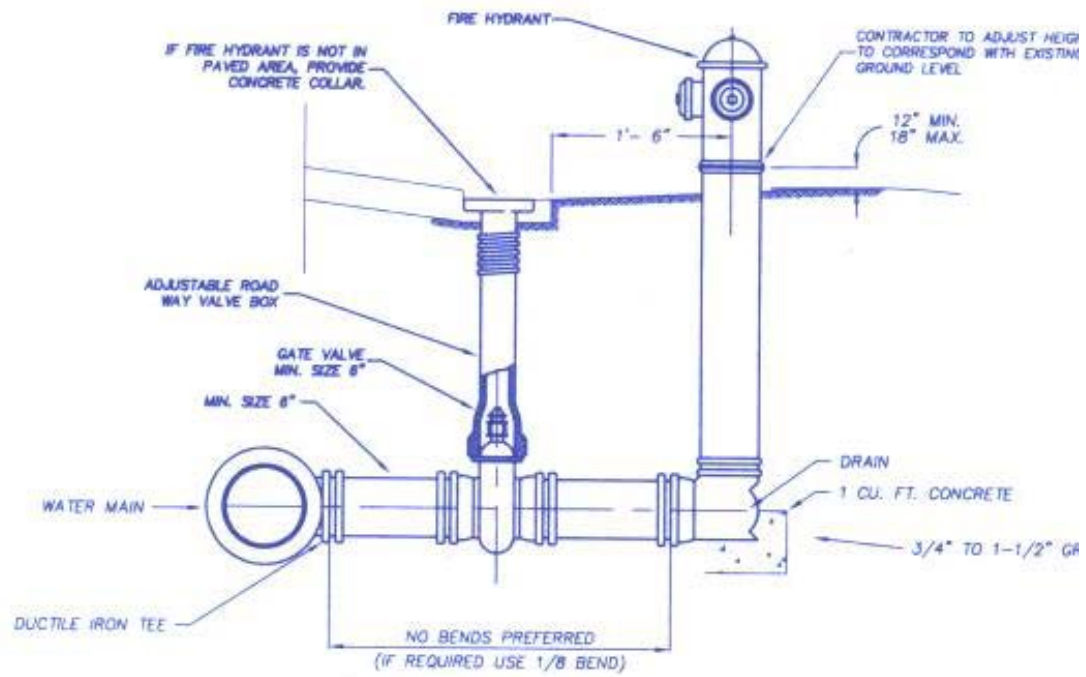
NOTE:  
THRUST BLOCKING REQUIRED  
AT HYDRANT TEE

GENERAL NOTES:

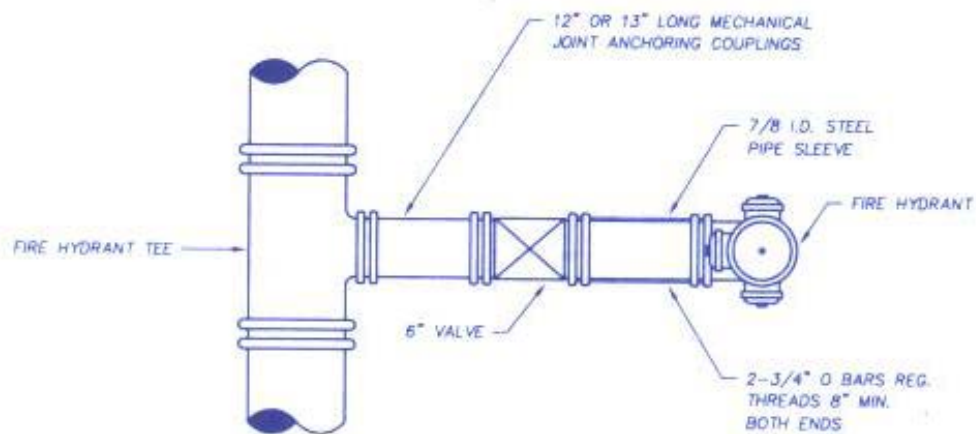
1. STREAMER NOZZLE TO FACE STREET.
2. VALVE BOX TO BE ADJUSTED TO GRADE.
3. CONCRETE COLLAR AROUND VALVE BOX, IF NOT IN PAVED AREA.
4. FIRE HYDRANT TO BE ADJUSTED TO GRADE W/ GRADE LOK ANCHOR COUPLING, OR APPROVED EQUAL.

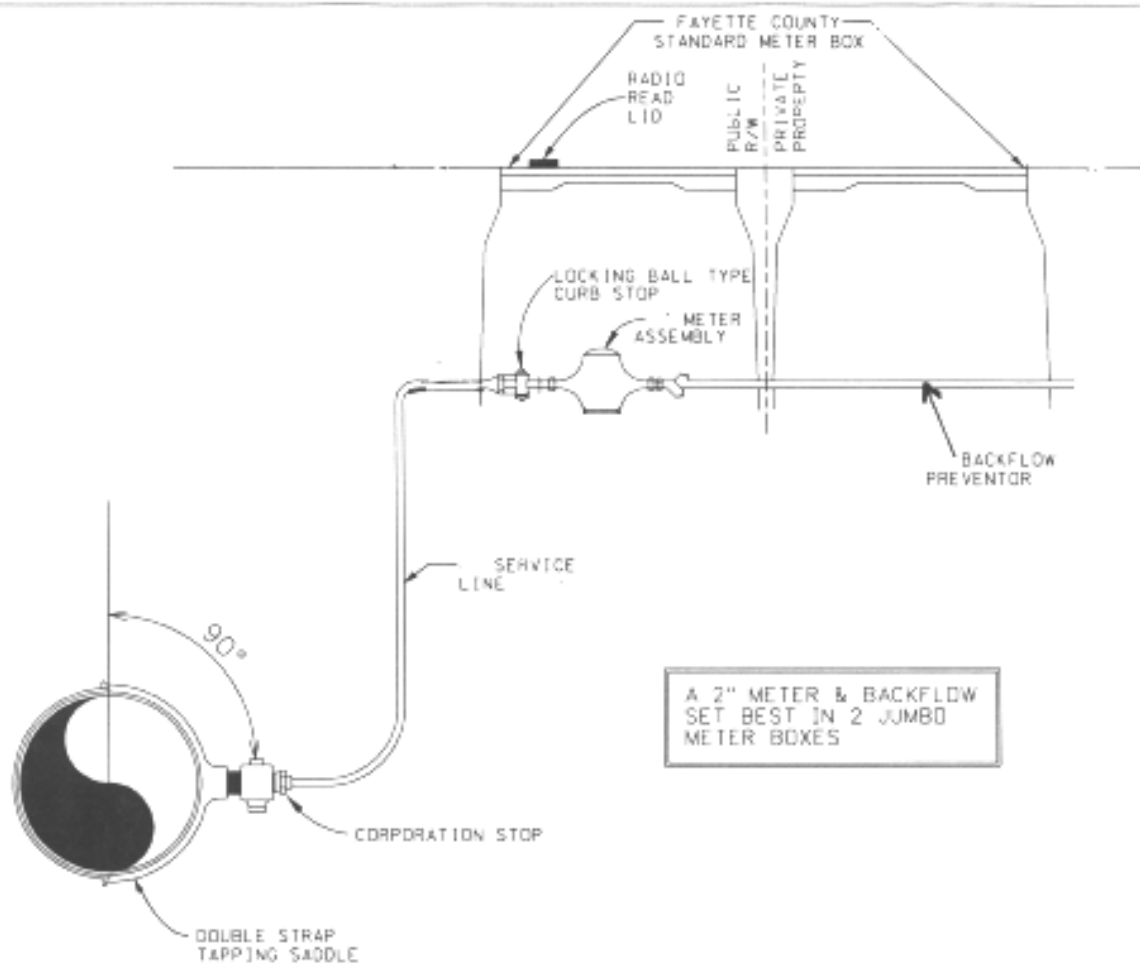
## TYP. FIRE HYDRANT INSTALLATION





TYPICAL FIRE HYDRANT  
( N.I.C. )





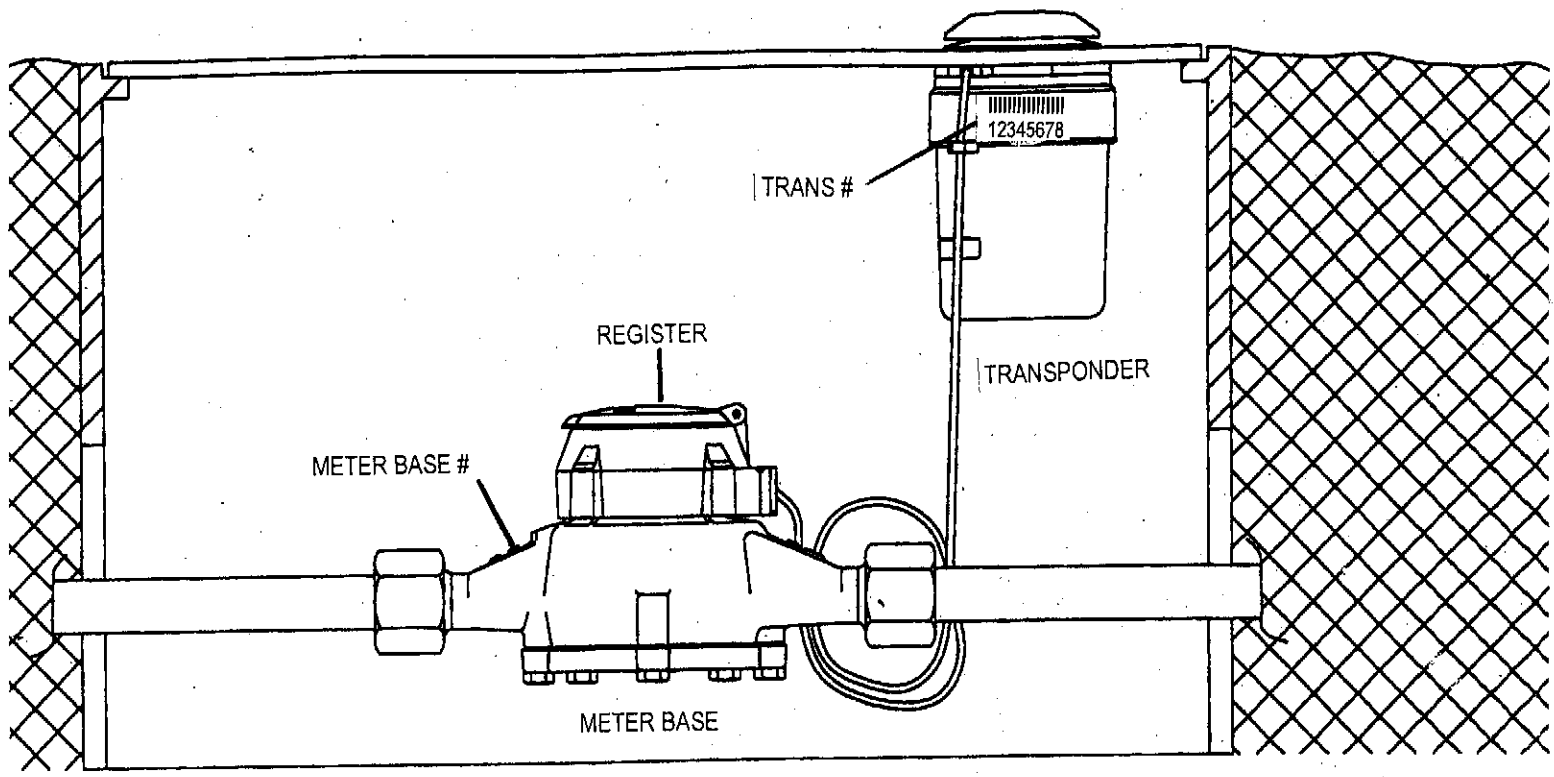
**NOTE:**

1. NO POWER TRANSFORMER OR POWER POLE SHALL BE LOCATED ON THE SAME LOT CORNER AS A WATER SERVICE.
2. METER BOXES SHALL BE SET TO FINAL GRADE
3. ALL SERVICE LINES TO BE K-COPPER.

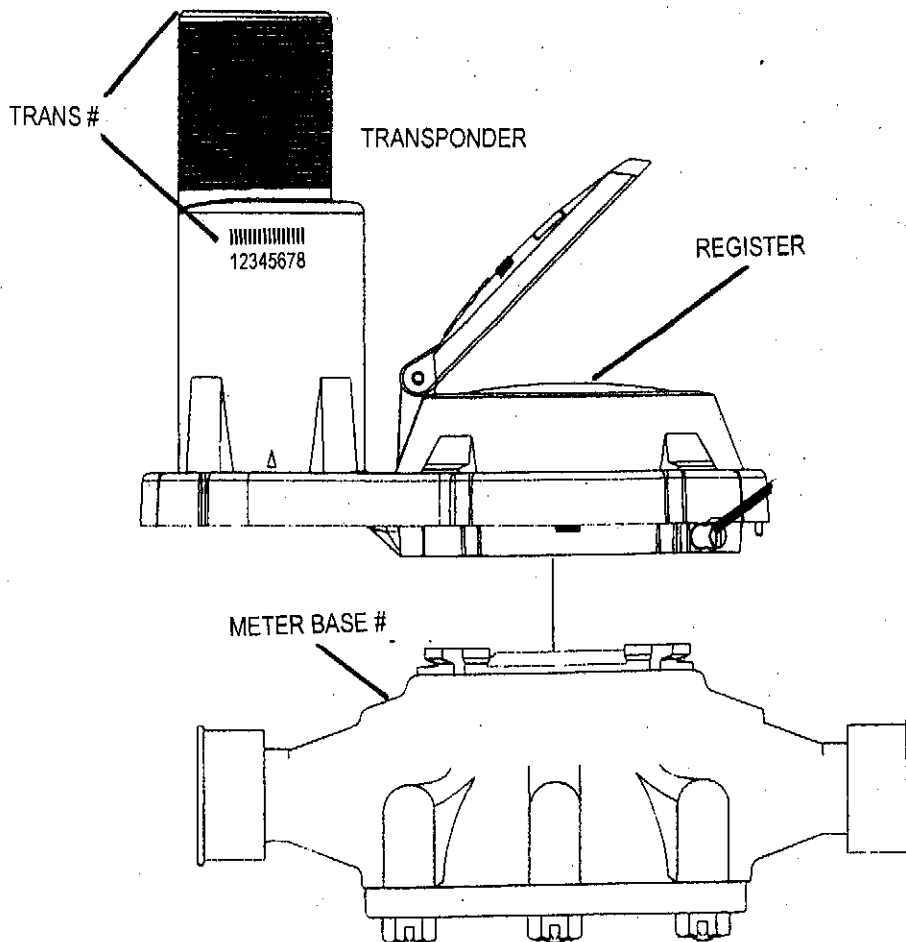
## WATER METER INSTALLATION

NOT TO SCALE

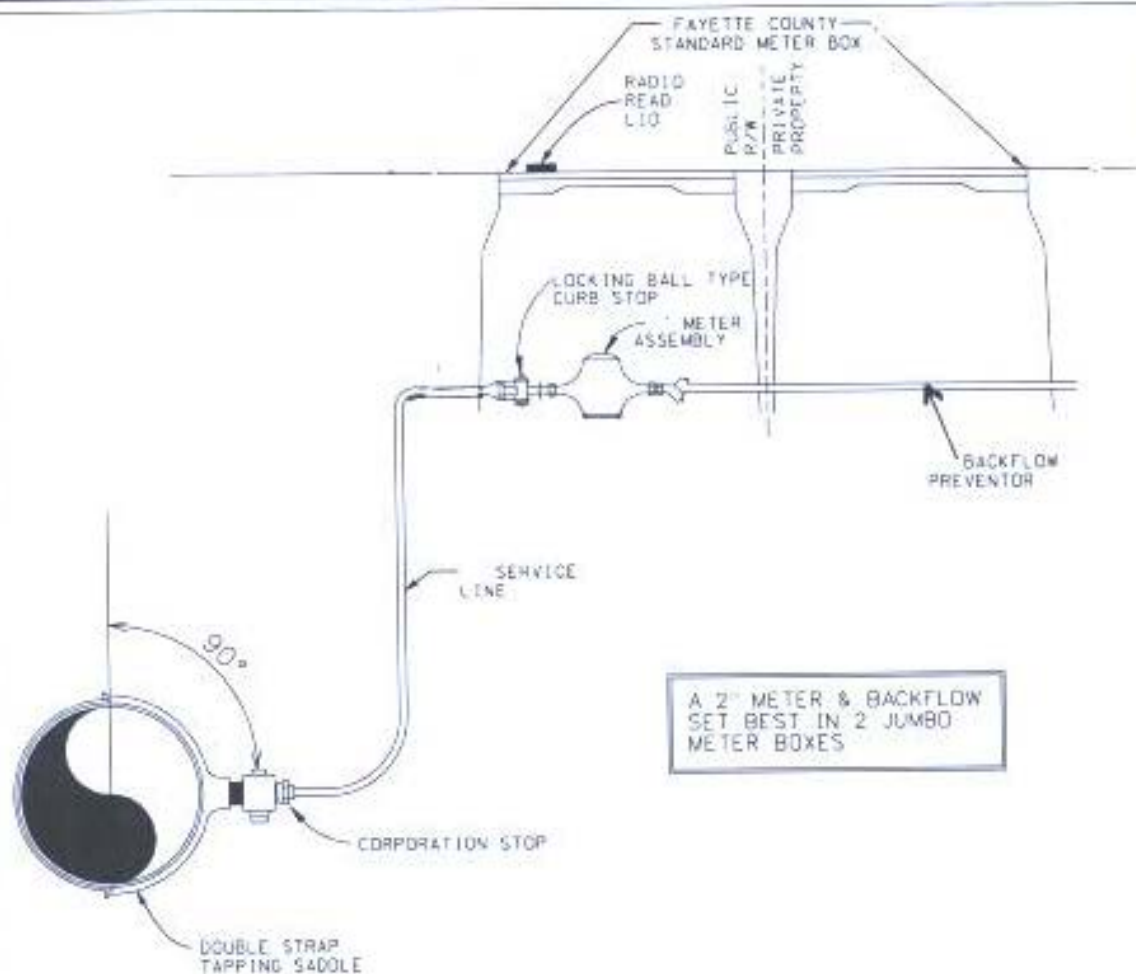
## TRACE Radio-Read Transponder & Register



## Recordall Meter with Badger ORION Integral Transmitter



\*NOTE: ORION TRANS# CAN BE LOCATED ON THREE AREAS OF THE UNIT - ON THE TOP AND BOTH SIDES OF THE TRANSPONDER.



**NOTE:**

1. NO POWER TRANSFORMER OR POWER POLE SHALL BE LOCATED ON THE SAME LOT CORNER AS A WATER SERVICE.
2. METER BOXES SHALL BE SET TO FINAL GRADE.
3. ALL SERVICE LINES TO BE K-COPPER.

## WATER METER INSTALLATION

NOT TO SCALE

**PRODUCT INFORMATION**

9'x5'x5'  
UTILITY VAULT

V AULT = 11,300 #  
LID = 3,900 #

**SPECIFICATIONS**

MEETS ASTM C858 & C857

RATING: NON-TRAFFIC

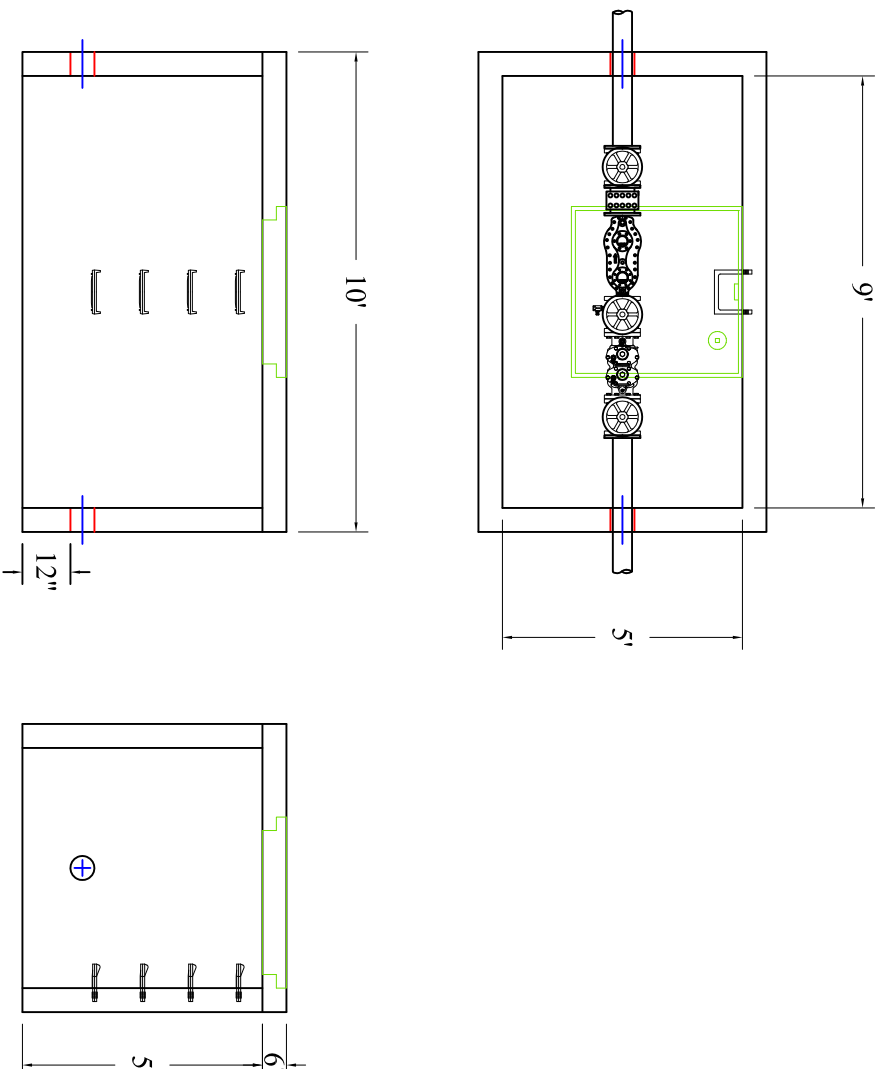
CONCRETE TO BE 4,000 PSI  
@ 28 DAYS

REINFORCING BAR MEETS  
ASTM A 615

10" STEPS ON 12" CENTERS

BUTYL SEALANT MEETING ASTM  
C 990 TO BE USED ON JOINTS

ACCESS HATCH SHALL BE  
FABRICATED WITH 1/4"  
ALUMINUM DIAMOND PLATE  
DESIGNED TO SUPPORT 300 psf  
36"x36" FRAME OPENING  
EQUIPPED WITH: SLAM LOCK,  
RECESSED LOCK BOX, FLUSH  
MOUNT LIFT HANDLE, HOLD-  
OPEN ARM, SS HARDWARE  
AND HINGES



**DRAWING INFORMATION**

Drawn By: CBC  
Checked By: 1  
Revision: 5/25/12  
Date: 5/25/12

APPROVED BY: \_\_\_\_\_

print: \_\_\_\_\_

sign: \_\_\_\_\_

\*actual dimensions may vary slightly



**BARTOW  
PRECAST**

770.382.4462  
sales@bartowprecast.com  
WWW.BARTOWPRECAST.COM



TYPICAL SHORT SIDE SERVICE

- A) TAPPING SADDLE  
 \*FORD F202 DOUBLE STRAP SADDLE FOR D.I.P.  
 B) CORPORATION STOP  
 \*FORD F1000  
 C) TYPE "K" COPPER TUBING SERVICE LINE 3" MIN.  
 3/4" SINGLE, 1" DOUBLE  
 D) "Y" BRANCH FOR DOUBLE SERVICE  
 \*FORD Y44-243



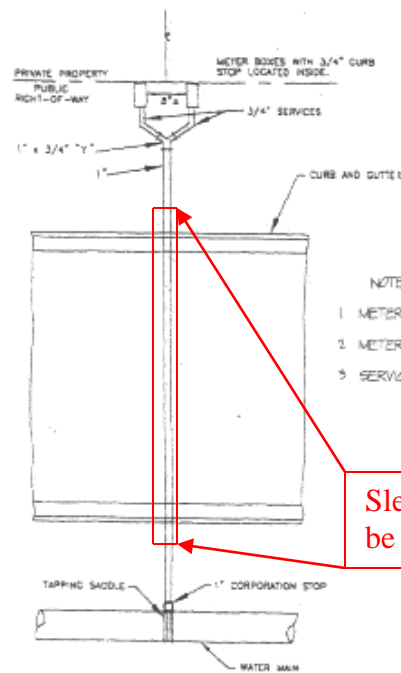
TYPICAL LONG SIDE SERVICE

- A) TAPPING SADDLE  
 \*FORD 590 BRASS SADDLE FOR PVC C900  
 \*FORD F202 DOUBLE STRAP SADDLE FOR D.I.P.  
 B) CORPORATION STOP  
 \*FORD F1000  
 C) TYPE "K" COPPER TUBING SERVICE LINE 3" MIN.  
 3/4" SINGLE, 1" DOUBLE  
 F) 2" CONDUIT B.O.C. TO B.O.C.

- NOTE:  
 1. METER BOXES SHALL BE SET TO FINAL GRADE  
 2. ALL SERVICE LINES TO BE COPPER.  
 3. DOUBLE SERVICES SHALL BE 1" DIA. TO "Y" FITTING AND 3/4" DIA. TO METER WITH "FPT" THREADS ON OUTLET OF CURB STOP.

## TYPICAL SERVICE INSTALLATIONS

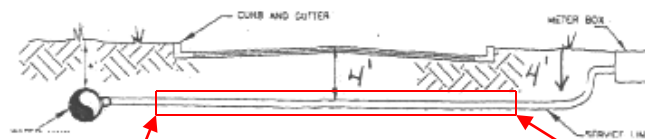
### TYPICAL SIAMESE SERVICE INSTALLATION



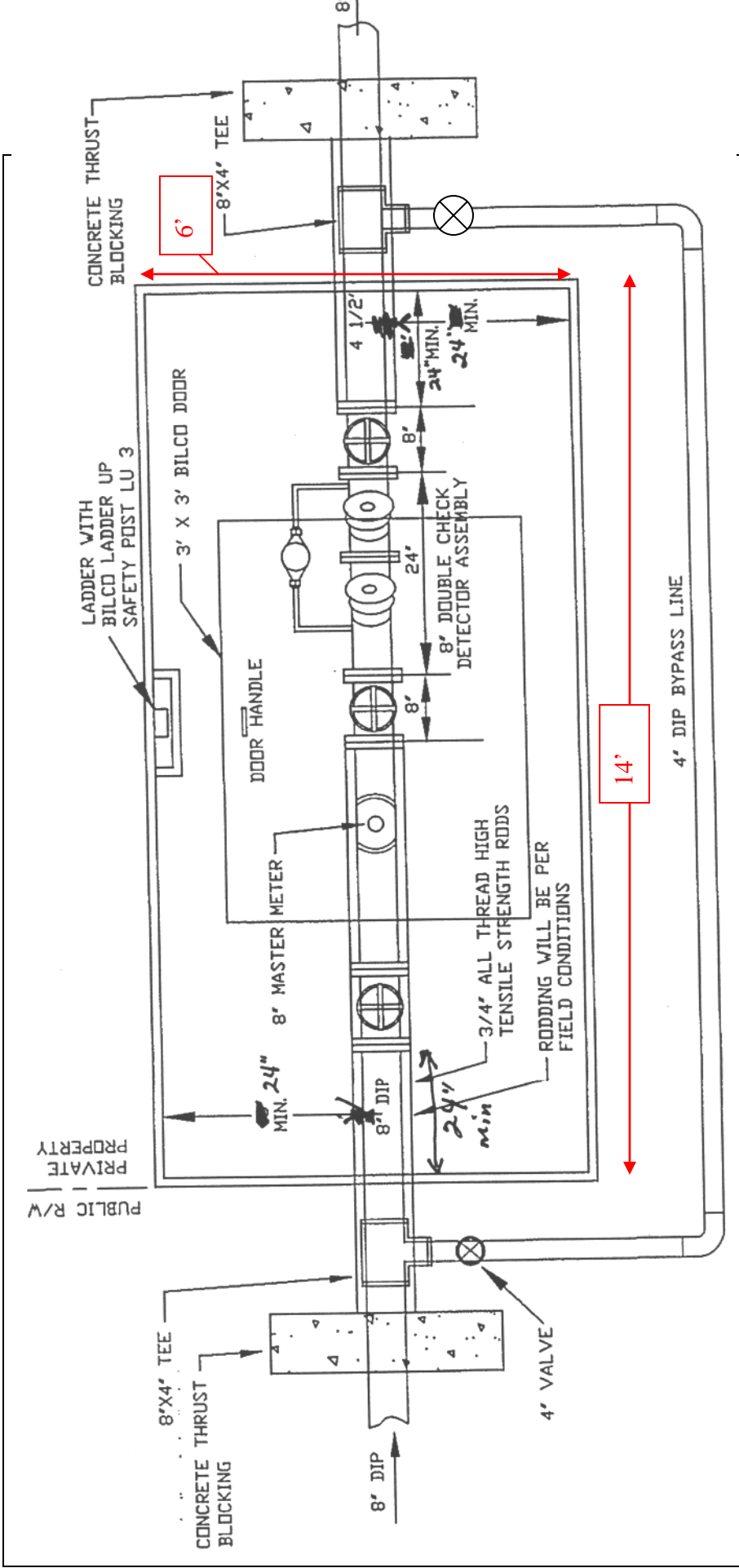
#### NOTES:

1. METER BOXES SHALL BE SET LEVEL AND TO FINAL GRADE
2. METER BOXES SHALL HAVE RADIO READ LDS.
3. SERVICE PIPING SHALL HAVE MINIMUM 48" COVER

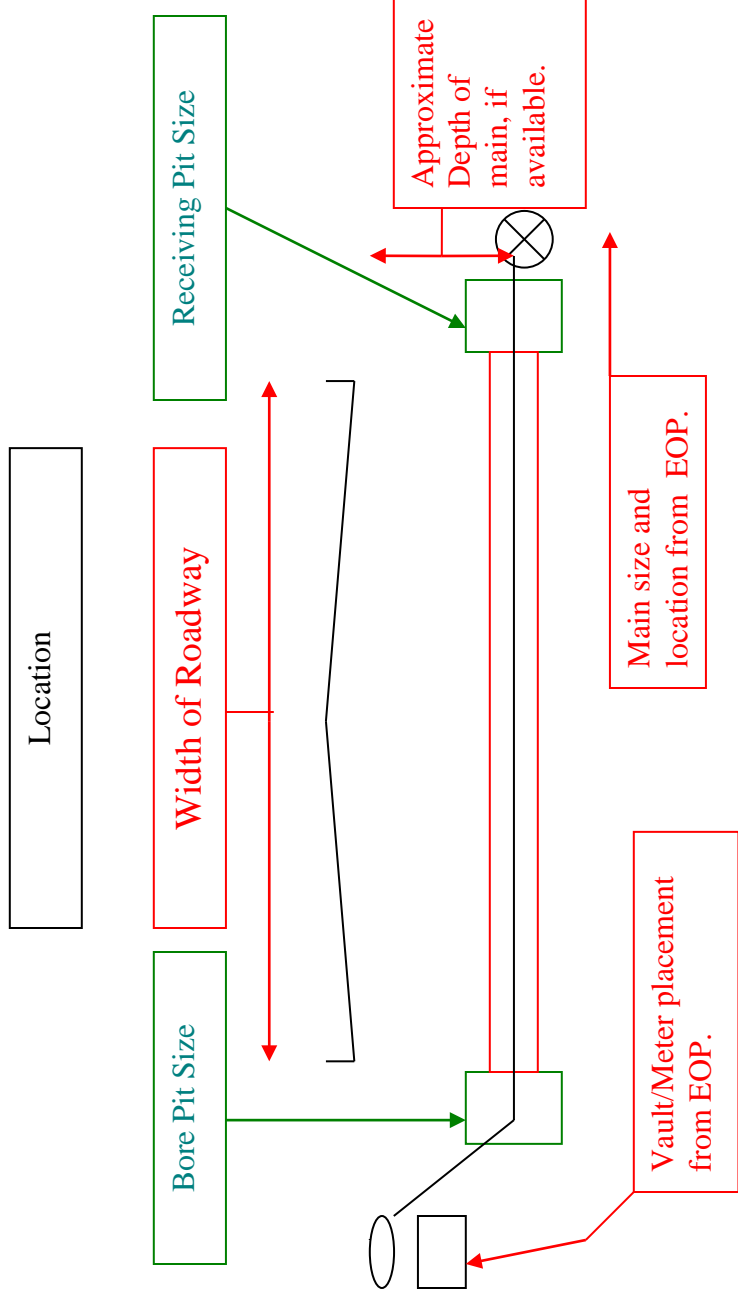
Sleeve material under roads shall be PVC or better.



Sleeve material under roads shall be PVC or better.



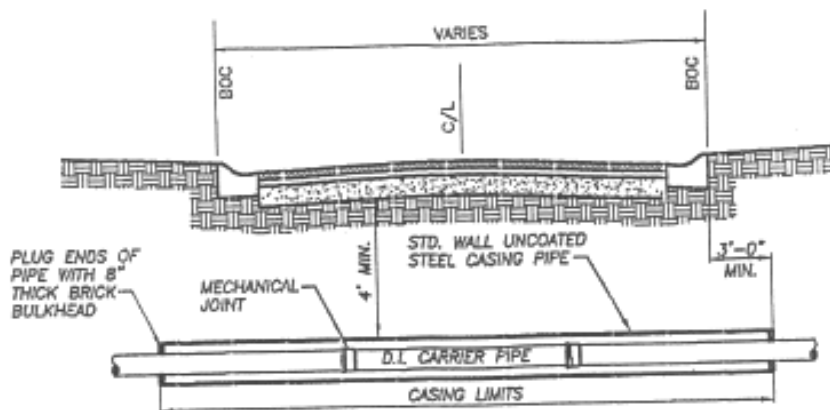
# Cross Section Detail Information



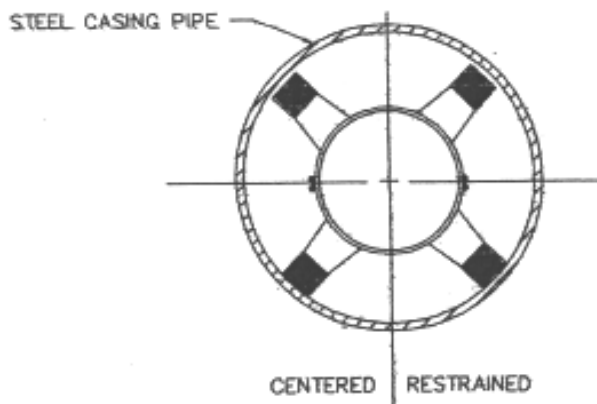
Include size and type of casing material and note the casing shall extend 3' beyond the edge of pavement.



NOTE:  
CARRIER PIPE  
SPACERS REQUIRED

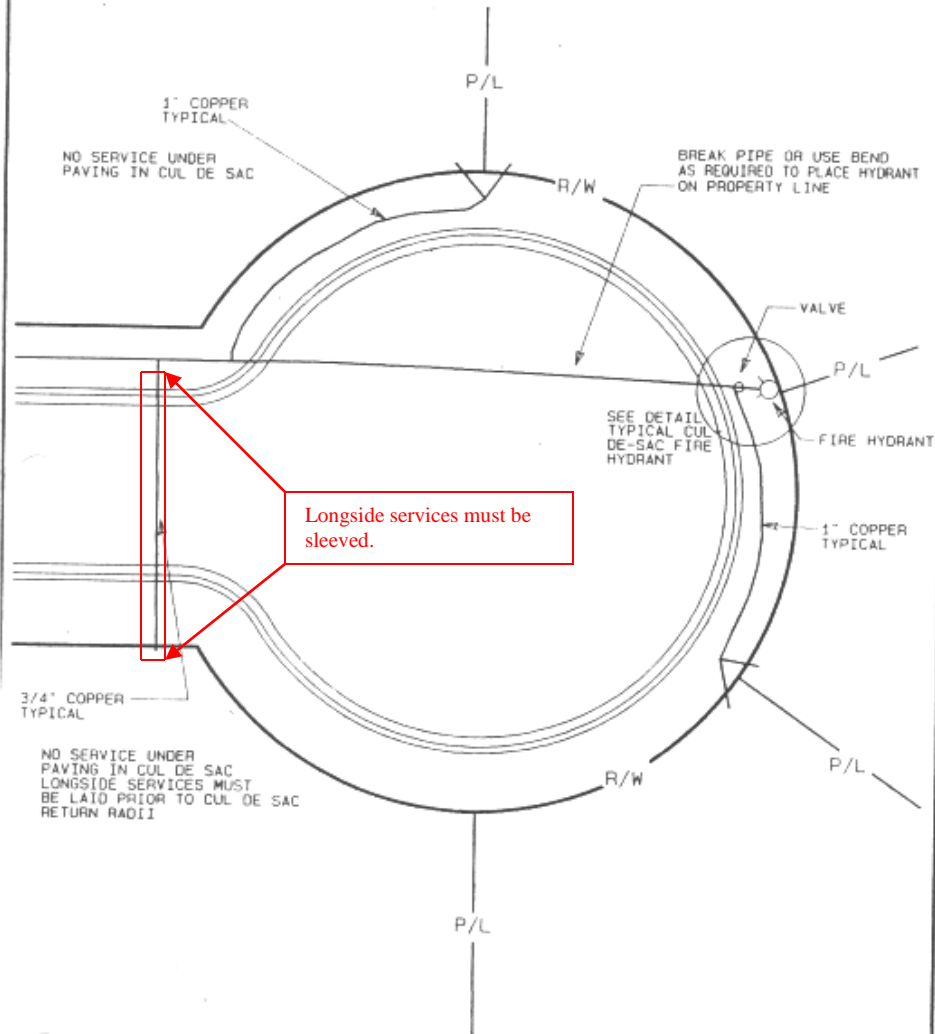


### TYPICAL ROAD CROSSING

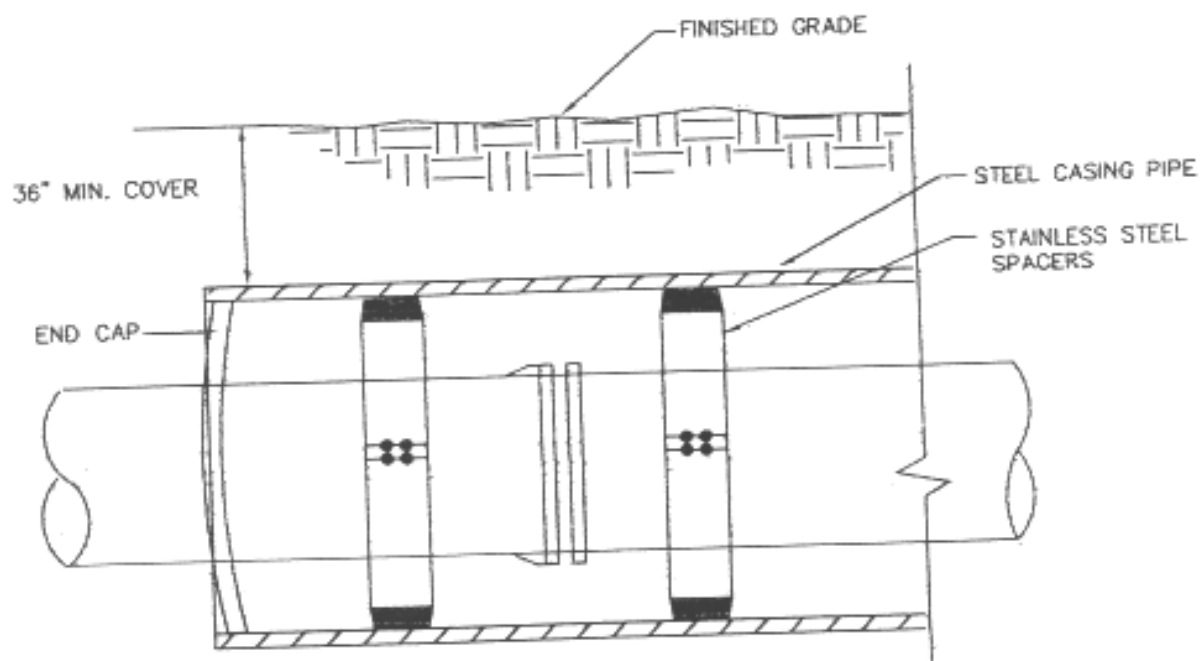
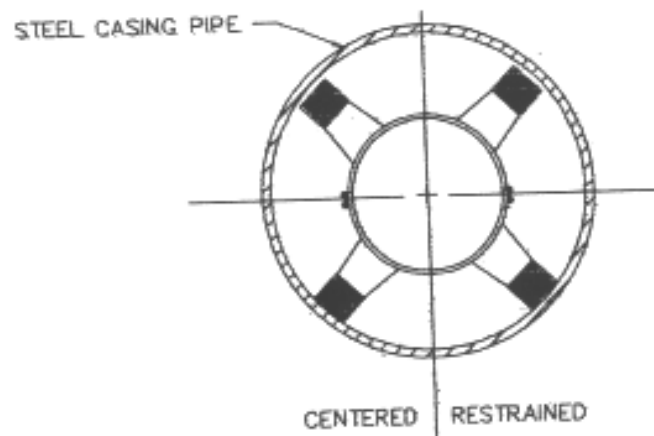


CARRIER PIPE SIZE	MIN. CASING SIZE	ROADWAYS WALL THICKNESS	MIN. RAILROADS WALL THICKNESS
6"	12"	0.25"	0.281"
8"	16"	0.25"	0.281"
12"	24"	0.25"	0.375"
16"	24"	0.25"	0.375"
18"	30"	0.312"	0.469"
24"	36"	0.375"	0.531"
30"	42"	0.500"	0.625"
36"	48"	0.500"	0.688"

# CULDESAC DETAIL



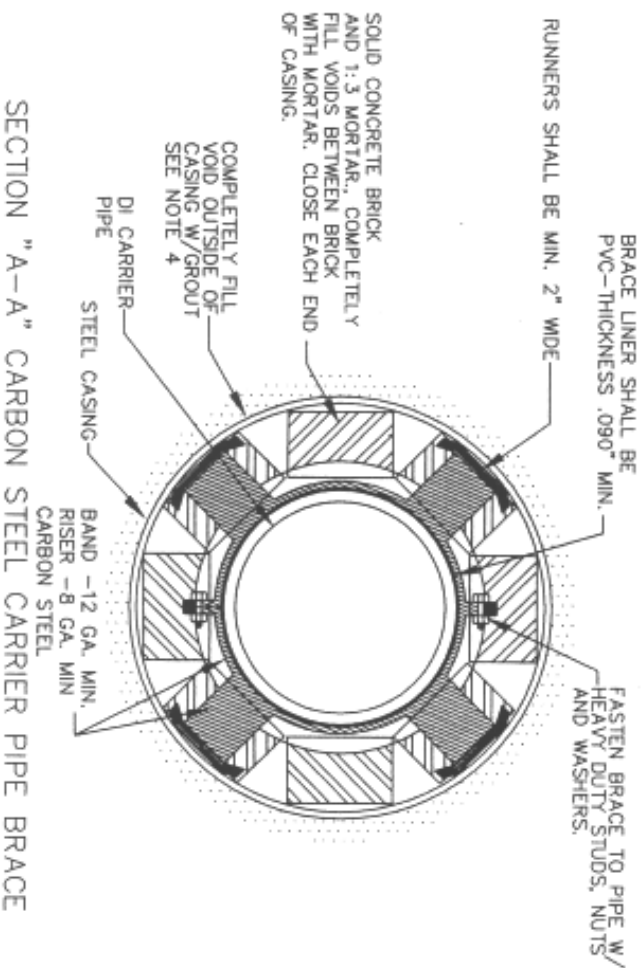
3/4" A



BORING & JACKING DETAIL

BORE SIZING CHART *				
CARRIER PIPE SIZE	MIN. CASING SIZE	MIN. ROADWAY WALL THICKNESS	MIN. RAILROAD WALL THICKNESS	
6"	12"	0.25"	0.281"	
8"	16"	0.25"	0.281"	
12"	24"	0.25"	0.375"	
16"	24"	0.25"	0.375"	
18"	30"	0.312"	0.469"	
24"	36"	0.375"	0.531"	
30"	42"	0.500"	0.625"	
36"	48"	0.500"	0.688"	

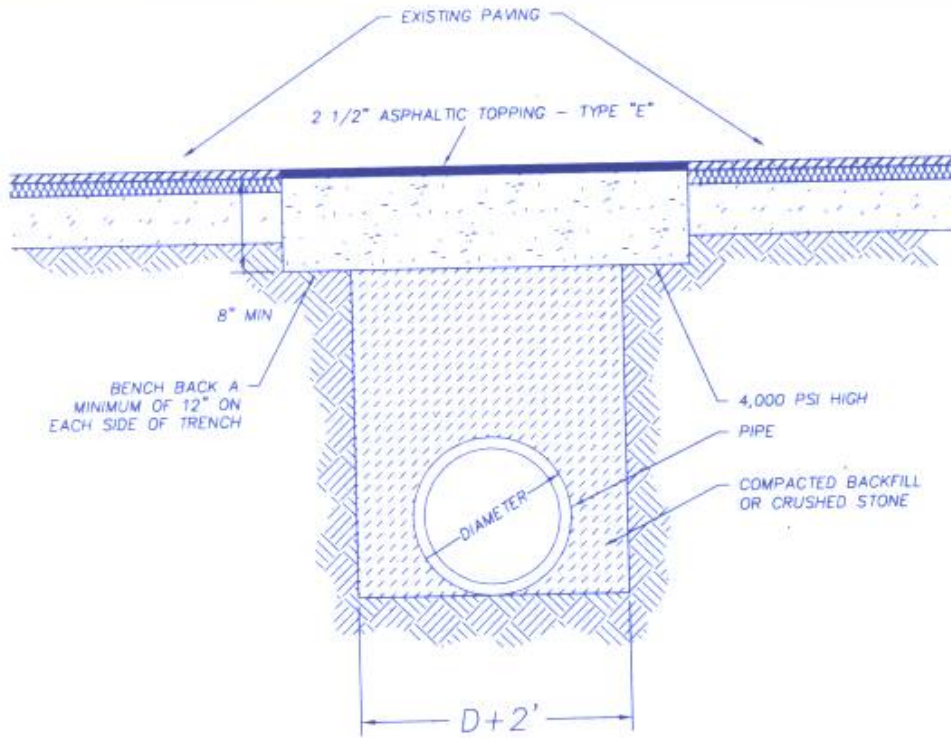
\* CONTRACTOR MAY SUBSTITUTE A LARGER SIZE CASING PIPE HAVING THE MIN. WALL THICKNESS SHOWN FOR SEWER MAINS. ALL ADDITIONAL COSTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR BORING AND JACKING.



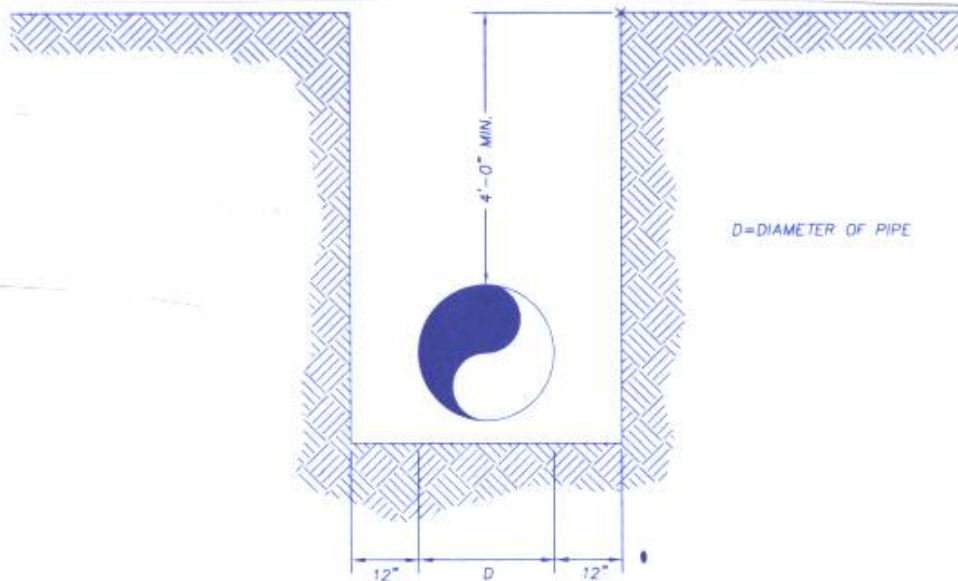
SECTION "A-A" CARBON STEEL CARRIER PIPE BRACE

NOTES:

1. INSTALLATION SHALL BE DRY BORE AND JACKING OF SMOOTH WALL STEEL PIPE. JETTING OR WET BORING WITH WATER SHALL NOT BE ALLOWED.
2. SEE BORE SIZING CHART FOR CARRIER PIPE SIZE AND STEEL CASING SIZE, MIN. DIA. AND WALL THICKNESS.
3. CASING PIPE SHALL BE IN ACCORDANCE WITH ASTM A-53, GRADE E WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI
4. EACH END OF ENCASMENT TO BE PLUGGED WITH BRICK. ALL VOIDS OUTSIDE THE CASING PIPE SHALL BE COMPLETELY FILLED WITH 1:3 PORTLAND CEMENT GROUT AT SUFFICIENT PRESSURE TO INSURE NO SETTLEMENT OF ROADWAY/RAILROAD. METHOD OF GROUTING SHALL BE APPROVED BY THE ENGINEER PRIOR TO BEGINNING BORE CONSTRUCTION.
5. THE BORE SHALL BE ACCOMPLISHED BEFORE PIPE CONSTRUCTION BEGINS. THE MAXIMUM TOLERANCE, IF ANY, IN VARIATION OF INVERT ELEVATIONS BETWEEN ENDS OF CASING AND CARRIER PIPE IS SHOWN ON THE PLAN PROFILE FOR EACH SPECIFIC BORE LOCATION AND STATION.
6. THE BORING SHALL BE PERFORMED FROM "UPHILL" TO "DOWNHILL" DIRECTION MAINTAINING THE CRITICAL UPHILL ELEVATION IF APPROVED BY THE ENGINEER. GRADE ADJUSTMENTS DOWNHILL TO COMPENSATE FOR AN INVERT ELEVATION VARIANCE SHALL BE CONSTRUCTED AT NO ADDITIONAL COSTS TO THE OWNER.
7. THE BORING OPERATION SHALL BE CONDUCTED IN A MANNER THAT THE FLOW OF TRAFFIC IS NOT IMPEDED OR IN SUCH A MANNER SO AS NOT TO CREATE A HAZARD.
8. IF AN OBSTRUCTION IS ENCOUNTERED DURING THE BORING OPERATION, THE AUGER SHALL BE WITHDRAWN THE EXCESS CASING PIPE CUT-OFF, CAPPED AND THE INTERIOR AND EXTERIOR VOIDS SHALL BE COMPLETELY FILLED W/1:3 PORTLAND CEMENT GROUT UNDER PRESSURE. NO SEPARATE PAYMENT FOR UNSUCCESSFUL BORES.
9. CONTRACTOR SHALL FIELD ADJUST AND INSTALL PROPER PIPE BRACES TO ACCOMPLISH GRADE AND INVERTS AS SHOWN ON THE DRAWINGS.
10. A MANUAL CONTROL STEERING HEAD OR OTHER GUIDANCE SYSTEM IS RECOMMENDED FOR BORES 30" DIA. AND/OR LARGER AND FOR BORES EXCEEDING 100' IN LENGTH OR AS SPECIFIED.
11. SUBCONTRACTORS SHALL BE APPROVED BY THE ENGINEER AND SHALL PROVIDE APPROVED INSURANCE CERTIFICATES AS REQUIRED.
12. CONTRACTOR SHALL EXECUTE AND PERFORM ALL REQUIREMENTS AND CONDITIONS STIPULATED BY ENCROACHMENT PERMITS.
13. SEE DWG. M.6 SHEET 1 OF 2 FOR ADDITIONAL INFORMATION.

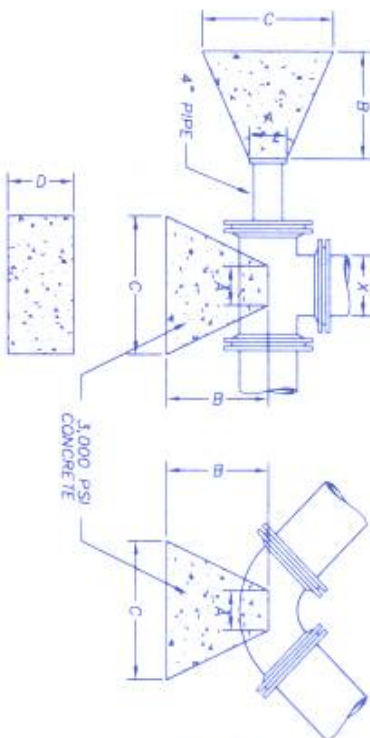


PAVEMENT REPAIR DETAIL  
(NOT TO SCALE)



TYPICAL TRENCH SECTION

90° BEND				45° BEND				22 1/2° BEND				11 1/4° BEND				TEES OR PLUG	
X	A	B	C	D	X	A	B	C	D	X	A	B	C	D	X	A	B
36"	36"	6'-6"	10'-6"	18'-0"	36"	24"	5'-0"	7'-8"	7'-8"	36"	43"	2'-9"	5'-0"	6'-0"	36"	36"	5'-0"
30"	33"	5'-9"	9'-0"	9'-0"	30"	18"	3'-9"	6'-9"	6'-9"	30"	22"	2'-6"	4'-9"	5'-0"	16"	36"	5'-0"
24"	31"	4'-6"	7'-3"	9'-0"	24"	15"	3'-3"	5'-3"	5'-3"	24"	20"	2'-0"	3'-9"	4'-0"	24"	30"	3'-9"
20"	25"	3'-9"	6'-0"	8'-0"	20"	12"	2'-6"	4'-6"	4'-6"	20"	17"	1'-6"	3'-3"	3'-3"	20"	20"	2'-6"
18"	23"	3'-6"	5'-6"	5'-0"	18"	12"	2'-6"	4'-0"	4'-3"	18"	15"	1'-6"	2'-9"	3'-0"	18"	18"	2'-0"
16"	17"	3'-3"	4'-8"	5'-0"	16"	11"	2'-3"	3'-6"	3'-9"	16"	14"	1'-3"	2'-6"	2'-9"	16"	15"	1'-6"
12"	16"	2'-6"	3'-4"	3'-4"	12"	10"	2'-0"	2'-6"	2'-6"	12"	8"	1'-3"	1'-9"	1'-9"	12"	12"	1'-3"
10"	15"	2'-6"	3'-0"	2'-6"	10"	8"	1'-6"	2'-3"	2'-0"	10"	8"	1'-0"	1'-6"	1'-6"	10"	10"	1'-0"
8"	12"	2'-0"	2'-6"	2'-0"	8"	8"	1'-3"	1'-8"	1'-8"	8"	6"	0'-9"	1'-3"	1'-3"	8"	10"	2'-6"
6"	11"	2'-0"	1'-10"	1'-6"	6"	6"	1'-0"	1'-3"	1'-3"	6"	6"	0'-9"	1'-0"	1'-0"	6"	8"	2'-0"

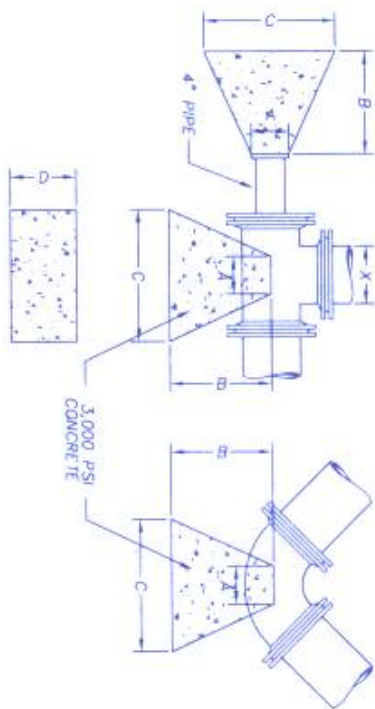


NOTE:  
THRUST BLOCK SHALL BEAR  
DIRECTLY AGAINST UNDISTURBED  
EARTH.

## THRUST BLOCKING CHART

(NOT TO SCALE)

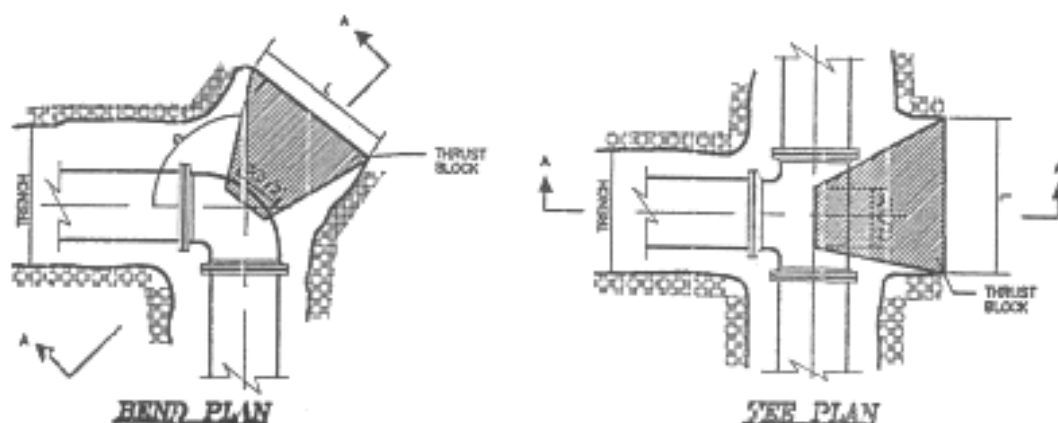
45° BEND					22 1/2° BEND					11 1/4° BEND					TEES OR PLUGS				
X	A	B	C	D	X	A	B	C	D	X	A	B	C	D	X	A	B	C	D
36"	24"	5'-0"	7'-8"	7'-8"	36"	43"	2'-9"	5'-0"	6'-0"	36"	43"	2'-6"	4'-0"	3'-9"	16"	36"	5'-0"	8'-9"	8'-9"
30"	18"	3'-9"	6'-9"	6'-9"	30"	22"	2'-6"	4'-9"	5'-0"	30"	23"	2'-6"	3'-6"	3'-6"	30"	33"	4'-9"	7'-6"	7'-9"
24"	15"	3'-3"	5'-9"	5'-9"	24"	20"	2'-0"	3'-9"	4'-0"	24"	21"	2'-3"	2'-9"	2'-9"	24"	30"	3'-9"	6'-0"	6'-3"
20"	12"	2'-6"	4'-6"	4'-6"	20"	17"	1'-6"	3'-3"	3'-3"	20"	18"	2'-0"	2'-3"	2'-6"	20"	28"	3'-3"	5'-0"	5'-3"
18"	12"	2'-6"	4'-0"	4'-3"	18"	15"	1'-6"	2'-9"	3'-0"	18"	16"	1'-9"	2'-0"	2'-3"	18"	14"	3'-0"	4'-6"	4'-9"
16"	11"	2'-3"	3'-6"	3'-9"	16"	14"	1'-3"	2'-6"	2'-9"	16"	15"	1'-6"	1'-9"	2'-0"	16"	12"	3'-0"	4'-0"	4'-6"
12"	10"	2'-0"	2'-6"	2'-6"	12"	12"	8"	1'-3"	1'-9"	12"	14"	1'-3"	1'-3"	1'-3"	12"	10"	2'-6"	2'-9"	2'-9"
10"	8"	1'-6"	2'-3"	2'-0"	10"	8"	1'-0"	1'-6"	1'-6"	10"	12"	1'-0"	1'-0"	1'-0"	10"	10"	2'-6"	2'-6"	2'-3"
8"	8"	1'-3"	1'-8"	1'-8"	8"	6"	1'-0"	1'-3"	1'-3"	8"	10"	1'-0"	1'-0"	1'-0"	8"	10"	2'-0"	1'-9"	2'-0"
6"	6"	1'-0"	1'-3"	1'-3"	6"	6"	0'-9"	1'-0"	1'-0"	6"	9"	1'-6"	1'-0"	1'-0"	6"	8"	2'-0"	1'-4"	1'-6"



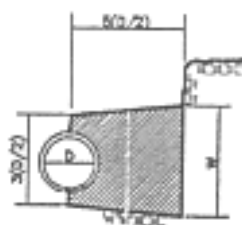
NOTE:  
THRUST BLOCK SHALL BEAR  
DIRECTLY AGAINST UNDISTURBED  
EARTH.

**THRUST BLOCKING CHART**  
(NOT TO SCALE)





### CONCRETE BLOCKING DETAILS



#### SECTION A-A

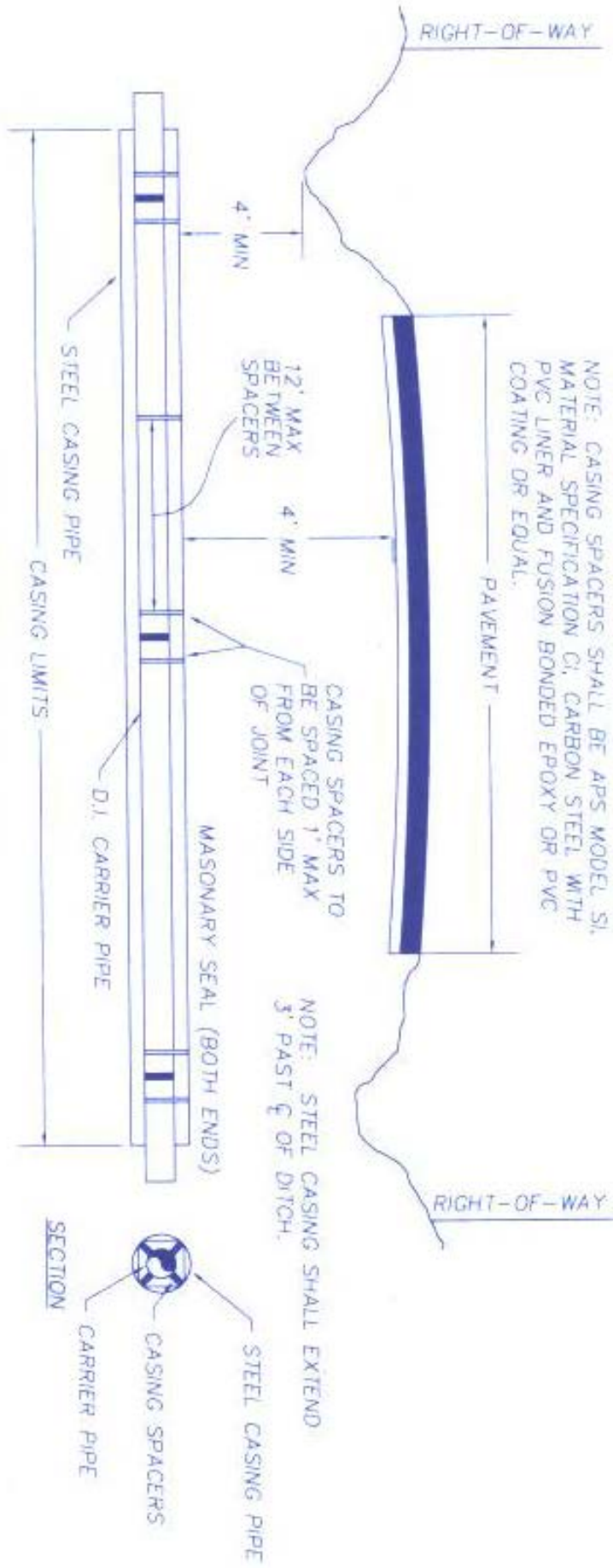
##### NOTES:

1. THRUST BLOCKING TO BE CLASS "B" CONCRETE.
2. THESE DIMENSIONS WERE CALCULATED USING A SOIL BEARING CAPACITY OF 1500 PSF IF CAPACITY IS FOUND TO BE LESS THAN 1500 PSF THE DIMENSIONS SHALL BE REVISED ACCORDING TO THE ENGINEER.
3. DIMENSIONS TO BE STRICTLY ADHERED TO.
4. BLOCKS SHALL BEAR AGAINST UNDISTURBED SOIL.
5. DESIGN PRESSURE 4" THRU 12" 150 P.S.I.
6. ALL BOLTS TO REMAIN ACCESSIBLE. DO NOT COVER WITH CONCRETE.

CONCRETE BLOCK DIMENSIONS								
PIPE SIZE	TEES & PLUGS		BENDS					
			D=22-1/2"		D=45"		D=90"	
	W	L	W	L	W	L	W	L
4"	1'-0"	1'-3"	6"	9"	10"	1'-2"	1'-2"	1'-7"
6"	1'-5"	1'-11"	1'-0"	1'-2"	1'-2"	1'-11"	1'-8"	2'-5"
8"	2'-0"	2'-7"	1'-2"	1'-8"	1'-6"	2'-7"	2'-2"	3'-4"
10"	2'-5"	3'-2"	1'-4"	2'-4"	1'-10"	3'-4"	2'-8"	4'-2"
12"	3'-0"	3'-10"	1'-8"	2'-8"	2'-2"	4'-0"	3'-2"	5'-1"

## THRUST BLOCKING FOR WATER MAINS

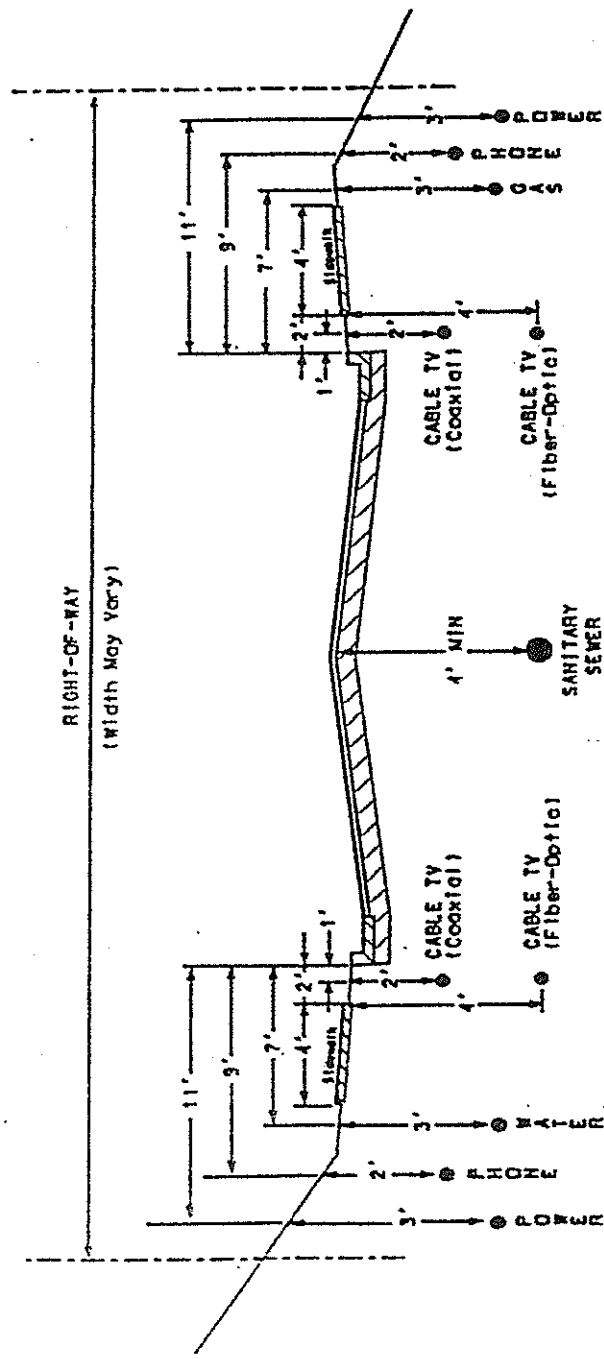




**TYPICAL HIGHWAY CROSSING**

(NOT TO SCALE)

( TYPICAL FOR BORED DRIVEWAYS )

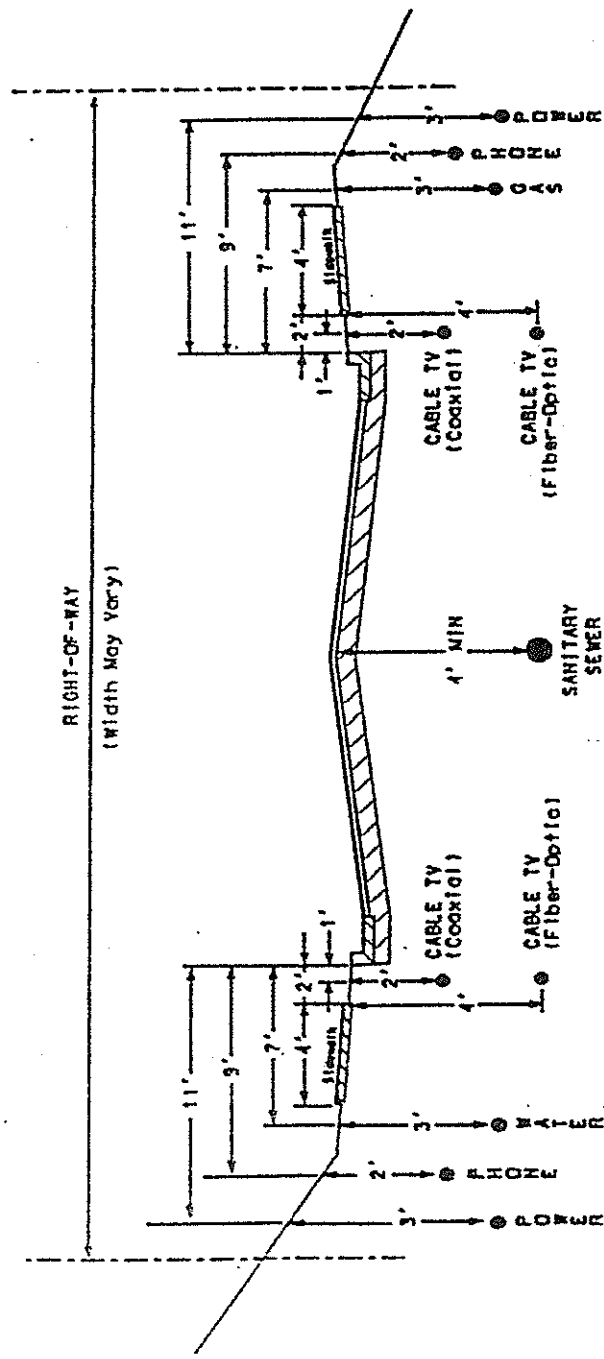


# PUBLIC STREETS

TYPICAL UTILITY LOCATIONS			
PROJECT BY	FAYETTE COUNTY UTILITIES COORDINATING COMMITTEE		
DATE	10/01/97	SCALE	N.T.S.
		PLANS NUMBER	303

## NOTES:

1. UTILITY LOCATIONS ARE MEASURED FROM BACK OF CURB OR EDGE OF PAVEMENT.
2. POWER, PHONE AND CABLE TV SHALL USE JOINT TRENCHES IF AT ALL POSSIBLE. WHEN JOINT TRENCH IS USED, THE LOCATION SHALL BE THE UTILITY TRENCH FURTHEST FROM THE BACK OF CURB. THE CABLES IN THE TRENCH SHALL BE SEPARATED VERTICALLY BY ONE FOOT OF COMPACTED SOIL.
3. KEEP GAS AND WATER ON OPPOSITE SIDES OF THE ROAD.
4. PAVEMENT WIDTHS AND RIGHTS-OF-WAY VARY ACCORDING TO ROAD CLASSIFICATION.

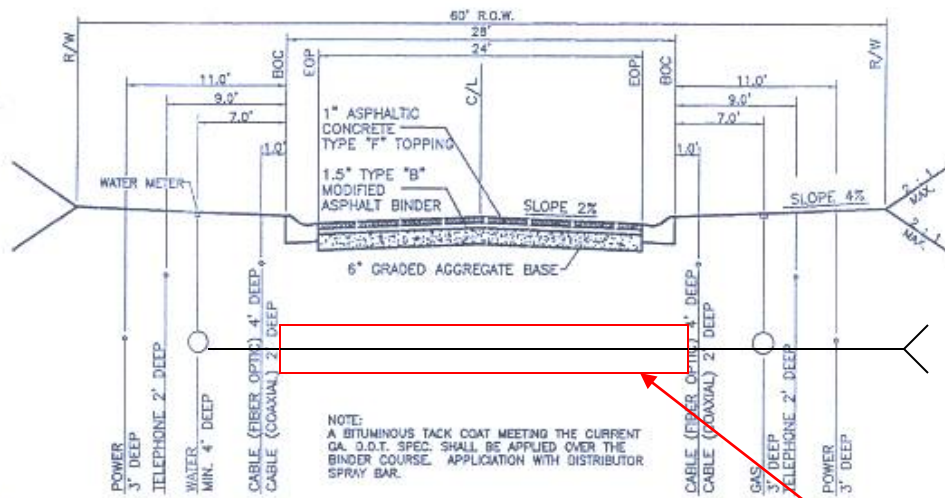


# PUBLIC STREETS

TYPICAL UTILITY LOCATIONS			
PROJECT BY	FAYETTE COUNTY UTILITIES COORDINATING COMMITTEE		
DATE	10/01/97	SCALE	N.T.S.
		PROJECT NUMBER	303

## NOTES:

1. UTILITY LOCATIONS ARE MEASURED FROM BACK OF CURB OR EDGE OF PAVEMENT.
2. POWER, PHONE AND CABLE TV SHALL USE JOINT TRENCHES IF AT ALL POSSIBLE. WHEN JOINT TRENCH IS USED, THE LOCATION SHALL BE THE UTILITY TRENCH FURTHEST FROM THE BACK OF CURB. THE CABLES IN THE TRENCH SHALL BE SEPARATED VERTICALLY BY ONE FOOT OF COMPACTED SOIL.
3. KEEP GAS AND WATER ON OPPOSITE SIDES OF THE ROAD.
4. PAVEMENT WIDTHS AND RIGHTS-OF-WAY VARY ACCORDING TO ROAD CLASSIFICATION.

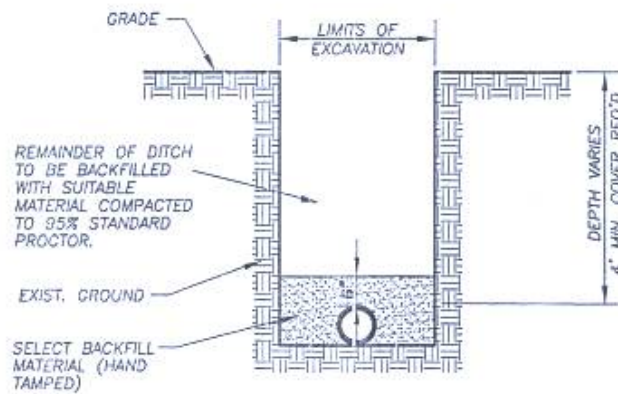


NOTES:

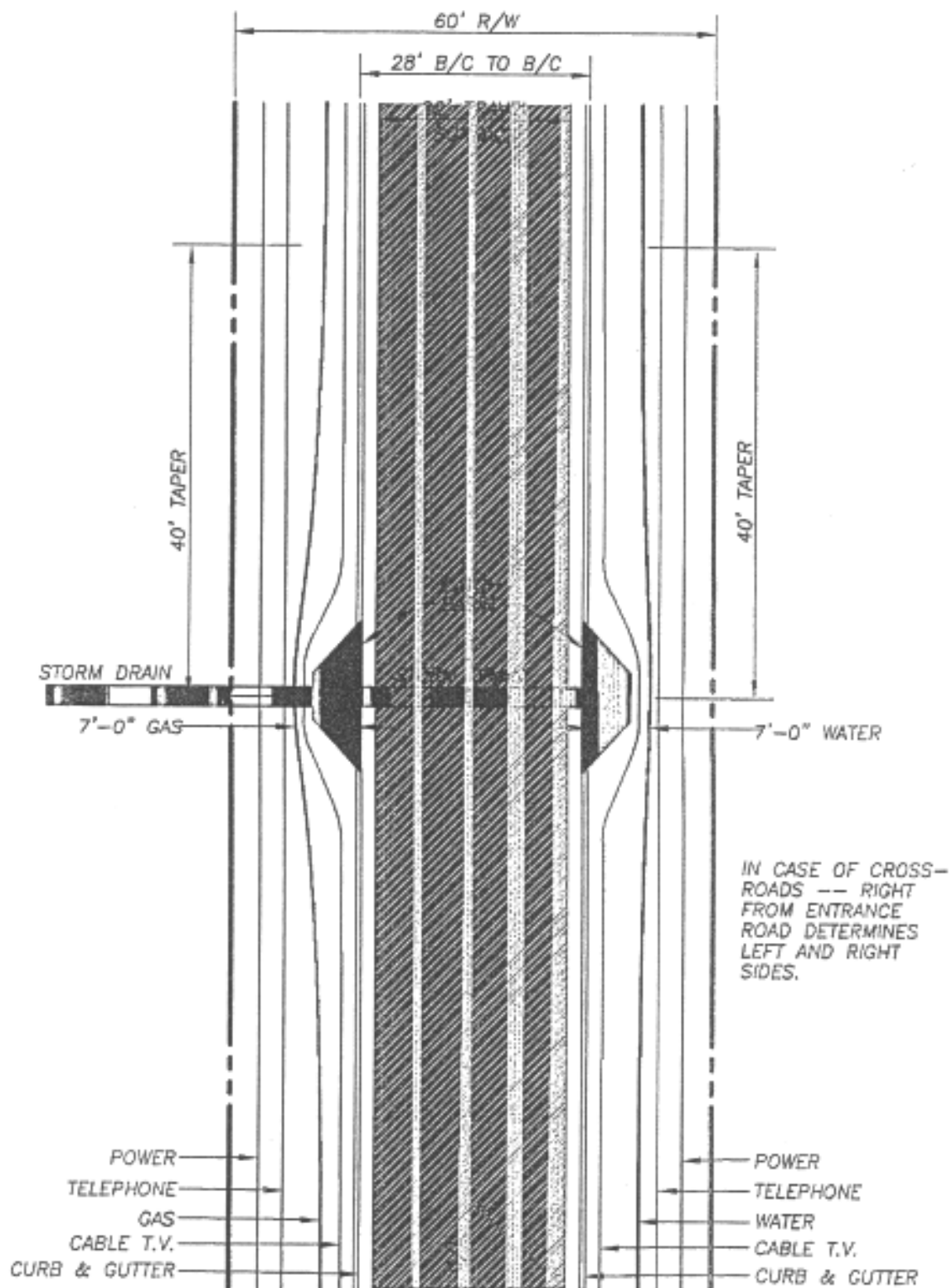
1. UTILITY LOCATIONS ARE MEASURED FROM BACK OF CURB.
2. POWER, PHONE AND CABLE TV SHALL USE JOINT TRENCHES IF AT ALL POSSIBLE. WHEN JOINT TRENCH IS USED, THE LOCATION SHALL BE THE UTILITY TRENCH FURTHEST FROM THE BACK OF CURB.
3. KEEP GAS AND WATER ON OPPOSITE SIDES OF THE ROAD.
4. PAVEMENT WIDTHS AND RIGHT-OF-WAYS ARE AS PER DETAIL.
5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST  
"A. D.O.T. STANDARD SPECIFICATIONS."

Long side services shall be sleeved under all impervious surfaces to maintain the integrity of the roadway subsurface.

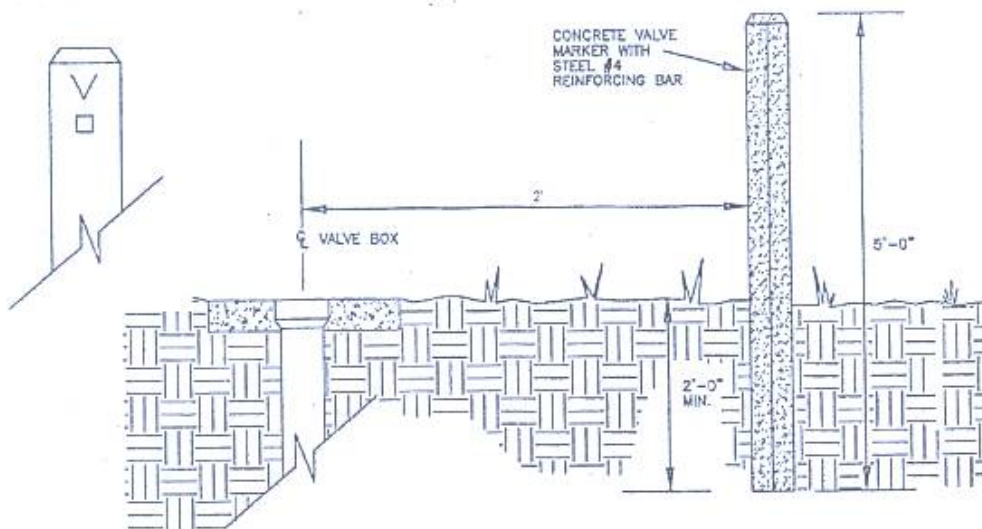
## TYPICAL UTILITY PLACEMENT DETAIL



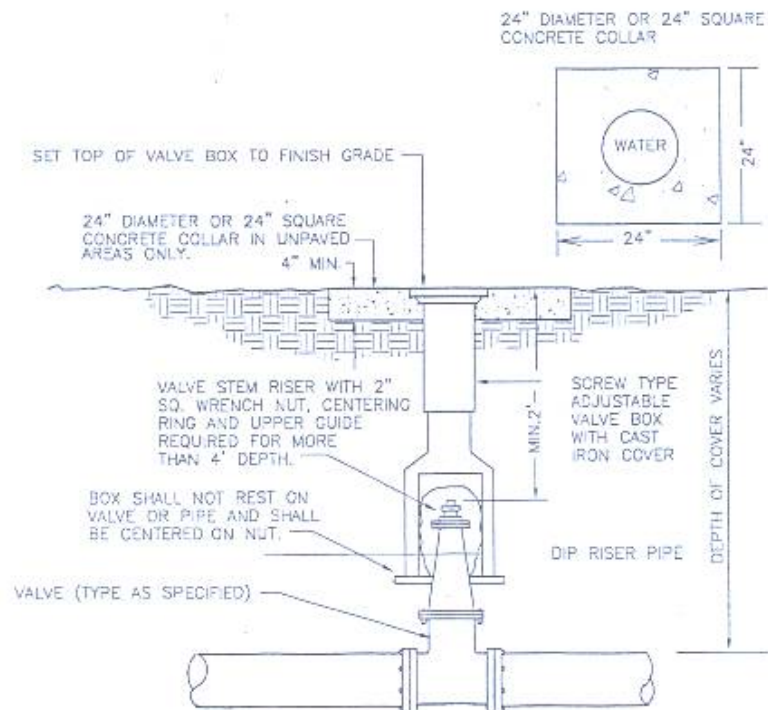
## WATER LINE TRENCH DETAIL



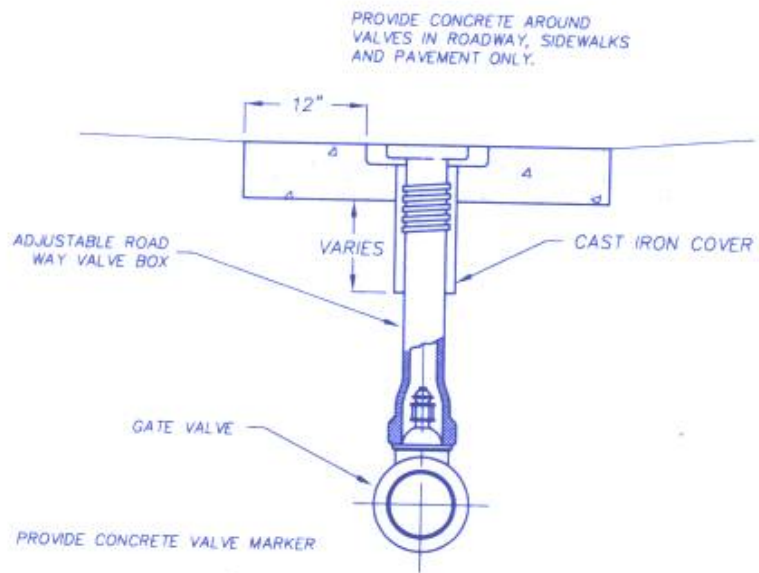
**TYPICAL UTILITY PLACEMENT  
AT CATCH BASINS**



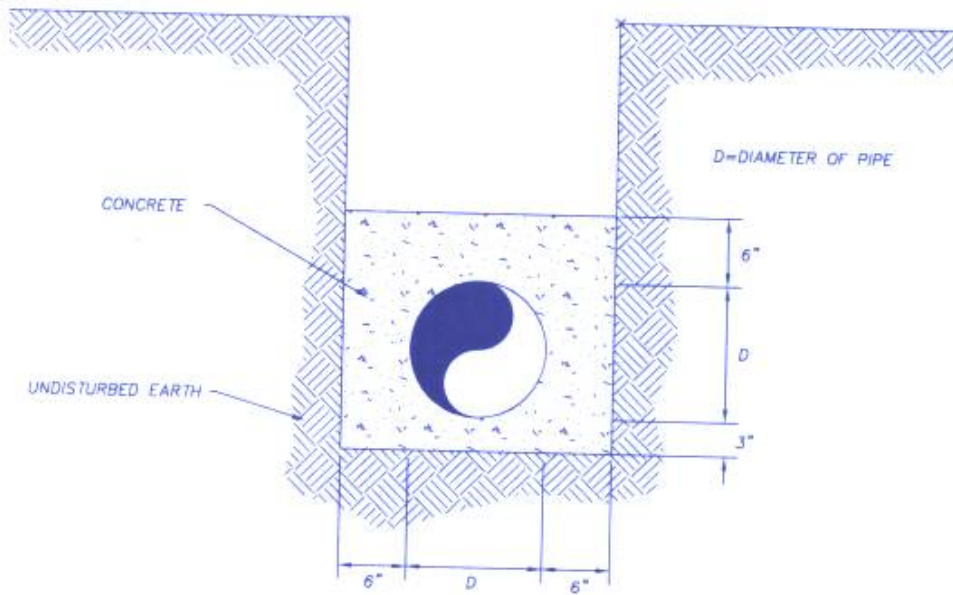
VALVE MARKER DETAIL



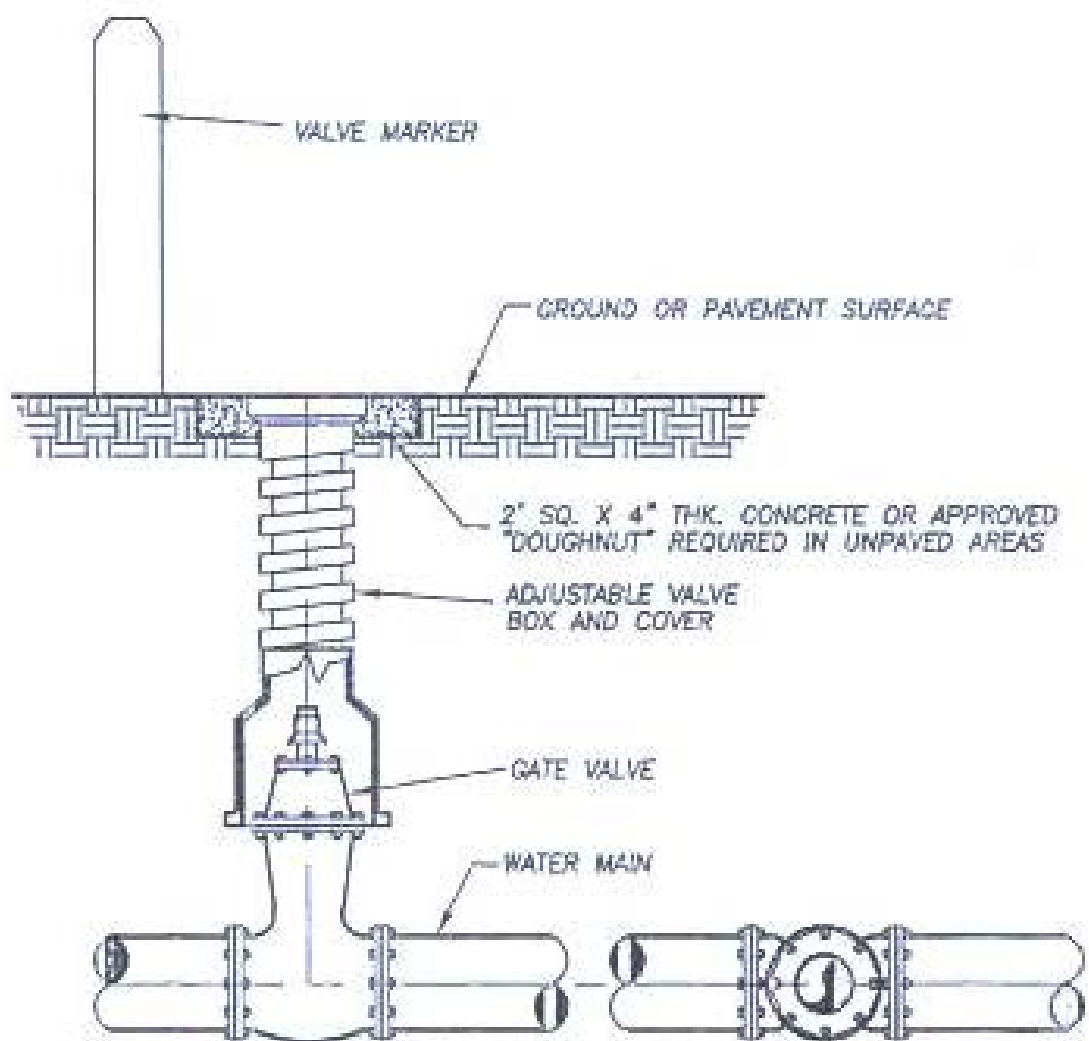
VALVE & VALVE BOX DETAIL



VALVE BOX DETAIL  
(NOT TO SCALE)

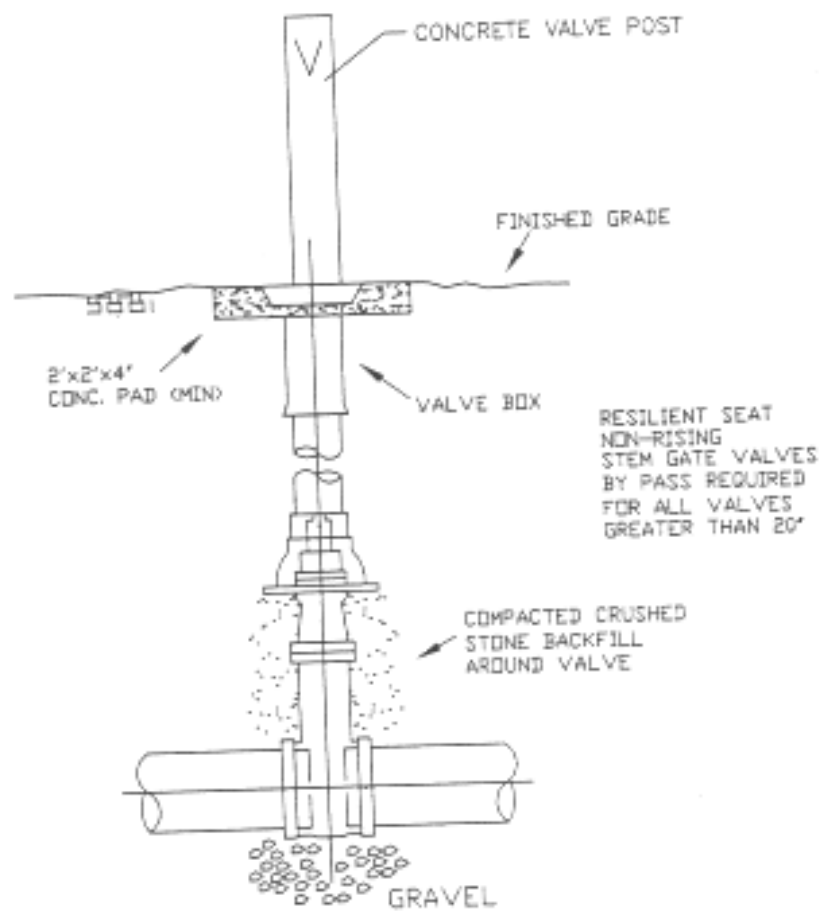


CONCRETE ENCASEMENT DETAIL  
(NOT TO SCALE)

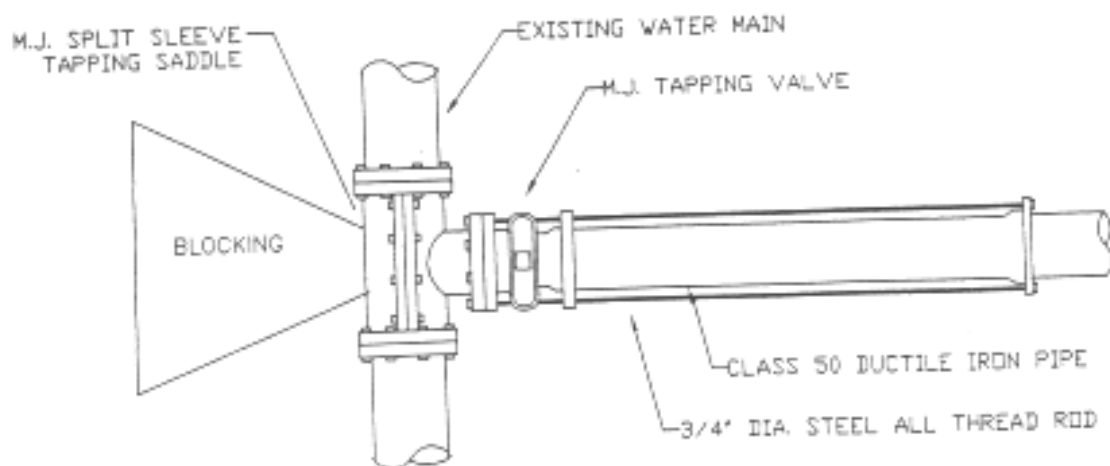


TYPICAL VALVE INSTALLATION



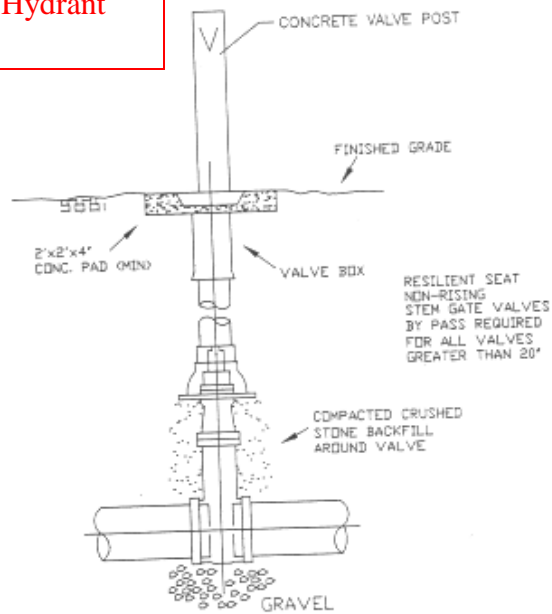


TYPICAL VALVE INSTALLATION

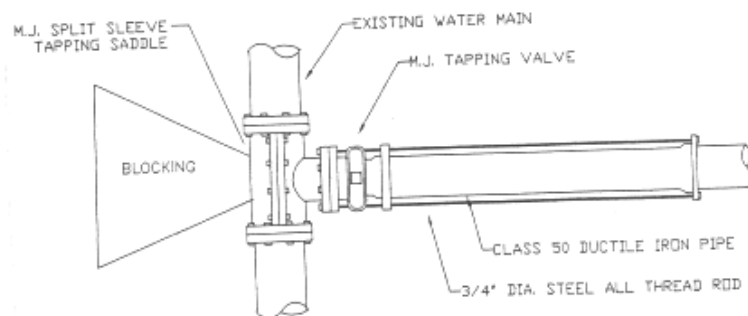


TYPICAL WET TAP INSTALLATION DETAIL

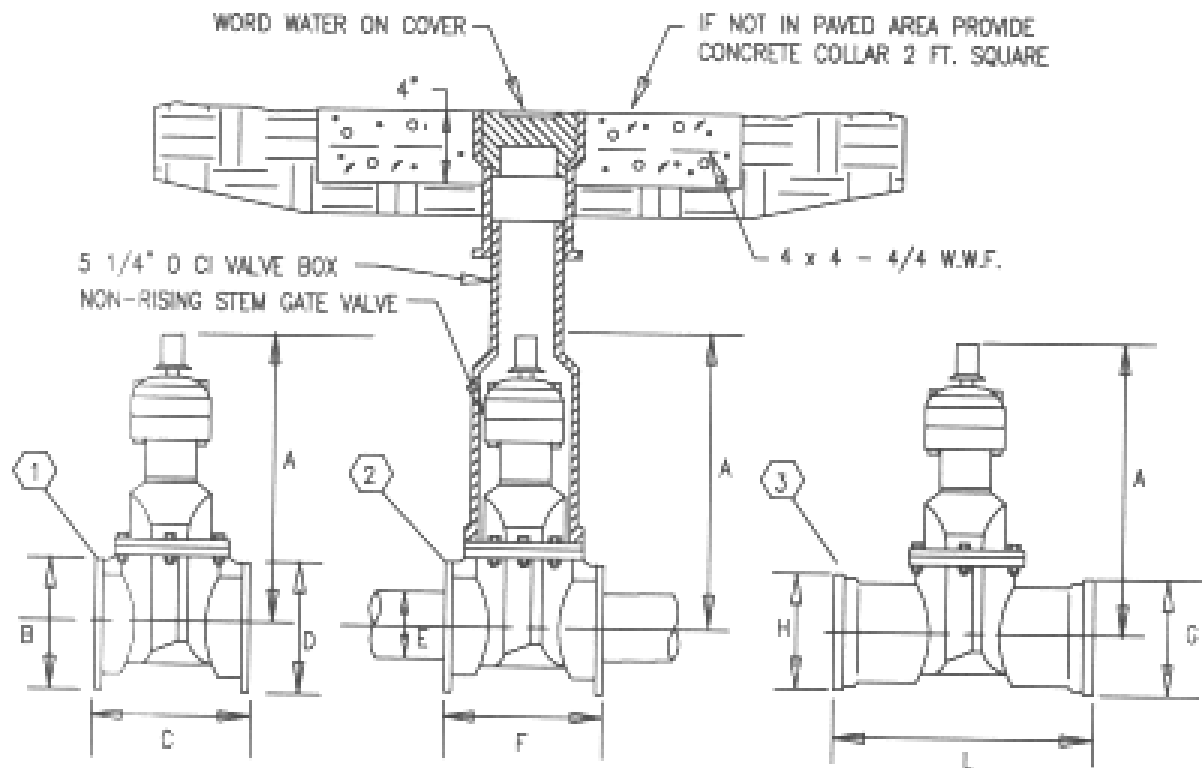
Valve locations must also be permanently marked on curb.  
IV – Inline valve / HV – Hydrant valve.



TYPICAL VALVE INSTALLATION



TYPICAL WET TAP INSTALLATION DETAIL



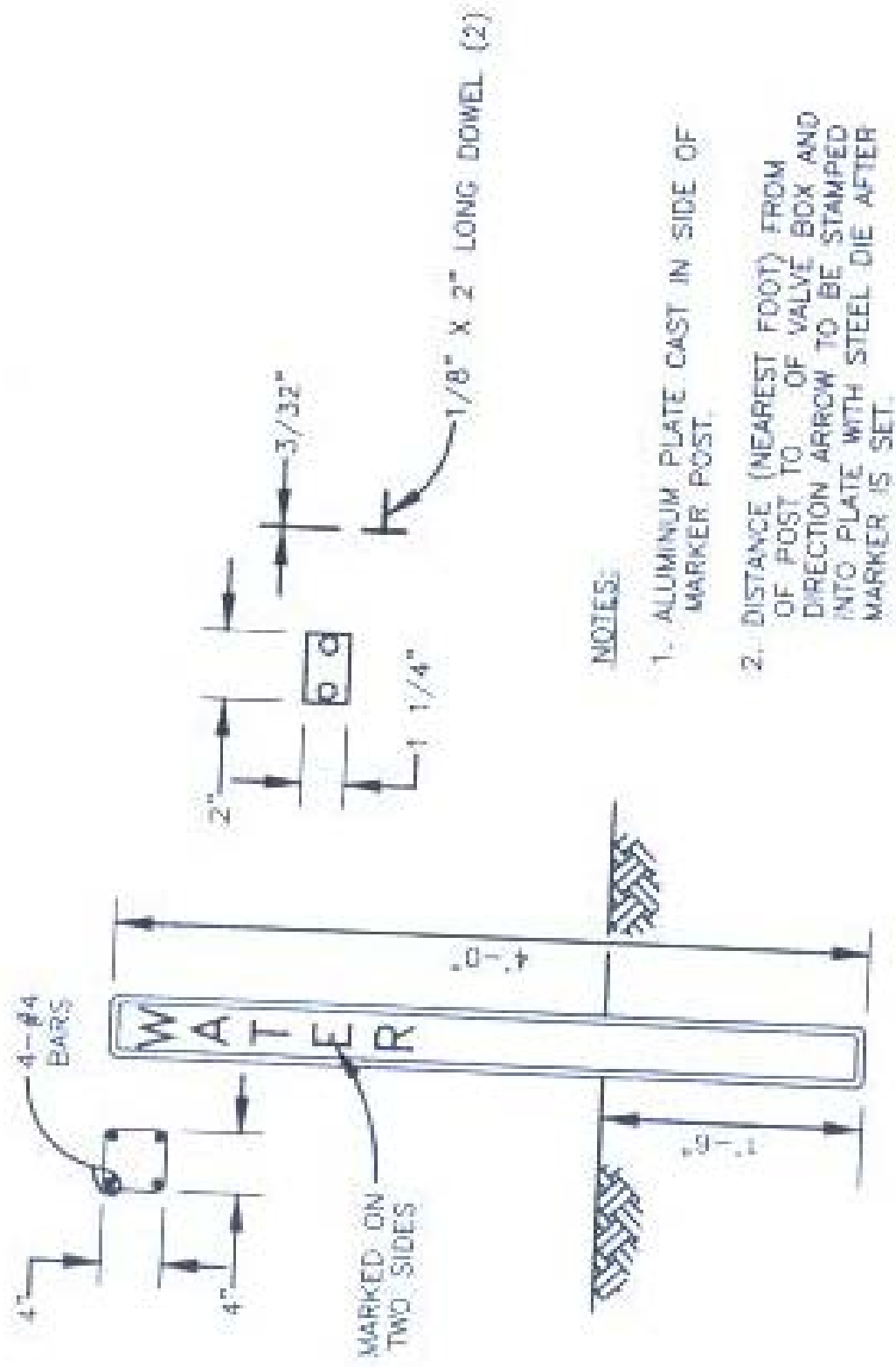
MUELLER A.W.W.A. GATE VALVES										TURNS TO OPEN
DIMENSIONS (inches)										
SIZE (inches)	A	B	C	D	E	F	G	H	L	
6	20	11.0	10.5	9.5	7.0	11.5	9.25	7.01	12.0	20
8	23.8	13.5	11.5	11.75	9.15	11.5	11.62	9.21	13.5	26

NOTES :

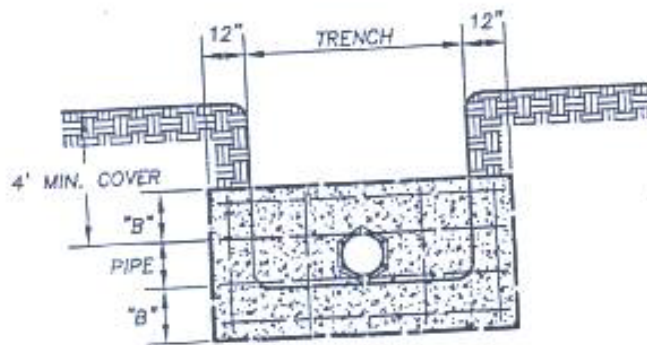
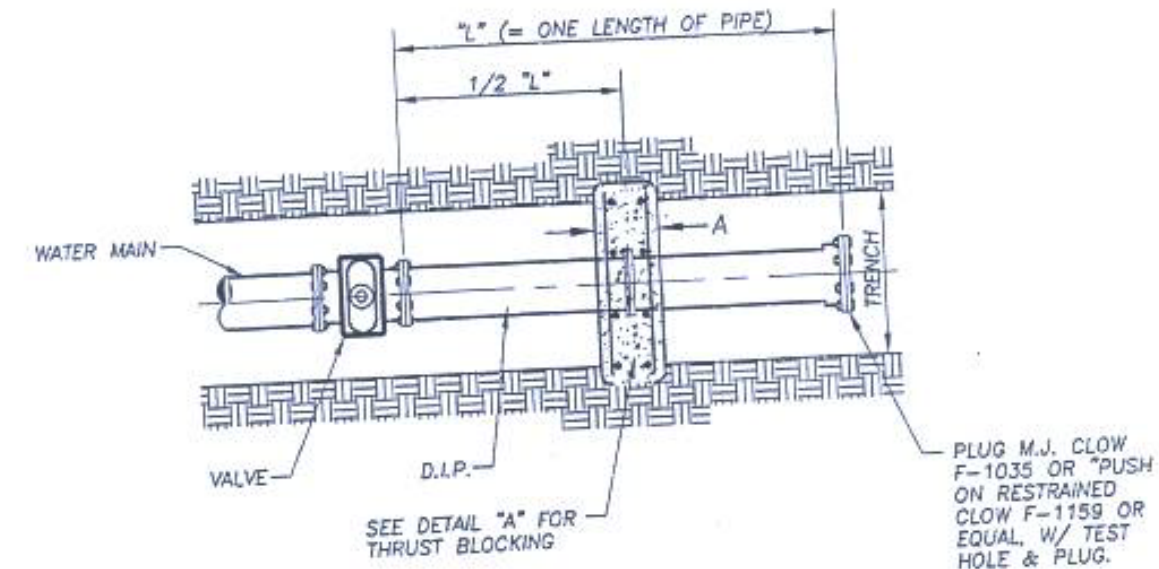
- ① FLANGED ENDS
- ② MECHANICAL JOINT ENDS
- ③ ASBESTOS-CEMENT ENDS

- 1. CENTER AND TOP SECTION SHALL BE OF THE ADJUSTABLE SCREW TYPE.
- 2. BASE SHALL BE NO. 4 ROUND FOR 4 INCH VALVES; NO. 6 OVAL FOR 6 AND 8 INCH VALVES; AND NO. 160 OVAL FOR 10 TO 16 INCH VALVES. GATE VALVES SHALL HAVE

DET GATE VALVE  
SHT SCALE: NTS U10



## DETAIL OF CONCRETE VALVE MARKER

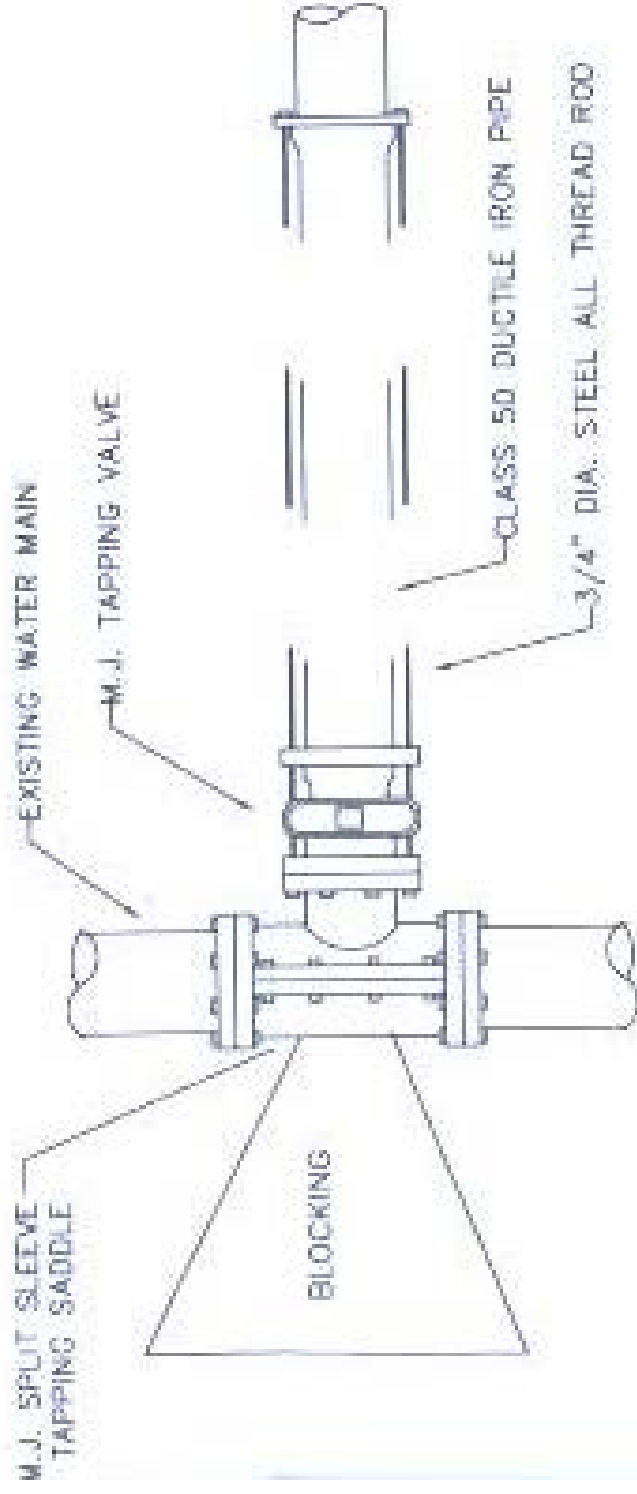


PIPE DIA.	"A"	"B"
20"	2'-0"	2'-0"
16"	1'-6"	1'-6"
14"	1'-6"	1'-6"
12"	1'-6"	1'-0"
10"	1'-0"	1'-0"
8"	1'-0"	1'-0"
6"	1'-0"	1'-0"
4"	1'-0"	1'-0"

NOTE:  
THE ABOVE FIGURES ARE BASED  
ON SOIL BEARING CAPACITY OF  
2000#/ S.F.

## TERMINAL END DETAIL





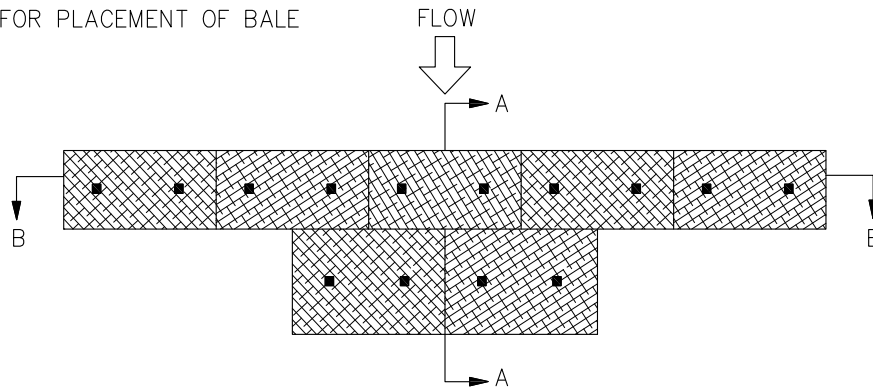
TYPICAL WET TAP INSTALLATION DETAIL

Cd

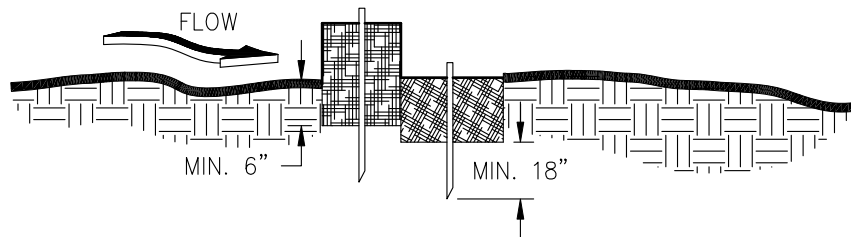
## TYPICAL STRAW BALE CHECK DAM

### PLAN

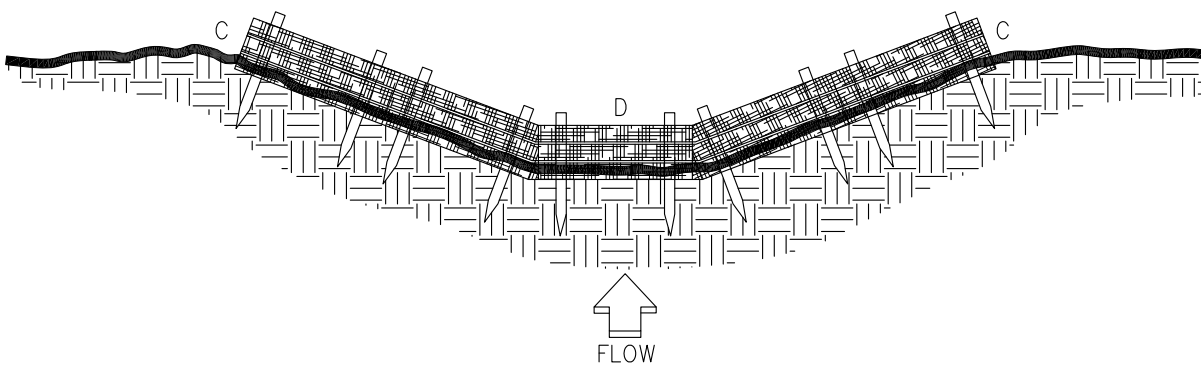
SEE DETAIL FOR PLACEMENT OF BALE



### SECTION A-A



### SECTION B-B



#### NOTES:

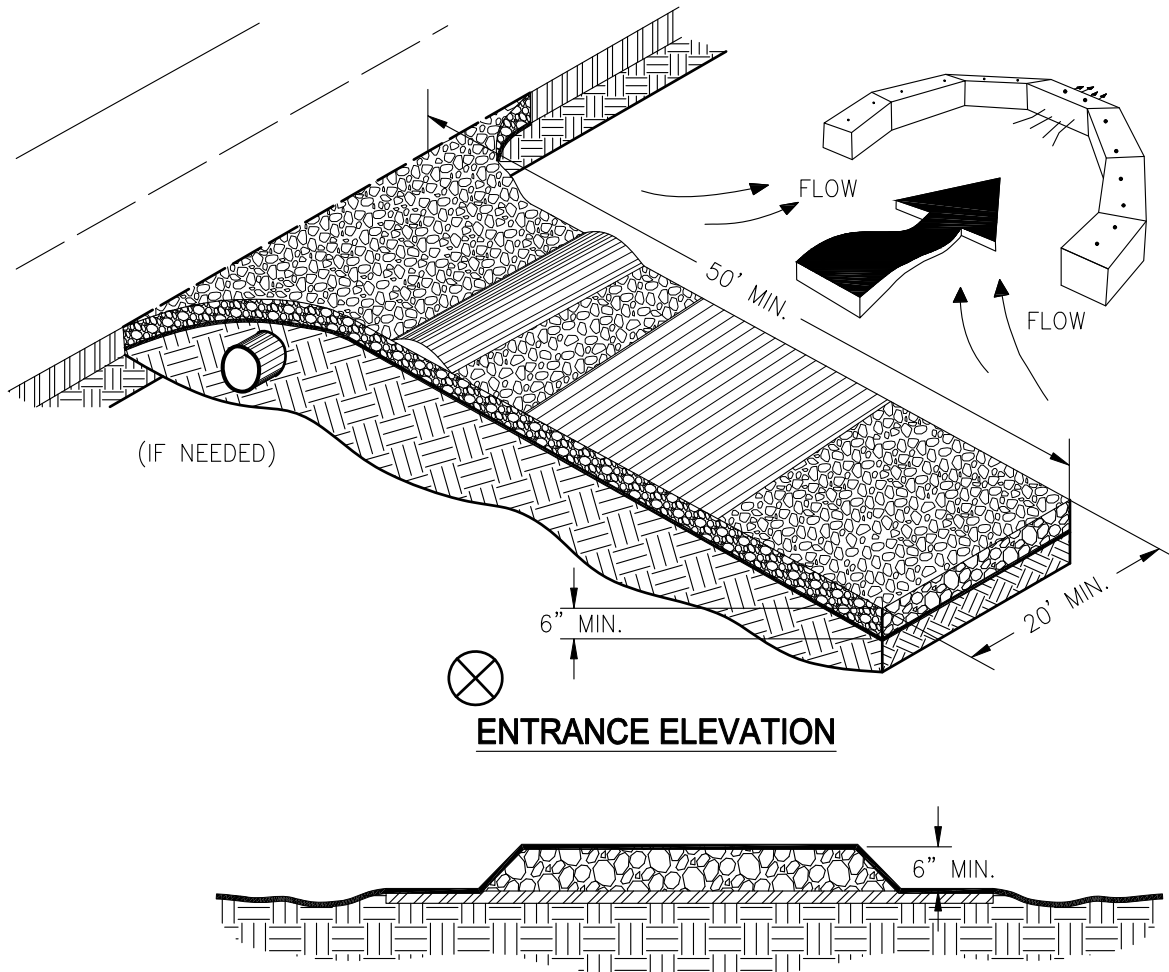
1. BALES SHOULD BE BOUND WITH WIRE OR NYLON STRING AND SHOULD BE PLACED IN ROWS WITH BALE ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. REMOVE #4 REBAR AFTER STRAW BALES ARE NO LONGER IN PLACE.
3. POINT C OF SECTION B-B SHOULD ALWAYS BE HIGHER THAN POINT D.



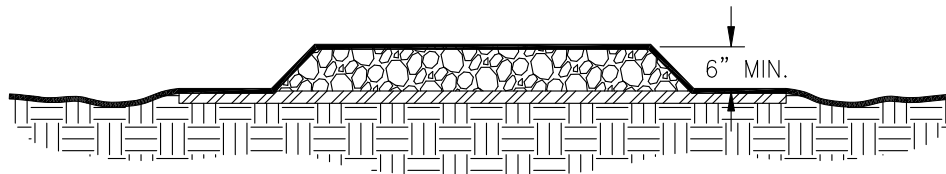
Co

# CRUSHED STONE CONSTRUCTION EXIT

## EXIT DIAGRAM



## ENTRANCE ELEVATION

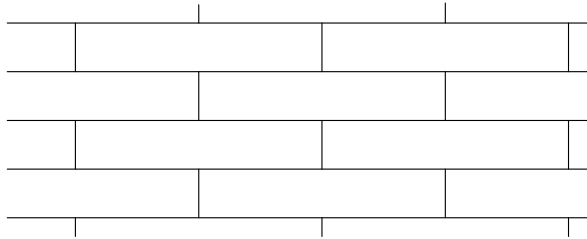


### NOTES:

1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"–3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

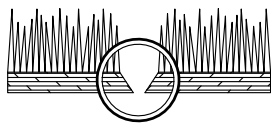
# SOD MAINTENANCE AND INSTALLATION

## SOD LAYOUT AND PREPARATION

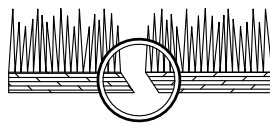


LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

INCORRECT



CORRECT



BUTTING: ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.

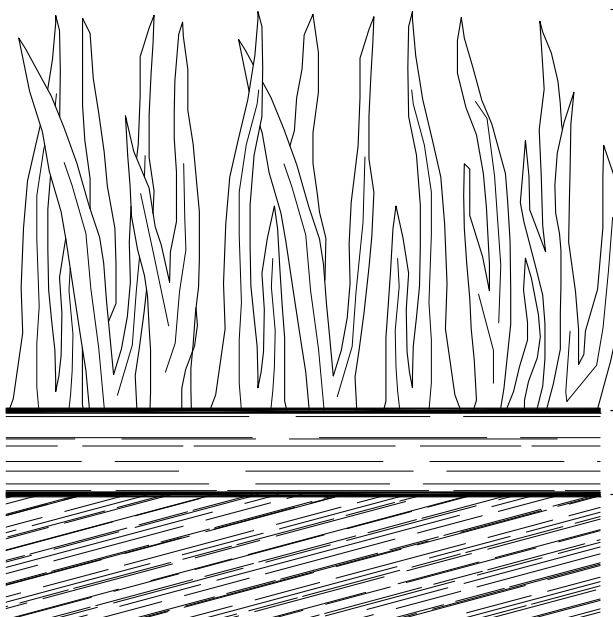
## DIRECTIONS FOR INITIAL MAINTENANCE

Step 1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL

Step 2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.

Step 3. MOW WHEN THE SOD IS ESTABLISHED -- IN 2-3 WEEKS. SET THE MOWER HIGH (2"-3").

## APPEARANCE OF GOOD SOD



SHOOTS OR GRASS BLADES: GRASS SHOULD BE GREEN AND HEALTHY, MOWED AT A 2"-3" CUTTING HEIGHT.

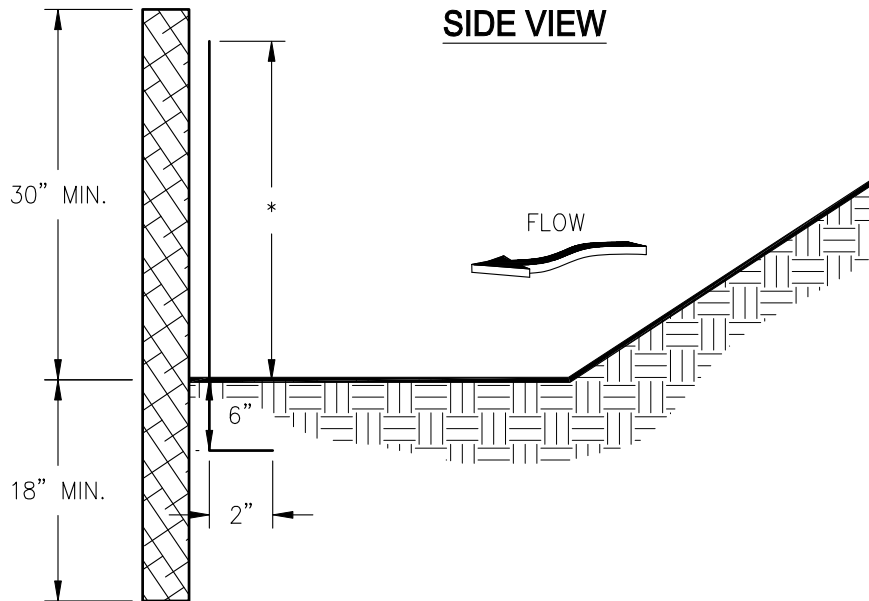
THATCH: GRASS CLIPPINGS AND DEAD LEAVES (UP TO 1/2" THICK).

ROOT ZONE: SOIL AND ROOTS. SHOULD BE 1/2"-3/4" THICK WITH DENSE ROOT MAT FOR STRENGTH.

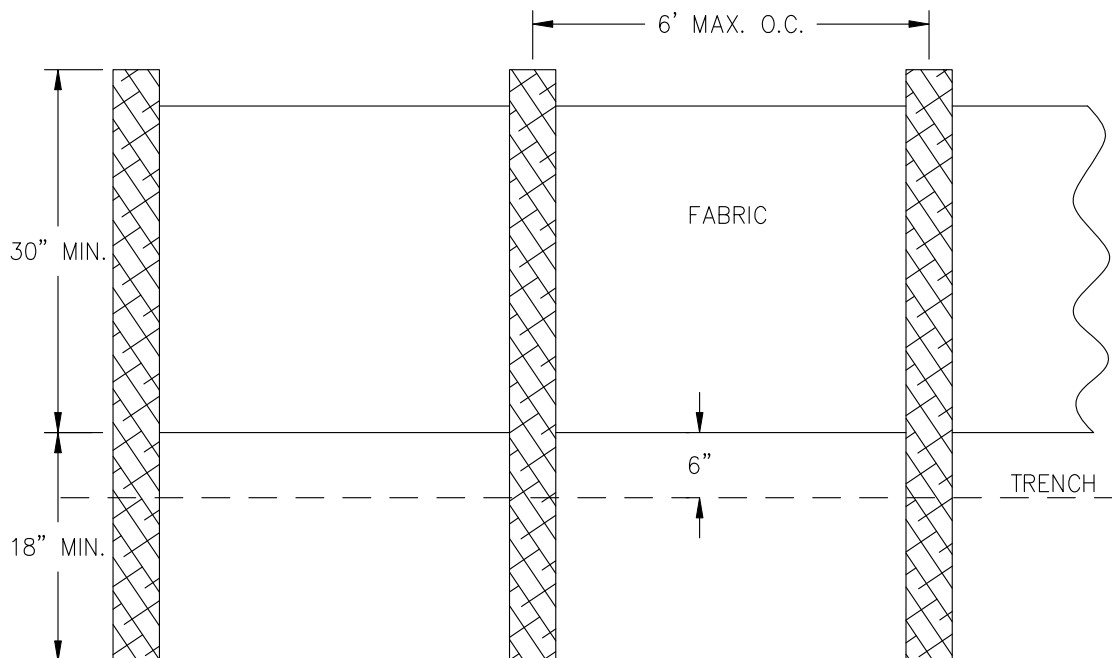
Sd1

## SILT FENCE - TYPE NON-SENSITIVE

SIDE VIEW



FRONT VIEW



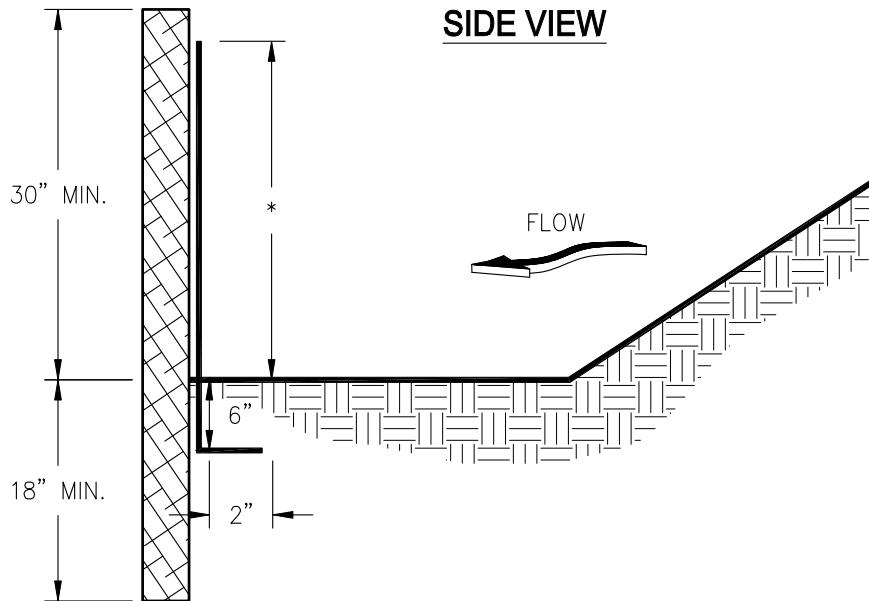
NOTES:

1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (\*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

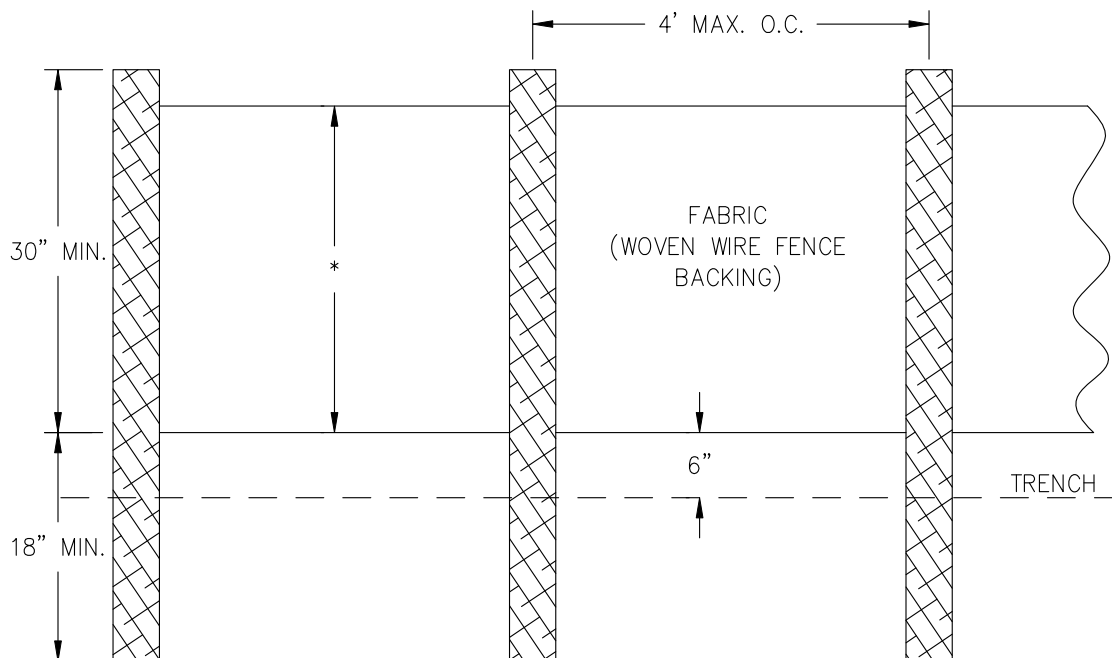
Sd1

## SILT FENCE - TYPE SENSITIVE

SIDE VIEW



FRONT VIEW



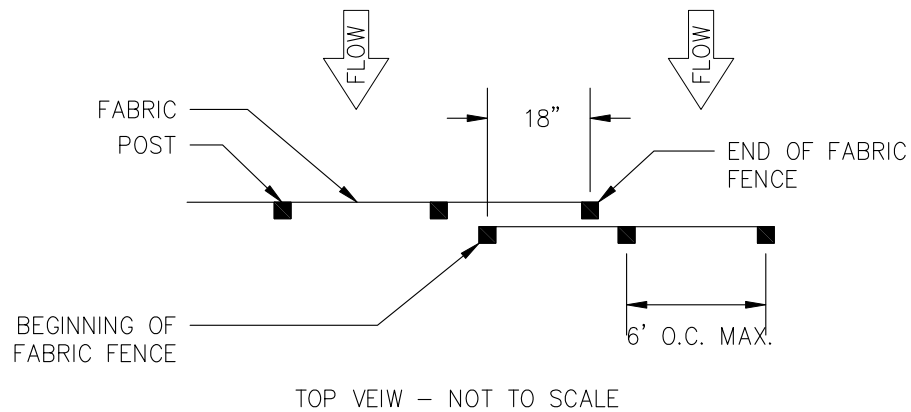
NOTES:

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2. HEIGHT (\*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

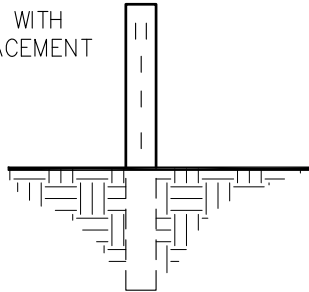
Sd1

## FASTENERS FOR SILT FENCES

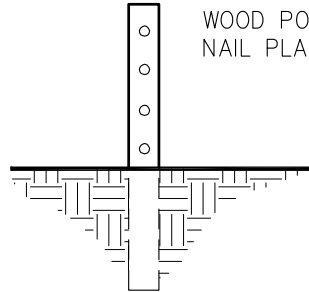
### OVERLAP AT FABRIC ENDS



WOOD POST WITH  
STAPLE PLACEMENT



WOOD POST WITH  
NAIL PLACEMENT



FRONT VIEWS - NOT TO SCALE

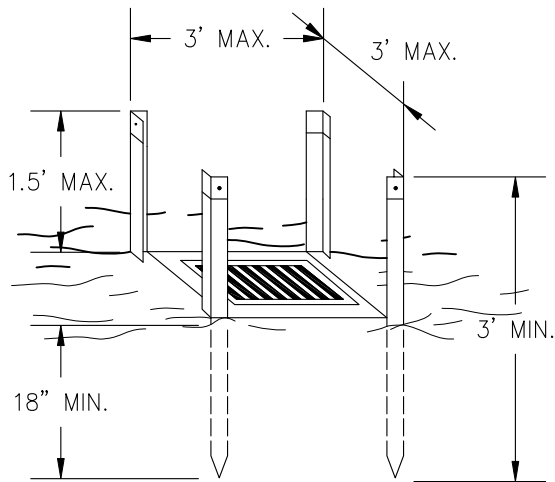
#### NOTES:

1. THE FABRIC AND WIRE SHOULD BE SECURELY FASTENED TO POSTS AND FABRIC ENDS MUST BE OVERLAPPED A MINIMUM OF 18" OR WRAPPED TOGETHER AROUND A POST TO PROVIDE A CONTINUOUS FABRIC BARRIER AROUND THE INLET.

Sd2

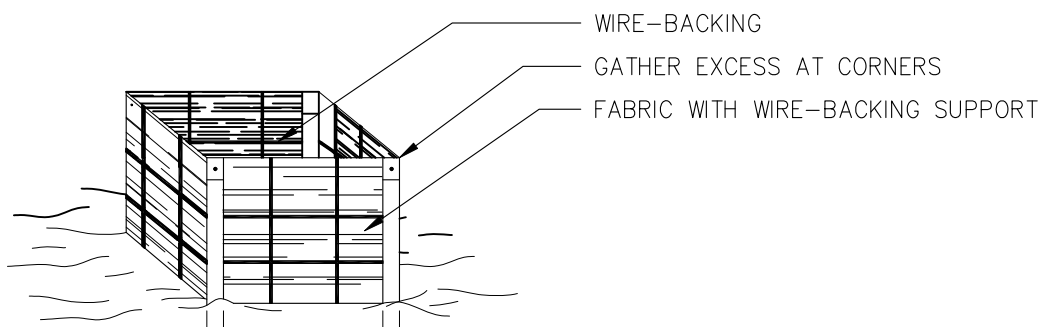
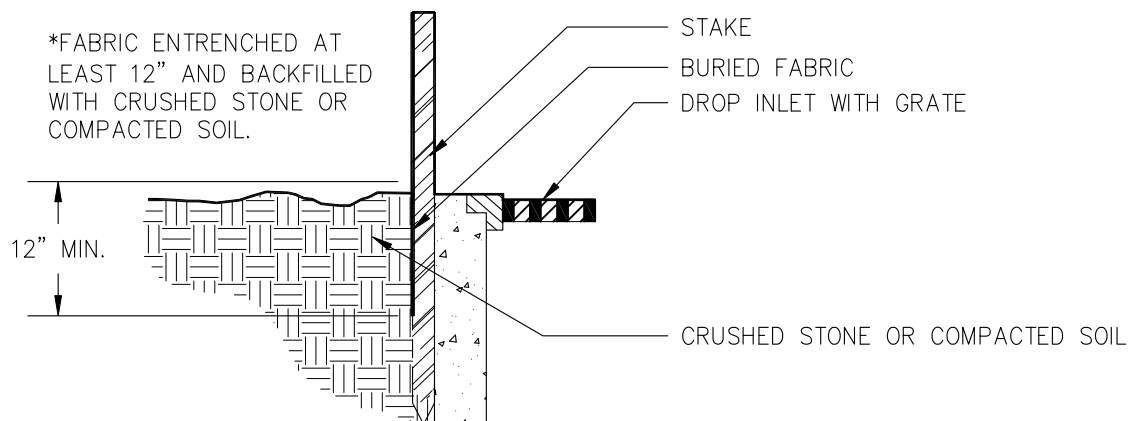
## FABRIC AND SUPPORTING FRAME FOR INLET PROTECTION

### STEEL FRAME AND SILT FENCE INSTALLATION



#### NOTES:

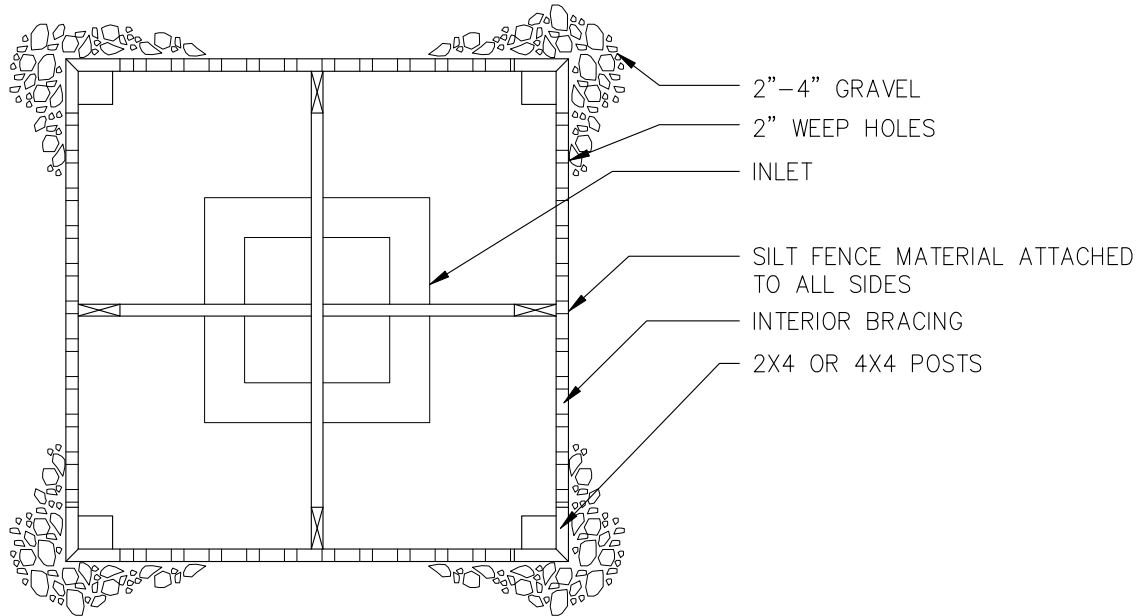
1. DESIGN IS FOR SLOPES NO GREATER THAN 5% (NOT DESIGNED FOR CONCENTRATED FLOWS).
2. THE STEEL POSTS SUPPORTING THE SILT FENCE MATERIAL SHOULD BE SPACED EVENLY AROUND THE PERIMETER OF THE INLET (MAXIMUM OF 3' APART).
3. THE STEEL POSTS SHOULD BE SECURELY DRIVEN AT LEAST 18" DEEP.
4. THE FABRIC SHOULD BE ENTRENCHED AT LEAST 12" AND THEN BACKFILLED WITH CRUSHED STONE OR COMPACTED SOIL.



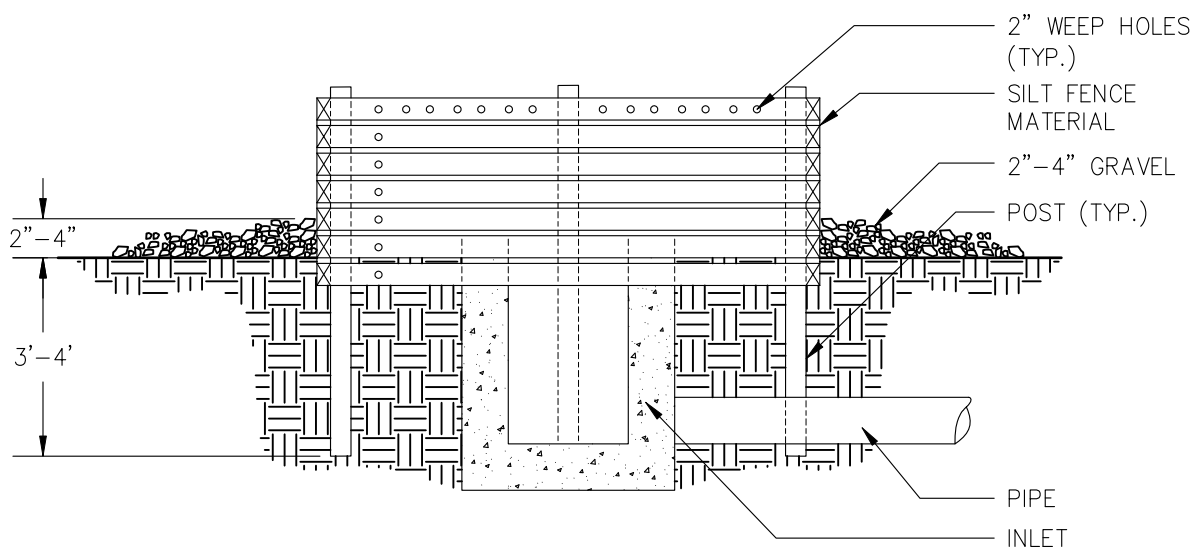
Sd2

## BAFFLE BOX

### PLAN

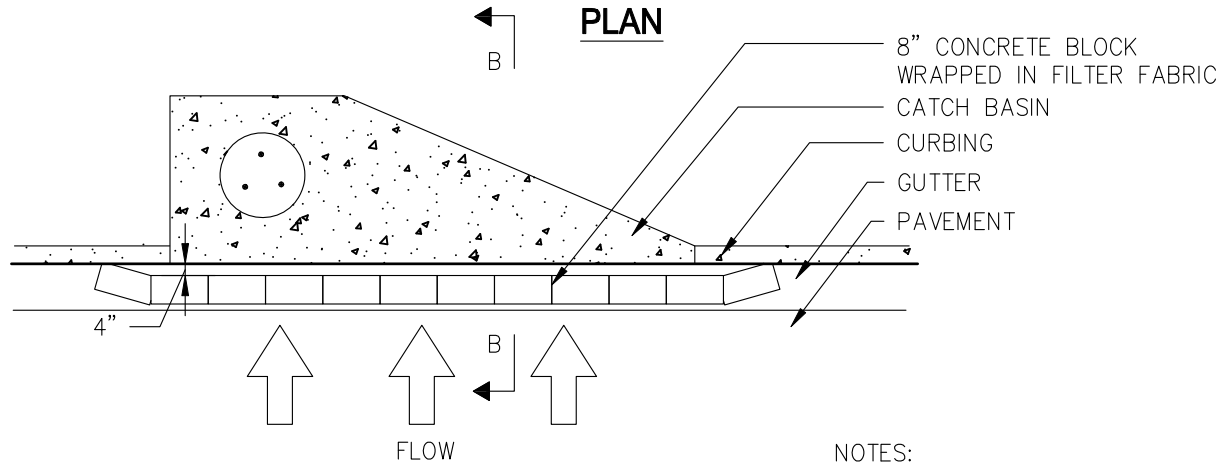


### SIDE



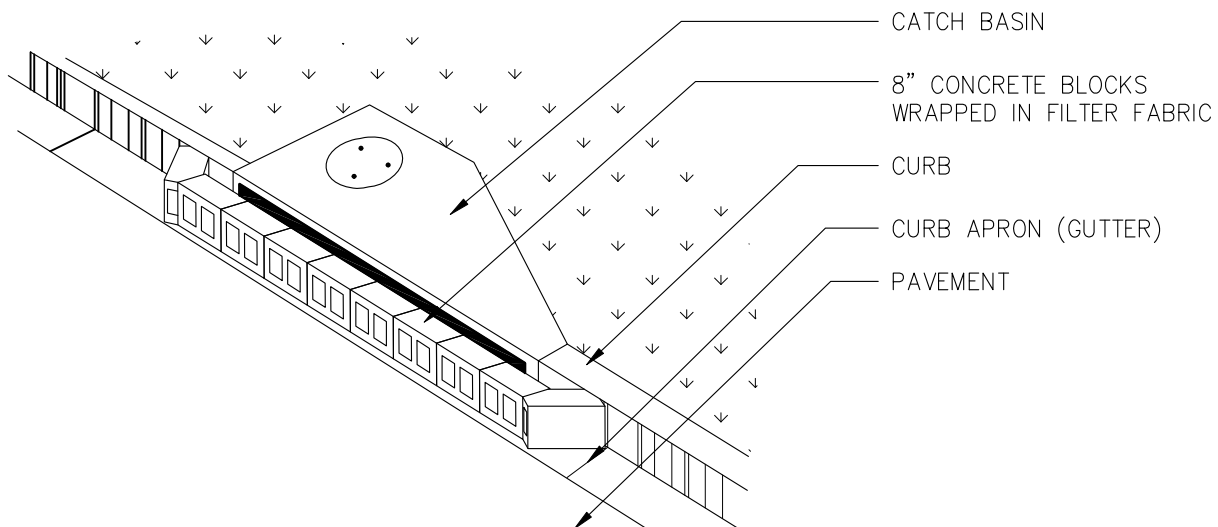
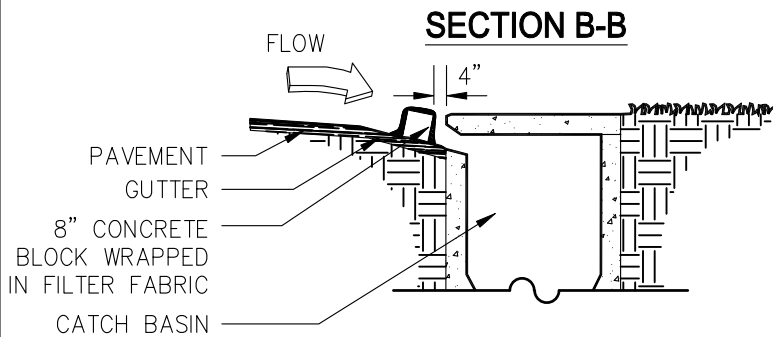
Sd2

# CURB INLET FILTER "PIGS IN BLANKET"



## NOTES:

1. INSTALL FILTER AFTER ANY ASPHALT PAVEMENT INSTALLATION
2. WRAP 8" CONCRETE BLOCKS IN FILTER FABRIC AND SPAN ACROSS CATCH BASIN INLET.
3. FACE OPENINGS IN BLOCKS OUTWARD.
4. LEAVE A GAP OF APPROXIMATELY 4 INCHES BETWEEN THE CURB AND THE FILTERS TO ALLOW FOR OVERFLOW TO PREVENT HAZARDOUS PONDING.
5. INSTALL OUTLET PROTECTION BELOW STORM DRAIN OUTLETS.



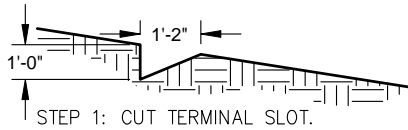


# TYPICAL INSTALLATION GUIDELINES FOR ROLLED EROSION CONTROL PRODUCTS (RECP)

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## BLANKET AND MATTING CROSS-SECTIONS

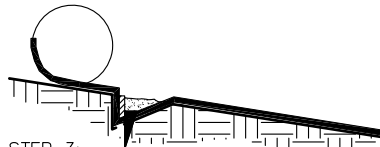
### UPSTREAM TERMINAL



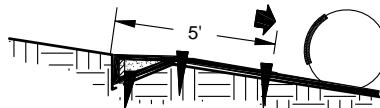
STEP 1: CUT TERMINAL SLOT.



STEP 2: SNUG MAT INTO SLOT.

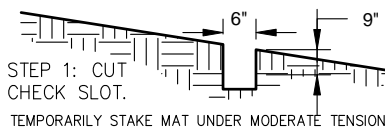


STEP 3:  
A. STAKE MAT INTO SLOT.  
B. USE 1" X 3" PRESSURE TREATED BOARD TO SPACE MAT AGAINST VERTICAL CUT.  
C. BACKFILL AND COMPACT.

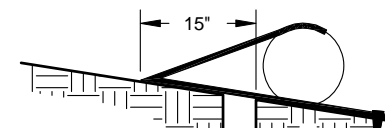


STEP 4:  
A. REVERSE MAT ROLL DIRECTION TO OVERLAY CHECK LOT.  
B. STAKE MAT TO ANCHOR TERMINAL.

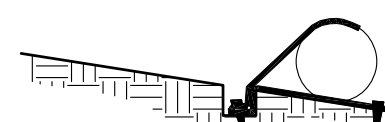
### TRANSVERSE CHECK SLOT



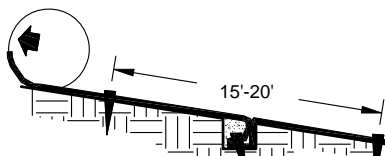
STEP 1: CUT CHECK SLOT.  
TEMPORARILY STAKE MAT UNDER MODERATE TENSION.



STEP 2: WORK UPSTREAM ACROSS CHECK SLOT AND LAP BACK 15".

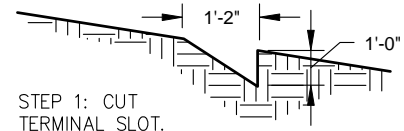


STEP 3: TUCK MAT LAP INTO SLOT AND STAKE.



STEP 4:  
A. BACKFILL AND PROGRESS UPSTREAM  
B. PULL OUT TEMPORARY STAKES WHEN NO LONGER NEEDED FOR TENSIONING.

### DOWNSTREAM TERMINAL



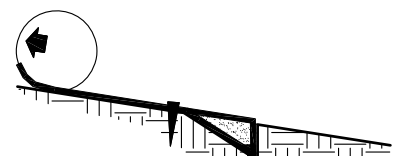
STEP 1: CUT TERMINAL SLOT.



STEP 2: STAKE MAT INTO SLOT.

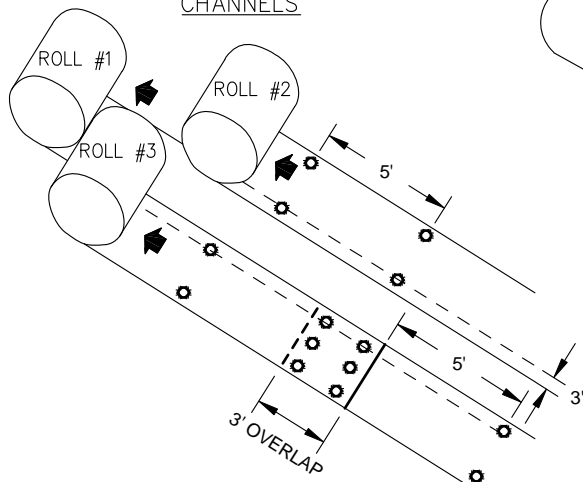


STEP 3: BACKFILL TERMINAL SLOT.

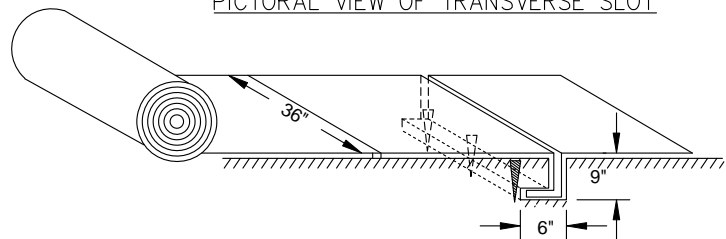


STEP 4:  
A. ROLL MAT UP—STREAM OVER REFILLED TERMINAL.  
B. STAKE MAT DOWN TO ANCHOR TERMINAL.  
C. PROGRESS UPSTREAM WITH ROLL.

### SEQUENTIAL ROLL RUN OUT IN CHANNELS



### PICTORAL VIEW OF TRANSVERSE SLOT



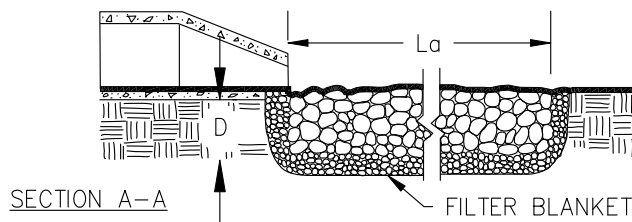
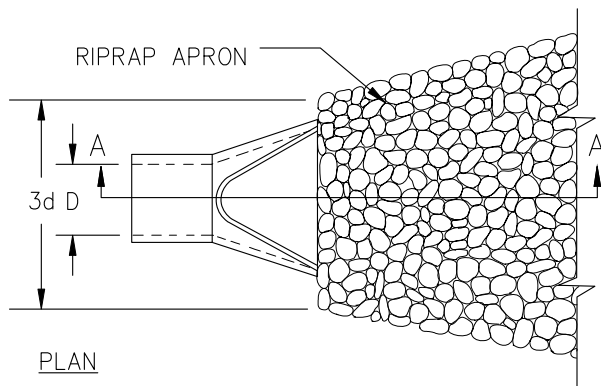
#### NOTES:

1. START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
2. FIRST ROLL IS CENTERED LONGITUDINALLY IN MID-CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT.
3. SUBSEQUENT ROLLS FOLLOW IN STAGGERED SEQUENCE BEHIND THE FIRST ROLL. USE THE CENTER ROLL FOR ALIGNMENT TO THE CHANNEL CENTER.
4. WORK OUTWARDS FROM THE CHANNEL CENTER TO THE EDGE.
5. USE 3" OVERLAPS AND STAKE AT 5' INTERVALS ALONG THE SEAMS.
6. USE 3' OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT THE LINING AT THE ROLL ENDS.

St

# RIPRAP OUTLET PROTECTION

## PIPE OUTLET TO FLAT AREA -- NO WELL DEFINED CHANNEL



### NOTES:

1.  $L_a$  IS THE LENGTH OF THE RIPRAP APRON.
2.  $D = 1.5$  TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS).
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND THE SOIL FOUNDATION.

## PIPE OUTLET TO WELL DEFINED CHANNEL

