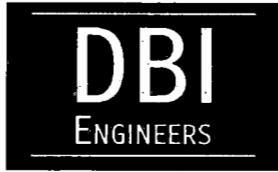


#15,050



FILED FOR RECORD
at 11:19 o'clock 2 M

APR 10 2018

JENNIFER LINDENZWEIG
County Clerk, Hunt County, TX
By Jennifer Lindenzweig

March 27, 2018

The Honorable Judge John Horn and County Commissioners
Hunt County
2507 Lee Street, 2nd Floor
Greenville, Texas 75401

RE: TxCDBG – STEP, Contract No. 7217006
Materials Bid Recommendation


Dear Judge Horn & Commissioners:

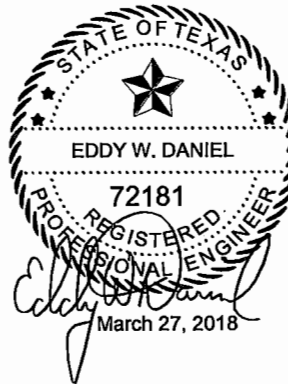
Attached please find the bid tabulation for the TxCDBG – STEP Grant Material Project. The bids were opened on Tuesday, March 13, 2018 at 2:00 pm. There were three bidders for the Project. The lowest responsible bidder was Ferguson, Tyler, TX. The lowest bid amount is \$62,529.71. The bid is within the budgeted amount for the project.

Ferguson has successfully supplied materials for other projects for Daniel & Brown Inc. in the past and as such DBI believes they have the experience and reputation to successfully fulfill the requirements of the project. It is the recommendation of Daniel & Brown Inc. to award the materials for this project to Ferguson in the amount of \$62,529.71.

If you should have any questions or need additional information, please feel free to contact me.

Sincerely,


Eddy Daniel, P.E.



DANIEL & BROWN INC.
118 MCKINNEY STREET | PO BOX 606 | FARMERSVILLE, TEXAS 75442
OFFICE 972-784-7777 | WWW.DBICONSULTANTS.COM
FIRM REGISTRATION NO: F-002225

Hunt County on behalf of Hickory Creek SUD

Bid Tabulation Form for the 2017 STEP Grant Waterline Improvement Project - Materials

Bid Date: Tuesday, March 13, 2018 @ 2:00 pm

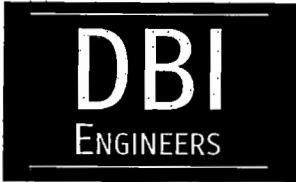
ITEM #	ITEM DESCRIPTION	✱ Ferguson Tyler, TX			Core & Main, LP Royse City, TX			Fortiline Waterworks Balch Springs, TX		
		Qty	Unit	Total	Qty	Unit	Total	Qty	Unit	Total
1	Furnish 4" SDR 21 PVC waterline with appurtenances	26,436	\$1.42	\$37,539.12	26,436	\$1.47	\$38,860.92	26,436	\$1.54	\$40,711.44
2	Furnish 8" SDR 35 PVC casing with spacers	470	\$2.99	\$1,405.30	470	\$8.89	\$4,178.30	470	\$12.25	\$5,757.50
3	Furnish 6" SDR-35 PVC pipe	196	\$1.55	\$303.80	196	\$1.77	\$346.92	196	\$1.86	\$364.56
4	Furnish 6" x 4" Domestic MJ tee with appurtenances	1	\$117.86	\$117.86	1	\$233.96	\$233.96	1	\$274.63	\$274.63
5	Furnish 4" Domestic MJ tee with appurtenances	5	\$160.69	\$803.45	5	\$199.06	\$995.30	5	\$196.00	\$980.00
6	Furnish 4" x 2" Domestic MJ tee with appurtenances	4	\$259.65	\$1,038.60	4	\$337.72	\$1,350.88	4	\$187.25	\$749.00
7	Furnish 3" Domestic MJ tee with appurtenances	1	\$162.07	\$162.07	1	\$184.69	\$184.69	1	\$335.50	\$335.50
8	Furnish 4" Domestic MJ gate valve with appurtenances	29	\$399.00	\$11,571.00	29	\$470.06	\$13,631.74	29	\$453.00	\$13,137.00
9	Furnish 2" threaded gate valve with Domestic restraints	2	\$214.86	\$429.72	2	\$237.07	\$474.14	2	\$269.50	\$539.00
10	Furnish 2" gate valve with appurtenances	4	\$288.89	\$1,155.56	4	\$302.03	\$1,208.12	4	\$294.00	\$1,176.00
11	Furnish 4" x 2" MJ domestic reducer with appurtenances	1	\$140.74	\$140.74	1	\$168.86	\$168.86	1	\$183.25	\$183.25
12	Furnish 3" x 1½" MJ domestic reducer with appurtenances	3	\$102.80	\$308.40	3	\$85.81	\$257.43	3	\$122.38	\$367.14
13	Furnish 4" MJ domestic 90 degree elbow with appurtenances	13	\$118.27	\$1,537.51	13	\$129.41	\$1,682.33	13	\$139.00	\$1,807.00
14	Furnish 4" MJ domestic 45 degree elbow with appurtenances	2	\$106.21	\$212.42	2	\$119.94	\$239.88	2	\$127.00	\$254.00

Hunt County on behalf of Hickory Creek SUD

Bid Tabulation Form for the 2017 STEP Grant Waterline Improvement Project - Materials

Bid Date: Tuesday, March 13, 2018 @ 2:00 pm

ITEM #	ITEM DESCRIPTION	Ferguson Tyler, TX			Core & Main, LP Royse City, TX			Fortiline Waterworks Balch Springs, TX		
		Qty	Unit	Total	Qty	Unit	Total	Qty	Unit	Total
15	Furnish flush hydrant	2	\$873.58	\$1,747.16	2	\$847.09	\$1,694.18	2	\$1,328.79	\$2,657.58
16	Furnish Calcium Hypochlorite solution	60	\$2.80	\$168.00	60	\$2.83	\$169.80	60	\$3.40	\$204.00
17	Furnish pipe lube	12	\$10.00	\$120.00	12	\$10.47	\$125.64	12	\$10.00	\$120.00
18	Furnish 16" x 16" x 4" solid concrete blocks	84	\$12.00	\$1,008.00	84	\$0.00	\$0.00	84	\$0.00	\$0.00
19	Furnish 80lb bags of Quik Crete Maximizer concrete	35	\$7.14	\$249.90	35	\$7.60	\$266.00	35	\$9.00	\$315.00
20	Furnish Ford (S71-403) saddles	20	\$27.03	\$540.60	20	\$27.31	\$546.20	20	\$30.00	\$600.00
21	Furnish Ford (f-1100) corp. stops	20	\$28.40	\$568.00	20	\$27.83	\$556.60	20	\$31.75	\$635.00
22	Furnish Ford (BA43-232WG-NL) angle valves	20	\$38.95	\$779.00	20	\$37.78	\$755.60	20	\$73.75	\$1,475.00
23	Furnish Ford (#51) inserts	60	\$1.25	\$75.00	60	\$1.35	\$81.00	60	\$1.55	\$93.00
24	Furnish ¼" CTS PE SDR-9 tubing	500	\$0.25	\$125.00	500	\$0.20	\$100.00	500	\$0.20	\$100.00
25	Furnish 6" water valve mushroom caps	35	\$12.10	\$423.50	35	\$27.89	\$976.15	35	\$19.00	\$665.00
	TOTAL OF ALL BID ITEMS (1 THRU 25)			\$62,529.71			\$69,084.64			\$73,500.60
	CALENDAR DAYS			35			21			



15,050

FILED FOR RECORD
at 2:00 o'clock P M

JUN 18 2018

JENNIFER LINDENZWEIG
County Clerk, Hunt County, TX
By *Jennifer Lindenzweig*

MEMO

TO: Judge John L. Horn
FROM: Stacey Jenkins, Administrative Assistant
DATE: June, 15, 2018
RE: 2017 STEP Grant Waterline Improvement Project – Materials
Hunt County of behalf of Hickory Creek SUD

Enclosed is your fully signed copy of the contract documents for the above referenced project.
If you should have any questions, please feel free to call our office.

Thank you,
Stacey

CONTRACT DOCUMENTS AND SPECIFICATIONS

FOR

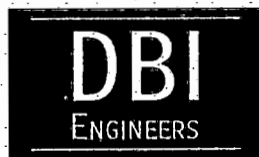
**2017 STEP GRANT WATERLINE IMPROVEMENT PROJECT
MATERIALS**

TO SERVE

HUNT COUNTY ON BEHALF OF HICKORY CREEK SUD

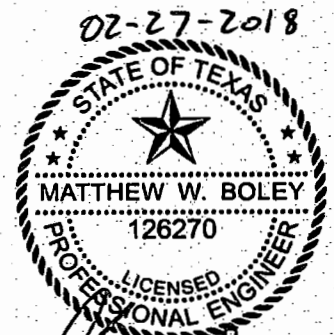
HUNT COUNTY, TEXAS

February 2018



DANIEL & BROWN INC.

PO BOX 606 | FARMERSVILLE, TEXAS 75442
972-784-7777 | FIRM REGISTRATION #: F-002225



M.W. Boley, P.E.

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Waterline Materials

Advertisement and Invitation for Bids

Hunt County on behalf of Hickory Creek SUD will receive bids for Materials for the 2017 TxCDBG STEP Grant Waterline Improvement Project #7217006 until 2:00 p.m. on Tuesday, March 13, 2018 at Daniel & Brown Inc., 118 McKinney Street, Farmersville, Texas 75442. The bids will be publicly opened and read aloud at 2:00 p.m. on Tuesday, March 13, 2018 at Daniel & Brown Inc., 118 McKinney Street, Farmersville, Texas 75442.

Bids are invited for the several items and quantities as follows:

1. Approximately 27,000 LF of 4" PVC Waterline
2. Appurtenances

Bid/Contract Documents, including Technical Specifications are on file at Daniel & Brown Inc., 118 McKinney Street, Farmersville, Texas 75442.

A bid bond in the amount of 5 percent of the bid issued by an acceptable surety is required with each bid for those contracts that exceed \$100,000. A certified check or bank draft payable to Hunt County on behalf of Hickory Creek SUD or negotiable U.S. Government Bonds (as par value) may be submitted in lieu of the Bid Bond.

Hunt County on behalf of Hickory Creek SUD reserves the right to reject any or all bids or to waive any informalities in the bidding.

Bids may be held by Hunt County on behalf of Hickory Creek SUD for a period not to exceed 60 days from the date of the bid opening for the purpose of reviewing the bids and investigating the bidders' qualifications prior to the contract award.

Hunt County on behalf of Hickory Creek SUD Judge John Horn February 22, 2018

All contractors and/or subcontractors who are debarred, suspended or otherwise excluded from or ineligible for participation on federal assistance programs may not undertake any activity in part or in full under this project.

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Materials/Equipment

Instructions to Bidders

1. Interpretations or Addenda

No oral interpretations will be made to any bidder. Each request for an interpretation shall be made in writing to Engineer no less than seven (7) days prior to the bid opening. Each interpretation made will be in the form of an Addendum to the contract documents and will be distributed to all parties holding contract documents no less than seven (7) days prior to the bid opening. It is, however, the bidder's responsibility to make inquiry as to any addenda issued. All such addenda shall become part of the contract documents and all bidders shall be bound by such addenda.

2. Alternate bid items

No alternate bids or bid items will be considered unless they are specifically requested by the technical specifications.

3. Bids

- a) All bids must be submitted on the forms provided and are subject to all requirements of the Contract Documents, including the Drawings.
- b) All bids must be regular in every respect and no interlineation, excisions or special conditions may be made or included by the bidder.
- c) Bid documents, including the bid, and the bid bond shall be sealed in an envelope and clearly labeled with the words "Bid Documents," the project number, name of bidder and the date and time of bid opening.
- d) The Grant Recipient may consider as irregular any bid on which there is an alteration of or departure from the bid form and, at its option, may reject any irregular bid.
- e) If a contract is awarded, it will be awarded to a responsible bidder on the basis of the lowest/best bid and the selected alternate bid items, if any.

4. Bid Modifications Prior to Bid Opening

Any Bidder may modify its bid in writing at any time prior to the scheduled closing time for receipt of bids, provided such modification is received by the Grant Recipient prior to the bid closing time. The modification should not reveal the bid price but should provide the addition, subtractions or other modifications so that the final prices or terms will not be known by the Grant Recipient until the sealed bid is open. Likewise, any Bidder may modify a bid by submitting a supplemental bid in person prior to the scheduled closing time for receipt of bids. Such supplemental bid should mention only additions or subtractions to the original bid so as to not reveal the final prices or terms to the Grant Recipient until the sealed bid is open.

5. Bid Bond

A bid bond in the amount of 5% of the bid issued by an acceptable surety is required with each bid for contracts that exceed \$100,000. A certified check or bank draft payable to the Grant Recipient or negotiable U.S. Government Bonds (as par value) may be submitted in lieu of the Bid Bond.

6. Corrections

Erasures or other corrections in the bid must be noted over the signature of the bidder.

7. Time for Receiving Bids

Bids received prior to the advertised hour of opening shall be kept securely sealed. The officer appointed to open the bids shall decide when the specified time has arrived and no bid received thereafter will be considered.

8. Opening of Bids

The Grant Recipient shall, at the time and place fixed for the opening of bids, publicly open and read aloud each bid, irrespective of any irregularities therein.

9. Withdrawal of Bids

Bidder may withdraw the Bid before the time fixed for the opening of Bids by communicating its purpose in writing to the Grant Recipient. Upon receipt of such notice, the unopened Bid will be returned to the Bidder. The bid guaranty of any bidder withdrawing his bid in accordance with the above will be returned promptly.

10. Award of Contract/Rejection of Bids

The contract will be awarded to the responsive, responsible Bidder submitting the lowest/best bid. The bidder selected will be notified at the earliest possible date. The Grant Recipient reserves the right to reject any or all bids where such rejection is in its interest.

11. Execution of Agreement

The failure of the successful bidder to execute the agreement and supply the required bonds thirty (30) days from the date of the notice of award, or within such extended period as the Grant Recipient may grant shall constitute a default and the Grant Recipient may, at its option either award the contract to the next lowest responsible bidder, or re-advertise for bids. In either case, the Grant Recipient may charge against the bidder the difference between the amount of the bid, and the amount for which a contract is subsequently executed irrespective of whether this difference exceeds the amount of the bid bond. If a more favorable bid is received through re-advertisement, the defaulting bidder shall have no claim against the Grant Recipient for a refund.

12. Equal Employment Opportunity

Bidder is required to ensure that employees and applicants for employment are not discriminated against because of race, color, religion, sex, sexual identity, gender identity, or national origin, and must comply with other civil rights requirements.

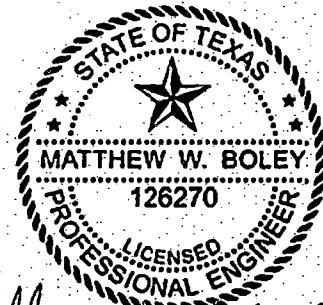
13. Certification Regarding Lobbying –

Contractors who apply or bid for an award of \$100,000 or more shall provide the required certification that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining an Federal contract, grant or any other award covered by 31 USC § 1352.

DBI
ENGINEERS

DATE: March 8, 2018
TO: Prospective Bidders
FROM: Daniel & Brown, Inc.
SUBJECT: Addendum #1
Hunt County/Hickory Creek SUD
2017 STEP Grant Waterline
Improvement Project - Materials

BID DATE: Tuesday, March 13, 2018, 2:00 P.M., at
Daniel & Brown Inc.
118 McKinney Street
Farmersville, TX 75442



Matthew W. Boley, P.E.
3-8-2018

Please find attached the following changes/additions/clarifications to the plans, contract documents and specifications for the Hunt County/Hickory Creek SUD 2017 STEP Grant Waterline Improvement Project - Materials:

1. All pipe shall be North American, Eagle, Diamond, or approved equal.
2. All gate valves shall be Mueller, American, M&H, Kennedy, or approved equal.
3. Flush hydrants shall be Eclipse #2, M&H Style 33, or approved equal.
4. All fittings and restraints shall be domestic.
5. Tracer wire and/or tracer tape shall not be required on this project.
6. The bid form has been revised. See attached revised bid form.

If you should have any questions please call 972-784-7777.

Page 1

BID FORM- REVISED 3-8-18

(NOTE: This Proposal must not be removed from this book of Contract Documents.)

DATE: _____

TO: **Hunt County on behalf of Hickory Creek SUD**

FROM: _____

Pursuant to the foregoing "Notice to Bidders," the undersigned bidder, having thoroughly examined the Contract Documents, including plans, specifications, the site of the project, furnish all material, except as specified to be furnished by **Hunt County on behalf of Hickory Creek SUD (hereinafter referred to as Owner)** which is necessary to fully complete all of the work as provided in the Contract Documents, including plans and specifications and subject to the inspection and approval of the **Owner** and Engineer.

The Bidder binds himself upon acceptance of this Proposal to execute a contract and furnish a 1-year guarantee, and such other bonds, as may be required by the Contract Documents for the performing and completing of said work.

The Bidder is familiar and satisfied with all federal, state, and local laws, regulations and conditions which may affect cost, progress and performance of the project.

The Bidder has given the **Owner** or Engineer written notice of any and all conflicts, errors, ambiguities, discrepancies or omissions in the Contract Documents and is satisfied with an acceptable resolution.

The Bidder has submitted a genuine bid and has not sought by collusion or any other method to obtain for itself any advantage over any other bidder or the **Owner**.

The Bidder acknowledges receipt of the following Addenda:

BID SCHEDULE

ITEM	EST. QTY.	UNIT	ITEM DESCRIPTION	UNIT PRICE	EXTENDED PRICE
1	26,436	LF	Furnish 4" SDR 21 PVC waterline with appurtenances as specified for the sum of: _____ _____ dollars & cents		
2	470	LF	Furnish 8" SDR 35 PVC casing with spacers as specified for the sum of: _____ _____ dollars & cents		
3	196	LF	Furnish 6" SDR-35 PVC pipe as specified for the sum of: _____ _____ dollars & cents		
4	1	EA	Furnish 6" x 4" Domestic MJ tee with appurtenances as specified for the sum of: _____ _____ dollars & cents		
5	5	EA	Furnish 4" Domestic MJ tee with appurtenances as specified for the sum of: _____ _____ dollars & cents		
6	4	EA	Furnish 4" x 2" Domestic MJ tee with appurtenances as specified for the sum of: _____ _____ dollars & cents		

ITEM	EST. QTY.	UNIT	ITEM DESCRIPTION	UNIT PRICE	EXTENDED PRICE
7	1	EA	Furnish 3" Domestic MJ tee with appurtenances as specified for the sum of: _____ _____ dollars & _____ cents		
8	29	EA	Furnish 4" Domestic MJ gate valve with appurtenances as specified for the sum of: _____ _____ dollars & _____ cents		
9	2	EA	Furnish 2" threaded gate valve with Domestic restraints as specified for the sum of: _____ _____ dollars & _____ cents		
10	4	EA	Furnish 2" gate valve with appurtenances as specified for the sum of: _____ _____ dollars & _____ cents		
11	1	EA	Furnish 4" x 2" MJ domestic reducer with appurtenances as specified for the sum of: _____ _____ dollars & _____ cents		
12	3	EA	Furnish 3" x 1½" MJ domestic reducer with appurtenances as specified for the sum of: _____ _____ dollars & _____ cents		

ITEM	EST. QTY.	UNIT	ITEM DESCRIPTION	UNIT PRICE	EXTENDED PRICE
13	13	EA	Furnish 4" MJ domestic 90 degree elbow with appurtenances as specified for the sum of: _____ _____ dollars & _____ cents		
14	2	EA	Furnish 4" MJ domestic 45 degree elbow with appurtenances as specified for the sum of: _____ _____ dollars & _____ cents		
15	2	EA	Furnish flush hydrant as specified for the sum of: _____ _____ dollars & _____ cents		
16	60	LB	Furnish Calcium Hypochlorite solution as specified for the sum of: _____ _____ dollars & _____ cents		
17	12	GAL	Furnish pipe lube as specified for the sum of: _____ _____ dollars & _____ cents		
18	84	EA	Furnish 16" x 16" x 4" solid concrete blocks as specified for the sum of: _____ _____ dollars & _____ cents		

ITEM	EST. QTY.	UNIT	ITEM DESCRIPTION	UNIT PRICE	EXTENDED PRICE
19	35	EA	Furnish 80lb bags of Quik Crete Maximizer concrete as specified for the sum of: _____ dollars & _____ cents		
20	20	EA	Furnish Ford (S71-403) saddles as specified for the sum of: _____ dollars & _____ cents		
21	20	EA	Furnish Ford (f-1100) corp. stops as specified for the sum of: _____ dollars & _____ cents		
22	20	EA	Furnish Ford (BA43-232WG-NL) angle valves as specified for the sum of: _____ dollars & _____ cents		
23	60	EA	Furnish Ford (#51) inserts as specified for the sum of: _____ dollars & _____ cents		
24	500	LF	Furnish 3/4" CTS PE SDR-9 tubing as specified for the sum of: _____ dollars & _____ cents		
25	35	EA	Furnish 6" water valve mushroom caps as specified for the sum of: _____ dollars & _____ cents		
TOTAL BASE BID PRICE (Items 1 through 25)					

The undersigned hereby declares he has carefully examined the contract documents relating to the delivery of materials by the above bid.

Upon receipt of notice of the acceptance of this bid, he will execute the formal contract attached within ten days. This bid security attached: _____ (\$ _____) is to become the property of **Owner** and do everything required to carry out the above-mentioned delivery of materials by this Proposal in strict accordance with the contract documents, and the requirements pertaining thereto, for the sums set forth above.

The undersigned agrees to deliver materials within 10 days after written notice to commence delivery, and to complete the contract within _____ calendar days after beginning delivery as set forth in the written work order to be furnished by **Owner**.

Respectfully submitted,

Signature

Printed Name & Title

Company Name

Address

Attest

License Number (if applicable)

(Seal - If Bidder a Corporation)

Telephone Number

Date

NOTE: Do not detach bid form from other documents. Fill in with ink and submit complete with attached papers.

BID FORM- REVISED 3-8-18

(NOTE: This Proposal must not be removed from this book of Contract Documents.)

DATE: 3-12-18

TO: **Hunt County on behalf of Hickory Creek SUD**

FROM: Ferguson

Pursuant to the foregoing "Notice to Bidders," the undersigned bidder, having thoroughly examined the Contract Documents, including plans, specifications, the site of the project, furnish all material, except as specified to be furnished by **Hunt County on behalf of Hickory Creek SUD (hereinafter referred to as Owner)** which is necessary to fully complete all of the work as provided in the Contract Documents, including plans and specifications and subject to the inspection and approval of the **Owner** and Engineer.


The Bidder binds himself upon acceptance of this Proposal to execute a contract and furnish a 1-year guarantee, and such other bonds, as may be required by the Contract Documents for the performing and completing of said work.

The Bidder is familiar and satisfied with all federal, state, and local laws, regulations and conditions which may affect cost, progress and performance of the project.

The Bidder has given the **Owner** or Engineer written notice of any and all conflicts, errors, ambiguities, discrepancies or omissions in the Contract Documents and is satisfied with an acceptable resolution.

The Bidder has submitted a genuine bid and has not sought by collusion or any other method to obtain for itself any advantage over any other bidder or the **Owner**.

The Bidder acknowledges receipt of the following Addenda:

Addenda 1 

BID SCHEDULE

ITEM	EST. QTY.	UNIT	ITEM DESCRIPTION	UNIT PRICE	EXTENDED PRICE
1	26,436	LF	Furnish 4" SDR 21 PVC waterline with appurtenances as specified for the sum of: <u>One</u> _____ dollars & <u>forty two</u> cents	1.42	37,539.12
2	470	LF	Furnish 8" SDR 35 PVC casing with spacers as specified for the sum of: <u>Two</u> _____ dollars & <u>ninety nine</u> cents	2.99	1405.30
3	196	LF	Furnish 6" SDR-35 PVC pipe as specified for the sum of: <u>One</u> _____ dollars & <u>fifty five</u> cents	1.55	303.80
4	1	EA	Furnish 6" x 4" Domestic MJ tee with appurtenances as specified for the sum of: <u>one hundred seventy one</u> _____ dollars & <u>eighty six</u> cents	117.86	117.86
5	5	EA	Furnish 4" Domestic MJ tee with appurtenances as specified for the sum of: <u>one hundred sixty</u> _____ dollars & <u>sixty nine</u> cents	160.69	803.45
6	4	EA	Furnish 4" x 2" Domestic MJ tee with appurtenances as specified for the sum of: <u>two hundred</u> <u>fifty nine</u> _____ dollars & <u>sixty five</u> cents	259.65	1038.60

ITEM	EST. QTY.	UNIT	ITEM DESCRIPTION	UNIT PRICE	EXTENDED PRICE
7	1	EA	Furnish 3" Domestic MJ tee with appurtenances as specified for the sum of: <u>One hundred</u> <u>Sixty two</u> dollars & <u>Seven</u> cents	162.07	162.07
8	29	EA	Furnish 4" Domestic MJ gate valve with appurtenances as specified for the sum of: <u>Three hundred</u> <u>ninety nine</u> dollars & <u>zero</u> cents	399.00	11,571.00
9	2	EA	Furnish 2" threaded gate valve with Domestic restraints as specified for the sum of: <u>Two hundred</u> <u>fourteen</u> dollars & <u>eighty six</u> cents	214.86	429.72
10	4	EA	Furnish 2" gate valve with appurtenances as specified for the sum of: <u>Two hundred</u> <u>eighty eight</u> dollars & <u>eighty nine</u> cents	288.89	1155.56
11	1	EA	Furnish 4" x 2" MJ domestic reducer with appurtenances as specified for the sum of: <u>One hundred</u> <u>forty</u> dollars & <u>seventy four</u> cents	140.74	140.74
12	3	EA	Furnish 3" x 1½" MJ domestic reducer with appurtenances as specified for the sum of: <u>One hundred two</u> dollars & <u>eighty</u> cents	102.80	308.40

ITEM	EST. QTY.	UNIT	ITEM DESCRIPTION	UNIT PRICE	EXTENDED PRICE
13	13	EA	Furnish 4" MJ domestic 90 degree elbow with appurtenances as specified for the sum of: <u>One hundred</u> <u>eighty seven</u> dollars & <u>Twenty seven</u> cents	118.27	1537.51
14	2	EA	Furnish 4" MJ domestic 45 degree elbow with appurtenances as specified for the sum of: <u>One hundred six</u> dollars & <u>Twenty one</u> cents	106.21	212.42
15	2	EA	Furnish flush hydrant as specified for the sum of: <u>eight hundred</u> <u>seventy three</u> dollars & <u>fifty eight</u> cents	873.38	1747.16
16	60	LB	Furnish Calcium Hypochlorite solution as specified for the sum of: <u>Two</u> dollars & <u>eighty</u> cents	2.80	168.00
17	12	GAL	Furnish pipe lube as specified for the sum of: <u>Ten</u> dollars & cents	10.00	120.00
18	84	EA	Furnish 16" x 16" x 4" solid concrete blocks as specified for the sum of: <u>Twelve</u> dollars & cents	12.00	1008.00

ITEM	EST. QTY.	UNIT	ITEM DESCRIPTION	UNIT PRICE	EXTENDED PRICE
19	35	EA	Furnish 80lb bags of Quik Crete Maximizer concrete as specified for the sum of: <u>Seventeen</u> _____ dollars & <u>fourteen</u> cents	7.14	249.90
20	20	EA	Furnish Ford (S71-403) saddles as specified for the sum of: <u>Twenty Seven</u> _____ dollars & <u>three</u> cents	27.03	540.60
21	20	EA	Furnish Ford (f-1100) corp. stops as specified for the sum of: <u>Twenty eight</u> _____ dollars & <u>forty</u> cents	28.40	568.00
22	20	EA	Furnish Ford (BA43-232WG-NL) angle valves as specified for the sum of: <u>Thirty eight</u> _____ dollars & <u>ninety six</u> cents	38.95	779.00
23	60	EA	Furnish Ford (#51) inserts as specified for the sum of: <u>one</u> _____ dollars & <u>twenty five</u> cents	1.25	75.00
24	500	LF	Furnish 3/4" CTS PE SDR-9 tubing as specified for the sum of: _____ dollars & <u>twenty five</u> cents	25	125.00
25	35	EA	Furnish 6" water valve mushroom caps as specified for the sum of: <u>twelve</u> _____ dollars & <u>ten</u> cents	12.10	423.50
TOTAL BASE BID PRICE (Items 1 through 25)					62,529.71

The undersigned hereby declares he has carefully examined the contract documents relating to the delivery of materials by the above bid.

Upon receipt of notice of the acceptance of this bid, he will execute the formal contract attached within ten days. This bid security attached: _____ (\$ _____) is to become the property of **Owner** and do everything required to carry out the above-mentioned delivery of materials by this Proposal in strict accordance with the contract documents, and the requirements pertaining thereto, for the sums set forth above.

The undersigned agrees to deliver materials within 10 days after written notice to commence delivery, and to complete the contract within 35 calendar days after beginning delivery as set forth in the written work order to be furnished by **Owner**.

Respectfully submitted,



Signature

Daniel Prinz Branch manager

Printed Name & Title

Ferguson

Company Name

7982 Hwy 69 N

Tyler TX 75706

Address

Attest

(Seal - If Bidder a Corporation)

License Number (if applicable)

903-508-6341

Telephone Number

3-12-17

Date

NOTE: Do not detach bid form from other documents. Fill in with ink and submit complete with attached papers.

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 it desires.

Date: 5.7.2018

Bidder (Legal Name of Firm): FERGUSON ENTERPRISES

Date Organized: 1958

Address: 12500 JEFFERSON AVE
NEWPORT NEWS VA 23602

Date Incorporated: 54-1211771

Federal ID Number: 54.1211771

Number of Years in contracting business under present name: 25

List all other names under which your business has operated in the last 10 years:

FERGUSON WATERWORKS EULESS, TX 76040

Work Presently Under Contract:

Contract	Amount \$	Completion Date
<u>MERFORD TX</u>	<u>200K</u>	<u>12/2017</u>
<u>LINDALE TX</u>	<u>200K</u>	<u>12/2017</u>

Type of work performed by your company: MATERIAL SUPPLY

Total Staff employed by Firm (Break down by Managers and Trades on separate sheet):

N/A

Have you ever failed to complete any work awarded to you? Yes No
(If yes, please attach summary of details on a separate sheet. Include brief explanation of cause and resolution)

Have you ever defaulted on a contract? Yes No
(If yes, please attach summary of details on a separate sheet.)

Has your organization had any disbarments or suspensions that have been imposed in the past five years or that was still in effect during the five year period or is still in effect? Yes No

(If yes, list and explain; such list must include disbarments and suspensions of officers, principals, partners, members, and employees of your organization.)

List the projects most recently completed by your firm (include project of similar importance):

Project	Amount \$	Mo/Yr Completed
<u>STEWART CREEK WWTP</u>	<u>4.0M</u>	<u>7/2018</u>
<u>GAINESVILLE WWTP</u>	<u>400K</u>	<u>3/2018</u>
<u>CRWS ELM FORK</u>	<u>300K</u>	<u>3/2018</u>

Major equipment available for this contract: N/A

Are you in compliance with all applicable EEO requirements? Yes No
(If no, please attach summary of details on a separate sheet.)

Bank References

Address: N/A Contact Name: _____

City & State: _____ Zip: _____ Phone Number: _____

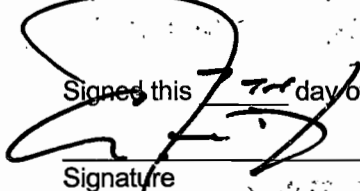
Credit available: \$ _____

Has the firm or predecessor firm been involved in a bankruptcy or reorganization? Yes No
(If yes, please attach summary of details on a separate sheet.)

List on a sheet attached hereto all judgements, claims, arbitration proceedings, or suits pending or outstanding against bidder over the last five (5) years with amount of claim and brief description.

List on a sheet attached hereto all lawsuits or requested arbitration with regard to construction contracts which bidder has initiated within the last five (5) years and brief explanation of claim and outcome.

Attach resume(s) for the principal member(s) of your organization, including the officers as well as the proposed superintendent for the project.

Signed this 7th day of May, 2018


Signature

CARRIE TUINSTRA Q.M.

Printed Name and Title

FERGUSON

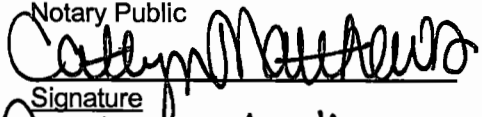
Company Name

Notary Statement:

CARRIE TUINSTRA, being duly sworn, says that he/she is the Q.M. Position/Title of FERGUSON (Firm Name), and hereby swears that the answers to the foregoing questions and all statements therein contained are true and correct. He/she hereby authorizes and requests any person, firm, or corporation to furnish any information requested City/County of COLLIN / TX. in verification of the recitals comprising this Statement of Bidder's Qualifications.

Subscribed and sworn before me this 07 day of May, 2018.

Notary Public



Signature

Catlyn Matthews

Printed Name



My Commission Expires 07-14-18

The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

NOTICE OF AWARD

DATE: April 27, 2018
TO: Ferguson
ADDRESS: 7982 Hwy 69 N Tyler, Texas 75706
OWNER: Hunt County on behalf of Hickory Creek SUD
(herein after referred to as Owner).

PROJECT: **2017 STEP Grant Waterline Improvement Project - Materials**

You are hereby notified that your bid dated March 12, 2018 for the above project has been considered. You are the apparent successful Bidder and have been awarded the contract for:

2017 STEP Grant Waterline Improvement Project - Materials

The contract price of your contract is Sixty two thousand five hundred twenty nine and 71/100 Dollars (\$62,529.71).

Three (3) copies of the proposed Contract Documents (except drawings) accompany this Notice of Award. You are required by the Information to Bidders to execute and return the three (3) copies of the Contract Agreement within ten (10) calendar days from the date of this Notice of Award to you.

Failure to comply with these conditions within the time specified will entitle the Owner to consider your bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

Within ten (10) days after you comply with those conditions, the Owner will return to you one (1) fully signed counterpart of the Contract Agreement with the Contract Documents attached.

Hunt County on behalf of Hickory Creek SUD

By: John L. How
Title: County Judge

F324050
Contractor
By: [Signature]
Title: GENERAL MGR.

HUNT COUNTY ON BEHALF OF HICKORY CREEK SUD
STANDARD FORM OF AGREEMENT
FOR OWNER-SUPPLIER PROJECTS

STATE of TEXAS }

HUNT COUNTY }

THIS AGREEMENT, made and entered into this 15th day of May, A.D. 2018, by and between Hunt County on behalf of Hickory Creek SUD of Hunt County in the STATE OF TEXAS, thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and Ferguson of the City of Tyler County of Smith in the State of Texas, Party of the Second Part, hereinafter termed SUPPLIER.

WITNESSETH: That for and inconsideration of the payments and agreements hereinafter mentioned, to be made and performed by the Party of the First Part (OWNER), the said Party of the Second Part (SUPPLIER), hereby agrees with the said Party of the First Part (OWNER) to provide the materials for the construction of certain improvements described as follow:

2017 STEP Grant Waterline Improvement Project - Materials

in accordance with the specifications, other drawings or any printed or written explanatory matter as prepared by Daniel and Brown, herein entitled the ENGINEER, each of which has been identified by the SUPPLIER and the ENGINEER, together with the SUPPLIER'S written quote, all of which are made a part hereof and collectively evidence and constitute the entire contract.

The SUPPLIER hereby agrees to supply materials within ten (10) calendar days after the date written notice to do so shall have been given to him.

The OWNER agrees to pay the SUPPLIER in current funds the price or prices shown in the small purchase procurement record, which forms a part of this contract.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

Hunt County on behalf of Hickory Creek SUD

Party of the First Part (OWNER)

Printed name: Judge John Horn

By: [Signature]

ATTEST: [Signature]

Ferguson

Party of the Second Part (SUPPLIER)

Printed name: EMERIL WINSTON

By: [Signature]

ATTEST: [Signature]

NOTICE TO PROCEED

DATE: May 15, 2018

TO: Ferguson

ADDRESS: 7982 Hwy 69 N
Tyler, Texas 75706

OWNER: Hunt County on behalf of Hickory Creek SUD
(herein after referred to as Owner).

PROJECT: Construction of 2017 STEP Grant Waterline Improvements Project -
Materials

You are hereby notified that the Contract Times under the above contract will commence
to run on May 21, 2018.

By that date, you are to start performing your obligations under the Contract Agreement.
You are to complete the work within the time specified in Article 3 of the Contract
Agreement.

Hunt County on behalf of Hickory Creek SUD

By: [Signature]

Title: County Judge

ACCEPTANCE OF NOTICE

Ferguson
Supplier

By: [Signature]

Title: General MGR.

Date: 5.7.2018

Certification Regarding Lobbying

(To be submitted with each bid or offer exceeding \$100,000)

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (c) The undersigned shall require that the language paragraph 1 and 2 of this anti-lobbying certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995).

The Contractor, Ferguson, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 ~~et seq.~~, apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

Daniel Prime Branch manager
Printed Name and Title of Contractor's Authorized Official

ATTORNEY'S REVIEW CERTIFICATION

I, the undersigned, DANIEL RAY, the duly authorized and acting legal representative of the COUNTY OF HUNT, TEXAS, do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and am of the opinion that each of the agreements may be duly executed by the proper parties, acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties; and that the agreements shall constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Attorney's signature:  Date: 5/25/2018

Print Attorney's Name: DANIEL RAY

Texas State Bar Number: 24046685

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Materials

General Contract Conditions

1. Materials and Workmanship

- a) Unless otherwise specifically provided for in the Technical Specifications, all materials and articles utilized in the work shall be new and the best grade available. Where equipment, materials, or articles are referred to in the Technical Specifications as "equal to" any particular standard, the Engineer shall decide the question of equality.
- b) The successful bidder shall furnish to the Grant Recipient for approval the manufacturer's detailed specifications for all mechanical, other special equipment and all materials or articles, together with full information as to type, performance characteristics, and all other pertinent information as required.
- c) Materials specified by reference to the number or symbol of a specific standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in the Technical specifications shall have full force and effect as though printed therein.

2. Samples and Tests

- a) Approval of any materials shall be general only and shall not constitute a waiver of the Grant Recipient's right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval.
- b) Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:
 - The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer;
 - The Contractor shall assume all costs of re-testing materials which fail to meet contract requirements;
 - The Contractor shall assume all costs of testing materials offered in substitution for those found deficient; and
 - The Grant Recipient will pay all other expenses.

3. Compliance with Clean Air and Federal Water Pollution Control Acts [for contracts > \$150K]

- a) Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 et. seq., and the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251-1387. Violations must be reported to the awarding agency and the Regional Office of the Environmental Protection Agency (EPA).
- b) Materials shall be free of any hazardous materials, except as may be specifically provided for in the specifications.

4. Equal Opportunity Clause

- a) The Contractor hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR chapter 60, which is paid for in whole or in part with Community Development Block Grant funds the following equal opportunity clause:

During the performance of this contract, the contractor agrees as follows:

- (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, 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 employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (2) 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 considerations for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The Contractor will not discourage or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
- (4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct

as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

- b) The Contractor further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive order. In addition, the Contractor agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

5. Section 109 of the Housing and Community Development Act of 1974

No person in the United States shall on the ground of race, color, national origin, religion, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title.

6. Age Discrimination Act of 1975. The Contractor shall comply with the Age Discrimination Act of 1975 which provides that no person in the United States shall on the basis of age be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

7. Debarment and Suspension (Executive Orders 12549 and 12689)

A contract award (see 2 CFR 180.220) must not be made to parties listed on the government-wide Excluded Parties List System in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR Part 1986 Comp., p. 189) and 12689 (3 CFR Part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

8. Access to Records

The U.S. Department of Housing and Urban Development (HUD), Inspectors General, the Comptroller General of the United States, and the Texas Department of Agriculture (TDA), and the City/County, or any of their authorized representatives, shall have access to any documents, papers, or other records of the Contractor which are pertinent to the TxCDBG award, in order to make audits, examinations, excerpts, and transcripts and to closeout the City's/County's TxCDBG contract with TDA.

9. Retainage of Records [if materials are paid with CDBG funds]

Grantees or subgrantees must retain all required records for three years after grantees or subgrantees make final payments and all other pending matters are closed.

10. Termination for Cause [for Contracts > \$10K]

If the Contractor fails to fulfill in a timely and proper manner its obligations under this Agreement, or if the Contractor violates any of the covenants, conditions, agreements, or stipulations of this Agreement, the City/County shall have the right to terminate this Agreement by giving written notice to the Contractor of such termination and specifying the effective date thereof, which shall be at least five days before the effective date of such termination. In the event of termination for cause, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs and reports prepared by the Contractor pursuant to this Agreement shall, at the option of the City/County, be turned over to the City / County and become the property of the City / County. In the event of termination for cause, the Contractor shall be entitled to receive reasonable compensation for any necessary services actually and satisfactorily performed prior to the date of termination.

Notwithstanding the above, the Contractor shall not be relieved of liability to the City/County for damages sustained by the City/County by virtue of any breach of contract by the Contractor, and the City/County may set-off the damages it incurred as a result of the Contractor's breach of contract from any amounts it might otherwise owe the Contractor.

11. Termination for Convenience of the City/County.[for Contracts > \$10K]

City/County may at any time and for any reason terminate Contractor's services and work at City/County's convenience upon providing written notice to the Contractor specifying the extent of termination and the effective date. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.

Upon such termination, Contractor shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement; plus, (2) such other costs actually incurred by Contractor as are permitted by the prime contract and approved by City/County; (3) plus ten percent (10%) of the cost of the work referred to in subparagraph (1) above for overhead and profit. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Contractor prior to the date of the termination of this Agreement. Contractor shall not be entitled to any claim or claim of lien against City/County for any additional compensation or damages in the event of such termination and payment.

11. Liquidated Damages

Since the actual damages for any delay under this contract are impossible to determine, the Contractor [Text deleted] shall be liable for and shall pay to the Grant Recipient the sum of Two hundred and 00/100 Dollars (~~\$200.00~~) as fixed, agreed and liquidated damages for each calendar day of delay from the above stipulated time for delivery.

12. [For Contracts that exceed \$100,000] Anti-Lobbying

Contractor shall file the required certification: The undersigned certifies, to the best of his or her knowledge and belief, that:

- (a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a

Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

- (b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

13. Resolution of Program Non-compliance and Disallowed Costs

In the event of any dispute, claim question, or disagreement arising from or relating to this Agreement, or the breach thereof, including determination of responsibility for any costs disallowed as a result of non-compliance with federal, state or TxCDBG program requirements, the parties hereto shall use their best efforts to settle the dispute, claim, question or disagreement. To this effect, the parties shall consult and negotiate with each other in good faith within 30 days of receipt of a written notice of the dispute or invitation to negotiate, and attempt to reach a just and equitable solution satisfactory to both parties. If the matter is not resolved by negotiation within 30 days of receipt of written notice or invitation to negotiate, the parties agree first to try in good faith to settle the matter by mediation administered by the American Arbitration Association under its Commercial Mediation Procedures before resorting to arbitration, litigation, or some other dispute resolution procedure. The parties may enter into a written amendment to this Agreement and choose a mediator that is not affiliated with the American Arbitration Association. The parties shall bear the costs of such mediation equally. [This section may also provide for the qualifications of the mediator(s), the locale of meetings, time limits, or any other item of concern to the parties.] If the matter is not resolved through such mediation within 60 days of the initiation of that procedure, either party may proceed to file suit.

SECTION 205 WATERLINE INSTALLATION

PART 1 - GENERAL

1.1 SCOPE OF WORK

This work consists of constructing water mains and service branches, including fire hydrants, water meters, service stops, valves, fittings and boxes. The CONTRACTOR shall provide all tools and equipment required for installing these items. The work also includes furnishing all materials, excavating, bedding, laying pipe, jointing, backfilling, hydrostatic testing, disinfection, restoration of disturbed facilities and surfaces, line (location) and grade, disposal of all surplus excavation and discarded materials, and other work necessary to complete the items. In the event of a conflict between this specification and the project plans (drawings) then the plans will take precedence.

1.2 JOB CONDITIONS

A. Control of Water: Provide sufficient pumping equipment in good working order, available at all times, to remove any water that accumulates in excavations. Where the waterline crosses natural drainage channels, conduct work in such a manner that unnecessary damage or delays in the prosecution of the work will be prevented. Make provisions for the satisfactory disposal of surface water pumped so as to prevent damage to public or private property.

B. Protection of Existing Utilities: It shall be the responsibility of the CONTRACTOR to verify the existence and location of all underground utilities along the route of the work. The omission from or the inclusion of utility locations on the Plans is not being considered as the non-existence of, or a definite location of existing underground utilities.

The CONTRACTOR shall take the necessary precautions to protect existing utilities from damage due to his operations. The CONTRACTOR shall notify DIG TESS, Texas One-Call System, and all other utility locator services to request utility locates. In addition, other utilities within the project area shall be notified to locate their utilities. CONTRACTOR shall keep a notebook of all location requests. Each notation will contain the following information: Date, Time, Brief Location Summary, Request ID Number, and Call Back Repair Number. Any damage to the utilities, whether marked or unmarked, will be repaired at the CONTRACTORS expense.

C. Protection of Trees, Plants and Shrubbery:

1. Where trees, plants and shrubbery are adjacent to the line of the work and are not to be removed and replaced, protect such trees, plants, shrubbery, etc., by substantial wooden boxes and guards and do not permit machinery or employees to scrape, tear the limbs from or damage or attach guy cables to them and if, in the opinion of the ENGINEER, such trees, plants and shrubbery would be damaged by machinery, etc., hand excavation may be required. The CONTRACTOR shall be responsible for all damages to adjacent trees, plants and shrubbery.

2. Where waterlines cross lawns, remove the sod for the full width of the excavation. Lawns are defined as those areas where, in the opinion of the ENGINEER, grasses such as Bermuda, St. Augustine, Fescue or other similar grasses generally cover the area being excavated and generally have been kept mowed to a height of 6" or less. Remove sod in squared cut out with a sharp spade, and of such sizes that they may be handled conveniently without breaking. The sod shall be removed in one layer not less than 3" in depth, and shall be carefully stored and given proper attention. During hot, dry weather, the stored sod shall be protected by covering with canvas or burlap. After backfilling is completed, replaced sod, tamp and water sod thoroughly.

D. Protection of Streets and Roadways:

1. Where waterlines cross public streets, no more than one-half of the street may be closed at one time and that one-half for only 24 hours. Where waterlines cross plant roadways, an all access road shall be constructed if required to maintain access to any facility served by the severed road. Cover trenches crossing roadways and streets with 1" minimum thickness steel plates until backfill is complete and compacted. On heavily traveled streets as determined by the ENGINEER, steel plates are to remain in place until street pavement

repair is completed. After backfilling trenches in roadways and streets (either crossing or parallel), keep roadways and streets passable at all times. Cover and maintain the top of the trench with at least 4" of compacted flexible base until pavement repair is complete. Keep top of ditch elevation within plus or minus 2" of elevation of adjacent roadway or street. The work described above is not a separate pay item and the cost of labor and materials required to protect streets and roadways is to be included in the lump sum amount or unit price, as applicable.

2. Protect existing pavement, including plant roadways, from damage from heavy equipment and vehicles with lugs throughout construction. Saw cut pavement with a concrete saw before beginning excavation. Saw cuts are to be straight and parallel to the line of work.

1.3 GUARANTEE

- A. Guarantee the backfilling of excavation and trenches against excessive (as determined by the ENGINEER) settlement for a period of one year after the final completion of the contract under which the work is performed.
- B. Guarantee the backfilled ditch against erosion and erosional rivulets exceeding 3" in depth. The CONTRACTOR may, at his own cost, place erosion protection including jute mats, sodding, seeding and the like on erosion prone areas.
- C. Make all repairs or replacements necessary by settlement or erosion including refilling and compacting the upper portion of the ditch and repairing broken or settled pavements within ten (10) days after notice from the ENGINEER or OWNER.

1.4 PAYMENT FOR COMPLETED PORTIONS

The OWNER will pay for ninety-five (95%) percent of the actual quantity of pipe laid and backfilled. The remainder shall be held in retainage.

1.5 STANDARD SPECIFICATIONS

All work related to this specification shall fully conform to the requirements of the latest published editions of the following Standard Specifications:

- Texas Department of Transportation Standards for Construction of Highways, Streets and Bridges
- ANSI B16.5 Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch
- ASTM 1557 Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³))
- ASTM A252 Welded and Seamless Steel Pipe Piles
- ASTM A536 Ductile Iron Castings
- ASTM B88M Seamless Copper Water Tube
- ASTM B584 Copper Alloy Sand Castings for General Applications
- ASTM C94 Ready-Mixed Concrete
- ASTM D1751 Preformed Expansion Joint Filler for Concrete Paving and Structural Construction
- ASTM D2241 Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)
- ASTM F477 Elastomeric Seals (Gaskets) for Joining Plastic Pipe
- ASTM F1483 Oriented Poly(Vinyl Chloride), PVCO, Pressure Pipe
- AWWA C104 Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
- AWWA C110 Ductile-Iron and Gray-Iron Fittings
- AWWA C111 /A21.11-17 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- AWWA C150 Thickness Design of Ductile-Iron Pipe

- AWWA C151 Ductile-Iron Pipe, Centrifugally Cast
- AWWA C153 Ductile-Iron Compact Fittings
- AWWA C502 Dry-Barrel Fire Hydrants
- AWWA C515 Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service
- AWWA C600 Installation of Ductile-Iron Mains and Their Appurtenances
- AWWA C605 Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings
- AWWA C651 Disinfecting Water Mains
- AWWA C700 Cold-Water Meters - Displacement Type, Metal Alloy Main Case
- AWWA C800 Underground Service Line Valves & Fittings
- AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution
- AWWA C901 Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) through 3 In. (76 mm), for Water Service
- AWWA C905 Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 in. Through 48 in. (350 mm through 1,200 mm), for Water Transmission and Distribution
- AWWA C909 Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 In. through 24 In. (100 mm through 600 mm) for Water, Wastewater, and Reclaimed Water Service
- NSF 60 Drinking Water Treatment Chemicals
- NSF 61 Drinking Water System Components – Health Effects
- WW-V-58 Iron Valve
- WW-V-54 Bronze Valve

PART 2 - PRODUCT

2.1 CONCRETE AND REINFORCING STEEL DESCRIPTION

This section covers the materials and installation of concrete and reinforced concrete for paving, structures, slabs, riprap, blocking and encasement.

- A. Concrete: Concrete materials and construction methods should conform to Texas Department of Transportation Standards for Construction of Highways, Streets and Bridges except as modified and amended below.

Concrete for manhole base construction, blocking and encasement shall be Class B concrete with a maximum slump of 4".

Concrete for structures and riprap shall be Class A concrete with a maximum slump of 3".

Exposed concrete slabs shall have a steel troweled finish. Exposed riprap shall be float finished.

Concrete for paving shall be Class A concrete with a slump of 1" to 3".

The concrete finish for walking surfaces exposed to the weather shall be broom finished.

- B. Reinforcing Steel: Reinforcing steel shall conform to Texas Department of Transportation Standards for Construction of Highways, Streets and Bridges, Item 440, Grade 60.
- C. Expansion Joint: Expansion joint material shall be 1/2" asphalt impregnated fiberboard conforming to ASTM D1751.
- D. Testing: Compression strength tests shall be performed on all reinforced concrete. The CONTRACTOR shall retain an approved testing laboratory which shall make one compression test set of three cylinders for each day's run or separate pour. Cylinders shall be continuously

cured in water until tested. The CONTRACTOR shall pay for and provide two (2) copies of test results to the ENGINEER.

2.2 PIPE MATERIALS

No materials shall be utilized which have been used for any purpose other than the conveyance of drinking water. All materials covered in this specification shall be of domestic origin only, unless noted otherwise. Similarly, all materials in this specification shall be American National Standards Institute/National Sanitation Foundation (ANSI/NSF) and American Water Works Association (AWWA) approved. Materials utilized shall conform to applicable current American Society of Testing Materials (ASTM) Standards. The pipe shall be transported to the job site by acceptable transportation methods and the front end of the pipes shall be covered with a tarp to prevent foreign materials from entering pipes. Each load of pipe and other materials delivered to the job-site will be inspected, before unloading, by the INSPECTOR or ENGINEER to assure that it meets specifications. The ENGINEER or OWNER shall have the right to reject any load of pipe that he feels does not meet the specifications. It will be the CONTRACTOR's and pipe manufacturer's responsibility to determine if any laboratory testing is warranted. The cost of any such testing will be borne by the CONTRACTOR. Any pipe with bell or gasket damage shall be immediately rejected and replaced at no additional cost to the OWNER.

The use of pipes and pipe fittings that contain more than 0.25% lead or solder and flux that contains more than 0.2% lead is prohibited.

All plastic pipe used in public water systems must also bear the National Sanitation Foundation Seal of Approval (NSF-pw) and have an ASTM design pressure rating of at least 150 psi or a standard dimension ratio of 26 or less.

PVC Pipe Materials: PVC pipe shall conform to AWWA C900, AWWA C905, AWWA C909 (Molecularly Oriented Polyvinyl Chloride (PVCO), C.I.O.D.), ASTM F1483 (Molecularly Oriented Polyvinyl Chloride (PVCO), I.P.S.) or ASTM D2241. Pipe joints shall be push-on type with a thickened bell, and shall conform to ASTM D3139 with a rubber gasket conforming to ASTM F477.

Qualification for potable-water service: PVC, PE, or PB compounds used to make pipe and couplings, as well as solvent cements used, shall contain no ingredient in an amount that has been demonstrated to migrate into water in quantities considered to be toxic, as tested in accordance with Sections 3 and 4 of National Sanitation Foundation (NSF) Standard Number 14. Such compounds or products shall be tested and certified as suitable for portable-water distribution products by the NSF Testing Laboratory or the Canadian Standards Association Testing Laboratory, or any other similarly accredited testing agency acceptable to the Laboratory.

- A. Steel Pipe Materials: Steel casing pipe shall conform to ASTM A252 Grade 2 with a minimum wall thickness of 0.250 inch.
- B. Ductile Iron Pipe Materials: Ductile iron pipe shall conform to ANSI/AWWA C151/A21.51 and to ANSI/AWWA C150/A21.50 for thickness design. The pipe shall be furnished with a cement mortar lining conforming to ANSI/AWWA C104/A21.4. A gasket conforming to ANSI/AWWA for each length of pipe and suitable for the type of joint of the pipe shall be furnished and shipped in a separate container.

Push-on and mechanical joints shall conform to ANSI/AWWA C111/A21.11.

Boltless restrained joints shall conform to ANSI/AWWA C111/A21.11. The restraint shall be an approved design which provides a positive lock against joint separation. Steel locking segments molded into a gasket to grip the pipe do not meet the requirements for this joint.

Ball and socket joints are suited for underwater installations and may be used for other types of installations where an appreciable amount of joint deflection and a positive lock against joint separation are required.

Fittings for ductile iron pipe shall be manufactured in accordance with ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53, and ANSI/AWWA C111/A21.11. Fittings 406 mm (16-inch) or larger shall be manufactured of ductile iron only. Fittings shall be cement mortar lined in accordance with ANSI/AWWA C104/A21.4.

- C. Polyethylene Pipe Materials: PE pipe and fittings shall conform to AWWA C901. The pressure class shall be 200 unless otherwise indicated on the plans. Material shall be furnished with plain ends and meet the requirements of DR9 IPS for potable waterlines.
- D. Copper Tubing Materials: Copper service branches shall conform to ASTM B88M (B 88) Type K, and be assembled using flare-type compression fittings conforming in AWWA C800. Minimum working pressure for the branches shall be 1.0 MPa (150 psi). The material shall be either coil type (temper 060 annealed) or drawn type (temper H).
Fittings for copper service branches shall be high quality copper brass with AWWA C800 dimensions.
- F. Brass Materials: Brass shall conform to ANSI B16.5 and ASTM B584.

2.3 FIRE HYDRANTS:

Fire hydrants shall be Mueller or approved equal, and shall conform strictly to AWWA C502, with the following changes or additions and supplementary details where applicable:

- Type of shut-off shall be compression.
- Inlet connection shall be 6" standard mechanical joint, complete with all joint accessories. Inlet valve shall have not less than a 5" opening.
- All hydrants shall be equipped with two 2-2" hose nozzles and one 4-2" steamer nozzle.
- The hydrant bury shall be 3-2" plus the diameter of the main to which it is connected, rounded to the nearest half foot or as shown on plans.
- A drain opening will be required and drain valves operating by springs or gravity is not acceptable.
- All fire hydrants shall open by turning to the left (counterclockwise).
- All fire hydrants shall be primed with a suitable rust inhibiting metal primer. After installation, hydrants shall be painted with two coats of bright red machinery enamel or color as indicated on plans.
- The body of the hydrant shall be equipped with a breakable flange, or breakable cast iron flange bolts just above the grade line.
- All hydrants shall be of such design as will permit their extension without excavating in case of future grade changes.
- The complete hydrant shall be of such design that when the hydrant barrel is broken through traffic collision, it may be replaced without excavating or breaking the pavement. The barrel and operating mechanism shall be so designed that in case of accident, damage or breaking of the hydrant above or near the grade level, the main valve will remain reasonably tight against leakage or flooding.
- All hydrant installations shall include a swivel coupling as may be necessary.
- Fire hydrants shall be located as shown on the plans or as directed by the ENGINEER and shall be set truly vertical at finish grade height with the base resting up on a stone or concrete slab four (4) inches thick approximately twenty-four (24) inches square. The base of the hydrant shall be surrounded by not less than five (5) cubic feet of clean crushed stone or gravel, size one (1) inch to two (2) inches. Pipe joints shall be made as specified for pipe laying. The hydrants shall be carefully and substantially blocked against firm trench walls with sound stone, sound slabs of old concrete or 2,000 psi concrete, but no additional pay will be allowed for same.
- Where required by local code requirements or as shown on the plan sheets, street reflectors indicating the presence of a fire hydrant shall be installed.
- All fire hydrants shall be painted in accordance with the local code requirements, manufacturer's specifications, and OWNER's requirements unless otherwise shown on the plan sheets.

2.4 SERVICE LINES:

The service lines shall be as follows: ¾" and 1" -- Type K Copper or HDPE Polyethylene 1-2" and larger -- Type K Copper, HDPE Polyethylene, or 200 psi PVC or other material as may be shown on the plans.

2.5 METER BOXES:

Meter boxes shall be as indicated on the plan sheets and approved by the ENGINEER or OWNER.

2.6 VALVES

- A. Gate Valves: Gate valves shall be designed for a minimum water working pressure of not less than 150 psi. Valves shall be FIP, Flanged or MJ as required for the piping in which they are installed. Valves shall be resilient seat only. Gate valves shall have a clear waterway equal to the full nominal diameter of the valve, and shall be opened by turning counterclockwise. The operating nut (underground) or wheel (above ground) shall have an arrow, cast in the metal, indicating the direction of opening. Each valve shall have the maker's initials, pressure rating and a year of manufacture cast on the body. Prior to shipment from the factory, each valve shall be tested by hydraulic pressure equal to twice the specified hydrostatic working pressure. Valves two inches and larger shall be square operating nut, brass mounted, double disc, non-rising screw and shall conform to the requirements of the AWWA C515, or to Federal Specification WW-V-58, Class A. Smaller valves shall be brass or bronze, in accordance with Federal Specification WW-V-54. Gate valves shall be Mueller Mechanical Joint Resilient Seat Gate Valve Open Left or approved equivalent. Handwheel valves only allowed in above ground application.

All valves shall be installed as shown on the plans, and in accordance with the appropriate material specifications. For each gate valve, the CONTRACTOR shall furnish and install a valve box as shown on plans.

Valves shall be carefully handled and lowered into position in such a manner as to prevent damage to any parts of the valve. Gate valves shall be supported by a concrete block.

Valves shall be placed in such positions as indicated on the plans with the stem in a vertical position and securely held until all connections have been made.

Gate valves and pipefittings shall be set and jointed to new pipe in the manner described herein for cleaning, laying and jointing pipe. Mechanical joint valves will be installed unless specified otherwise.

- B. Check Valves: Unless otherwise specified, all check valves for service taps will be the silent spring loaded double check type as approved by the ENGINEER or OWNER.

Water Distribution check valves shall be weight and lever type as manufactured by Watts, Mueller, Clow, or approved equal or as shown on plans.

- C. Air Valves: Air valves shall be the float and lever type, or equal, or the vacuum breaker type, as is manufactured by the APCO No. 145C or approved equal or as shown on plans.

- D. Miscellaneous Valves: Flush, blow-off, air relief and pressure-regulating valves shall be of types and sizes and at the location shown on the Plans. All valves and associated materials shall be of domestic origin. Pressure regulating valves shall be of the quality to provide the utmost protection for service lines. Air-relief and pressure regulating valves shall be Cla-Val or approved equal. Gate valves used on flush valve assemblies shall be Mueller FIP Resilient Seat Gate Valve, or approved equal.

2.7 VALVE BOXES

Valve boxes shall be 6" PVC, SDR-35 pipe complete with valve box mushroom lid, Tyler cast iron adjustable, or as shown on the Detail Sheet. Boxes shall be installed over each outside gate valve and shall rise to a height of 6" above natural ground at the valve location. Valve boxes shall be firmly supported and maintained centered and plumb over the wrench nut of the gate valve. The box cover shall be set flush with the surface of the ground or at such other level as may be directed. If valve is located in a ditch, the riser may need to be extended more than 6" above natural ground. Locations for these extended risers shall be designated by ENGINEER or OWNER. Valve box covers to have "W" imprinted on them. Signs to be placed at each valve box for each valve. However, only one valve sign is required per valve cluster. Valve boxes shall be installed where shown on the drawings and as directed by the ENGINEER. Valve boxes shall be centered on the valves. Where feasible, valves shall be located outside the limits of roads and streets. Earth fill shall be carefully tamped around each valve box to a distance of 4 feet on all sides of the box, or to the undisturbed trench face, if less than 4 feet.

2.8 VALVE EXTENSIONS

Valve extensions shall be placed on all valves greater than or equal to 5 feet below grade.

2.9 FITTINGS

Fittings 2" and larger shall be compact mechanical joint ductile iron with appropriate accessory sets to match the outside diameters of mainline piping. Fittings shall conform to ANSI/AWWA C153 and joints shall be in accordance with ANSI/AWWA C111/A21.11. The working pressure rating shall be 350 psi for all sizes of piping and fittings. Flanged fittings shall have full body dimensions and also be rated for a working pressure of 350 Psi. Underground fittings shall be asphalt coated outside in accordance with ANSI/AWWA C151. Above ground fittings shall be painted if shown on the Plans. Fittings shall have cement mortar lining inside in accordance with ANSI/AWWA C104. All coated fittings shall meet or exceed the requirements of NSF-61. Fittings shall be manufactured by Tyler or approved equal. Gaskets for mechanical joints shall conform to ANSI/AWWA C111. Gaskets for flanged joints shall be 1/8-inch-thick rubber, either ring or full face, conforming to dimensions in ANSI/AWWA C115. All accessory packs must match brand of fitting. Accessory packs shall be Tyler or approved equal.

Fittings, smaller than 2", shall be PVC or as shown on plans as manufactured by Harco or equal. Plastic fittings shall be joined by solvent weld.

All valves and fittings shall be restrained with Mega-Lug 2000 or Series 1100 Ford Uni-Flange Series 1500-S or equal style restraining devices as may be shown on plans or as approved by the ENGINEER at each connection point. Restraint for PVC pipe joined with standardized mechanical joint fittings shall be incorporated in the design of the follower gland and shall provide full circle contact and support of the pipe wall. Restraint shall be accomplished by a series of ring segments mechanically retained inside the gland housing and designed to grip the pipe wall in an even and uniform manner. Restraining ring segments shall be actuated by bolts featuring "Auto-Tork" twist off heads to ensure proper installation torque is applied. A safety stop on the Auto-Tork bolt shall limit the force applied to the ring segment against the pipe. All components of the restrainer, including the gland, bolts, and restraint segments shall be of high strength ductile iron, ASTM A536, Grade 65-45-12. The manufacturer of the retainer glands shall be registered to the International Standards Organization (ISO) for the 9001 standard (as a minimum) for quality. The saddles shall be listed in the Underwriters Laboratories Listing of Drinking Water System Components in Accordance with ANSI/NSF 60 & 61.

Bell and spigot joints for piping immediately upstream and downstream of fittings that are less than a full joint of pipe shall be restrained with Ford Uni-Flange Series 1390 or approved equal as may be required. Restraint devices for PVC pipe shall incorporate a series of machined serrations (not "as cast") on the inside diameter to provide positive restraint, exact fit, and 360° contact and support of the pipe wall. Restraint devices shall be manufactured of high strength ductile iron, ASTM A536, grade 65-45-12. Bolts and connecting hardware shall be manufactured of high strength, low alloy material in accordance with ANSI/AWWA C111. All restraint devices shall have a working pressure equivalent to the full rated pressure of the PVC pipe on which they are installed, with a minimum 2:1 safety factor when tested in a dead-end situation. Restraint devices shall meet or exceed the requirements of Uni-B 13-94 *Recommended Performance Specification for Joint Restraint Devices for Use with Polyvinyl Chloride Pipe*.

One-Bolt epoxy coated ductile iron with integral restrained joints fittings may be substituted for the conventional ductile iron fittings with external restraining devices if shown on plans or approved by OWNER/ENGINEER.

2.10 TRACER TAPE

The tracer tape shall be a minimum of 2" metallic tape detectable mesh for marking and detecting buried underground utilities if required.

2.11 TRACER WIRE

The tracer wire shall be designed specifically for the purpose of detecting buried utilities. Tracer wire shall be solid-core 12 AWG (minimum) copper wire coated with a 30-mil (minimum) polyethylene jacket designed specifically for buried use, or equal as approved by ENGINEER.

2.12 TEST STATION

The test station is designed specifically for the purpose of terminating tracer tape or tracer wire and shall have a minimum of two leads, Little Fink manufactured by COTT Manufacturing or equivalent approved by the ENGINEER. Blue is the color of choice for waterlines.

2.12 TAPPING VALVES AND SLEEVES

Tapping valves shall be in accordance with Gate Valves of this specification. Ends shall be flanged by mechanical joint. Sleeves shall be cast iron and epoxy coated as manufactured by Smith-Blair or approved equivalent. Bolts shall be stainless steel.

2.13 INSULATION

All exposed piping, fittings, and valves shall be insulated with a pre-formed fiberglass insulation such as Johns-Manville's Micro-Loc 650 with aluminum jacket or equal.

2.14 FLUSH VALVES AND HYDRANTS

Flush valves shall be as shown on plans. If designated, flush hydrants shall be installed and shall be Eclipse Post Hydrant #2 or equal with on 2-1/2" NST nozzle and 2" MJ inlet or as shown on plans.

2.15 VALVE, WATERLINE, TEST STATION MARKERS

A high visibility, flexible, durable white marker post, 4" x 66", with sharp blue contrasting color incorporating the international "no Dig" symbol and all weather decal WARNING WATER PIPELINE; Rhino 3-Rail or equivalent or as shown on plans.

2.16 COLD WATER METERS

The cold-water meters shall conform to AWWA C700. All meters shall be as shown on plans.

2.17 MISCELLANEOUS METER MATERIALS

- A. Meter tapping Saddles: Service Saddles shall conform to AWWA C800. Saddles 1-1/2" through 8" shall be of the one-piece design style and have its top and bottom section hinged together with a silicon bronze pin. A slotted hex head screw (5/16" x 1-1/2" long for 1-1/2" through 8" Saddles) is used to tighten the upper and lower castings around the pipe (two screws for 1-1/2" & 2" taps). The saddle shall provide 360-degree support of the pipe, at least 2" wide. This specification is for 1-1/2" through 8" nominal pipe size saddles. The saddles shall conform to the Uni-Bell PVC Pipe Association and the American Water Works Association recommendations for saddles used on PVC pipe. The saddle shall be manufactured in the United States and submitted for listing in the Underwriters Laboratories Listing of Drinking Water System Components in Accordance with ANSI/NSF 60 & 61. Saddles shall be Ford or Mueller Series or approved equal.
- B. Corporation Stop: The 3/4" corporation stop shall have 3/4" male iron pipe taper thread (MIPT) inlet by 3/4" compression outlet connections and conform to AWWA C800, regarding thread types and diameters. The 3/4" Corporation Stops shall be Ford or Mueller or approved equal.
Two-inch (2") Corporation Stops shall be of the ball valve type, meeting AWWA C800. The Inlet connection shall be 2" male iron pipe threads. All thread types and diameters shall conform to AWWA C800. Corporation Stop outlets will be supplied with 2" female iron pipe threads or copper compression as shown on plans. 2" Corp Stops shall be Ford or Mueller or approved equal.
- C. Angle Stop Ball Valve: The 3/4" angle stop shall have 3/4" copper compression inlet by meter swivel nut outlet connections and conform to AWWA C800, regarding thread types and diameters. The valve shall be a substantial tee head for opening and closing with a 360-degree rotation of a standard slotted wrench and shall have padlock wings to lock the valve in the closed position. The manufacturer of the Angle Stops shall be registered to the ISO for the 9001 standard (as a minimum) for quality. The Angle Stop shall be manufactured in the United States and submitted for listing in the Underwriters Laboratories Listing of Drinking Water System Components in Accordance with ANSI/NSF 60 & 61. Angle Stop Ball Valves shall be Ford or Mueller or approved equal.
- D. Meter Couplings: This specification covers Meter Couplings for 5/8" x 3/4" meters. The service line connection shall be 3/4" NPT, Male Iron Pipe. The meter coupling shall conform to AWWA C700, regarding thread types and diameters. The meter swivel nut shall rotate freely without

binding and shall be drilled with a hole for a seal wire. The manufacturer of the couplings shall be registered to the ISO for the 9001 standard (as a minimum) for quality. The Corporation Stop shall be manufactured in the United States and submitted for listing in the Underwriters Laboratories Listing of Drinking Water System Components in Accordance with ANSI/NSF 60 & 61. Couplings shall be Ford or Mueller or approved equal.

2.18 EXCAVATION MATERIALS

A. SELECT MATERIAL

Excavated material which is free of rocks, lumps, organic material, clods or debris which are larger than 6" in the largest dimension or other maximum size indicated on the plans, whichever is smaller.

B. GRANULAR MATERIAL (SAND)

Material which is free of detrimental quantities of clay, debris or organic material and which when tested by standard laboratory methods meets the following requirements:

Maximum liquid limit	45
Maximum plasticity index	15
Minimum plasticity index	4
Maximum percent passing No. 200 sieve	15
Minimum percent passing 3/4" sieve	100

The material shall be free flowing and when wet shall not adhere to form a ball when pressed in the hand.

C. CRUSHED STONE - STANDARD GRADATION

Crushed stone consisting of hard durable limestone or quartzite particles and meeting the following requirements:

Passing 2" sieve	100%
Passing 1½" sieve	95 - 100%
Passing ¾" sieve	35 - 70%
Passing 3/8" sieve	0 - 15%
Passing No. 4 sieve	0 - 5%
Passing No. 10 sieve	Less than 2%

D. CONCRETE

Conform to ASTM C94. The compressive strength of the concrete shall contain at least 2000 psi and shall contain at least four (4) sacks of cement per cubic yard.

PART 3 - EXECUTION

3.1. EXCAVATION

CONTRACTOR shall have certified excavation-competent operators, with a minimum five (5) years' experience, on job site at all times.

- A. General: All excavation shall be unclassified and will not be measured or paid for as a separate bid item. The cost of excavation shall be included in the contract price for the related items of work in the Bid Proposal. Excavation shall include the removal of any trees, stumps, brush, debris or other obstacles that may obstruct the line of work, and the excavation and removal of all earth, rock or other materials to the extent necessary to install the pipe and appurtenances in conformance with the line and grades shown in Plans, or as specified. The CONTRACTOR shall keep the area free of spoil for a sufficient distance back from the edge of the excavation in order to avoid overloading and to prevent slides or caving. The excavated materials shall be kept trimmed in such a manner as to be of as little inconvenience as possible to the public and

adjoining property owners. At street crossings, sidewalks, and other places where the ENGINEER deems necessary, the trenches shall be bridged in a secure manner so as to prevent serious interruption of travel and to provide access to fire hydrants and public and private premises. Such bridging shall be approved by the ENGINEER.

B. TRENCH AND EXCAVATION SAFETY

1. After award, the CONTRACTOR shall submit to the OWNER six (6) sets of a trench excavation plan for record purposes. This excavation plan must be designed and sealed by a professional engineer registered in the State of Texas with professional experience in Soil Mechanics.
2. The CONTRACTOR is responsible for obtaining borings and soil analysis as required for plan design. The trench excavation plan shall be designed in conformance with OSHA standards and regulations.
3. No trenching in excess of 5 feet below existing grade will be allowed until this plan is reviewed. Any changes in the trench excavation plan after initiation of construction will not be cause for extension of time or change order and will require the same review process. The CONTRACTOR accepts sole responsibility for compliance with all applicable safety requirements.
4. The plan is for information and record purposes only.

C. Maximum and Minimum Width of Trenches: The sides of all trenches shall be cut as nearly vertical as possible. Unless otherwise specified on the Plans, the minimum width of trench in which the pipe may be installed shall not be less than 12" plus the outside diameter of the pipe, and the maximum width shall not be more than 20" plus the outside diameter of the pipe, measured at an elevation in the trench which is 12" above the top of the pipe when it is laid to grade.

D. Clearing: The entire work area shall be cleared of all trees, stumps, brush and other matter except for such trees and brush as may be designated by the ENGINEER or OWNER to be saved. Trees and brush designated to save shall be marked and trimmed and shall be protected from scarring and other damage during construction. Any cuts or scarring shall be painted with an acceptable pruning paint as approved by the ENGINEER.

E. Grubbing: All areas required for construction of structures, channels, embankments, or pavements shall have stumps and roots removed to a depth of a minimum of 2 feet below the excavated elevation.

F. Fencing: All fences which are interfered with during construction shall be removed, salvaged, reconstructed and/or replaced after completion of the work. Fences shall be replaced or repaired to an equal or better condition than original. Temporary fences shall be placed and removed where livestock or security is required at the CONTRACTORS expense and at the direction of the ENGINEER or OWNER.

G. Dewatering Excavations: The CONTRACTOR shall immediately remove all surface or seepage water from sewers, drains, ditches, and other sources which may accumulate during the excavation and the construction work, by providing the necessary under-drains or otherwise, and by doing the necessary pumping, bailing or draining. The CONTRACTOR shall have available at all times sufficient pumping equipment in proper working order for doing the work herein required. All water removed from excavations shall be disposed of in an approved manner, so as not to create unsanitary conditions, nor to cause injury or damage to persons or property, or damage to the work in progress, nor to interfere unduly with the use of streets, private driveways or entrances. Pumping, bailing and draining, under-drains, and ditches shall be considered as incidental work and will not be paid for as separate items, but their cost shall be included in such contract prices as are provided in the contract.

H. Shoring: Trenches shall be sheeted, braced or shored to the extent necessary to maintain sides of the trench in a safe manner. Excavations, trenching and shoring shall be in accordance with Subpart P, Construction Industry, OSHA Safety and Health Standards or other applicable standards.

- I. Subgrade in Natural Soil: Where a firm and stable foundation for the pipe can be obtained in a natural soil and where special embedment is not specified or shown on the plans, the bottom of the trench shall be carefully and accurately trimmed to fit the lower portion of the pipe barrel. Should the excavation be carried below grade, except where specified, the CONTRACTOR shall at his own expense refill the trench to the proper grade with selected backfill material approved by the ENGINEER. The backfill material shall then be compacted by methods approved by the ENGINEER.
- J. Subgrade in Rock: If the bottom of the excavation for the waterline is found to be in rock or other hard material that cannot be excavated to a true sub-grade and shaped to provide uniform bearing for the pipe barrel, the rock or other material shall be removed to a depth not less than three inches below sub-grade and the bottom of the trench brought to true sub-grade elevations by filling with pea gravel or suitable rock cuttings and shavings from the excavation and compacting by means of tamping until a firm and uniformly unyielding foundation is obtained, as specified by the ENGINEER. No extra payment will be made for this work unless specified elsewhere herein.
- K. Soft Subgrade: Where soft or sponge material is encountered in excavation at subgrade level to the degree that a firm foundation cannot be obtained for the pipe line, the unsuitable materials shall be removed upon direction of the ENGINEER to such a depth that by replacing the unsuitable material with sand or gravel a firm and stable foundation can be secured. No extra payment will be made for this work unless specified elsewhere herein.
- L. Disposal of Excavated Materials: Suitable excavated materials shall be piled adjacent to the work to be used for backfilling. Excavated materials unsuitable for the backfilling, or in excess of that required for backfilling, shall be disposed of by the CONTRACTOR at locations designated on the Plans or approved by the ENGINEER. Desirable top soil, sod, etc., shall be carefully piled separately and replaced in its original position when required. Excavated materials shall be handled at all times in such a manner as to minimize the inconvenience to public travel and to permit safe and convenient access to private and public property adjacent to or along the line or work. In parkways and easements where it is necessary to deposit excavated materials on lawns or other green areas during the work, burlap or similar materials shall be placed on the lawn to prevent contact between excavated materials and the lawn. No extra payment will be made for this work unless specified elsewhere herein.
- M. Private Road Crossings: Where the waterline crosses private or farm roads the CONTRACTOR shall conduct his work so as to cause the least inconvenience to the property OWNER involved and upon completion of backfilling shall restore the road to a condition as good as, or better than, that in which it was originally, as determined by the ENGINEER. Replacement will be of the same type and quality as the original surface as shown on the Plans or as specified below.
- N. Street, Roadway and Railroad Crossing Excavation: Where the waterline crosses a street, roadway, driveway, highway or railroad the method of excavation shall meet the requirements set forth herein and as shown on the Plans. Public Street, roadway, railroad crossings shall be bored regardless of pavement type, unless clearly designated as open cut on the Plans.
1. Open Cut Where open cuts are allowed through roadways the side of the trench shall be kept as nearly vertical as possible and, where necessary, shall be sheeted and braced to prevent caving. The trenches shall be backfilled as shown on the Plans and compacted to 95% Standard Proctor. The pavement replacement shall be of the same type and quality as the original surface as shown on the Plans or as specified below.

PAVED ROADWAYS will not be open cut, unless specifically noted on the Plans. In all cases when open cuts are allowed through pavements, the methods of construction must meet the requirements of the appropriate agency in all respects, superceding these requirements and those shown on the Plans.
 2. Boring, Jacking or Drilling: Where indicated on the Plans and/or as directed, the pipe will be pushed or jacked under roadways; or the pipe will be installed in a casing that has been placed under the roadway by boring, jacking or drilling. Casing shall be steel (0.25 minimum wall thickness), or as indicated on plans. Casing shall have casing spacers and molded end seals (Maloney Type or Equal), where indicated on plans. Spacers shall be

appropriate for the weight of the carrier pipe and shall be spaced along the pipe as recommended by the manufacturer. In the absence of such guidelines, three spacers shall be equally spaced on each pipe joint for all pipe sizes. Molded rubber casing end seals shall be installed using stainless steel bands on both the carrier pipe as well as the casing. Overlapping, adhesive-type end seals are not acceptable.

- a) Bores and Encasement Description: Work under this item shall consist of furnishings all materials, equipment and labor for installing complete Street Bore, Highway Bore, or Railroad Bore and Encasement where required.

The OWNER will obtain a permit from the City, County, Texas Department of Transportation and/or the railroad company for these crossings. The CONTRACTOR will be required to abide by the terms of these permits. This will include the CONTRACTOR giving proper notice of the time he expects to begin work on each crossing, to the proper railroad or highway official at the appropriate time.

Materials: Encasement pipe shall be heavy weight steel pipe of sufficient size to permit passage of carrier pipe. The minimum length of encasement pipe shall be determined as indicated on the plans. The encasement pipe shall be tightly jointed to prevent leakage. The ends of the pipe shall be plugged with clay core to prevent entrance of excessive ground water.

Carrier pipe shall be of the size and class shown on the plans.

Construction: The encasement shall be installed with even bearing throughout its length and all voids between earth and encasement pipe shall be filled with grout or other methods approved by the ENGINEER. Any settlement or damage to highway caused by boring and encasement operations will be the CONTRACTOR's responsibility and his own expense.

For boring the CONTRACTOR will be permitted a tolerance from exact grade or alignment of 1" per 100 feet.

All excavations within the right-of-way and not under surfacing shall be backfilled by tamping in 6" horizontal layers or by ponding. All surplus material shall be removed from the right-of-way and the excavation finished flush with surrounding natural ground.

Where sodding is disturbed by excavation or backfilling operations, such areas shall be replaced by mulch sodding on all slopes of 2% or less. All slopes over 2% shall be replaced by block sodding.

Highway crossing under surfaced roads and under surfaced cross roads and surfaced driveways within the right-of-way shall be placed by boring.

Operations along highways shall be performed in such manner that all excavation material be kept off the pavements at all times, as well as all operating equipment.

Barricades and warning signs and flagmen when necessary shall be provided by the CONTRACTOR or OWNER.

- b) Driveway Bore Description: Work under this item shall consist of furnishing all materials, equipment, labor and incidentals for installing a complete driveway bore.

Materials: The proposed crossing or bore shall not require encasement pipe unless shown on plans. The carrier pipe shall be of the type and class as called for on the Plans.

Construction: Carrier shall be installed by boring. All voids between carrier pipe and the bored hole shall be filled with grout, soil cement, or other materials approved by the ENGINEER.

Carrier pipe joints shall be so arranged that the middle of the carrier pipe, when installed, shall be directly in line with the centerline of the driveway.

Any chipping or other damage of the concrete driveway being bored shall be repaired to its original condition all at the CONTRACTORS expense.

3. Street and Drive Repair Description:

This item shall govern the repair of streets or driveway pavement which has been damaged by the construction of underground utilities.

Excavation and Backfilling: The CONTRACTOR shall excavate the trench with every effort made to keep the trench width to a minimum. Asphalt and oil pavement cuts shall be made in a neat and workmanlike manner and concrete pavement shall be saw-cut unless otherwise approved by the ENGINEER.

After the pipe has been laid and bedded, the trench shall be backfilled with select material free from rock, large lumps, or other unsuitable material. The backfill material shall be placed in layers not exceeding 4" of thickness and shall be tamped on both sides of the pipe. Mechanical tamping will not be allowed until there is a minimum of 12" of soil covering the pipe. The backfill shall be completely tamped from bottom to top and shall have a minimum of 95% Mod ASTM 1557 density.

Pavement Patch: Street and driveway pavements shall be replaced as shown on the plans for the particular type of pavement.

The pavement patch is to be constructed in a neat and workman like manner, and the CONTRACTOR shall make every effort to provide a smooth riding surface.

- O. **Use of Explosives:** Unless prior written permission is received from the ENGINEER and OWNER, no blasting will be allowed on this project. Bonds may be required from the blaster prior to receiving such permission. If approved, the CONTRACTOR shall advise the ENGINEER and OWNER regarding the scheduling of such work. Should the CONTRACTOR elect to use explosives in the performance of the work, they shall be used with utmost precaution, and no blasting shall be done within one hundred (100) feet of the completed work or exposed pipes, conduits, and other related materials, and the CONTRACTOR shall assume all liability for any injury or damage to persons or property resulting from such usage. Only a sufficient quantity of explosives for the immediate day's work shall be kept on hand by the CONTRACTOR. Caps, exploders, and explosives shall be stored separately. The CONTRACTOR shall be responsible for, and shall make good any damage caused by blasting or accidental explosion.
- P. **Depth of Trench:** All piping and associated appurtenances shall have a minimum cover 36" or as shown on plans. Depth of excavation should not exceed 60", unless required by significant grade changes. The CONTRACTOR is responsible for providing an OSHA-approved trench safety system in the event that the excavation depth exceeds 60". See Section 1002 for trench excavation safety systems.
- Q. **Pipe Laying:**
 - 1. **Pipe Handling:** Pipe shall be handled in such a manner as will prevent damage to the pipe, pipe lining or coating. Pipe and fittings shall be loaded, unloaded, and placed using hoists and slings in a manner so as to avoid shock or damage. Under no circumstances shall they be dropped or skidded, or rolled against other pipe.
 - 2. **Pipe Cutting:** Whenever it becomes necessary to cut a length of pipe, pipe ends shall be square with the longitudinal axis of the pipe and otherwise smoothed so that good connections can be made. Pipe shall be cut by cutters recommended by the manufacturer. Ductile iron pipe shall not be cut by oxyacetylene torch. Field-cut pipe lengths shall be filed or ground to obtain a chamfer on the outside of the pipe, according to the manufacturer's recommendations. Rough or sharp edges shall be removed from the cut end.
 - 3. **Pipe Laying:** Pipe and fittings shall be clean when laid. Precautions shall be taken to prevent floating. The pipe shall be placed on the trench bottom or bedding. After the pipe has been aligned, jointed, and thrust blocking placed, the pipe shall be secured in place with approved backfill material. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug.
 - 4. **Pipe Laying on Curves:** If the pipe is shown curved in the plans, the curves shall be accomplished by special fittings or by deflecting the joints in accordance with the manufacturer's recommendations. Joint deflections shall not be permitted at valves.

When rubber-gasketed pipe is laid on a curve, the pipe shall be jointed in a straight alignment and then deflected to the curved alignment. Trenches shall be made wider on curves for this purpose.

5. Pipe Laying where earth grading is necessary: Where a pipe is to be placed within an embankment or the top of the pipe is above the existing ground, the embankment shall be constructed to at least 150 mm (6 inches) above the top of the pipe before trenching for the pipe. The trench shall then be excavated to the minimum width necessary for the proper placing and backfilling of the pipe.
6. Tracer Tape: Tracer tape shall be installed over copper and non-metallic water lines including service lines **only if shown on plans**. The tracer tape shall be placed approximately 0.3 m (1 foot) above the top of the line and shall extend its full length. Tracer tape shall be a detectable type and shall be marked "WATER". Tracer tape shall also be brought up at distances not to exceed 1,000 feet in test stations as shown on Detail Sheet. After installation, tracer tape shall be spot-tested to ensure continuity.
7. Tracer Wire: Tracer wire shall be installed in the same trench with nonmetallic pipe during pipe installation. The tracer wire shall be designed specifically for the purpose of detecting buried utilities. It shall be taped with vinyl electric tape to the pipe at a minimum of 3 locations per joint (not to exceed 6-½ foot spacing) or as required by ENGINEER or INSPECTOR to insure that the wire remains on top of pipe. The tracer wire shall be securely bonded together at all wire joints with waterproof, jelly-filled wire nut splice connectors to provide electrical continuity. Tracer wire shall also be brought up at distances not to exceed 1,000 feet in test stations as shown on Detail Sheet. After installation, tracer wire shall be spot-tested to ensure continuity.
8. Test Stations: Test stations shall be installed at approximately 1,000' intervals next to a physical barrier i.e. utility pole, fence line, tree, etc. to provide physical security for the test station.
9. Valve and Test Station Markers: shall be installed next to the item to identify physical location of and provide security. Waterline markers shall be installed at property/fence lines and road crossings.
10. Blocking and Wedging: Fire hydrants, valves and fittings shall be laid on concrete blocks and held in position by hardwood wedges. Blocks shall be bedded firmly in the bottom of the trench with uniform bearing and with the long dimension of the block perpendicular to the pipe barrel. Blocks shall be level across the trench and the proper number of blocks placed one upon the other to bring the fittings to the required grade for jointing.
11. Thrust blocking: Plugs, caps, tees, hydrants, and elbows or bends having a deflection of 11 1/4 degree or greater shall be provided with concrete thrust blocking. The blocking shall be TxDOT Class B concrete placed between firm original undisturbed earth and the fitting to be anchored. The concrete thrust blocking shall be placed and shaped in a manner satisfactory to the ENGINEER with the thrust force contained by the blocking. The blocking placement shall allow for pipe and joint accessibility or repair.
12. Restrained joints and fittings: In addition to thrust blocking, valves and fittings shall be restrained by approved joint restraint devices. Bell and spigot joints for piping immediately upstream and downstream of fittings that are less than a full joint of pipe shall be restrained with Ford Uni-Flange Series 1390 or approved equal as may be required. The devices shall be protected against corrosion by protective coatings or the application of an asphaltic coating. If polyethylene encasement is specified, the encasement shall cover the entire assembly. Restraining devices may be used in lieu of concrete thrust blocking only when approved by the ENGINEER.

3.2 BACKFILLING

No backfilling shall occur until the OWNER or ENGINEER has approved the installation.

Backfilling shall include the refilling and consolidating of the fill in trenches and excavations up to the surrounding ground surface or road grade at crossings.

Backfilling shall be done with good earth, sand or gravel as shown on plans and shall be free from large rocks or hard lumpy materials unless the rocks or lumps are not more than approximately 4" in greatest diameter and are scattered in the spoil. No material of a perishable, spongy, or otherwise deleterious nature shall be used in backfilling. If rock is encountered, sand bedding free of lumpy clay shall be used around piping. See Detail Sheet for sand bedding.

Excavated material, which is suitable for backfilling, and excess material shall be disposed of in a manner approved by the ENGINEER. Except in cultivated fields, surplus spoil may be neatly distributed and spread on the right-of-way, which shall be left in a clean and sightly condition.

Where construction enters the limits of State or County rights-of-way, the CONTRACTOR shall comply with the special requirements of those agencies with respect to backfilling.

- A. Embedment: Work under this item shall be installed as per the plans and specifications around all pipes except where otherwise noted. Granular embedment material shall be free flowing sandy or gravel material which contains no clay and is free of organic material. The material shall be approved by the ENGINEER.
- B. Borrow: Where sufficient fill and backfill materials are not available in such quantity as necessary to properly backfill, borrow material shall be provided by the CONTRACTOR at his expense and shall be approved by the ENGINEER.
- C. Testing: Tests may be required by the ENGINEER for backfill or embedment density. Initial tests shall be at the expense of the OWNER. In the event of a test failure CONTRACTOR shall be responsible for additional costs associated with additional testing.

3.3 BLOCKING TRAFFIC AND BARRICADES

The CONTRACTOR will not be allowed to completely block traffic on any major thoroughfare or dead end street, and shall keep inconvenience to the public to a minimum. It shall be the CONTRACTORS responsibility to provide any signs, barricades, or lights needed to warn the public about construction, or obstructions on the road, and to inform the Owner of his approximate schedule of construction.

3.4 TESTS FOR WATER LINES

A. Hydrostatic Pressure Test: After the pipe is laid, the joints completed, and the trench backfilled.

1. Description:

- a. This section specifies hydrostatic testing all pipes having a pressure rating more than 20 psi. All testing shall conform to the latest TCEQ Water Distribution System General Construction Notes, as included with these plans.
- b. Test waterlines in sections so that the maximum pressure at the lowest point in the section being tested does not exceed 120 percent at the nominal pressure rating of the pipe and the minimum pressure at the highest point in the section being tested is at least 80 percent of the pressure rating. The nominal pressure rating for all potable water systems is not less than 150 psi. Permission to vary from these pressure ratings shall be obtained from the ENGINEER.

2. Leakage Allowance:

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

Where:

- Q = the quantity of makeup water in gallons per hour,
- L = the length of the pipe section being tested, in feet,
- D = the nominal diameter of the pipe, in inches, and
- P = the average test pressure during the hydrostatic test in pounds per square inch.

3. By Contractor:

Furnish pump, pipe connection and all necessary apparatus including gages and meters to allow continuous pumping at specified constant pressure for duration of test. Also, provide all test plugs required to test the line. CONTRACTOR is responsible for costs associated with all bacteriological tests.

4. **By Owner:**
The OWNER will furnish water for filling lines and any 3rd party tests (except bacteriological tests) through existing mains or fire hydrants the first time. Subsequent fillings and tests shall be at the expense of the CONTRACTOR.
5. **Test Procedure:**
 - a. Slowly fill the piping system with water and supply the specified test pressure by means of a pump connected to the pipe in a satisfactory manner.
 - b. Before applying the specified test pressure, expel all air from the pipe. To accomplish this, make taps, if necessary, at the points of highest elevation and afterwards tightly plug them.
 - c. The duration of each pressure test shall be a minimum of four hours after the line has been brought up to test pressure. Maintain pressure within the limits specified in paragraph 1.b. Continue all pressure tests until the ENGINEER is satisfied that the waterline meets the requirements of these specifications.
 - d. At intervals during the test, inspect the entire route of the waterline to find any leaks or breaks. Remove and replace any defective joints, cracked or defective pipe, fittings or valves discovered in consequence of this pressure test with sound material in the manner provided, and repeat the test until satisfactory results are obtained.
 - e. Should any test of pipe in place show greater leakage than that specified, the CONTRACTOR shall at own expense, find and repair the defective joints until the leakage is within the specified allowance.
 - f. Bear the cost of purchasing water for refilling the line should any section of line fail to pass the pressure test.
- B. **Removal of Air:** In the event air is admitted to the waterline after being expelled for the hydrostatic tests, such air shall be removed prior to completion of the system and acceptance by the OWNER. In no case shall the system be placed in operation prior to the removal of the air.
- C. **Disinfection of Water Mains:**
 1. **Description:**
 - a. This section specifies the procedure for disinfection of the potable water system, and overall conforms to AWWA C651, Disinfecting Water Mains.
 - b. During the construction operations, workers shall be required to use utmost care to see that parts of the structures, inside pipes, fittings, jointing materials, valves, etc., the surface of which contact potable water, are maintained in a sanitary condition.
 - c. Every effort must be made to keep the inside of the pipe, fittings, and valves free of all foreign matter, sticks, dirt, rocks, etc. As each joint of pipe is being laid, it must be effectively swabbed so that all foreign matter is removed. Placing dry powdered chlorine in the waterline will not be permitted. All fittings and exposed open ends of pipe must be blocked or capped until the line is completed.
 - d. Disinfection of the line or any section thereof shall not be commenced until the ENGINEER review of the method, apparatus, disinfecting agent and the section of the line has been obtained.
 2. **Chlorine (Cl₂):** Seventy (70) percent calcium hypochlorite or equal.
 3. **Disinfection Procedure:**

When the entire waterline or certain selected sections thereof have been completed, tested and made ready for turning over to the OWNER, ready for use, the line or section of line shall be thoroughly disinfected according to the following procedure:

 - a. The CONTRACTOR shall provide all necessary taps to complete this section of the specifications.
 - b. The line shall be flushed out, completely replacing its entire volume with water furnished by the OWNER.

- c. Chlorine will be injected into the section of line being disinfected so that its entire capacity will be filled with water containing chlorine with at least 50 ppm or other concentration determined by the ENGINEER. The disinfecting agent shall be introduced at one end of the section and the water released from the opposite end until the disinfecting agent is present at the discharge end in such quantity as to indicate a residual chlorine of more than 50 ppm or as otherwise determined by the ENGINEER. All valves shall be closed and the disinfecting solution permitted to remain in the waterline section for not less than twenty-four (24) hours.
4. Flushing and Testing:
- a. At the end of the disinfecting period, the disinfecting solution shall be discharged from the pipe and replaced with water furnished by the OWNER. Meet T.C.E.Q. requirements regarding discharge of chlorinated water.
 - b. Take a sample of water from the disinfected main (not through a fire hydrant) from a suitable tap under the supervision of the ENGINEER or his inspector and submit to an approved testing laboratory of the T.C.E.Q for analysis.
 - c. A minimum of one sample for each 1,000 feet of completed waterline will be required or at the next available sampling point beyond 1,000 feet as designated by the design ENGINEER. Bacteriological samples shall be taken to a lab that is approved by the OWNER or ENGINEER.
 - d. If the test shows a satisfactory quality of water, the disinfected pipe shall then be placed in service by the CONTRACTOR who shall notify the ENGINEER and assist the ENGINEER in location and operation of all valves installed by the CONTRACTOR.
 - e. If the sample shows unsatisfactory quality of water, the process of disinfection shall be repeated until a satisfactory water sample is obtained. The CONTRACTOR shall furnish to the OWNER, a certified copy of the laboratory report of satisfactory disinfection of the main.
 - f. All water used by the CONTRACTOR to disinfect water mains beyond the first test shall be purchased from the OWNER. The CONTRACTOR shall bear all costs of disinfecting. The CONTRACTOR shall also bear all costs of retesting.

3.5 FINAL CLEAN UP

Upon completion of the installation of the water lines, distribution systems, and appurtenances, all debris, including PVC scraps resulting from trenching through abandoned distribution system piping, shall be removed from work areas as disposed of by the CONTRACTOR. In addition, all above ground structures of abandoned valve clusters shall be removed and disposed of by CONTRACTOR. Reusable valve signs, risers, riser tops and mushroom lids in locations of abandoned valve clusters shall be given to OWNER. Scraps shall not be buried on private, county, or state properties. This does not relieve the CONTRACTOR of the responsibility of ongoing and routine clean-up operations related to the line laying work. All surplus excavated materials resulting from the work shall be removed from the site or spread on site as directed by ENGINEER / OWNER / STATE / COUNTY. Excess materials shall be mounded along trench lines in order to channel water away from fresh pipe trenches. Excess materials in areas of steep grades shall be utilized to channel water away from trench lines and constructing terracing berms to prevent erosion. ALL disturbed areas shall be seeded according to the Seeding Rate Section of this Specifications Book and fertilized at 200 pounds per acre with 13-13-13. The costs associated with seeding and final clean up shall be included in the line item bid prices of the CONTRACTOR.

END OF SECTION

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES**

1. This water distribution system must be constructed in accordance with the current Texas Commission on Environmental Quality (TCEQ) Rules and Regulations for Public Water Systems 30 Texas Administrative Code (TAC) Chapter 290 Subchapter D. When conflicts are noted with local standards, the more stringent requirement shall be applied. Construction for public water systems must always, at a minimum, meet TCEQ's "Rules and Regulations for Public Water Systems.
2. An appointed engineer shall notify in writing the local TCEQ's Regional Office when construction will start. Please keep in mind that upon completion of the water works project, the engineer or owner shall notify the commission's Water Supply Division, in writing, as to its completion and attest to the fact that the work has been completed essentially according to the plans and change orders on file with the commission as required in 30 TAC §290.39(h)(3).
3. All newly installed pipes and related products must conform to American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61-G and must be certified by an organization accredited by ANSI, as required by 30 TAC §290.44(a)(1).
4. Plastic pipe for use in public water systems must bear the National Sanitation Foundation Seal of Approval (NSF pw-G) and have an ASTM design pressure rating of at least 150 psi or a standard dimension ratio of 26 or less, as required by 30 TAC §290.44(a)(2).
5. No pipe which has been used for any purpose other than the conveyance of drinking water shall be accepted or relocated for use in any public drinking water supply, as required by 30 TAC §290.44(a)(3).
6. Water transmission and distribution lines shall be installed in accordance with the manufacturer's instructions. However, the top of the water line must be located below the frost line and in no case shall the top of the water line be less than 24 inches below ground surface, as required by 30 TAC §290.44(a)(4).
7. Pursuant to 30 TAC §290.44(a)(5), the hydrostatic leakage rate shall not exceed the amount allowed or recommended by the most current AWWA formulas for PVC pipe, cast iron and ductile iron pipe. Include the formulas in the notes on the plans.
 - o The hydrostatic leakage rate for polyvinyl chloride (PVC) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-605 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

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

Where:

- Q = the quantity of makeup water in gallons per hour,
- L = the length of the pipe section being tested, in feet,
- D = the nominal diameter of the pipe in inches, and
- P = the average test pressure during the hydrostatic test in pounds per square inch (psi).

- The hydrostatic leakage rate for ductile iron (DI) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-600 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

$$L = \frac{SD\sqrt{P}}{148,000}$$

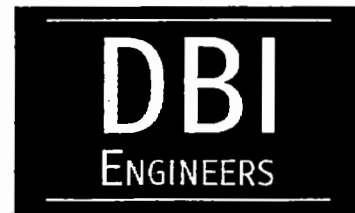
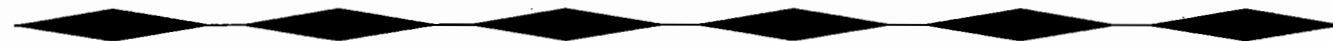
Where:

- L = the quantity of makeup water in gallons per hour,
 - S = the length of the pipe section being tested, in feet,
 - D = the nominal diameter of the pipe in inches, and
 - P = the average test pressure during the hydrostatic test in pounds per square inch (psi).
8. Projects constructed on or after January 4, 2014 must comply with changes to the Safe Drinking Water Act that reduce the maximum allowable lead content of pipes, pipe fittings, plumbing fittings, and fixtures to 0.25 percent.
 9. The system must be designed to maintain a minimum pressure of 35 psi at all points within the distribution network at flow rates of at least 1.5 gallons per minute per connection. When the system is intended to provide firefighting capability, it must also be designed to maintain a minimum pressure of 20 psi under combined fire and drinking water flow conditions as required by 30 TAC §290.44(d).
 10. The contractor shall install appropriate air release devices in the distribution system at all points where topography or other factors may create air locks in the lines. All vent openings to the atmosphere shall be covered with 16-mesh or finer, corrosion resistant screening material or an acceptable equivalent as required by 30 TAC §290.44(d)(1).
 11. Pursuant to 30 TAC §290.44(d)(4), accurate water meters shall be provided. Service connections and meter locations should be shown on the plans.
 12. Pursuant to 30 TAC §290.44(d)(5), sufficient valves and blowoffs to make repairs. The engineering report shall establish criteria for this design.
 13. Pursuant to 30 TAC §290.44(d)(6), the system shall be designed to afford effective circulation of water with a minimum of dead ends. All dead-end mains shall be provided with acceptable flush valves and discharge piping. All dead-end lines less than two inches in diameter will not require flush valves if they end at a customer service. Where dead ends are necessary as a stage in the growth of the system, they shall be located and arranged to ultimately connect the ends to provide circulation.
 14. The contractor shall maintain a minimum separation distance in all directions of nine feet between the proposed waterline and wastewater collection facilities including manholes and septic tank drainfields. If this distance cannot be maintained, the contractor must immediately notify the project engineer for further direction. Separation distances, installation methods, and materials utilized must meet 30 TAC §290.44(e)(1-4) of the current rules.

15. Pursuant to 30 TAC §290.44(e)(5), the separation distance from a potable waterline to a wastewater main or lateral manhole or cleanout shall be a minimum of nine feet. Where the nine-foot separation distance cannot be achieved, the potable waterline shall be encased in a joint of at least 150 psi pressure class pipe at least 18 feet long and two nominal sizes larger than the new conveyance. The space around the carrier pipe shall be supported at five-foot intervals with spacers or be filled to the springline with washed sand. The encasement pipe shall be centered on the crossing and both ends sealed with cement grout or manufactured sealant.
16. Pursuant to 30 TAC §290.44(e)(6), fire hydrants shall not be installed within nine feet vertically or horizontally of any wastewater line, wastewater lateral, or wastewater service line regardless of construction.
17. Pursuant to 30 TAC §290.44(e)(7), suction mains to pumping equipment shall not cross wastewater mains, wastewater laterals, or wastewater service lines. Raw water supply lines shall not be installed within five feet of any tile or concrete wastewater main, wastewater lateral, or wastewater service line.
18. Pursuant to 30 TAC §290.44(e)(8), waterlines shall not be installed closer than ten feet to septic tank drainfields.
19. Pursuant to 30 TAC §290.44(f)(1), the contractor shall not place the pipe in water or where it can be flooded with water or sewage during its storage or installation.
20. Pursuant to 30 TAC §290.44(f)(2), when waterlines are laid under any flowing or intermittent stream or semi-permanent body of water the water main shall be installed in a separate watertight pipe encasement. Valves must be provided on each side of the crossing with facilities to allow the underwater portion of the system to be isolated and tested.
21. The contractor shall disinfect the new water mains in accordance with AWWA Standard C-651 and then flush and sample the lines before being placed into service. Samples shall be collected for microbiological analysis to check the effectiveness of the disinfection procedure which shall be repeated if contamination persists. A minimum of one sample for each 1,000 feet of completed water line will be required or at the next available sampling point beyond 1,000 feet as designated by the design engineer, in accordance with 30 TAC §290.44(f)(3).

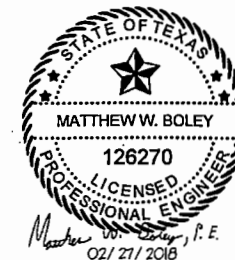
LOCATION AND PLAN SHEETS

**WATERLINE MATERIALS BID
2017 STEP GRANT WATERLINE IMPROVEMENT
FOR
HICKORY CREEK SPECIAL UTILITY DISTRICT
HUNT COUNTY, TEXAS
FEBRUARY 2018**



Daniel & Brown Inc.

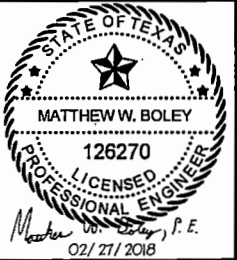
118 McKinney St.
P.O. Box 606
Farmersville, Texas 75442
Phone 972-784-7777
www.DBIConsultants.com
Firm Registration No.: F-002225



GENERAL NOTES:

1. ALL RULES & REGULATIONS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY FOR THE INSTALLATION OF WATERLINES SHALL BE MET.
2. ALL WATERLINE EXTENSIONS SHALL BE CLASS 160 PVC-SDR26 RUBBER GASKETED PIPE OR AS APPROVED BY HICKORY CREEK SUD.
3. WATERLINES SHALL BE INSTALLED WITH A MINIMUM OF 36 INCHES OF COVER.
4. WATERLINES AND/OR ROAD CROSSINGS WHICH MAY BE INSTALLED ON PUBLIC RIGHT OF WAYS SHALL BE SUBJECT TO APPLICABLE STATE AND COUNTY REGULATIONS. ROAD CROSSINGS SHALL BE ENCASED ACCORDING TO STATE AND COUNTY REGULATIONS.
5. EXISTING WATERLINES SHALL REMAIN IN SERVICE DURING CONSTRUCTION OF NEW WATERLINES.
6. ALL WATERLINE FITTINGS SHALL BE MECHANICAL JOINT DUCTILE IRON OR CAST IRON WITH RESTRAINTS APPROVED BY HICKORY CREEK SUD.
7. EXISTING UTILITIES SHALL BE LOCATED, IDENTIFIED, AND PROTECTED DURING THE INSTALLATION OF THE NEW WATERLINE.
8. NEW WATERLINES SHALL BE TESTED, DISINFECTED, AND FLUSHED IN ACCORDANCE WITH TCEQ REQUIREMENTS INCLUDING TAKING THE REQUIRED NUMBER OF BACTERIOLOGICAL SAMPLES WHICH INDICATE PROPER DISINFECTION BEFORE THE WATERLINE CAN BE PLACED INTO SERVICE.
9. THE WATERLINE MATERIALS AND INSTALLATION SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF TWO YEARS FROM THE DATE OF FINAL ACCEPTANCE.
10. ALL HYDRANTS, VALVES & FITTINGS SHALL BE AMERICAN MUELLER, M&H OR APPROVED EQUAL.
11. ALL HYDRANTS, VALVES & FITTINGS SHALL BE DOMESTIC.

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WATERLINE IMPROVEMENTS
CR 1096 - CR 1101
FOR
HICKORY CREEK SPECIAL UTILITY DISTRICT
HUNT COUNTY, TEXAS

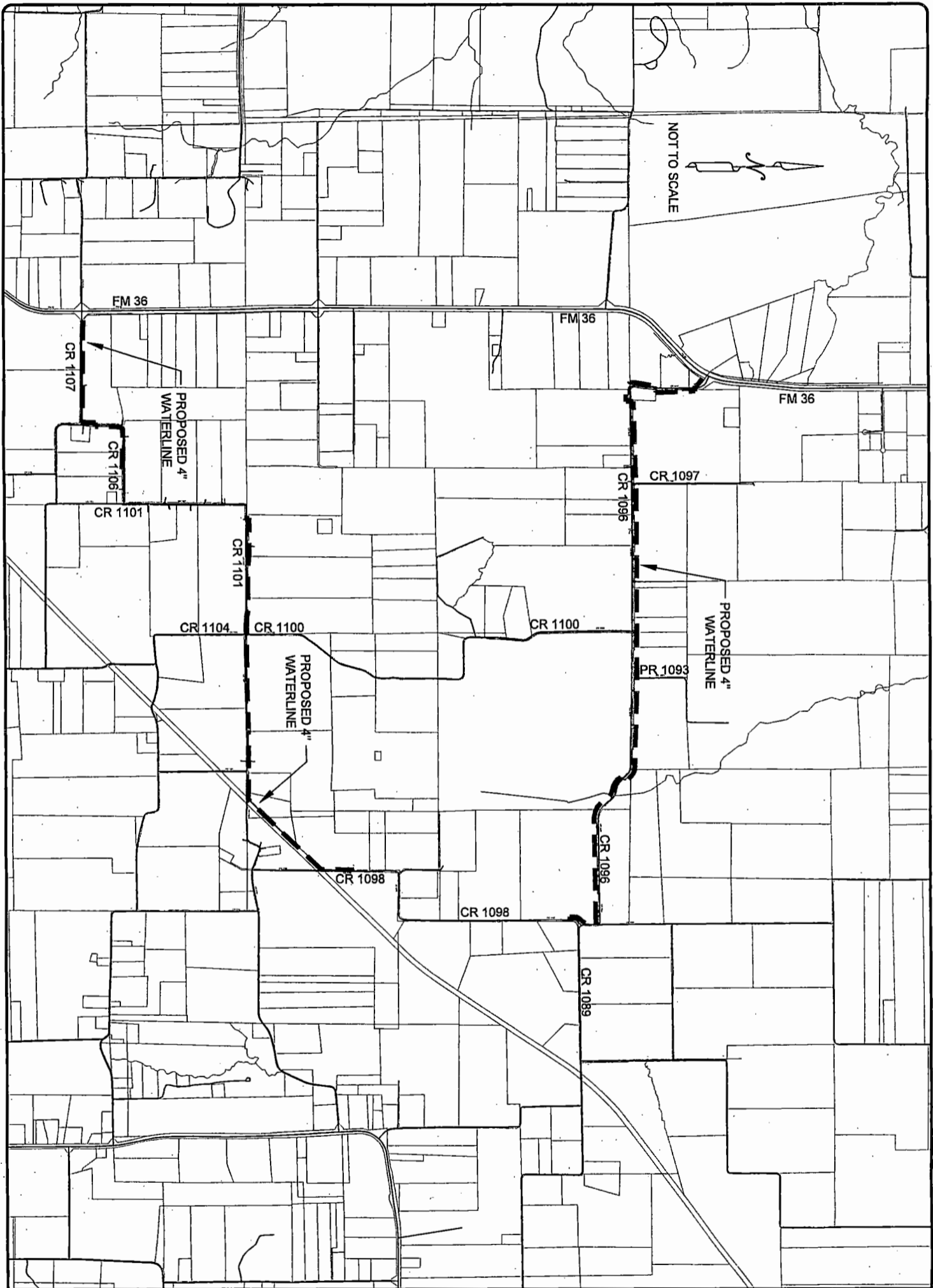
GENERAL NOTES

DESIGNED: M.W.B.
DRAWN: M.K.W.
FILE: N:\Hickory-Creek SUD\ML-CR 1096-CR 1101 STEP-08\OVERALL

DATE: 02/01/17
REVISION: N/C

FIRM REGISTRATION NO.: F-002225

NOTES

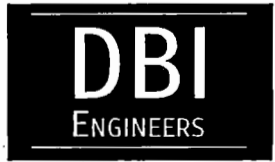


NOT TO SCALE

OVERALL

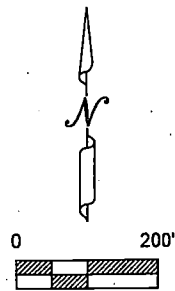
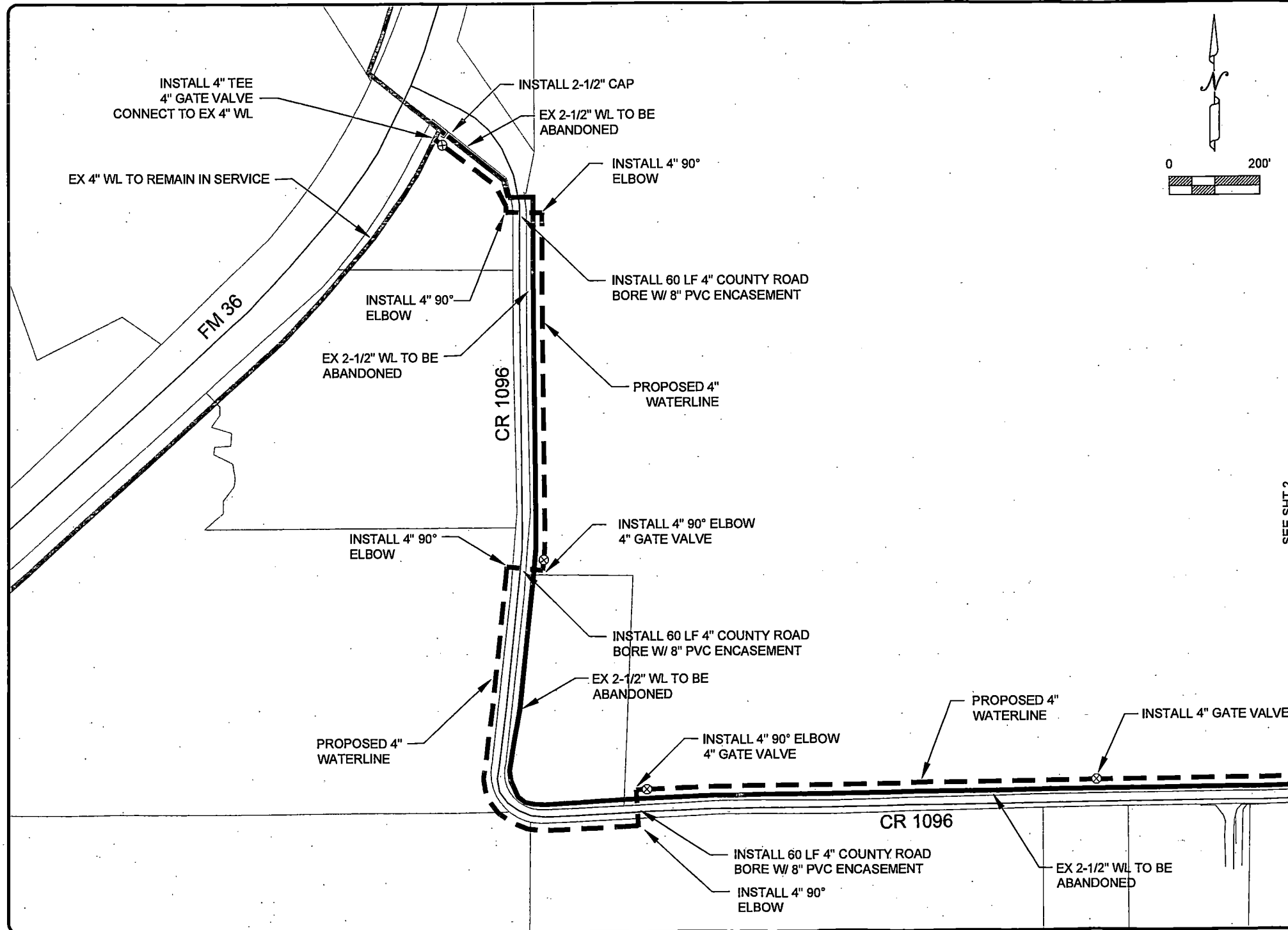
WATERLINE IMPROVEMENTS
 CR 1096 - CR 1101
 FOR
 HICKORY CREEK SPECIAL UTILITY DISTRICT
 HUNT COUNTY, TEXAS

OVERALL MAP SHEET

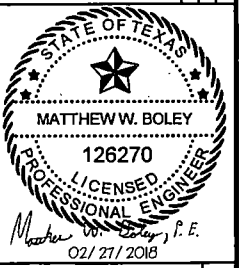


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DRAWN: M.K.W.	REVISION: N/C	F-002225
FILE: N:\Hickory Creek SUD\WL-CR 1096-CR 1101 STEP-0816\OVERALL		



SEE SHT 2



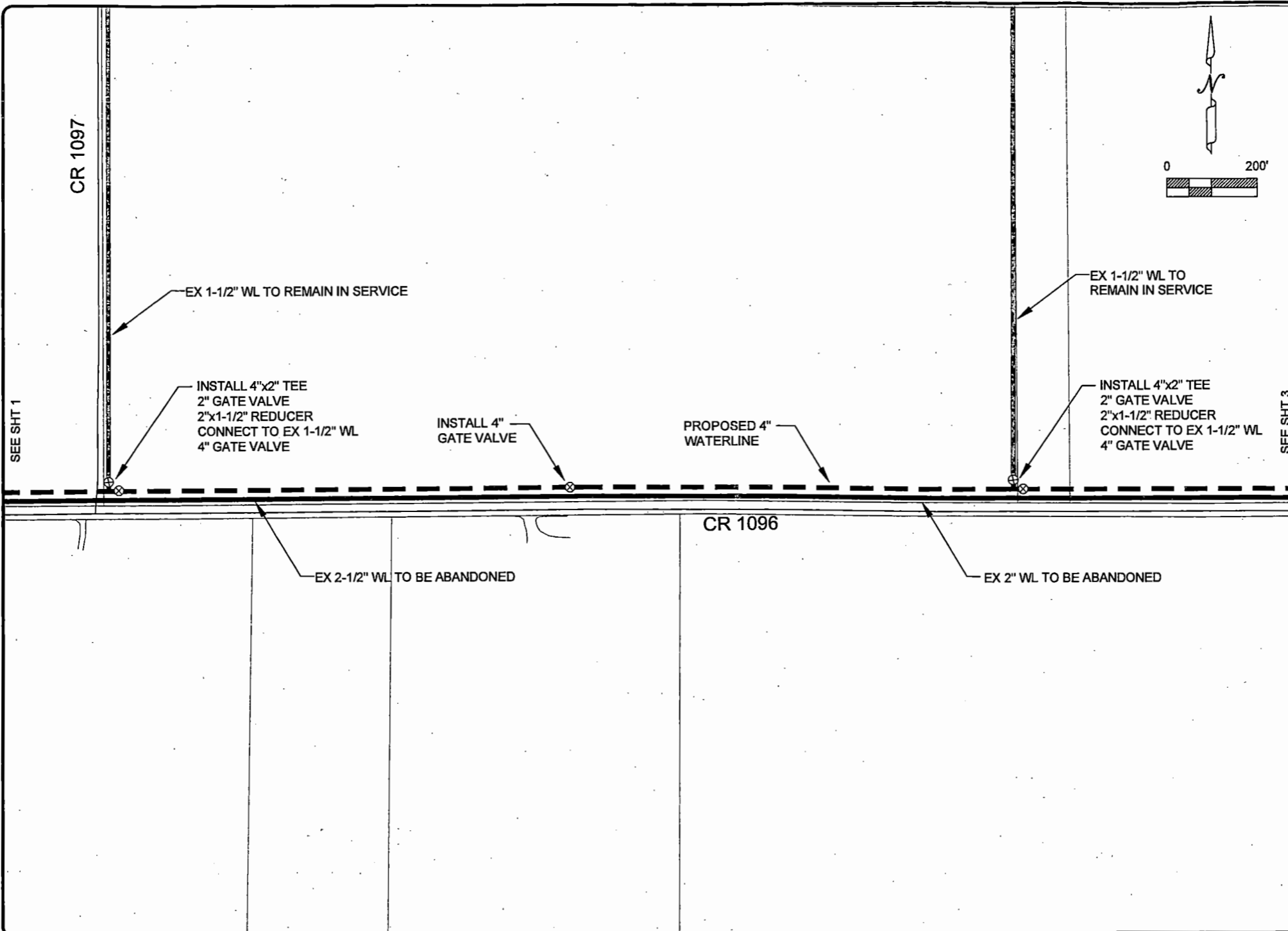
WATERLINE IMPROVEMENTS
 CR 1096 - CR 1101
 FOR
 HICKORY CREEK SPECIAL UTILITY DISTRICT
 HUNT COUNTY, TEXAS

DBI ENGINEERS

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 Phone: 972-784-7777
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 DRAWN: M.K.W.
 FILE: Hickory Creek SUD/WL-CR 1096-CR 1101 STEP-0816/COVERALL

DATE: 02/01/17
 REVISION: N/C
 FIRM REGISTRATION NO.: F-002225



CR 1097

SEE SHT 1

EX 1-1/2" WL TO REMAIN IN SERVICE

INSTALL 4"x2" TEE
2" GATE VALVE
2"x1-1/2" REDUCER
CONNECT TO EX 1-1/2" WL
4" GATE VALVE

INSTALL 4"
GATE VALVE

PROPOSED 4"
WATERLINE

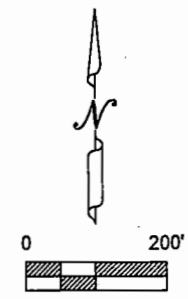
CR 1096

EX 2-1/2" WL TO BE ABANDONED

EX 1-1/2" WL TO
REMAIN IN SERVICE

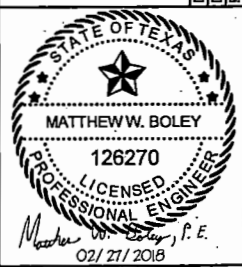
INSTALL 4"x2" TEE
2" GATE VALVE
2"x1-1/2" REDUCER
CONNECT TO EX 1-1/2" WL
4" GATE VALVE

EX 2" WL TO BE ABANDONED



SEE SHT 3

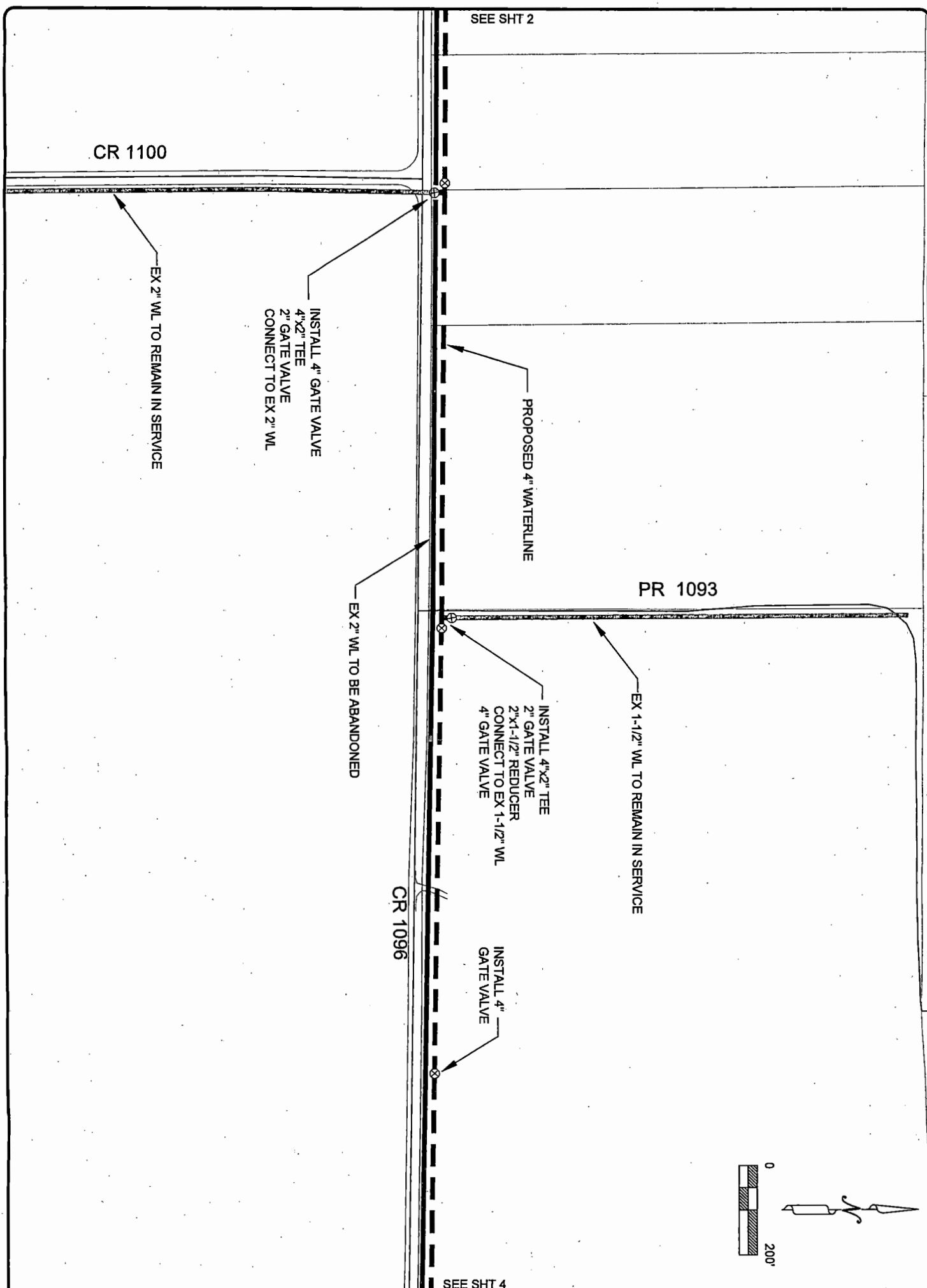
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P.O. Box 606
Farmersville, Texas 75442
Phone 972-784-7777
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WATERLINE IMPROVEMENTS
CR 1096 - CR:1101
FOR
HICKORY CREEK SPECIAL UTILITY DISTRICT
HUNT COUNTY, TEXAS

DESIGNED: M.W.B. DATE: 02/01/17
DRAWN: M.K.W. REVISION: N/C
FIRM REGISTRATION NO.: F-002225
FILE: N:\Hickory Creek SUD\WL-CR.1096-CR.1101 STEP-0816\OVERALL

CR 1096 MAP SHEET



SEE SHT 2

CR 1100

EX 2" WL TO REMAIN IN SERVICE

INSTALL 4" GATE VALVE
4"x2" TEE
2" GATE VALVE
CONNECT TO EX 2" WL

PROPOSED 4" WATERLINE

PR 1093

EX 2" WL TO BE ABANDONED

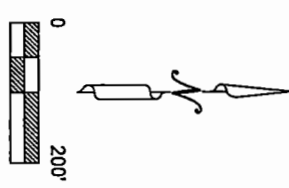
INSTALL 4"x2" TEE
2" GATE VALVE
2"x1-1/2" REDUCER
CONNECT TO EX 1-1/2" WL
4" GATE VALVE

EX 1-1/2" WL TO REMAIN IN SERVICE

CR 1096

INSTALL 4"
GATE VALVE

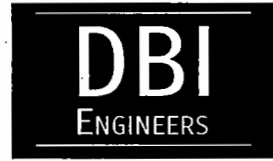
SEE SHT 4



SHEET 3 OF 13

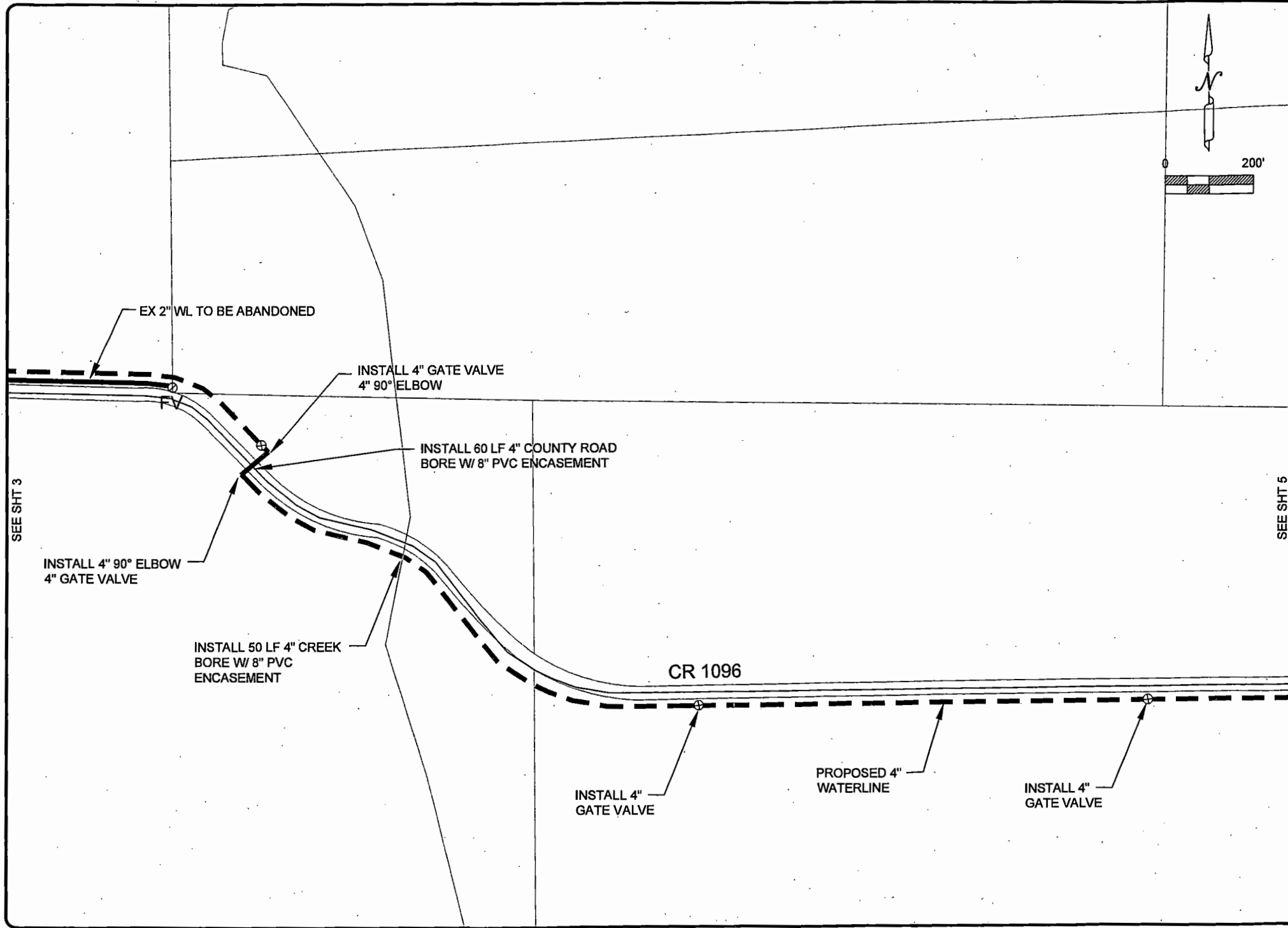
WATERLINE IMPROVEMENTS
CR 1096 - CR 1101
FOR
HICKORY CREEK SPECIAL UTILITY DISTRICT
HUNT COUNTY, TEXAS

CR 1096 MAP SHEET



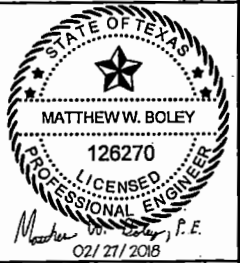
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Phone 972-784-7777
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FILE: N:\Hickory Creek SUDIWL-CR 1096-CR 1101 STEP-0816\OVERALL		



SEE SHT 3

SEE SHT 5

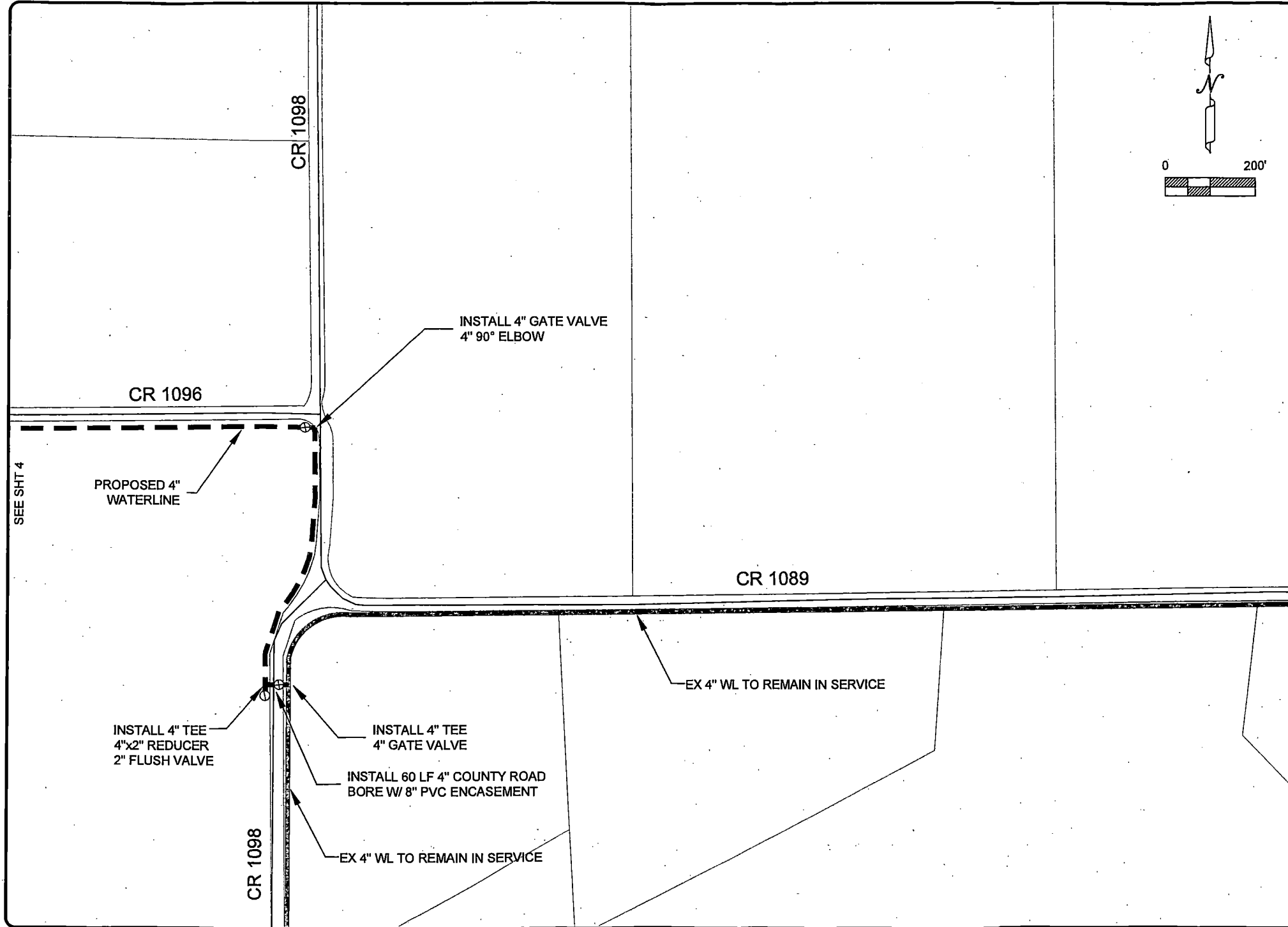


WATERLINE IMPROVEMENTS
 CR 1096 - CR 1101
 FOR
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 HUNT COUNTY, TEXAS

DBI ENGINEERS
 Daniel & Brown Inc.
 118 McKinney St.
 P.O. Box 606
 Farmersville, Texas 75442
 Phone 972-784-7777
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 DRAWN: M.K.W.
 DATE: 02/01/17
 REVISION: NIC
 FIRM REGISTRATION NO.: F-002225
 FILE: N:\\Hickory Creek SUD\\W-CR 1096-CR 1101 STEP-0816\\OVERALL

CR 1096 MAP SHEET



SEE SHT 4

PROPOSED 4" WATERLINE

CR 1096

CR 1098

INSTALL 4" GATE VALVE
4" 90° ELBOW

CR 1089

EX 4" WL TO REMAIN IN SERVICE

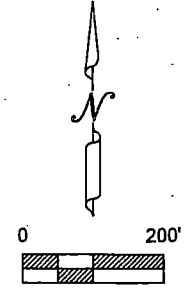
INSTALL 4" TEE
4"x2" REDUCER
2" FLUSH VALVE

INSTALL 4" TEE
4" GATE VALVE

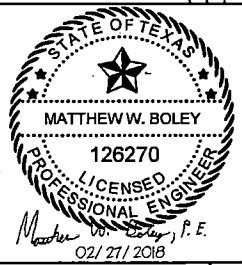
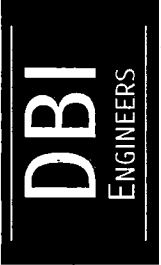
INSTALL 60 LF 4" COUNTY ROAD
BORE W/ 8" PVC ENCASEMENT

EX 4" WL TO REMAIN IN SERVICE

CR 1098



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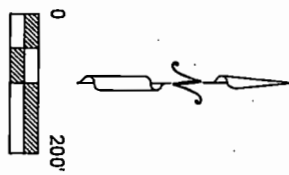
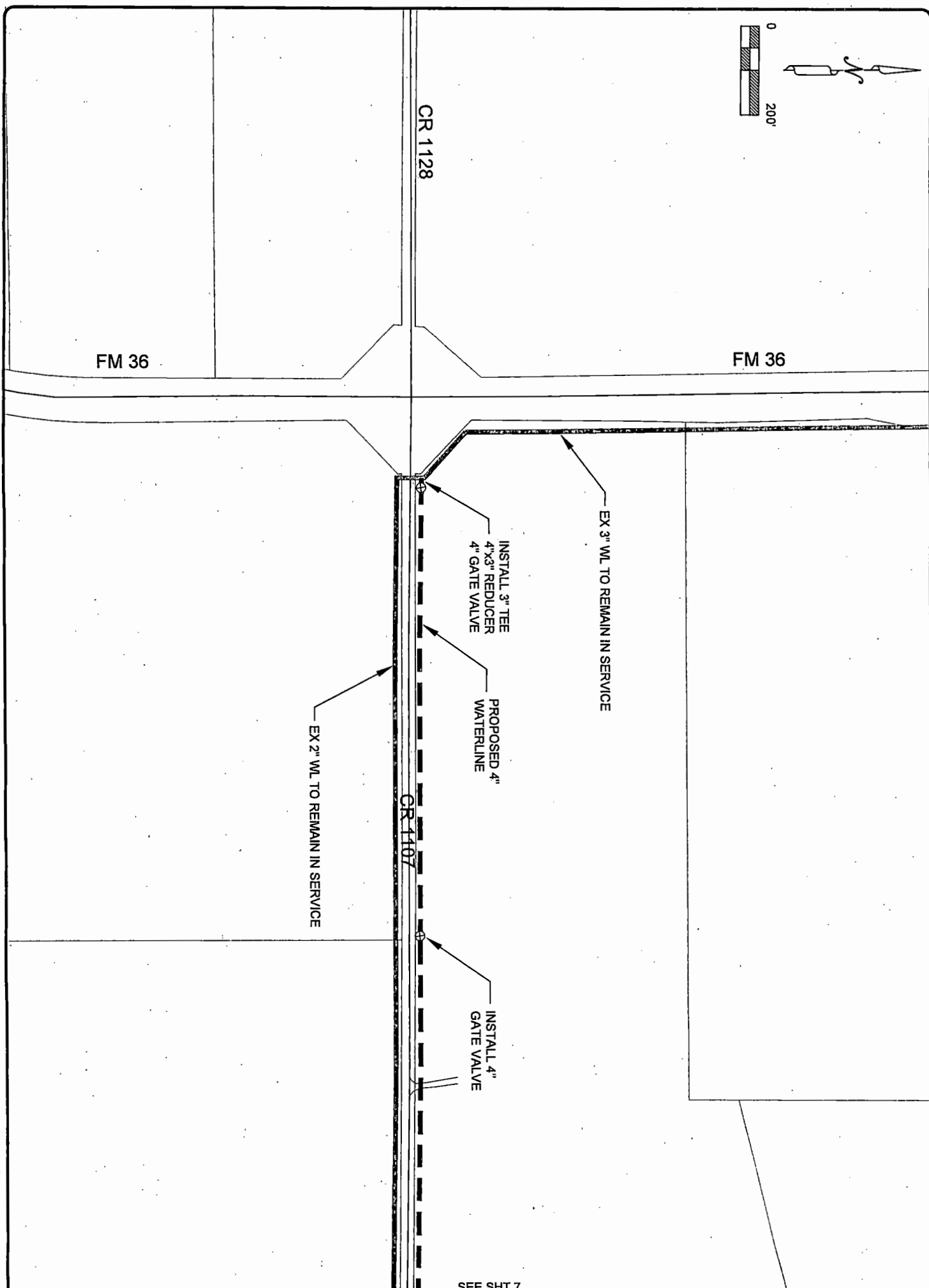


WATERLINE IMPROVEMENTS
CR 1096 - CR 1101
FOR
HICKORY CREEK SPECIAL UTILITY DISTRICT
HUNT COUNTY, TEXAS

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DRAWN: M.K.W.
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DATE: 02/01/17
REVISION: NIC
FIRM REGISTRATION NO.: F-002225

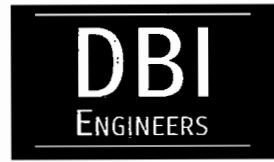
CR 1096 MAP SHEET



SHEET 6 OF 13

WATERLINE IMPROVEMENTS
 CR 1096 - CR 1101
 FOR
 HICKORY CREEK SPECIAL UTILITY DISTRICT
 HUNT COUNTY, TEXAS

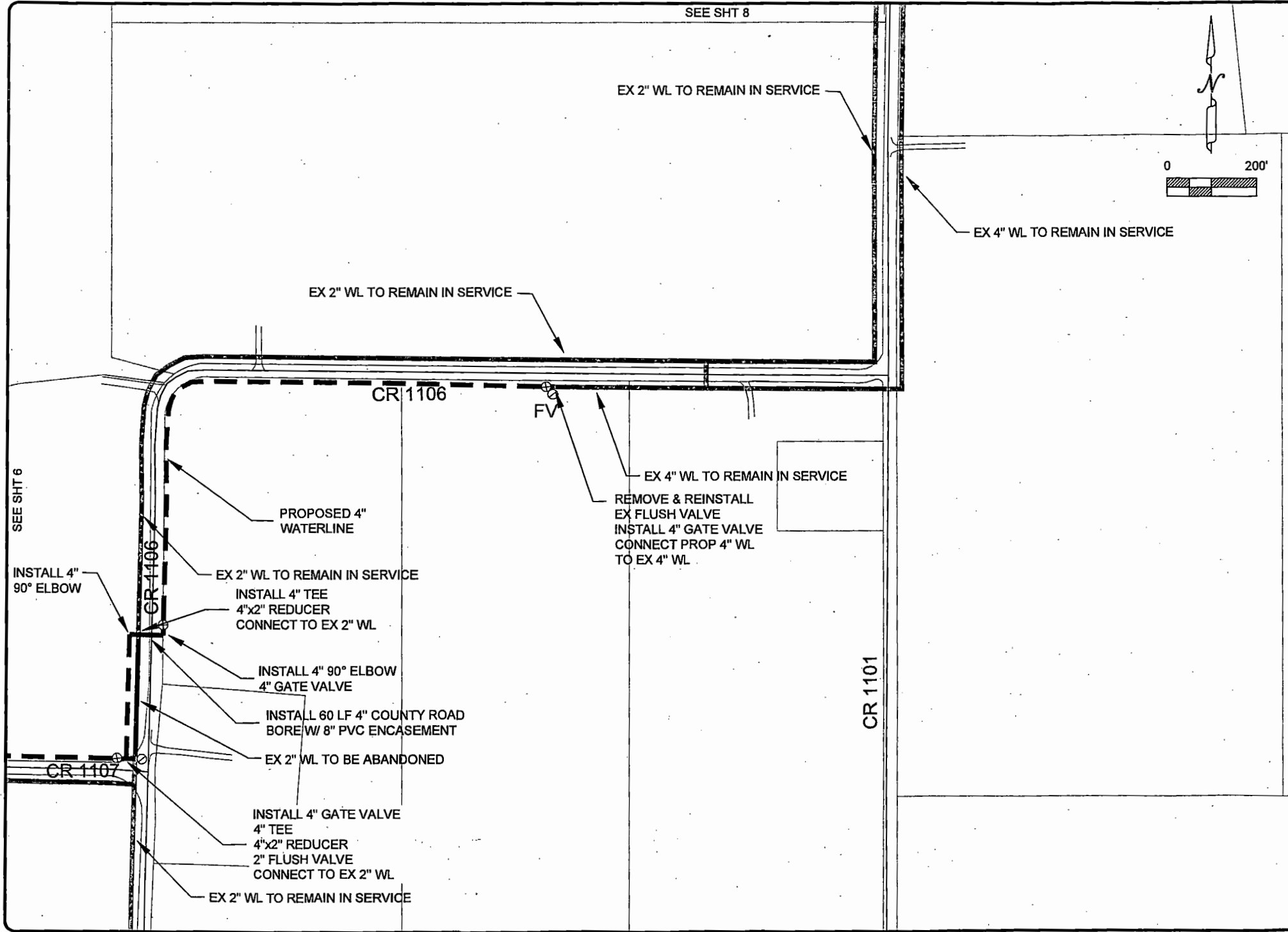
CR 1107 MAP SHEET



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DRAWN: M.K.W.	REVISION: N/C	F-002225
FILE: N:\Hickory Creek SUD\W-CR 1096-CR 1101 STEP-0816\OVERALL		

SEE SHT 7



SEE SHT 8

EX 2" WL TO REMAIN IN SERVICE

EX 4" WL TO REMAIN IN SERVICE

EX 2" WL TO REMAIN IN SERVICE

CR 1106

FV

EX 4" WL TO REMAIN IN SERVICE

REMOVE & REINSTALL
EX FLUSH VALVE
INSTALL 4" GATE VALVE
CONNECT PROP 4" WL
TO EX 4" WL

PROPOSED 4"
WATERLINE

EX 2" WL TO REMAIN IN SERVICE

INSTALL 4" TEE
4"x2" REDUCER
CONNECT TO EX 2" WL

INSTALL 4" 90° ELBOW
4" GATE VALVE

INSTALL 60 LF 4" COUNTY ROAD
BORE/W 8" PVC ENCASEMENT

EX 2" WL TO BE ABANDONED

INSTALL 4" GATE VALVE
4" TEE
4"x2" REDUCER
2" FLUSH VALVE
CONNECT TO EX 2" WL

EX 2" WL TO REMAIN IN SERVICE

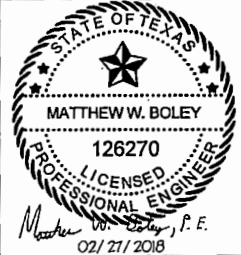
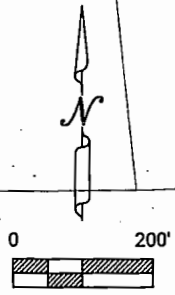
SEE SHT 6

INSTALL 4"
90° ELBOW

CR 1106

CR 1107

CR 1101



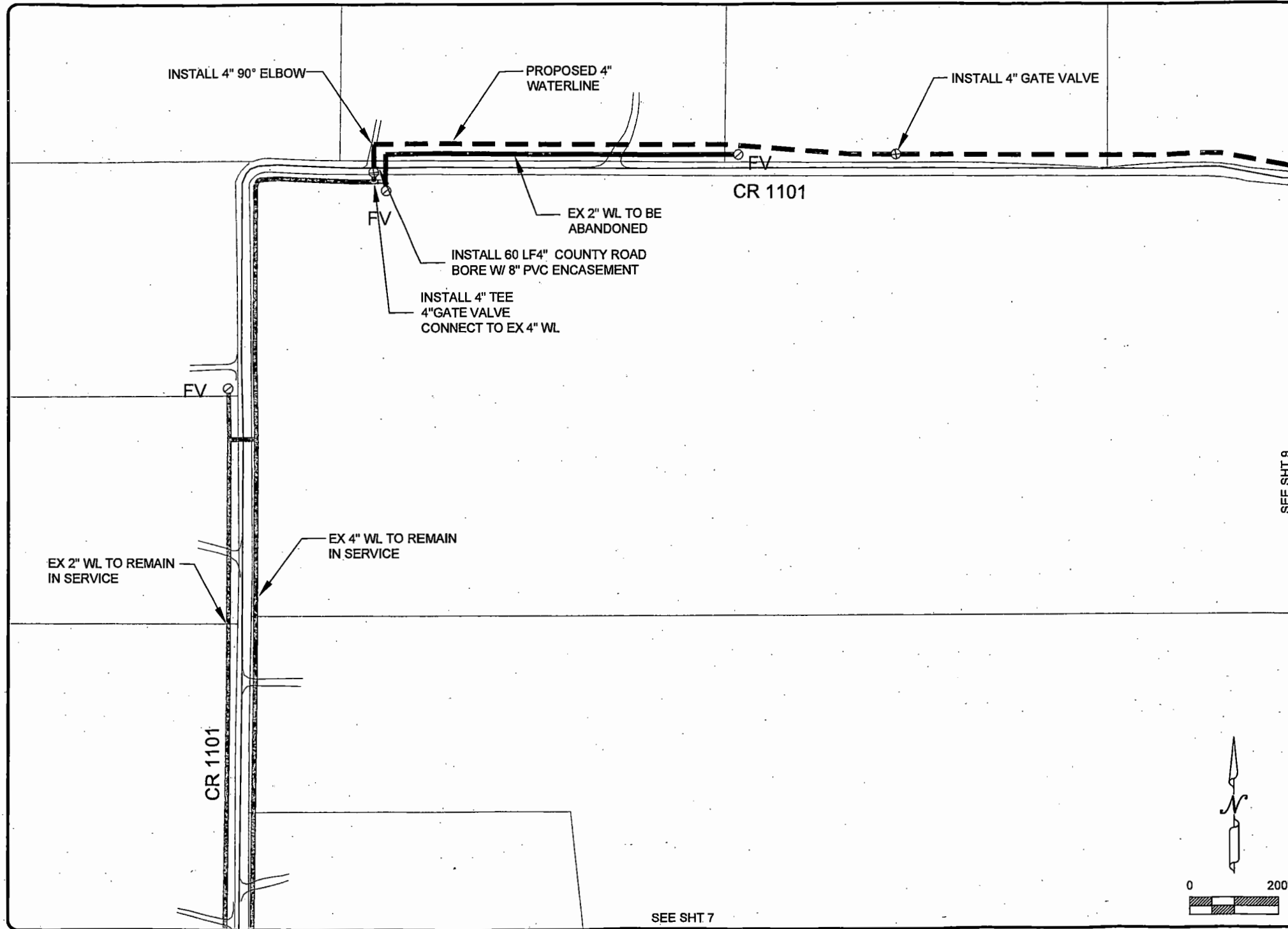
WATERLINE IMPROVEMENTS
CR 1096 - CR 1101
FOR
HICKORY CREEK SPECIAL UTILITY DISTRICT
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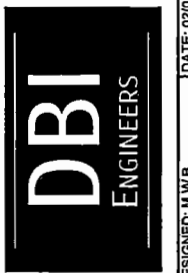


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DRAWN: M.K.W.
DATE: 02/01/17
REVISION: N/C
FIRM REGISTRATION NO.: F-002225
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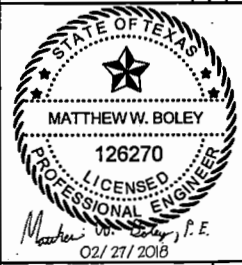
CR 1106 MAP SHEET



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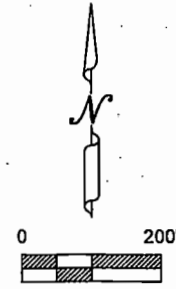


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 FIRM REGISTRATION NO.: F-002225
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SEE SHT 9

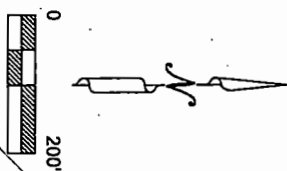
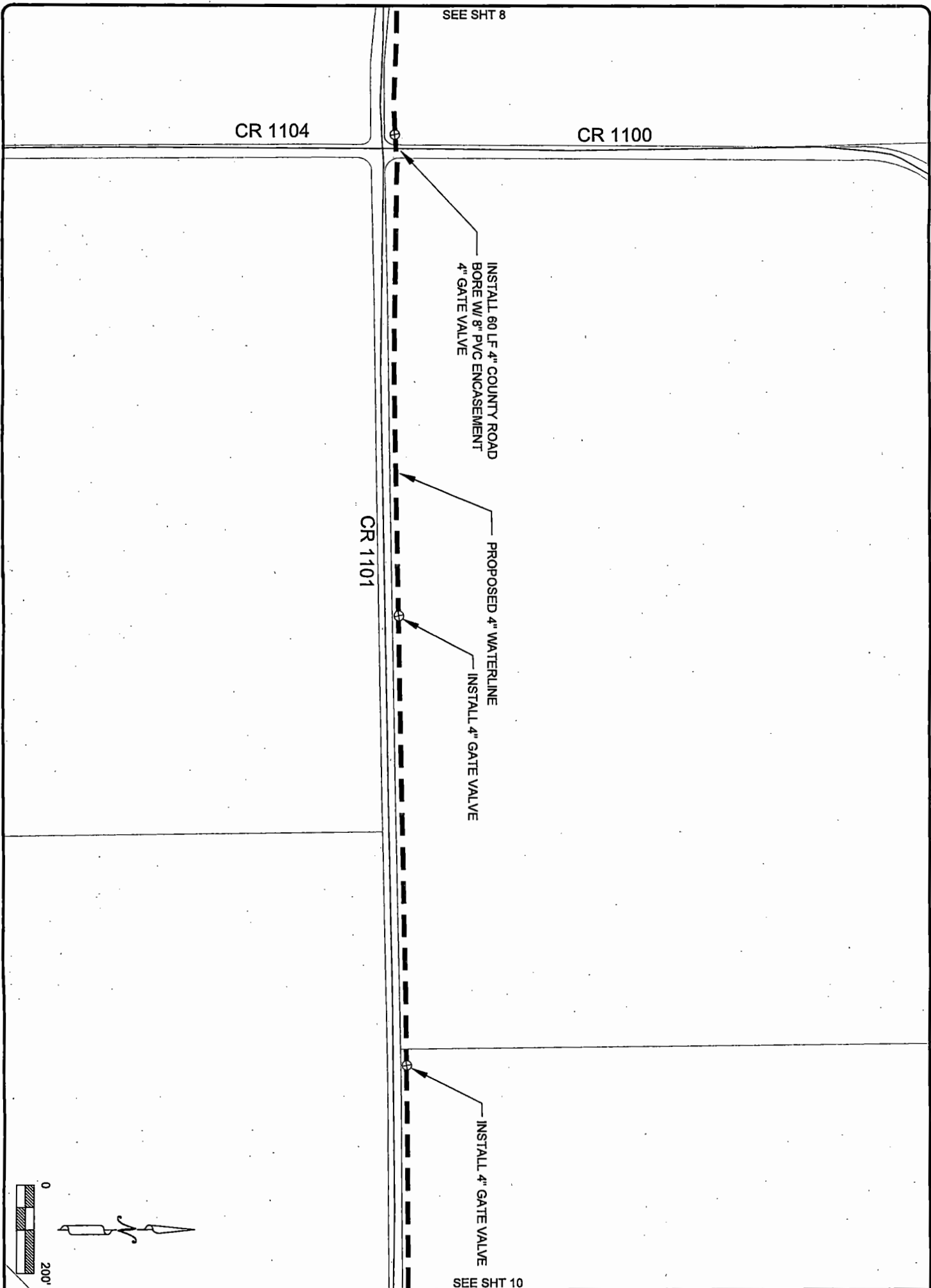
WATERLINE IMPROVEMENTS
 CR 1096 - CR 1101
 FOR
 HICKORY CREEK SPECIAL UTILITY DISTRICT
 HUNT COUNTY, TEXAS



SEE SHT 7

SHEET 8 OF 13

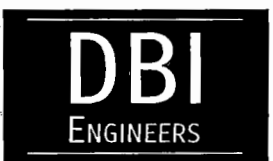
CR 1101 MAP SHEET



SHEET 9 OF 13

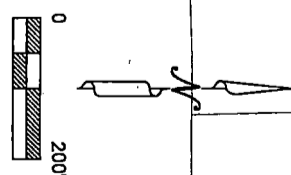
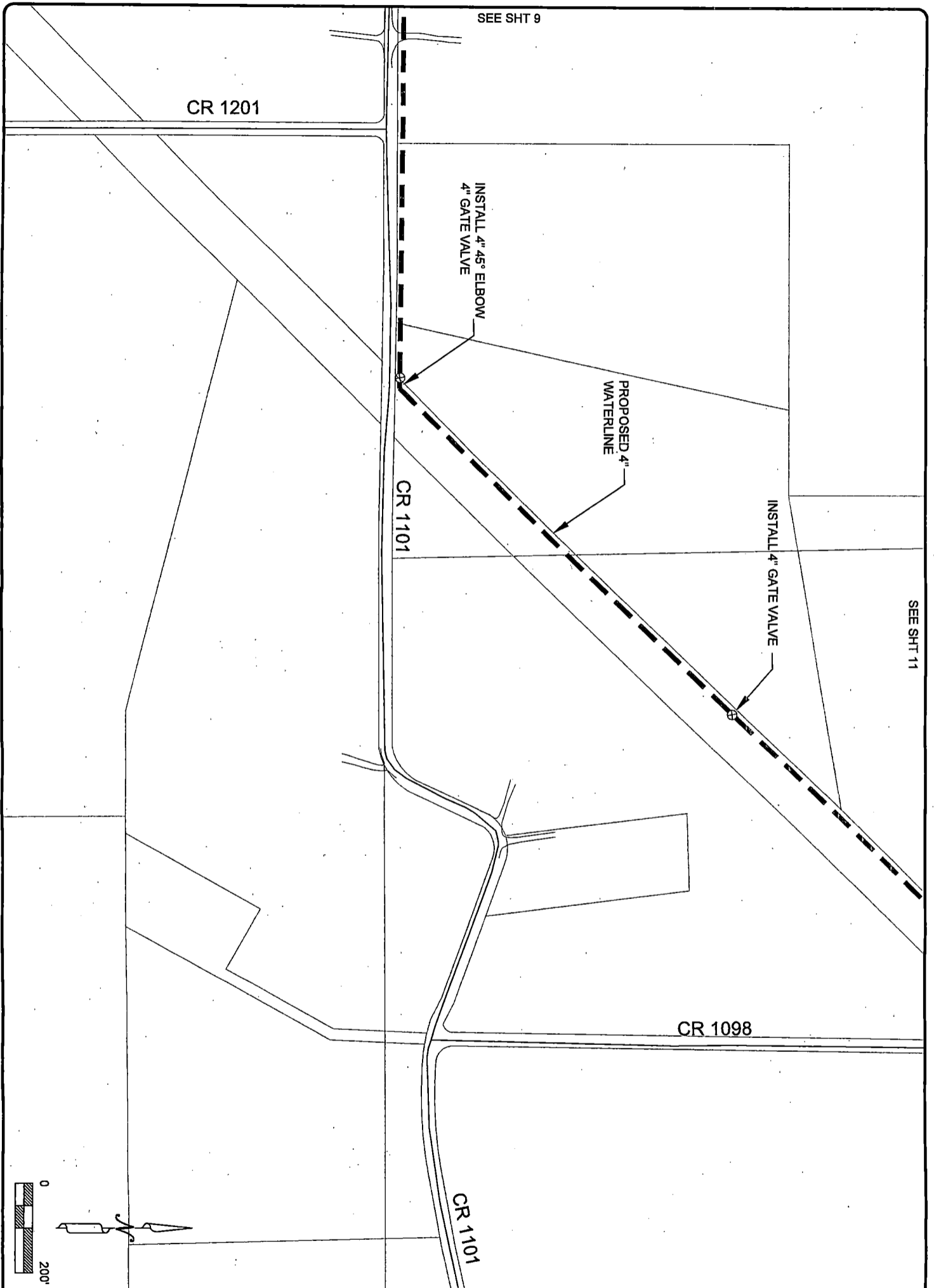
WATERLINE IMPROVEMENTS
 CR 1096 - CR 1101
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 HICKORY CREEK SPECIAL UTILITY DISTRICT
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CR 1101 MAP SHEET



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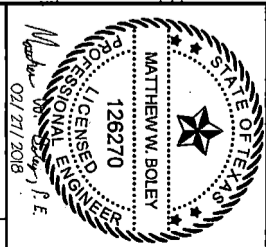
DESIGNED: M.W.B.	DATE: 02/01/17	FIRM REGISTRATION NO.:
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FILE: N:\Hickory Creek SUD\WL-CR 1096-CR 1101 STEP-0816\OVERALL		



SHEET 10 OF 13

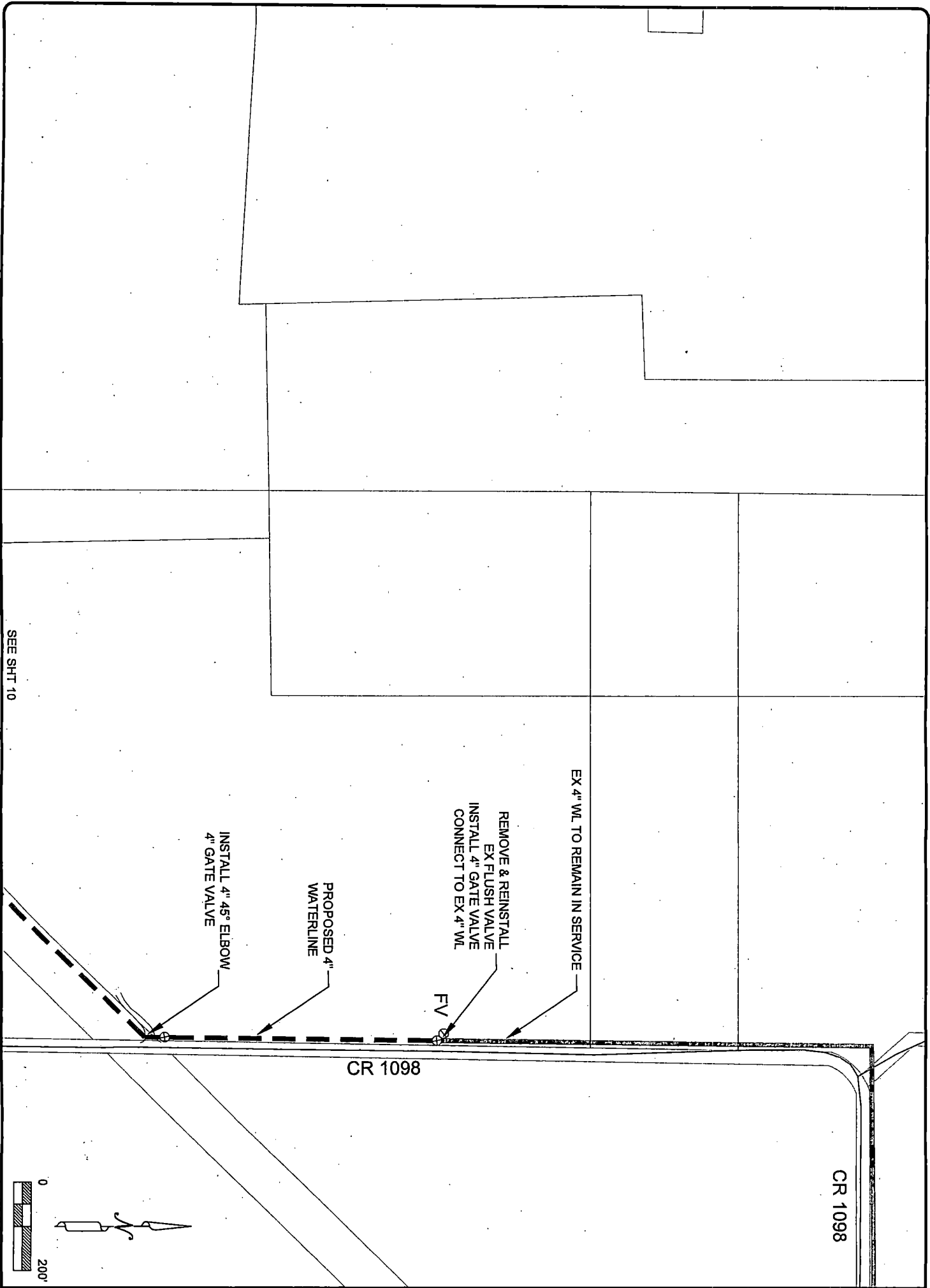
WATERLINE IMPROVEMENTS
CR 1096 - CR 1101
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CR 1101 MAP SHEET



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FILE: N:\Hickory Creek SUDWL-CR 1096-CR 1101 STEP-0816IOVERALL		



SEE SHT 10

INSTALL 4" 45° ELBOW
4" GATE VALVE

PROPOSED 4"
WATERLINE

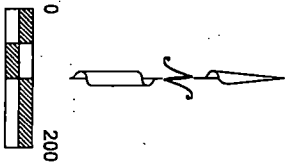
REMOVE & REINSTALL
EX FLUSH VALVE
INSTALL 4" GATE VALVE
CONNECT TO EX 4" WL

EX 4" WL TO REMAIN IN SERVICE

FV

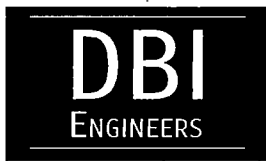
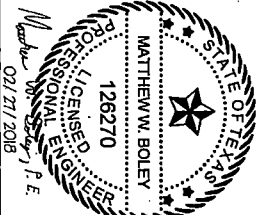
CR 1098

CR 1098



WATERLINE IMPROVEMENTS
CR 1096 - CR 1101
FOR
HICKORY CREEK SPECIAL UTILITY DISTRICT
HUNT COUNTY, TEXAS

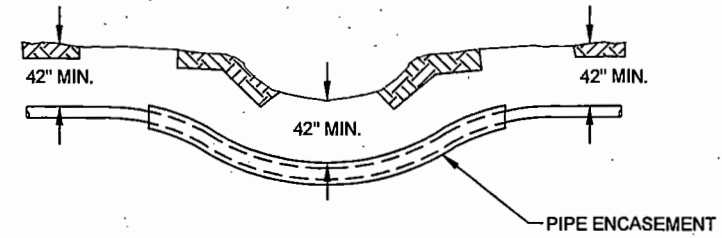
CR 1098 MAP SHEET



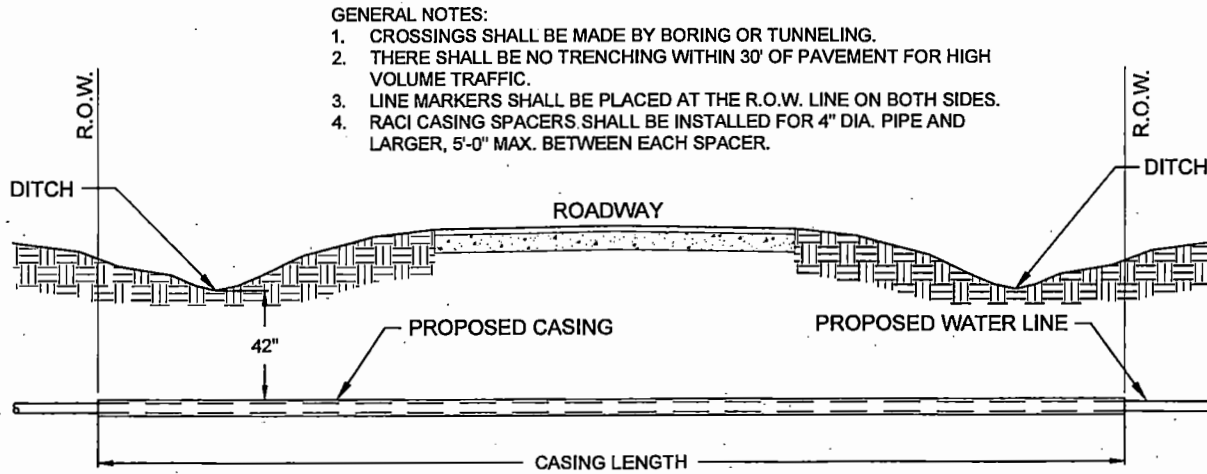
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DESIGNED: M.W.B.	DATE: 02/01/17	FIRM REGISTRATION NO.:
DRAWN: M.K.W.	REVISION: N/C	F-002225
FILE: N:\Hickory Creek SUDIWL-CR 1096-CR 1101 STEP-0816OVERALL		

SHEET 11 OF 13



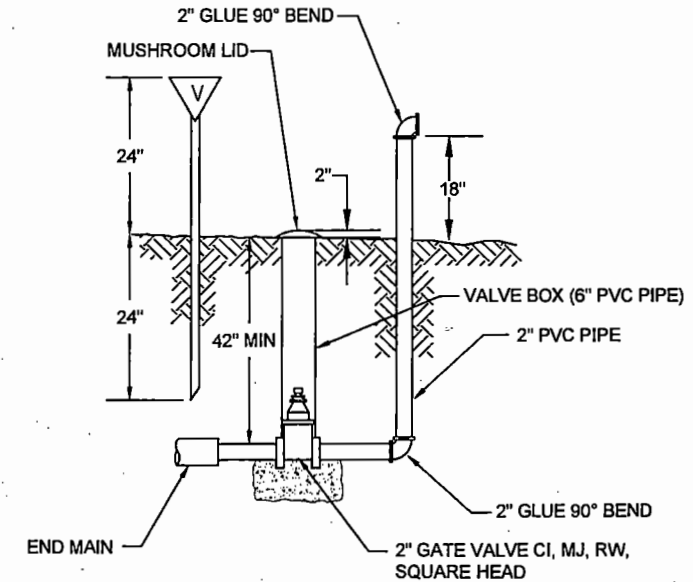
TYPICAL CREEK CROSSING DETAIL
 NOT TO SCALE



GENERAL NOTES:

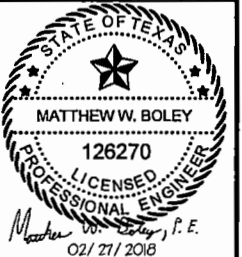
1. CROSSINGS SHALL BE MADE BY BORING OR TUNNELING.
2. THERE SHALL BE NO TRENCHING WITHIN 30' OF PAVEMENT FOR HIGH VOLUME TRAFFIC.
3. LINE MARKERS SHALL BE PLACED AT THE R.O.W. LINE ON BOTH SIDES.
4. RACI CASING SPACERS SHALL BE INSTALLED FOR 4" DIA. PIPE AND LARGER, 5'-0" MAX. BETWEEN EACH SPACER.

ROAD BORE PROFILE DETAIL
 NOT TO SCALE



FLUSH VALVE DETAIL
 NOT TO SCALE

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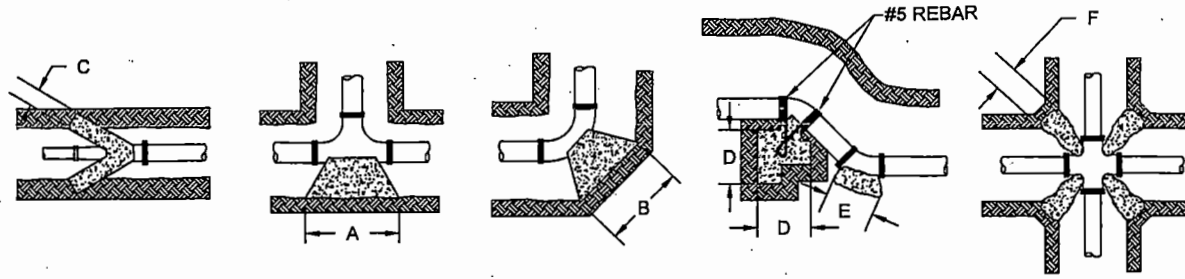
DESIGNED: M.W.B.
 DRAWN: M.K.W.
 DATE: 02/01/17
 REVISION: MC
 FIRM REGISTRATION NO.: F-002225
 FILE: N:\Hickory Creek SUD\W-L-CR 1096-CR 1101 STEP-0816\OVERALL

CR 1098 MAP SHEET

- NOTES:
1. CONCRETE FOR THRUST BLOCKING SHALL BE MIN. 2000 PSI STRENGTH.
 2. FORMS FOR THRUST BLOCKS SHALL NOT BE REQUIRED UNLESS PROPER DIMENSIONS CANNOT BE MAINTAINED.

MINIMUM THRUST BLOCK DIMENSIONS

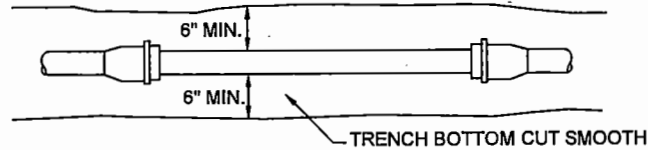
PIPE SIZE	A	B	C	D	E	F
6"	18"	20"	12"	26"	18"	18"
8"	22"	26"	14"	29"	21"	22"
10"	28"	34"	18"	35"	25"	28"
12"	34"	40"	20"	42"	30"	34"



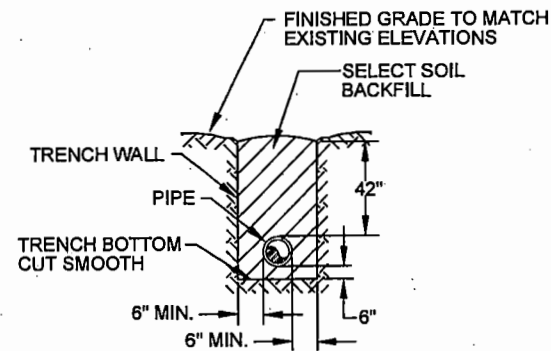
THRUST BLOCK DETAILS
NOT TO SCALE

GENERAL NOTES:

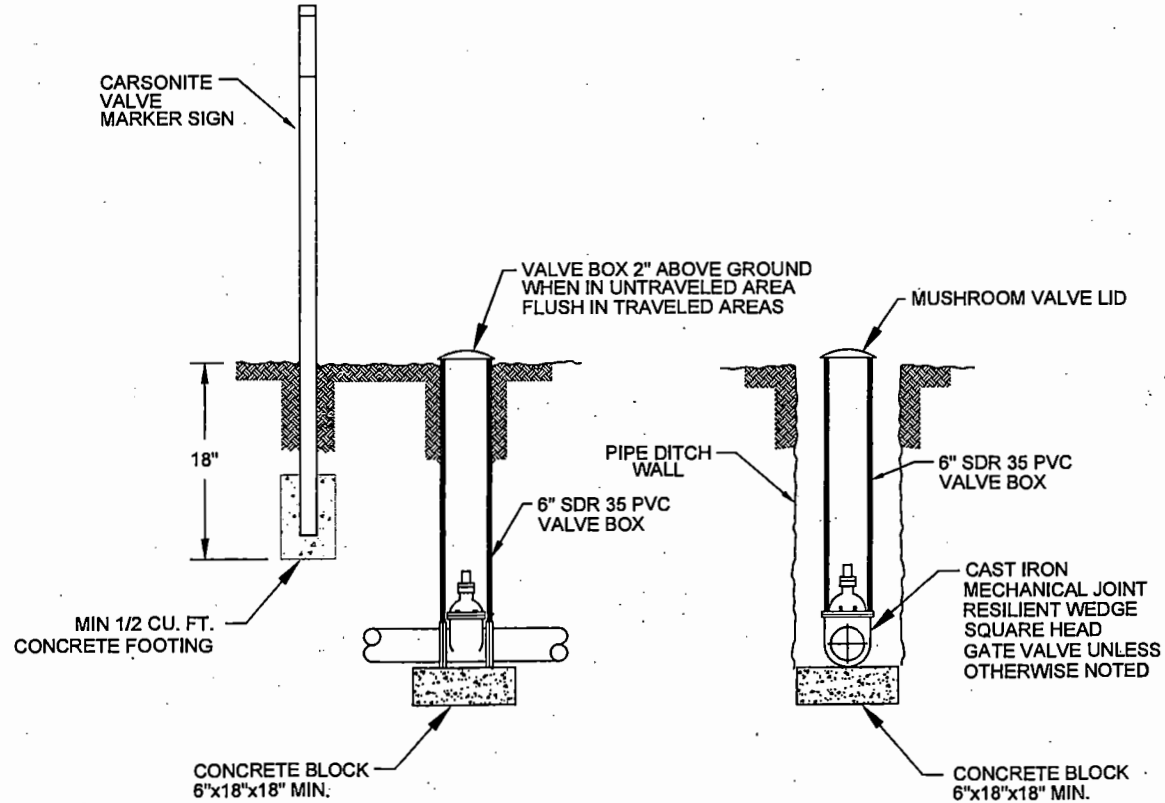
1. SELECT BACKFILL SHALL BE SOIL MATERIAL. ROCK IN SELECT BACKFILL SHALL BE LIMITED TO 2" MAX. DIMENSION.
2. ABOVE DETAILS SHALL APPLY TO ALL PVC WATER PIPE 12" IN DIAMETER AND SMALLER.



PLAN VIEW

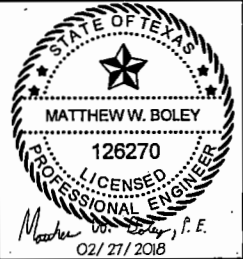


LAYING DETAILS FOR PVC WATER PIPE
NOT TO SCALE



VALVE BLOCKING DETAILS
NOT TO SCALE

Daniel & Brown Inc.
118 McKinney St.
P.O. Box 606
Farmersville, Texas 75442
Phone 972-784-7777
www.DBIConsultants.com



WATERLINE IMPROVEMENTS
CR 1096 - CR 1101
FOR
HICKORY CREEK SPECIAL UTILITY DISTRICT
HUNT COUNTY, TEXAS

CR 1098 MAP SHEET

DESIGNED: M.W.B.
DRAWN: M.K.W.
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