

**EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD**

**ADDENDUM
NO. 2**

FOR

Planned Waterline Replacement Program Phase 13 – Cedar Grove

BID NUMBER 34-23

JUNE 23RD, 2023

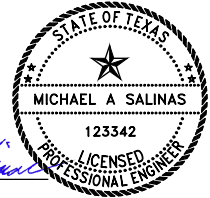
In accordance with the Instruction to Bidders of the Contract Documents, the following revision to the Plans and/or Specifications shall become part of the Contract Documents and the Bidders shall acknowledge receipt thereof on their Bid Proposal.



Mirtha Solis
Senior Purchasing Agent



Michael Salinas P.E.
Civil Engineer, TX PE No. 123342
Garver



6/23/23
Date

6/23/2023
Date

*The Administrator's signature certifies only that this document shall become part of the contract documents for the referenced project. His signature is not a representation that the content of this document is technically correct.

ADDENDUM No. 2
Planned Waterline Replacement Phase 13 – Cedar Grove
Bid No. 34-23
June 23rd, 2023

Receipt of this Addendum must be acknowledged in writing to El Paso Water as required by the bid Documents.

Questions from Bidders:

No Questions

Removal and Replacement of the Following Sections:

1. Section 00 30 00 Bid Form
2. Section 01 22 13 Measurement and Payment

Addition of the Following Sections:

1. 33 41 26 Polyvinyl Chloride Pipe for Installation by Pipe Bursting

Attachments:

1. Section 00 30 00 Bid Form
2. Section 01 22 13 Measurement and Payment
3. 33 41 26 Polyvinyl Chloride Pipe for Installation by Pipe Bursting

SECTION 00300

BID FORM

PROJECT IDENTIFICATION: El Paso Water Utilities

Planned Waterline Replacement Program Phase 13 – Cedar Grove

BID NO.: 34-23

Name and Address of OWNER:

El Paso Water Utilities
Public Service Board
1154 Hawkins Boulevard
P. O. Box 511
El Paso, Texas 79961

Name and Address of BIDDER:

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for ninety days after the day of Bid opening. In the case of State, Federal, or NADBank-funded projects, all Bids will remain subject to acceptance for 90 days or such reasonable time as the funding agency may require. BIDDER will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within ten days after the date of OWNER's Notice of Award.
3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:
 - A. BIDDER has examined copies of all the Bidding Documents and of the following Addenda **(receipt of all which is hereby acknowledged)**:

Date	Number
6/23/2023	Addendum No. 2

- B. BIDDER has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance, or furnishing of the Work.
 - C. BIDDER has studied carefully all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in Paragraph 5.03 of the General Conditions, and accepts the determination set forth in Paragraph SC-5.03 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings.
 - D. BIDDER has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests and studies (in addition to or to supplement those referred to in "C." above) which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as BIDDER considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 5.03 of the General Conditions.
 - E. BIDDER has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities.
 - F. BIDDER has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents.
 - G. BIDDER has given ENGINEER written notice of all conflicts, errors, or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to BIDDER.
 - H. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.
 - I. All prices quotes by the bidder shall be entirely in United States Currency (U.S. Dollars).
4. Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

**TEXAS ETHICS COMMISSION
REQUIREMENT**

*****IN THE EVENT YOU RECEIVE AN AWARD OF THIS CONTRACT*****

Reference: FORM 1295 (revised 12/22/17) "Certificate of Interested Parties"

**A business entity must file Form 1295 electronically with the Texas Ethics Commission using the Commission's online filing application, which can be found at:
https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm**

SEE INSTRUCTIONS: Form 1295 and Sample Form 1295 (Section 00302)

BASE BID I – WATER DISTRIBUTION SYSTEM

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>UOM</u>	<u>Brief Description of Item</u>	<u>Unit Bid Price</u>	<u>Extended Amount (Qty. x Unit Price)</u>
1.	1	L.S.	Insurance, Bonds, And Move-In Related Expenses, Not To Exceed 5% Of Bid Item Nos. 2 Through 28 (If Item No. 1 Exceeds 5%, Bid May Be Deemed Non-Responsive).	\$ _____	\$ _____
2.	138	L.F.	Furnish And Install 6-Inch Diameter PVC AWWA C900 DR-14 Water Pipe By Open Cut With Ductile Iron Fittings And Mechanical Joint Restraints, Complete In Place, Including Cut And Cap Existing 6-Inch Diameter Water Pipe.	\$ _____	\$ _____
3.	12,325	L.F.	Furnish And Install 8-Inch Diameter PVC AWWA C900 DR-14 Water Pipe By Open Cut With Ductile Iron Fittings And Mechanical Joint Restraints, Complete In Place.	\$ _____	\$ _____
4.	36	L.F.	Furnish and Install 16-Inch Diameter Steel Casing By Open-Cut Installation.	\$ _____	\$ _____
5.	15	EACH	Furnish And Install Buried 6-Inch Gate Valve With Valve Box And Associated Appurtenances, Complete In Place.	\$ _____	\$ _____
6.	62	EACH	Furnish And Install Buried 8-Inch Gate Valve With Valve Box And Associated Appurtenances, Complete In Place.	\$ _____	\$ _____
7.	1	EACH	Furnish and Install Buried 6-Inch Inserta Valve with Valve Box and Associated Appurtenances, Complete In Place.	\$ _____	\$ _____

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>UOM</u>	<u>Brief Description of Item</u>	<u>Unit Bid Price</u>	<u>Extended Amount (Qty. x Unit Price)</u>
8.	15	EACH	Connect To Existing 6-Inch Waterline (Cut-In Connection), Including Cut And Cap Existing 4-Inch Diameter Water Pipe, Complete In Place.	\$ _____	\$ _____
9.	2	EACH	Connect To Existing 8-Inch Waterline (Cut-In Connection), Complete In Place.	\$ _____	\$ _____
10.	15	EACH	Furnish And Install New Fire Hydrant Assembly With Anti-Terrorism Check Valve, Complete In Place.	\$ _____	\$ _____
11.	10	EACH	Remove And Salvage Fire Hydrant Assembly And Valve. Complete In Place.	\$ _____	\$ _____
12.	12	EACH	Remove and Relocate Existing Residential Water Meter, Including Reconnect From Household To Relocated Water Meter, 3/4-Inch Copper Service Line, Associated Appurtenances, And Reconnect From Water Main To Relocated Water Meter. Complete in Place.	\$ _____	\$ _____
13.	354	EACH	Furnish And Install 3/4-Inch Water Services, Including Copper Service Line, Associated Appurtenances, And Reconnect From New Water Main To Residential Water Meter By Open-Cut Installation. Complete in Place.	\$ _____	\$ _____
14.	9,550	S.Y.	Remove And Replace 2-Sack Soil Cement Backfill As Base Course Layer For All Pipe Trenched Street Sections, Complete In Place (Bridge).	\$ _____	\$ _____
15.	9,550	S.Y.	Remove And Replace Existing HMAC Pavement, 2-Inch Asphalt Thickness, For All Pipe Trenched Street Sections (HMAC Type C), Complete In Place (Bridge).	\$ _____	\$ _____
16.	37,187	S.Y.	Perform Pavement Milling, HMAC Inlay, And Overlay (HMAC Type C), 2-Inch Asphalt Thickness, Complete In Place (Beyond Bridge).	\$ _____	\$ _____
17.	90	L.F.	Thermoplastic Pavement Markings. Complete In Place.	\$ _____	\$ _____
18.	368	S.Y.	Remove And Replace Existing Concrete Sidewalk, Complete In Place.	\$ _____	\$ _____
19.	1,639	L.F.	Remove And Replace Existing Concrete Curb And Gutter, Complete In Place.	\$ _____	\$ _____

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>UOM</u>	<u>Brief Description of Item</u>	<u>Unit Bid Price</u>	<u>Extended Amount (Qty. x Unit Price)</u>
20.	6	S.Y.	Remove And Replace Existing Concrete Driveway, Complete In Place.	\$ _____	\$ _____
21.	1	EACH	Remove and Replace Curb Ramp, Complete In Place	\$ _____	\$ _____
22.	100	L.F.	Remove And Replace Garden Wall and Fence, Complete In Place.	\$ _____	\$ _____
23.	42	EACH	Construction Of Concrete Collar. Complete In Place	\$ _____	\$ _____
24.	153	EACH	Adjust To Grade Manhole, Water Valve, Monument, and Utility Box. Complete In Place.	\$ _____	\$ _____
25.	12,463	L.F.	Trench Safety For Pipelines: Trench Box Method Or Shoring, Sheeting And Bracing Methods, Including All Materials, Labor, And Related Appurtenances.	\$ _____	\$ _____
26.	1	L.S.	Provide Storm Water Pollution Prevention Plan.	\$ _____	\$ _____
27.	1	L.S.	Provide And Maintain Approved Traffic Control Plan, Including All Materials, Labor, And Related Appurtenances.	\$ _____	\$ _____
28.	1	L.S.	Video Record Project Site Before And After Construction Including All Materials, Labor, And Related Incidentals.	\$ _____	\$ _____
29.	1	L.S.	Additional Work Not Included in Bid Items.	\$200,000	\$200,000

Quantities are not guaranteed.

TOTAL BASE BID I – WATER DISTRIBUTION SYSTEM UNIT PRICE (ITEMS 1 THROUGH 29)

\$ _____

(UNIT PRICE IN WORDS):

BASE BID II – SANITARY SEWER SYSTEM

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>UOM</u>	<u>Brief Description of Item</u>	<u>Unit Bid Price</u>	<u>Extended Amount (Qty. x Unit Price)</u>
1.	1	L.S.	Insurance, Bonds, And Move-In Related Expenses, Not To Exceed 5% Of Bid Item Nos. 2 Through 16 (If Item No. 1 Exceeds 5%, Bid May Be Deemed Non-Responsive).	\$ _____	\$ _____
2.	740	L.F.	Furnish and Install 8-Inch Diameter PVC SDR-35 Sanitary Sewer Pipe By Open Cut, Including Testing, CCTV, And Abandon Existing 8-Inch Diameter Gravity Sewer Pipe. Complete In Place.	\$ _____	\$ _____
3	17	EACH	Furnish and Install 4-Inch Diameter PVC SDR 35 Sanitary Sewer Service Lateral, Including Service Lateral Reconnection, Clean, and Test. Complete in Place.	\$ _____	\$ _____
4	4	EACH	Furnish and Install 4-Foot Polymer Concrete Manhole, Complete in Place.	\$ _____	\$ _____
5.	16	V.F.	4-Foot Manhole Additional Depth Beyond 6-Feet, Complete in Place.	\$ _____	\$ _____
6.	1	EACH	Remove and Replace Existing Sanitary Manhole With A 4-Foot Polymer Concrete Manhole, Complete In Place.	\$ _____	\$ _____
7.	1	L.S.	Provide Temporary Bypass Pumping System. Complete In Place.	\$ _____	\$ _____
8.	832	S.Y.	Remove And Replace 2-Sack Soil Cement Backfill As Base Course Layer For All Pipe Trenched Street Sections, Complete In Place (Bridge).	\$ _____	\$ _____
9.	832	S.Y.	Remove And Replace Existing HMAC Pavement, 2-Inch Asphalt Thickness, For All Pipe Trenched Street Sections (HMAC Type C), Complete In Place (Bridge).	\$ _____	\$ _____
10.	269	S.Y.	Perform Pavement Milling, HMAC Inlay, And Overlay (HMAC Type C), 2-Inch Asphalt Thickness, Complete In Place (Beyond Bridge).	\$ _____	\$ _____
11.	20	L.F.	Pavement Markings. Complete In Place.	\$ _____	\$ _____

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>UOM</u>	<u>Brief Description of Item</u>	<u>Unit Bid Price</u>	<u>Extended Amount (Qty. x Unit Price)</u>
12.	5	EACH	Adjust To Grade Manhole, Water Valve, and Utility Box. Complete In Place.	\$ _____	\$ _____
13.	1,018	L.F.	Trench Safety For Pipelines: Trench Box Method Or Shoring, Sheeting And Bracing Methods, Including All Materials, Labor, And Related Appurtenances.	\$ _____	\$ _____
14.	1	L.S.	Provide Storm Water Pollution Prevention Plan.	\$ _____	\$ _____
15.	1	L.S.	Provide And Maintain Approved Traffic Control Plan, Including All Materials, Labor, And Related Appurtenances.	\$ _____	\$ _____
16.	1	L.S.	Video Record Project Site Before And After Construction Including All Materials, Labor, And Related Incidentals.	\$ _____	\$ _____
17.	1	L.S.	Additional Work Not Included in Bid Items.	\$100,000	\$100,000

Quantities are not guaranteed.

TOTAL BASE BID II – SANITARY SEWER SYSTEM UNIT PRICE (ITEMS 1 THROUGH 17)

\$ _____

(UNIT PRICE IN WORDS):

ALTERNATIVE BID I – WATER DISTRIBUTION SYSTEM

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>UOM</u>	<u>Brief Description of Item</u>	<u>Unit Bid Price</u>	<u>Extended Amount (Qty. x Unit Price)</u>
1.	1	L.S.	Insurance, Bonds, And Move-In Related Expenses, Not To Exceed 5% Of Bid Item Nos. 2 Through 29 (If Item No. 1 Exceeds 5%, Bid May Be Deemed Non-Responsive).	\$ _____	\$ _____
2.	138	L.F.	Furnish And Install 6-Inch Diameter PVC AWWA C900 DR-14 Water Pipe By Pipe Bursting with Ductile Iron Fittings and Mechanical Joint Restraints, Complete In Place, Including Cut And Cap Existing 6-Inch Diameter Water Pipe.	\$ _____	\$ _____

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>UOM</u>	<u>Brief Description of Item</u>	<u>Unit Bid Price</u>	<u>Extended Amount (Qty. x Unit Price)</u>
3.	12,325	L.F.	Furnish And Install 8-Inch Diameter PVC AWWA C900 DR-14 Water Pipe By Pipe Bursting With Ductile Iron Fittings And Mechanical Joint Restraints, Complete In Place.	\$ _____	\$ _____
4.	36	L.F.	Furnish and Install 16-Inch Diameter Steel Casing By Open-Cut Installation.	\$ _____	\$ _____
5.	15	EACH	Furnish And Install Buried 6-Inch Gate Valve With Valve Box And Associated Appurtenances, Complete In Place.	\$ _____	\$ _____
6.	62	EACH	Furnish And Install Buried 8-Inch Gate Valve With Valve Box And Associated Appurtenances, Complete In Place.	\$ _____	\$ _____
7.	1	EACH	Furnish and Install Buried 6-Inch Inserta Valve with Valve Box and Associated Appurtenances, Complete In Place.	\$ _____	\$ _____
8.	15	EACH	Connect To Existing 6-Inch Waterline (Cut-In Connection), Including Cut And Cap Existing 4-Inch Diameter Water Pipe, Complete In Place.	\$ _____	\$ _____
9.	2	EACH	Connect To Existing 8-Inch Waterline (Cut-In Connection), Complete In Place.	\$ _____	\$ _____
10.	15	EACH	Furnish And Install New Fire Hydrant Assembly With Anti-Terrorism Check Valve, Complete In Place.	\$ _____	\$ _____
11.	10	EACH	Remove And Salvage Fire Hydrant Assembly And Valve. Complete In Place.	\$ _____	\$ _____
12.	13	EACH	Remove and Relocate Existing Residential Water Meter, Including Reconnect From Household To Relocated Water Meter, 3/4-Inch Copper Service Line, Associated Appurtenances, And Reconnect From Water Main To Relocated Water Meter. Complete in Place.	\$ _____	\$ _____
13.	354	EACH	Furnish And Install 3/4-Inch Water Services, Including Copper Service Line, Associated Appurtenances, And Reconnect From New Water Main To Residential Water Meter By Open-Cut Installation. Complete in Place.	\$ _____	\$ _____

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>UOM</u>	<u>Brief Description of Item</u>	<u>Unit Bid Price</u>	<u>Extended Amount (Qty. x Unit Price)</u>
14.	2,500	S.Y.	Remove And Replace 2-Sack Soil Cement Backfill As Base Course Layer For All Pipe Trenched Street Sections, Complete In Place (Bridge).	\$ _____	\$ _____
15.	2,500	S.Y.	Remove And Replace Existing HMAC Pavement, 2-Inch Asphalt Thickness, For All Pipe Trenched Street Sections (HMAC Type C), Complete In Place (Bridge).	\$ _____	\$ _____
16.	44,237	S.Y.	Perform Pavement Milling, HMAC Inlay, And Overlay (HMAC Type C), 2-Inch Asphalt Thickness, Complete In Place (Beyond Bridge).	\$ _____	\$ _____
17.	90	L.F.	Thermoplastic Pavement Markings. Complete In Place.	\$ _____	\$ _____
18.	368	S.Y.	Remove And Replace Existing Concrete Sidewalk, Complete In Place.	\$ _____	\$ _____
19.	1,639	L.F.	Remove And Replace Existing Concrete Curb And Gutter, Complete In Place.	\$ _____	\$ _____
20.	6	S.Y.	Remove And Replace Existing Concrete Driveway, Complete In Place.	\$ _____	\$ _____
21.	1	EACH	Remove and Replace Curb Ramp, Complete In Place	\$ _____	\$ _____
22.	100	L.F.	Remove And Replace Garden Wall and Fence, Complete In Place.	\$ _____	\$ _____
23.	42	EACH	Construction Of Concrete Collar. Complete In Place	\$ _____	\$ _____
24.	153	EACH	Adjust To Grade Manhole, Water Valve, Monument, and Utility Box. Complete In Place.	\$ _____	\$ _____
25.	12,463	L.F.	Trench Safety For Pipelines: Trench Box Method Or Shoring, Sheeting And Bracing Methods, Including All Materials, Labor, And Related Appurtenances.	\$ _____	\$ _____
26.	1	L.S.	Provide Storm Water Pollution Prevention Plan.	\$ _____	\$ _____
27.	1	L.S.	Provide And Maintain Approved Traffic Control Plan, Including All Materials, Labor, And Related Appurtenances.	\$ _____	\$ _____
28.	1	L.S.	Video Record Project Site Before And After Construction Including All Materials, Labor, And Related Incidentals.	\$ _____	\$ _____

<u>Item No.</u>	<u>Estimated Quantity</u>	<u>UOM</u>	<u>Brief Description of Item</u>	<u>Unit Bid Price</u>	<u>Extended Amount (Qty. x Unit Price)</u>
29.	1	L.S.	Provide Temporary 4" Water Line During Pipe Bursting Construction Including All Materials, Labor and Related Appurtenances for Temporary Water Services.	\$ _____	\$ _____
30.	1	L.S.	Additional Work Not Included in Bid Items.	\$200,000	\$200,000

Quantities are not guaranteed.

TOTAL ALTERNATIVE BID I – WATER DISTRIBUTION SYSTEM UNIT PRICE (ITEMS 1 THROUGH 30)

\$ _____

(UNIT PRICE IN WORDS): _____

TOTAL BASE BID I & BASE II UNIT PRICE

\$ _____

(UNIT PRICE IN WORDS): _____

TOTAL ALTERNATIVE BID I & BASE II UNIT PRICE

\$ _____

(UNIT PRICE IN WORDS): _____

If multiple awards are contemplated under a single bid document, an additional breakdown of bid amounts, subcontractors, and suppliers is required. It will also be necessary to adjust the MWBE Certification and Participation Summary Form accordingly.

In accordance with Section 151.311 of the Texas Tax Code (V.A.T.C.S.), regarding taxes on materials and services, and requiring a separated contract, the following is the breakdown of cost for materials and cost for labor for this bid:

MATERIALS TO BE INCORPORATED IN PROJECT NOT SUBJECT TO SALES TAX: \$ _____

LABOR TO BE INCORPORATED IN PROJECT NOT SUBJECT TO SALES TAX: \$ _____

RENTAL EQUIPMENT AND OTHER TAXABLE ITEMS: \$ _____

OTHER (I.E. BONDS, INSURANCE, \$ _____

CAPITAL EQUIPMENT, ETC.)

***TOTAL CONTRACT:**

\$ _____

***(TOTAL MUST EQUAL TOTAL BID PRICE)**

5. BIDDER agrees that the Work will be Substantially completed within **385** Calendar Days from the date when the Contract Time commences to run as provided in Paragraph 2.03 of the General Conditions, and as revised in Supplementary Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions, and as revised in the Supplementary Conditions, within **415** calendar days. Final completion includes CONTRACTOR'S resolution of all punch list items and CONTRACTOR'S submission of required close-out documentation. Any failure of the CONTRACTOR to complete the project within the contract time will be considered a material breach of this contract.

BIDDER accepts the provisions of the Supplementary Conditions and the Agreement as to liquidated damages in the event of failure to complete the Work on time.

6. BIDDER MUST ANSWER THE FOLLOWING QUESTIONS: (Refer to INSTRUCTIONS TO BIDDERS for definitions.)

- A. Is the bidder that is making and submitting this bid a "RESIDENT BIDDER" or a "NONRESIDENT BIDDER"?

Answer: _____

- B. If the bidder is a "NONRESIDENT BIDDER", does the state in which the Nonresident Bidder's principal place of business is located have a law requiring a Nonresident Bidder of that state to bid a certain amount of percentage under the bid or a Resident Bidder of that state in order for the nonresident bidder of that state to be awarded a contract on his or her bid in such state?

Answer: _____

- C. If the answer to the question in Paragraph 6B above is "yes", then what amount or percentage must a Texas Resident Bidder bid under the bid of a Resident Bidder of that state in order to be awarded a contract on such bid in said state?

Answer: _____

7. The following documents are attached to and made a condition of this Bid:

- A. Required Bid Security in the form of _____

- B. A tabulation of all Subcontractors who will provide labor at the site of the work or render services to the CONTRACTOR in or about the construction of the work and Suppliers and other persons and organizations is required to be identified in this Bid. Complete the following table, designating each as Small Locally-Owned Business Enterprise (SLBE), Minority Business Enterprise (MBE), Women-Owned Business Enterprise (WBE), or Other (not either SLBE, WBE, or MBE) is required. Only one category may be checked. Include the work item and value of work to be provided by the Prime Contractor, as well as its category.

Tabulation of Subcontractors and Suppliers

SUBCONTRACTOR/SUPPLIER	WORK ITEM	SUBCONTRACT OR PURCHASE ORDER VALUE (If value is unknown, please list <i>Pending</i>)	SL	M	W			OT
			BE	BE	BE			HER
			Please check one box					
Prime Contractor:								

C. Will the Contractor meet the Small Locally Owned Business Enterprise, Minority Business Enterprise and Women-Owned Business Enterprise goals as required by these contract documents and the funding agencies?

YES _____ NO _____

If "YES", include above each of the firms to be used, their business status as a SLBE, MBE, or WBE, the proposed dollar value and type of work to be performed.

If "NO", documentation supporting good faith effort is required.

8. Communications concerning this Bid shall be addressed to the following named individual, address, telephone number, facsimile number, and e-mail address:

Name: _____

Address: _____

Phone: _____ Fax: _____ E-mail: _____

9. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

SUBMITTED on _____, 20__.

If BIDDER is:

An Individual

By _____ (SEAL)
(Name of Bidder)

(Title) (Signature)

doing business as _____

Business Address: _____

Phone No.: _____

A Partnership

By _____ (SEAL)
(Firm Name)

(Signature - general partner)

Business Address: _____

Phone No.: _____

A Corporation (Revised 10/12/92, 1/7/93, 4/13, 3/1/22)

By _____
(Corporation Name)

(State of Incorporation and State of Principal Place of Business)

By _____
(Name of Person Authorized to Sign)

(Title) (Signature)

(Corporate Seal)

Attest _____
(Secretary)

Business Address: _____

Phone No.: _____

Federal Tax Identification Number: _____

When proposing as a Corporation, Bidder swears and affirms by signing this Bid that the proposing Corporation is currently in existence, is currently authorized to do business in the State of Texas (or State of incorporation) and that no franchise tax reports or payments are delinquent as of the date of this Bid Proposal. The Bidder will provide a Certificate of Account Status with the signed Contract Documents. See Section 00510, for the sample form which is to be obtained by the successful Contractor from the Texas (or other state) Comptroller of Public Accounts and submitted as part of the final, executed Contract Documents.

CERTIFICATION OF INSURANCE AVAILABILITY

Date _____

I, _____ (Name of Insurance Agent), certify that I have reviewed the insurance requirements listed in Article 5 of the Supplementary Conditions of the specifications for the Planned Waterline Replacement Program Phase 13 – Cedar Grove, Bid No. 34-23, and further certify that _____ (Name of Bidder) has or can obtain the insurance coverage required by this Project so that a certificate of insurance and a copy(s) for the actual insurance policies can be submitted to the Owner within ten (10) days of the Notice of Award.

Signed _____

Title _____

Insurance Agency _____

Address _____

Telephone _____

**MINORITY CERTIFICATION
AND
PARTICIPATION SUMMARY**
(EPWU CIP FUNDED PROJECTS)

BID NUMBER: 34-23

BID TITLE: Planned Waterline Replacement Program Phase 13 – Cedar Grove

I certify that the Small Locally-Owned Businesses (SLBE), Minority (MBE) and Women's Business Enterprises (WBE) participating in this project are qualified in accordance with the Minority requirements included in the above listed Bid Documents and that we will ensure all consultants, contractors, suppliers, and subcontractors will comply with the Minority guidelines. Definitions of each category are found in the 00100, Instructions to Bidders Section. Attached are:

Solicitation Documents: _____

Proposed Subcontracts for the below listed firms: _____

SLBE, MBE, or WBE FIRM NAME	ADDRESS	PHONE	CONTRACT AMOUNT	SLBE	MBE	WBE

The attached documents outline the Good Faith Effort taken in complying with the Minority Guidelines.

CONTRACTOR

SIGNATURE OF AUTHORIZED REPRESENTATIVE

DATE

PRINTED NAME OF AUTHORIZED REPRESENTATIVE

SECTION 01 22 13 – MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Bid item descriptions.
 - 2. Contingency allowances.
 - 3. Testing and inspection allowances.
 - 4. Schedule of Values.
 - 5. Application for Payment.
 - 6. Partial Payments.
 - 7. Defect assessment.
 - 8. Unit prices.
 - 9. Alternates.

1.2 BID ITEM DESCRIPTIONS

- A. Base Bid Items:
 - 1. Base Bid I – Water Distribution System
 - 2. Base Bid II – Sanitary Sewer System
- B. The Basis of Payment will be as established in the Contract Documents and as described below:
 - 1. **INSURANCE, BONDS, AND MOVE-IN RELATED EXPENSES, NOT TO EXCEED 5% OF BASE BID I: BID ITEMS 2 – 28, BASE BID II: BID ITEMS 2 – 16 AND ALTERNATIVE BID I: BID ITEMS 2 – 29 (IF ITEM NO.1 EXCEEDS 5% BID MAY BE DEEMED NON-RESPONSIVE).**
 - a. Measurement shall be made in the stated lump sum for the mobilization/demobilization expenses associated with the project.
 - b. Payment for this item shall be made at the stated unit price per lump sum and shall include all costs for Contractor’s mobilization, insurance and bonds, construction permits and fees, field office, temporary security measures, site administration expenses, storage yard, temporary construction service facilities including, but not limited to, power, communication, sanitary toilet, potable water, and other temporary utilities required for construction. Mobilization is calculated on the base bid only and will not be paid for separately on any additive alternative items added to the contract. This bid item shall also include all costs incurred for contract closeout, site cleanup, and all incidentals associated with Contractor’s demobilization from the site. Mobilization/demobilization shall be limited to five percent (5%) of the total bid price. This bid item shall be made in partial payments as follows:

- a) When 1% of the adjusted contract amount for construction items is earned, 50% of the mobilization lump sum bid will be paid.
 - b) When 5% of the adjusted contract amount of construction items is earned, 90% of the remainder mobilization lump sum bid of the total contract amount will be paid. Previous payments under this item will be deducted from the above amount.
 - c) Upon completion of all work under this contract, payment for the remainder mobilization lump sum bid will be made on the final pay estimate.
2. FURNISH AND INSTALL 6-INCH DIAMETER PVC AWWA C900 DR-14 WATER PIPE BY OPEN CUT WITH DUCTILE IRON FITTINGS AND MECHANICAL JOINT RESTRAINTS, COMPLETE IN PLACE, INCLUDING CUT AND CAP EXISTING 6-INCH DIAMETER WATER PIPE. **(BASE BID I: BID ITEM 2)**
- a. Measurement and payment shall be made at the stated unit price per linear foot of 6-inch PVC, DR 14 C900 water pipe furnished and installed with restrained joints and mechanical joint fittings via open cut as called for in the plans and specifications. Linear footage shall also include the cutting and capping of each existing 6-inch waterline as called for in the plans and specifications.
 - b. Payment for this item shall include trench excavation, embedment material, backfill, compaction, compaction testing, hauling and disposition of surplus excavated material, water main, ductile iron fittings, mechanical joint restraints, hardware, detection tape, concrete thrust blocks, hydrostatic testing, disinfection, cutting, and capping existing pipe, removal and disposal of existing pipe, labor, tools, equipment, and any other incidental items not specifically mentioned in the specifications which are necessary for proper operation of the water line. The Engineer and/or Resident Project Representative may approve the installation of up to 50 linear feet of PVC water pipes in addition to the estimated bid quantities, if it is required on the project.
 - c. Waterline shall be installed at a 4-foot minimum cover as called for in the plans and specifications. If the Contractor comes upon an area where there exists a conflict with an existing underground structure or utility that is not shown on the Plans, Contractor is required to adjust the minimum cover. If the minimum cover exceeds four (4) feet to a maximum of eight (8) feet, the Contractor will be compensated at the Bid Unit Price per this bid item. The Owner's representative shall be onsite to verify depth of cover.
 - d. In the presence of existing asbestos cement(AC), payment includes fees and the furnishing of all materials, equipment, labor, and incidentals necessary for the complete removal, handling, transportation, and disposal of AC and ACM following the Laws and Regulations prescribed in Section 02 82 13.33, ASBESTOS ABATEMENT FOR UTILITIES, as well as any incidental costs associated with the preparation and furnishing of the Asbestos Removal Work Plan.

3. FURNISH AND INSTALL 8-INCH DIAMETER PVC AWWA C900 DR-14 WATER PIPE BY OPEN CUT WITH DUCTILE IRON FITTINGS AND MECHANICAL JOINT RESTRAINTS, COMPLETE IN PLACE. **(BASE BID I: BID ITEM 3)**
 - a. Measurement shall be made at the stated unit price per linear foot of 8-inch PVC, DR 14 C900 water pipe furnished and installed with restrained joints and mechanical joint fittings via open cut as called for in the plans and specifications.
 - b. Payment for this item shall include trench excavation, embedment material, backfill, compaction, compaction testing, hauling and disposition of surplus excavated material, water main, ductile iron fittings, mechanical joint restraints, hardware, detection tape, concrete thrust blocks, hydrostatic testing, disinfection, labor, tools, equipment, and any other incidental items not specifically mentioned in the specifications which are necessary for proper operation of the water line. The Engineer and/or Resident Project Representative may approve the installation of up to 50 linear feet of PVC water pipes in addition to the estimated bid quantities, if it is required on the project.
 - c. Waterline shall be installed at a 4-foot minimum cover as called for in the plans and specifications. If the Contractor comes upon an area where there exists a conflict with an existing underground structure or utility that is not shown on the Plans, Contractor is required to adjust the minimum cover. If the minimum cover exceeds four (4) feet to a maximum of eight (8) feet, the Contractor will be compensated at the Bid Unit Price per this bid item. The Owner's representative shall be onsite to verify depth of cover.
 - d. In the presence of existing asbestos cement (AC), payment includes fees and the furnishing of all materials, equipment, labor, and incidentals necessary for the complete removal, handling, transportation, and disposal of AC and ACM following the Laws and Regulations prescribed in Section 02 82 13.33, ASBESTOS ABATEMENT FOR UTILITIES, as well as any incidental costs associated with the preparation and furnishing of the Asbestos Removal Work Plan.

4. FURNISH AND INSTALL 6-INCH DIAMETER PVC AWWA C900 DR-14 WATER PIPE BY PIPE BURSTING WITH DUCTILE IRON FITTINGS AND MECHANICAL JOINT RESTRAINTS, COMPLETE IN PLCE, INCLUDING CUT AND CAP EXISTING 6-INCH DIAMETER WATER PIPE. **(ALTERNATIVE BID I: BID ITEM 2)**
 - a. Measurement shall be made at the stated unit price per linear foot of 6-inch PVC, DR 14 C900 water pipe furnished and installed with restrained joints and mechanical joint fittings via the pipe bursting method regardless of depth of cover and shall be measured from insertion point to receiving point and will be continuous through any fittings in the main. Linear footage shall also include the cutting and capping of each existing 6-inch waterline as called for in the plans and specifications.
 - b. Payment for this item shall include launching pits, receiving pits, post testing, shoring, embedment material, backfill, compaction, compaction testing, hauling and disposition of surplus excavated material, water main, ductile iron fittings, mechanical joint restraints, hardware, detection tape, concrete thrust blocks, hydrostatic testing, disinfection, cutting, and capping existing pipe, removal and disposal of existing pipe, labor, tools, equipment, and any other incidental items not specifically mentioned in the specifications which are necessary for proper operation of the water line. The Engineer and/or Resident Project Representative may approve the installation of up to 50 linear feet of PVC water pipes in addition to the estimated bid quantities, if it is required on the project.
 - c. In the presence of existing asbestos cement (AC), payment includes fees and the furnishing of all materials, equipment, labor, and incidentals necessary for the complete removal, handling, transportation, and disposal of AC and ACM following the Laws and Regulations

prescribed in Section 02 82 13.33, ASBESTOS ABATEMENT FOR UTILITIES, as well as any incidental costs associated with the preparation and furnishing of the Asbestos Removal Work Plan.

5. FURNISH AND INSTALL 8-INCH DIAMETER PVC AWWA C900 DR-14 WATER PIPE BY PIPE BURSTING WITH DUCTILE IRON FITTINGS AND MECHANICAL JOINT RESTRAINTS, COMPLETE IN PLCE. **(ALTERNATIVE BID I: BID ITEM 3)**
 - a. Measurement shall be made at the stated unit price per linear foot of 8-inch PVC, DR 14 C900 water pipe furnished and installed with restrained joints and mechanical joint fittings via the pipe bursting method in accordance to Section 33 41 26, POLYVINYL CHLORIDE PIPE FOR INSTALLATION BY PIPE BURSTING. Regardless of depth of cover, bid item shall be measured from insertion point to receiving point and will be continuous through any fittings in the main. Linear footage shall also include the cutting and capping of each existing 6-inch waterline as called for in the plans and specifications.
 - b. Payment for this item shall include launching pits, receiving pits, post testing, shoring, embedment material, backfill, compaction, compaction testing, hauling and disposition of surplus excavated material, water main, ductile iron fittings, mechanical joint restraints, hardware, detection tape, concrete thrust blocks, hydrostatic testing, disinfection, cutting, and capping existing pipe, removal and disposal of existing pipe, labor, tools, equipment, and any other incidental items not specifically mentioned in the specifications which are necessary for proper operation of the water line. The Engineer and/or Resident Project Representative may approve the installation of up to 50 linear feet of PVC water pipes in addition to the estimated bid quantities, if it is required on the project.
 - c. **Potholes and CCTV associated with identifying possible conflicts between the proposed improvements and existing utilities shall be considered subsidiary to this bid item and not separate bid item shall be made for the execution of this work.**
 - d. In the presence of existing asbestos cement (AC), payment includes fees and the furnishing of all materials, equipment, labor, and incidentals necessary for the complete removal, handling, transportation, and disposal of AC and ACM following the Laws and Regulations prescribed in Section 02 82 13.33, ASBESTOS ABATEMENT FOR UTILITIES, as well as any incidental costs associated with the preparation and furnishing of the Asbestos Removal Work Plan.
6. FURNISH AND INSTALL 16- INCH DIAMETER STEEL CASING BY OPEN-CUT INSTALLATION **(BASED BID I: BID ITEM 4 AND ALTERNATIVE BID I: BID ITEM 4)**
 - a. Measurement shall be made at the stated unit price per linear foot of 16-inch diameter steel casing furnished and installed via open cut as called for in the plans and specifications.
 - b. Payment for this item shall include steel casing, casing spacers, boot connector, labor, equipment, and any other incidentals necessary to complete the work.
7. FURNISH AND INSTALL BURIED 6-INCH GATE VALVE WITH VALVE BOX AND ASSOCIATED APPURTENANCES, COMPLETE IN PLACE. **(BASE BID I: BID ITEM 5 AND ALTERNATIVE BID I: BID ITEM 5)**
 - a. Measurement shall be made for each 6-inch gate valve and valve box that is furnished and installed as called for in the plans and specifications.
 - b. Payment for this item shall include valve, coating, valve box, valve stack, extension stem, polyethylene wrap, fittings, hardware, concrete collars, mechanical joint restraints,

excavation, embedment material, backfill, compaction, hauling and disposition of surplus excavated material, concrete thrust blocks, labor, equipment, and any other incidentals necessary to complete the work.

8. **FURNISH AND INSTALL BURIED 8-INCH GATE VALVE WITH VALVE BOX AND ASSOCIATED APPURTENANCES, COMPLETE IN PLACE. (BASE BID I: BID ITEM 6 AND ALTERNATIVE BID I: BID ITEM 6)**

- a. Measurement shall be made for each 8-inch gate valve and valve box that is furnished and installed as called for in the plans and specifications.
- b. Payment for this item shall include valve, coating, valve box, valve stack, extension stem, polyethylene wrap, fittings, hardware, concrete collars, mechanical joint restraints, excavation, embedment material, backfill, compaction, hauling and disposition of surplus excavated material, concrete thrust blocks, labor, equipment, and any other incidentals necessary to complete the work.

9. **FURNISH AND INSTALL 6-INCH DIAMETER INSERTA VALVE WITH VALVE BOX AND ASSOCIATED APPURTENANCES, COMPLETE IN PLACE. (BASE BID I: BID ITEM 7 AND ALTERNATIVE BID I: BID ITEM 7)**

- a. Measurement shall be made for each 6-inch inserta valve and valve box that is furnished and installed as called for in the plans and specifications.
- b. Payment for this item shall include tapping services, valve, coating, valve box, fittings, concrete collars, mechanical joint restraints, excavation, embedment material, backfill, compaction, hauling and disposition of surplus excavated material, concrete thrust blocks, labor, equipment, and any other incidentals necessary to complete the work.

10. **CONNECT TO EXISTING 6-INCH WATERLINE (CUT-IN CONNECTION), INCLUDING CUT AND CAP EXISTING 4-INCH DIAMETER WATER PIPE, COMPLETE IN PLACE. (BASE BID I: BID ITEM 8 AND ALTERNATIVE BID I: BID ITEM 8)**

- a. Measurement and payment shall be made at the stated unit price per each connection to an existing 6-inch water line as called for in the plans and specifications. Stated unit price shall also include the cutting and capping of the existing water line as called for in the plans and specifications.
- b. Payment for this item shall include cutting, dewatering, flushing, standby equipment, tees, elbows, mechanical joint connections, cutting, and capping existing pipe upon successful transfer of services to new water pipe, removal and disposal of existing pipe, labor, tools, equipment, and other parts or system hardware to ensure immediate tie-in connections as necessary. Contractor shall furnish the necessary labor and supervision to set up and operate all tie-in activities. Contractor shall submit to the Engineer within fourteen (14) calendar days of notice to proceed, drawings and complete design data showing methods and equipment he proposes to utilize in tie-in activities. Item will be paid as a percentage of completion of actual line item.
- c. In the presence of existing asbestos, payment includes fees and the furnishing of all materials, equipment, labor, and incidentals necessary for the complete removal, handling, transportation, and disposal of AC and ACM following the Laws and Regulations prescribed in Section 02 82 13.33, ASBESTOS ABATEMENT FOR UTILITIES, as well

as any incidental costs associated with the preparation and furnishing of the Asbestos Removal Work Plan.

11. **CONNECT TO EXISTING 8-INCH WATERLINE (CUT-IN CONNECTION), COMPLETE IN PLACE. (BASE BID I: BID ITEM 9 AND ALTERNATIVE BID I: BID ITEM 9)**
 - a. Measurement and payment shall be made at the stated unit price per each connection to the existing 6-inch water line as called for in the plans and specifications.
 - b. Payment for this item shall cover cutting, dewatering, flushing, standby equipment, tees, elbows, mechanical connections, tools, piping and other parts or system hardware to ensure immediate tie-in connections as necessary. Contractor shall furnish the necessary labor and supervision to set up and operate all tie-in activities. Contractor shall submit to the Engineer within fourteen (14) calendar days of notice to proceed, drawings and complete design data showing methods and equipment he proposes to utilize in tie-in activities. Item will be paid as a percentage of completion of actual line item.
 - c. In the presence of existing asbestos, payment includes fees and the furnishing of all materials, equipment, labor, and incidentals necessary for the complete removal, handling, transportation, and disposal of AC and ACM following the Laws and Regulations prescribed in Section 02 82 13.33, ASBESTOS ABATEMENT FOR UTILITIES, as well as any incidental costs associated with the preparation and furnishing of the Asbestos Removal Work Plan.

12. **FURNISH AND INSTALL NEW FIRE HYDRANT ASSEMBLY WITH ANTI-TERRORISM CHECK VALVE, COMPLETE IN PLACE. (BASE BID I: BID ITEM 10 AND ALTERNATIVE BID I: BID ITEM 10)**
 - a. Measurement shall be made for each fire hydrant assembly that is furnished and installed as called for in the plans and specifications.
 - b. Payment for this item shall include excavation, barrel extensions, bollards, concrete square pad around fire hydrant, anti-terrorism valve, backfill, coating, labor, site restoration, equipment, materials, and any other incidentals not specifically mentioned in the specifications which are necessary for proper operation of the unit.

13. **REMOVE AND SALVAGE FIRE HYDRANT ASSEMBLY AND VALVE. COMPLETE IN PLACE. (BASE BID I: BID ITEM 11 AND ALTERNATIVE BID I: BID ITEM 11)**
 - a. Measurement shall be made per removing, salvaging, and delivery of existing fire hydrant serviceable portions to El Paso Water will be measured per each fire hydrant removed and salvaged in accordance with the plans and specifications.
 - b. Payment for this item shall include all labor, equipment, materials, tools, and any other incidentals for removing hydrant and valve if available, plugging lead, site restoration and removing materials from site and returning salvaged fire hydrants to the Owner. Contractor must submit receipts from El Paso Water Utilities' Property Control Manager verifying that the fire hydrants have been delivered before requesting payment for each fire hydrant.

14. REMOVE AND RELOCATE EXISTING RESIDENTIAL WATER METER, INCLUDING RECONNECT FROM HOUSEHOLD TO RELOCATED WATER METER, 3/4-INCH COPPER SERVICE LINE, ASSOCIATED APPURTENANCES, AND RECONNECT FROM WATER MAIN TO RELOCATED WATER METER. COMPLETE IN PLACE. **(BASE BID I: BID ITEM 12 AND ALTERNATIVE BID I: BID ITEM 12)**
- a. Measurement shall be made per each 3/4-inch copper service line and meter that is to be removed and relocated as called for in the plans and specifications.
 - b. Payment for this item shall include disconnecting existing 3/4-inch water service line from water meter, removing existing water meter and re-installing the existing water meter in public right-of-way, new meter box and lid, the saddle, corporation stop, angle valve, flanged valve, connection of 3/4-inch copper service line between the new main and water meter regardless of length, extending water service lateral from household to the relocated water meter, excavation, backfill, compaction, hauling and disposition of surplus excavated material, labor, equipment, materials, site restoration, removal and replacement of existing HMAC pavement within the limits of the trench, and any other incidental items not specifically mentioned in the specifications which are necessary for the proper relocation of existing water meter and connection of the new service line.
 - c. The installation of water service lines through open-cut installation including hookup services, relocation of water meter, and water service extension from household to relocated water meter shall be made by a qualified Master Licensed Plumber. The Contractor shall be responsible for hiring the certified Master Licensed Plumber and have the certification onsite at all times.
15. FURNISH AND INSTALL 3/4-INCH WATER SERVICES, INCLUDING COPPER SERVICE LINE, ASSOCIATED APPURTENANCES, AND RECONNECT FROM NEW WATER MAIN TO RESIDENTIAL WATER METER BY OPEN-CUT INSTALLATION. COMPLETE IN PLACE. **(BASE BID I: BID ITEM 13 AND ALTERNATIVE BID I: BID ITEM 13)**
- a. Measurement and payment shall be made per each 3/4-inch copper service connection that is furnished and installed as called for in the plans and specifications.
 - b. Payment for this item shall include disconnection of existing water service line from the existing water meter, new water meter, new meter box and lid, the saddle, corporation stop, angle valve, flanged valve, connection of 3/4-inch copper service line between the new main and water meter regardless of length, excavation, , backfill, compaction, hauling and disposition of surplus excavated material, labor, equipment, materials, site restoration, removal and replacement of existing HMAC pavement within the limits of the trench, and any other incidental items not specifically mentioned in the specifications which are necessary for the proper connection of the new service line to the existing meter.
 - c. The installation of water service lines through open-cut installation including hookup services shall be made by a qualified Master Licensed Plumber. The Contractor shall be responsible for hiring the certified Master Licensed Plumber.

16. FURNISH AND INSTALL 8" DIAMETER PVC SDR-35 SANITARY SEWER PIPE BY OPEN CUT, INCLUDING TESTING, CCTV, CUT AND CAP EXISTING 8" GRAVITY SEWER PIPE. COMPLETE IN PLACE. **(BASE BID II: BID ITEM 2)**
- a. Measurement shall be made at the stated unit price per linear foot of 8-inch PVC SDR-35 gravity sanitary sewer pipe furnished and installed via open cut as called for in the plans and specifications.
 - b. Payment for this item shall include trench excavation, embedment material, backfill, compaction, compaction testing, hauling and disposition of surplus excavated material, sewer pipe, cleaning, video inspection, testing, connection to manholes, cut and cap existing sanitary sewer line, labor, tools, equipment, and any other incidental items not specifically mentioned in the specifications which are necessary for proper operation of the sewer line.
17. FURNISH AND INSTALL 4" DIAMETER PVC SDR 35 SANITARY SEWER SERVICE LATERAL, INCLUDING SERVICE LATERAL RECONNECTION, CLEAN, AND TEST. COMPLETE IN PLACE. **(BASE BID II: BID ITEM 3)**
- a. Measurement shall be made at the stated unit price per each 4-inch PVC SDR-35 sanitary sewer service lateral furnished and installed as called for in the plans and specifications.
 - b. Payment shall include excavation, riser, service line, fittings, backfill, site restoration, removal and replacement of existing HMAC pavement within the limits of the trench, labor, equipment, tools, materials, and incidentals required to reconnect new sanitary sewer service lateral from new 8-inch sanitary sewer line to the existing service regardless of length after the completion of the new 8-inch sanitary sewer line. The Unit Price shall also be full compensation for the coordination, tie-in connection, cleaning, testing, video recording, and any subsidiary or incidentals necessary to complete the work.
18. FURNISH AND INSTALL 4' DIAMETER POLYMER CONCRETE MANHOLE, COMPLETE IN PLACE. **(BASE BID II: BID ITEM 4)**
- a. Measurement shall be made per each existing and proposed 4-foot diameter polymer concrete manhole installed as called for in the plans and specifications.
 - b. Payment shall include the installation of the polymer concrete manhole, including bases, frames, covers, concrete collars, concrete, polymer grout, and all appurtenances, labor, equipment, and any incidentals to the complete installation of the manholes. Installation includes the manhole connection to the sewer main and sewer service connection. The work shall also include all costs associated with general conditions and coordination with utility companies.
19. 4-FOOT MANHOLE ADDITIONAL DEPTH BEYOND 6-FEET, COMPLETE IN PLACE. **(BASE BID II: BID ITEM 5)**
- a. Measurement shall be on the additional vertical length of existing and proposed manhole for a depth in excess of 6-feet. Measurement shall be made vertically to the nearest 1-foot.
 - b. Payment shall be made at the stated unit price per vertical foot. The payment shall include additional barrels, waterproofing and all incidental items necessary to complete the work.
20. REMOVE AND REPLACE EXISTING SANITARY MANHOLE WITH A 4-FOOT POLYMER CONCRETE MANHOLE. **(BASE BID II: BID ITEM 6)**

- a. Measurement shall be made at the stated unit price per each proposed and existing concrete manhole that is to be removed and replaced with a 4-foot diameter polymer concrete manhole as called for in the plans and specifications.
 - b. Payment shall include the removal and replacement of each manhole with a polymer concrete manhole, including bases, frames, covers, concrete collars, concrete, grout, protective coatings, and all appurtenances, and installation of concrete, grout including, labor, equipment, and any incidentals to the complete demolition of the manholes. Installation includes the manhole connection to the sewer main and sewer service connection. The work shall also include all costs associated with general conditions and coordination with utility companies and affected homeowners.
21. **PROVIDE TEMPORARY BYPASS PUMPING SYSTEM. COMPLETE IN PLACE. (BASE BID II: BID ITEM 7)**
- a. Measurement will be made for partial payments based on the by-pass pumping operations performed with Engineer's approval. The percentage of the work complete will be determined based upon project records provided by the Contractor and submitted to the Engineer. Measurement for this item shall be made at the stated lump sum price.
 - b. Payment shall include all labor, equipment, fees and any incidentals necessary for the completion of the work. Such payment shall be complete compensation for the complete performance of the work in accordance with the drawings and the provisions of the specifications. The specified work includes, but is not limited to, isolating the manholes, by-pass flows, safety precautions, ventilation; installation of the plugs, continuous system security, coordination with El Paso Water and any other incidentals as may be required to complete the work.
22. **REMOVE AND REPLACE 2-SACK SOIL CEMENT BACKFILL AS BASE COURSE LAYER FOR ALL PIPE TRENCHED STREET SECTIONS, COMPLETE IN PLACE (BRIDGE). (BASE BID I: BID ITEM 14, BASE BID II: BID ITEM 8, AND ALTERNATIVE BID I: BID ITEM 14)**
- a. Measurement shall be made on a square yard basis for 2-sack soil cement backfill placed under pavement limits.
 - b. Payment for this item shall include but not be limited to 1 foot of cement stabilized backfill required as shown on the plans and specifications, labor, equipment, and any other incidental items not specifically mentioned in the specifications which are necessary for the pavement of the street that was excavated. No additional payment will be made for soil cement backfill required to fill oversized trench widths, intentionally or accidentally excavated by the Contractor. No additional payment will be made for Cement Stabilized Material required to fill oversized trench widths intentionally or accidentally excavated by the Contractor and for sloped trenches excavated which are intended to replace approved box or braced shoring systems for trench safety. Stabilized backfill shall be used in the embedment of steel casings and backfill under paved areas as required by the City of El Paso or the Texas Highway Department as applicable. Cement stabilized backfill shall be a two (2) sack cement to soil mix in accordance with Texas Highway Department Standards.
23. **REMOVE AND REPLACE EXISTING HMAC PAVEMENT, 2-INCH ASPHALT THICKNESS, FOR ALL PIPE TRENCHED STREET SECTIONS, INCLUDING HMAC INLAY AND OVERLAY (HMAC TYPE C), COMPLETE IN PLACE (BRIDGE). (BASE BID I: BID ITEM 15, BASE BID II: BID ITEM 9, AND ALTERNATIVE BID I: BID ITEM 15)**

- a. Measurement shall be measured in square yards of HMAC replacement, limited to the areas within the limits of the trench. After the water line and/or sewer line has been installed and backfilled, the Contractor shall saw cut, remove, and dispose of an additional HMAC pavement on each end of the original cut. The actual number of square yards of pavement to be paid for shall be equal to the actual area of the surface **accepted** by the Engineer. Any pavement replacement outside the limits shown on the plans shall be replaced without compensation. HMAC driveways disturbed during construction shall be replaced and shall match the existing configuration.
 - b. Payment shall be made at the stated unit price per square yard for the number of square yards paved. Payment shall include: saw cutting existing pavement, removal and disposing of the pavement, furnish and install machine applied asphaltic pavement to match proposed subgrades, base course, dust control, and furnishing and installing all materials; for all labor, tools, equipment, and any incidentals necessary to complete the work. In addition, final determination of pavement replacement quantities will be made if, in the opinion of the Engineer or upon evidence furnished by the Contractor, substantial variations exist between quantities shown on the plans and actual quantities due to, apparent errors, or poor pavement conditions that are beyond the control of the Contractor.
 - c. The unit price for the removal and replacement of existing HMAC pavement shall only account for the pavement limits, as identified in the drawings, for the open-cut installation of the proposed water mains and sanitary sewer lines. The removal and replacement of existing HMAC pavement and all associated work within the limits of the trench for all proposed water service lines as described in the measurement and payment description of Base Bid I: Bid Item 12 and Base Bid I: Bid Item 13 as well as all proposed sanitary sewer service laterals as described in the measurement and payment description of Base Bid II: Bid Item 3 shall be considered subsidiary to these respective bid items.
 - d. No additional payment will be made for HMAC required to fill oversized trench widths intentionally or accidentally excavated by the Contractor and for sloped trenches excavated which are intended to replace approved box or braced shoring systems for trench safety.
24. **PERFORM PAVEMENT MILLING, HMAC AND OVERLAY (HMAC TYPE C), MATCH EXISTING ASPHALT THICKNESS, MINIMUM OF 2-INCH ASPHALT THICKNESS, COMPLETE IN PLACE (BEYOND BRIDGE). (BASE BID I: BID ITEM 16, BASE BID II: BID ITEM 10, AND ALTERNATIVE BID I: BID ITEM 16)**
- a. Measurement shall be made at the stated unit price per square yards.
 - b. Payment shall include but not be limited to milling of existing HMAC, resurfacing existing base course, tack coat application, neat edges saw cut, labor, equipment, heater scarifying any resulting edges where required, and disturbances, that shall be restored, and any other incidental items not specifically mentioned in the specifications which are necessary for the pavement replacement of the street that was excavated and requires pavement replacement as per City of El Paso's Ordinance **Chapter 13.08 Excavations**.
 - c. No additional payment will be made for pavement milling and overlaying beyond that required by the City's ordinance due to damages beyond required limits, intentionally or accidentally by the Contractor's activities. In addition, final determination of pavement replacement quantities will be made if, in the opinion of the Engineer or upon evidence furnished by the Contractor, substantial variations exist between quantities shown on the plans and actual quantities due to, apparent errors, or poor pavement conditions that are beyond the control of the Contractor. Contractor shall notify Engineer of poor pavement conditions at existing adjoining edge that could result in difficulty staying within the established limits to allow coordination with City of El Paso officials and determine resolution prior to saw cutting and milling operations. Contractor shall notify Engineer of

poor existing drainage conditions prior to pavement removal to inform and coordinate with City of El Paso and avoid conflicts with improper drainage caused by pavement replacement operations.

25. **THERMOPLASTIC PAVEMENT MARKINGS. COMPLETE IN PLACE. (BASE BID I: BID ITEM 17, BASE BID II: BID ITEM 11, AND ALTERNATIVE BID I: BID ITEM 17)**
 - a. Measurement shall be made at the stated unit price per linear footage of pavement marking requiring replacement regardless of thickness as called for in the plans and specifications.
 - b. Payment for this item shall include all labor, equipment, materials, and incidentals necessary for the replacement of pavement markings, including but not limited to crosswalks, stop bars, etc., following City of El Paso Street Design Standards and TxDOT Standards.

26. **REMOVE AND REPLACE EXISTING CONCRETE SIDEWALK, COMPLETE IN PLACE. (BASE BID I: BID ITEM 18 AND ALTERNATIVE BID I: BID ITEM 18)**
 - a. Measurement shall be made at the stated unit price per square yard of sidewalk removed and replaced as called for in the plans.
 - b. Payment for this item shall include concrete, subgrade, forming, subgrade preparation, curing, labor, materials, equipment, and clean-up for replacement of concrete sidewalks as necessary for the new water system construction.

27. **REMOVE AND REPLACE EXISTING CONCRETE CURB AND GUTTER, COMPLETE IN PLACE. (BASE BID I: BID ITEM 19 AND ALTERNATIVE BID I: BID ITEM 19)**
 - a. Measurement shall be made per linear feet of curb and gutter removed and replaced in accordance with the contract documents.
 - b. Payment for this item shall be made at the stated linear foot price and shall include removal and disposing of existing curb and gutter, furnishing, and installing new curb. It shall include construction staking, construction facilities, coordination, site preparation, disposal of existing curb and gutter, furnishing, placing and compaction of subgrade material, forming, expansion joints, concrete, concrete reinforcement, dowels, concrete curing compound, labor, tools, equipment and any incidentals necessary to complete the work.
 - c. No separate payment will be made for curb replaced required for oversized trench widths intentionally or accidentally excavated by the Contractor.

28. **REMOVE AND REPLACE EXISTING CONCRETE DRIVEWAY, COMPLETE IN PLACE. (BASE BID I: BID ITEM 20 AND ALTERNATIVE BID I: BID ITEM 20)**
 - a. Measurement and payment shall be made at the stated unit price per square yard.
 - b. Payment for removal and replacement of existing driveway, regardless of thickness, shall include but not be limited to all labor, material equipment, concrete reinforcement, dowels, forming, base preparation, subgrade, concrete, excavation, curing and clean-up for replacement of driveway.

29. REMOVE AND REPLACE CURB RAMP, COMPLETE IN PLACE. **(BASE BID I: BID ITEM 21 AND ALTERNATIVE BID I: BID ITEM 21)**
- a. Measurement shall be made at the stated unit price per each curb ramp.
 - b. Payment shall include but is not limited to all labor, materials, equipment, forming, base preparation, concrete reinforcement, dowels, painting, curing, and clean-up for removal and construction of curb ramps as per City of El Paso latest subdivision standards as necessary for the new water system construction.
30. REMOVE AND REPLACE GARDEN WALL AND FENCE, COMPLETE IN PLACE. **(BASE BID I: BID ITEM 22 AND ALTERNATIVE BID I: BID ITEM 22)**
- a. Measurement and payment shall be at the stated unit price of linear foot.
 - b. Payment shall include but is not limited to all labor, equipment, materials, tools, stone, mortar, concrete, curing, metal fencing, painting, clean-up, and all other incidentals not mentioned in this specification necessary for the removal and construction of garden walls as per as per City of El Paso latest subdivision standards.
 - c. The Contractor shall coordinate with the affected homeowner to restore the garden wall to its original condition or better using similar or comparable materials. Coordination with the homeowner and the furnishing and installation of materials acceptable to the homeowner shall be considered subsidiary to this bid item.
31. CONSTRUCTION OF CONCRETE COLLAR. COMPLETE IN PLACE. **(BASE BID I: BID ITEM 23 AND ALTERNATIVE BID I: BID ITEM 23)**
- a. Measurement shall be made at the stated unit price per each.
 - b. Payment shall include but is not limited to all materials, labor, equipment, concrete reinforcement, dowels, concrete, and tools necessary to install concrete collar around existing sanitary and storm sewers, inlets, city monuments, fiber optic manholes, and any other non-waterline items.
32. ADJUST TO GRADE MANHOLE, WATER VALVE, MONUMENT, AND UTILITY BOX. COMPLETE IN PLACE. **(BASE BID I: BID ITEM 24, BASE BID II: BID ITEM 12, AND ALTERNATIVE BID I: BID ITEM 24)**
- a. Measurement shall be made at the stated unit price per each existing and proposed manhole, water valve, monument, and utility box adjusted to final grade as indicated in the plans and specifications.
 - b. Payment shall include full compensation for all excavation, including saw cutting of surfaces as required, surface restoration, asphalt repairs as per these specifications, disposal of materials, and all materials, labor, equipment, tools, incidentals necessary for the completion of this work.
33. TRENCH SAFETY FOR PIPELINES: TRENCH BOX METHOD OR SHORING, SHEETING AND BRACING METHODS, INCLUDING ALL MATERIALS, LABOR, AND RELATED APPURTENANCES. **(BASE BID I: BID ITEM 25, BASE BID II: BID IEM 13, AND ALTERNATIVE BID I: BID ITEM 25)**
- a. Measurement for trench excavation safety support system will be based on the complete trench safety support system required to complete this item for all pipeline and structure

excavation. Measurement will be made for partial payments based on the linear foot of the trench safety system work completed at the partial payment cutoff date. The linear foot of work complete will be based on the submitted "Excavation, Trenching and Shoring Plan" to be provided by the Contractor.

- b. Payment for the trench excavation safety support system will be made at the unit price per linear foot of "Trench Safety System" installed. Payment will be full compensation for trench safety and includes equipment, materials, labor, and groundwater control.
34. **PROVIDE STORM WATER POLLUTION PREVENTION PLAN. (BASE BID I: BID ITEM 26, BASE BID II: BID ITEM 14, AND ALTERNATIVE BID I: BID ITEM 26)**
- a. Measurement and payment shall be made per lump sum to include all labor, materials and equipment required to implement all storm water pollution prevention (SWPPP) and environmental protection measures as (see Section 01 55 00, ENVIRONMENTAL PROCEDURES) required by TPDES, TCEQ and City of El Paso.
 - b. Payment for this item shall include SWPPP development, filter fabric fence installation and removal, construction entrances, erosion control, inlet protection installation and removal, maintenance of SWPPP, application for and obtaining the required TPDES permit, NOI and NOT, and all ancillary requirements necessary to satisfactorily complete the Work.
35. **PROVIDE AND MAINTAIN APPROVED TRAFFIC CONTROL PLAN, INCLUDING ALL MATERIALS, LABOR, AND RELATED APPURTENANCES. (BASE BID I: BID ITEM 27, BASE BID II: BID ITEM 15, AND ALTERNATIVE BID I: BID ITEM 27)**
- a. Measurement for this item shall be made in the stated lump sum for the traffic control plan required for the installation of the water line as per El Paso Water and TxDOT Traffic and Transportation Department guidelines.
 - b. Payment shall be made on a lump sum basis for the traffic control utilized for the construction of the proposed water line, sanitary sewer line, appurtenances and pavement reconstruction. The traffic control plan shall be signed and sealed by a Texas Professional Engineer and meet requirements for ingress and egress, temporary pavement, etc. submitting and obtaining approval of the formal Traffic Control Plan from the required governing agencies; furnishing, installing, and maintaining the approved Traffic Control Plan complete for the duration of the project. Implementing and maintaining the Traffic Control Plan in conformance to the specifications and principles given in the "Texas Manual on Uniform Traffic Control Devices" over the entire project area; and all other incidentals required for Contractor to complete, implement, and maintain the Traffic Control Plan requirements. All costs for installation, maintenance, adjustments, replacements, removal, materials, equipment, labor, tools, and incidentals related to traffic control shall be compensated under this pay item.
36. **VIDEO RECORD PROJECT SITE BEFORE AND AFTER CONSTRUCTION INCLUDING ALL MATERIALS, LABOR, AND RELATED INCIDENTALS. (BASE BID I: BID ITEM 28, BASE BID II: BID ITEM 16, AND ALTERNATIVE BID I: BID ITEM 28)**
- a. Measurement for this item shall be made on a lump sum basis to videotape project limits before and after construction.
 - b. Payment shall be made on a lump sum basis for videotaping the project limits before and after construction including personnel, labor, materials, superintendence, equipment, and data. The video should be clear and include date/time stamp on video. Half the payment will be provided upon an approved videotape for the pre-construction phase. Final

payment will be made upon receiving an approved final videotape of the post-construction phase. The duplication, dating, and labeling of digital videos, and all other necessary incidentals to complete such work, as prescribed in Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION, shall also be compensated under this bid item.

37. PROVIDE TEMPORARY 4-INCH DIAMETER WATER LINE DURING PIPE BURSTING CONSTRUCTION INCLUDING ALL MATERIALS, LABOR, AND RELATED APPURTENANCES FOR TEMPORARY WATER SERVICE. (**ALTERNATIVE BID I: BID ITEM 29**)
- a. Measurement will be made for partial payments based on the temporary water service operations performed with Engineer's approval. The percentage of the work complete will be determined based upon project records provided by the Contractor and submitted to the Engineer. Measurement for this item shall be made at the stated lump sum price.
 - b. Payment shall include all labor, equipment, fees and any incidentals necessary for the completion of the work. Such payment shall be complete compensation for the complete performance of the work in accordance with the drawings and the provisions of the specifications. The specified work includes, but is not limited to, temporary water line, safety precautions, ventilation; installation of the plugs, continuous system security, coordination with El Paso Water and any other incidentals as may be required to complete the work.

1.3 CASH ALLOWANCES (NOT USED)

1.4 CONTINGENCY ALLOWANCES

- A. Refer to Bid Proposal, Section 00300 for **Additional Work Not Included in Bid Items**.
- B. Included in Bid Proposal, Section 00300 is a stipulated sum/price of **\$200,000 for Base Bid I and Alternative Bid I, and \$100,000 for Base Bid II** for use upon Owner's instruction as a contingency allowance.
- C. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead, and profit will be included in Change Orders authorizing expenditure of funds from this contingency allowance.
- D. Funds will be drawn from contingency allowance only by Change Order.
- E. At closeout of Contract, funds remaining in contingency allowance will be credited to Owner by Change Order.

1.5 SCHEDULE OF VALUES

- A. Submit electronic file to Project website of schedule on Progress Estimate schedule on EJCDC C-620 or form approved by Engineer and Owner. Document shall be a Microsoft Excel file type.
- B. Apparent "low-bidder" shall submit a preliminary Schedule of Values as electronic file within 2 days after bid opening.
- C. Submit complete Schedule of Values as electronic file to Project website within 10 days after date of Owner-Contractor Agreement.

- D. Format: Use Table of Contents of this Project Manual. Identify each line item with number and title of major Specification Section. Also identify mobilization, bonds and insurance, progress schedule development, startup and commissioning, contract close-out, and demobilization as separate line items.
- E. Include in each line item amount of allowances as specified in this Section. For unit cost allowances, identify quantities taken from Contract Documents multiplied by unit cost to achieve total for each item.
- F. Include within each line item, direct proportional amount of Contractor's overhead and profit.
- G. Revise schedule to list approved Change Orders with each Application for Payment.
- H. An unbalanced or front-loaded schedule of values, or a schedule of values substantially different than the preliminary schedule, will not be accepted.
- I. Summation of the complete schedule of values representing all Work shall equal the Contract Price.

1.6 APPLICATION FOR PAYMENT

- A. Submit electronic file to project management website of each Application for Payment on EJCDC C-620 - Contractor's Application for Payment or similar form approved by Engineer and Owner.
- B. Content and Format: Use Schedule of Values for listing items in Application for Payment.
- C. Submit updated construction schedule with each Application for Payment.
- D. Payment Period: Submit at intervals stipulated in the Agreement.
- E. Submit submittals with transmittal letter as specified in Section 01 33 00, SUBMITTAL PROCEDURES.
- F. Substantiating Data: When Engineer requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:
 - 1. Current construction photographs specified in Section 01 33 00, SUBMITTAL PROCEDURES.
 - 2. Partial release of liens from major Subcontractors and vendors.
 - 3. Record Documents as specified in Section 01 77 00, CLOSEOUT PROCEDURES, for review by Owner, which will be returned to Contractor.
 - 4. Affidavits attesting to off-Site stored products.
 - 5. Construction Progress Schedule, revised and current as specified in Section 01 33 00, SUBMITTAL PROCEDURES.

1.7 PARTIAL PAYMENTS FOR STORED MATERIALS

- A. No payments will be made for materials and equipment delivered or stored unless shop drawings and preliminary operations and maintenance manuals are accepted by Engineer. Thereafter, partial payments for materials and equipment delivered and stored, but not yet incorporated into the Work, shall not exceed 90% of the material value.
- B. Storage must meet the requirements of the General Conditions, be deemed acceptable by the Engineer and Owner, be located on the Site or a location agreed to by the Engineer and Owner, and meet the documented storage recommendations from the material manufacturer.

1.8 PARTIAL PAYMENTS FOR UNDELIVERED FABRICATED EQUIPMENT

- A. No partial payments will be made for project-specific fabricated equipment except those specifically listed below and under the terms listed herein. Undelivered “Off the shelf” or catalog items are not eligible for partial payment.
- B. Payment shall not exceed 15% of the equipment value, not including shipping and handling charges.
- C. Payment will only be made when the following conditions are met:
 - 1. Shop drawing and preliminary operations and maintenance manual acceptance by Engineer.
 - 2. Equipment is adequately insured, maintained, stored, and protected by appropriate security measures.
 - 3. Each equipment items is clearly marked and segregated from other items to permit inventory and accountability.
 - 4. Authorization has been provided access to storage site for Engineer and Owner.

1.9 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of Engineer or Owner, it is not practical to remove and replace the Work, Engineer or Owner will direct appropriate remedy or adjust payment. Potential remedies may include:
 - 1. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Engineer or Owner.
 - 2. Defective Work will be partially repaired according to instructions of Engineer or Owner, and unit sum/price will be adjusted to new sum/price at discretion of Engineer or Owner.
- C. Individual Specification Sections may modify these options or may identify specific formula or percentage sum/price reduction.
- D. Authority of Engineer or Owner to assess defects and identify payment adjustments is final.
- E. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels of the required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected products.

1.10 UNIT PRICES

- A. Engineer will take measurements and compute quantities accordingly. Provide assistance in taking of measurements.

- B. Unit Quantities: Quantities and measurements indicated on Bid Form are for Contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment. Actual quantities provided shall determine payment.
 - 1. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at contracted unit sum/prices.
 - 2. When actual Work requires 25 percent or greater change in quantity than those quantities indicated, Owner or Contractor may claim a Contract Price adjustment.
- C. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application, or installation of item of the Work; overhead and profit.
- D. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.
- E. Measurement of Quantities:
 - 1. Weigh Scales: Inspected, tested, and certified by applicable Texas weights and measures department.
 - 2. Platform Scales: Of sufficient size and capacity to accommodate conveying vehicle.
 - 3. Metering Devices: Inspected, tested, and certified by applicable Texas department.
 - 4. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel, or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
 - 5. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.
 - 6. Measurement by Area: Measured by square dimension using mean length and width or radius.
 - 7. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
 - 8. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.

1.11 ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement. The Owner-Contractor Agreement may identify certain Alternates to remain an Owner option for a stipulated period of time.
- B. Coordinate related Work and modify surrounding Work. Description for each Alternate is recognized to be abbreviated but requires that each change shall be complete for scope of Work affected.
 - 1. Coordinate related requirements among Specification Sections as required.
 - 2. Include as part of each Alternate: Miscellaneous devices, appurtenances, and similar items incidental to or necessary for complete installation.
 - 3. Coordinate Alternate with adjacent Work and modify or adjust as necessary to ensure integration.
- C. Schedule of Alternates:

1. Alternative Bid I – Water Distribution System: Furnish and Install 6-Inch Diameter and 8-Inch Diameter PVC AWWA C900 DR-14 Water Pipe by Pipe Bursting with Ductile Iron Fittings and Mechanical Joint Restraints, Complete in Place.
 - a. The Contractor shall have the option to install **all** proposed 6-inch diameter and 8-inch diameter water lines through the pipe bursting method.
 - b. Should the Contractor follow this approach, the Contractor shall be required to complete the Alternative Bid I – Water Distribution System table within Bid Proposal, Section 00300. This shall include a change in quantity for the respective bid items within the table.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 33 41 26 – POLYVINYL CHLORIDE PIPE FOR INSTALLATION BY PIPE BURSTING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Furnish all materials, labor, equipment, tools, and required incidentals for the replacement of water mains by Pipe Bursting method. The Pipe Bursting process is defined as the trenchless reconstruction of existing water mains by the simultaneous insertion of liner pipe within the bore of the existing pipe, by breaking and expanding the existing pipe. The scope includes television inspection of the newly rehabilitated pipe and complete installation in accordance with the contract documents. Only **hydraulically and statically** operated equipment will be allowed for this method. This section specifies fusible and Certa-Lok restraint joint polyvinyl chloride (PVC) pipe, including standards for dimensionality, testing, quality, acceptable fusion practice, safe handling, storage, and installation of the pipe-by-pipe bursting.
- B. Related Sections:
 - 1. Section 33 34 16 – Solid Wall Polyvinyl Chloride Pressure Pipe and Fittings
- C. Linear Pipe Description:
 - 1. Pipe Supplier shall furnish fusible or Certa-Lok restraint joint polyvinyl chloride (PVC) pipe conforming to all identified standards and meeting all testing and material properties called out in these specifications.
 - 2. The pipe to be used must be certified for use as a pressure-rated water delivery system and fire protection piping applications conforming to all standards and procedures and meeting all testing and material properties as described in applicable pipe specifications and/or plans.
 - 3. Pipe shall conform to the following table of nominal size(s), dimensions, and pressure designation(s):

Pipe Description & Reference Standard	Nominal Diameter (in.) & Convention (e.g., CIOD, IPS, or other)	Dimension Ratio (DR)	Color	Pressure Class or Rating (psi)	Required Inside Diameter (in.)
Fusible C900 PVC	6"	14	Blue	305 psi	5.86"
Restraint Joint C900 PVC	6"	14	Blue	305 psi	5.86"
Fusible C900 PVC	8"	14	Blue	305 psi	7.68"
Restraint Joint C900 PVC	8"	14	Blue	305 psi	7.68"

1.2 QUALITY ASSURANCE

- A. REFERENCES:
 - 1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those other standards are included as references under this section as if referenced directly. In the event of a conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
 - 2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of design, bid, or construction, whichever is earliest. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.

3. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI/AWWA C110/A21.10	American National Standard for Ductile-Iron and Gray-Iron Fittings, 3-inch through 48-inch, for Water and Other Liquids
ANSI/AWWA C111/A21.11	American National Standard for Rubber-Gasket Joints for Ductile-Iron Pipe and Fittings
ANSI/AWWA C153/A21.53	AWWA Standard for Ductile-Iron Compact Fittings for Water Service
AWWA C605	Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water
AWWA C651	Standard for Disinfecting Water Mains
AWWA C900	Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 in. through 60 in. (100mm Through 1500mm), for Water Distribution
AWWA M23	AWWA Manual of Supply Practices PVC Pipe—Design and Installation, Second Edition
ASTM D1784	Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPVC) Compounds
ASTM D1785	Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120
ASTM D2152	Test Method for Degree of Fusion of Extruded Polyvinyl Chloride (PVC) Pipe and Molded Fittings by Acetone Immersion
ASTM D2241	Polyvinyl Chloride (PVC) Plastic Pipe (SDR-PR)
ASTM D2665	Polyvinyl Chloride (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings
ASTM D3139	Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
ASTM F477	Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F1057	Standard Practice for Estimating the Quality of Extruded Polyvinyl Chloride (PVC) Pipe by the Heat Reversion Technique
UNI-B-6	Recommended Practice for Low-Pressure Air Testing of Installed
UNI-PUB-08	Tapping Guide for PVC Pressure Pipe
08 NSF-14	Plastics Piping System Components and Related

Reference	Title
NSF-61	Materials Drinking Water System Components-- Health Effects

1.3 QUALIFICATION REQUIREMENTS

- A. The Contractor shall be certified by the manufacturer of the pipe bursting system that it is a fully trained, licensed installer of their pipe bursting system. Contractor must provide a letter to the Owner documenting this requirement.
- B. The Contractor shall have successfully completed **three (3) projects** within the **last five (5) years**. The projects (minimum of **two (2) projects**) completed shall be for the replacement of Asbestos and Cast-Iron Pipe type material. Contractor shall provide references for these completed projects.
- C. The Contractor shall have at minimum of at least **three (3) years** verifiable experience using the pipe bursting method while meeting the following criteria:
 - 1. A minimum total of 10,000 LF of completed pipe bursting footage.
 - 2. A minimum total of 10,000 LF of upsizing where similar sized diameter increases have been successfully completed in pipe diameters of 8-inch to 12-inch range.
- D. Personnel performing pipe bursting must be certified by manufacturer of pipe bursting system having successfully completed training in:
 - 1. Operating bursting equipment to be used.
 - 2. Installing proposed replacement pipe.
 - 3. Operation and maintenance of all equipment to be used.
- E. Personnel performing fusing of liner pipe and fittings must be certified by manufacturer of fusing equipment having successfully completed training in:
 - 1. Handling replacement pipe materials.
 - 2. Butt fusion of pipe joints, saddle fusion of fittings for water services.
 - 3. Operation and maintenance of all equipment to be used.

1.4 WARRANTY

- A. A **one-year** warranty for the pipe shall be included from the Contractor and shall cover the cost of replacement pipe and freight to project site, should the pipe have any defects in material or workmanship.
- B. In addition to the standard pipe warranty, the pipe bursting Contractor shall provide in writing a warranty for a period of one year for all the pipe bursting work including material, installation, and pressure testing at no additional cost to the Owner.
- C. Unless otherwise specified, the warranty period shall begin after the Certificate of Acceptance is issued for the Contract.

1.5 SUBMITTALS

- A. The Contractor shall adhere to Section 01 33 00, SUBMITTAL PROCEDURES as well as conform to submittal requirements stated in this specification.
- B. The Contractor shall furnish the following documents made in a timely manner so that project schedule can be met:
 - 1. Material Data

- a. Shop drawings, catalog data and manufacturer's technical data showing complete information on material composition, physical properties, and dimensions of new pipe and fittings.
 - b. Manufacturer's recommendation for handling, storage, and repair of pipe and fittings damaged.
2. Process Demonstration
 - a. Detailed installation procedure including pipe bursting method to be used.
 - b. Method of construction and restoration of existing water service connections. This shall include detail drawings and the written description of the entire construction procedure to install pipe.
 3. Testing Documentations
 - a. Television inspection reports along with video made after new pipe installation.
 4. Reference
 - a. Provide a list of at least three projects completed in the last three years by the contractor/installer where a water main was successfully rehabilitated using the pipe bursting method. Include contact names, addresses and phone numbers of agencies involved.
 5. Pre-Construction Submittals
 - a. The following Product Data is required:
 - 1) Pipe Size
 - 2) Dimensionality
 - 3) Pressure Class per applicable standard
 - 4) Color
 - 5) Recommended Minimum Bending Radius
 - 6) Recommended Maximum Safe Pull Force
 - 7) If required fusion technician qualification indicating conformance with this specification.
 - b. The following work plan and information is required from the Contractor and/or pipe bursting Contractor, if requested. This work plan and information shall also be supplied to the pipe supplier, should it be requested:
 - 1) Pipe bursting equipment information and certification indicating the applicability of equipment, operator, and methods commensurate with the size and scope of the project, including any proposed lubricants to be used in the operation.
 - 2) Contingency plan, including the following:
 - a) Unforeseen obstructions that stop or delay the operation.
 - b) Unforeseen deflections that would over bend the fusible polyvinylchloride pipe.
 - c) Excessive surface heaving or subsidence
 - d) Damage to existing utility installations
 - e) Required spot repairs of the existing line.
 - 3) Shop drawings shall include for each pipe bursting operation all excavation locations, interfering utilities, excavation dimensions, temporary water, and traffic control schematics.
 - a) Work schedule identifying construction sequencing, daily work hours and working dates for each installation.
 6. Post-Construction Submittals
 - a. The following as recorded data is required from the contractor and/or fusion provider (if applicable) to the owner or pipe supplier upon request:
 - 1) Approved data logger device reports
 - 2) Fusion joint documentation containing the following information:
 - a) Pipe Size and Thickness
 - b) Machine Size
 - c) Fusion Technician Identification
 - d) Job Identification

- e) Fusion Joint Number
- f) Fusion, Heating, and Drag Pressure Settings
- g) Heat Plate Temperature
- h) Time Stamp
- i) Heating and Cool Down
- j) Time of Fusion
- k) Ambient Temperature

PART 2 - PRODUCTS

2.1 LINER PIPE

- A. As specified in Section 1.1B of this specification.

2.2 PIPE BURSTING EQUIPMENT

A. General

- 1. The pipe bursting system shall be designed and manufactured to force its way through the existing line by fragmenting the pipe and compressing the broken pieces into the surrounding soil as it progresses. The bursting unit shall generate sufficient force to burst and expand the existing pipeline and allow for the insertion of the liner pipe.

B. Allowable Types of Pipe Bursting System

1. Static Pipe Bursting Systems

- a. Static pipe bursting systems shall be characterized by a tapered or blunt nosed bursting head being pulled through the host pipe and breaking the host pipe by applying radial pressure to the host pipe. The host pipe fails by 'hoop' tensile stress applied by the bursting head and is fragmented and pushed into the surrounding bedding and soil as the bursting head progresses.
- b. The bursting head shall be followed by an expansion head which shall further push the fragmented pipe into the surrounding soil and bedding to a diameter that allows the insertion of the liner pipe behind it. Under no circumstances shall the pipe pull head, which is attached directly to the liner pipe, be used to expand, or otherwise increase the diameter of the host pipe, or fragmented host pipe.
- c. The pull head may be advanced by a hydraulic or winching mechanism, and may be connected by means of a cable, chain, or rod.

2. Hydraulic Pipe Bursting Systems

- a. Hydraulic pipe bursting systems shall be characterized by a pull head that is equipped with hydraulically actuated 'petals' that break the host pipe by applying radial pressure to the host pipe. The host pipe fails by 'hoop' tensile stress applied by the head and is fragmented and pushed into the surrounding bedding and soil as the pull head progresses.
- b. The pull head shall be followed by an expansion head which shall further push the fragmented pipe into the surrounding soil and bedding to a diameter that allows the insertion of the liner pipe behind it. Under no circumstances shall the pipe pull head, which is attached directly to the liner pipe, be used to expand, or otherwise increase the diameter of the host pipe, or fragmented host pipe.
- c. The pull head may be advanced by a hydraulic or winching mechanism, and may be connected by means of a cable, chain, or rod.

2.3 FUSIBLE POLYVINYLCHLORIDE PRESSURE PIPE FOR POTABLE WATER

- A. Fusible polyvinylchloride pipe shall conform to AWWA C900, ASTM D2241 or ASTM D1785 for standard dimensions, as applicable. Testing shall be in accordance with the referenced AWWA standards for all pipe types as well as within these specifications.

- B. Pipe shall be manufactured with 100% virgin resin. Pipe shall also have 0% recycled plastics content, and shall not consist of any rework compound, even that obtained from the manufacturer's own production using the same formulation.
- C. Fusible polyvinylchloride pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.
- D. Fusible polyvinylchloride pipe shall be manufactured in a standard 20' nominal length, or custom lengths as specified.
- E. Fusible polyvinylchloride pipe shall be blue in color for potable water use.
- F. Pipe shall be marked as follows:
 1. Nominal pipe size
 2. PVC
 3. Dimension Ratio, Standard Dimension Ratio, or Schedule
 4. AWWA pressure class, or standard pressure rating for non-AWWA pipe, as applicable
 5. AWWA standard designation number, or pipe type for non-AWWA pipe, as applicable
 6. NSF-61 mark verifying suitability for potable water service.
 7. Extrusion production-record code
 8. Trademark or trade name
 9. Cell Classification 12454 and/or PVC material code 1120 may also be included.
- G. All PVC pipe shall be coded to provide positive identification and prevent accidental damage to or interruption of the water facilities. Pipe shall conform to American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61 "Drinking Water System Components - Health Effects" and be certified by and organization accredited by ANSI. Such compliance shall be evidenced by an affidavit from the manufacturer or vendor. If the pipe does not presently conform to this standard, information from the manufacturer regarding action being taken to comply with this standard must be submitted.
- H. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible deleterious faults.

2.4 FUSION JOINTS

- A. Unless otherwise specified, fusible polyvinyl chloride pipe lengths shall be assembled in the field with butt-fused joints. The Contractor shall follow the pipe supplier's written guidelines for this procedure. All fusion joints shall be completed as described in this specification.

2.5 CERTA-LOK RESTRAINT JOINT POLYVINYL CHLORIDE PRESSURE PIPE FOR POTABLE WATER

- A. Certa-Lok restraint joint polyvinyl chloride pipe shall conform to AWWA C900, ASTM D2241 or ASTM D1785 for standard dimensions, as applicable. Testing shall be in accordance with the referenced AWWA standards for all joint types as well as within these specifications.
- B. Ceta-Lok polyvinyl chloride pipe shall be manufactured in a standard 20' nominal length, or custom lengths as specified.
- C. Ceta-Lok polyvinyl chloride pipe shall be blue in color for potable water use.
- D. Pipe shall be marked as follows:

1. Nominal pipe size
2. PVC
3. Dimension Ratio, Standard Dimension Ratio, or Schedule
4. AWWA pressure class, or standard pressure rating for non-AWWA pipe, as applicable
5. AWWA standard designation number, or pipe type for non-AWWA pipe, as applicable
6. NSF-61 mark verifying suitability for potable water service.
7. Extrusion production-record code
8. Trademark or trade name
9. Cell Classification 12454 and/or PVC material code 1120 may also be included.

- E. All PVC pipe shall be coded to provide positive identification and prevent accidental damage to or interruption of the water facilities. Pipe shall conform to American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61 “Drinking Water System Components - Health Effects” and be certified by and organization accredited by ANSI. Such compliance shall be evidenced by an affidavit from the manufacturer or vendor. If the pipe does not presently conform to this standard, information from the manufacturer regarding action being taken to comply with this standard must be submitted.
- F. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible deleterious faults.

2.6 CERTA-LOK RESTRAINT JOINTS

- A. Unless otherwise specified, Certa-Lok restraint joint polyvinyl chloride shall be of the push-on, elastomeric gasket type, conforming to ASTM D3139 (Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals), and/or cartridge-style restrained joint. The pipe length of a push-on joint shall contain on bell-end. The bell shall be an integral part of the pipe length and have the same strength and DR as the pipe.

2.7 CERTA-LOK RESTRAINT JOINT COMPOUND

- A. The material used in making the pipe shall be clean, virgin, Cell Classification 12454 PVC compound as specified in ASTM D1784, Standard Specification of Rigid Polyvinyl Chloride Compounds and Chlorinated Polyvinyl Chloride Compounds.

2.8 CERTA-LOK RESTRAINT JOINT GASKETS

- A. Cartridge-style restrained joint PVC pipe shall be joined using a non-metallic coupling to form an integral system. Coupling shall be designed for use at or above the pressure class of the pipe with which they are utilized and shall incorporate twin elastomeric sealing gaskets meeting ASTM F-477. High strength, flexible thermoplastic splines shall be inserted mating, machined grooves in the pipe and coupling to provide full 360-degree restraint.

2.9 CONNECTIONS AND FITTINGS FOR PRESSURE APPLICATIONS

- A. Connections shall be defined in conjunction with the coupling of project piping, as well as the tie-ins to other piping systems.
- B. DUCTILE IRON MECHANICAL FITTINGS
1. Acceptable fittings for use with fusible polyvinylchloride pipe shall include standard ductile iron fittings conforming to AWWA/ANSI C110/A21.10, or AWWA/ANSI C153/A21.53 and AWWA/ANSI C111/A21.11.
 - a. Fittings shall conform to Section 33 34 16, SOLID WALL POLYVINYL CHLORIDE PRESSURE PIPE AND FITTINGS.

- b. Connections to fusible polyvinylchloride pipe may be made using a restrained or non-restrained retainer gland product for PVC pipe, as well as for MJ or flanged fittings.
- c. Bends, tees, and other ductile iron fittings shall be restrained with the use of thrust blocking or other means as indicated in the construction documents.
- d. Ductile iron fittings and glands must be installed per the manufacturer's guidelines.
- e. If required, linings for Ductile Iron fittings shall meet the following requirements for the following service environments:
 - 1) Potable Water: Cement mortar lining with bituminous seal coat.
 - 2) Coatings for Ductile Iron fittings shall meet the following requirements for buried and/or immersion service duty:
 - a) Bituminous outer coating.
 - b) Exterior polywrap corrosion protection system per AWWA C105.

C. SLEEVE-TYPE COUPLINGS

- 1. Sleeve-type mechanical couplings shall be manufactured for use with PVC pressure pipe and may be restrained or unrestrained as indicated in the construction documents.
- 2. Sleeve-type couplings shall be rated at the same or greater pressure carrying capacity as the pipe itself.

D. EXPANSION AND FLEXIBLE COUPLINGS

- 1. Expansion-type mechanical couplings shall be manufactured for use with PVC pipe and may be restrained or unrestrained as indicated in the construction documents.
- 2. Expansion-type mechanical couplings shall be rated at the same or greater pressure carrying capacity as the pipe itself.

E. CONNECTION HARDWARE

- 1. Bolts and nuts for buried service shall be made of non-corrosive, high-strength, low-alloy steel having the characteristics specified in ANSI/AWWA C111/A21.11, regardless of any other protective coating.

2.10 MAXIMUM ALLOWABLE PULL-IN FORCE

- A. Adhere to the following data regarding maximum allowable pull-in force for fusible PVC pipe used for trenchless application, unless approved otherwise. The confirmation of proposed radius of each bore has to be part of the required submittal prior to construction.

Pipe Diameter (in)	Dimension Ratio (DR)	Max. Working Pressure (psi)	DIPS Series			
			Pipe O.D. (in)	Min. Wall (in)	Pipe I.D. (in)	Max. Pull-in Force (lbs.)
4	18	235	4.80	0.27	4.23	10,600
6	18	235	6.90	0.38	6.09	21,900
8	18	235	9.05	0.50	7.98	37,800

2.11 MINIMUM BENDING RADIUS

- A. Adhere to the following data regarding radius of curvature for fusible PVC pipe used for trenchless application, unless approved otherwise. The confirmation of proposed radius of each bore has to be part of the required submittal prior to construction.

Pipe Diameter (in)	DIPS Series	
	Critical Bucking Pressure (lbs.)	Minimum Allowable Bending (ft)
4	426	100
6	426	144
8	425	189

- B. In any case, the deflection radius must not exceed 75% of the maximum allowable curvature allowed for standard C-900 PVC pipe.

2.12 BURSTING LUBRICANTS

- A. Bursting lubricants shall be used at the request of the pipe bursting contractor and at the discretion of the Owner and Engineer.
- B. Lubricants shall be compatible for long term use with PVC pipe.

2.13 PIPE PULL HEADS

- A. Pipe pull heads shall be utilized that employ a positive through-bolt design assuring a smooth wall against the pipe cross-section at all times.
- B. Pipe pull heads shall be specifically designed for use with liner pipe and shall be as recommended by the pipe supplier.

2.14 PIPE ROLLERS

- A. Pipe rollers, if required, shall be of sufficient size to fully support the weight of the pipe during handling and pullback operations.
- B. A sufficient quantity of rollers and spacing, per the pipe supplier’s guidelines shall be used to assure adequate support and resist excessive sagging of the product pipe.

PART 3 - EXECUTION

3.1 DELIVERY, STORAGE AND HANDLING

- A. All pipes shall be bundled or packaged in such a manner as to provide adequate protection of the ends during transportation to the site. Any pipe damaged in shipment shall be replaced as directed by the Owner or Engineer.
- B. Each pipe shipment should be inspected prior to unloading to see if the load has shifted or otherwise been damaged. Notify owner or engineer immediately if more than immaterial damage is found. Each pipe shipment should be checked for quantity and proper pipe size, color, and type.
- C. Pipe should be loaded, off-loaded, and otherwise handled in accordance with AWWA M23, and all of the pipe supplier’s guidelines shall be followed.
- D. Off-loading devices such as chains, wire rope, chokers, or other pipe handling implements that may scratch, nick, cut, or gouge the pipe are strictly prohibited.

- E. During removal and handling, be sure that the pipe does not strike anything. Significant impact could cause damage, particularly during cold weather.
- F. If appropriate unloading equipment is not available, pipe may be unloaded by removing individual pieces. Care should be taken to ensure that pipe is not dropped or damaged. Pipe should be carefully lowered, not dropped, from trucks.

3.2 HANDLING AND STORAGE

- A. Any length of pipe showing a crack, or which has received a blow that may have caused an incident fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work. Damaged areas, or possible areas of damage may be removed by cutting out and removing the suspected incident fracture area. Limits of the acceptable length of pipe shall be determined by the Owner or Engineer.
- B. Any scratch or gouge greater than 10% of the wall thickness will be considered significant and can be rejected unless determined acceptable by the Owner or Engineer.
- C. Pipe lengths should be stored and placed on level ground. Pipe should be stored at the job site in the unit packaging provided by the manufacturer. Caution should be exercised to avoid compression, damage, or deformation to the ends of the pipe. The interior of the pipe, as well as all end surfaces, should be kept free from dirt and foreign matter.
- D. Pipe shall be handled and supported with the use of woven fiber pipe slings or approved equal. Care shall be exercised when handling the pipe to not cut, gouge, scratch or otherwise abrade the piping in any way.
- E. If pipe is to be stored for periods of 1 year or longer, the pipe should be shaded or otherwise shielded from direct sunlight. Covering of the pipe which allows for temperature build-up is strictly prohibited. Pipe should be covered with an opaque material while permitting adequate air circulation above and around the pipe as required to prevent excess heat accumulation.
- F. Pipe shall be stored and stacked per the pipe supplier's guidelines.

3.3 CLEANING AND TV INSPECTION OF EXISTING PIPELINE

- A. The host pipe shall be cleaned and inspected by TV prior to the bursting operation in accordance with, and if required by the contract documents.
- B. Cleaning and TV inspection of the host pipe shall indicate condition of host pipe and suitability of host pipe for liner pipe insertion by pipe bursting methods.
- C. Obstructions considered detrimental to the pipe bursting operation which may include corporation taps, valves, and valve bodies, and collapsed piping shall be remedied prior to bursting and liner pipe insertion.
- D. Spot repairs shall be made in accordance with the drawings and these specifications.

3.4 OBSTRUCTION REMOVAL

- A. Identify any point repairs required, such as dropped joints, intruding service connections, collapsed pipe, sags in main or any other obstructions prior to the pipe bursting process. The Contractor shall remove all obstructions to perform pipe bursting operation, as necessary.

- B. The contractor shall notify the inspector for approval to make an excavation after having exhausted all other options to remove any obstruction or retrieve any pipe bursting tool or camera from the water main.

3.5 LOCATION AND PROTECTION OF UNDERGROUND UTILITIES

- A. Correct locations of all underground utilities that may impact the installation is the responsibility of the Contractor.
- B. Utility location and notification services shall be contacted by the Contractor prior to the start of construction.
- C. All existing lines and underground utilities shall be positively identified, including exposing those facilities that are located within an envelope of possible impact of the bursting operation as determined for the project specific site conditions. It is the Contractor and pipe burst system operator's responsibilities to determine this envelope of safe burial depth and offset from existing utilities. This will include, but is not limited to soil conditions and layering, utility proximity and material, pipe bursting system and equipment, and foreign subsurface material.

3.6 EXCAVATION AND ACCESS PITS

- A. The location of access pits shall be submitted to the Engineer prior to construction.
- B. Access pit length shall be such that the minimum bending radius for the liner pipe, per the pipe supplier is maintained. Sheeting, shoring and bracing requirements shall be in accordance with these specifications and applicable jurisdictional standards.
- C. Access pit excavations shall be performed at all points where the liner pipe will be inserted into the existing pipeline. When possible, access pit excavations shall coincide with host pipe service connection points or other appurtenance installations.
- D. The liner pipe may be continuously or partially supported on rollers or other Owner and Engineer approved friction decreasing implement during joining and insertion, as long as the pipe is not overstressed or critically abraded prior to or during installation.

3.7 PIPE BURSTING OPERATION

- A. Any known pre-existing concrete encasements shall be excavated and broken out prior to the bursting operation to allow the steady and free passage of the pipe bursting head.
- B. The new pipe shall be inserted immediately behind the bursting head in accordance with the pipe supplier's recommended procedures. The bursting equipment shall be specifically designed and manufactured for the type of insertion process being used.
- C. Immediately following the completion of a pipe bursting installation, if possible, the pipe should be pushed back into the location of the insertion, at the pulling head, until a small amount of movement is realized at the insertion pit on the other side of the installation from the pulling equipment.

3.8 PREPARATION PRIOR TO MAKING CONNECTIONS INTO EXISTING PIPING SYSTEMS

- A. Approximate locations for existing piping systems are shown in the construction documents. Prior to making connections into existing piping systems, the contractor shall:
 - 1. Visit the field to verify location, size, piping material, and piping system of the existing pipe.

2. Obtain all required fittings, which may include saddles, sleeve type couplings, flanges, tees, or others as shown in the construction documents.
 3. Have installed all temporary pumps and/or pipes in accordance with established connection plans.
- B. Unless otherwise approved, new piping systems shall be completely assembled and successfully tested prior to making connections into existing pipe systems.

3.9 FUSION PROCESS

- A. Fusible polyvinylchloride pipe will be handled in a safe and non-destructive manner before, during, and after the fusion process and in accordance with this specification and pipe supplier's guidelines.
- B. Fusible polyvinylchloride pipe will be fused by qualified fusion technicians, as documented by the pipe supplier.
- C. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine.
- D. Only appropriately sized and outfitted fusion machines that have been approved by the pipe supplier shall be used for the fusion process.
- E. Fusion machines must incorporate the following elements:
1. **HEAT PLATE** – Heat plates shall be in good condition with no deep gouges or scratches. Plates shall be clean and free of any debris or contamination. Heater controls shall function properly; cord and plug shall be in good condition. The appropriately sized heat plate shall be capable of maintaining a uniform and consistent heat profile and temperature for the size of pipe being fused, per the pipe supplier's guidelines.
 2. **CARRIAGE** — Carriage shall travel smoothly with no binding at less than 50 psi. Jaws shall be in good condition with proper inserts for the pipe size being fused. Insert pins shall be installed with no interference to carriage travel.
 3. **GENERAL MACHINE** – Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.
 4. **DATA LOGGING DEVICE** — An approved datalogging device with the current version of the pipe supplier's recommended and compatible software shall be used. Datalogging device operations and maintenance manual shall be with the unit at all times. If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.
- F. Other equipment specifically required for the fusion process shall include the following:
1. Pipe rollers shall be used for support of pipe to either side of the machine.
 2. A weather protection canopy that allows full machine motion of the heat plate, fusion assembly and carriage shall be provided for fusion in inclement, extreme temperatures, and /or windy weather, per the pipe supplier's recommendations.
 3. An infrared (IR) pyrometer for checking pipe and heat plate temperatures.
 4. Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.
 5. Facing blades specifically designed for cutting fusible polyvinylchloride pipe shall be used.
- G. **JOINT RECORDING**
1. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine. The fusion data logging and joint report shall be generated by software developed specifically for the butt-fusion of fusible polyvinyl chloride pipe. The software shall register and/or record the parameters required by the pipe supplier and these specifications. Data not logged by the data logger shall be logged manually and be included in the Fusion Technician's joint report.

3.10 CERTA-LOK RESTRAINT JOINT INSTALLATION

- A. Unless approved otherwise, installation of Certa-Lok restraint joint polyvinyl chloride pipe shall be in accordance with AWWA C605.

3.11 PIPE SYSTEM CONNECTION

- A. Pipe connections shall be installed per applicable standards and regulations, as well as per the connection manufacturer's guidelines and as indicated in the construction documents. Pipe connections to structures shall be installed per applicable standards and regulations, as well as per the connection manufacturer's guidelines.

3.12 EXTERNAL SERVICE CONNECTIONS

- A. In re-connection or reconstruction of existing water services, selected service connection pipe diameter must match existing service.
- B. All water service connections shall be identified, located, and excavated prior to the pipe any construction.

3.13 TESTING

- A. Testing shall comply with all applicable jurisdictional building codes, statutes, standards, regulations, and laws.
- B. Hydrostatic Testing and Leakage Testing for Pressure Piping:
 - 1. All hydrostatic and leakage testing shall be in accordance with Section 33 31 26, TESTING WATER DISTRIBUTION SYSTEMS.

3.14 DISINFECTION OF THE PIPELINE FOR POTABLE WATER PIPING

- A. Once all pipe work is completed to the satisfaction of the Owner's Inspector and/or Construction Manager, chlorine disinfection, sampling, and analysis of the newly installed liner shall be performed in accordance with Section 33 13 00, DISINFECTION OF WATER SYSTEMS.

3.15 FINAL ACCEPTANCE

- A. Upon completion of installation, testing and inspection, clean and restore project area affected by work of this section.

END OF SECTION