INVITATION TO BID 2022-03
CITY OF PARKER
HIGHWAY 98 WATER MAIN DIRECTIONAL BORE
AT COOPER STREET

ADDENDUM NO. 1
REQUESTS FOR INFORMATION

Issued May 12, 2022

Bids are due at 2:00 p.m. CST on Tuesday, May 17, 2022. Bids will be publicly opened and read aloud at 5:30 p.m. CST at the City Council Meeting on Tuesday, May 17, 2022.

The following questions were received from bidders and are being addressed below:

1. Will you allow high-density polyethylene (HDPE) pipe as an approved alternate in lieu of the 8-inch fusible polyvinyl chloride (PVC), 8-inch PVC, and 6-inch PVC?

   City's Response to Request for Information Question No. 1
   The City will allow for the use of a 10-inch HDPE pipe as an additive alternate to the 8-inch FPVC pipe. Please refer to Item No. 3 below for all documentation that is required to be removed and replaced or added for this specific modification.

2. What is the project estimate on this project?

   City's Response to Request for Information Question No. 1
   There is no cost estimate for this project.

3. Please **REMOVE** the following sections from your Bid Specification Package and **REPLACE** with the attached revised sections:

   Attachment A **BID DRAWING SHEETS C1.1 AND C2.0:**
   REMOVE SHEETS C1.1 and C2.0 from the Bid Drawings and **REPLACE** with revised SHEETS C1.1 and C2.0.

   Attachment B **TABLE OF CONTENTS:**
   REMOVE the section in its entirety from the Bid Specification Package and **REPLACE** with the attached revised section.

   Attachment C **INSTRUCTION TO BIDDERS:**
   REMOVE the section in its entirety from the Bid Specification Package and **REPLACE** with the attached revised section.

   Attachment D **MEASUREMENT AND PAYMENT:**
   REMOVE section in its entirety from your Bid Specification Package and **REPLACE** with the attached revised section.

   Attachment E **HDPE WATER DISTRIBUTION PIPING:**
   ADD new section in its entirety to your Bid Specification Package.

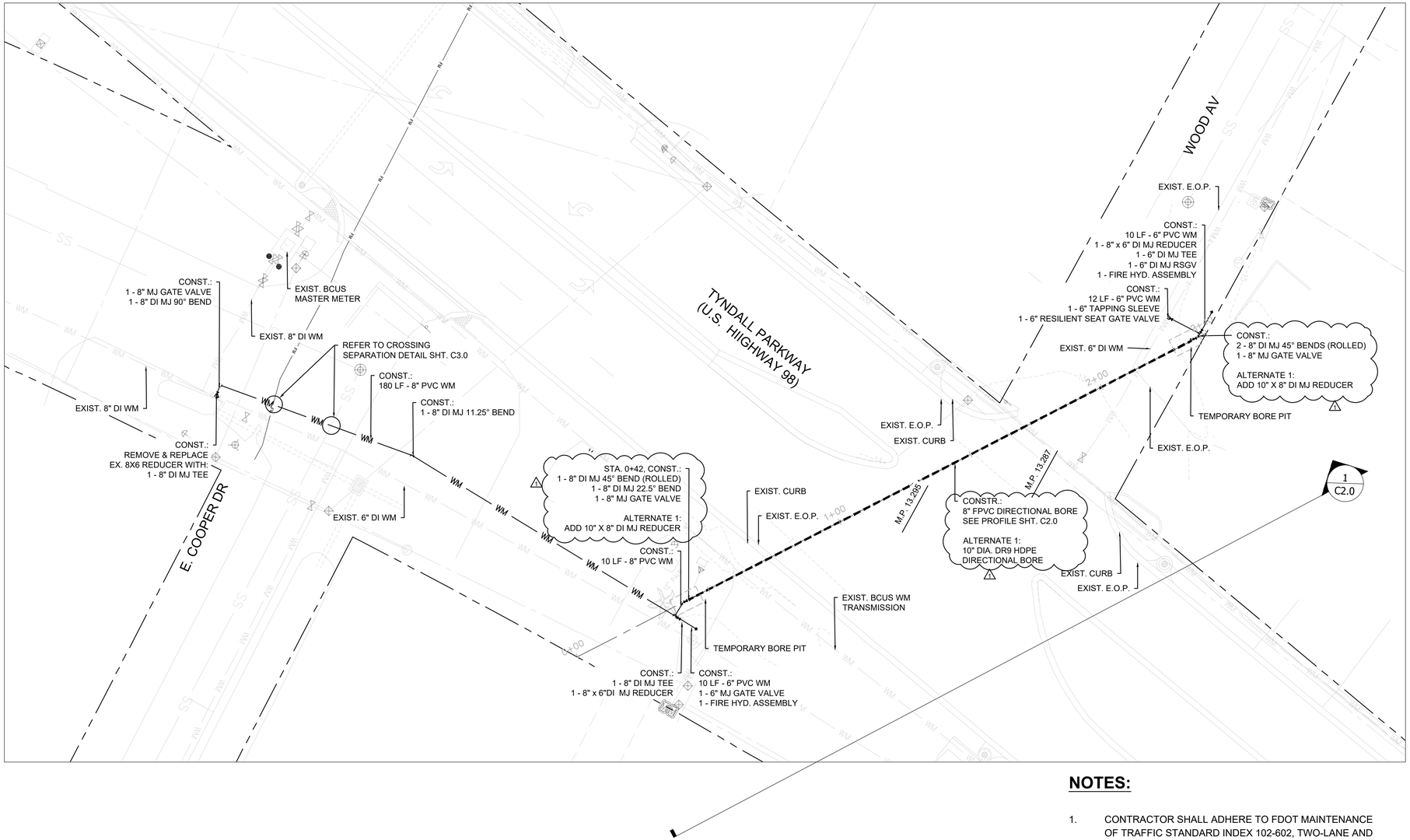
Attachment F **BID FORM:**

REMOVE the section in its entirety from the Bid Specification Package and **REPLACE** with the attached revised section.

INVITATION TO BID 2022-03
CITY OF PARKER
HIGHWAY 98 WATER MAIN DIRECTIONAL BORE
AT COOPER STREET

ATTACHMENT A

REVISED
SHEETS
C1.1 AND C2.0



NOTES:

1. CONTRACTOR SHALL ADHERE TO FDOT MAINTENANCE OF TRAFFIC STANDARD INDEX 102-602, TWO-LANE AND MULTI-LANE WORK ON SHOULDER AND STANDARD INDEX 102-625, TEMPORARY ROAD CLOSURE.

Anchor CEI
Engineering that works.
P. 850.215.1285 • F. 850.215.1286
450 Magnolia Avenue, Panama City, FL 32401
CA Number 31422

Elizabeth S. Moore, PE
FL License No. 57607

No.	Date	Revision
1	05/11/22	ADDENDUM 1

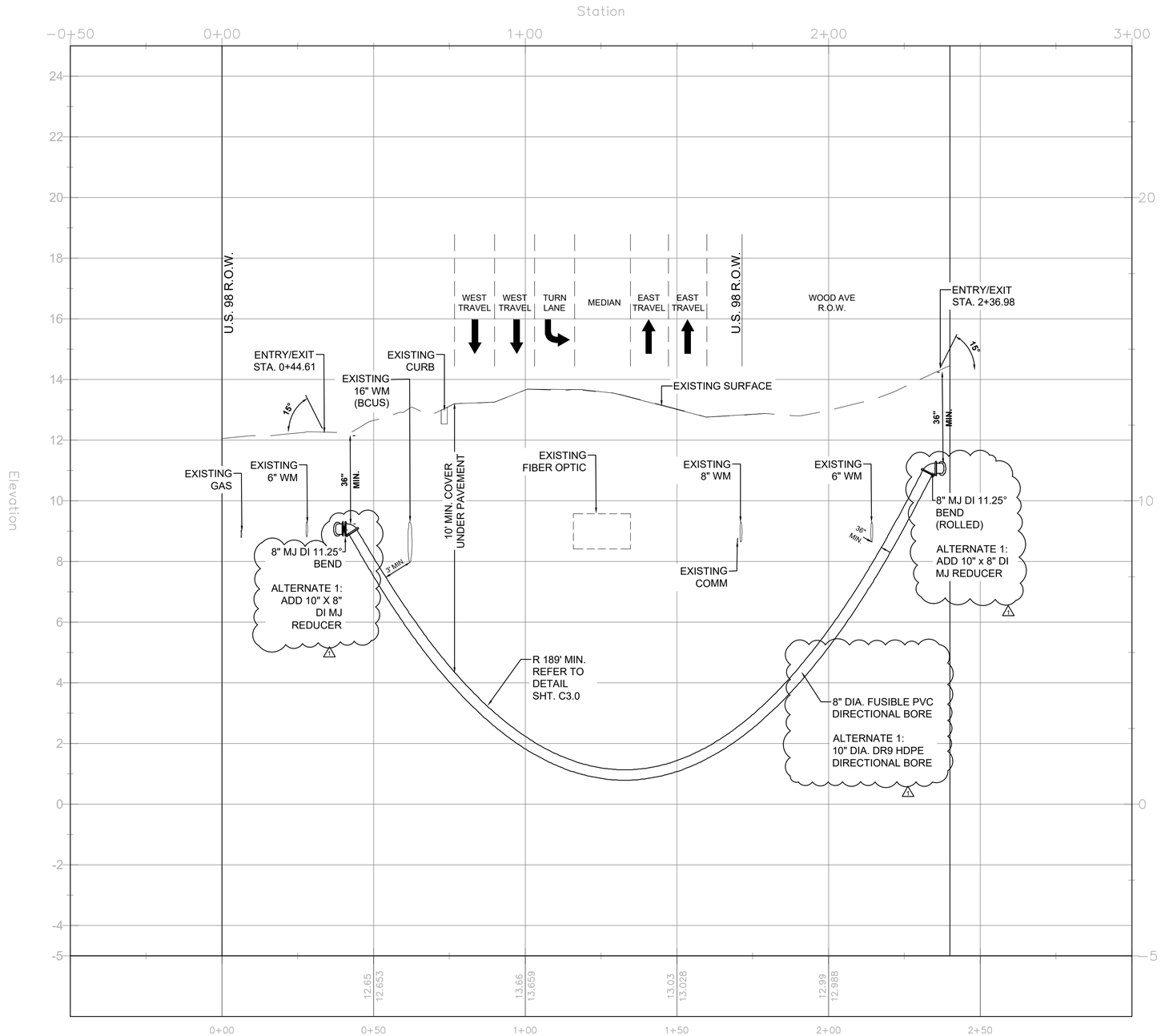
Designed: B. SILCOX
Drawn: B. SILCOX
Checked: E. MOORE
Job No.: 1620-0000
Date: 5/11/2022

SITE IMPROVEMENT PLAN

COOPER STREET WATER IMPROVEMENTS
PARKER, FLORIDA

THIS SHEET NOT VALID FOR CONSTRUCTION WITHOUT COMPLETE SET OF PLANS.

Sheet No.
C1.1



1 COOPER ST - U.S. 98 DIRECTIONAL BORE SECTION

SCALE: HOR. 1:20 / VER. 1:2

Anchor CEI Engineering that works.
P. 850.215.1285 • F. 850.215.1286
450 Magnolia Avenue, Panama City, FL 32401
CA Number 31422

Elizabeth S. Moore, PE
FL License No. 57607

No.	Date	Revision
1	05/11/22	ADDENDUM 1

Designed: B. SILCOX
Drawn: B. SILCOX
Checked: E. MOORE
Job No.: 1620-0000
Date: 5/11/2022

DIRECTIONAL BORE PROFILE

COOPER STREET WATER IMPROVEMENTS
PARKER, FLORIDA

THIS SHEET NOT VALID FOR CONSTRUCTION WITHOUT COMPLETE SET OF PLANS.

Sheet No.
C2.0

ATTACHMENT B

REVISED
TABLE OF CONTENTS

TABLE OF CONTENTS

INSTRUCTIONS TO BIDDERS

INVITATION TO BID 2022-03
CITY OF PARKER
HIGHWAY 98 WATER MAIN DIRECTIONAL BORE
AT COOPER STREET

ATTACHMENT C

REVISED
INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

INTRODUCTION

The objective of this Invitation to Bid (ITB) is to select a **Florida-Licensed General Contractor or Florida-Licensed Underground Utility Contractor** Contractor to provide construction services to the City of Parker (hereinafter referred to as "CITY" or "OWNER") for the construction of a new 8-inch fusible polyvinyl chloride (FPVC) directional bore piping that crosses U.S. Highway 98 (Tyndall Parkway) at the intersection with Wood Avenue that will connect to a new 6-inch PVC which will connect to a new 8-inch PVC which will continue southwest (parallel to the existing watermain) to the Cooper Street and U.S. Highway 98 intersection where it will tie into the existing watermain. A 10-inch DR-9 HDPE Directional Bore is an approved alternate of the 8-inch FPVC referenced above. This alternate will include two 10-inch by 8-inch Ductile Iron (DI) mechanical joint (MJ) reducers and required adapters. This includes all appurtenances as detailed on the Bid Form included in this Bid Package. Please refer to the Construction Drawings included in this Bid Package for further details.

The OWNER seeks BIDs from **Florida-Licensed General Contractor or Florida-Licensed Underground Utility Contractor Contractor** that can provide all permits, labor, materials, equipment, tools, transportation and supplies required for the coordination and construction of the watermains and all appurtenances as detailed within this Bid Package and as detailed in the Construction Drawings. Work shall be completed in conformance with the Construction Drawings and Specifications provided by the OWNER.

QUALIFICATIONS

The CONTRACTOR shall be a Florida-Licensed General Contractor or Florida-Licensed Underground Utility Contractor Contractor who specializes in water utility projects. Subcontractors shall be Florida licensed in their trade. BIDs may be deemed nonresponsive if not accompanied by proof of State of Florida Utility Contractor's License.

BID DEADLINE/DELIVERY

SEALED BIDS will be received up until **2:00 p.m. (CDT) on Tuesday, May 17, 2022** for **ITB 2022-03 – CITY OF PARKER – HIGHWAY 98 WATERMAIN DIRECTIONAL BORE AT COOPER STREET**. BIDs will be publicly opened during the City Council meeting at 5:30 p.m. on Tuesday, May 17, 2022.

Late submissions will not be accepted.

Each BID shall be valid to the City of Parker for a period of 90 days after the Bid Opening.

BIDs shall be delivered to:
Ms. Taylor Jeffreys
Public Works Administrator
City of Parker Florida
1001 West Park Street
Parker, Florida 32404

BIDs shall be received by the OWNER no later than the BID deadline. BIDDERs should submit one (1) original BID package labeled as "Original." BIDs shall be enclosed in a sealed envelope bearing the title of the work, the name of the BIDDER and the date of Bid Opening. It is the sole responsibility of the BIDDER to ensure that the BID is received on time. Late BIDs will not be accepted.

The OWNER will publicly open and read aloud each BID. Once the OWNER has determined the lowest, responsive, responsible BIDDER and has verified all BIDDER documentation, the selected BIDDER will be notified of intent to award the BID and to start the contract process.

SPECIAL ACCOMMODATION

Any person requiring a special accommodation at a Bid Opening because of a disability should call the City Clerk at (850) 871-4104 at least 5 workdays prior to the Bid Opening. For Hearing Impaired, Dial 1-800-955-8771 (TDD), and 1-800-955-8770 (Voice).

BID DOCUMENTS

Electronic versions of the solicitation documents are available on the City's webpage at www.cityofparker.com. Hard copies of the solicitation documents are also available at Parker City Hall, located at 1001 West Park Street, Parker, Florida 32404.

POINT OF CONTACT

The OWNER's representative, Mandy O'Regan, Project Administrator with Anchor CEI (moregan@anchorcei.com) is the only point of contact for this ITB. Under no circumstances may a BIDDER contact any City Council Member or other City employee concerning this ITB until after the contract has been awarded. Any such contact may result in disqualification.

QUESTIONS

BIDDERs shall submit all questions, in writing, to Mandy O'Regan at moregan@anchorcei.com. All questions shall be submitted no later than 5:00 p.m. (CST) on **Friday, May 6, 2022**.

PLAN HOLDERS LIST

Those who wish to be included on the Plan Holders list, must submit Name, Company, Address, Telephone Number, and E-mail Address to Mandy O'Regan at moregan@anchorcei.com. This list will be used during the issuance of any addenda.

ADDENDA

Addenda issued after the initial specifications are released will be posted on the City's website at www.cityofparker.com. In addition, those who have submitted contact information to Ms. O'Regan as detailed above for the Plan Holder's List will be notified via e-mail of all addenda.

It is the responsibility of the BIDDER prior to submission of any proposal to check the above website or contact the City of Parker to verify if any addenda have been issued. The receipt of all addenda must be acknowledged on the addenda response sheet provided within this BID package. Please e-mail Mandy O'Regan, ACEI (OWNER's Representative), at moregan@anchorcei.com with questions regarding the issuance of addenda.

BID FORM

To receive consideration, all BIDs shall be made on the forms provided herein, properly executed and with all items filled out. Do not change the wording of the Bid Form and do not add words to the wording of the Bid Form. Alterations by erasure or interlineations must be explained or noted in the BID over the signature of the BIDDER.

COMPLETE BID AMOUNTS; EXAMINATIONS OF SPECIFICATIONS; WORK SITES

BIDs shall be calculated as detailed in the Bid Tab of the Bid Form and as outlined in the Measurement and Payment section.

Prices shall include all charges for completing the construction of the watermains as depicted on the Contract Drawings to include layout, insurance, taxes, field office and supervision, overhead and profit, bonds and miscellaneous items needed to complete the BID. No allowance will be made to any BIDDER because of a claimed lack of examination or knowledge.

The submission of a BID shall be construed as conclusive evidence that the BIDDER has made such examination.

WITHDRAWAL OF BIDS

Any BIDDER may withdraw his/her BID, either personally or by written request, at any time prior to the Bid Opening Date as posted in this ITB.

A BIDDER may not withdraw his BID for a period of 90 days after the date of Bid Opening and all BIDs shall be subject to acceptance by the OWNER during this period.

CANCELLATION

The OWNER may cancel this ITB, or reject in whole or in part, when it is in the best interest of the OWNER, as determined by the City Council or their designee. Notice of cancellation shall be posted on the City website.

The notice shall identify the solicitation, and, where appropriate, explain that an opportunity will be given to compete on any re-solicitation or any future procurement of similar items.

BASIS OF AWARD

The contract will be awarded to the lowest, responsive, responsible BIDDER who has proposed the lowest qualified base bid and is deemed qualified by the City of Parker, subject to the OWNER's right to reject any or all BIDs and to waive informality and irregularity in the BIDs and proposing or to accept other than the lowest BID when considered to be in the best interest of the OWNER.

RIGHT TO REJECT

In accordance with OWNER policies, the OWNER reserves the right to:

1. Reject any or all BIDs received.
2. Select and award any portion of any or all BID items.
3. Waive minor informalities and irregularities in the Respondent's BID.

A BID may be rejected if it is non-responsive or does not conform to the requirements and instructions in this ITB. A BID may be non-responsive by reasons, including, but not limited to:

1. Failure to utilize or complete prescribed forms.
2. Conditional BIDs.
3. Incomplete BIDs.
4. Indefinite or ambiguous BIDs.
5. Failure to meet deadlines and improper and/or undated signatures.

Other conditions which may cause rejection of BIDs include:

1. Evidence of collusion.
2. Obvious lack of experience or expertise to perform the required work.
3. Submission of more than one BID for the same work from an individual.
4. Respondent or corporation under the same or a different name.
5. Failure to perform or meet financial obligations on previous contracts.
6. Not delivered on or before the date and time specified as the due date for submission of the BID.

EXECUTION OF AGREEMENT

The successful BIDDER shall, within 10 business days after receipt of the Notice of Award and the contract forms or documents, sign and deliver to the OWNER all required Contract Documents. The AWARDED BIDDER shall also deliver the policies of insurance or insurance certificate as required. All insurance documents shall be approved by the OWNER before the successful BIDDER may proceed with the work. The execution of the Agreement shall be contingent upon the AWARDED CONTRACTOR obtaining all required building permits.

CONSTRUCTION TIME

The Agreement will include a stipulation that the work be completed in a period of 120 calendar days following receipt of the Notice to Proceed. Should the CONTRACTOR fail to complete the work by the specified date, the OWNER shall deduct from the Contract Sum the amount of $100.00 per calendar day as liquidated damages for every day subsequent to the specified date until the work is fully completed and receipted by the OWNER as being completed. For purposes of time calculation, day one of the project is the calendar day after the Notice to Proceed date.

PAYMENTS

Payments shall be made in accordance with the Florida Prompt Payment Act, Chapter 218, Florida Statutes.

LICENSING

BIDDER shall be properly licensed for the work specified in this Invitation to Bid. All BIDDERs are requested to submit any required license(s) with their BIDs. License(s) must be effective as of the Bid Opening date and must be maintained throughout the contract period. Failure to be properly licensed as stated above will result in the rejection of the BID as nonresponsive.

PUBLIC RECORDS

In accordance with Chapter 119 of the Florida Statutes (Public Records Law) and except as may be provided by other applicable state or federal law, all BIDDERs should be aware that BIDs, responses, and proposals are in the public domain.

BIDDERs must identify specifically any information contained in their response which they consider confidential and/or proprietary and which they believe to be exempt from disclosure, citing, specifically the applicable exempting law.

Pursuant to Florida Statute Section119.071(1)(b), BIDs received as a result of this ITB will not become public record until such time as the OWNER provides notice of an intended decision or until 30 days after opening the BIDs, whichever is earlier.

EXEMPTION OF MEETINGS/PRESENTATIONS

Pursuant to Florida Statute Section 286.0113(2), any portion of a meeting at which a negotiation with a contractor is conducted pursuant to a competitive solicitation, at which a contractor makes an oral presentation as part of a competitive solicitation, or at which a contractor answers questions as part of a competitive solicitation are exempt from public meeting requirements.

However, the OWNER must make a complete recording of any portion of an exempt meeting and no portion of the exempt meeting may be held off the record.

The recording of, and any records presented at, the exempt meeting are exempt from the public records law of Section 119.07(1), Florida Statute (2015) and Section 24(a), Article I of the State Constitution, until such time as the agency provides notice of an intended decision or until 30 days after opening the BIDs, submittals, or final replies, whichever occurs earlier.

If the OWNER rejects all BIDs, submittals, or replies and concurrently provides notice of its intent to reissue a competitive solicitation, the recording and any records presented at the exempt meeting remain exempt from Section 119.07(1), Florida Statute (2015) and Section 24(a), Article I of the State Constitution until such time as the agency provides notice of an intended decision concerning the reissued competitive solicitation or until the agency withdraws the reissued competitive solicitation.

A recording and any records presented at an exempt meeting are not exempt for longer than 12 months after the initial agency notice rejecting all BIDs, submittals, or replies.

REPRESENTATIONS

The Contract Documents contain the provisions required for the project. Information obtained from an office, Director, or employee of the OWNER for any other person shall not affect the risks or obligations assumed by the BIDDER or relieve the BIDDER from fulfilling any of the conditions of the contract.

PUBLIC ENTITY CRIMES STATEMENT

A person or affiliate who has been placed on the convicted contractor list following a conviction for a public entity crime may not submit a BID on a contract to provide any goods or services to a public entity, may not submit a BID on a contract with a public entity for the construction or repair of a public building or public work, may not submit BIDs on leases of real property to a public entity, may not be awarded or perform work as a contractor, contractor, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Florida Statutes, Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted contractor list.

By submission of a proposal in response to this document, the contractor certifies compliance with the above requirements as stated in Section 287.133, Florida Statutes.

EMPLOYMENT ELIGIBILITY VERIFICATION

CONTRACTOR shall utilize the U.S. Department of Homeland Security's E-Verify system, in accordance with the terms governing use of the system, to confirm the employment eligibility of:

1. All persons employed by the CONTRACTOR during the term of the Contract to perform employment duties within Florida; and

2. All persons, including contractors, subcontractors, assigned by the CONTRACTOR to perform work pursuant to the contract with the DHS and OWNER. By submission of a proposal in response to this document, the con CONTRACTOR tractor certifies compliance with the above requirements.

WARRANTY

All goods and services furnished by BIDDER, relating to and pursuant to this ITB, will be warranted to meet or exceed the specifications contained herein. In the event of a breach, the BIDDER will take all necessary action, at BIDDER's expense, to correct such breach in the most expeditious manner possible.

SUBCONTRACTORS

The AWARDED BIDDER will be the prime service provider and shall be responsible for all work performed and contract deliverables. Proposed use of subcontractors should be included in the BIDDER's Response. Requests for use of subcontractors received subsequent to the solicitation process are subject to review and approval by the OWNER. The OWNER reserves the right to request and review information in conjunction with its determination regarding a subcontract request. All subcontractors are subject to the same requirements of this solicitation as the AWARDED BIDDER. The AWARDED BIDDER is the single point of contact for all work performed on the awarded project.

AWARDED BIDDER shall provide a single point of contact for matters in relation to the construction, as follows:

1. Name
2. Phone Number(s)
3. Email Address

HOLD HARMLESS AND INDEMNIFICATION

1. The AWARDED BIDDER shall indemnify and hold harmless the OWNER, and its officers, agents, attorneys and employees, from any and all claims, suits, actions, damages, liabilities, expenditures, or causes of action of any kind, losses, penalties, interest, demands, judgments, and costs of suit, including attorneys' fees and paralegals' fees, for any expense, damage, or liability incurred by any of them, whether for bodily or personal injury, death, property damage, direct or consequential damages, or economic loss, including environmental impairment, arising directly or indirectly, on account of or in connection with contractor's performance of the contract or by any person, firm, or corporation to whom any portion of the performance of this Agreement is subcontracted to or used by the contractor, or by any other person.

2. The parties understand and agree that such indemnification by the contractor relating to any matter which is the subject of this Agreement shall extend throughout the term of this Contract and any statutes of limitations thereafter.

3. The AWARDED BIDDER's obligation shall not be limited by or in any way to any insurance coverage or by any provision in or exclusion or omission from any policy of insurance.

DUTY TO PAY DEFENSE COSTS AND EXPENSES

1. The AWARDED BIDDER agrees to reimburse and pay on behalf of the OWNER the cost of the OWNER legal defense, through and including all appeals, and to include all attorneys' fees, costs, and expenses of any kind for any and all:

   a. claims described in the Hold Harmless and Indemnification paragraph; or,

   b. other claims arising out of the contractor's performance of the Contract and in which the OWNER has prevailed.

2. The OWNER shall choose its legal defense team, experts, and consultants and invoice the AWARDED BIDDER accordingly for all fees, costs and expenses upon the conclusion of the claim.

3. Such payment on the behalf of the OWNER shall be in addition to any and all other legal remedies available to the OWNER and shall not be considered to be the OWNER's exclusive remedy.

BONDS

A Bid Bond, in the amount of 5% of the proposed Base Bid contract amount, shall accompany each bid. The successful BIDDER's security will be retained until the contract has been signed and the BIDDER has furnished the required Public Construction Bond. The OWNER reserves the right to retain the security of the next BIDDER until the selected BIDDER enters into contract or until 90 days after Bid Opening, whichever is shorter. All other BID security will be returned as soon as practicable.

Prior to signing the Contract, the AWARDED BIDDER will secure and post a Public Construction Bond pursuant to Section 255.05 of the Florida Statutes. All such bonds shall be issued by a Surety acceptable to the OWNER. The OWNER will designate to whom subject bonds shall be posted. Failure or refusal to furnish adequate bonds in a satisfactory form shall subject the AWARDED BIDDER to loss of time from the allowable construction period equal to the time of delay in furnishing the required bonds**.**

TERMINATION FOR CONVENIENCE

The OWNER may terminate any awarded contract at any time for any reason by giving at least a 30-day notice in writing to the AWARDED BIDDER. If the contract is terminated by the OWNER as provided herein, the AWARDED BIDDER will be entitled to receive payment for those services reasonably performed to the date of termination.

TERMINATION FOR CAUSE

This Contract may be terminated by the OWNER if the AWARDED BIDDER is found to have submitted a false certification as required under Section 215.471 (5), Florida Statutes, been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or been engaged in business operations in Cuba or Syria.

If the AWARDED BIDDER fails to comply with any of the terms and conditions of the awarded Contract, the OWNER may give notice, in writing, to the AWARDED BIDDER of any or all deficiencies claimed. The notice will be sufficient for all purposes if it describes the default in general terms. If all defaults are not cured and corrected within a reasonable period as specified in the notice, the OWNER may, with no further notice, declare the awarded contract to be terminated. The AWARDED BIDDER will thereafter be entitled to receive payment for those services reasonably performed to the date of termination, less the amount of reasonable damages suffered by the OWNER by reason of the AWARDED BIDDER's failure to comply with the awarded Contract.

Notwithstanding the above, the AWARDED BIDDER is not relieved of liability to the OWNER for damages sustained by the OWNER by virtue of any breach of this Contract by the AWARDED BIDDER and the OWNER may withhold any payments to the AWARDED BIDDER for the purpose of setoff until such time as the amount of damages due the OWNER from the AWARDED BIDDER is determined.

BID PROTEST

A notice of protest must be submitted within three business days after posting of the recommendation of award on the City website at www.cityofparker.com. The protest must be in writing, via e-mail or letter and must identify the protester and the solicitation and shall include a factual summary of the basis of the protest. The notice of protest is considered filed when it is received by the City Clerk. Further information may be found in the City Code.

ANTICIPATED SCHEDULE

This schedule may be altered solely at the OWNER's discretion:

ITB Advertisement:	Wednesday, April 20, 2022
	Wednesday, May 4, 2022
Questions Due Date:	Friday, May 6, 2022 (5:00 p.m. CST)
Bid Deadline:	Tuesday, May 17 (2:00 p.m. CST)
Award Recommendation Council Meeting:	Tuesday, June 7, 2022
Installation Complete:	Within 120 days of Notice to Proceed

BID CHECKLIST

Please submit one original of the items on the following list and any other items required by any section of this ITB. The checklist is provided as a courtesy and may not be all inclusive of items required within this ITB.

1. VALID FLORIDA-REGISTERED UNDERGROUND UTILITY CONTRACTOR'S LICENSE
2. BID FORM
3. BID BOND
4. ADDENDUM ACKNOWLEDGEMENT
5. ANTI-COLLUSION CLAUSE
6. CONFLICT OF INTEREST DISCLOSURE FORM
7. IDENTICAL TIE BIDS/DRUG FREE WORKPLACE
8. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION
9. 44 C.F.R. PART 18-CERTIFICATION REGARDING LOBBYING

INVITATION TO BID 2022-03
CITY OF PARKER
HIGHWAY 98 WATER MAIN DIRECTIONAL BORE
AT COOPER STREET

ATTACHMENT D

REVISED
SECTION 01150
MEASUREMENT AND PAYMENT

SECTION 01150
MEASUREMENT AND PAYMENT

PART 1 - SCOPE OF WORK

A. The scope of this section of the Contract Documents is to further define the items included in each Bid Item in the Bid Proposal section of these Specifications.

B. Payment will be made based on the specified items included in the description in this section for each bid item.

1.02 GENERAL

A. All Contract Prices included in the Bid Proposal section will be full compensation for all labor, materials, tools, equipment and incidentals necessary to complete the construction as shown on the drawings and/or as specified in the Contract Documents to be performed under this contract.

B. Actual quantities of each item bid on a unit price basis will be determined upon completion of the construction in the manner set up for each item in this section of the specifications.

C. Payment for all items listed in the Bid Form will constitute full compensation for all work shown and/or specified to be performed under this project.

1.03 ESTIMATED QUANTITIES

A. The quantities shown are approximate and are given only as a basis of calculation upon which the award of the Contract is to be made.

B. The OWNER/ENGINEER does not assume any responsibility for the final quantities, nor shall the CONTRACTOR claim misunderstanding because of such estimate of quantities.

C. Final payment will be made only for satisfactorily completed quantity of each item.

1.04 WORK OUTSIDE AUTHORIZED LIMITS

A. No payment will be made for work constructed outside the authorized limits of work.

1.05 MEASUREMENT STANDARDS

A. Unless otherwise specified for the particular items involved, all measurements of distance shall be taken horizontally or vertically.

1.06 AREA MEASUREMENTS

A. In the measurement of items to be paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the final dimensions measured along the surface of the completed work within the neat lines shown or designated.

1.07 LUMP SUM ITEMS

A. Where payment for items is shown to be paid on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum item.

B. Lump sum bid items shall be complete, tested and fully operable prior to request for final payment.

C. Measurement shall be based upon the ENGINEER's estimate of percent complete per partial payment period.

1.08 UNIT PRICE ITEM

A. Separate payment will be made for the items of work described herein and listed on the Bid Form.

B. Any related work not specifically listed but required for satisfactory completion of the work shall be considered to be included in the scope of the appropriate listed work items.

1.09 OTHER PROVISIONS

A. No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work unless indicated otherwise in the individual bid item.

1. Sheeting and shoring.

2. Clearing, grubbing, and grading.

3. Replacement and/or repair of existing utilities damaged during construction.

4. Trench excavation, including necessary pavement removal, rock removal, muck removal and restoration unless a separate bid item is listed in the Bid Form.

5. Ditch and swale restoration.

6. Dewatering and disposal of surplus water, including permitting if required.

7. Bypass pumping.

8. Structural fill, backfill and grading.

9. Adjusting existing valve boxes, manhole frames and covers and other structures.

10. Foundation and borrow materials.

11. Placing system in operation.

12. Any material and equipment required to be installed and utilized for the tests.

13. Maintaining the existing quality of service during construction.

14. Appurtenant work as required for a complete and operable system.

B. Final payment shall not be requested by the CONTRACTOR or made by the OWNER until record drawings have been submitted to the ENGINEER.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 BASE BID

A. BID ITEM 1 - MOBILIZATION/DEMOBILIZATION

1. Payment for all work included under this Bid Item will be made at the lump sum price bid for mobilization and demobilization of all labor, equipment, materials, and appurtenances necessary for construction of the project.

2. Mobilization shall include all those operations necessaries for the movement of personnel, equipment, supplies, and incidentals to the project site and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, and sanitary and other facilities.

3. Also, included as part of this Bid Item is the cost for project indemnifications, photographs, shop drawings, working drawings, schedules, record documents (excluding as-builts), coordination, phasing, and any other preconstruction expense necessary for the start of the work, excluding the cost of construction materials.

4. The lump sum price for mobilization/demobilization will be limited to 10% of the total Base Bid Amount.

5. The initial 70% of the lump sum price will be payable with the first month's partial payment.

6. The remaining thirty percent (30%) will be payable with the final partial payment.

7. Measurement for this bid item will be lump sum. The lump sum price for mobilization/demobilization will be limited to 10% of the total contract base bid amount.

B. BID ITEM 2 – BONDS AND INSURANCE

1. Payment for this bid item shall be made at the lump sum price bid for all bonds and insurance policies as required by the Contract Documents.

2. Payment will be made only after proper documentation is provided to the ENGINEER. Measurement of this bid item shall be lump sum.

3. THIS ITEM BID SHALL NOT EXCEED 5.0% OF THE ENTIRE CONTRACT BID AMOUNT.

C. BID ITEM 3 – EROSION CONTROL

1. Payment for all work included under this bid item will be made at the lump sum price bid for all work associated with the prevention, control and abatement of erosion and water pollution in accordance with the contract documents.

2. Payment shall include all items and incidentals necessary to complete the work in conformance with NPDES and other permit requirements.

3. Measurement for work included under this bid item will be lump sum.

D. BID ITEM 4 – TESTING, ~~AND~~ FLUSHING AND DISINFECTING

~~1. The Owner has allocated the amount indicated as a testing allowance for quality control testing during construction.~~

~~2.~~1. The Owner will provide water for the project, at a cost to the Contractor. The Contractor should include $3,000.00 in Bid Item No. 7 for the cost of the water and meter. Any amount unused by the Contractor will be credited back to the City.

~~3.~~2. The Contractor shall employ, coordinate and direct the services of independent testing laboratories required for all testing.

~~4.~~3. The Contractor shall pay all testing laboratory invoices ~~and submit them for reimbursement.~~

~~5. Payment for testing completed under this Bid Item shall be made at the direct invoice amount without markup of any kind.~~

~~6.~~4. Payment for flushing completed under this Bid Item shall be made at the lump sum bid price for all ~~work~~ associated work.~~with the flushing for quality control testing during construction.~~

E. BID ITEM 5 – LAYOUT AND AS-BUILTS

1. Payment for the work included under this bid item shall be made at the lump sum price bid for all work associated with furnishing all layouts of the improvements as well as surveys and preparation of record drawings as required under the contract documents.

2. Payment shall constitute complete compensation for all labor, materials, and equipment necessary to complete this work item.

3. Measurement for the work included under this bid item shall be lump sum.

F. BID ITEM 6 - MAINTENANCE OF TRAFFIC

1. Payment for all work included under this Bid Item will be made at the lump sum bid price for maintenance of traffic in accordance with the contract documents and Florida Department of Transportation (FDOT) Standards.

2. Payment shall include all maintenance of traffic necessary for construction of the improvements indicated in the contract documents complete in every detail.

3. Payment of the applicable Contract lump sum price as stated in the proposal will be full compensation for furnishing all labor, materials, and equipment necessary to maintain public roadway and pedestrian traffic including flag men, uniformed police officers, barricades, warning lights/flashers, and safety ropes.

4. Also included is furnishing, installing, and maintaining a Traffic Control Plan, control and safety devices, control of dust, temporary crossing structures over trenches, any necessary detour facilities, and other specific requirements for the safe and expeditious movements of traffic.

5. Payment shall constitute complete compensation for all labor, materials, and equipment necessary to complete this work item.

G. BID ITEM 7 – 6-INCH PVC WATER MAIN AND APPURTENANCES

1. Payment for this Bid Item will be made at the contract lump sum bid price and shall include all labor, materials, and equipment to construct a 6-inch PVC water main and all appurtenances.

2. This bid item shall include but not be limited to the coordination with existing utilities, protection of existing utilities, clearing and grubbing, excavation, sheeting, shoring and bracing, dewatering, groundwater treatment and disposal, backfill, compaction, and grading, and clean-up.

3. This item also includes all necessary fittings, valves, reducers, bends, tees, wyes, plugs, restraining devices, metallic tracer wire, line locator and identification markers and all other items and incidentals necessary to construct the 6-inch PVC Water Main including all appurtenances complete in every detail.

4. Measurement for the work included under this bid item shall percentage of work completed.

H. BID ITEM 8 – 8-INCH PVC WATER MAIN AND APPURTENANCES

1. Payment for this Bid Item will be made at the contract lump sum bid price and shall include all labor, materials, and equipment to construct an 8-inch PVC water main and all appurtenances.

2. This bid item shall include but not be limited to the coordination with existing utilities, protection of existing utilities, clearing and grubbing, excavation, sheeting, shoring and bracing, dewatering, groundwater treatment and disposal, backfill, compaction, and grading, and clean-up.

3. This item also includes all necessary fittings, valves, reducers, bends, tees, wyes, plugs, restraining devices, metallic tracer wire, line locator and identification markers and all other items and incidentals necessary to construct the 6-inch PVC Water Main including all appurtenances complete in every detail.

4. Measurement for the work included under this bid item shall percentage of work completed.

I. BID ITEM NO. 9 – 8-INCH DIRECTIONAL BORE FPVC WATER MAIN AND APPURTENANCES

1. Payment for this Bid Item will be made at the contract lump sum bid price and shall include all labor, materials, and equipment to construct an 8-inch FPVC water main and all appurtenances.

2. This bid item shall include but not be limited to coordination with existing utilities, protection of existing utilities, clearing and grubbing, excavation, sheeting, shoring and bracing, dewatering, groundwater treatment and disposal, backfill, compaction, and grading, and clean-up.

3. This item also includes all necessary fittings, valves, reducers, bends, tees, wyes, plugs, restraining devices, metallic tracer wire, line locator and identification markers and all other items and incidentals necessary to construct the 6-inch PVC Water Main including all appurtenances complete in every detail.

4. Measurement for the work included under this bid item shall percentage of work completed.

J. BID ITEM 10 – FIRE HYDRANT ASSEMBLIES

1. Payment for all work included under this bid item will be unit price per replacement of two fire hydrant assemblies and all associated appurtenances associated with connecting to the watermain, piping between the main and the hydrant.

2. This bid item shall include but not be limited to excavation, disposal of existing fire hydrants, backfill, cleanout, and right-of-way restoration per the construction plan details and specifications.

3. Measurement for the work included under this bid item shall be unit price per item.

K. BID ITEM 11 – CONCRETE SIDEWALK

1. Payment for this Bid Item will be made at the contract lump sum bid price and shall include all labor, materials, and equipment to remove and replace existing concrete sidewalks and roadways as indicated on the Contract Drawings.

2. This Bid Item includes coordination with property owners, utilities, protection of existing utilities, tree protection, excavation, sheeting, shoring, and bracing, dewatering, groundwater treatment and disposal, backfill, compaction, and grading, restoration, sod, and clean-up of the concrete sidewalks.

3. In addition, this Bid Item includes all necessary incidentals and appurtenances that are needed for replacing the concrete sidewalks

as indicated on the Contract Drawings.

4. Measurement for the work included under this bid item shall percentage of work completed.

L. BID ITEM 12 – ASPHALT DRIVE

1. Payment for this Bid Item will be made at the contract lump sum bid price and shall include all labor, materials, and equipment to remove and replace existing asphalt driveways and roadways as indicated on the Contract Drawings.

2. This Bid Item includes coordination with property owners, utilities, protection of existing utilities, tree protection, excavation, sheeting, shoring, and bracing, dewatering, groundwater treatment and disposal, backfill, compaction, and grading, restoration, sod, and clean-up of the asphalt driveway.

3. In addition, this Bid Item includes all necessary incidentals and appurtenances that are needed for replacing the asphalt driveways as indicated on the Contract Drawings.

4. Measurement for the work included under this bid item shall percentage of work completed.

M. BID ITEM 13 – RESTORATION

1. Payment for all work included under this bid item will be made as a percentage of work completed for all work related to restoring each area disturbed to pre-construction conditions and shall include seeding or sodding in areas where construction disturbed landscape, in accordance with the contract documents.

2. Payment shall include, but not be limited to site restoration, removal and replacement of landscaping, fencing, drainage and other required and associated work or materials.

3. Payment shall constitute complete compensation for all labor, materials, and equipment necessary to complete this work item.

N. ALTERNATE 1 – 10-INCH DR 9 HDPE DIRECTIONAL BORE AND APPURTENANCES

1. Payment for this Bid Item will be made at the contract lump sum bid price and shall include all labor, materials, and equipment to construct a 10-inch DR9 HDPE Directional Bore and all appurtenances lieu of the 8-inch FPVC pipe and it appurtenances referenced in Bid Item 9.

2. This bid item shall include but not be limited to the coordination with

existing utilities, protection of existing utilities, clearing and grubbing, excavation, sheeting, shoring and bracing, dewatering, groundwater treatment and disposal, backfill, compaction, and grading, and clean-up.

3. This item also includes all necessary fittings, adapters, reducers, restraining devices, metallic tracer wire, line locator and identification markers and all other items and incidentals necessary to construct the 10-inch DR9 HDPE Directional Bore including all appurtenances complete in every detail.

4. Measurement for the work included under this bid item shall percentage of work completed.

END OF SECTION 01150

ATTACHMENT E

ADDITION OF SECTION 331120 HDPE WATER DISTRIBUTION PIPING SPECIFICATION

SECTION 331120
HIGH DENSITY POLYETHYLENE (HDPE) WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes High Density Polyethylene (HDPE) pipe and fittings from 4-inch through 32-inch for potable water and reuse applications including distribution piping and horizontal directional drill (HDD).

1.02 REFERENCE STANDARDS

A. Reference Standards:

1. Reference standards cited in this Specification refer to the current reference standard published at the time of the latest revision date logged at the end of this Specification unless a date is specifically cited.

2. In the event of a conflict, the most stringent requirements prevail. Submit conflicts to the ENGINEER in writing prior to purchase of materials.

B. ANSI/AWWA www.awwa.org:

1. AWWA M55 Manual of Water Supply Practices, PE Pipe – Design and Installation.

2. ANSI/AWWA C111/A21.11-12 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

3. AWWA C207-13 Steel Pipe Flanges for Waterworks Service, Sizes 4 In Inches through 144 Inches (100 mm Through 3,600 mm).

4. ANSI/AWWA C651 Standard for Disinfecting Water Mains.

5. ANSI/AWWA C800 Underground Service Line Valves and Fittings.

6. ANSI/AWWA C901-08 Polyethylene (PE) Pressure Pipe and Tubing, ½ Inch (13 mm) through 3 Inches (76 mm) for Water Service.

7. ANSI/AWWA C906-15 Polyethylene (PE) Pressure Pipe and Fittings, 4 Inches through 65 Inches (100 mm to 1,650 mm), for Waterworks.

C. Plastics Pipe Institute, PPI www.plasticpipe.org:

1. PPI Handbook of Polyethylene Pipe – 2009 (2nd Edition).

2. PPI TR-33 Generic Butt Fusion Joining Procedure for Polyethylene Gas Pipe.

3. PPI TR-34 Disinfection of Newly Constructed Polyethylene Water Mains.

4. PPI TR-41 Generic Saddle Fusion Joining Procedure for Polyethylene Gas Piping.

5. PPI TN-34 Installation Guidelines for Electrofusion Couplings 14-inch and Larger.

6. PPI TN-42 Recommended Minimum Training Guidelines for PE Pipe Butt Fusion Joining Operators for Municipal and Industrial Projects (2009).

7. Municipal Advisory Board Generic Electrofusion Procedure for Field Joining of 12 Inch and Smaller Polyethylene (PE) Pipe.

D. NSF www.nsf.org:

1. NSF / ANSI 61 Drinking Water System Components–Health Effects.

E. ASTM www.astm.org:

1. ASTM B 62 Standard Specification for Composition Bronze or Ounce Metal Casting.

2. ASTM D 698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft3 (600 kN-m/m3)).

3. ASTM D 2239 Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR- PR) Based on Controlled Inside Diameter.

4. ASTM D 2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.

5. ASTM D 2683 Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing.

6. ASTM D 2737 Standard Specification for Polyethylene (PE) Plastic Tubing.

7. ASTM D 2774 Standard Practice for Underground Installation of Thermoplastic Pressure Piping.

8. ASTM D 3035 Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.

9. ASTM D 3261 Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.

10. ASTM D 3350-08 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.

11. ASTM F 714 Standard Specification for Polyethylene (PE) Plastic Pipe (SDR- PR) Based on Outside Diameter.

12. ASTM F 905 Standard Practice for Qualification of Polyethylene Saddle-Fused Joints.

13. ASTM F 1055 Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing.

14. ASTM F 1290 Standard Practice for Electrofusion Joining Polyolefin Pipe and Fittings.

15. ASTM F 1412 Standard Specification for Polyolefin Pipe and Fittings for Corrosive Waste Drainage Systems.

16. ASTM F 1417 Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air.

17. ASTM F 1668 Standard Guide for Construction Procedures for Buried Plastic Pipe.

18. ASTM F 2164 Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure.

19. ASTM F 2206 Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene (PE) Plastic Pipe, Fittings, Sheet Stock, Plate Stock, or Block Stock.

20. ASTM F 2620 Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings.

F. AASHTO (www.transportation.org):

1. AASHTO T-99 Standard Method of Test for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop.

G. International Organization for Standardization (www.iso.org):

1. ISO 12176-2 Plastics pipes and fittings — Equipment for fusion jointing polyethylene systems.

2. ISO/TR 13950 Plastics pipes and fittings — Automatic recognition systems for electrofusion joints.

1.03 SYSTEM DESIGN PARAMETERS

A. Surge Pressure:

1. Per AWWA C906, the repetitive surge pressure allowance is one half the pressure class of the pipe, and the occasional surge over pressure allowance is equal to the pressure class of the pipe.

2. Allowable Total Pressure during Recurring Surge conditions equals 1.5 times the pipe's pressure class. Allowable Total Pressure during Occasional Surge conditions equals 2.0 times the pipe's pressure class.

3. Table 1 gives the Pressure Class per AWWA C906, Pressure Rating and Allowable Total Pressure During Recurring and Occasional Surge for PE4710 pipe at 80°F or less.

Pipe dimension Ratio (DR)	Pressure Class	Pressure Rating	Allowable Total Pressure During Recurring Surge	Allowable Total Pressure During Occasional Surge
DR 9	250 psi	250 psi	375 psi	500 psi

1.04 SUBMITTALS

A. Requirements:

1. Submittals shall be in accordance with requirements in Submittals Section.

2. All submittals shall be reviewed by the ENGINNER prior to delivery.

3. The CONTRACTOR shall submit the pipe Manufacturer's certification of compliance with the applicable sections of the Specifications. This certification shall be in the form of a written document from the Manufacturer attesting to the manufacturing process meeting the standards.

4. The CONTRACTOR shall submit shop drawings showing installation method and the proposed method and specialized equipment to be used.

5. Manufacturers recommended fusion procedures for the products.

B. Provide Product Data:

1. Manufacturer.

2. Dimension Ratio.

3. Joint Types.

4. Restraint, if required in Contract Documents:

5. Retainer glands.

6. Thrust harnesses.

7. Any other means of restraint.

C. Lay Schedule/Drawing:

1. Lay schedule is required for 24-inch and greater diameters.

2. Schedule must be sealed by a Professional Engineer licensed in the State of Florida and must include:

a. Pipe class.

b. Fittings – bends, tees, services, connections, MJ adapters.

c. Stationing.

d. Transitions.

e. Joint deflection.

3. Note that lay schedule does not need to indicate location of butt fusion joints, as these will be determined in the field based on available pipe lengths and field conditions

D. Provide Internal Stiffeners Data.

E. Provide Mechanical Joint Adapters Data.

F. Installer Qualifications:

1. Provide certifications meeting requirements of Sub-section 3.01 of this Specification (Section 331120) for each installer. Keep certifications on project site available to OWNER, ENGINEER, and CEI INSPECTOR.

G. Data Logger Records:

1. Provide electronic data logger record to the inspector daily or on request of inspector.

2. Fusion Reports shall report Manufacturer, component, component fusion-jointing parameters, assembly operation and joint identification, per ISO 12176-4, and the following fusion-jointing operation data:

a. Temp-Compensated Fusion Time & Actual Fusion Time.

b. Resistance before & after fusion.

c. Hi and Low output voltage & output current during fusion.

d. Total Amp-Hours applied to fitting.

e. Input voltage and frequency before fusion.

f. High and Low input voltage and frequency during fusion.

g. Input waveform.

h. GPS position and quality.

i. Ambient temperature.

j. Heating iron face temperatures.

k. Fusion pressure.

l. Graphic representation of the fusion cycle.

3. Report shall comply with ISO 12176-2 requirements for traceability databases.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Shipping Requirement:

1. Ship and deliver pipe and fittings from Manufacturer with dust plugs on pipe ends and fitting ends.

B. Storage and Handling Requirements:

1. Handle the pipe in accordance with the PPI Handbook of Polyethylene Pipe (2nd Edition), Chapter 2 using approved strapping and equipment rated for the loads encountered.

2. Do not use chains, wire rope, forklifts or other methods or equipment that may gouge or damage the pipe or endanger persons or property. Field storage is to be in compliance with AWWA Manual of Practice M55 Chapter 7.

3. If any gouges, scrapes, or other damage to the pipe results in loss of 10 percent of the pipe wall thickness, cut out that section or do not use. Damages resulting from improper delivery, storage, or handling are the responsibility of the CONTRACTOR, and no additional payment shall be allowed by the OWNER.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Only the pipe and tubing Manufacturers as listed below are allowed. Other Manufacturers may be considered as equals on a project basis.

1. Performance Pipe
2. Georg Fischer
3. JM Eagle
4. Driscoplex
5. WL Plastics

B. Only the electrofusion fittings Manufacturers as listed below are allowed. Other Manufacturers may be considered as equals on a project basis.

1. Agru America
2. Georg Fischer Central Plastics

3. Integrity Fusion Products
4. IPEX, Inc.
5. M.T. Deason Company
6. Nupi Americas
7. Plasson, USA
8. Strongbridge-Tega

C. Only the butt fusion fittings Manufacturers as listed below are allowed. Other Manufacturers may be considered as equals on a project basis.

1. ISCO
2. IPEX
3. Georg Fisher

D. Only the fusion equipment Manufacturers as listed below are allowed. Other Manufacturers may be considered as equals on a project basis.

1. McElroy

E. Any product that is not listed in this section is considered a substitution and shall be considered by the ENGINEER on a project basis.

2.02 HDPE PIPE AND TUBING DIMENSION REQUIREMENTS

A. HDPE Pipe and Tubing shall comply with the dimension standards found in the table below:

Diameter (inch)	Dimension Ratio	Outside Diameter Standard	Pipe Dimension Standard
3/4 through 1	SDR 9	Copper Tubing Size (CTS)	ASTM D 2737
1.25 though 3	DR 9	Iron Pipe Size (IPS)	ASTM D 3035
4 through 32	DR 9	Iron Pipe Size (IPS)	ASTM F 714

B. Section 2.03 (below) of this specification further describes requirements for HDPE pipe.

C. Section 2.01 and 2.02 (above) of this specification further describes requirements for HDPE tubing.

2.03 HDPE PIPE

A. For diameters from 1.25-inches through 3-inches, High Density Polyethylene (HDPE) pipe and fittings shall meet the requirements of AWWA C901.

B. For diameters from 4-inches through 32-inches, HDPE pipe and fittings shall meet the requirements of AWWA C906.

C. The outside diameter of the pipe shall be based on the Iron Pipe Size (IPS) sizing system.

D. HDPE pipe shall be rated for use at a pressure class of 250 psi.

E. Polyethylene pipe shall be made from HDPE resin having a material designation code of PE4710 or higher.

F. The material shall meet the requirements of ASTM D 3350 and shall have a minimum cell classification of PE445474C.

G. HDPE Pressure Pipe for potable water shall meet the requirements of NSF 61.

H. Pressure Pipe shall be approved by the Underwriter's Laboratory (UL) or Factory Mutual (FM).

I. Pipe Markings:

1. Meet the minimum requirements of AWWA C901 or C906 as appropriate. Minimum pipe markings shall be as follows:

   a. Manufacturer's Name or Trademark and production record.

   b. Nominal pipe size.

   c. IPS.

   d. Dimension Ratio (DR9).

   e. AWWA C901 or C906.

   f. Seal of testing agency that verified the suitability of the pipe.

   g. Resin type (PE4710).

2. Color identification to identify pipe service is required:

   a. Stripes or colored exterior pipe product shall be blue for

potable water.

b. Permanent identification of piping shall be provided by co-extruding multiple equally spaced color stripes into the pipe outside surface or by solid colored pipe shell.

c. The striping material shall be the same material as the pipe material except for the color.

d. Plain Black HDPE Pipe without color code markings may not be used.

J. Only smooth wall HDPE will be permitted.

K. Socket fusion is not allowed for pipes with diameter greater than 2-inch diameter.

2.04 HDPE BUTT FUSION FITTINGS

A. Butt Fusion Fittings shall be made of HDPE material with a minimum material designation code of PE4710 and with a minimum Cell Classification as noted in Section 2.03.

B. Butt Fusion Fittings shall meet the requirements of ASTM D3261. Molded and fabricated fittings shall have a pressure rating equal to or greater than the pipe unless otherwise specified on the plans.

C. Fabricated Fittings shall be Equivalent Dimension Ratio to DR9.

D. Pipe stock used to manufacture fabricated fittings shall meet requirements of AWWA C906 and meet the material designation code of PE4710.

E. Fabricated Fittings typically require a lower DR rating than the pipe to meet or exceed the pipe pressure rating. Calculate the difference for a fabricated fitting based on a published rerating percentage.

F. Fabricated bend and tee fittings shall have a minimum of three (3) segments.

G. Fabricated bend fittings over 45 degrees through 90 degrees shall have a minimum of four segments.

1. Field fabricated fittings are not allowed.

H. All fittings shall meet the requirements of AWWA C906.

I. Markings for molded fittings shall comply with the requirements of ASTM D 3261:

1. Standard Designation (ASTM D 3261).
2. Manufacturer's name or trademark.
3. Material designation (PE4710).
4. Date of manufacture or manufacturing code.
5. Size.
6. Dimension Ratio (example: DR11).

J. Fabricated fittings shall be marked in accordance with ASTM F 2206:

1. Standard Designation (ASTM F 2206).
2. Manufacturer's name or trademark.
3. Material designation (PE4710).
4. Date of manufacture or manufacturing code.
5. Size.
6. Equivalent Dimension Ratio.

2.05 HDPE ELECTROFUSION FITTINGS

A. Electrofusion Fittings shall be made of HDPE material with a minimum material designation code of PE4710 and with a minimum Cell Classification as noted in Section 2.03.

B. Electrofusion Fittings shall have a manufacturing standard of ASTM F 1055. Fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans.

C. All electrofusion fittings shall be suitable for use as pressure conduits, and have nominal burst values of four times the Working Pressure Rating (WPR) of the fitting.

D. Markings shall be according to ASTM F 1055:

1. Standard Designation (ASTM F 2206).
2. Manufacturer's name or trademark.
3. Material designation (PE4710).
4. Date of manufacture or manufacturing code.

5. Size.

6. Equivalent Dimension Ratio.

2.06 FLANGES AND MECHANICAL JOINT ADAPTERS (MJ ADAPTERS)

A. Flanges and Mechanical Joint Adapters shall have a material designation code of PE4710 or higher and a minimum Cell Classification as noted in Section 2.03.

B. Flanged and Mechanical Joint Adapters can be made to ASTM D 3261 or if machined, must meet the requirements of ASTM F 2206.

C. The outside diameter of Flanges shall be based on Iron Pipe Size (IPS).

D. The MJ Adapters shall be based on Iron Pipe Size by Ductile Iron Pipe Size (IPS x DIPS).

E. Flanges and MJ Adapters shall have a pressure rating equal to the pipe unless otherwise specified on the plans.

F. Markings for molded or machined flange adapters or MJ Adapters shall be per ASTM D 3261:

1. Manufacturer’s name or trademark.

2. Material designation (PE4710).

3. Date of manufacture or manufacturing code.

4. Size.

5. Where recessed marking is used, take care not to reduce the wall thickness below the minimum specified.

G. Fabricated (including machined) flange adapters shall be per ASTM F 2206.

H. Metal gland for MJ Adapter may be either AWWWA C110 (heavyweight) or AWWWA C153 (lightweight).

I. Low alloy steel bolts shall comply with AWWA C 111.4. Bolts, rods, and hex nuts shall be manufactured from 304 stainless steel as per ANSI/ AWWA C111/A21.11.

J. Van-Stone style, metallic (including stainless steel), convoluted or flat-plate, back-up rings and bolt materials shall follow the guidelines of Plastic Pipe Institute Technical Note # 38, and shall have the bolt-holes and bolt-circles conforming to one of these standards:

1. ASME B-16.5 Class 150

2. ASME B-16.47 Series A Class 150

3. ASME B-16.1 Class 125

4. AWWA C 207 Class 150 Series B, D, or E.

K. The back-up ring shall provide a long-term pressure rating equal to or greater than the pressure- class of the pipe with which the flange adapter assembly will be used, and such pressure rating shall be marked on the back-up ring.

L. The back-up ring, bolts, and nuts shall be protected from corrosion by a system such as coal-tar epoxy, galvanization, polyether, or polyester fusion bonded epoxy coatings, anodes, or cathodic protection, as specified by the ENGINEER.

2.07 MECHANICAL JOINT WEDGE ACTION RESTRAINT

A. Mechanical Joint wedge action restraint shall only be allowed with specific permission of the ENGINEER in cases where an MJ Adapter is not feasible.

B. Mechanical Joint wedge action restraint shall be designed specifically for use on HDPE pipe.

C. The grip of the serrations shall increase as the hydrostatic pressure increases.

D. There shall be no additional tool required for installation other than the tools required to install standard sizes of hex nuts from 5/8-inch to 1-1/8-inch. The hex heads, bolts and rods shall be designed to tighten clockwise. The hex heads, bolts and rods shall be manufactured to allow for disassembly and re-installation of the restraint.

E. The gland halves shall be manufactured of high strength ductile iron in accordance with the ASTM A536 Standard, Grade 65-45-12.

F. Rods are manufactured from 304 stainless steel and hex nuts are manufactured from 316 stainless steel as per ANSI/ AWWA C111/A21.11.

G. The restraining gland shall comply with all applicable dimensions of ANSI/AWWA C111/A21.11 and shall be compatible with all bell and spigot (push-on) joint sockets of the standard.

H. Stiffening insert required.

2.08 SERVICE CONNECTIONS

A. Service connections shall be electrofusion saddles with sidewall fusion branch saddles or tapping tees.

B. Electrofusion saddles shall be made from materials required in Section 2.05.

C. Sidewall Fusion Saddles:

1. The size of the saddle shall be as indicated on the plans.

2. The saddle can be made in accordance with ASTM D 3261 or ASTM F 2206.

3. After installation, approximately ¼-inch of the PE pipe shall be visible beyond the saddle to confirm that proper surface preparation occurred. Saddle faces that do not provide ¼-inch of area beyond the saddle are not acceptable.

D. Tapping tees shall be made to ASTM D 3261 or D 2683.

E. Electrofusion saddles are the preferred method of service connections.

1. Mechanical strap-on saddles can only be used where approved by the ENGINEER.

2. The body of the mechanical saddle shall be stainless steel.

3. The gasket material and design must be acceptable for PE pipe. Install mechanical strap-on saddles per the Manufacturer's instructions.

2.09 PIPELINE MARKERS

A. Provide markers in accordance with Project Manual.

B. Detectable Warning Tape:

1. Provide 6-inch-wide detectable warning tape.

a. All force mains shall be clearly identified with blue plastic locator tape made specifically for that purpose.

b. The tape shall be marked with black lettering clearly identifying the pipeline as potable water.

c. The tape shall be Detectable Marking Tape.

C. Tracer Wire:

1. Provide continuous AWG no. 12 gauge solid copper tracer wire with 30 mil thick blue HDPE insulation.

2. Perform conductivity test on the tracer wire at final inspection.

D. Marker post material shall be high-performance fiberglass composite.

1. Minimum of 3 feet above ground.
2. Manufactured by:
   a. Carsonite.
   b. Or approved equal.

2.10 STIFFENING INSERT (STIFFENER)

A. Stiffeners shall be provided at each MJ adapter and coupling per Standard Details:

B. Stiffening inserts shall be specially designed for use on the inside of HDPE pipe in conjunction with AWWA C111 mechanical joints.

C. Stiffeners shall be stainless steel per ASTM 240, Type 304 or 316.

D. Stiffeners shall be manufactured within the pipe or MJ adapter by the factory.

E. Field installed stiffeners may be allowed upon approval of the ENGINEER or OWNER (City of Parker Public Works Department). Wedge style stiffeners are allowed.

F. Stiffener length must be sufficient to fully encompass the area of the pipe being restrained.

G. Inserts must be designed for underground pressurized fluid service and are pressure rated to match the pipe DR pressure rating, derated as appropriate for service temperature. Maximum test pressure limited to pipe rated pressure.

H. Stiffener design shall prevent movement causing fitting to slide or rotate on the pipe.

2.11 FLEX COUPLING RESTRAINT DEVICE

A. HDPE flex coupling restraint devices will be rated for minimum of 8,000 pounds of force.

B. Resin used to manufacture device shall meet requirements of ASTM 3350 with minimum cell classification of 445474C.

C. Device will include bar code and product label tag.

D. Device will install by electrofusion.

2.12 WALL ANCHOR

A. Butt fusion wall anchors, or force restraint collars, shall comply with requirements of DR9, Iron Pipe Size (IPS), minimum cell class 445474C, and meeting this specification's requirements for PE pipe except for striping.

2.13 HDPE TUBING

A. HDPE tubing shall meet the requirements of AWWA C901.

B. HDPE tubing shall be rated for use at a pressure class of 250 psi.

C. PE tubing shall be made from HDPE resin having a material designation code of PE4710 or higher.

D. Tubing material shall meet the requirements of ASTM D 3350 and shall have a minimum cell classification of PE445474C.

E. HDPE Pressure tubing for potable water shall meet the requirements of NSF 61.

F. Pressure tubing shall be approved by the Underwriter's Laboratory (UL) or Factory Mutual (FM).

G. Tubing Markings:

1. Meet the minimum requirements of AWWA C901. Minimum pipe markings shall be as follows:

    a. Nominal pipe size.
    b. Diameter Base (CTS or IPS).
    c. Dimension Ratio (DR11).
    d. Manufacturer's Name or Trademark.
    e. Material Designation Code / Resin type (PE4710).
    f. AWWA pressure class.
    g. Standard designation (AWWA C901).
    h. Seal of testing agency that verified the suitability of the pipe.

2. Color identification to identify pipe service is required:

   a. Solid colored exterior pipe product shall be blue for potable water.

   b. Plain Black HDPE Pipe without color code markings may not be used.

H. Only smooth wall HDPE will be permitted.

I. Socket fusion is allowed for HDPE pipe from a 1.25-inch through 2-inch diameter and tubing from 3/4-inch through 1-inch diameter.

2.14 COPPER FITTINGS

A. Fittings for copper tubing and polyethylene tubing shall be red brass containing 85 percent copper, 5 percent lead, 5 percent tin, and 5 percent zinc in conformance with ASTM B 62.

B. Fittings may be flared or compression as applicable, in accordance with AWWA C800.

C. Compression fittings shall utilize a compression nut and/or split clamp with tightening screw.

D. Stab type fittings are not approved.

PART 3 - EXECUTION

3.01 INSTALLERS

A. Only formally trained and certified fusion technicians may conduct fusions.

B. Qualification of the fusion technician shall be demonstrated by certification in fusion training within the past year for the type of fusion, and size of the pipe, and on the specific equipment to be used on this project.

C. Provide documentation showing current and up-to-date qualification of training obtained to fuse PE pipe in the appropriate sizes and equipment types for the job.

D. Training in accordance with ASTM F 6220 for butt fusion.

E. Training in accordance with ASTM F 1055 for electrofusion.

F. Fusion joints shall be made by qualified fusion technicians per PPI TN-42.

G. Qualified technician has documented prior experience in performing HDPE

pipe installations, head fusion procedures, and testing methods.

3.02 INSTALLATION

A. General:

1. Install pipe, fittings, specials, and appurtenances as specified herein, as specified in AWWA M55, and in accordance with the pipe Manufacturer's recommendations with the intention of providing a leak-free system to the OWNER.

2. Excavate and backfill trenches in accordance with Section 02222 - Trenching, Backfilling And Compacting of these Specifications.

B. Pipe Handling:

1. At the close of each operating day, when work is stopped for more than 30 minutes, or when the trench is unsupervised:

2. Keep the pipe clean and free of debris, dirt, animals, and trash — during and after the laying operation.

3. Effectively seal the open end of the pipe using a gasketed night cap.

C. Joining Methods:

1. Butt Fusion:

a. The pipe shall be joined by the butt fusion procedure outlined in ASTM F 2620 or PPI TR-33.

b. All fusion joints shall be made in compliance with the pipe or fitting Manufacturer's recommendations.

2. Saddle fusion:

a. Saddle fusion shall be done in accordance with ASTM F 2620 or PPI TR-41 or the fitting Manufacturer's recommendations and PPI TR-41.

3. Socket Fusion:

a. Molded socket fusion fittings are only to be used for joining of HDPE pipe from ½-inch to 2-inch in size.

b. Socket fusion shall be done in accordance with ASTM F 2620 or the fitting Manufacturer's recommendations.

c. Socket fusion is the process of fusing pipe to pipe, or pipe to fitting by the use of a male and female end that are heated simultaneously and pressed together so the outside wall of the male end is fused to the inside wall of the female end.

4. Electrofusion:

a. Electrofusion joining shall be done in accordance with the Manufacturers recommended procedure.

b. Other sources of electrofusion joining information are ASTM F 1290 and PPI TN 34.

c. The process of electrofusion requires an electric source, a transformer, commonly called an electrofusion box that has wire leads, a method to read electronically (by laser) or otherwise input the barcode of the fitting, and a fitting that is compatible with the type of electrofusion box used.

D. Mechanical:

1. Mechanical connection of HDPE to auxiliary equipment such as valves, pumps, and fittings shall use mechanical joint adapters and other devices in conformance with this specification.

2. Unless specified by the fitting Manufacturer, a restraint harness or concrete anchor is recommended with mechanical couplings to prevent pullout.

3. Mechanical coupling shall be made by qualified technicians.

E. Joint Recording:

1. Butt Fusion:

a. The butt fusion equipment must be capable of reading and storing the input parameters and the fusion results for later download to a record file.

2. Electrofusion:

a. The electrofusion equipment must be capable of reading and storing the input parameters and the fusion results for later download to a record file.

3. The critical parameters of each fusion joint, as required by the Manufacturer and these specifications, shall be recorded by an electronic data logging device.

4. All fusion joint data shall be included in the Fusion Technician's joint report.

F. Installation:

1. Buried HDPE pipe and fittings shall be installed in accordance with ASTM D2321 or ASTM D2774 for pressure systems and AWWA Manual of Practice M55 Chapter 7.

2. Lay pipe with blue stripe within 45-degrees either side of crown, if pipe has blue stripe.

3. Pipe embedment:

a. Embedment material shall be fine aggregate defined as:

1) Granular and free flowing

2) Generally, meets or exceeds the limits on deleterious substances per Table 1 for fine aggregate according to ASTM C 33

3) Reasonably free of organic material

4) Gradation:

Sieve Size	Percent Retained
1 inch	0
3/8 inch	0-10
#30	25-60
#100	95

4. Compact backfill per ASTM D 698 and AASHTO T-99 as modified by NCDOT to 85 percent of maximum density or 95 percent maximum density within a road right-of-way. Compact the top 12 inches below the road sub-grade to 100 percent of maximum density within a road right-of-way.

G. Marker Installation:

1. See Standard Detail for placement requirements for detectable tape and tracer wire.

3.03 SITE QUALITY CONTROL

A. Leak Testing:

1. Hydrostatic leakage testing is recommended and shall comply with AWWA C651, ASTM F 2164, ASTM F 1412, AWWA Manual of Practice M55 Chapter 9, and PPI Handbook of Polyethylene Pipe Chapter 2 (2nd Edition).

2. If the test section fails this test, the CONTRACTOR shall repair or replace all defective materials and/or workmanship at no additional cost to the OWNER.

3. Prior to scheduling a test with the inspector, preform a pre-test to confirm compliance.

4. The CONTRACTOR shall perform hydrostatic and leakage tests in accordance with State of Florida requirements.

5. Installed main shall be adequately anchored with a covering of at least 6 inches of initial backfill, if installed by an open trench method. The joints and fittings, particularly flange connections shall be left uncovered for visual leak inspection.

6. Leak tests of HDPE water system shall be conducted in accordance with ASTM F2164.

7. The pipeline should be slowly filled with potable water and all trapped air bled off.

8. Hydrostatic Testing:

   a. The main should undergo a hydrostatic pressure test using pressure at the lowest elevation in the system at 150 psi.

   b. The pressure shall be maintained constant for a 4-hour period by adding makeup water.

   c. After 4-hour period is completed, the pressure shall remain steady within 5 percent (7.5 psi) with a target 150 psi test pressure for 1 hour.

   d. The total test time should not exceed 8 hours.

9. Retesting Hydrostatic Pressures:

   a. If the pipeline has to be retested, the pipe must be depressurized and allowed to “relax” for at least 8 hours before the next testing sequence.

b. The pressure shall be maintained constant for a 4-hour period by adding makeup water. After 4-hour period is completed, test the pressure at the lowest point.

c. Test pressure for one hour. Pressure should remain steady at 1.5 times the working pressure, but not more than the design pressure of the pipe (e.g., 200 psi for DR 11). Pressure must remain within 5 percent of a target test pressure for one hour.

10. In fused polyethylene water piping system, no leakage shall be present.

a. If leakage is observed at a fusion joint, complete rupture may be imminent.

b. The CONTRACTOR shall move all personnel away from the joint and depressurize the main.

c. Leaks, failure, or defective construction shall be promptly repaired by the CONTRACTOR at the CONTRACTOR's sole expense.

11. Payment for pressure and leakage testing shall be considered included in the lump sum price for the alternate for HDPE water main installation.

12. Pneumatic (compressed air) leakage testing of HDPE pressure piping is prohibited for safety reasons.

B. Cleaning and Disinfecting:

1. After installation and pressure testing, disinfect water line according to AWWA C651.

2. The disinfection chemicals should be limited to less than 12 percent active chlorine. The duration of the disinfection shall be a minimum of 12 hours and should not exceed 24 hours.

3. Lab samples shall be collected and analyzed by State of Florida and ENGINEER-approved laboratories.

4. Dechlorinate with sodium bisulfate prior to release. Any water discharged to the ground surface shall not exceed 0.2 parts per million (ppm) of free chlorine.

5. Upon completion, the system should be thoroughly flushed with fresh water, and retested to verify the disinfectant chlorine level has been reduced to potable drinking water concentrations in all service water tubing and branch lateral pipes.

C. Disinfection and Bacteriological Testing:

1. Newly installed potable water pipelines require disinfection in accordance with ANSI/AWWA C651/B301.

2. The disinfection should take place after the initial flushing and after the completion of the pressure testing.

3. Air is to be exhausted from each high point, dead end, branch run, and hydrant run.

4. The chlorinated water shall be removed prior to samples being collected for bacteriological testing.

5. After flushing to remove sediment and other foreign matter, and after testing for leaks, the CONTRACTOR shall disinfect the main by the addition and thorough dispersion of a chlorine solution in concentrations sufficient to produce a chlorine residual of at least 50 milligrams per liter (or ppm) in the water throughout the distribution system.

6. Injection of liquid chlorine solution shall be used to disinfect HDPE water mains. The disinfecting solution should not contain more than 12 percent of active chlorine. Prolonged exposure to highly concentrated disinfection chemicals may damage the inside surface of HDPE pipe and is to be avoided.

7. The chlorine solution shall remain in contact with interior surfaces of the water system for a period of 24-hours.

8. Then the water system shall be flushed with fresh water from an approved water source until the chlorine solution is dispelled.

9. Before bacteriological testing samples are taken, each hydrant run, branch run, and dead end shall be thoroughly flushed to clear foreign matter and until the residual chlorine concentration is less than one part per million.

10. The CONTRACTOR shall measure residual chlorine concentrations by using a color comparator test that is witnessed and approved by the Inspector. After the chlorine concentration is less than 1 ppm, samples shall be gathered and tests conducted according to the provisions of AWWA C651-92, at the expense of the CONTRACTOR, by a laboratory approved by the ENGINEER.

11. Samples shall be taken at representative points as required to thoroughly test the installed main.

12. The CONTRACTOR will be required to perform two consecutive 24-hour apart Coliform tests.

    a. Testing laboratory used by the CONTRACTOR shall be State Certified and provide QA/QC report.

    b. The new facilities shall remain isolated and out of service until satisfactory test results have been obtained that meet the requirements of the Florida Department of Environment Protection and the ENGINEER has accepted the results as indicative of the bacteriological condition of the new water main.

    c. If unsatisfactory or doubtful results are obtained from the initial sampling, the chlorination process shall be repeated until acceptable test results are obtained.

    d. The bacteriological test takes at least 48 hours for results to be conclusive.

13. Individual new water services will be flushed through the angle meter stop after connection to the new water main.

14. Payment for disinfecting water mains shall be considered included in the lump sum price for alternate HDPE water main installation.

15. Disposal of chlorinated water shall comply with all federal, state, and local regulatory requirements. Disposal directly to the stormdrain system without removal of chlorine is strictly prohibited.

16. No discharge into the stormdrain system shall be allowed during rain events.

17. Upon termination of the flushing, any standing water in the gutter shall be removed by sweeping it to the nearest stormdrain catch basin.

18. Flushing of chlorinated water directly into the sanitary sewer system will only be allowed with the written approval of the OWNER (City of Parker Public Works Department).

19. New water mains must be tied-in into water distribution system within 24 hours following the ENGINEER's acceptance of the bacteriological tests' results or the CONTRACTOR will be required to repeat flushing, disinfection, and bacteriological testing procedures at the CONTRACTOR's expense.

20. The new pipe, connections, and fittings must be kept clean and swabbed with a 5 percent solution of hypochlorite before installation.

END OF SECTION

INVITATION TO BID 2022-03
CITY OF PARKER
HIGHWAY 98 WATER MAIN DIRECTIONAL BORE
AT COOPER STREET

ATTACHMENT F

REVISED
BID FORM

BID FORM ITB NO: 2022-03

This proposal of_____, hereinafter called "BIDDER," organized and existing under the laws of the State of_____ doing business as (Insert "a corporation" or "a partnership" or "an individual" as applicable) _____ is hereby submitted to the City of Parker.

In compliance with the ADVERTISEMENT FOR BIDS, BIDDER hereby proposes to construct watermains and associated appurtenances at the locations depicted on the Construction Drawings as identified in the Instruction to Bidders of this Contract Document, as described in this BID, complete in every detail. Please see BID-FORM page 2 to complete BID FORM in detail.

BID should include all applicable taxes, shipping charges and fees as applicable.

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

The Unit Contract Price is:

_____($_____)

(Words)

submitted by:

_____

Name of BIDDER Submitting This BID

BID Prepared By:_____

SEAL: (If BID is by Corporation)

_____

Name of Individual Who Prepared This BID

Contact Email: _____

Address:_____

Phone:_____

Signature of Authorized Representative of BIDDER:

_____Date:_____

BID FORM (PLEASE COMPLETE)					
#	**Description**	**Qty**	**Unit**	**Cost**	**Total**
1.	Mobilization/Demobilization	1	LS	**$**	**$**
2.	Bonds and Insurance	1	LS	**$**	**$**
3.	Erosion Control	1	LS	**$**	**$**
4.	Testing, Flushing and Disinfecting	1	LS	**$**	**$**
5.	Layout and As-Builts	1	LS	**$**	**$**
6.	Maintenance of Traffic	1	LS	**$**	**$**
7.	6-inch PVC Water Main and Appurtenances	1	LS	**$**	**$**
8.	8-inch PVC Water Main and Appurtenances	1	LS	**$**	**$**
9.	8-inch FPVC Directional Bore and Appurtenances	1	LS	**$**	**$**
10.	Fire Hydrant Assemblies	2	EA	**$**	**$**
11.	Concrete Sidewalk (Remove and Replace)	1	LS	**$**	**$**
12.	Asphalt Drive	1	LS	**$**	**$**
13.	Restoration (i.e., grading, sodding, clean-up, and flushing)	1	LS	**$**	**$**
				Total	$

ALTERNATE – HDPE DIRECTIONAL BORE					
9A	10-inch DR9 HDPE Directional Bore to include two 10-inch by 8-inch Ductile Iron MJ Reducers and required adapters (in lieu of Bid Item No. 9).	1	LS	**$**	**$**