

**ADDENDUM NO. 1**  
**TERRELL HEIGHTS**  
**STORM SEWER IMPROVEMENTS - PHASE 2**  
**CITY OF CARTERSVILLE**  
**CARTERSVILLE, GA**

**THE LOCATION OF THE BID OPENING HAS CHANGED.**  
**SEE ADDENDUM ITEMS 2.B. AND 4.A. UNDER SPECIFICATIONS.**

**THE BID DATE AND TIME HAVE NOT CHANGED.**

**ADDITIONAL INFORMATION DOCUMENTS**

The following document:

- Questions and Responses No. 1

is being provided with this addendum for informational purposes only. The document listed above is not, and will not, be considered as part of the Contract Documents.

**GENERAL**

1. Bidders must be registered on Engineer's list of plan holders available at Barge Design Solutions, Inc's Plan Room at <https://bidding.bargedesign.com/>.
2. Awarded Contractor shall submit a delegated design for the retaining wall, signed and sealed by registered Georgia professional engineer.

**SPECIFICATIONS**

1. Section 00 01 10 Table of Contents,
  - a. REPLACE with the attached pages.
2. Page 00 11 16-1 Advertisement for Bid, first Paragraph,
  - a. CHANGE, "...Sewer Improvements Phase 1 will be..." to "...Sewer Improvements Phase 2 will be..."
  - b. CHANGE, "...the Cartersville City Hall, 1 N Erwin Street, Cartersville, GA 30120..." to "...the Cartersville Public Works Department, 330 S. Erwin Street, Cartersville, GA 30120..."
3. Section 00 21 13 Instruction to Bidders, Pages 1-2,
  - a. REPLACE with the attached pages.

4. Section 00 41 00-1 Bid Form, Paragraph 1.01,
  - a. REPLACE with the following text,  
"This Bid is submitted to:  
City of Cartersville  
Public Works Department  
330 S. Erwin Street  
Cartersville, GA 30120"
5. Section 00 41 00 Bid Form, Page 4,
  - a. REPLACE with the attached page.
6. Following Section 00 43 13 Bid Bond,
  - a. INSERT attached Section 00 45 13 Statement of Bidder's Qualifications.
7. Following Section 00 45 53 Corporate Certificate,
  - a. INSERT attached Section 00 45 63 Drug-Free Workplace Affidavit.
8. Section 01 22 00-10 Measurement and Payment,
  - a. ADD Paragraph 1.16.,

## 1.16 Sewer Replacement by Pipe Bursting

- A. Payment for replacing existing sanitary sewer pipelines with new HDPE pipe installed with the pipe bursting method will be made at the unit price bid for each pipe diameter specified and shall include all annulus sealing material and launching pits. Price shall be full compensation for the installation of the new pipe, furnishing and placing of all materials, labor, tools, equipment, cleaning and preparation of existing pipe to receive the new pipe, and any other necessary task to complete the Project.
  - B. Pipe Bursting Service Lateral Replacement: No additional payment will be made for the work associated with sewer service lateral replacement along segments of sewer replacement performed by pipe bursting. Such work also includes locating existing service lines and determining requirements for the connection.
  - C. Video Inspection of Final Installed Pipe: No additional payment will be made for the work associated with the post inspection videos conforming to Section 33 01 30.16 of these Specifications. Videos shall be submitted to and reviewed and approved by the Engineer prior to application for payment of the completed segments of Sewer Replacement by Pipe Bursting.
9. Following Section 33 01 30.73,
    - a. INSERT attached Section 33 01 30.76 Sewer Replacement - Pipe Bursting Method.

## **DRAWINGS**

No revisions with this addendum.

*Bidder Must Acknowledge Receipt of this Addendum on Bid Form*

April 16, 2024

Barge Design Solutions, Inc.  
2839 Paces Ferry Road SE, Suite 850  
Atlanta, Georgia 30339  
(770) 628-7631

ATTACHMENTS:

1. Questions and Responses No. 1
2. Replacement Section 00 01 10 Table of Contents
3. Replacement Section 00 21 13 Instruction to Bidders - Pages 1-2
4. Replacement Section 00 41 00 Bid Form - Page 4
5. Section 00 45 13 Statement of Bidder's Qualifications
6. Section 00 45 63 Drug-Free Workplace Affidavit
7. Section 33 01 30.76 Sewer Replacement - Pipe Bursting Method

**QUESTIONS AND RESPONSES NO. 1**

**TERRELL HEIGHTS  
STORM SEWER IMPROVEMENTS - PHASE 2**

**CITY OF CARTERSVILLE  
CARTERSVILLE, GA**

1. Q: The typical sections do not show the Mill and Inlay work scope, could you please provide a typical section for the Mill and Inlay bid item so that we know what depth to remove and what depth(s) to put back? (C.W. Matthews)

R: **Please review details C, D, and E shown on Sheet C5.01.**
2. Q: Will there be any wall profiles or footing details coming out in an addendum for the detention pond wall? (C.W. Matthews)

R: **See item #2 under General on Addendum No. 1.**
3. Q: On the Unit items there's only 8-inch bursting listed, and on the plans there's 8 and 10-inch. Is the 10-inch part of this project as well? (Ranger Environmental Services, LLC)

R: **See revised Bid Form attached to Addendum No. 1.**
4. Q: How are we to price the service reconnections to the homes after bursting? (Ranger Environmental Services, LLC)

R: **See revised Measurement and Payment Section attached to Addendum No. 1. See added Specification Section 33 01 30.76 - Sewer Replacement - Pipe Bursting Method attached to Addendum No. 1.**
5. Q: Do you have a Current Plan Holders list available to share? (Ranger Environmental Services, LLC)

R: **See current plan holders list, viewable at no cost via the online plan room at [bidding.bargedesign.com/jobs/8327/plan-holders/terrell-heights-phase-2](http://bidding.bargedesign.com/jobs/8327/plan-holders/terrell-heights-phase-2)**
6. Q: Is there a specific form to complete for the Bidder's Qualification Statement or should we use our own proprietary form? (HD Excavations & Utilities)

R: **See added Specification Section 00 45 13 - Statement of Bidder's Qualifications attached to Addendum No. 1.**

7. Q: Is there a specific form to complete for the Drug-Free Workplace Affidavit? (HD Excavations & Utilities | RDJE, Inc.)
- R: **See added Specification Section 00 45 63 - Drug-Free Workplace Affidavit attached to Addendum No. 1.**
8. Q: Would you accept questions on the Terrell Heights project by Close of Business Tuesday next week? (RDJE, Inc.)
- R: **Questions will be accepted until 5:00 P.M. EDT, Tuesday, April 16<sup>th</sup>, 2024. Please issue all questions to David King, P.E. (David.King@bargedesign.com).**
9. Q: Under Section 00 21 13-3.01.C. Qualifications of Bidders item 1) states a qualified bidder must exhibit at least 5 completed storm water projects. However, item 3) states each of the projects must have consisted of construction of water main and jack and bore installation. Can you please clarify? (RDJE, Inc.)
- R: **See revised Specification Section 00 21 13 - Instructions to Bidders attached to Addendum No. 1.**
10. Q: Can you provide a Geotech report for subsurface conditions? (RDJE, Inc.)
- R: **A Geotechnical Report is not provided as part of the Contract Documents.**
11. Q: Can an item be added for trench rock should this be encountered? (RDJE, Inc.)
- R: **All risk associated with potential subsurface conditions should be considered in the unit prices of the work listed.**
12. Q: When is this project going to be awarded or approved? (RDJE, Inc.)
- R: **Please review Specification Section 00 21 13 - 9 Article 19.**

April 15, 2024

Barge Design Solutions, Inc.  
2839 Paces Ferry Road SE, Suite 850  
Atlanta, Georgia 30339  
(770) 628-7631

## SPECIFICATIONS

Section    Title

## Division 00 – Procurement and Contracting Requirements

00 01 05	Certifications
00 11 16	Advertisement for Bids
00 21 13	Instructions to Bidders
00 41 00	Bid Form
00 43 13	Bid Bond
00 45 13	Statement of Bidder's Qualifications
00 45 19	Non-Collusion Affidavit of Prime Bidder
00 45 50	Certification for Contract, Grants and Loans
00 45 53	Corporate Certificate
00 45 63	Drug-Free Workplace Affidavit
00 45 75	Georgia Security and Immigration Compliance Act Affidavit
00 45 77	Contractor's License Certification
00 51 00	Notice of Award
00 52 00	Agreement
00 54 43	Pre-Award Oath
00 54 45	Residency Status Affidavit
00 55 00	Notice to Proceed
00 61 13.13	Performance Bond
00 61 13.16	Payment Bond
00 62 10.12	Special Assurance for Utility Contract Work
00 62 76	Contractor's Application for Payment
00 63 63	Change Order
00 65 16	Certificate of Substantial Completion
00 72 00	General Conditions
00 73 00	Supplementary Conditions
GEFA	SRF Supplemental General Conditions
GEFA	American Iron and Steel Special Conditions and Information
GA Wages	Davis-Bacon Wage Rates

## Division 01 - General Requirements

01 11 00	Summary of Work
01 22 00	Unit Price Measurement and Payment
01 23 00	Alternates
01 25 00	Substitution Procedures
01 31 19	Project Meetings
01 32 16	Construction Schedules
01 32 33	Construction Videos and Photographs
01 33 00	Submittal Procedures
01 35 00	Unique Requirements
01 41 00	Regulatory Requirements
01 42 00	Codes and Standards
01 45 29	Testing Laboratory Services
01 50 00	Temporary Facilities and Controls

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01 65 00	Product Delivery Requirements
01 66 00	Product Storage and Handling Requirements
01 74 00	Cleaning and Waste Management
01 78 36	Warranties and Bonds
01 78 39	Record Documents

Division 03 – Concrete

03 30 00	Cast in Place Concrete
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Division 31 - Earthwork

31 11 00	Clearing and Grubbing
31 23 33	Trenching and Backfilling

Division 32 – Exterior Improvements

32 01 17	Pavement Repair
32 92 19	Seeding
32 92 23	Sodding

Division 33 - Utilities

33 01 30.14	Preconditioning and Cleaning of Underground Sewer Pipelines
33 01 30.16	Closed Circuit TV Inspection of Existing Sanitary Sewers
33 01 30.73	Cured-In-Place Pipe (CIPP)
33 01 30.76	Sewer Replacement - Pipe Bursting Method
33 05 61	Manholes and Covers
33 11 00	Water Utility Distribution Piping
33 31 00	Sanitary Sewer Utility Piping
33 40 00	Storm Drainage Utilities

## ARTICLE 1 – DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. Issuing Office – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered. The issuing office for this Project is Barge Design Solutions, Inc., 2839 Paces Ferry Road SE, Suite 850, Atlanta, GA 30339.

## ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents may be obtained from the [Bidding.BargeDesign.com](http://Bidding.BargeDesign.com) as described by the advertisement to bid.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

## ARTICLE 3 – QUALIFICATIONS OF BIDDERS

- 3.01 The minimum qualifications of a responsible Bidder include the following requirements:
- A. The Bidder shall maintain a permanent place of business. This requirement applies to the Bidder where the Bidder is a division of a corporation, or where the Bidder is 50 percent or more owned by a person, corporation or firm.
- B. The Bidder has a Georgia Utility Contractor License to perform the work under this contract.
- C. The Bidder shall demonstrate adequate construction experience and sufficient equipment resources to properly perform the work under and in conformance with the Contract Documents. This evaluation will be based upon a list of completed or active projects and a list of construction equipment available to the Bidder to perform the work. The Owner may make such investigations as deemed necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may reasonably request. The Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the Project contemplated therein. Adequate construction experience, for the purposes of this Project, shall mean
- 1) The Bidder has successfully completed construction of at least five stormwater projects.
  - 2) Each Project must have had a constructed value of not less than \$100,000 dollars.
  - 3) Each of the Projects must have been completed since January 1, 2012. At least two of these projects must have been completed since January 1, 2017. Projects currently under construction will not qualify.



Instructions to Bidders

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- 4) At least 50 percent of the labor related items on each Project must have been completed by the Applicant's own work force.
  - 5) The Bidder shall demonstrate financial resources of sufficient strength to meet the obligations incident to the performance of the work covered by these Contract Documents. The ability to obtain the required Performance and Payment Bonds will not alone demonstrate adequate financial capability.
- D. The Bidder shall demonstrate that he is familiar with the work covered by these Contract Documents.
- E. To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit with the Bid written evidence such as previous experience, present commitments, and such other data as may be called for below.
- 3.02 Completion of Statement of Bidder's Qualifications, as included elsewhere in this Project Manual.
- A. Bidder's Georgia Utility Contractors License.
- 3.03 To demonstrate Bidder's qualifications to perform the Work, within three days of Owner's request, Bidder shall submit written evidence such as financial data and such other data as may be requested by Owner.
- 3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.
- 3.05 A Bidder may be deemed as not responsible if:
- A. Bidder fails to furnish adequate information for the Owner to determine if the Bidder is deemed to possess adequate construction experience and sufficient equipment resources or fails to provide such information in a timely manner.
  - B. Bidder fails to furnish information, evidence, and statements of the principal owner when the Bidder is owned 50 percent or more by another firm, corporation, or person.
  - C. Bidder is in arrears on any existing contracts, interested in any litigation against the Owner or has defaulted on a previous contract.
  - D. Bidder fails to have access to adequate equipment.
  - E. Bidder has uncompleted work which in the judgment of the Owner will hinder or prevent prompt completion of additional work, if awarded.
- 3.06 Acceptance of the Bidder's documentation and substantiation or Contract Award by the Owner does not relieve the Bidder of liability for non-performance as covered in the Contract Documents, nor will the Bidder be exempted from any other legal recourse the Owner may elect to pursue.

**ARTICLE 5 – BASIS OF BID**

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Base Bid					
Item No.	Description	Estimated Qty.	Unit	Unit Price	Total Price
1.	Erosion and Sedimentation Control	1	LS	\$	\$
2.	Removing and Replacing Pavement				
a.	Asphalt Mill and Overlay	2,175	SY	\$	\$
b.	Curb and Gutter	450	LF	\$	\$
3.	Water Mains and Accessories				
a.	6" DIP Water Main	70	LF	\$	\$
b.	Clean-up, Testing, and Disinfection	1	LS	\$	\$
4.	Sewer and Accessories				
a.	10" HDPE Sewer (By Pipe Bursting)	284	LF	\$	\$
b.	8" HDPE Sewer (By Pipe Bursting)	335	LF	\$	\$
c.	6" HDPE Sewer	30	LF	\$	\$
d.	Clean-up and Testing	1	LS	\$	\$
5.	Storm Pipe				
a.	36" RCP	680	LF	\$	\$
b.	36" Equivalent Arch Concrete Pipe	300	LF	\$	\$
6.	Storm Drainage Structures/ Junction Boxes				
a.	Concrete Headwall	1	EA	\$	\$
b.	60" Junction Box	6	EA	\$	\$
c.	60" Junction Box/Grate Inlet	2	EA	\$	\$
7.	Site Restoration (Concrete driveway, sidewalks, fencing, landscaping, etc.)	1	LS	\$	\$
8.	Cash Allowances				
a.	Soils and Concrete Testing	ALLOWANCE			\$ 15,000.00
b.	Record Drawing Survey	ALLOWANCE			\$ 10,000.00

BID TOTAL, ITEMS 1 THROUGH 8, INCLUSIVE, THE AMOUNT OF \_\_\_\_\_

\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_).

Statement of Bidder's Qualifications

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

- 1. Name of Bidder: \_\_\_\_\_
- 2. Permanent main office address and phone number: \_\_\_\_\_  
\_\_\_\_\_
- 3. When organized: \_\_\_\_\_
- 4. If a Corporation, where incorporated: \_\_\_\_\_
- 5. How many years have you been engaged in the contracting business under your present firm or trade name? \_\_\_\_\_
- 6. Contracts on hand. (Complete a "Project Information Form", or provide same required information in a similar format, for each Contract on hand.)
- 7. General description of type of work performed by your company: \_\_\_\_\_  
\_\_\_\_\_
- 8. Have you ever failed to complete any work awarded to you? If so, where and why? \_\_\_\_\_  
\_\_\_\_\_
- 9. Have you ever defaulted on a contract? If so, where and why? \_\_\_\_\_  
\_\_\_\_\_
- 10. Attach a list of the most important projects recently completed by your company which are similar in scope to this Project. (Complete a "Project Information Form", or provide same required information in a similar format, for each Project listed.)
- 11. Names, background and experience of the principal members of your organization, including officers:

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

Statement of Bidder's Qualifications

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

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

BIDDER: \_\_\_\_\_

By: \_\_\_\_\_  
*(name signed)*

\_\_\_\_\_  
*(name printed or typed)*

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

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

Subscribed and sworn to me this \_\_\_ day of \_\_\_\_\_, 20\_\_.

NOTARY PUBLIC: \_\_\_\_\_  
*(name signed)*

\_\_\_\_\_  
*(name printed or typed)*

Commission Expires: \_\_\_\_\_  
*(Date)*

(SEAL)

Project Information Form

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

Project Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Major Subcontractors: \_\_\_\_\_  
\_\_\_\_\_

Major Suppliers: \_\_\_\_\_  
\_\_\_\_\_

Project Owner:

- Owner Name: \_\_\_\_\_
- Contact Person: \_\_\_\_\_
- Phone Number: \_\_\_\_\_

Engineer/Construction Manager:

- Company Name: \_\_\_\_\_
- Contact Person: \_\_\_\_\_
- Phone Number: \_\_\_\_\_

Contract Amount:

- Initial: \_\_\_\_\_
- Final: \_\_\_\_\_

Contract Time

- Initial: \_\_\_\_\_
- Final: \_\_\_\_\_
- Completion Date: \_\_\_\_\_

END OF SECTION

Drug-Free Workplace Affidavit

By signature on this certificate, the Contractor certifies that:

\_\_\_\_\_ It has a drug-free workplace program that complies with Georgia Code Title 34 Chapter 9 Article 11 – Drug-Free Workplace Programs which was in effect at the time of submission of this Bid, at least to the extent required of governmental entities.

\_\_\_\_\_ It has less than five employees receiving pay.

(Please indicate which one, or both, that are correct.)

Pursuant to Georgia Code Section 34-9-410, by signature on this affidavit, the Contractor attests that it operates a drug-free workplace program, or other drug or alcohol testing program with requirements at least as stringent as that of the program operated by the Owner.

BIDDER: \_\_\_\_\_

By: \_\_\_\_\_  
*(name signed)*

\_\_\_\_\_  
*(name printed or typed)*

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

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

END OF SECTION

## General

### 1.1 Scope

- A. The work covered by this section shall consist of replacing existing sanitary sewer pipes by a pipe bursting method. This is a trenchless pipeline replacement utilizing a hydraulic or pneumatic bursting unit to split the existing host pipe while simultaneously installing a new approved material pipe of the same size or larger diameter where the previous pipe existed. Existing pipe is broken with a “moling” device (hydraulic, pneumatic, or boring “knife”) and moved into the surrounding soil. The replacement pipe is either pulled or pushed into place by means of hydraulic force. The size hammer to be used shall be the minimum diameter necessary to facilitate the process. Oversized hammers shall not be allowed.
- B. No pipe bursting restoration will be accepted that has created a sag in the restored line due to oversized hammers or other procedures. The Contractor shall be responsible for correcting existing sags, as defined in Article 3.1 of this Section, and any sags that are created by the new construction.
- C. The work performed under this Section of the Specifications is deemed to be Specialty Contractor Work and is subject to the provisions of Section 00 72 00 General Conditions, Article 6.06, Paragraph (1).
- D. The deterioration of sewers is an on-going process. In the event pre-construction inspections reveal the sewers to be in substantially different conditions than those in the design requirements specified herein, the Contractor shall submit a changed site condition notice.

### 1.2 Quality Assurance

- A. If requested by the Engineer, submit evidence that the superintendent for the pipe bursting work has been in responsible charge of at least two (2) successfully completed pipe bursting projects within the past two (2) years.
- B. Personnel directly involved with installing the new pipe shall have received training from a qualified representative of the pipe manufacturer in the proper methods for handling and installing the pipe and connections associated with pipe bursting.
- C. Only personnel certified as fusion technicians by a manufacturer of HDPE pipe shall perform HDPE pipe jointing. They shall be trained, certified, and experienced in the operation of butt-fusing equipment and the installation of electro-fusion fittings by a manufacturer of HDPE pipe.
- D. The Contractor shall certify in writing that operators are fully trained licensees of an approved pipe bursting system.
- E. Product manufacturers shall provide the Engineer with written certification that all products furnished comply with all applicable provisions of these Specifications.

- F. If ordered by the Engineer, each pipe manufacturer shall furnish the services of a competent factory representative to supervise and/or inspect the installation of pipe. This service will be furnished for a minimum of five (5) days during initial pipe installation.

### 1.3 Submittals

- A. Complete product data and engineering data shall be submitted to the Engineer in accordance with the requirements of Section 01 33 00 of these Specifications.
- B. The Contractor shall submit a work plan to the Engineer for review and acceptance. The work plan shall address the following minimum preparation/steps, unless directed otherwise by the Engineer:
  - 1. Safety.
  - 2. Pre-installation CCTV Inspection.
  - 3. Bypass Pumping.
  - 4. Line Obstructions.
  - 5. Sags In Line.
  - 6. Description of bursting method.
  - 7. Type of bursting tool and pulling unit.
  - 8. Equipment operating procedures.
  - 9. Type of lubricant and MSDS.
  - 10. Traffic Control Plan.
  - 11. Copies of all the training certifications for the personnel fusing HDPE pipe and fittings or operating bursting equipment working on the project must be submitted to the Engineer prior to commencing work, including copies of any required technology licenses.
- C. Submit the location and dimensions of the pits to be excavated including sizes of launching and receiving pits, restoration and reconnection of service laterals, connections at existing manholes, and bedding/haunching of new pipe in launching and receiving pits. Any excavations will be properly braced, shored, or utilize trench boxes to meet applicable Federal, State, and local requirements. If sheeting or shoring is required, submit documentation of its design by a professional engineer. Submit proposed modifications to existing manholes, if any, if manholes are to be used as machine pits or pipe insertion pits.

### 1.4 Transportation and Handling

- A. Unloading: Furnish equipment and facilities for unloading, handling, distributing and storing pipe, fittings and accessories. Make equipment available at all times for use in



unloading. Do not drop or dump materials. Any materials dropped or dumped will be subject to rejection without additional justification.

- B. Handling: Handle pipe, fittings, and accessories carefully to prevent shock or damage. Handle pipe with forklift or front loader with wide band slings. Use of chains is prohibited. Do not use material damaged in handling. Pipes kinked due to insufficient handling or pipes gouged with wall cuts exceeding 10 percent of wall thickness shall be removed from the site.

## 1.5 Storage and Protection

- A. Store all pipe which cannot be distributed along the route. Make arrangements for the use of suitable storage areas.
- B. Stored materials shall be kept safe from damage. The interior of all pipe, fittings and other appurtenances shall be kept free from dirt or foreign matter at all times.
- C. Store pipe so that it is not deformed axially or circumferentially. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom tier shall be kept off the ground on timbers, rails or concrete. At least two rows of timbers shall be placed between tiers and chocks, affixed to each other in order to prevent movement. The timbers shall be large enough to prevent contact between the pipes in adjacent tiers.

## Part 2 Products

### 2.1 High Density Polyethylene (HDPE) Pipe

- A. General: Pipe installed by the pipe bursting method shall be HDPE pipe unless otherwise indicated on the Drawings. All pipe shall be high molecular weight, solid wall, high density polyethylene pipe, in accordance with ASTM F714. All pipe shall be made of virgin grade material and have the PPI designation of PE 3408. Minimum cell classification shall be 345434C, D, or E as described in ASTM D3350. All pipe shall meet the requirements for Type III, Class B or C, Category 5, Grade P34 material as described in ASTM D1248. Pipe shall contain no recycled compound except that generated in manufacturer's own plant from resin of same specification from same raw material. Pipe (excluding black colored pipe) stored outside shall not be recycled. The pipe shall be homogenous throughout and shall be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.
- B. HDPE Pipe shall be DIPS size of the nominal diameter provided on the Drawings. Wall thickness shall be minimum SDR 17. It is the Contractor's responsibility to determine whether, due to installation forces, a thicker wall pipe is necessary to prevent distortion or other permanent damage of the pipe. No additional payment will be made if a thicker wall pipe is necessary. HDPE pipe shall be manufactured in accordance with ASTM F 714. Joints shall be of the butt-fusion type. Inner pipe wall color shall be light or opaque in color to facilitate closed-circuit television inspection. Outer wall shall have co-extruded green or extruded green stripes designating use for sanitary sewer. Pipe with extruded green stripes shall have a minimum of three equally spaced stripes.

- C. Conventional fusion saddles as manufactured by Central Plastics, Phillips Driscopipe, Plexco or approved equal and shall be installed in accordance with the manufacturers recommended procedures.
- D. Pipe Joining: The polyethylene pipe shall be assembled and joined at the site using the butt-fusion method to provide a leak proof joint. Threaded or solvent-cement joints and connections are not permitted. All equipment and procedures used shall be used in strict compliance with the manufacturer's recommendations. Fusing shall be accomplished by personnel certified as fusion technicians by a manufacturer of polyethylene pipe and/or fusing equipment. The butt-fused joint shall be true alignment and shall have uniform roll-back beads resulting from the use of proper temperature and pressure. The joint shall be allowed adequate cooling time before removal of pressure. The fused joint shall be watertight and shall have a tensile strength equal to that of the pipe. All joints shall be subject to acceptance by the Engineer prior to insertion. Cut out and replace defective joints at no additional cost to the Owner. Terminal sections of pipe that are joined within the insertion pit shall be connected with Central Plastics Electrofusion Couplings or approved equal connectors with tensile strength equivalent to that of the pipe being joined.
- E. Manhole Connections: Connections to existing manholes shall be made with a PVC manhole adaptor manufactured by GPK Products, Inc.
- F. Service connections: Service saddles shall be butt fusion or electrofusion saddle type fitting with DIP outside branch connection specifically designed for type of HDPE being installed. For pipe sizes greater than 10 inches, an Inserta Tee by Inserta Tee Fittings Co. may be used.

## 2.2 Equipment

- A. Bursting/Towing Tool: The tool shall have an outside diameter greater than the outside diameter of the new pipe. Additionally, the outside diameter of the tool shall not be greater than the outside diameter of the new pipe plus 1-inch. The tool shall be capable of fragmenting the pipe and compressing the old pipe sections into the surrounding soil as it progresses. The bursting head shall incorporate a shield or expander to prevent collapse of the hole ahead of the new pipe insertion. The bursting head shall have its own forward momentum while being assisted by winching. A hydraulic winch shall provide the necessary force to provide bursting action of the head such that it can move forward.
- B. Only hydraulically or pneumatically operated equipment with either front or rear expanders for the proper connection to the new pipe will be allowed for use. The pneumatic tool must be used in conjunction with a constant tension/variable speed winch. The winch shall have twin cable pulling capstans with twin hydraulic drive motors and twin gear boxes for independent operation of 5, 10 or 20 tons. The size of the winch will be dependent on the diameter of the pipe to be replaced. In no case will the constant tension on the winch exceed 20 tons.

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## Part 3 Execution

### 3.1 General

- A. All construction activities shall be contained within existing rights-of-way or easements. Trees shall not be disturbed, except as absolutely necessary for performing this work.
- B. The tool shall be pulled through the bore of the existing pipe such that the existing sewer pipe is broken into small fragments. The tool shall drive these fragments into the surrounding pipe zone.
- C. The tool shall produce a tunnel along the vertical and horizontal alignment of the existing sewer. The tool shall also construct the new sewer by pushing or pulling the new pipe into the tunnel.
- D. Lubrication shall be used if the contractor deems such lubrication is necessary to ensure successful completion of the job. The contractor shall make arrangements for injection of bentonite into the annular space behind the pipe bursting head, as necessary.
- E. Prior to starting work, the contractor shall verify the location of all adjacent utilities. The minimum clearance shall be approximately two feet. The contractor shall expose all interfering utilities by spot excavating and removing the soil around the utility. The cost of locating and exposing utilities shall be borne by the contractor.
- F. The new sewer shall be constructed straight and along the same horizontal and vertical centerline as the existing sewer.
- G. Flow in the existing sewer shall be pumped around during installation and testing of the new sewer per Section 01 50 00 and Article 3.2 of this Section. The Contractor is responsible for paying all fines imposed for overflows during construction.
- H. Where it is not practical to use a pump around line, upstream flow may be pumped into a suitable tanker(s) for storage, transportation and gradual release downstream of the section of pipe being burst. The Contractor shall obtain specific approval for this method of flow bypass prior to proceeding with the work at such location.
- I. HDPE Pipe: After the new sewer has been installed to its final position, the pipe shall be allowed to relax a minimum of 4 hours to relieve stresses prior to being trimmed at manholes. Service connections to the new sewer shall be made after pipe relaxation process and testing.
- J. Where upheaval of the existing ground surface occurs above the pipe bursting work, regrade the ground surface to provide the original ground elevations and surface conditions.
- K. Traffic Control: The Contractor shall be responsible for traffic control during the course of each phase of the Work. Prior to beginning Work, Contractor shall submit a traffic control plan for each section of Work for review and approval. It is the intent that this Work is to be accomplished with as little disturbance to traffic, private property, and the public as is reasonably possible, consistent with timely completion thereof. The traffic

control plan shall reflect such requirements where applicable. Signs, signals, and detours shall conform to the local and state requirements for streets and highways. The Contractor shall have and maintain on site a sufficient supply of traffic cones and other traffic signaling devices, including trained and properly equipped flagmen, to safely control all traffic through the work zone(s). Road closures and/or detours will require advance scheduling and prior approval by the Engineer and/or Owner or respective regulatory agency.

- L. The Contractor shall perform a Pre-Installation CCTV inspection in accordance with Section 33 01 30.16 of these Specifications.
- M. Line Obstructions: If Pre-Installation CCTV inspection reveals an obstruction in the existing sewer (heavy solids, dropped joints, collapsed pipe, etc.) that will prevent completion of the pipe bursting process, and the obstruction cannot be removed by conventional sewer cleaning equipment, then a point repair will be performed by the Contractor, with the approval of the Engineer.
- N. Sags In Line: If Pre-Installation CCTV inspection reveals a sag in the existing sewer that is equal to or greater than one-quarter of the diameter of the existing pipe, a point repair shall be performed to correct the sag where authorized by the Engineer.
- O. Rescue Shafts: In the event that the pipe-bursting machine encounters an obstruction and is halted, the Contractor will be required to excavate down to the machine to free the obstruction and continue the installation. The Contractor is notified that the construction of such shafts will be considered incidental to the installation by the pipe bursting construction method. Any rescue shafts will be properly braced, shored, or utilize trench boxes to meet applicable Federal, State, and local requirements. Backfill and compaction for such rescue shafts shall be in accordance with Section 31 23 33 Trenching and Backfilling.

## 3.2 By-pass Pumping

- A. The installation methodology contemplated requires the temporary blocking and back-ups of sewers and sewage. Contractor shall be responsible to limit the extent and duration of such blockages and back-ups so that overflows and spillage onto public or private property and into storm sewers, waterways, and streets does not occur. In the event that such spillage or overflows do occur during the course of or as a result of the Work, the Contractor performing the Work shall immediately eliminate the spillage or overflow and, as necessary, remove the blockage and eliminate the back-up. On elimination of the spillage or overflow, the Contractor is to clean up and disinfect the area. Work to stop or contain such events is to be deemed emergency in nature and sufficient justification for total mobilization of resources, the use of overtime or double time, and any other reasonable measures to assure correction of the problem without delay. Damages arising from blockages, back-ups, spillage, or overflows of sewage during the course of the Work or because of the Work shall be the sole responsibility of the Contractor.
- B. Sewage flow shall be pumped around segments during the installation and testing of pulled or pushed replacement pipe, the televising of sewers and lateral service reinstatement.

- C. Pumping equipment shall have the capacity to convey 100% of peak flows around the construction area. The flow shall be intercepted at the upstream end of the construction area and shall be pumped through temporary piping of adequate size. The flow shall be discharged into a manhole on the downstream side of the construction area, thus bypassing the sewer segment(s) under construction. The Contractor shall be required to contact all residential and commercial customers whose service lines connect to the sewer main being bypassed and inform them that they will be temporarily out of service. The Contractor shall also advise those customers against water usage until the mainline is back in service. After completing the necessary work on the main line to allow its reuse, the Contractor shall advise those customers that the sewer main is back in service. The Contractor shall maintain a high degree of professionalism, both in workmanship and appearance, at all times. Should a condition arise that the Contractor cannot restore service within 12 hours of service interruption; the Contractor shall make provisions for pumping all flows within the service interruption area at no cost to the Owner.
- D. Open channels or trenches shall not be used to convey flow.
- E. A standby pump of the same capacity shall be required on site.
- F. The Contractor is responsible for paying all fines imposed for overflows or spills during construction.

### 3.3 Pits

- A. Construct insertion pits, service pits and hydraulic machine pits as required to accomplish the work. The size and quantity of pits shall be the minimum necessary to accomplish the work.
- B. Location: In the determination of pit locations, the Contractor shall give consideration of other uses of the excavations, such as for services access and manholes, wherever possible. Pits shall be contained in acquired construction easements or existing rights-of-way or permanent sanitary sewer easements.
- C. Pits shall be centered over the existing sewer.
- D. Pits shall be sloped and/or shored as necessary to comply with all regulatory requirements.
- E. Pits shall be provided with proper erosion and sedimentation control measures.
- F. Restore all insertion, service and hydraulic machine pits and associated surface areas to their original condition.
- G. Prior to backfilling pits, all new pipe shall be properly supported and on the required grade.
- H. Pits shall be backfilled in accordance with Section 31 23 33 Trenching and Backfilling.

### 3.4 Manhole Connections

- A. If the new sewer is to be constructed through an existing manhole with the manhole not being used as a machine or insertion pit, the manhole wall shall be modified at the existing pipe connections such that the manhole will not be damaged by the tool passing through the manhole. The manhole shall be restored to have a smooth grouted flow pattern through it. The inlet or outlet connection shall be restored with a PVC manhole adaptor with a bell end coated with epoxy and sand on the outer surface. The PVC manhole adaptor's rough sandy coating will allow the fitting to bond between the PVC manhole adaptor and the manhole pipe opening to provide a watertight connection. The HDPE pipe is inserted into the gasket bell end of the PVC manhole adaptor to allow the HDPE pipe to move as expansion or contraction occurs.
- B. If an existing manhole is demolished, cracked or its structural integrity is otherwise degraded as a result of the pipe bursting work, the Contractor shall provide a new manhole, upon approval by the Engineer, at no additional cost to the Owner.

### 3.5 Services

- A. All services shall be identified and located by CCTV before the replacement operation begins for any given length of pipe being pulled or pushed.
- B. All service laterals shall be completely disconnected and isolated from the existing sewer before the replacement operation begins for that particular segment of sewer.
- C. Flow shall be bypassed to prevent accumulation of flow in laterals.
- D. Service laterals shall not be reconnected to the new sewer until the segment of the new sewer downstream of the service is complete, tested and accepted.
- E. Saddles for reconnection of service laterals shall be compatible with the new sewer pipe material. Electrofusion saddles shall be installed in accordance with the HDPE pipe manufacturers recommended procedures.

### 3.6 Acceptance

- A. The leading section of the new pipeline shall be pulled or pushed into a pit for inspection after completion of the replacement operation for each pipeline segment. Each such section shall be clearly marked and, if requested by the Engineer, made available to the Engineer for inspection.
- B. Sewer segments shall be tested between manholes by the air test method. These tests shall be performed and the section of line accepted prior to connecting any services or the main line flow.
  - 1. Prior to air testing, the section of sewer between manholes shall be thoroughly cleaned and wetted. Immediately after cleaning or while the pipe is water soaked, the sewer shall be tested with low-pressure air. At the Contractor's option, sewers may be tested in lengths between manholes or in short sections (25 feet or less) using inflatable balls pulled through the line from manhole to manhole. Air shall

be slowly supplied to the plugged sewer section until internal air pressure reaches approximately 4.0 psi. After this pressure is reached and the pressure allowed to stabilize (approximately two to five minutes), the pressure may be reduced to 3.5 psi before starting the test. If a 0.5 psi drop does not occur within the test time, then the line has passed the test. If the pressure drops more than 0.5 psi during the test time, the line is presumed to have failed the test, and the Contractor will be required to locate the failure, make necessary repairs, and retest the line. Minimum test time for various pipe sizes is as follows:

Approximate Pipe I.D., Inches	T (Time Min/100) Feet
6	5.7
8	7.6
10	9.4
12	11.3
15	14.2
18	17.0
21	19.8
24	22.8

2. Required test equipment, including inflatable balls, braces, air hose, air source, timer, rotameter as applicable, cut-off valves, pressure reducing valve, 0-15 psi pressure gauge, 0-5 psi pressure gauge with gradations in 0.1 psi and accuracy of + two percent, shall be provided by the Contractor. Testing equipment shall be equal to Cherne Air-Loc Testing Systems.
  3. The Contractor shall keep records of all tests made. Copy of such records will be given to the Engineer and the Owner. Such records shall show date, line number and stations, operator, and such other pertinent information as required by the Engineer.
  4. The Contractor is cautioned to observe proper safety precautions in performance of the air testing. It is imperative that plugs be properly secured and that care be exercised in their removal. Every precaution shall be taken to avoid the possibility of over-pressurizing the sewer line.
- C. Each sewer segment between manholes shall be accepted upon successful completion of the air leakage test.
  - D. Post-installation CCTV of Completed Pipe Sections: Post-installation videos shall be conducted and submitted to the Engineer in accordance with Section 33 01 30.16 of these Specifications.
  - E. Smoke Testing of Service Lateral Connections: Once the pipe bursting operation is complete and services re-established, the Contractor shall perform a smoke test of the



service laterals prior to backfilling. Leaks detected during testing must be repaired as part of the pipe bursting operation and shall be considered incidental and included in the cost of pipe bursting. In lieu of smoke testing, a cleanout may be placed on the service lateral at the property line/edge of easement and the service lateral may be air tested during testing of the main.

### 3.7 Customer Notifications

- A. The Contractor shall contact all residential and commercial customers whose service is to be interrupted by rehabilitation work or who may be affected by upstream or downstream rehabilitations. The customer shall be informed that they will be temporarily out of service. This notification shall be made a minimum of 24 hours prior to beginning rehabilitation work.
- B. For all residences, the Contractor shall leave a door hanger detailing the service outage and providing contact information. Door hanger samples shall be submitted to the Engineer for review and approval. The Contractor shall also advise those customers against water usage until the mainline and lateral are back in service. After completing the necessary work on the main line and lateral to allow their use, the Contractor shall advise those customers that the sewer is back in service. Should a condition arise that the Contractor cannot restore service within 12 hours of service interruption; the Contractor shall make provisions for pumping all flows within the service interruption area at no cost to the Owner.

END OF SECTION