Goodwyn Mills Cawood
11 N. Water St., Suite 19290
Mobile, Alabama 36602
T 251.460.4006

TRANSMITTAL COVER SHEET

DATE: **June 24, 2025**

TO: **ALL CONTRACTORS**

FROM: **CEDRIC CAMPBELL, PE**

PROJECT: **DWSRF ALABAMA HIGHWAY 183 WATER MAIN EXTENSION**
PERRY COUNTY WATER AUTHORITY
SRF PROJECT NO: FS010358-01
CDBG PROJECT NO: CY-CM-PF-21-004
GMC PROJECT NO. CMGM240028

RE: **ADDENDUM #1**

PLEASE COMPLETE BELOW AND RETURN IMMEDIATELY.

Ashley Morris
Email: ashley.morris@gmcnetwork.com

I, the undersigned, hereby acknowledge receipt of this Addendum #1.

_____ _____
Authorized Representative of Contractor Date

_____ _____
Company Name Telephone

_____
Contractor's License Number (if applicable)

ADDENDUM NUMBER 1

DWSRF ALABAMA HIGHWAY 183 WATER MAIN EXTENSION

FOR

PERRY COUNTY WATER AUTHORITY

SRF PROJECT NO: FS010358-01

CDBG PROJECT NO: CY-CM-PF-21-004

GMC PROJECT NO. CMGM240028

1. Revisions to Project Manual

1.1 The following revisions are hereby added as Addendum No. 1 to the referenced Project Manual and Plans and shall be considered when preparing bids.
1.2 Attached is a **Revised Bid Proposal** that should be submitted. Line items 7 and 8 have been updated.
1.3 Attached is **HDPE Pipe** Specification **33 0533.23**.
1.4 Revised **Special Project Provisions** Specification **01 0300.00** – Removed language for Construction Materials Testing and Construction Survey Allowances.
1.5 Revised **Allowances** Specification **01 2100.00** - Removed language for Construction Materials Testing and Construction Survey Allowances.

2. Questions

2.1 **What is the engineer's estimate for this project?** 1,500,000.

3. Attachments

3.1 **Pre- Bid Roster and Notes**
3.2 **Revised Bid Proposal**
3.3 **HDPE Specification 330533.23**
3.4 **Special Project Provisions Specification 01 0300.00**
3.5 **Allowances Specification 01 2100.00**

4. Acknowledgement

4.1 Receipt of Addendum No. 1 shall be acknowledged in two ways:

4.1.1 Note on (EJCDC C-410) page 3 of Bid Form – Bidder acknowledges receipt of "Addendum No. 1" and date of "June 24, 2025".

AND

4.1.2 EMAIL the signed transmittal sheet to ashley.morris@gmcnetwork.com to confirm the addendum has been received and is legible.

5. Conclusion

5.1 This is the end of Addendum Number 1, dated Tuesday, June 24, 2025.

BID PROPOSAL REVISED PER ADDENDUM NO. 1

PROJECT: **DWSRF ALABAMA HIGHWAY 183 WATER MAIN EXTENSION**
FOR THE PERRY COUNTY WATER AUTHORITY
GMC PROJECT NO.: CMGM240028
CDBG PROJECT NO.: CY-CM-PF-21-004
DWSRF PROJECT NO.: FS010358-01

BIDDER: _____

Bidder agrees to perform all the work described in the specifications and shown on the plans for the following unit prices:

BASE BID:

Item No.	Qty.	Unit	Description	Unit Price	Total Price
1	1	LS	Mobilization & General Conditions (N.T.E 3% of Total Bid)	$ LS	$
2	1	LS	Clearing & Grubbing	LS	
3	285	LF	3/4 Inch Municipex Water Service Tubing		
4	375	LF	3/4 Type K Copper Water Service Tubing		
5	38535	LF	6 Inch DR18 CL235 C-900 PVC Water Main		
6	420	LF	6 Inch CL350 RJDI Water Main		
7	5000	LF	6 Inch DR18 CL235 DIPS Fusible C-900 PVC Water Main		
			OR		
	5000	LF	8 Inch DR9 CL252 HDPE Water Main (Directional Drill Installation)		
8	220	LF	12" Epoxy-Lined Steel Encasement		
9	1	TON	Ductile Iron Fittings		
10	12	EA	Fire Hydrant Assembly		
11	3	EA	1 Inch Combination Air Release Valve		
12	16	EA	6 Inch Gate Valve		
13	1	EA	6 Inch Tapping Sleeve & Valve		
14	24	EA	3/4 Inch Service Tap		
15	24	EA	3/4 Inch Water Meter Assembly		
16	15	LF	Asphalt Pavement Patch		
17	1	LS	Traffic Control Measures	LS	
18	1	LS	Erosion Control Measures	LS	
19	1	LS	Cleanup, Seeding, Grassing, Mulching, Landscape, & Site Restoration	LS	
20	1	LS	Allowance - Stormwater Permit	LS	8,000.00
21	1	LS	Allowance - Owner's Contingency	LS	30,000.00
			TOTAL BID		

The above prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc. to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive informalities in the bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, bidder will execute the formal contract attached within fifteen (15) days and deliver a Surety Bond or Bonds as required by Paragraph 29 of the General Conditions. The bid security attached in the sum of _____($_____) is to become the property of the Owner in the event the contract and bond are not executed within the time set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

Respectfully submitted:

By: _____

Title: _____

Company: _____

_____

_____

(Business Address & Zip Code)

(Seal - if bid is by a corporation)

GMC

NON-MANDATORY PRE-BID OPENING ATTENDANCE ROSTER

DWSRF ALABAMA HIGHWAY 183 WATER MAIN EXTENSION
FOR THE
PERRY COUNTY WATER AUTHORITY
GMC PROJECT NO: CMGM240028
SRF PROJECT NO: FS010358-01
CDBG PROJECT NO: CY-CM-PF-21-004

WEDNESDAY, JUNE 11, 2025 @ 10:00 A.M.

	NAME (PRINT)	REPRESENTING
1.	Cedric Campbell	Goodwyn Mills Cawood
2.	Earl Ford	Perry Co Water
3.	Melanie Tucker	REV Construction
4.	Daniel Fowler	Consolidated Pipe
5.	Ward Rast	Rast Construction.com
6.	Edmund Colgrave	Cornerstone Civil Contractors
7.	Chase Adams	One Call Services company
8.		
9.		
10.		
11.		
12.		
13.		
14.		

NON-MANDATORY PRE-BID MEETING AGENDA

DWSRF ALABAMA HIGHWAY 183 WATER MAIN EXTENSION

FOR THE

PERRY COUNTY WATER AUTHORITY

GMC PROJECT NO: CMGM240028

SRF PROJECT NO: FS010358-01

CDBG PROJECT NO: CY-CM-PF-21-004

WEDNESDAY, JUNE 11, 2025 @ 10:00 A.M.

I. Greetings & Introductions – Cedric Campbell, P. E.

II. Project Scope and Duration –
   A. Overview
      - extension of a potable water main along AL Hwy 183 with service installations, fire hydrants and related appurtenances in Perry County, AL
   B. Unit Price Contract
   C. Contract Time – 180 Calendar Days
   D. Liquidated Damages - $500 per day

III. Funding Requirements -
   A. CDBG and SRF
   B. Pay Applications Processed By Andrea.Hodges@gmcnetwork.com.
   C. Certified Payrolls go directly to grant administrator, Bob Watts carastallman@gmail.com.
   D. Registration is SAM (System for Award Management) www.sam.gov is required.
   E. DBE documentation from the low, responsive bidder no later than 10 days after the bid opening. DBE solicitation should be documented; with a summary of table of DBEs contacted along with supporting documentation (emails, letters, phone log, etc.) including the response received, if any, from the DBE subcontractor. Sample table in manual.
   F. American Iron and Steel (AIS) and Build America, Buy America (BABA) required.

IV. Important Dates -
   A. RFIs must be received no later than **Thursday, June 19, 2025 at 12 pm, CST.** All questions or inquiries must be submitted in writing.
   B. Bids due **Thursday, June 26, 2025 at 2:00 pm, CST**.

V. General Information –
   A. Bidders must make sure the proper general contractor licensing is present for the scope of each project and at the time of bidding under the provisions of Title 34, Chapter 8, Code of Alabama, 1975.

GMC

B. Bidders to show license number on the outside of the envelope in which Proposal is delivered.
C. The entire project manual does not have to be submitted. Do not staple submitted items (i.e. Bid Bond, Proposal, EVerify, etc.)

VI. Questions –

A. It was discussed there could be a couple of days delay in obtaining payment, due to the fact the funds are coming from two separate agencies. Payment could take over 90 days.

B. The Perry Count Commission is the applicant for the CDBG Project. Payment applications will have to be approved by the Commission prior to submittal to ADECA.

SECTION 01 0300 – SPECIAL PROJECT PROVISIONS – ADDENDUM NO. 1

PART 1 - GENERAL

1.1 GENERAL:

A. The Contractor shall obtain the licenses and pay the building fees as required for the completion of this construction.

B. Bidders shall refer to the Supplementary Conditions for instructions regarding all sales and use taxes for this project.

C. In the event that bids exceed the funds available, the Owner reserves the right to exercise all or any combination of deleting sections or parts thereof to bring the construction cost within the funds available.

D. All work shall be done in accordance with Perry County Water Authority's Rules and Regulations, the latest ADEM and EPA guidelines, and the latest ALDOT standard specifications and guidelines (when working within the ALDOT ROW). The amount bid for this Contract shall include all costs related to erosion control procedures, compliance with all current OSHA regulations, and building construction permits.

E. The work covered by this contract consists of furnishing all materials, labor, equipment, tools, supplies and appurtenances necessary for the construction and testing of potable water mains and related appurtenances as shown on the plans, and as directed by the Engineer and Owner. All equipment, materials and methods of construction shall be subject to the approval of the Engineer. The Contractor shall comply with OSHA regulations on confined space entry, as published CFR on April 14, 1993.

F. All Special Provisions as detailed herein are intended to amend and/or clarify the other Specifications as noted.

G. **All excavations, in places other than where specified in the bid proposal and contract documents, shall be bid on an unclassified basis. No extra payment will be made for required hand excavation to minimize the destruction of landscaping and vegetation that must remain or be replaced. No extra payment for removal of rock and other hard material will be made, and all costs for this type of work must be included in the amounts bid in the Proposal. No extra payment will be made for muck excavation or the removal of any wet, unstable, or unsuitable soil. Should any unsuitable soil be encountered, the Contractor is responsible for procuring suitable material for pipe trench backfill in those areas and all costs for this work must be included in the amounts bid in the Proposal. The Contractor is required to inspect the area to his satisfaction prior to turning in a Bid Proposal.**

H. The Contractor, before construction, shall confirm and/or determine where the existing water main along AL Hwy 219 is in order to connect the new proposed water main. In doing so, the Contractor shall also confirm the size of the existing water main. If location or size differ from the plan sheets, the Contractor shall inform the Engineer to determine adjustments that need to be made.

1.2 GENERAL CONTRACTOR REQUIREMENTS:

A. All Bidders shall be prepared to submit a satisfactory qualification and experience record, as outlined in this specification, at the request of the Owner.

B. The Contractor shall have an adequate number of experienced personnel and available equipment to place on the project to successfully perform the work within the completion period.

C. The Bidder shall have successfully completed construction of at least five (5) comparable projects similar in scope and size. Comparable projects should also include projects similar in nature.

D. Subcontractors shall have no less than 5-years verifiable experience in their trade and no less that 5-years verifiable experience in their business enterprise contracting for work under this project. The type of work subcontracted for this project shall be the principal business of the Subcontractor.

E. Superintendents and foremen, or other individual in the lead or supervisory position for any portion of the Work under this Contract shall have no less than 7-years verifiable experience in performing the type of work they are responsible for.

1. The Contractor shall submit resumes of work and project experience for their Superintendent and foremen, as soon as possible and at least within five calendar days of receipt of the Contract to be executed for the Work, for review and acceptance by the Owner and Engineer.

F. The Owner anticipates and desires to award the project shortly after the bid opening. Therefore, it is imperative that the Bidder be prepared to submit all required qualification information to the Engineer soon after the bid opening. The Bidder may submit this information with their bid.

G. Applicants may not be deemed qualified if:

1. The Applicant fails to submit an adequate Qualification Statement, including failing to provide all required documentation, when requested by the Engineer;
2. The Applicant fails to meet the Technical and Corporate Experience Requirements;
3. Reasonable grounds exist that Applicant is involved in collusion among other applicants.
4. The Applicant, or any of its principals, is currently disbarred from bidding on public entity work in any State.

H. Final determination of Applicant's qualification status rests solely with the Owner.

I. QUALIFICATION STATEMENT: Bidders shall be prepared to submit the following information with the bid in order for the Owner to evaluate the Bidders' qualifications during the evaluation of the bids:

1. Firm name, address, number, contact.
2. Legal form of business (Corp, etc.) and date started.
3. Name of parent company, sister company, etc.
4. List name and residence (City and State) of all officers, owners, partners and principals. Identify relationship of each to the firm and if active in the firm.
5. Current State of Alabama Contractor's License – License Number, Bid Limit, Classification.

6. Provide a statement that Applicant has not defaulted on a project nor failed to complete a project within the past ten years. If this is not the case, explain and provide project contact information.
7. Provide a statement that Applicant has not filed for bankruptcy or been judged bankrupt at any time over the past nine years. If this is not the case, explain. Provide a document signed and notarized by a Company officer.
8. Provide a statement that Applicant has not been involved in liquidated damages in the past five years. If this is not the case, explain and provide contact information.
9. Provide a list of all projects under contract over the last five years, with a construction contract amount in excess of $2,000,000.
10. Provide a statement that the Applicant has never abandoned a project, even temporarily, during a dispute. If this is not the case, please explain and provide contact information.
11. Provide a statement whether Applicant has or has not been involved in litigation as a plaintiff against an Owner, Design Firm or Construction Contract Administration Firm, or served the Owner with a claim for additional compensation prepared by an attorney or a claims consultant, excluding routine change order requests, in the past five years. If Applicant has, explain and provide contact information. List any lawsuits or administrative actions to which the Applicant is currently a party or has been a party (either as a plaintiff or defendant) during the past ten years. For each suit, list all parties and indicate whether any party was a bonding company, insurance company, an Owner or other. Identify the project giving rise to the suit or administrative action, explain the basis of the claim, and whether a settlement was reached or a judgment entered into for or against the Applicant or the Applicant's bonding company or insurance company.
12. Provide a statement that the Applicant, as well as all of its affiliated companies, is not involved in any dispute, formal claim, or litigation with the Owner, nor any authority or organization with which the Owner has a vested interest. If this is not the case, please explain.
13. List all other projects currently under contract in the United States, the current contract amounts and scheduled completion dates.
14. State percentage of contract amount that bidder will perform with its own forces.
15. List possible subcontractors that may be utilized on the project and the work each subcontractor will perform.
16. In reference to the Similar Projects in Paragraph 1.2.C, provide the following compete description of each project, with Owner, Engineer and Contractor's project manager/superintendent information; the date completed; bid amount and final contract amount, with change order amounts and explanation; contract completion period versus actual completion time and explanation; any claims, disputes or litigation by or against the Contractor.
17. List all water main projects completed within the past two years with a brief project description and Owner contact information.
18. List all current water main projects and the Owner contact information.
19. Provide a list of project staff including superintendents or foreman and provide a statement of the number of complete pipeline crews assigned to the Project.
20. Provide the following information regarding completion of past work:

a. Within the last five years, has your firm failed to complete any work awarded to it? (If yes, attach a written explanation.)

b. Within the last five years, has applicant been involved in liquidated damages or has a claim prepared by an attorney or claims consultants, excluding routine change orders? (If yes, attach a written explanation.)

c. Within the last five years, has applicant been involved in litigation against Owner or Engineering firms? (If yes, attach a written explanation.)

d. Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers or Owners? (If yes, attach a written explanation.)

1.3 TIME FOR COMPLETION OF WORK:

A. The Contractor may proceed to award the sub-contracts, assemble materials, etc., at any time after award of Contract and Notice to Proceed with Work is given. For purposes of liquidated damages, the Contractor's official time for construction to start on work shall be the date of Notice to Proceed with Work, and completion of same shall be within the number of consecutive calendar days indicated in the Contract Documents.

B. Acceptance of the completed Work of this Contract will be at a single date after all work is completed, and not in Phases.

C. Nothing in the Contract Documents shall permit or be construed to permit payment to the Contractor for any extended overhead or profit due to completion of the project extending beyond the Contractual completion date. In no event shall the Owner or Engineer be liable to the Contractor for damage due to any delay to any portion of the work of this Contract.

D. Delays due to inclement weather will not be considered on this project with the exception of a tropical event.

1.4 CONTRACTOR'S USE AND LIMITATIONS OF THE SITE:

A. All work shown will be performed within the areas outlined on the plans. Should the Contractor need temporary construction easements, then the Contractor shall be responsible for securing them from the landowner(s). All Bidders are hereby advised that ALDOT standards must be adhered to during any construction within ALDOT right-of-way.

B. The Contractor shall limit the number of vehicles on the job site by shuttling work crews. No excessive construction equipment will be allowed.

C. The Contractor shall take the necessary precautions to ensure that no part of the existing public works (streets, storm drains and other utilities) is damaged as a result of his operations. Any damage that does occur shall be promptly repaired by the Contractor at his expense. The Owner urges the Contractor to use rubber-tired equipment when operation on the Highway in order to prevent damage to the asphalt. The Contractor may use a layer of heavy neoprene to protect the roadway.

D. In the event that a hurricane or tropical storm approaches the area, the Contractor shall secure all equipment, move all materials and prepare the construction site accordingly.

E. The Contractor shall return all areas to pre-construction condition upon completion of work, at a minimum.

1.5 CONSTRUCTION SCHEDULE AND INSTALLATION PLAN:

A. In addition to the construction schedule requirements stated in General and Supplemental General Conditions, the Contractor shall prepare a detailed installation plan for the work for approval by the Engineer and shall submit the plan to the Engineer for review prior to the preconstruction conference.

B. The Contractor's Installation Plan must consider the following criteria:

1. Subsurface geotechnical conditions
2. Relocation of existing utilities.
3. Environmental impacts of construction activities.
4. Existing utilities and infrastructure and business operations.

C. Upon award of the project, the Contractor shall work with the Owner and Engineer to have the contracts executed immediately.

1.6 ACCEPTABLE INCLEMENT WEATHER DAYS:

A. Delays due to rain will be considered, only if the number of rain days is in excess of the average of days with precipitation of 0.01 inch or more for a city within a 100-mile radius of the project's location. This information can be found at www.climate-zone.com.

B. If the radius overlaps with a nearby by city, then the city with the shortest radius from the project location shall be used.

C. If the project location does not fall within a 100-mile radius, the following schedule shall be used as the default.

Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
11	9	10	8	8	9	12	9	8	6	8	10

D. If admissible rain delay days occur, inclement weather delays may also be applicable. Inclement weather may include, in addition to rain delay days, "dry-out" days at a rate no greater than 1 make-up day for each day or consecutive days of precipitation that total 1.0 inch or more.

E. On-site records of daily rain and/or temperature readings shall be kept by the Contractor and may be accepted to verify weather and/or temperature variations which prevent earthwork, foundation and slabs, and/or roofing materials installation. The Inspector will also be required to maintain on-site records of daily rain and/or temperature.

F. Cold Weather concreting shall be per ACI 306. The Contractor shall have a calibrated thermometer on site which is logged by the inspector and contractor prior to any concrete pours during cold weather.

G. Notice of inclement weather delay days must be submitted by the Contractor to the Inspector for review on the first day of every month.

1.7 MOBILIZATION, GENERAL CONDITIONS, FEES, PERMITS AND WATER COST:

A. Included in the Proposal is a pay item to cover all costs related to mobilizing, obtaining permits, license, bonds and insurance for this project. The Contractor shall include in the amount bid for this item all costs related to providing bonds, insurance, and other security, permits and permitting costs as required under this contract. The bidder shall limit this pay item to no more than three (3) percent of the total base bid. Any additional cost related to this item shall be included in the other various bid items.

B. The Contractor is required to obtain all city licenses, building permits, and fees from the appropriate regulatory bodies. The Contractor is responsible for all fees associated with hauling off and proper disposal of all debris and construction spoils.

1.8 PROTECTION OF WORK, PROPERTY AND PERSONS:

A. The Contractor shall thoroughly document the existing condition of all structures, landscaping and improvements in all areas where the construction work may result in actual damage or in damage claims. All costs associated with photographs, videotapes and other similar documentation shall be included in the bid prices. The method of providing this documentation of existing conditions shall be acceptable to the Engineer, and a complete set of the documentation shall be available to the Owner and the Engineer to help settle any disputes which may arise concerning what work is required to return property to its original condition or concerning property damage.

1.9 TRAFFIC CONTROL:

A. It shall be the responsibility of the Contractor for all traffic control along any portion of the project. Where required, all necessary flagmen, traffic cones and drums, and traffic control plans shall be in place on both City roads and State Highways to meet the governing department's specifications.

B. The Traffic Control Plan shall be in conformance with the Latest Edition of the Manual on Uniform Traffic Control Devices.

C. The Contractor should consider the prices for traffic control measures when preparing bids for this project.

D. All associated cost for Traffic Control Measures shall be considered in the price bid under the Traffic Control Measures bid item.

1.10 WELL POINT DEWATERING:

A. The Contractor shall thoroughly examine the site conditions prior to bid. All costs for well point dewatering and trench dewatering, if required, shall be included in the price bid for water mains.

B. The discharge from any trench dewatering operations (including well point dewatering) shall be conducted to natural drainage channels or other structures as approved by the Engineer in accordance with applicable permits. Ground water shall not be discharged into the sanitary sewer system.

C. Dewatering shall be sufficient to provide a dry trench, and shall be maintained during all pipe laying operations.

D. The Contractor shall be responsible for damage of any nature resulting from the dewatering operations.

1.11 OBSTRUCTIONS AND EXISTING UTILITIES:

A. The Contractor is cautioned that several underground utilities exist within the existing Right-of-Way and along much of the pipeline routes. These utilities may include gas, water, sewer, power, fiber, telephone, etc... Some utilities may not be shown on the plans. The Contractor shall be responsible for locating and protecting all existing utilities, whether shown on the plans or not.

B. All existing utilities and structures shown on the plans are for reference only. The Contractor is responsible for verifying all locations prior to beginning work.

C. The site of the proposed work will be on the site of existing water infrastructure and other utilities. Any damage to any of the objects on site, both in service or out of service, shall be repaired or replaced to existing condition of better.

D. These repairs shall be conducted at no additional expense to the owner and shall be considered a subsidiary obligation of the various bid items.

E. This includes but not limited to the existing water mains, valves, valve markers, meters, service tubing, etc.

F. All costs associated with locating existing utilities and working around them shall be included in the total price bid. The Contractor shall conduct a thorough and complete investigation to determine the exact location of all existing utilities before beginning work. It is imperative that the Contractor determine the horizontal and vertical location of utilities in advance in order for adjustments to be made to the existing utilities. If at any time the existing utilities come in conflict with the proposed work (i.e. proposed line intersects an existing utility), all work in that area shall stop and the Contractor and/or his agent shall notify the Engineer immediately. Neither the Contractor nor his agents shall take it upon themselves to adjust or relocate existing utilities.

G. The Contractor is to use extreme care in protection of all utilities and drainage structures throughout the work process.

H. It shall be the Contractor’s responsibility to contact utility companies 48 hours before starting construction so maintenance personnel can locate and protect facilities, if required by the utility company.

I. It is the responsibility of the Contractor to ensure that all utility or other poles, the stability of which may be endangered by the close proximity of excavation, are temporarily stayed in position while work proceeds in the vicinity of the pole and that the utility or other companies concerned be given reasonable advance notice of any such excavation by the Contractor.

J. It shall be the Contractor's responsibility to remove mailboxes in the path of construction before construction takes place. The Contractor is responsible for resetting those mailboxes to their original condition or better after construction is complete.

1.12 SUBSURFACE GEOTECHNICAL INVESTIGATION:

A. A subsurface geotechnical investigation has been performed, and a report of the findings and recommendations is included in this manual as Appendix A. The Contractor is responsible for verifying subsurface conditions in areas of the project as required to complete the proposed improvements. Any additional subsurface investigation required by the Contractor shall be included in the various bid prices.

1.13 OWNER'S INFRASTRUCTURE AND CONNECTIONS TO EXISTING SYSTEM:

A. The Contractor shall closely coordinate all work with the Owner and the Contractor shall, under no circumstances, stop operation of any existing utility without giving notice to the Owner.

B. The Contractor shall closely coordinate with the Owner their schedule for disrupting service to existing customers.

C. Any damage to existing water infrastructure, including the existing customer water meter, shall be replaced as a subsidiary obligation of the various bid items.

1.14 OPEN CUTTING ASPHALT, STREETS, DRIVEWAYS:

A. Should any driveways or streets be needed to be open cut, the trench shall be properly backfilled and tamped as specified elsewhere. A temporary asphalt patch, if needed, may be required if the permanent asphalt patch is not placed within a few weeks. As a minimum the Contractor will temporarily backfill with material that will provide a solid surface for vehicular traffic. Loose sand will not suffice. The pavement patch installation and build-up shall be as specified in the asphalt patch detail in the Drawings.

B. Steel plates may also be utilized as a temporary measure to cover the patch.

1.15 EROSION CONTROL MEASURES:

A. The Contractor shall include in the lump sum bid price, "Erosion Control Measures", silt fences, erosion eels, wattles, rip rap spillways, etc. in locations shown on the plans as well as areas deemed necessary in the field in order to control storm water run-off.

B. The Contractor shall be responsible for compliance with all Federal and State regulations and statutes as relating to storm water permitting, erosion control and compliance with a BMP plan.

1.16 PIPE:

A. The prices bid for the various items shall include everything necessary for a complete and workable installation.

B. Ductile Iron Pipe shall be Pressure Class 350.

C. Fusible PVC used in this project shall be DIPS DR18 Class 235 C-900 Fusible PVC.

D. PVC shall be DR18 CL235 PVC Water Main, blue in color.

1.17 EPOXY COATED WELDED STEEL CASING

A. As a requirement to provide a cathodically protected system under the gas mains, the interior and exterior of the steel encasement shall be epoxy coated.

B. The interior and exterior of the casing shall be coated in Tnemec Series 425 Epoxoline ARO.

a. Surface Preparation:

i. Steel Pipe: SSPC-SP 10 Near White Blast Cleaning. Min. anchor profile – 3.0 mils.

ii. FBE Coated Steel Pipe: SSPC-SP 7 Brush Off Blast Cleaning. Uniform anchor profile – 1.0 mils.

b. Coating System:

i. Tnemec Series 425 Epoxoline ARO applied at a rate to achieve 30.0 – 40.0 mils DFT.

1.18 WATER MAIN TESTING:

A. The requirements for pressure testing of the new water mains are to be as indicated in Section 33 1200.

1.19 WARRANTIES:

B. All equipment supplied under these Specifications shall be warranted by the Contractor and the equipment manufacturers for a period of one (1) year. Warranty period shall commence on the date of Owner acceptance.

C. The equipment shall be warranted to be free from defects in workmanship, design and materials. If any part of the equipment should fail during the warranty period, it shall be replaced in the machine(s) and the unit(s) restored to service at no expense to the Owner.

D. The manufacturer's warranty period shall run concurrently with the Contractors warranty or guarantee period. No exception to this provision shall be allowed. The Contractor shall be responsible for obtaining equipment warranties from each of the respective suppliers or manufacturers for all the equipment specified.

E. In the event that the manufacturer is unwilling to provide a one (1) year warranty commencing at the time of the Owner acceptance, the Contractor shall obtain from the manufacturer a two (2) year warranty starting at the time of equipment delivery to the job site. This two-year warranty shall not relieve the Contractor of the one-year warranty starting at the time of Owner acceptance of the equipment.

1.20 PLANS & SPECIFICATIONS:

A. The Contractor will be furnished with three (3) complete sets of Drawings and Project Manuals. Any additional sets required can be purchased for the payment fee as stipulated in the Advertisement for Bids.

1.21 ALLOWANCE – STORMWATER PERMIT:

A. An ADEM NPDES Storm Water Permit has been acquired by the Perry County Water Authority but will be transferred to the Contractor's name after award of the project. The Owner has covered all cost associated with acquisition of the permit, transfer of the permit, development of the "Construction Best Management Practices" (CBMP) Plan, required inspections, and termination of the permit. If the Contractor does not complete the project by the original completion date, the Contractor shall be responsible for all inspection costs beyond the original completion date.

B. The Contractor shall contact Will Thrasher at Goodwyn Mills Cawood, LLC. (334-271-3200) for coordination of this work. Invoices for this work shall be submitted with the monthly pay request for payment. Any funds remaining in the allowance will be credited to the Owner with a final summary change order during project closeout.

A. The Contractor will be responsible for any fines resulting from insufficient and/or unmaintained BMP's.

B. The Contractor shall include in the lump sum bid price, "Erosion Control Measures", silt fences, erosion eels, wattles, rip rap spillways, etc. in locations shown on the plans as well as areas deemed necessary in the field in order to control storm water run-off.

C. The Contractor shall be responsible for compliance with all Federal and State regulations and statutes as relating to storm water permitting, erosion control and compliance with a BMP plan. The Contractor shall also be responsible for any fines resulting from inadequate erosion measures.

1.22 OWNER'S CONTINGENCY ALLOWANCE:

A. A lump sum cash allowance of $30,000 is given in the Bid Proposal to cover additions and/or changes in the work that may arise during construction. Items included under this allowance shall first be approved by the Owner and Engineer prior to completing the work.

1.23 CONCLUSION:

A. The preceding specifications, together with the plans are intended to provide the Owner with a complete and workable system for the amounts bid in the Proposal. These prices shall therefore include all minor items which are not specified in detail but which would normally be provided.

B. The foregoing clause is intended to cover minor items. Any bidder or manufacturer of equipment who should discover a major omission in the plans and specifications is requested to so notify the Engineer before bids are received in order that a suitable addendum may be issued.

PART 2 – PRODUCTS (not used)

PART 3 – EXECUTION (not used)

END OF SECTION 01 0300

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SECTION 01 2100 – ALLOWANCES – ADDENDUM NO. 1

PART 1 – GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.

B. Types of allowances include the following:

1. Lump-sum allowances.
2. Unit-cost allowances.
3. Quantity allowances.
4. Contingency allowances.
5. Testing and inspecting allowances.

1.2 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related work specified elsewhere includes:

1. Divisions 2 through 33

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Engineer of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Engineer's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Engineer from the designated supplier.

1.4 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified by Engineer.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 LUMP SUM, UNIT-COST, AND QUANTITY ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner under allowance and shall include taxes, freight, and delivery to Project site.

B. Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner under allowance shall be included as part of the Contract Sum and not part of the allowance.

C. At Project closeout, credit unused amounts remaining in these allowances to Owner by Change Order.

1.7 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Engineer for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.

B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.

C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs; and overhead and profit margins in accordance with General Conditions of this Project.

D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.8 TESTING AND INSPECTING ALLOWANCES

A. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.

B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure. The cost for incidental labor to assist the testing agency shall be included in the Contract Sum.

C. Costs of services not required by the Contract Documents are not included in the allowance.

D. At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

1.9 UNUSED MATERIALS

A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Engineer, prepare unused material for storage by when it is not economically practical to return the material for credit. If directed by Engineer, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. The following allowances shall be included in Contract Sum in accordance with the allowance type described above. Should the below allowances not be shown on the project proposal, the Contractor shall include them in the total bid cost.

Allowance No.	Description	Allowance Type	Amount
20	Stormwater Permit	Lump Sum	$8,000.00
21	Owner's Contingency	Lump Sum	$30,000.00

END OF SECTION 01 2100

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SECTION 33 0533.23 - POLYETHYLENE PRESSURE PIPE AND TUBING – ADDENDUM No. 1

PART 1 - GENERAL

1.1 SUMMARY:

A. This specification includes but is not limited to high-density polyethylene (PE 4710) pressure pipe primarily intended for the transportation of water and sewage either buried or above grade.

1.2 REFERENCES:

A. TITLE:

1. AWWA C901 Polyethylene (PE) Pressure Pipe & Tubing, ½ inch through 3 inch for water
2. AWWA C906 Polyethylene (PE) Pressure Pipe & Fittings, 4 inch through 65 inch for water
3. ASTM D3035 Standard Spec for PE Pipe (DR-PR) Based on Controlled Outside Diameter
4. ASTM D3261 Butt Heat Fusion PE Fittings for PE Pipe & Tubing
5. ASTM D3350 Standard Specification for PE Pipe & Fittings Materials
6. ASTM D1238 Melt Flow Index
7. ASTM D1505 Density of Plastics
8. ASTM D2837 Hydrostatic Design Basis
9. NSF Std.#14
10. TR-33/2005
11. Plastic Piping Components & Related Materials
12. Generic Butt Fusion Joining Procedure for Field Joining of PE Pipe

1.3 GENERAL:

B. USE

1. High Density Polyethylene (HDPE) pipes/fittings shall be allowed for use as water, wastewater and reclaimed/raw water pressure pipe where compatible with the specific conditions of the project. The use of material other than HDPE pipe may be required by if it is determined that HDPE pipe is unsuitable for the particular application. All material used in the production of water main piping shall be approved by the National Sanitation Foundation (NSF).

C. DOCUMENTATION

1. Documentation from the resin's manufacturer showing results of the following tests for resin identification:

a. Melt Flow Index ASTM D1238

D. MANUFACTURER

1. All HDPE pipe and fittings shall be from a single manufacturer, who is fully experienced, reputable and qualified in the manufacture of the HDPE pipe to be furnished. The pipe shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications. Qualified manufacturers shall be: DRISCOPLEX Performance Pipe as manufactured by Chevron Phillips Chemical Company LP, SCLAIRPIPE as manufactured by Dupont of Canada or equal as approved by the Engineer.

E. FINISHED PRODUCT EVALUATION

1. Production staff shall check each length of pipe produced for the items listed below. The results of all measurements shall be recorded on production sheets, which become part of the manufacturer's permanent records.

   a. Pipe in process shall be checked visually, inside and out for cosmetic defects (grooves, pits, hollows, etc.)

   b. Pipe outside diameter shall be measured using a suitable periphery tape to ensure conformance with ASTM F714 or ASTM D3035, whichever is applicable.

   c. Pipe wall thickness shall be measured at 12 equally spaced locations around the circumference at both ends of the pipe to ensure conformance with ASTM F714 or ASTM D3035, whichever is applicable.

   d. Pipe length shall be measured.

   e. Pipe marking shall be examined and checked for accuracy.

   f. Pipe ends shall be checked to ensure they are cut square and clean.

   g. Subject inside surface to a "reverse bend test" to ensure the pipe is free of oxidation (brittleness).

E. STRESS REGRESSION TESTING

1. The polyethylene pipe manufacturer shall provide certification that stress regression testing has been performed on the specific polyethylene resin being utilized in the manufacture of this product. This stress regression testing shall have been done in accordance with ASTM D2837 and the manufacturer shall provide a product supplying a minimum Hydrostatic Design Basis (HDB) of 1,600 psi as determined in accordance with ASTM D2837.

F. COMPATIBILITY

1. The Contractor is responsible for compatibility between pipe materials, fittings and appurtenances.

G. WARRANTY

1. The pipe MANUFACTURER shall provide a warranty against manufacturing defects of material and workmanship for a period of ten years after the final acceptance of the project by the OWNER. The MANUFACTURER shall replace at no expense to the OWNER any defective pipe/fitting material including labor within the warranty period.

PART 2 - PRODUCTS

2.1 MATERIAL FOR PIPE SIZES 4-INCH DIAMETER AND LARGER:

A. Materials used for the manufacture of polyethylene pipe and fittings shall be made from a PE 4710 high density polyethylene resin compound meeting cell classification 345434C per ASTM D3350; and meeting Type III, Class C, Category 5, Grade P34 per ASTM D1238.

B. High Density Polyethylene (HDPE) pipe shall comply with AWWA Specifications C906.

C. If rework compounds are required, only those generated in the Manufacturer's own plant from resin compounds of the same class and type from the same raw material supplier shall be used.

D. Dimensions and workmanship shall be as specified by ASTM F714. HDPE fittings and transitions shall meet ASTM D3261. HDPE pipe shall have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi.

E. HDPE pipe and accessories 4-inch diameter and larger, shall be 200 psi at 73.4oF meeting the requirements of Standard Dimension Ration (SDR) 11 as MINIMUM STRENGTH.

F. The pipe Manufacturer must certify compliance with the above requirements.

2.2 MATERIAL FOR PIPE SIZES 2-INCH DIAMETER AND LESS:

A. Materials used for the manufacture of polyethylene pipe and fittings shall be made from a PE 4710 high density polyethylene resin compound meeting cell classification 345434C per ASTM D3350; and meeting Type III, Class C, Category 5, Grade P34 per ASTM D1238.

B. High Density Polyethylene (HDPE) pipes shall comply with AWWA Specifications C901.

C. If rework compounds are required, only those generated in the Manufacturer's own plant from resin compounds of the same class and type from the same raw material supplier shall be used.

D. Dimensions and workmanship shall be as specified by ASTM D3035. HDPE fittings and transitions shall meet ASTM D3261. HDPE pipe shall have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi.

E. HDPE pipe and accessories 2" and less in diameter, shall be 200 psi at 73.4Of meeting the requirements of Standard Dimension Ration (SDR) 11 as MINIMUM STRENGTH.

F. The pipe Manufacturer must certify compliance with the above requirements.

2.3 FITTINGS:

A. All molded fittings and fabricated fittings shall be fully pressure rated to match the pipe SDR pressure rating to which they are made. All fittings shall be molded or fabricated by the manufacturer. No Contractor fabricated fittings shall be used unless approved by the Engineer.

B. The manufacturer of the HDPE pipe shall supply all HDPE fittings and accessories as well as any adapters and/or specials required to perform the work as shown on the Drawings and specified herein.

C. All fittings shall be installed using butt-fused fittings, thermo-fused fittings/couplings, or flanged adapters and must be approved by the Engineer. No size-on-size wet taps shall be permitted.

D. All transition from HDPE pipe to ductile iron or PVC shall be made per the approval of Engineer and per the HDPE pipe manufacturer's recommendations and specifications. A molded flange connector adapter within a carbon steel back-up ring assembly shall be used for pipe type transitions. Ductile iron back-up rings shall mate with cast iron flanges per ANSI B16.1. A 316 stainless steel back-up ring shall mate with a 316 stainless steel flange per ANSI B16.1.

1. Transition from HDPE to ductile iron fittings and valves shall be approved by the Engineer before installation.
2. No solid sleeves shall be allowed between such material transitions.
3. Fittings and transitions shall be as manufactured by Chevron Phillips Chemical Company LP.
4. The pipe supplier must certify compliance with the above requirements.

2.4 PIPE IDENTIFICATION:

A. The following shall be continuously indent printed on the pipe or spaced at intervals not exceeding 5-feet:

1. Name and/or trademark of the pipe manufacturer.
2. Nominal pipe size.
3. Dimension ratio.
4. The letters PE followed by the polyethylene grade in accordance with ASTM
5. D1248 followed by the hydrostatic design basis in 160's of psi, e.g., PE 4710.
6. Manufacturing standard reference, e.g., ASTM F714 or D-3035, as required.
7. A production code from which the date and place of manufacture can be determined.
8. Color Identification, either striped by co-extruding longitudinal identifiable color markings or shall be solid in color and as follows:
   a. BLUE – Potable Water
   b. GREEN – Sanitary Sewer
   c. LAVENDER – IQ cover all

B. Tracing Wire: Tracing Wire shall be THHN solid copper, 10 AWG Soloshot Extra-High Strength (Blue in Color). The wire shall be taped and strapped to the carrier pipe every 10 feet along the pipeline to prevent separation.

C. Marking Tape: Marking tape shall be installed per Engineer approval.

PART 3 - EXECUTION

3.1 JOINTING METHOD:

A. The pipe shall be joined with butt, heat fusion joints as outlined in ASTM 2657 and conform to the Generic Butt Fusion Joining Procedure for Field Joining of Polyethylene Pipe, Technical

Report TR-33/2005, published by the Plastic Pipe Institute (PPI). All joints shall be made in strict compliance with the manufacturer's recommendations. A factory qualified joining technician as designated by pipe manufacturer or experienced, trained technician shall perform all heat fusion joints in the presence of the inspector.

B. Lengths of pipe shall be assembled into suitable installation lengths by the butt fusion process. All pipe so joined shall be made from the same class and type of raw material made by the same raw material supplier. Pipe shall be furnished in standard laying lengths not to exceed 50 feet and no shorter than 20 feet.

C. On days butt fusions are to be made, the first fusion shall be a trial fusion in the presence of an inspector. The following shall apply:

1. Heating plates shall be inspected for cuts and scrapes. The plate temperature shall be measured at various locations to ensure proper heating/melting per manufacturer's recommendations and approval by the Inspector.
2. The fusion or test section shall be cut out after cooling completely for inspection.
3. The test section shall be 12" or 30 times (minimum) the wall thickness in length and 1" or 1.5 times the wall thickness in width (minimum).
4. The joint shall be visually inspected as to continuity of "beads" from the melted material, and for assurance of "cold joint" prevention (i.e. – joint shall have visible molded material between walls of pipe). Joint spacing between the walls of the two ends shall be a minimum of 1/16" to a maximum 3/16".

D. The polyethylene flange adapters at pipe material transitions shall be backed up by stainless steel flanges conforming to ANSI B16.1 and shaped as necessary to suit the outside dimensions of the pipe. The flange adapter assemblies shall be connected with corrosion resisting bolts and nuts of Type 316 Stainless Steel as specified in ASTM A726 and ASTM A307. All bolts shall be tightened to the manufacturer's specified torques. Bolts shall be tightened alternatively and evenly. After installation apply a bitumastic coating to bolts and nuts.

3.2 INSTALLATION:

A. High Density Polyethylene (HDPE) Pipe shall be installed in accordance with the instruction of the manufacturer, as shown on the Drawings and as specified herein. A factory qualified joining technician as designated by the pipe manufacturer shall perform all heat fusion joints.

B. HDPE shall be installed either by Open Trench Construction or Directional Bore Method.

C. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe. Pipe or fitting shall not be dropped. All pipe or fitting shall be examined before installation, and no piece shall be installed which is found to be defective. Any damage to the pipe shall be repaired as directed by the Engineer. If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner by the contractor, at his own expense.

D. Under no circumstances shall the pipe or accessories be dropped into the trench or forced through a directional bore upon "pull-back".

E. Care shall be taken during transportation of the pipe such that it will not be cut, kinked or otherwise damaged.

F. Ropes, fabric or rubber protected slings and straps shall be used when handling pipes. Chains, cables or hooks inserted into the pipe ends shall not be used. Two slings spread apart shall be used for lifting each length of pipe.

G. Pipes shall be stored on level ground, preferably turf or sand, free of sharp objects, which could damage the pipe. Stacking of the polyethylene pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature conditions. Where necessary due to ground conditions, the pipe shall be stored on wooden sleepers, spaced suitably and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

H. Pipe shall be stored on clean level ground to prevent undue scratching or gouging. The handling of the pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. The maximum allowable depth of cuts, scratches or gouges on the exterior of the pipe is five (5) percent of wall thickness. The interior pipe surface shall be free of cuts, gouges or scratches. Pipe shall be laid to lines and grade shown on the Drawings with bedding and backfill as shown on the Drawings.

I. Pipe shall be laid to lines and grade shown on the Drawings with bedding and backfill as shown on the Drawings.

J. When laying is not in progress, the open ends of the pipe shall be closed by fabricated plugs, or by other approved means. Plywood sheets shall not suffice.

K. Sections of pipe with cuts, scratches or gouges exceeding 5 percent of the pipe wall thickness shall be removed completely and the ends of the pipeline rejoined.

L. The pipe shall be joined by the method of thermal butt fusion, as outlined in PART 3 – Execution, Section 3.1 Joining Method. All joints shall be made in strict compliance with the manufacturer's recommendations.

M. Mechanical connections of the polyethylene pipe to auxiliary equipment such as valves, pumps and tanks shall be through flanged connections which shall consists of the following:

1. A polyethylene flange shall be thermally butt-fused to the stub end of the pipe.
2. A type 316 stainless steel back up ring shall mate with a 316 stainless steel flange.
3. Type 316 stainless steel bolts and nuts shall be used.

N. Flange connections shall be provided with a full-face neoprene gasket.

O. All HDPE pipe must be at the temperature of the surrounding soil at the time of backfilling and compaction.

P. If a defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner at no additional cost to the Owner. All pipe and fittings shall be thoroughly cleaned before installation, shall be kept clean until they are used in the work and when laid, shall conform to the lines and grades required.

Q. Open Trench Installation:

1. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16-in per foot of length. If a piece of pipe fails to meet this requirement check for straightness, it shall be rejected and removed from the site. Laying instructions of the manufacturer shall be explicitly followed.
2. Good alignment shall be preserved during installation. Deflection of the pipe shall occur only at those places on design drawings and as approved by the Engineer. Fittings, in addition to those shown on the Drawings, shall be used only if necessary or required by the Engineer.
3. Each length of the pipe shall have the assembly mark aligned with the pipe previously laid and held securely until enough backfill has been placed to hold the pipe in place. Joints shall not be "pulled" or "cramped".
4. Precautions shall be taken to prevent flotation of the pipe in the trench.
5. When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be taken in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and the backfill. Trench boxes, moveable sheeting, shoring or plates shall not be allowed to extend below top of the pipe. As trench boxes, moveable sheeting, shoring or plates are moved, pipe bedding shall be placed to fill any voids created and the backfill shall be recompacted to provide uniform side support for the pipe.
6. Restrained joints shall be installed where shown on the Drawings or as directed by the Engineer.

R. Directional Bore Installation:

1. Refer to Specification 33 0523.13 – Horizontal Directional Drilling in its entirety.

3.3 CLEANING:

A. At the conclusion of the work, thoroughly clean all of the new pipe lines to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period by forcing a cleaning swab through all mains 6" or greater. Flushing velocities shall be a minimum of 2.5 feet per second. All flushing shall be coordinated with Inspector and the Owner. Debris cleaned from the lines shall be removed from the job site.

3.4 TESTING:

A. Pressure testing shall be conducted per Manufacturer's recommendations and as approved by the Engineer.

B. All HDPE water mains shall be disinfected prior to pressure testing as per specification, Section 33 1400.

C. All HDPE mains shall be field-tested. Contractor shall supply all labor, equipment, material, gages, pumps, meters and incidentals required for testing. Each main shall be pressure tested upon completion of the pipe laying and backfilling operations, including placement of any required temporary roadway surfacing.

D. All mains shall be tested at 150 percent of the operating design pressure of the pipe unless otherwise approved by the Engineer.

E. Pressure testing procedure shall be per Manufacturer's recommendations or as follows:

1. Fill line slowly with water. Maintain flow velocity less than 2 feet per second.
2. Expel air completely from the line during filling and again before applying test pressure. Air shall be expelled by means of taps at points of highest elevation.
3. Apply initial test pressure and allow to stand without makeup pressure for two to three hours, to allow for diametric expansion or pipe stretching to stabilize.
4. After this equilibrium period, apply the specified test pressure and turn the pump off. The final test pressure shall be held for one to three hours.
5. Upon completion of the test, the pressure shall be bled off from a location other than the point where the pressure is monitored. The pressure drop shall be witnessed by the resident project representative and representative at the point where the pressure is being monitored and shall show on the recorded pressure read-out submitted to the Engineer of Record.

F. Allowable amount of makeup water for expansion during the pressure test shall conform to Chart 6, Allowance for Expansion Under Test Pressure, Technical Report TR 31/9-79, published by the Plastic Pipe Institute (PPI). If there are no visual leaks or significant pressure drops during the final test period, the installed pipe passes the test.

G. If any test of pipe laid disclosed leakage or significant pressure drop greater than the manufacturer's recommended loss, the Contractor shall, at his/her own expense, locate and repair the cause of leakage and retest the line. The amount of leakage, which will be permitted, shall be in accordance with AWWA C600 Standards.

H. All visible leaks are to be repaired regardless of the amount of leakage.

I. The Contractor must submit his plan for testing to the Engineer for review at least 10 days before starting the test and shall notify Inspector a minimum of 48 hours prior to test.

END OF SECTION