



REQUEST FOR BID

ANNUAL CONTRACT FOR GENERAL PIPE WORK

Bid Number 2017-PME-09

July 2017

**CLAYTON COUNTY WATER AUTHORITY
1600 Battle Creek Road
Morrow, GA 30260**

Bid Opening: Tuesday, August 8, 2017 at 3:00 p.m. (local time)
1600 Battle Creek Road, Morrow, Georgia 30260

**Non-Mandatory
Pre-Bid Meeting** Tuesday, July 18, 2017 at 3:00 p.m. (local time)
1600 Battle Creek Road, Morrow, Georgia 30260

This bid has a SLBE BID DISCOUNT

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None issued at this time.

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Division 1

General Information

Section 1: Request for Bids

Clayton County Water Authority
1600 Battle Creek Road
Morrow, Georgia 30260

Name of Project: **Annual Contract for General Pipe Work**

The Clayton County Water Authority will open sealed bids from licensed utility contractors at its office located at 1600 Battle Creek Road, Morrow, Georgia 30260, on **Tuesday, August 8, 2017 at 3:00 p.m. (local time)** for General Pipe Work.

Any bids received after the specified time will not be considered.

A Non-Mandatory pre-bid meeting will be held on **Tuesday, July 18, 2017 at 3:00 p.m. (local time)** at 1600 Battle Creek Road, Morrow, Georgia, 30260.

In an effort to promote responsible environmental practices the bid package is available in electronic (Adobe PDF) format and can be requested by calling **770-960-5223**, M-F, 8:00 am - 5:00 pm or by e-mail to CCWA_Procurement@ccwa.us.

A hardcopy bid package can also be requested at a cost of \$25.

Clayton County Water Authority

John Chafin, Chairman

END OF SECTION

Division 1

General Information

Section 2: General Overview

2.1 Intent and Purpose

The Clayton County Water Authority (CCWA) intends to contract for the annual services of an experienced licensed utility contractor to complete work in general on gravity-flow pipe systems larger than 24 inches in diameter and pressure-flow pipe systems larger than 8 inches in diameter.

CCWA is implementing a 10-year strategic master plan that has a large focus on replacement and renewal of our water, sewer, and stormwater pipelines. A substantial portion of the nearly \$14 million per year of planned work on these projects are executed through our annual service pipe contracts, including this contract. For annual services related pipe work, it has been our experience over the last several years that we have kept a continuous assignment of work to our annual pipe contractors. For example, in fiscal year 2015, we completed 25 sewer and stormwater projects for a cost of nearly \$3.4 million. In fiscal year 2016, we completed 32 sewer and stormwater projects for a cost of nearly \$4.1 million. CCWA anticipates that the annual value of work to be completed through this contract will be in the range of 1 to 2 million dollars.

The CCWA reserves the right to award to a Primary Contractor, as well as Back-Up Contractor(s) to ensure that our requests under this annual contract can be performed as needed.

The work to be performed under this contract will be determined and assigned by CCWA on an “as-needed”, “when-needed” basis, and will be issued in the form of a Project Work Order. A Project Work Order may include a single work item or may include a number of work items.

CCWA does not guarantee any minimum or maximum work quantities under this contract and reserves the right to bid or procure by other means any similar type work of this contract as a separate procurement at its sole discretion.

Where a Project Work Order in an amount of \$100,000 or more, for work considered “Public Works” is issued as defined by O.C.G.A. § 36-91-2, Payment and Performance Bonds will be required prior to the commencement of that work.

Division 1

General Information

Section 2: General Overview

The initial term of this contract will be for twelve (12) months. The contract may be extended for a second and third 12 month period by mutual written consent by both parties with no changes in the terms and conditions.

2.2 Bid Evaluation

A contract will be awarded to the lowest responsive responsible bidders whose bid conforms to the Request for Bids specifications, and will be the most advantageous to the CCWA. An evaluation will also be performed to ensure bidder complies with the required submittals. Determination of best responsive responsible bidder will be the sole judgment of the CCWA.

To be considered responsive to this bid, bidders are required to bid on all work items listed on the Bid Form – Pay Item Schedule.

The Bid Form – Pay Item Schedule shows estimated quantities to be used under this contract. The quantities have been provided to establish unit costs; however, they will not be considered for evaluation purposes.

To evaluate the bids, CCWA will use a separate list with selected work items and estimated quantities that represent typical jobs, which will be provided at the bid opening.

Note that not all “work items” as shown on the Bid Form - Pay Item Schedule will be used in the bid evaluation process. Work items on the Bid Form – Pay Item Schedule not used in the award evaluation process will be examined by the CCWA to insure that the units prices are in line with comparable items contained in this bid and that any unit price that appears to be out of line may be used by the CCWA as a basis of denial/award of the particular bid, and/or the unit price may be negotiated by CCWA. This determination will be at the sole discretion of CCWA.

Small Local Business Enterprise (SLBE) bid discount:

This procurement has a SLBE bid discount for evaluation purposes only, which will be given to CCWA certified SLBE primes only. For more details, please refer to Division 2, Section 8 of this bid package.

Division 1

General Information

Section 2: General Overview

2.3 Addendum

Bidders may submit questions regarding this bid prior to the bid opening. To be considered, all questions must be received in writing via email at **(CCWA_Procurement@ccwa.us)** by **Friday, July 28, 2017 at 3:00 p.m. (local time)**. Any and all responses to bidders' questions will be issued in the form of an Addendum by email. All addenda issued shall become part of the Bid Documents.

END OF SECTION

Division 2

Bid Requirements

Section 1: Instructions to Bidders

These instructions are to be followed by every entity bidding to provide the Clayton County Water Authority (CCWA) with goods and/or services. These instructions constitute an integral part of the Bid, and any Bidder agrees that tender of a Bid constitutes acknowledgment and acceptance of its obligation to adhere to these instructions, which are to be incorporated into and considered part of any contract the Bidder ultimately executes with the CCWA.

1. If there is any question whatsoever regarding any portion of the specifications, it shall be the Bidder's responsibility to seek clarification immediately from the CCWA, as early as possible prior to the bid opening. Regarding public works projects, requests for interpretations of specifications must be made in writing to the department proposing out the project not later than five (5) days prior to receipt of bids.
2. Unless it is otherwise stated in the bid documents, it shall be the responsibility of the bidder to inform itself as to all conditions of the work site and to make and take account thereof in calculating and submitting its bid. Documents may be made available by the CCWA during the bidding process; no warranty of accuracy is made in regard to these documents, and it is the responsibility of the bidder to make its own investigations as to the nature of the work and the conditions under which it shall be performed, and to make its own independent assumptions as to these matters. The burden of anticipating unforeseen circumstances, either hidden or latent, and the conditions of the work site and all related circumstances, and the cost of accommodating therefore should unanticipated circumstances be later encountered shall rest upon the bidder.
3. Pre-bid meeting or any other information session will be held at the location as indicated in the solicitation. Unless indicated otherwise, attendance is not mandatory; although vendors are strongly encouraged to attend. However, in the event the meeting is mandatory, then a representative of the vendor must attend the meeting in its entirety to be considered eligible for solicitation award. Late entry to the meeting will not be allowed.
4. In the event that, after the acceptance of a bid by the Board of Directors of the CCWA, any unsuccessful bidder wishes to contest such action, a written "Notice of Contest" must be filed with the General Manager no later than close of business on the 5th business day after the selection of successful bidder by the Board. Failure to timely file such notice shall forever preclude the filing of a contest of the award, or any civil action in the courts of the State of Georgia or of the United States.

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5. Information submitted by the Bidder in the bid process shall be subject to disclosure after bid award in accordance with the Georgia Open Records Act. Proprietary information must be identified and be accompanied by a signed affidavit outlining the redacted information. Entire bids may not be deemed proprietary.
6. Bids must be made on the enclosed Bid Form. Unless otherwise requested, one (1) original and at least two (2) copies of the Bid Form need to be submitted, and these copies must be **typewritten or printed in ink**. All copies of any Bid Forms must be signed in ink by the person or persons authorized to sign the Bid Form. The person signing the Bid Form must initial any changes or corrections.
7. The name of the person, firm, or corporation making the Bid must be printed in ink, along with the Bidder's signature, on all separate sheets of the Bid Form. If a Bid is made by an individual, his name and post office address must be shown. If made by a firm, or partnership, the name and the post office address of each member of the firm or partnership must be shown. If made by a Corporation, the person or persons signing the Bid must show the name of the State under the laws of which the Corporation is chartered and his, or their authority for signing same. The names, titles and addresses of the President, Secretary and the Treasurer and the corporate authority for doing business in this state shall be listed and returned with the Bid Form.
8. All Bids must be hand delivered, delivered by courier service, or mailed via the United States Postal Service. No facsimiles will be accepted. The person, firm, or corporation making the Bid shall submit it in a sealed envelope on or before the date and time specified in the Bid package. The envelope shall be marked "**Sealed Bid**" and carry the Bid title, and date and time of opening as set forth in the Bid package. The envelope shall also bear the name of the party making the Bid and the party's address. Address Bids to *Clayton County Water Authority, 1600 Battle Creek Road, Morrow, Georgia, 30260*. Even if a Bid is not submitted, the Bid Form should be returned signed and with an explanation, otherwise the result will be deletion from the mailing list.
9. If published price books are a part of your Bid, one price book must be included with your Bid Form, and the successful Bidder is required to furnish additional current price books after award of the Bid.
10. Alterations to the documents are strictly prohibited and shall result in automatic disqualification of the Bidder's bid. If there are "exceptions" to the specifications or comments to any of the solicitation requirements or other language, then the bidder

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Bid Requirements

Section 1: Instructions to Bidders

may ask questions regarding those requirements or submit additional documentation as to the variation from the specifications, but may not alter any of the language contained in the solicitation.

11. In the case of goods, the person, firm or corporation making the Bid may Bid all items. All items may be considered separately, at the discretion of the CCWA.
12. Bids for public works whose price exceeds \$100,000.00 must be accompanied by a certified check, cashier's check, or acceptable bid bond in an amount not less than five percent (5%) of the amount bid.
13. Bidders for construction contracts where the laws of Georgia or the United States of America require a license in order to perform such construction must list the license number and class on the face of the bid envelope and must enclose copies of any required license with the bid.
14. When public work is let out for bid, no person shall prevent or attempt to prevent competition in such bid. Such bidders must make an oath filed with the officer who makes payments under the contract that they have not prevented or attempted to prevent competition in the bid process. Such oath must be signed by: if a partnership, all partners and any officer or agent or other person who acted on the partnership's behalf during the bid process; if a corporation, all officers, agents, or other persons who acted for the corporation in the bid process.
15. Bids shall not be withdrawn or cancelled by the bidder past the bid opening date and time. The bidder may make modifications/corrections to the bid by submitting a corrected seal bid but only if the change is prior to the bid opening. The corrected document should be clearly marked that it supersedes the bid originally submitted. No modification or corrections will be allowed subsequent to the bid opening.
16. By tendering a bid, a Bidder agrees to leave the bid open for acceptance by the CCWA for ninety (90) days after the date set for the opening thereof.
17. By tendering a bid, the bidder certifies that the bidder has carefully examined these instructions and the terms and specifications applicable to and made a part of the bid. The Bidder further certifies that the prices shown in any schedule of items on which the Bidder is proposing are in accordance with the conditions, terms and specifications of the bid and that they are aware that any exception taken thereto may disqualify the bid. Bidders are required to inform themselves fully as to the availability of materials and the conditions relating to construction and labor under which any work will be or is now being performed. No error or misjudgment nor any

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Section 1: Instructions to Bidders

lack of information on local conditions, general laws or regulations on the part of the Bidder shall merit withdrawal of the bid.

18. Copies of all communication pertaining to bids must be sent to the Contracts, Compliance and Risk Management Section.
19. The purpose of this bid is to establish contract prices. Unit price extension and net total must be shown if applicable. Cash discounts should be indicated separately. The CCWA is exempt from federal or state sales taxes; do not include such amounts in the bid. Exemption certificates are furnished upon request.
20. Bidders are hereby notified and agree by submission of a Bid Form that if additional items not listed in the Bid Form become necessary and require unit prices not established by the Bid Form, the unit prices of such items shall be negotiated and shall be directly proportional to the established unit prices of similar items in the Bid Form.
21. All prices on goods shall be for delivery, our destination, f.o.b. freight prepaid Jonesboro, Georgia, and/or Morrow, Georgia, unless otherwise shown. Any deliveries shall be made as needed and requested throughout the contract period.
22. Quantities when shown are estimates only, based on anticipated needs. The CCWA reserves the right to purchase more or less based on actual need at contract price. If a Bidder intends to offer minimum or maximum shipment quantities, such intent and such quantities should be specified on the Bid Form. Otherwise, none will be assumed.
23. The time for completion of the work is stated in the Bid Form. Failure to complete the work within this period shall result in payment to the CCWA of liquidated damages in an amount provided for by contract for each calendar day in excess of the Contract time.
24. The Bidder must employ such methods and means in carrying out the work as will not cause any interruption of or interference with any other Contractor.
25. The successful Bidder must comply with the applicable Risk Management Requirements prior to beginning performance, and during the contract period.
26. The Contract between the CCWA and the Contractor shall be executed on a form provided by CCWA and will be subject to all requirements of the contract documents (which include but may not be limited to the Contract, these

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instructions, any Purchase Orders, and the Risk Management Requirements), and shall form a binding contract between the contracting parties.

27. Failure to execute the Contract, any required Surety Performance and Payment Bonds, or to furnish any required satisfactory proof of carriage of required insurance within ten (10) days from the date of notice of award of the Contract shall be just cause for the annulment of the award and for forfeiture of the bid guaranty to the CCWA, not as a penalty, but in liquidation of damages sustained. At the discretion of the CCWA, the award may then be made to the next lowest responsible vendor, or the work may be re-advertised or constructed by the CCWA.
28. Any Contract and Contract Bonds shall be executed in duplicate.
29. Award of this bid shall be by action of the CCWA Board at its regular monthly meeting.
30. The CCWA reserves the right, with or without notice or cause, to accept any bid regardless of the amount thereof; to reject any bid, or any number of bids; to negotiate with any Bidder for a reduction of or alterations in its bid; to reject all bids and to call for additional bids upon the same or different invitations to bid, plans or specifications; to be sole judge, in its discretion, on all questions as to whether or not a bid complies with the invitation to Bid, the plans or the specifications, and as to the solvency and sufficiency of any and all sureties on all bonds.
31. The apparent low bid for goods shall be considered to be the lowest aggregate total price of specified products at their unit prices times the estimated required quantities of these specified products.
32. Bids received from two (2) or more vendors that are identical in price, delivery and meet the requirements of the bid specifications shall be awarded on the following basis:
 - a. The bid submitted by a vendor who does not have a documented negative vendor performance record.
 - b. The bid submitted by a vendor who is located within Clayton County.
 - c. The bid submitted by a vendor who is certified by our Small Local Business Enterprise Program.
 - d. If the tie bids meet all the above criteria, and it is not in the Authority's best interest (at its sole discretion) to split the award, the bid award is based on the toss of a coin by CCWA staff in a public session. The vendors involved will be

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Section 1: Instructions to Bidders

invited to attend the coin toss at a stated date and time. One or more witnesses from both CCWA Procurement and the Requesting Department may be present. A simple coin toss (called by the vendor listed first in the alphabet) will break the tie and decide the award.

33. While price is the prime criteria, and the CCWA intends to purchase at the lowest responsible bid available, price shall not be the sole criteria utilized by the CCWA in evaluating the bid package submitted. The following criteria shall also be utilized by the CCWA in determining the lowest responsible bid:
 - a. Ability of Bidder to perform in the time frame needed by the CCWA.
 - b. Reputation of the Bidder in its industry.
 - c. Reasonableness of the bid in relation to anticipated costs.
 - d. Ongoing relationships with the CCWA based on above-average prior performance of work with the Authority.
34. Bidders are notified that the Authority reserves the right except in the case of public works contracts to include among the factors considered in awarding the contract the proximity of each Bidder's place of business to any affected Authority facility. The Authority further reserves the right to award the contract to a Bidder other than the Bidder offering the lowest price where: (a) the difference in price between the low Bidder and the preferred Bidder is nominal; and (b) the Authority's Board determines that the preferred bid provides the most cost effective option due to the closer proximity of the preferred Bidder's place of business to the affected Authority facility or facilities. In such a situation, by responding to this bid, the Bidder waives any cause of action against the Authority for frustration of bid or under any similar legal theory; furthermore, the Bidder agrees to pay all costs and expenses, including but not limited to attorney fees, incurred by the Authority in defending against any such claim.
35. It is the policy of the Clayton County Water Authority (CCWA) to promote award of sub-agreements for goods and/or services to qualified small local, minority and women-owned businesses. Bidders are encouraged to solicit small local, minority and women-owned businesses whenever they are potential sources.
36. Bidders are encouraged to utilize the services and assistance of the U.S. Small Business Administration (SBA), and the office of the Department of Commerce Minority Business Development Agency (MBDA). These agencies can provide assistance in securing the names of qualified minority and women-owned businesses. Additionally, it is encouraged that bidders access certified Small Local

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Section 1: Instructions to Bidders

Business Enterprise (SLBE) vendors from Clayton County, DeKalb County, and City of Atlanta.

The Georgia Department of Transportation (DOT) has established a list of qualified Disadvantaged Business Enterprises. Information is available online under the tab for "Directories", link for "UCP Directory - Excel" at:

<http://www.dot.ga.gov/PS/Business/DBE>.

The successful Bidder will be asked to provide, along with his Request for Payment each month a list of qualified SLBE and MBE/WBE businesses utilized on this Project.

GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT OF 2006

37. Pursuant to the Georgia Security and Immigration Compliance Act of 2006, the successful Contractor understands and agrees that compliance with the requirements of O.C.G.A.13-10-91 and Georgia Department of Labor Rule 300-10-02 are conditions of this bid and contract document. The Contractor further agrees that such compliance shall be attested by the Contractor and any of his Subcontractors by execution of the appropriate Affidavit and Agreement included after the Agreement Form of these documents.

END OF SECTION

Division 2

Bid Requirements

Section 2: Risk Management Requirements

The Contractor will provide minimum insurance coverage and limits as per the following: The Contractor will file with the Authority Certificates of Insurance, certifying the required insurance coverages and stating that each policy has been endorsed to provide thirty (30) day notice to the Authority in the event that coverage is cancelled, non-renewed or the types of coverage or limits of liability are reduced below those required. All bonds and insurance coverage must be placed with an insurance company approved by Authority Management, admitted to do business in the State of Georgia, and rated Secure ("B+" or better) by A.M. Best Company in the latest edition of Property and Casualty Ratings, or rated by Standard & Poors Insurance Ratings, latest edition as Secure ("BBB" or better). Worker's Compensation self-insurance for individual Contractors must be approved by the Worker's Compensation Board, State of Georgia and/or Self-Insurance pools approved by the Insurance Commissioner, State of Georgia.

CONTRACTS FOR UP TO \$50,000

Worker's Compensation – Worker's Compensation coverage on a statutory basis for the State of Georgia with an Employer's Liability limit of \$100,000 each Accident, Disease \$100,000 each employee, \$500,000 Disease policy limit.

Automobile Liability – Automobile liability coverage for owned, hired and non-owned vehicles in the amount of \$500,000 combined single limit.

Commercial General Liability – Coverage to be provided on "occurrence" not "claims made" basis. The coverage is to include Contractual liability, Per Project Limit of Liability, losses caused by Explosion, Collapse and Underground ("xcu") perils, the "Clayton County Water Authority" is to be added as an Additional Insured and Products and Completed Operations coverage is to be maintained for three (3) years following completion of work.

CONTRACTS FOR MORE THAN \$50,000

Worker's Compensation – Worker's Compensation coverage on a statutory basis for the State of Georgia with an Employer's Liability limit of \$1,000,000. The increased Employer's Liability limit may be provided by an Umbrella or Excess Liability policy.

Automobile Liability - Automobile liability coverage for owned, hired and non-owned vehicles in the amount of \$1,000,000 combined single limit.

Commercial General Liability – Coverage to be provided on "occurrence" not "claims made" basis. The coverage is to include Contractual liability, Per Project Limit of Liability, losses caused by Explosion, Collapse and Underground ("xcu") perils, the "Clayton County Water Authority" is to be added as an Additional Insured and Products and Completed Operations coverage is to be maintained for three (3) years following completion of work.

Division 2

Bid Requirements

Section 2: Risk Management Requirements

CONTRACTS FOR UP TO \$50,000

CONTRACTS FOR MORE THAN \$50,000

LIMITS OF LIABILITY:

\$1,000,000	Per Occurrence
\$1,000,000	Personal and Advertising
\$50,000	Fire Damage*
\$5,000	Medical Payments*
\$1,000,000	General Aggregate
\$1,000,000	Products/Completed Operations per Occurrence and Aggregate

**These are automatic minimums*

Owner's Protective Liability – The Authority's Management may, in its discretion, require Owner's Protective Liability in some situations.

Umbrella and/or Excess Liability – The umbrella or Excess Liability Policy may be used to combine with underlying policies to obtain the limits required. The Management of the Authority may elect to require higher limits.

Owner's Protective Liability – The Authority's Management may, in its discretion, require Owner's Protective Liability in some situations.

Division 2

Bid Requirements

Section 3: Bid Submittals

3.1 Required Bid Submittals:

The following items are required to be included as part of the bid submittal. Failure to include any of these items may result in the bid being deemed non-responsive:

- A. Bid Form – Pay Item Schedule. Bidders must submit a hard copy of their completed and signed Bid Form, as well as a duplicate copy by electronic version. The electronic version must be in MS Excel and must be submitted on a CD or a flash drive. Bidders are responsible for submitting their electronic version on their self-provided CD or flash drive. The Clayton County Water Authority will provide the Excel file upon requests emailed to **ccwa_procurement@ccwa.us**. In case of any discrepancies between the hard copy version and the electronic version, the hard copy version will govern.

Due to the volume of the items on the bid form, no bid amounts will be read out loud at the bid opening; however, copies of the paper submittals will be provided upon request.

- B. Georgia Bid Bond in the amount of Five Thousand Dollars (\$5,000.00).
- C. Bidder Qualification Information, including References. Failure to provide satisfactory references will result in the bid being deemed non-responsive.
- D. Georgia Security and Immigration Compliance Act of 2006 form.
- E. Contractor Affidavit and Agreement form.
- F. Subcontractor Affidavit form.

If a Contractor/Subcontractor will not be performing any services under this contract, the Contractor/company submitting the bid MUST also complete, sign, date, and have both Affidavit forms notarized and make proper notation of "N/A" - Not Applicable.

Clayton County Water Authority (CCWA) cannot consider any bid which does not include completed affidavits. It is not the intent of this notice to provide detailed information or legal advice concerning the Georgia Security & Immigration Compliance Act of 2006, as amended on May 11, 2009. All Bidders intending to do business with CCWA are responsible for independently apprising themselves and complying with the requirements of that law and its effect on CCWA procurements and their participation in those procurements.

Division 2

Bid Requirements

Section 3: Bid Submittals

- G. List of Subcontractor(s) and their role to be used with Annual Contract.
- H. List of Contractor's **owned equipment** to be used with Annual Contract.
- I. List of Contractor's personnel to be used with Annual Contract.
- J. Copy of the Contractor's Georgia Utility Contractor License.
- K. Letter from Surety Company indicating Contractor's bonding capacity.
- L. Addenda (if any issued).

END OF SECTION

Division 2

Bid Requirements

Section 4: Bid Form

Bid of _____
(Hereinafter "Bidder"), organized and existing under the laws of the State of _____,

doing business as _____ (insert "a corporation," "a partnership," or "an individual" or such other business entity designation as is applicable).

To the Clayton County Water Authority (hereinafter "Owner").

In compliance with the Request for Bids, Bidder hereby proposes to perform all Work for **Annual Contract for General Pipe Work** in strict accordance with the Contract Documents as enumerated in the Request for Bids, within the time set forth therein, and at the prices stated below.

By submission of this bid, Bidder certifies, and in the case of joint bid each party thereto certifies as to the party's own organization that this bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this bid with any other Bidder or with any competitor. Bidder also certifies compliance with the Instructions to Bidders.

In submitting this bid, Bidder certifies Bidder is qualified to do business in the state of Georgia as required by laws, rules, and regulations or, if allowed by statute, covenants to obtain such qualification prior to contract award.

CONTRACT EXECUTION AND BONDS:

The undersigned Bidder agrees, if this bid is accepted, to enter into an Agreement with OWNER on the form included in the Documents to perform and furnish Work as specified or indicated in the Documents for the Contract Price derived from the bid and within the times indicated herein and in accordance with the other terms and conditions of the Documents.

Bidder accepts the terms and conditions of the Documents.

INSURANCE:

Bidder further agrees that bid amount(s) stated herein includes specific consideration for the specified insurance coverages.

Division 2

Bid Requirements

Section 4: Bid Form

CONTRACT TIME:

Bidder hereby agrees to execute the agreement within fourteen (14) calendar days of Notice of Award or as specified by CCWA. Each individual project work order shall be completed within the time period as agreed to by both parties at the time of the individual project work order issuance. If said work is not completed within the time frame stated on the individual project work order, the Contractor shall be liable to pay to the Owner, as liquidated damages the amount of \$500.00 per calendar day for each and every day or part of a day thereafter that said work remains substantially incomplete for that particular individual project work order.

BID:

The undersigned proposes to complete, in all respects, sound and conformable with this Contract Document the work for the amounts as shown on the following Pay Item Schedule.

ADDENDA:

Bidder acknowledges receipt of the following Addenda:

SURETY:

If Bidder is awarded an individual project work order for a Public Works project that is \$100,000 or more in value the Contractor under this construction contract for this Bid, will be required to provide Performance and Payment Bonds prior to the commencement of that individual project work order. Such work shall not commence until proper approval of such bonds has been given by CCWA.

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
1	Mobilization	Lowboy Service	24	EA	
2	Mobilization	Emergency	1	EA	
3	Performance and Payment Bonds	For Project Work Orders of \$100,000 to \$125,000	8	EA	
4		For Each Additional \$25,000 Increase	5	EA	
5	Traffic Control County Road	Lane Closures - Up to 4 hours / per day	5	EA	
6		Lane Closures - Greater than 4 hours / per day	8	EA	
7		Road Closure - Up to 4 hours / per day	5	EA	
8		Road Closure - Greater than 4 hours / per day	30	EA	
9	Traffic Control State Road	Lane Closures - Up to 4 hours / per day	1	EA	
10		Lane Closures - Greater than 4 hours / per day	1	EA	
11		Road Closure - Up to 4 hours / per day	1	EA	
12		Road Closure - Greater than 4 hours / per day	1	EA	
13	Construction Exit	N/A	4	EA	
14	Sediment Barrier Installation	Silt Fence - Type A	3,000	LF	
15		Silt Fence - Type C	1,000	LF	
16		Hay Bale	300	LF	
17	Sediment Barrier Removal	N/A	4,300	LF	
18	Curb Inlet Sediment Trap	N/A	5	EA	
19	Soil Stabilization	Straw Mulching	500	SF	
20		Seed and Straw Mulch	100,000	SF	
21		Seed and Matt Blanket	5,000	SF	
22		Sod	10,000	SF	
23	Hauling Material from Outside of County	N/A	8	HR	
24	Tree Removal	4 inch to 6 inch diameter	15	EA	
25		Greater than 6 inch to 12 inch diameter	15	EA	
26		Greater than 12 inch to 24 inch diameter	10	EA	
27		Greater than 24 inch to 36 inch diameter	2	EA	
28	Easement Clearing	N/A	75,000	SF	
29	Fence Work	Chain-Link / Wire Removal or Reinstall	500	LF	
30		Wood Removal or Reinstall	500	LF	
31	General Excavation	Up to 6 feet deep	20,000	CF	
32		Greater than 6 feet to 10 feet deep	2,000	CF	
33		Greater than 10 feet to 14 feet deep	1,000	CF	
34		Greater than 14 feet to 18 feet deep	200	CF	
35	General Excavation	Rock	2,000	CF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
36	General Fill / Backfill	Fill Dirt	4,000	CF	
37		Sand	500	CF	
38		Crushed Stone / Graded Aggregate Base	10,000	CF	
39		#3, #4, #34, #5, #57 and #89 Stone	40,000	CF	
40		Surge Stone	500	CF	
41		Rip-Rap Stone Type III	2,500	CF	
42	Stone Placement Crushed Stone / Graded Aggregate Base	6 inch thick layer	8,000	SF	
43		2 inch thick increment	400	SF	
44	Stone Placement #3, #4, #34, #5, #57 and #89 Stone	6 inch thick layer	3,000	SF	
45		2 inch thick increment	200	SF	
46	Stone Placement Surge Stone	Surge Stone 6 inch thick layer	2,000	SF	
47		6 inch thick increment	200	SF	
48	Stone Placement Type III Rip-Rap	Type III Rip-Rap Stone 12 inch thick layer	8,000	SF	
49		12 inch thick increment	2,000	SF	
50	Stone Placement Type 1 Rip-Rap	Type 1 Rip-Rap	800	SF	
51	Gabion Basket Installation	N/A	4,000	CF	
52	Geotextile Fabric Installation	N/A	4,000	SF	
53	Pavement – Remove Asphalt	Up to 4 inch thick layer	4,000	SF	
54	Pavement – Remove Asphalt	Greater than 4 inch to 8 inch thick layer	10,000	SF	
55	Pavement – Remove Asphalt	Greater than 8 inch to 12 inch thick layer	200	SF	
56	Pavement – Remove Asphalt	Greater than 12 inch thick layer	200	SF	
57	Pavement – Remove Concrete Flat Work	Up to 4 inch thick layer	5,000	SF	
58	Pavement – Remove Concrete Flat Work	Greater than 4 inch to 8 inch thick layer	2,000	SF	
59	Pavement – Remove Concrete Flat Work	Greater than 8 inch to 12 inch thick layer	100	SF	
60	Pavement – Remove Concrete Flat Work	Greater than 12 inch thick layer	50	SF	
61	Pavement – Remove Concrete Flat Work	Curb and Gutter	1,000	LF	
62	Pavement – Milling	Up to 1500 SF	1	EA	
63		Additional Square Footage	1,000	SF	
64	Pavement – Asphalt Patching	3 inch thick layer	14,000	SF	
65		1 inch thick increment	2,000	SF	
66	Pavement – Asphalt Paving	3 inch thick layer	4,000	SF	
67		1 inch thick increment	2,000	SF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
68	Pavement – Concrete Flatwork	Up to 4 inch thick layer	2,500	SF	
69		Greater than 4 inch to 6 inch thick layer	2,500	SF	
70		Greater than 6 inch to 8 inch thick layer	2,500	SF	
71		Greater than 8 inch to 10 inch thick layer	100	SF	
72		Wire Mesh	200	SF	
73		Steel Reinforcement	300	LF	
74	Pavement – Curb and Gutter Replacement	Up to 24 inch width, square back	700	LF	
75		Up to 24 inch width, roll back	300	LF	
76	Pavement – Catch Basin Spillway Throat	N/A	100	LF	
77	Pavement – Line Striping	Up to 6 inch wide	1,000	LF	
78		24 inch wide	20	LF	
79	Pavement – Marking	Handicap Symbol	1	EA	
80	Pavement – Pressure Washing	N/A	500	SF	
81	Pumping 4-inch Pump	Single Pump System	50	DY	
82		Redundant Pump System	10	DY	
83	Pumping 6-inch Pump	Single Pump System	8	DY	
84		Redundant Pump System	4	DY	
85	Pumping 8-inch Pump	Single Pump System	6	DY	
86		Redundant Pump System	6	DY	
87	Pumping 10-inch Pump	Single Pump System	2	DY	
88		Redundant Pump System	2	DY	
89	Pumping 12-inch Pump	Single Pump System	2	DY	
90		Redundant Pump System	2	DY	
91	Pipe Installation - Open Cut Copper (Type "K") Up to 1-inch	Installation / Replacement	10	EA	
92		Additional Footage	30	LF	
93	Pipe Installation - Augered Copper (Type "K") Up to 1-inch	Installation / Replacement	10	EA	
94		Additional Footage	20	LF	
95	Pipe Installation - Open Cut Copper (Type "L") 1-1/2 to 2-inch	Up to 6 feet deep	300	LF	
96		Greater than 6 feet to 10 feet deep	20	LF	
97		Greater than 10 feet deep	20	LF	
98	Pipe Installation - Augered Copper (Type "L") 1-1/2 to 2-inch	Up to 6 feet deep	200	LF	
99		Greater than 6 feet to 10 feet deep	20	LF	
100		Greater than 10 feet deep	20	LF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
101	Pipe Installation - Open Cut PVC up to 8-inch	Point Repair, up to 6 feet deep	5	EA	
102		Point Repair, greater than 6 feet to 10 feet deep	2	EA	
103		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
104		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
105		Additional Footage, up to 6 feet deep	2,000	LF	
106		Additional Footage, greater than 6 feet to 10 feet deep	200	LF	
107		Additional Footage, greater than 10 feet to 14 feet deep	20	LF	
108		Additional Footage, greater than 14 feet to 18 feet deep	20	LF	
109	Pipe Installation - Open Cut PVC greater than 8-inch to 16-inch	Point Repair, up to 6 feet deep	2	EA	
110		Point Repair, greater than 6 feet to 10 feet deep	2	EA	
111		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
112		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
113		Additional Footage, up to 6 feet deep	60	LF	
114		Additional Footage, greater than 6 feet to 10 feet deep	40	LF	
115		Additional Footage, greater than 10 feet to 14 feet deep	20	LF	
116		Additional Footage, greater than 14 feet to 18 feet deep	20	LF	
117	Pipe Installation - Open Cut PVC greater than 16-inch to 24-inch	Point Repair, up to 6 feet deep	1	EA	
118		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
119		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
120		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
121		Additional Footage, up to 6 feet deep	60	LF	
122		Additional Footage, greater than 6 feet to 10 feet deep	40	LF	
123		Additional Footage, greater than 10 feet to 14 feet deep	20	LF	
124		Additional Footage, greater than 14 feet to 18 feet deep	20	LF	
125	Pipe Installation - Open Cut PVC greater than 24-inch to 36-inch	Point Repair, up to 6 feet deep	1	EA	
126		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
127		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
128		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
129		Additional Footage, up to 6 feet deep	20	LF	
130		Additional Footage, greater than 6 feet to 10 feet deep	40	LF	
131		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
132		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
133	Pipe Installation - Open Cut DI up to 8-inch	Point Repair, up to 6 feet deep	5	EA	
134		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
135		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
136		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
137		Additional Footage, up to 6 feet deep	2,000	LF	
138		Additional Footage, greater than 6 feet to 10 feet deep	200	LF	
139		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
140		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
141	Pipe Installation - Open Cut DI greater than 8-inch to 16-inch	Point Repair, up to 6 feet deep	3	EA	
142		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
143		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
144		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
145		Additional Footage, up to 6 feet deep	1,000	LF	
146		Additional Footage, greater than 6 feet to 10 feet deep	1,000	LF	
147		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
148		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
149	Pipe Installation - Open Cut DI greater than 16-inch to 24-inch	Point Repair, up to 6 feet deep	3	EA	
150		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
151		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
152		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
153		Additional Footage, up to 6 feet deep	500	LF	
154		Additional Footage, greater than 6 feet to 10 feet deep	500	LF	
155		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
156		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
157	Pipe Installation - Open Cut DI greater than 24-inch to 36-inch	Point Repair, up to 6 feet deep	1	EA	
158		Point Repair, greater than 6 feet to 10 feet deep	2	EA	
159		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
160		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
161		Additional Footage, up to 6 feet deep	20	LF	
162		Additional Footage, greater than 6 feet to 10 feet deep	100	LF	
163		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
164		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
165	Pipe Installation - Open Cut DI greater than 36-inch to 48-inch	Point Repair, up to 6 feet deep	1	EA	
166		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
167		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
168		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
169		Additional Footage, up to 6 feet deep	5	LF	
170		Additional Footage, greater than 6 feet to 10 feet deep	5	LF	
171		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
172		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
173	Pipe Installation - Open Cut DI greater than 48-inch to 60-inch	Point Repair, up to 6 feet deep	1	EA	
174		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
175		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
176		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
177		Additional Footage, up to 6 feet deep	5	LF	
178		Additional Footage, greater than 6 feet to 10 feet deep	5	LF	
179		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
180		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
181	Pipe Installation - Open Cut RC up to 16-inch	Point Repair, up to 6 feet deep	1	EA	
182		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
183		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
184		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
185		Additional Footage, up to 6 feet deep	8	LF	
186		Additional Footage, greater than 6 feet to 10 feet deep	8	LF	
187		Additional Footage, greater than 10 feet to 14 feet deep	8	LF	
188		Additional Footage, greater than 14 feet to 18 feet deep	8	LF	
189	Pipe Installation - Open Cut RC greater than 16-inch to 24-inch	Point Repair, up to 6 feet deep	2	EA	
190		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
191		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
192		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
193		Additional Footage, up to 6 feet deep	100	LF	
194		Additional Footage, greater than 6 feet to 10 feet deep	100	LF	
195		Additional Footage, greater than 10 feet to 14 feet deep	16	LF	
196		Additional Footage, greater than 14 feet to 18 feet deep	16	LF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
197	Pipe Installation - Open Cut RC greater than 24-inch to 36-inch	Point Repair, up to 6 feet deep	2	EA	
198		Point Repair, greater than 6 feet to 10 feet deep	4	EA	
199		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
200		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
201		Additional Footage, up to 6 feet deep	48	LF	
202		Additional Footage, greater than 6 feet to 10 feet deep	48	LF	
203		Additional Footage, greater than 10 feet to 14 feet deep	48	LF	
204		Additional Footage, greater than 14 feet to 18 feet deep	16	LF	
205	Pipe Installation - Open Cut RC greater than 36-inch to 48-inch	Point Repair, up to 6 feet deep	2	EA	
206		Point Repair, greater than 6 feet to 10 feet deep	4	EA	
207		Point Repair, greater than 10 feet to 14 feet deep	4	EA	
208		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
209		Additional Footage, up to 6 feet deep	48	LF	
210		Additional Footage, greater than 6 feet to 10 feet deep	96	LF	
211		Additional Footage, greater than 10 feet to 14 feet deep	96	LF	
212		Additional Footage, greater than 14 feet to 18 feet deep	16	LF	
213	Pipe Installation - Open Cut RC greater than 48-inch to 60-inch	Point Repair, up to 6 feet deep	1	EA	
214		Point Repair, greater than 6 feet to 10 feet deep	4	EA	
215		Point Repair, greater than 10 feet to 14 feet deep	4	EA	
216		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
217		Additional Footage, up to 6 feet deep	48	LF	
218		Additional Footage, greater than 6 feet to 10 feet deep	96	LF	
219		Additional Footage, greater than 10 feet to 14 feet deep	96	LF	
220		Additional Footage, greater than 14 feet to 18 feet deep	16	LF	
221	Pipe Installation - Open Cut RC greater than 60-inch to 72-inch	Point Repair, up to 10 feet deep	1	EA	
222		Point Repair, greater than 10 feet to 14 feet deep	2	EA	
223		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
224		Additional Footage, up to 10 feet deep	48	LF	
225		Additional Footage, greater than 10 feet to 14 feet deep	96	LF	
226		Additional Footage, greater than 14 feet to 18 feet deep	96	LF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
227	Pipe Installation - Open Cut RC greater than 72-inch to 84-inch	Point Repair, up to 10 feet deep	1	EA	
228		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
229		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
230		Additional Footage, up to 10 feet deep	16	LF	
231		Additional Footage, greater than 10 feet to 14 feet deep	16	LF	
232		Additional Footage, greater than 14 feet to 18 feet deep	16	LF	
233	Pipe Installation - Open Cut RC greater than 84-inch to 96-inch	Point Repair, up to 10 feet deep	1	EA	
234		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
235		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
236		Additional Footage, up to 10 feet deep	16	LF	
237		Additional Footage, greater than 10 feet to 14 feet deep	16	LF	
238		Additional Footage, greater than 14 feet to 18 feet deep	16	LF	
239	Pipe Installation - Open Cut RC greater than 96-inch to 108-inch	Point Repair, up to 10 feet deep	1	EA	
240		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
241		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
242		Additional Footage, up to 10 feet deep	16	LF	
243		Additional Footage, greater than 10 feet to 14 feet deep	16	LF	
244		Additional Footage, greater than 14 feet to 18 feet deep	16	LF	
245	Pipe Installation - Open Cut HDPE up to 8-inch	Point Repair, up to 6 feet deep	1	EA	
246		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
247		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
248		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
249		Additional Footage, up to 6 feet deep	5	LF	
250		Additional Footage, greater than 6 feet to 10 feet deep	5	LF	
251		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
252		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
253	Pipe Installation - Open Cut HDPE greater than 8-inch to 16-inch	Point Repair, up to 6 feet deep	1	EA	
254		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
255		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
256		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
257		Additional Footage, up to 6 feet deep	20	LF	
258		Additional Footage, greater than 6 feet to 10 feet deep	20	LF	
259		Additional Footage, greater than 10 feet to 14 feet deep	20	LF	
260		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
261	Pipe Installation - Open Cut HDPE greater than 16-inch to 24-inch	Point Repair, up to 6 feet deep	1	EA	
262		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
263		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
264		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
265		Additional Footage, up to 6 feet deep	20	LF	
266		Additional Footage, greater than 6 feet to 10 feet deep	20	LF	
267		Additional Footage, greater than 10 feet to 14 feet deep	20	LF	
268		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
269	Pipe Installation - Open Cut HDPE greater than 24-inch to 36-inch	Point Repair, up to 6 feet deep	3	EA	
270		Point Repair, greater than 6 feet to 10 feet deep	3	EA	
271		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
272		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
273		Additional Footage, up to 6 feet deep	600	LF	
274		Additional Footage, greater than 6 feet to 10 feet deep	300	LF	
275		Additional Footage, greater than 10 feet to 14 feet deep	100	LF	
276		Additional Footage, greater than 14 feet to 18 feet deep	20	LF	
277	Pipe Installation - Open Cut HDPE greater than 36-inch to 48-inch	Point Repair, up to 6 feet deep	2	EA	
278		Point Repair, greater than 6 feet to 10 feet deep	6	EA	
279		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
280		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
281		Additional Footage, up to 6 feet deep	300	LF	
282		Additional Footage, greater than 6 feet to 10 feet deep	300	LF	
283		Additional Footage, greater than 10 feet to 14 feet deep	100	LF	
284		Additional Footage, greater than 14 feet to 18 feet deep	20	LF	
285	Pipe Installation - Open Cut HDPE greater than 48-inch to 60-inch	Point Repair, up to 6 feet deep	1	EA	
286		Point Repair, greater than 6 feet to 10 feet deep	2	EA	
287		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
288		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
289		Additional Footage, up to 6 feet deep	100	LF	
290		Additional Footage, greater than 6 feet to 10 feet deep	300	LF	
291		Additional Footage, greater than 10 feet to 14 feet deep	300	LF	
292		Additional Footage, greater than 14 feet to 18 feet deep	20	LF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
293	Pipe Installation - Open Cut CM up to 15-inch	Point Repair, up to 6 feet deep	1	EA	
294		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
295		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
296		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
297		Additional Footage, up to 6 feet deep	5	LF	
298		Additional Footage, greater than 6 feet to 10 feet deep	5	LF	
299		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
300		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
301	Pipe Installation - Open Cut CM greater than 15-inch to 24-inch	Point Repair, up to 6 feet deep	1	EA	
302		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
303		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
304		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
305		Additional Footage, up to 6 feet deep	5	LF	
306		Additional Footage, greater than 6 feet to 10 feet deep	5	LF	
307		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
308		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
309	Pipe Installation - Open Cut CM greater than 24-inch to 36-inch	Point Repair, up to 6 feet deep	2	EA	
310		Point Repair, greater than 6 feet to 10 feet deep	2	EA	
311		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
312		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
313		Additional Footage, up to 6 feet deep	20	LF	
314		Additional Footage, greater than 6 feet to 10 feet deep	20	LF	
315		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
316		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
317	Pipe Installation - Open Cut CM greater than 36-inch to 48-inch	Point Repair, up to 6 feet deep	1	EA	
318		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
319		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
320		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
321		Additional Footage, up to 6 feet deep	20	LF	
322		Additional Footage, greater than 6 feet to 10 feet deep	20	LF	
323		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
324		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
325	Pipe Installation - Open Cut CM greater than 48-inch to 60-inch	Point Repair, up to 6 feet deep	1	EA	
326		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
327		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
328		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
329		Additional Footage, up to 6 feet deep	5	LF	
330		Additional Footage, greater than 6 feet to 10 feet deep	5	LF	
331		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
332		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
333	Pipe Installation - Open Cut CM greater than 60-inch to 72-inch	Point Repair, up to 10 feet deep	1	EA	
334		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
335		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
336		Additional Footage, up to 10 feet deep	5	LF	
337		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
338		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
339	Pipe Installation - Open Cut CM greater than 72-inch to 84-inch	Point Repair, up to 10 feet deep	1	EA	
340		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
341		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
342		Additional Footage, up to 10 feet deep	5	LF	
343		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
344		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
345	Pipe Installation - Open Cut CM greater than 84-inch to 96-inch	Point Repair, up to 10 feet deep	1	EA	
346		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
347		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
348		Additional Footage, up to 10 feet deep	5	LF	
349		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
350		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
351	Pipe Installation - Open Cut FRPM 18-inch to 24-inch	Point Repair, up to 6 feet deep	1	EA	
352		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
353		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
354		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
355		Additional Footage, up to 6 feet deep	5	LF	
356		Additional Footage, greater than 6 feet to 10 feet deep	5	LF	
357		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
358		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
359	Pipe Installation - Open Cut FRPM greater than 24-inch to 36-inch	Point Repair, up to 6 feet deep	1	EA	
360		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
361		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
362		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
363		Additional Footage, up to 6 feet deep	5	LF	
364		Additional Footage, greater than 6 feet to 10 feet deep	5	LF	
365		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
366		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
367	Pipe Installation - Open Cut FRPM greater than 36-inch to 48-inch	Point Repair, up to 6 feet deep	1	EA	
368		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
369		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
370		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
371		Additional Footage, up to 6 feet deep	5	LF	
372		Additional Footage, greater than 6 feet to 10 feet deep	5	LF	
373		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
374		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
375	Pipe Installation - Open Cut FRPM greater than 48-inch to 60-inch	Point Repair, up to 6 feet deep	1	EA	
376		Point Repair, greater than 6 feet to 10 feet deep	1	EA	
377		Point Repair, greater than 10 feet to 14 feet deep	1	EA	
378		Point Repair, greater than 14 feet to 18 feet deep	1	EA	
379		Additional Footage, up to 6 feet deep	5	LF	
380		Additional Footage, greater than 6 feet to 10 feet deep	5	LF	
381		Additional Footage, greater than 10 feet to 14 feet deep	5	LF	
382		Additional Footage, greater than 14 feet to 18 feet deep	5	LF	
383	Pipe Installation - Open Cut Steel Casing up to 18-inch	Up to 6 feet deep	40	LF	
384		Greater than 6 feet to 10 feet deep	40	LF	
385		Greater than 10 feet to 14 feet deep	20	LF	
386		Greater than 14 feet to 18 feet deep	20	LF	
387		Weld	2	EA	
388	Pipe Installation - Open Cut Steel Casing greater than 18-inch to 24-inch	Up to 6 feet deep	40	LF	
389		Greater than 6 feet to 10 feet deep	40	LF	
390		Greater than 10 feet to 14 feet deep	20	LF	
391		Greater than 14 feet to 18 feet deep	20	LF	
392		Weld	2	EA	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
393	Pipe Installation - Open Cut Steel Casing greater than 24-inch to 36-inch	Up to 6 feet deep	40	LF	
394		Greater than 6 feet to 10 feet deep	40	LF	
395		Greater than 10 feet to 14 feet deep	20	LF	
396		Greater than 14 feet to 18 feet deep	20	LF	
397		Weld	2	EA	
398	Pipe Installation - Open Cut Steel Casing greater than 36-inch to 48-inch	Up to 6 feet deep	40	LF	
399		Greater than 6 feet to 10 feet deep	40	LF	
400		Greater than 10 feet to 14 feet deep	20	LF	
401		Greater than 14 feet to 18 feet deep	20	LF	
402		Weld	2	EA	
403	Cased Bore 12"	Non Steered	40	LF	
404		Steered	1	LF	
405		Rock Bore (Additional Per)	20	LF	
406	Cased Bore 18"	Non Steered	40	LF	
407		Steered	1	LF	
408		Rock Bore (Additional Per)	20	LF	
409	Cased Bore 24"	Non Steered	40	LF	
410		Steered	1	LF	
411		Rock Bore (Additional Per)	20	LF	
412	Cased Bore 36"	Non Steered	40	LF	
413		Steered	1	LF	
414		Rock Bore (Additional Per)	20	LF	
415	Cased Bore 48"	Non Steered	40	LF	
416		Steered	1	LF	
417		Rock Bore (Additional Per)	20	LF	
418	Bore Entry Pit	Up to 6 feet deep	6	VF	
419		Greater than 6 feet deep to 12 feet deep	10	VF	
420		Greater than 12 feet deep to 18 feet deep	15	VF	
421		Greater than 18 feet deep	19	VF	
422	Bore Receiving Pit	Up to 6 feet deep	6	VF	
423		Greater than 6 feet deep to 12 feet deep	10	VF	
424		Greater than 12 feet deep to 18 feet deep	15	VF	
425		Greater than 18 feet deep	19	VF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
426	Pipe Insertion into Steel Casing PVC up to 8-inch	N/A	40	LF	
427	Pipe Insertion into Steel Casing PVC greater than 8-inch to 16-inch	N/A	40	LF	
428	Pipe Insertion into Steel Casing PVC greater than 16-inch to 24-inch	N/A	40	LF	
429	Pipe Insertion into Steel Casing DI up to 8-inch	N/A	40	LF	
430	Pipe Insertion into Steel Casing DI greater than 8-inch to 16-inch	N/A	40	LF	
431	Pipe Insertion into Steel Casing DI greater than 16-inch to 24-inch	N/A	40	LF	
432	Pipe Insertion into Steel Casing DI greater than 24-inch to 36-inch	N/A	40	LF	
433	Polyethylene Pipe Encasement	For Pipe up to 16-inch	20	LF	
434		For Pipe greater than 16-inch to 24-inch	20	LF	
435		For Pipe greater than 24-inch to 36-inch	20	LF	
436		For Pipe greater than 36-inch to 48-inch	20	LF	
437	Direct Tap Into Pipe Up to 1-inch Direct Tap into DI of Varying Sizes	Up to 6 feet deep	10	EA	
438		Greater than 6 feet to 10 feet deep	1	EA	
439		Greater than 10 feet to 14 feet deep	1	EA	
440		Greater than 14 feet to 18 feet deep	1	EA	
441	Core Into Pipe	Up to 2-inch core into pipe	2	EA	
442		Greater than 2-inch to 6-inch core into pipe	2	EA	
443		8-inch core into pipe	1	EA	
444		10-inch core into pipe	1	EA	
445		12-inch core into pipe	1	EA	
446		16-inch core into pipe	1	EA	
447		18-inch core into pipe	1	EA	
448		20-inch core into pipe	1	EA	
449		24-inch core into pipe	1	EA	
450	Connect Fitting / Valve to Pipe Brass / Bronze Fitting / Valve up to 2-inch	N/A	10	EA	
451	Connect Fitting / Valve to Pipe PVC Fitting / Valve up to 8-inch	N/A	15	EA	
452	Connect Fitting / Valve to Pipe PVC Fitting / Valve Greater than 8-inch to 16-inch	N/A	5	EA	
453	Connect Fitting / Valve to Pipe PVC Fitting / Valve Greater than 16-inch to 24-inch	N/A	1	EA	
454	Connect Fitting / Valve to Pipe DI Fitting / Valve up to 8-inch	N/A	10	EA	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
455	Connect Fitting / Valve to Pipe DI Fitting / Valve Greater than 8-inch to 16-inch	N/A	2	EA	
456	Connect Fitting / Valve to Pipe DI Fitting / Valve Greater than 16-inch to 24-inch	N/A	2	EA	
457	Connect Fitting / Valve to Pipe DI Fitting / Valve Greater than 24-inch to 36-inch	N/A	1	EA	
458	Connect Fitting / Valve to Pipe DI Fitting / Valve Greater than 36-inch to 48-inch	N/A	1	EA	
459	Fire Hydrant Installation	Up to 5-foot Bury Depth	4	EA	
460		Greater than 5-foot Bury Depth	1	EA	
461		Post Hydrant	1	EA	
462	Fire Hydrant (Existing) Vertical Adjustment	N/A	4	VF	
463	Fire Hydrant Removal	Up to 5-foot Bury Depth	2	EA	
464		Greater than 5-foot Bury Depth	1	EA	
465		Post Hydrant	1	EA	
466	Air / Vacuum Release Valve Installation	N/A	1	EA	
467	Concrete Thrust Restraint	Tie-Back	4	EA	
468		Block for Pipe up to 16-inch	4	EA	
469		Block for Pipe greater than 16-inch to 24-inch	1	EA	
470		Block for Pipe greater than 24-inch to 36-inch	1	EA	
471	Pipe Collar Installation	N/A	1,000	CF	
472	Flared End Section Installation	For Pipe up to 16-inch	1	EA	
473		For Pipe greater than 16-inch to 24-inch	1	EA	
474		For Pipe greater than 24-inch to 36-inch	1	EA	
475		For Pipe greater than 36-inch to 48-inch	1	EA	
476	Precast Headwall Installation	For Pipe up to 16 Inch	1	EA	
477		For Pipe greater than 16 Inch to 24 Inch	16	EA	
478		For Pipe greater than 24 Inch to 36 Inch	8	EA	
479		For Pipe greater than 36 Inch to 48 Inch	8	EA	
480		For Pipe greater than 48 Inch to 60 Inch	8	EA	
481		For Pipe greater than 60 Inch to 72 Inch	8	EA	
482		For Pipe greater than 72 Inch to 84 Inch	2	EA	
483		For Pipe greater than 84 Inch to 96 Inch	2	EA	
484	Precast Manhole Installation 4-Foot Diameter	Base Slab	10	EA	
485		Riser	60	VF	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
486	Precast Manhole Installation 5-Foot Diameter	Base Slab	3	EA	
487		Riser	25	VF	
488	Precast Manhole Installation 6-Foot Diameter	Base Slab	3	EA	
489		Riser	25	VF	
490	Precast Manhole Installation 7-Foot Diameter	Base Slab	3	EA	
491		Riser	30	VF	
492	Precast Manhole Installation 8-Foot Diameter	Base Slab	3	EA	
493		Riser	30	VF	
494	Precast Manhole Installation 9-Foot Diameter	Base Slab	1	EA	
495		Riser	12	VF	
496	Precast Manhole Installation 10-Foot Diameter	Base Slab	1	EA	
497		Riser	12	VF	
498	Precast Box / Vault Installation Up to 5-Foot by 5-Foot	Base Slab	1	EA	
499		Riser	5	VF	
500	Precast Box / Vault Installation Greater than 5-Foot by 5-Foot to 8-Foot by 8-Foot	Base Slab	1	EA	
501		Riser	5	VF	
502	Precast Box / Vault Installation 8-Foot by 12-Foot	Base Slab	1	EA	
503		Riser	5	VF	
504	Precast Box / Vault Installation 8-Foot by 16-Foot	Base Slab	1	EA	
505		Riser	5	VF	
506	Manhole Invert Construction 4-Foot Diameter Manhole	Cast-in-Place Concrete	10	EA	
507		Brick and Mortar	1	EA	
508	Manhole Invert Construction 5-Foot Diameter Manhole	Cast-in-Place Concrete	2	EA	
509		Brick and Mortar	1	EA	
510	Manhole Invert Construction 6-Foot Diameter Manhole	Cast-in-Place Concrete	2	EA	
511		Brick and Mortar	1	EA	
512	Manhole Invert Construction 7-Foot Diameter Manhole	Cast-in-Place Concrete	2	EA	
513		Brick and Mortar	1	EA	
514	Manhole Invert Construction 8-Foot Diameter Manhole	Cast-in-Place Concrete	2	EA	
515		Brick and Mortar	1	EA	
516	Manhole Invert Construction 9-Foot Diameter Manhole	Cast-in-Place Concrete	1	EA	
517		Brick and Mortar	1	EA	
518	Manhole Invert Construction 10-Foot Diameter Manhole	Cast-in-Place Concrete	1	EA	
519		Brick and Mortar	1	EA	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
520	Other Invert Construction	Cast-in-Place Concrete	50	SF	
521		Brick and Mortar	50	SF	
522	Ring and Cover Installation	Installation	20	EA	
523		Additional Height, Per Brick Layer	10	EA	
524	Catch Basin Spillway Installation	N/A	2	EA	
525	Catch Basin Top Slab Installation	N/A	2	EA	
526	Concrete Core	Up to 4-inch diameter core	1	EA	
527		Greater than 4-inch to 12-inch diameter core	4	EA	
528		Greater than 12-inch to 18-inch diameter core	2	EA	
529		Greater than 18-inch to 24-inch diameter core	1	EA	
530	Brick Work	1 Brick Deep Wall Construction	25	SF	
531		2 Brick Deep Wall Construction	100	SF	
532		3 Brick Deep Wall Construction	50	SF	
533		4 Brick Deep Wall Construction	25	SF	
534	Concrete Work	Bulk	9	CY	
535		Form Work	200	SF	
536		Steel Reinforcement	200	LF	
537	Cementitious Grouting	Grout Mixed by Hand	50	CF	
538		Grout Mixed by Plant	24	CY	
539		Pump Mobilization	2	EA	
540	Chemical Grouting	Grout	25	GAL	
541		Pump Mobilization	1	EA	
542	Pressure Testing	Low Pressure Air	10	EA	
543		Hydrostatic	3	EA	
544		Static Water Level	2	EA	
545	Pipe Disinfection	N/A	5	GAL	
546	Hourly Labor	Superintendent	80	HR	
547		Foreman	120	HR	
548		Operator	120	HR	
549		Pipe Layer	120	HR	
550		Laborer	120	HR	
551		Dump Truck Driver	40	HR	

Division 2

Bid Requirements

Section 4: Bid Form – Pay Item Schedule

Item No.	Work Item	Detail	Annual Est. Qty.	UOM	Unit Cost
552	Hourly Equipment	78,000 # Class Excavator	80	HR	
553		52,000 # Class Excavator	80	HR	
554		45,000 # Class Excavator	40	HR	
555		17,000 # Class Excavator	40	HR	
556		10,000 # Class Excavator	40	HR	
557		30,000 # Class Rubber Tired Loader	40	HR	
558		Rubber Tired Backhoe / Loader	16	HR	
559		18,000 # Class Track Dozier	16	HR	
560		Vibratory Soil Compactor (Ride On) Up to 66-inch compaction width	16	HR	
561		Vibratory Soil Compactor (Remote Controlled) Up to 48-inch compaction width	16	HR	
562		Dump Truck (Tandem Rear Axle)	40	HR	
563		Hydro Excavator	32	HR	
564		Utility Truck Fully Equipped with Hand Tools, Air Tools, Cutting Tools, Mudhog Pump, Generator, Air Compressor, Mechanical Tamp	120	HR	
565		Equipment Rental	N/A	Not Applicable	EA
566	Supplied Material	N/A	Not Applicable	EA	10%
567	Specialty Services	N/A	Not Applicable	EA	10%

Submitted by:

(NAME OF BIDDER)

Is the Bidder a CCWA certified SLBE?

YES

NO

County: _____

Division 2

Bid Requirements

Section 4: Bid Form

To be considered responsive to this bid, bidders are required to bid on all work items listed on the Bid Form - Pay Item Schedule.

Submitted by:

(NAME OF BIDDER)

By: _____
(SIGNATURE)

(TITLE)

(DATE)

(ATTEST)

(SEAL)

(ADDRESS)

(PHONE NUMBER)

(FAX NUMBER)

(LICENSE NUMBER) (If applicable)

(E-MAIL ADDRESS)

END OF SECTION

Division 2

Bid Requirements

Section 5: Georgia Bid Bond

BOND NO. _____

KNOW ALL MEN BY THESE PRESENTS, that _____

herein after called the PRINCIPAL, and _____

a corporation duly organized under the laws of the State of _____

having its principal place of business at _____

_____ in the State of _____

and authorized to do business in the State of Georgia as SURETY, are held and firmly bound unto Clayton County Water Authority, as OWNER, hereinafter called the OBLIGEE, in the sum of FIVE THOUSAND DOLLARS (\$5,000.00) for the payment for which we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT:

WHEREAS, the Principal is herewith submitting his or its Bid for the **Annual Contract for General Pipe Work**, and said Bid, by reference thereto, being hereby made a part hereof.

WHEREAS, the PRINCIPAL contemplates submitting or has submitted a Bid to the OBLIGEE for the furnishing of all labor, materials (except those to be specifically furnished by the Owner), equipment, machinery, tools, apparatus, means of transportation for, and the performance of the work covered in the Bid and the documents, entitled: **Annual Contract for General Pipe Work**.

WHEREAS, it was a condition precedent to the submission of said Bid that a cashier's check, certified check, or Bid Bond in the amount of FIVE THOUSAND DOLLARS (\$5,000.00) be submitted with said Bid as a guarantee that the Bidder would, if awarded

Division 2

Bid Requirements

Section 5: Georgia Bid Bond

the Contract, enter into a written Contract with the Owner for the performance of said Contract, within 10 consecutive calendar days after written notice having been given of the award of the Contract.

NOW THEREFORE, the conditions of this obligation are such that if the PRINCIPAL within 10 consecutive calendar days after written notice of such acceptance, enters into a written Contract with the OBLIGEE and furnishes a Performance Bond and Payment Bond in an amount equal to 100 percent of the contract amount, satisfactory to the Owner, then this obligation shall be void; otherwise the sum herein stated shall be due and payable to the OBLIGEE and the SURETY herein agrees to pay said sum immediately upon demand of the OBLIGEE in good and lawful money of the United States of America, as liquidated damages for failure thereof of said PRINCIPAL.

Signed and sealed this _____ day of _____, 20_____.

PRINCIPAL

By_____

SURETY

By_____
Attorney-In-Fact

END OF SECTION

Division 2

Bid Requirements

Section 6: Bidder Qualification Information

COMPANY NAME OF BIDDER: _____

NUMBER OF YEARS IN BUSINESS _____

BUSINESS ADDRESS OF COMPANY: _____

TELEPHONE NUMBER: _____

FAX NUMBER: _____

POINT OF CONTACT NAME: _____

POINT OF CONTACT EMAIL ADDRESS: _____

COMPANY TAX ID NUMBER: _____

COMPANY WEBSITE: _____

- ENTITY TYPE: Individual/Sole Proprietor Employee Owned Company
 Privately Held Corporation/LLC Partnership
 Publicly Owned Company Attorney
 Other (specify): _____

NAME OF PRINCIPAL OFFICERS: _____

Division 2

Bid Requirements

Section 6: Bidder Qualification Information

REFERENCES

Provide at least three references with one each being for water work, waste water work and storm water work with an emphasis for similar work with a preference for annual contract work that have been completed within the last five years. Failure to provide satisfactory references will result in the bid being deemed non-responsive.

COMPANY/GOV'T ENTITY NAME: _____

CONTACT NAME: _____

PHONE NUMBER: _____

ADDRESS: _____

COMPANY/GOV'T ENTITY NAME: _____

CONTACT NAME: _____

PHONE NUMBER: _____

ADDRESS: _____

COMPANY/GOV'T ENTITY NAME: _____

CONTACT NAME: _____

PHONE NUMBER: _____

ADDRESS: _____

END OF SECTION

Division 2

Bid Requirements

Section 7: Contractor Affidavit & Agreement

GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT OF 2006

- A. Pursuant to the Georgia Security and Immigration Compliance Act of 2006, the Contractor understands and agrees that compliance with the requirements of O.C.G.A. § 13-10-91 and Georgia Department of Labor Rule 300-10-.02 are conditions of this Agreement. The Contractor further agrees that such compliance shall be attested by the Contractor through execution of the contractor affidavit required by Georgia Department of Labor Rule 300-10-1-.07, or a substantially similar contractor affidavit. The Contractor's fully executed affidavit is attached hereto as Exhibit ____ and is incorporated into this Agreement by reference herein.

- B. By initialing in the appropriate line below, the Contractor certifies that the following employee-number category as identified in O.C.G.A. § 13-10-91 is applicable to the Contractor:
 - 1. _____ 500 or more employees;
 - 2. _____ 100 or more employees;
 - 3. _____ Fewer than 100 employees.

- C. The Contractor understands and agrees that, in the event the Contractor employs or contracts with any subcontractor or subcontractors in connection with this Agreement, the Contractor shall:
 - 1. Secure from each such subcontractor an indication of the employee-number category as identified in O.C.G.A. § 13-10-91 that is applicable to the subcontractor;
 - 2. Secure from each such subcontractor an attestation of the subcontractor's compliance with O.C.G.A. § 13-10-91 and Georgia Department of Labor Rule 300-10-1-.02 by causing each such subcontractor to execute the subcontractor affidavit required by Georgia Department of Labor Rule 300-10-1-.08, or a substantially similar subcontractor affidavit. The Contractor further understands and agrees that the Contractor shall require the executed subcontractor affidavit to become a part of the agreement between the Contractor and each such subcontractor. The Contractor agrees to maintain records of each subcontractor attestation required hereunder for inspection by the Clayton County Water Authority at any time."

Contractor _____
Authorized Signature: _____
Name: _____
Title: _____
Date: _____

Division 2

Bid Requirements

Section 7: Contractor Affidavit & Agreement

CONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned contractor verifies its compliance with [O.C.G.A. 13-10-91](#), stating affirmatively that the individual, firm, or corporation which is contracting with the Clayton County Water Authority has registered with, is participating in, uses, and will continue to use for the duration of the contract, the federal work authorization program - EEV/Basic Pilot Program operated by the U. S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA), commonly known as E-Verify, in accordance with the applicability provisions established in [O.C.G.A. 13-10-91](#).

The undersigned further agrees that, in connection with the physical performance of services pursuant to this contract with the Clayton County Water Authority, the contractor will only employ or contract with subcontractor(s), who can present a similar affidavit verifying the subcontractor's compliance with [O.C.G.A. 13-10-91](#). Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the Clayton County Water Authority within five days of the subcontractor(s) presenting such affidavit(s) to the contractor.

EEV / Basic Pilot Program* User Identification Number
Enter four to six digit numbers

Name of Contractor (Printed)

BY: Authorized Officer or Agent
(Contractor Name)

Date

Title of Authorized Officer or Agent of Contractor

Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS

THE _____ DAY OF _____ 20_____.

Notary Public

My Commission Expires

Division 2

Bid Requirements

Section 7: Contractor Affidavit & Agreement

SUBCONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned subcontractor verifies its compliance with [O.C.G.A. 13-10-91](#), stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with _____

_____ on behalf of the Clayton County Water Authority has registered with, is participating in, uses, and will continue to use for the duration of the contract the federal work authorization program - EEV/Basic Pilot Program operated by the U. S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA), commonly known as E-Verify, in accordance with the applicability provisions and deadlines established in [O.C.G.A. 13-10-91](#).

The undersigned further agrees that, in connection with the physical performance of services pursuant to this contract with _____

_____ on behalf of the Clayton County Water Authority, the subcontractor will only employ or contract with sub-subcontractor(s), who can present a similar affidavit verifying the sub-subcontractor's compliance with [O.C.G.A. 13-10-91](#). The undersigned further agrees that the Subcontractor will maintain records of such compliance and provide a copy of each such verification to the Contractor within five days of the sub-subcontractor(s) presenting such affidavit(s) to the Sub-contractor.

EEV / Basic Pilot Program* User Identification Number
Enter four to six digit numbers

Name of Sub-Contractor (Printed)

BY: Authorized Officer or Agent
(Subcontractor Name)

Date

Title of Authorized Officer or Agent of Subcontractor

Printed Name of Authorized Officer or Agent

Subscribed and sworn before me on this the _____ day of _____ 20____.

Notary Public

My Commission Expires

END OF SECTION

Division 2 **Bid Requirements**

Section 8: Small Local Business Enterprises (SLBE) - General Information

8.1 Program Overview

Clayton County Water Authority (CCWA) has implemented a Small Local Business Enterprise Program to promote full and open competition in all government procurement and purchasing. Bid discounts for the use of Small Local Business Enterprises (SLBE's) are set on a contract by contract basis for each specific prime contract with subcontracting possibilities. CCWA wants to ensure that Bidders are non-discriminatory in their process of selecting subcontractors. CCWA also wants to encourage Bidders to utilize small, minority or woman-owned businesses whenever possible. All forms included in this solicitation must be completed for Bidder to be considered responsive.

SLBE means a locally-based small business operating inside or outside of Clayton County, which meets the following criteria:

- A) Independently owned and operated business concern whose average annual gross receipts for the previous three years must not exceed (1) Construction Firms – \$18,250,000; (2) Professional Services Firms – \$5,500,000; Architectural Firms – \$3,750,000; Engineering Firms – \$7,500,000, and Goods and Services – less than 250 employees.
- B) Locally based, meaning located and operating in Clayton County or the ten (10) counties of Cherokee, Cobb, DeKalb, Douglas, Fayette, Fulton, Gwinnett, Henry, Rockdale and Spalding for at least one year prior to submitting application for certification.

If a firm is locally-based in one of the counties mentioned above, is currently certified as a small business through the DeKalb County, Clayton County, or the City of Atlanta, and can provide evidence of its certification, the firm will be provisionally accepted as a SLBE, provided that they complete the official certification application for CCWA within two (2) years following the date of provisional certification. If a firm meets these qualifications, but is not currently certified as a small business, then the firm must complete an application for certification with CCWA no later than seven (7) business days following the deadline for bid submission.

SLBE's must perform a commercially useful function, which means performance of provision of real and actual services under the contract or subcontract with CCWA. Factors such as the nature and amount of the work subcontracted; whether the SLBE has the skill and expertise to perform the work for which it has been certified; whether the SLBE actually performs, manages or supervises the

Division 2

Bid Requirements

Section 8: Small Local Business Enterprises (SLBE) - General Information

work; and whether the SLBE intends to purchase commodities and/or services from a non-SLBE and simply resell them will be considered in determining if the SLBE is performing a commercially useful function.

Participation in the SLBE program is not a requirement to participate in contracting with CCWA. The use of an SLBE is a requirement when bid discounts are to be sought. The Bidder will be required to complete the required forms as outlined in the following section.

8.2 SLBE Required Post Award Submittal

The following form must be provided post award, with each pay application:

- A) SLBE-4 – Post-Award–SLBE Participation Report–Bid Discount: Report detailing SLBE earnings.

8.3 Overview of Bid Discount

Bid Discounts are incentives that allow an original bid amount to be discounted for evaluation purposes in determining the lowest responsive, responsive bidder, while the original bid amount will be the basis for the contract award.

Example: A \$100,000 bid with a 5% bid discount would be evaluated at \$95,000. However, \$100,000 would be paid to the successful bidder.

Bid Discounts will be applied to CCWA certified SLBE prime bidders only. *The use of certified SLBE sub-contractors will not establish eligibility to receive Bid Discounts.* Depending on the bidders' location, Bid Discounts will range between 5% and 10%.

The calculation of SLBE bid discounts shall be as follows:

There will be an applied tiered discount to bids based on what county the SLBE business is located.

- 10 percent for SLBE's in Clayton County.
- 7.5 percent for SLBE's within the next surrounding 5 counties (DeKalb, Fayette, Fulton, Henry and Spalding).
- 5 percent for SLBE's for the 5 outer counties (Cherokee, Cobb, Douglas, Gwinnett and Rockdale).

Division 2 **Bid Requirements**

Section 8: Small Local Business Enterprises (SLBE) - General Information

- (1) Discounts are given to CCWA certified SLBE prime bidders only.
- (2) In the event of a tie bid between a discounted bidder and a non-discounted bidder, the discounted bidder (SLBE) will be recommended for the contract.

By signing the bid, the bidder is certifying that he/she has complied with the requirements of this program. Please contact Contracts, Compliance and Risk Management at ccwa_slbe_program@ccwa.us for a list of certified SLBE's. The list is also available through www.ccwa.us, under the tab for "Procurement", section for "Small Local Business Program".

FORM SLBE-4
POST AWARD – SLBE PARTICIPATION REPORT – BID DISCOUNT
INSTRUCTIONS TO CONTRACTORS

The prime contractor must complete and sign the participation report and submit the the completed and signed form with each pay application to the CCWA Project Manager in charge of the contract. Failure to submit this form may result in payment application being deemed incomplete.

1. Report Number: Reports must be consecutively numbered. It will only be necessary to submit a report in a period when the approved SLBE has performed a portion of the work that has been designated for the contract.
2. Date: Actual date of the report.
3. Prime SLBE: If you are the Prime Contractor and also the SLBE on the contract please check yes and insert assigned CCWA SLBE certification number. Note that %100 of SLBE dollars spent will be counted towards the SLBE contract or annual goal, if applicable.
4. Pay application end date: Reports must acknowledge the end date for the period for which is being reported.
5. Prior Earned Pay Application Amount: The amount previously submitted for payment on pay application.
6. Current Earned Pay Application Amount: The amount submitting with current payment application.
7. Earnings To-Date: The actual amount that each SLBE has earned to-date under the contract.
8. Total SLBE Earnings To-Date: The total is achieved by adding all payments to SLBE to date. (Previous payments reported + current payment reported)
9. Certification: The contractor's authorized representative must sign this form prior to submittal.

GENERAL INFORMATION

When the approved SLBE is to provide materials, goods or services, this completed form must be submitted to the CCWA Project Manager. The prime contractor must notify CCWA of any changes to SLBE firms.

When the prime contractor is an approved SLBE, it will only be necessary to complete the total SLBE earnings to-date. Joint ventures between non-SLBE and certified SLBE: Only that portion of the work for which the certified SLBE is responsible may be used to satisfy the requirement.

**FORM SLBE-4
POST AWARD – SLBE PARTICIPATION REPORT – BID DISCOUNT**

PROJECT NO. (S): _____

REPORT NO.: _____

CONTRACTOR: _____

DATE: _____

CONTRACT AMOUNT: \$ _____

PAY APPLICATION PERIOD END DATE: _____

PRIME SLBE CONTRACTOR? Yes No
If Yes, insert CCWA SLBE Certification # _____

Check if final payment >>> FINAL PAYMENT

NAME OF APPROVED SLBE	DESCRIPTION OF WORK	PRIOR EARNED PAY APPLICATION AMOUNT	CURRENT EARNED APPLICATION AMOUNT	EARNINGS TO-DATE

TOTAL SLBE EARNINGS TO-DATE: _____

I HEREBY CERTIFY THAT THE ABOVE STATEMENT IS TRUE AND CORRECT AND SUPPORTING DOCUMENTATION IS ON FILE AND IS AVAILABLE FOR INSPECTION BY CCWA AT ANY TIME.

SIGNED _____
CONTRACTOR

REMARKS _____

FOR DEPARTMENT USE ONLY:

THIS DOCUMENT HAS BEEN REVIEWED AT THAT PROJECT LEVEL BY:
SIGNED _____ TITLE _____

THIS DOCUMENT HAS BEEN REVIEWED AT THE PROGRAM LEVEL BY:
SIGNED _____ TITLE _____

Division 3

Contract Forms

Section 1: Agreement Form

STATE OF GEORGIA

COUNTY OF CLAYTON

**AGREEMENT FOR ONGOING PROVISION
OF GOODS AND SERVICES**

This Agreement made and entered into this _____ day of _____, 20___, between the **CLAYTON COUNTY WATER AUTHORITY** (hereinafter "the Authority"), and _____, (hereinafter "the Contractor"), witnesseth:

WHEREAS, the Authority is contracting with the Contractor for the provision of certain goods and services described below for the term specified herein;

NOW THEREFORE, the parties agree as follows:

1. **DESCRIPTION OF GOODS AND SERVICES**: The Contractor shall provide the following goods and services to the Authority in such quantities as the Authority requires for **Annual Contract for General Pipe Work** as described in the Request for Bid dated July 2017.
2. **COSTS AND PAYMENTS**: The Authority shall pay the Contractor the prices as stipulated in the Bid Form hereto attached as full compensation relative to the Bid dated _____, and above described goods and services. The Authority will not guarantee any minimum or maximum quantities during the contract term. Work under this contract will be authorized on an "as needed – when needed basis", and will be paid per the bid unit prices as submitted and approved. Payment for work completed will be processed upon submission of an Invoice and Affidavit of Completion by the Contractor. The invoice will be verified by the Authority representative, and any changes/corrections to the invoice will require the contractor to correct and

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Contract Forms

Section 1: Agreement Form

re-submit the invoice. The Contractor may submit to the Authority no more than one (1) pay application per week for a project work order and the submission shall be in such a form and matter with such other supporting data and content as the Authority may require and accompanied by the Authority's waiver and release upon payment. The Contractor must submit a completed and signed Form SLBE-4 (Monthly SLBE Participation Report) to the Authority with each pay application. The Authority shall pay the Contractor net 30 days upon receipt of the invoice and the completed SLBE-4 Form, and upon acceptance of the work in accordance with the specifications. Each project work order shall be completed within the time period as agreed to by both parties at the time of the project work order issuance. If said work is not completed within the time frame stated on the project work order, the Contractor shall be liable to pay to the Authority, as liquidated damages the amount of \$500.00 per calendar day for each and every day or part of a day thereafter that said work remains substantially incomplete for that particular individual project work order. Payments will be made via regular US Mail.

3. **TERM OF AGREEMENT:** The term of this Agreement shall commence on the **1st day of November, 2017**. The Agreement shall remain in effect until **October 31, 2018**.
4. **RENEWAL PROVISIONS:** The Agreement may be renewed for the second and /or third 12 month period by mutual written consent by both parties with no changes in the terms and conditions.
5. **WARRANTY ON SERVICES RENDERED:** The Contractor warrants its workmanship to be free from defects for a period of two (2) years from the date of final acceptance. The Contractor further warrants that its workmanship will conform to all specifications and will perform as specified. Upon receipt of written notice of a defect in workmanship, the Contractor

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Section 1: Agreement Form

shall repair the defect in a timely manner at no expense to the Authority.

6. **WARRANTY ON GOODS PROVIDED:** The Contractor warrants its goods for a period of two (2) years from the date of final acceptance. Furthermore, the Contractor warrants that goods ordered to specifications will conform thereto and to any drawings, samples, or other description furnished or adopted by the Authority, and will be fit and sufficient for the purpose intended; and that all goods are merchantable, of good material and workmanship, and free from defect. Such warranties, together with the Contractor's service warranties and guarantees, if any shall survive inspection, test, acceptance of, and payment for the goods and shall run to the Authority, its successors, assigns, customers at any tier, and ultimate user and joint users. Notices of any defect or nonconformity shall be given by the Authority to the Contractor within fifteen (15) months after acceptance by ultimate user; provided however that in the event the goods are designed by the Contractor, notice must be given within three (3) years after acceptance by ultimate user. The rights and remedies of the Authority concerning latent defects shall exist indefinitely, and shall not be affected in clause. The Authority may, at its option, and in addition to other remedies available at law, either (i) return for credit, (ii) require prompt correction or replacement of the defective or nonconforming goods, or (iii) have the defective items corrected or replaced at the Contractor's expense and deduct the cost thereof from any monies due the Contractor. The return to the Contractor of any defective or nonconforming goods and delivery to the Authority of any corrected or replaced goods shall be at the Contractor's expense. Goods required to be corrected or replaced shall be at the Contractor's expense. Goods required to be corrected or replaced shall be subject to the provision of this paragraph and the paragraph of this Agreement entitled "inspection" on the same manner and to the same extent

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Section 1: Agreement Form

as goods originally delivered under this Agreement. In addition to correcting or replacing any defective or nonconforming goods, the Contractor shall also reimburse the Authority for all costs and expenses incurred by the Authority in connection with inspection and discovery of the defects, identifying and correcting the cause of such defects and all other activities reasonably undertaken by the Authority to obtain conforming goods or attempting to obtain from the ultimate user a waiver to permit the defective goods to be used with all or part of the defective conditions.

7. GOODS SUPPLIED BY CCWA:

- (a) In the event CCWA discovers that it has supplied materials other than Appropriate Materials ("Inappropriate Materials") to the Contractor, CCWA shall provide written notice of such situation to the Contractor.
- (b) In the event that CCWA supplies to the Contractor Inappropriate Materials and the Contractor utilizes the Inappropriate Materials in supplying all or any part of the services contemplated by this Agreement, the Contractor shall be paid the applicable bid prices and/or percentage of the lump sum bid prices as described in Paragraph 2 for such services as if such services had been performed with Appropriate Materials, except for any such services rendered after the Contractor's receipt of written notice from CCWA that Inappropriate Materials have been supplied by CCWA to the Contractor, for which services the Contractor shall receive no compensation. In no event shall payments made to the Contractor pursuant to the subparagraph (b) result in the Contractor receiving payments in excess of unit bid prices and/or lump sum bid prices as described in paragraph 2.
- (c) The Contractor, upon written request by CCWA, shall remove all Inappropriate Materials, supplied by CCWA, previously installed and install Appropriate Materials, supplied by CCWA in their place. In

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addition, the Contractor shall be paid as compensation for these additional services an amount equal to the amount described in subparagraph (b) above. In no event shall the additional consideration contemplated under this subparagraph (c) exceed unit bid prices and/or lump sum bid prices as described in paragraph 2.

8. **INSPECTION**: The Authority shall have the right to inspect the goods supplied hereunder at any time during the manufacture or fabrication thereof at the Contractor's facilities or elsewhere. Such inspection may include, without limitation, raw materials, components, work in process, and completed products as well as drawings, specifications, and released data. Final inspection and acceptance shall be after delivery to the delivery point designated by the Authority. If any inspection or test is made by the Authority at the Contractor's facility or elsewhere, the Contractor shall provide reasonable facilities and assistance for the inspection personnel. The Authority may reject all goods supplied hereunder, which are found to be defective. Goods so rejected may be returned to the Contractor at the Contractor's expense. No inspection, examination or test, regardless of extensiveness or type, and no approval give in connection with any such inspection, examination or test, whether under this Agreement or another contract for the same or similar goods, shall relieve it, of any obligation to comply fully with all requirements of this Agreement, including the obligation to produce goods that conform to all requirements of the drawings, specifications and any other Contract Documents. At the Authority's request, the Contractor shall repair or replace defective goods at the Contractor's expense. Failure to inspect goods, and failure to discover defects in goods or payment for goods shall not constitute acceptance or limit any of the Authority's rights, including without limitation those under the WARRANTY provisions of this Agreement. In the event inspection reveals a

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defect or defects and schedule urgency requires that the defect or defects be corrected by the Authority to support production, all cost of such correction, including without limitation installation and removal, will be charged to the Contractor; such charges will also include time and material and appropriate indirect and overhead expenses. The Contractor shall maintain in inspection system acceptable to the Authority covering the goods furnished hereunder.

9. **CONTRACTOR'S AFFIDAVITS AND CONSENT OF SURETY:** The Contractor shall issue a "Standard Contractor's Affidavit Interim Waiver and Release Upon Payment" and a "Standard Contractor's Affidavit Unconditional Waiver and Release upon Final Payment" provided by the Authority before receiving any interim or final payment for any services performed. Additionally the Contractor must submit a "Consent of Surety" before receiving the payment for any services performed that require payment and performance bonds.
10. **ASSIGNMENT AND SUBCONTRACTING:** The Contractor shall not assign this Agreement or any portion of this Agreement, nor shall the Contractor sub contract for goods or completed or substantially completed services purchased hereunder without the prior express written consent of the Authority. No assignment or subcontract by the Contractor, including any assignment or subcontract to which the Authority consents, shall in any way relieve the Contractor from complete and punctual performance of this Agreement, including without limitation all of the Contractor's obligations under the WARRANTY provisions of this Agreement.
11. **THE AUTHORITY'S ASSISTANCE AND COOPERATION:** During the Contractor's performance of this Agreement, the Authority may, but has no obligation to, provide assistance to, or cooperate with, the Contractor in activities that facilitate the proper performance and completion of this Agreement by the Contractor. Such assistance and cooperation may include

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without limitation: (i) providing engineering or other analysis or advice on correcting problems; (ii) refraining from strict enforcement of time schedule requirements under this Agreement; (iii) permitting use of test materials or documentation not performed or produced under this Agreement. Such assistance or cooperation by the Authority shall not be construed, and the Contractor agrees that it will not claim that any such assistance or cooperation operates, to relieve the Contractor from complete, proper and punctual performance of all the Contractor's obligations under this Agreement.

- 12. WORK ON THE AUTHORITY'S DESIGNATED PREMISES:** In the event that the Contractor, the Contractor's employees or agents or the Contractor's subcontractors enter the Authority's designated premises for any reason in connection with this Agreement, the Contractor and such other parties shall observe all security requirements and all plant safety, plant protection, and traffic regulations. The Contractor shall defend, indemnify, and hold the Authority harmless from all claims, actions, demands, loss, and causes of action, arising from injury, including death, to any person, or damage to any property, when such injury or damage results in whole or in part from the acts or omissions of the Contractor, the Contractor's employees or agents or the Contractor's subcontractor, save and except damage caused by the sole negligence of the Authority. The Contractor, and any subcontractor's used by the Contractor in connection with this Agreement, shall carry Workmen's Compensation and Employees' Liability Insurance to cover the Contractor's and any subcontractor's legal liability on account of accidents to their employees. The Contractor and any subcontractor shall carry adequate Comprehensive General Liability and adequate Comprehensive Automobile Liability Insurance covering accidents to their employees. The Contractor and any subcontractor shall carry adequate Comprehensive General Liability and adequate Comprehensive Automobile Liability Insurance covering legal

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liability of the Contractor and any subcontractor on account of accidents arising out of the operations of the Contractor or any subcontractor and resulting in bodily injury, including death, being sustained by any person or persons, or in any damage to property. At the Authority's request, the Contractor shall furnish to the Authority certificates from the Contractor's insurers showing such coverage in effect and agreeing to give the Authority ten (10) days; prior written notice of cancellation of the coverage.

13. RISK MANAGEMENT REQUIREMENTS: The Contractor shall abide by the Authority's applicable Risk Management Requirements, attached to this Agreement as Exhibit A and hereby incorporated into this Agreement.

14. TERMINATION FOR DEFAULT:

(a) The Authority may, subject to the provisions of subparagraph (c) below, by written notice of default to the Contractor, terminate the whole or any part of this Agreement in any one of the following circumstances; (i) if the Contractor fails to perform this Agreement within the time specified herein or any extension thereof; or (ii) if the Contractor fails to perform any of the other provisions of this Agreement, or so fails to make progress as to endanger performance of this Agreement in accordance with its terms, and does not cure such failure within a period of ten (10) days or longer period (as the Authority may authorize in writing) after receipt of notice from the Authority specifying such failure.

(b) In the event the Authority terminates this Agreement in whole or in part as provided in subparagraph (a) above, the Authority may procure, upon such terms and in such manner as the Authority may deem appropriate, services, similar to those so terminated, and the Contractor shall be liable to the Authority for any Excess costs for the same, including without limitation all cost and expenses of the type specified in the "WARRANTY" paragraph of this Agreement; provided, that the Contractor shall continue the performance of this Agreement to the

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extent not terminated hereunder.

- (c) Except with regard to defaults of subcontractors, the Contractor shall not be liable for any excess costs if the failure to perform this Agreement arises out of causes beyond the control and without the fault of negligence of the Contractor such causes may include, but are not limited to, acts of God, or of the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, flood, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather, but in every case the failure to perform must be beyond the control and without the fault or negligence of the Contractor. If the failure to perform is caused by the default of a subcontractor, and if such default arises out of causes beyond the control of both the Contractor and the subcontractor, and without the fault of negligence of either of them, the Contractor shall not be liable for any excess costs for failure to perform, unless the services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit the Contractor to meet the required delivery schedule. The term "subcontractor" shall mean subcontractor at any tier.
- (d) If, after notice of termination of this Agreement under the provisions of this paragraph, it is determined for any reason that the Contractor was not in default under the provisions above or that the default was excusable under the provisions of this paragraph, the rights and obligations of the parties shall be the same as if the notice of termination has been issued pursuant to the "Termination for Convenience" paragraph of this Agreement.
- (e) The rights and remedies of the Authority provided in this paragraph shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement

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15. **TERMINATION FOR CONVENIENCE:** The Authority may at any time by written notice terminate all or any part of this Agreement for the Authority's convenience. If this Agreement is terminated, in whole or in part, for the Authority's convenience, the Contractor shall be paid an amount, to be mutually agreed upon, which shall be adequate to cover the actual and reasonable cost paid by the Contractor for the actual goods and labor reasonably used by the Contractor to perform the work under this Agreement to the effective date of termination, plus a reasonable profit thereon; provided that no amount shall be paid to the Contractor for (i) any anticipatory profits related to work under this Agreement not yet performed, or (ii) costs incurred due to the Contractor's failure to terminate work as ordered on the effective date of termination. In no event shall the total amount paid under the provisions of this paragraph exceed the prices set forth in this Agreement for the work terminated.
16. **DISPUTES:** Pending resolution of any dispute hereunder, the Contractor shall proceed diligently with the performance of work in accordance with the Authority's direction.
17. **NOTICES:** All notices required or permitted to be given hereunder shall be deemed to be properly given if delivered in writing personally or sent by United States certified or registered mail addressed to the contractor or the Authority, as the case may be, with postage thereon fully prepaid. The effective time shall be at the time of mailing.
18. **ATTORNEYS' FEES:** The Contractor shall pay reasonable attorneys' fees to the Authority should the Authority be required to incur attorneys' fees in enforcing the provisions of this Agreement or in the collection of any monies herein required to be paid by the Contractor to the Authority.

(SIGNATURES ON NEXT PAGE)

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Section 1: Agreement Form

IN WITNESS WHEREOF this _____ day of _____, 20____, said parties have hereunto set their seals the day and year above first written.

Executed on behalf of:

CLAYTON COUNTY WATER AUTHORITY

BY: _____

TITLE:

[Seal]

ATTEST: _____

DATE: _____

CONTRACTOR

BY: P. MICHAEL THOMAS

TITLE: General Manager

[Corporate Seal]

ATTEST: _____

DATE: _____

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Section 1: Agreement Form

EXHIBIT A

RISK MANAGEMENT REQUIREMENTS

The Contractor will provide minimum insurance coverage and limits as per the following: The Contractor will file with the Authority Certificates of Insurance, certifying the required insurance coverages and stating that each policy has been endorsed to provide thirty (30) day notice to the Authority in the event that coverage is cancelled, non-renewed or the types of coverage or limits of liability are reduced below those required. All bonds and insurance coverage must be placed with an insurance company approved by Authority Management, admitted to do business in the State of Georgia, and rated Secure (“B+” or better) by A.M. Best Company in the latest edition of Property and Casualty Ratings, or rated by Standard & Poors Insurance Ratings, latest edition as Secure (“BBB” or better). Worker’s Compensation self-insurance for individual Contractors must be approved by the Worker’s Compensation Board, State of Georgia and/or Self-Insurance pools approved by the Insurance Commissioner, State of Georgia.

CONTRACTS FOR UP TO \$50,000

CONTRACTS FOR MORE THAN \$50,000

Worker’s Compensation – Worker’s Compensation coverage on a statutory basis for the State of Georgia with an Employer’s Liability limit of \$100,000 each Accident, Disease \$100,000 each employee, \$500,000 Disease policy limit.

Automobile Liability – Automobile liability coverage for owned, hired and non-owned vehicles in the amount of \$500,000 combined single limit.

Commercial General Liability – Coverage to be provided on “occurrence” not “claims made” basis. The coverage is to include Contractual liability, Per Project Limit of Liability, losses caused by Explosion, Collapse and Underground (“xcu”) perils, the “Clayton County Water Authority” is to be added as an Additional Insured and Products and Completed Operations coverage is to be maintained for three (3) years following completion of work.

Worker’s Compensation – Worker’s Compensation coverage on a statutory basis for the State of Georgia with an Employer’s Liability limit of \$1,000,000. The increased Employer’s Liability limit may be provided by an Umbrella or Excess Liability policy.

Automobile Liability - Automobile liability coverage for owned, hired and non-owned vehicles in the amount of \$1,000,000 combined single limit.

Commercial General Liability – Coverage to be provided on “occurrence” not “claims made” basis. The coverage is to include Contractual liability, Per Project Limit of Liability, losses caused by Explosion, Collapse and Underground (“xcu”) perils, the “Clayton County Water Authority” is to be added as an Additional Insured and Products and Completed Operations coverage is to be maintained for three (3) years following completion of work.

Division 3

Contract Forms

Section 1: Agreement Form

RISK MANAGEMENT REQUIREMENTS (Cont'd)

CONTRACTS FOR UP TO \$50,000

CONTRACTS FOR MORE THAN \$50,000

LIMITS OF LIABILITY:

\$1,000,000	Per Occurrence
\$1,000,000	Personal and Advertising
\$50,000	Fire Damage*
\$5,000	Medical Payments*
\$1,000,000	General Aggregate
\$1,000,000	Products/Completed Operations per Occurrence and Aggregate

**These are automatic minimums*

Owner's Protective Liability – The Authority's Management may, in its discretion, require Owner's Protective Liability in some situations.

Umbrella and/or Excess Liability – The umbrella or Excess Liability Policy may be used to combine with underlying policies to obtain the limits required. The Management of the Authority may elect to require higher limits.

Owner's Protective Liability – The Authority's Management may, in its discretion, require Owner's Protective Liability in some situations.

END OF SECTION

Division 3

Contract Forms

Section 2: Performance Bond

KNOW ALL MEN BY THESE PRESENTS THAT _____

_____ (as CONTRACTOR, hereinafter referred to as the
“Principal”), and _____ (as SURETY COMPANY),
hereinafter referred to as the “CONTRACTOR’S SURETY”), are held and firmly bound unto
the Clayton County Water Authority (as OWNER, hereinafter referred to as the “Authority”),
for the use and benefit of any “Claimant” as hereinafter defined in the sum of
_____ Dollars (\$ _____) lawful money of the United
States of America, for the payment of which the Principal and the Contractor’s Surety bind
themselves, their heirs, executors, administrators, successors and assigns, jointly and
severally, firmly by these presents.

WHEREAS, the Principal has entered, or is about to enter, into a certain written
agreement with the Authority, dated _____, which is incorporated
herein by reference in its entirety (hereinafter referred to as the “CONTRACT”), for the
construction of a project known as **Annual Contract for General Pipe Work**, (hereinafter
referred to as “the PROJECT”).

NOW THEREFORE, the conditions of this obligation are as follows:

1. That if the Principal shall fully and completely perform each and all of the
terms, provisions and requirements of the Contract, including and during the
period of any warranties or guarantees required thereunder, and all
modifications, amendments, changes, deletions, additions, and alterations
thereto that may hereafter be made; and if the Principal and the Contractor’s
Surety shall indemnify and hold harmless the Authority from any and all
losses, liability and damages, claims, judgments, liens, costs and fees of
every description, including but not limited to, any damages for delay, which

Division 3

Contract Forms

Section 2: Performance Bond

the Authority may incur, sustain or suffer by reason of the failure or default on the part of the Principal in the performance of any and all of the terms, provisions and requirements of the Contract, including all modifications, amendments, changes, deletions, additions, and alterations thereto and any warranties or guarantees required thereunder, then this obligation shall be void; otherwise to remain in full force and effect;

2. In the event of a failure of performance of the Contract by the Principal, which shall include, but not be limited to, any breach of default of the Contract;
 - a. The Contractor's Surety shall commence performance of its obligations and undertakings under this Bond no later than thirty (30) days after written notice from the Authority to the Contractor's Surety;
 - b. The means, method or procedure by which the Contractor's Surety undertakes to perform its obligations under this Bond shall be subject to the advance written approval of the Authority.

The Contractor's Surety hereby waives notice of any and all modifications, omissions, additions, changes and advance payments or deferred payments in or about the Contract, and agrees that the obligations undertaken by this Bond shall not be impaired in any manner by reason of any such modifications, omissions, additions, changes, and advance payments or deferred payments. The Parties further expressly agree that any action on this Bond may be brought within the time allowed by Georgia law for suit on contracts under seal.

Division 3

Contract Forms

Section 2: Performance Bond

IN WITNESS WHEREOF, the principal and Contractor's Surety have hereunto affixed their corporate seals and caused this obligation to be signed by their duly authorized officers or attorneys-in-fact, this _____ day of _____ 20__.

(Name of Principal)

By: _____

Name Printed: _____

Title: _____

Corporate Seal

Attested: _____

Date: _____

(Name of Contractor's Surety)

By: _____

Name Printed: _____

Title: _____

Corporate Seal

Attested: _____

Date: _____

(ATTACH SURETY'S POWER OF ATTORNEY)

END OF SECTION

Division 3

Contract Forms

Section 3: Payment Bond

KNOW ALL MEN BY THESE PRESENTS THAT _____

_____ (as CONTRACTOR, hereinafter referred to as the “Principal”), and _____
_____ (as SURETY COMPANY, hereinafter referred to as the “CONTRACTOR’S SURETY”), are held and firmly bound unto the Clayton County Water Authority (as OWNER, hereinafter referred to as the “Authority”), for the use and benefit of any “Claimant” as hereinafter defined in the sum of _____ Dollars (\$ _____), lawful money of the United States of America, for the payment of which the Principal and the Contractor’s Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered, or is about to enter, into a certain written agreement with the Authority, dated _____, which is incorporated herein by reference in its entirety (hereinafter referred to as the “CONTRACT”), for the construction of a project known as **Annual Contract for General Pipe Work** (hereinafter referred to as “the PROJECT”).

NOW THEREFORE, the condition of this obligation is such, that if the Principal shall promptly make payment to any Claimant, as hereinafter defined, for all labor, services and materials used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise to remain in full force and effect.

A “Claimant” shall be defined herein as any Subcontractor, person, Party, partnership, corporation or other entity furnishing labor, services or materials used or reasonably required for use in the performance of the Contract, without regard to whether

Division 3

Contract Forms

Section 3: Payment Bond

such labor, services or materials were sold, leased or rented, and without regard to whether such Claimant is or is not in privity of the Contract with the Principal or any Subcontractor performing Work on the Project.

In the event of any claim made by the Claimant against the Authority, or the filing of a Lien against the property of the Authority affected by the Contract, the Contractor's Surety shall either settle or resolve the Claim and shall remove any such Lien by bond or otherwise as provided in the Contract.

The Parties further expressly agree that any action on this Bond may be brought within the time allowed by Georgia law for suit on contracts under seal.

(SIGNATURES ON NEXT PAGE)

Division 3

Contract Forms

Section 3: Payment Bond

IN WITNESS WHEREOF, the Principal and Contractor's Surety have hereunto affixed their corporate seals and caused this obligation to be signed by their duly authorized officers on this _____ day of _____ 20__.

(Name of Principal)

By: _____

Name Printed: _____

Title: _____

Corporate Seal

Attested: _____

Date: _____

(Name of Contractor's Surety)

By: _____

Name Printed: _____

Title: _____

Corporate Seal

Attested: _____

Date: _____

(ATTACH SURETY'S POWER OF ATTORNEY)

END OF SECTION

Division 3

Contract Forms

Section 4: Non-Collusion Certificate

STATE OF _____ , COUNTY OF _____

Personally appeared before the undersigned officer duly authorized by law to administer oaths

who, after being first duly sworn, depose and say that they are all the officers, agents, persons or employees who have acted for or represented

_____, and that said

in proposing or procuring the Contract with the Clayton County Water Authority on the following project: **Annual Contract for General Pipe Work**

has not by (himself, themselves) or through any persons, officers, agents or employees prevented or attempted to prevent by any means whatsoever competition in such bidding; or by any means whatsoever prevented or endeavored to prevent anyone from making a proposal therefore, or induced or attempted to induce another to withdraw a bid for said work.

ATTEST:

	By: _____
	Bidder
By: _____	By: _____
Name	Name
Title: _____	Title: _____

Sworn to and subscribed before me this _____ day of _____, 20____

Notary Public: _____ My Commission expires: _____

END OF SECTION

Division 4

Specifications

Section 1: Work Assignment and Measurement

1.1 General

- A. This contract is intended to be used primarily when the known work at the start of construction consists of installing/repairing large diameter piping systems. Large diameter piping systems are defined as gravity-flow piping systems larger than 24 inches in diameter and pressure-flow piping systems larger than 8 inches in diameter.
 - 1. Large diameter pipe work may include other associated smaller pipe sizes.
 - 2. At CCWA's discretion, this contract may be utilized to complete any of the Work Items listed in the contract.
- B. The Contractor shall provide all labor, equipment, tools, materials (unless indicated otherwise as detailed in Division 4, Section 2) and incidental items to complete the Work Items in accordance with the Contract Documents.
- C. The basis for payment will be the bid unit cost amounts included in the "Pay Item Schedule" and the actual quantities of work completed by the Contractor and approved by the CCWA.
- D. Nothing in this Section shall be construed as providing for additional payment beyond the Work Items. The Contractor shall be paid only for the quantity of a Work Item that is completed and authorized/approved by CCWA. No payment will be made for the completion of excessive quantities of a Work Item as determined by the CCWA.
- E. The CCWA reserves the right to adjust the quantity of a Work Item up or down as necessary to address needs.

1.2 Work Assignment

- A. Work to be performed under this annual contract will be assigned on an as needed when needed basis as determined by the CCWA in the form of a Project Work Order.

Division 4

Specifications

Section 1: Work Assignment and Measurement

Project Set-Up for Non-Emergency Work

1. CCWA shall prepare draft work items and quantities for Contractor review.
2. Contractor shall provide comments on the draft work items and quantities to CCWA within 7 calendar days of issuance by CCWA in order that a Project Work Order can be issued or mutually agreed upon start date.
3. Contractor shall commence work on-site within 7 calendar days of receipt of a Project Work Order.

Project Set-Up for Emergency Work

1. CCWA shall prepare draft work items and quantities for Contractor review.
2. Contractor shall provide comments on the draft work items and quantities to CCWA within 24 hours of notice of emergency mobilization by CCWA in order that a Project Work Order can be issued.
3. Contractor shall commence work on-site within 24 hours of notice of emergency mobilization by CCWA. CCWA shall issue a Project Work Order prior to or concurrently with the start of work.

- B. A Project Work Order will be for work items that are in a common geographic location. A common geographic location may be considered a business/industrial park, city block or residential subdivision.
- C. Work of a Project Work Order shall be completed within the number of consecutive work days mutually agreed to by the Contractor and the CCWA prior to the start of the work.

1.3 Work Items and Measurement

- A. The descriptions below provide an explanation of the work that is to be completed as part of each Work Item and how the Work Item will be measured for payment.
1. Work Item descriptions incorporate work shown on the Construction Details or Construction Drawings/Detailed Site Map when applicable and all related work/specifications referenced in Division 4, Section 3.
 2. The Work Items correspond to the Work Items listed on the "Pay Item Schedule" of the Bid Form.

Division 4

Specifications

Section 1: Work Assignment and Measurement

Work Item 1. Mobilization (Lowboy Service): Defined as utilizing tractor-trailer services to transport heavy equipment to and from a specific work site. The Work Item will be paid on a per “each” unit cost, once per project work order, in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 2. Mobilization (Emergency): Defined as administrative and preparatory operations which are necessary to arrive on-site and initiate and start work on a project site within 24 hours of a notice of an Emergency Mobilization request. The Work Item will be paid for a Project Work Order in accordance with the Pay Item Schedule and applicable Detail when authorized/approved by CCWA. The costs for demobilization, and re-mobilizations due to shut downs or suspensions of the work caused by the Contractor shall not be compensated. When the Contractor expends administrative and preparatory labor time to assess a project at the request of the CCWA and no subsequent Project Work Order is authorized by CCWA, the Contractor will be entitled to receive compensation for said hourly labor only in accordance with Hourly Labor Work Items.

Work Item 3 - 4. Performance and Payment Bonds: Defined as obtaining and providing to the CCWA Performance and Payment Bonds in the required amounts for a Public Works project costing \$100,000 or more in value. The Work Item will be paid on a per “each” unit cost, for the Contractor’s work ranging from \$100,000 to \$125,000 in value and then for each increment of additional \$25,000 value, in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 5 - 8. Traffic Control County Road: Defined as the Contractor preparing, securing and implementing an approved Clayton County Transportation and Development Department traffic control plan and utilizing all equipment and signs required by the Manual on Uniform Traffic Control Devices (MUTCD) including a minimum of 2 fulltime flagmen to close lanes of traffic or a road and detouring traffic for a day or portion thereof while actively performing work in lanes of traffic. Traffic Control does not apply to accel/decal lanes or turning lanes. Traffic Control shall not be considered for loading/unloading equipment or loading/unloading material. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Division 4

Specifications

Section 1: Work Assignment and Measurement

Work Items 9 - 12. Traffic Control State Road: Defined as the Contractor preparing, securing and implementing an approved Georgia Department of Transportation traffic control plan and utilizing all equipment and signs required by the MUTCD manual including a minimum of 2 fulltime flagmen to close lanes of traffic or a road and detouring traffic for a day or portion thereof while actively performing work in lanes of traffic. Traffic Control does not apply to accel/decal lanes or turning lanes. Traffic Control shall not be considered for loading/unloading equipment or loading/unloading material. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 13. Construction Exit: Defined as installing a construction exit in accordance with the “Manual for Erosion and Sediment Control in Georgia”, latest edition and removing and disposing upon the completion of work. The Work Item will be paid on a per “each” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 14 - 16. Sediment Barrier Installation: Defined as installing Silt Fence – Type A (NS), Silt Fence – Type C (S) or Hay Bales as requested in accordance with “The Manual for Erosion and Sediment Control in Georgia”, latest Edition. The Work Items will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 17. Sediment Barrier Removal: Defined as removing and disposing, Silt Fence Type-A (NS), Silt Fence Type-C (S) or Hay Bales and stabilizing any subsequent disturbed soil in accordance with Work Items “Soil Stabilization”, as applicable. The Work Item will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 18. Curb Inlet Sediment Trap: Defined as installing a curb inlet sediment trap in accordance with the “Manual for Erosion and Sediment Control in Georgia”, latest edition and removing sediment trap and disposing upon the completion of work. The Work Item will be paid on a per “each” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Division 4

Specifications

Section 1: Work Assignment and Measurement

Work Items 19 - 22. Soil Stabilization: Defined as completing grading work and stabilizing soil in accordance with “The Manual for Erosion and Sediment Control in Georgia”, latest Edition. The Work Items will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 23. Hauling Material from Outside of County: Defined as transporting construction related material to a work site and unloading material from a materials facility located outside of Clayton County. This Work Item is only applicable to CCWA provided material, when CCWA requests the contractor to pick up material. Contractor shall make every effort to fully load each truck for transportation. The Work Item will be paid on a per “hour” unit cost from the time leaving the facility outside of Clayton County to the time arriving at the work site in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 24 - 27. Tree Removal: Defined as removing from the work site and disposing, trees, their limbs, their stumps, tap roots and other roots exceeding 1-inch in diameter to a depth of at least 18 inches. A tree is considered a tree when its diameter is 4 inches or greater as measured 54 inches up from adjacent bare ground surface. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 28. Easement Clearing: Defined as removing from the work site and disposing, all trees, their limbs, their stumps, tap roots, other roots exceeding 1-inch in diameter to a depth of at least 18 inches, brush and any other types of debris or materials in a permanent easement area and other areas as necessary within construction limits. Areas within construction limits having only mowed grass and asphalt/concrete pavement surfaces shall not be considered for easement clearing. The Work Item will be paid on a per “square foot” unit cost of construction limits cleared in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 29 - 30. Fence Work: Defined as removing chain-linked fencing, wired fencing, wood privacy fencing and posts and disposing or subsequent reinstallation. Where reinstallation is required, Contractor shall provide necessary fasteners, posts and accessories in accordance with manufacture instructions to

Division 4

Specifications

Section 1: Work Assignment and Measurement

match existing fence to complete the work. New fencing per property parcel will not be installed until all construction work has been completed on the property parcel. The Work Items will be paid on a per "linear foot" unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 31 - 34. General Excavation: Defined as completing the excavation of soils and/or removal of structures, pipe and/or removal of other objects or debris to a required grade, dewatering as necessary and disposing. The Work Items may only be used when work cannot be completed through other Work Items of the Contract. The depth of work shall be determined by measuring from original ground surface to bottom of excavation. The Work Items will be paid on a per "in-place cubic foot" unit cost and applicable Detail in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 35. General Excavation (Rock): Defined as completing the removal, stockpiling and/or disposing of rock and replacing quantity of removed rock with suitable soil. The Contractor is responsible for repairs and/or replacement of damaged property(s) resulting from the work. The Work Item will be paid on a per "in-place cubic foot" unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 36 - 41. General Fill/Backfill: Defined as placing soil and/or stone of varying sizes in excavations as necessary. The Work Items may only be used when work cannot be completed through other Work Items of the Contract. Where CCWA decides to backfill to the top of existing grade with stone, the backfill work will be paid using this Work Item and will be measured from stone elevation shown in details to existing grade. The Work Items will be paid on a per "in-place cubic foot" unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 42 - 50. Stone Placement: Defined as completing the excavation to required grade and removing and disposing soil and debris, placing stone of varying sizes to construct or add to slope grades, access road or parking area at requested layer thickness. The Work Items will be paid on a per "square foot" unit cost and applicable Detail in accordance with the Pay Item Schedule and as

Division 4

Specifications

Section 1: Work Assignment and Measurement

authorized/approved by CCWA. Where “increment” is indicated, layer may be increased or decreased by indicated thickness.

Work Item 51. Gabion Basket Installation: Defined as assembling gabion baskets of various sizes at a requested location and installing stone of varying sizes into baskets. The Work Item will be paid on a per “cubic foot” unit cost in accordance with the Pay Item Schedule and as authorized/approved by CCWA.

Work Item 52. Geotextile Fabric Installation: Defined as installing and anchoring geotextile fabric at a requested location. Geotextile Fabric will be woven or nonwoven fabric materials used to reinforce or separate soil and other materials. The Work Item will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule and as authorized/approved by CCWA.

Work Items 53 - 56. Pavement - Remove Asphalt: Defined as saw cutting through asphalt surfaces, removing asphalt pavement from work site and disposing. The Work Item will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 57 - 61. Pavement - Remove Concrete Flat Work: Defined as saw cutting through concrete surfaces, removing concrete from work site and disposing. The Work Item will be paid on a per “square foot” unit cost or a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 62 - 63. Pavement - Milling: Defined as using milling machines or cold planers and milling a 1 – 1/2 inch depth of the surface of paved areas such as roads, bridges or parking lots and removing and disposing of debris. The work will consist of milling up to 1,500 square feet and will be paid on a per “each” unit cost in accordance with Pay Item Schedule as authorized/approved by CCWA. Where more square footage is required the work item will be paid on a per “square foot” unit cost in accordance with Pay Item Schedule as authorized/approved by CCWA.

Work Items 64 - 65. Pavement - Asphalt Patching: Defined as preparing and compacting existing stone base and installing/compacting to a final 3-inch thick

Division 4

Specifications

Section 1: Work Assignment and Measurement

layer of Type E asphalt. Where a more or less than 3-inch thick layer of asphalt is required, layer shall be added or reduced in 1-inch thick increments. The Work Item will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as accepted/approved by CCWA. Where more or less asphalt is required the Work Item will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 66 - 67. Pavement - Asphalt Paving: Defined as preparing and compacting existing stone base and using a mechanical/hydraulic spreader machine and vibratory roller to install/compact to a final 3-inch thick layer of Type E asphalt. Where a more or less than 3-inch thick layer of asphalt is required, layer shall be added or reduced in 1-inch thick increments. The Work Items will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as accepted/approved by CCWA. Where more or less asphalt is required the Work Item will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 68 - 73. Pavement - Concrete Flatwork: Defined as installing concrete of varying thickness to a required grade. The Work Items for concrete will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule and applicable depth Detail as authorized/approved by CCWA. The Work Item “Wire Mesh” will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA. The Work Item “Steel Reinforcement” will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 74 - 75. Pavement - Curb and Gutter Replacement: Defined as completing concrete curb work to replace curb that has been removed or damaged due to construction. The Work Items will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 76. Pavement - Catch Basin Spillway Throat: Defined as completing concrete work to replace spillway throats that have been removed or damaged due to construction. The Work Item will be paid on a per “linear foot”

Division 4

Specifications

Section 1: Work Assignment and Measurement

unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 77 - 78. Pavement – Line Striping: Defined as installing a painted line of the appropriate color to asphalt and concrete surfaces of parking lots and roads. Sufficient paint shall be applied so that no asphalt or concrete color is visible through paint. The Work Items will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 79. Pavement - Marking: Defined as installing a painted handicap symbol, complying with Figure 3B-22 of the Manual on Uniform Traffic Control Devices, of the appropriate color to asphalt and concrete surfaces of parking lots. The Contractor shall provide a water-based paint, fast dry, formulated for pavement application; dry to the touch in 5 minutes, ready for traffic in 15 minutes. Sufficient paint shall be applied so that no asphalt or concrete color is visible through paint. The Work Item will be paid on a per “each” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 80. Pavement - Pressure Washing: Defined as using a minimum 3,500 psi pressure washer and removing soil / mud and stains, without material damage, from asphalt and concrete surfaces. The Work Item will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 81 - 90. Pumping: Defined as providing, operating and maintaining a complete pumping system for flow interruption during construction. Where Single is indicated, one pump and its associated system is to be provided. Where Redundant is indicated, one pump and its associated system of the same size as the single pump and equipped with call-out features is to be provided and integrated with the single pump system. The Work Items will be paid on a per “day” or any portion thereof of a 24-hour day unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 91 - 92. Pipe Installation - Open Cut (Copper-Type K): Defined as installing copper “Type K” pipe of requested size at necessary grade and applicable fittings and making all necessary connections to the main (tee, tap or

Division 4

Specifications

Section 1: Work Assignment and Measurement

core) and to the meter; removal/reinstall or new installation of a new meter box is part of the Work Item. Upon completion of work, excavation shall be backfilled to required grade. Where Additional Footage is indicated, pipe is installed at lengths beyond that of 20 feet. The Work Item detailed as "Installation/Replacement" will be paid on a per "each" unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA. The Work Item detailed as "Additional Footage" will be paid on a per "linear foot" unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 93 - 94. Pipe Installation – Augered (Copper-Type K): Defined as completing bore pit and receiving pit excavations/backfill and installing copper "Type K" pipe of requested size by augering methods without casing at necessary grade and installing applicable fittings and making all necessary connections to the main (tee, tap or core) and to the meter; removal/reinstall or new installation of a new meter box is part of the Work Item. Where Installation/Replacement is indicated, up to 50 feet (length) of pipe is to be installed. Where Additional Footage is indicated, pipe is installed at lengths greater than 50 feet. The Work Item detailed as "Installation/Replacement" will be paid on a per "each" unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA. The Work Item detailed as "Additional Footage" will be paid on a per "linear foot" unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 95 - 97. Pipe Installation - Open Cut (Copper-Type L): Defined as installing copper "Type L" pipe of requested size at necessary grade and making all necessary connections. Upon completion of work, excavation shall be backfilled to required grade. The depth of work shall be determined by measuring from original ground surface to bottom of excavation and along the length of the excavation. Linear foot shall refer to the length of pipe installed including connecting couplings. The Work Items will be paid on a per "linear foot" unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 98 - 100. Pipe Installation – Augered (Copper-Type L): Defined as, at locations as determined by CCWA, and completing bore pit and receiving pit excavations/backfill for an augered bore and installing copper "Type L" pipe of requested size by augering methods without casing at necessary grade and

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Section 1: Work Assignment and Measurement

making all necessary connections. Where the Contractor requests to auger instead of open cut out of convenience, the work will be paid using open cut unit pricing. The depth of work shall be determined by measuring from original ground surface to bottom of pipe. Linear foot shall refer to the length of pipe installed including connecting couplings. The Work Items will be paid on a per "linear foot" unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 101 - 382. Pipe Installation - Open Cut (Various Materials): Defined as installing polyvinyl chloride (PVC), ductile iron (DI), steel reinforced concrete (RC), high density polyethylene (HDPE), corrugated metal (CM) or fiberglass reinforced polymer mortar (FRPM) pipe and solid sleeves / couplings of requested size at necessary grade and making all necessary connections to adjacent pipe and manholes. Upon completion of work, excavation shall be backfilled to required grade. This Work Item will also be used to excavate/backfill and remove pipe from the Work Site for disposal. This Work Item will also be used to excavate/backfill and install fittings, valve boxes and cored taps into pipes. Installation of fittings (other than solid sleeves / couplings) will be paid through another Work Item. Where Point Repair is indicated, up to 20 feet (length) of pipe at a single location is to be installed. Where Additional Footage is indicated, pipe is installed at a linear footage beyond 20 feet. The depth of work shall be determined by measuring from original ground surface to bottom of excavation and along the length of the excavation. Linear foot shall refer to the length of pipe installed including connecting couplings. The Work Items detailed as "Point Repair" will be paid on a per "each" unit cost in accordance with the Pay Item Schedule and applicable depth Detail as authorized/approved by CCWA. The Work Item "Additional Footage" will be paid on a per "linear foot" unit cost in accordance with the Pay Item Schedule and applicable depth Detail as authorized/approved by CCWA.

Work Items 383 - 402. Pipe Installation – Open Cut (Steel Casing): Defined as installing steel casing pipe of requested size at necessary grade and making all necessary connections. Upon completion of work, excavation shall be backfilled to required grade. Contractor shall prepare ends of casing and continuously butt weld each joint. The depth of work shall be determined by measuring from original ground surface to bottom of excavation and along the length of the excavation. Linear foot shall refer to the length of casing installed.

Division 4

Specifications

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The Work Items will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable depth Detail as authorized/approved by CCWA. The Work Items detailed as “Weld” will be paid on a per “each” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 403 - 417. Cased Bore: Defined as installing steel casing pipe of requested size using non steered or steered techniques. Where “Rock Bore” is indicated, the Work Item will be paid as an addition to the “Non Steered” Work Item. Where casings are removed to alter bore techniques, the work will be paid using “Hourly Labor” Work Items. The Work Items will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 418 - 421. Bore Entry Pit: Defined as constructing required excavations to facilitate cased bore work. Upon completion of work, excavations shall be backfilled to finish grade. The Work Items will be paid on a “vertical foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 422 - 425. Bore Receiving Pit: Defined as constructing required excavations to facilitate cased bore work. Upon completion of work, excavations shall be backfilled to finish grade. The Work Items will be paid on a “vertical foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 426 - 432. Pipe Insertion into Steel Casing: Defined as installing PVC or DI piping of requested size through a steel casing, installing restraining joint gaskets, installing a minimum of three casing spacers per piece of pipe and installing flexible rubber casing seals. Linear foot shall refer to the length of pipe installed inside the casing. The Work Items will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 433 - 436. Polyethylene Pipe Encasement: Defined as installing tube-type polyethylene over piping of requested size during pipe installation operations and securing open ends of polyethylene with tape. Linear foot shall refer to the length of polyethylene installed. The Work Items will be paid on a per

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“linear foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 437 - 440. Direct Tap Into Pipe: Defined as installing a wet tap core or dry tap core into PVC, DI or CI pipe. This Work Item is not for use with making service taps. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 441 - 449. Core Into Pipe: Defined as installing a tapping sleeve or saddle, installing required valve and completing wet tap core or dry tap core into PVC, DI or CI pipe. This Work Item is not for use with making service taps. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 450 - 458. Connect Fitting / Valve To Pipe: Defined as working above grade or below grade, cutting pipe as necessary and connecting Brass / Bronze, PVC, DI or rubber fitting or valve or fitting(s) / valve(s) assembly to pipe. using threaded, flared, ProPress®, push-on joint, sleeved standard mechanical, MJ Field-Lock®, MEGALUG® or banded connection methods, cutting to length and installing necessary pipe nipples. A valve installed as part the Work Item “Core Into Pipe” is not part of this Work Item. Each shall refer to each individual fitting or valve installed. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 459 - 461. Fire Hydrant Installation: Defined as installing the requested Fire Hydrant and extension kits as necessary, cutting and installing pipe nipple up to 5-feet in length, making connections to valve. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 462. Fire Hydrant (Existing) Vertical Adjustment: Defined as installing / removing requested extension kits, reassembling hydrant. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 463 - 465. Fire Hydrant Removal: Defined as removing fire hydrant and piping, up to 5 linear feet, to valve and disposing, installing

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mechanical plug on valve. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 466. Air / Vacuum Release Valve Installation: Defined as assembling and installing an air / vacuum release valve(s) or assembly of various sizes onto a threaded or flanged tapping saddle or sleeve. Shut-off valves, bends, thread sealant associated with the valve(s) shall be installed as part of the Work Item. The Work Item will be paid on a per “each” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 467 - 470. Concrete Thrust Restraint: Defined as installing cast-in-place concrete thrust restraint tie-back or block for the specified pipe size. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 471. Pipe Collar Installation: Defined as constructing wood forms or other means as to form material and installing a pipe collar at locations requested by CCWA. The Work Item will be paid on a per “cubic foot” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 472 - 475. Flared End Section Installation: Defined as removing existing flared end section as may be required, installing a new flared end section or repositioning an existing flared end of RC, HDPE or Metal and of the indicated size. Remove excess or unsuitable soil, debris and existing flared end as necessary and dispose. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 476 - 483. Precast Headwall Installation: Defined as removing an existing headwall and disposing as may be required, installing a new precast concrete headwall or repositioning an existing precast concrete headwall of the indicated size. Upon completion of work, excavation shall be backfilled to required grade. Remove excess or unsuitable soil and debris as necessary and dispose. Where a double barrel headwall is to be installed, this Work Item may be used and the work will be considered as two installations. Contractor shall provide and install brick and mortar to seal annular space between headwall and piping and/or space between adjacent headwall sections. The Work Items will be

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paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 484 - 497. Precast Manhole Installation: Defined as installing a precast concrete manhole of requested size. Where applicable, provide and install brick and mortar to seal annular space between manhole and piping. Upon completion of work, excavation shall be backfilled to required grade. This Work Item may also be used to excavate and install additional riser sections or remove / replace riser sections. The base and riser diameter of a manhole will be determined by measuring the inside diameter. The riser above the base will be measured vertically from the top of the constructed manhole invert to the top of a reducer slab or to the top of a cone section if a reducer slab is not installed. The riser above the reducer slab will be measured for diameter and vertically from the top of the reducer slab to the top of the cone section. The Work Items for manhole base slab will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA. The Work Items for manhole riser height will be paid on a per “vertical foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 498 - 505. Precast Box / Vault Installation: Defined as installing a precast concrete vault of requested size. Upon completion of work, excavation shall be backfilled to required grade. The size of the structure will be measured using interior wall dimensions. The riser above the base will be measured vertically from the top of the constructed invert to the top of the top slab. The Work Items for base slab will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA. The Work Items for riser height will be paid on a per “vertical foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 506 - 519. Manhole Invert Construction: Defined as installing concrete or brick and mortar channels of the necessary shape and size in manholes to direct flow. Remove related debris from the work site. The size of invert construction will be determined by measuring the inside diameter of the manhole base. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

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Work Items 520 - 521. Other Invert Construction: Defined as installing concrete or brick and mortar channels of the necessary shape and size to direct flow. Remove related debris from the work site. The size of invert construction will be determined by measuring the inside shape of the structure base. The Work Items will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 522 - 523. Ring and Cover Installation: Defined as installing traffic rated or non-traffic rated cast iron ring and cover, setting ring to grade in formwork or with brick and mortar on structure as required, grouting ring to structure or brick work. Where CCWA decides to backfill to the top of existing grade with stone, the backfill work will be paid from Work Items “General Fill/Backfill” on a per “in-place cubic foot” and will be measured from stone elevation shown in details to existing grade. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 524. Catch Basin Spillway Installation: Defined as installing a concrete catch basin spillway of various sizes. Upon completion of work, excavation shall be backfilled to required grade. The Work Item will be paid on a per “each” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 525. Catch Basin Top Slab Installation: Defined as installing a concrete catch basin top slab of various sizes. The Work Item will be paid on a per “each” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 526 - 529. Concrete Core: Defined as coring a hole of a requested size through existing concrete / steel reinforced concrete of varying thicknesses, loading concrete core piece and disposing and installing a Kor-N-Seal manhole to pipe connector or other seal required for the work. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 530 - 533. Brick Work: Defined as installing brick and mortar to form walls of varying thickness and constructing boxes / vaults of requested sizes. Remove related debris from the work site. The “Brick Deep Wall

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Construction” description indicates the number of bricks used to construct the depth of the wall. The Work Items will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 534 - 536. Concrete Work: Defined as setting formwork for footing, vertical wall, elevated slab and/or pier construction and placing concrete. Remove formwork and related debris from the work site. The “Bulk” description is the concrete provided for the work. The “Form Work” description is form work needed for vertical wall construction or elevated slab construction including all plywood, fiberglass, walers, snap ties, form release agent, and incidentals to complete the work. The “Steel Reinforcement” description is for steel bars, supporting chairs and tie wire. The Work Item “Bulk” will be paid on a per “cubic yard” unit cost in accordance with the Pay Item Schedule as accepted/approved by CCWA. The Work Item “Form Work” will be paid on a per “square foot” unit cost in accordance with the Pay Item Schedule as accepted/approved by CCWA. The Work Item “Steel Reinforcement” will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 537 - 539. Cementitious Grouting: Defined as installing necessary piping and/or bulk heads to facilitate the work, placing grout and completely filling pipe or repairing pipe invert or other work as may be necessary and removing and loading for disposal any waste material. The “Grout Mixed By Hand” description is where mixture is provided in a sack, water is added at the work site and mixture and water are combined and mixed together using hand tools; cubic foot quantity is indicated on the sack. The “Grout Mixed By Plant” description is where mixture and water are combined at a plant and mixed in a cement truck. The “Pump Mobilization” description is where a pump is utilized to place grout. The Work Item “Grout Mixed By Hand” will be paid on a per “cubic foot” unit cost in accordance with the Pay Item Schedule as accepted/approved by CCWA. The Work Item “Grout By Plant Mixing” will be paid on a per “cubic yard” unit cost in accordance with the Pay Item Schedule as accepted/approved by CCWA. The Work Item “Pump Mobilization” will be paid on a per “each” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 540 - 541. Chemical Grouting: Defined as installing necessary fittings, placing chemical grout to stop infiltration in concrete structures and/or fill voids in soil or other work as may be necessary and removing and disposing any

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waste material. The Work Item "Grout" will be paid on a per "gallon" unit cost in accordance with the Pay Item Schedule as accepted/approved by CCWA. The Work Item "Pump Mobilization" will be paid on a per "each" unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 542 - 544. Pressure Testing: Defined as completing a pressure test on newly installed pipe. Where newly installed pressure pipe is separated by existing piping, newly installed pressure pipe will be tested independently from each other. The Work Items will be paid on a per "each" unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 545. Pipe Disinfection: Defined as completing disinfection procedures on newly installed pipe using a sodium hypochlorite solution. The Work Item will be paid on a per "gallon" unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 546 - 551. Hourly Labor: Work Items shall be utilized on a case-by-case basis. Defined as providing and utilizing the indicated labor position to complete work as requested for a certain amount of time. Only the time the labor position is on the work site and working will be considered for payment. The hourly rate shall be the Contractor's total expense per hour for the indicated labor position. The Work Items will be paid on a per "hour" unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Items 552 - 564. Hourly Equipment: Work Items shall be utilized on a case-by-case basis. Defined as providing and utilizing the indicated piece of equipment to complete work as requested for a certain amount of time. Only the time the piece of equipment is in operation will be considered for payment. The hourly rate shall be the Contractor's total expense per hour for the indicated piece of equipment. The Work Items will be paid on a per "hour" unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 565. Equipment Rental: Work Item shall be utilized on a case-by-case basis. Defined as furnishing equipment not included as part of other Work Items or listed in the Work Item "Hourly Equipment", to complete work. The Contractor may furnish equipment through a rental company or through the

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Contractor's company. Where the Contractor furnishes the equipment through the Contractor's company, industry standard rental rates for equivalent equipment shall apply. The Work Item will be paid at invoice cost plus a Contractor's 10% percent markup in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 566. Supplied Material: Work Item shall be utilized on a case-by-case basis. Defined as furnishing material, not included as part of other Work Items, needed to complete the work. The Work Item will be paid at invoice cost plus a Contractor's 10% percent markup in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 567. Specialty Services: Work Item shall be utilized on a case-by-case basis. Defined as furnishing services through another firm, for work related to this Contract, that is not included on the Pay Item Schedule that is needed to complete the work. The Work Item will be paid at invoice cost plus a Contractor's 10% percent markup in accordance with the Pay Item Schedule as authorized/approved by CCWA.

END OF SECTION

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Section 2: Material Requirements

2.1 General

- A. This section describes in general the materials that are to be provided for the work.
- B. The material conformance reference forms a part of the specifications to the extent stated herein and shall be of the latest editions.
- C. All materials provided shall be new and domestically manufactured unless approved otherwise.
- D. An indication is provided in each below section of whether the material is to be provided by the Contractor or provided by CCWA.
- E. Where a material is required and not specifically described below, the material shall be provided by the Contractor.
- F. Where a Detail showing/describing a material is not provided but is referenced as part of this Contract, industry recognized standards shall be applicable.

2.2 Ductile Iron Pipe and Fitting

- A. Material provided by CCWA.
- B. Material conformance reference.
 - 1. ANSI/AWWA C151/A21.51: Ductile-Iron Pipe, Centrifugally Cast.
 - 2. ANSI/AWWA C115/A21.15: AWWA Standard for Flanged Ductile-Iron Pipe with Threaded Flanges.
 - 3. ANSI/AWWA C110/A21.10: Ductile-Iron and Gray-Iron Fittings.
 - 4. ANSI/AWWA C153/A21.53: American National Standard for Ductile-Iron Compact Fittings for Water Service.
 - 5. ANSI/AWWA C111/A21.11: Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings.
 - 6. ANSI/AWWA C104/A21.4: Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
 - 7. ANSI/AWWA C116/A21.16: Protective Fusion-Bonded Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings.
 - 8. ASTM A563: Standard Specification for Carbon and Alloy Steel Nuts.
 - 9. ASTM A307: Standard Specification for Carbon Steel Bolts, and Studs.

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C. Pipe description.

1. Push-on joint pipe four (4) inches and six (6) inches in diameter shall be Class 51.
2. Push-on joint pipe eight (8) inches in diameter and larger shall be Class 50.
3. Flanged pipe shall have a minimum pressure rating of 250 psi.
4. Restrained-joint pipe shall be of the flex-ring type having a welded bead lock ring or similar having a minimum pressure rating of 250 psi.
5. The following information shall be cast in or stamped on each pipe.
 - a) Weight, class or nominal thickness.
 - b) Casting period.
 - c) Manufacturer's identifying mark.
 - d) Year the pipe was manufactured.
 - e) The letters "DI" or "DUCTILE".
6. Nominal length per joint of pipe is 18 feet or 20 feet.
7. Joint lubricant as provided by the pipe manufacturer.

D. Fitting description.

1. Mechanical fittings for use with push-on joint pipe shall be standard mechanical, compact series, having a minimum pressure rating of 250 psi.
2. Flanged fittings shall have a minimum pressure rating of 250 psi.
3. Restrained-joint fittings shall be of the flex-ring type or similar having a minimum pressure rating of 250 psi.

E. Gasket description.

1. Gaskets for push-on and standard mechanical joints shall be plain rubber (Styrene Butadiene Copolymer).
2. Gaskets (FIELD LOK[®]) and (MJ FIELD LOK[®]) used to restrain push-on joint pipe and/or standard mechanical joint fittings, respectively, shall be plain rubber (Styrene Butadiene Copolymer) modified with stainless steel teeth.
3. Gaskets for restrained joint pipe of the flex-ring type and restrained joint fittings of the flex-ring type or similar shall be plain rubber (Styrene Butadiene Copolymer) modified with ductile iron segments.
4. Gaskets for flanged joints shall be 1/8-inch thick, full-faced, clothed reinforced rubber.

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- F. Retaining glands and adapter coupling description.
 - 1. Retaining gland where joint restraint is not required shall be standard mechanical.
 - 2. Retaining gland (MEGALUG®) where the gland acts as the restraining mechanism, shall include gripping wedges with torque limiting twist-off nuts.
 - 3. Retaining gland (MJ FIELD LOK®) where the gasket acts as the restraining mechanism shall be suited for application.
 - 4. Adapter coupling (Foster Adapter®) shall be a bolt-through positive restraining connector between two standard mechanical joints.

- G. Bolt description.
 - 1. Bolts and nuts used for standard mechanical connections shall be tee head type with heavy hex nut.
 - 2. Bolts and nuts used for flanged connections shall be hex type of low carbon steel, cadmium plated or zinc plated.

- H. Coating and lining description.
 - 1. Pipe and fittings placed on or beneath the ground surface shall have an exterior coating of asphalt (one mil).
 - 2. Pipe and fittings placed above the ground surface shall have an exterior manufacturer applied universal phenolic primer (one mil) capable of accepting an epoxy coating.
 - 3. Pipe that crosses or runs parallel to a gas transmission main, which is or may be cathodically protected, shall be encased in polyethylene tubing, eight (8) mil minimum thickness, overlapped 12 inches and taped.
 - 4. Pipe and fittings used in the distribution of potable water shall be cement lined.
 - 5. Pipe and fittings used in sanitary sewer systems shall be cement lined and cement lining sealed with asphalt or lined with 401 Protecto™ ceramic epoxy.
 - 6. Fittings in lieu of an asphalt coating and cement lining may be coated and lined with five (5) to eight (8) mils of fusion bonded epoxy. Fittings shall be listed by a certifying agency that the coating complies with ANSI/NSF 61.

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Acceptable Manufacturers - Model

- U.S. Pipe.
- American Cast Iron Pipe Company.
- As Approved.

2.3 Polyvinyl Chloride Pipe and Fitting

A. Material provided by CCWA.

B. Material conformance reference.

1. ASTM D3034: Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings. Pipe requirements, gravity
2. ASTM F679: Standard Specification for Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
3. AWWA C900: Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution. Pipe requirements, pressure
4. AWWA C905: Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. - 48 In. (350 mm - 1,200 mm). Pipe requirements, pressure (large diameter).
5. ASTM D1784: Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
6. ASTM D3139: Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
7. ASTM D3212: Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
8. ASTM D2412: Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate.
9. ASTM F477: Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

C. Pipe and fitting description.

1. Pipe for gravity flow applications shall be standard dimension ratio/pipe stiffness SDR 26 / PS115 push-on joint type.
2. Pipe for pressure flow applications shall be C900/C905 dimension ratio DR 18 push-on joint type.
3. The following information shall be stamped on each pipe.

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- a) Class identifier.
 - b) ASTM designation.
 - c) Manufacturer's identifying mark.
 4. Nominal length per joint of pipe is 14 feet or 20 feet.
 5. Pipe shall be green in color for sanitary sewer service.
 6. Joint lubricant as provided by the pipe manufacturer.
- D. Gasket and restrained joint description.
1. Gaskets shall be plain rubber suitable for sanitary sewer service.
 2. Gaskets used to restrain joint may be modified with stainless steel teeth.
 3. Pipe bell used to restrain joint may be fabricated with internal lock ring (removable).

Acceptable Manufacturers

- As Approved.

2.4 Reinforced Concrete Pipe and Fitting

- A. Material provided by CCWA.
- B. Material conformance reference.
1. ASTM C76: Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
 2. AASHTO M170: Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
 3. ASTM C443: Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
 4. AASHTO M198: Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
- C. Pipe and fitting description.
1. Pipe shall be push-on joint, round or arched, Class III with a shell thickness designation "Wall B".
 2. Manufacturer shall be listed on the Qualified Products List (QPL-4) by the Office of Material and Research, Georgia Department of Transportation.

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3. The following information shall be cast or painted on the interior of each pipe.
 - a) Weight, class or nominal thickness.
 - b) Manufacturer's identifying mark.
 - c) Pipe diameter.
 - d) Stamped with a G.D.T. (Georgia Department of Transportation) or C.P.T. (Certified Pipe/Precast Technician) number.
4. Nominal length per joint of pipe is 8 feet.
5. Plastic / rubber inserts to plug lifting holes as provided by manufacturer.
6. Joint lubricant as provided by manufacturer.

D. Gasket description.

1. Gaskets shall be Type "A" plain rubber suitable for storm water service.

Acceptable Manufacturers

- As Approved.

2.5 High Density Polyethylene Pipe and Fitting

A. Material provided by CCWA.

B. Material conformance reference.

1. ASTM D3350: Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
2. AASHTO M252 – Type S: Standard Specification for Corrugated Polyethylene Drainage Pipe.
3. AASHTO M294 – Type S: Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter.
4. ASTM F477: Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

C. Pipe and fitting description.

1. Pipe shall be push-on, soil tight joint.
2. Bell and spigot connections shall utilize a spun-on or welded bell and valley or saddle.
3. Pipe configuration shall be of integrally formed smooth waterway with circular cross-section braced circumferentially by circular ribs.

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4. Manufacturer shall be listed on the Qualified Products List (QPL-51) by the Office of Material and Research, Georgia Department of Transportation.
 5. The following information shall be stamped or painted on each pipe.
 - a) Manufacturer's identifying mark.
 - b) Pipe diameter.
 - c) Pipe must be pre-inspected and stamped, by means of a thermal branding iron on the interior wall of each pipe section with a P.P.T (Plastic Pipe Technician) number.
 6. Nominal length per joint of pipe is 20 feet.
 7. Joint lubricant as provided by manufacturer.
- D. Gasket description.
1. Gaskets shall be plain rubber suitable for storm water service.
 2. Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris.

Acceptable Manufacturers

- As Approved.

2.6 Corrugated Metal Pipe

- A. Material provided by CCWA.
- B. Material conformance reference.
1. ASTM A760: Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains.
 2. AASHTO M36: Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains.
 3. ASTM A929: Standard Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe.
 4. AASHTO M218: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized), for Corrugated Steel Pipe.
 5. AASHTO M274: Standard Specification for Steel Sheet, Aluminum-Coated (Type 2), for Corrugated Steel Pipe. (aluminized)

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C. Pipe description.

1. Pipe shall be 16-gauge in thickness, round and manufactured with continuous locked seams.
2. Pipe ends shall be annular corrugated for use with soil tight coupling bands.
3. The following information shall be stamped or painted on each pipe.
 - a) Manufacturer's identifying mark.
 - b) Pipe thickness.
 - c) Weight of coating.
4. Nominal length per joint of pipe is 20 feet.

Acceptable Manufacturers

- As Approved.

2.7 Fiberglass Reinforced Polymer Mortar Pipe

A. Material provided by CCWA.

B. Material conformance reference.

1. ASTM D3262: Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer Pipe.
2. ASTM D4161: Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe Joints Using Flexible Elastomeric Seals.
3. ASTM D2412: Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.
4. ASTM D3681: Standard Test Method for Chemical Resistance of "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe in a Deflected Condition.
5. ASTM D638: Standard Test Method for Tensile Properties of Plastics.
6. ASTM D4161: Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe Joints Using Flexible Elastomeric Seals.
7. ASTM F477: Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

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C. Pipe Description.

1. Pipe shall be push on pipe, minimum pressure class 25, stiffness class 46 unless indicated otherwise.
2. Outside pipe diameters shall be per manufacturer's literature.
 - a) Outside diameter shall be a consistent tolerance throughout the entire barrel length.
 - b) All pipe shall be "Adjustment" grade and quality.
3. Pipe ends shall be square to the pipe axis with a maximum tolerance of 1/8-inch.
4. The following information shall be stamped or painted on each pipe.
 - a) Manufacturer's identifying mark.
 - b) Pipe diameter.
 - c) Pressure class.
 - d) Stiffness class.
5. Nominal length per joint of pipe is 20 feet. Actual laying length shall be nominal +1, -4 inches.
6. Joint lubricant as provided by manufacturer.

D. Coupling and Gasket description.

1. Pipe joint unless otherwise specified shall be field connected with fiberglass sleeve coupling.
2. Gaskets shall be plain rubber suitable for sanitary sewer service. Gasket shall be full-face elastomeric or o-ring style with centered pipe stop.
3. Each piece of pipe shall be fitted with a coupling by the manufacturer prior to shipping.

Acceptable Manufacturers

- As Approved.

2.8 Copper Pipe and Fitting

A. Material provided by CCWA.

B. Material conformance reference.

1. ASTM B88: Standard Specification for Seamless Copper Water Tube.
2. ASTM B124: Standard Specification for Copper and Copper Alloy Forging Rod, Bar, and Shapes.

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3. ASTM B124: Standard Specification for Copper and Copper Alloy Forging Rod, Bar, and Shapes.
 4. ANSI B16.22: Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
- C. Pipe Description.
1. Buried service three-quarter ($\frac{3}{4}$) inches in diameter to one (1) inch in diameter shall be seamless, annealed copper tube, Type "K".
 2. Buried service greater than one (1) inch in diameter shall be hard-drawn copper tube, Type "L".
 3. Exposed or above-ground service shall be hard-drawn copper tube, Type "L".
- D. Fitting Description.
1. Fittings for annealed copper tube, Type "K", shall be brass flared type.
 2. Fittings for hard-drawn copper tube, Type "L", shall be wrought copper suited for silver brazed joints or ProPress type fitted with EPDM gaskets.
 3. Lead free solder and flux shall be used in making connections where applicable.
 4. Meter couplings and tail pieces shall be cast brass threaded type.

Acceptable Manufacturers

- As Approved.

2.9 Steel Casing

- A. Casing material only provided by CCWA. Other items to install a casing, i.e. gear box, water tube, black iron piping, etc., will be provided by the contractor.
- B. Material conformance reference.
1. ASTM A252: Standard Specification for Welded and Seamless Steel Pipe Piles.
- C. Description.
1. Casing steel shall be uncoated with minimum mechanical properties of a Grade 2.

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2. Casing steel wall thickness will range from 0.25 inch to 1.0 inch with end treatments being a 30° bevel or square (when requested).
3. Nominal length per joint of casing is 20 feet.

Acceptable Manufacturers

- As Approved.

2.10 Casing Spacer

A. Material provided by CCWA.

B. Description.

1. Spacer body shall be constructed of 14 gauge stainless steel (Type 304) in widths from 8 to 12 inches.
2. Spacer riser shall be 10-gauge stainless steel with a minimum width of 2 inches. Spacer shell shall be fitted with a minimum of four risers, welded.
3. Each riser shall be capped with a glass filled polymer runner. Runner shall be attached to riser using stainless steel bolts and nuts.
4. Make up of spacer shall center pipe in casing and limited radial movement of pipe within the casing to no more than $\frac{3}{4}$ inch.

Acceptable Manufacturers

- As Approved.

2.11 Casing End Seal

A. Material provided by CCWA.

B. Description.

1. End seal shall be minimum 1/8-inch thick neoprene rubber.
2. End seal may be pull-on or wrap-around and secured using stainless steel (Type 304) banding, $\frac{1}{2}$ -inch width.

Acceptable Manufacturers

- As Approved.

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2.12 Pipe Transition Coupling

- A. Material provided by CCWA.

- B. Material conformance reference.
 - 1. ASTM A513: Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing. Rigid coupling requirement
 - 2. ASTM A635: Standard Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Alloy, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability Rigid coupling requirement
 - 3. ASME SA36: Hot-rolled Common Carbon structural steel. Rigid follower requirement
 - 4. AWWA C111/ANSI A21.11: Standard for Tape Coating Systems for the Exterior of Steel Water Pipelines. Bolt requirement
 - 5. ASTM D5926: Standard Specification for Poly (Vinyl Chloride) (PVC) Gaskets for Drain, Waste, and Vent (DWV), Sewer, Sanitary, and Storm Plumbing Systems. Flexible material requirement
 - 6. ASTM C1173: Standard Specification for Flexible Transition Couplings for Underground Piping Systems. Flexible coupling requirement

- C. Rigid Coupling.
 - 1. Middle ring, bolts and nuts shall be carbon steel, fusion bonded epoxy coating for buried service.
 - 2. Followers shall be ductile iron.
 - 3. Gaskets shall be Buna (S blend).

- D. Flexible Coupling
 - 1. Manufactured of elastomeric polyvinyl chloride.
 - 2. Tightening bands shall be Series 316 stainless steel, torque setting 60 inch-pounds.
 - 3. Maximum test pressure is 4.3 psi.

Acceptable Manufacturers

- Dresser.
- Smith Blair.
- Fernco.
- As Approved.

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2.13 Tapping Sleeve

- A. Material provided by CCWA.
- B. Material conformance reference.
 - 1. ASTM A536: Standard Specification for Ductile Iron Castings.
 - 2. ANSI/AWWA C110/A21.1: Ductile-Iron and Gray-Iron Fittings.
- C. Description.
 - 1. Sleeve shall be of the split type and manufactured of ductile iron or stainless steel (preferred).
 - 2. Stainless steel (Type 304:18-8) sleeve shall be used when tapping cast iron pipe.
 - 3. Sleeve outlet shall be flanged or mechanical joint.
 - 4. Gaskets shall be virgin nitrile (Buna-N, NBR).
 - 5. Sleeve coating shall be in accordance with NSF 61.

Acceptable Manufacturers – Product

- U.S. Pipe – T28 on ductile iron main only.
- Power Seal– Part No. 3490 (stainless steel) on cast iron and ductile iron mains.
- Smith Blair – Part No. 663 or 665 (stainless steel) on cast iron and ductile iron mains.
- Ford Meter Box– FTSS (stainless steel).
- Romac for 1-1/2 inch and 2 inch taps.
- As Approved.

2.14 Tapping Saddle

- A. Material provided by CCWA.
- B. Material conformance reference.
 - 1. ASTM A240: Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 - 2. ASTM A276: Standard Specification for Stainless Steel Bars and Shapes.

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3. ASTM A193 and A194: Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications. Bolt/Nut requirement

C. Description.

1. Tapping saddle shall be stainless steel (Type 304: 18-8).
2. Tapping saddle shall seal with pipe by an O-ring gasket (Buna-N, NBR).
3. Saddle outlet to pipe shall be flanged or tapped with pipe threads.

Acceptable Manufacturers - Product

- Smith Blair - 313 with 015 stainless steel bales (4" to 16") for 2" iron pipe threads.
- Smith Blair - 366 with 015 stainless steel straps (18" to 40") for 2" iron pipe threads.
- Smith Blair – 372 for pipe diameters 4 inches through 12 inches.
- Powerseal – 3412AS for pipe diameters 3 inches through 12 inches.
- Powerseal – 3416AS for pipe diameters 14 inches through 36 inches.
- Ford Meter Box– FS 303.
- Romac - 306 for pipe diameters 3 inches through 12 inches.
- Romac - 305 for pipe diameters 14 inches through 24 inches.
- As Approved.

2.15 Gate Valve

A. Material Provided by CCWA.

B. Material conformance reference.

1. AWWA 509: Resilient-Seated Gate Valves for Water Supply Service.
2. AWWA 515: Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service.
3. AWWA/ANSI C550 and C121/A21.16: Protective Interior Coatings for Valves and Hydrants.

C. Description.

1. Valve shall be 250 psi pressure class.
2. Valve body shall be ductile iron with all exterior surfaces coated with a fusion-bonded epoxy coating.

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3. Valve shall be bronze mounted, beveled geared, with a non-rising stem and O-ring stem seals.
4. All exposed fasteners, nuts and bolts shall be stainless steel.
5. Valve shall open in a counter-clockwise direction.
6. Valve end connections shall be flanged or standard mechanical.
7. Buried valves shall be nut operated; non-buried valves shall have hand-wheel operators.
8. Valve used in conjunction with a tapping saddle shall be as follows.
 - a) Offset type that allows the tapping device to mount to the pipe and pass through the opened valve.
 - b) End connection to the tapping sleeve shall be flanged. End connection to accept pipe shall be mechanical joint.
9. Valve exterior shall be coated with six (6) to eight (8) mils of fusion bonded epoxy. Valve shall be listed by a certifying agency that the coating complies with ANSI/NSF 61.
10. The following information shall be stamped on each valve.
 - a) Manufacturer's identifying mark.
 - b) Pressure Class.
 - c) The letters "DI" or DUCTILE.
 - d) Place of Manufacturing.

Acceptable Manufacturers

- American Darling.
- U.S. Pipe Company.
- Mueller Company.
- M&H Valve Company.

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2.16 Plug Valve

- A. Material provided by CCWA.
- B. Material conformance reference.
 - 1. ASTM A126: Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
 - 2. ASTM A743: Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application.
 - 3. ANSI 125/150: Cast iron flange.
 - 4. AWWA C111-64: Mechanical joint requirement
- C. Description.
 - 1. Plug shall be as follows.
 - a) Eccentric plug (non-lubricated) having a 100% full-port design.
 - b) Plug shall be cast iron.
 - c) Plug shall have a resilient facing of carboxylic acrylonitrile butadiene or chloroprene.
 - 2. Valve shall be generally comprised as follows.
 - a) Body shall be cast iron, Class B.
 - b) Seat shall be nickel, raised and welded to the body.
 - c) Bearings shall be oil impregnated permanently lubricated stainless steel Type 316, Grade CF-8M.
 - d) Packing shall be acrylonitrile butadiene V-type.
 - 3. End connections shall be as follows.
 - a) Non-buried service shall have flanged ends having a 125/150 pound rating standard face and drilled.
 - b) Buried service shall have standard mechanical joint ends with retaining gland that acts as a restraining mechanism.
 - 4. Actuator type shall be as follows.
 - a) Non-buried service shall have G-series worm gear with 8-inch diameter hand wheel actuator input, clockwise to close.
 - b) Buried service shall have G-series worm gear for buried service, with 2-inch square nut actuator input, clockwise to close.
 - 5. Valve interior and exterior surfaces shall have one (1) coat, 4 to 5 mils of TNEMEC 140 Pota-Pox Plus epoxy paint, surface preparation of SSPC-SP10.

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Acceptable Manufacturers

- Dezurik.
- As Approved.

2.17 Valve Box

A. Material provided by CCWA.

B. Description.

1. Valve box shall be of the two-piece type and manufactured of cast iron.
2. Section assembly shall be either slip or screw.
3. Internal diameter is 5.25 inches.
4. Valve box shall be fitted with a cast iron cover with the word "WATER" or "SEWER" integrally cast in the cover depending on the service.

Acceptable Manufacturers

- Bingham-Taylor.
- As Approved.

2.18 Corporation Valve

A. Material provided by CCWA.

B. Material conformance reference.

1. ASTM B61 and B62: Standard Specification for Steam or Valve Bronze Castings.

C. Description.

1. Valve shall be of the ball valve type and manufactured of bronze complying with NSF 61.
2. Valve shall be suited for a minimum working pressure of 150 psi.
3. Valve shall have crosscut threading, for direct tap into pipe, and a flared copper outlet.
4. Valve shall be $\frac{3}{4}$ inch or one (1) inch in size as required by the service.

Acceptable Manufacturers

- Ford Meter Box Co.
- Mueller Brass.

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- A.Y. McDonald Mfg.
- As Approved.

2.19 Curb Stop Valve

- A. Material provided by CCWA.
- B. Material conformance reference.
 - 1. ASTM B61 and B62: Standard Specification for Steam or Valve Bronze Castings.
- C. Description.
 - 1. Valve shall be of the ball valve type and manufactured of bronze and comply with NSF 61.
 - 2. Valve shall be suited for a minimum working pressure of 150 psi.
 - 3. Internal ball shall be manufactured of low carbon steel coated with brass.
 - 4. Internal O-rings and seats shall be of Buna-N.
 - 5. Valve shall be fitted with iron pipe threads on the influent side and flared copper on the discharge side.
 - 6. Valve shall be fitted with wing locks suitable to accept a keyed padlock.
 - 7. Valve shall be $\frac{3}{4}$ inch, one (1) inch or two (2) inches in size as required by the service.

Acceptable Manufacturers

- Ford Meter Box Co.
- Mueller Brass.
- A.Y. McDonald Mfg.
- As Approved.

2.20 Fire Hydrant

- A. Material provided by CCWA.
- B. Material conformance reference.
 - 1. AWWA C502: Dry-Barrel Fire Hydrants.

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C. Description.

1. Fire hydrant shall be of the compression type, closing with line pressure, in compliance with NFPA, 1993 edition.
2. Hydrant shall have a 4-1/2 inch main valve and a non-freeze design with an automatic drain that closes fully when main valve is opened.
3. Hydrant shall be furnished having factory burying depths of 4'-6" or 5'-0". Deeper burying depths shall be accomplished using extension kits provided by same manufacturer.
4. Break-away device shall be situated +/- 3 inches from finished grade.
5. Hydrant standpipe, fittings and upper barrel shall be ductile iron. Parts designed to break away may be cast iron.
6. Hydrant bolts below ground level shall be stainless steel.
7. Hydrant lead to main line connection shall be mechanical joint.
8. The means of attaching the barrel to the standpipe shall permit 360° rotation of the barrel.
9. Hydrant barrel shall break away from the standpipe at an elevation above ground level without causing damage to the standpipe and stem. When barrel is broken away, internal valve shall function and repairs shall be permitted without excavating or turning off water supply.
10. Hydrants shall be bronze mounted and all internal working parts shall be bronze. Valve seat shall screw into retainer.
11. Internal working parts shall be removable without disturbing the barrel.
12. The operating nut situated atop the hydrant shall be hexagonal and constructed of ductile iron or cast iron and open in a counter clockwise direction. The threads shall be enclosed in an operating chamber separated from the hydrant barrel by a rubber O-ring stem seal lubricated by a grease or oil reservoir.
13. Hydrant shall be equipped with two 2-1/2 inch threaded (7.5 threads per inch) hose connections and one 4-1/2 inch threaded (4 threads per inch) hose connection. Hose and pump connections shall be threaded and pinned to seal the connection to the barrel. Threads shall comply with National Standard Threads. Each connection shall be equipped with a cap and chain.

Acceptable Manufacturers

- American - Darling M73.
- U.S. Pipe - M94.
- Mueller Company - A421: Ductile Iron Hydrant

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- M&H Valve Company - 129: Ductile Iron Hydrant

2.21 Post Hydrant

- A. Material provided by CCWA.
- B. Material conformance reference.
 - 1. AWWA C502: Dry-Barrel Fire Hydrants.
- C. Description.
 - 1. Fire hydrants shall be of the compression type, closing with line pressure.
 - 2. Hydrant shall have a minimum 2-1/8 inch main valve and a non-freeze design with an automatic drain that closes fully when main valve is opened.
 - 3. Hydrant standpipe, fittings and upper barrel shall be ductile iron.
 - 4. Hydrant internal components shall be brass, bronze and aluminum.
 - 5. Hydrant lead to main line connection shall be mechanical joint.
 - 6. Hydrant shall be equipped with one 2-1/2 inch threaded hose connection.

Acceptable Manufacturers

- M&H Valve Company – 2-1/4 Post Hydrant
- Kupferle Foundry Company – Eclipse #2 Post Hydrant
- As Approved.

2.22 Air/Vacuum Release Valve

- A. Material provided by CCWA.
- B. Material conformance reference.
 - 1. ASTM A126: Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
 - 2. ASTM A240: Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 - 3. ASTM A269: Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

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4. ASTM A 276: Standard Specification for Stainless Steel Bars and Shapes.
5. ANSI 125/150: Cast iron flange.
6. PH 15-7 MO: Stainless steel requirement.

C. Description.

1. Valve shall automatically release large quantities of air during pipeline filling and automatically allow air to reenter the pipeline when internal pressure of the pipeline approaches a negative value (vacuum). Valve shall automatically release small quantities of air from the pipeline while under normal pressure conditions.
2. Valve shall be suitable for the respective service (water or sanitary sewer) having a working pressure of 150 psi and a test pressure of 225 psi.
3. Valve inlet and outlet shall be sized as required. Where the option permits, 125 pound flanged connections shall be utilized.
4. Valve body, cover and baffle shall be cast iron, Class B.
5. Seat and orifice button shall be Buna-N.
6. All internal components shall be stainless steel T304.

Acceptable Manufacturers

- Val-Matic Valve and Manufacturing Corp.
- As Approved.

2.23 Water Meter Box (Residential and Light Commercial)

A. Material provided by CCWA.

B. Description.

1. Meter box shall manufactured from high-density polyethylene or fiber reinforced plastic.
2. Box lid shall be fiber reinforced plastic.
3. Minimum outside dimensions of the lid shall be 16-5/8 inches by 11-7/16 inches.
4. Down legs on each corner shall be a minimum of 1-1/2 inches long.

Acceptable Manufacturers

- D/FW Plastics.

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- CDR – 24 inches by 60 inches for 1-1/2 inch and 2 inch meter assemblies.
- Other Approved.

2.24 Polyethylene Tube

A. Material provided by Contractor.

B. Material conformance reference.

1. ANSI/AWWA C105/A21.5: Polyethylene Encasement for Ductile-Iron Pipe Systems.
2. ASTM A674: Standard Practice for Polyethylene Encasement for Ductile Iron Pipe for Water or Other Liquids.

C. Description.

1. Linear low density polyethylene with a density range of 0.910 to 0.935
2. Tube thickness shall be minimum 8 mil (0.008 inches).
3. Tube shall be supplied in roll without perforations or perforated at 20-foot intervals.
4. Tube shall be "black" in color.
5. The following information shall be randomly printed on the tube.
 - a) Manufacturer's identifying mark.
 - b) Applicable range of nominal pipe diameter.
 - c) ANSI/AWWA C105/A21.5.

Acceptable Manufacturers

- As Approved.

2.25 Utility Marking Tape

A. Material provided by CCWA.

B. Material conformance reference.

1. ASTM D2103: Standard Specification for Polyethylene Film and Sheeting.
2. ASTM D882: Standard Test Method for Tensile Properties of Thin Plastic Sheeting.

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C. Description.

1. Tape shall have a minimum overall thickness of 5 mils and a width as follows.
 - a) 2-inch width for pipes up to 12 inches in diameter.
 - b) 3-inch width for pipes greater than 12 to 24 inches in diameter.
 - c) 6-inch width for pipes greater than 24 inches in diameter.
2. Tape shall have a 0.35 mil solid aluminum foil core with a reverse print laminate to the aluminum foil.
3. Tape shall have a tensile strength of 35 pounds per inch.
4. Tape shall be color-coded in accordance with the American Public Works Association as follows.
 - a) "Blue" for potable water and associated lines.
 - b) "Green" for sanitary sewer and associated lines.

Acceptable Manufacturers

- As Approved.

2.26 Pipe Tracer Wire

A. Material provided by CCWA.

B. Description.

1. Wire shall be minimum No. 12 American Wire Gauge (AWG), fully annealed.
2. Wire shall be 1055 high grade steel clad with copper.
3. Wire shall be insulated with a minimum 30 mil high density polyethylene coating suitable for buried service.
4. Wire coating shall be color-coded as follows.
 - a) "Blue" for potable water and associated lines.
 - b) "Green" for sanitary sewer and associated lines.
5. Connectors shall be mechanical as provided by wire manufacturer.

Acceptable Manufacturers

- As Approved

2.27 Pavement Striping Paint

A. Material provided by Contractor.

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B. Description.

1. Water-based paint intended for use for pavement application.
2. Paint shall be fast dry, dry to the touch in 5 minutes, ready for traffic in 15 minutes.
3. Color as required to match existing striping.

Acceptable Manufacturers

- As Approved.

2.28 Sodium Hypochlorite

A. Material provided by Contractor.

B. Material conformance reference.

1. AWWA C651: Disinfecting Water Mains.

C. Description.

1. Liquid containing 6 percent sodium hypochlorite solution intended for use as disinfection of potable water.

Acceptable Manufacturers

- As Approved.

2.29 Concrete Structures

A. Material provided by CCWA.

B. Material conformance reference.

1. ASTM C478: Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.
2. AASHTO M199: Standard Specification for Precast Reinforced Concrete Manhole Sections.
3. ASTM A615: Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
4. ASTM D4101: Standard Specification for Polypropylene Injection and Extrusion Materials.

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5. Fed. Spec. SS-S-00210: Sealing Compound, Preformed Plastic, For Expansion Joints and Pipe Joint.
 6. ASTM C990: Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
 7. ASTM C923: Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
 8. ASTM C1478: Standard Specification for Storm Drain Resilient Connectors between Reinforced Concrete Storm Sewer Structures, Pipes, and Laterals.
 9. ASTM F2510: Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures and Corrugated High Density Polyethylene Drainage Pipes.
 10. ASTM C1244: Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill.
 11. ASTM A48: Standard Specification for Gray Iron Castings.
 12. AASHTO M306-10: Standard Specification for Drainage, Sewer, Utility, and Related Castings.
 13. ASTM D4833: Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.
 14. ASTM D6693: Standard Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes.
 15. ASTM D1004: Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting.
- C. Manhole and Structure Description.
1. Manholes shall be cylindrical and constructed of steel reinforced pre-cast concrete.
 2. Minimum compressive 28-day strength of concrete in all sections shall be 4,000 psi.
 3. Manholes shall have a minimum inside diameter of four (4) feet or as indicated on the Construction Drawings.
 4. Pre-cast sections shall consist of a base section (base slab monolithically poured with vertical wall), riser section, reducer section (as applicable) and eccentric cone top or flat slab top section. The sections shall form a continuous uniform assembly.
 5. Joints shall be tongue and groove.

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6. Each section shall have not more than two (2) holes for purposes of handling.
7. Ring and cover shall be integrally cast in the top cone section unless indicated otherwise.

D. Step Description.

1. Manhole/structure sections shall be fitted with polypropylene plastic coated steel steps unless indicated otherwise.
 - a. Manholes sections larger than 4 foot diameter for sanitary sewer service shall not be fitted with steps.
2. Steps shall be integrally cast into manhole sections.
3. Steps shall be twelve (12) inches wide and spaced at 1'-0" on center.

E. Joint Sealant Description.

1. Joints between each section shall be sealed water tight with a preformed semi-solid butyl plastic.
2. Gasket shall be provided in such size so that when installed, "squeeze out" of the gasket material, can be observed along the entire joint when the joint is completed.

F. Boot Connector Description.

1. Connector for sealing pipe to precast concrete structure opening shall be flexible natural or synthetic rubber suitable for sanitary sewer service.
2. A sleeve/boot connector when used shall be fitted with series 300 stainless steel internal expansion sleeve components and series 300 stainless steel external compression take-up clamps, all constructed utilizing no welds.
3. A gasket connector when used shall be integrally cast into the concrete section by the manhole manufacturer.

G. Cast Iron Frame and Cover Description

1. Manhole frame shall provide a nominal opening of twenty-four (24) inches in diameter and be either traffic rated or non-traffic rated.
2. Frame, cover, grate shall meet load specifications of AASHTO H-20 and H-25.

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3. Manhole cover shall have the word "WATER" or "SEWER" or "STORM", according to the service, cast on top in letters two (2) inches high.
 4. Manhole cover required to be bolt-down shall be secured with not less than four (4) stainless steel bolts as provided by the manufacturer.
 5. Grate and cover shall be nominal twenty-four (24) inches by thirty-six (36) inches and be either traffic rated or non-traffic rated.
- H. Composite Frame and Cover Description.
1. Composite material shall be comprised of a polymer containing 45 to 70% fiber reinforcement with a thermoset resin matrix.
 2. All components of the ring and cover shall be resistant to the effects of hydrogen sulfide gas.
 3. Manhole frame shall provide a nominal opening of twenty-four (24) inches in diameter and be either traffic rated or non-traffic rated.
 4. Ring and cover shall meet load specifications of AASHTO H-20 and H-25.
 5. Ring and cover shall have an integrated gasket system, lockable with a cam-type assembly and have a combined weight not to exceed 100 pounds.
 6. Cover shall have the word "SEWER" cast on top in letters 2 inches in size.
 7. Provide a lock wrench with each cover as provided by the ring and cover manufacturer.
- I. High Density Polyethylene (HDPE) Liner Description.
1. Where called for lining on manhole structures shall be provided on all vertical riser walls, cone sections and underside of reducer slabs.
 2. Liner shall have a mechanical bond to the concrete structure.
 3. Liner shall return through each opening created for pipe penetration.
 4. Liner color shall be yellow in color.
 5. Liner shall have a minimum thickness of 2 mm and resist a back pressure of 29 psi.
 6. Section joints shall be sealed water-tight with suitable strips of liner material, extrusion welded by a representative of the liner manufacturer or section joints shall be sealed water-tight by providing a liner that returns over the section joint and by providing a joint sealant that contacts the entire lined surface of the return and is suitable to resist degradation by hydrogen sulfide.

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Acceptable Manufacturers

- Structure – As Approved.
- Ring, Frame, Cover – As Approved.
- HDPE Liner – Agru America (HDPE AGRU Sure Grip).

2.33 Manhole Invert Sealing Compound

A. Material provided by Contractor.

B. Description.

1. Liquid compound that penetrates concrete and mortar providing a seal against the effects of hydrogen sulfide and sulfuric acid.

Acceptable Manufacturers

- Navion, Inc. – RadonSeal
- Crystal Lok.
- As Approved.

2.31 Concrete and Reinforcement

A. Material provided by Contractor.

B. Material conformance reference.

1. ACI 318: Building Code Requirements for Reinforced Concrete: Concrete Mix Requirement.
2. ASTM C150: Standard Specification for Portland Cement.
3. ASTM C33: Standard Specification for Concrete Aggregates.
4. ASTM A615: Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
5. ASTM A185: Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.

C. Concrete Mix Description.

1. Design mix shall be in accordance with ACI 318, latest revision.
2. Provide readily available commercial mix.
3. 28-Day Strength: 3,000 psi, unless otherwise noted.
4. Type: Normal Weight.

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5. Slump Range: 3 inch to 5 inch.
6. Weight: 135 pcf to 160 pcf.
7. Air Content: 5% to 7%.
8. Water-Cement Ratio: 0.45 Maximum.

D. Concrete Materials Description.

1. Portland cement: Type I, natural color. Use only one brand of cement throughout project.
2. Fine Aggregates: Meeting ASTM C33.
3. Coarse Aggregates: Meeting ASTM C33, No. 57 Stone.
4. Water: Clean, potable and free from deleterious amounts of alkalis, acids and organic matter.

E. Steel Reinforcement Description.

1. Reinforcement Bar: No. 4 size, Grade 60.
2. Welded Wire: 4x4 – W2.1xW2.1 wire mesh.
3. Tie Wire: 16-1/2 or 16 gauge black soft annealed wire.
4. Bar supports, chairs and spacers shall comply with the CRSI “Recommended Practice for Placing Reinforcing Bars”.

Acceptable Manufacturer

- As Approved.

2.32 Grout

A. Material provided by Contractor.

B. Description.

1. Minimum 200 psi, cement/sand high-flow mixture, commercial readily available.

Acceptable Manufacturers

- As Approved.

2.33 Brick and Mortar

A. Material provided by Contractor.

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Section 2: Material Requirements

- B. Material conformance reference.
 - 1. ASTM C32: Standard Specification for Sewer and Manhole Brick (Made From Clay or Shale).
 - 2. ASTM C270: Standard Specification for Mortar for Unit Masonry.
 - 3. ASTM C144: Standard Specification for Aggregate for Masonry Mortar.

- C. Description.
 - 1. Brick shall be either solid or cored, medium hard or better, Grade SS and SM, plain textured surface for sewer service
 - 2. Mortar shall be comprised of one (1) part Portland cement to two (2) parts clean sand. Mortar shall be Type S.
 - 3. Sand shall conform to ASTM C-144.
 - 4. Water shall be clean, potable and free from deleterious amounts of alkalis, acids and organic matter.

Acceptable Manufacturers

- As Approved.

2.34 Asphalt

- A. Material provided by Contractor.

- B. Material conformance reference.
 - 1. Georgia Department of Transportation "Asphalt Pavement Selection Guidelines, November 2006".

- C. Description.
 - 1. Aggregate shall be Group II.
 - 2. Asphalt cement shall be grade PG64-22, PG67-22 or PG76-22.
 - 3. Hot mix asphalt type shall be Mix Type 9.5, Type I or Type II.

Acceptable Manufacturers

- As Approved.

2.35 Construction Stone

- A. Material provided by Contractor.

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Section 2: Material Requirements

- B. Material conformance reference.
 - 1. ASTM D2321: Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
 - 2. ASTM D2487: Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 3. ASTM C33: Standard Specification for Concrete Aggregates.

- C. Description.
 - 1. Stone size shall be as indicated on Details or Construction Drawings.
 - 2. Stone shall be Class I embedment or backfill material consisting of manufactured aggregates (crushed stone).
 - 3. Stone shall be clean, tough, uniform quality, durable fragments of crushed rock, free from flat, elongated, soft or disintegrated pieces, or other objectionable matter occurring either free or as coating on stone.

Acceptable Manufacturers

- As Approved.

2.36 Pipe Collar (Anti Seep)

- A. Material provided by Contractor.

- B. Description.
 - 1. Bentonite-clay coated aggregate.

Acceptable Manufacturers

- Aqua-Blok.
- As Approved.

2.37 Steel (Tie-Back)

- A. Material provided by Contractor.

- B. Material conformance reference.
 - 1. ASTM A36: Standard Specification for Carbon Structural Steel.

- C. Steel Description.
 - 1. Steel shall be a W Shape designation, size W6 x 25.

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Section 2: Material Requirements

2. Steel shall be length as required by detail.
3. Steel surface shall be clean and prepared to receive coating system.

D. Coating Description.

1. Steel shall be coated with a bitumastic coating suited for buried service.
2. Coating shall be applied and fully cured before installation in accordance with manufacturer instructions.

Acceptable Manufacturers

- Steel - As Approved.
- Coating: Carboline – Bitumastic 300M.
- Coating: Royston Roskote - A51 Plus Mastic.
- As Approved.

2.38 Steel Rod

A. Material provided by Contractor.

B. Material conformance reference.

1. ASTM F593: Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
2. ASTM F594: Standard Specification for Stainless Steel Nuts.

C. Description.

1. Steel rod shall be all-thread, 3/4-inch diameter having standard National Pipe Threads.
2. Steel rod shall be one continuous piece. Mechanical or welded splices are prohibited.
3. Steel rod, nut and washer shall be stainless steel, grade 304.

Acceptable Manufacturers

- As Approved.

2.39 Erosion and Sedimentation Control Materials

A. Material provided by Contractor.

B. Description.

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Section 2: Material Requirements

1. Materials shall be in accordance with the Manual for Erosion and Sediment Control in Georgia, 2016 Edition.

Acceptable Manufacturers

- As Approved.

END OF SECTION

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Section 3: Construction Standards

3.1 General Requirements

Construction Details included in this contract as well as Construction Drawings or Detailed Site Maps that may be provided as part of the work show requirements that are to be followed. Where contradictions may arise between Construction Drawings or Detailed Site Maps and the Construction Standards, the below Construction Standards shall govern.

3.1.1 Project Submittals

- A. This section describes the minimum information that is required to be provided by the Contractor upon contract execution to facilitate the work.
 - 1. The Contractor shall schedule and make submissions as to cause no delay in the work and/or Time for Completion of Project.
 - 2. Additional information may be requested as indicated in the Contract Documents.
- B. Material Submittals: Contractor shall submit, to the CCWA for approval to use, product information on all materials required to be provided by the Contractor unless noted otherwise.
 - 1. Material submittals may be provided via email. Where hard copy submittals are provided, three (3) copies of final approved material data will be required; one (1) copy of approved product material will be returned to the Contractor.
 - 2. Where a material manufacturer is not specified, Contractor shall submit for use domestically manufactured materials.
 - 3. For each material supplied, provide the following minimum information.
 - a) Shop drawings and manufacturer's data showing compliance with Contract Documents.
 - b) Identify any deviation from Contract Documents.
 - c) Resubmission of a submittal shall clearly identify the correction or change made.
 - d) Handling and storage instructions, as applicable.
 - e) Installation instructions, as applicable.
 - f) Manufacturer's Warranty, as applicable.

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4. Submittals shall be sequentially numbered. Resubmission of a submittal shall have the original submittal number with sequential alphabetic suffix. Each submittal or resubmittal shall be provided with the following minimum information:
 - a) Project title.
 - b) Contractor name.
 - c) Submittal number.
 - d) Date of submittal.
 - e) Reference the material to the specific "Material Requirements" section.
 5. Materials provided by the Contractor not approved by the CCWA shall be subject to rejection without further justification.
 6. Upon receipt of a material submittal, the CCWA shall complete its review and return CCWA comments to Contractor within 10 business days.
- C. Submittals to be provided with each Application for Payment.
1. Document(s) to support requested payment.
 2. Applicable Waiver and Release Upon Payment Affidavit with original seal and signature.
 3. SLBE Participation Report (Form SLBE-4).

3.1.2 Differing Subsurface or Physical Conditions

- A. If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:
1. Is of such a nature as to require a change in the Contract Documents; or
 2. Differs materially from that shown or indicated in the Contract Documents; or
 3. Is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

Then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any work in connection therewith except in an emergency, notify CCWA in writing about such condition. Contractor shall not

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further disturb such condition or perform any work in connection therewith (except as aforesaid) until receipt of written order to do so by CCWA. In the case of emergency, the Contractor must notify CCWA immediately, not to exceed 12 hours, of becoming aware of the condition.

- B. After receipt of required written notice, the CCWA and Contractor shall promptly review the pertinent condition, determine the necessity of obtaining additional exploration or tests with respect thereto, and determine a mutually accepted course of action.
- C. The contract price or the contract times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor cost of, or time required for, performance of the Work; subject, however, to that the condition meets above Section 3.1.3, Part A

3.1.3 Weather Delays

- A. When no pipe installation work and/or no manhole installation work can be performed on a particular day due to measurable precipitation, freezing temperatures or frozen ground surface conditions, then the Work Order is subject to a time extension of one (1) day only. The Contractor cannot charge for labor, equipment or incidental expenses due to a weather delay.
- B. When any pipe installation work and/or manhole installation work is performed on a particular day and measurable precipitation, freezing temperatures or frozen ground surface conditions do occur, then the Contract shall not be subject to a time extension.
- C. Weather recording devices shall be situated on the Project site.
- D. Contractor shall deliver a written Work Order time extension request to CCWA for a weather delay within 24 hours of measuring the weather event. A time extension shall not be granted should a written request not be received by CCWA as indicated.

3.1.4 Land Disturbance Permits

- A. When applicable, CCWA shall obtain necessary Land Disturbance Activity (LDA) permits from the local issuing authority and pay associated fees. Contractor shall have a copy of the LDA permit and

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construction plan (as applicable) stamped approved by the local issuing authority on the job site whenever work is being performed.

3.1.5 Site Access and Work Times

- A. The work may require access to private property. The CCWA shall be responsible for coordinating and providing access to the area(s) of work. The Contractor shall contain work within area designated by CCWA.
- B. The work may be accessed on paved surfaces or non-paved surfaces. Contractor shall provide equipment capable of maneuvering all surfaces. CCWA shall not be responsible for Contractor's equipment that becomes un-maneuverable due to site conditions.
- C. Work on a site shall be allowed Monday through Friday from 7:30 a.m. to 6:00 p.m.; other times may be allowed with CCWA permission only. CCWA shall not compensate Contractor for labor, equipment or incidental expenses should work be required to be completed during times other than Monday through Friday from 7:30 a.m. to 6:00 p.m.
- D. No work shall be allowed on the following CCWA recognized Holidays:
 - 1. Memorial Day
 - 2. Independence Day
 - 3. Labor Day
 - 4. Thanksgiving Day and the following Friday.
 - 5. Christmas Eve and Christmas Day
 - 6. New Year's Day
 - 7. Martin Luther King Jr. Day

3.1.6 Site Safety and Precaution

- A. Construction shall comply with the Department of Labor, Occupational Safety and Health Administration (OSHA), 29 Code of Federal Regulations Part 1926, latest revision.
- B. The Contractor shall be responsible for preparing and implementing a Confined Space Entry Plan in accordance with OSHA's Permit Required Confined Space standard, contained in 29 Code of Federal

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Regulations (CFR) 1910.146. The CCWA reserves that right to have this document submitted at any time.

- C. The Contractor shall provide all staff with photo identification and use vehicles with permanent company logos/markings/identification that are prominently displayed and clearly visible at all times.
- D. The Contractor shall provide an experienced supervisor in charge of field operations and subcontractors. The field supervisor shall be responsible for the safety of all site workers and site conditions, as well as ensuring that all work is conducted in conformance with these Specifications and to the level of quality specified. The field supervisor shall be responsible for reporting any safety or regulatory issue of concern immediately to CCWA. The Contractor's superintendent or foreman shall be on-site at all times when any work is being performed, including any work being performed by their subcontractors.
- E. The Contractor shall be responsible for site security. Contractor shall remove as necessary fences and gates and/or other controls to facilitate work. Removed fences shall be reinstalled no later than at the end of that day the fence was removed.
- F. The Contractor shall use special care in work methods and take all necessary precautions against improper use of equipment to avoid damaging pipe and/or structures or CCWA, public and private property. If, in CCWA's opinion, the Contractor's work has caused damage, the Contractor shall repair the damage timely and to the complete satisfaction of CCWA at no additional cost. In the event that funds are expended by CCWA related to these activities the Contractor shall reimburse CCWA for any and all such costs.
- G. The CCWA shall not be responsible or compensate the Contractor for the damage to and/or loss of Contractor's equipment as result of the work.

3.1.7 Construction Facilities and House Keeping

- A. The Contractor may utilize areas within the "construction limits" designation as shown on the Construction Drawings for Project use.
- B. The Contractor or any other worker may not establish quarters for the purpose of overnight stay or temporary residency on the Project site or other CCWA property.

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- C. The Contractor shall employ the “best practicable means” to minimize and mitigate noise as well as disturbance resulting from operations. Mitigation measures shall include the utilization of sound suppression devices on all equipment and machinery, particularly in residential areas and in the near vicinity of hospitals and schools and especially at night.
- D. The Contractor shall remove and dispose of papers, plastics, tin cans and general garbage from the site on a daily basis. Keep the Project site clean.
- E. The Contractor shall remove and dispose all construction related debris associated with their work.
- F. The burning of materials is not permitted on the Project site or other CCWA property.

3.1.8 Temporary Utilities

- A. CCWA shall provide the Contractor a meter/backflow device to collect potable water from a nearby fire hydrant at no cost to the Contractor.
 - 1. The Contractor shall be responsible for and return the meter/backflow device to CCWA in the same condition as received. Should the Contractor damage or lose the meter/backflow device, then the Contractor shall be responsible for compensating CCWA for the damages.
 - 2. The Contractor shall be responsible for moving water to Project site area.
- B. The Contractor shall provide and maintain sanitary sewer facilities for Contractor’s employees, subcontractors and all other on-site employees. Service, clean and maintain facilities and enclosures.
- C. Contractor shall provide any necessary electrical power.

3.1.9 Material Handling and Storage

- A. CCWA intends for all material (supplied by CCWA) to be delivered to the CCWA Warehouse Building “B” located at 7340 Southlake Parkway in Morrow, Clayton County. Material delivered to the Warehouse Building “B” location will require Contractor pickup.
- B. In some cases, material may be delivered to the Project site area.

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- C. Prior to accepting (unloading) any material on a Project site, the Contractor shall complete a thorough inspection of the material for contract compliance and damages.
 - 1. Once the Contractor takes possession of materials at a CCWA facility or an unloading process on a project site of materials provided by CCWA has started, the Contractor is responsible for storage and protection of the material until Final Acceptance by CCWA.
 - 2. Any material found to be out of compliance with contract conditions or damaged shall be immediately reported to CCWA and its manufacturer for further inspection.
 - 3. Should CCWA agree to accept a material that is out of compliance with contract conditions or damaged, then the Contractor shall not be responsible for the material.
- D. The Contractor shall furnish equipment and facilities for loading, unloading and material distribution on a Project site.
 - 1. The Contractor shall handle the material in accordance with the manufacturer's instructions.
 - 2. Any pipe, piping component or material dropped, dumped or damaged by the Contractor during handling procedures shall be subject to rejection by the CCWA without further justification and replaced at the expense of the Contractor.

3.1.10 Material Testing Services

- A. CCWA shall contract with a materials testing laboratory and provide soil compaction and concrete strength material testing services.
 - 1. Testing shall be performed at intervals selected by CCWA.
 - 2. The Contractor shall cooperate and facilitate material testing services' work.
- B. Testing and reporting shall be performed in accordance with applicable ASTM standards.
 - 1. Testing services shall promptly notify CCWA of irregularities or deficiencies in the work.

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2. Testing services shall provide CCWA and the Contractor copies of field reports and test results.
- C. The testing of pipe and manhole components is described in later sections and is not included as part of CCWA's provided material testing services.

3.2 Site Work

3.2.1 Utilities and Traffic Control

- A. Display permits and contact respective agencies as required by applicable permit conditions.
- B. Locate existing utilities in accordance with state and local regulations.
- C. Provide and maintain a safe work site.
 1. Provide to CCWA a traffic control plan in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), latest revisions, when any work is being performed in the road right of way.
 - a) Contractor shall provide traffic control plan to CCWA a minimum of five (5) business days in advance of the start of work.
 2. Provide traffic safety devices including cones, signs, flashing lights, and other necessary safety equipment necessary to comply with local jurisdiction requirements and standard industry practices.
 - a) A minimum of two Department of Transportation (D.O.T.) certified Flaggers shall be required when directing traffic and/or closing any lane or road.
 3. CCWA will submit to the local agency for approval and maintain the approved permit.
- D. Prior to commencing any on-site work, establish perimeter erosion control measures, orange safety fencing and construction exits as indicated on the Construction Drawings.

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3.2.2 Clearing and Grubbing

- A. Construction Limits shall be staked/flagged in advance of the Contractor's work. Contractor shall not remove stakes or clear those flagged trees/brush.
- B. Area within the permanent easement, road right-of-way or 20-foot width centered over the pipe shall be cleared of all trees, stumps, other limbs affecting the work area, buried logs, brush, grass and other unsatisfactory debris unless indicated otherwise.
- C. Areas outside the permanent easement but within the construction limits may be cleared at the Contractor's discretion.
- D. Trees to remain in or near work area shall be protected from clearing activities. Should trees left remaining in the construction limits at the discretion of the Contractor subsequently die during the warranty period, then the Contractor shall be responsible for their removal and disposal and any related restoration work.
- E. All damaged trees over three (3) inches in diameter shall be repaired by an experienced nursery expert.
- F. Tap roots and other projections exceeding 1-inch in diameter shall be grubbed out to a depth of at least 18 inches.
- G. All holes remaining after grubbing activities shall be filled with suitable material and properly compacted in layers to density required for in-place backfill.
- H. All materials cleared and grubbed shall be disposed of off-site in accordance with applicable local, state and federal regulations.
- I. Burning of any material or debris shall not be permitted.
- J. Prior to and upon completion of clearing and grubbing activities, install erosion control measures as identified on the construction drawings.

3.2.3 Topsoil Stockpiling

- A. Remove topsoil to full depth encountered in areas to be graded and stockpile soil.
- B. Soil shall be placed such that the integrity of an excavation or proposed excavation is not jeopardized.

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- C. Stockpile shall be shaped to drain or covered to keep dry and install appropriate erosion control measures.

3.2.4 Existing Utilities

- A. Remove and subsequently replace at same grade and elevation existing utility pipes and associated components.

3.2.5 Removing Pavement

- A. Roadway pavement shall be removed for the entire lane width or as indicated on the Construction Drawings. Removal of roadway pavement shall be performed so as not to endanger roadway activity. Work shall be coordinated and in compliance with the appropriate road and highway agencies.
- B. Driveways shall be removed to their full width from the edge of road pavement to the back of right-of-way or construction lane whichever is greatest distance from edge of road pavement, unless indicated otherwise.
- C. Sidewalks shall be removed to their full width from the edge of curb, road pavement or construction/control joint to the nearest adjacent construction/control joint.
- D. Curbs shall be removed for the entire length from control joint to control joint.
- E. Pavement shall be marked squarely and neatly to size as indicated on Construction Drawings.
- F. Pavement shall be scored and broke along the marked lines using a rotary saw and jackhammer. Pavement shall not be machine pulled for initial brake.
- G. Adjacent pavement damaged during construction shall be removed as described above and replaced in accordance with the Construction Drawings at the expense of the Contractor.
- H. Upon removal, asphalt and concrete shall be loaded and disposed of off-site the same day of removal.

3.2.6 Grading

- A. Finish grade areas to lines and elevations indicated as existing grades on drawings or to surrounding surface grades.

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- B. Graded areas shall be within 0.10 foot of required subgrade elevation and shall not permit the ponding of water.
- C. In areas to receive grassing, redistribute stockpiled topsoil over graded areas to a minimum depth of four (4) inches. Provide additional topsoil to achieve required depth.
- D. Where finish grade meets or abuts curbs, walks or pavement, uphill grades shall be slightly higher than curb or pavement to permit drainage.
- E. In yard, right-of-way and mowed areas, remove rocks and dirt clods $\frac{3}{4}$ -inch in size and larger.
- F. Excess soil, rock and debris shall be removed from the project site.

3.2.7 Erosion Control

- A. Stabilize Project site areas in accordance with the erosion control plans and details and/or the "Manual for Erosion and Sediment Control in Georgia", latest edition.

3.2.8 Clean-Up

- A. Upon completion of each day's work, broom sweep/pressure wash as necessary any dirt/mud/debris from side walk, curb and pavement surfaces and dispose.
- B. Upon site being stabilized with vegetation, all erosion control measures and any remaining debris (i.e. silt fence, stakes, hay bales) shall be removed from site areas.

3.3 Flow Interruption

- A. Flow interruption may be completed using plugging and/or bypass pumping methods.
- B. When flow interruption of any type is to be utilized, the Contractor shall submit a plan for approval. The plan shall indicate flow interruption method and include a map that shows manholes/structures affected; this includes plugging/suction points, flow discharge points, space required for pump(s) set up and route for discharge piping. The plan shall indicate pump and piping size; pumping capacity shall be capable of handling peak flows. The Contractor shall assume the pipes flow full and can surcharge to ground level during wet weather conditions. The plan shall include an

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emergency response plan to be followed in the event of a failure of the system.

- C. Furnish, install and maintain a primary pumping system and a redundant pumping system with automated emergency call services, appurtenances, bypass piping and fuel required to maintain anticipated flows and services. All pumps used shall be fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in the priming system. The pumps may be electric or diesel powered. All pumps used must be capable of running dry. Bypass pumping systems will be equipped to be operated continuously 24 hours per day. No more than two (2) pump discharge hoses shall be used for the bypass/diversion. If the flow exceeds the capacity of 2 hoses, then rigid piping shall be used. The rigid piping shall consist of HDPE or steel pipes with suitably pressure rated couplings to withstand twice the maximum system pressure or 50 psi, whichever is greater. Install traffic rated hose/ramp assemblies where discharge crosses paved surfaces. Under no circumstances will aluminum irrigation type piping or glued PVC pipe be allowed. Pumped sewage shall be in an enclosed hose or pipe that is adequately protected from traffic.
- D. A bypass pumping “drill” shall be performed by the Contractor to demonstrate system readiness if requested by CCWA. The drill shall demonstrate the incorporation of all standby equipment, including callout services, to handle flows when the main pump set is switched off. Provisions to accommodate any of the CCWA’s review comments following the drill shall be adhered to in full at no additional cost.
- E. The Contractor shall take all necessary steps to eliminate the overflow of sewerage. In the event of an overflow of sewerage, the Contractor shall be responsible for cleanup of the area and all other pertinent activities as required by the Georgia Environmental Protection Division (GAEPD). All costs of these restoration/cleanup activities shall be the responsibility of the Contractor. In the event that funds are expended by the CCWA related to these activities the Contractor shall reimburse the CCWA for any and all such costs including but not limited to the costs expended by the CCWA for fines levied by the GAEPD.
- F. The Contractor shall be responsible for damage to public or private property due to flow interruption. All costs of restoration/cleanup activities shall be the responsibility of the Contractor. In the event that funds are

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expended by the CCWA related to these activities the Contractor shall reimburse the CCWA for any and all such.

- G. The Contractor will indemnify and hold harmless the CCWA for any fines or third-party claims for personal or property damage arising from flow interruption that is the responsibility of the Contractor. Should fines subsequently be imposed as a result of any flow interruption for which the Contractor is fully or partially responsible, the Contractor shall pay all such fines and all of the legal, engineering, and administrative costs in defending such fines and claims associated with flow interruption.

3.4 Dewatering

- A. Provide dewatering systems as necessary to maintain excavations dry at all times during construction.
- B. Water withdrawn from excavations or dewatering systems shall be filtered using containerized sedimentation systems, filter bags and/or filter tubes.
- C. Filtered water shall be discharged into the nearest storm water structure or channel.
- D. Install appropriate erosion control measures as may be necessary.
- E. Sediment collected within the systems shall be disposed of offsite.

3.5 Excavation

3.5.1 Shoring

- A. The Contractor shall assume the responsibility for design and construction of excavation shoring and bracing capable of supporting excavations and construction loads.
 - 1. Where depths require, provide shore design and details stamped and sealed by a Professional Engineer Licensed in the State of Georgia for CCWA review.
- B. Use trench boxes, steel sheets, and/or sheet piles where ever possible to prevent the weakening of surrounding soils.
- C. Use trench boxes, steel sheets, and/or sheet piles when digging next and near power/utility poles.

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3.5.2 Pit and Trench

- A. Excavation shall include those measures necessary to establish trench widths and required grades.
 - 1. Excavation shall include removal and disposal off-site of all pipe and manhole materials encountered in the proposed locations of new pipe and manholes.
 - 2. Excavation should be completed to natural undisturbed soil. Where unsuitable material is encountered, over excavate through unsuitable material and backfill to required grade with Surge Stone or No. 57 stone. The CCWA Inspector shall determine depth of over excavation.
- B. Excavated soil shall be placed in a location such that the integrity of the excavation is not jeopardized.
- C. Excavated soil shall be kept dry for subsequent use. Install appropriate protection measures and erosion control measures.
- D. The excavation shall provide space for inspection of utilities and appurtenances.
- E. Maintain excavations dry at all times using pumps, well points or other dewatering means.
- F. When laying pipe, limit trenching to not greater than 100 feet ahead of completely backfilled work.
- G. Open excavations shall be made safe at all times. Contractor should assume that traffic plating will be required on all jobs.
 - 1. When work on a site is not ongoing (construction not actually occurring), cover all excavations with traffic plating or barricade with concrete barrier wall or other safety related barrier wall and rope-off with identifying tape as approved by CCWA; only staking and use of caution tape is not acceptable.
 - 2. Install steel traffic plates where applicable to facilitate ongoing construction, e.g. to cover excavations overnight, to cover placed concrete during cure, to cover excavations in roadways, to provide access to property, to cover backfilled excavations in heavy traffic areas as determined by CCWA, etc.

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3.5.3 Rock

- A. Rock is defined as removing and disposing of solid material being greater than one (1) cubic yard in size which by actual demonstration cannot, in the opinion of the CCWA Engineer, be reasonably excavated with a minimum 135 horsepower excavator, in good condition and equipped with manufacturer's standard boom and rock points or similar approved equipment; and which must be systematically drilled and blasted or broken by power-operated hammer, hydraulic rock breaker or expansive compounds.
- B. Excavation shall include those measures necessary to establish grades indicated on drawings for utilities and appurtenances. Rock shall be excavated to a minimum depth of six (6) inches below grades indicated on drawings.
- C. The Contractor shall be responsible for determining methods required for removal of rock or hard materials (i.e. systematically drilled and blasted or broken by power-operated hammer, hydraulic rock breaker or expansive compounds).
- D. A licensed explosive contractor shall perform blasting operations.
- E. Blasting operations shall be conducted in accordance with all local, state and federal regulations. The Contractor is responsible for repairs and/or replacement of damaged property(s) resulting from the work.
- F. Excavated rock shall not be used as backfill in excavations. Contractor shall replace volume of excavated rock with suitable soil.

3.6 Pipe Work

3.6.1 Bedding

- A. Pipe bed shall be established to elevations and grade as shown on the Construction Drawings or to match a requested condition.
- B. Pipe bed material and depth shall be as indicated on the Construction Detail / Construction Drawings. Stone shall be shovel sliced from beneath the pipe up to one-third (1/3) the pipe diameter. The entire length of barrel shall be fully supported with stone.
- C. Stone shall be used to backfill pipe to a height of six (6) inches above the top of the pipe.

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- D. When installing pipe in areas of excavated rock, pipe shall be placed on a bed of stone, minimum six (6) inches in depth.
- E. Soil determined to be unsuitable by the CCWA Inspector shall be removed to a determined depth and replaced with stone to desired grade.

3.6.2 Pipe Installation

- A. Comply with manufacturer's installation instructions.
- B. Install pipe of material type and size as shown on the Construction Details or Construction Drawings.
- C. Prior to placement, the interior of pipes and fittings shall be cleaned free of dirt and debris.
- D. Pipe, fittings and accessories shall not be laid or jointed in water.
- E. Pipe, fittings and accessories shall be handled and lowered into their respective positions using choker straps.
- F. A slight hole shall be dug where pipes are to be jointed to relieve pipe bell of any load. Pipe barrel shall be supported for its entire length.
- G. Install compression type full-face gasket coupling or solid sleeve style coupling on pipe to ensure proper joint sealing. The pipe mating ends and coupling shall be thoroughly cleaned and soaped before jointing. The mating ends shall be aligned in accordance with the manufacturer's tolerance and carefully shoved together using a steady force.
- H. Install polyethylene tube plastic on piping at locations where natural gas transmission mains exist as directed by CCWA.
- I. Where casing is being installed in an open excavation, casing lengths shall be as long as practicable and joined by single grooved butt weld for the entire circumference of the casing.
- J. Prior to joining consecutive pipe, backfill previously jointed pipe with sufficient material to prevent movement.
- K. Backfill pipe trench to the required grade in accordance with backfill and compaction requirements.

Division 4

Specifications

Section 3: Construction Standards

1. Install warning tape over buried piping during backfill operations. Detection tape shall be installed centered, approximately 24 inches above the pipe.
 2. Install tracer wire taped to pipe and terminated at locations determined by CCWA.
- L. New pipe and existing pipe shall be cut to lengths as required in accordance with manufacturer instructions using a rotary-type saw. Prepare cut ends in accordance with manufacturer instructions.
- M. When installing a pipe into a manhole or box structure, pipe end shall not extend greater than 12-inches beyond the inside face of the structure as measured at the 3 or 9 o'clock position.
- N. When installing a pipe into a headwall, pipe end shall be flush with the outlet face of the structure.
- O. Place a plug in the open end of uncompleted laid piping at the end of each day.
- P. When installing water mains/piping, piping shall be laid to above existing grade and to direction as requested by CCWA to facilitate flushing. CCWA shall perform all flushing operations and Contractor shall provide access/cooperate to facilitate the work. Upon completion of flushing, mains/piping shall be laid to required grade.
- Q. Pipe shall not be placed in service until all testing has been accepted by CCWA.
- R. Pipe not laid to the requested grade/alignment shall be removed and subsequently laid to the requested grade/alignment and the expense of the contractor.

3.6.3 Concrete Thrust Restraint

- A. Install concrete thrust restraint at locations where pipe/fitting separation is possible and/or where directed by CCWA.
- B. Thrust force shall act against face of undisturbed soil.
- C. Do not place soil backfill on poured concrete until 24 hours after concrete placement.

Division 4

Specifications

Section 3: Construction Standards

3.6.4 Pipe Collar

- A. Install pipe collars of size and at locations as requested or shown on Construction Details or Construction Drawings.
- B. Construct wood forms or select other means to form collars.
- C. Place in such manner that subsequent construction activities do not damage collar.

3.6.5 Pipe Testing

- A. Testing shall be performed when backfill to finished grade and compaction are complete and dewatering has been discontinued for a minimum 24 hour period at the location of the test.
 - 1. All pipe installed shall be tested as indicated below.
 - 2. Contractor shall document all testing in such manner as necessary to show completion of the work.
 - 3. A CCWA Inspector must be present and witness any type of testing for acceptance.
 - 4. Any pipe not passing required testing shall be replaced or repaired at the Contractor's expense.
- B. Air Pressure Testing: Sanitary sewer gravity-flow pipe installed between new manholes shall be subjected to a low air pressure test at each joint. Pipe shall be free of dirt and debris prior to testing. The internal air pressure of the pipe shall be raised to approximately four (4) psi. The test shall begin when the stabilized pressure is at a minimum of 3.5 psi. Test and pipe shall be considered acceptable when an air pressure equivalent to the stabilized pressure is maintained for a period of five (5) minutes.
- C. Hydrostatic Pressure Testing: Pressurized piping installed between new valves or other fittings including all service lines and associated fittings shall be subjected to a hydrostatic pressure test.
 - 1. For water mains and services, piping shall be filled with clean potable water to a pressure of 250 psi (as measure at the lowest point in the piping system) or to a pressure determined by CCWA. The test shall begin after the pressure has stabilized for a period of 15 minutes. Test and pipe shall be considered acceptable

Division 4

Specifications

Section 3: Construction Standards

when the stabilized pressure is maintained for a period of two (2) hours or other time as determined by CCWA.

2. For sanitary sewer force mains, piping shall be filled with clean potable water to a pressure of 1.5 times the system's operating pressure as determined by CCWA (as measure at the lowest point in the piping system). The test shall begin after the pressure has stabilized for a period of 15 minutes. Test and pipe shall be considered acceptable when the stabilized pressure is maintained for a period of two (2) hours or other time as determined by CCWA.
- D. Deformation Testing: All pipe shall be tested for deformation. Pipe shall be free of dirt and debris. Any measured location may not show deformation of more than three (3) % of the pipe's manufactured published inside diameter.
1. The diameter of 60" pipe shall be determined by using a standard measuring device throughout the entire length of the pipe segments.
 2. The diameter of other pipe shall be determined by using a mandrel measuring device being pulled throughout the entire length of the pipe segments.
- E. Televising Testing: All pipe shall be televised to ensure integrity and document installed condition. Pipe shall be free of dirt and debris prior to televising. A video recording in general compliance with ASTM and National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) standards shall be completed through the pipe from manhole to manhole to show completed work. A video recording of each segment laid shall be provided to CCWA.

3.6.6 Pipe Disinfection

- A. Complete potable water main/piping disinfection procedures as required by CCWA and detailed in the ANSI/AWWA C651 Standard and AWWA "Disinfection of Pipelines and Storage Facilities Field Guide".
- B. When required as directed by CCWA, install necessary taps and valves to facilitate disinfection procedures.

Division 4

Specifications

Section 3: Construction Standards

1. Operate equipment and inject chlorine at required concentrations and quantity.
 2. CCWA shall operate all valves and hydrants during disinfection procedures.
 3. The contact period for disinfection will be 24 hours or as determined by CCWA on case-by-case basis.
 4. When disinfection is complete, remove all taps and valves installed for procedure. CCWA will flush piping such that the chlorine residual within the new water main/piping is equal that of the existing water main system.
- C. Upon completion of disinfection procedures and flushing, CCWA will collect samples for laboratory analysis. A minimum of 48 hours is required for analysis to determine acceptable disinfection.

3.7 Cased Bore Work

3.7.1 General

- A. Work shall be coordinated and in compliance with the appropriate highway and railroad agencies and their policies.
 1. Contractor shall review permits obtained by CCWA.
- B. Contractor is responsible for establishing elevations, grades and alignment provided from construction drawings or from other known utilities.
- C. Contractor shall monitor ground movement during construction. Contractor shall be responsible for all settlement or up heave resulting from casing operations and shall repair and restore moved or damaged property to its original condition at no cost to the CCWA.

3.7.2 Bore and Receiving Pit

- A. Bore entry and receiving pits shall be completed and sized as required by the Contractor.
- B. The base of the bore pit and bore pit walls shall be prepared in such a manner as to support equipment loading anticipated during bore operations.
- C. Construction of pits shall comply with Excavation and Backfill and Compaction specifications referenced herein.

Division 4

Specifications

Section 3: Construction Standards

- D. Equipment set-up in the bore pit shall be set to the grade that matches the construction drawings or known utilities.

3.7.3 Installation

- A. Boring, jacking and steering of casings through soil and rock shall be completed by dry auger boring without jetting, sluicing or wet boring. Free boring (boring without casing) shall be prohibited.
- B. The boring diameter shall be essentially the same as the outside diameter of the casing.
- D. Cutting head for standard soil bore shall be suited for soil and weathered rock mixed conditions. Cutting head may be advanced slightly ahead of jacked casing in a manner that will prevent voids forming in the earth around the perimeter of the casing.
- E. Cutting head for rock conditions shall be “v” shaped or similar and be suited for medium rock formations having less than 8,000 psi hardness.
- F. Casing lengths shall be as long as practicable and joined by single grooved butt weld for the entire circumference of the casing.
- G. Upon completion of bore, casing shall be cleaned free of all dirt and debris using manual methods, high pressure water via appropriate jet cleaning nozzles and vacuum methods.
- H. Should a boring encounter refusal or other unforeseen conditions, Contractor shall notify CCWA immediately in writing before advancing the casing.
 - 1. Note that instances may occur where CCWA requests the Contractor to remove augers for further investigation or remove augers and casing for subsequent casing reinsertion with other cutting heads.
- I. Borings shall be completed to the required grade and alignment within the following tolerances.
 - 1. Non steered bore: vertically +/- 1% of length of bore, horizontally +/- 1% of length of bore.
 - 2. Steered bore: vertically +/- 0.1% of length of bore, horizontally +/- 1% of length of bore.

Division 4

Specifications

Section 3: Construction Standards

- J. Where a steered casing is being installed, the Contractor shall record an indication of the grade at the beginning of each piece of casing installed; the record shall be provided to CCWA.
 - 1. CCWA shall be notified immediately in writing when the Contractor has determined the bore is not on the required grade. CCWA shall provide the Contractor an indication to proceed or to stop work.

3.7.4 Pipe Insertion

- A. Pipe shall be inserted by means of pulling or pushing as recommended by the pipe manufacturer.
- B. Contractor shall prepare an end assembly to pull from/push against such that ends of pipe are not damaged during insertion.
- B. Pipe shall be supported within casing to limit radial movement to a maximum of 3/4 inch.
- C. A minimum of three (3) spacers shall be installed on each nominal section of pipe at spacing recommended by the pipe or casing manufacturer.
- D. The annulus between the pipe and casing, at each end, shall be sealed using a flexible rubber seal.

3.7.5 Cased Bore Acceptance

- A. Casing installed in accordance with these specifications shall be accepted by CCWA.
- B. Casing installed not complying with the listed tolerances shall be subject to a CCWA decision as follows.
 - 1. Where CCWA was notified of any tolerance discrepancy and CCWA provided indication to stop the bore, CCWA will not pay any costs associated with the bore and the Contractor shall bulkhead and grout fill the casing at the Contractor's expense.
 - 2. Where CCWA was notified of any tolerance discrepancy and CCWA provided indication to continue the bore, CCWA shall accept the cased bore and pay costs associated with the bore and the Contractor shall pay for any additional costs, beyond the planned alignment and grade, required to connect piping.

Division 4

Specifications

Section 3: Construction Standards

3. Where CCWA has not been notified of any tolerance discrepancy, CCWA may reject the cased bore and not pay any costs associated with the bore and the contractor shall bulkhead and grout fill the casing at the Contractor's expense.
4. Where CCWA has not been notified of any tolerance discrepancy, CCWA may accept the cased bore and pay costs associated with the bore and the Contractor shall pay for any additional costs, beyond the planned alignment and grade, required to connect piping.

3.8 Concrete Structure Work

3.8.1 Structure Installation

- A. Install structures of required sizes and at locations and elevations as shown on Construction Drawings. Structures shall be set atop stone as indicated on the Construction Drawings/Details.
- B. The bed shall be prepared so that the structure is set level.
- C. Sections shall be handled with lifting straps or hooked cables using a minimum of two (2) of the manufactured manhole lifting holes.
- D. Sections shall be positioned such that influent and effluent piping enter the center of their respective opening not pinching the rubber boot seal. Pipe shall not rest on invert of opening.
- E. Sections shall be stacked level and plumb at all times.
- F. Prior to joining consecutive sections, tongue-and-grooved ends shall be cleaned free of dirt and debris.
- G. Tongue-and-grooved ends shall be fitted with preformed gasket sealing compound. Sealing compound shall be installed in such manner that when consecutive sections are stacked, sealing compound can be visually observed "squeezing out" from all sections of the joint.
- H. Lifting holes shall be plugged with rubber stoppers or sealed using non-shrink grout throughout the entire depth of hole.
- I. Seal annulus between pipe and core opening using rubber boot in accordance with the manufacturer's instructions or brick and mortar when applicable.

Division 4

Specifications

Section 3: Construction Standards

- J. Upon completion of visual testing activities, where applicable, install HDPE cap over joint locations.
- K. Manholes may not be placed in service until all testing has been accepted by CCWA.
- L. Structures not set to the requested grade/alignment shall be removed and subsequently set to the requested grade/alignment and the expense of the contractor.

3.8.2 Invert Construction

- A. Clean base free of dirt and debris before constructing invert.
- B. Construct “U-shape” style smooth invert from brick and mortar or cast-in-place concrete to size and elevation as shown on the Construction Drawings and as necessary to direct flow.
- C. Special care shall be taken such that the finished invert does not touch any pipe material.
- D. Invert construction shall have sufficient time to cure as not to be affected by in-service conditions.

3.8.3 Manhole Testing

- A. Testing shall be performed when backfill to finished grade and compaction are complete and dewatering has been discontinued for a minimum 24 hour period at the location of the test.
 - 1. Every newly installed manhole shall be tested.
 - 2. Contractor shall document all testing in such manner as necessary to show completion of the work.
 - 3. A CCWA Inspector must be present and witness any type of testing for acceptance.
 - 4. Any manhole not passing required testing shall be replaced or repaired at the Contractor’s expense.
- B. Visual Water Infiltration Testing: Manhole testing shall be performed by visually observing for water infiltration at all manhole sections, at all pipe / rubber boot seal connections, at all manhole / rubber boot seal connections. Test shall be considered acceptable when no water infiltration is observed at any described observation points.

Division 4

Specifications

Section 3: Construction Standards

- C HDPE Liner Testing: Holiday test HDPE caps at joints using applicable voltage spark test. Test shall be considered acceptable when spark test reveals no holidays. Other testing procedure may be considered.

3.9 Backfill and Compaction

3.9.1 Backfill

- A. Excavations shall be backfilled using suitable material in accordance with the Construction Drawings or applicable Details.
- B. Place no backfill until any poured concrete has sufficient compressive strength.
- C. Place backfill against below grade walls (i.e. manhole sections) in uniform level lifts to prevent wedging action.
- D. When backfilling areas to be paved, the final 6 inches is to be filled with graded aggregate base. Prior to paving, remove required aggregate and dispose.
- E. Backfill shall not be placed on surfaces that are saturated, frozen or containing frost or ice.
- F. Place backfill in excavations as follows.
 - 1. Backfill in loose lifts not exceeding 6 inches when compacting using manual tamping devices (jumping jack).
 - 2. Backfill in loose lifts not exceeding 12 inches when compacting using vibrating/ramming devices (sheep-foot vibratory roller).
- G. Any settlement shall be filled and compacted to conform to adjacent surfaces.

3.9.2 Compaction

- A. Backfill shall be compacted using manual tamping devices or vibrating/ramming devices.
- B. Use manual tamping devices to compact soil as follows, otherwise use vibratory devices.
 - 1. When area is inaccessible to vibrating devices and within 2 feet of below grade walls (includes manholes).

Division 4

Specifications

Section 3: Construction Standards

2. From bottom of pipe trench to twelve (12) inches above the top of pipe.
- C. Compaction requirements are as follows.
 1. Backfill in road right-of-way shall be compacted the entire depth to a minimum of 95% of the maximum dry density as determined by a Standard Proctor Analysis.
 2. Backfill not described above shall be compacted for the entire depth to a minimum of 90% of the maximum dry density as determined by a Standard Proctor Analysis.
 3. Soil installed and not meeting the compaction requirements shall be removed and re-installed and compacted or replaced with other approved material and compacted at the expense of the contractor.

3.9.3 Compaction Testing

- A. Samples from the proposed construction area shall be analyzed for maximum dry density in accordance with ASTM 698 – Method C or applicable GDOT standard.
- B. The extent of testing required shall be dependent upon soil conditions, Contractor's methods of construction and regulatory requirements.
- C. Minimum compaction testing shall be as follows.
 1. Backfill in excavations shall be tested at 2-foot lift intervals per 1,000 square feet of fill or as deemed necessary by the CCWA Inspector.
 2. Backfill in trench excavations shall be tested at 2-foot intervals per 400 linear feet of fill or as deemed necessary by the CCWA Inspector.
- D. Soil failing compaction tests shall be subsequently retested. Any retests shall be performed by the CCWA provided material testing company at the expense of the contractor.

Division 4

Specifications

Section 3: Construction Standards

3.10 Asphalt and Concrete Placement

3.10.1 Asphalt Placement

- A. Compact existing base and/or add and compact necessary aggregate base/concrete material in accordance with the Construction Drawings.
- B. Cut edges of existing asphalt neat and square.
- C. Apply prime / tack coat as necessary to facilitate asphalt placement.
- D. Install asphalt using mechanical spreader machine and compact to thicknesses as shown on the Construction Drawings or to thickness to match existing asphalt.
- E. Install within thickness layers as described in Table 3 of Georgia DOT document "Asphalt Pavement Selection Guidelines", November 2006.

3.10.2 Concrete Placement

- A. Construct formwork to lines and elevations as shown on Construction Drawings.
- B. Clean forms of dirt and debris prior to each use.
- C. Install steel reinforcement and/or wire, support on chairs and secure to prevent movement.
- D. Concrete shall not be placed on loose, saturated or frozen soil.
- E. Concrete shall be placed only when ambient temperature is at 40° F and rising.
- F. Place concrete to thicknesses as shown on the applicable Details or to thickness to match existing concrete using suitable means and consolidate concrete with vibrator of suitable vibrations per minute.
- G. Screed slabs / curbs by use of straight edge or screed board.
- H. Saw control joints as soon as concrete can be traveled by foot without leaving impressions.
 - 1. Control joints shall be installed at interval spacing of 1-1/2 times slab width or at a maximum spacing of 10 feet, whichever is closer.

Division 4

Specifications

Section 3: Construction Standards

2. Saw joint depth shall be $\frac{1}{4}$ of the slab depth.
- I. Concrete shall be finished with a slight broom finish perpendicular to the travel path.
- J. Begin curing after placement and finishing of concrete as soon as free water has disappeared from concrete surface.
 1. Curing methods shall be by the continuous application of water for 72 hours or by applying a liquid membrane forming curing-sealing compound to the fresh concrete surface.
- K. Removal of formwork shall take place no sooner than 24 hours after placement of concrete.

3.10.3 Concrete Testing

- A. Concrete from each truck shall be subjected to a slump test in accordance with ASTM C172 and C143.
 1. Concrete arriving on the Project site and not exhibiting the required slump may be rejected at the discretion of the CCWA inspector.
- B. Concrete shall be laboratory tested for compressive strength at the discretion of the CCWA Inspector.
 1. Samples shall be collected in accordance with ASTM C172 and ASTM C31.
 2. Samples shall be tested for compressive strength in accordance with ASTM C39.
 3. Concrete placed not meeting the required compressive strength shall be subject to rejection and removal at the discretion of the CCWA inspector.

3.11 Demolition

3.11.1 Bulkhead

- A. Install bulkheads at locations shown on the Construction Drawings or at requested locations.
- B. Cut existing pipe in such manner that provides for installation.
- C. Remove and dispose debris and provide suitable work area.

Division 4

Specifications

Section 3: Construction Standards

- D. Construct bulkhead across entire pipe opening using brick and mortar, minimum eight (8) inches in depth.

3.11.2 Remove

- A. Remove pipe, manholes and structures completely from the ground at locations shown on the Construction Drawings or at requested locations.
- B. Cut existing pipe, manholes and structures in such manner that provides for removal.
- C. Remove debris and dispose off-site in accordance with local/state regulations.
- D. Place suitable soil and compact in accordance with backfill and compaction requirements.

3.11.3 Grout Fill

- A. Grout fill pipe at locations shown on the Construction Drawings or at requested locations.
- B. Drill holes through soil, asphalt or concrete down to and into the existing pipe at such intervals to ensure complete grout fill of pipe.
- C. Install steel pipes into drilled holes, extending into pipe to be filled.
- D. Pump high flow grout into steel pipe until grout is observed coming from adjacent steel pipe.
- E. Due to the results of the initial grouting, additional drill holes may need to be installed between the first injection points to allow for additional grouting to fill the void.
- F. Upon completion of grouting, remove steel pipe or cut steel pipe a minimum of six (6) inches below surface grade. Finish at grade with a minimum six (6) depth of concrete.

3.11.4 Gravel Fill

- A. Gravel fill manholes at locations shown on the Construction Drawings or at requested locations.
- B. Remove manhole cone and sections to a minimum of three (3) feet below finished surface grade.

Division 4

Specifications

Section 3: Construction Standards

- C. Place No. 57 stone into manhole from invert to top of remaining section.
- D. Place suitable soil and compact soil from top of remaining section to finish surface grade in accordance with backfill and compaction requirements.

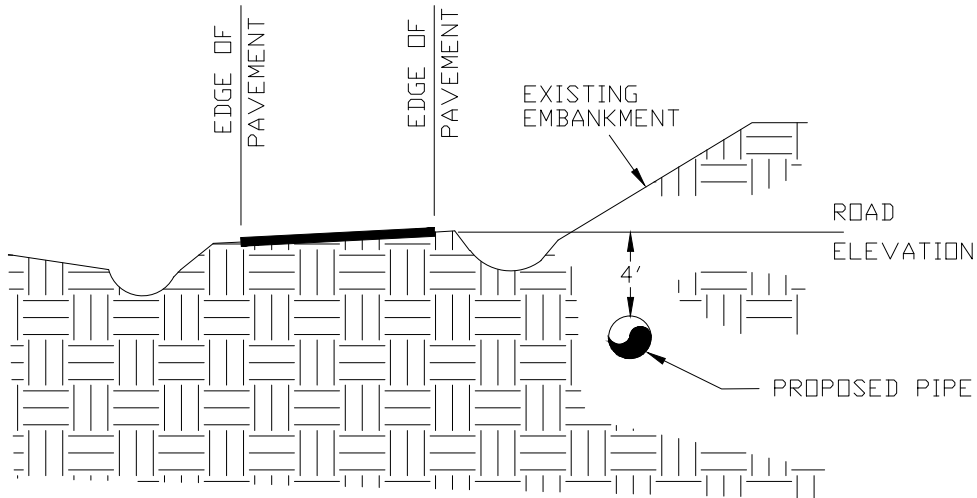
3.12

Acceptance

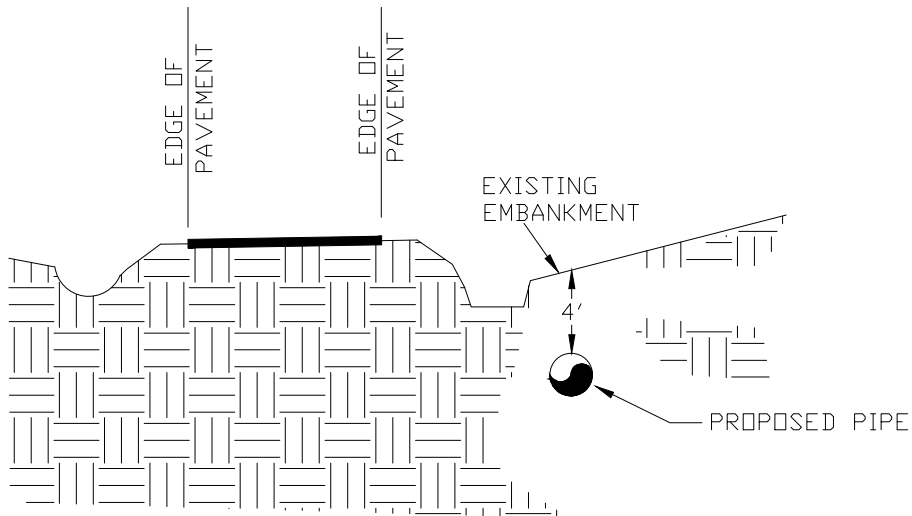
- A. A CCWA Inspector shall inspect all components of work for compliance with the Contract. The Contractor shall, at all times, permit and facilitate inspection of work by the CCWA. The presence of a CCWA Inspector or other CCWA staff on the site of work shall not be construed to, in any manner, relieve the Contractor of their responsibility for strict compliance with the Contract. The CCWA Inspector shall inform the Contractor when work is deficient from the Contract. Deficiencies shall be addressed in a timely manner as determined by the CCWA Inspector.
- B. Final Acceptance of the work by the CCWA shall be when the Contractor has met all terms and conditions as set forth by the Contract. The date of Final Acceptance shall be no later than the date the CCWA approves the Contractor's final request for payment. Where applicable, Final Acceptance shall be written, signed and dated by the CCWA.

END OF SECTION

WHERE GROUND ELEVATION IS ABOVE ROAD ELEVATION



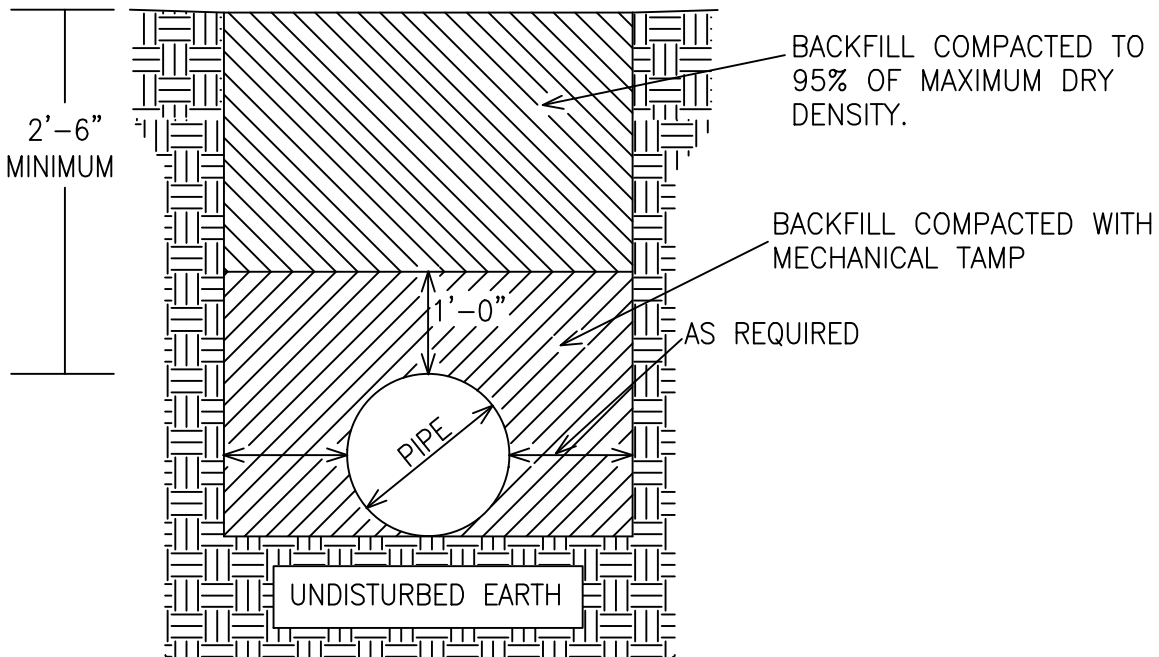
WHERE GROUND ELEVATION IS BELOW ROAD ELEVATION



NOTE: UNLESS OTHERWISE INDICATED, MINIMUM SOIL COVER ABOVE PIPE IS 4 FEET.

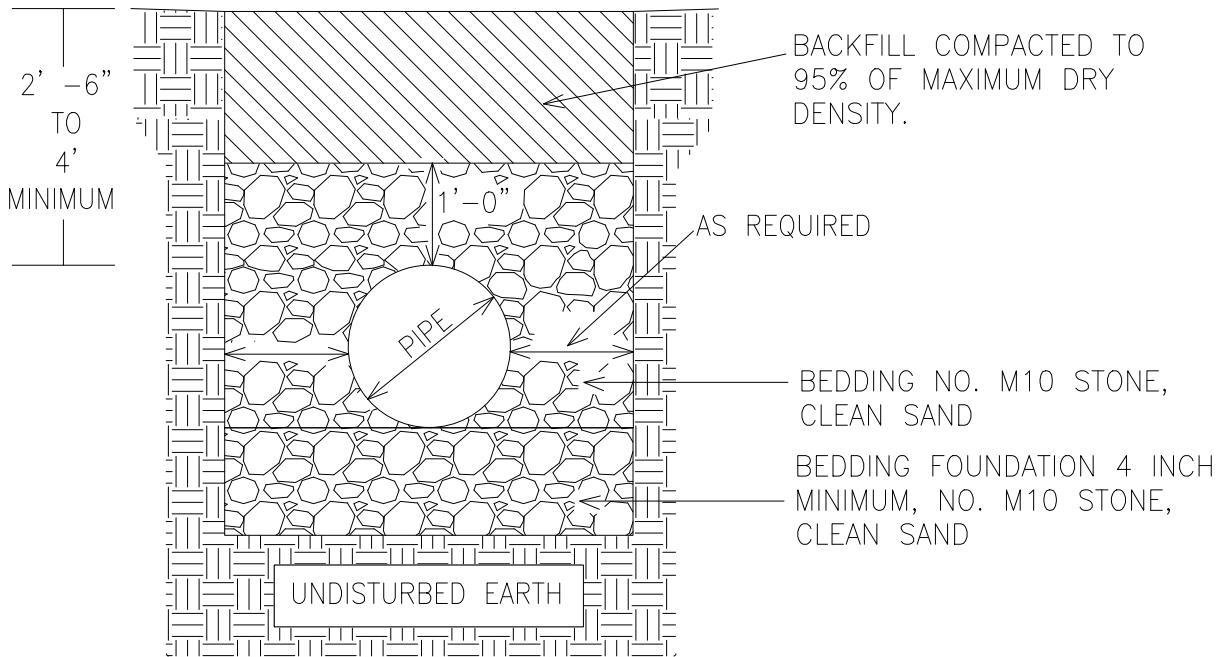
CLAYTON COUNTY WATER AUTHORITY

DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	PIPE DEPTH AT EDGE OF PAVEMENT
DRAWN BY:	WWB	



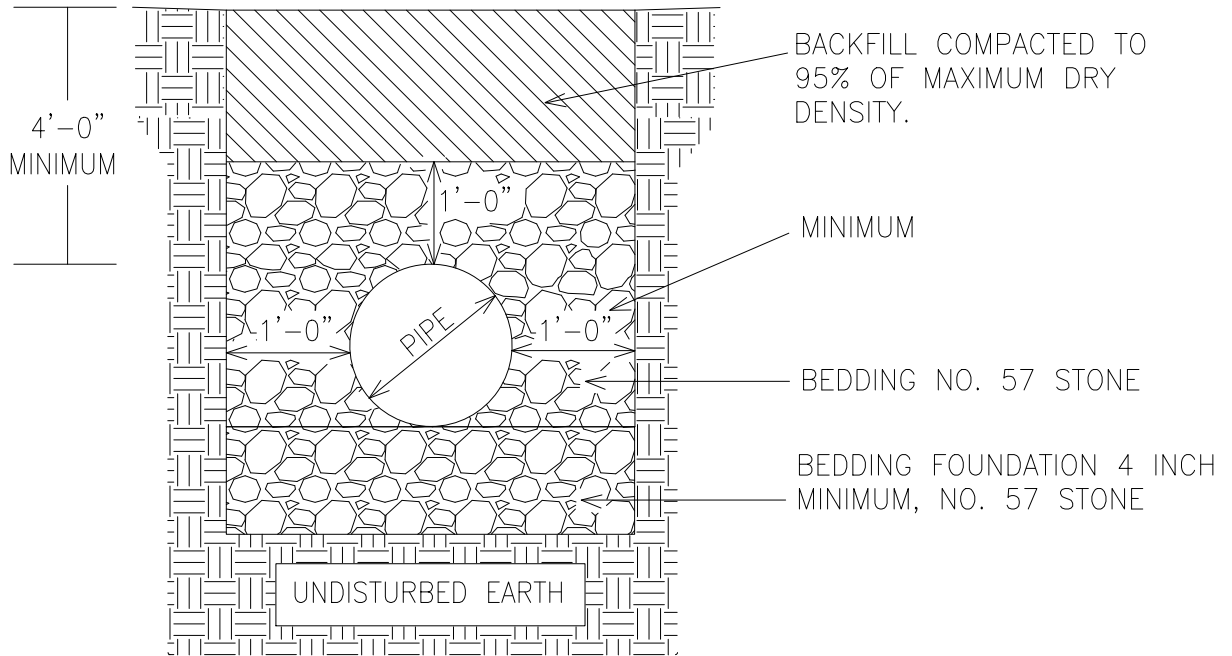
CLAYTON COUNTY WATER AUTHORITY

DATE:	16 MAY 2013	DETAIL TITLE:
SCALE:	N.T.S.	PIPE INSTALLATION ON GRADE UP TO 1" COPPER
DRAWN BY:	WWB	



CLAYTON COUNTY WATER AUTHORITY

DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	PIPE INSTALLATION ON GRADE
DRAWN BY:	WWB	1.5" OR 2" COPPER



CLAYTON COUNTY WATER AUTHORITY

DATE: 09 SEPTEMBER 2016

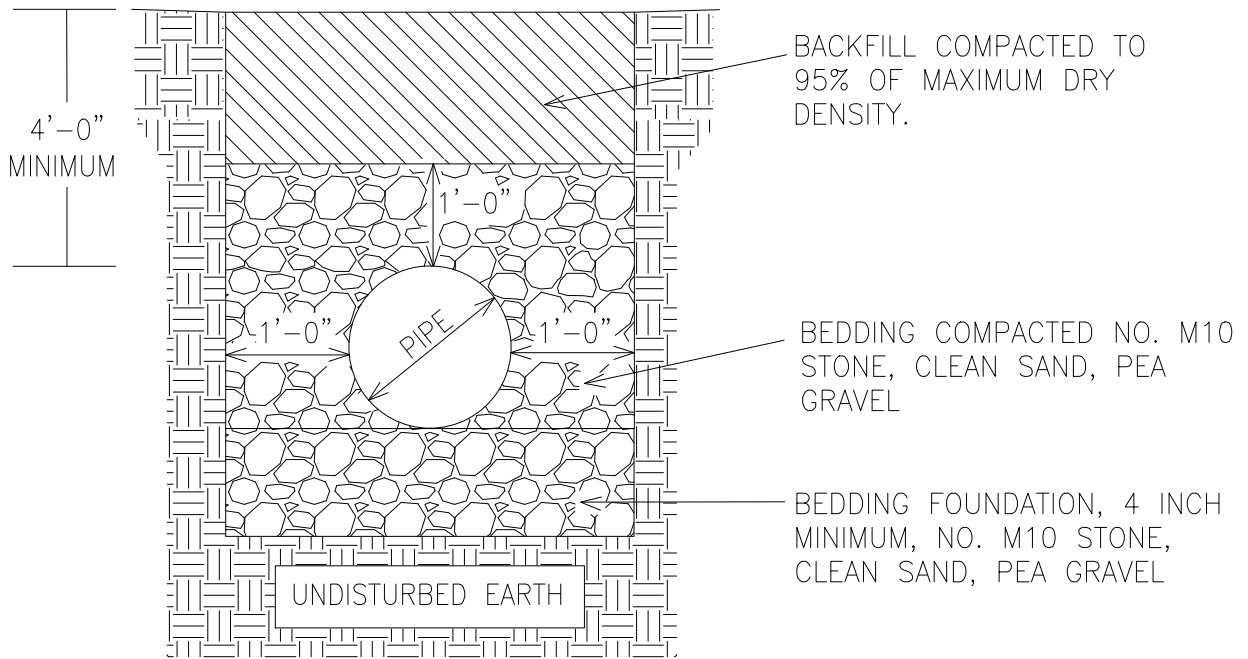
DETAIL TITLE:

SCALE: N.T.S.

PIPE INSTALLATION ON GRADE

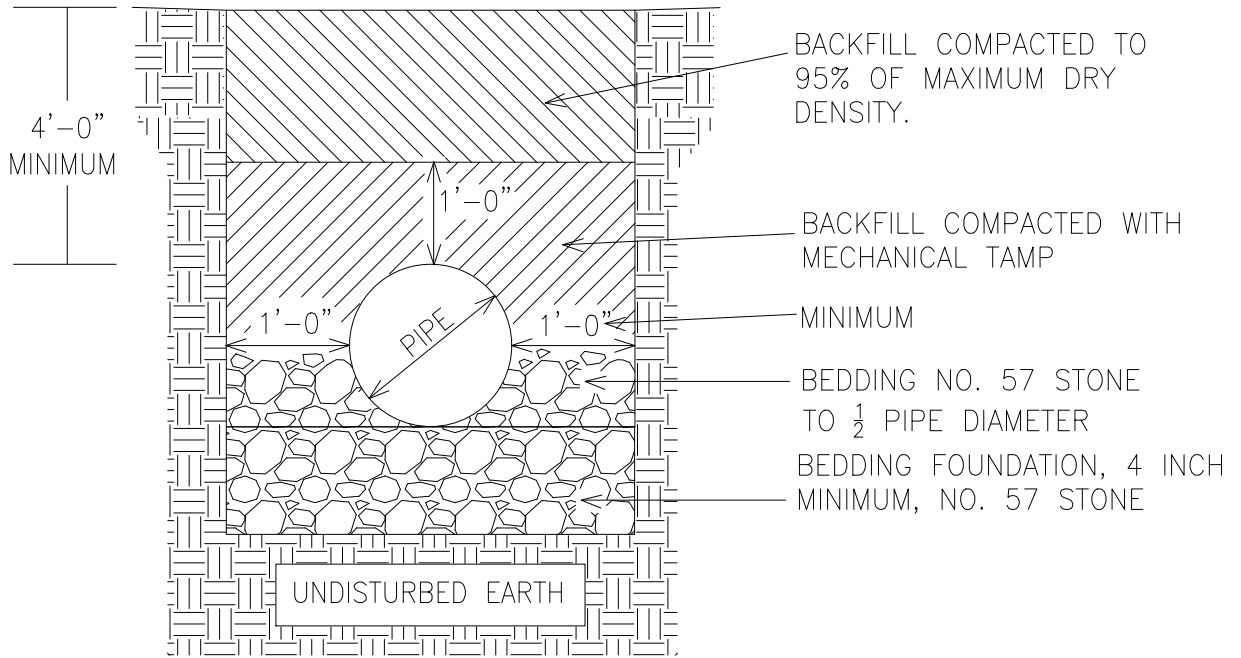
DRAWN BY: WWB

GRAVITY FLOW PVC, HDPE



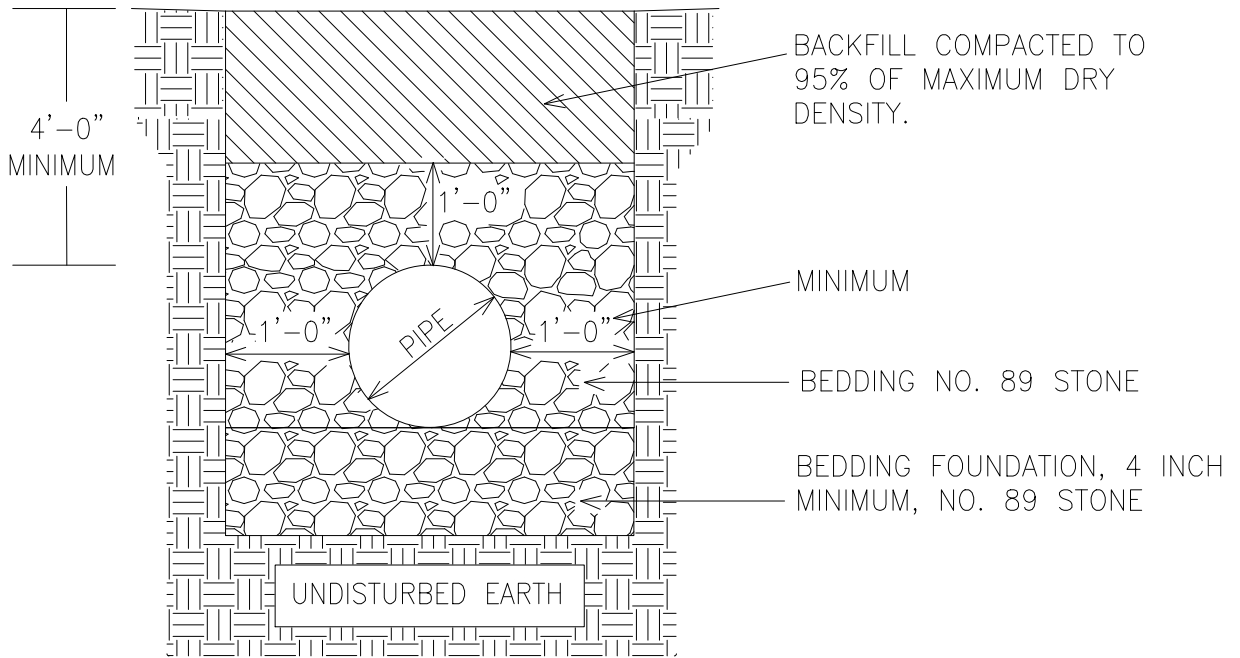
CLAYTON COUNTY WATER AUTHORITY

DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	PIPE INSTALLATION ON GRADE
DRAWN BY:	WWB	PRESSURIZED PVC



CLAYTON COUNTY WATER AUTHORITY

DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	PIPE INSTALLATION ON GRADE
DRAWN BY:	WWB	DI, RC, CM, STEEL CASING

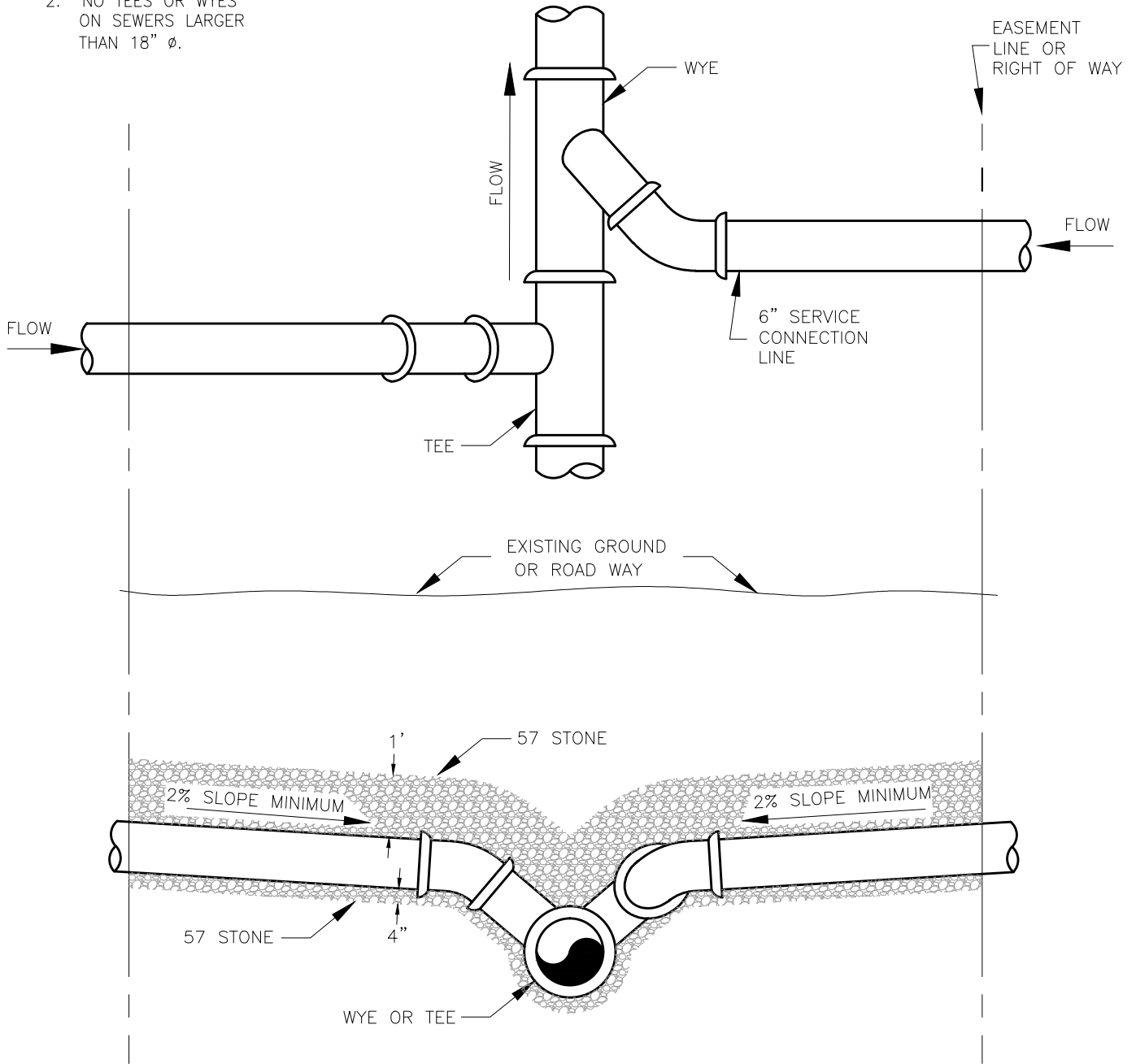


CLAYTON COUNTY WATER AUTHORITY

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SCALE:	N.T.S.	PIPE INSTALLATION ON GRADE
DRAWN BY:	WWB	FRPMP

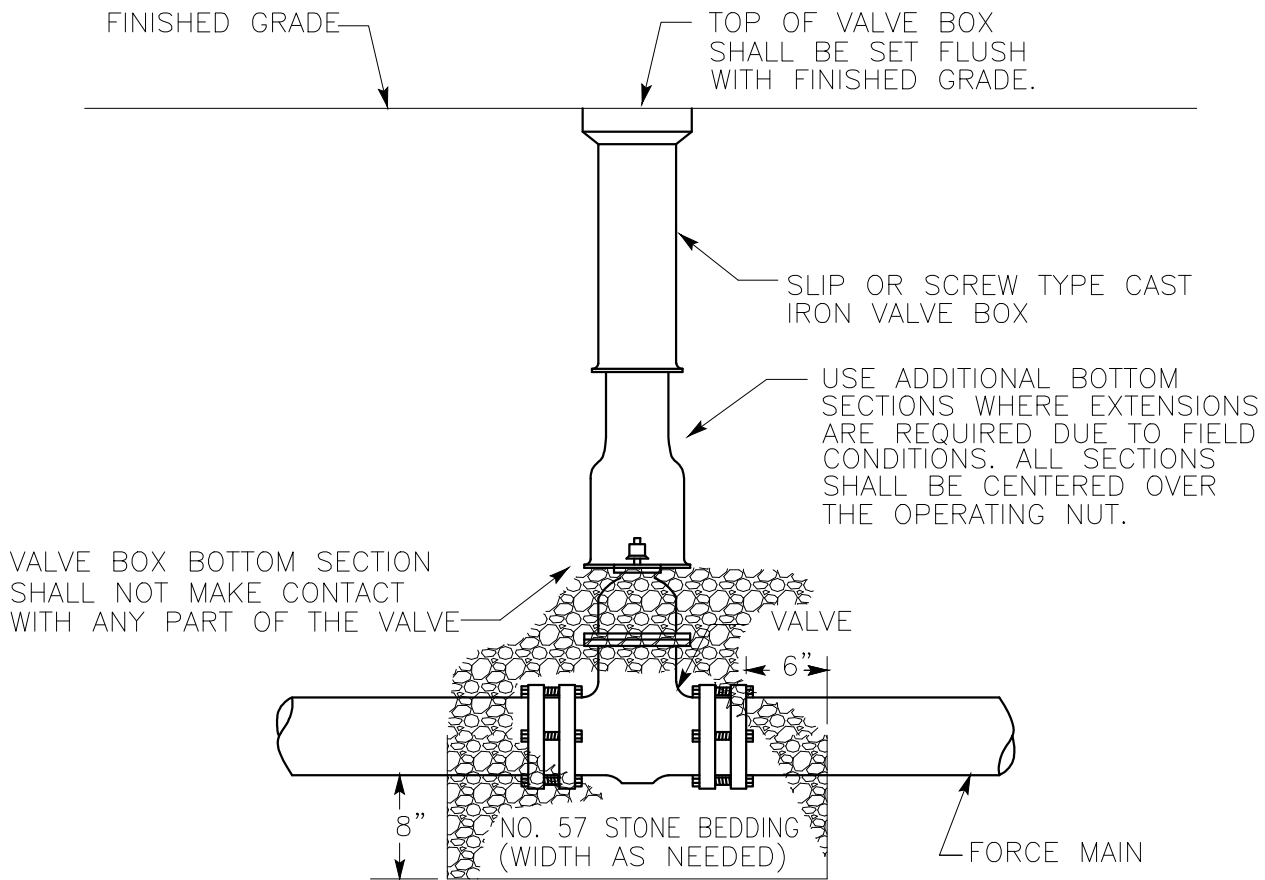
NOTES:

1. CONNECTION TO NEW SEWER SHALL BE WITH TEE OR WYE.
2. NO TEES OR WYES ON SEWERS LARGER THAN 18" ϕ .



CLAYTON COUNTY WATER AUTHORITY

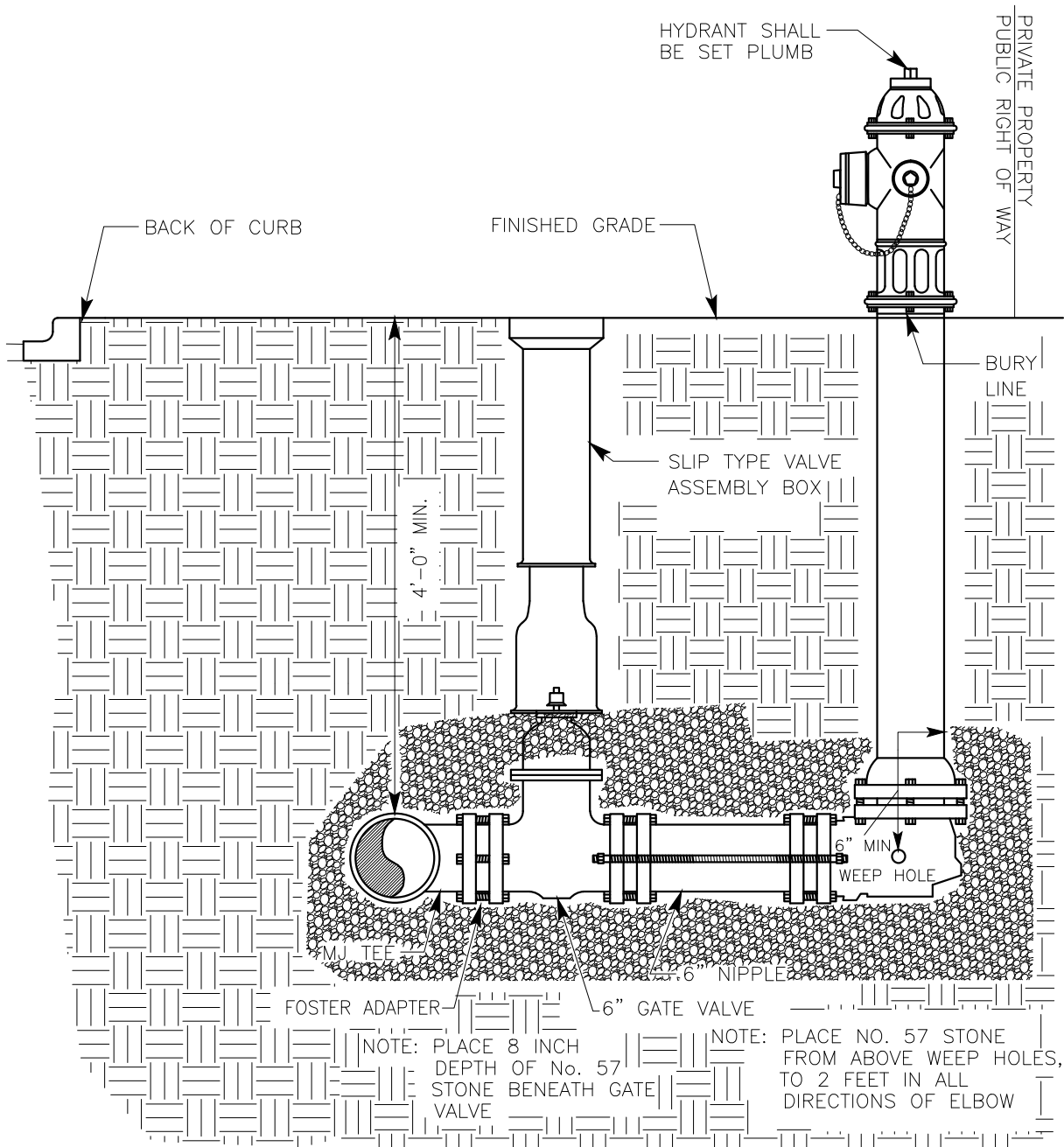
DATE:	06 DECEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	LATERAL CONNECTION
DRAWN BY:	WWB	



NOTE: VALVE BOX SHALL NOT BE SET IN A DEPRESSED AREA.

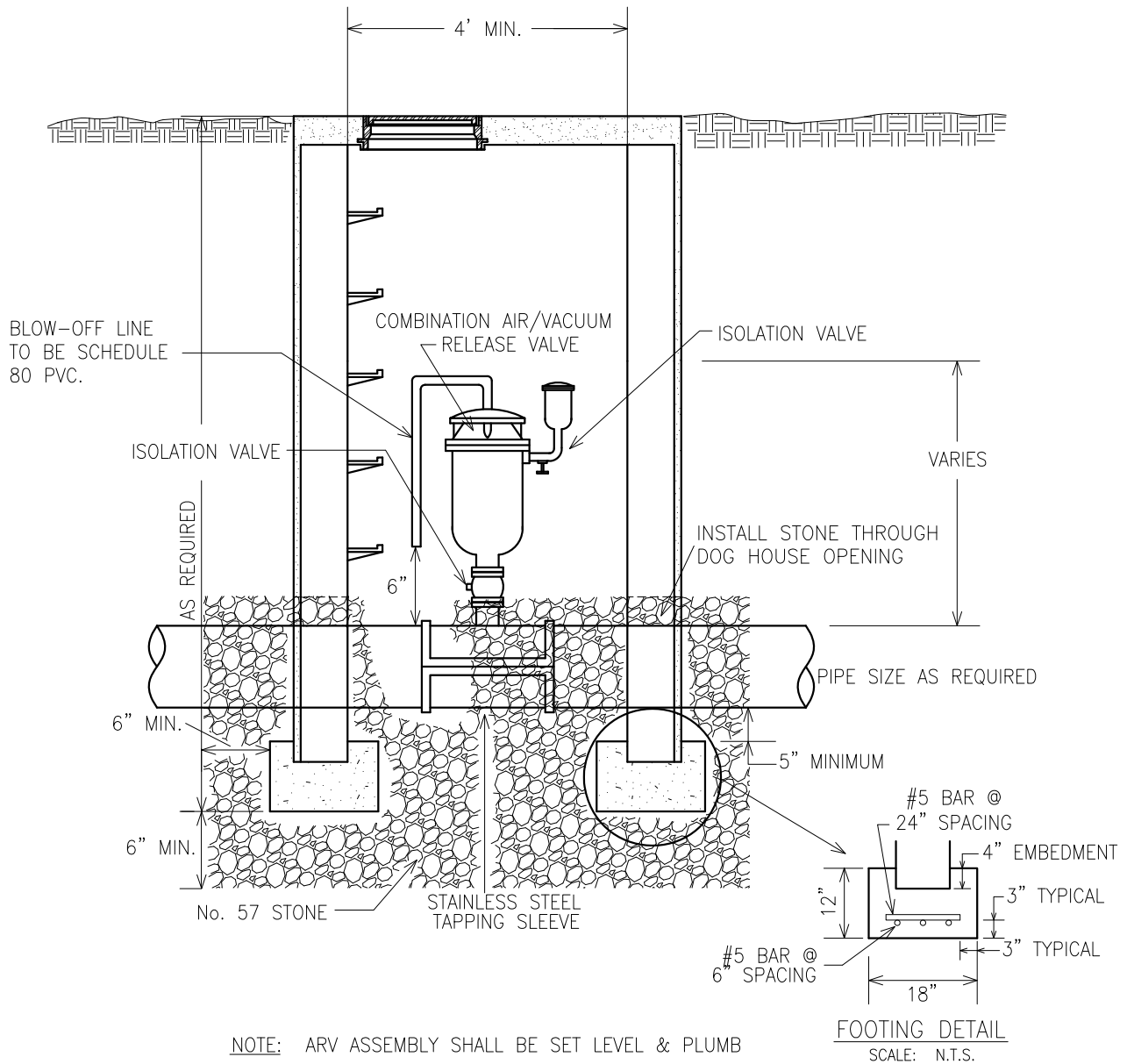
CLAYTON COUNTY WATER AUTHORITY

DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	VALVE BOX
DRAWN BY:	WWB	



CLAYTON COUNTY WATER AUTHORITY

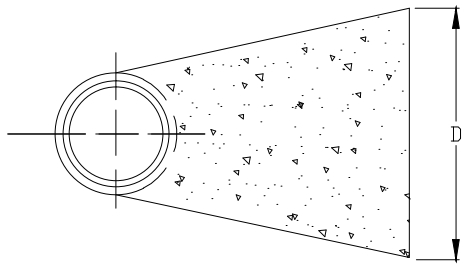
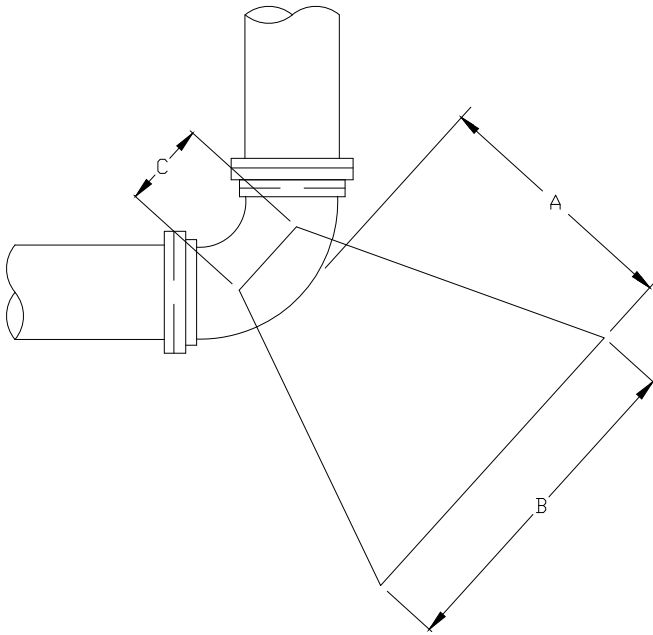
DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	FIRE HYDRANT
DRAWN BY:	WWB	



CLAYTON COUNTY WATER AUTHORITY

DATE:	09 SEPTEMBER 2016
SCALE:	N.T.S.
DRAWN BY:	WWB

DETAIL TITLE:	AIR/VACUUM RELEASE
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SECTION

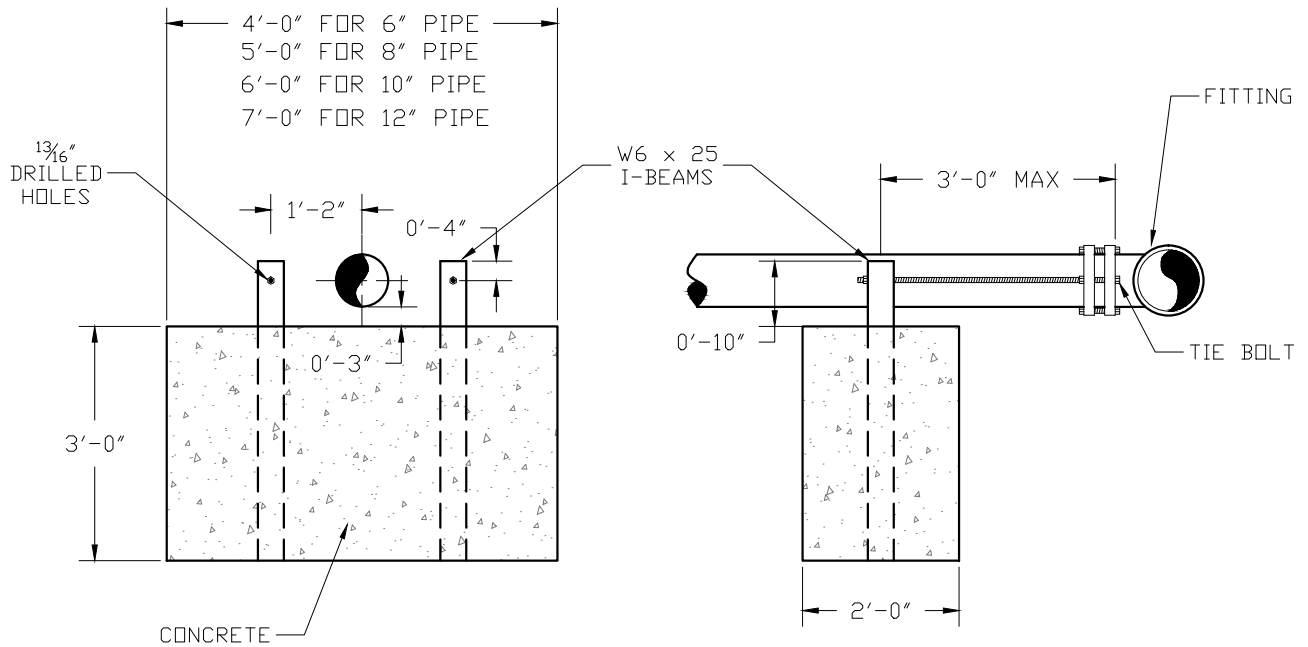
MINIMUM DIMENSIONS FOR CONCRETE BLOCKING					
BEND	PIPE SIZE	A	B	C	D
11 1/4°	6"	1.0'	1.0'	7"	1.0'
	8"	1.0'	1.25'	7"	1.0'
	12"	1.0'	2.0'	11"	2.0'
	16"	2.0'	3.0'	15"	2.0'
	20"	2.0'	3.0'	19"	3.0'
	24"	3.0'	4.0'	22"	3.0'
22 1/2°	6"	1.0'	1.5'	7"	1.0'
	8"	1.0'	2.0'	7"	2.0'
	12"	2.0'	3.0'	11"	2.0'
	16"	2.0'	4.0'	15"	3.0'
	20"	3.0'	5.0'	19"	3.0'
	24"	4.0'	6.0'	22"	4.0'
45°	6"	1.5'	2.0'	7"	1.5'
	8"	2.0'	3.0'	7"	2.0'
	12"	2.0'	4.0'	11"	3.0'
	16"	3.0'	5.0'	15"	4.0'
	20"	4.0'	6.0'	19"	5.0'
	24"	5.0'	8.0'	22"	6.0'
90°	6"	1.5'	2.5'	7"	2.0'
	8"	2.0'	3.0'	7"	3.0'
	12"	4.0'	6.0'	11"	4.0'
	16"	4.0'	7.0'	15"	5.0'
	20"	8.0'	8.0'	19"	7.0'
	24"	6.0'	10.0'	22"	8.0'
TEES AND PLUGS	6"	1.5'	2.0'	7"	2.0'
	8"	2.0'	3.0'	7"	2.0'
	12"	2.0'	4.0'	11"	4.0'
	16"	3.0'	5.0'	15"	5.0'
	20"	4.0'	7.0'	19"	6.0'
	24"	5.0'	8.0'	22"	7.0'

NOTES:

1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
2. THRUST BLOCK SHALL BE POURED AGAINST UNDISTURBED SOIL.
3. BOLTS/NUTS SHALL BE PROTECTED FROM CONCRETE COVERAGE.

CLAYTON COUNTY WATER AUTHORITY

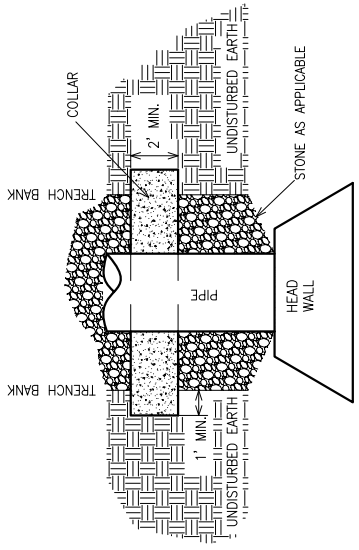
DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	THRUST RESTRAINT CONCRETE BLOCK
DRAWN BY:	WWB	



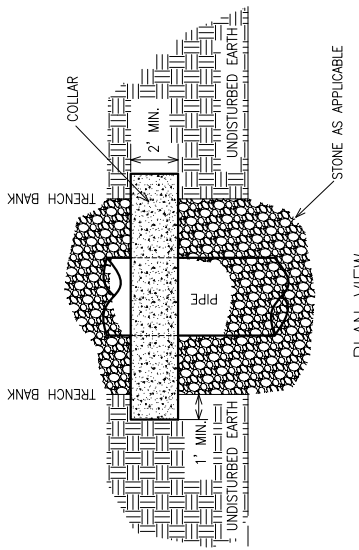
1. PIPE SIZES 6" AND 8" REQUIRE 2 RODS. PIPE SIZES 10" AND 12" REQUIRE 4 RODS.
2. 3/4" RODS AND NUTS 316 STAINLESS STEEL.
3. RODS TO HAVE VISIBLE THREADS BEYOND NUT.
4. I-BEAMS, EXPOSED TO SOIL, SHALL BE CLEANED AND COATED WITH ROYSTON ROSKOTE, CARBOLINE BITUMASTIC 300M, OR APPROVED EQUAL.
5. CONCRETE MUST BE Poured AGAINST UNDISTURBED EARTH.

CLAYTON COUNTY WATER AUTHORITY

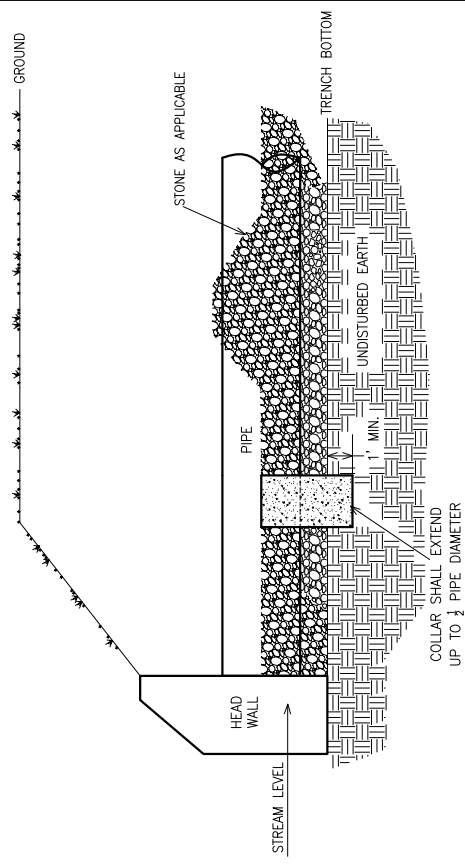
DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	THRUST RESTRAINT CONCRETE TIE-BACK
DRAWN BY:	WWB	



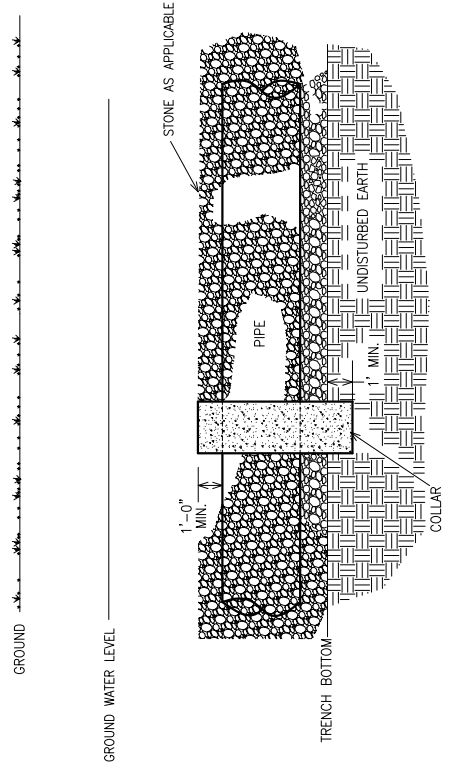
PLAN VIEW



PLAN VIEW



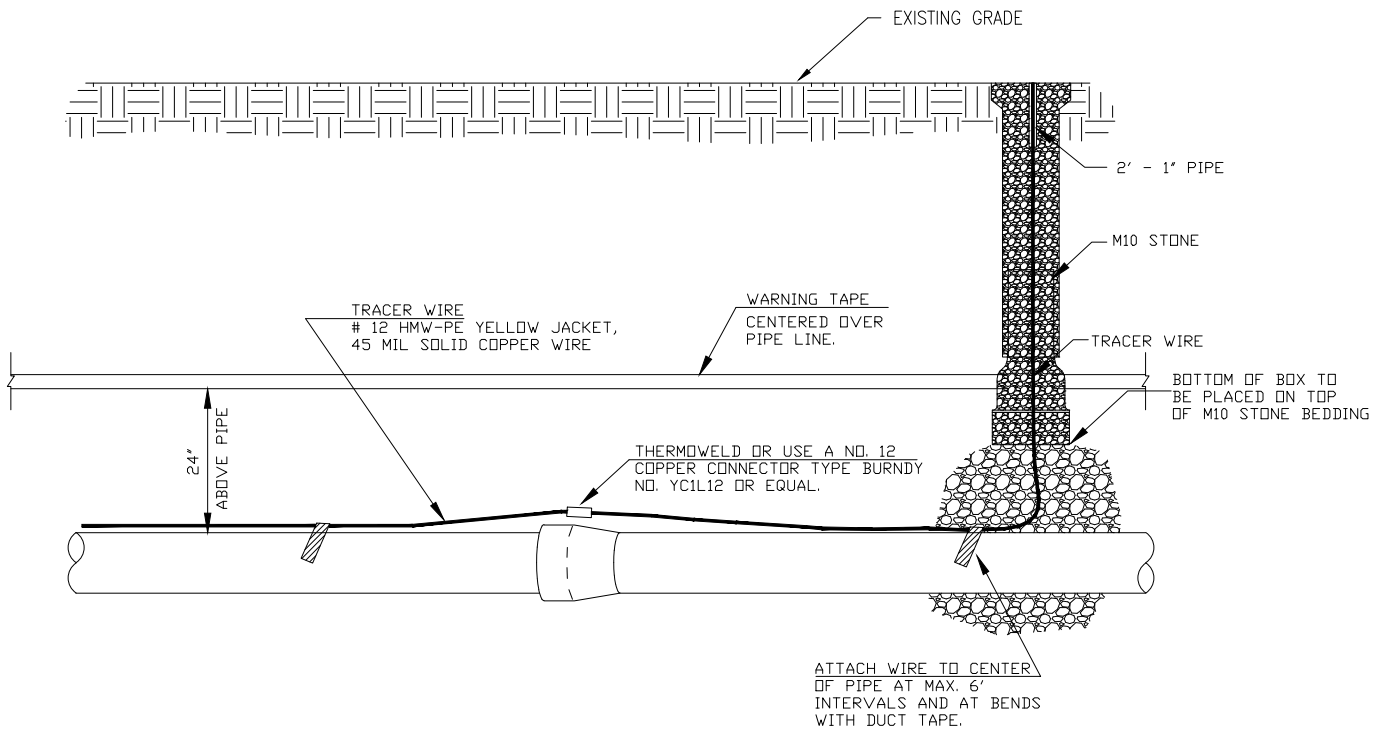
SIDE VIEW
(CREEK CONDITION)



SIDE VIEW
(GROUND WATER CONDITION)

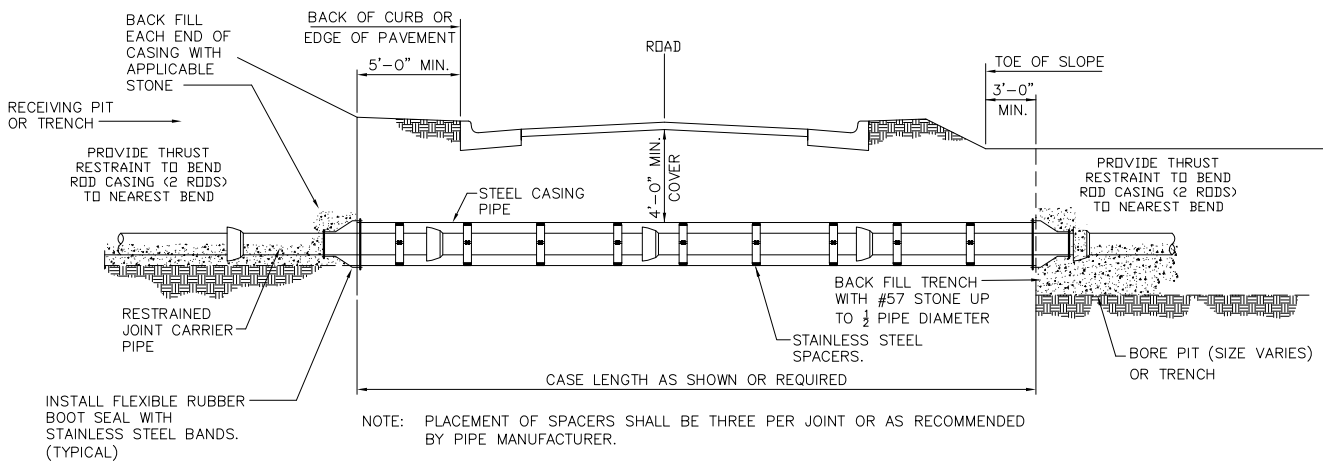
CLAYTON COUNTY WATER AUTHORITY

DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	PIPE COLLAR
DRAWN BY:	WWB	



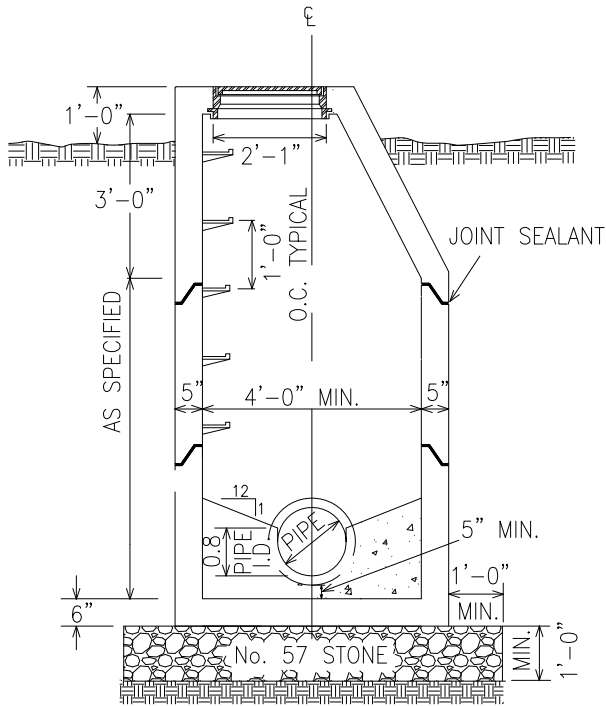
CLAYTON COUNTY WATER AUTHORITY

DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	PIPE DETECTION INSTALLATION
DRAWN BY:	WWB	



CLAYTON COUNTY WATER AUTHORITY

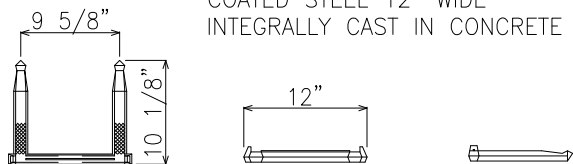
DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	STEEL CASING
DRAWN BY:	WWB	



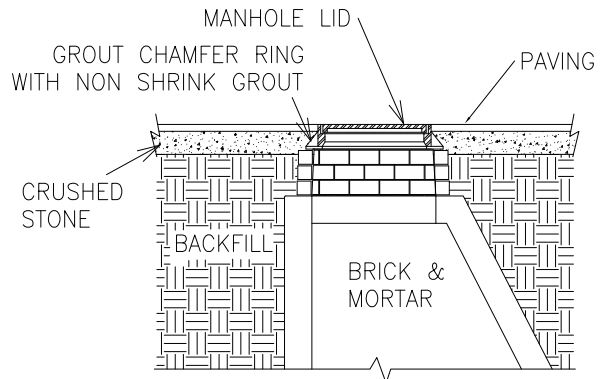
NOTES:

1. SHELF AND INVERT MAY BE CAST-IN OR BUILT-IN-PLACE AND SHALL HAVE SMOOTH FINISH.
2. WHEN BRICK IS USED AS A FILLER, PROVIDE MINIMUM 1/2 INCH GROUT OVER BRICK.

MANHOLE SECTION



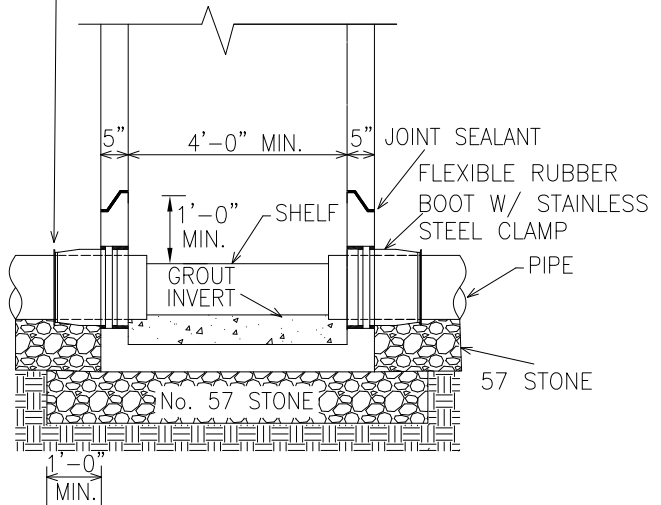
MANHOLE STEP DETAIL
SCALE: N.T.S.



- NOTES: 1. BRICKS SHALL BE STACKED NO MORE THAN FIVE COARSE.

TYPICAL MANHOLE IN PAVEMENT DETAIL

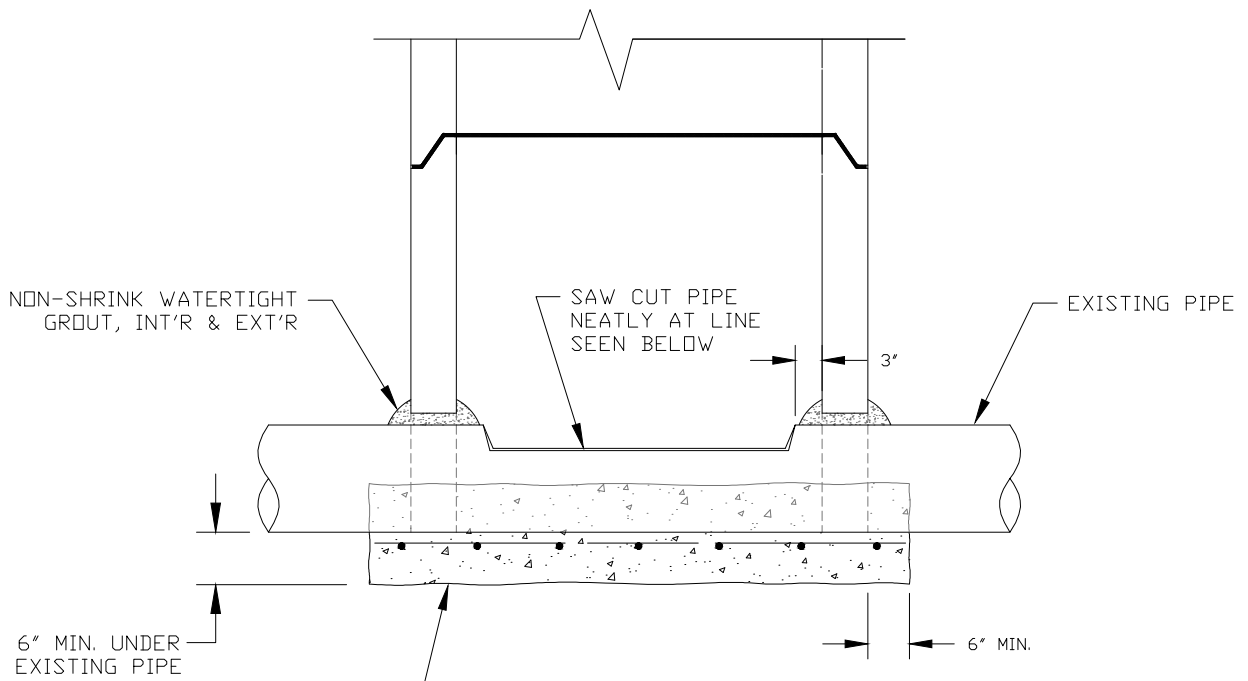
PIPE CENTERED IN PRECAST OPENING



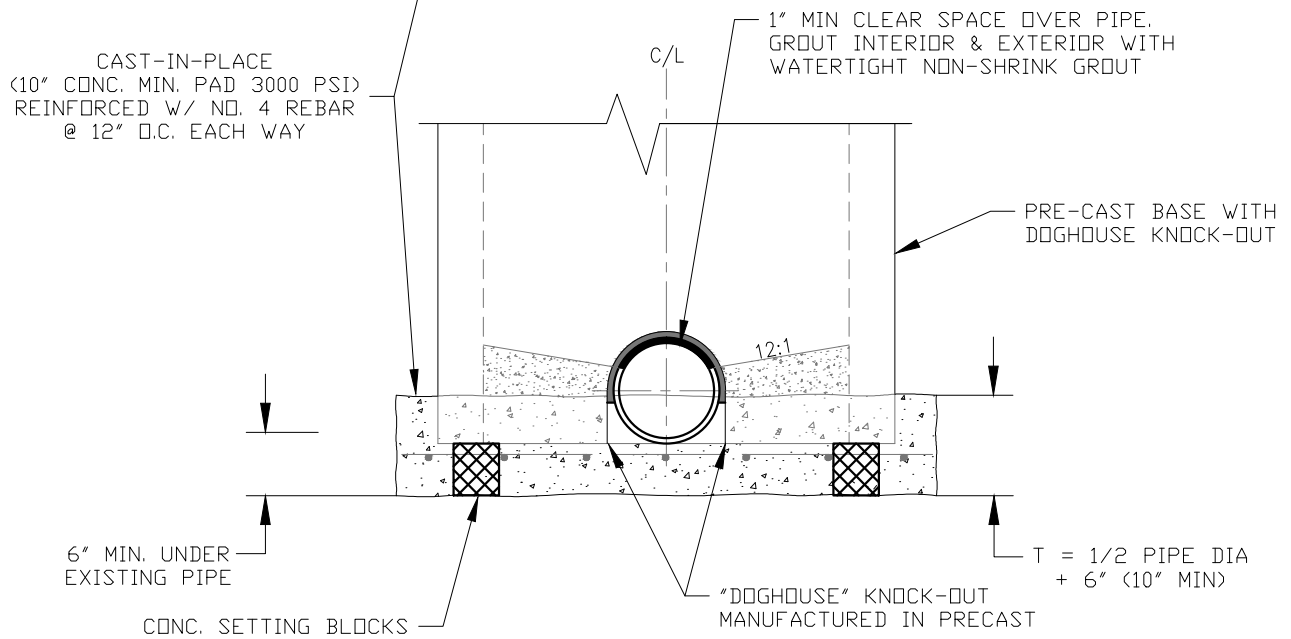
MANHOLE SECTION

CLAYTON COUNTY WATER AUTHORITY

DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	MANHOLE SECTIONS
DRAWN BY:	WWB	



SECTION

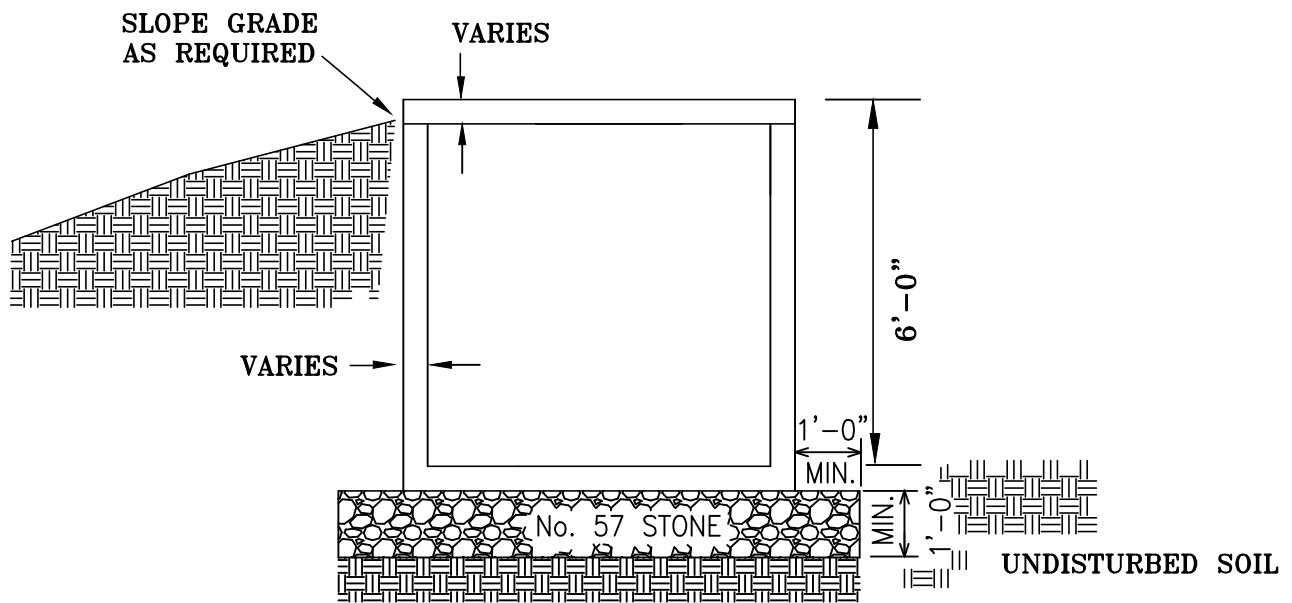


ROTATED SECTION

CLAYTON COUNTY WATER AUTHORITY

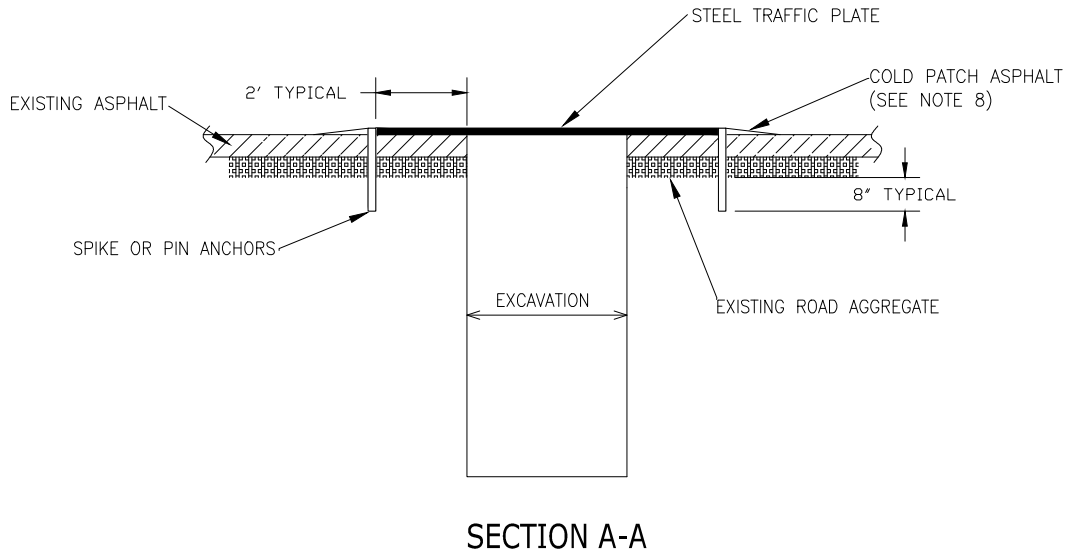
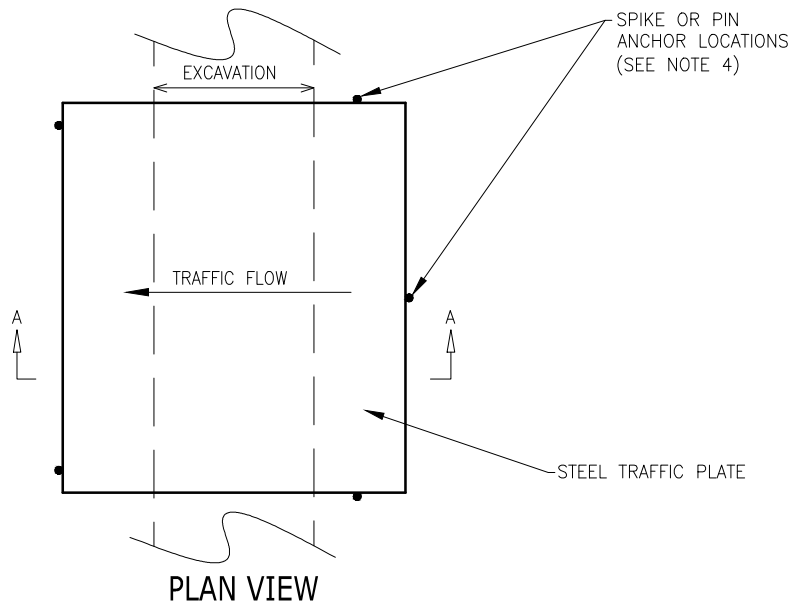
DATE:	09 SEPTEMBER 2016
SCALE:	N.T.S.
DRAWN BY:	WWB

DETAIL TITLE:	DOG HOUSE MANHOLE SECTIONS
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CLAYTON COUNTY WATER AUTHORITY

DATE:	16 MAY 2013	DETAIL TITLE:
SCALE:	N.T.S.	PRECAST BOX / VAULT
DRAWN BY:	WWB	

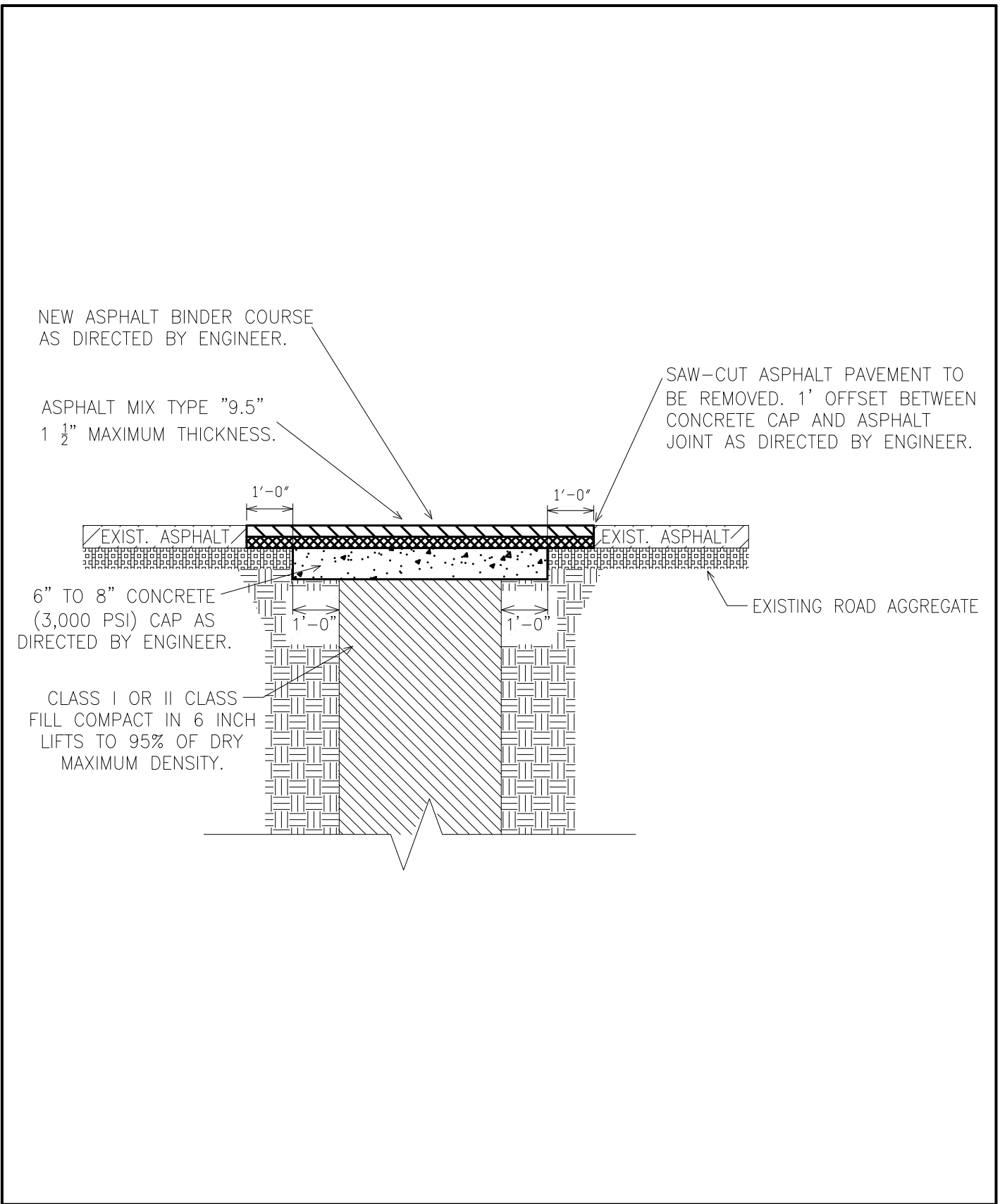


NOTES

1. TRAFFIC BASED ON H20-44 (SINGLE TIRE/PLATE). HAVING A UNIFORM LOAD OF 640lb. PER LINEAL FOOT ON LOAD LANE.
2. PLATE ARE TO BE UNIFORMLY SUPPORTED AND CENTERED OVER TRENCH.
3. TRENCH WALLS UNDER THE PLATES SHALL BE UNIFORMLY SUPPORTED FROM TOP TO BOTTOM.
4. PLATES SHOULD BE ANCHORED TO PREVENT LATERAL MOVEMENT.
5. SUPPORTING SURFACE ON EACH SIDE OF THE TRENCH SHALL BE SMOOTH AND HARD (CONCRETE, ASPHALT SURFACES OR EQUAL).
6. STEEL TRAFFIC PLATES SHALL BE A MINIMUM OF ONE INCH THICK.
7. TACK WELD PLATES TOGETHER AS NECESSARY TO PREVENT MOVEMENT BETWEEN ADJACENT PLATES.
8. USE COLD PATCH ASPHALT ALONG ALL EDGES OF PLATES TO ENSURE SMOOTH TRANSITION FOR TRAFFIC.

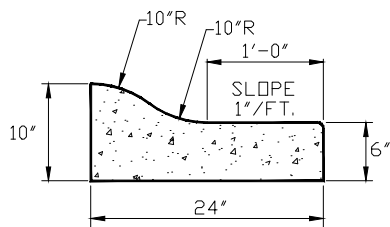
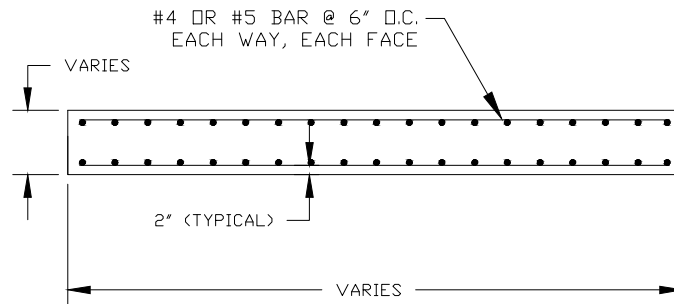
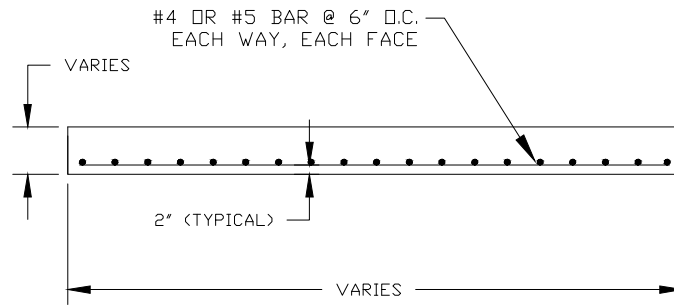
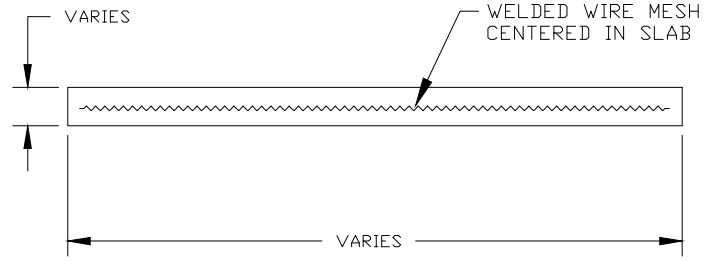
CLAYTON COUNTY WATER AUTHORITY

DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	STEEL TRAFFIC PLATE
DRAWN BY:	WWB	

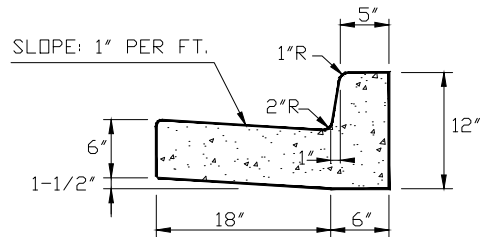


CLAYTON COUNTY WATER AUTHORITY

DATE:	09 SEPTEMBER 2016	DETAIL TITLE:
SCALE:	N.T.S.	ASPHALT REPLACEMENT AT EXCAVATION
DRAWN BY:	WWB	



ROLLED TYPE CURB AND GUTTER



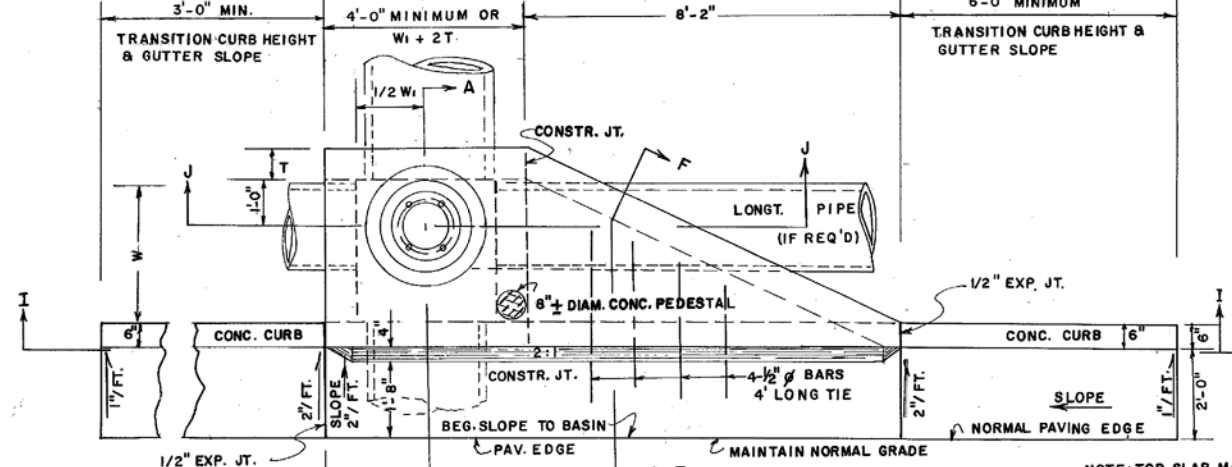
24" VERTICAL CURB AND GUTTER

CLAYTON COUNTY WATER AUTHORITY

DATE:	12 AUGUST 2013	DETAIL TITLE:
SCALE:	N.T.S.	SLAB ON GRADE
DRAWN BY:	WWB	

CATCH BASIN

(IF CATCH BASIN HAS LONGITUDINAL PIPE OVER 24", SEE DETAILS AT RIGHT)



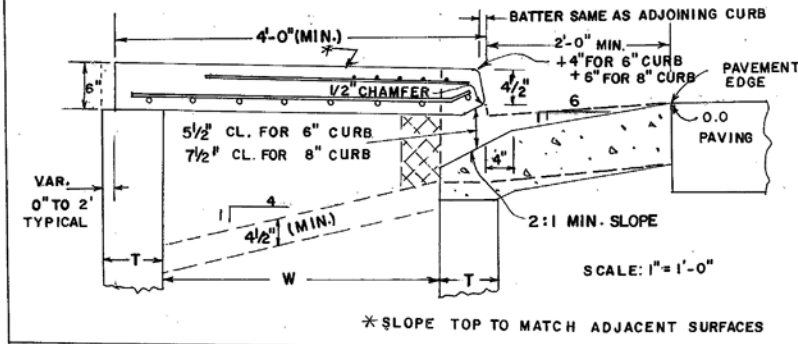
NOTE: 12'-0" (MIN.) PAYMENT FOR CATCH BASIN INCLUDES ALL QUANTITIES BETWEEN THESE LINES EXCEPT ADDITIONAL DEPTH (UNLESS OTHERWISE NOTED IN THE PLANS)

PLAN

SCALE: 1/2" = 1'

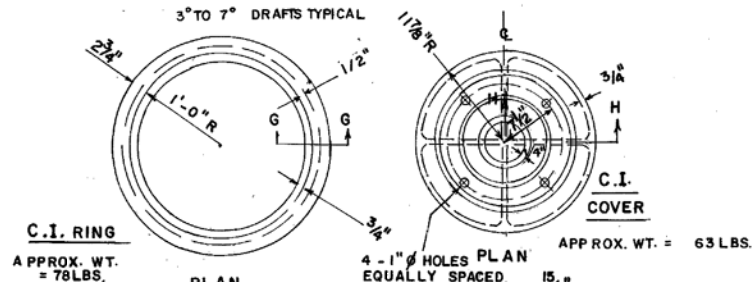
NOTE: TOP SLAB MAY BE CAST IN PLACE OR PRECAST, IF SLAB IS CAST IN PLACE, BUILDERS PAPER IS TO BE PLACED BETWEEN THE CATCH BASIN AND TOP SLAB.

DETAIL OF TOP SLAB, REINF. STEEL & CLEARANCES REQ'D.



*SLOPE TOP TO MATCH ADJACENT SURFACES

CASTING DETAILS



C.I. RING

APPROX. WT. = 78 LBS.

PLAN

ELEVATION

SCALE: 1" = 1'

ELEVATION

SCALE: 1" = 1'

SECTION H-H

SCALE: 3" = 1'

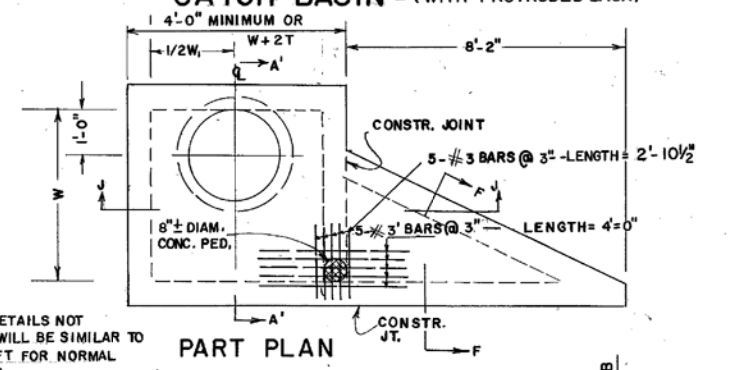
SECTION G-G

SCALE: 3" = 1'

SECTION J-J

SCALE: 1/2" = 1'

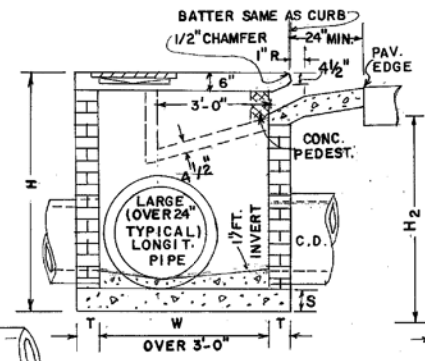
(TYPICAL FOR CATCH BASIN WITH LARGE LONGITUDINAL PIPE OR RECESSED BOX) CATCH BASIN - (WITH PROTRUDED BACK)



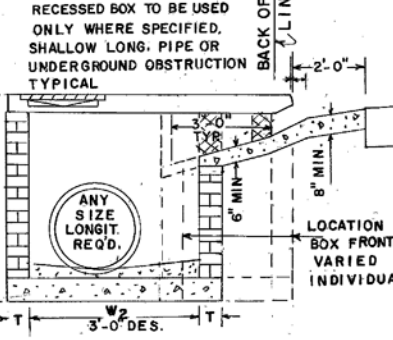
PART PLAN

NOTE: CATCH BASIN DETAILS NOT SHOWN HERE WILL BE SIMILAR TO THOSE AT LEFT FOR NORMAL CATCH BASIN.

NOTE: RECESSED BOX TO BE USED ONLY WHERE SPECIFIED. SHALLOW LONG PIPE OR UNDERGROUND OBSTRUCTION TYPICAL

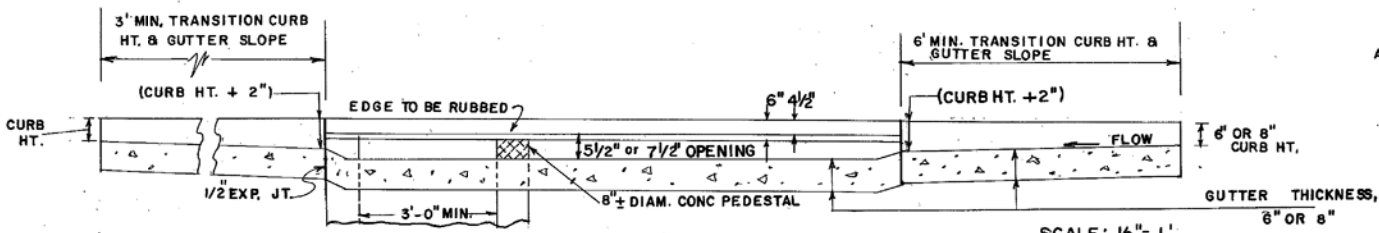


SECTION A-A (WITH LARGE LONGITUDINAL PIPE)



SECTION A-A (WITH RECESSED BOX)

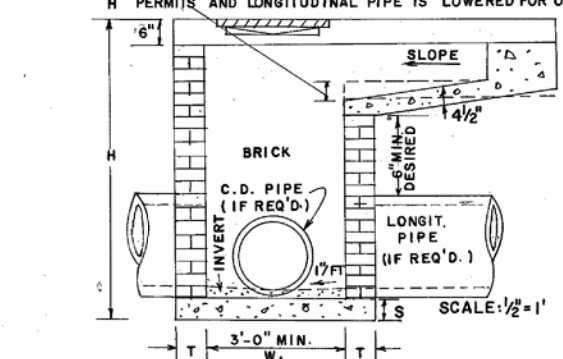
NOTE: H2 & W2 TO BE SHOWN IN THE PLANS



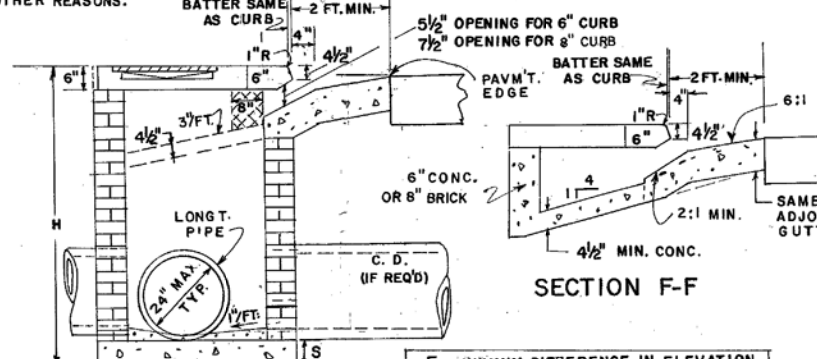
SECTION I-I

SCALE: 1/2" = 1'

NOTE: NORMAL SLOPE OF CONCRETE APRON TO BE INCREASED BY 4" TO 8" WHERE "H" PERMITS AND LONGITUDINAL PIPE IS LOWERED FOR OTHER REASONS.



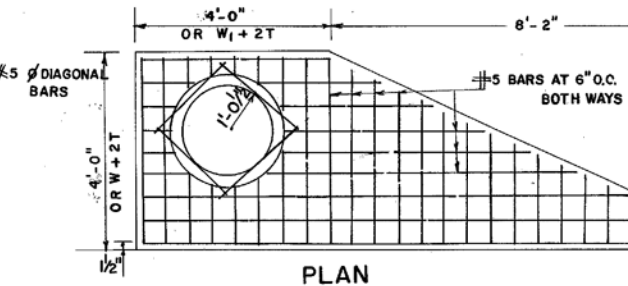
SECTION J-J



SECTION A-A

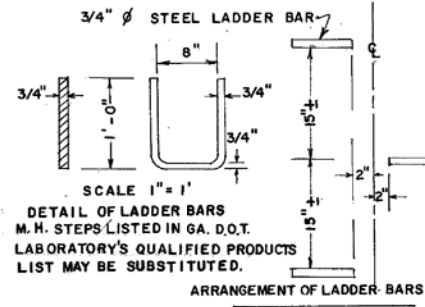
ΔE = MINIMUM DIFFERENCE IN ELEVATION FROM PAVEMENT EDGE TO FLOW LINE OF OUTLET PIPE.

DETAIL OF TOP REINFORCED CONCRETE SLAB



PLAN

NOTE: ALL CATCH BASINS WILL HAVE STEPS OR LADDER BARS, NUMBER & LOCATION TO BE AS DIRECTED BY THE ENGINEER.



NOTE: DETAIL OF LADDER BARS M.H. STEPS LISTED IN GA. D.O.T. LABORATORY'S QUALIFIED PRODUCTS LIST MAY BE SUBSTITUTED.

W OR W1 (MAX.)	BOTTOM SLAB	
	MATERIALS	S
TO 4'-6"	NON-REINF. CONCRETE	6"
	OR BRICK	8"
OVER 4'-6"	CONC. REINF. W/ #4 BARS 12" O.C. BOTH WAYS 2" CL. FROM SLAB TOP	8"

TYPICAL MIN. DIMENSIONS

PIPE DIA.	H (MIN.)	W OR W1 (MIN.)	ΔE (MIN.)
12	4'-4"	3'-0"	3'-3"
15	4'-7"	3'-0"	3'-6"
18	4'-10"	3'-0"	3'-9"
24	5'-6"	3'-0"	4'-4"
30	6'-2"	3'-7"	5'-0"
36	6'-10"	4'-6"	5'-7"
42	7'-4"	5'-3"	5'-11"
48	8'-0"	6'-0"	6'-6"
54	8'-6"	6'-8"	7'-0"
60	9'-2"	7'-4"	7'-7"

NOTE: THE MIN. R & MIN. ΔE GIVEN IN ABOVE TABLE ARE BASED UPON TYPICAL OUTSIDE DIAMETERS OF CONC. PIPE AND MAY BE VARIED IF CONDITIONS PERMIT WITH VARIED DIMENSIONS SPECIFIED IN THE PLANS OR DIRECTED BY THE ENGINEER. W & W1 DIMENSIONS DO NOT HAVE TO BE EQUAL.

NOTE: ALL BARS IN PLAN VIEW ARE SPACED AT 6" O.C.

NOTE: FOR PLAN DETAIL OF REINFORCING STEEL IN TOP PORTION OF SLAB, SEE PART PLAN AT TOP RIGHT.

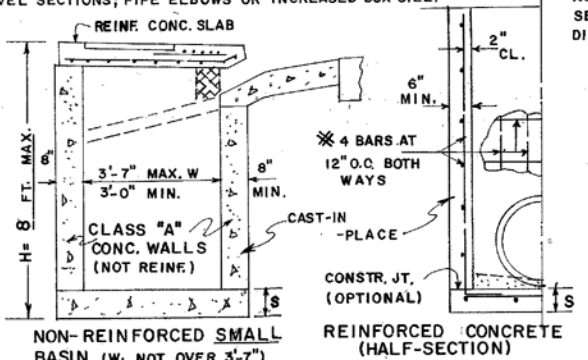
ELEVATION

1 1/2" FACE CONC. TO Q REINF.

NOTE: SEE SEPARATE STDS. FOR PRECAST ALTERNATES ADAPTERS (STD. 1040) WILL BE REQUIRED WITH CIRCULAR PRECAST UNITS. PRECAST BOX, CIRCULAR, AND/OR BUILT-IN-PLACE CONSTR. MAY BE USED IN COMBINATIONS.

PRECAST BOX ON BRICK (HALF-SECTION)

NOTE: TYPICAL TREATMENT FOR SKEWED PIPE ARE: CIRCULAR PRECAST SWIVEL SECTIONS; PIPE ELBOWS OR INCREASED BOX SIZE.

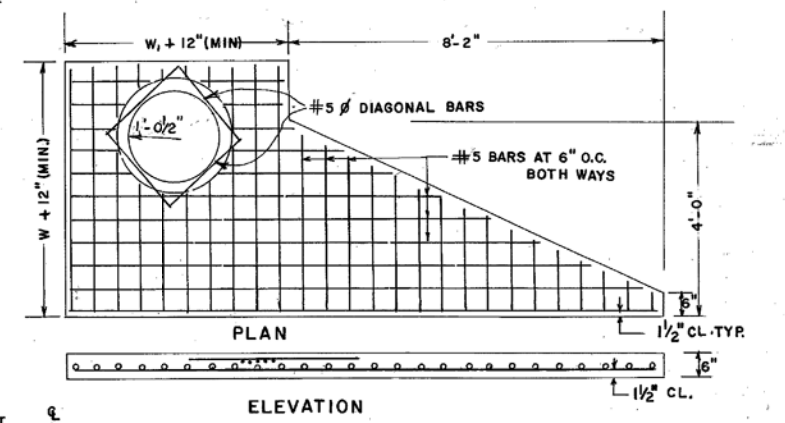


NON-REINFORCED SMALL BASIN (W. NOT OVER 3'-7")

CONSTRUCTION ALTERNATES

NOTE: DETAILS NOT SHOWN ABOVE FOR CONSTRUCTION ALTERNATES WILL BE SIMILAR TO BRICK CATCH BASIN DETAILS. SEE SEPARATE STANDARDS FOR PRECAST ALTERNATES.

DETAIL OF TOP REINFORCED CONCRETE SLAB



ELEVATION

NOTE: PIPE SIZES, NUMBER, ALIGNMENT, AND INVERT SHOWN ARE ILLUSTRATIVE. SEE PLANS FOR SPECIFICS. INVERTS TO BE FORMED WITH GROUT OR CONCRETE AS DIRECTED BY THE ENGINEER OR AS SHOWN IN THE PLANS.

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

STANDARD CATCH BASINS

FOR USE WITH CURB (6" HT. OR 8" HT.) & GUTTER

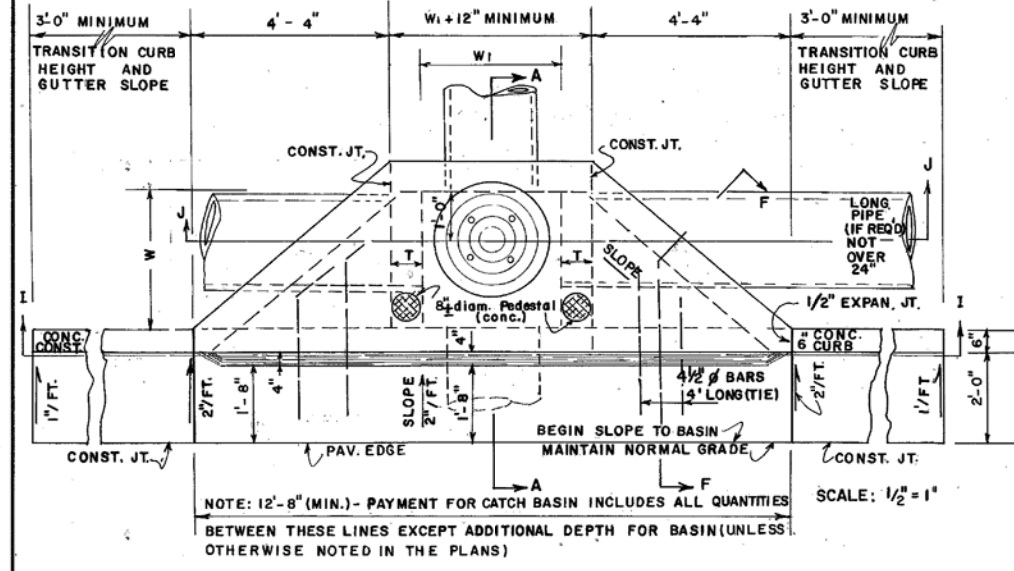
SCALE AS SHOWN

REV. & REDR. AUGUST, 1982

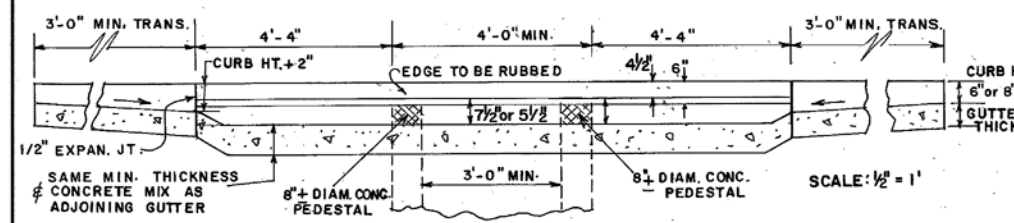
REV. & REDR. R.M.U. (SUBMITTED) *Flord G. Hardy* STATE ROAD & AIRPORT DESIGN ENGR. NUMBER
 TRA. G.M.E. (APPROVED) *Thomas D. Hardy* STATE HIGHWAY ENGINEER 1033 D
 CHK. R.K.C.

CATCH BASIN

(FOR CATCH BASIN WITH LONGIT. PIPE OVER 24" SEE DETAILS AT RIGHT.)

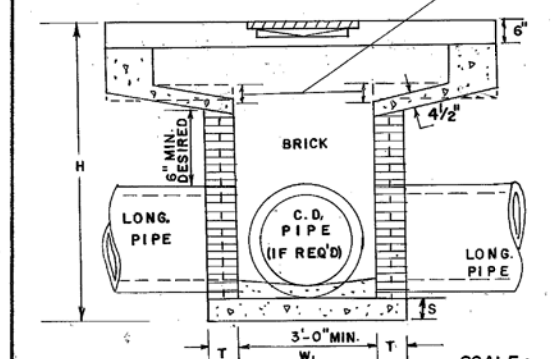


NOTE: 12"-8" (MIN.) - PAYMENT FOR CATCH BASIN INCLUDES ALL QUANTITIES BETWEEN THESE LINES EXCEPT ADDITIONAL DEPTH FOR BASIN (UNLESS OTHERWISE NOTED IN THE PLANS)



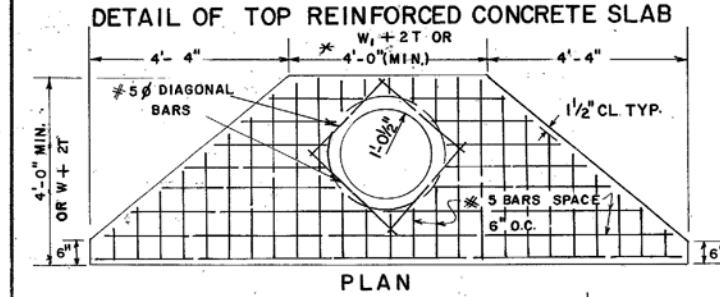
SECTION I-I

NOTE: NORMAL SLOPE OF CONCRETE APRON TO BE INCREASED UP TO 8" TOTAL WHERE "H" PERMITS AND LONGITUDINAL PIPE IS LOWERED FOR OTHER REASONS.



SECTION J-J

NOTE: PIPE SIZES, NUMBER, ALIGNMENT AND INVERTS SHOWN ARE ILLUSTRATIVE. SEE PLANS FOR SPECIFICS. INVERTS TO BE FORMED WITH GROUT OR CONC. AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

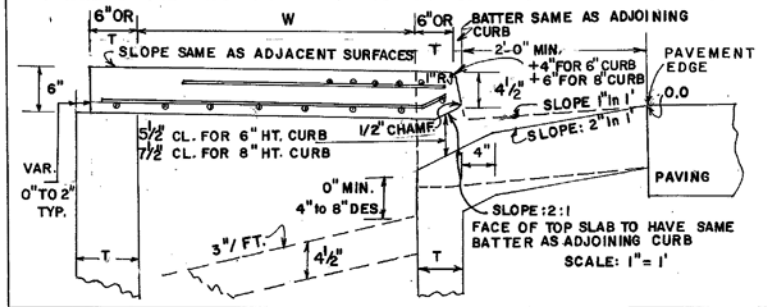


PLAN

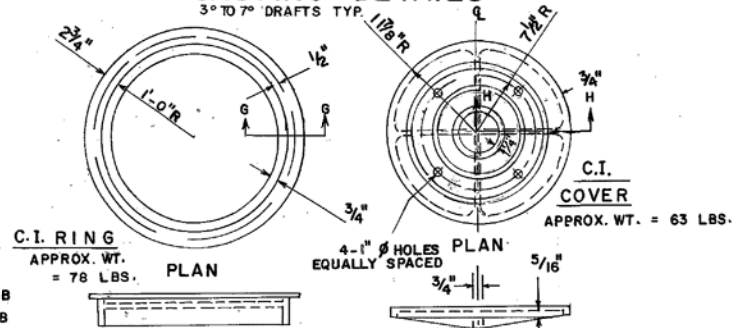
NOTE: ALL BARS IN PLAN VIEW ARE SPACED AT 6" O.C. NOTE: FOR PLAN DETAIL OF REINFORCING STEEL IN TOP PORTION OF SLAB. SEE PART PLAN AT TOP RIGHT.

NOTE: TOP SLAB MAY BE CAST IN PLACE OR PRECAST. IF CAST IN PLACE, BUILDER'S PAPER IS TO BE PLACED BETWEEN THE CATCH BASIN AND TOP SLAB.

DETAIL OF TOP STAB REINF. STEEL & CLEARANCES REQ'D.

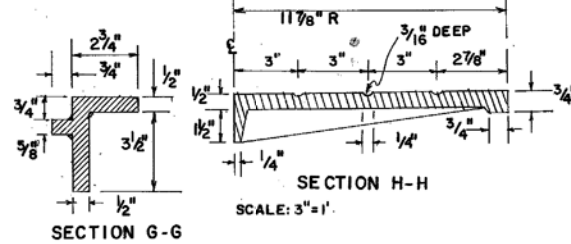


CASTING DETAILS



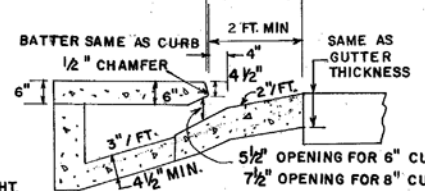
ELEVATION

ELEVATION



SECTION G-G

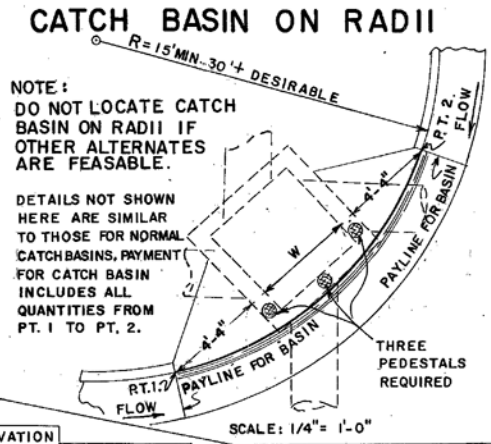
SECTION F-F



DEPTH LIMITS FOR INCREASING "T"

SECTION F-F

CATCH BASIN ON RADII



NOTE: DO NOT LOCATE CATCH BASIN ON RADII IF OTHER ALTERNATES ARE FEASIBLE. DETAILS NOT SHOWN HERE ARE SIMILAR TO THOSE FOR NORMAL CATCH BASINS. PAYMENT FOR CATCH BASIN INCLUDES ALL QUANTITIES FROM PT. 1 TO PT. 2.

PRECAST BOX ON BRICK (HALF-SECTION)

NOTE: SEE SEPARATE STDS. FOR PRECAST ALTERNATES. ADAPTERS (STD. 1040) WILL BE REQUIRED WITH CIRCULAR PRECAST UNITS. PRECAST BOX, CIRCULAR, AND/OR BUILT-IN-PLACE CONSTR. MAY BE USED IN COMBINATIONS

W OR W1 (MAX.)	BOTTOM SLAB MATERIALS	"S"
TO 4'-6"	NON-REINF. CONCRETE OR BRICK	6"
OVER 4'-6"	CONC. REINF. W/ 4 BARS 12" O.C. BOTH WAYS 2" CL. FROM SLAB TOP	8"

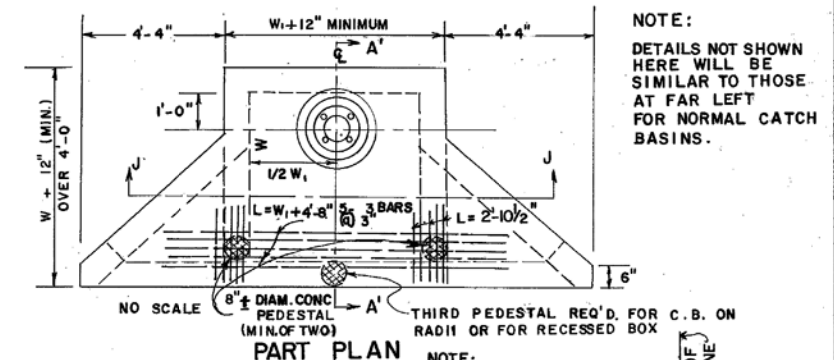
ΔE = MINIMUM DIFFERENCE IN ELEVATION FROM PAVEMENT EDGE TO FLOW LINE OF OUTLET PIPE.

PIPE DIA.	H (MIN.)	W or W1	MIN. ΔE
12	4'-4"	3'-0"	3'-3"
15	4'-7"	3'-0"	3'-6"
18	4'-10"	3'-0"	3'-9"
24	5'-6"	3'-0"	4'-4"
30	6'-2"	3'-7"	5'-0"
36	6'-10"	4'-6"	5'-7"
42	7'-4"	5'-3"	5'-11"
48	8'-0"	6'-0"	6'-6"
54	8'-6"	6'-8"	7'-0"
60	9'-2"	7'-4"	7'-7"

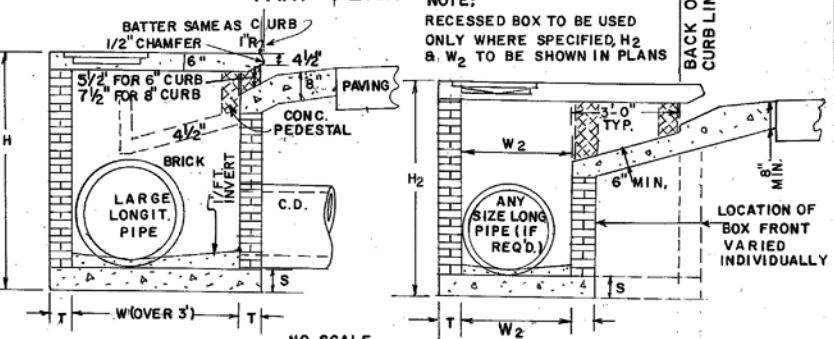
NOTE: THE MIN. H & MIN. ΔE GIVEN IN ABOVE TABLE ARE BASED UPON TYPICAL OUTSIDE DIAMETERS OF CONC. PIPE AND MAY BE VARIED, IF CONDITIONS PERMIT WITH VARIED DIMENSIONS SPECIFIED IN THE PLANS OR DIRECTED BY THE ENGINEER. W & W1 DIMENSIONS DO NOT HAVE TO BE EQUAL.

CATCH BASIN (WITH PROTRUDED BACK)

FOR USE WITH LONGITUDINAL PIPE OVER 24" OR FOR USE WITH RECESSED BOX

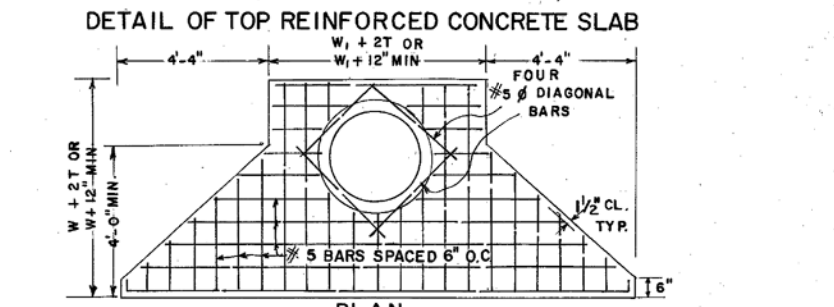


NOTE: DETAILS NOT SHOWN HERE WILL BE SIMILAR TO THOSE AT FAR LEFT FOR NORMAL CATCH BASINS.



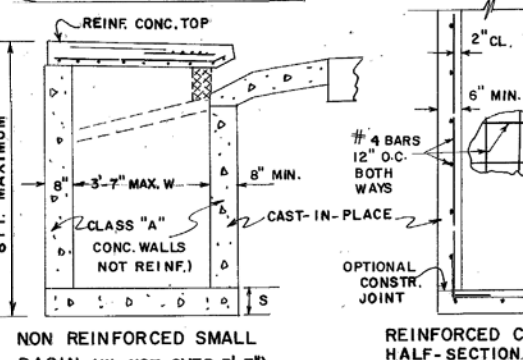
SECTION A'-A' (FOR LONGIT. PIPE OVER 24")

SECTION A'-A' (FOR RECESSED BOX)



DETAIL OF TOP REINFORCED CONCRETE SLAB

NOTE: TYPICAL TREATMENT FOR SKEWED PIPES ARE: CIRCULAR PRECAST UNITS; PRECAST SWIVEL SECTIONS; PIPE ELBOWS OR INCREASED BOX SIZES TO ACCOMMODATE THE SKEWS. SEE SEPARATE STANDARDS FOR PRECAST ALTERNATES.



CONSTRUCTION ALTERNATES

NOTE: DETAILS NOT SHOWN ABOVE FOR CONSTRUCTION ALTERNATES WILL BE SIMILAR TO BRICK CATCH BASIN DETAILS.

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

STANDARD CATCH BASINS

FOR USE WITH CURB (6" OR 8" HT.) & GUTTER (IN SAGS OR LOW POINTS)

SCALE AS SHOWN

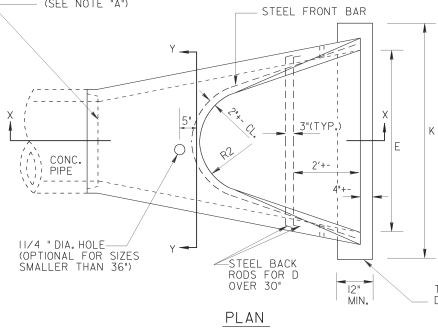
REV. & RED. AUGUST, 19-82

REV. & RED. R.M.U. (SUBMITTED) *Floyd E. Hardy* STATE ROAD & AIRPORT DESIGN ENGR.
 TRA G.M.E. (APPROVED) *Thomas D. ...* STATE HIGHWAY ENGINEER
 CHK. R.K.C.

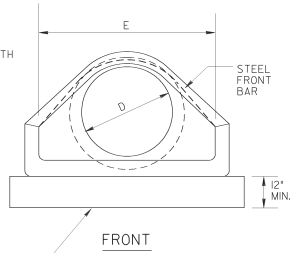
NUMBER 1034D

END SECTION TO PIPE JOINT SHOWN AS TYPICAL:
HUB END ON OUTLET END SECTIONS;
SOCKET END ON INLET END SECTIONS
(SEE NOTE "A")

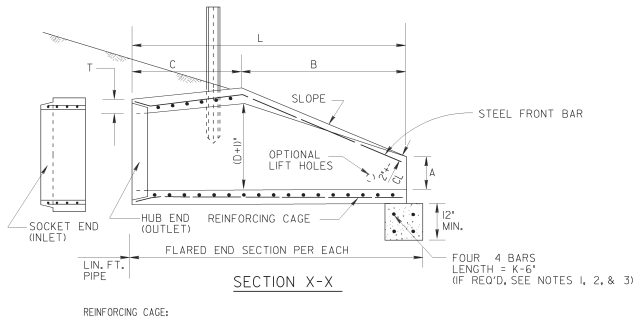
CONCRETE FLARED END SECTION



INSTALLATION: (D OVER 30")
CABLE, CHAIN, OR LIFTING PIN
WILL EXTEND THRU 1/4" HOLE WITH
A PLATE OR REBAR CONNECTED
INSIDE THE CONC. SECTION TO
PROVIDE ADEQUATE BEARING AREA
OR A LIFTING ASSEMBLY DEVICE
MAY BE USED TO GIVE 3 LIFT
POINTS; WOODS CONNECTED
DIRECTLY TO CONCRETE IS NOT
PERMITTED, DAMAGE FROM
IMPROPER HANDLING SHALL
BE CAUSE FOR REJECTION.



NOTE: DO NOT CUT CONCRETE PIPE. USE FULL LENGTH SECTIONS ONLY.
WARP SLOPE TO CONFORM WITH PIPE LENGTH AND END SECTION.



(1) WIRE FABRIC HAVING EQUAL STEEL AREA AS INNER CAGE FOR CLASS II PIPE, AKSHO M-170.
(2) ALTERNATE: 3 BARS SPACED 12" + LONGITUDINALLY WITH 2 BARS TRANSVERSELY AT 6" O.C.
MAX. SPACING, SPOT WELDED OR TIED TO FORM CAGE. (BACK RODS MAY BE OMITTED.)

NOTE "A":

CONTRACTOR WILL INFORM PRODUCER IF CONCRETE FLARED END SECTION IS FOR
INLET OR FOR OUTLET END. SOCKET (TONGUE OR SPIGOT) END IS REQUIRED FOR INLETS.
HUB (GROOVE OR BELL) END IS REQUIRED FOR OUTLETS. SOCKET TO SOCKET OR HUB TO
HUB JOINT WILL NOT BE ACCEPTED UNLESS A REINFORCED CONCRETE COLLAR IS
BUILT AROUND THE JOINT WITH NO PAYMENT BEING MADE FOR THE COLLAR.

FLARED END SECTIONS SHALL BE JOINTED TO PIPE WITH ALL SPACE IN THE JOINT FILLED WITH EITHER BITUMINOUS
PLASTIC CEMENT OR PREFORMED PLASTIC GASKET (SEC. 848).

WALL THICKNESS (T) IS SHOWN AS NOMINAL AND MAY BE INCREASED AT PRODUCER'S OPTION FOR DESIRED JOINT
DESIGN OR TO ALLOW A FLAT OUTSIDE BOTTOM ON THE FLARE, WITH INSIDE DIMENSIONS OF FLARE RETAINED AS SHOWN.

T = PIPE WALL THICKNESS (0.08330 + T+ TYPICAL)

DIMENSIONS AND REINFORCING FOR CONCRETE
FLARED END SECTIONS (T+ T TOLERANCE)

PIPE DIA	FRONT BAR	BACK RODS	SLOPE +/-	A	B	C	L	E	P	R1	R2	K = E + 2'	CLYDOS. CONC.
12"	1-#3 x 5' 4"	NOT REQ'D.	2.2d	4'	2'0"	4'1"	6'1"	2'0"	1'8"	10'	9'	4'-0"	.148
15"	1-#3 x 6' 0"	NOT REQ'D.	2.2d	6'	2'3"	3'10"	6'1"	2'6"	2'0"	10'	11'	4'-6"	.167
18"	1-#3 x 7' 2"	NOT REQ'D.	2.2d	9'	2'3"	3'10"	6'1"	3'0"	2'5"	14'	10'	5'-0"	.185
24"	1-#3 x 9' 10"	NOT REQ'D.	2.4d	10'	3'8"	2' 6"	6'2"	4'0"	2'9"	15'	12'	6'-0"	.222
30"	1-#4 x 11' 8"	NOT REQ'D.	2.4d	12'	4'6"	1'8"	6'2"	5'0"	3'1"	16'	13'	7'-0"	.259
36"	1-#4 x 13' 10"	2-#4 x 6' 3"	2.4d	15'	5'3"	2'11"	8'2"	6'0"	4'0"	2'0"	18'	8'-0"	.296
42"	1-#4 x 13' 10"	2-#4 x 7' 4"	2.4d	21'	5'3"	2'11"	8'2"	6'6"	4'6"	2'4"	110'	8'-6"	.35

NOTE: SPECIFIED REINFORCING IS MINIMAL AND MAY BE INCREASED AT PRODUCERS OPTION TO
AID CASTING & HANDLING. ALTERNATE REINFORCEMENT PERMITTED IF APPROVED.

* NOTE: "C" AND "L" DIMENSION MAY BE MEASURED TO EITHER END OF JOINT
CONNECTION AT PIPE.

METAL FLARED END SECTION
(USE ONLY WITH COR. METAL PIPE)

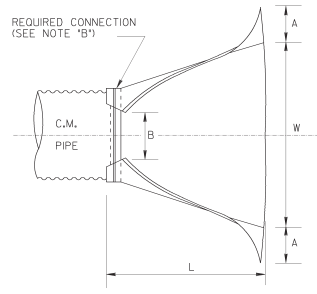
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

NOTE: GALVANIZED STEEL FLARED END SECTIONS ARE TO BE USED ONLY WITH CORRUGATED STEEL PIPE AND ALUMINUM FLARED END SECTIONS ARE TO BE USED ONLY WITH CORRUGATED ALUMINUM PIPE UNLESS OTHERWISE APPROVED BY D.O.T. OFFICE OF MATERIALS AND TESTS.

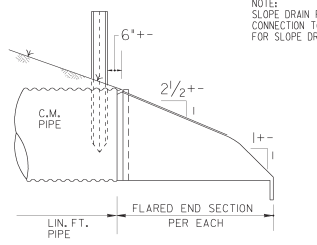
FLARED END SECTION DIMENSIONS

PIPE SIZE "D"	THICKNESS		A	B	H	L	W
	GALV. STEEL	ALUM.					
12"	.064"	.060"	5'	6'	6'	1'8"	2'0"
15"	.064"	.060"	6'	7'	6'	2'3"	2'6"
18"	.064"	.060"	7'	9'	6'	2'6"	3'0"
24"	.064"	.060"	9'	10'	6'	3'4"	4'0"
30"	.079"	.05"	10'	13'	7'	4'2"	5'0"
36"	.079"	.05"	12'	16'	9'	5'0"	6'0"
42"	.09"	.064"	15'	19'	10'	5'10"	7'0"

NOTE: WHERE METAL FLARED END SECTIONS ARE USED WITH MULTIPLE PIPE LINES, THE STANDARD SPACING BETWEEN PIPES (S-D OR 3 FT.) MAY HAVE TO BE INCREASED (S=1.75 D TYPICAL), TO PREVENT OVER-LAP OF END SECTION WINGTIPS. SEE ALSO STD. 1030D.

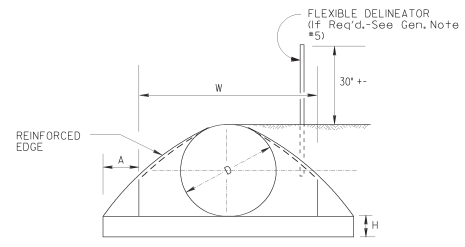


PLAN



SIDE

NOTE: SLOPE DRAIN PIPES WILL REQUIRE AN ELBOW FOR CONNECTION TO THE FLARED END SECTION. PAYMENT FOR SLOPE DRAIN PIPE WILL INCLUDE THIS ELBOW.

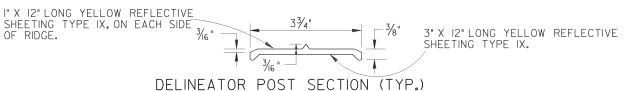


FRONT

SPECIAL NOTE:
FLARED END SECTIONS ARE NORMALLY LIMITED TO USE OUTSIDE THE CLEAR ZONE OR BEHIND BARRIER AND WHERE HYDRAULICS PERMIT. SEE OTHER STANDARDS OR DETAILS FOR TAPERED HEADWALLS, SAFETY SLOPE END SECTIONS OR OTHER PIPE END STRUCTURES.

GENERAL NOTES :

- TOEWALLS ARE REQ'D. FOR OUTLETS OF CONC. STORM DRAINS, EXCEPT WHERE DITCH PAVING OR OTHER EROSION PROTECTION IS PROVIDED OR WHERE THE OUTLET VELOCITY IS LESS THAN 8 FT/SEC. TOEWALLS ARE NOT REQUIRED FOR SIDE DRAINS, SLOPE DRAINS OR INLETS OF STORM DRAINS. THIS CRITERIA MAY BE VARIED WHERE SPECIFIED BY THE DESIGNER OR THE ENGINEER.
- TOEWALLS WILL BE PAID FOR AS CLYDOS. OF CLASS "A" OR "B" CONCRETE. CONTRACTOR MAY ELECT TO CONSTRUCT THE WALL WITH SAND CEMENT BAG RIPRAP OR STONE RIPRAP TO SAME MINIMUM DIMENSIONS WITH NO ADDITIONAL PAYMENT.
- PRECAST TOEWALLS SHALL BE CL. "A" CONCRETE; CAST-IN-PLACE TOEWALLS MAY BE CL. "A" OR "B" CONCRETE AND MAY BE TRENCH FORMED. WHERE PLANS ITEMIZE ONE CLASS OF CONCRETE AND CONTRACTOR ELECTS TO USE OTHER CLASS, NO ADDITIONAL PAYMENT IS MADE. NO PAYMENT IS MADE FOR STEEL IN TOEWALL.
- CENTERLINE OF FLARED END SECTION WILL ALIGN WITH CENTERLINE OF PIPE, IF PIPE IS SKEWED, THE EMBANKMENT SLOPE WILL BE WARPED TO CONFORM WITH END SECTION.
- FLEXIBLE DELINEATORS SHALL BE REQUIRED AT CROSS DRAIN FLARED END SECTIONS, BOTH INLET AND OUTLET. PAYMENT FOR FLARED END SECTION WILL INCLUDE DELINEATORS. SEE DETAIL AND NOTES BELOW. DELINEATORS NOT REQ'D. FOR SIDE DRAIN, SLOPE DRAIN, OR LONG PIPE.



DELINEATOR POST SECTION (TYP.)

NOTE: DELINEATOR POST SHALL CONFORM TO SEC. 911 FOR FLEXIBLE DELINEATOR POST EXCEPT REFLECTIVE SHEETING IS NOT REQUIRED AND LENGTH IS 4'-6" FROM TOP TO BOTTOM POINT. ALTERNATES PERMITTED IF APPROVED BY D.O.T. LABORATORY.

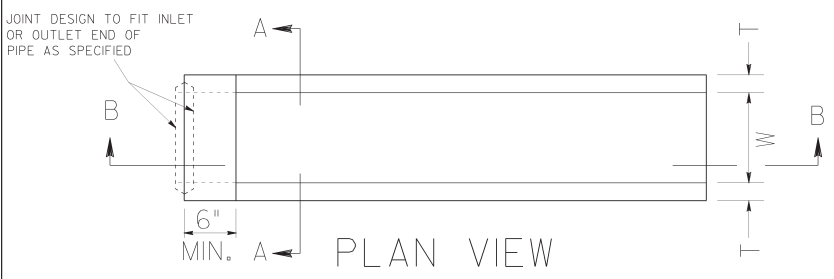
SPECIAL NOTE:
PIPE SIZES (DI) ARE "NOMINAL-MINIMUM" INSIDE DIAMETERS IN ACCORDANCE WITH GEORGIA STANDARD FOR PIPE CULVERTS. "D" DIMENSION FOR FLARED END SECTION SHALL EQUAL THE "D" DIMENSION FOR CONNECTING PIPE CULVERT.

NOTE "B":

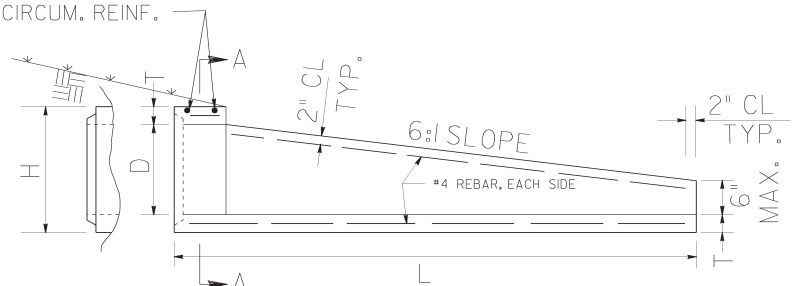
THE CONNECTION BETWEEN METAL FLARED END SECTION AND C.M. PIPE WILL BE ONE OF THE FOLLOWING:

- A STRAP BAND OR THREADED ROD PROVIDED BY THE MANUFACTURER WILL LOCK END SECTION ONTO PIPE. A CORRUGATION AT THE PIPE AND WILL BE NON-SPIRALED (PERPENDICULAR TO CL OF PIPE)
- A Dimple BAND COLLAR WILL BE SHOP BOLTED TO END SECTION. PIPE WILL BE INSERTED INTO BAND COLLAR TO NEST THE END SECTION.
- A STUB PIPE WILL BE RIVETED TO THE END SECTION AND THE MAIN PIPE CONNECTED TO THE STUB WITH A NORMAL CONNECTING BAND.
- OTHER TYPE CONNECTION IF RECOMMENDED BY MANUFACTURER AND APPROVED BY THE D.O.T.

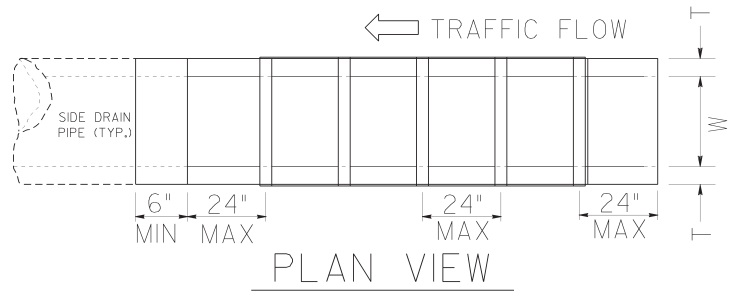
REV. REFLECTIVE SHEETING		6-9-06	DATE
DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA			
STANDARD FLARED END SECTIONS FOR PIPES			
NO SCALE		REV. & REDR. SEPT., 1999	
DES. BY	(SUBMITTED)	<i>[Signature]</i>	NUMBER 1120
REV. BY	STATE ROAD & AIRPORT DESIGN ENGINEER		
RETR. BY	(APPROVED) <i>[Signature]</i> CHIEF ENGINEER		



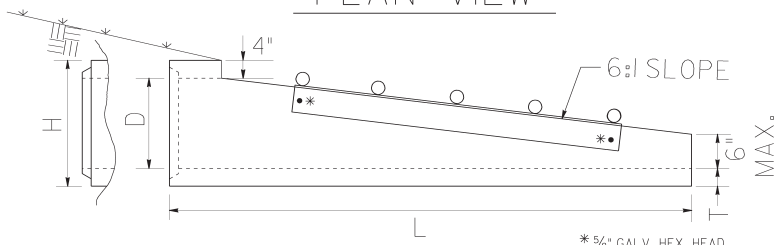
PLAN VIEW
(BAR GRATE NOT SHOWN)
MIN. 2 LINES OF CIRCUM. REINF.



SECTION B-B



PLAN VIEW

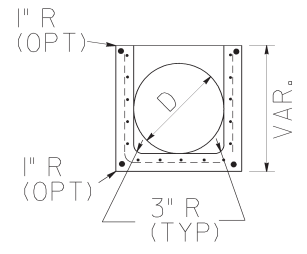


SIDE VIEW

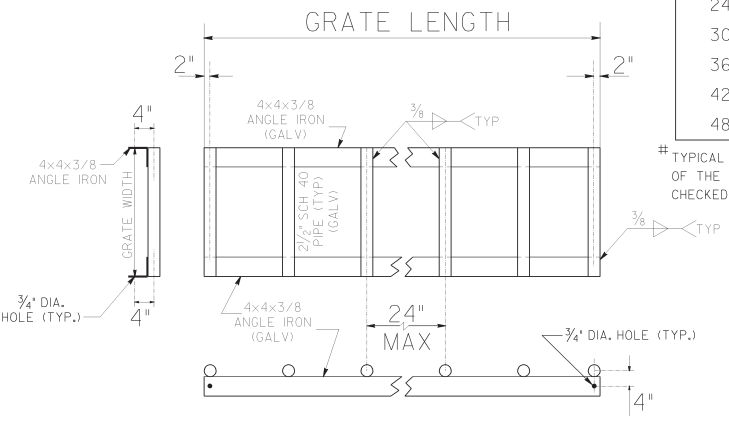
* 3/4" GALV. HEX HEAD BOLT, WASHER & NUT (FOUR) CONNECTIONS

ALTERNATE 3

PIPE DIA	T (MIN)	D	H	L
15"	3"	15"	21"	4'-6"
18"	3"	18"	24"	6'-0"
24"	3"	24"	30"	9'-0"
30"	4"	30"	38"	12'-6"
36"	4"	36"	44"	15'-6"
42"	4"	42"	50"	18'-6"
48"	5"	48"	58"	22'-0"



SECTION A-A



GALVANIZED SAFETY GRATE DETAIL

GENERAL NOTES:

1. CONCRETE STRENGTH SHALL BE 4000 PSI MINIMUM
2. REINFORCING SHALL BE PER AASHTO M170, CLASS II REINFORCED CONCRETE PIPE, PLUS ONE #4 BAR TOP AND BOTTOM, EACH SIDE.
3. WALLS MAY HAVE 1/4" TAPER. WALL THICKNESSES SHOWN ARE THE MINIMUM.
4. LIFT HOLES MAY BE PROVIDED IN THE SIDE WALLS FOR HANDLING.
5. END SECTION JOINT WILL BE A MATCHED FIT TO THE ADJOINING PIPE JOINT AT ALL INLET AND OUTLET ENDS. NON-FITTING JOINTS WILL REQUIRE A BUILT-IN-PLACE REINFORCED COLLAR CONNECTION WITH NO ADDITIONAL PAYMENT.
6. ALL END SECTIONS FOR PIPES WITH "D" OVER 24" ON SINGLE LINES WILL HAVE GALV. SAFETY BARS, SPACED NOT MORE THAN 24" ON CENTERS, AND INSTALLED PERPENDICULAR TO THE MAINLINE TRAFFIC FLOW. ALL END SECTIONS FOR MULTIPLE LINE PIPES WILL HAVE GRATES.
7. TYPICAL USE OF SAFETY END SECTIONS IS AT THE ENDS OF PIPES UNDER DRIVEWAYS OR SIDEROADS WHERE THE PIPE CULVERT IS PARALLEL TO THE MAINLINE AND FALLS INSIDE THE MAINLINE CLEAR ZONE WIDTH.

D	(MIN) GRATE LENGTH	GRATE WIDTH (TYP) #
15"	2'-4"	1'-9 5/8"
18"	2'-4"	2'-0 5/8"
24"	6'-4"	2'-6 5/8"
30"	8'-6"	3'-2 5/8"
36"	12'-4"	3'-8 5/8"
42"	14'-6"	4'-2 5/8"
48"	18'-4"	4'-10 5/8"

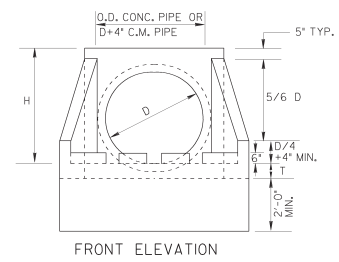
** TYPICAL GRATE WIDTHS SHOWN ARE MEASURED FROM INSIDE TO INSIDE OF THE 3/8" THICK ANGLE IRON. GRATE FIT WITH END SECTION SHALL BE CHECKED BEFORE DELIVERY.

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
STANDARD SAFETY END SECTION (CONCRETE) (FOR SIDE DRAIN PIPE OR FOR STORM DRAIN PIPE PARALLEL TO MAINLINE) ALTERNATE 3	
NO SCALE	OCT., 2000
DESIGNED BY	(SUBMITTED) <i>[Signature]</i> STATE ROAD & AIRPORT DESIGN ENGINEER
TRACED BY	(APPROVED) <i>[Signature]</i> CHIEF ENGINEER
CHECKED BY	
REVISION	
DATE	
REVISION	
DATE	
NO. OF SHEETS	1122
TOTAL SHEETS	3 OF 3

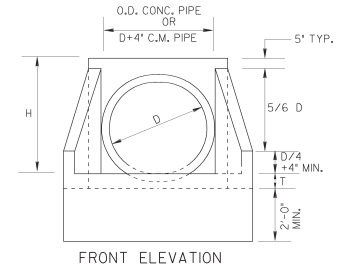
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

OUTLET HEADWALL

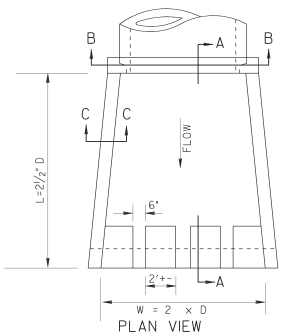


FRONT ELEVATION

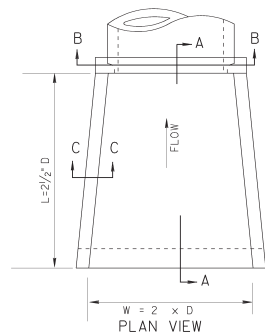
INLET HEADWALL



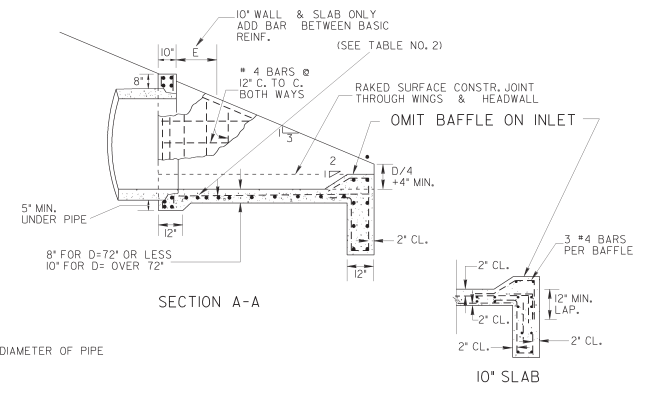
FRONT ELEVATION



PLAN VIEW

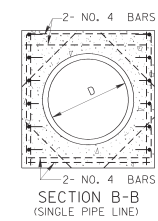


PLAN VIEW

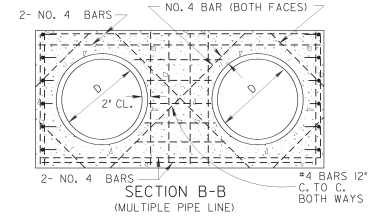


SECTION A-A

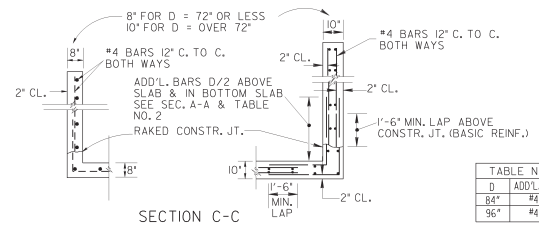
D = INSIDE DIAMETER OF PIPE



SECTION B-B (SINGLE PIPE LINE)



SECTION B-B (MULTIPLE PIPE LINE)



SECTION C-C

D	ADD'L. BAR	E
84"	#2	5'
96"	#4	8'

ADDITIONAL BAR DETAIL

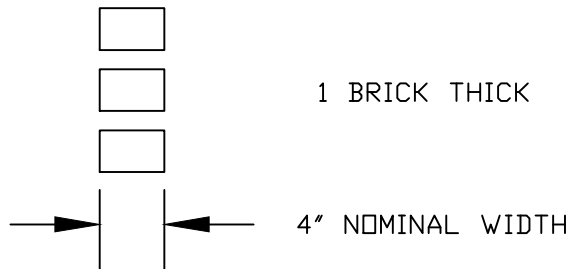
D	CUL. YDS. CONCRETE (PAY QUANTITIES) FOR SINGLE LINE				ADD FOR ADD'L LINE				LBS. STEEL (GIVEN FOR INFORMATION ONLY) FOR SINGLE LINE				ADD FOR EACH ADD'L LINE			
	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET		
15"	0.87	0.93	0.60	0.66	102	113	73	83								
18"	1.10	1.16	0.85	0.93	106	117	93	104								
24"	1.61	1.69	1.29	1.37	127	138	124	134								
30"	2.21	2.32	1.83	1.96	170	180	154	164								
36"	2.92	3.05	2.49	2.63	238	254	196	212								
42"	3.73	3.87	3.00	3.17	290	306	231	247								
48"	4.62	4.80	3.58	3.74	335	351	265	281								
54"	5.63	5.83	4.17	4.38	407	428	319	340								
60"	6.72	6.95	4.82	5.01	456	477	360	391								
72"	9.22	9.48	6.24	6.46	623	649	475	494								
84"	14.84	15.19	9.05	9.29	1517	1539	1017	1044								
96"	18.88	19.27	11.3	11.41	2188	2190	1323	1350								

*NOTE: QUANTITIES SHOWN WILL BE ACTUAL PAY QUANTITIES FOR CLASS 'A' CONCRETE, INCLUDING REINFORCED STEEL. NO ADJUSTMENT WILL BE MADE FOR AS BUILT QUANTITIES.

D - INSIDE DIAMETER OF PIPE CULVERT

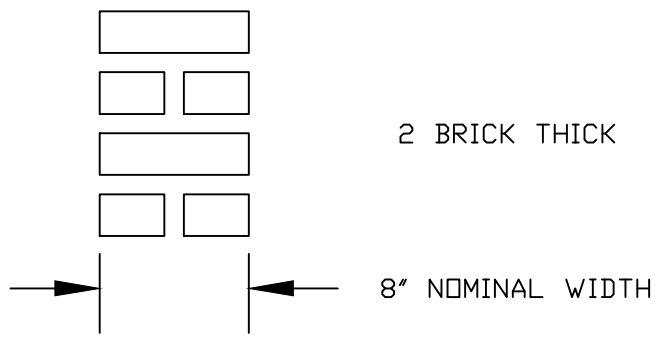
H = D + 10" MIN. FOR C.M. PIPE
 H = D + PIPE WALL THICKNESS + 8" FOR CONG. PIPE (13/12 D + 9" TYP.)
 T = 8" FOR D = 72" OR LESS
 T = 10" FOR D = OVER 72"

DATE		DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
REVISION		STANDARD TAPERED INLET HEADWALL - OUTLET HEADWALL (BUILT-IN-PLACE)	
NO SCALE		REV. & REDR. OCT., 1999	
DES.	(SUBMITTED)	 STATE ROAD & AIRPORT DESIGN ENGR.	NUMBER
TR.	(APPROVED)		1125
CHK.			



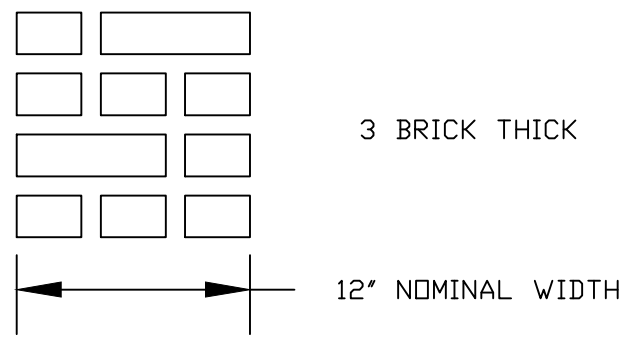
1 BRICK THICK

4" NOMINAL WIDTH



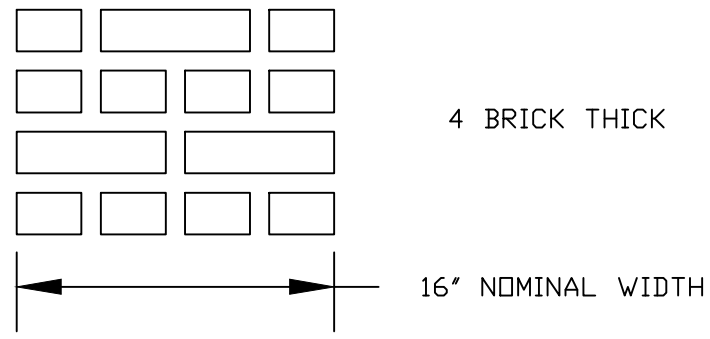
2 BRICK THICK

8" NOMINAL WIDTH



3 BRICK THICK

12" NOMINAL WIDTH



4 BRICK THICK

16" NOMINAL WIDTH

CLAYTON COUNTY WATER AUTHORITY

DATE:	12 AUGUST 2013	DETAIL TITLE:
SCALE:	N.T.S.	BRICK WALL CONSTRUCTION
DRAWN BY:	WWB	

**STATE OF GEORGIA
COUNTY OF CLAYTON**

INTERIM WAIVER AND RELEASE UPON PAYMENT

The undersigned mechanic and/or materialman has been employed by the Clayton County Water Authority to furnish:

_____ [describe materials and/or labor];

for the construction of improvements known as:

_____ [title of the project or building];

which is located in the City of _____, County of _____, and is owned by the Clayton County Water Authority at the following address:

and more particularly described by the following metes and bounds description, land lot district, or block and lot number:

See Attachment: yes no

Upon the receipt of the sum of: \$ _____;

the mechanic and/or materialman waives and releases any and all liens or claims of liens it has upon the foregoing described property through the date signed below and excepting those rights and liens that the mechanic and/or materialman might have in any retained amounts, on account of labor or materials, or both, furnished by the undersigned to or on account of said contractor for said building or premises.

NOTICE: WHEN YOU EXECUTE AND SUBMIT THIS DOCUMENT, YOU SHALL BE CONCLUSIVELY DEEMED TO HAVE BEEN PAID IN FULL THE AMOUNT STATED ABOVE, EVEN IF YOU HAVE NOT ACTUALLY RECEIVED SUCH PAYMENT, 60 DAYS AFTER THE DATE STATED ABOVE UNLESS YOU FILE EITHER AN AFFIDAVIT OF NONPAYMENT OR A CLAIM OF LIEN PRIOR TO THE EXPIRATION OF SUCH 60 DAY PERIOD.

_____(L.S.)
(Signature of Deponent)

(Printed/Typed Name and Title)

Deponent, individually, and as duly authorized agent and duly elected and acting officer of Contractor

(Company Name)

PERSONALLY APPEARED BEFORE ME, a Notary Public in and for said State and County, the Deponent, who, being personally known to the undersigned and being duly sworn and on oath deposed and said that the within and foregoing statements are true and correct this _____ day of _____, 20_____.

Notary Public _____

Commission Expiration Date: _____

(NOTARY SEAL)

(Witness)

(Address)

**STATE OF GEORGIA
COUNTY OF CLAYTON**

WAIVER AND RELEASE UPON FINAL PAYMENT

The undersigned mechanic and/or materialman has been employed by the Clayton County Water Authority to furnish:

_____ [describe materials and/or labor];

for the construction of improvements known as:

_____ [title of the project or building];

which is owned by the Clayton County Water Authority at the following address:

and more particularly described by the following metes and bounds description, land lot district, or block and lot number:

See Attachment: yes no

Upon the receipt of the sum of: \$_____;

the mechanic and/or materialman waives and releases any and all liens or claims of liens or any right against any labor and/or material bond it has upon the foregoing described property.

THE MECHANIC AND/OR MATERIALMAN WAIVES AND RELEASES ANY AND ALL LIENS OR CLAIMS OF LIENS IT HAS UPON THE FOREGOING DESCRIBED PROPERTY OR ANY RIGHTS AGAINST ANY LABOR AND/OR MATERIAL BOND ON ACCOUNT OF LABOR OR MATERIALS, OR BOTH, FURNISHED BY THE UNDERSIGNED TO OR ON ACCOUNT OF SAID CONTRACTOR FOR SAID PROPERTY.

NOTICE: WHEN YOU EXECUTE AND SUBMIT THIS DOCUMENT, YOU SHALL BE CONCLUSIVELY DEEMED TO HAVE BEEN PAID IN FULL THE AMOUNT STATED ABOVE, EVEN IF YOU HAVE NOT ACTUALLY RECEIVED SUCH PAYMENT, 60 DAYS AFTER THE DATE STATED ABOVE UNLESS YOU FILE EITHER AN AFFIDAVIT OF NONPAYMENT OR A CLAIM OF LIEN PRIOR TO THE EXPIRATION OF SUCH 60 DAY PERIOD.

PERSONALLY APPEARED BEFORE ME, the undersigned attesting officer, duly authorized by law to administer oaths (the "Deponent"), who being duly sworn according to law, deposes and says on oath:

1. That Deponent is the duly authorized agent and duly elected and acting officer of _____ (the "Contractor"), and is duly authorized to execute this Final Contractor's Affidavit, Lien Waiver and Indemnification (this "Affidavit") in a representative capacity on behalf of Contractor, as well as in Deponent's individual capacity, and Deponent has made diligent inquiry into and is personally familiar with and has full knowledge of all facts set forth herein.

2. That Contractor acted as the sole general contractor in charge of and directly responsible for the building and construction of all improvements (the "Work") located as reflected above (the "Property"), all of which Work was performed pursuant to the terms of that certain agreement dated _____ (the "Agreement") by and between Contractor and the Clayton County Water Authority as the owner or agent of the owner of the Property (the "Owner"). The Work includes, without limitation, all Work under or related to the Agreement and all change orders to the Agreement, and all supplemental contracts and subcontracts, whether oral or written, for any extra, additional or replacement labor or materials. Contractor is, and performed the Work as, an independent general contractor and Contractor is not an agent of Owner, and all of the Work was furnished and performed at the instance of Contractor as general contractor.

3. That the Work has been fully and finally completed in strict accordance with the terms of the Agreement, and Contractor has at all times since the commencement of the Work been in direct charge of all aspects of the Work, and Contractor has obtained a current valid permanent certificate of occupancy for the Property and the Work, and the Work has been completed within the boundary lines of the Property.

4. Upon receipt of the sum reflected above, Contractor acknowledges that Owner has paid in full to Contractor the full contract price under the Agreement (the "Contract Price"), which Contract Price includes, without limitation, all amounts and bills for all labor, materials, fixtures and supplies of any type whatsoever used in the Work. Upon receipt of these monies, all contractors, subcontractors, subcontractors of subcontractors, materialmen, suppliers and laborers will be paid in full the agreed price or reasonable value for all materials and supplies ordered, used or furnished and services and labor rendered in connection with or as a part of the Work, and none of such parties have or will have any claim, demand or lien against the Property, and all of the amounts paid by Owner to Contractor under the Agreement have been and will be used to pay for labor or materials used in the Work when no liens or claims of lien were filed or outstanding. There are no disputes regarding the Agreement or any other contracts or subcontracts with respect to the Work or the Property, and, except for bills associated with these final monies, there are no amounts due or unpaid bills of any nature, either for labor or services related to the Work or the Property or any materials which have been or may have been placed upon, or applied or delivered to the Property, and Contractor does hereby unconditionally agree to hold harmless and indemnify Owner from and against all claims for mechanic's or materialman's liens or claims of lien, including, without limitation, any attempted foreclosure thereof, which in any way arise out of or are related to the Work or the Property, including, without limitation, any attorney's fees incurred in connection therewith.

5. That Contractor does hereby for itself, and its employees, suppliers, subcontractors, mechanics and materialmen and all other persons acting for, through, or under Contractor, waive, remise, relinquish and release all right to file or to have filed or to maintain any materialman's or mechanic's lien or liens or claim or claims against the Property or arising out of or related to the Work. This Affidavit is executed and given in favor of and for the benefit of, and may be relied upon by, Owner and each and every party legally or equitably, now or hereafter, owning or holding any interest in the Property.

6. That this Affidavit is a sworn statement made under the provisions of Official Code of Georgia Annotated Section 44-14-361.2, and is made for the purpose of inducing Owner to pay to Contractor the balance of the Contract Price pursuant to the terms of the Agreement.

_____(L.S.)
(Signature of Deponent)

(Printed/Typed Name and Title)

Deponent, individually, and as duly authorized agent and duly elected and acting officer of Contractor

(Company Name)

PERSONALLY APPEARED BEFORE ME, a Notary Public in and for said State and County, the Deponent, who, being personally known to the undersigned and being duly sworn and on oath deposed and said that the within and foregoing statements are true and correct this _____ day of _____, 20_____.

Notary Public _____

Commission Expiration Date: _____

(NOTARY SEAL)

(Witness)

(Address)