

Davis & Floyd, Inc.
164 Milestone Way, Suite 200
Greenville, SC 29615

PROJECT: 24-Inch Augusta Road Water Main

OWNER: Greenville Water

BID DATE: June 22, 2021

ADDENDUM DATE: June 15, 2021

D&F PROJECT NO.: 013841.01

ADDENDUM NO. 1

The following information shall modify the contract documents, and the work shall be accomplished in accordance with such stated modifications. It is suggested that this addendum be stapled to the back of the front cover of the project manual.

Bidders are reminded to acknowledge receipt of this addendum on the bid forms.

PROJECT MANUAL/SPECIFICATIONS:

The following changes have been made to the bid documents/specifications. For those revisions where a revised or new sheet issued is indicated, bidder shall discard the old sheet and replace it with the revised or new sheet as appropriate. Otherwise, it is suggested to annotate the revisions to the original documents.

1. Invitation for Bid - Timeline - Schedule of Events
Revise: Anticipated construction completion date is 2/8/2022
2. Invitation for Bid - Detailed Response Requirements - Indemnification and Insurance:
Add: Contractor shall provide a Bid Bond greater than or equal to 5% of the Base Bid price.
3. Bid Form
Revised: Quantities for Items 6, 7, 8, 10, 23, 25, 26, and 33
Corrected: Units for Items 25 and 26 to Square Yard (SY) in lieu of Linear Feet (LF).
Added: Item 35 - Polyethylene Encasement
4. Agreement Between Owner and Contractor - Item 4.01.A.
Revised: The Work will be substantially completed within 210 days after the Notice to Proceed.
5. Section 1025 - Measurement and Payment:
Revise Item A.4. to: Rock Excavation shall be paid for as an extra in addition to payment for pipe provided for elsewhere in the Specifications on a cubic yard basis. Payment will be made for the measured quantity of rock excavated. The maximum allowable volume of rock excavation for payment shall be based on a trench width equal to the outside diameter of the pipe barrel plus 18 inches, but not less than 36 inches, and depth of rock on the pipe centerline, from the top of the rock to the bottom of the rock or the specified bottom of the trench, whichever has the higher elevation. Where use of trench box is required in rock, the trench width shall be measured as

outside diameter of the pipe barrel plus the additional width for trench box plus 12 inches, but not less than 36 inches. The Engineer must be given reasonable notice to measure all rock. Excluding use of trench boxes, no allowance shall be made for excavating to extra widths for construction of manholes or other appurtenances, for excavating to sloping sides, or for excavations made necessary by the physical limitations of the Contractor's equipment. Cost of such additional rock excavation shall be included in the unit price bid for the item to which it pertains. Payment for blasting monitoring shall be included in the unit price for rock excavation.

Revise Item A.13. to: Cut and Replace SCDOT Asphalt Roadway will be paid for at the unit price per linear foot of cut and repair work associated with water main trenching across paved roadways (including aprons) and shall include neatly saw cutting all pavements to be patched, and all satisfactory backfill including either select fill materials placed in lifts and compacted in accordance with SCDOT requirements or using flowable fill as Contract Drawings allow, complete. Except in cases where the entire roadway travel lane is being milled and resurfaced, costs of saw cutting and replacing the surface course of the roadway shall be included. Width of saw cuts shall comply with detail shown in Contract Drawings. Cutting, replacing, and/or resurfacing of roadways not indicated on Contract Drawings or required due to pipe installation which is not under the asphalt shall be included in the per linear foot price of DIP Water Main.

Added/Inserted Item A.14.: Cut and Replace County Asphalt Roadway will be paid for at the unit price per linear foot of cut and repair work associated with water main trenching across paved roadways (including aprons) and shall include neatly saw cutting all pavements to be patched, and all satisfactory backfill with select fill materials placed in lifts and compacted, complete. Except in cases where the entire roadway travel lane is being milled and resurfaced, costs of saw cutting and replacing the surface course of the roadway shall be included. Width of saw cuts shall comply with detail shown in Contract Drawings. Cutting, replacing, and/or resurfacing of roadways not indicated on Contract Drawings or required due to pipe installation which is not under the asphalt shall be included in the per linear foot price of DIP Water Main.

Added Item B.2.: Polyethylene Encasement ("polywrap") shall be paid for as an extra in addition to payment for DIP Water Main and shall be measured by linear foot of pipe that requires polyethylene encasement. For each pipe size listed, item shall include all costs of additional work associated with providing polyethylene encasement that is not already included in DIP Water Main.

6. Section 2205 - Soil Materials
Revised: 1.6 Definitions (see attachment)
Revised: Part II. Products (see attachment)

PROJECT DRAWINGS:

The following changes have been made to the bid documents/specifications. For those revisions where a revised or new sheet issued is indicated, bidder shall discard the old sheet and replace it with the revised or new sheet as appropriate. Otherwise, it is suggested to annotate the revisions to the original documents.

1. Sheet C413 - Gas Line Notes - Note 1:
Revise to: CONTRACTOR SHALL PROVIDE QUALITY LEVEL 'A' SUBSURFACE UTILITY ENGINEERING ("POT-HOLING") WHICH SHALL DETERMINE THE PRECISE HORIZONTAL LOCATION, VERTICAL LOCATION, TYPE, SIZE, CONDITION, MATERIAL, AND ANY OTHER NOTABLE FEATURE OF EXISTING UTILITIES OBTAINED BY NONDESTRUCTIVE EXPOSURE OF EACH UNDERGROUND UTILITY AND BY THE SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES. MULTIPLE EXPLORATION HOLES ARE

REQUIRED.

2. Sheet C413 - Gas Line notes
Add Note 4: DUCTILE IRON PIPE WITHIN 20 LINEAR FEET OF EDGE OF GAS MAIN SHALL BE WRAPPED WITH V-BIO™ ENHANCED POLYETHYLENE ENCASEMENT & CORROSION CONTROL, OR APPROVED EQUAL.
3. Sheet C413 - Profile
Add: Polywrap for DIP water main at gas line crossing.
4. Sheet C860 - Pipe Embedment Details
Add: Figure 1 - Pipe Embedments by Greenville Water
Add: Engineer's Schedule of Pipe Embedments
Remove: Water Line Bedding and Trench Detail
Revise: Annotations for Asphalt Pavement Replacement Detail

END OF ADDENDUM NO. 1

TIMELINE

SCHEDULE OF EVENTS

The table below contains the intended Schedule of Events for this solicitation.

Event	Time EDT	Date
1. IFB issuance	5:00 PM	6/3/2021
2. Pre-Bid Meeting/ Requests for information due	2:00 PM	6/10/2021
3. Respond to questions/inquiries	2:00 PM	6/15/2021
4. Bids due	2:00 PM	6/22/2021
5. Notice of Award	N/A	6/29/2021
6. Anticipated contract start date	N/A	No later than 7/13/2021
7. Anticipated construction completion date	N/A	2/8/2022

ADMINISTRATION

TECHNICAL CONTACT (ENGINEER)

Questions concerning the plans or technical requirements may be directed to:

Name John E. Reynolds, P.E.
Title Senior Project Manager
Phone (843) 519-1050 Ext. 5103
Email jreynold@davisfloyd.com

PROJECT MANAGER

Questions for the Owner may be directed to:

Name Nancy Barrett, P.E.
Title Engineer
Phone (864) 241-6132
Email nbarrett@greenvillewater.com

DETAILED RESPONSE REQUIREMENTS

The below requirements are mandatory. Contractors must accept and commit requirements described to be considered for award.

BID ITEMS

Bids shall be in the form of a fixed unit price and submitted on the Bid Form (Attachment 1).

Contractor shall provide an extended price for each item listed in accordance with Specifications.

NARRATIVE OF WORK

Contractor shall submit a short narrative description of how the proposed work covered by the Bid Items above will be accomplished.

WORK SCHEDULE

Contractor shall submit a work schedule for the project.

IDEMNIFICATION AND INSURANCE

Contractor shall provide a Bid Bond greater than or equal to 5% of the Base Bid price.

Contractors agrees to carry liability and workmen's compensation insurance, satisfactory to GW, and hold harmless and indemnify GW against all liability, loss and damage arising out of any injuries to persons and property caused by Firm, their sub-contractors, employees, or agents.

A Certificate of Insurance shall be provided demonstrating the following coverage:

- a) Comprehensive General Liability with minimum limit of \$1,000,000 combined single limit for bodily injury and property damage, per occurrence. Minimum \$2,000,000 aggregate.
- b) Comprehensive Automobile Liability with minimum limit of \$1,000,000 combined single limit.
- c) Workers Compensation with minimum of statutory requirements.
- d) Employers' Liability with minimum of \$500,000 each employee, \$500,000 each accident and \$500,000 policy limit.
- e) In the event, any insurance policy expires before the end of the term of the contract, the Firm must provide within ten (10) business days of expiration, evidence of new or renewal policies.

PAYMENT TERMS

The payment terms: Net 30.

Attachment 1: Bid Form

Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
1.	Mobilization (Maximum = 3% of Total Bid Price)	LS	1	\$	\$
2.	6" DIP Water Main	LF	175	\$	\$
3.	8" DIP Water Main	LF	118	\$	\$
4.	12" DIP Water Main	LF	3,943	\$	\$
5.	12" DIP Water Main with RJ Bore & Jack in 20" Steel Encasement	LF	86	\$	\$
6.	24" DIP Water Main	LF	7,765	\$	\$
7.	24" DIP Water Main with RJ Bore & Jack in 36" Steel Encasement	LF	492	\$	\$
8.	Rock Excavation (Maximum = \$150.00 per CY)	CY	500	\$	\$
9.	Connections to Existing System				
a.	24" at Bracken Rd & Augusta Rd	LS	1	\$	\$
b.	24" at Augusta Rd & Antioch Church Rd	LS	1	\$	\$
c.	12" on Perimeter Rd	LS	1	\$	\$
d.	12" at Perimeter Rd & Kitty Hawk Rd	LS	1	\$	\$
e.	8" at Perimeter Rd & Milledge Rd	LS	1	\$	\$
f.	6" at Mackenzie Dr & Jennings Dr	LS	1	\$	\$
10.	Ductile Iron Fittings	LB	12,497	\$	\$
11.	6" Gate Valve w/ Joint Restraint in Valve Box	EA	1	\$	\$
12.	8" Gate Valve w/ Joint Restraint in Valve Box	EA	1	\$	\$
13.	12" Gate Valve w/ Joint Restraint in Valve Box	EA	1	\$	\$
14.	24" Butterfly Valve w/ Joint Restraint in Utility Vault	EA	3	\$	\$
15.	12" Pipe Concrete Arch Encasement	EA	2	\$	\$
16.	24" Pipe Concrete Arch Encasement	EA	4	\$	\$
17.	Air Release Valve Assembly	EA	5	\$	\$
18.	Blow Off Valve Assembly	EA	3	\$	\$
19.	Fire Hydrant Assembly Installed on 12" Water Main	EA	3	\$	\$
20.	Fire Hydrant Assembly Installed on 24" Water Main	EA	2	\$	\$
21.	Cut & Replace SCDOT Asphalt Roadway	LF	130	\$	\$



22.	Cut & Replace County Asphalt Roadway	LF	215	\$	\$
23.	Mill 2" & Resurface SCDOT Asphalt Roadway	SY	225	\$	\$
24.	Cut & Replace Asphalt Driveway	LF	315	\$	\$
25.	Mill 1.5" Asphalt Driveway	SY	310	\$	\$
26.	Resurface Asphalt Driveway	SY	1,030	\$	\$
27.	Cut & Replace Concrete Driveway	LF	45	\$	\$
28.	Cut & Replace Concrete Curb & Gutter	LF	80	\$	\$
29.	Seeding & Grassing	LS	1	\$	\$
30.	Sediment & Erosion Control	LS	1	\$	\$
31.	Traffic Control	LS	1	\$	\$
32.	As-Built Survey & Plans	LS	1	\$	\$

Base Bid Subtotal \$ _____

Additional Items

Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
33.	36" Steel Encasement Bore & Drill Through Rock	LF	492	\$	\$
34.	20" Steel Encasement Bore & Drill Through Rock	LF	86	\$	\$
35.	24" Polyethylene Encasement	LF	70	\$	\$

Additional Items Subtotal \$ _____

Total Bid Price \$ _____

Total Bid Price in Words

- B. During the performance of the Work and until final payment, Contractor and Owner shall submit all matters in question concerning the requirements of the Contract Documents, or relating to the acceptability of the Work under the Contract Documents to the Project Manager. The Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- C. The Engineer will render a written clarification, interpretation, or decision on the issue submitted, or initiate a modification to the Contract Documents.
- D. Contractor, and its subcontractors and suppliers, shall not have or acquire any title to or ownership rights to any of the Drawings, Specifications, or other documents (including copies or electronic media editions) prepared by Engineer or Owner's consultants.

2.02 Contract Documents Defined

- A. The Contract Documents consist of the following documents:
 - 1. This Contract
 - 2. Performance bond
 - 3. Payment bond
 - 4. Exhibits to this Contract (enumerated as follows):
 - a. Exhibit 1 –Project Manual
 - b. Exhibit 2 –Project Drawings
 - c. The Contract Change Order (Form PURF008) may be issued on or after the Effective Date of the Contract to manage changes in Work.

ARTICLE 3 - PROJECT MANAGER & ENGINEER

3.01 Project Manager

- A. The Project Manager for this Project is:
Nancy Barrett, P.E. – Greenville Water, Engineer II
864.241.6132
nbarrett@greenvillewater.com

3.02 Engineer

- A. The Engineer for this Project is:
John E. Reynolds, P.E. – Davis & Floyd, Inc., Senior Project Manager
843.519.1050 Ext. 5103 (Direct)
864.527.9800 (Greenville Office)
jreynold@davisfloyd.com

ARTICLE 4 - CONTRACT TIMES

4.01 Contract Times

- A. The Work will be substantially completed within **210** days after the Notice to Proceed.

4.02 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence in the performance of the Contract, and that Owner will incur damages if Contractor does not complete the Work according to the requirements of Paragraph 4.01. Because such damages for delay would be difficult and costly to determine, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner **\$500** for each day that expires after the Contract Time for substantial completion.

SECTION 01025

MEASUREMENT AND PAYMENT

PART I. GENERAL

1.1 SECTION INCLUDES

This section describes the measurement and payment for work to be done under the items listed in the bid.

The price bid in each instance shall constitute full compensation for furnishing, hauling, and installing complete all materials; for clearing, excavation, dewatering, dredging, and all necessary sheeting and bracing; for gravel and earth backfill and compaction; for diversion of stream or sewage flows; for removing and replacing curbs, gutters, sidewalks, property corners, signs, fences, lawns, waterlines, drain lines, and structures; for maintenance of drives and streets, protection of power and communication lines; for providing all barricades, lighting, and flagmen as required for the protection of the public; for all required insurance, taxes, utilities, supplies, services and transportation; for layout and control of the work, cleanup and grassing; and for the furnishing of all equipment, tools, labor and incidentals, and the performance of all work to complete each item in full accordance with the Contract Drawings and Specifications.

1.2 MEASUREMENT AND PAYMENT

Items of work will be paid for as listed in the bid and as described herein. Each unit price or lump sum amount shall include all labor, materials, tools, equipment, transportation, removal, overhead, profit, insurance, taxes, and all other costs necessary to complete the work in accordance with the contract documents. No additional compensation will be considered, except for extensions of unit price quantities beyond those shown in the bid or for work classified as extra work or changes.

A. Base Bid

1. Mobilization will be paid for as a lump sum price (not to exceed 3% of Total Bid Price) which shall include all costs to complete the work.
2. DIP Water Main will be paid for at the unit price per linear foot for each type and size measured overall on direct lines between centers of fittings, connections, and ends, which includes but is not limited to all costs of pipe, clearing, grubbing, unclassified excavation, dewatering, sheeting, handling, placing, hauling, installing, pressure and leakage testing, backfilling, compaction testing, cleanup, and all associated cost, complete. All measurements shall be taken as the horizontal distance between fittings or other connections. Water main in encasements shall be included in price of either a bore and jack, directional bore, or an encasement installed in open cut. Ductile iron pipe fittings (including joint restraints) shall be paid for as a separate line item.
3. DIP Water Main RJ Bore and Jack in Steel Encasement will be paid for at the unit price per linear foot for each type and size measured horizontally from ends of the flexible restrained joint DIP which includes but is not limited to all costs of setup, unclassified excavation, backfill, dewatering, sheeting, handling, placing, hauling, installing, boring and jacking (see Bore and Drill Through Rock), carrier pipe and accessories, encasement pipe, connections, testing, cleanup and restoration, and joint restraints, complete. DIP pipe with flexible restrained joints shall be TR FLEX[®] by US Pipe or approved equal.

4. Rock Excavation shall be paid for as an extra in addition to payment for pipe provided for elsewhere in the Specifications on a cubic yard basis. Payment will be made for the measured quantity of rock excavated. The maximum allowable volume of rock excavation for payment shall be based on a trench width equal to the outside diameter of the pipe barrel plus 18 inches, but not less than 36 inches, and depth of rock on the pipe centerline, from the top of the rock to the bottom of the rock or the specified bottom of the trench, whichever has the higher elevation. Where use of trench box is required in rock, the trench width shall be measured as outside diameter of the pipe barrel plus the additional width for trench box plus 12 inches, but not less than 36 inches. The Engineer must be given reasonable notice to measure all rock. Excluding use of trench boxes, no allowance shall be made for excavating to extra widths for construction of manholes or other appurtenances, for excavating to sloping sides, or for excavations made necessary by the physical limitations of the Contractor's equipment. Cost of such additional rock excavation shall be included in the unit price bid for the item to which it pertains. Payment for blasting monitoring shall be included in the unit price for rock excavation.
5. Connection to Existing System will be paid for as a per unit price for each connection to an existing system such as a manhole or existing piping. The price shall include all work required for a satisfactory connection, including the relocation of existing air release valve assemblies and boss taps. Coatings or other special items will be paid for under other items if items are designated in the bid form. Otherwise, include all costs in the connection item, complete.
6. Ductile Iron Fittings will be paid for at the unit price per pound of fittings based upon the installed and verified quantities. The weight for Ductile Iron Fittings listed on the Bid Form does **NOT** include weight of restrained joints. The cost of all required restrained joints shall be included in the cost of Ductile Iron Fittings. See Sheet C861 in the Contract Drawings for restrained joint detail.
7. Gate Valve w/ Joint Restraint in Valve Box will be paid for at the unit price to complete installation of each size valve w/ required joint restraint installed in properly sized valve box. The price shall include but is not limited to all costs of excavation and backfill, dewatering, installation, materials and structure, bedding, steps, line connections and incidentals, complete.
8. Butterfly Valve w/ Joint Restraint in Utility Vault will be paid for at the unit price to complete installation of each size valve w/ required joint restraint installed in properly sized valve box as shown on the Contract Drawings. The price shall include but is not limited to all costs of excavation and backfill, dewatering, installation, materials and structure, bedding, steps, line connections and incidentals, complete.
9. Pipe Concrete Arch Encasement will be paid for at the unit price to complete installation of each of the pipe concrete arch encasements. The price shall include but is not limited to all costs of excavation and backfill, dewatering, installation, materials and structure, bedding, steps, and incidentals, complete.
10. Air Release Valve Assembly will be paid for at the unit price to complete installation of each of the specified air release valve assemblies. The price shall include but is not limited to all costs of fittings, pipe, taps, excavation and backfill, dewatering, installation, materials and structure, bedding, steps, line connections and incidentals, complete.

11. Blow Off Valve Assembly will be paid for at the unit price to complete installation of each of the specified blow off valve assemblies. The price shall include but is not limited to all costs of fittings, pipe, taps, excavation and backfill, dewatering, installation, materials and structure, bedding, steps, line connections and incidentals, complete. The cost of this item includes all required pipe, fittings, and other materials placed beyond the connecting tee on water main (including pipe cap but not including the tee installed on water main). The tee installed on water main is included under Ductile Iron Fittings.
12. Fire Hydrant Assembly will be paid for at the unit price to complete installation of the specified fire hydrant assemblies for each size of water main. The price shall include but is not limited to all costs of fittings, pipe, excavation and backfill, dewatering, installation, materials and structure, bedding, steps, line connections and incidentals, complete. This item includes all required materials and fittings placed beyond the connecting tee on water main (not including the tee installed on water main). The cost of tee installed on water main is included in Ductile Iron Fittings.
13. Cut and Replace SCDOT Asphalt Roadway will be paid for at the unit price per linear foot of cut and repair work associated with water main trenching across paved roadways (including aprons) and shall include neatly saw cutting all pavements to be patched, and all satisfactory backfill including either select fill materials placed in lifts and compacted in accordance with SCDOT requirements or using flowable fill as Contract Drawings allow, complete. Except in cases where the entire roadway travel lane is being milled and resurfaced, costs of saw cutting and replacing the surface course of the roadway shall be included. Width of saw cuts shall comply with detail shown in Contract Drawings. Cutting, replacing, and/or resurfacing of roadways not indicated on Contract Drawings or required due to pipe installation which is not under the asphalt shall be included in the per linear foot price of DIP Water Main.
14. Cut and Replace County Asphalt Roadway will be paid for at the unit price per linear foot of cut and repair work associated with water main trenching across paved roadways (including aprons) and shall include neatly saw cutting all pavements to be patched, and all satisfactory backfill with select fill materials placed in lifts and compacted, complete. Except in cases where the entire roadway travel lane is being milled and resurfaced, costs of saw cutting and replacing the surface course of the roadway shall be included. Width of saw cuts shall comply with detail shown in Contract Drawings. Cutting, replacing, and/or resurfacing of roadways not indicated on Contract Drawings or required due to pipe installation which is not under the asphalt shall be included in the per linear foot price of DIP Water Main.
15. Mill 2" and Resurface Asphalt Roadway will be paid for at the unit price per square yard of milled travel lane as measured in place. The length of travel lane to be resurfaced shall extend, at each end, 10 feet beyond where the installed pipe crosses the edge of pavement. Cost for this item shall include all work to mill asphalt to a depth of 2 inches and resurface the entire width of the disturbed travel lane. Resurfacing shall be accomplished by methods indicated on the Contract Drawings, complete.

16. Cut and Replace Asphalt Driveway will be paid for at the unit price per linear foot of cut and repair work associated with water main trenching across paved driveways (including aprons) which shall include neatly saw cutting all pavements to be patched, and all satisfactory backfill including either select fill materials placed in lifts and compacted in accordance with SCDOT requirements or using flowable fill as Contract Drawings allow, complete. Cost of milling and resurfacing are not included (see Mill 1.5" Asphalt Driveway and Resurface Asphalt Driveway Width of saw cuts shall comply with detail shown in Contract Drawings. Cutting, replacing, and/or resurfacing of asphalt driveways/parking lots not indicated on Contract Drawings or required due to pipe installation which is not under the asphalt shall be included in the per linear foot price of DIP Water Main.
17. Mill 1.5" Asphalt Driveway will be paid for at the unit price per square yard of milled driveway as measured in place. Cost for this item shall include all work to mill asphalt to a depth of 1.5 inches as indicated on Contract Drawings. The extent of milled area may be increased only as necessary to provide a smooth transition between driveway and roadway. Asphalt resurfacing is not included (see Resurface Asphalt Driveway).
18. Resurface Asphalt Driveway will be paid for at the unit price per square yard of resurfaced driveway as measured in place. Cost for this item shall include all work to resurface the entire width of driveway, from the right-of-way to the edge of roadway (including any sawcut areas and milled areas), unless specified otherwise on the Contract Drawings. Contractor shall take care to provide a smooth transition between driveway and roadway. Resurfacing shall be accomplished by methods indicated on the Contract Drawings, complete.
19. Cut and Replace Concrete Driveway will be paid for at the unit price per linear foot as measured in place. Cost for this item shall include all work to provide a satisfactory patch for concrete driveways (including any aprons) cut during the pipe installation and shall include suitable compacted backfill, base, or other materials as detailed, concrete patching, and resurfacing of the driveway as indicated on the Contract Drawings, complete. Concrete shall be cut and replaced to nearest existing joint. At a minimum, sawcut width shall be 7 feet. Cutting, replacing, and/or resurfacing of concrete driveways/parking lots not indicated on Contract Drawings or required due to pipe installation which is not under the concrete shall be included in the per linear foot price of DIP Water Main.
20. Cut and Replace Concrete Curb and Gutter will be paid for at the unit price per linear foot (measured parallel to EOP) of furnished and installed concrete with joints and finishing, complete. Concrete shall be cut and replaced to the nearest existing joint. Cutting and/or replacing of concrete gutters not indicated on Contract Drawings or required due to pipe installation shall be included in the per linear foot price of DIP Water Main.
21. Seeding and Grassing will be paid for as a lump sum price which shall include all costs to complete the work.
22. Sediment and Erosion Control for water main installation will be paid for as a lump sum price which shall include all costs to furnish and install temporary and permanent measures needed to control erosion. This item includes but is not limited to all silt fences, sediment tubes, inlet protection, construction entrances, temporary and permanent grassing, complete.

23. Traffic Control will be paid for as a lump sum price which shall include all costs to complete the work.
24. As-Built Survey and Plans will be paid for as a lump sum price which shall include all costs to complete the work as specified in Section 1000. Survey shall be completed by a professional surveyor licensed in the state of South Carolina.
25. No separate cost item for mobilization will be allowed. Cost of project signs shall be included in the unit or lump sum item pricing for each division or contract.

B. Additional Items

1. Steel Encasement Bore and Drill Through Rock shall be paid for as an extra in addition to payment for DIP Water Main with RJ Bore & Jack in Steel Encasement and shall be measured by linear foot of pipe that requires boring and drilling through rock. Item shall include all costs of additional work associated with boring and drilling through rock that is not already included in DIP Water Main Bore and Jack in Steel Encasement. Unit price shall account for costs associated with all sizes of bores for which Contractor must bore and drill through rock.
2. Polyethylene Encasement ("polywrap") shall be paid for as an extra in addition to payment for DIP Water Main and shall be measured by linear foot of pipe that requires polyethylene encasement. For each pipe size listed, item shall include all costs of additional work associated with providing polyethylene encasement that is not already included in DIP Water Main.

PART II. PRODUCTS

Not used

PART III. EXECUTION

Not used

END OF SECTION

SECTION 02205
SOIL MATERIALS

PART I. GENERAL

1.1 SECTION INCLUDES

- A. Soil classifications
- B. Topsoil
- C. Stockpiling and stockpile cleanup

1.2 RELATED DOCUMENTS

- A. Requirements of the General and Supplemental Conditions apply to all Work in this Section. Provide all labor, materials, equipment, and services indicated on the Drawings, or specified herein, or reasonably necessary for or incidental to a complete job.

1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01300 – Submittals
- B. Section 01400 - Quality Control
- C. Greenville Water Construction Specifications for Water Mains

1.4 REFERENCES

Publications listed below form part of section to extent referenced. Publications are referenced in text by basic designation only. Unless otherwise indicated, all referenced standards shall be the latest edition available at the time of bidding. Any requirements of these Specifications shall in no way invalidate the minimum requirements of the referenced standards

- A. American Society for Testing Materials (ASTM)
 - 1. ASTM D 1557 Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort
 - 2. ASTM D 2487 Classification of Soils for Engineering Purposes

1.5 SUBMITTALS

Submit under provisions of Section 01300 – Submittals.

- A. SD-09, Test Reports

1. Soil materials

- a. Materials Source

Submit name of imported materials suppliers. Provide materials from same source throughout the Work. Change of source requires Owner's Representative approval.

1.6 DEFINITIONS

A. Earth

Defined as loose loam capable of supporting good growth of grass and free from roots, stones, and other undesirable material.

B. Rock

See Greenville Water Standard Specifications for Watermains - Section 2 - Trench Excavation and Backfilling.

PART II. PRODUCTS

2.1 See Greenville Water Standard Specifications for Watermains - Section 2 - Trench Excavation and Backfilling.

PART III. EXECUTION

3.1 STOCKPILING

- A. Stockpile materials on site at locations designated by Owner's Representative.
- B. Stockpile in sufficient quantities to meet project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- E. Surround base of stockpiled materials with temporary sediment barrier. Do not allow slopes of stockpiled material to exceed material's natural angle of repose and in no event to be steeper than two (2) horizontal to one (1) vertical.

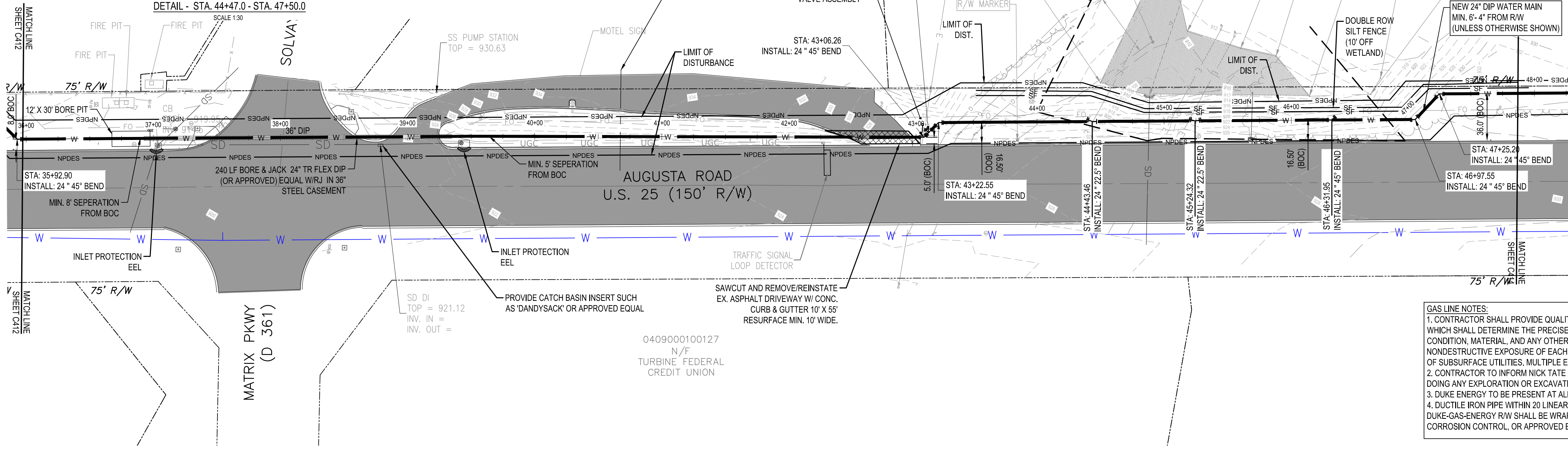
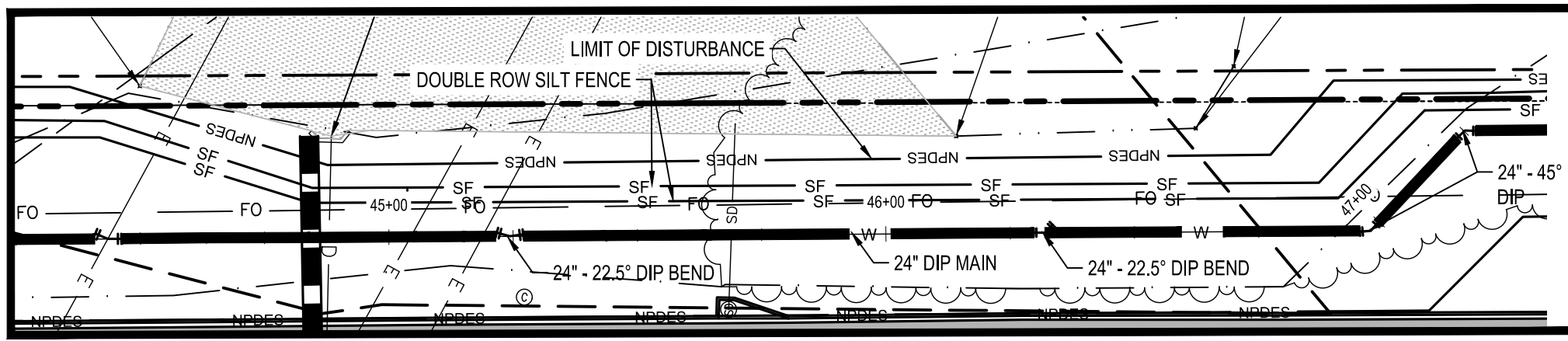
3.2 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free-standing surface water.

3.3 TESTS

- A. Compaction tests shall be conducted every 250 lf of water main unless, instructed otherwise by Engineer. Compaction shall be at least 95% under paved surface and at least 90% along ditch sections. Compaction testing shall be performed using Standard Proctor density.
- B. Costs of compaction testing shall be paid for by the Contractor and included in the cost per linear feet of pipe installed.
- C. Submit certified reports of tests to Owner's Representative. Refer to Section 01400 - Quality Control for payment in connection with costs for sampling and testing.

END OF SECTION



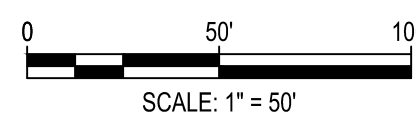
TEMPORARY CONSTRUCTION ENTRANCE:
 TEMPORARY CONSTRUCTION ENTRANCES ARE TO BE MARKED OUT AND THE LOCATION MUST BE INSPECTED AND APPROVED BY THE SCDOT FOR SIGHT DISTANCING PRIOR TO THE INSTALLATION OF THE TEMPORARY CONSTRUCTION ENTRANCE.

NOTE:
 PROPERTY LINES SHOWN AND PARCEL INFORMATION IS BASED ON GREENVILLE COUNTY GIS DATA.

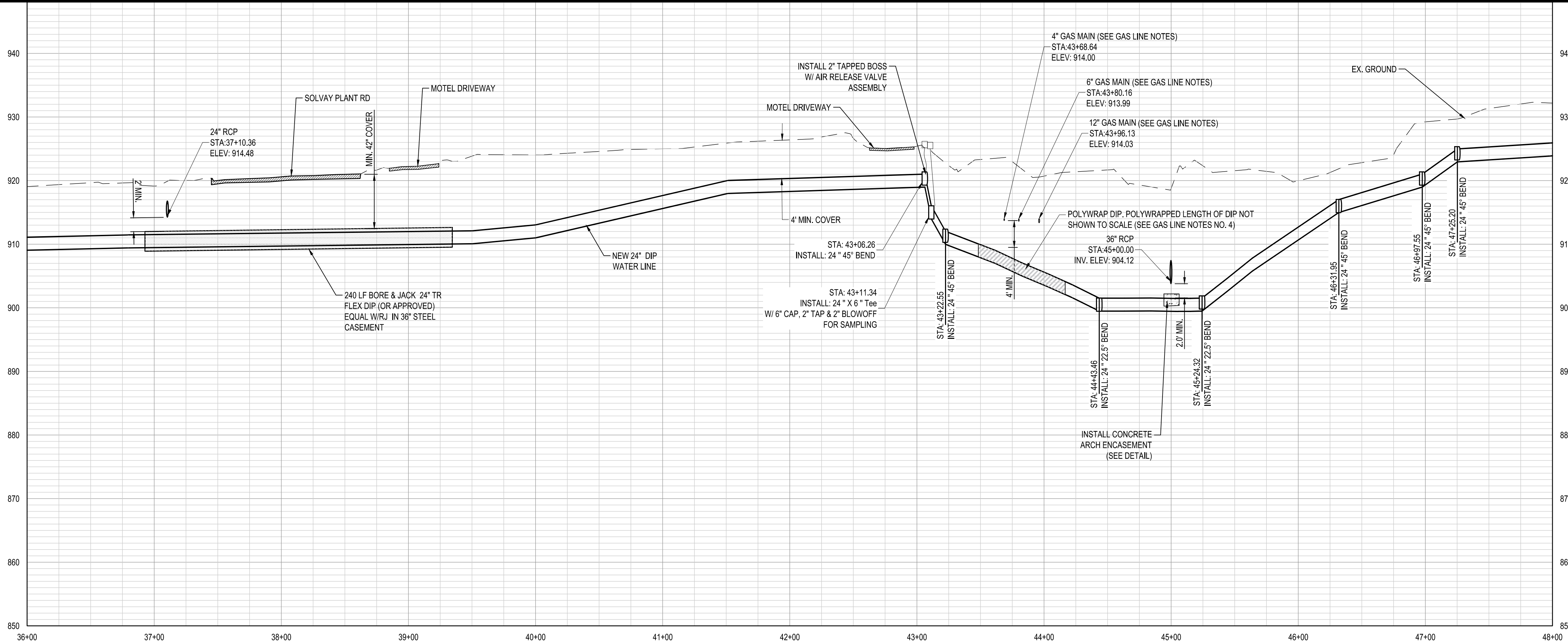
FLOOD PLAIN AND WETLAND NOTE:
 1. NO FILL MAY BE PLACED WITHIN THE FLOOD PLAIN AND ALL DISTURBED GRADES MUST BE RE-ESTABLISHED TO THE PRE-CONSTRUCTION GRADES.
 2. WETLAND BOUNDARY TO BE FLAGGED WITH ORANGE CONSTRUCTION FENCE AND WARNING SIGNS.

GAS LINE NOTES:
 1. CONTRACTOR SHALL PROVIDE QUALITY LEVEL 'A' SUBSURFACE UTILITY ENGINEERING ("POT-HOLING") WHICH SHALL DETERMINE THE PRECISE HORIZONTAL LOCATION, VERTICAL LOCATION, TYPE, SIZE, CONDITION, MATERIAL, AND ANY OTHER NOTABLE FEATURE OF EXISTING UTILITIES OBTAINED BY NONDESTRUCTIVE EXPOSURE OF EACH UNDERGROUND UTILITY AND BY THE SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES. MULTIPLE EXPLORATION HOLES ARE REQUIRED.
 2. CONTRACTOR TO INFORM NICK TATE AT DUKE GAS ENERGY (PREVIOUSLY PNG) AT 864-505-6478 BEFORE DOING ANY EXPLORATION OR EXCAVATION AROUND GAS LINES.
 3. DUKE ENERGY TO BE PRESENT AT ALL TIMES WHEN WORKING AROUND GAS MAINS.
 4. DUCTILE IRON PIPE WITHIN 20 LINEAR FEET OF OF EDGE GAS MAIN AND ALL OTHER DIP LOCATED IN THE DUKE-GAS-ENERGY R/W SHALL BE WRAPPED WITH V-BIO™ ENHANCED POLYETHYLENE ENCASUREMENT & CORROSION CONTROL, OR APPROVED EQUAL.

PROJECT DATUM INFORMATION:
 HORIZONTAL DATUM: SC83IF
 VERTICAL DATUM: NAVD88

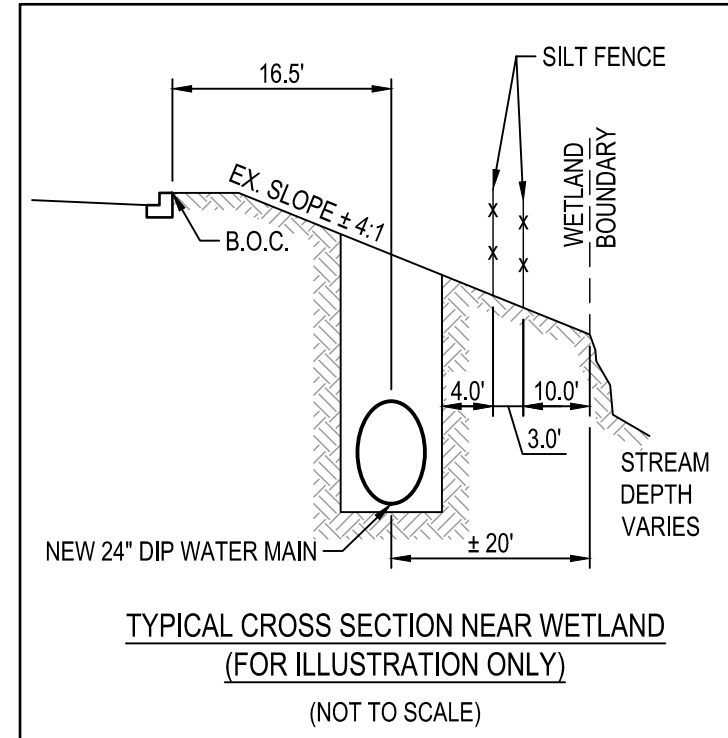


PLAN: STA. 36+00.0 - STA. 48+00.0



NOTES FOR DRIVEWAY CROSSINGS:

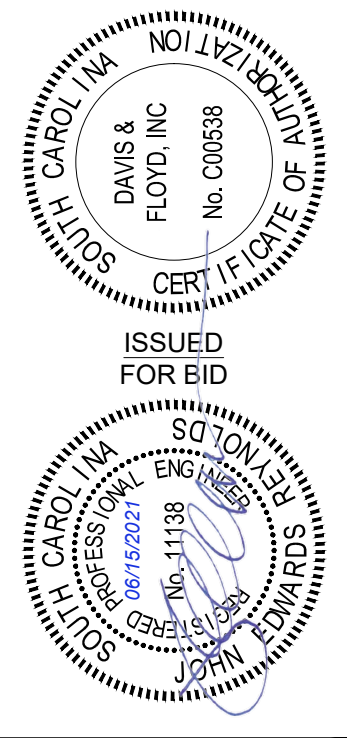
- CONTRACTOR SHALL NOTIFY EACH PROPERTY OWNER AND TENANT A MINIMUM OF 7 DAYS IN ADVANCE OF OPEN CUTTING DRIVEWAYS PRIOR TO STARTING WORK AND COORDINATE WITH THE PROPERTY OWNER AND TENANT TO MAINTAIN SAFE AND CONTINUOUS ACCESS AT ALL TIMES. PROVIDE TRAFFIC CONTROL AS NEEDED TO MAINTAIN SAFETY FOR THE MOTORING PUBLIC.
- CONTRACTOR SHALL SAW CUT ASPHALT DRIVEWAYS PRIOR TO EXCAVATION. AFTER INSTALLATION OF THE PIPE, BACKFILL WITH SELECT MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY OR FLOWABLE FILL. PROVIDE ASPHALT SURFACE AND BASE PATCH PER ASPHALT PATCH DETAIL. PROVIDE ASPHALT RESURFACING AT 175 LBS/SY FOR ENTIRE DRIVEWAY FROM EXISTING EDGE OF SCDOT R/W TO THE EDGE OF ROADWAY PAVEMENT. PROVIDE 1 1/2" MILLING, 5' WIDE ACROSS EXISTING PAVEMENT TO TRANSITION NEW WITH EXISTING PAVEMENT. REPLACE ANY PAVEMENT MARKINGS OBLITERATED BY THE CONSTRUCTION.
- CONTRACTOR SHALL SAW CUT CONCRETE DRIVEWAYS PRIOR TO EXCAVATION. AFTER INSTALLATION OF THE PIPE, BACKFILL WITH SELECT MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY OR FLOWABLE FILL. RESTORE CONCRETE DRIVEWAY TO EXISTING CONCRETE AND BASE THICKNESS AND BASE MATERIAL OR 6" MINIMUM THICKNESS EACH FOR CONCRETE AND BASE. PROVIDE CONCRETE DRIVEWAY CONSTRUCTION USING SCODOT STANDARD CONCRETE DRIVEWAY DETAILS. REPLACE COMPLETE SECTIONS OF CONCRETE DRIVEWAYS TO NEAREST TRANSVERSE JOINT OR EDGE OF EXISTING PAVEMENT.



24 - INCH WATER LINE - STA. 36+00.0 - STA. 48+00.0

SCALES: 1" = 50' HORIZONTAL, 1" = 10' VERTICAL

CIP CONTRACT 187



DAVIS & FLOYD
 SINCE 1954
 www.davisfloyd.com
 164 MILESTONE WAY, SUITE 200
 GREENVILLE, SC 29615
 (864) 527-8800

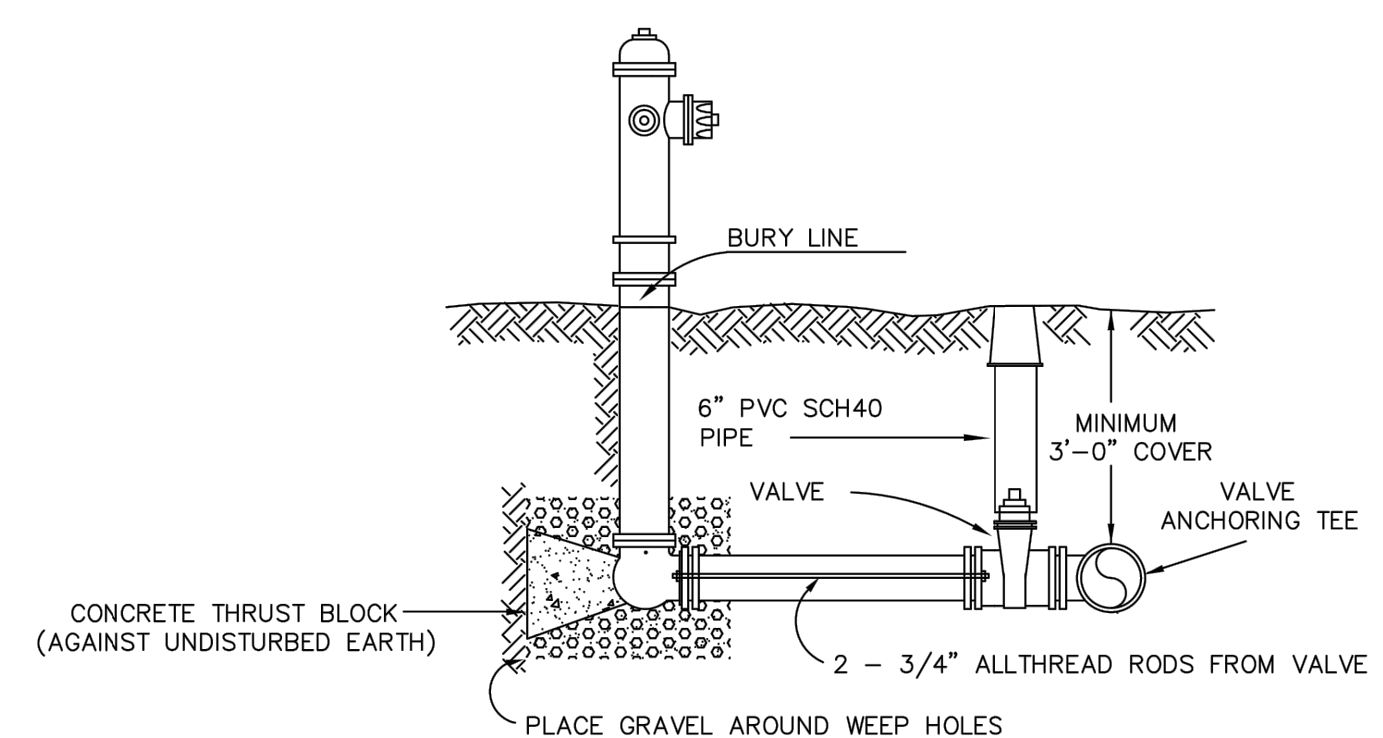
OWNER: GREENVILLE WATER
 407 W. BROAD ST. GREENVILLE, SC 29601
 PROJECT TITLE: 24" AUGUSTA ROAD WATER MAIN

24 INCH WATER MAIN PLAN & PROFILE - STA. 36+00.0 - STA. 48+00.0

NO.	DATE	DESCRIPTION	BY	CHECKED
1	APRIL 2021	REVISION: PRELIMINARY PLAN AND PROFILE	JER	JER
2	APRIL 2021	REVISION: PRELIMINARY PLAN AND PROFILE	JER	JER

NO.	DATE	DESCRIPTION	BY	CHECKED
1	APRIL 2021	REVISION: PRELIMINARY PLAN AND PROFILE	JER	JER
2	APRIL 2021	REVISION: PRELIMINARY PLAN AND PROFILE	JER	JER

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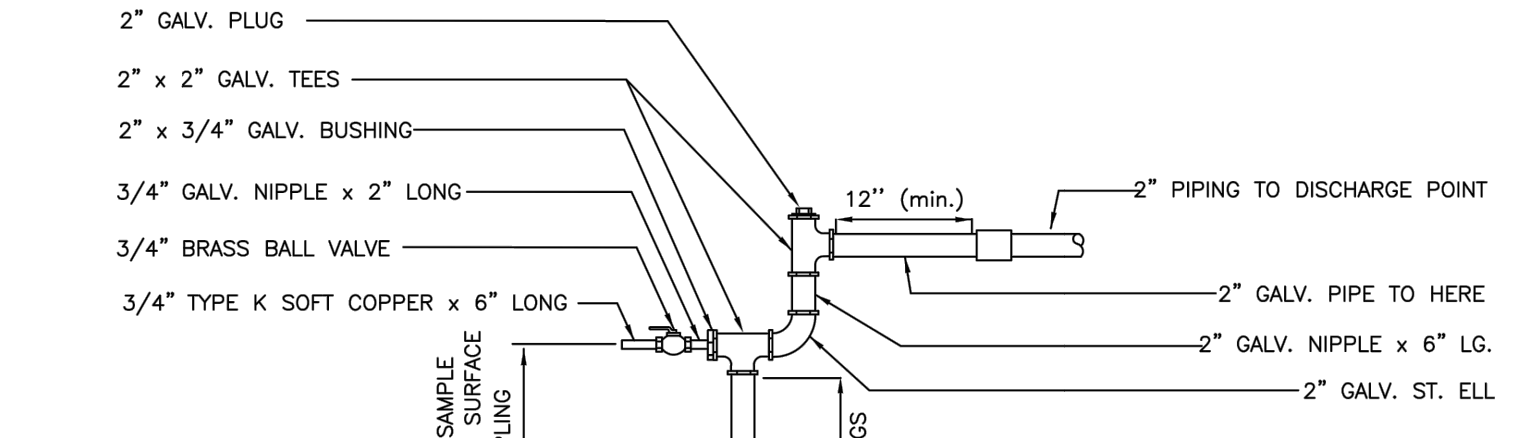
- NOTES:**
- 1) FIRE HYDRANT TO BE INSTALLED PLUMB.
 - 2) FIRE HYDRANT TO BE 3-WAY WITH DEPTH OF BURY TO BE DETERMINED BY FIELD CONDITIONS.
 - 3) HYDRANT LEAD TO BE PRESSURE CLASS 350 DUCTILE IRON.
 - 4) WHEN FIRE HYDRANT RESTRAINT BY RODDING NECESSARY, TWO 3/4" # ALLTHREAD RODS REQUIRED AS A MINIMUM.
 - 5) ONLY USE MUELLER OR AFC HYDRANTS.



TYPICAL HYDRANT INSTALLATION

REVISED: 11/30/2018

TYPICAL HYDRANT INSTALLATION



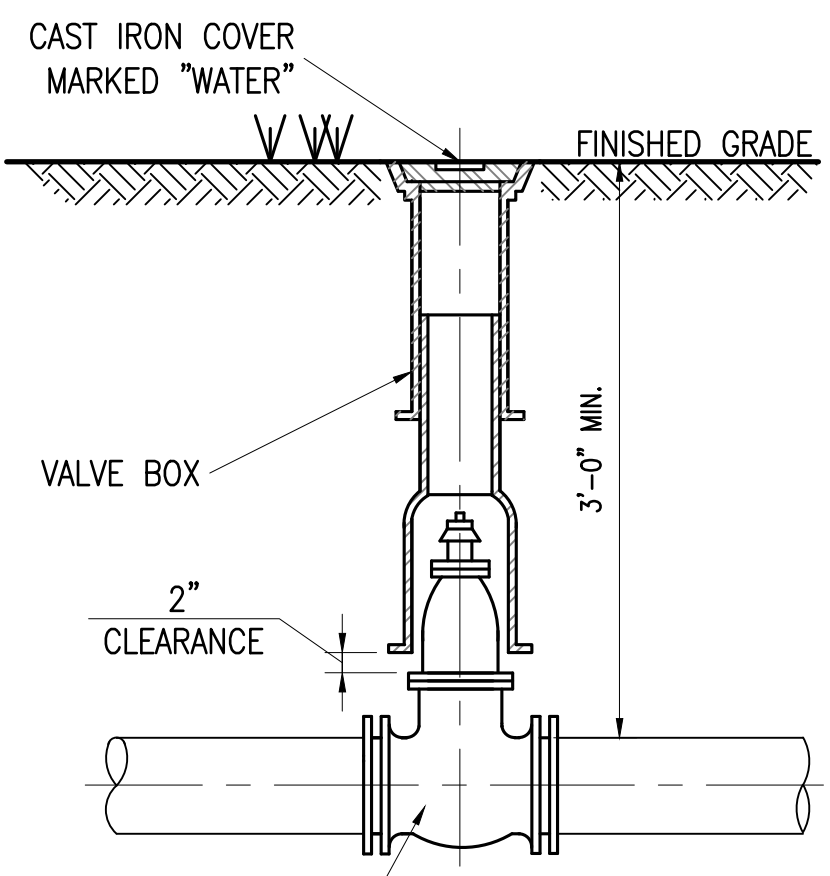
- NOTES:**
1. FILL SAMPLE PIPING w/HEAVILY CHLORINATED WATER WHILE MAINS ARE BEING STERILIZED. (MIX 2 TABLESPOONS OF H.T.H. PER GALLON WATER IN SAMPLE PIPING); CONTACT TIME TO BE 30 MINUTES (minimum)
 2. WATER MUST BE RUNNING FROM BALL VALVE (SLOWLY) FOR 30 MINUTES PRIOR TO SAMPLE



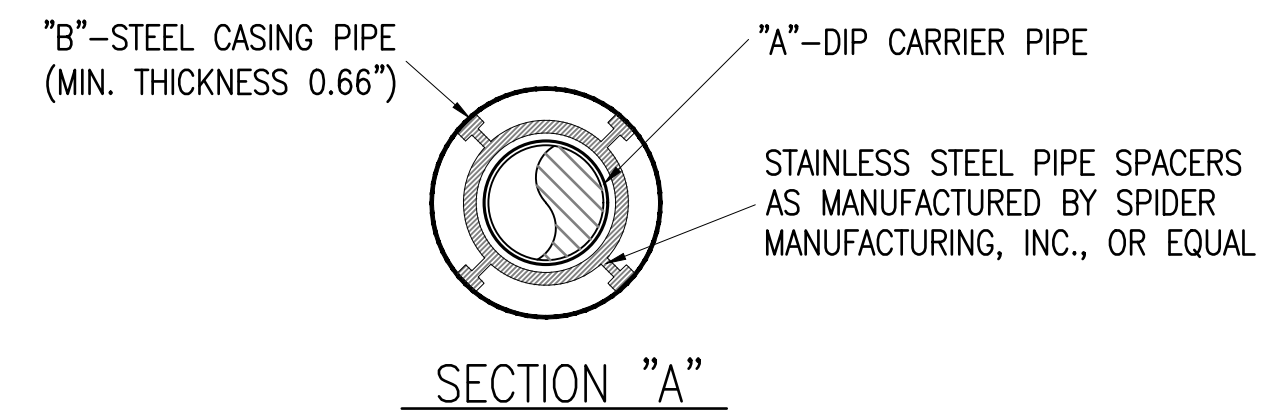
2" BLOW-OFF PIPING (FOR SAMPLING)

REVISED: 08/30/2013
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2" BLOW-OFF PIPING

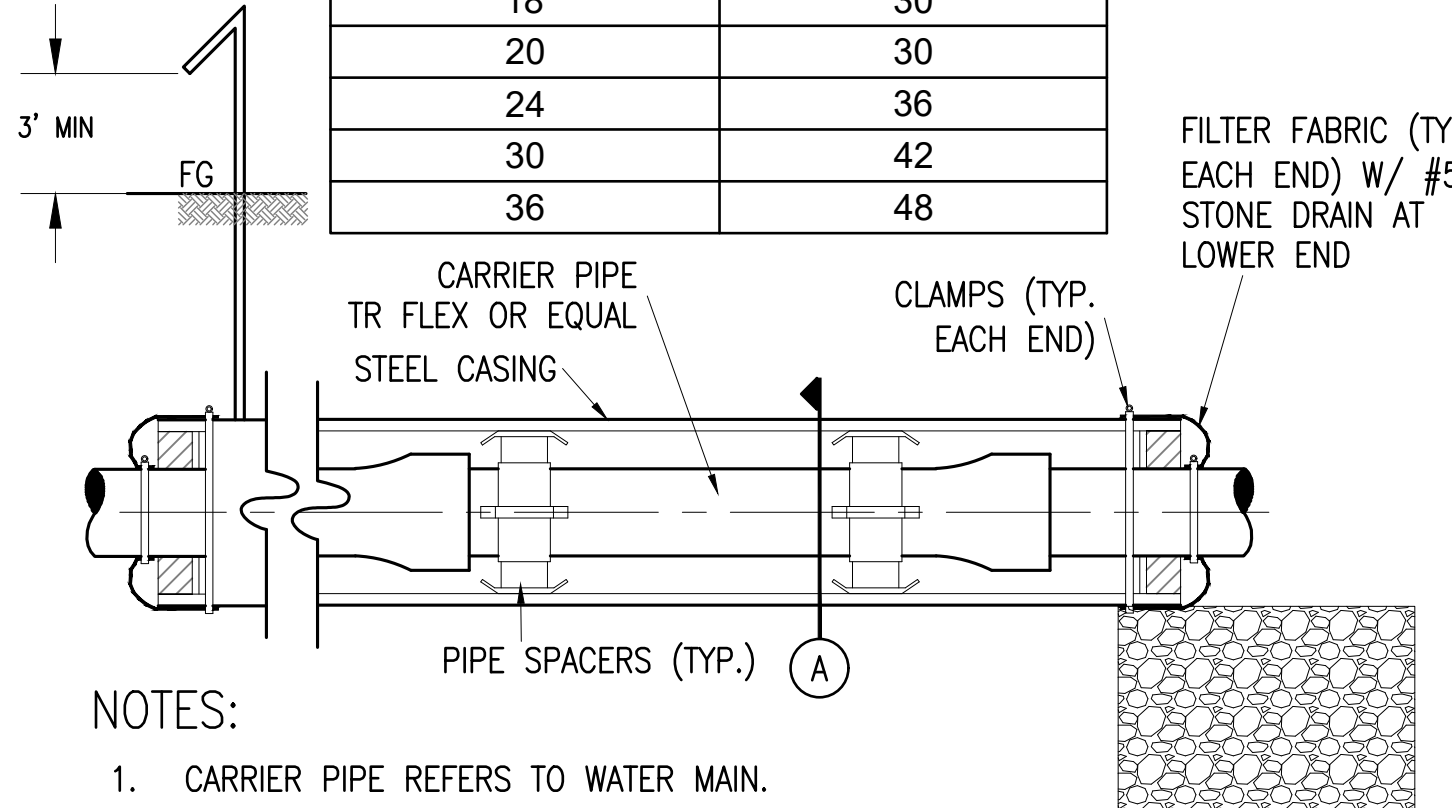


GATE VALVE DETAIL
N.T.S.



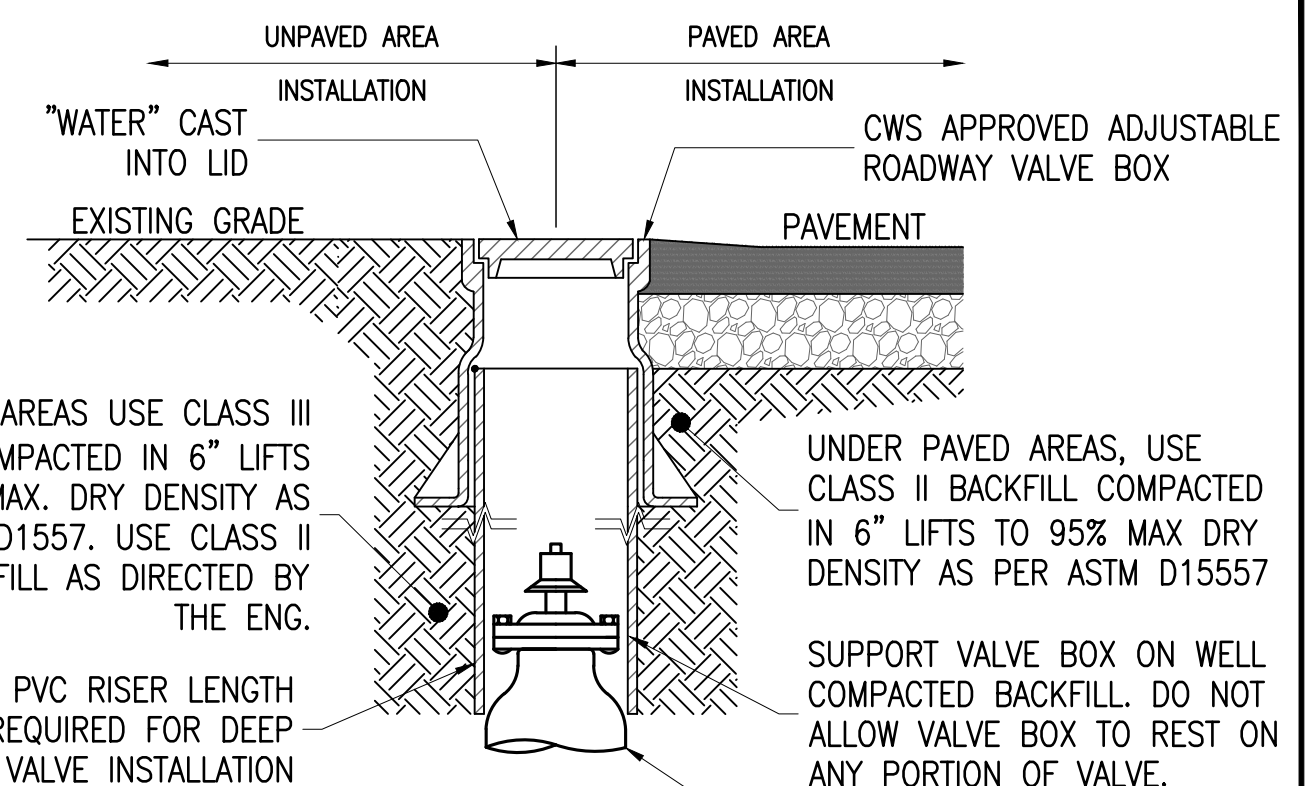
JACK AND BORE CASING SIZE SCHEDULE

"A" CARRIER PIPE DIAM (IN)	"B" CASING PIPE DIAM (IN)
4	10
6	12
8	14
10	16
12	20
16	24
18	30
20	30
24	36
30	42
36	48

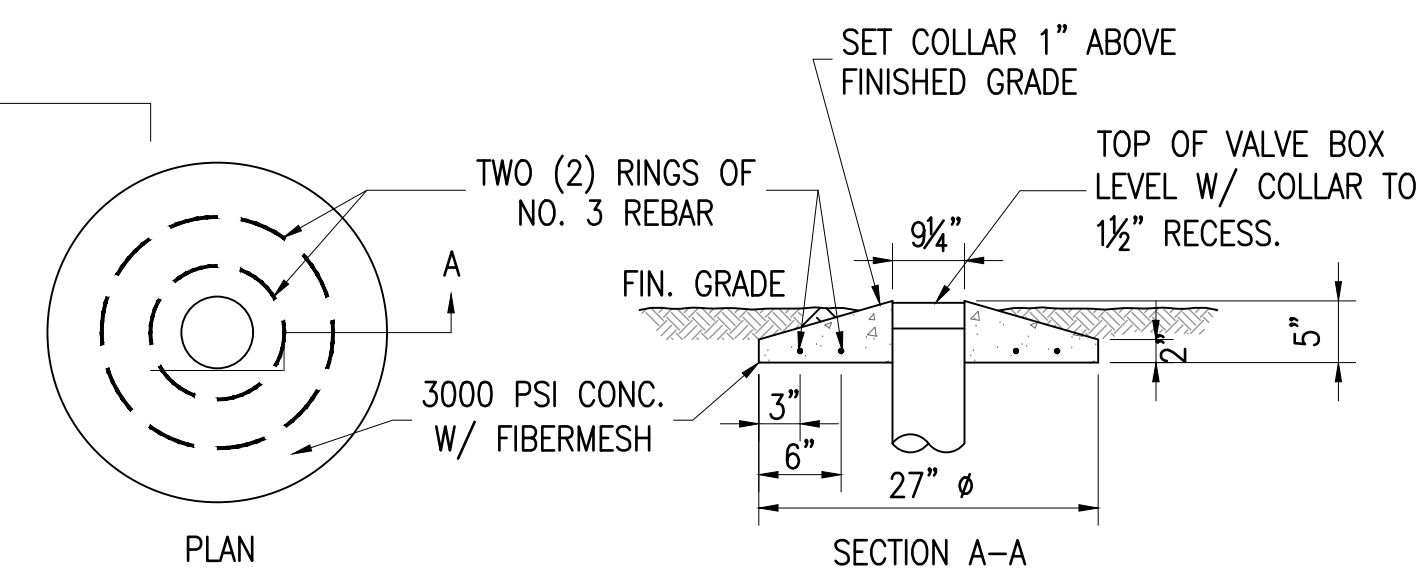


- NOTES:**
1. CARRIER PIPE REFERS TO WATER MAIN.
 2. CARRIER PIPE SHALL BE TR FLEX DIP OR EQUAL.
 3. INSTALL TWO PIPE SPACERS PER 18'/20' JOINT OF CARRIER PIPE.
 4. INSTALL STONE DRAIN AT LOWER END AND 3" Ø VENTILATION PIPES AT BOTH ENDS.

BORE AND JACK DETAIL
N.T.S.



- NOTES:**
1. CENTER VALVE BOX OVER OPERATING NUT TO INSURE FREE VALVE OPERATION
 2. USE 6" RISER PIPE ON 4" & 6" VALVES
 3. USE 8" RISER PIPE ON 8" VALVES AND LARGER.
 4. REFER TO MINIMUM STANDARDS FOR ACCEPTABLE MANUFACTURERS.



VALVE BOX DETAIL
N.T.S.

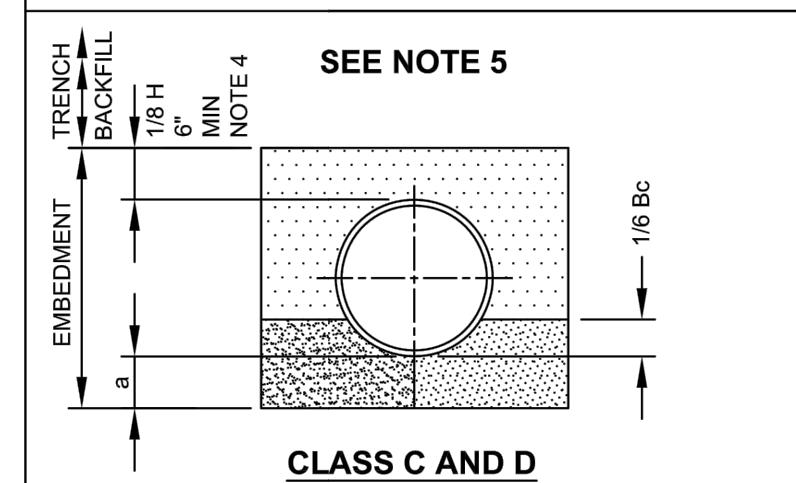
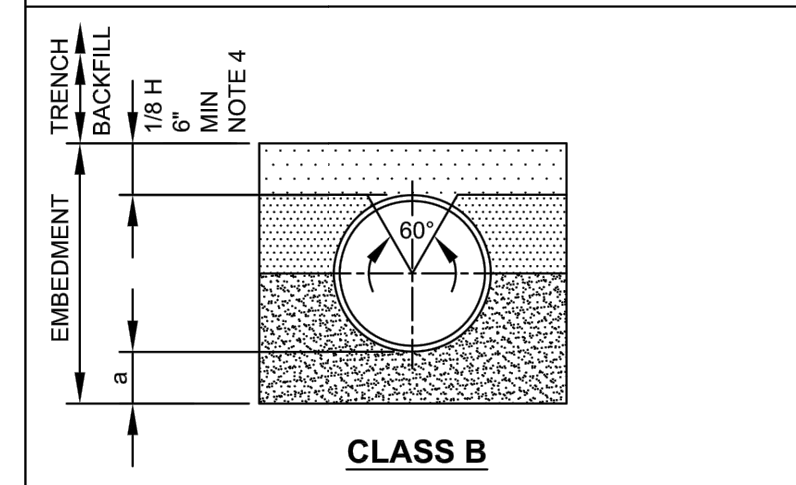
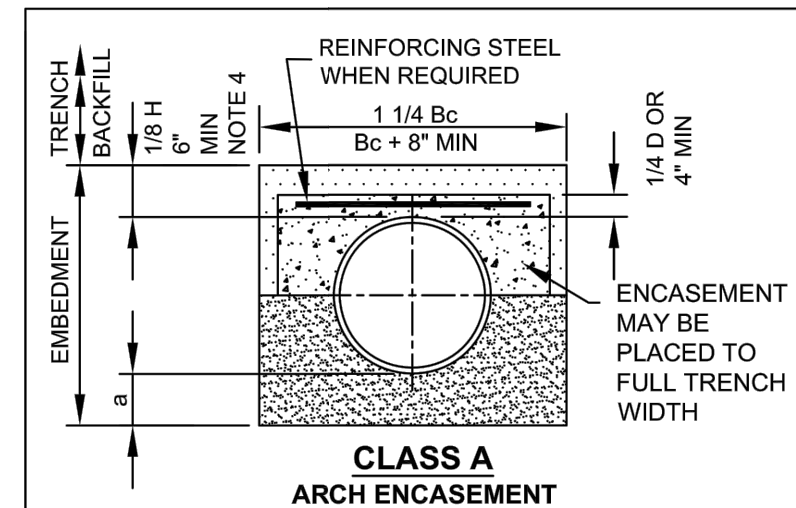


TABLE OF EMBEDMENT DEPTH BELOW PIPE

D	a	
	MIN SOIL	MIN ROCK
27" & SMALLER	3	6
30" TO 60"	4	9
64" & LARGER	6	12

- NOTES:**
1. GRANULAR EMBEDMENT MATERIAL SHALL BE #57 WASHED STONE OR PEA GRAVEL. EMBEDMENT MATERIAL SHALL BE PLACED IN LAYERS NOT MORE THAN 6" DEEP AND COMPACTED AS SPECIFIED.
 2. HAND PLACED EMBEDMENT SHALL BE FINELY DIVIDED MATERIAL FREE FROM DEBRIS AND STONES.
 3. COMPACTED EMBEDMENT SHALL BE FINELY DIVIDED JOB EXCAVATED MATERIAL FREE FROM DEBRIS, ORGANIC MATERIAL AND STONES. PLACED IN UNIFORM LAYERS NOT MORE THAN 8" THICK, AND COMPACTED TO 98% MAXIMUM DENSITY. GRANULAR EMBEDMENT MAY BE SUBSTITUTED FOR ALL OR PART OF THE COMPACTED EMBEDMENT.
 4. EMBEDMENT ABOVE THE TOP OF THE PIPE SHALL BE AN UNCOMPACTED LAYER FOR ALL INSTALLATIONS.
 5. FOR CLASS C USE GRANULAR EMBEDMENT. FOR CLASS D USE COMPACTED EMBEDMENT.
 6. TRENCH OUTLINES DO NOT INDICATE ACTUAL TRENCH EXCAVATION SHAPE, SOIL CONDITIONS, OR PRESENCE OF SHEETING LEFT IN PLACE. EMBEDMENT MATERIAL SHALL EXTEND THE FULL WIDTH OF THE ACTUAL TRENCH EXCAVATION.

- LEGEND**
- Bc OUTSIDE DIAMETER OF PIPE
 - H COVER ABOVE TOP OF PIPE
 - D NOMINAL PIPE SIZE
 - a EMBEDMENT BELOW PIPE (SEE TABLE)
- [Pattern] HAND PLACED EMBEDMENT
 - [Pattern] COMPACTED EMBEDMENT
 - [Pattern] GRANULAR EMBEDMENT
 - [Pattern] CONCRETE

PIPE EMBEDMENTS

GreenvilleWater FIGURE 1 10/30/2013

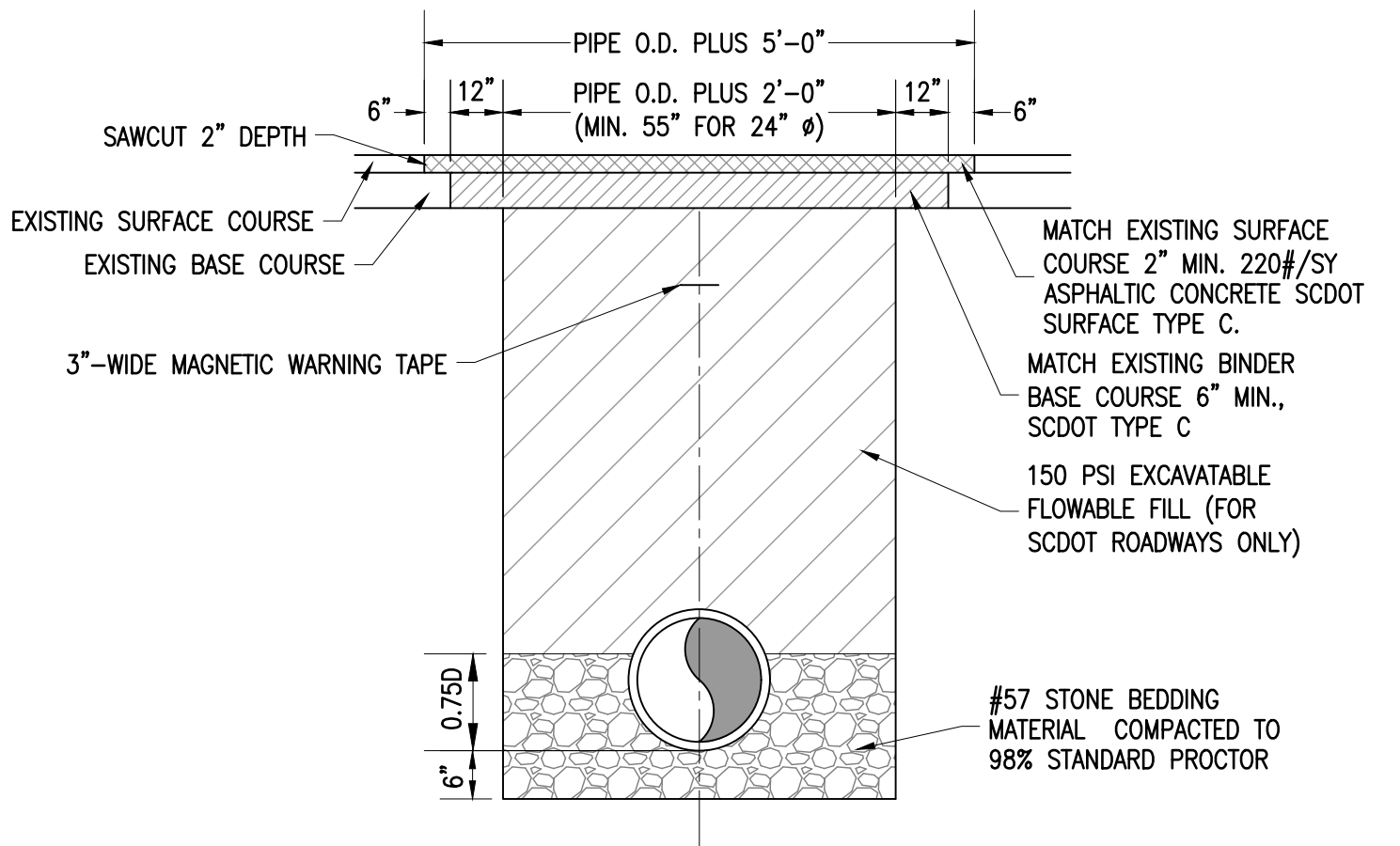
ENGINEER'S SCHEDULE OF PIPE EMBEDMENT CLASSIFICATIONS

CONDITION OF EXST. TRENCH BOTTOM MATERIAL	CLASSIFICATION
SUITABLE SOIL	CLASS D
UNSUITABLE SOIL	CLASS C
ROCK	CLASS B

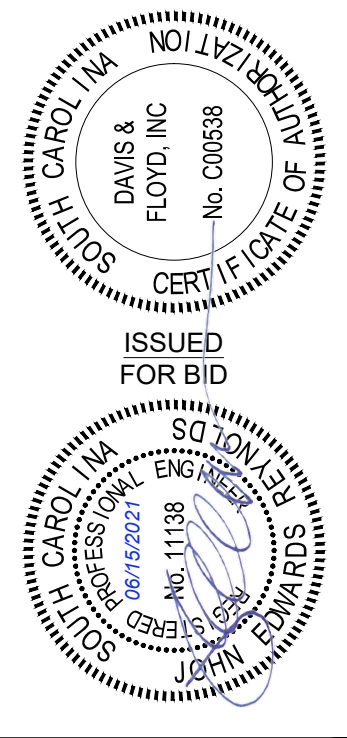
NOTE:

1. FOR EMBEDMENT CLASSIFICATION DETAILS, SEE FIGURE 1 BY GREENVILLE WATER ABOVE.
2. FOR ALL WATER MAIN INSTALLED UNDER SCDOT ROADWAY PAVEMENT, SEE DETAIL BELOW - ASPHALT PAVEMENT REPLACEMENT AT PIPE TRENCH.
3. FOR WATER MAIN INSTALLED UNDER OTHER PAVEMENTS (COUNTY ROADWAYS, DRIVEWAYS, SIDEWALKS, PARKING LOTS, ETC.), SEE SCHEDULE ABOVE.
4. FOR ALL WATER MAINS, INSTALL 3"-WIDE MAGNETIC WARNING TAPE BELOW. WARNING TAPE NOT SHOWN IN FIGURE 1.

- NOTES:**
1. FOR TRENCH OPEN-CUT IN AUGUSTA RD. (HWY. 25) THE CONTRACTOR SHALL MILL THE OUTSIDE LANE 12"-WIDE X 2"-DEEP FOR THE ENTIRE LENGTH OF THE OPEN CUT.
 2. PROVIDE RESURFACING AS INDICATED ON PLAN SHEETS. RESURFACING NOT SHOWN IN DETAIL.



ASPHALT PAVEMENT REPLACEMENT AT PIPE TRENCH
N.T.S.



DAVIS & FLOYD
SINCE 1954
www.davisandfloyd.com
154 MILESTONE WAY, SUITE 200
GREENVILLE, SC 29615
(864) 527-5800

OWNER
GREENVILLE WATER
407 W. BROAD ST. GREENVILLE, SC 29601
PROJECT TITLE
24" AUGUSTA ROAD WATER MAIN

DATE: 08/15/2021
DRAWN BY: MJP
CHECKED BY: JER
DATE: 08/15/2021
DESIGNED BY: MJP
CHECKED BY: JER

STANDARD DETAILS

NO.	DESCRIPTION	DATE
1	REVISED ASPHALT PAVEMENT AND PIPE EMBEDMENT.	08/15/2021

PROJECT NO. 013841.01
DATE: APRIL 2021
DRAWN BY: MJP
CHECKED BY: JER
DATE: APRIL 2021
DESIGNED BY: MJP
CHECKED BY: JER

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