

GAFFNEY BOARD OF PUBLIC WORKS

I-85 SEWER EXTENSION  
CONTRACT 1B – COLLECTIONS

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ADDENDUM NO. 6

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Prepared by

BLACK & VEATCH CORPORATION  
Greenville, South Carolina

B&V Project No. 410381

January 10, 2024

Gaffney Board of Public Works  
I-85 Sewer Extension  
Contract 1B- Collections Broad River  
WWTP to Bear Den SPS

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ADDENDUM No. 6

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1. SCOPE. This Addendum No. 6 consists of pages AD6-1 through AD6-5 and the following attachments:

- Revised Specification Section 00400 – Bid Form.
- Additional Civil Drawing Sheets for Alternative 1 – Hwy 329 Bridge Hanging:
  - C-02-111A and C-02-112A.
- Additional Civil Drawing Sheets for Alternative 2 – Blacksburg Highway Bridge Hanging:
  - C-03-114A and C-03-115A.
- Additional Structural Drawing Sheets for Alternatives:
  - S-00-001, S-01-101A, and S-01-102A.

This Addendum No. 6 covers the following additions and changes to the Project Manual and Drawings:

2. PROJECT MANUAL.

A. SECTION 00100 – INSTRUCTIONS TO BIDDERS

- i. Page 9. Article 14 – Basis of Bid, Evaluation of Bids. Delete Article 14.01 in its entirety starting with “14.01. Bids shall be priced on...” and replace with the following:

“Bids shall be price on a lump sum and unit price basis for the base contract and the following Bid Alternatives:

Alternative 1: Removal of Segment 2 horizontal directional drilling and 24” DR 11 HDPE force main under the railroad along Victory Trail Road (Hwy 329). Installation of 18” DR 21 PVC force main with an 18” DIP, RJ Class 250 pipe hanging along the Highway 329 bridge over the railroad.

Alternative 2: Removal of Segment 3 horizontal directional drilling and 18” DR 11 HDPE force main under Buffalo creek along

Blacksburg Highway. Installation of 16" DR 21 PVC force main with a 16" DIP, RJ Class 250 pipe hanging along the Blacksburg Highway bridge over Buffalo Creek.

The price for each alternative shall be the amount to be added or deducted from the Base Bid if Owner selects the alternative.

Bidder shall complete the schedule of unit prices included in the Bid Form.

The total Bid will be determined as the sum of the products of the estimated quantity of each item and the unit price bid for the item. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.

Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words."

B. SECTION 00400 – BID FORM

- i. Remove Section 00400 from the Project Manual and replace it with attached revised Section 00400 – Bid Form.

C. SECTION 01015 – PROJECT REQUIREMENTS

- i. Page 10. Paragraph 22. Delete Paragraph 22 Alternatives starting with " Not Used..." and replace with the following:
  - a. "The Work required under the Base Bid is indicated in the Specifications and on the Drawings. All requirements specified or indicated also apply to each alternative selected by the Owner except as otherwise provided. The following alternatives are provided for in the Bid Form.

Alternative No. 1

Remove Segment 2 horizontal directional drilling and 24" DR 11 HDPE force main under the railroad along Victory Trail Road (Hwy 329). Install 18" DR 21 PVC force main with an 18" DIP, RJ Class 250 pipe

hanging along the Highway 329 bridge over the railroad.

Alternative No. 2

Remove Segment 3 horizontal directional drilling and 18" DR 11 HDPE force main under Buffalo creek along Blacksburg Highway. Install 16" DR 21 PVC force main with a 16" DIP, RJ Class 250 pipe hanging along the Blacksburg Highway bridge over Buffalo Creek.

D. SECTION 01025 – MEASUREMENT AND PAYMENT

i. Page 14. Paragraph 37. Delete Paragraph 37 Alternatives starting with "Not Used..." and replace with the following:

- a. "An Alternate is an item of work or equipment that the Owner is requesting separate bids for as indicated on the Bid Form and defined in the Contract Documents. The Alternates may be "Added To" or "Deducted From" the Base Bid as indicated on the Bid Form.

Bid award will be evaluated on the total of the base bid and the alternates as selected by the Owner to the extent that project funds are available.

Following the award of the Contract, the Engineer shall prepare and distribute to each Bidder notification of the status of each Alternate. Notification shall indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date. It shall also include a complete description of all negotiated modifications to Alternates.

Accepted Alternates will be identified in the Owner-Contractor Agreement.

37.01. Alternative 1. Alternative 1 includes the removal of Segment 2 horizontal directional drilling and 24" DR 11 HDPE force main under the railroad along Victory Trail Road (Hwy 329) and replacing it with the installation of 18" DR 21 PVC force main with an 18" DIP, RJ Class 250 pipe hanging along the Highway 329 bridge over the railroad. Bridge hanging

installation line item shall include pipe hangers, pipe supports, removal/reinstallation of barricades/fencing and any associated appurtenances for the installation of the bridge hanging. The line items shown on the bid form shall include all unit costs for each deduction or addition of the line items in coordination with the alternative (shown as a sum of the deductions and additions).

37.02. Alternative 2. Alternative 2 includes the removal of Segment 3 horizontal directional drilling and 18” DR 11 HDPE force main under Buffalo creek along Blacksburg Highway and replacing it with the installation of 16” DR 21 PVC force main with a 16” DIP, RJ Class 250 pipe hanging along the Blacksburg Highway bridge over Buffalo Creek. Bridge hanging installation line item shall include pipe hangers, pipe supports, removal/reinstallation of barricades/fencing and any associated appurtenances for the installation of the bridge hanging. The line items shown on the bid form shall include all unit costs for each deduction or addition of the line items in coordination with the alternative (shown as a sum of the deductions and additions).

3. DRAWINGS

A. Contract 1B – Collections: Sheet G-00-001

- i. In the sheet index for civil sheets, delete the lines for sheets 46-51. Replace with the following:

46	C-02-111A	ALTERNATIVE 1 - HWY 329 BRIDGE HANGING
47	C-02-112A	ALTERNATIVE 1 - HWY 329 BRIDGE HANGING
48	C-03-114A	ALTERNATIVE 2 - BLACKSBURG HWY BRIDGE HANGING
49	C-03-115A	ALTERNATIVE 2 - BLACKSBURG HWY BRIDGE HANGING
50	C-99-001	EROSION CONTROL DETAILS (1 OF 2)
51	C-99-002	EROSION CONTROL DETAILS (2 OF 2)
52	C-99-003	DETAILS (1 OF 4)
53	C-99-004	DETAILS (2 OF 4)
54	C-99-005	DETAILS (3 OF 4)
55	C-99-006	DETAILS (4 OF 4)

ii. In the sheet index for structural sheets, insert the following:

56	S-00-001	STANDARD STRUCTURAL NOTES
57	S-01-101A	HWY 329 BRIDGE PIPE SUPPORT DETAILS
58	S-01-102A	BLACKSBURG HWY BRIDGE PIPE SUPPORT DETAILS

B. Contract 1B – Collections.

- i. Insert the attached new sheets C-02-111A and C-02-112A for Segment 2 Alternative 1 and the new sheets C-03-114A and C-03-115A for Segment 3 Alternative 2 after sheet C-03-120.
- ii. Insert the attached new sheets S-00-001, S-01-101A, and S-01-102A for the Alternatives after sheet C-99-006.

End of Addendum No. 6

Section 00400

BID FORM

PROJECT IDENTIFICATION:

This Bid Form is for bids for the following Gaffney Board of Public Works project:

I-85 Sewer Extension Contract 1B: Collections Broad River WWTP to Bear Den Sewage Pump Station

ARTICLE 1 – BID RECIPIENT

1.01. This Bid is submitted to:

Mr. Steve Bratton  
Gaffney Board of Public Works  
210 E. Frederick Street  
Gaffney, South Carolina 29340

1.02. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for ninety (90) days after the day of Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner. Bidder will sign and submit the Agreement with the bonds and other documents required by the Bidding Documents to Engineer within fifteen (15) days after the date of Owner's Notice of Award.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01. In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

No.	_____	Dated	_____
No.	_____	Dated	_____
No.	_____	Dated	_____
No.	_____	Dated	_____
No.	_____	Dated	_____
No.	_____	Dated	_____

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Bidder has considered the information known to Bidder itself; information commonly known to Contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid or performance of the Work at the price bid and within the times



required, and in accordance with the other terms and conditions of the Bidding Documents.

- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

#### ARTICLE 4 – BIDDER'S CERTIFICATION

##### 4.01. Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

**ARTICLE 5 – BASIS OF BID**

5.01. Bidder will complete the Work for the following unit prices, computed in accordance with Paragraph 13.03.C of the General Conditions. Bidder acknowledges that (1) each Bid unit price includes an amount considered by Bidder to be adequate to cover Contractor’s overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and that final payment for all unit price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

**5.01 UNIT PRICE SCHEDULE**

<b>ITEM #</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT PRICE</b>	<b>TOTAL COST</b>
<b>1.</b>	<b>FORCE MAIN PIPE</b>				
1.1	PIPE, 20" DIAMETER FORCE MAIN, DIP, CLASS 250	LF	258	\$	\$
1.2	PIPE, 18" DIAMETER FORCE MAIN, PVC, DR 21	LF	17,039	\$	\$
1.3	PIPE, 16" DIAMETER FORCE MAIN, PVC, DR 21	LF	17,622	\$	\$
1.4	PIPE, 16" DIAMETER FORCE MAIN, DIP, CLASS 250	LF	331	\$	\$
<b>2.</b>	<b>WATER LINE PIPE</b>				
2.1	PIPE, 6" DIAMETER WATER, DIP, CLASS 350	LF	1,117	\$	\$
2.2	PIPE, 2" DIAMETER WATER, HDPE	LF	1,531	\$	\$

<b>3.</b>	<b>DOGHOUSE MANHOLES</b>				
3.1	PRECAST DOGHOUSE MANHOLE, 72" DIAMETER, 8-12' DEEP	EACH	1	\$	\$
<b>4.</b>	<b>FORCE MAIN FITTINGS</b>				
4.1	FITTINGS, 20" 45 DEGREE BEND	EACH	6	\$	\$
4.2	FITTINGS, 20" 11.25 DEGREE BEND	EACH	1	\$	\$
4.3	FITTINGS, 20"X18" REDUCER	EACH	3	\$	\$
4.4	FITTINGS, 18" 45 DEGREE BEND	EACH	9	\$	\$
4.5	FITTINGS, 18" 22.5 DEGREE BEND	EACH	7	\$	\$
4.6	FITTINGS, 18" 11.25 DEGREE BEND	EACH	5	\$	\$
4.7	FITTINGS, 16" 45 DEGREE BEND	EACH	19	\$	\$
4.8	FITTINGS, 16" 22.5 DEGREE BEND	EACH	7	\$	\$
4.9	FITTINGS, 16" 11.25 DEGREE BEND	EACH	3	\$	\$
<b>5.</b>	<b>WATER LINE FITTINGS</b>				
5.1	FITTINGS, 6" TEE W/ 2" TAPPED CAP	EACH	1	\$	\$
5.2	FITTINGS, 2" 45 DEGREE BEND	EACH	4	\$	\$
<b>6.</b>	<b>WATER LINE VALVES</b>				
6.1	6" GATE VALVE	EACH	1	\$	\$
6.2	2" GATE VALVE	EACH	1	\$	\$
<b>7.</b>	<b>WATER LINE FIRE HYDRANT ASSEMBLY</b>	EACH	1	\$	\$
<b>8.</b>	<b>CONNECTIONS TO EXISTING WATER LINES</b>				
8.1	TAPPING SLEEVE AND VALVE (14X6)	EACH	1	\$	\$
8.2	TAPPING SLEEVE AND VALVE (8X2)	EACH	1	\$	\$
<b>9.</b>	<b>WATER LINE SERVICE CONNECTION</b>	EACH	1	\$	\$

<b>10.</b>	<b>BORE AND JACK</b>				
10.1	30" STEEL CASING, BORE AND JACK, UNDER ROAD	LF	100	\$	\$
10.2	24" STEEL CASING, BORE AND JACK, UNDER ROAD	LF	240	\$	\$
<b>11.</b>	<b>HORIZONTAL DIRECTIONAL DRILLING (HDD)</b>				
11.1	24" HDPE DR 11, HDD ALONG VICTORY TRAIL RD, UNDER RAILROAD, SEGMENT 2	LF	1,300	\$	\$
11.2	18" HDPE DR 11 OR 16" fPVC DR 18, HDD UNDER BROAD RIVER, SEGMENT 3	LF	1,250	\$	\$
11.3	18" HDPE DR 11 OR 16" fPVC DR 18, HDD ALONG BLACKSBURG HWY, UNDER BUFFALO CREEK, SEGMENT 3	LF	510	\$	\$
<b>12.</b>	<b>AIR RELEASE/VACUUM COMBINATION VALVES</b>				
12.1	3" INFLOW, 2x1/8 OUTFLOW	EACH	33	\$	\$
<b>13.</b>	<b>PLUG VALVES</b>				
13.1	20" PLUG VALVE	EACH	1	\$	\$
13.2	18" PLUG VALVE	EACH	1	\$	\$
<b>14.</b>	<b>ANTI-SEEP COLLARS</b>	EACH	10	\$	\$
<b>15.</b>	<b>CONCRETE ENCASEMENT</b>	CY	19	\$	\$
<b>16.</b>	<b>ROCK REMOVAL</b>	CY	100	\$	\$
<b>17.</b>	<b>REPAVING</b>				
17.1	PAVEMENT REPAIR	SY	180	\$	\$
17.2	DRIVEWAY REPAIR	SY	420		
17.3	SIDEWALK REPAIR	SY	4	\$	\$
<b>18.</b>	<b>DEMOLITION OF THREE BUILDINGS AT CHEROKEE CHARTER SCHOOLS</b>	LS	1	\$	\$

**Base Bid Subtotal** (add Items 1 through 18) \$ \_\_\_\_\_

**Mobilization** (Not Greater than 3% of Base Bid Subtotal) \$ \_\_\_\_\_

**Total Base Bid** (add Base Bid Subtotal and Mobilization) \$ \_\_\_\_\_  
(figures)

(words)

5.01 ALTERNATIVES

ITEM #	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
19.	<b><u>ALTERNATIVE 1: REMOVAL OF SEGMENT 2 HORIZONTAL DIRECTIONAL DRILLING AND 24" DR 11 HDPE FORCE MAIN UNDER THE RAILROAD ALONG VICTORY TRAIL ROAD (HWY 329). INSTALLATION OF 18" DR 21 PVC FORCE MAIN WITH AN 18" DIP, RJ CLASS 250 PIPE HANGING ALONG THE HIGHWAY 329 BRIDGE OVER THE RAILROAD.</u></b>				
19.1	DEDUCT HDD, 24" HDPE DR 11, HDD ALONG VICTORY TRAIL RD, UNDER RAILROAD, SEGMENT 2	LF	-1,300	\$	- \$
19.2	DEDUCT PIPE, 20" DIAMETER FORCE MAIN, DIP, CLASS 250	LF	-64	\$	- \$
19.3	ADD PIPE, 18" DIAMETER FORCE MAIN, DIP, CLASS 250	LF	275	\$	\$
19.4	ADD PIPE, 18" DIAMETER FORCE MAIN, PVC, DR 21	LF	1075	\$	\$
19.5	ADD AIR RELEASE/VACCUM COMBINATION VALVES, 3" INFLOW, 2 x1/8 OUTFLOW	EACH	2	\$	\$
19.6	ADD REPAVING, DRIVEWAY REPAIR	SY	13.6	\$	\$
19.7	ADD FORCE MAIN FITTINGS, 18" 45 DEGREE BEND	EACH	8	\$	\$
19.8	ADD BRIDGE HANGING INFRASTRUCTURE	LS	1	\$	\$

**SUM OF ALTERNATIVE 1:** \$ \_\_\_\_\_

ITEM #	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
20.	<b>ALTERNATIVE 2: REMOVAL OF SEGMENT 3 HORIZONTAL DIRECTIONAL DRILLING AND 18" DR 11 HDPE FORCE MAIN UNDER BUFFALO CREEK ALONG BLACKSBURG HIGHWAY. INSTALLATION OF 16" DR 21 PVC FORCE MAIN WITH A 16" DIP, RJ CLASS 250 PIPE HANGING ALONG THE BLACKSBURG HIGHWAY BRIDGE OVER BUFFALO CREEK.</b>				
20.1	DEDUCT HDD, 18" HDPE DR 11, HDD ALONG BLACKSBURG HWY, UNDER BUFFALO CREEK, SEGMENT 3	LF	-510	\$	- \$
20.2	DEDUCT BORE AND JACK, 24" STEEL CASING, BORE AND JACK, UNDER ROAD	LF	-184	\$	- \$
20.3	ADD PIPE, 16" DIAMETER FORCE MAIN, DIP, CLASS 250	LF	371	\$	\$
20.4	ADD PIPE, 16" DIAMETER FORCE MAIN, PVC, DR 21	LF	129	\$	\$
20.5	ADD AIR RELEASE/VACCUM COMBINATION VALVES 3" INFLOW, 2 x1/8 OUTFLOW	EACH	2	\$	\$
20.6	ADD FORCE MAIN FITTINGS, 16" 45 DEGREE BEND	EACH	1	\$	\$
20.7	ADD FORCE MAIN FITTINGS, 16" 11.25 DEGREE BEND	EACH	1	\$	\$
20.8	ADD BRIDGE HANGING INFRASTRUCTURE	LS	1	\$	\$

**SUM OF ALTERNATIVE 2: \$ \_\_\_\_\_**

**ARTICLE 6 – TIME OF COMPLETION**

6.01. Bidder agrees that the Work covered by the section or sections included in the contract award will be completed within the following numbers of calendar days after the date when Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions. Completion shall mean completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions. The periods listed below shall run concurrently and shall apply regardless of the number of sections awarded to a Bidder.

Substantial Completion: 540 Days      Final Completion: 570 Days

6.02. Bidder accepts the provisions of the agreement as liquidated damages in the event of failure to complete the work within the time specified above.

## ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

- A Required Bid security;
- B. List of Subcontractors and Suppliers;
- C. Non-Collusion Affidavit;
- D. Bidder Qualification Items:
  - 1. A copy of financial statement certified by a Certified Public Accountant;
  - 2. Resume of previous five (5) years (minimum) of experience including project descriptions, owner's name and contact information, contract value, contract duration and actual duration;
  - 3. Resumes of project manager and project superintendent for the project;
  - 4. A summary of present commitments, durations, and owner's contact information;
  - 5. Experience Modification Rate for each of the three (3) most recent years;
  - 6. A copy of Contractor's license for South Carolina; and
  - 7. A copy of Contractor's active System for Award Management (SAM) registration.
  - 8. Total linear foot of installed pressurized force main and gravity sewer with diameters over the last ten (10) years.

## ARTICLE 8 – DEFINED TERMS

8.01. The terms used in this Bid have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: \_\_\_\_\_  
(Correct name of bidding entity)

By: \_\_\_\_\_  
(Signature)  
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

\_\_\_\_\_  
(Printed name)

Attest: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed name)

\_\_\_\_\_  
(Title)

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

Address for giving notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Number: (\_\_\_\_\_) \_\_\_\_\_

Fax Number: (\_\_\_\_\_) \_\_\_\_\_

Contact Name and e-mail address: \_\_\_\_\_

Contractor's License Number: \_\_\_\_\_

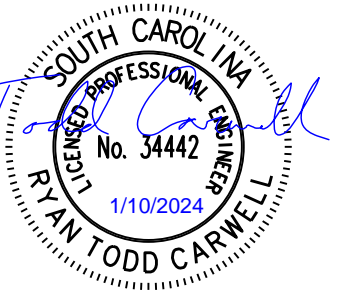
License Expiration Date : \_\_\_\_\_

Contractor's SAM Number: \_\_\_\_\_

End of Section



SUBCONSULTANT:



**GAFFNEY BOARD OF PUBLIC WORKS**

I-85 SEWER EXTENSION  
CONTRACT 1B:  
COLLECTIONS BROAD  
RIVER WWTP TO BEAR DEN  
SEWAGE PUMP STATION

3	1/10/24	REVISED PER ADDENDUM NO. 6
2	12/14/23	REVISED PER ADDENDUM NO. 5
1	9/25/23	REVISED FOR REBID

REVISIONS AND RECORD OF ISSUE

DESIGNED:	LDP
DETAILED:	VSK
CHECKED:	RTC
APPROVED:	RTC
DATE:	JANUARY 2024
PROJECT NO.:	410381

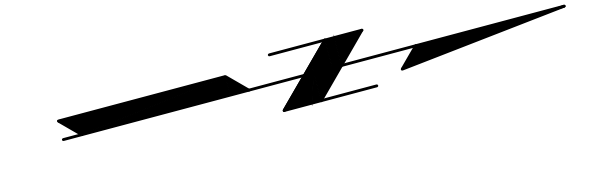
ALTERNATIVE 1  
FORCE MAIN

CIVIL

ALTERNATIVE 1 - HWY 329  
BRIDGE HANGING

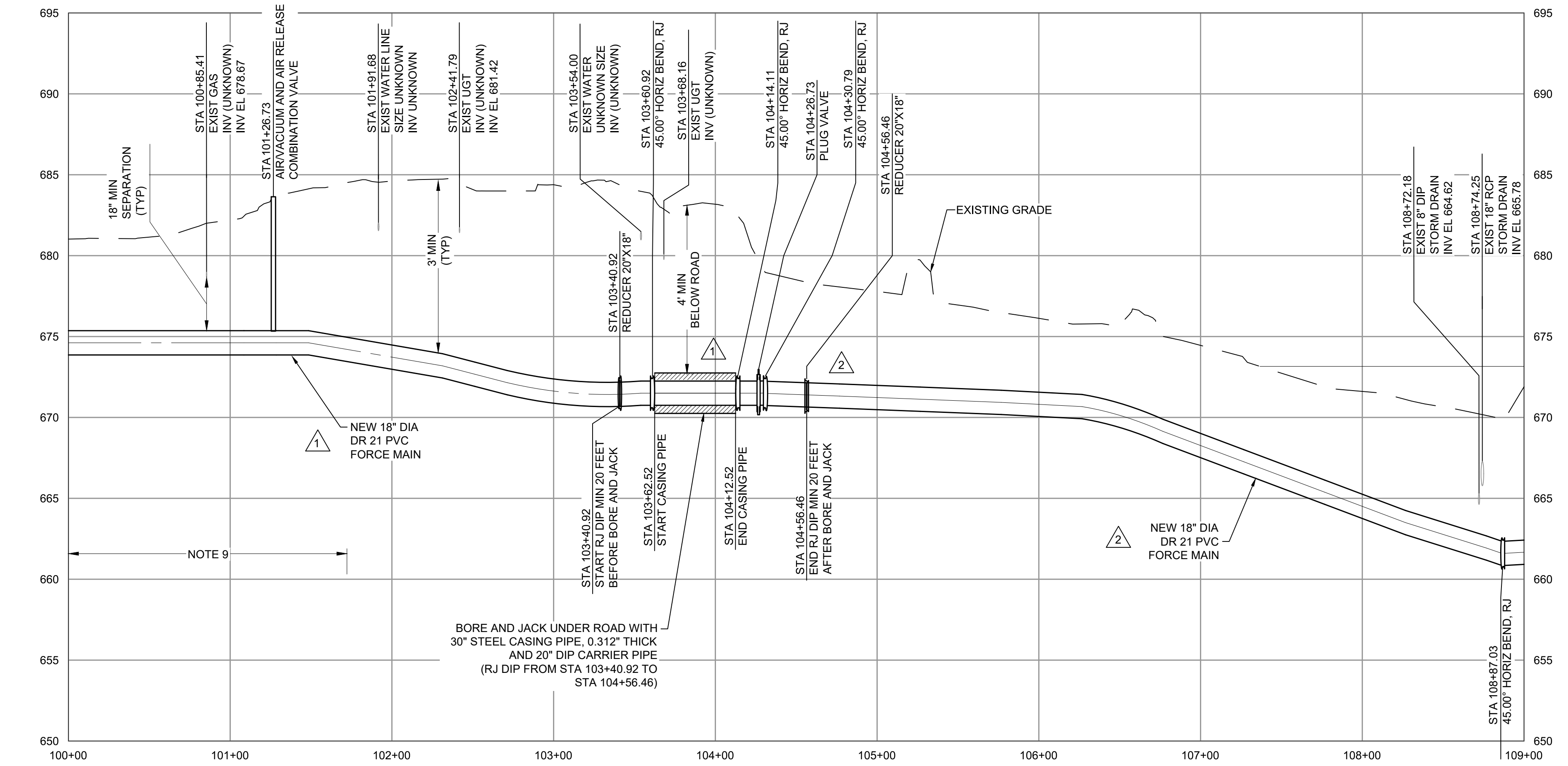
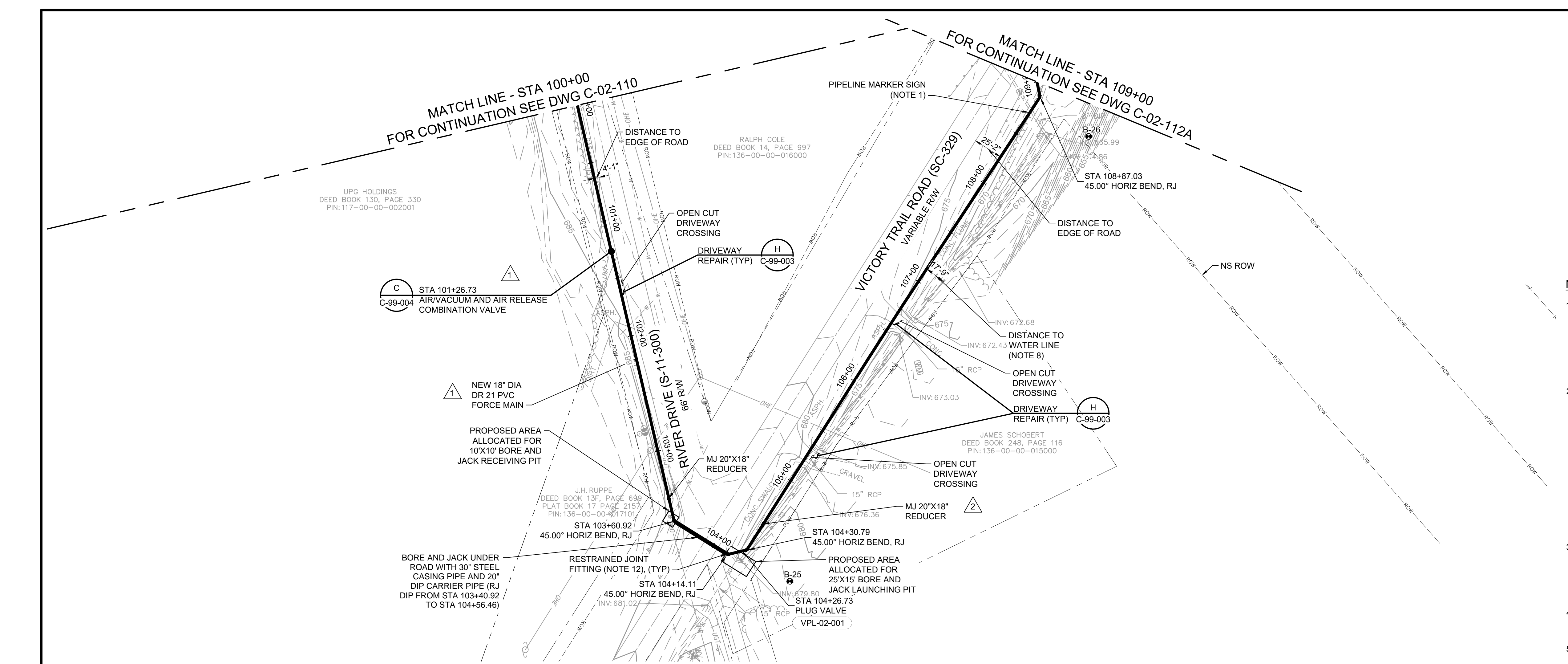
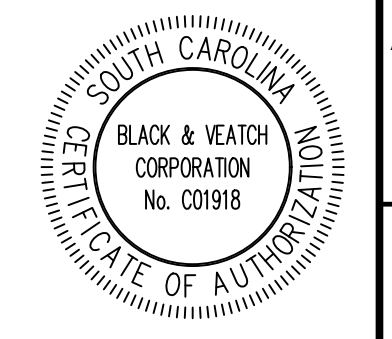
C-02-111A

46  
OF  
58



**NOTES:**

- PIPELINE SHALL BE MARKED WHERE IT INTERSECTS WITH NORFOLK SOUTHERN RIGHT-OF-WAY LINE IN ACCORDANCE WITH NORFOLK SOUTHERN'S NSCE-8 SPECIFICATIONS, INCLUDING NAME AND ADDRESS OF APPLICANT, CONTENTS OF PIPE, PRESSURE IN PIPE, AND EMERGENCY TELEPHONE NUMBER.
- THE DEPTH OF EXISTING UTILITIES SHOWN ON DRAWING IS INDICATIVE ONLY. CONTRACTOR SHALL PERFORM TEST PITS TO LOCATE UTILITIES AND CONFIRM DEPTHS. PRIOR TO START OF WORK, CONTRACTOR SHALL ADOPT MEANS AND METHODS TO PROTECT THESE UTILITIES AND MINIMIZE DISRUPTION OF SERVICES. SHOULD UTILITY RELOCATION BE REQUIRED, CONTRACTOR SHALL COORDINATE WITH THE RESPECTIVE UTILITY OWNER TO PERFORM THE RELOCATION. CONTRACTOR SHALL COORDINATE WITH ALL UTILITIES BEFORE START OF THE WORK AND MAINTAIN COORDINATION DURING CONSTRUCTION.
- CONTRACTOR SHALL COORDINATE WITH THE ELECTRIC UTILITY FOR CONSTRUCTION IN CLOSE VICINITY OF ELECTRIC POLES. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT TO PROTECT THE EXISTING ELECTRIC POLES DURING CONSTRUCTION.
- CONTRACTOR SHALL PROTECT THE EXISTING PROPERTY PINS, UTILITIES, AND ANY APPURTENANCES DURING CONSTRUCTION.
- CONTRACTOR SHALL UTILIZE CAUTION TO MINIMIZE DISRUPTION NEAR DRIVEWAYS AND INTERSECTIONS. CONTRACTOR SHALL RESTORE ALL SIGNS, DRIVEWAYS, AND ASPHALT TO BE REPLACED TO PRECONSTRUCTION CONDITIONS IN CASE OF DAMAGE DURING CONSTRUCTION.
- SEE SHEET C-99-0201 AND C-99-002 FOR EROSION AND SEDIMENT CONTROL DETAILS AND REQUIREMENTS.
- INSTALL DOUBLE POLYETHYLENE WRAP ON ANY DIP FITTING IN AREA NOTED, OR ALONG ENTIRE SECTION NOTED IF ALTERNATIVE OF DIP PIPE MATERIAL IS USED, WITH A MINIMUM OF 8 MIL THICKNESS. EXTEND MINIMUM 50' PAST END OF GAS LINE ON EITHER SIDE.
- APPROXIMATE WATER LINE LOCATION. DEPTH IS UNKNOWN. CONTRACTOR SHALL POTHOLE AND VERIFY LOCATION OF WATER LINE WHERE WATER LINE IS WITHIN 10 FEET HORIZONTAL SEPARATION AND INSTALL SEWER FORCE MAIN MINIMUM OF 18 INCHES BELOW WATER LINE.
- NOT USED.
- ALL FITTINGS SHALL BE RESTRAINED. RESTRAINED JOINT LENGTHS SHALL BE IN ACCORDANCE WITH DETAIL F ON SHEET C-99-003.
- REMOVE AND REPLACE BARRICADES/FENCING ON BRIDGE AS NECESSARY TO INSTALL PIPELINE.
- AS PIPE TRANSITIONS OFF BRIDGE, NO PENETRATIONS THROUGH HEADWALLS ARE ALLOWED. PIPE TO BE INSTALLED AROUND OR ABOVE HEADWALL WITH PROPER SUPPORT.
- CONTRACTOR SHALL FIELD VERIFY BRIDGE CONDITIONS AND RETURN EXISTING STRUCTURE COMPONENTS (HEADWALL, FENCE, ETC.) TO PRECONSTRUCTION CONDITIONS.



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SUBCONSULTANT:



**GAFFNEY BOARD OF PUBLIC WORKS**

I-85 SEWER EXTENSION  
CONTRACT 1B:  
COLLECTIONS BROAD  
RIVER WWTP TO BEAR DEN  
SEWAGE PUMP STATION

2	1/10/24	REVISED PER ADDENDUM NO. 6
1	9/25/23	REVISED FOR REBID
REVISIONS AND RECORD OF ISSUE		
DESIGNED:	LDP	
DETAILED:	VSK	
CHECKED:	RTC	
APPROVED:	RTC	
DATE:	JANUARY 2024	
PROJECT NO.:	410381	

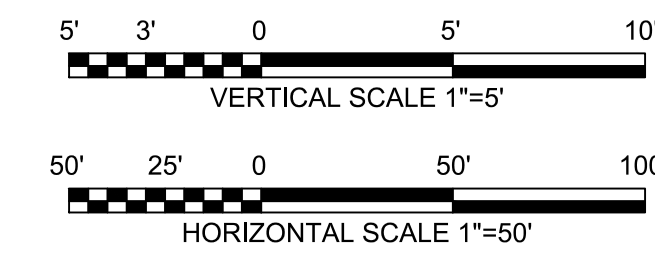
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ALTERNATIVE 1 - HWY 329  
BRIDGE HANGING

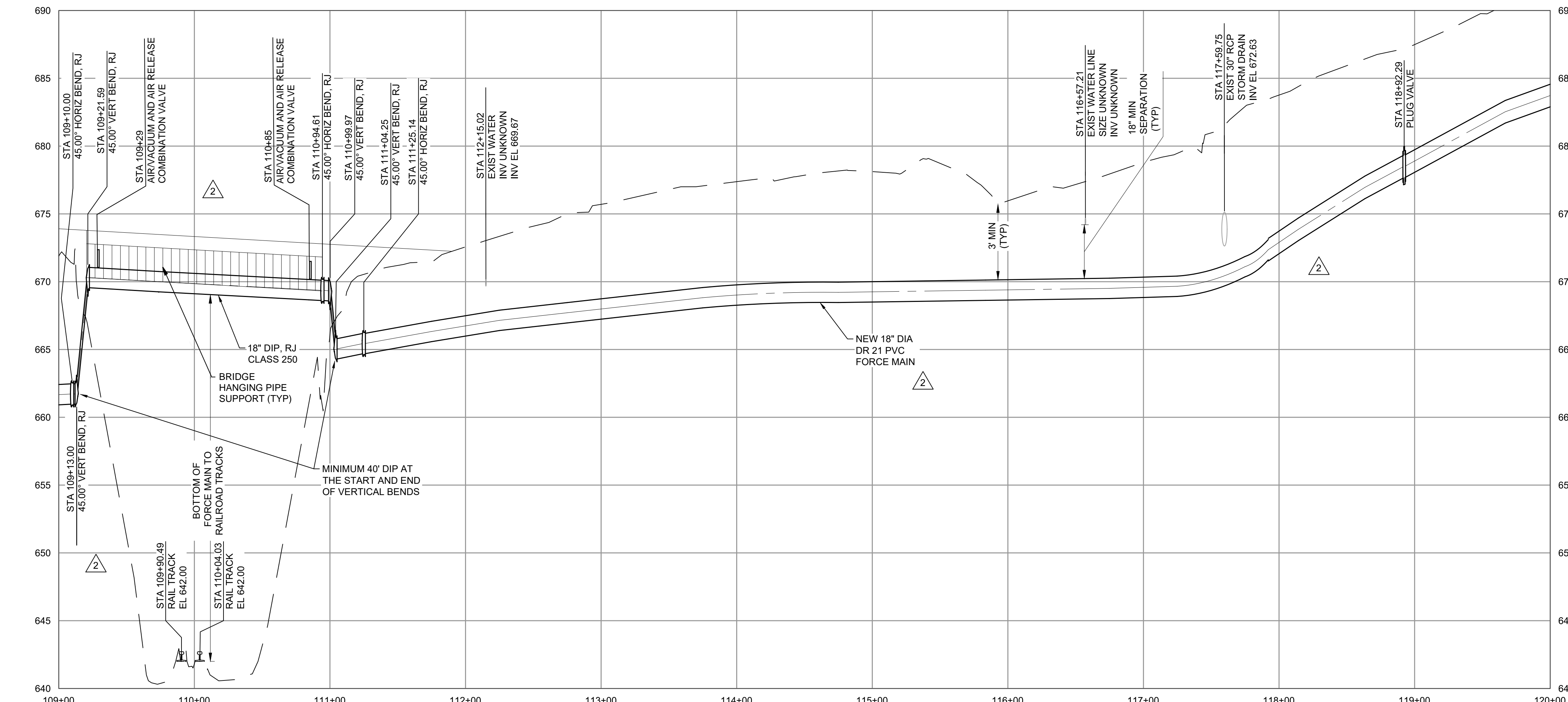
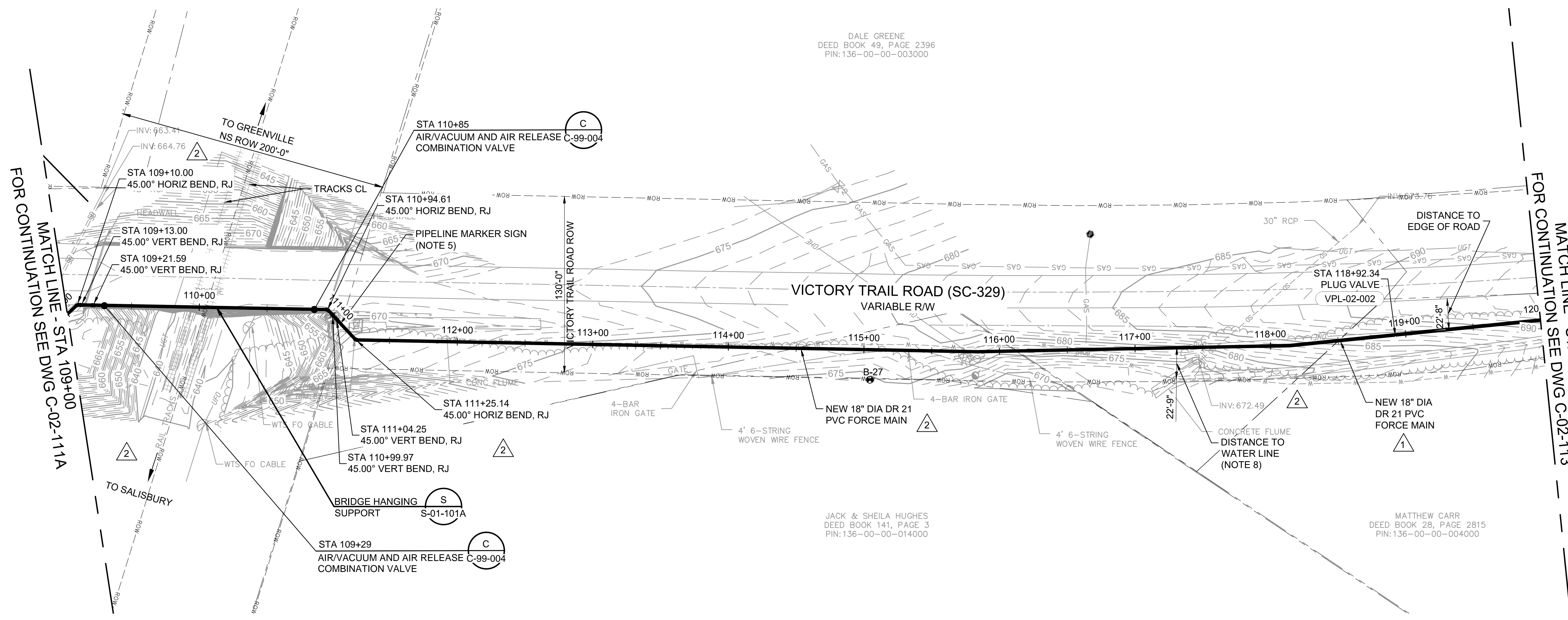
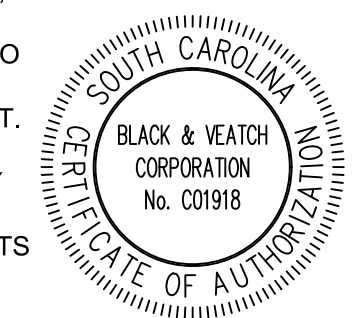
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**NOTES:**

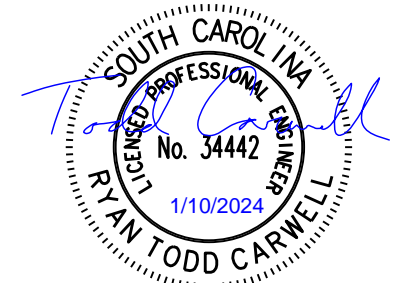
- COORDINATE WITH NORFOLK SOUTHERN FOR RAILROAD CROSSING PRIOR TO WORK INSIDE NORFOLK SOUTHERN'S RIGHT OF WAY.
- CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF NORFOLK SOUTHERN'S NSCE-8 SPECIFICATIONS.
- PIPELINE CROSSING TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH LAST APPROVED AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION SPECIFICATIONS FOR PIPELINES CONVEYING FLAMMABLE AND NON-FLAMMABLE SUBSTANCES.
- BLASTING NOT PERMITTED.
- PIPELINE SHALL BE MARKED WHERE IT INTERSECTS WITH NORFOLK SOUTHERN RIGHT-OF-WAY LINE IN ACCORDANCE WITH NORFOLK SOUTHERN'S NSCE-8 SPECIFICATIONS, INCLUDING NAME AND ADDRESS OF APPLICANT, CONTENTS OF PIPE, PRESSURE IN PIPE, AND EMERGENCY TELEPHONE NUMBER.
- THE DEPTH OF EXISTING UTILITIES SHOWN ON DRAWING IS INDICATIVE ONLY. CONTRACTOR SHALL PERFORM TEST PITS TO LOCATE UTILITIES AND CONFIRM DEPTHS, PRIOR TO START OF WORK. CONTRACTOR SHALL ADOPT MEANS AND METHODS TO PROTECT THESE UTILITIES AND MINIMIZE DISRUPTION OF SERVICES. SHOULD UTILITY RELOCATION BE REQUIRED, CONTRACTOR SHALL COORDINATE WITH THE RESPECTIVE UTILITY OWNER TO PERFORM THE RELOCATION. CONTRACTOR SHALL COORDINATE WITH ALL UTILITIES BEFORE START OF THE WORK AND MAINTAIN COORDINATION DURING CONSTRUCTION.
- CONTRACTOR SHALL COORDINATE WITH THE ELECTRIC UTILITY FOR CONSTRUCTION IN CLOSE VICINITY OF ELECTRIC POLES. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT TO PROTECT THE EXISTING ELECTRIC POLES DURING CONSTRUCTION.
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SUBCONSULTANT:



**GAFFNEY BOARD OF PUBLIC WORKS**

I-85 SEWER EXTENSION  
CONTRACT 1B:  
COLLECTIONS BROAD  
RIVER WWTP TO BEAR DEN  
SEWAGE PUMP STATION

3 1/10/24 REVISED PER ADDENDUM NO. 6  
REVISIONS AND RECORD OF ISSUE

DESIGNED: LDP  
DETAILED: VSK  
CHECKED: RTC  
APPROVED: RTC  
DATE: JANUARY 2024

PROJECT NO.: 410381

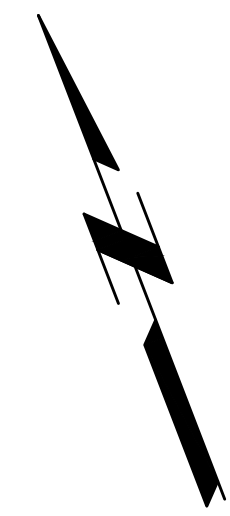
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ALTERNATIVE 2 -  
BLACKSBURG HIGHWAY  
BRIDGE HANGING

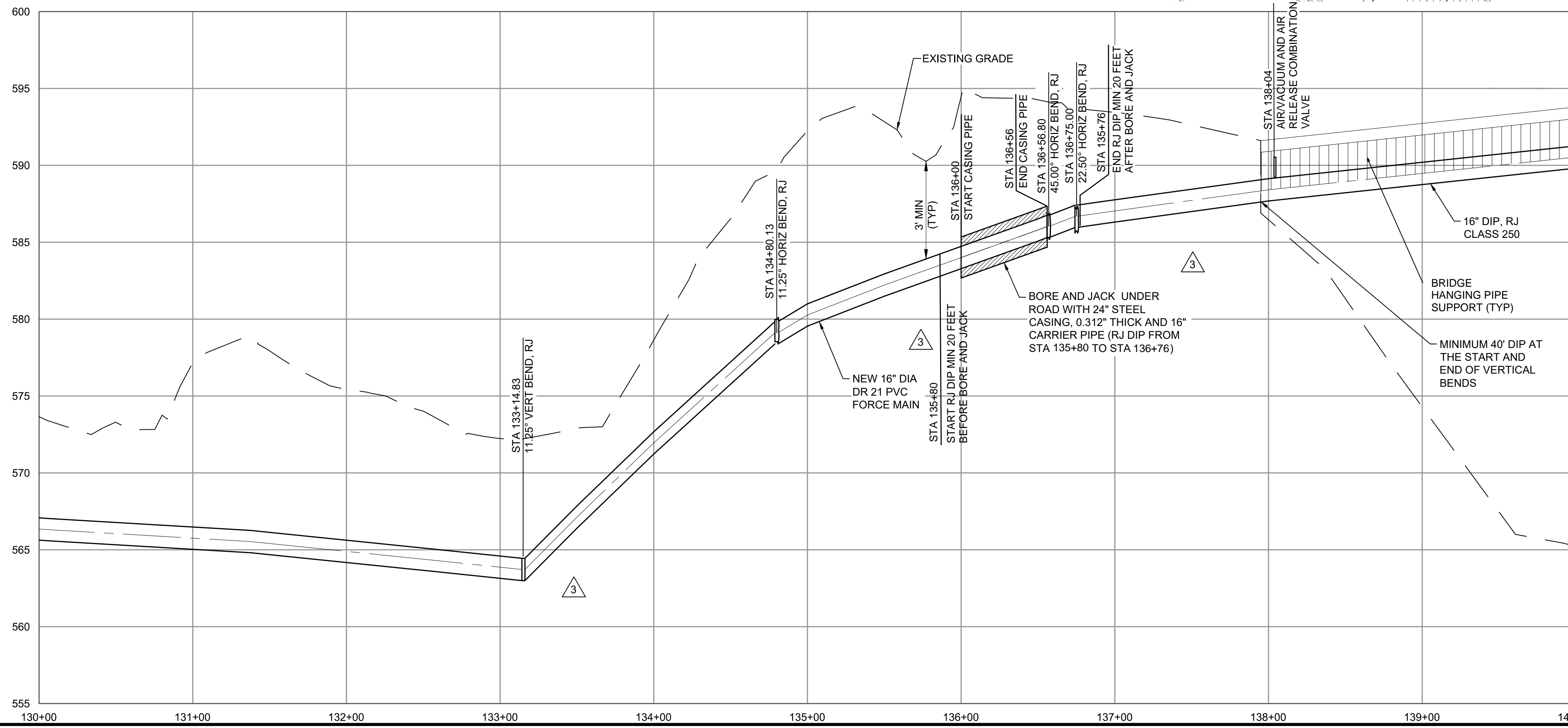
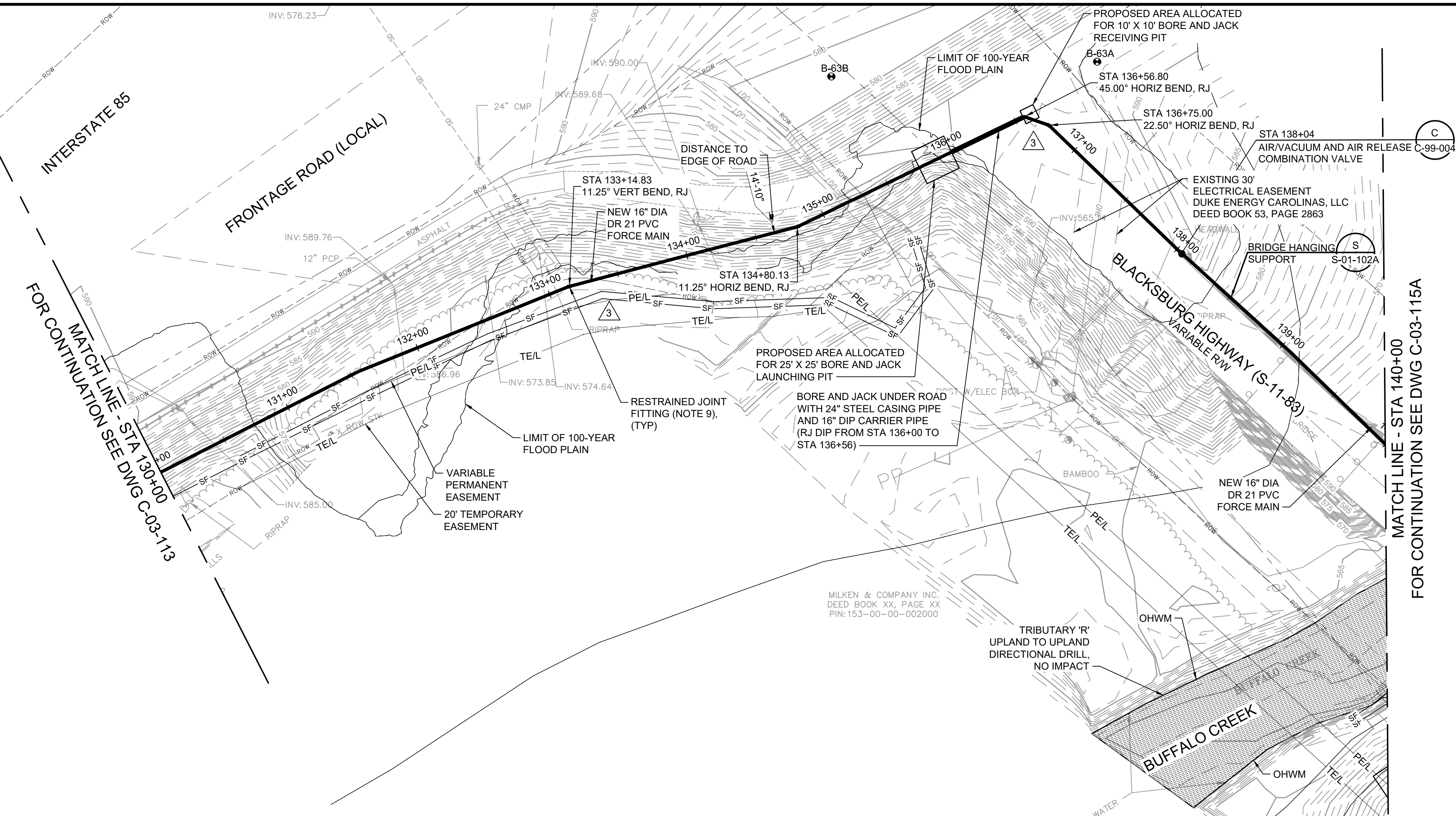
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**NOTES:**

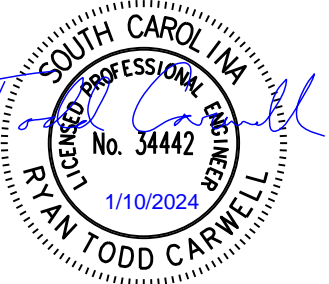
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SUBCONSULTANT:



**GAFFNEY BOARD OF PUBLIC WORKS**

I-85 SEWER EXTENSION  
CONTRACT 1B:  
COLLECTIONS BROAD  
RIVER WWTP TO BEAR DEN  
SEWAGE PUMP STATION

3	1/10/24	REVISED PER ADDENDUM NO. 6
2	11/8/23	REVISED PER ADDENDUM NO. 3

REVISIONS AND RECORD OF ISSUE

DESIGNED:	LDP
DETAILED:	VSK
CHECKED:	RTC
APPROVED:	RTC
DATE:	JANUARY 2024
PROJECT NO.:	410381

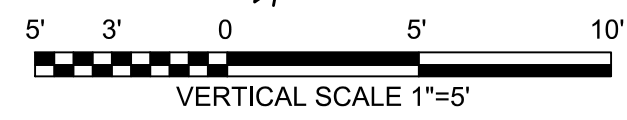
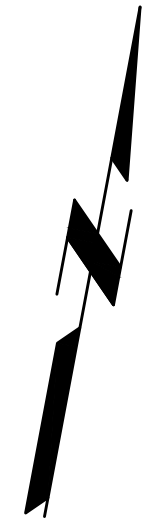
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ALTERNATIVE 2 -  
BLACKSBURG HIGHWAY  
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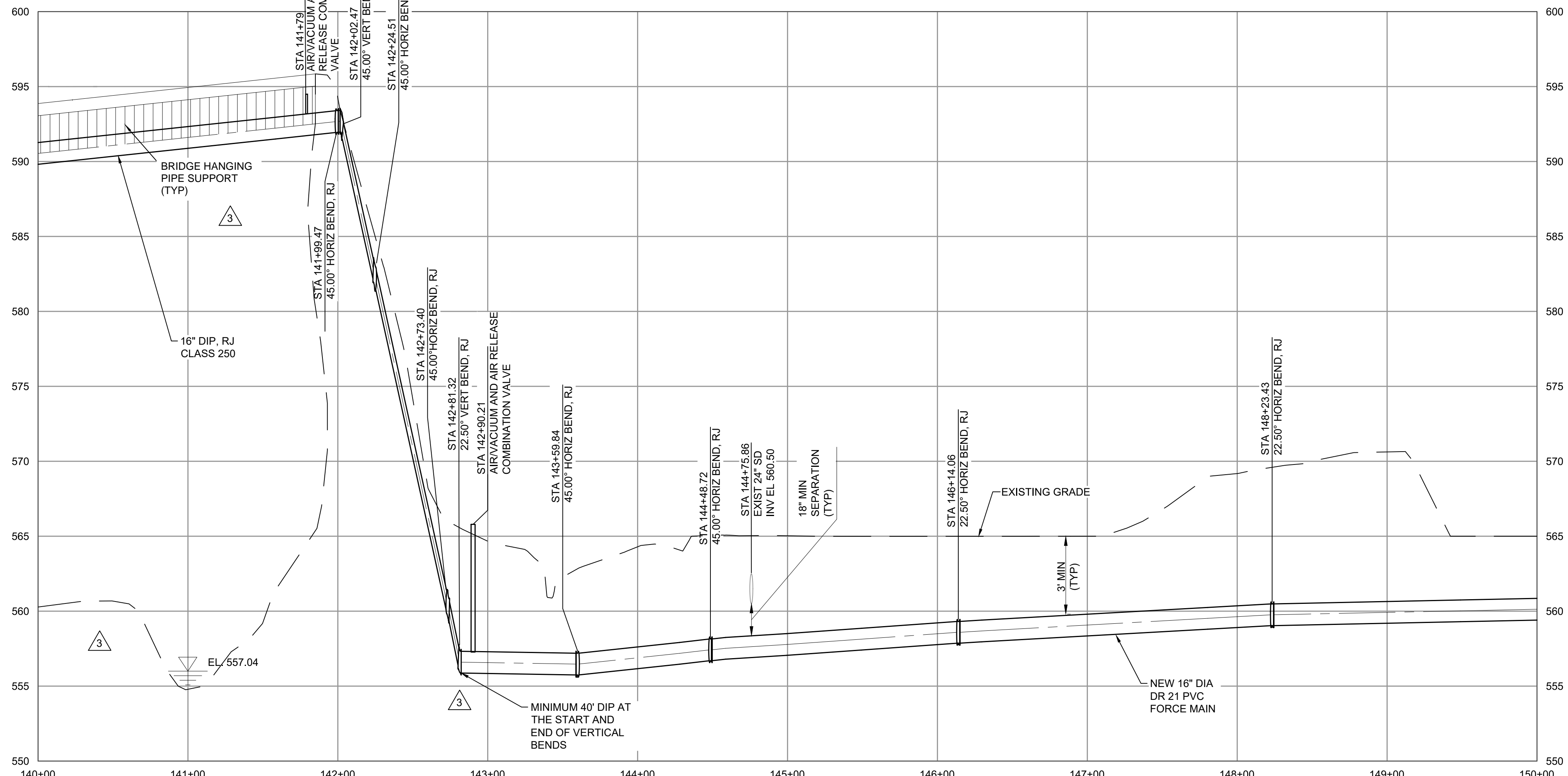
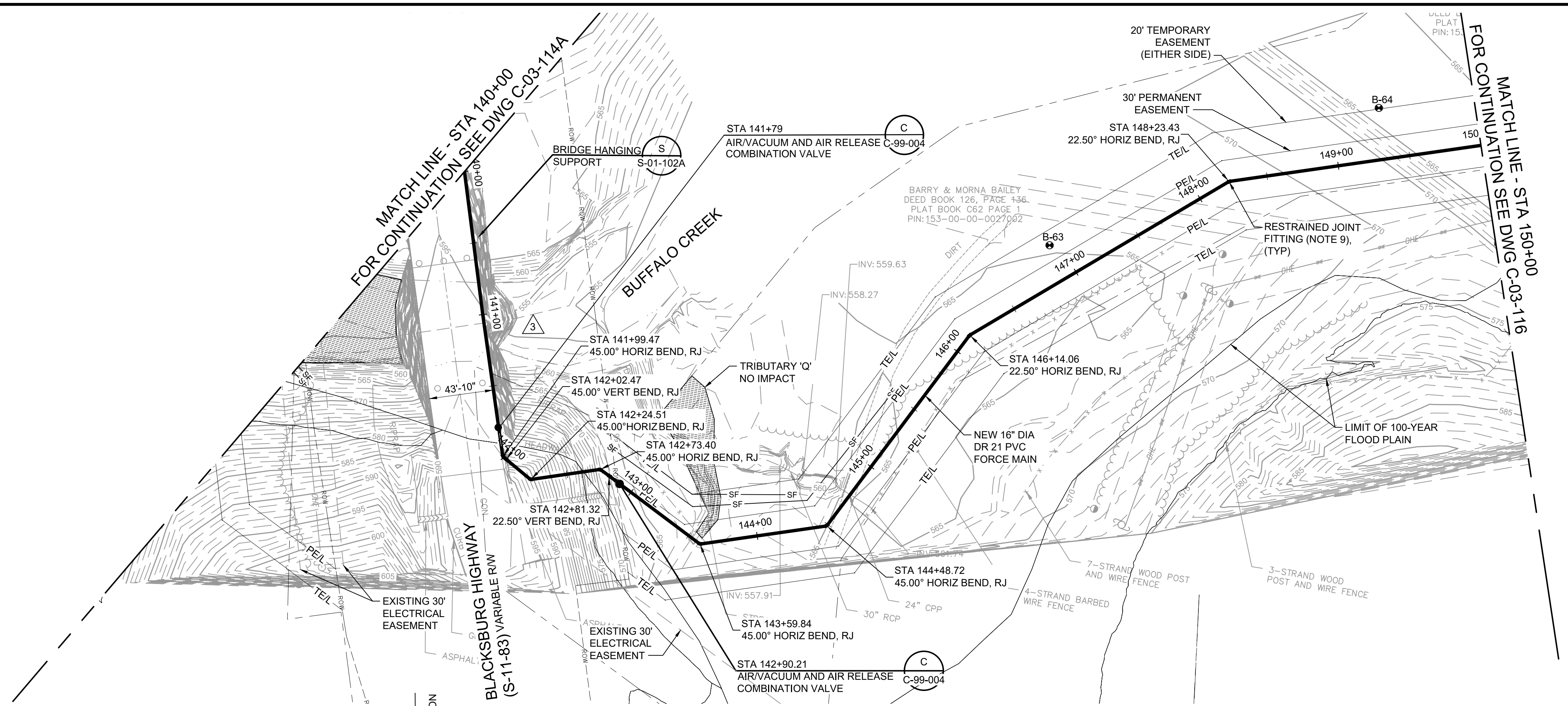
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**STRUCTURAL NOTES**

**GENERAL**

1. THE APPLICABLE BUILDING CODE IS INDICATED ON THE LOADING CRITERIA DRAWING.
2. THE REQUIREMENTS INDICATED ON THIS SHEET ARE INTENDED AS A BASIC SUMMARY OF THE MATERIAL AND CONSTRUCTION REQUIREMENTS FOR THE PROJECT. ADDITIONAL, MORE STRINGENT REQUIREMENTS ARE GIVEN IN THE PROJECT DETAIL DRAWINGS AND SPECIFICATIONS.
3. ALL STRUCTURAL RELATED SHOP DRAWINGS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO CONSTRUCTION.
4. STRUCTURES MAY BE BUOYANT WHEN EMPTY DURING CONSTRUCTION. CONTRACTOR SHALL PROTECT STRUCTURES AGAINST FLOTATION UNTIL CONSTRUCTION IS COMPLETE.
5. STRUCTURES MAY BE UNSTABLE UNTIL THEY ARE CONSTRUCTED IN THEIR ENTIRETY. CONTRACTOR IS RESPONSIBLE FOR DESIGNING TEMPORARY STRUCTURAL SUPPORTS TO RESIST WIND LOADS, CONSTRUCTION LOADS, AND ANY OTHER TEMPORARY CONDITIONS THAT MAY OCCUR DURING CONSTRUCTION, IN ORDER TO MAINTAIN STABILITY OF THE CONSTRUCTION WORK. ANCHORS FOR CONTRACTOR'S TEMPORARY SUPPORT SYSTEMS THAT ATTACH TO CONCRETE OR MASONRY SHALL BE LOCATED TO AVOID DAMAGING EMBEDDED REINFORCEMENT OR UTILITIES.

**CAST-IN-PLACE CONCRETE**

1. A MINIMUM 28 DAY COMPRESSIVE STRENGTH ( $f_c$ ) OF 4,000 PSI WAS UTILIZED IN THE DESIGN OF STRUCTURAL REINFORCED CONCRETE. SEE SPECIFICATIONS FOR CONSTRUCTION STRENGTH REQUIREMENTS.
2. THE LOCATION OF ALL CONSTRUCTION JOINTS AND OTHER TYPES OF JOINTS, OTHER THAN THOSE SPECIFIED OR SHOWN ON THE PLANS, SHALL BE ACCEPTABLE TO THE ENGINEER PRIOR TO PLACING CONCRETE.

**REINFORCING STEEL**

1. ALL REINFORCING BAR SHALL BE GRADE 60, DEFORMED, ASTM A615, UNLESS NOTED OTHERWISE.
2. DIMENSIONS TO REINFORCING BARS ARE TO BAR CENTERLINES, UNLESS NOTED OTHERWISE. BAR COVER IS THE CLEAR DISTANCE BETWEEN THE BAR AND THE CONCRETE SURFACE.
3. NO WELDING OF REINFORCING BARS SHALL BE PERMITTED UNLESS APPROVAL IS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION.
4. FOR CONCRETE SLABS THAT HAVE A SLOPING TOP FACE, THE TOP LAYERS OF REINFORCEMENT SHALL BE PLACED ON A SIMILAR SLOPE SO THAT SPECIFIED COVER IS MAINTAINED.

**POST-INSTALLED ANCHORS**

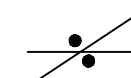

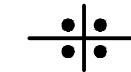
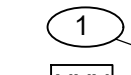
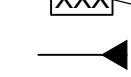

1. POST-INSTALLED ANCHORS SHALL INCLUDE ADHESIVE ANCHORS (THREADED RODS, BOLTS OR REINFORCING BARS), EXPANSION ANCHORS, AND UNDERCUT ANCHORS INSTALLED INTO HARDENED CONCRETE OR MASONRY. SEE THE ANCHORAGE IN CONCRETE AND MASONRY SPECIFICATION SECTION FOR ADDITIONAL REQUIREMENTS.
2. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE INDICATED ON THE DRAWINGS. CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER PRIOR TO USING POST-INSTALLED ANCHORS FOR MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.
3. CARE SHALL BE TAKEN TO AVOID CONFLICTS WITH EXISTING REINFORCING STEEL AND OTHER EMBEDDED ITEMS WHEN DRILLING HOLES. REINFORCING BARS SHALL NOT BE DAMAGED DURING DRILLING OR ANCHOR INSTALLATION. HOLES SHALL BE DRILLED AND CLEANED PER THE PRODUCT MANUFACTURER'S INSTRUCTIONS. ANCHORS SHALL BE INSTALLED PER THE PRODUCT MANUFACTURER'S INSTRUCTIONS AT NOT LESS THAN MINIMUM EDGE DISTANCES AND/OR SPACING INDICATED IN THE MANUFACTURER'S LITERATURE.
4. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTED IN THE SPECIFICATION OR INDICATED ON THE DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL. PRODUCT ICC-ESR EVALUATION REPORTS SHALL BE INCLUDED WITH THE SUBMITTAL PACKAGE. IF REQUESTED, CALCULATIONS PREPARED BY A REGISTERED PROFESSIONAL ENGINEER USING METHODS AND PROCEDURES REQUIRED BY THE BUILDING CODE MAY BE REQUIRED AS PART OF THE SUBMITTAL PACKAGE.
5. UNLESS NOTED OTHERWISE, THE MINIMUM EMBEDMENT PROVIDED FOR ADHESIVE ANCHORED REINFORCING BARS SHALL DEVELOP THE FULL TENSILE STRENGTH OF THE BAR.
6. SPECIAL INSPECTION WILL BE PROVIDED FOR ALL POST-INSTALLED ANCHORS.

**STRUCTURAL STEEL**


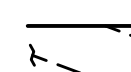
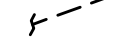
1. ROLLED WIDE FLANGE SHAPES SHALL HAVE A MINIMUM YIELD STRENGTH OF 50 KSI; CHANNELS, PLATES, AND ANGLES A MINIMUM OF 36 KSI; STRUCTURAL PIPES A MINIMUM OF 35 KSI; ROUND STRUCTURAL TUBES A MINIMUM OF 46 KSI; RECTANGULAR STRUCTURAL TUBES A MINIMUM OF 50 KSI.
2. WELDING SHALL BE DONE WITH A FILLER MATERIAL HAVING A MINIMUM TENSILE STRENGTH OF 70 KSI.
3. BOLTED CONNECTIONS SHALL USE 3/4" DIA ASTM F3125, GRADE A325 BOLTS OR GRADE F1852 TWIST-OFF BOLTS, WITH THE THREADS EXCLUDED FROM THE SHEAR PLANE, UNLESS NOTED OTHERWISE.
4. CARBON STEEL OR GALVANIZED STEEL ANCHOR RODS AND ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GRADE 36.
5. HOLES FOR ANCHOR RODS AND ANCHOR BOLTS IN COLUMN BASE PLATES USING ASTM F844 OR F436 FLAT CIRCULAR WASHERS SHALL BE AS FOLLOWS:  
BOLTS/RODS 3/4" TO 1" - 5/16" OVERSIZE  
BOLTS/RODS 1" TO 2" - 1/2" OVERSIZE  
BOLTS/RODS OVER 2" - 1" OVERSIZE

AT THE CONTRACTORS OPTION, OVERSIZE HOLES LARGER THAN THOSE LISTED ABOVE MAY BE USED, PROVIDED THAT 3/8" PLATE WASHERS ARE USED WITH STANDARD HOLES AND FIELD WELDED WITH A 5/16" FILLET WELD TO THE BASE PLATE ALONG A MIN OF 3 SIDES.

**STEEL LEGEND**

-  INDICATES TWO BOLT ATTACHMENT OF HORIZONTAL BRACING TO UNDERSIDE OF BEAM, SHIM AS REQUIRED
-  INDICATES ANGLE OR PLATE TO BE WELDED ON THREE SIDES
-  INDICATES FOUR BOLT ATTACHMENT OF MONORAIL TO UNDERSIDE OF SUPPORT BEAM, SPACER OR STANDOFF DETAIL AS REQUIRED
-  INDICATES NONSTANDARD FRAMING CONNECTION
-  INDICATES HORIZONTAL OR VERTICAL BRACING CONNECTION DETAIL
-  INDICATES MOMENT CONNECTION

VERTICAL BRACING IS SHOWN ON PLAN THUS:

-  EXTENDING UP FROM THE ELEVATION INDICATED
-  EXTENDING DOWN FROM THE ELEVATION INDICATED
-  EXTENDING UP AND DOWN FROM THE ELEVATION INDICATED

**EXCAVATION, BACKFILL, AND FOUNDATIONS**

1. FOUNDATION CONSTRUCTION SHALL NOT BEGIN UNTIL ANY REQUIRED SPECIAL INSPECTION HAS BEEN COMPLETED AND THE CONTRACTOR NOTIFIED TO PROCEED.
2. TO FACILITATE SCHEDULING, AT LEAST 48 HOURS ADVANCE NOTICE SHALL BE GIVEN TO THE ENGINEER PRIOR TO THE REQUIRED INSPECTIONS.
3. UNLESS NOTED OTHERWISE, BACKFILL SHALL NOT BE PLACED AGAINST WALLS WHICH SUPPORT A CONCRETE SLAB OR WALKWAY UNTIL THE TOP SLAB OR WALKWAY HAS BEEN PLACED IN ITS ENTIRETY AND ALL CONCRETE HAS REACHED THE SPECIFIED DESIGN STRENGTH.
4. OVER-EXCAVATION OF SOIL, OR OVER-BREAKING OF ROCK, THAT WOULD RESULT IN A STRUCTURAL CONCRETE THICKNESS GREATER THAN INDICATED ON THE DRAWINGS SHALL BE CLASSIFIED AS UNAUTHORIZED EXCAVATION. CONTRACTOR SHALL SELECT ONE OF TWO METHODS TO ADDRESS UNAUTHORIZED EXCAVATION.
  - REPLACE UNAUTHORIZED EXCAVATION MATERIAL WITH LEAN CONCRETE THAT IS PLACED SEPARATELY FROM THE STRUCTURAL CONCRETE INDICATED ON THE DRAWINGS. CONTRACTOR WILL RECEIVE NO ADDITIONAL PAYMENT FOR THE LEAN CONCRETE.
  - REPLACE UNAUTHORIZED EXCAVATION MATERIAL WITH STRUCTURAL CONCRETE THAT IS PLACED MONOLITHICALLY WITH THE STRUCTURAL CONCRETE INDICATED ON THE DRAWINGS, CREATING AN ENLARGED SECTION. CONTRACTOR SHALL NOTIFY ENGINEER FOR DIRECTION PRIOR TO PERFORMING THIS WORK. THE INCREASED CONCRETE THICKNESS MAY REQUIRE ADDITIONAL REINFORCEMENT AND/OR OTHER DESIGN MODIFICATIONS. IF THE INCREASED CONCRETE THICKNESS EXCEEDS 36 INCHES, ENGINEER MAY REQUIRE CONTRACTOR TO IMPLEMENT MASS CONCRETE HEAT MITIGATION PROCEDURES. CONTRACTOR WILL RECEIVE NO ADDITIONAL PAYMENT FOR EXTRA STRUCTURAL CONCRETE, ADDITIONAL REINFORCEMENT, OTHER DESIGN MODIFICATIONS, OR MASS CONCRETING PROCEDURES.
5. FOUNDATION DESIGN IS BASED UPON THE INFORMATION AND RECOMMENDATION INCLUDED IN THE REPORT OF GEOTECHNICAL EXPLORATION - DRAFT, DATED APRIL 25, 2022, PREPARED BY BLE, PROJECT NO J22-17459-01, 9751 SOUTHERN PINE BOULEVARD, CHARLOTTE, NC, 28273.
6. MINIMUM BEARING DEPTH FOR FROST PROTECTION OF FOUNDATION AND SLAB ON GRADE IS 1'-6".
7. ALLOWABLE BEARING PRESSURES FOR ALL STRUCTURES= 3000 PSF NET FFF.

**SPECIAL INSPECTIONS**

1. CODE REQUIRED SPECIAL INSPECTIONS AND TESTS WILL BE CONDUCTED BY APPROVED AGENCIES EMPLOYED BY THE OWNER IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE.
2. THE STATEMENT OF SPECIAL INSPECTIONS WILL BE PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE DURING CONSTRUCTION.
3. EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND OR SEISMIC FORCE RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM OR A WIND OR SEISMIC RESISTING COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT.
4. SEE THE QUALITY CONTROL SECTION AND THE CODE REQUIRED SPECIAL INSPECTIONS AND PROCEDURES SECTION OF THE SPECIFICATIONS FOR FURTHER CLARIFICATION OF RESPONSIBILITIES.

**DELEGATED DESIGN**

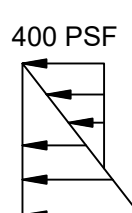
1. THE FOLLOWING ITEMS ARE IDENTIFIED IN THE DRAWINGS AND SPECIFICATIONS AS BEING DESIGNED AND SEALED BY OTHERS. SUBMITTALS FOR THESE ITEMS SHALL BE PREPARED BY THE SUPPLIERS AND SUBMITTED TO ENGINEER AND CODE OFFICIAL FOR REVIEW.

- SECTION 01611 - EQUIPMENT AND NON-STRUCTURAL COMPONENTS.
- SECTION 05550 - EQUIPMENT ANCHORAGE.
- SECTION 013122 - METAL BUILDING SYSTEMS.

**BASIC LOADING CRITERIA**

THE APPLICABLE BUILDING CODE IS THE 2021 SOUTH CAROLINA BUILDING CODE, BASED ON THE 2021 INTERNATIONAL BUILDING CODE.

1. DEAD LOAD ..... CALCULATED
2. LIVE LOADS:  
OPERATING AND PROCESS FLOORS..... 150 PSF  
STAIRS, SERVICE PLATFORMS & LANDINGS..... 100 PSF  
ELECTRICAL AND CONTROL ROOM FLOORS..... 250 PSF  
ALL FLOORS NOT INDICATED.....100 PSF  
ROOF.....20 PSF(UNREDUCED)
3. LATERAL EARTH PRESSURE (EQUIVALENT FLUID PRESSURE)  
NON-SATURATED..... 64 PSF/FT  
SATURATED..... 93 PSF/FT
4. LATERAL SURCHARGE..... EQUIVALENT TO 2 FEET OF SOIL WHERE ADJACENT TO A ROADWAY
5. COMPACTIVE SURCHARGE LOAD..... 400 PSF AT FINISH GRADE ELEVATION DECREASING LINEARLY AT SAME RATE AS BACKFILL LOAD INCREASES. FOR WALLS 8 FEET OR LESS IN HEIGHT, USE CRITERIA 4 ABOVE AS COMPACTIVE SURCHARGE.
6. HYDROSTATIC FLUID PRESSURE..... 63 PSF/FT
7. SNOW LOAD:  
GROUND SNOW LOAD ( $P_g$ ).....10 PSF  
SNOW EXPOSURE FACTOR ( $C_e$ )..... 1.0
8. SEISMIC LOAD:  
MAPPED MCE SHORT PERIOD SPECTRAL RESPONSE ACCELERATION ( $S_s$ )..... 0.237g  
MAPPED MCE ONE SECOND PERIOD SPECTRAL RESPONSE ACCELERATION ( $S_1$ )..... 0.087g  
DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS ( $S_{ps}$ )..... 0.253g  
DESIGN SPECTRAL RESPONSE ACCELERATION AT ONE SECOND PERIOD ( $S_{sp}$ )..... 0.140g  
SITE CLASS.....D
9. WIND LOAD:  
BASIC (ULTIMATE) DESIGN WIND SPEED..... 117 MPH  
ALLOWABLE STRESS (NOMINAL) DESIGN WIND SPEED..... 92 MPH  
GROUND ELEVATION FACTOR ( $K_g$ )..... 1.0  
EXPOSURE..... C
10. 100 YEAR FLOOD ELEVATION.....SITES LOCATED OUTSIDE OF 100 YEAR FLOOD PLAIN. REFER TO C-07-101 AND C-08-101 FOR FLOOD PLAIN LIMITS.



Black & Veatch Corporation  
Greenville, South Carolina

SUBCONSULTANT:



**GAFFNEY BOARD OF PUBLIC WORKS**

I-85 SEWER EXTENSION  
CONTRACT 1B:  
COLLECTIONS BROAD  
RIVER WWTP TO BEAR DEN  
SEWAGE PUMP STATION

1/10/24 (REVISED PER ADDENDUM NO. 6)  
REVISIONS AND RECORD OF ISSUE

DESIGNED: JCG  
DETAILED: VMS  
CHECKED: ML  
APPROVED: RAZ  
DATE: JANUARY 2024

PROJECT NO.: 410381

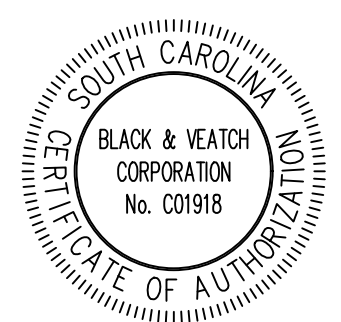
GENERAL

STRUCTURAL

STANDARD STRUCTURAL  
NOTES

S-00-001

56  
OF  
58

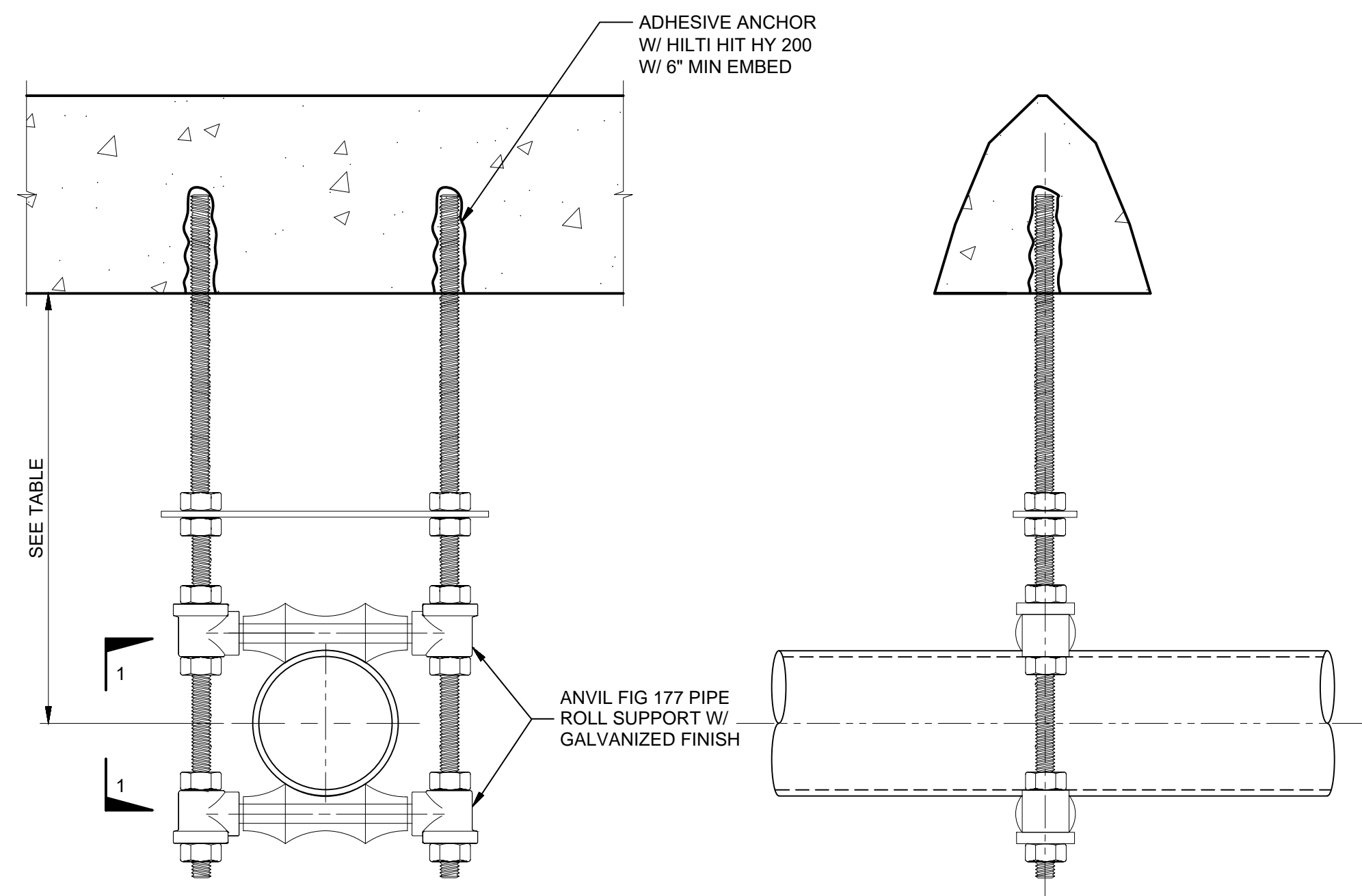


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**SECTION 1**

BRIDGE	MAXIMUM STRENGTH LEVEL LOADS		HANGER LENGTH (FT)
	VERTICAL (LBS) (SEE NOTE 3)	SHEAR (TRANSVERSE TO PIPE) (LBS)	
HWY 329 BRIDGE	1395	515	2.5'

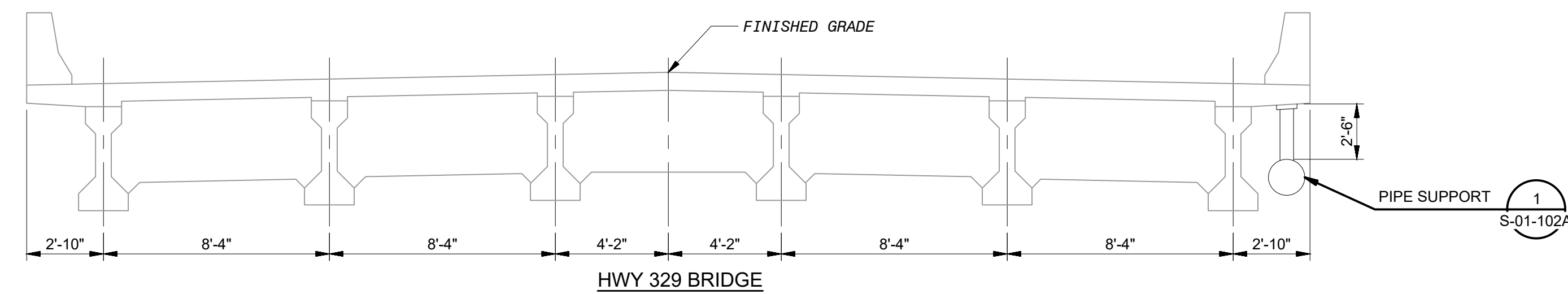
**NOTES:**

- SUPPORTS TO BE INSTALLED TO UNDERSIDE OF BRIDGE SLAB.
- MAXIMUM SPACING BETWEEN SUPPORTS SHALL BE 5'-0".
- MOST UPSTREAM PIPE SUPPORT WILL ALSO SUPPORT A VALVE WITH A MAXIMUM ADDITIONAL WEIGHT OF 100 LBS

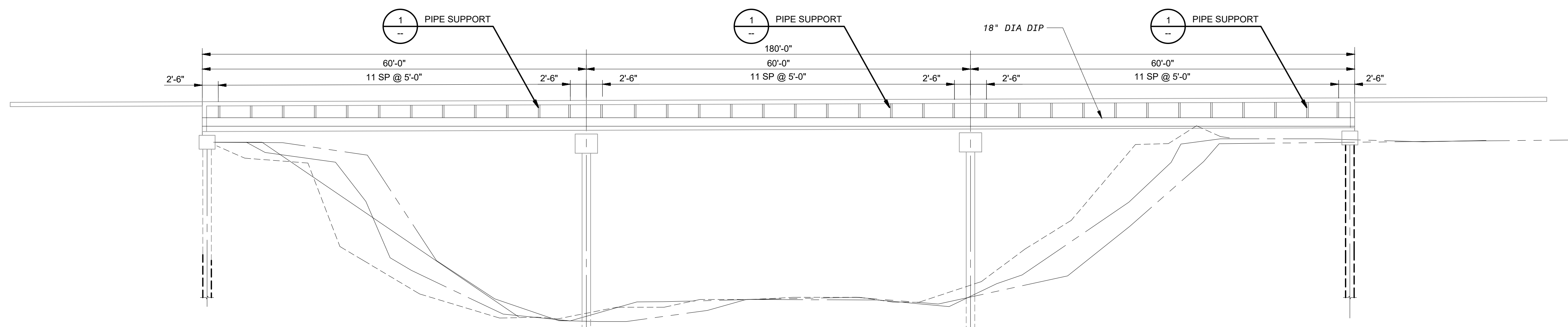
**1 BRIDGE HANGING PIPE SUPPORT**  
S-01-102A 1 1/2" = 1'-0"



**HWY 329 BRIDGE PLAN VIEW**  
NO SCALE



**2 SECTION**  
S-01-102A NO SCALE



**HWY 329 BRIDGE ELEVATION VIEW**  
**A ELEVATION**  
S-01-102A NO SCALE

1/10/24 REVISED PER ADDENDUM NO. 6  
REVISIONS AND RECORD OF ISSUE

DESIGNED: SC  
DETAILED: VVS  
CHECKED: JCG  
APPROVED: RAZ  
DATE: JANUARY 2024

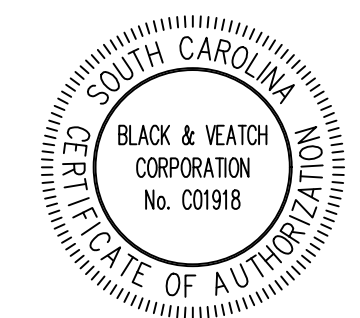
PROJECT NO.: 410381

**FORCE MAIN AND GRAVITY SEWER**

**STRUCTURAL**

**HWY 329 BRIDGE PIPE SUPPORT DETAILS**

**S-01- 101A** 57  
58



SUBCONSULTANT:



**GAFFNEY BOARD OF PUBLIC WORKS**

I-85 SEWER EXTENSION  
CONTRACT 1B:  
COLLECTIONS BROAD  
RIVER WWTP TO BEAR DEN  
SEWAGE PUMP STATION

DESIGNED:	SC
DETAILED:	VRN
CHECKED:	JCG
APPROVED:	RAZ
DATE:	JANUARY 2024
PROJECT NO.:	410381

FORCE MAIN AND GRAVITY  
SEWER

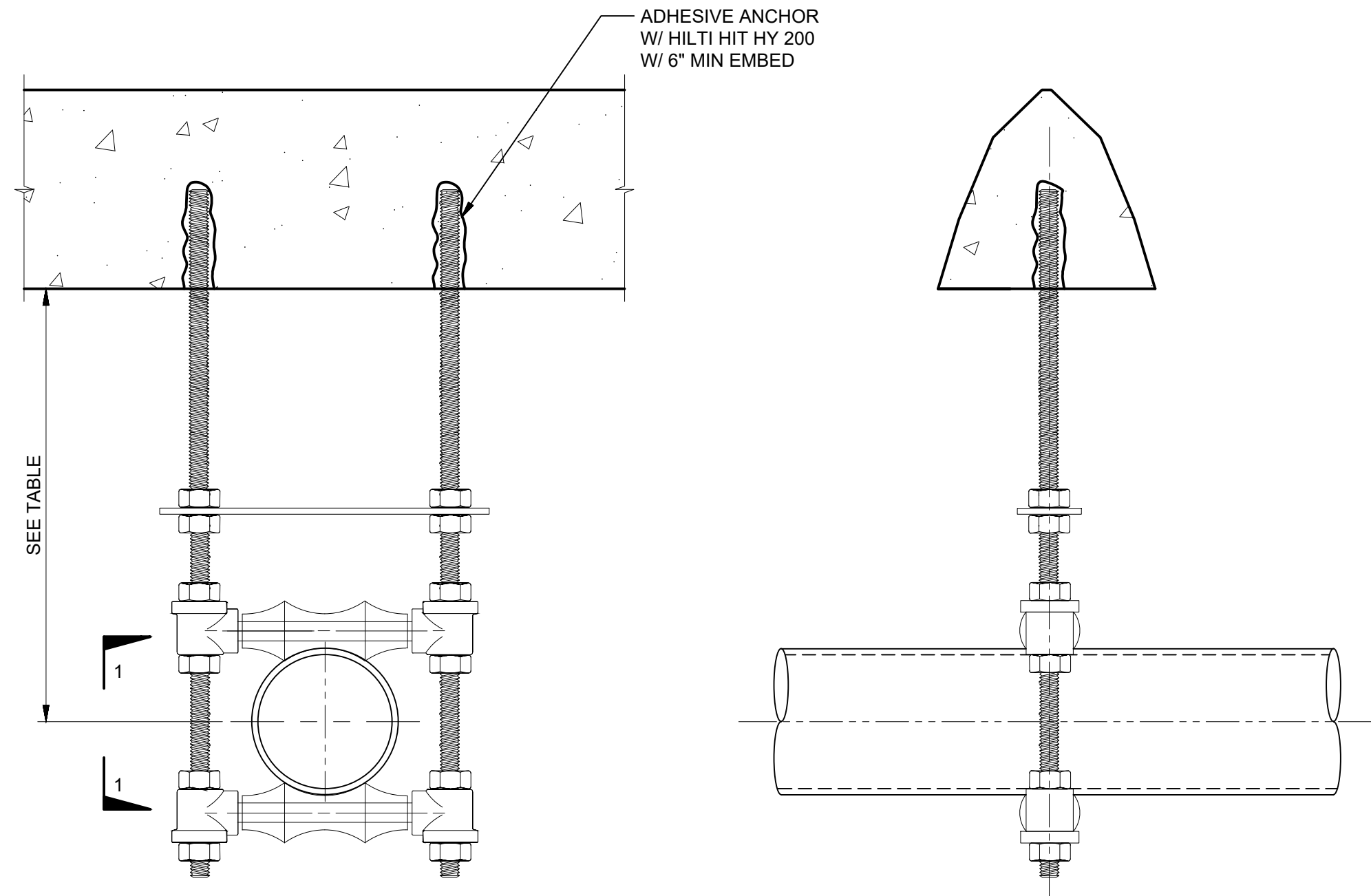
STRUCTURAL

**BLACKSBURG HWY  
BRIDGE PIPE SUPPORT  
DETAILS**

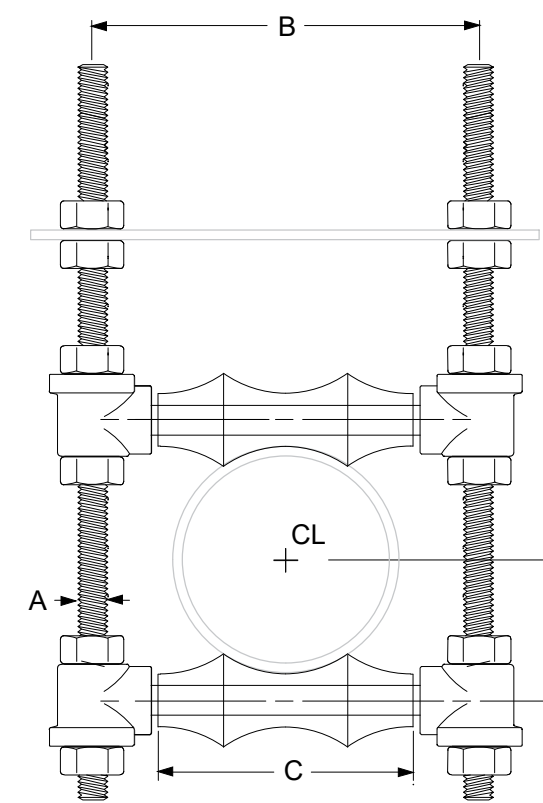
**S-01-102A**



**BLACKSBURG HWY BRIDGE PLAN VIEW**  
NO SCALE



**SECTION 1**



**DETAIL A**  
NO SCALE

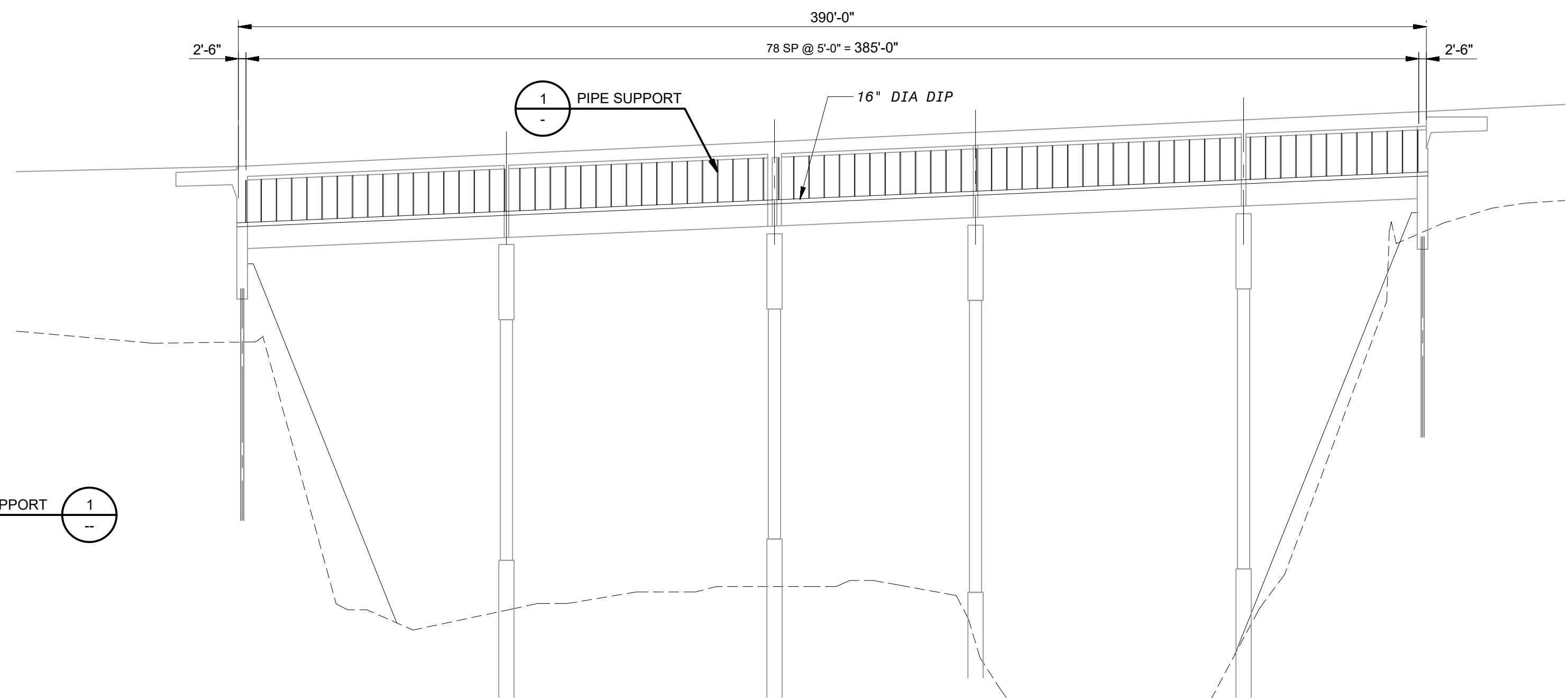
PIPE HANGER SCHEDULE					
PIPE SIZE	WEIGHT	A	B	C	H
10	13.7	7/8	14 1/16	11	6 3/8
16	42.5	1	19 3/4	16 1/4	9 7/16
18	46.6	1	21 7/8	18 1/4	10 1/2

BRIDGE	MAXIMUM STRENGTH LEVEL LOADS		HANGER LENGTH (FT)
	VERTICAL (LBS) (SEE NOTE 3)	SHEAR (TRANSVERSE TO PIPE) (LBS)	
BLACKSBURG HWY BRIDGE	1210	425	2.5'

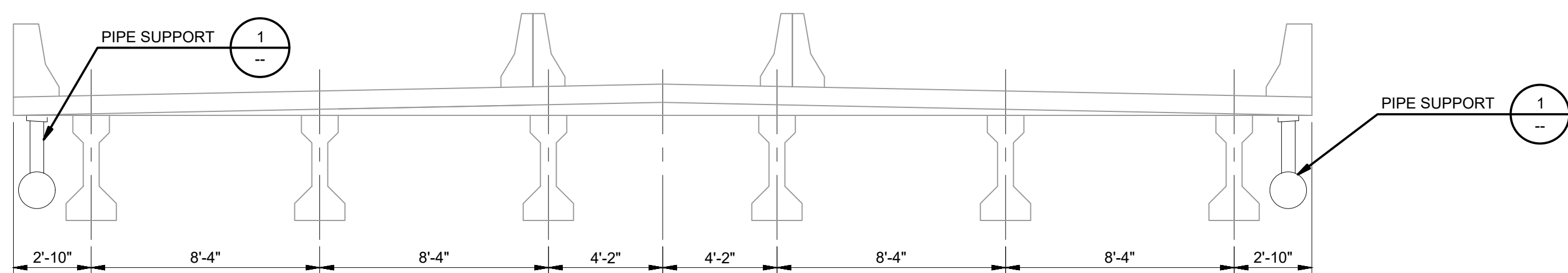
**NOTES.**

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- MAXIMUM SPACING BETWEEN SUPPORTS SHALL BE 5'-0".
- MOST UPSTREAM PIPE SUPPORT WILL ALSO SUPPORT A VALVE WITH A MAXIMUM ADDITIONAL WEIGHT OF 100 LBS

**1 BRIDGE HANGING PIPE SUPPORT**  
S-01-102A 1 1/2" = 1'-0"



**BLACKSBURG HWY BRIDGE ELEVATION VIEW**  
**B ELEVATION**  
S-01-102A NO SCALE



**BLACKSBURG HWY BRIDGE**  
**2 SECTION**  
S-01-102A NO SCALE

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