

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

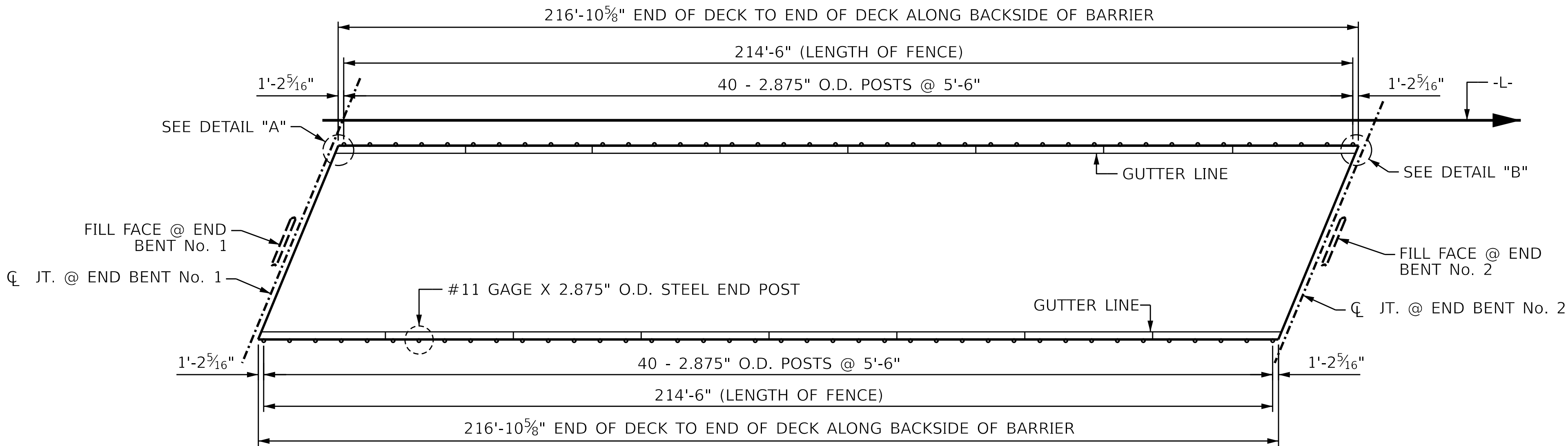
BR-0140/Project Design/Structures/FINAL/BR140_FENCE DETAILS

MODEL NAME: FENCE EAST BOUND

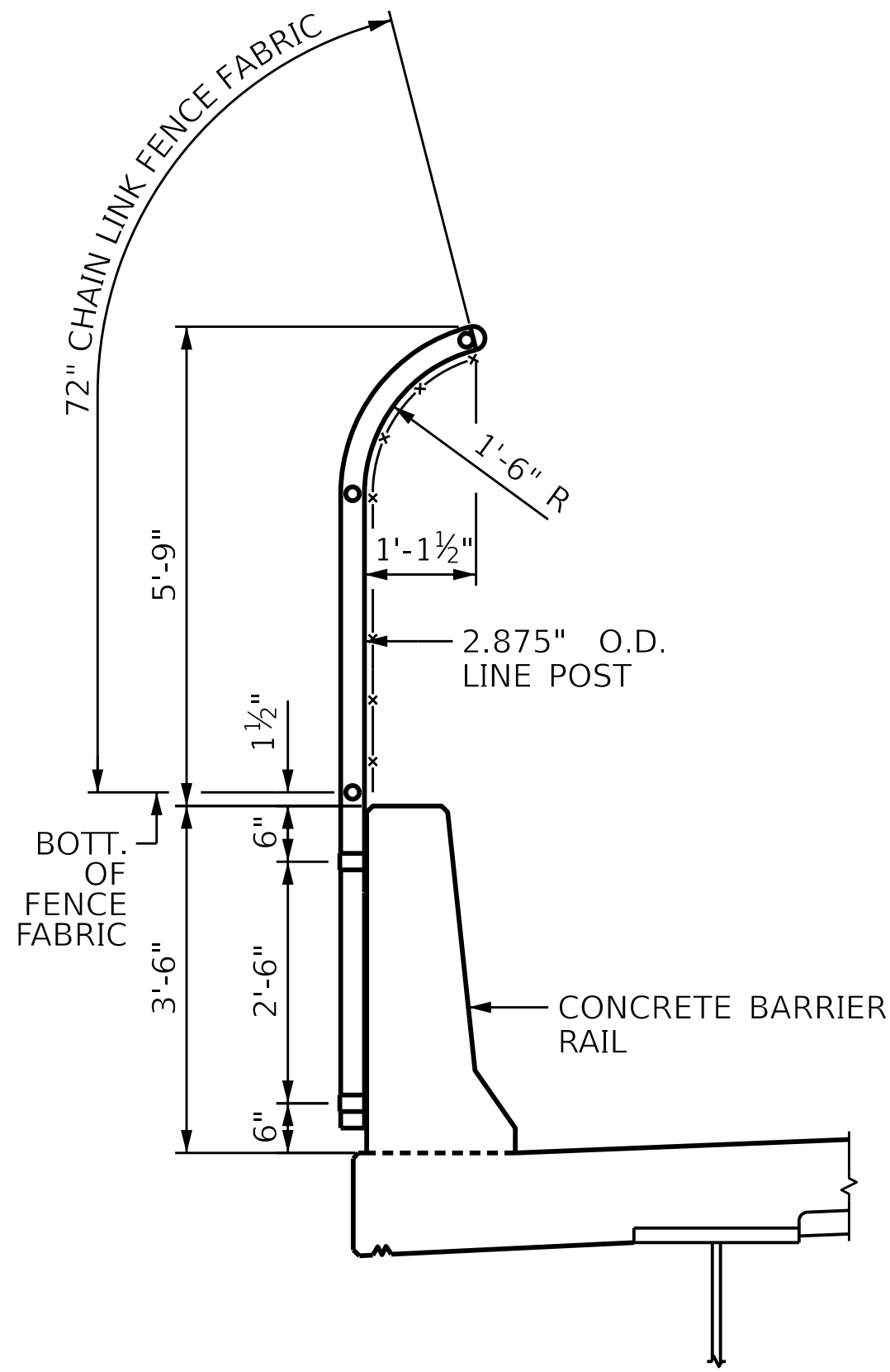
1/20/2026 12:29 PM

Drawn by: G.C. MORRIS
Checked by: O. PUIGSERVER
Design Engineer of Record: O. PUIGSERVER

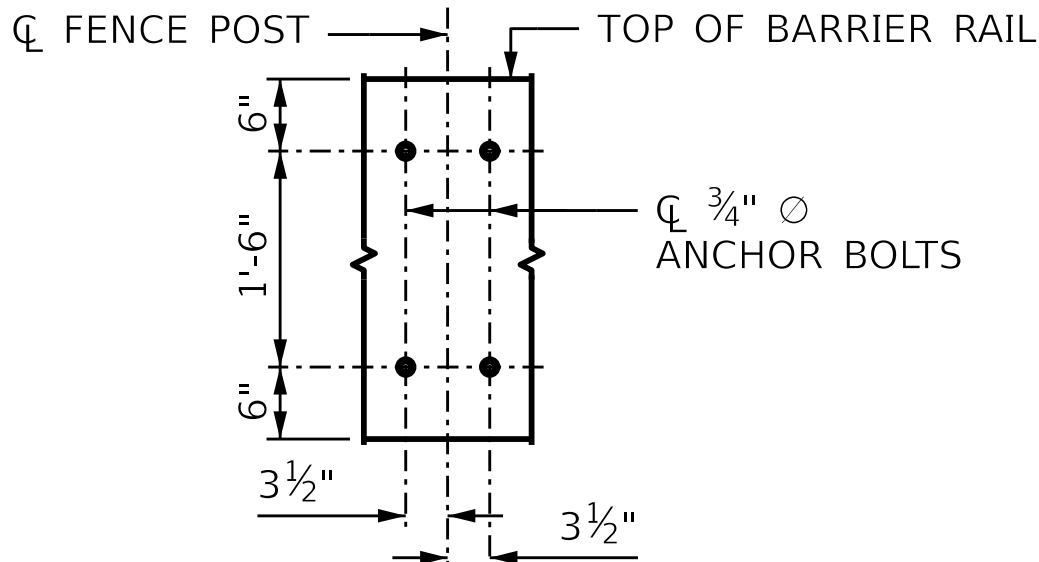
DATE: 12-24
DATE: 4-25
DATE: 4-25



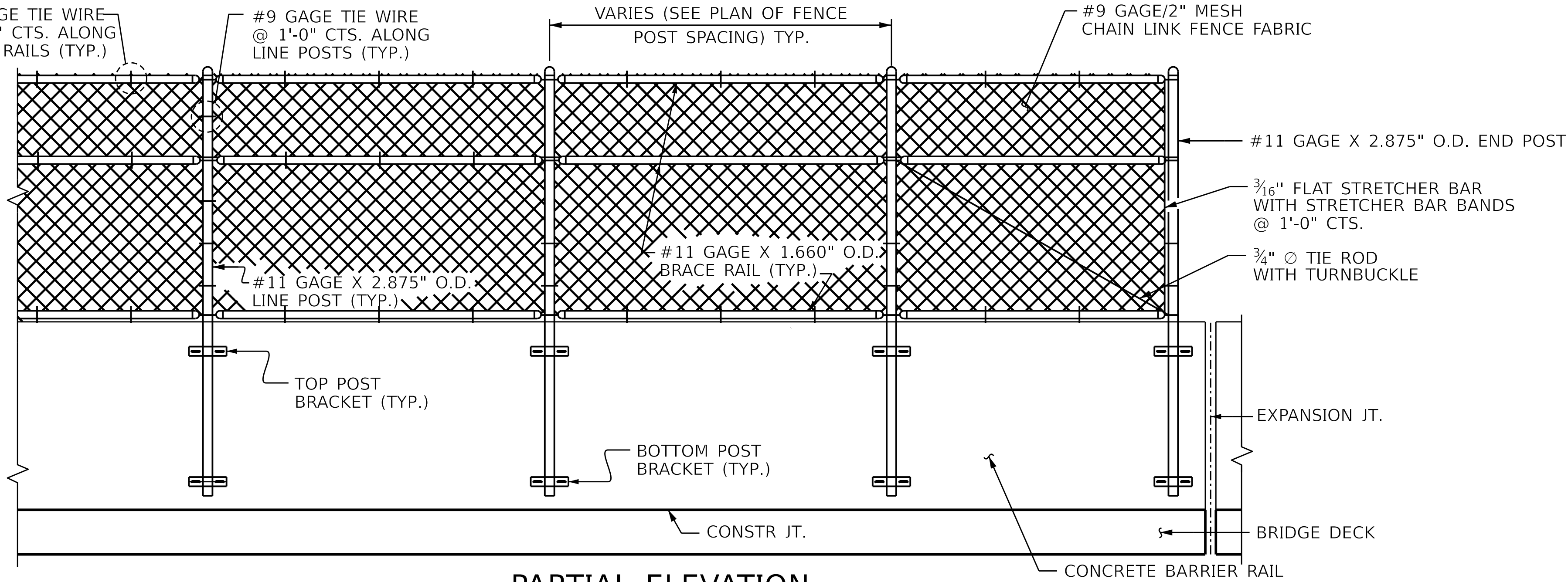
PLAN OF FENCE POST SPACING



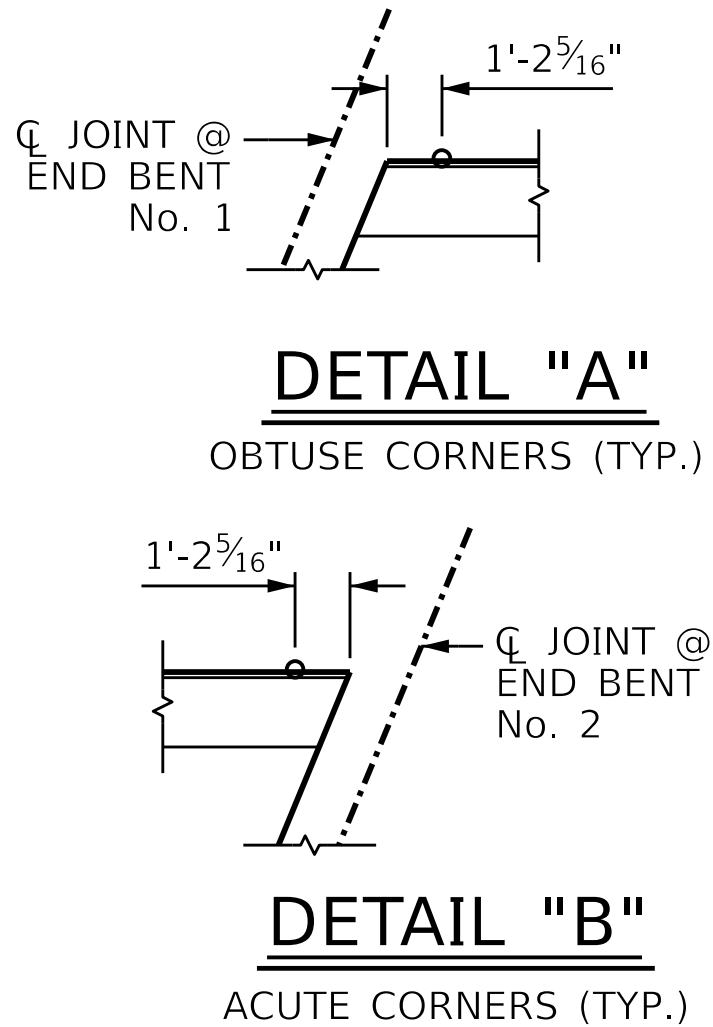
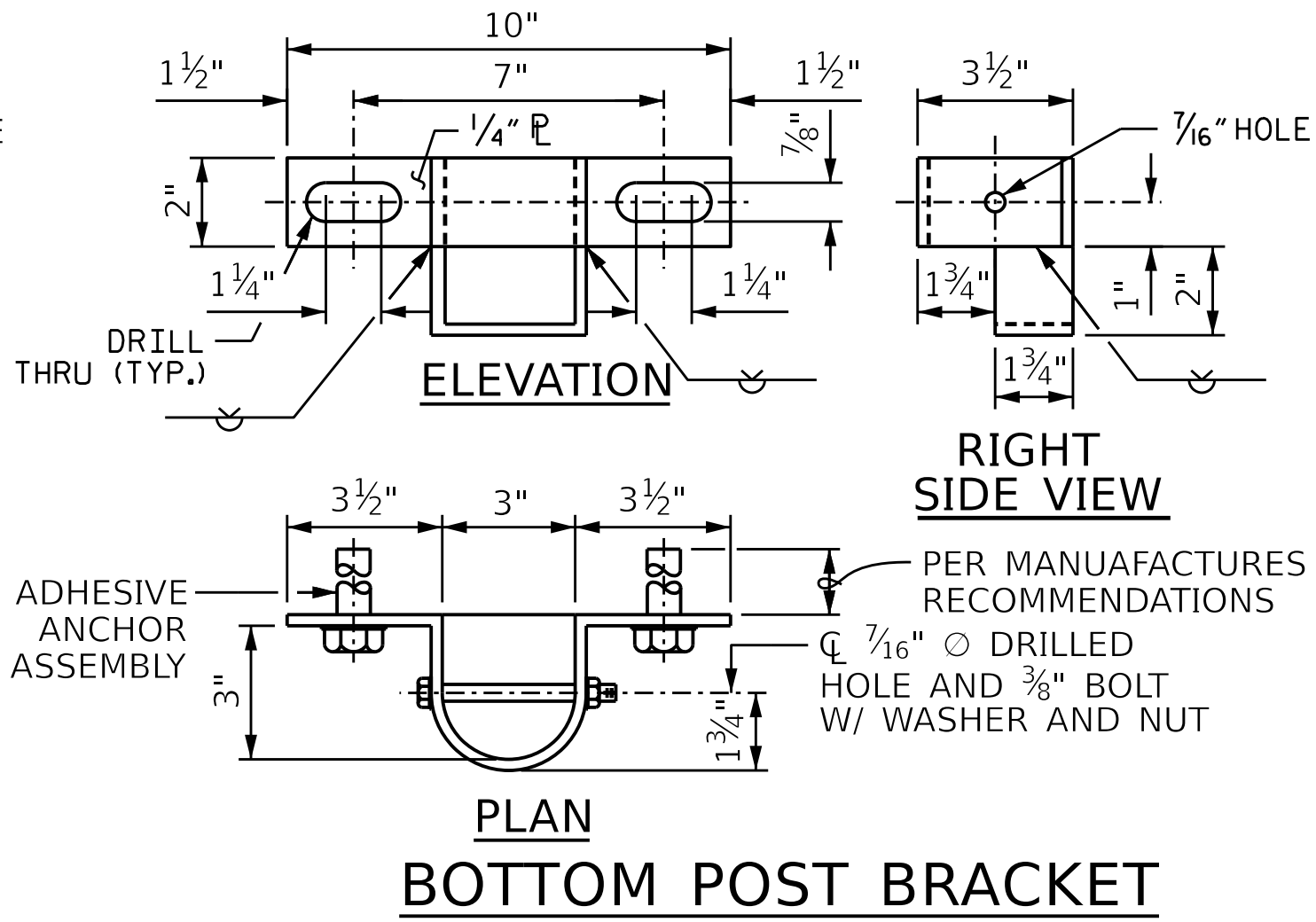
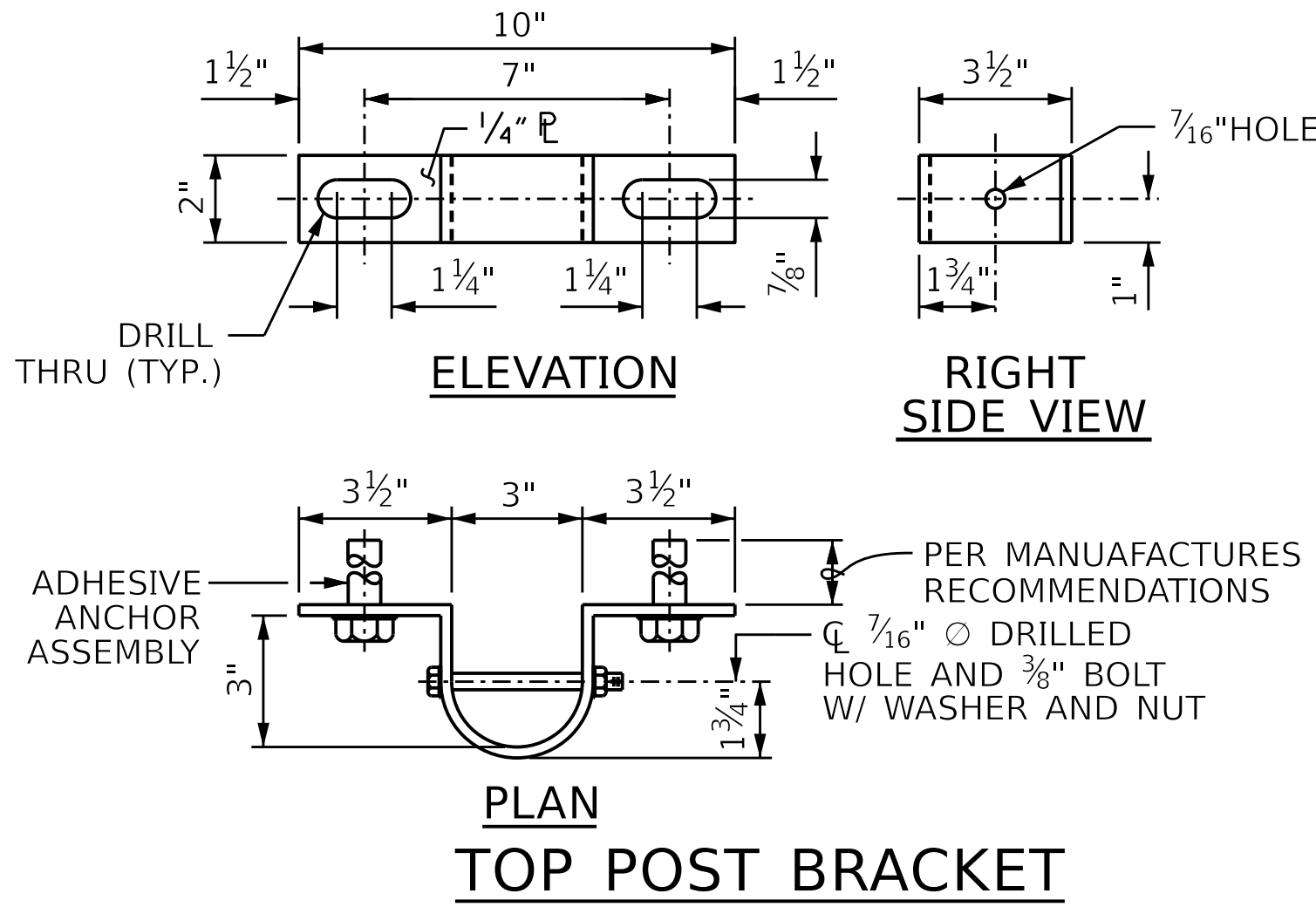
SECTION THRU FENCE



BOLT SETTING DETAIL



PARTIAL ELEVATION



NOTES

FOR BRIDGE MOUNTED CHAIN LINK FENCE, SEE SPECIAL PROVISIONS.

MATERIAL FOR ANCHOR BOLTS SHALL BE TYPE 304 STAINLESS STEEL WITH A MINIMUM 9000 PSI ULTIMATE STRENGTH. NUTS AND WASHERS SHALL BE TYPE 304 STAINLESS STEEL. ANCHOR BOLTS SHALL BE EMBEDDED AS PER ADHESIVE BONDING SYSTEM MANUFACTURER SPECIFICATIONS. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK NUTS, CLASS 2B THREADS.

FOR SETTING ANCHOR BOLTS, THE CONTRACTOR SHALL USE AN ADHESIVE BONDING SYSTEM. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED.

ALL FENCE MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 1050 OF THE STANDARD SPECIFICATIONS, BLACK VINYL COAT ALL STEEL PARTS AND HARDWARE IN ACCORDANCE WITH ARTICLE 1050 OF THE STANDARD SPECIFICATIONS.

ALL FENCE COMPONENTS SHALL BE BLACK VINYL COATED.

FENCE POST LOCATIONS SHALL BE SHIFTED, AS NECESSARY, TO MAINTAIN A 6" MINIMUM DISTANCE FROM ANCHOR BOLT TO JOINTS IN CONCRETE BARRIER RAIL.

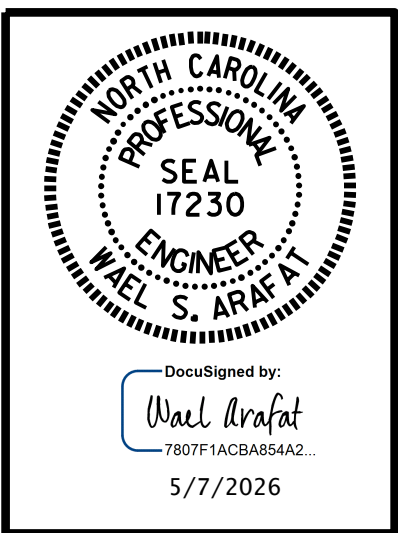
FENCE POST LOCATION SHALL BE SHIFTED AS NECESSARY TO CLEAR PARAPET REINFORCING STEEL AND TO CLEAR RAIL POST ANCHOR ASSEMBLY.

WELDING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 1072-20 OF STANDARD SPECIFICATIONS.

ADHESIVE BONDING SYSTEM SHALL HAVE MINIMUM PULLOUT STRENGTH OF 10 KIPS. THE ADHESIVE BONDING SYSTEM SHALL BE CHOSEN FROM THOSE ON THE NCDOT APPROVED PRODUCTS LIST.

72" CHAIN LINK FENCE (BLACK VINYL COATED)

TOTAL PAY LENGTH 429' LIN. FT.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD BRIDGE MOUNTED CHAIN LINK FENCE DETAILS (EASTBOUND)						SHEET NO. S02-23
REVISIONS						TOTAL SHEETS 40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STR #2

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

10/23/2025 4:05:13 PM

\\parrish-partners.com\project\18-pw\Documents\Surfaces Transportation\NC DOT - BR-0140-Project Design\Structures\FINAL\ssj\24 BIG SECTION BR-0140.dgn

MODEL NAME: EASTBOUND

JOINT INSTALLATION PROCEDURE:

1. INSTALL THE STRIP SEAL EXPANSION JOINT AS RECOMMENDED BY THE MANUFACTURER.
2. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING INSTALLATION OF THE JOINT.
3. PLACE STEEL RETAINER RAILS IN JOINT OPENING. PROPERLY ALIGN THE RAILS BOTH HORIZONTALLY AND VERTICALLY. DO NOT WELD SUPPORT SYSTEM TO THE METALLIZED SURFACES OF THE STEEL RETAINER RAILS.
4. CONFLICTING REINFORCING STEEL MAY BE SHIFTED SLIGHTLY WHEN NECESSARY.
5. DECK SLAB CONCRETE PLACEMENT OPERATIONS SHALL COMMENCE PER THE POURING SEQUENCE AFTER FINAL JOINT ALIGNMENT IS SET.
6. PROTECT THE STEEL RETAINER RAILS FROM BEING FOULED BY CONCRETE SPILLOVER DURING THE DECK POUR.
7. LOOSEN THE STEEL RETAINER RAIL SUPPORT SYSTEM TO ALLOW MOVEMENT WHILE CONCRETE CURES.
8. RE-LEVEL AND RE-ALIGN STEEL RETAINER RAIL AS REQUIRED ON OPPOSITE SIDE OF JOINT.
9. PLACE APPROACH/DECK SLAB CONCRETE.
10. ONCE THE CONCRETE HAS HARDENED SUFFICIENTLY ON BOTH SIDES OF JOINT, STEEL RETAINER RAILS SHALL BE CLEANED THOROUGHLY AND SEAL CHANNELS SHALL BE INSPECTED TO ASCERTAIN THE ABSENCE OF CONCRETE AND DEBRIS.
11. COAT THE STRIP SEAL LUGS WITH LUBRICANT-ADHESIVE AND INSTALL THE NEOPRENE STRIP SEAL GLAND AS RECOMMENDED BY THE STRIP SEAL EXPANSION JOINT MANUFACTURER.

GENERAL NOTES

FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.

STEEL RETAINER RAILS AND COVER PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR GRADE 50 STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MIN.

ONLY STEEL RETAINER RAILS OF ONE-PIECE CONSTRUCTION ARE PERMITTED. STEEL RETAINER RAILS CONSISTING OF TWO OR MORE COMPONENTS WELDED TOGETHER TO OBTAIN THEIR FINAL CROSS-SECTIONAL SHAPE ARE NOT PERMITTED.

STUD ANCHORS SHALL BE SHOP WELDED AND SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.

SURFACES COMING IN CONTACT WITH STRIP SEAL GLAND SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.

UPON COMPLETION OF SHOP FABRICATION, THE STEEL RETAINER RAILS SHALL BE METALLIZED AS SHOWN IN THE "METALLIZING DETAIL". SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).

INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.

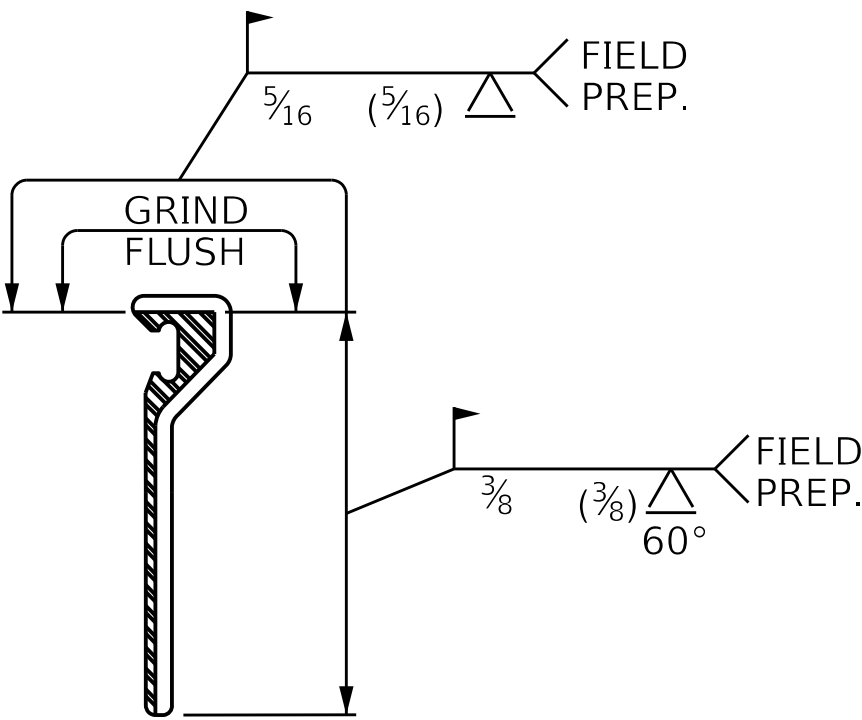
FIELD SPLICES OF THE RETAINER RAILS SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. FINISHED WELDS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

NEOPRENE STRIP SEAL GLAND SHALL BE CONTINUOUS THROUGHOUT THE JOINT AND SHALL BE COMPATIBLE WITH THE STEEL RETAINER RAILS. FIELD SPLICING THE GLAND IS NOT PERMITTED.

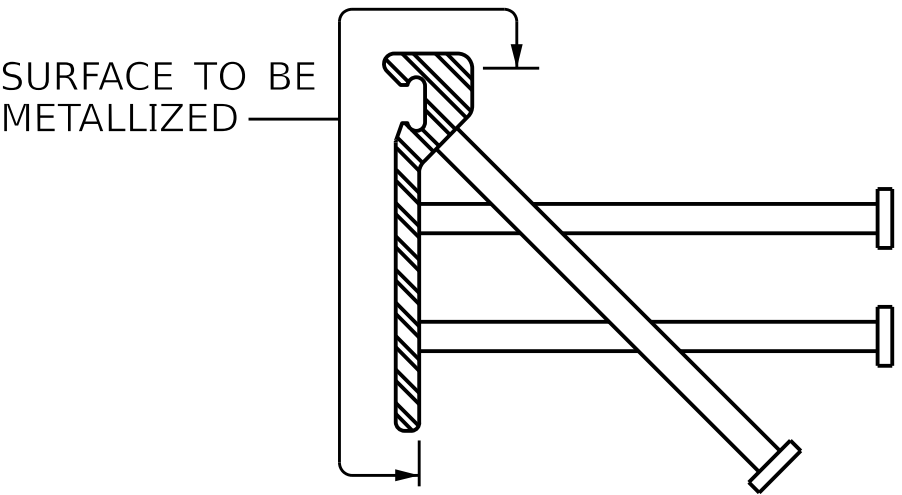
NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.

THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

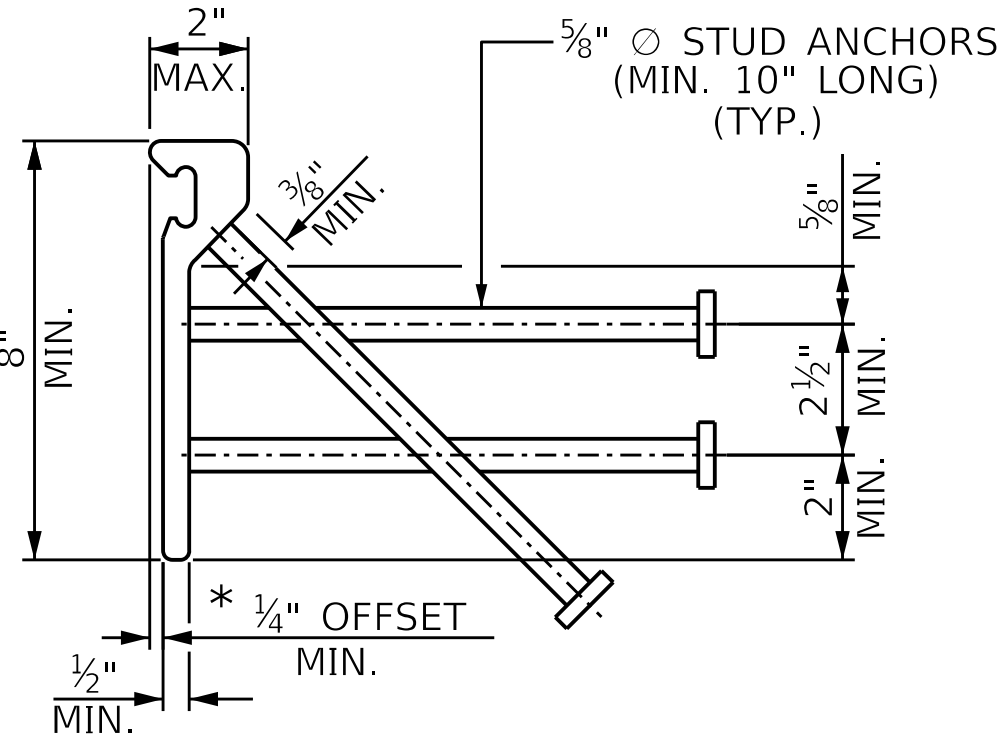
THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



STEEL RETAINER RAIL (FIELD SPLICE DETAIL)



METALLIZING DETAIL



TYPICAL SECTION STEEL RETAINER RAIL

*DIMENSION "B" BASED ON STEEL RETAINER RAIL TOP OFFSET TO FACE OF RAIL OF 1/4" MINIMUM. IF ACTUAL OFFSET IS GREATER ADJUST DIMENSION "B" AS REQUIRED.

STRIP SEAL EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- STEEL SUPERSTRUCTURE

MOVEMENT AND SETTING AT JOINT

LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG C RDWY)	DIMENSION "A"			DIMENSION "B"		
			PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
END BENT No. 1	112°-29'-19"	1/2"	2 1/16"	2"	1 7/8"	2 9/16"	2 1/2"	2 3/8"
END BENT No. 2	112°-29'-19"	1/2"	2 1/16"	2"	1 7/8"	2 9/16"	2 1/2"	2 3/8"

ASSEMBLED BY :	M. BREELAND	DATE :	04-25
CHECKED BY :	O. PUIGCERVER	DATE :	04-25
DRAWN BY :	MAA 6/20		
CHECKED BY :	BNB 6/20		



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 1 OF 2

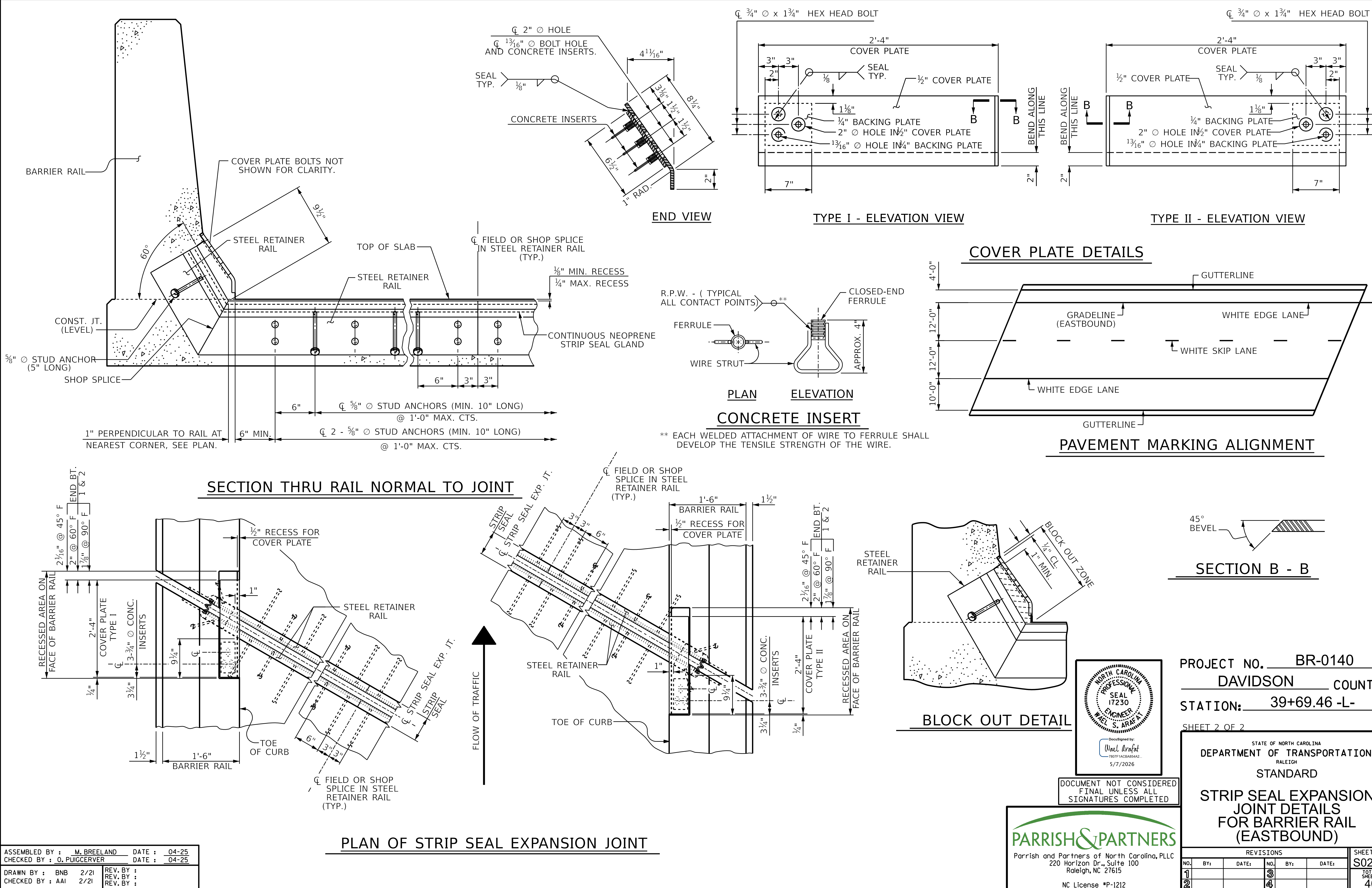
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S02-24
2			4			
TOTAL SHEETS						40

STR #2

STD. NO. SSEJ1

Docusign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

pn:/parrish-pw/bentley.com/parrish-pw/Documents/Surface Transportation/NC DOT - BR-0140/Project Design/Structures/FINAL/BR-0140-WB&E&L.sse/2-24.dgn
10/23/2025 4:05:16 PM MODEL NAME: Sheet 2b BR-BR 140 E&L



ASSEMBLED BY : M. BREELAND	DATE : 04-25
CHECKED BY : O. PUIGCERVER	DATE : 04-25
DRAWN BY : BNB 2/21	REV. BY : REV. BY : REV. BY :
CHECKED BY : AAI 2/21	REV. BY : REV. BY : REV. BY :

PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

NORTH CAROLINA PROFESSIONAL SEAL 17230 ENGINEER WEL S. ARAFAT
DocuSigned by:
Wael Arafat
7807F1ACB85A42
5/7/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 2 OF 2

REVISIONS					SHEET NO. TOTAL SHEETS 40
NO.	BY:	DATE:	NO.	BY:	
1			3		
2			4		

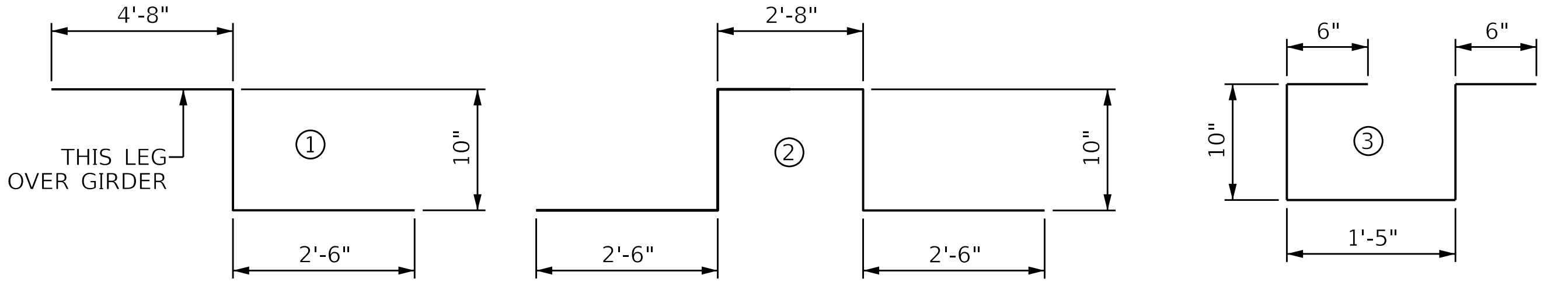
DocuSign Envelope ID: CC1508FA-0425-83A9-81B2-A1E697750CA7

\\parrish-partners.com\parrish-pw\Documents\Surface Transportation\NC DOT - BR-0140\Project Design\Structures\FINAL\BRO40_FINAL_DECK.dgn 3/12/2026 11:46:51 AM

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
* A1	435	#5	STR	40'-11"	18564	* B1	56	#4	STR	29'-3"	1094	* G1	2	#5	STR	44'-3"	92		
A2	435	#5	STR	40'-11"	18564	* B2	304	#6	STR	42'-5"	19368								
						B3	224	#5	STR	55'-8"	13006	* K1	8	#5	1	8'-0"	67		
						* B4	36	#4	STR	28'-8"	121	* K2	8	#5	2	9'-4"	78		
*A101	4	#5	STR	1'-10"	8	A201	4	#5	STR	1'-10"	8	* K3	12	#5	STR	9'-8"	121		
*A102	4	#5	STR	4'-0"	17	A202	4	#5	STR	4'-0"	17								
*A103	4	#5	STR	6'-3"	26	A203	4	#5	STR	6'-3"	26	* S1	60	#4	3	4'-1"	164		
*A104	4	#5	STR	8'-6"	35	A204	4	#5	STR	8'-6"	35								
*A105	4	#5	STR	10'-8"	45	A205	4	#5	STR	10'-8"	45	* EPOXY COATED REINFORCING STEEL						LBS.	41,788
*A106	4	#5	STR	12'-11"	54	A206	4	#5	STR	12'-11"	54							LBS.	33.121
*A107	4	#5	STR	15'-1"	63	A207	4	#5	STR	15'-1"	63								
*A108	4	#5	STR	17'-4"	72	A208	4	#5	STR	17'-4"	72								
*A109	4	#5	STR	19'-6"	81	A209	4	#5	STR	19'-6"	81								
*A110	4	#5	STR	21'-9"	91	A210	4	#5	STR	21'-9"	91								
*A111	4	#5	STR	24'-0"	100	A211	4	#5	STR	24'-0"	100								
*A112	4	#5	STR	26'-2"	109	A212	4	#5	STR	26'-2"	109								
*A113	4	#5	STR	28'-5"	119	A213	4	#5	STR	28'-5"	119								
*A114	4	#5	STR	30'-7"	128	A214	4	#5	STR	30'-7"	128								
*A115	4	#5	STR	32'-10"	137	A215	4	#5	STR	32'-10"	137								
*A116	4	#5	STR	35'-0"	146	A216	4	#5	STR	35'-0"	146								
*A117	4	#5	STR	37'-3"	155	A217	4	#5	STR	37'-3"	155								
*A118	4	#5	STR	39'-6"	165	A218	4	#5	STR	39'-6"	165								

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	* EPOXY COATED REINFORCING STEEL (LBS.)
TOTAL	286.2	33,121	41,788

** QUANTITIES FOR CONCRETE PARAPET AND SIDEWALK ARE NOT INCLUDED.

SUPERSTRUCTURE REINFORCING STEEL LENGHTS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	1'-11"	1'-7"	1'-11"	1'-7"	2'-6"
#5	2'-5"	2'-0"	2'-5"	2'-0"	3'-1"
#6	2'-10"	2'-5"	3'-7"	2'-5"	3'-8"
#7	4'-2"	2'-9"			
#8	4'-9"	3'-2"			

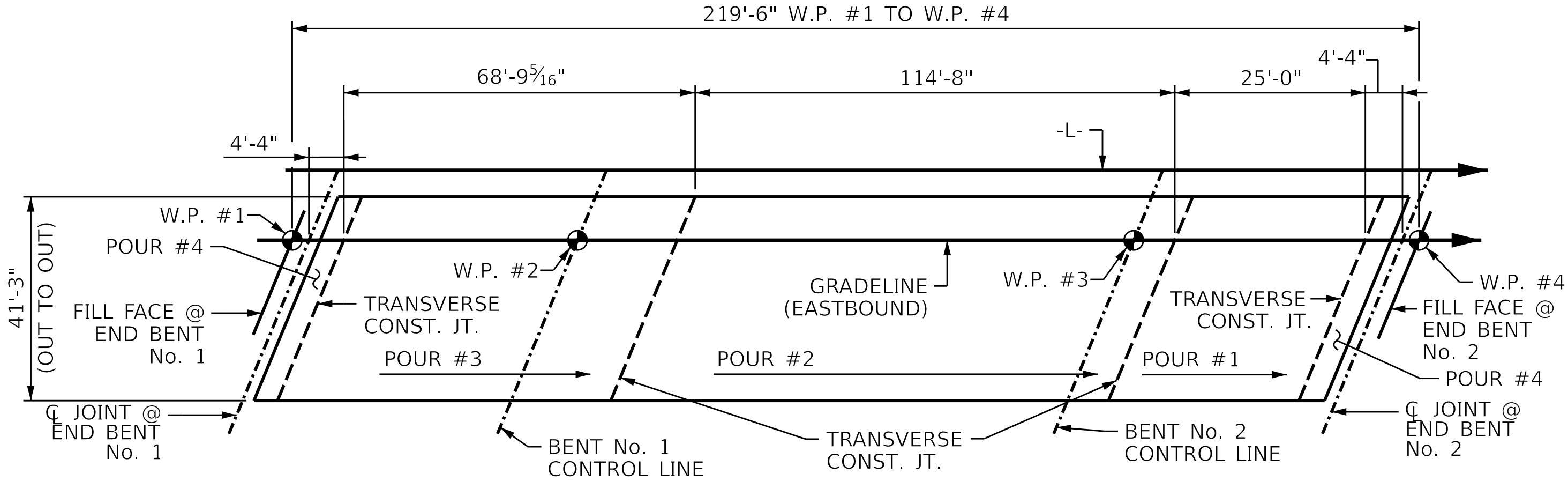
CLASS AA CONCRETE BREAKDOWN

POUR #1	32.8	CU. YDS.
POUR #2	150.2	CU. YDS.
POUR #3	89.8	CU. YDS.
POUR #4	13.4	CU. YDS.
TOTAL	286.2	CU. YDS.

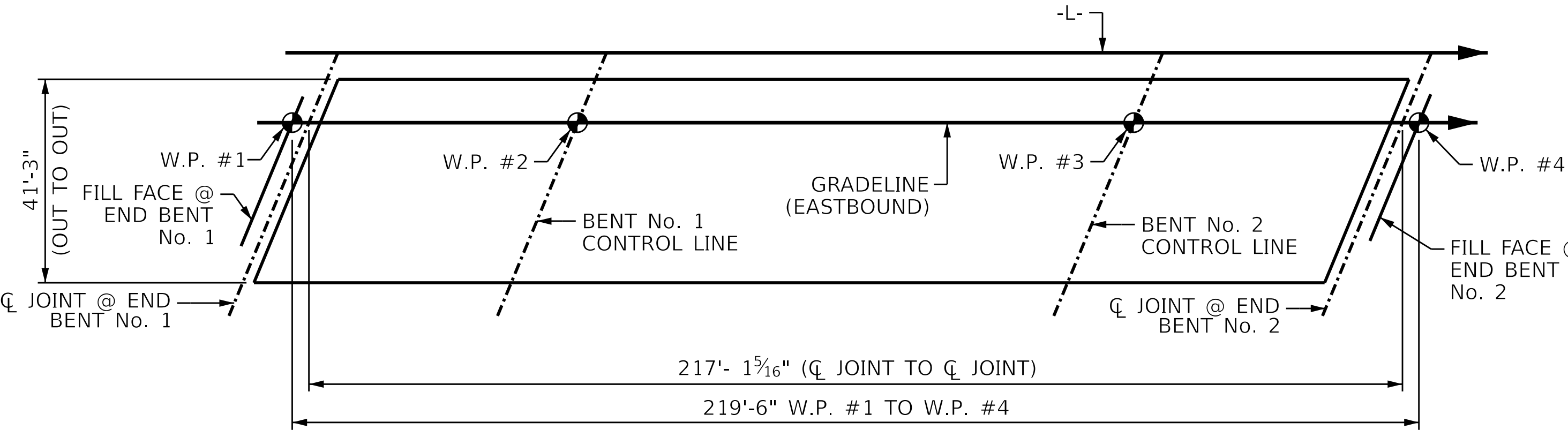
DRAWN BY :	C.T. MIXON	DATE :	12-24
CHECKED BY :	O. PUIGSERVER	DATE :	4-25
DESIGN ENGINEER OF RECORD:	O. PUIGSERVER	DATE :	4-25

GROOVING BRIDGE FLOORS

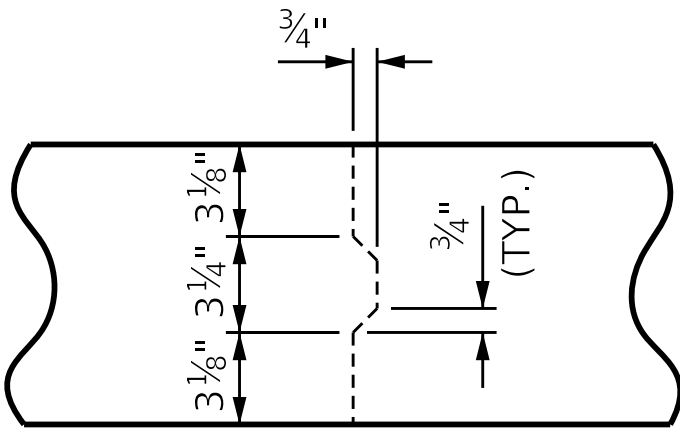
APPROACH SLABS	1738	SQ. FT.
BRIDGE DECK	7579	SQ. FT.
TOTAL	9317	SQ. FT.



POURING SEQUENCE

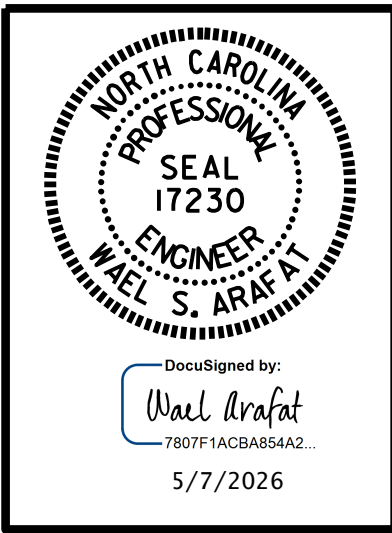


LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 8,956)



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN.
LONGITUDINAL REINFORCING STEEL SHALL BE
CONTINUOUS THRU JOINT.



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



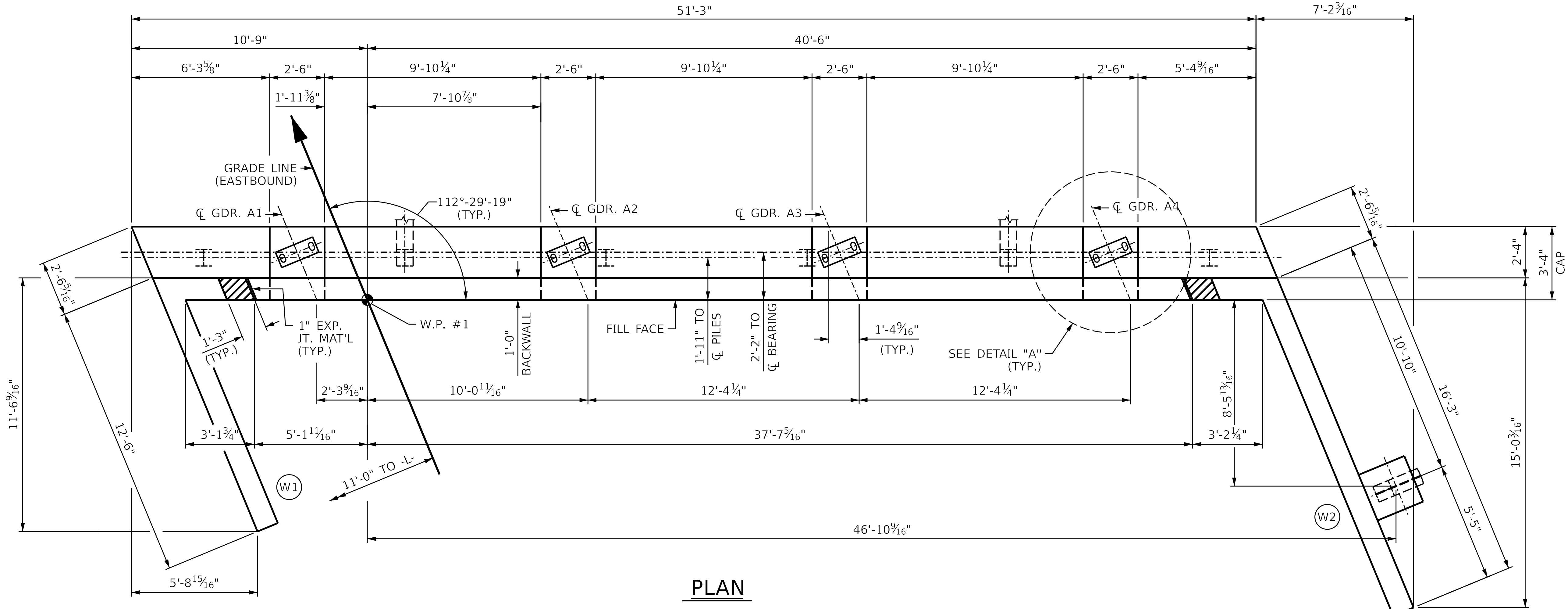
PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

REVISIONS						SHEET NO. S02-26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			40

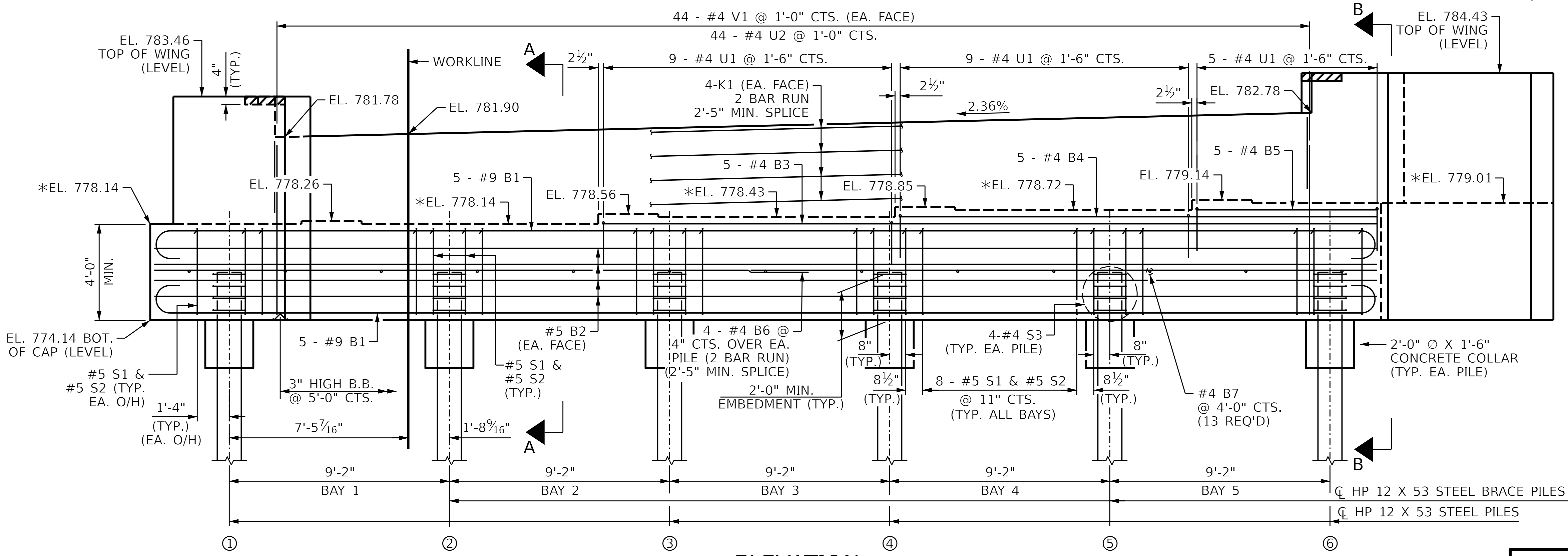
STR #2

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

pn:/parrish-partners.com/arrish-partners/Projects/Transportation/NC DOT - BR-0140/Project Design/Structures/FINAL/BR0140_FINAL_END_BENT.dgn
4/9/2026 2:59:26 PM MODEL NAME: SHEET MODEL - EAST BOUND END BENT 1



PLAN



ELEVATION

* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTION A-A, SHEET 3 OF 3.

WING BRACE PILE NOT SHOWN FOR CLARITY.

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- FOR PILE SPLICE DETAILS, SEE END BENT 1 SHEET 3 OF 3.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

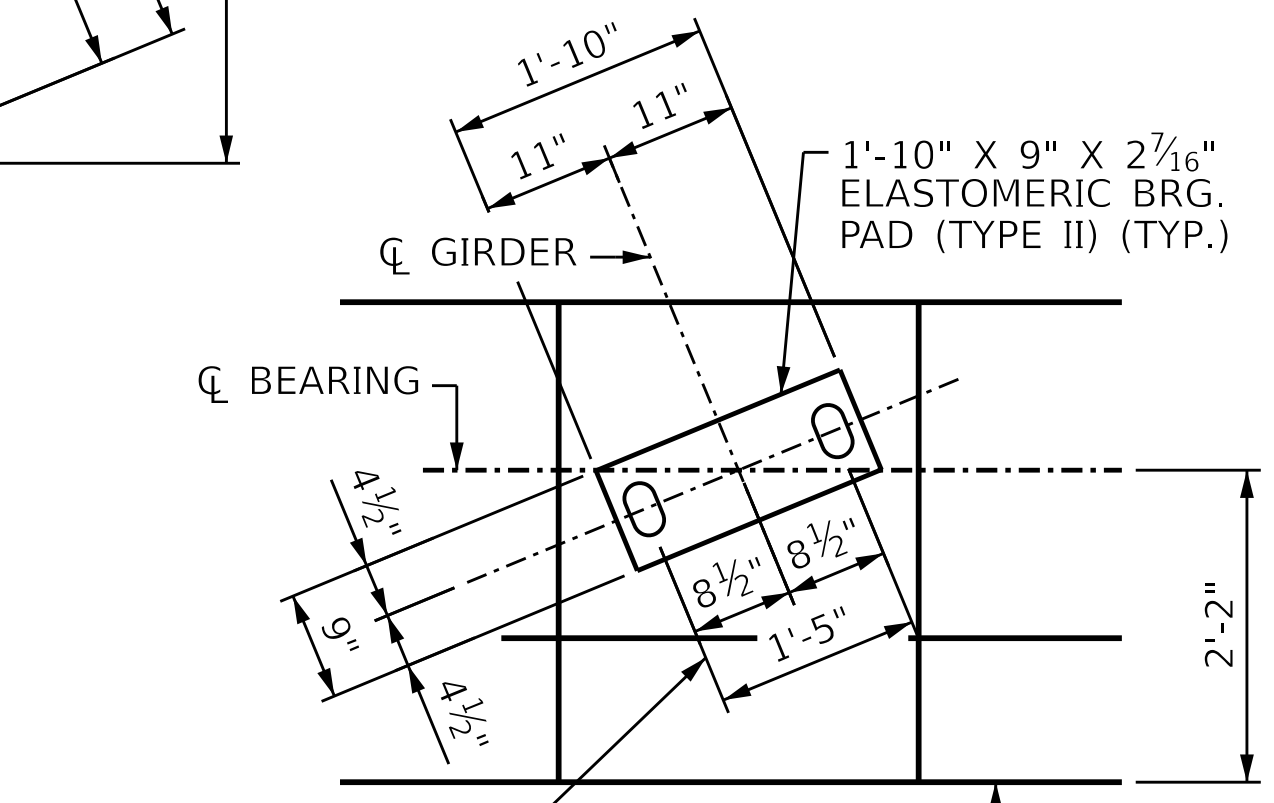
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS AND ANCHOR BOLTS ARE GROUTED.

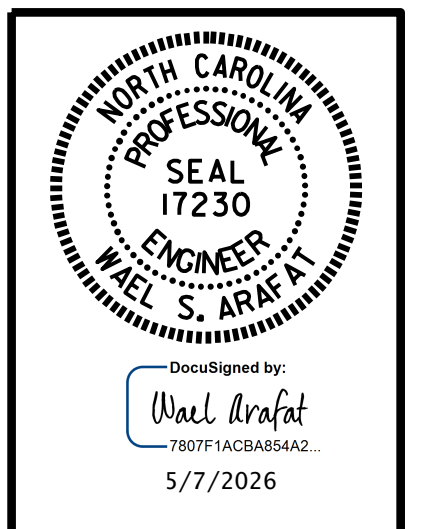
THE #4 B3, #4 B4, AND #4 B5 BARS MAY BE CUT TO MAINTAIN 2" MINIMUM CLEARANCE.

FOR WING DETAILS, SEE SHEET 2 OF 3.

INSTALL THE 6" Ø DRAIN PIPE THROUGH THE WINGWALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WINGWALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



DETAIL "A"
TYP. EA. GIRDER



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

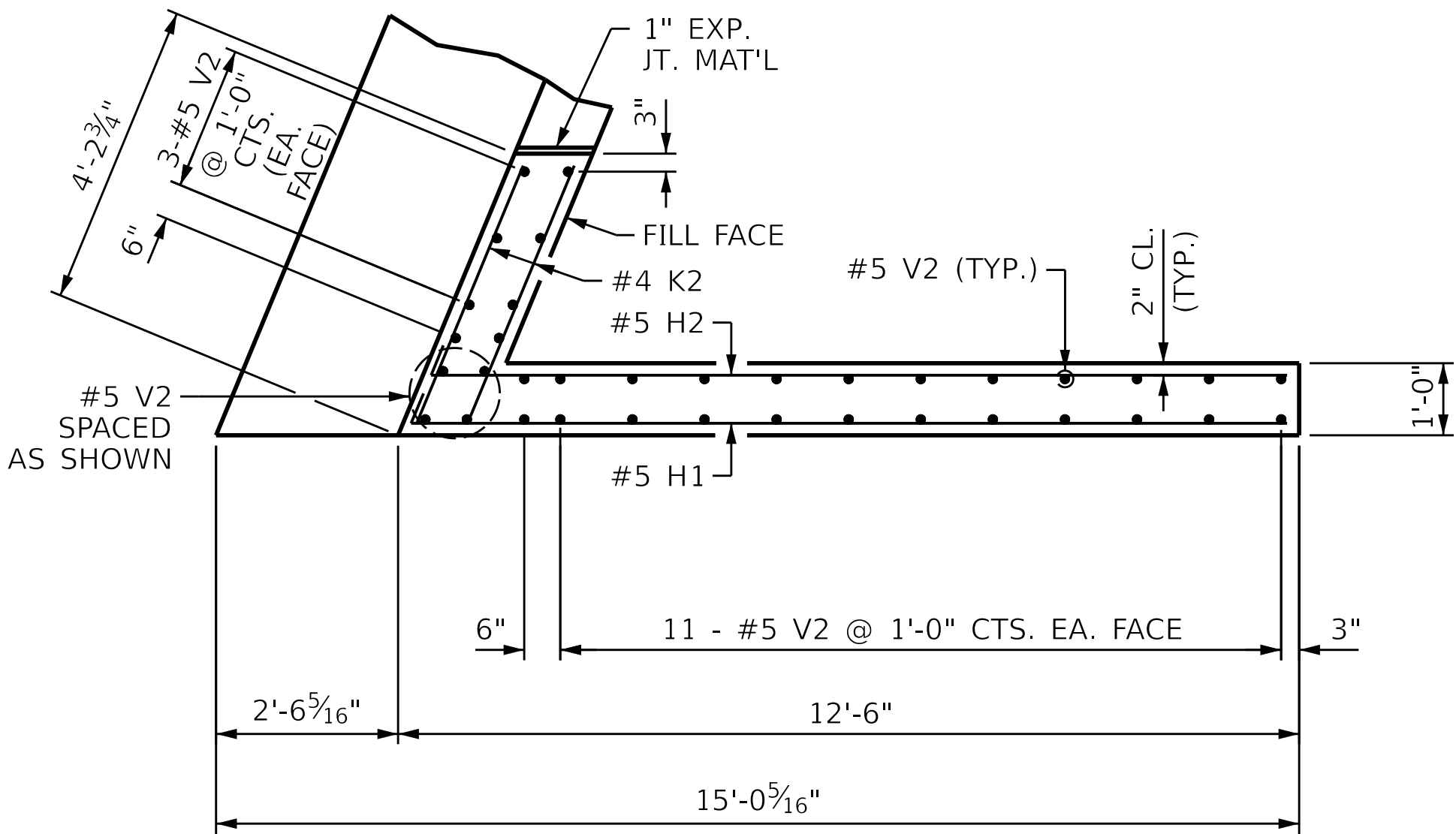
SUBSTRUCTURE

**END BENT No. 1
(EASTBOUND)**

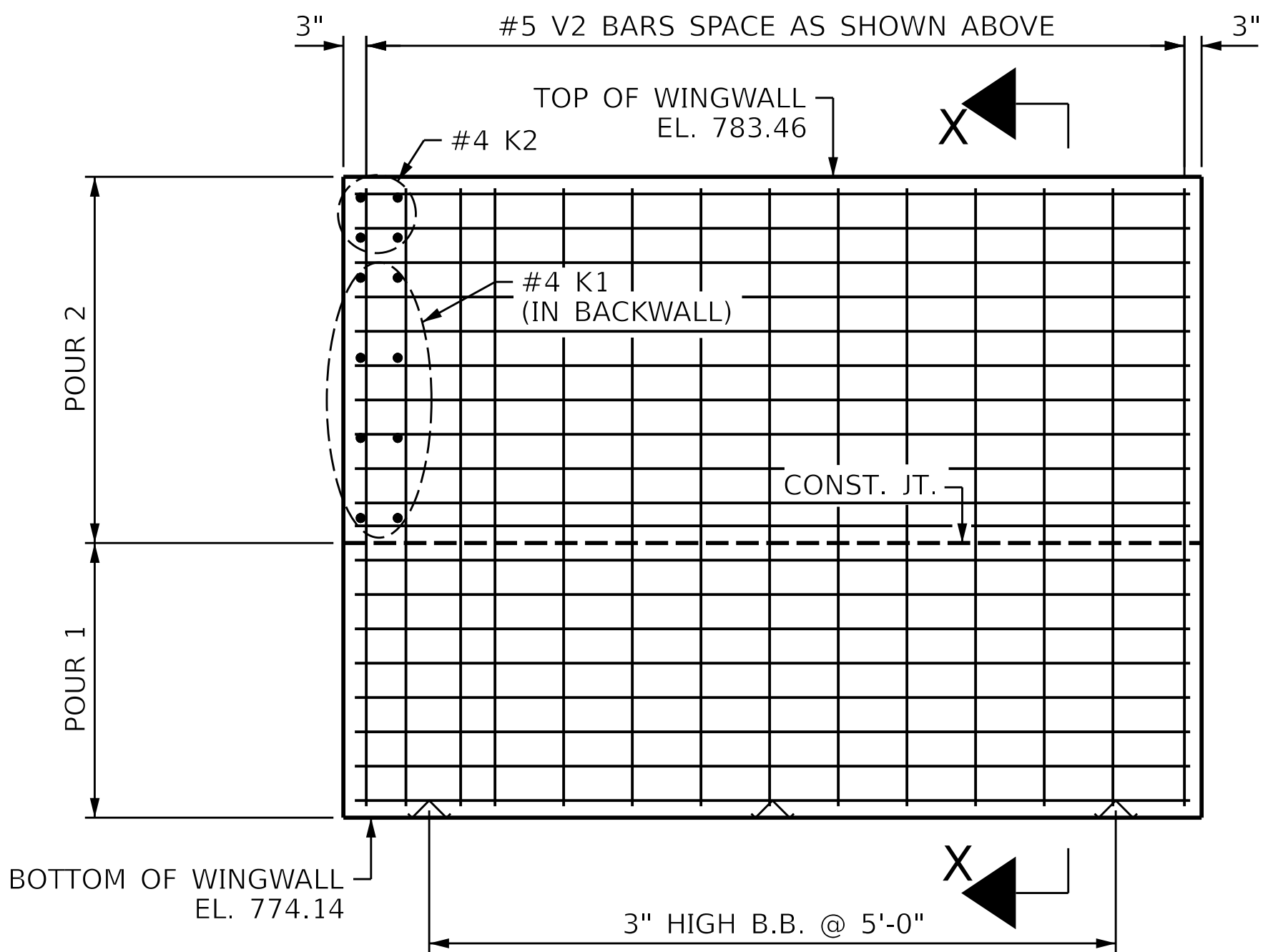
REVISIONS				SHEET NO. S02-27 TOTAL SHEETS 40
NO.	BY:	DATE:		
1			3	
2			4	

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

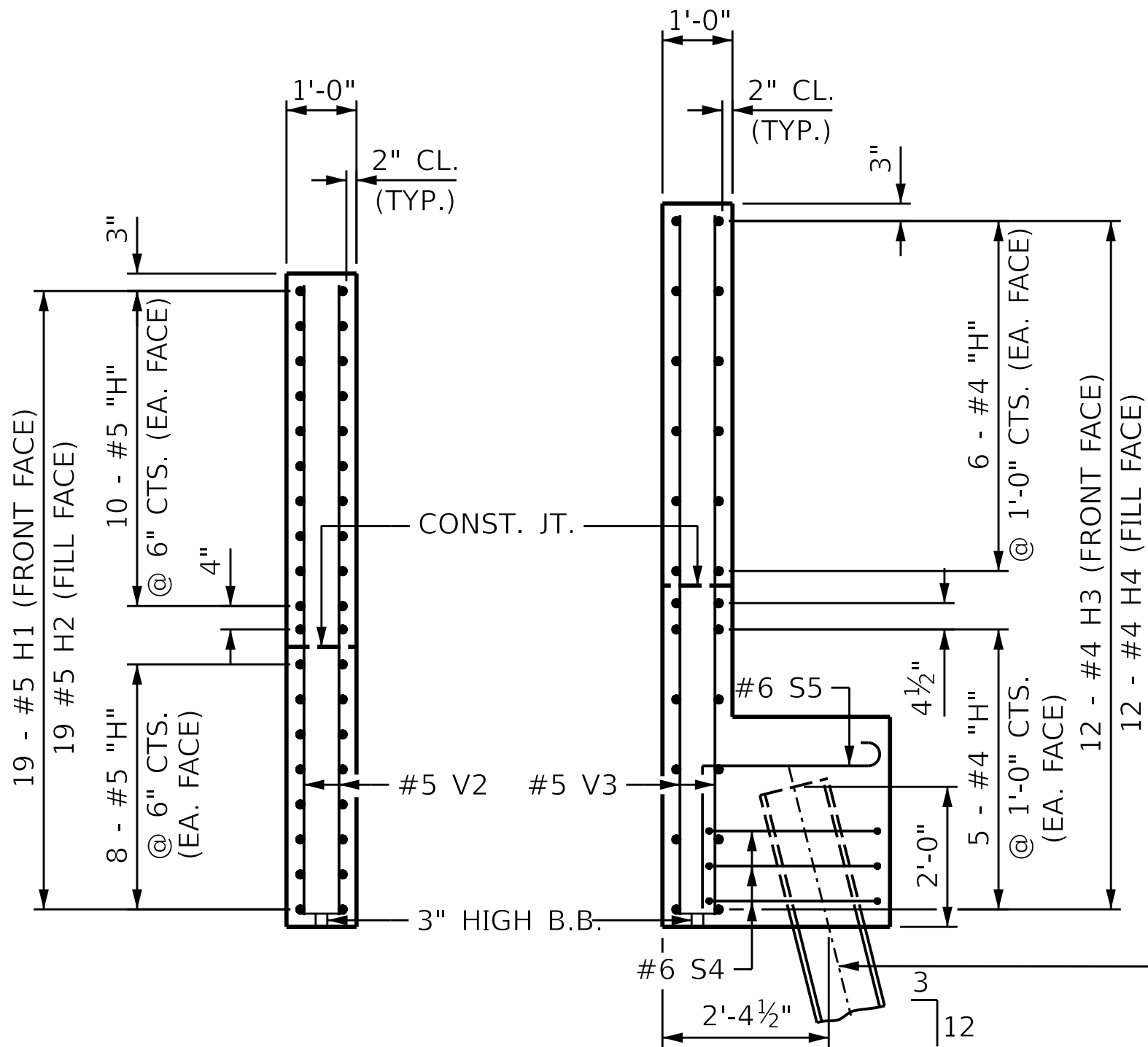
pn:/parrish-pw/bentley.com/parrish-pw/Documents/Surface Transportation/NC DOT BR-0140/Project Design/Structures/FINAL/BRO40_FINAL_END_BENT.dgn
10/23/2025 4:05:21 PM
MODEL NAME: SHEET MODEL - EAST BOUND WINGWALLS L2



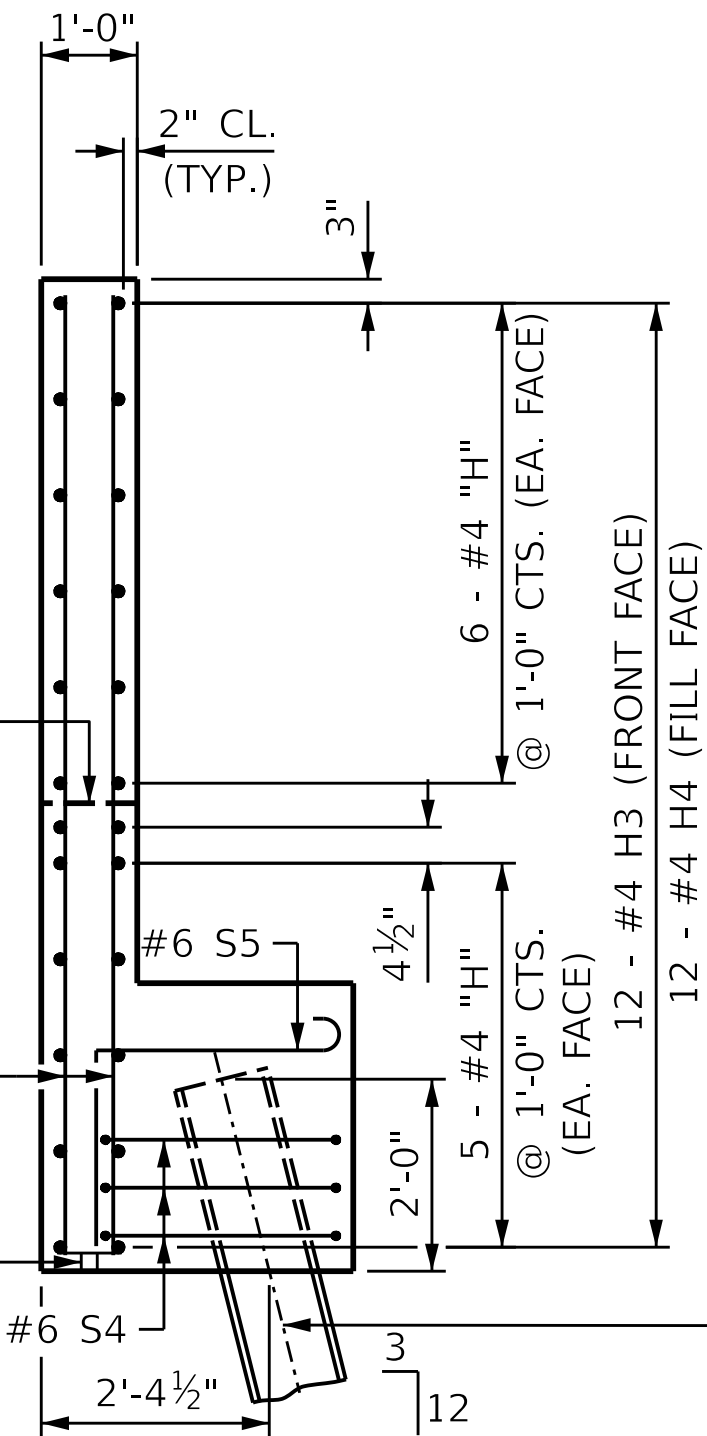
PLAN OF LEFT WINGWALL (W1)
CAP REINF. NOT SHOWN FOR CLARITY



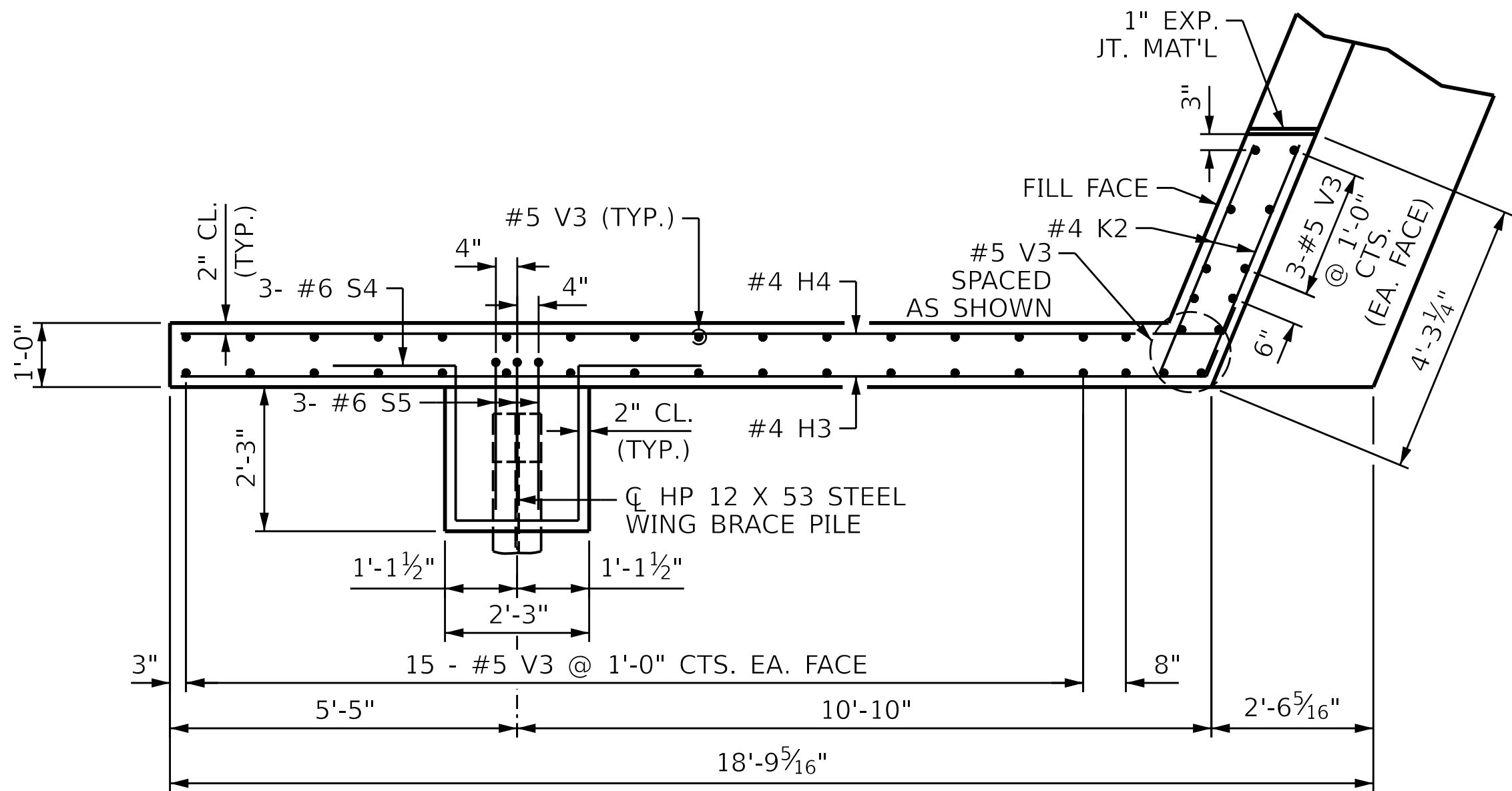
ELEVATION OF WINGWALL (W1)



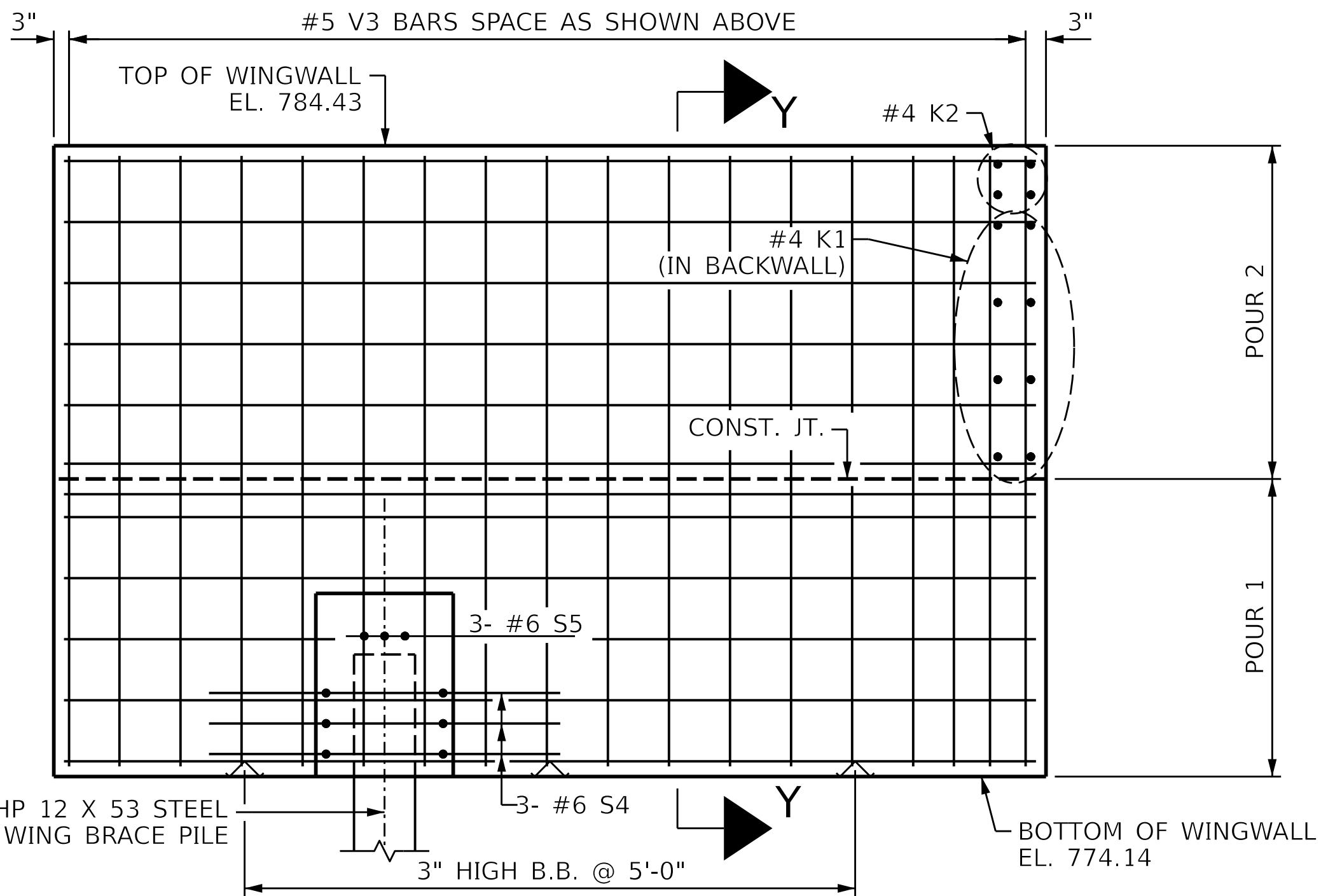
SECTION X-X



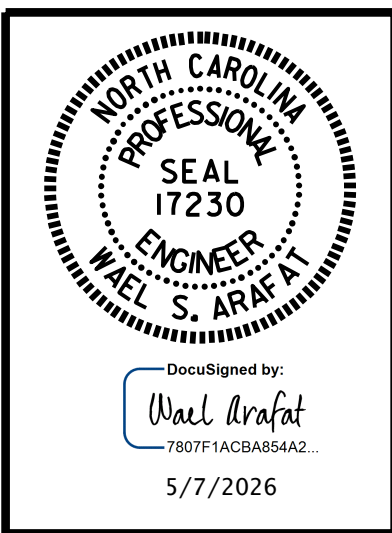
SECTION Y-Y



PLAN OF RIGHT WINGWALL (W2)
CAP REINF. NOT SHOWN FOR CLARITY



ELEVATION OF WINGWALL (W2)



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

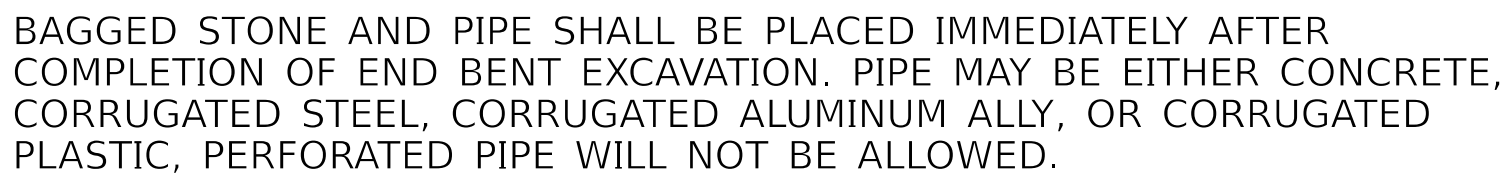
PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-
SHEET 2 OF 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 40
2			4			

STR #2



PILE SPLICE DETAILS



BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



CORROSION PROTECTION FOR STEEL PILES DETAIL



BILL OF MATERIAL					
FOR END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	3	53'-3"	1811
B2	8	#5	STR	50'-11"	425
B3	5	#4	STR	33'-6"	112
B4	5	#4	STR	21'-2"	71
B5	5	#4	STR	8'-9"	29
B6	8	#4	STR	26'-8"	143
B7	13	#4	STR	3'-0"	26
H1	19	#5	6	13'-0"	258
H2	19	#5	6	12'-9"	253
H3	12	#4	7	17'-0"	136
H4	12	#4	7	17'-1"	137
K1	16	#4	STR	26'-8"	285
K2	8	#4	STR	3'-9"	20
S1	52	#5	2	11'-2"	606
S2	52	#5	4	3'-11"	212
S3	24	#4	5	6'-6"	104
S4	3	#6	8	10'-1"	45
S5	3	#6	9	5'-3"	24
U1	23	#4	1	6'-0"	92
U2	44	#4	1	6'-8"	196
V1	88	#4	STR	7'-3"	426
V2	36	#5	STR	8'-11"	335
V3	44	#5	STR	9'-11"	455
REINFORCING STEEL				LBS. 6,201	
CLASS A CONCRETE BREAKDOWN					
POUR 1				CU.YDS. 33.8	
(CAP, PILE CAP, LOWER PART OF WINGS & COLLARS)					
POUR 2				CU.YDS. 13.0	
(BACKWALL & UPPER PART OF WINGS)					
CLASS A CONCRETE TOTAL				CU.YDS. 46.8	
ALL BAR DIMENSIONS ARE OUT TO OUT					

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 3 OF 3

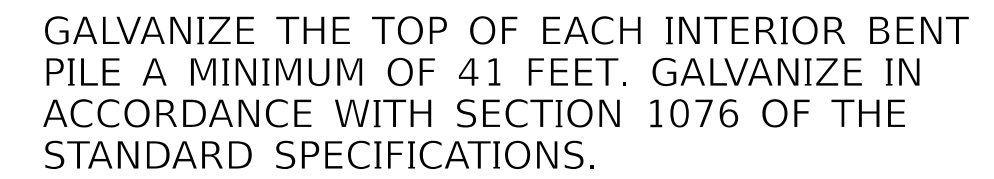
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1
(EASTBOUND)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S02-29
1			3			TOTAL SHEETS 40
2			4			

STR #2



* INVERT ALTERNATE STIRRUPS

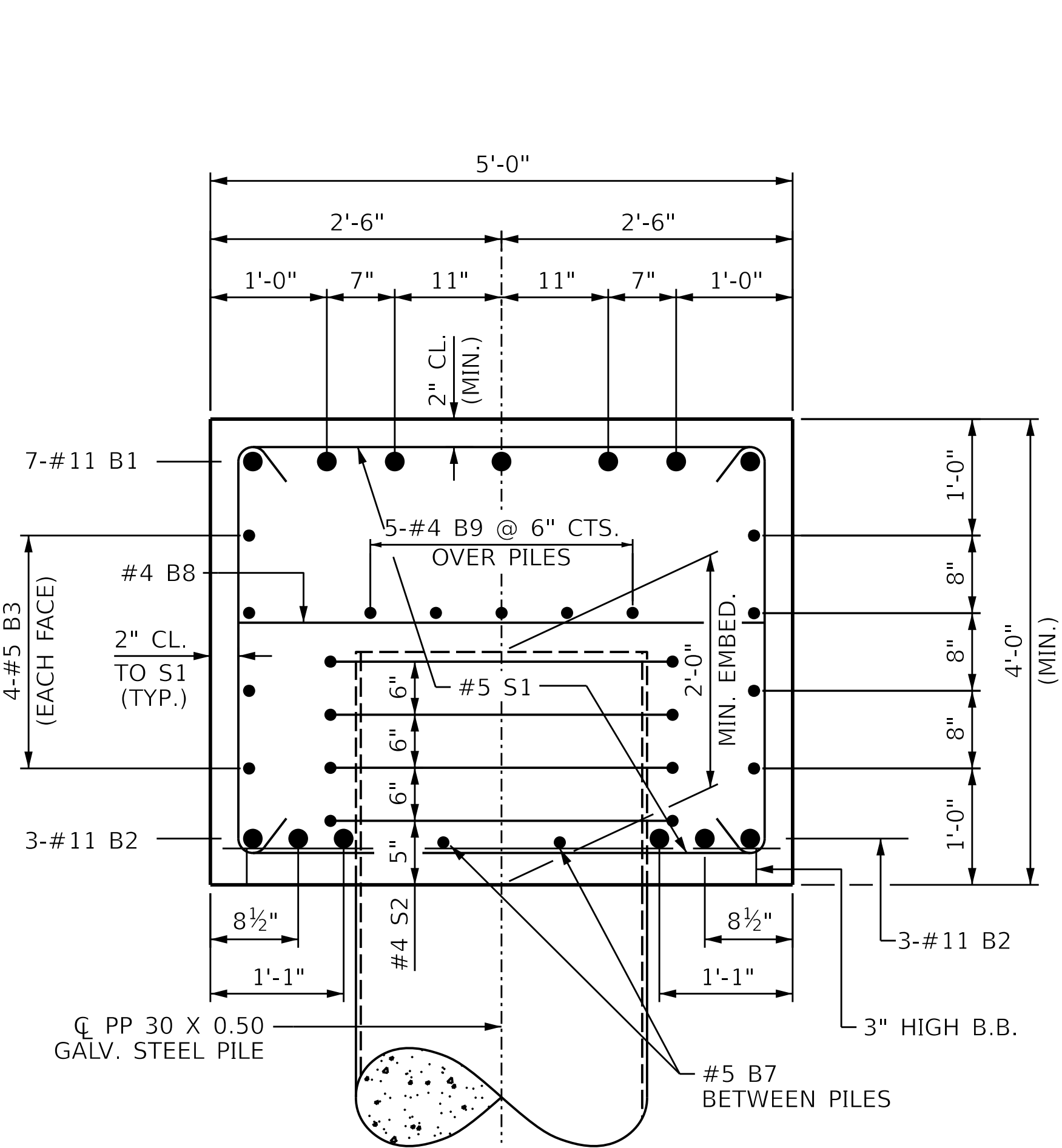


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S02-30
1			3			TOTAL SHEETS
2			4			40

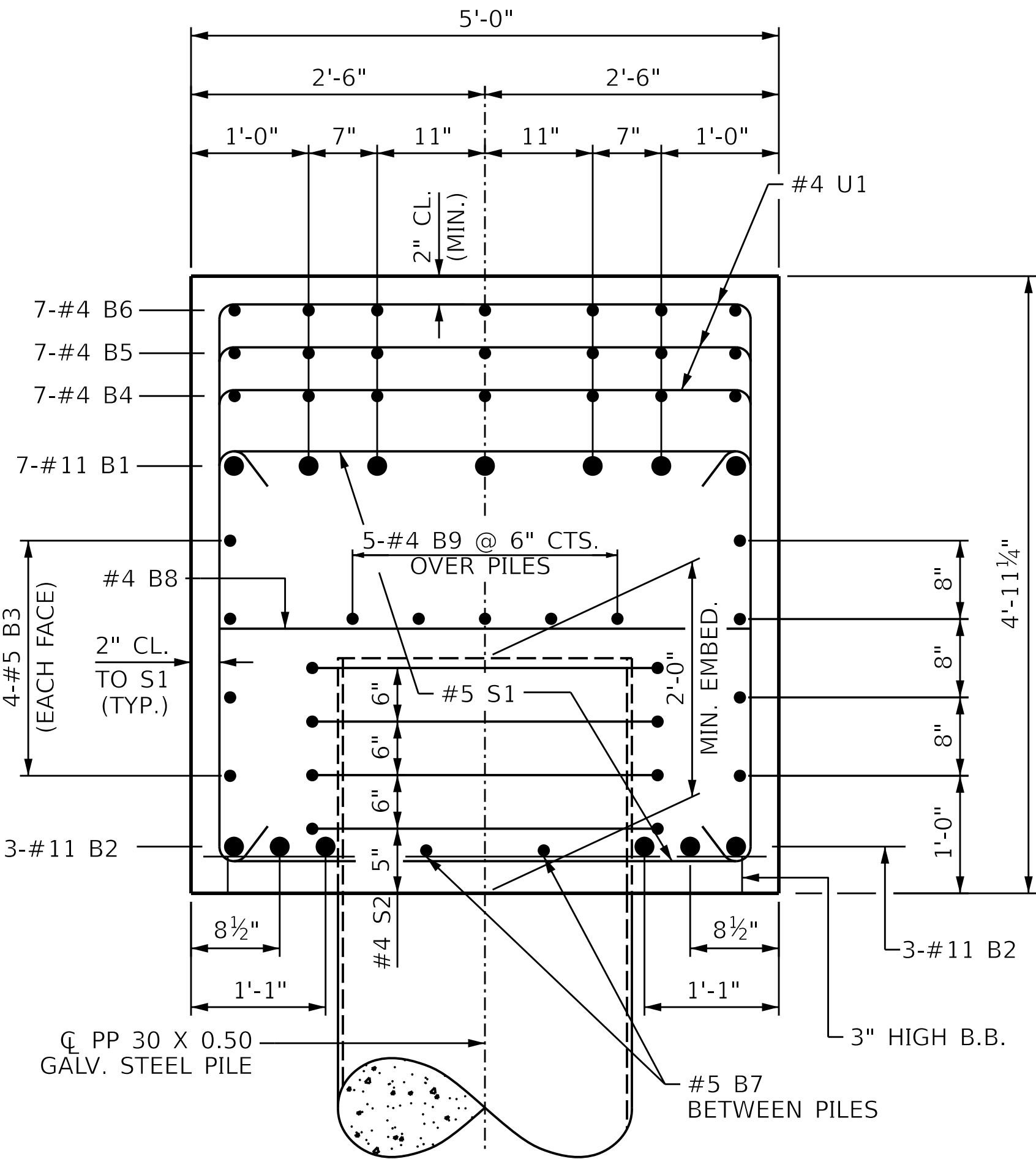
STR #2

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

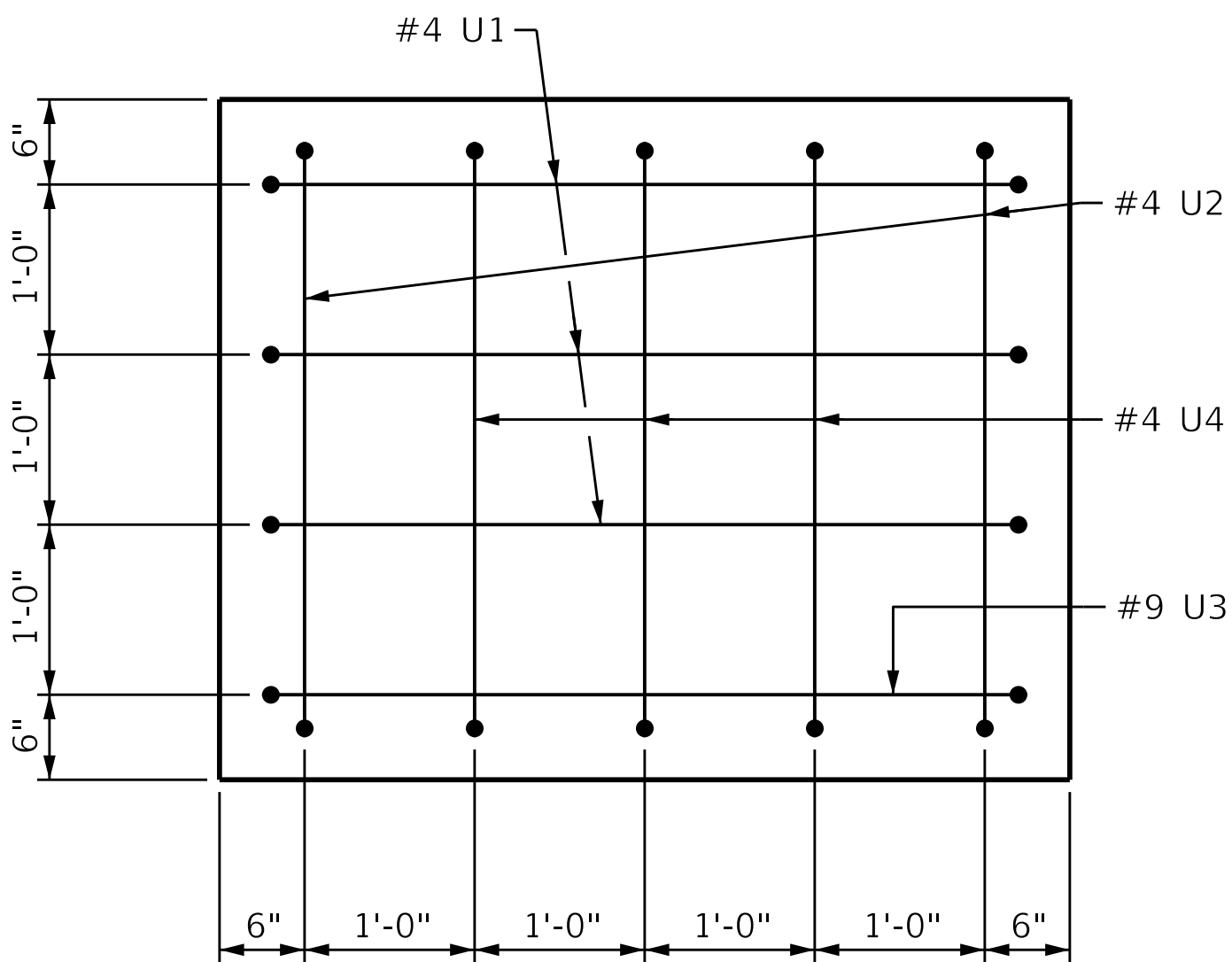
pn:/parrish-pw/bentling.com/parrish-pw/Documents/Surface Transportation/NC DOT - BR-0140/Project Design/Structures/FINAL/BR0140_FINAL_INT - BENT.dgn
10/23/2025 4:05:26 PM MODEL NAME: SHEET MODEL - EAST BOUND DETAILS (BENT 1)



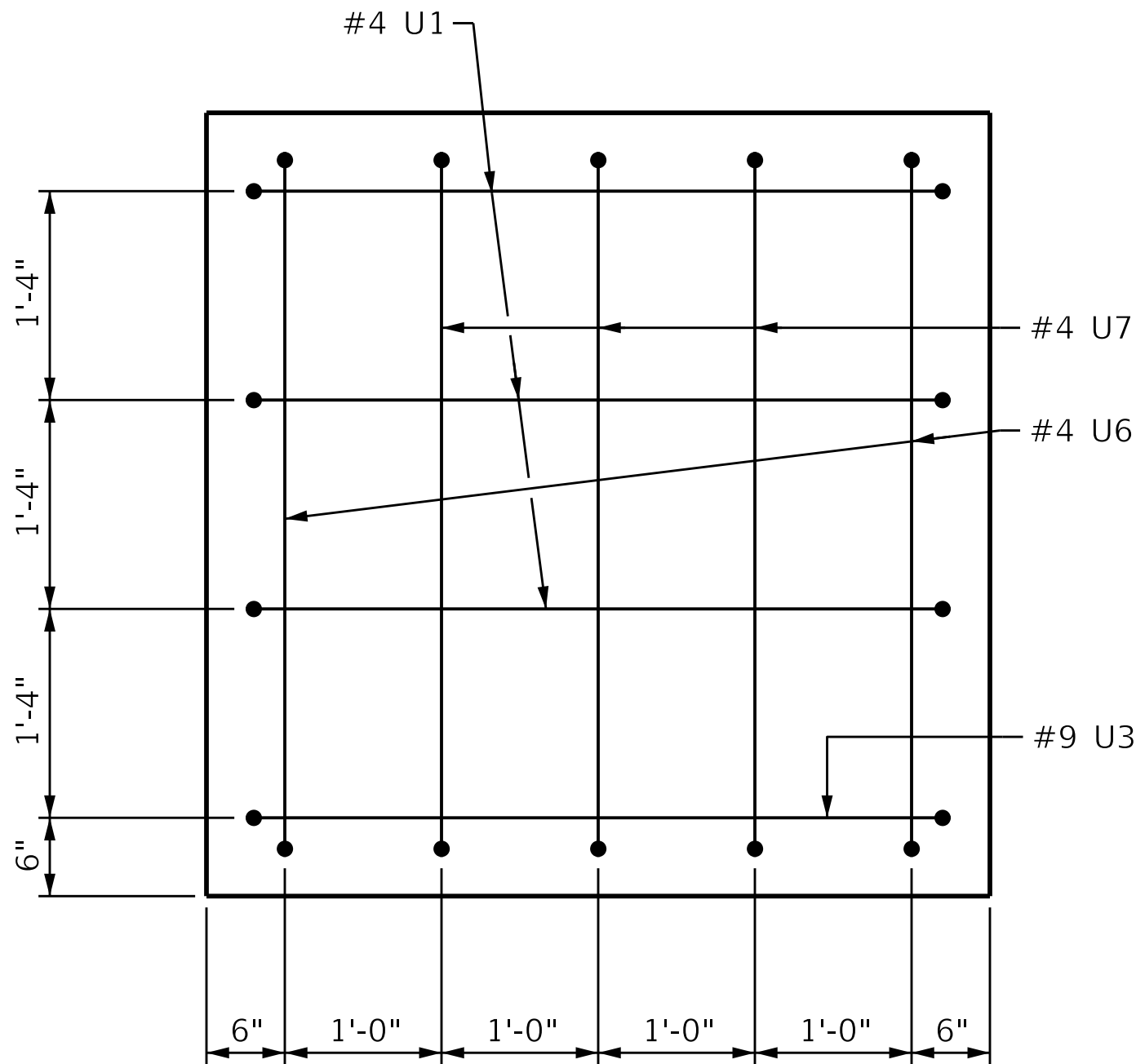
SECTION A-A



SECTION B-B

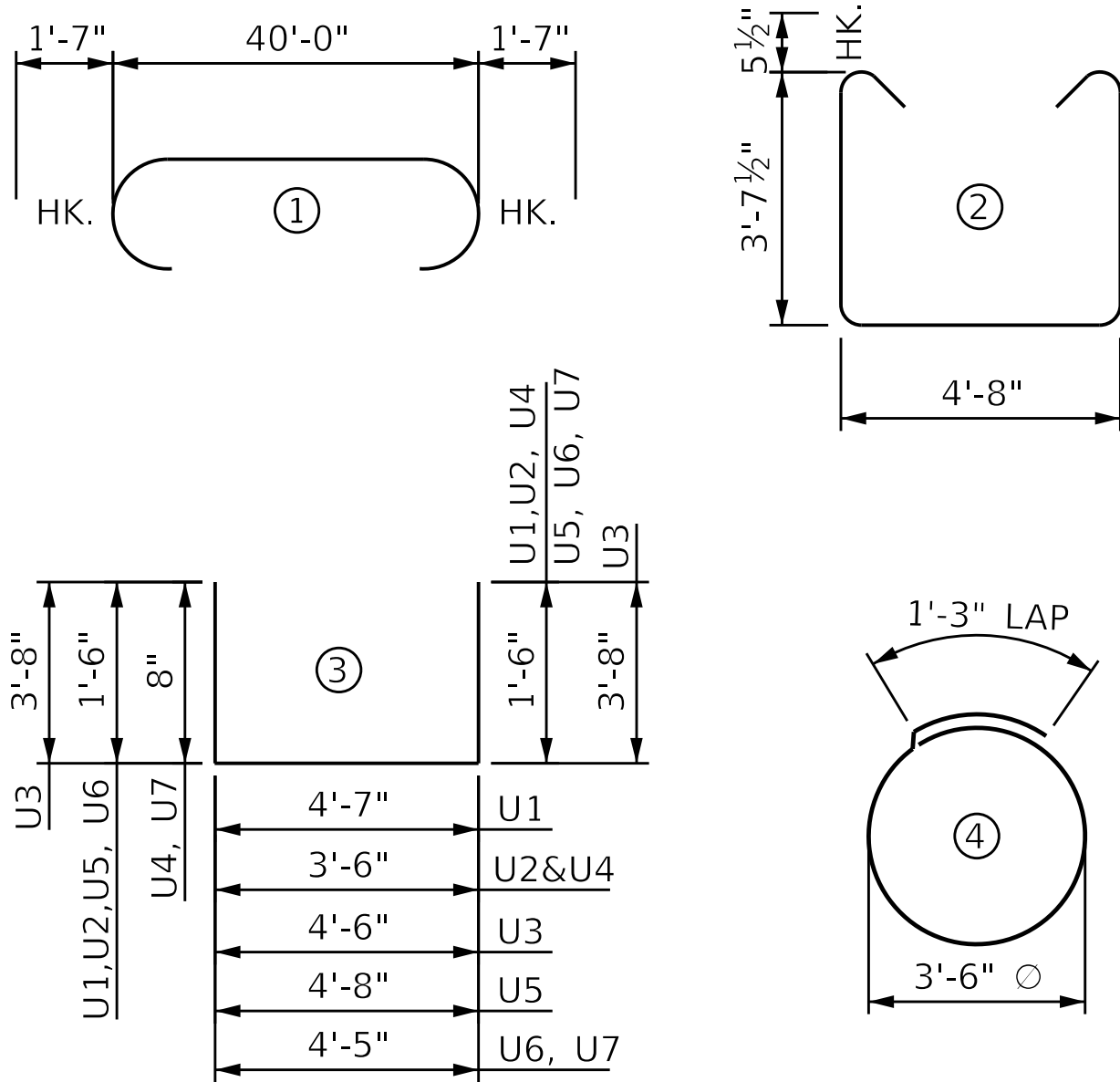


LEFT END VIEW



RIGHT END VIEW

BAR TYPES



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	#11	1	43'-2"	1605
B2	6	#11	STR	40'-2"	1280
B3	8	#5	STR	40'-2"	335
B4	7	#4	STR	27'-4"	128
B5	7	#4	STR	15'-0"	70
B6	7	#4	STR	2'-8"	12
B7	8	#5	STR	5'-11"	49
B8	10	#4	STR	4'-8"	31
B9	5	#4	STR	40'-0"	134

S1	44	#5	2	12'-10"	589
S2	20	#4	4	12'-3"	164

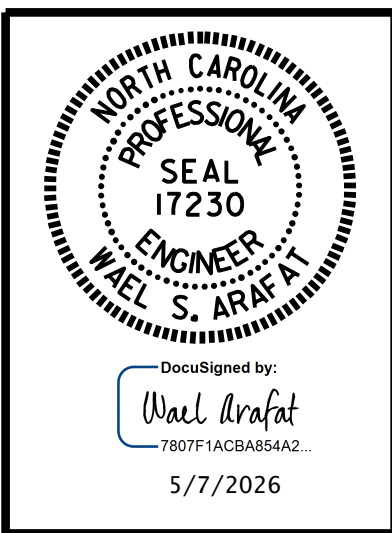
U1	6	#4	3	7'-7"	30
U2	2	#4	3	6'-6"	9
U3	2	#9	3	11'-10"	80
U4	3	#4	3	5'-8"	11
U5	36	#4	3	7'-8"	184
U6	2	#4	3	7'-5"	10
U7	3	#4	3	6'-7"	13

* REINFORCING STEEL LBS. 4,734

CLASS A CONCRETE BREAKDOWN

Δ CLASS A CONCRETE TOTAL CU.YDS. 30.9

Δ CONCRETE DISPLACED BY THE PP 30 X 0.50 GALVANIZED STEEL PILE HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615

NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 2 OF 2

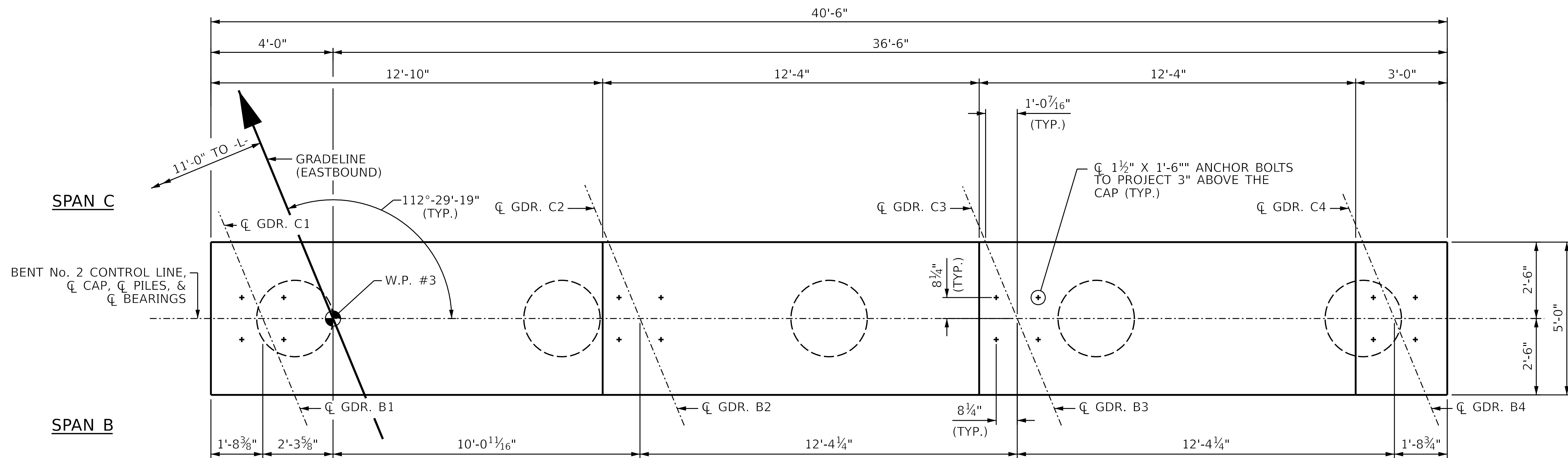
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

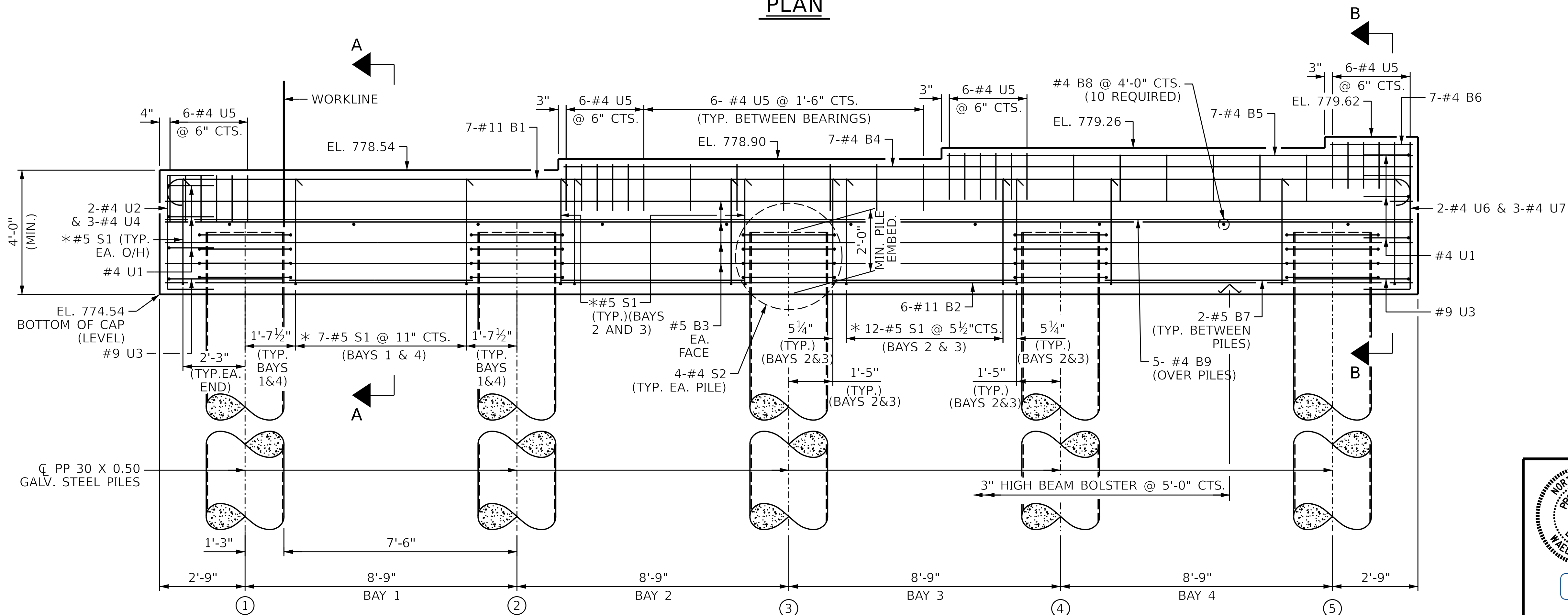
BENT No. 1
(EASTBOUND)

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	
1			3		S02-31 TOTAL SHEETS 40
2			4		

STR #2



PLAN



ELEVATION

* INVERT ALTERNATE STIRRUPS

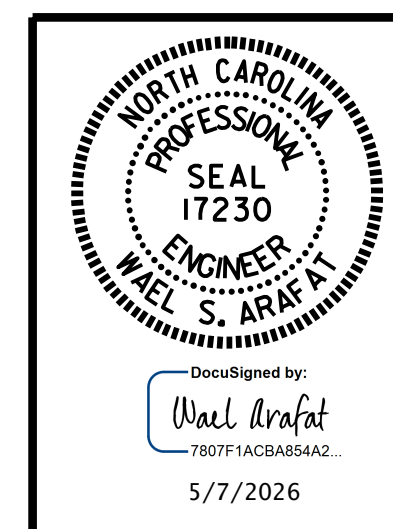
DRAWN BY : C.T.MIXON DATE : 11-24
CHECKED BY : O.PUIGSERVER DATE : 4-25
DESIGN ENGINEER OF RECORD: O.PUIGSERVER DATE : 4-25

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY
TO CLEAR ANCHOR BOLTS.

FOR ADDITIONAL REINFORCING STEEL IN
PP 30 X 0.50 GALVANIZED STEEL PILES, SEE 30"
STEEL PIPE PILE SHEET.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 42 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PARRISH & PARTNERS

Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615

NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
 STATION: 39+69.46 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

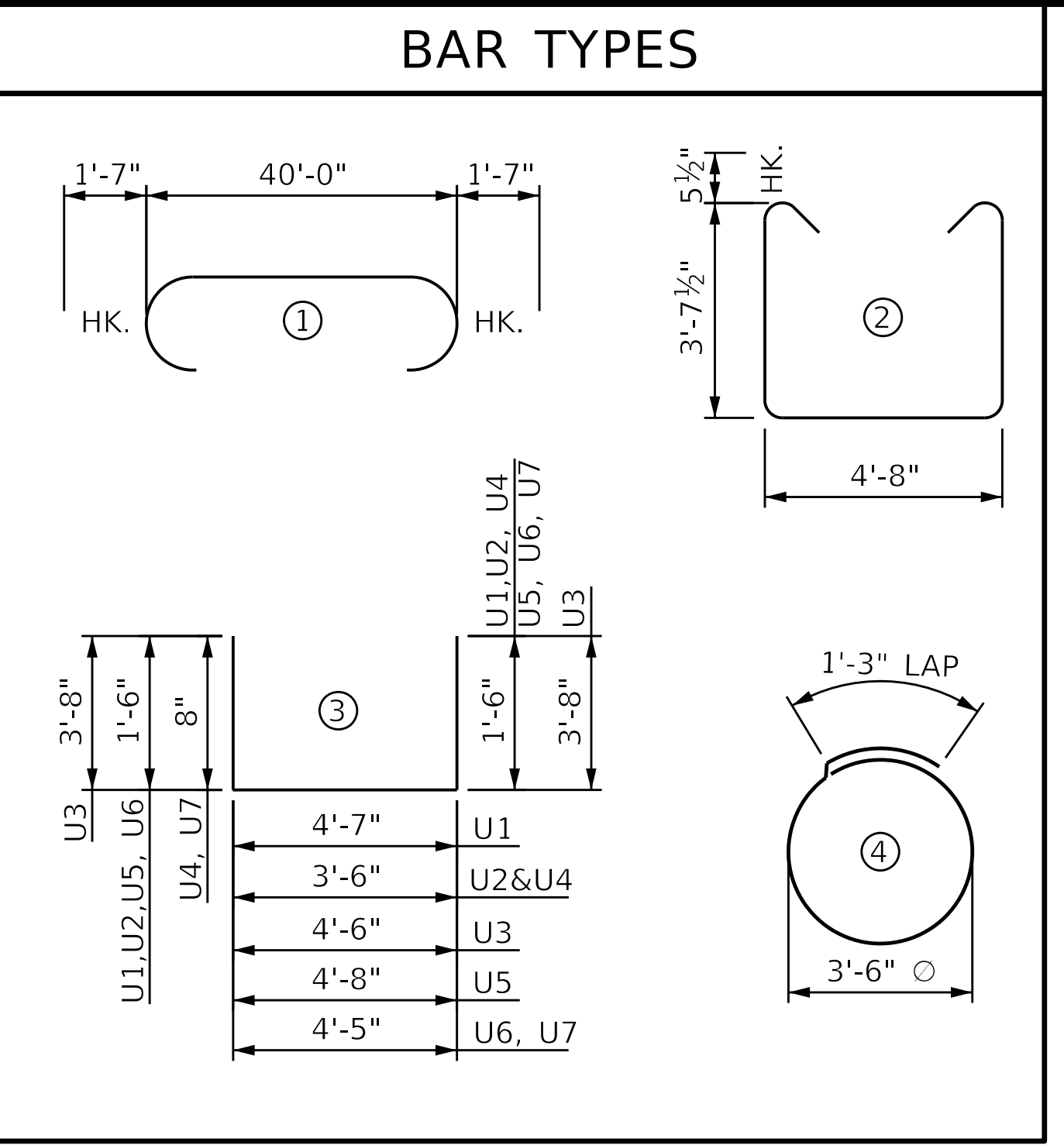
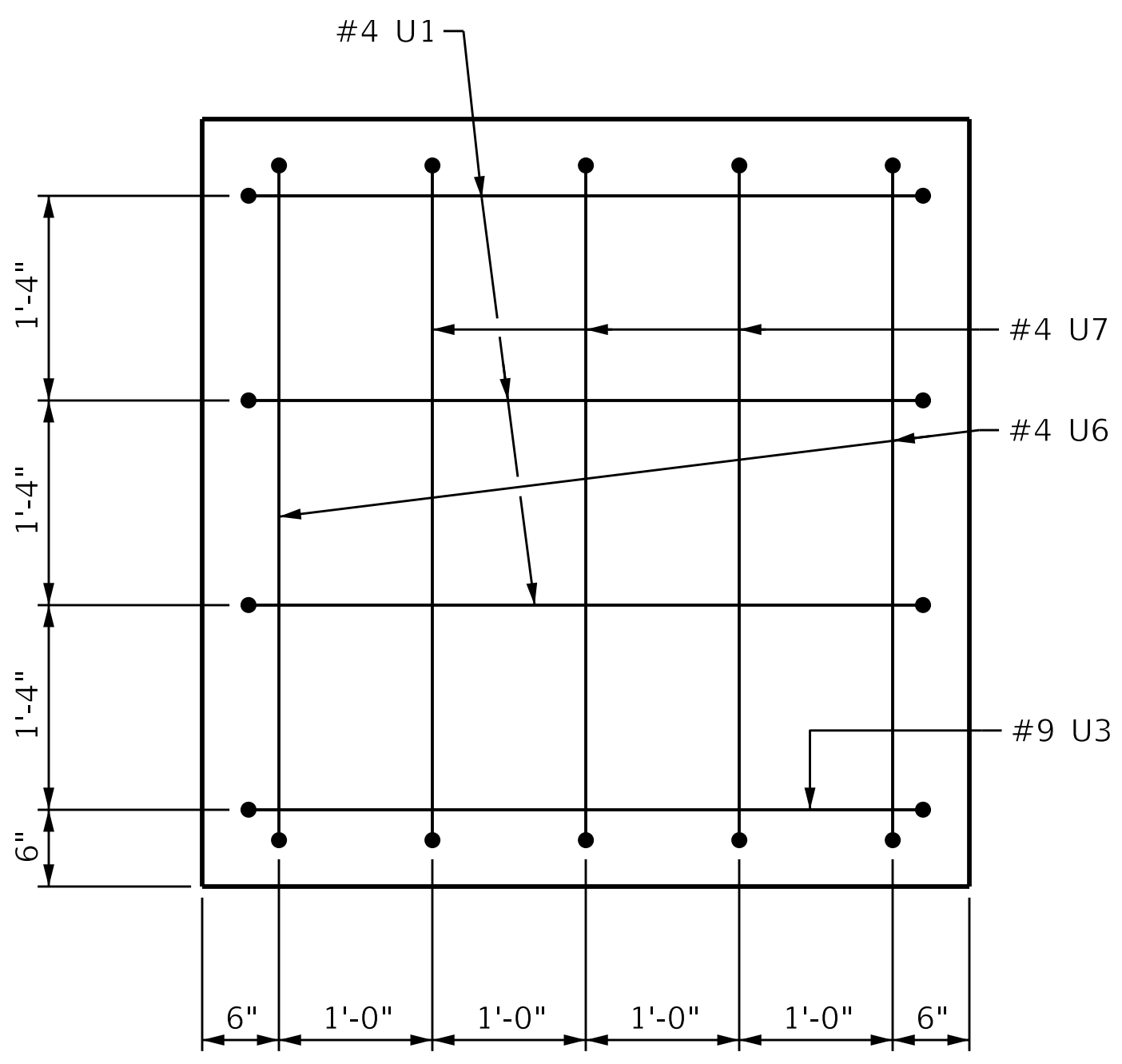
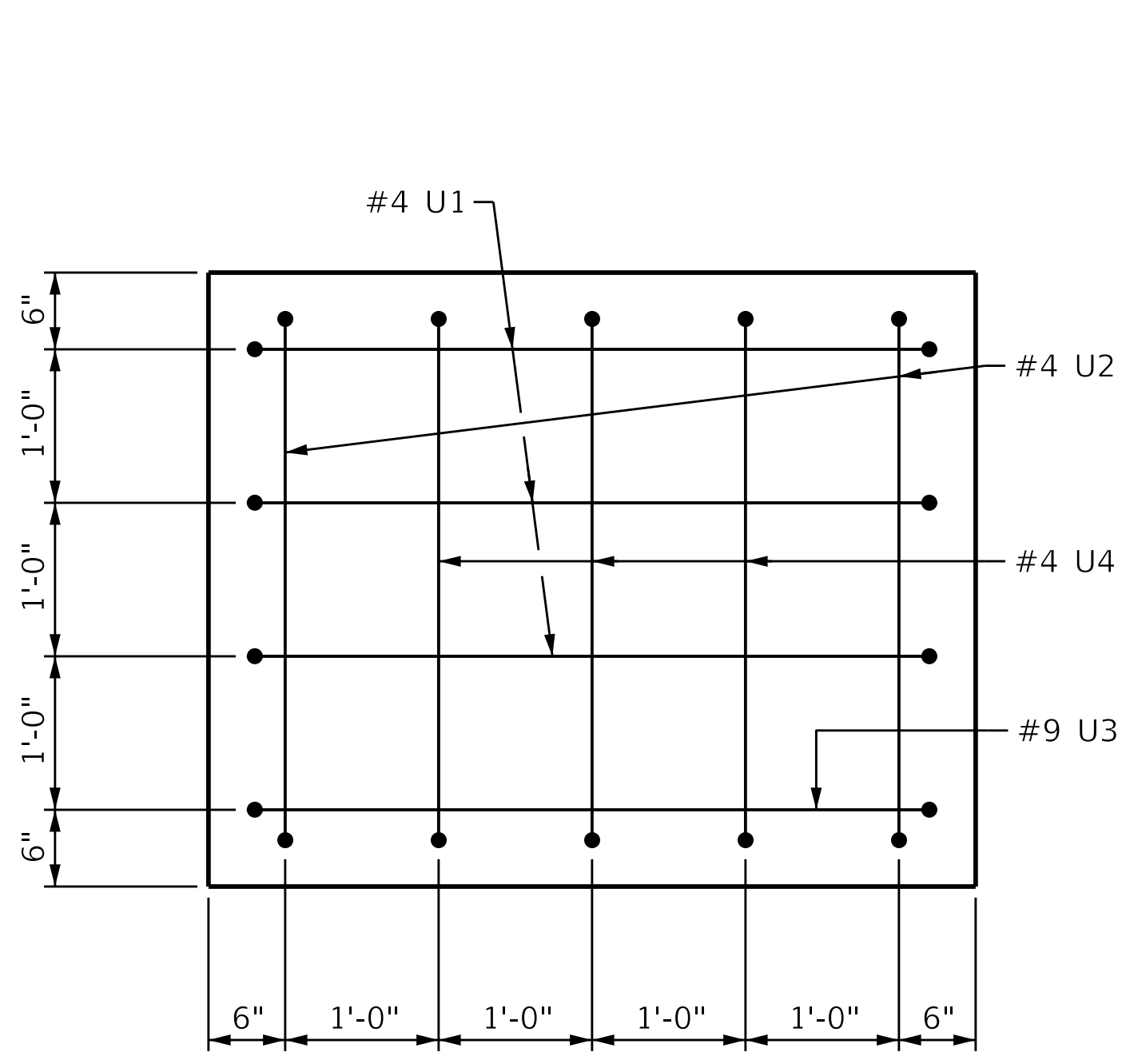
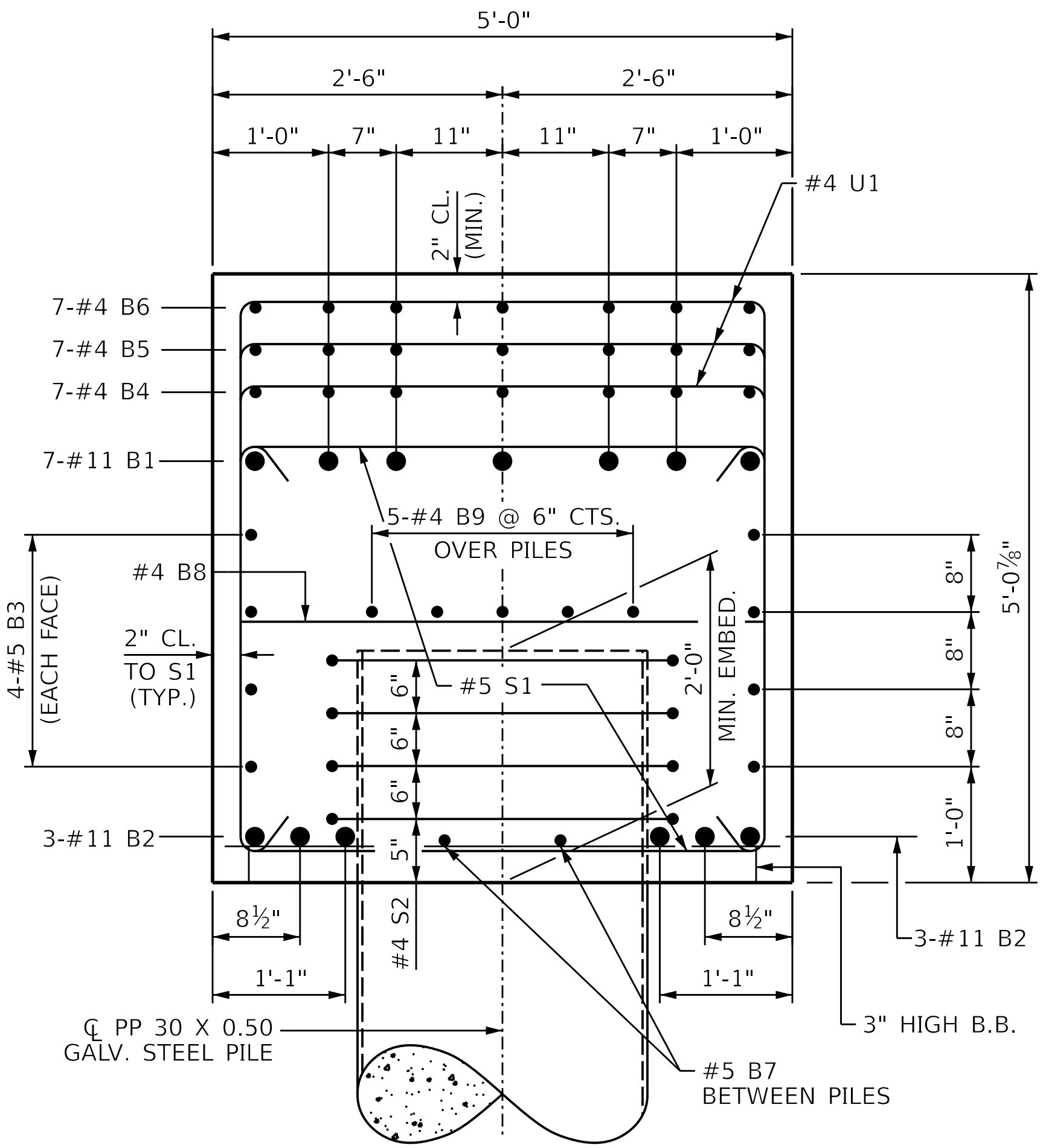
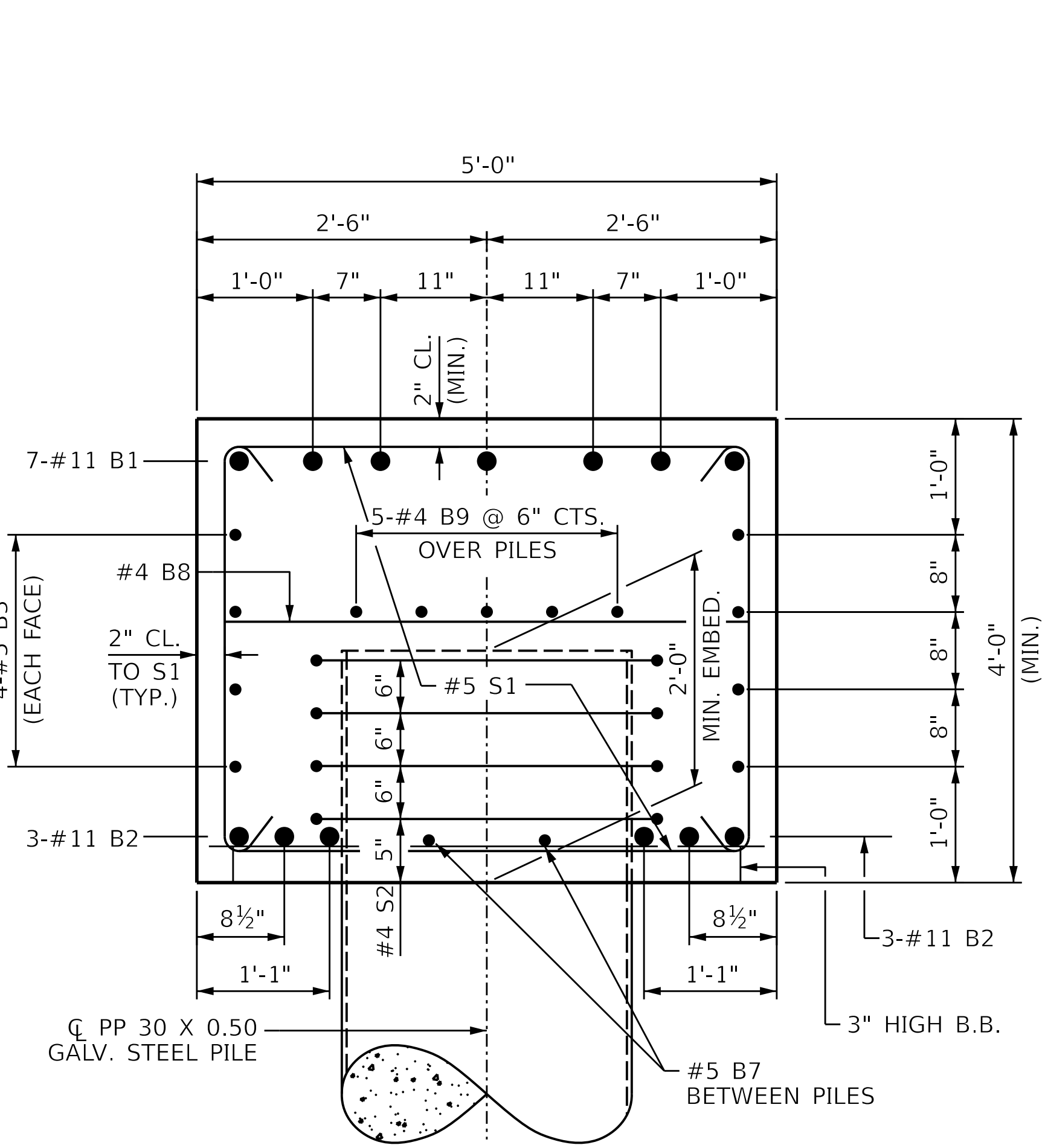
BENT No. 2
(EASTBOUND)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S02-32
1			3			TOTAL SHEETS
2			4			40

STR #2

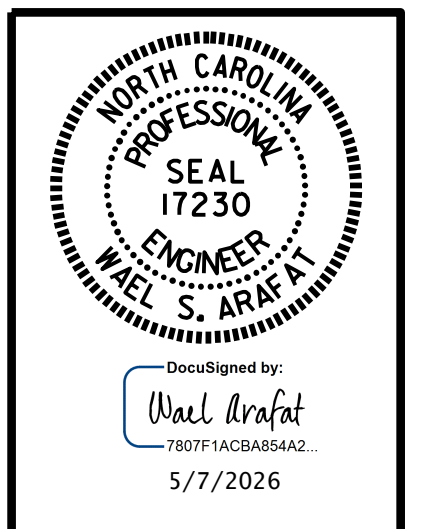
DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

pm\parrish-pw\benling.com\corri1sh-pw\Documents\Surface Transportation\NCDOT_BR-0140\Project Design\Structures\FINAL\BRO040_FINAL_INT_BENT.dgn
1/20/2026 1:26:37 PM
MODEL NAME: SHEET MODEL - EAST BOUND DETAILS (BENT 2)



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	#11	1	43'-2"	1605
B2	6	#11	STR	40'-2"	1280
B3	8	#5	STR	40'-2"	335
B4	7	#4	STR	27'-4"	128
B5	7	#4	STR	15'-0"	70
B6	7	#4	STR	2'-8"	12
B7	8	#5	STR	5'-11"	49
B8	10	#4	STR	4'-8"	31
B9	5	#4	STR	40'-0"	134
S1	44	#5	2	12'-10"	589
S2	20	#4	4	12'-3"	164
U1	6	#4	3	7'-7"	30
U2	2	#4	3	6'-6"	9
U3	2	#9	3	11'-10"	80
U4	3	#4	3	5'-8"	11
U5	36	#4	3	7'-8"	184
U6	2	#4	3	7'-5"	10
U7	3	#4	3	6'-7"	13
* REINFORCING STEEL				LBS.	4,734
CLASS A CONCRETE BREAKDOWN					
Δ CLASS A CONCRETE TOTAL				CU.YDS.	31.2

Δ CONCRETE DISPLACED BY THE PP 30 X 0.50 GALVANIZED STEEL PILE HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

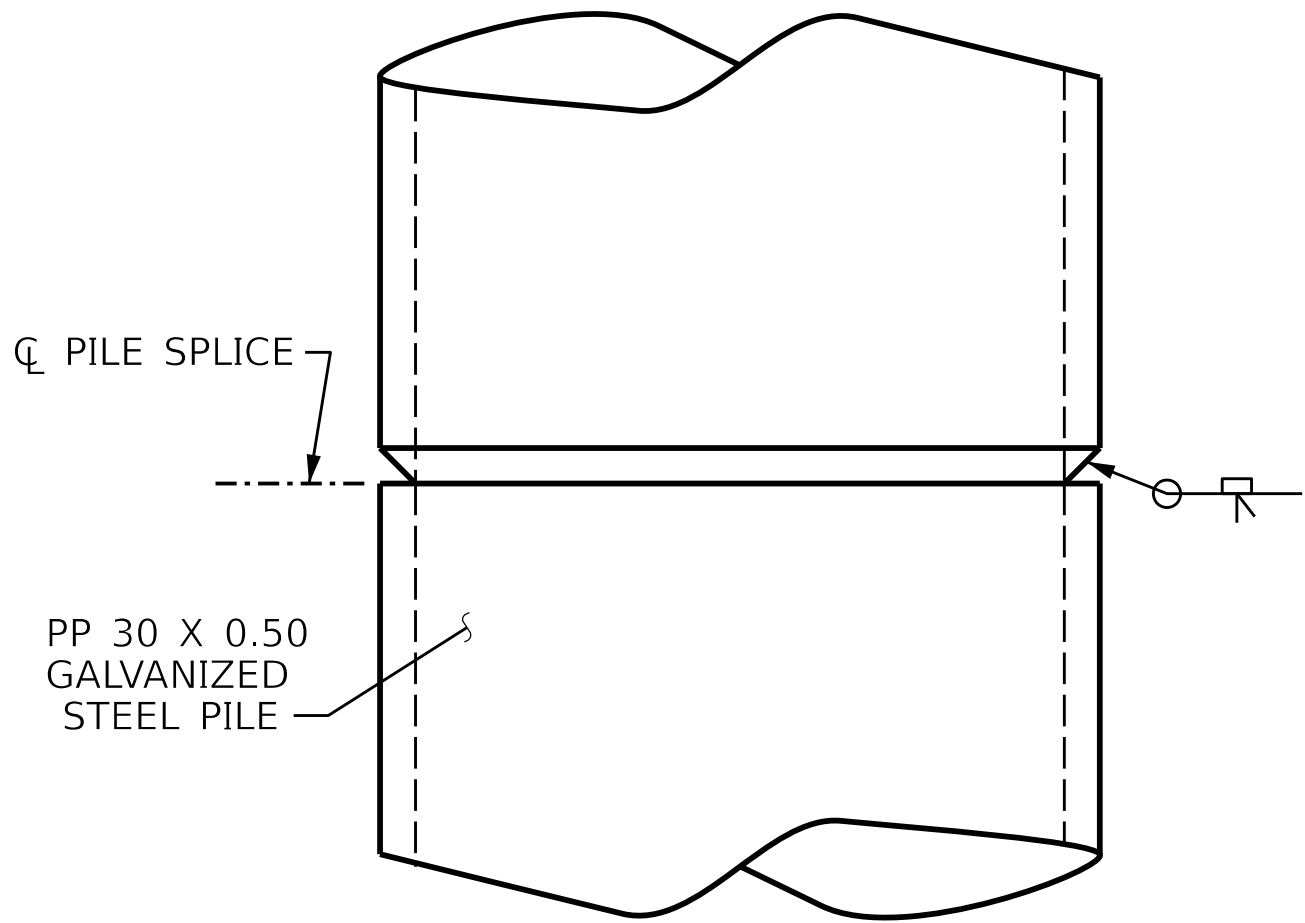
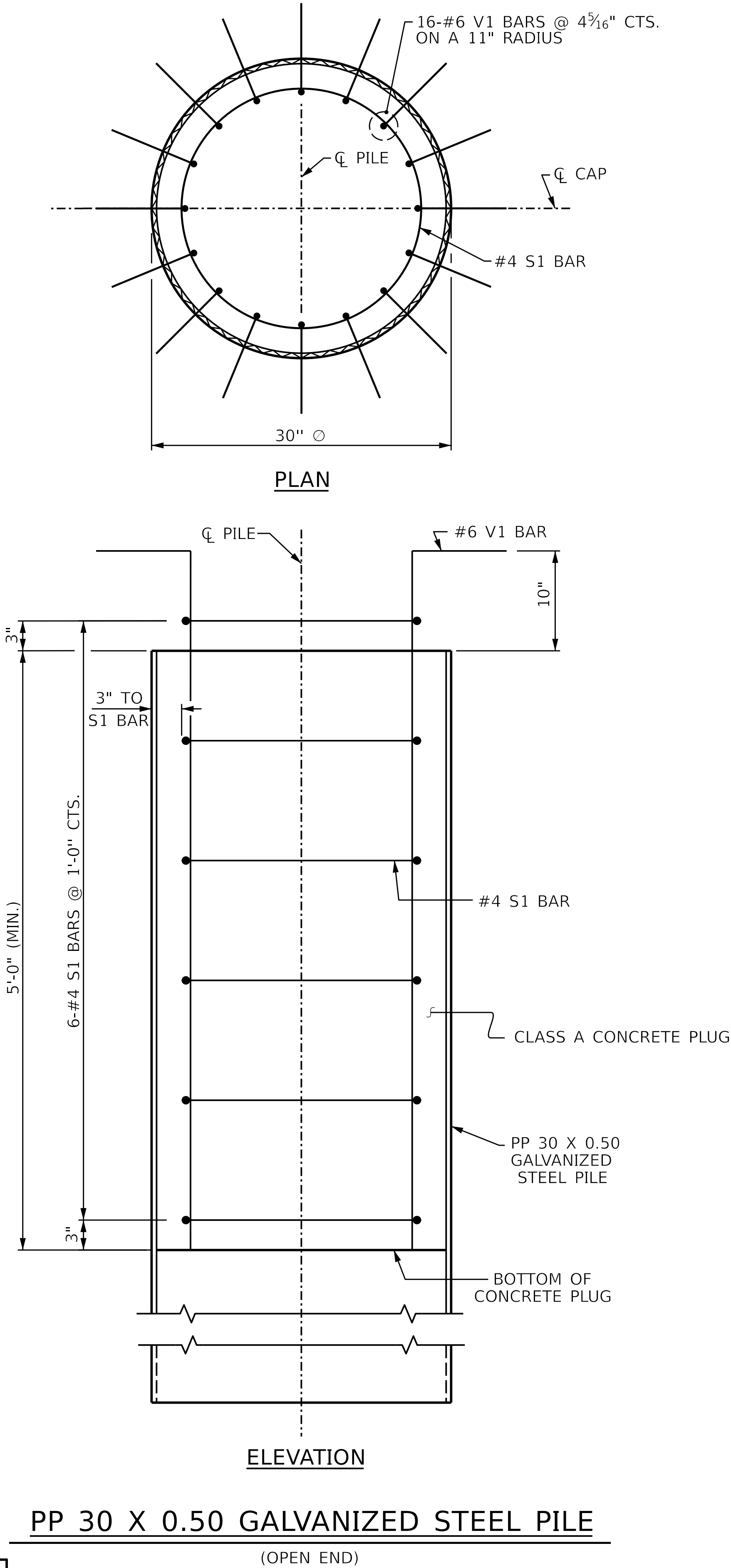
SUBSTRUCTURE
BENT No. 2
(EASTBOUND)

NO.			REVISIONS			SHEET NO.
BY:	DATE:		NO.	BY:	DATE:	
1			3			S02-33 TOTAL SHEETS 40
2			4			

STR #2

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

pw:/parrish-partners.com/parrish-partners/Projects/Transportation/NC DOT - BR-0140/Project Design/Structures/FINAL/BRO40_PIPE_PILE_DET.dgn
10/23/2025 4:05:31 PM



NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS UNLESS METALLIZING IS REQUIRED. GALVANIZING OR METALLIZING PIPE PILE PLATES IS NOT REQUIRED.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 30 X 0.50 GALVANIZED STEEL PILES.

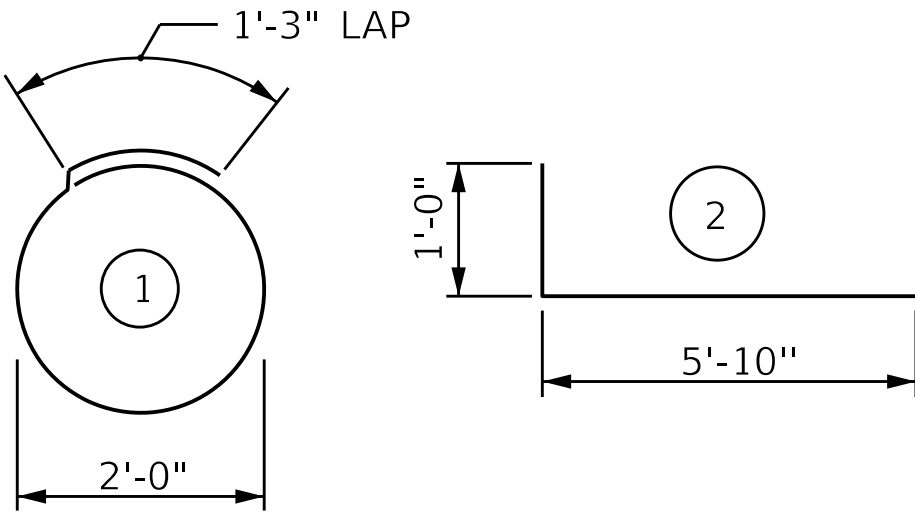
BILL OF MATERIAL FOR ONE PP 30 X 0.50 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	6	#4	1	7'-7"	30
V1	16	#5	2	6'-10"	164
REINFORCING STEEL =				194	lbs

CLASS A CONCRETE

5'-0" MINIMUM PLUG 0.8 CY

BAR TYPES



PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

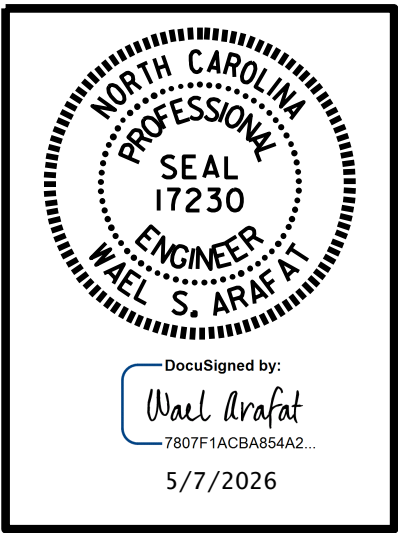
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

30" STEEL PIPE PILE
(EASTBOUND)

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	
1			3		S02-34 TOTAL SHEETS 40
2			4		

STR. #2 STD. NO. SPP5



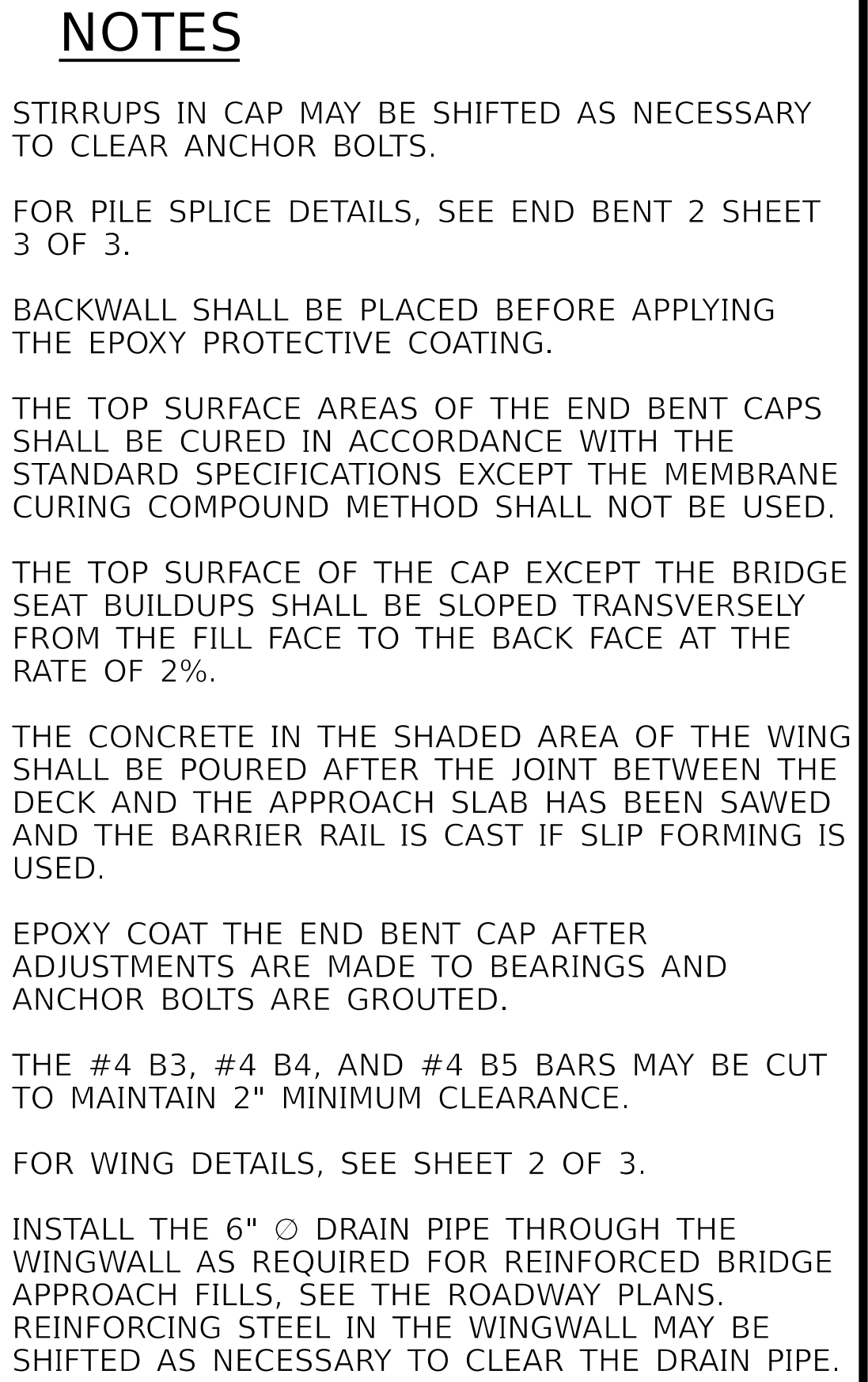
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PARRISH & PARTNERS

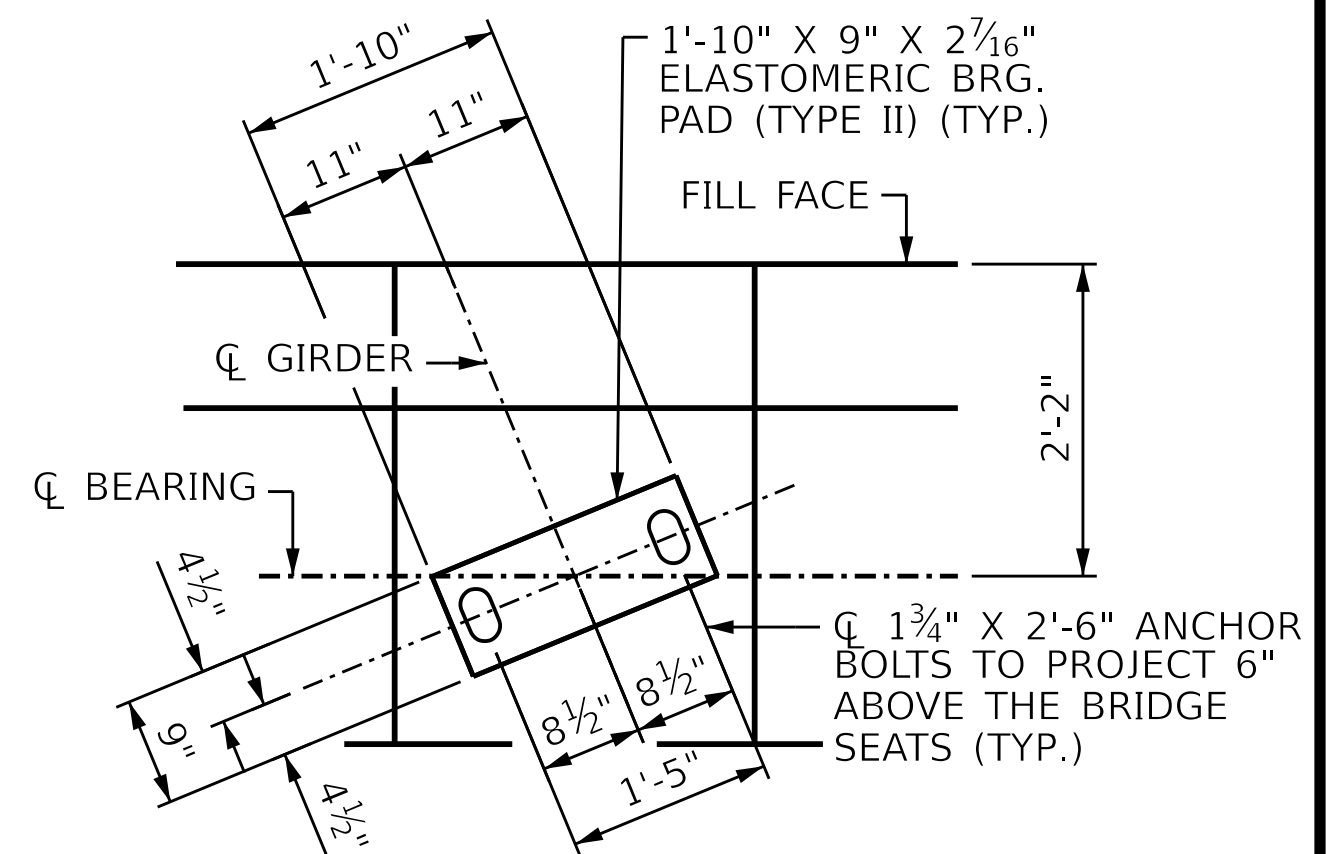
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615

NC License #P-1212

ASSEMBLED BY :	C.T. MIXON	DATE :	11-24
CHECKED BY :	O. PUIGCERVER	DATE :	11-24
DRAWN BY :	TLA 08/05	REV. 5/1/06R	MAA/KMM
CHECKED BY :	GM 09/05	REV. 10/1/11	MAA/GM
		REV. 12/17	MAA/THC



PLAN



DETAIL "A"

TYP. EA. GIRDER

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 1 OF 3



Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615

NC License #P-1212

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT No. 2
(EASTBOUND)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S02-35
1			3			TOTAL SHEETS
2			4			40

STR #2

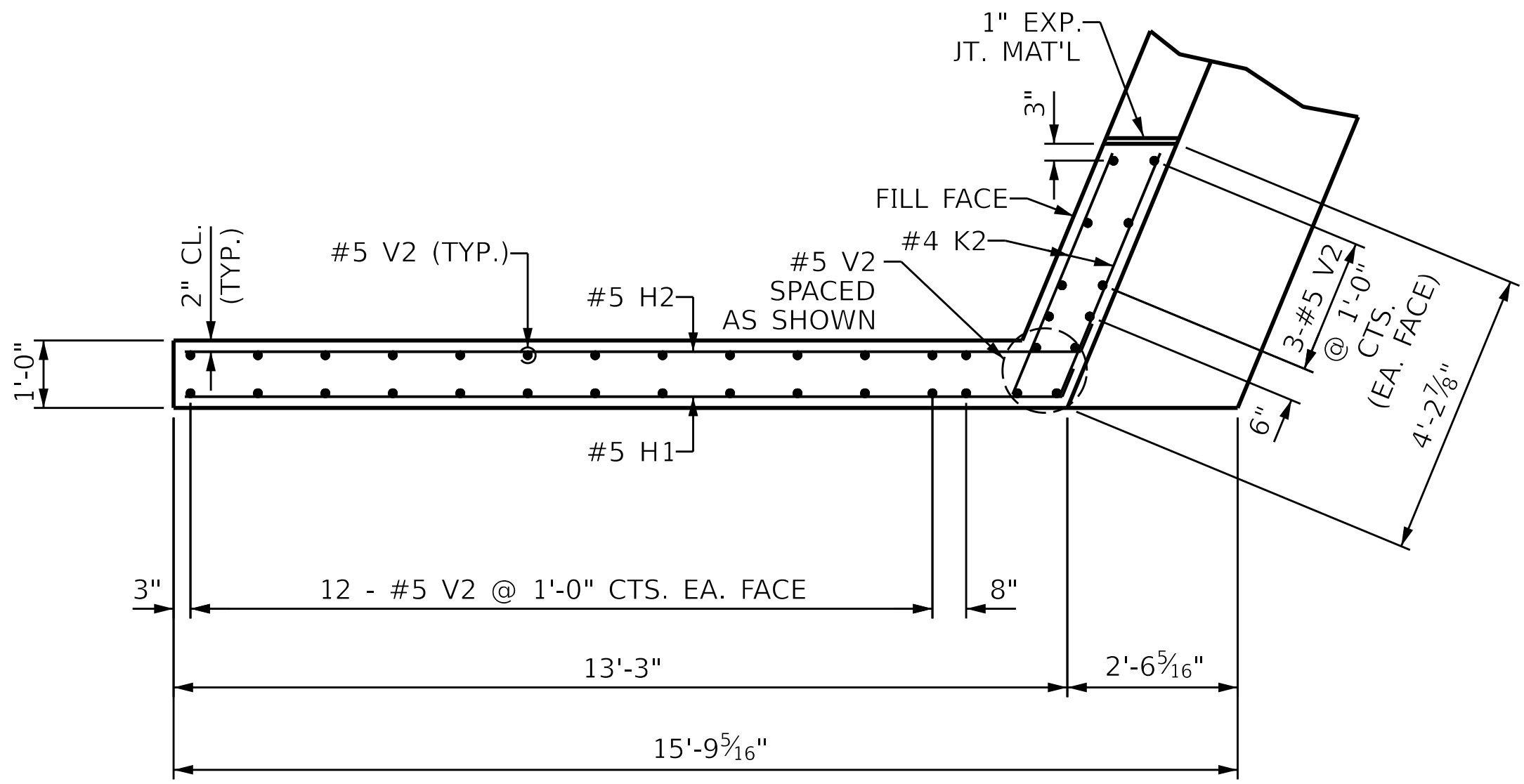
DRAWN BY : C.T. MIXON DATE : 02-25
 CHECKED BY : O. PUIGSERVER DATE : 04-25
 DESIGN ENGINEER OF RECORD: O. PUIGSERVER DATE : 04-25

* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTION A-A, SHEET 3 OF 3.

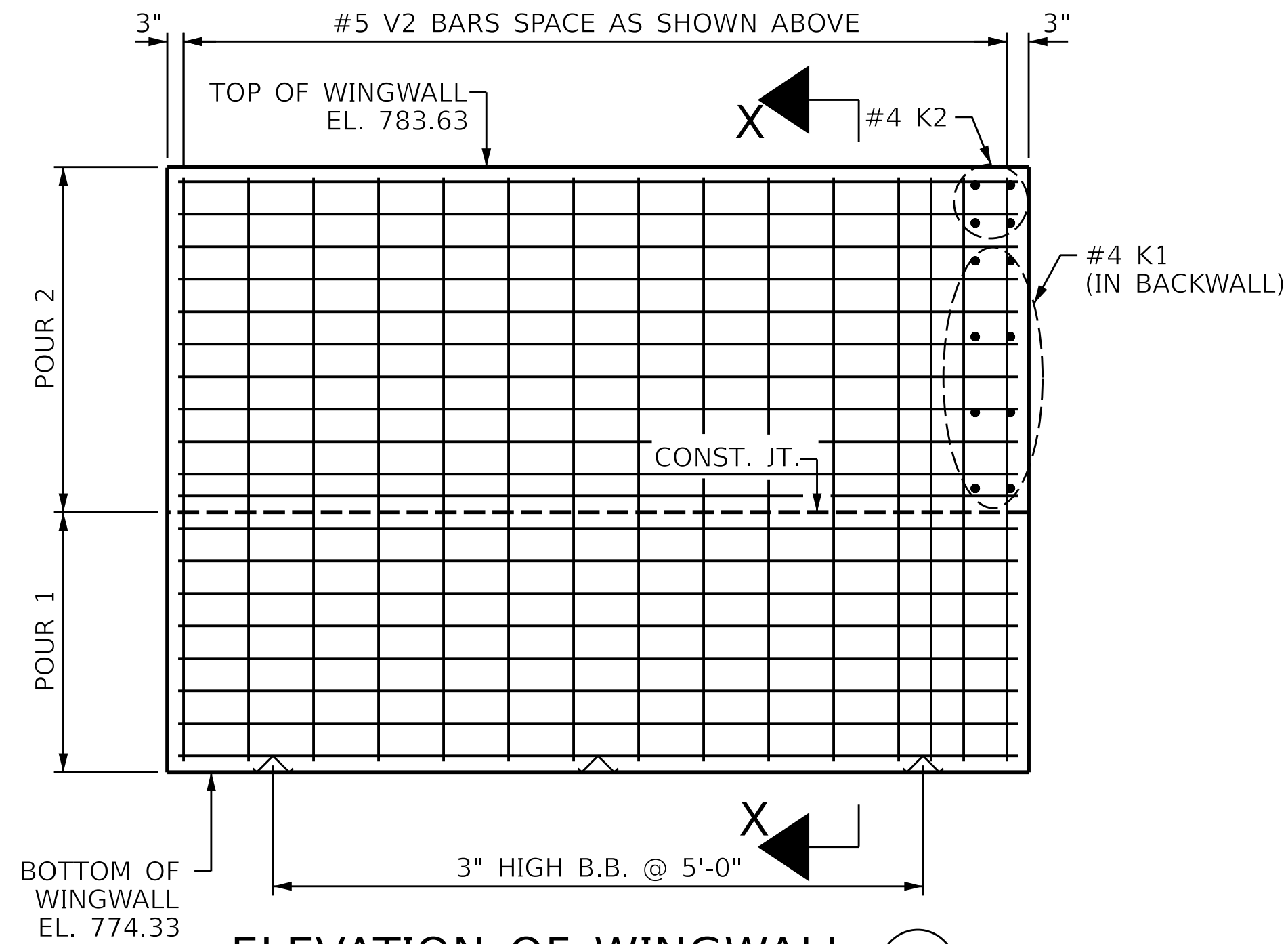
WING BRACE PILE NOT SHOWN FOR CLARITY.

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

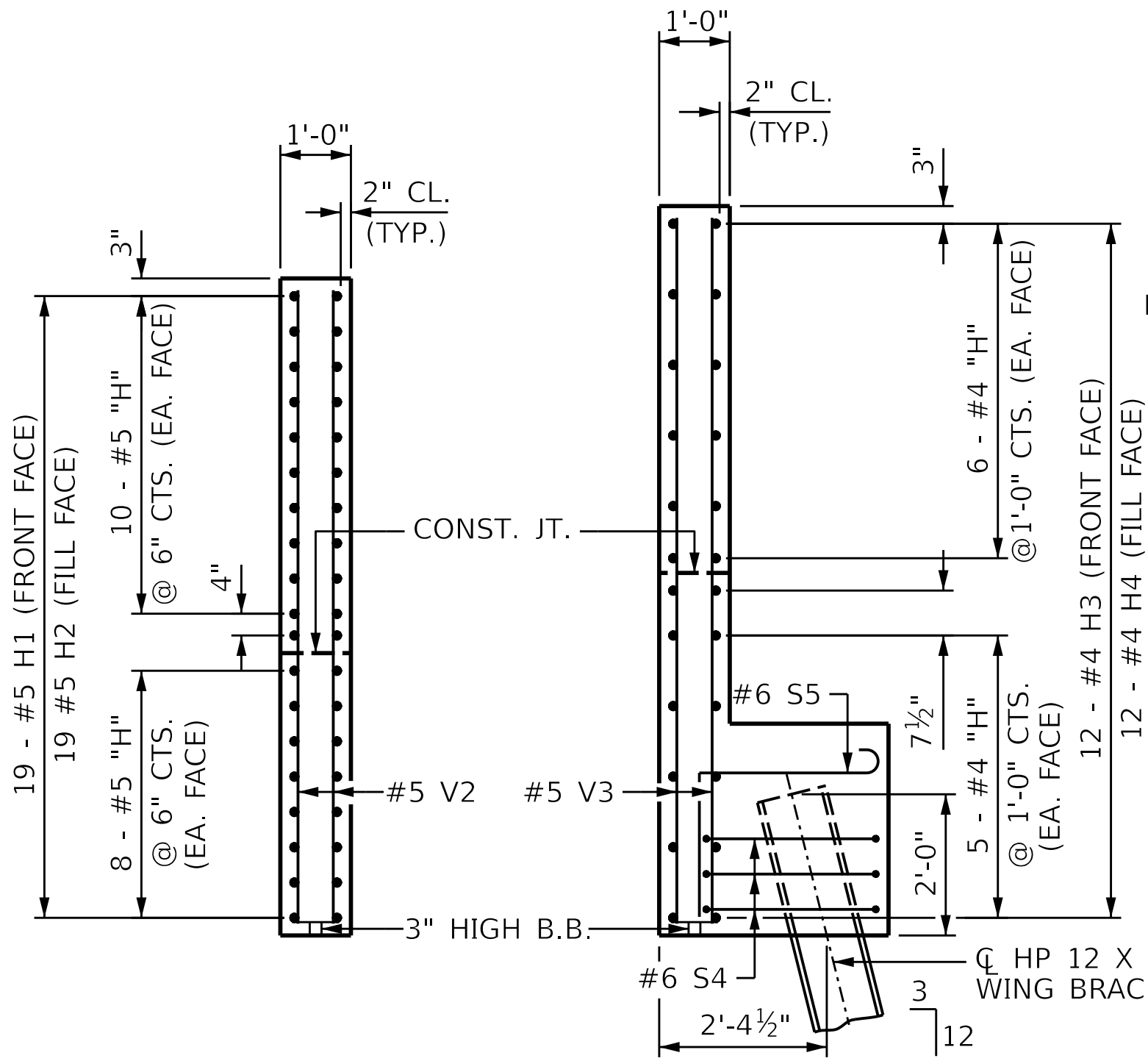
pm/parrish-pw/bentling.com/parrish-pw/Documents/Surface Transportation/NC DOT BR-0140/Project Design/Structures/FINAL/BR0140_FINAL_END_BENT.dgn
10/23/2025 4:05:34 PM MODEL NAME: SHEET MODEL - EAST BOUND WINGWALLS 3-4



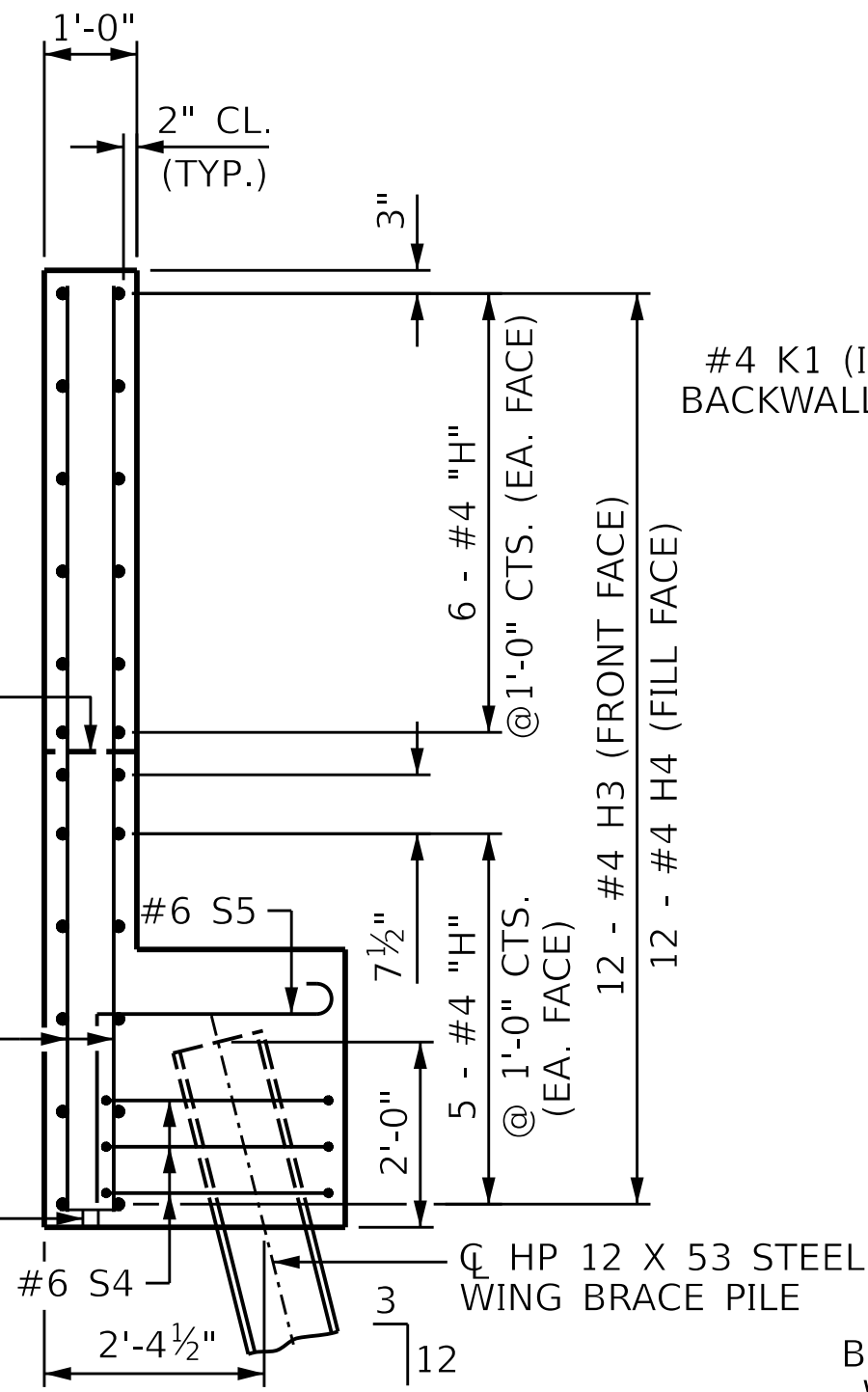
PLAN OF LEFT WINGWALL (W1)
CAP REINF. NOT SHOWN FOR CLARITY



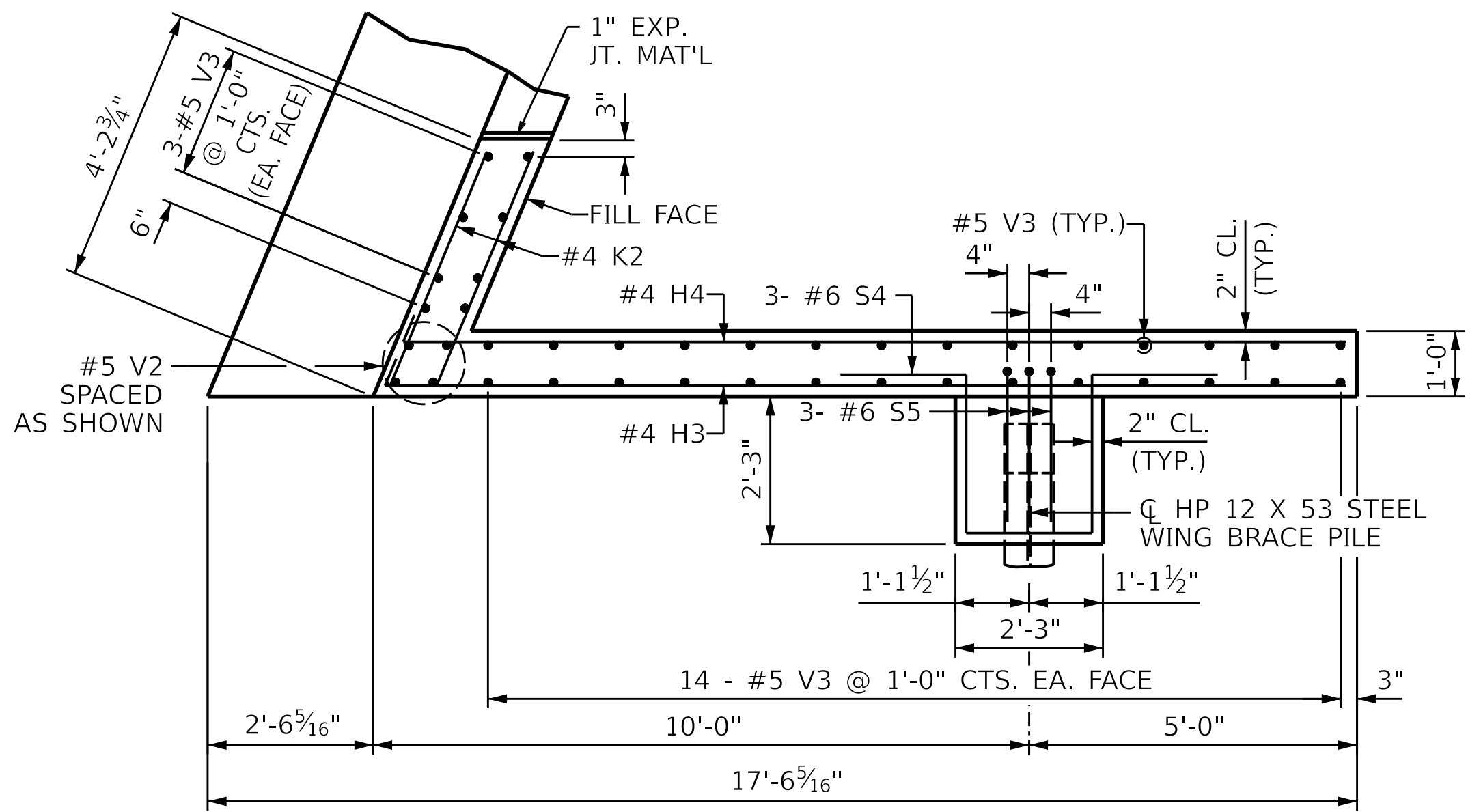
ELEVATION OF WINGWALL (W1)



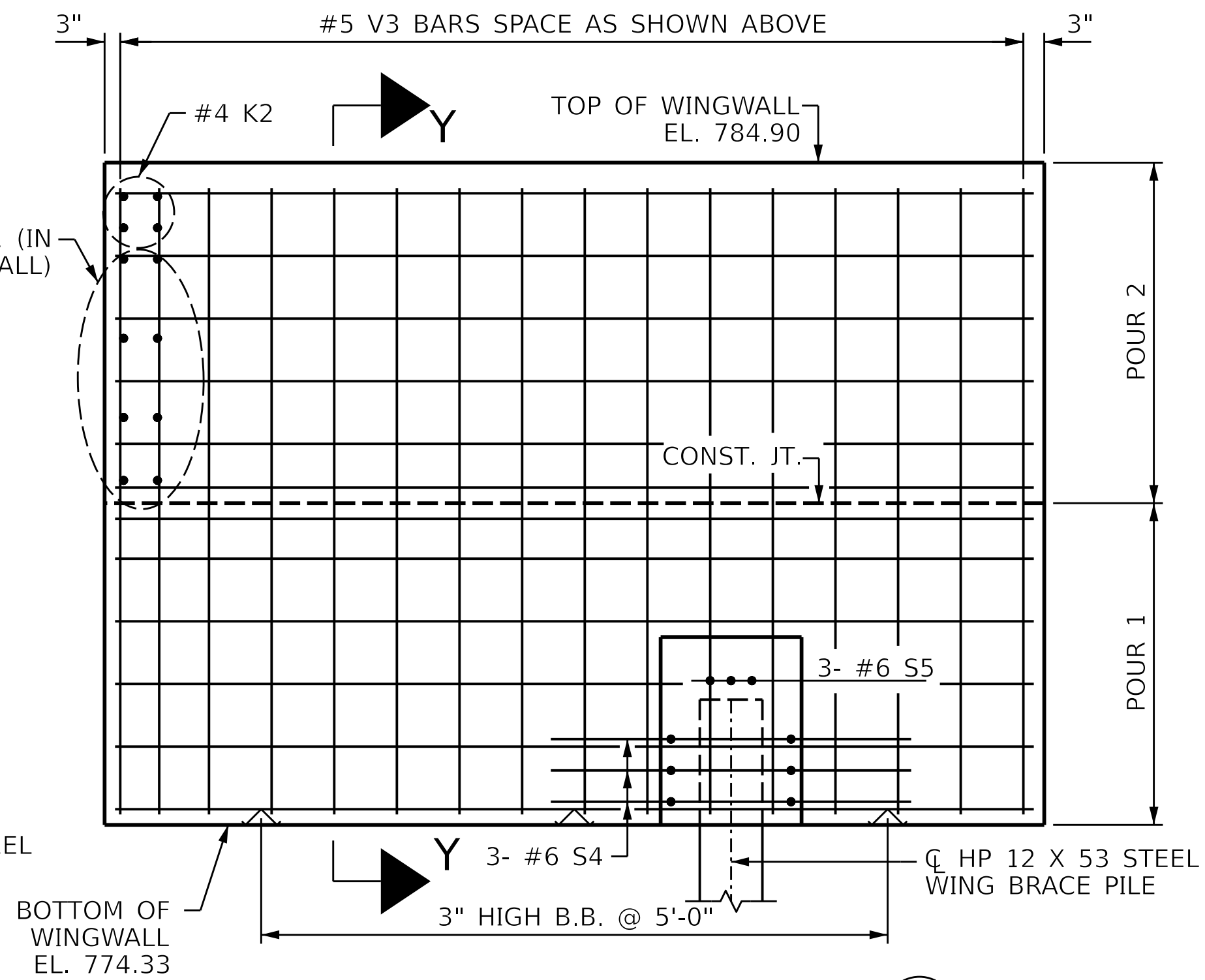
SECTION X-X



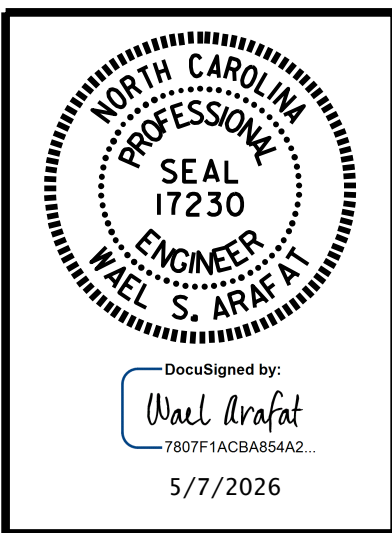
SECTION Y-Y



PLAN OF RIGHT WINGWALL (W2)
CAP REINF. NOT SHOWN FOR CLARITY



ELEVATION OF WINGWALL (W2)



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

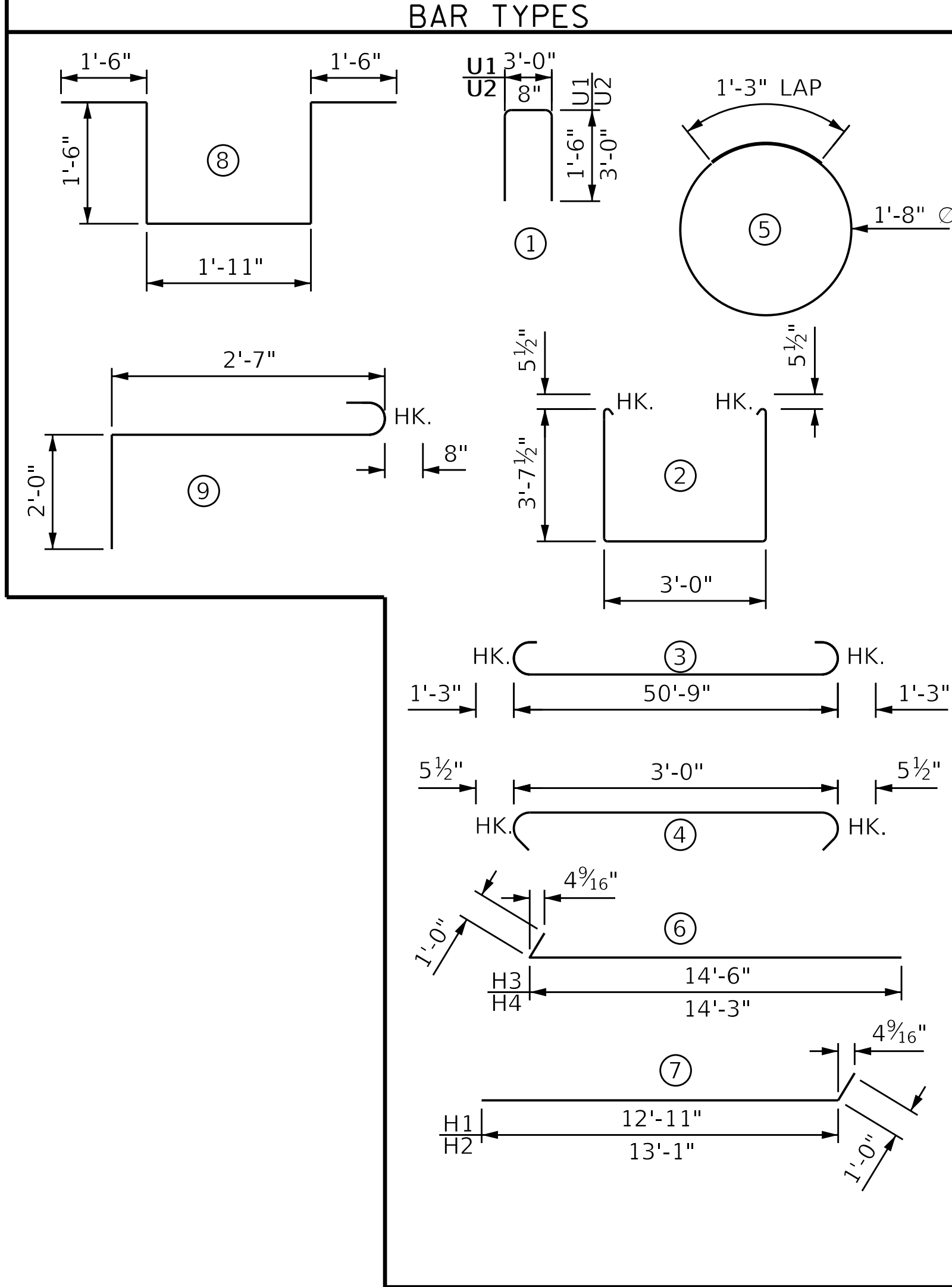
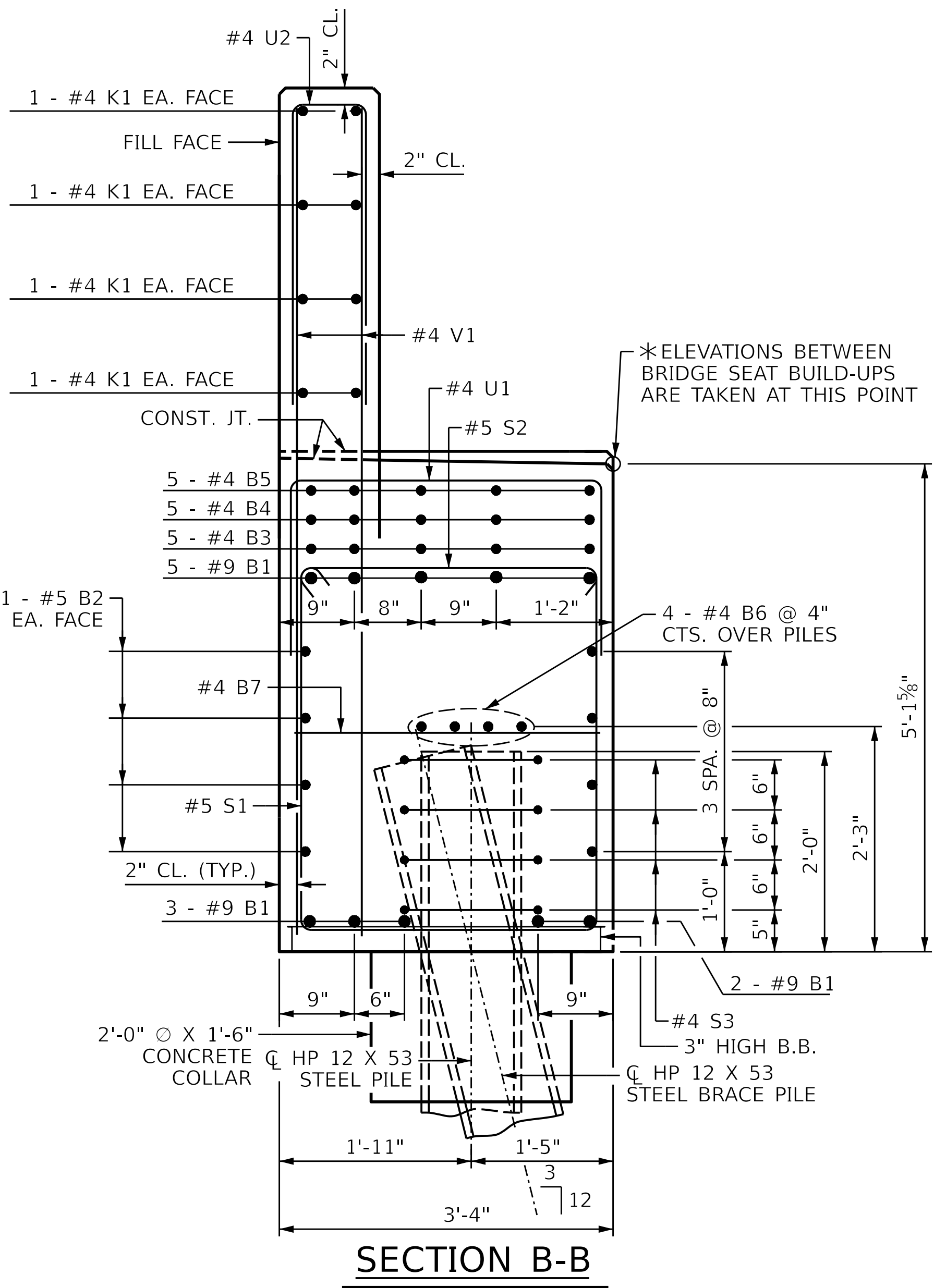
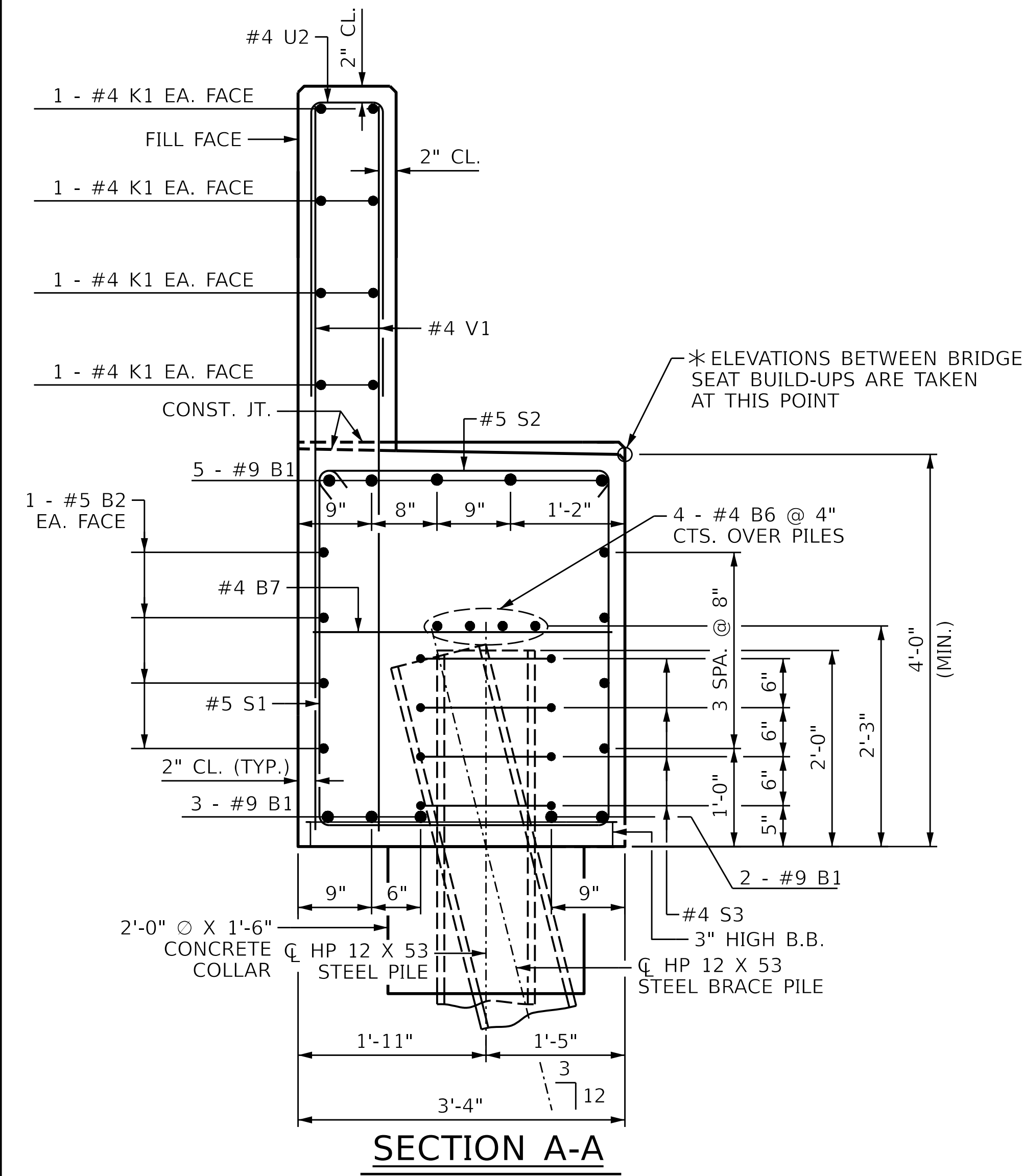
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

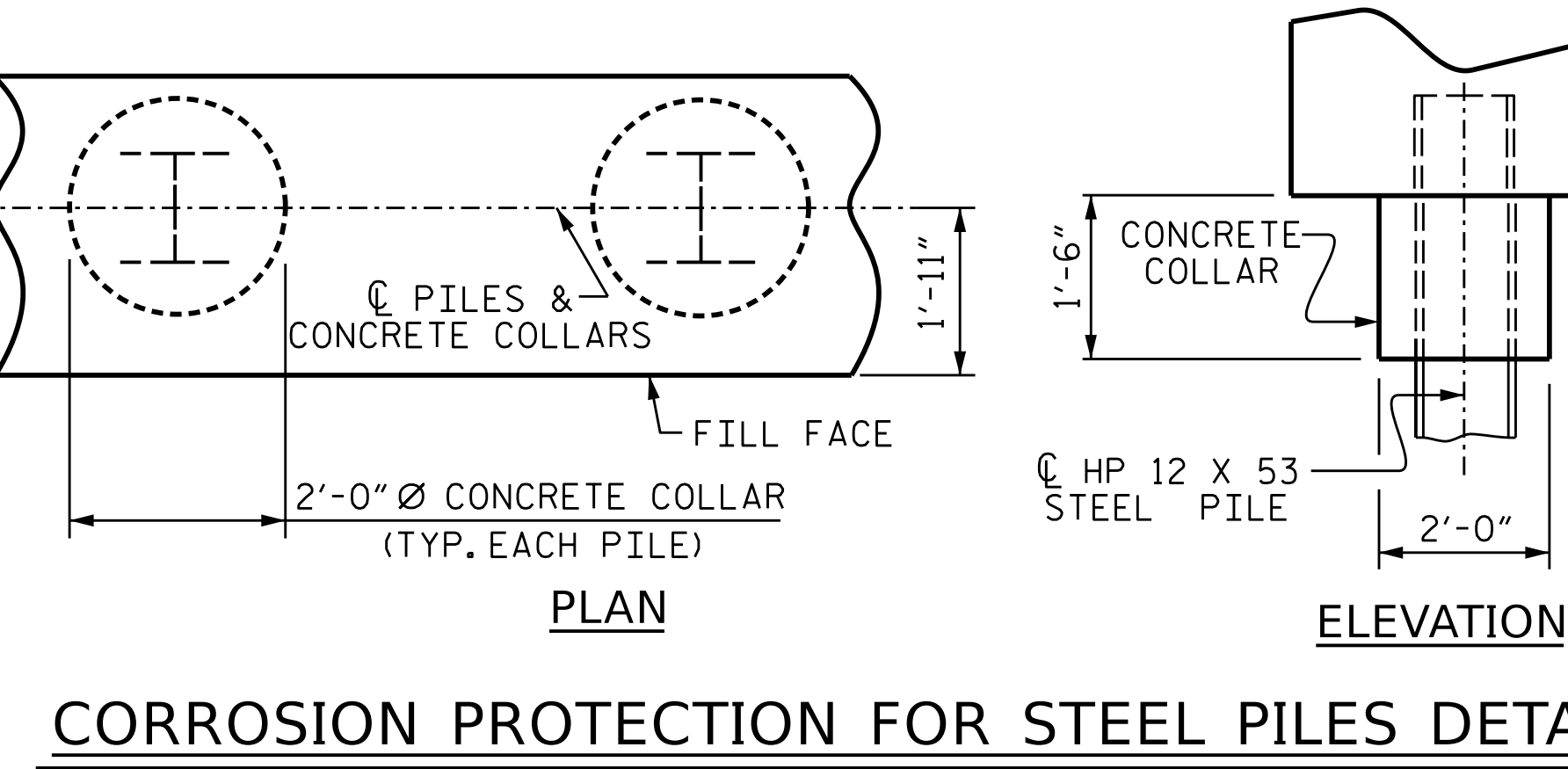
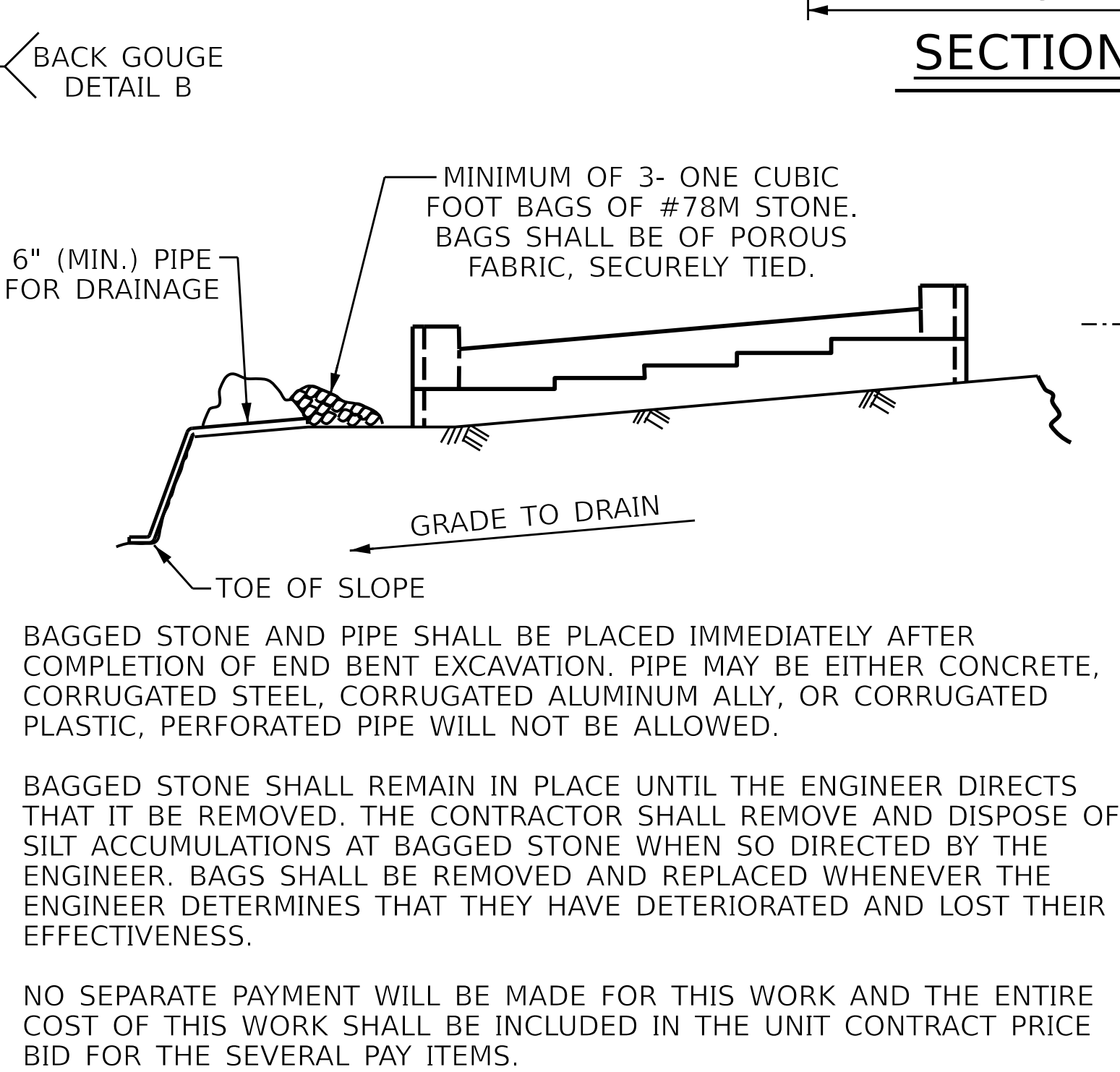
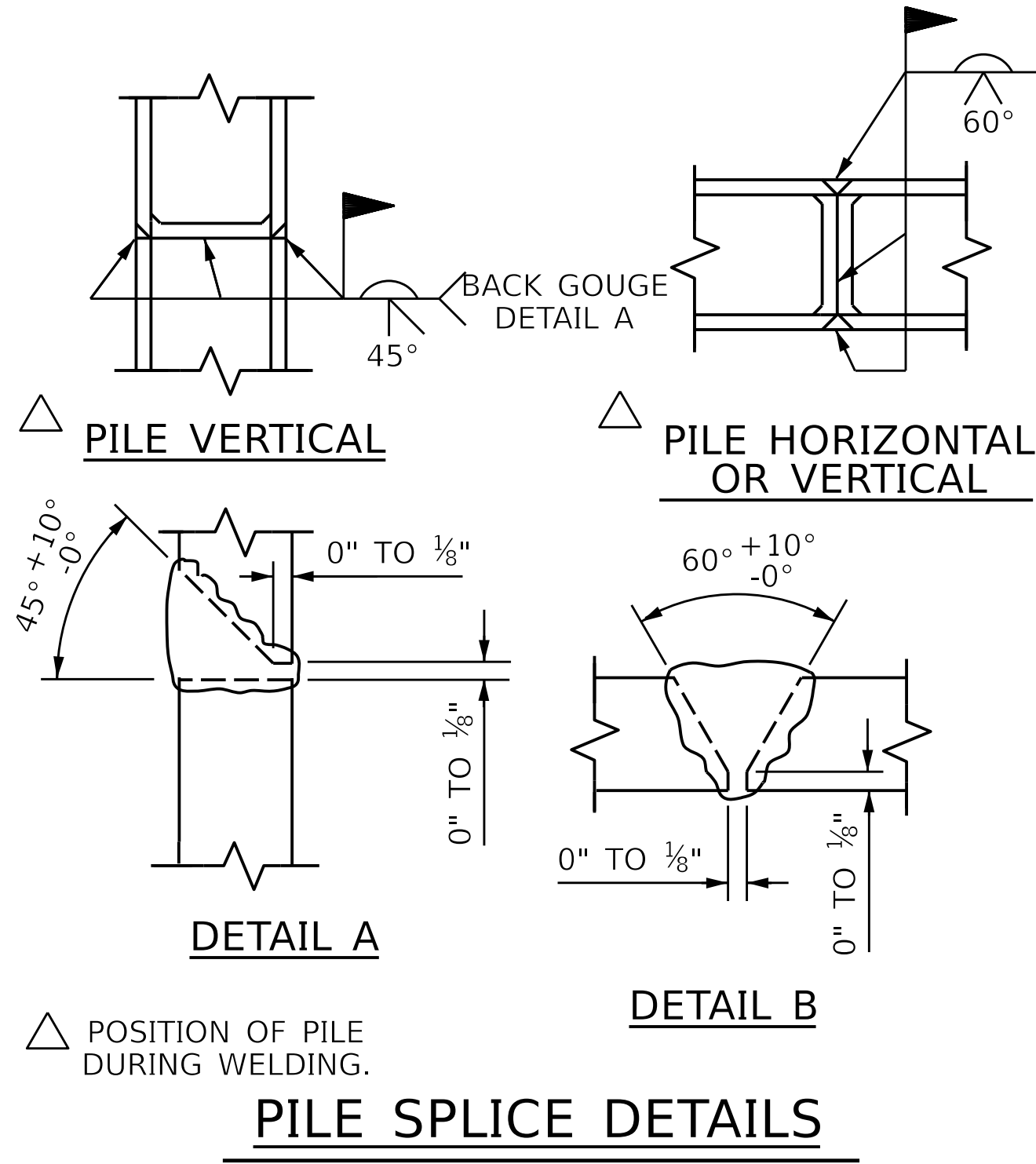
END BENT No. 2
(EASTBOUND)

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	
1			3		TOTAL SHEETS 40
2			4		

STR #2



BILL OF MATERIAL					
FOR END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	3	53'-3"	1811
B2	8	#5	STR	50'-11"	425
B3	5	#4	STR	33'-1"	110
B4	5	#4	STR	20'-8"	69
B5	5	#4	STR	8'-4"	28
B6	8	#4	STR	26'-8"	143
B7	13	#4	STR	3'-0"	26
H1	19	#5	7	13'-11"	276
H2	19	#5	7	14'-1"	279
H3	12	#4	6	15'-6"	124
H4	12	#4	6	15'-3"	122
K1	16	#4	STR	26'-8"	285
K2	8	#4	STR	3'-9"	20
S1	52	#5	2	11'-2"	606
S2	52	#5	4	3'-11"	212
S3	24	#4	5	6'-6"	104
S4	3	#6	8	10'-1"	45
S5	3	#6	9	5'-3"	24
U1	23	#4	1	6'-0"	92
U2	44	#4	1	6'-8"	196
V1	88	#4	STR	7'-3"	426
V2	38	#5	STR	8'-11"	335
V3	40	#5	STR	10'-2"	424
REINFORCING STEEL				LBS. 6,200	
CLASS A CONCRETE BREAKDOWN					
POUR 1 (CAP, PILE CAP, LOWER PART OF WINGS & COLLARS)				CU.YDS.	34.5
POUR 2 (BACKWALL & UPPER PART OF WINGS)				CU.YDS.	13.0
CLASS A CONCRETE TOTAL CU.YDS. 47.5					
ALL BAR DIMENSIONS ARE OUT TO OUT					



North Carolina Professional Engineer Seal 17230, Wael S. Arafa, dated 5/7/2026.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

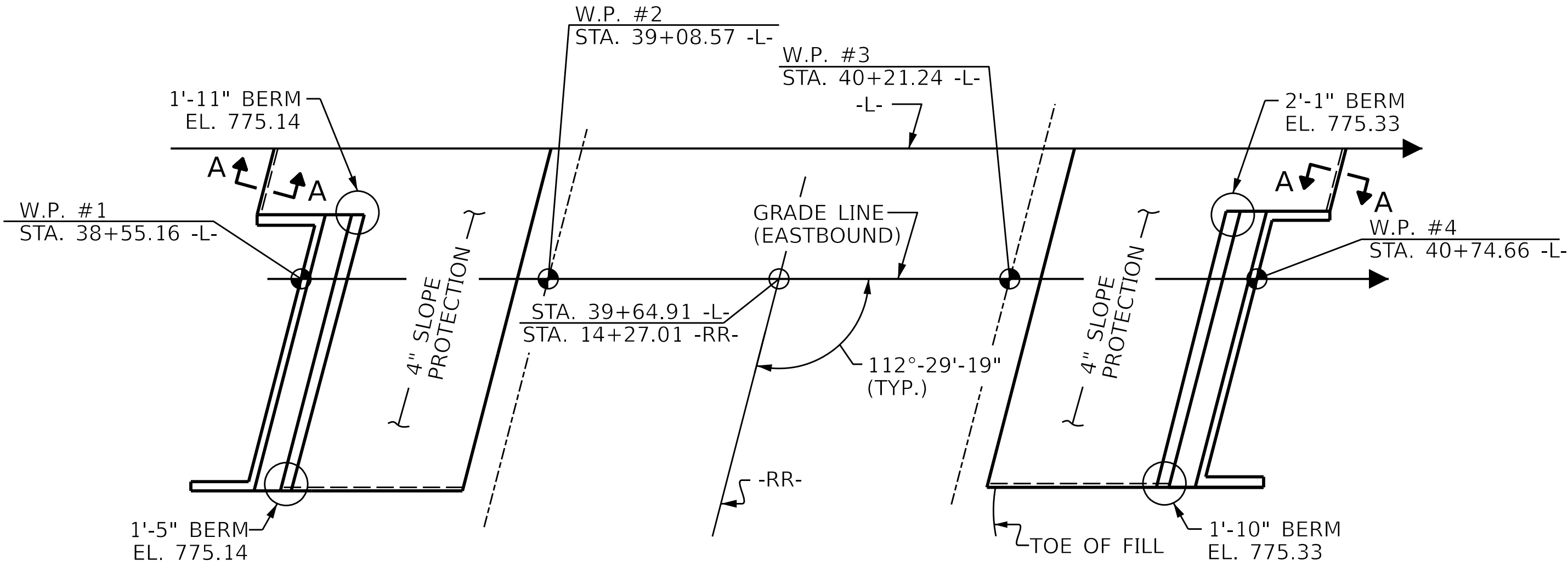
PARRISH & PARTNERS, Parrish and Partners of North Carolina, PLLC, 220 Horizon Dr., Suite 100, Raleigh, NC 27615, NC License #P-1212

PROJECT NO. BR-0140, DAVIDSON COUNTY, STATION: 39+69.46 -L-, SHEET 3 OF 3

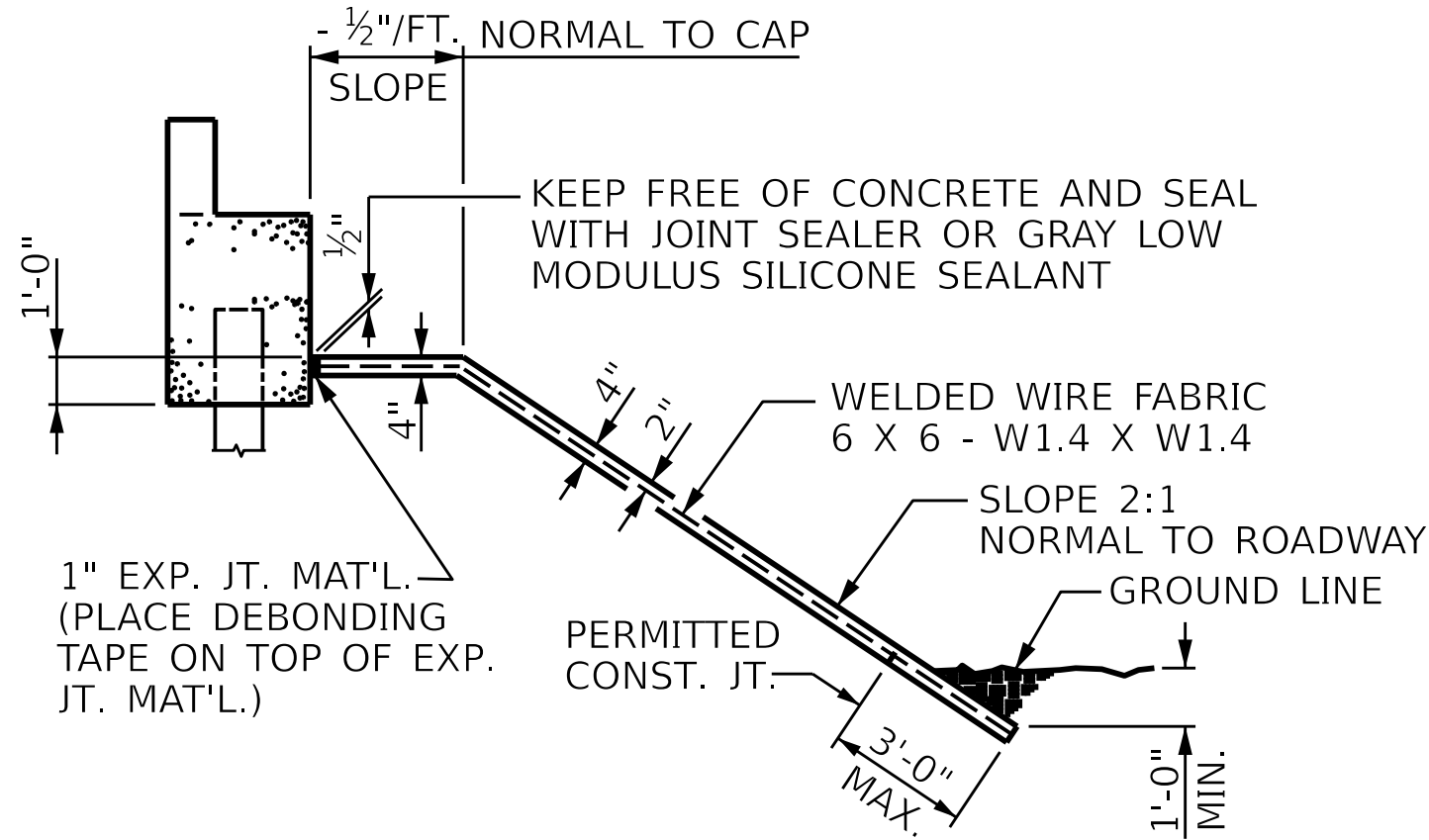
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, SUBSTRUCTURE, END BENT No. 2 (EASTBOUND)

REVISIONS table with columns NO., BY, DATE, NO., BY, DATE.

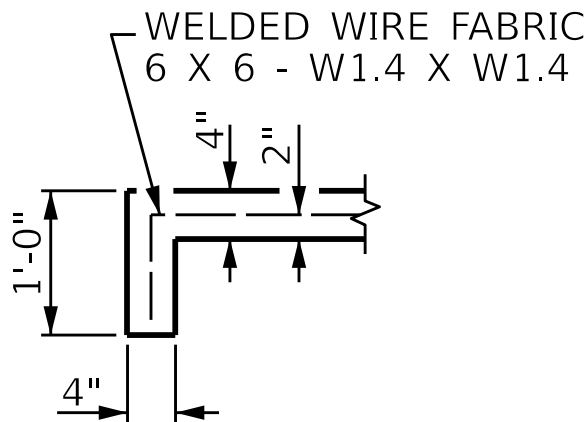
SHEET NO. S02-37, TOTAL SHEETS 40



PLAN



SECTION ALONG $\varnothing$ SURVEY WHEN DITCH IS NOT PROVIDED



SECTION A-A

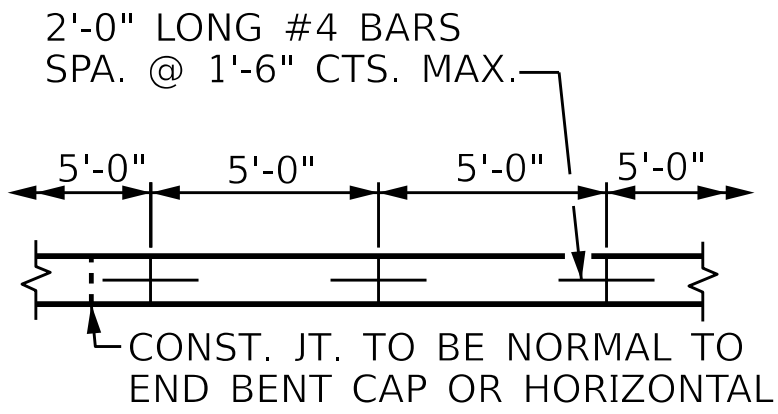
GENERAL NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.

SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

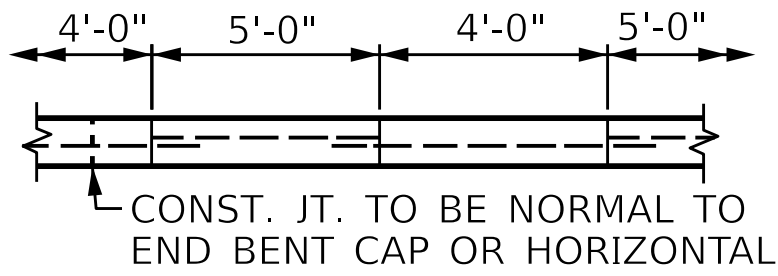
BRIDGE @ STA. 39+69.46 -L- (EASTBOUND)	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT No. 1	255	460
END BENT No. 2	265	480

* QUANTITY SHOWN IS BASED ON 5' POURS.



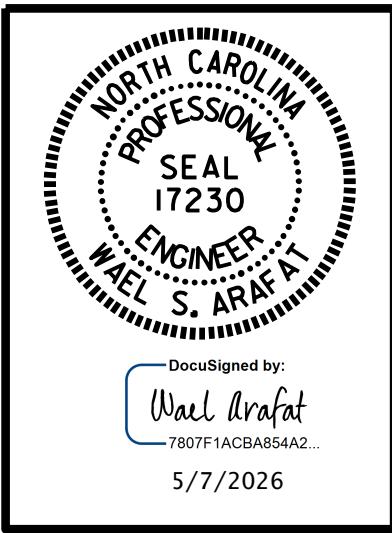
STRIP WIDTHS MAY VARY IN CURVED PORTION.

POURING DETAIL



POUR A 4'-0" STRIP FIRST. STRIP WIDTHS MAY VARY IN CURVED PORTION.

OPTIONAL POURING DETAIL



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PARRISH & PARTNERS

Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

DocuSigned by:
Wael Arafat
7807F1ACB8B5A2...
5/7/2026

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

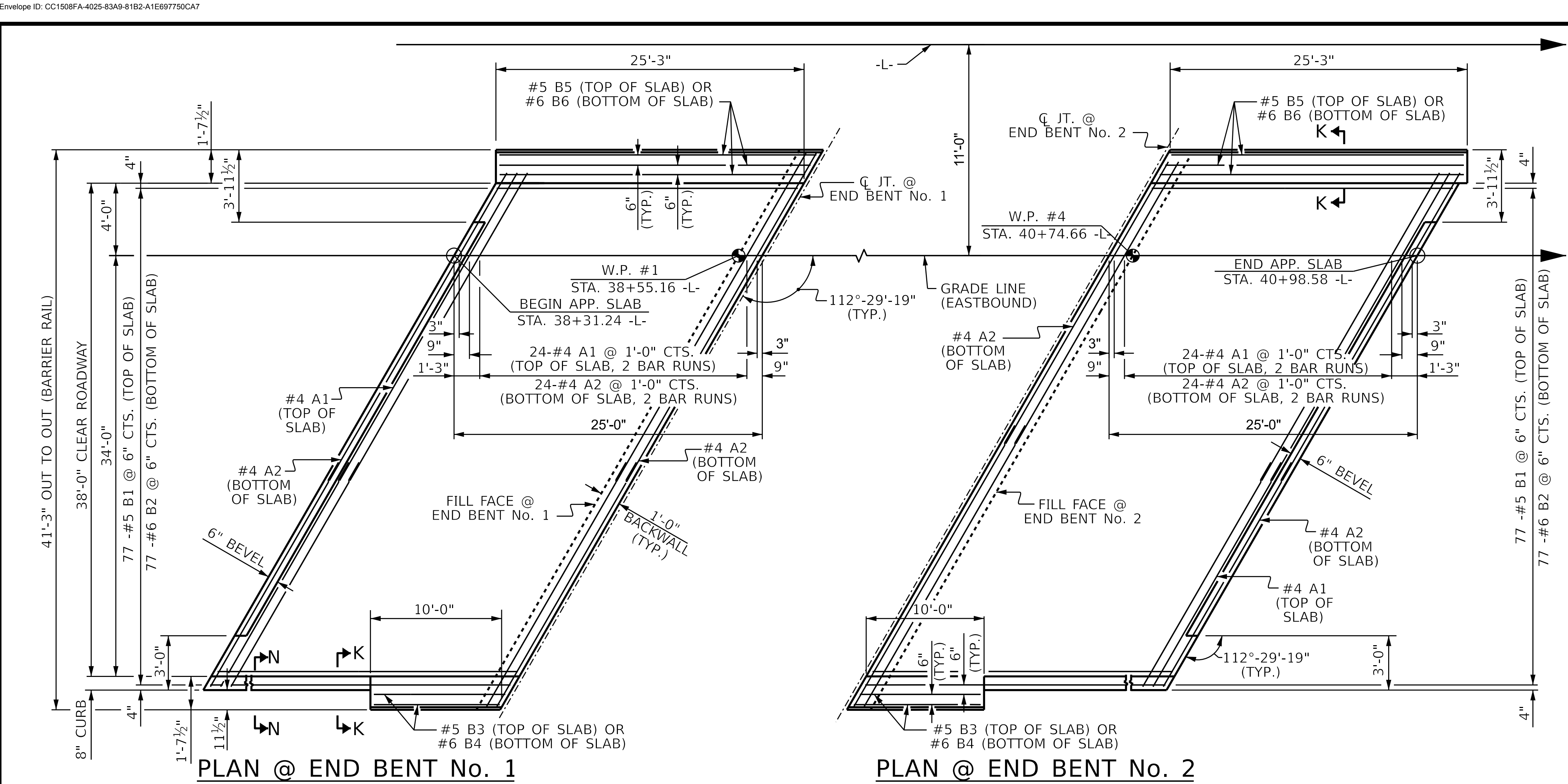
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SLOPE PROTECTION
DETAILS
(EASTBOUND)

REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS
40

D:\p\parrish-pw\working\comp\1st-pw\Documents\Surface Transportation\NCDOT BR-0140-Project Design\Structures\FINAL\BR0140_APP SLAB PLAN 1/20/2026 1:24:41 PM MODEL NAME: Sheet 02b EASTBOUND



NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

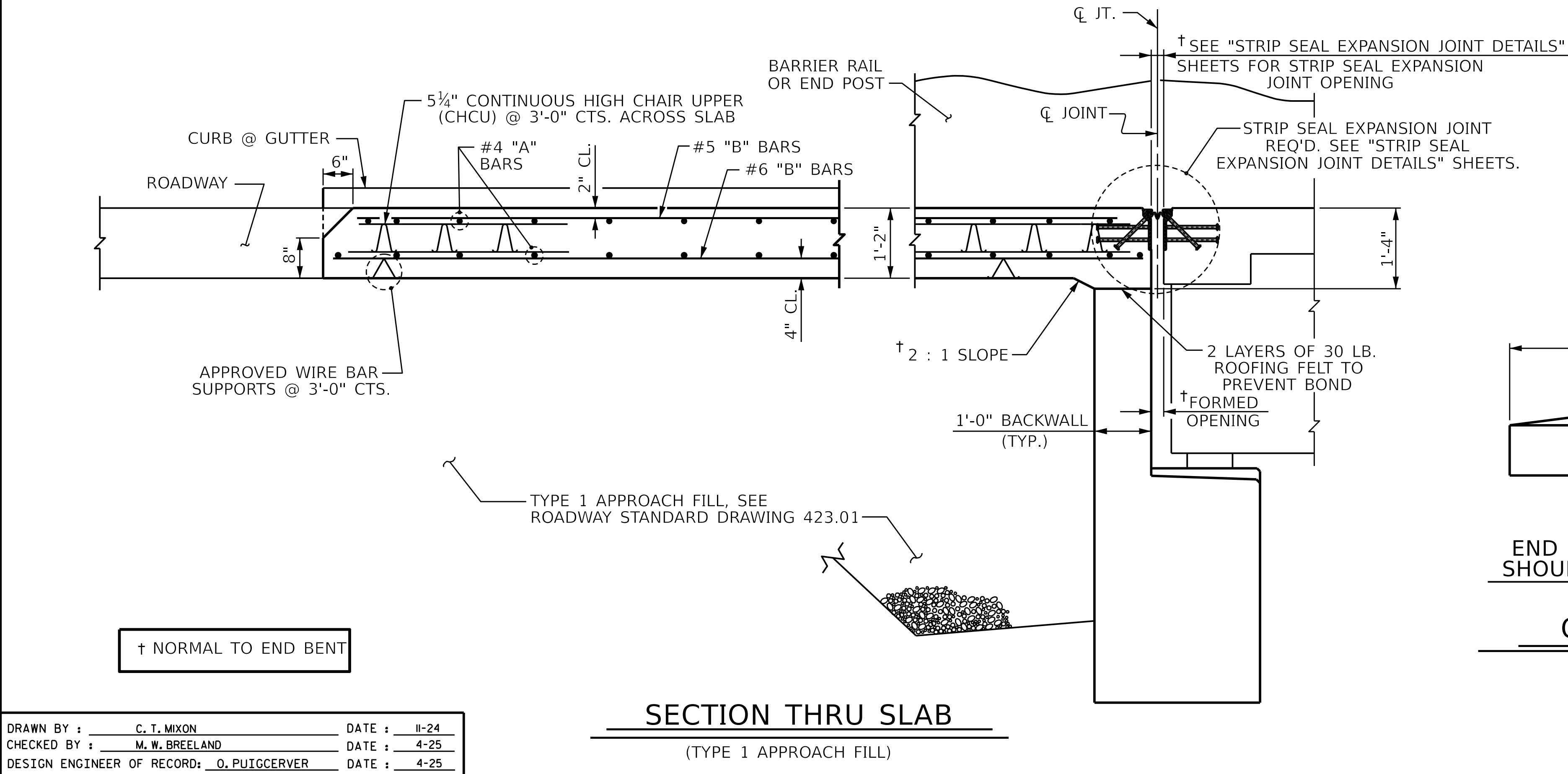
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL					
APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	23'-1"	771
A2	52	#4	STR	22'-11"	796
*B1	77	#5	STR	23'-8"	1901
B2	77	#6	STR	24'-7"	2843
*B3	2	#5	STR	9'-8"	20
B4	2	#6	STR	9'-8"	29
*B5	3	#5	STR	24'-11"	78
B6	3	#6	STR	24'-11"	112
REINFORCING STEEL				3780	LBS.
* EPOXY COATED					
REINFORCING STEEL				2809	LBS.
CLASS AA CONCRETE				44.1	C. Y.
APPROACH SLAB AT EB 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	23'-1"	771
A2	52	#4	STR	22'-11"	796
*B1	77	#5	STR	23'-8"	1901
B2	77	#6	STR	24'-7"	2843
*B3	2	#5	STR	9'-8"	20
B4	2	#6	STR	9'-8"	29
*B5	3	#5	STR	24'-11"	78
B6	3	#6	STR	24'-11"	112
REINFORCING STEEL				3780	LBS.
* EPOXY COATED					
REINFORCING STEEL				2809	LBS.
CLASS AA CONCRETE				44.1	C. Y.

* * QUANTITIES FOR BARRIER RAIL OR END POST ARE NOT INCLUDED. SEE SHEET 2 OF 2.

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"



NORTH CAROLINA

PROFESSIONAL

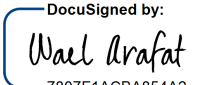
SEAL

17230

ENGINEER

WEL S. ARAFAT

DocuSigned by:



Wael Arafat

7807F1ACB8B5A2...

5/7/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

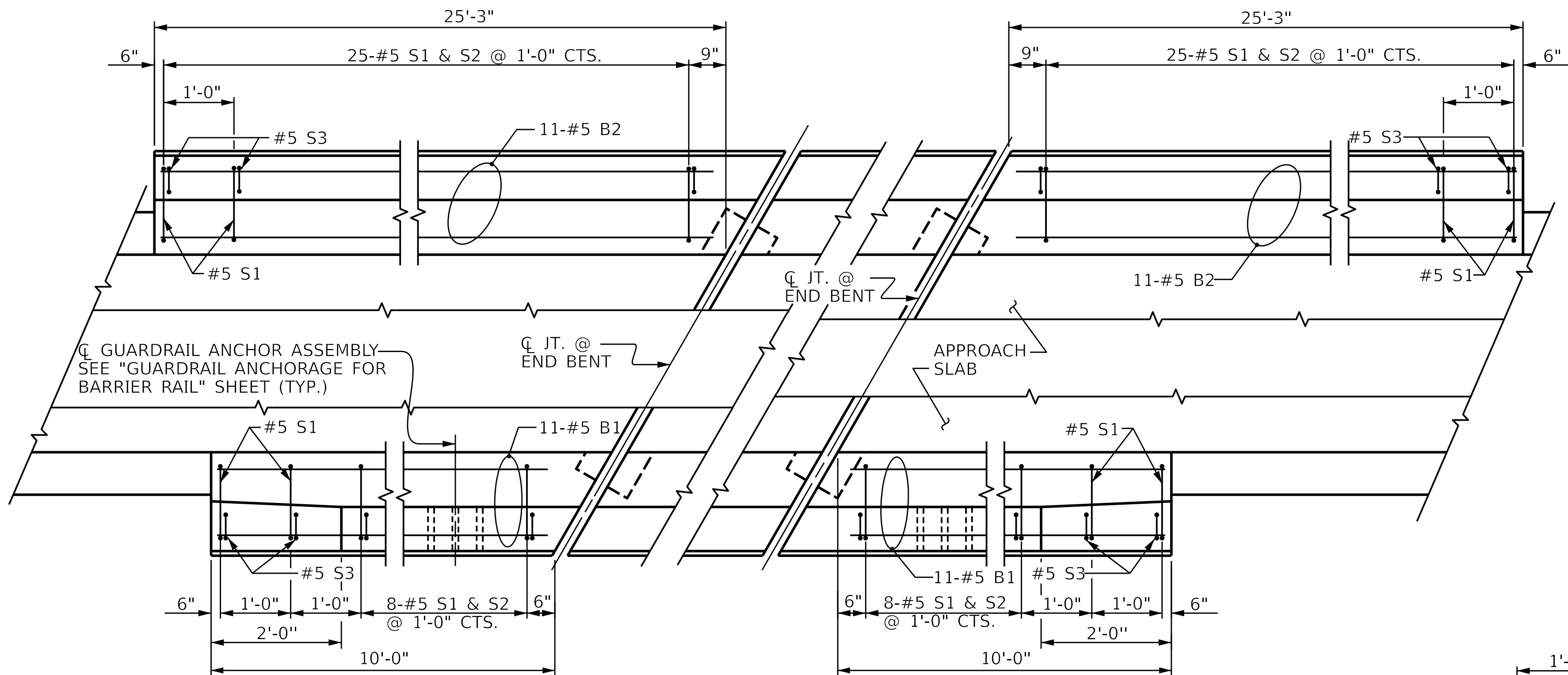
PARRISH & PARTNERS

Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615

NC License #P-1212

PROJECT NO. <u>BR-0140</u>						
<u>DAVIDSON</u> COUNTY						
STATION: <u>39+69.46 -L-</u>						
SHEET 1 OF 2						
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						
BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT (EASTBOUND)						
REVISIONS					SHEET NO. S02-39	
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			40

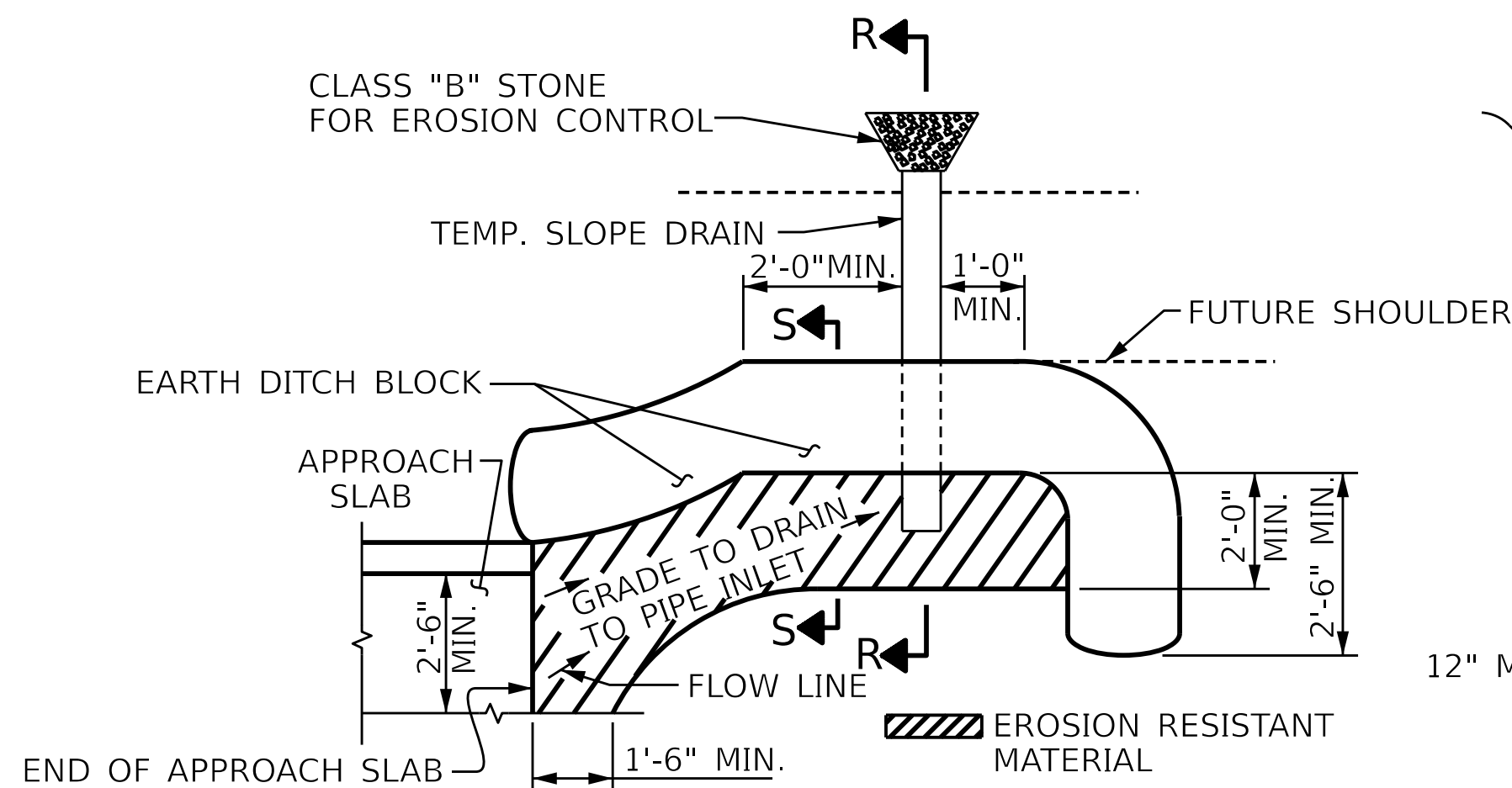
STR #2 STD. NO. BAS2 Sht. 02b



END BENT No. 1

END BENT No. 2

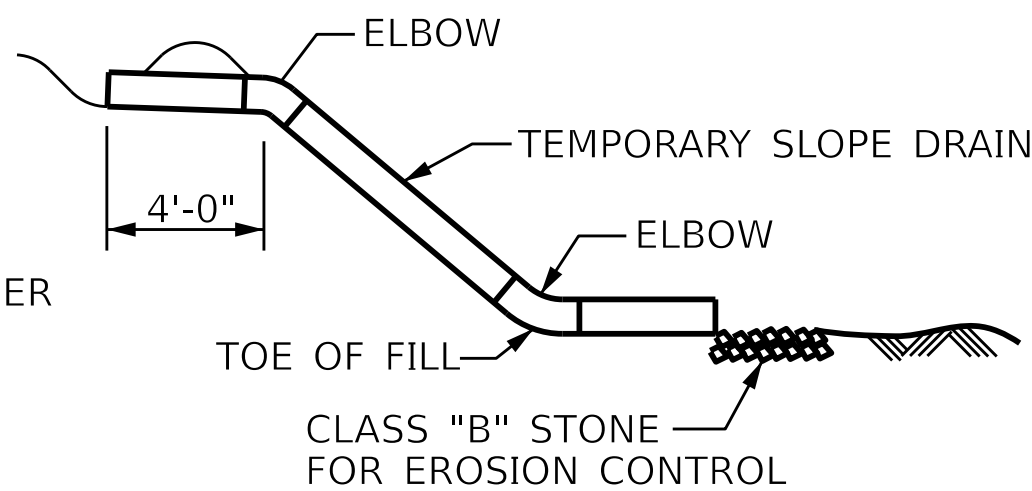
PLAN OF BARRIER RAIL



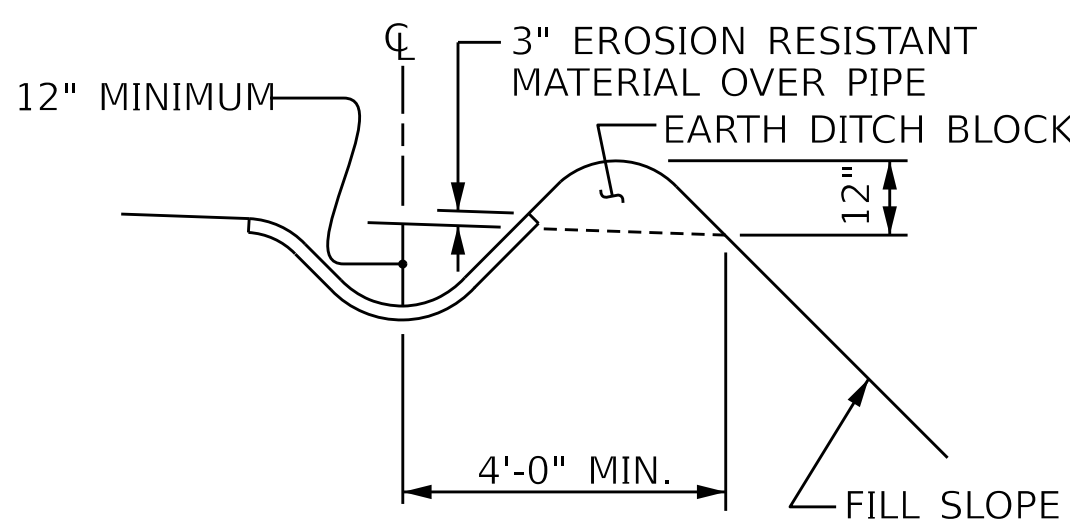
PLAN VIEW

NOTE:

IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB,
THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE
DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET
AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE
EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT
PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL
MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER.
THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED
TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.



SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

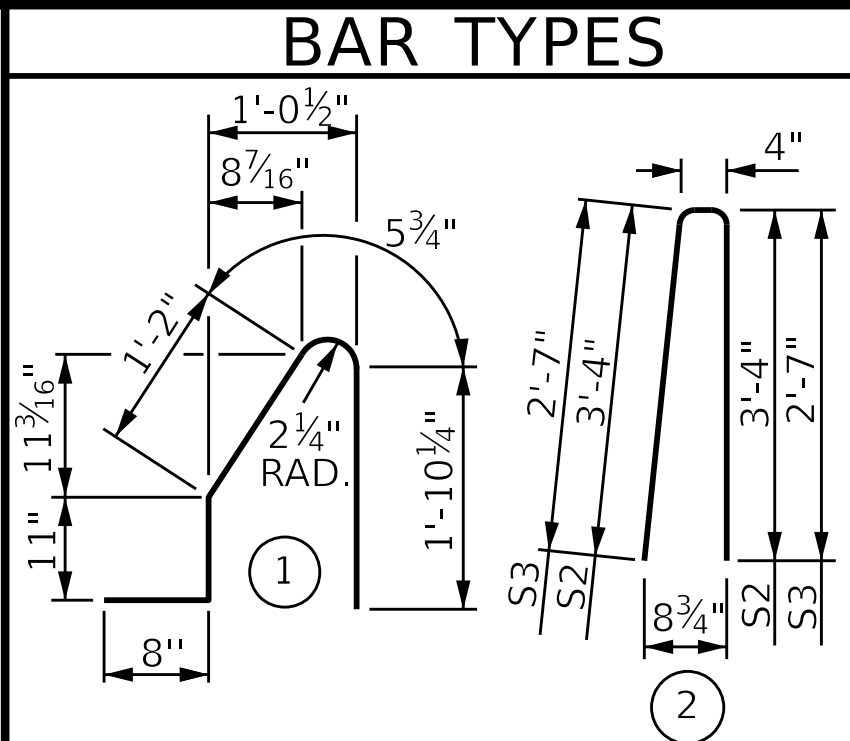
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

NOTES

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".

THE BARRIER RAIL ON EACH APPROACH SLAB SHALL NOT BE CAST UNTIL ALL APPROACH SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

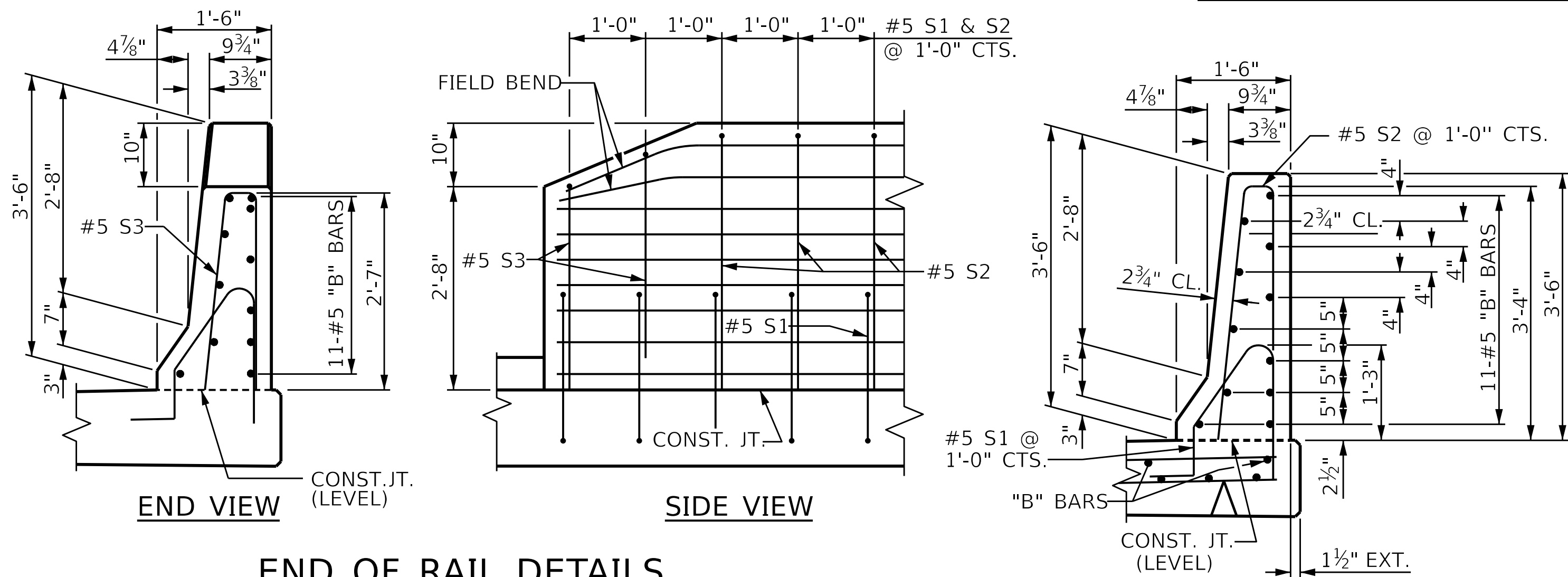


ALL BAR DIMENSIONS ARE OUT TO OUT

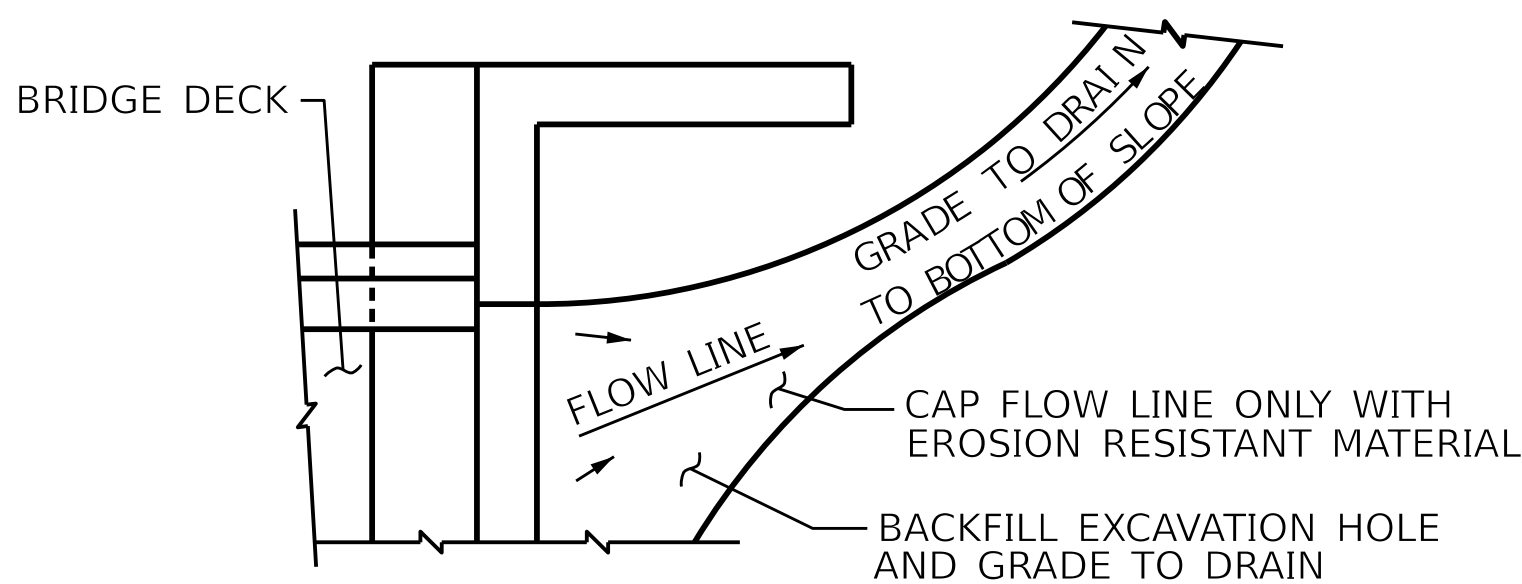
BILL OF MATERIAL

BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	22	#5	STR	9'-8"	222
* B2	22	#5	STR	24'-11"	572
* S1	70	#5	1	5'-1"	371
* S2	66	#5	2	7'-0"	482
* S3	8	#5	2	5'-6"	46

* EPOXY COATED REINFORCING STEEL	1693 LBS.
CLASS AA CONCRETE	9.4 C. Y.
CONCRETE BARRIER RAIL	70'-6" LIN. FT.

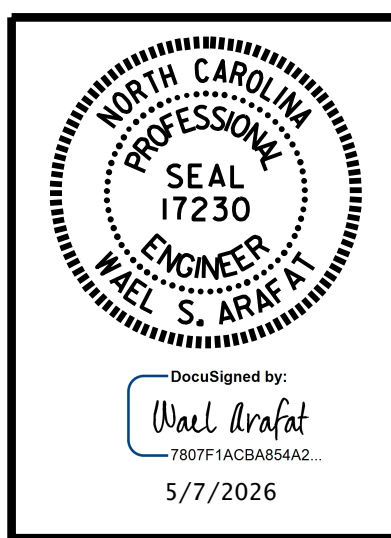


END OF RAIL DETAILS



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PARRISH & PARTNERS

Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615

NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
 STATION: 39+69.46 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB DETAILS (EASTBOUND)

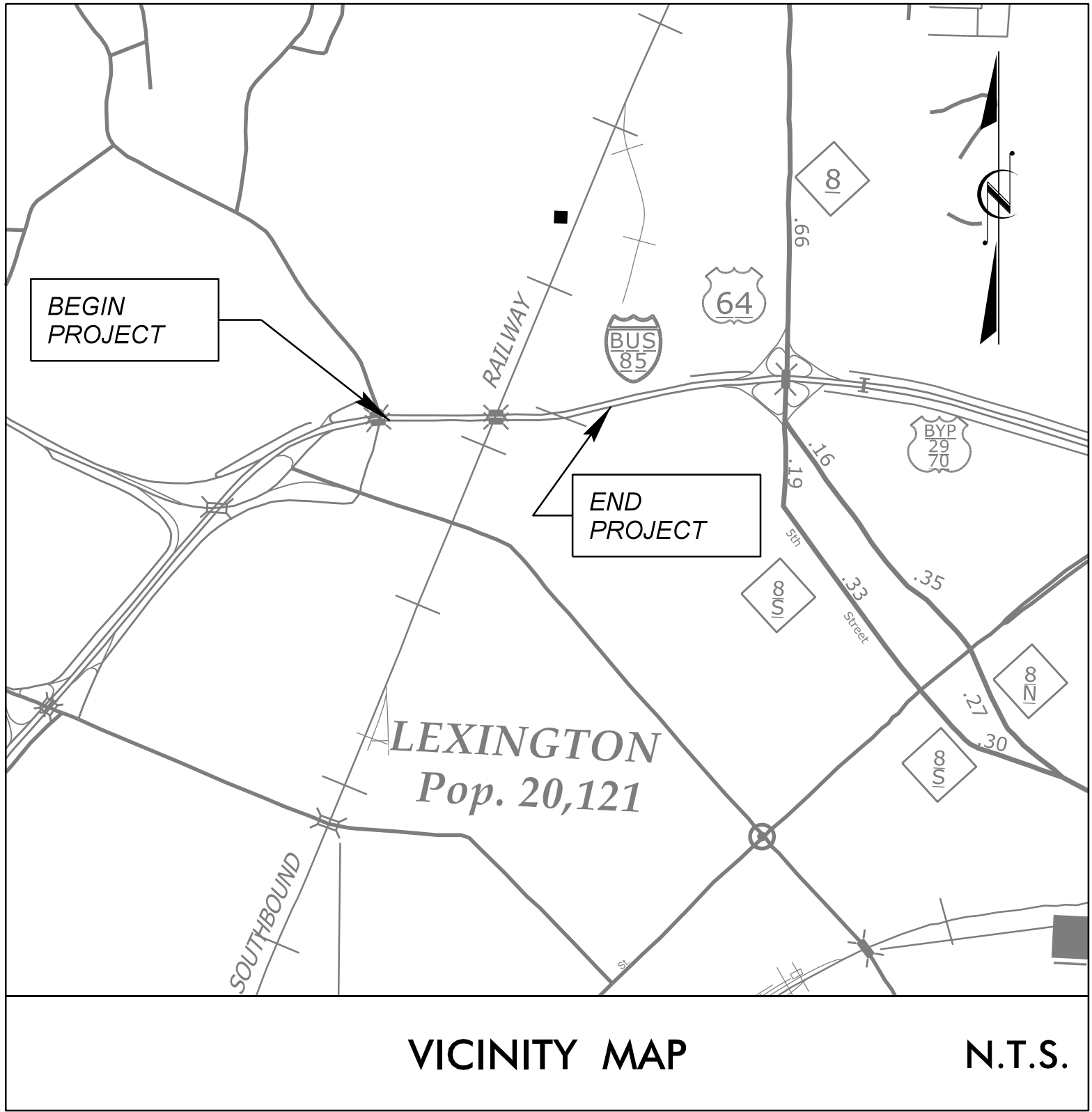
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S02-40
1			3			TOTAL SHEETS 40
2			4			

STR #2

STD. BAS4 Sht. 03k

TIP PROJECT: BR-0140

CONTRACT: C205091



STATE OF NORTH CAROLINA

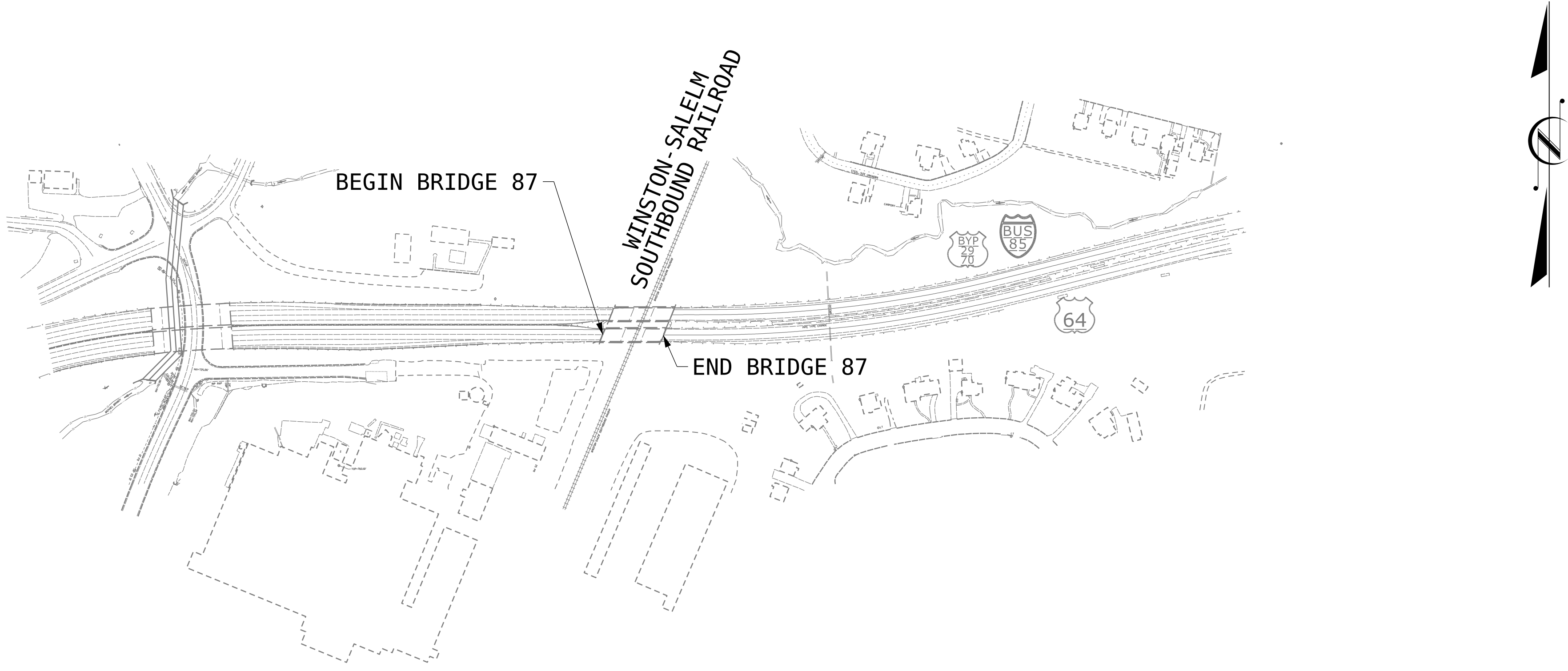
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

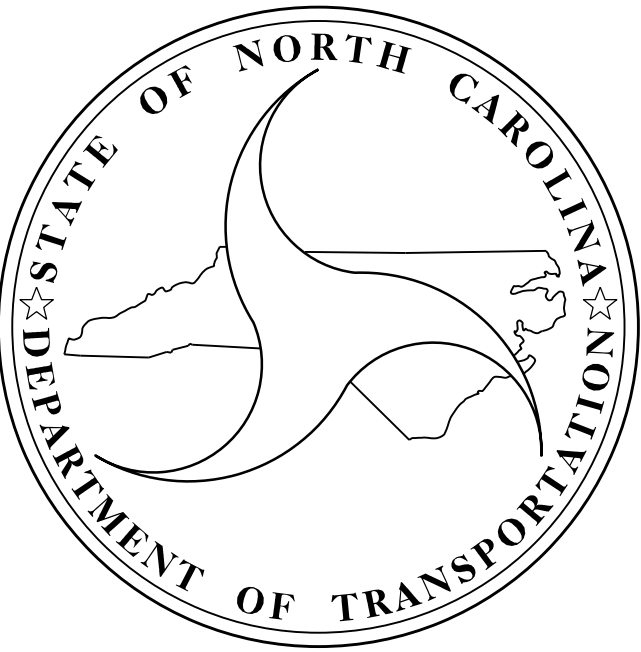
LOCATION: BRIDGE PRESERVATION FOR BRIDGE NO. 020087 ON US 29/64/70EB (I-85 BUS. NB)
OVER WSSB RAILROAD

TYPE OF WORK: BOLTED PLATE REPAIRS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0140	1	7
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
67140.1.1	—	P.E.	
67140.2.1	—	ROW/UTILITIES	
67140.3.1		CONSTRUCTION	



STRUCTURES



DESIGN DATA

SEE ROADWAY TITLE SHEET

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BR-0140= 0.505 MILES

LENGTH STRUCTURE TIP PROJECT BR-0140 = 0.027 MILES

TOTAL LENGTH TIP PROJECT BR-0140= 0.532 MILES

Prepared for the Office of:

DIVISION OF HIGHWAYS

STRUCTURES MANAGEMENT UNIT

1000 BIRCH RIDGE DR.

RALEIGH, N.C. 27610

2024 STANDARD SPECIFICATIONS

LETTING DATE :

NOVEMEBER 17, 2026

JACOB H. DUKE, PE

PROJECT ENGINEER

FIDEL L. FLORES, EI

PROJECT DESIGN ENGINEER

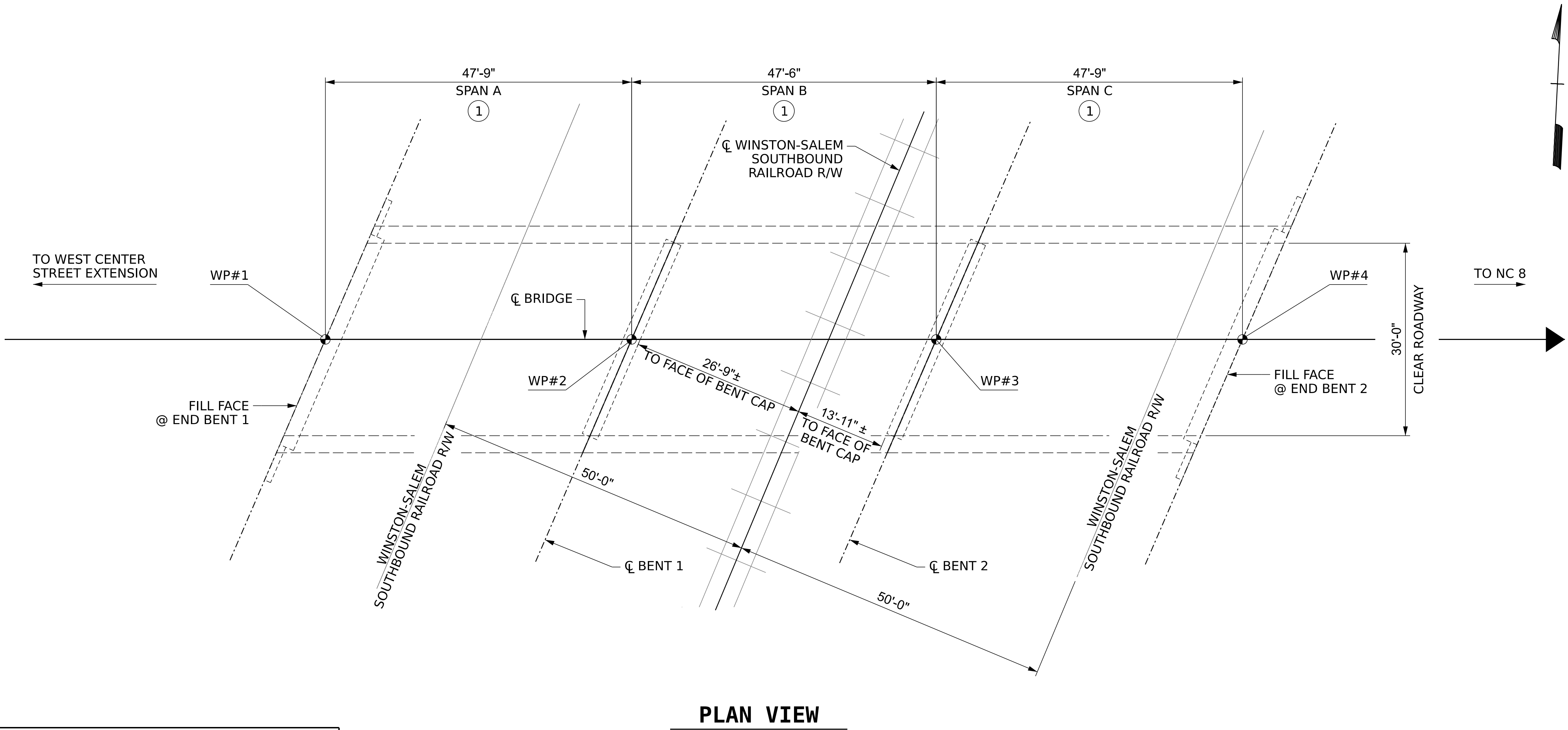
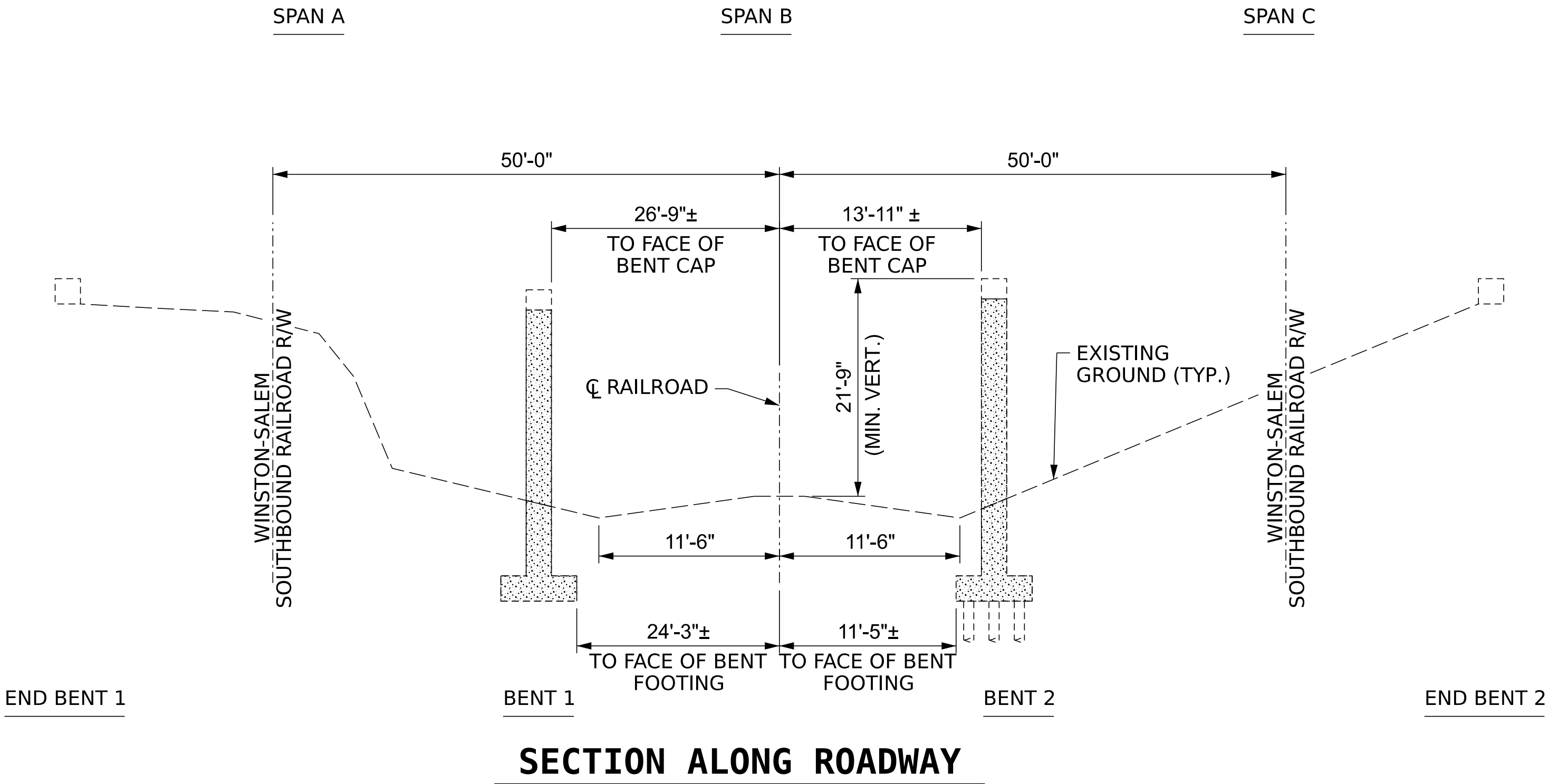
SCOPE OF WORK

- 1 BOLTED PLATE REPAIRS

NOTES

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS, WIDENED PLANS, AND THE ROUTINE INSPECTION REPORT, DATED 12/18/2023.

BRIDGE ORIENTATION CONFORMS TO THE EXISTING AND WIDENED BRIDGE PLANS.



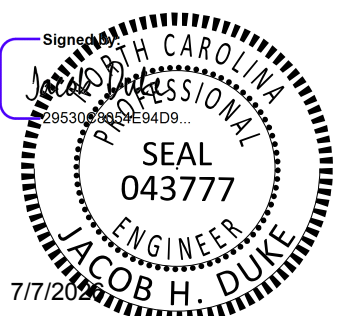
PROJECT NO. BR-0140

DAVIDSON COUNTY

BRIDGE NO. 280087

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE ON I-85 BUSINESS
OVER WINSTON-SALEM SB
RAILROAD BETWEEN WEST CENTER
STREET EXTENSION AND NC 8



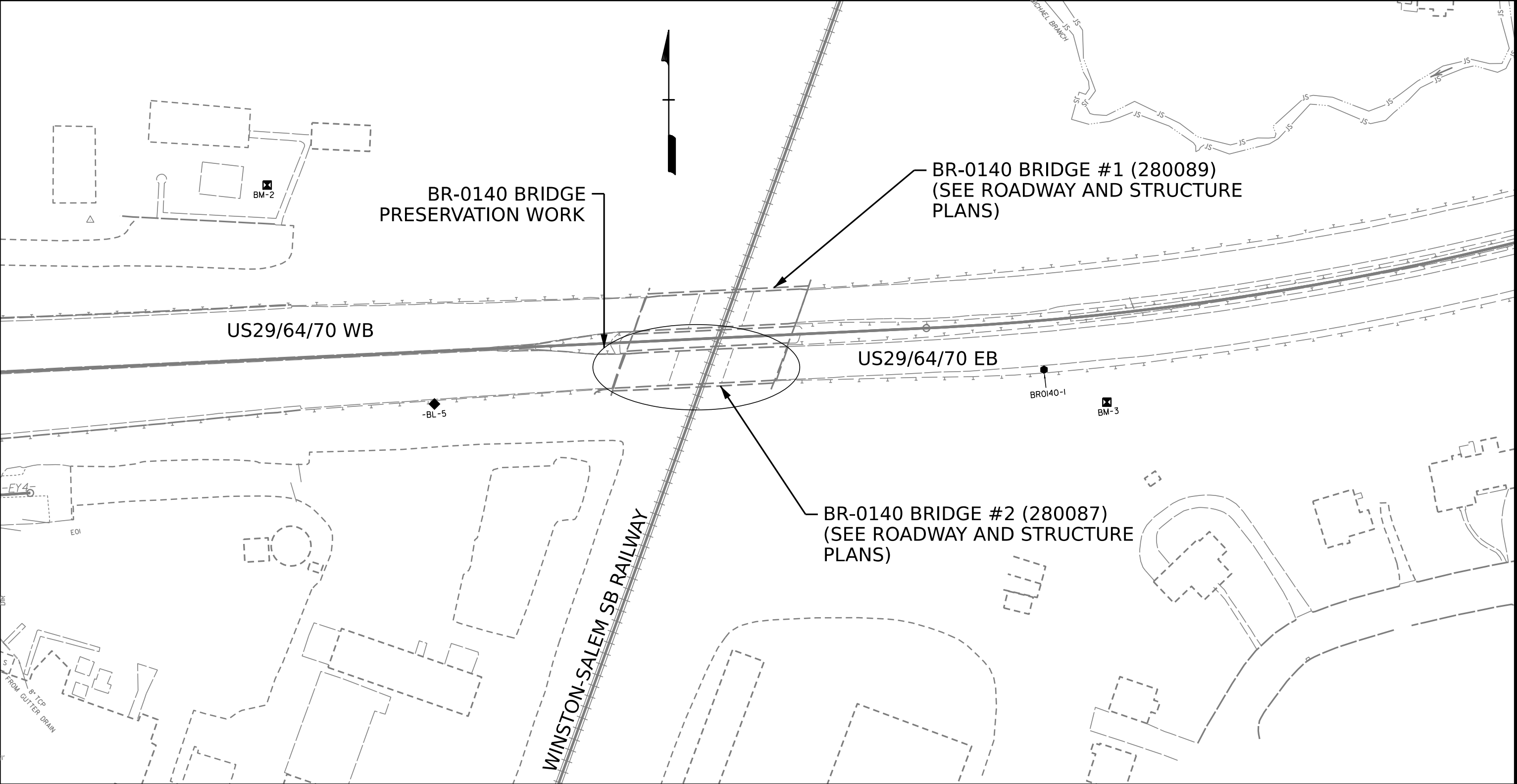
DRAWN BY : JACOB H. DUKE DATE : 06/2025
CHECKED BY : SCOTT A. BETZ DATE : 06/2025
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2025

7/2/2026
BR-0140_SMU_G001.dgn
fflores

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

301 FAYETTEVILLE ST. SUITE 1500
RALEIGH, NC 27601 (919)-882-7839
NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-2
2			4			
TOTAL SHEETS						7



VICINITY MAP (N.T.S)

BRIDGE COORDINATES

BRIDGE No.	LATITUDE	LONGITUDE
280087	35° 50' 2.17"	-80° 15' 43.86"

TOTAL BILL OF MATERIAL

DESCRIPTION	POLLUTION CONTROL	BOLTED PLATE REPAIR
BRIDGE NO.	LUMP SUM	LBS.
TOTALS:	LUMP SUM	10,458

NOTES

- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR SCOPE OF WORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR BOLTED PLATE REPAIR, SEE SPECIAL PROVISIONS.
- FOR POLLUTION CONTROL, SEE STANDARD SPECIFICTIATIONS AND SPECIAL PROVISIONS.
- GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND ROUTINE INSPECTION REPORT.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT DUE TO THE NATURE OF PRESERVATION PROJECTS, THE EXTENT OF THE WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO COMMENCEMENT OF WORK. REPAIR LOCATIONS AND ESTIMATES OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS, NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS.

THE EXISTING DIMENSIONS AND CONDITION OF THE BRIDGE ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN IN THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE, FEDERAL AND LOCAL REQUIREMENTS.

THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT FOR ANY DELAYS OR ADDITIONAL INCURRED BASED ON THE DIFFERENCES BETWEEN WHAT IS SHOWN IN THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE UNTIL REPLACED, WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY PART OF THE EXISTING STRUCTURE, WHICH IS TO REMAIN IN PLACE, THE DAMAGED AREA SHALL BE REPAIRED AND REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.

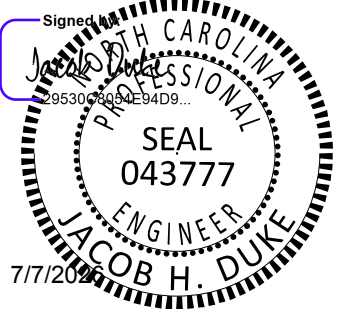
FOR CONTROL OF TRAFFIC AND LIMITS OF PHASING CONSTRUCTION, SEE ELSEWHERE IN CONTRACT DOCUMENTS.

PROJECT NO. BR-0140

DAVIDSON COUNTY

BRIDGE NO. 280087

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON I-85 BUSINESS
OVER WINSTON-SALEM SB
RAILROAD BETWEEN WEST CENTER
STREET EXTENSION AND NC 8

DRAWN BY : JACOB H. DUKE DATE : 06/2025

CHECKED BY : SCOTT A. BETZ DATE : 06/2025

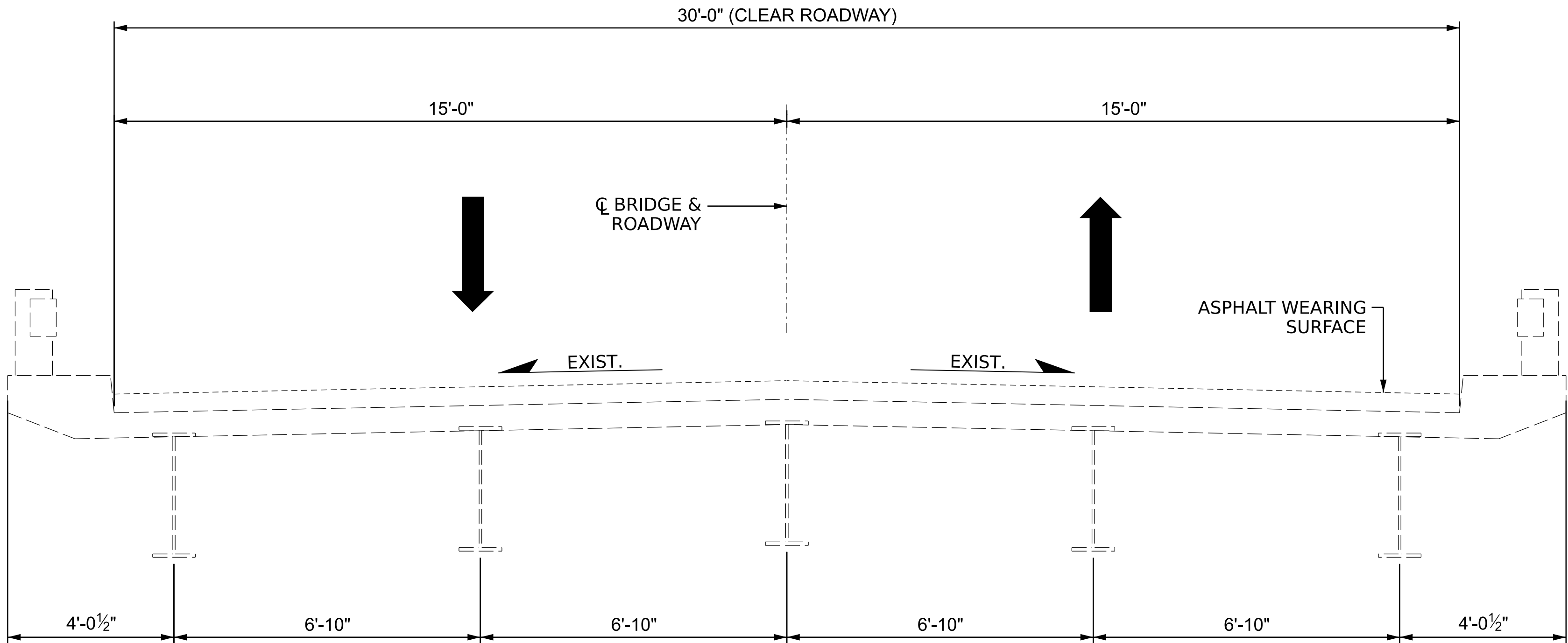
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2025

7/2/2026
BR-0140_SMU.GD02.dgn
fflores

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

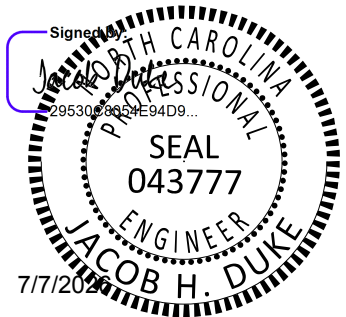
301 FAYETTEVILLE ST. SUITE 1500
RALEIGH, NC 27601 (919)-882-7839
NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3 TOTAL SHEETS 7
1			3			
2			4			



EXISTING TYPICAL SECTION

PROJECT NO. BR-0140
DAVIDSON COUNTY
BRIDGE NO. 280087



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TYPICAL SECTION

DRAWN BY : JACOB H. DUKE DATE : 06/2025
CHECKED BY : SCOTT A. BETZ DATE : 06/2025
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2025

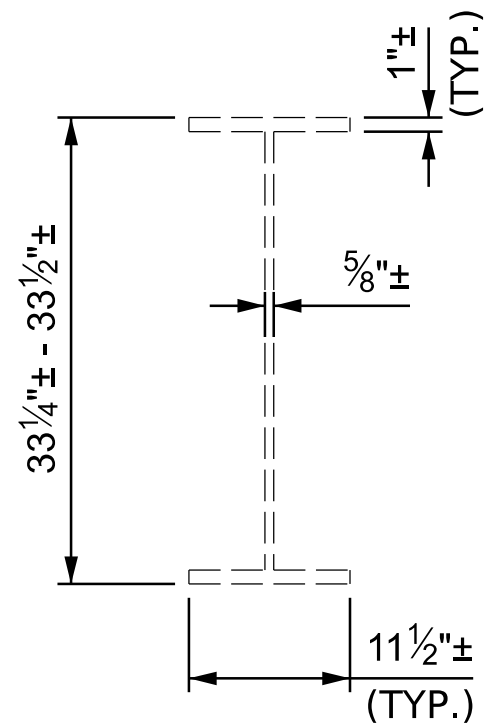
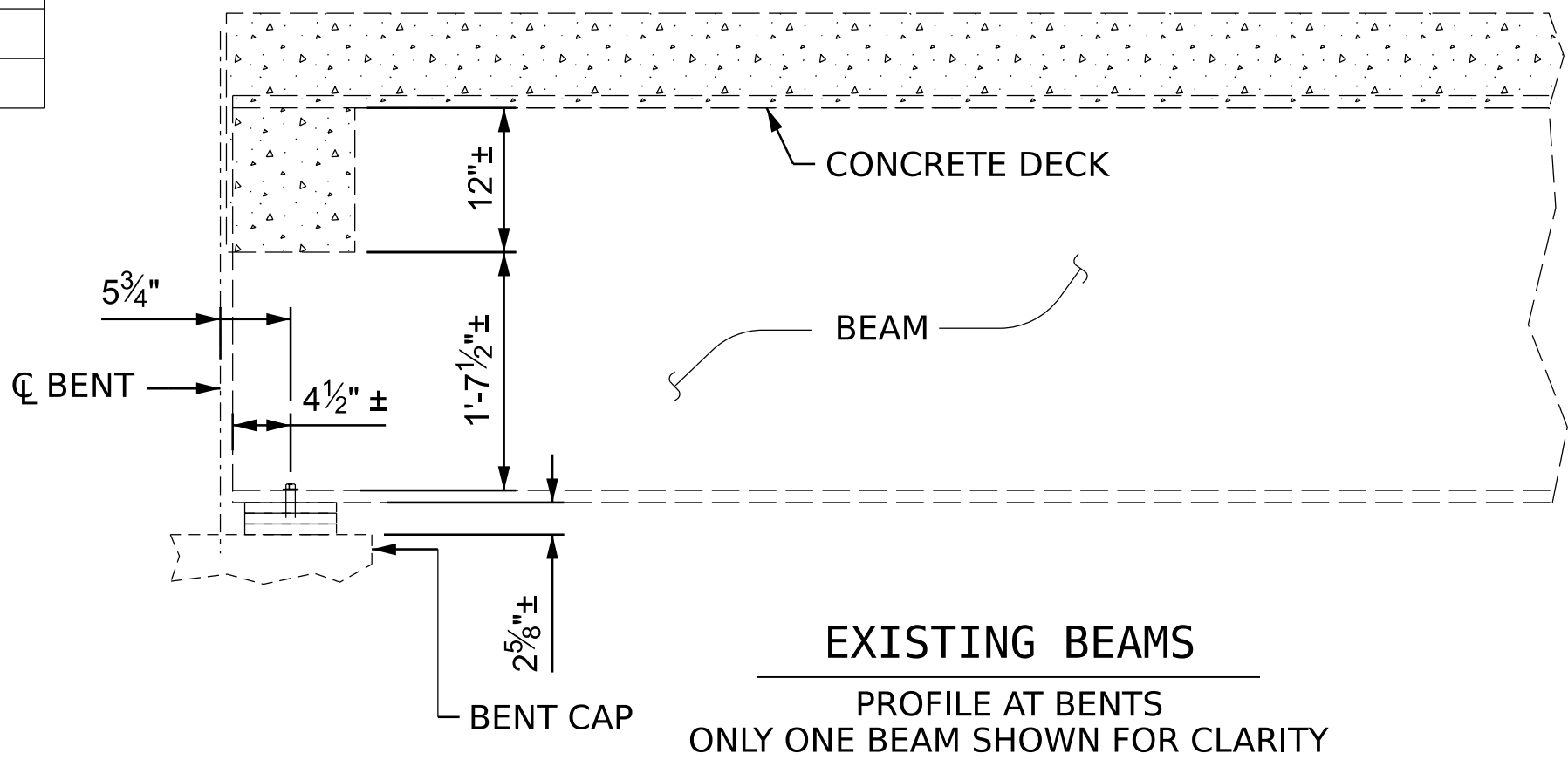
7/2/2026
BR-0140_SMU_TS01.dgn
fflores

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

301 FAYETTEVILLE ST. SUITE 1500
RALEIGH, NC 27601 (919)-882-7839
NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-4 TOTAL SHEETS 7
2			4			

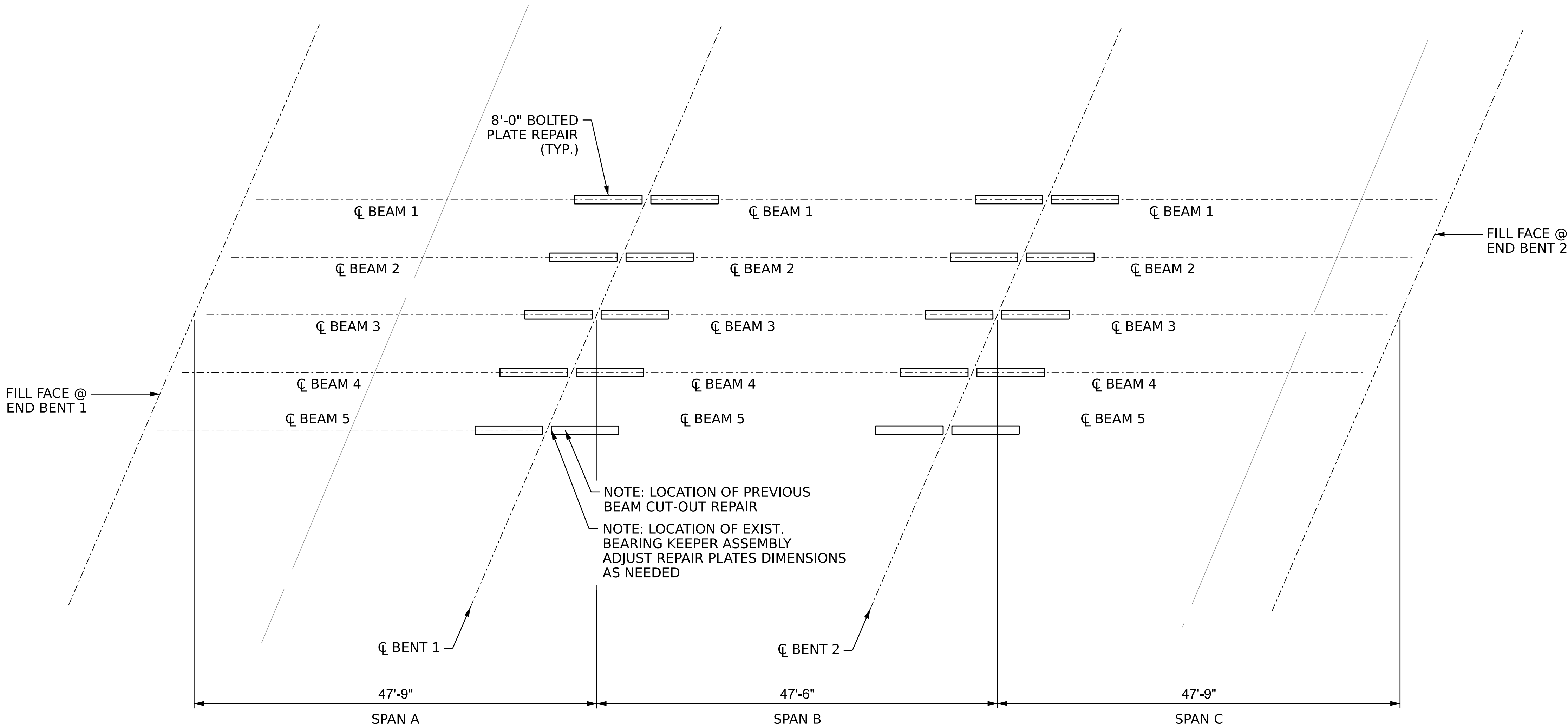
AS-BUILT REPAIR QUANTITY TABLE		
	ESTIMATE	ACTUAL
BOLTED PLATE REPAIR	10,458 LBS.	



EXISTING BEAMS
EXTERIOR BEAMS: 33WF141
INTERIOR BEAMS: 33WF152

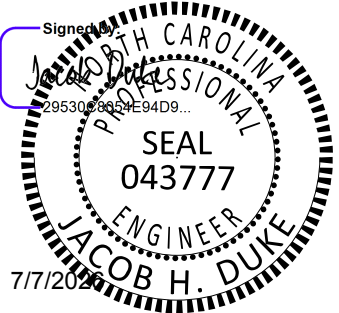
NOTES:
FOR NOTES AND DETAILS, 'SEE SUPERSTRUCTURE REPAIR DETAILS' SHEETS.

EXISTING BEAM DIMENSIONS ARE FOR INFORMATION ONLY AND TAKEN FROM THE EXISTING PLANS. CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO ORDERING MATERIALS.



PLAN

PROJECT NO. BR-0140
DAVIDSON COUNTY
BRIDGE NO. 280087
SHEET 1 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SUPERSTRUCTURE
REPAIRS**
SPANS A THRU C

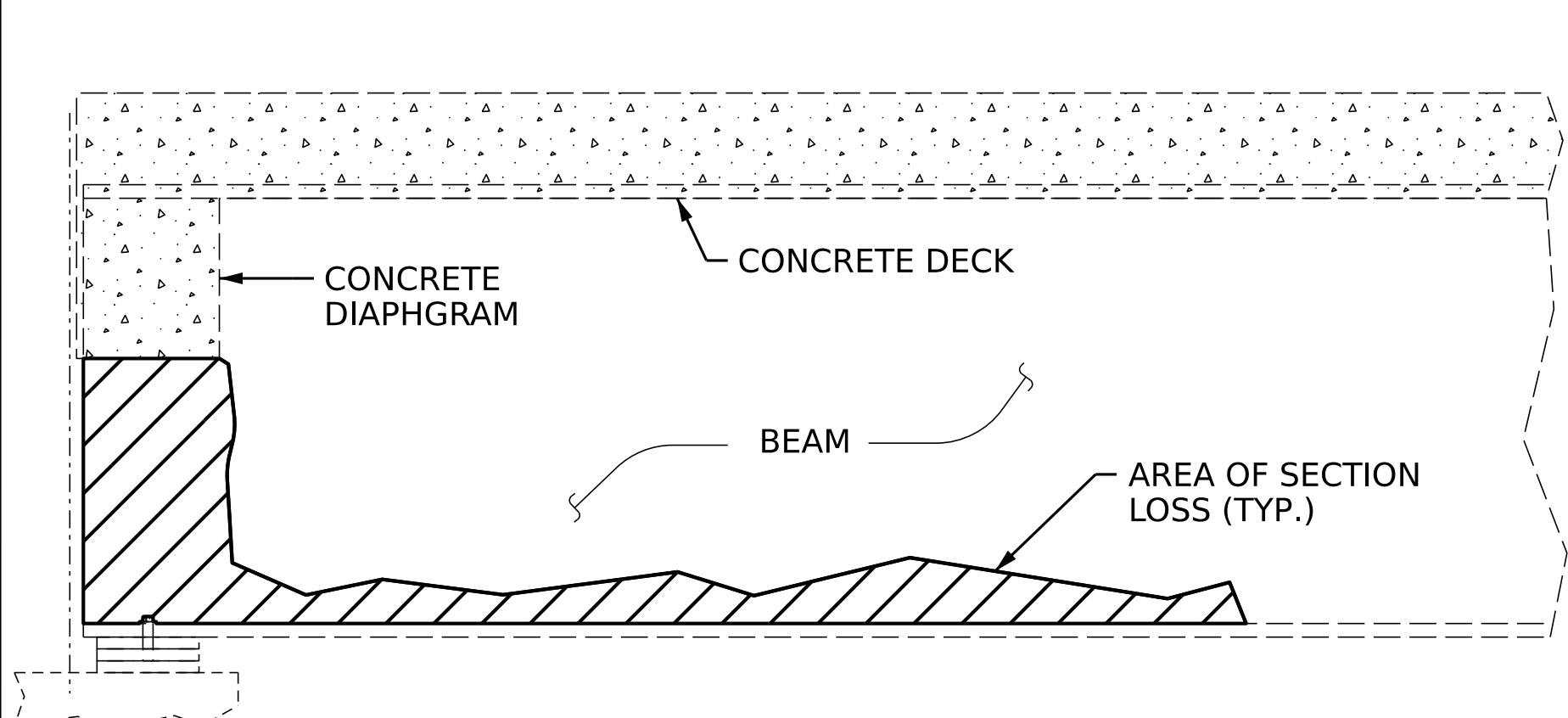
DRAWN BY : JACOB H. DUKE DATE : 06/2025
CHECKED BY : SCOTT A. BETZ DATE : 06/2025
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2025

7/2/2026
BR-0140_SMU_SSR01.dgn
fflores

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

301 FAYETTEVILLE ST. SUITE 1500
RALEIGH, NC 27601 (919)-882-7839
NC FIRM LICENSE: C-1506

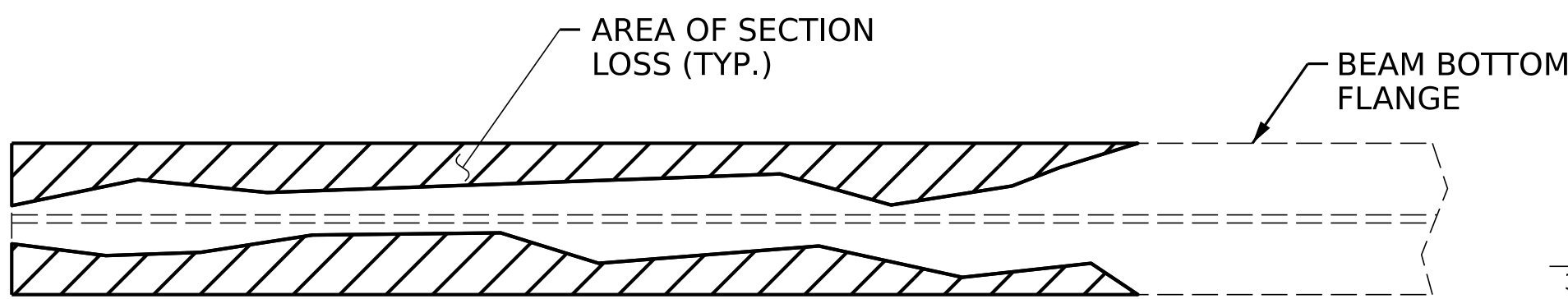
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-5 TOTAL SHEETS 7
2			4			



BEAM END SECTION LOSS

ELEVATION VIEW

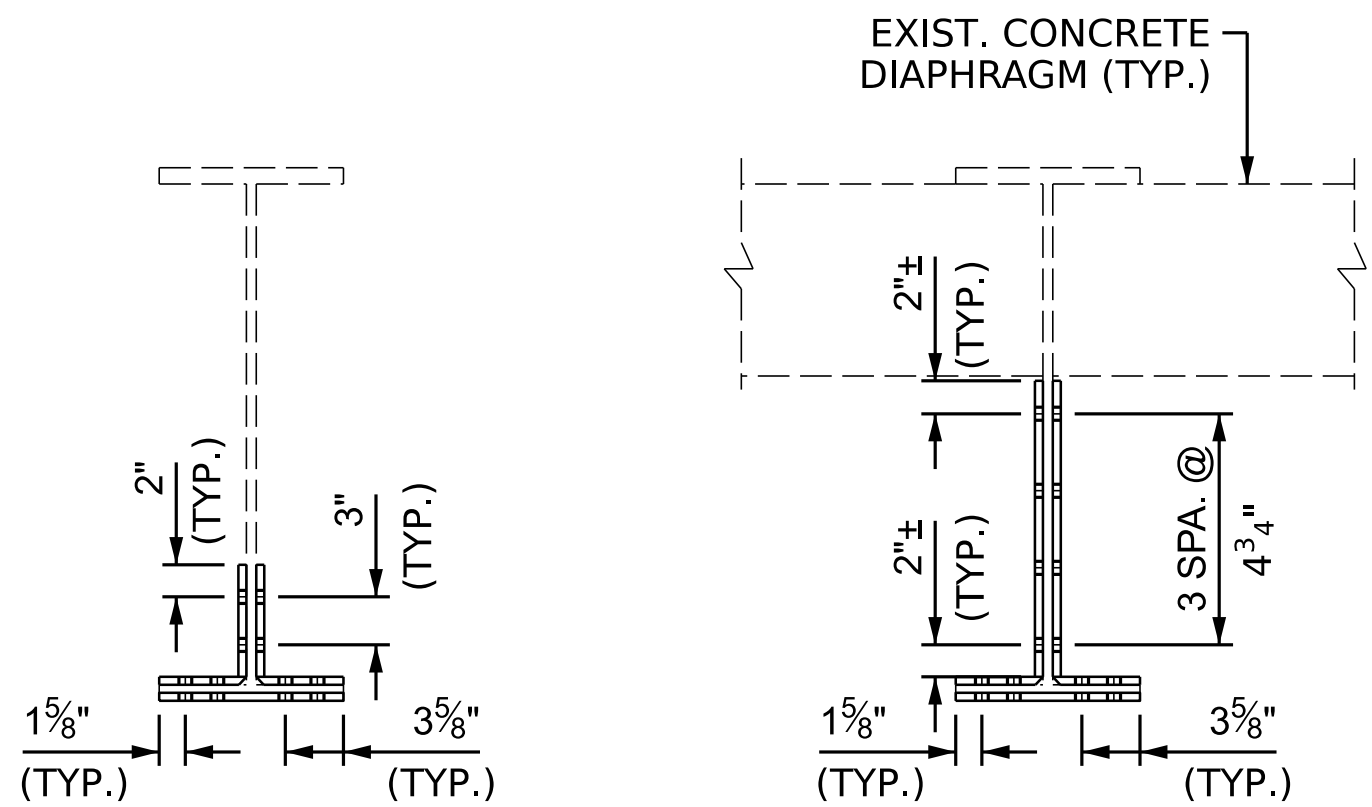
NOTE: SECTION LOSS MAY NOT BE PRESENT AT EACH REPAIR LOCATION



BEAM END SECTION LOSS

PLAN VIEW

NOTE: SECTION LOSS MAY NOT BE PRESENT AT EACH REPAIR LOCATION

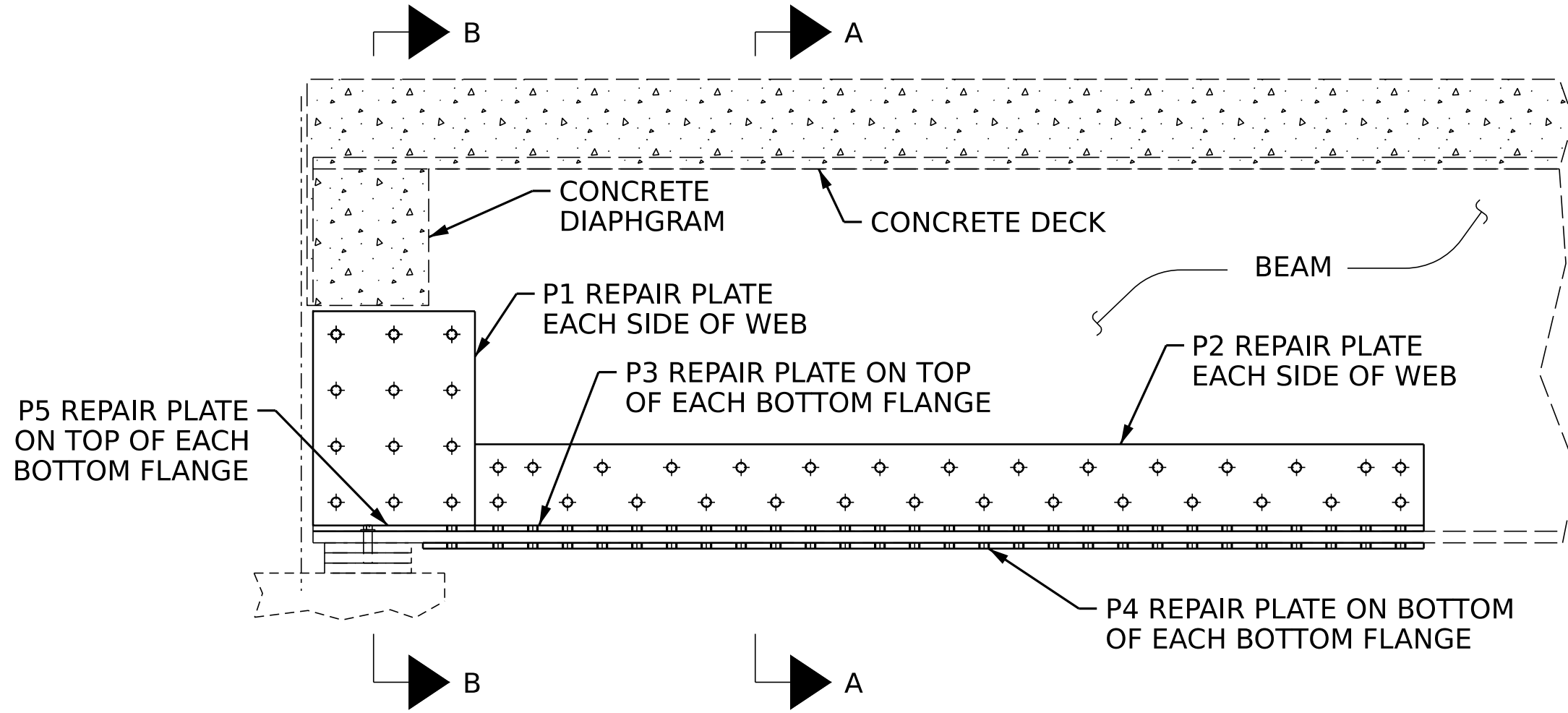


SECTION A-A

SECTION B-B

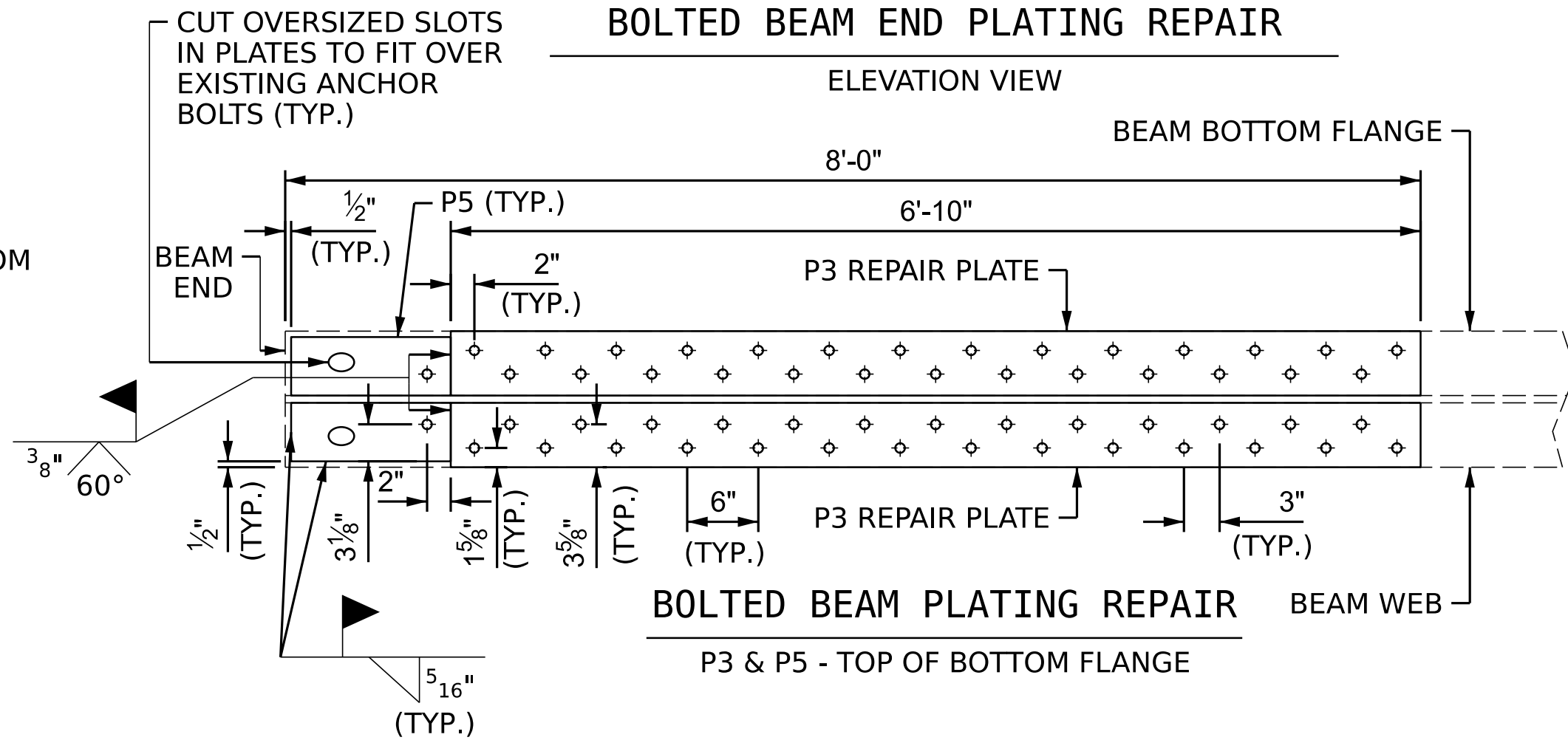
BOLTED BEAM PLATING REPAIR

SECTIONS
BOLTS NOT SHOWN FOR CLARITY



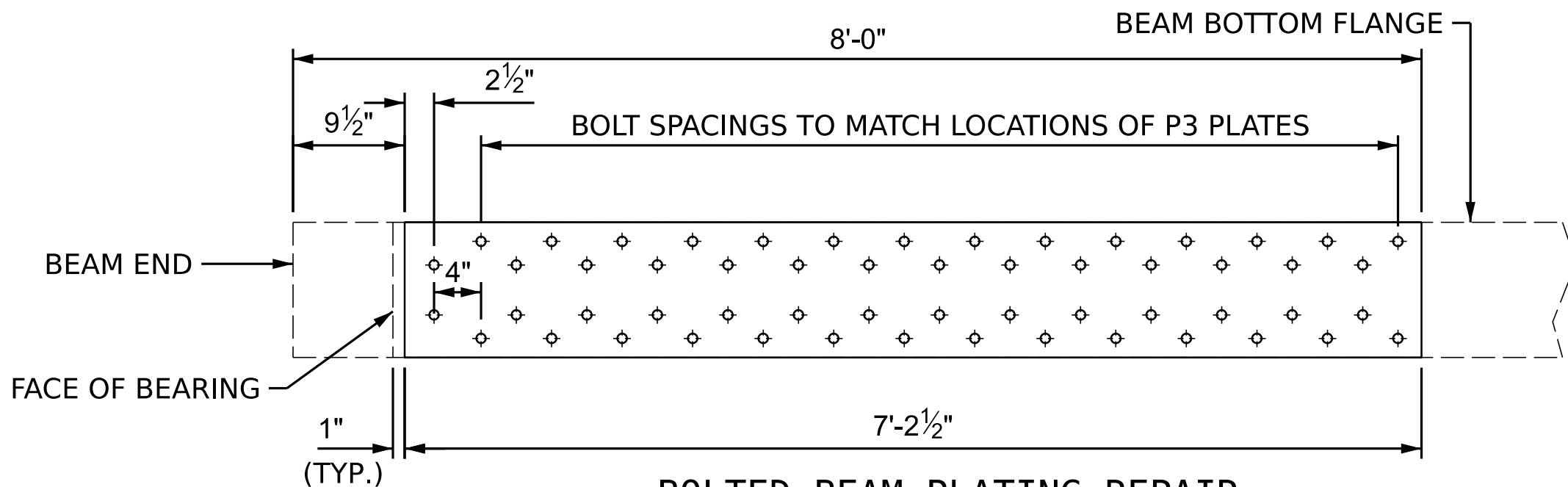
BOLTED BEAM END PLATING REPAIR

ELEVATION VIEW



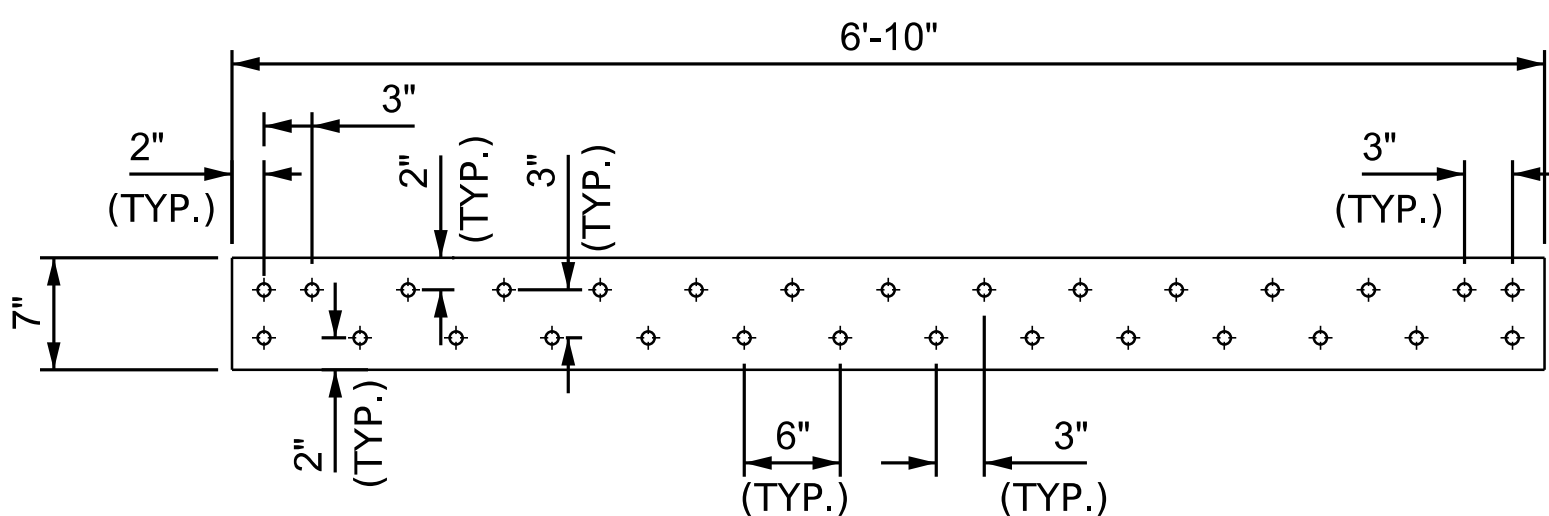
BOLTED BEAM PLATING REPAIR

P3 & P5 - TOP OF BOTTOM FLANGE



BOLTED BEAM PLATING REPAIR

PLATE P4 DETAILS

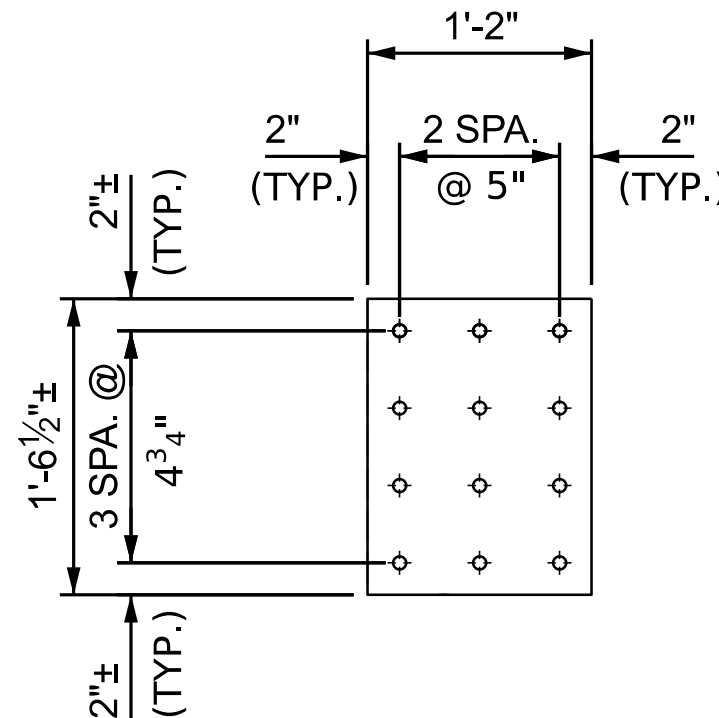


BOLTED BEAM PLATING REPAIR

PLATE P2 DETAILS

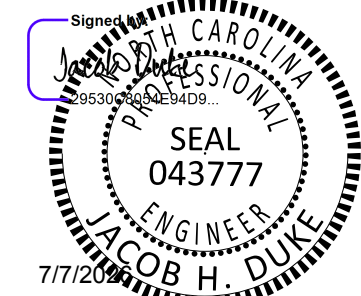
NOTES

FOR BOLTED PLATE REPAIR NOTES AND REPAIR SEQUENCE, SEE SHEET 3 OF 3.



BOLTED BEAM PLATING REPAIR

PLATE P1 DETAILS
ADJUST PLATE HEIGHT AS NEEDED TO COVER
CORRODED AREA



PROJECT NO. BR-0140
DAVIDSON COUNTY
BRIDGE NO. 280087

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SUPERSTRUCTURE
REPAIRS**
DETAILS

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	
1			3		S-6
2			4		
TOTAL SHEETS					7

DRAWN BY : JACOB H. DUKE DATE : 06/2025
CHECKED BY : SCOTT A. BETZ DATE : 06/2025
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2025

7/2/2026
BR-0140_SMU_SSR02.dgn
fflores

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

301 FAYETTEVILLE ST. SUITE 1500
RALEIGH, NC 27601 (919)-882-7839
NC FIRM LICENSE: C-1506

BOLTED PLATE REPAIR NOTES

ALL CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR INSTALLATION OF ANY COMPONENTS.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION STRUCTURAL STEEL ITEMS. FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

REPAIR PLATES SHALL BE MINIMUM AASHTO M 270 GRADE 36 STEEL OR MATCH EXISTING STEEL TYPE.

MINIMUM PLATE THICKNESS FOR WEB REPAIR SHALL BE 1/2". MINIMUM PLATE THICKNESS FOR FLANGE REPAIR SHALL BE 3/4".

ALL HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATOR WASHERS SHALL BE GALVANIZED AND SHALL MEET ALL REQUIREMENTS OF SUBARTICLE 1072-5 OF THE NCDOT STANDARD SPECIFICATIONS.

ALL BOLTS SHALL BE 3/4" Ø AND ALL BOLT HOLES SHALL BE 13/16" Ø UNLESS OTHERWISE NOTED IN THE DETAILS.

TENSION ON THE BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS (DTIS) IN ACCORDANCE WITH ARTICLE 440-8 OF THE NCDOT STANDARD SPECIFICATIONS. DTIS SHALL MEET ASTM F959.

BOLT SPACING/LOCATIONS:

MINIMUM BOLT SPACING IS 2 1/2". MAXIMUM BOLT SPACING IS 6" LONGITUDINALLY, 12" VERTICALLY OR TRANSVERSELY, MINIMUM EDGE DISTANCE IS 1 5/8", UNLESS NOTED OTHERWISE.

BOLT SPACING AND LOCATIONS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER.

NOTE: SPAN 2, BEAM 5 HAS A REPAIR ARREST HOLE APPROXIMATELY 5FT FROM THE BEAM END.

REPAIR SEQUENCE

FOR REPAIR SEQUENCE, SEE SPECIAL PROVISIONS.

COORDINATE WITH MATERIALS AND TEST UNIT AT LEAST FOUR (4) DAYS PRIOR TO ANTICIPATED WORK.

REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM, CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE. THIS WORK IS CONSIDERED INCIDENTAL TO THE PAY ITEM FOR "BOLTED PLATE REPAIR".

USING HAND AND POWER TOOLS, MECHANICALLY CLEAN RUST, SCALE AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

PRIME ENTIRE REPAIR AREA AND REPAIR PLATES WITH AN INORGANIC ZINC PRIMER PRIOR TO BOLTING NEW PLATES.

ALL AREAS OF SECTION LOSS AND PITTING SHALL BE FILLED WITH METAL EPOXY FILLER JUST PRIOR TO INSTALLING THE NEW REPAIR PLATES.

PRIOR TO PLACEMENT OF THE PLATES, APPLY WET EPOXY MASTIC AROUND THE TOP AND SIDES OF THE PLATE FACE THAT IS TO BE IN CONTACT WITH THE BEAM. AMOUNT OF EPOXY MASTIC SHALL BE SUFFICIENT TO SEAL THE PLATE INTERFACE AND THE BEAM AFTER BOLTS ARE TIGHTENED. NO EPOXY MASTIC SHALL BE PLACED ALONG THE BOTTOM EDGE OF THE PLATE. WHILE THE MASTIC IS STILL WET, PLATES SHALL BE PUT IN PLACE AND BOLTS PROPERLY TIGHTENED.

THE EPOXY MASTIC USED FOR THIS WORK SHALL BE COMPATIBLE WITH THE PRIMER USED AND SHALL BE APPROVED BY THE NCDOT MATERIAL AND TEST UNIT. THE EPOXY MASTIC WILL BE ACCEPTED ON THE BASIS OF THE MANUFACTURER'S WRITTEN CERTIFICATION THAT THE BATCH MEETS THEIR PRODUCT SPECIFICATIONS.

ONE FABRICATED SECTION SHALL BE PLACED, AS SHOWN, ON EACH SIDE OF THE BEAM WEB AND FLANGE.

BOLT HEADS SHALL BE ON EXTERIOR FACE OF FASCIA BEAMS AND THE BOTTOM OF THE FLANGE.

ALL WELDING SHALL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

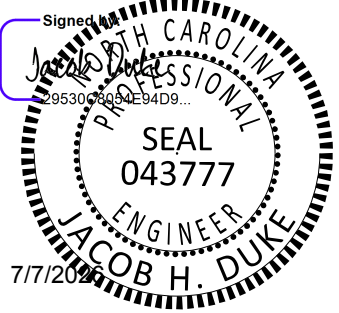
AFTER INSTALLATION, THE REPAIR PLATES, HARDWARE SHALL BE PRIMED WITH INORGANIC ZINC TO THEIR FULL EXTENT AND THE EXISTING BEAMS SHALL BE PRIMED WITH INORGANIC ZINC A MINIMUM OF 6" BEYOND THE INSTALLED REPAIR PLATES.

AFTER BEAMS ARE REPAIRED AND PRIMED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE RECAST. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM FOR "BOLTED PLATE REPAIR".

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. BR-0140
DAVIDSON COUNTY
BRIDGE NO. 280087

SHEET 3 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						
SUPERSTRUCTURE REPAIRS NOTES						
REVISIONS					SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7 TOTAL SHEETS 7
1			3			
2			4			

301 FAYETTEVILLE ST. SUITE 1500
RALEIGH, NC 27601 (919)-882-7839
NC FIRM LICENSE: C-1506

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

DRAWN BY :	JACOB H. DUKE	DATE :	06/2025
CHECKED BY :	SCOTT A. BETZ	DATE :	06/2025
DESIGN ENGINEER OF RECORD:	JACOB H. DUKE	DATE :	06/2025

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞"Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST ⅝" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY ⅛" OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.