

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

[illegible]

$$^* \text{RDR} = \frac{\text{Factored Resistance} + \text{Factored Drag Load} + \text{Factored Dead Load}}{\text{Dynamic Resistance Factor}} + \text{Nominal Drag Load Resistance} + \text{Nominal Resistance from Scourable Material}$$

**** Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.**

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent 1, Piles 1-21	230			0.60		
End Bent 2, Piles 1-21	240			0.60		

* Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
End Bent 1, Piles 1-21				21
End Bent 2, Piles 1-21				21
TOTAL QUANTITY:				42

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
End Bent 1, Piles 1-21	90	1
End Bent 2, Piles 1-21		
TOTAL QUANTITY:		1

Pile Order Lengths for Concrete Piles	
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	Pile Order Length Basis* EST or DPT

* EST = Pile order lengths from estimated pile lengths; DPT = Pile order lengths based on Dynamic Pile Testing. For groups of end bents/bents with pile order lengths based on DPT testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the DPT.

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Abner F. Riggs, Jr., #014155) on 07-14-2026.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.

PROJECT NO. I-2513AC

BUNCOMBE COUNTY

STATION: 105+49.43 -L-/13+76.06 -Y14-

SHEET 3 OF 5 BRIDGE NO. 900

A circular professional engineer seal for the State of North Carolina. The outer ring contains the text "NORTH CAROLINA" at the top and "REGISTERED PROFESSIONAL ENGINEER" at the bottom. In the center, it says "SEAL 14155" and "ROGER F. RIGGS JR." around a smaller inner circle.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE
FOUNDATION
TABLES

DocuSigned by:

Roger Riggs Jr.
CPFACACAD02481

7/14/2026

SIGNATURE

DATE

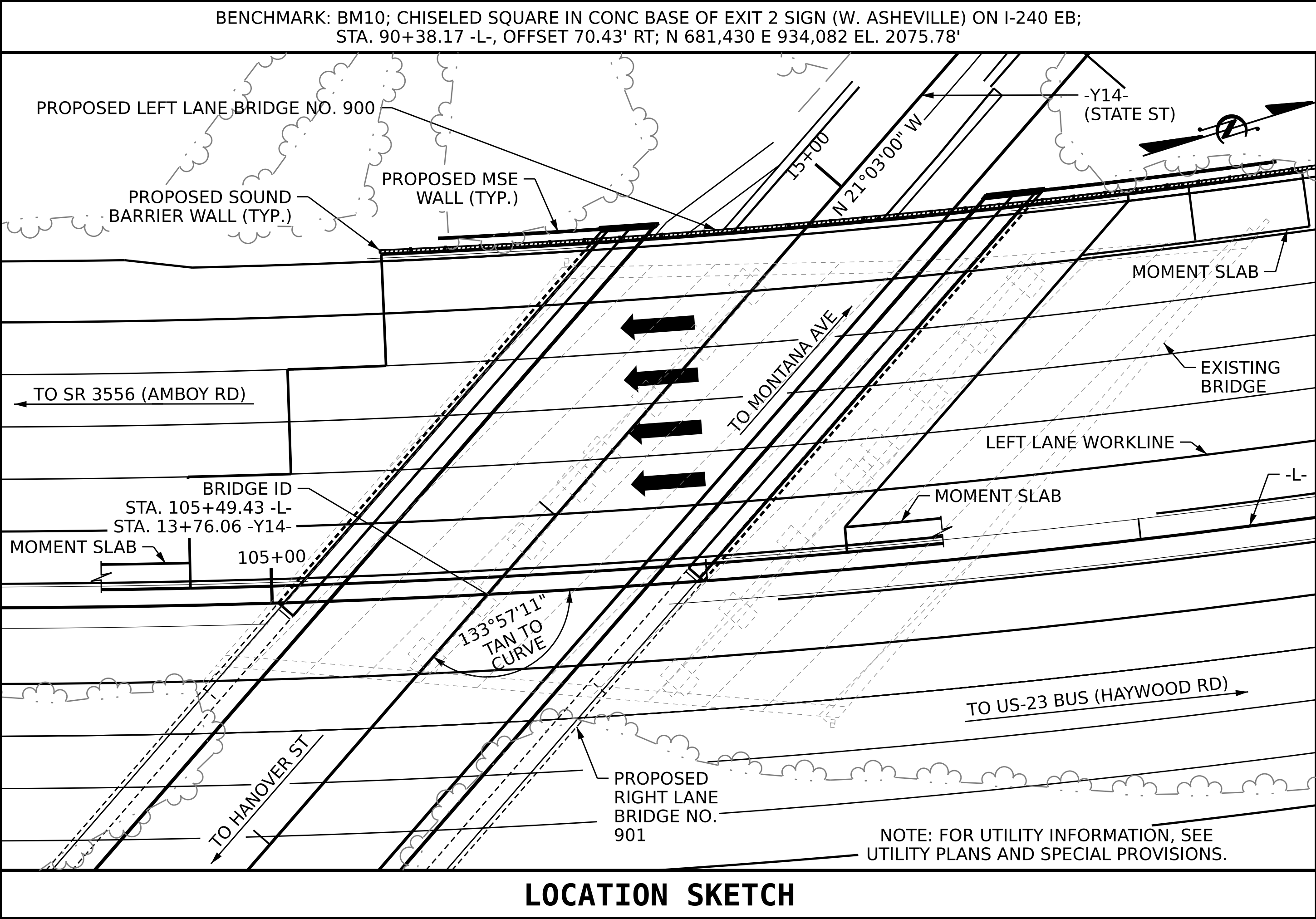
REVISIONS

SHEET NO.
S9-03

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

TOTAL
SHEETS
46



TOTAL BILL OF MATERIAL								
	UNCLASSIFIED STRUCTURE EXCAVATION AT STA. 105+49.43 -L- (LT)	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	54" PRESTRESSED CONCRETE GIRDERS	
	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.
SUPERSTRUCTURE		7,259	10,898				9	837.8
END BENT 1				169.2		13,395		
END BENT 2				184.6		13,673		
TOTAL	LUMP SUM	7,259	10,898	353.8	LUMP SUM	27,068	9	837.8

TOTAL BILL OF MATERIAL														
	PILE DRIVING EQUIPMENT SETUP FOR HP 12X53 STEEL PILES	HP 12X53 STEEL PILES		STEEL PILE POINTS	DYNAMIC PILE TESTING	CONCRETE BARRIER RAIL	72" CHAIN LINK FENCE	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	PRECAST CONCRETE FASCIA AT STA. 105+49.43 -L- (LT)	APPLICATION OF BRIDGE COATING	SOUND BARRIER WALL (BRIDGE MOUNTED)	CONCRETE BARRIER RAIL WITH MOMENT SLAB AT SOUND BARRIER WALL
	EACH	NO.	LIN. FT.	NO.	EACH	LIN. FT.	LIN. FT.	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.	LUMP SUM	LIN. FT.
SUPERSTRUCTURE						322.6	93.0							
END BENT 1	21	21	1,785.0	21	1			52.6				194.8		
END BENT 2	21	21	1,890.0	21				55.1				209.6		52.5
TOTAL	42	42	3,675.0	42	1	322.6	93.0	107.7	LUMP SUM	LUMP SUM	LUMP SUM	404.4	LUMP SUM	52.5

DRAWN BY :	T. NEAL / M. CATER	DATE :	03/2026
CHECKED BY :	A. VASUDEVAN	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	A. VASUDEVAN	DATE :	03/2026

7/30/2026
C:\pwworking\oecom.ds21.na.2020\d0131571\409.009.12513AC.SMU.LOC.S9-05.100900.dgn
caterm

GENERAL NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

TEMPORARY SHORING WILL BE REQUIRED IN THE AREAS INDICATED IN THE PLAN VIEW.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS..

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR MSE WALLS, SEE GEOTECHNICAL SPECIAL PROVISIONS.

THE ELEVATIONS AND CLEARANCES SHOWN ON THE PLANS AT THE POINTS OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATIONS ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 70 FT LEFT AND 20 FT RIGHT OF THE WORKLINE AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

WORK SHALL NOT BE STARTED ON THIS BRIDGE (OR SPECIFIC PARTS OF BRIDGE) UNTIL ROADWAY SECTION HAS BEEN EXCAVATED.

FOR PRECAST CONCRETE FASCIA, SEE SPECIAL PROVISIONS.

FOR INTEGRATION OF ABUTMENT MSE WALLS' AESTHETIC SCHEME WITH BRIDGE, SEE WALL PLANS.

FOR SOUND BARRIER WALL (BRIDGE MOUNTED), SEE SPECIAL PROVISIONS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB AT SOUND BARRIER WALL, SEE SPECIAL PROVISIONS.

FOR APPLICATION OF BRIDGE COATING, SEE SPECIAL PROVISIONS.

FOR REMOVAL OF EXISTING STRUCTURE AT STATION 105+49.43 -L- (LT), SEE STATION 105+49.43 -L- (RT)

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD FOR THE EXISTING STRUCTURE, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 105+49.43 -L- (RT)", SHOWN ON THE RIGHT LANE PLANS.

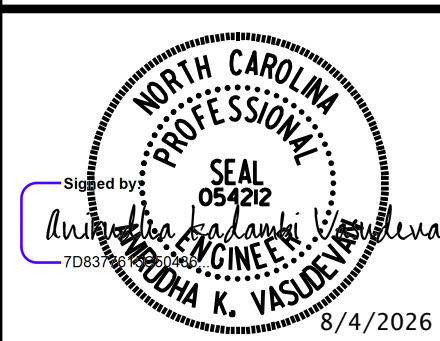
THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURES CONSISTING OF A 3 SPAN (45' - 60' - 45') CONCRETE DECK ON ROLLED STEEL W-SHAPE GIRDERS, WITH 94.0 FT CLEAR ROADWAY WIDTH, SUPPORTED BY PILE BENT CONCRETE END BENTS AND CONCRETE POST AND BEAM BENTS ON PILES, AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGES DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 5 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON I-26/I-240 OVER
STATE ST BETWEEN SR 3556 (AMBOY RD)
AND US 23 BUS (HAYWOOD RD)

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-05
1			3			TOTAL SHEETS
2			4			46

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

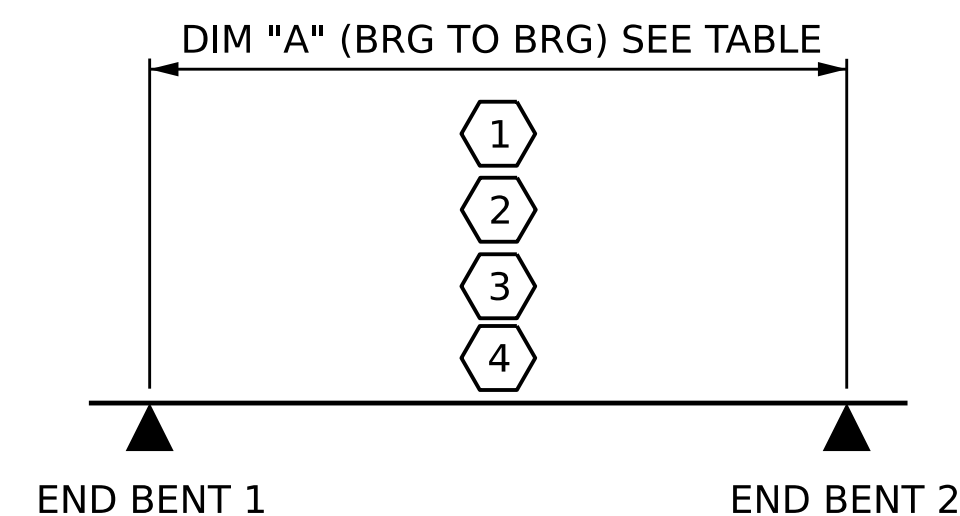
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS
REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
4	EMERGENCY VEHICLE LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER	
EL - EXTERIOR LEFT GIRDER	
ER - EXTERIOR RIGHT GIRDER	

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LOAD TYPE		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING Ⓢ	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER	
							LIVE-LOAD FACTORS (Y LL)	MOMENT				SHEAR				LIVE-LOAD Y FACTORS (LL)	MOMENT							
								DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD		HL-93 (INVENTORY)	N/A	Ⓢ1	1.23	--	1.75	0.700	1.61	A	EL	48.5	1.03	2.85	A	I	68.0	0.80	0.700	1.23	A	EL	48.5	
		HL-93 (OPERATING)	N/A		2.09	--	1.35	0.700	2.09	A	EL	48.5	1.03	3.93	A	I	68.0	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	Ⓢ2	1.70	61.20	1.75	0.700	2.21	A	EL	48.5	1.03	3.80	A	I	68.0	0.80	0.700	1.70	A	EL	48.5	
		HS-20 (OPERATING)	36.000		2.87	103.32	1.35	0.700	2.87	A	EL	48.5	1.03	4.98	A	I	68.0	N/A	--	--	--	--	--	
LEGAL LOAD	SINGLE VEHICLE (SV)	SH	12.500		4.34	54.25	1.40	0.700	7.07	A	EL	48.5	1.03	12.71	A	I	68.0	0.80	0.700	4.34	A	EL	48.5	
		S3C	21.500		2.53	54.40	1.40	0.700	4.13	A	EL	48.5	1.03	7.39	A	I	68.0	0.80	0.700	2.53	A	EL	48.5	
		S3A	22.750		2.40	54.60	1.40	0.700	3.92	A	EL	48.5	1.03	7.00	A	I	68.0	0.80	0.700	2.40	A	EL	48.5	
		S4A	26.750		2.11	56.44	1.40	0.700	3.44	A	EL	48.5	1.03	6.12	A	I	68.0	0.80	0.700	2.11	A	EL	48.5	
		S5A	30.500		1.86	56.73	1.40	0.700	3.03	A	EL	48.5	1.03	5.63	A	I	68.0	0.80	0.700	1.86	A	EL	48.5	
		S6A	34.500		1.68	57.96	1.40	0.700	2.74	A	EL	48.5	1.03	5.08	A	I	68.0	0.80	0.700	1.68	A	EL	48.5	
		S7B	38.500		1.53	58.91	1.40	0.700	2.49	A	EL	48.5	1.03	4.77	A	I	68.0	0.80	0.700	1.53	A	EL	48.5	
		S7A	40.000	Ⓢ3	1.51	60.40	1.40	0.700	2.46	A	EL	48.5	1.03	4.94	A	I	68.0	0.80	0.700	1.51	A	EL	48.5	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250		2.07	58.48	1.40	0.700	3.38	A	EL	48.5	1.03	5.95	A	I	68.0	0.80	0.700	2.07	A	EL	48.5	
		T5B	32.000		1.82	58.24	1.40	0.700	2.97	A	EL	48.5	1.03	5.72	A	I	68.0	0.80	0.700	1.82	A	EL	48.5	
		T6A	36.000		1.66	59.76	1.40	0.700	2.71	A	EL	48.5	1.03	5.27	A	I	68.0	0.80	0.700	1.66	A	EL	48.5	
		T7A	40.000		1.54	61.60	1.40	0.700	2.51	A	EL	48.5	1.03	4.93	A	I	68.0	0.80	0.700	1.54	A	EL	48.5	
T7B		40.000		1.63	65.20	1.40	0.700	2.66	A	EL	48.5	1.03	4.57	A	I	68.0	0.80	0.700	1.63	A	EL	48.5		
EMERGENCY VEHICLE (EV)		EV2	28.750		2.05	58.94	1.30	0.700	3.59	A	EL	48.5	1.03	6.19	A	I	68.0	0.80	0.700	2.05	A	EL	48.5	
		EV3	43.000	Ⓢ4	1.35	58.05	1.30	0.700	2.36	A	EL	48.5	1.03	4.11	A	I	68.0	0.80	0.700	1.35	A	EL	48.5	



LRFR SUMMARY

DIM "A"	
GIRDER	"A"
1	93'-1 $\frac{1}{4}$ "
2	92'-8 $\frac{3}{4}$ "
3	92'-4 $\frac{1}{4}$ "
4	92'-0"
5	91'-7 $\frac{3}{4}$ "
6	91'-3 $\frac{3}{4}$ "
7	90'-11 $\frac{3}{4}$ "
8	90'-7 $\frac{3}{4}$ "
9	90'-3 $\frac{3}{4}$ "

ASSEMBLED BY : I.N. HART		DATE : 01/2024
CHECKED BY : A.K. VASUDEVAN		DATE :02/2024
DRAWN BY : MAA 1/08	REV. 11/12/08RR	MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/11/11	MAA/GM
	REV. 04/23	BNB/AA

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



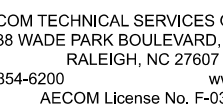
AECOM TECHNICAL SERVICES OF NC, INC.
5430 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-8200 www.aecom.com
AECOM License No. FIC042

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

**LRFR SUMMARY FOR
PRESTRESSED
CONCRETE GIRDERS**

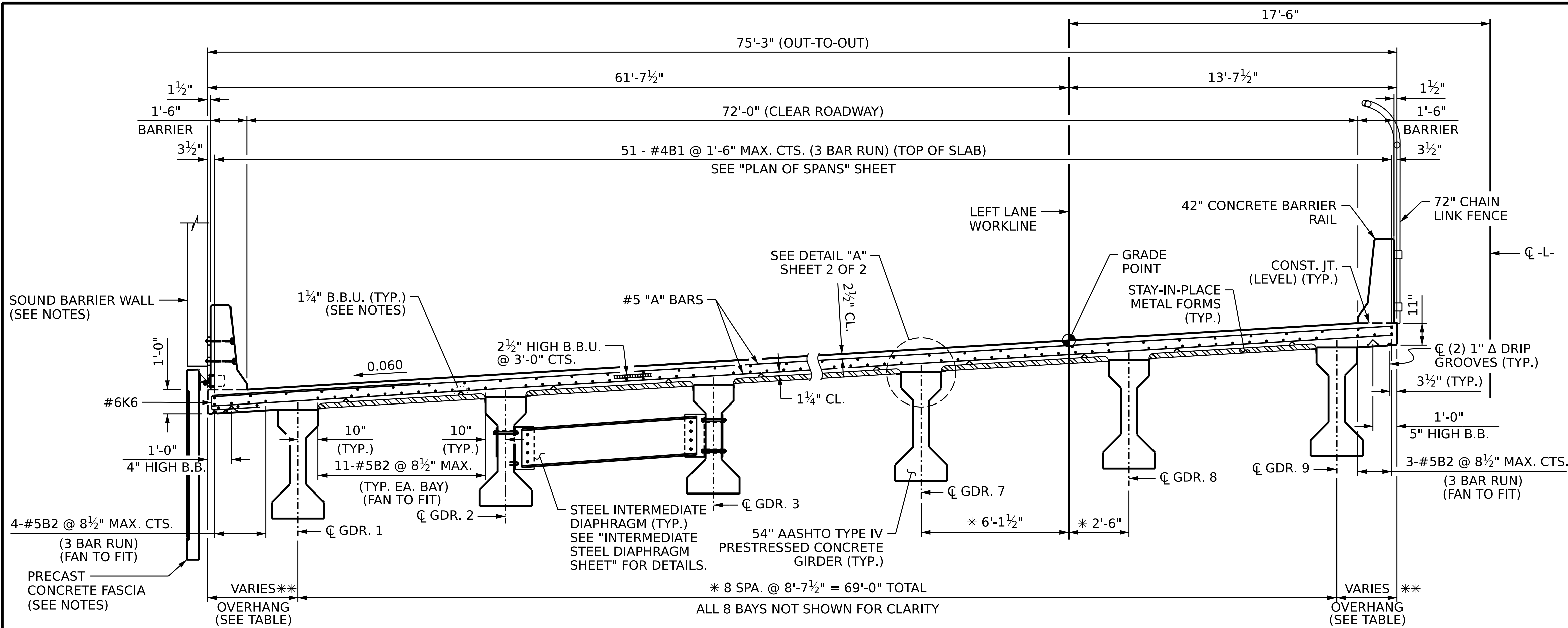
(INTERSTATE TRAFFIC)



7/15/2026

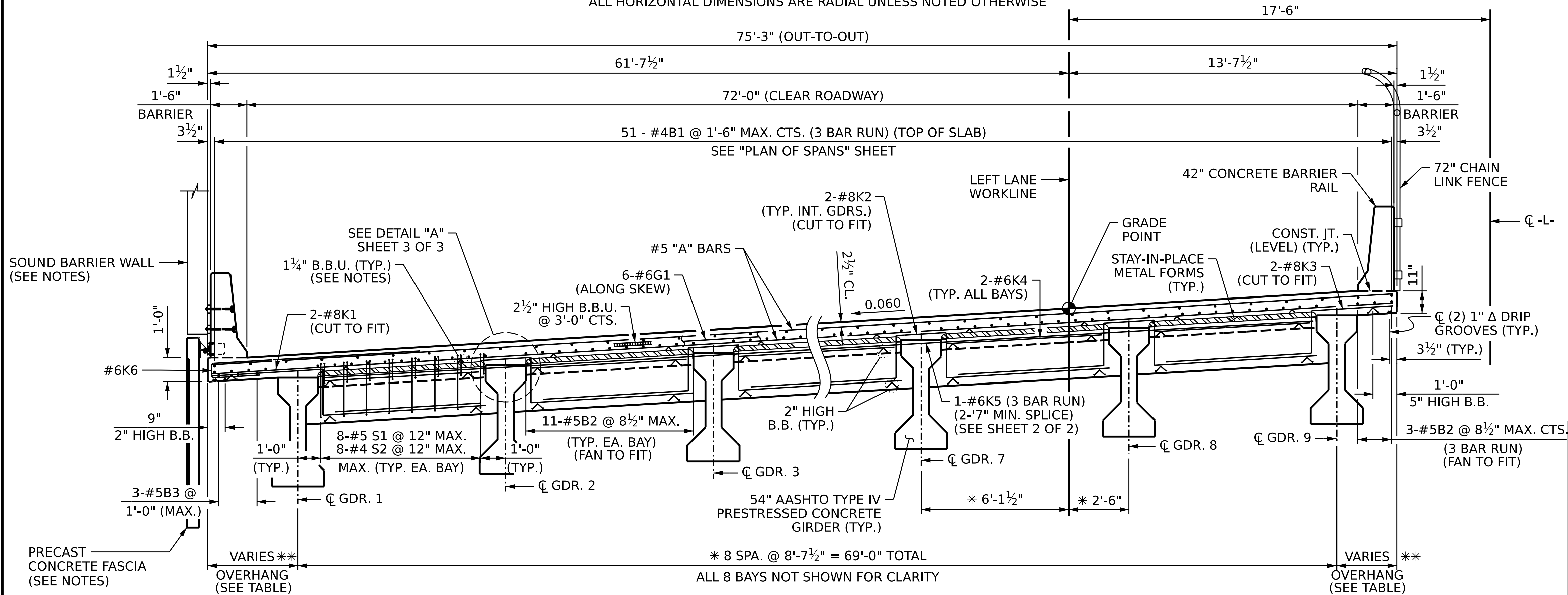
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-06 TOTAL SHEETS 46
1			3			
2			4			

STD.NO.LRFR2



TYPICAL SECTION AT MIDSPAN

ALL HORIZONTAL DIMENSIONS ARE RADIAL UNLESS NOTED OTHERWISE



TYPICAL SECTION AT END BENT

END BENT 1 SHOWN, END BENT 2 SIMILAR

NOTES:

PROVIDE 1¼" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY IN PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (CHCM) AT 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE FROM 2½" ABOVE THE TOP OF THE REMOVABLE FORM.

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

PREVIOUSLY CAST CONCRETE IN SPAN A SHALL HAVE 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

FOR SOUND BARRIER WALL LOCATION AND CONNECTION DETAILS, SEE "SOUND BARRIER WALL DETAILS" SHEETS.

FOR PRECAST CONCRETE FASCIA LOCATION AND CONNECTION DETAILS, SEE "PRECAST CONCRETE FASCIA DETAILS" SHEETS.

* = MEASURED RADIAL THRU WORKPOINT

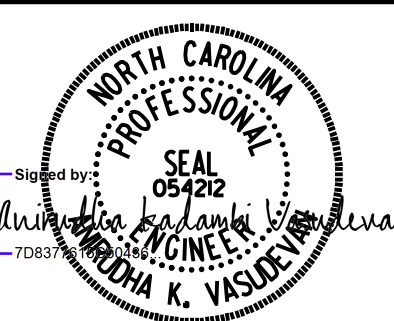
** = MEASURED NORMAL TO CL GIRDERS

OVERHANG DIMENSIONS

OVERHANG	AT END OF GIRDER	AT MIDSPAN
LEFT	3'-9" (MAX.)	3'-2¼" (MIN.)
RIGHT	2'-6" (MIN.)	3'-0¾" (MAX.)

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

**TYPICAL SECTION
& DETAILS**

(LEFT LANE)

DRAWN BY : M. CATER DATE : 01/2024
CHECKED BY : A. VASUDEVAN DATE : 01/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

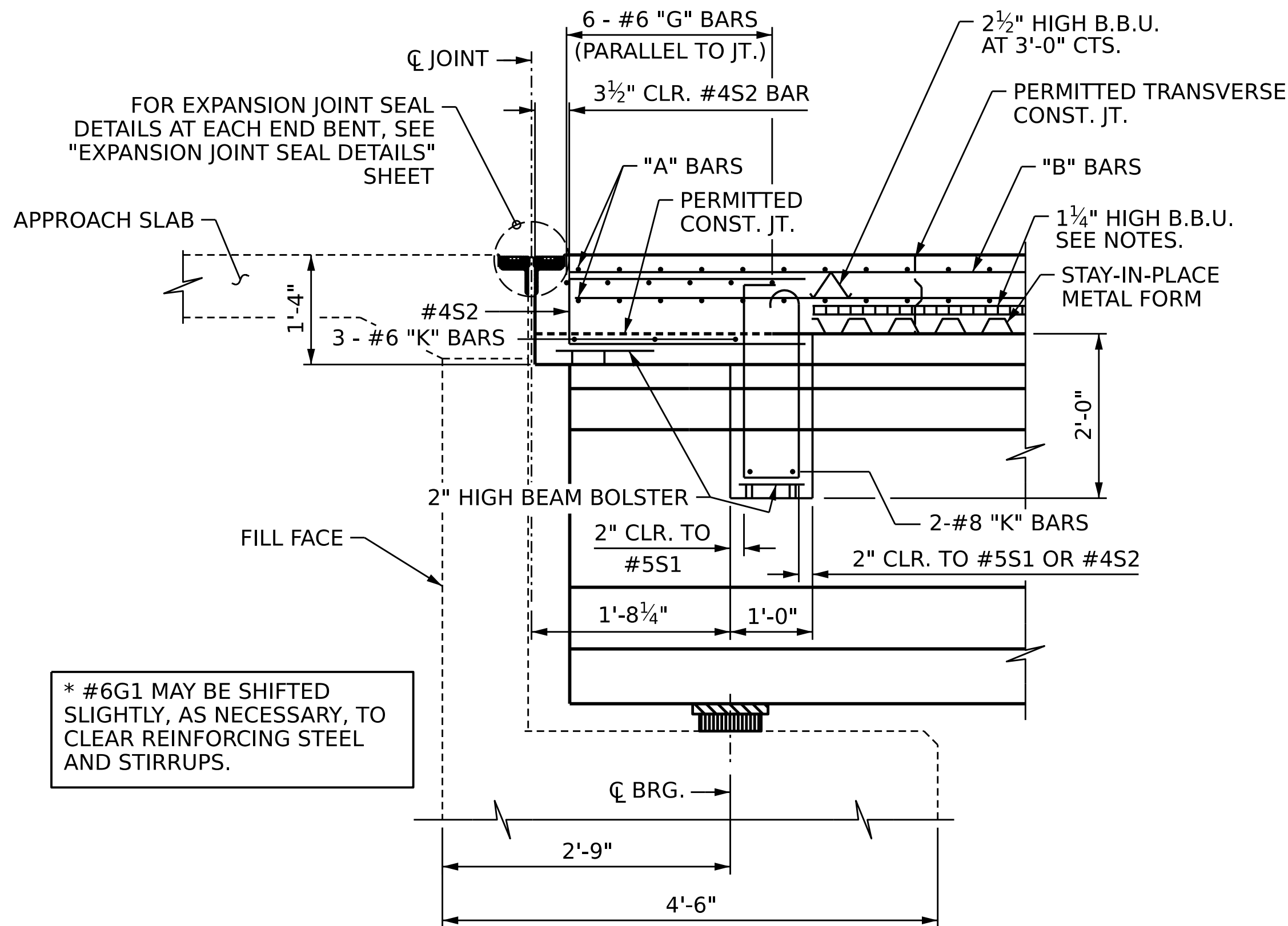
7/13/2026
C:\pwworking\aecom.ds21.na.2020\d0131571\409.013.12513AC.SMU.TS1.S9-07.100900.dgn
caterm

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-07
1			3			TOTAL SHEETS
2			4			46

NOTES:

WORK THIS SHEET WITH PLAN OF SPAN SHEETS AND CONSTRUCTION ELEVATIONS TO SET THE OUTSIDE EDGE OF THE BRIDGE DECK.

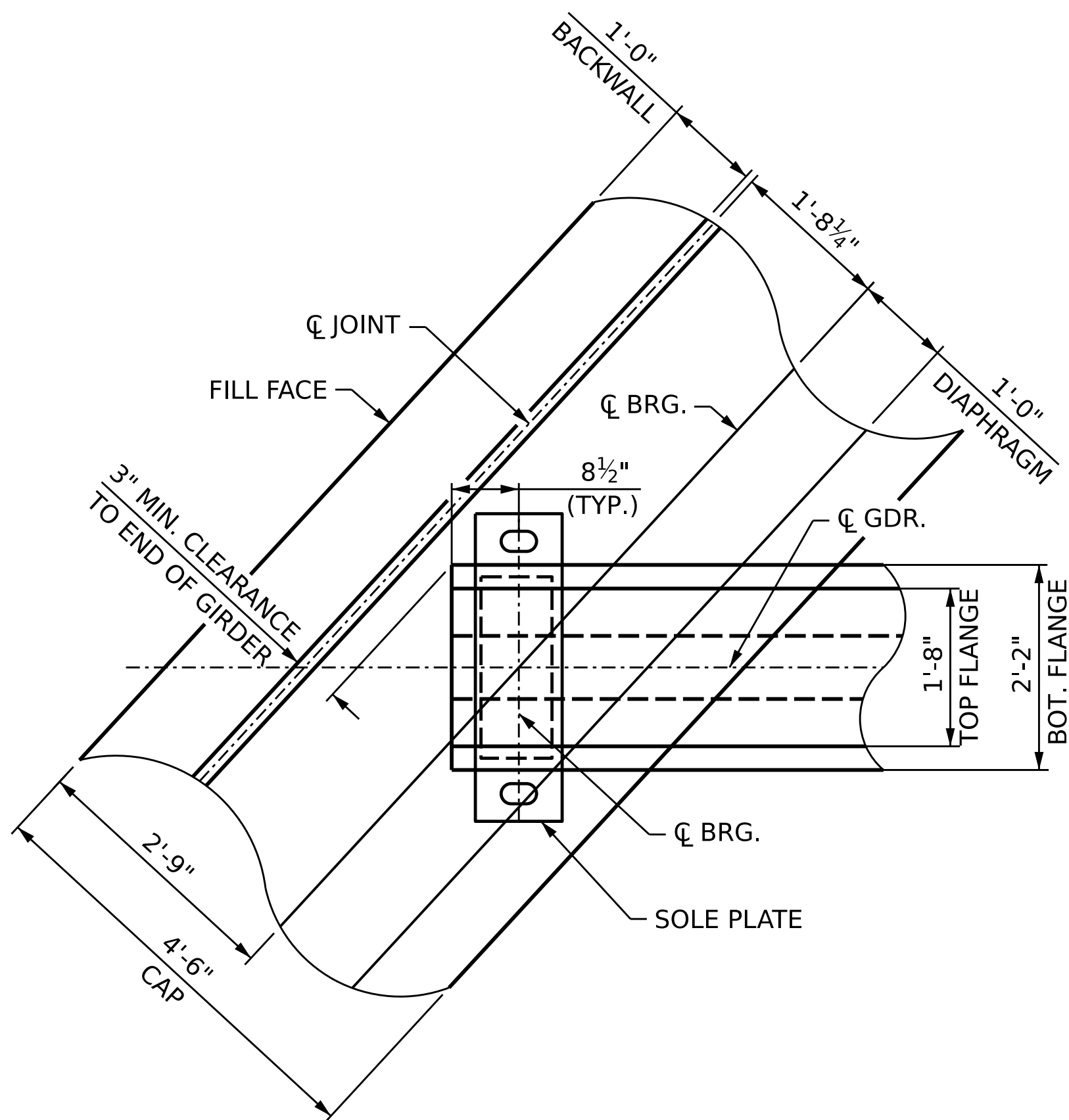


SECTION THRU END BENT DIAPHRAGMS

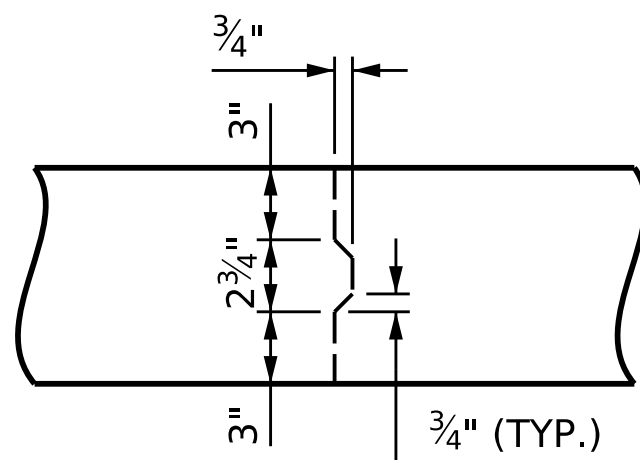
(DIMENSIONS SHOWN ARE NORMAL TO END BENT)
(END BENT 1 SHOWN, END BENT 2 SIMILAR)

GIRDER	MAX. MIDSPAN BUILD-UP (INCHES)*
1-2	2"
3-4	1 7/8"
5-6	2 1/8"
7-9	2 3/16"

* BASED ON PREDICTED
FINAL CAMBER AND THEORETICAL
GRADE LINE ELEVATIONS



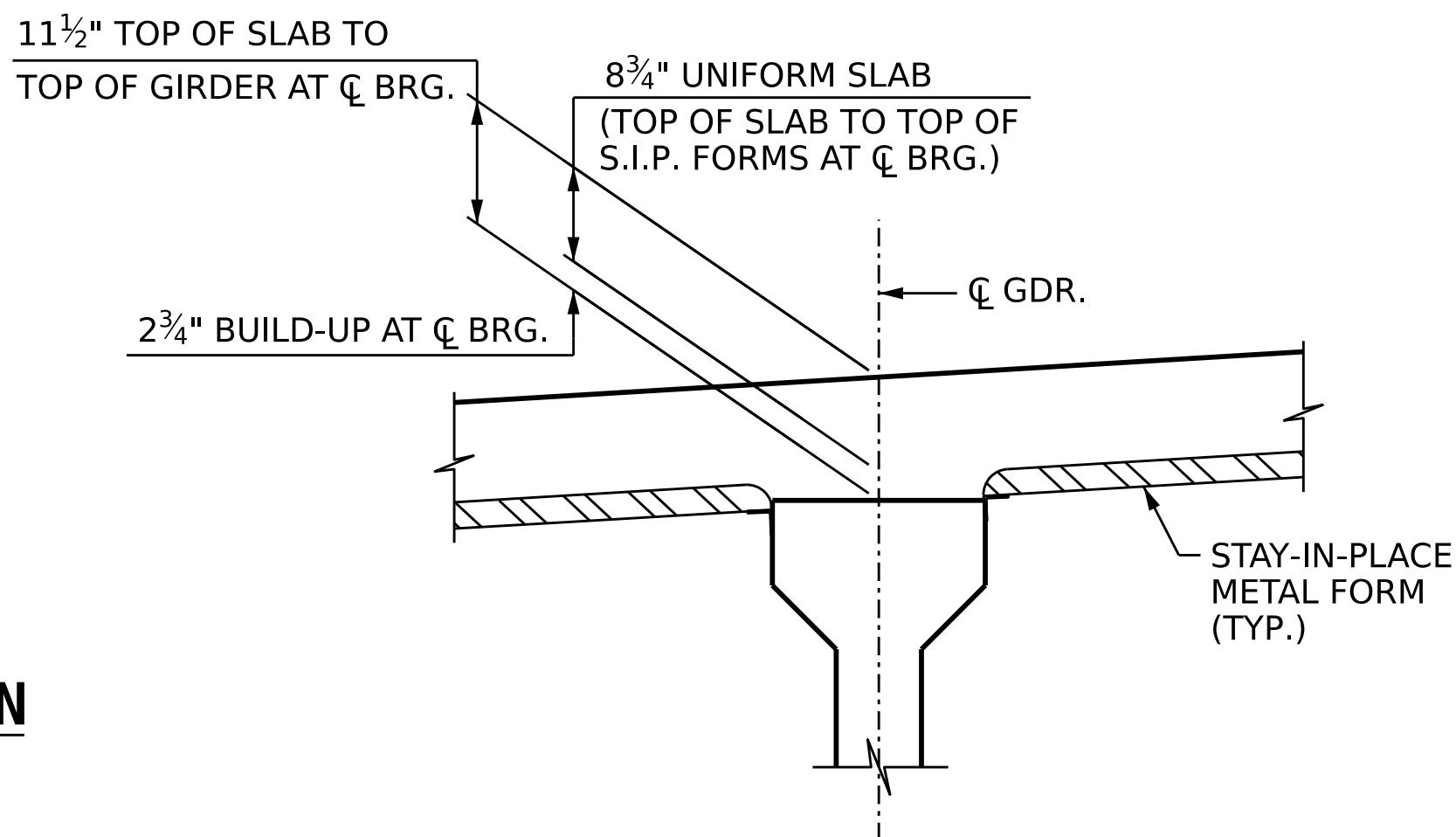
PLAN OF GIRDER AT END BENT DIAPHRAGM



TRANSVERSE CONSTRUCTION

JOINT IN DECK SLAB

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

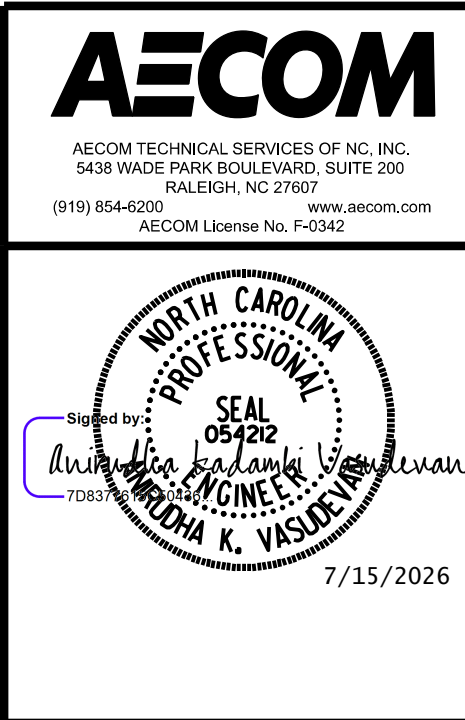


DETAIL "A"

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 2 OF 2



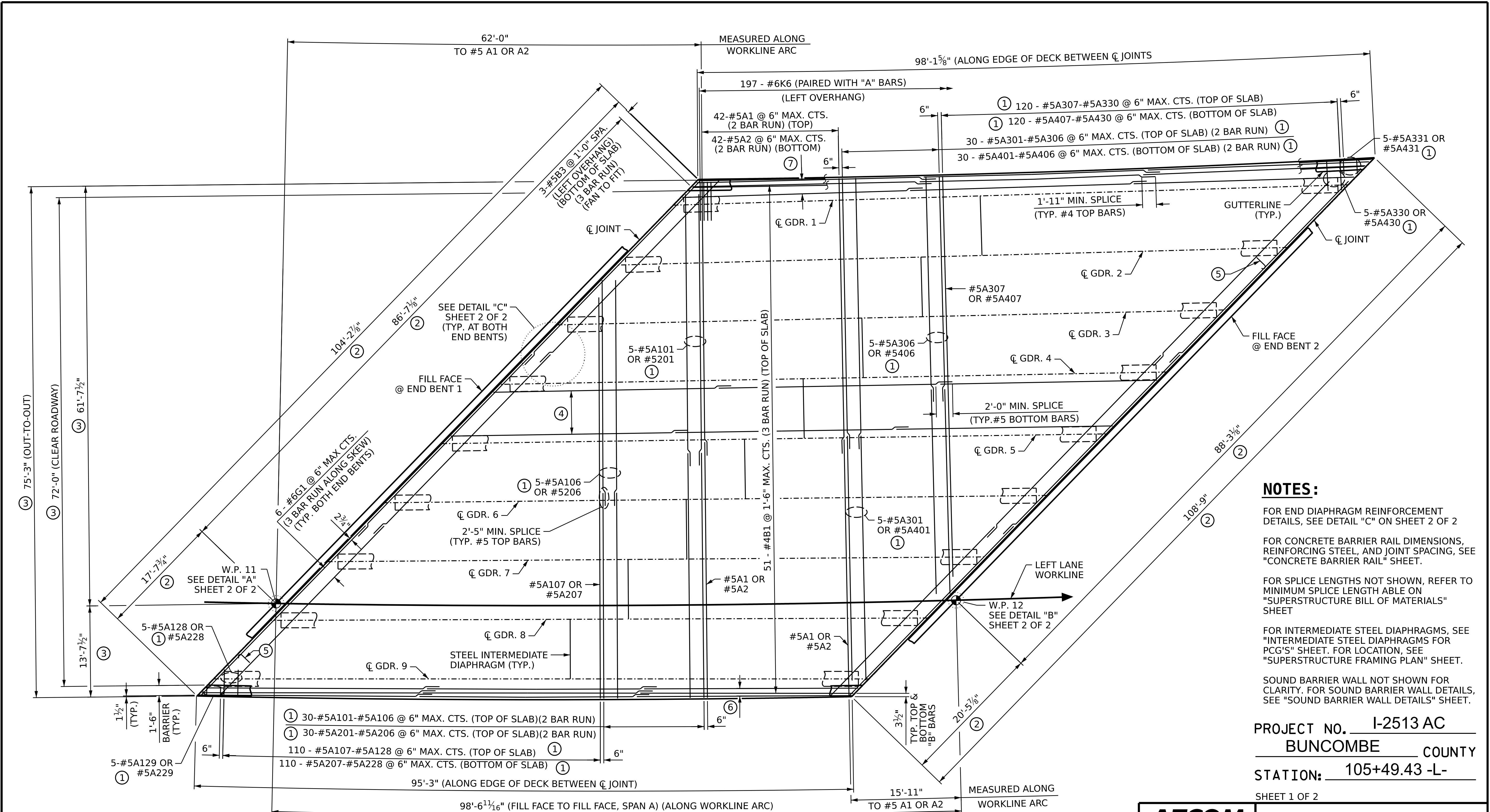
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION
& DETAILS

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-08
1			3			TOTAL SHEETS
2			4			46

DRAWN BY : M. CATER DATE : 02/2024
CHECKED BY : A.K. VASUDEVAN DATE : 02/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026



NOTES:

FOR END DIAPHRAGM REINFORCEMENT DETAILS, SEE DETAIL "C" ON SHEET 2 OF 2

FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCING STEEL, AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEET.

FOR SPLICE LENGTHS NOT SHOWN, REFER TO MINIMUM SPLICE LENGTH ABLE ON "SUPERSTRUCTURE BILL OF MATERIALS" SHEET

FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR PCG'S" SHEET. FOR LOCATION, SEE "SUPERSTRUCTURE FRAMING PLAN" SHEET.

SOUND BARRIER WALL NOT SHOWN FOR CLARITY. FOR SOUND BARRIER WALL DETAILS, SEE "SOUND BARRIER WALL DETAILS" SHEET.

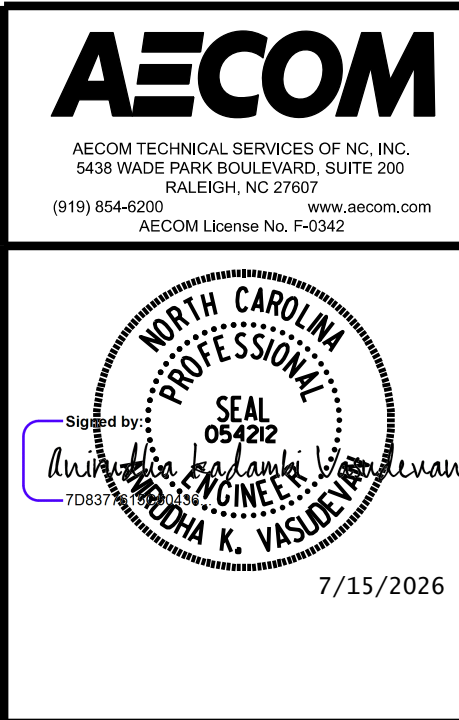
PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 1 OF 2

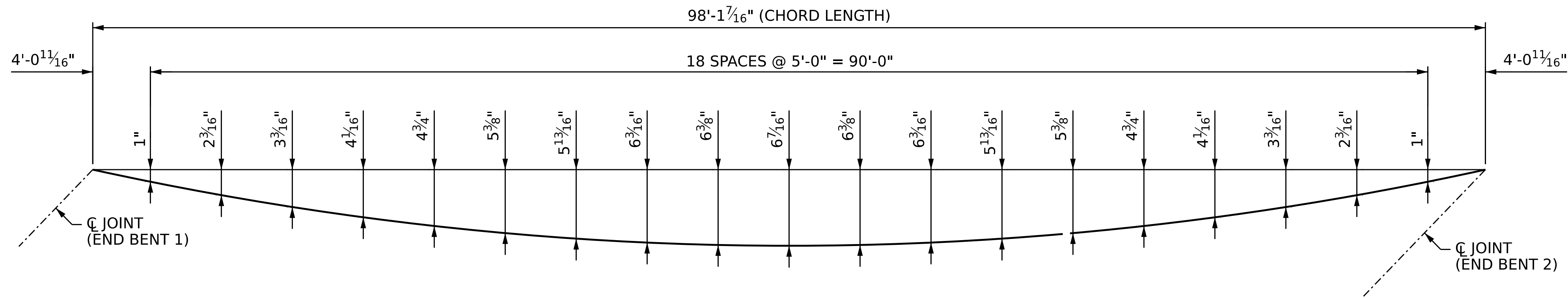
- SPAN "A"**
END DIAPHRAGMS NOT SHOWN FOR CLARITY
- ① TOP BARS #5A101 THRU #5A129, #5A301 THRU #5A331 AND BOTTOM BARS #5201 THRU #5A229, #5A401 THRU #5A431 SHALL BE PLACED IN 5 BAR INCREMENTS @ 6" MAX. AS SHOWN
 - ② MEASURED ALONG ϕ JOINT
 - ③ MEASURED RADIAL TO WORKLINE
 - ④ 11 - #5B2 @ 8 1/2" MAX. CTS. (TYPICAL BOTTOM EACH BAY) (3 BAR RUN) (FAN TO FIT)
 - ⑤ #4J1 BARS PLACED AT 1'-0" CENTERS AT EACH VERTICAL STUD ANCHOR BOLT OF EXPANSION JOINT. SEE EXPANSION JOINT SHEETS FOR DETAILS. TYPICAL AT EACH END BENT AND APPROACH SLABS.
 - ⑥ 3 - #5B2 @ 8 1/2" MAX. CTS. (BOTTOM OF SLAB) (3 BAR RUN)
 - ⑦ 4 - #5B2 @ 8 1/2" MAX. CTS. (BOTTOM OF SLAB) (3 BAR RUN)

DRAWN BY : M. CATER DATE : 01/2024
CHECKED BY : M. CATER DATE : 01/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

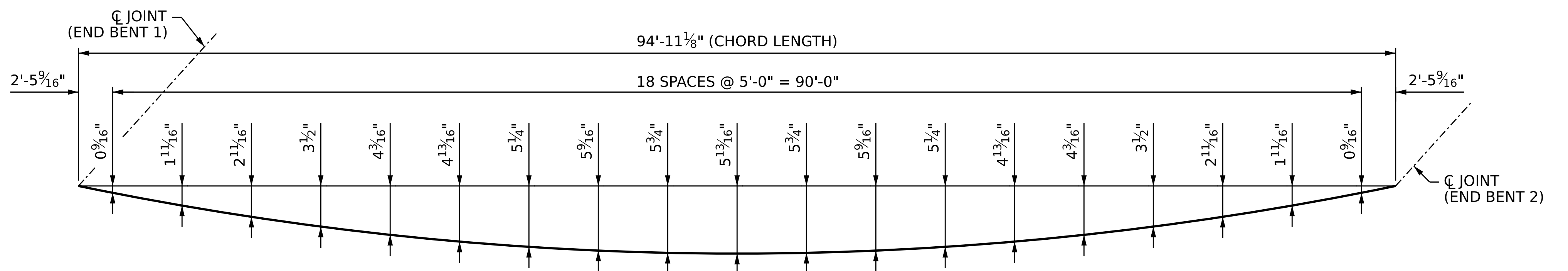
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



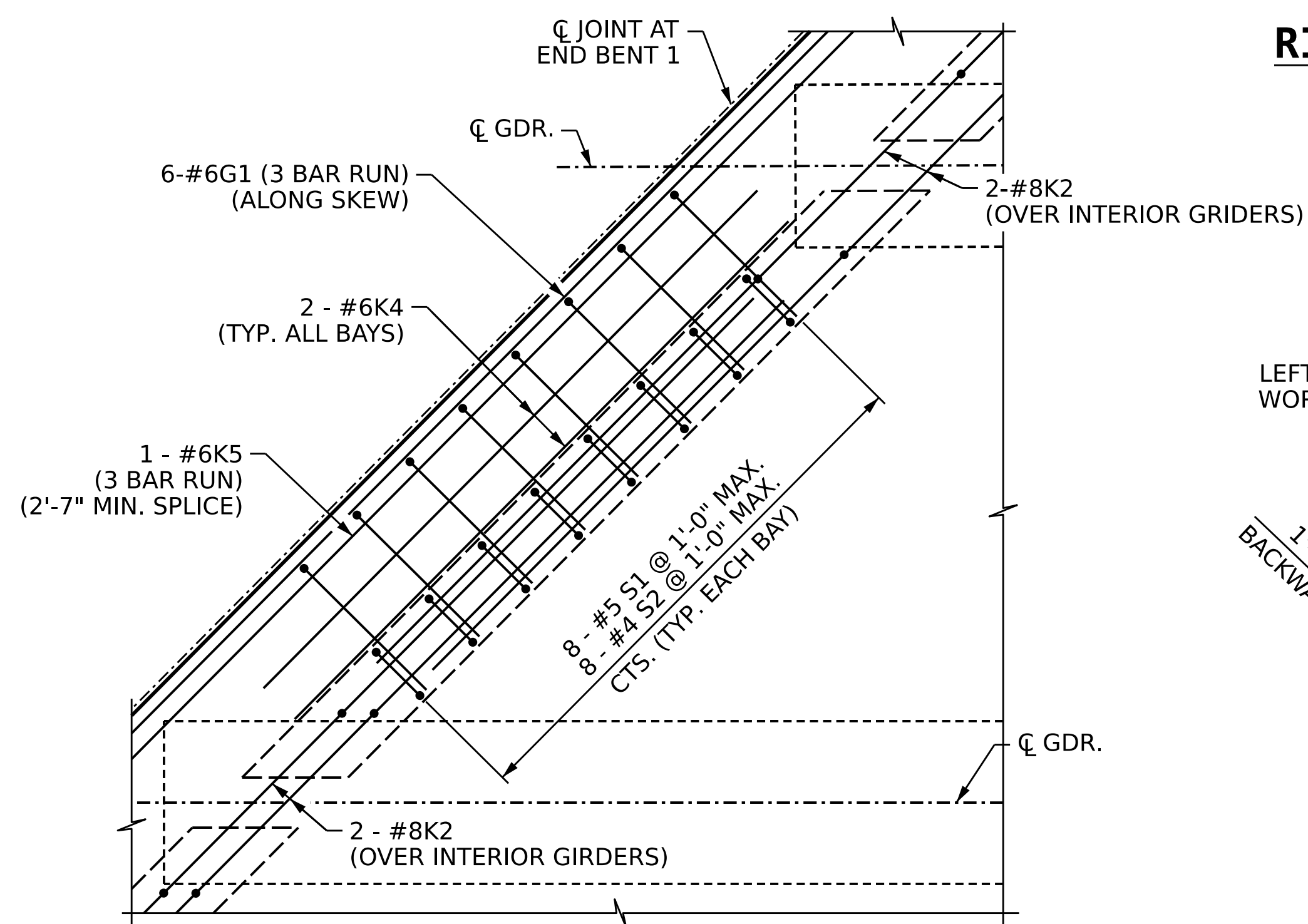
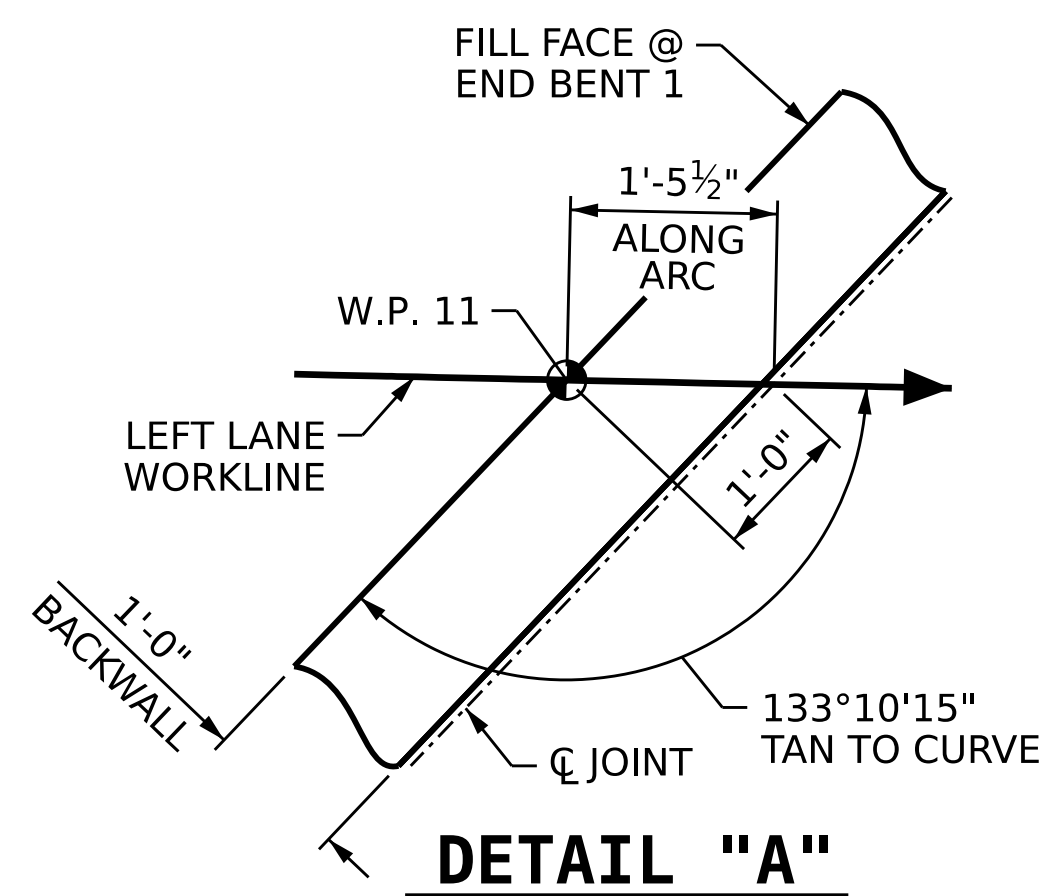
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-09	
1			3			TOTAL SHEETS	
2			4			46	



ARC OFFSETS
LEFT EDGE OF DECK

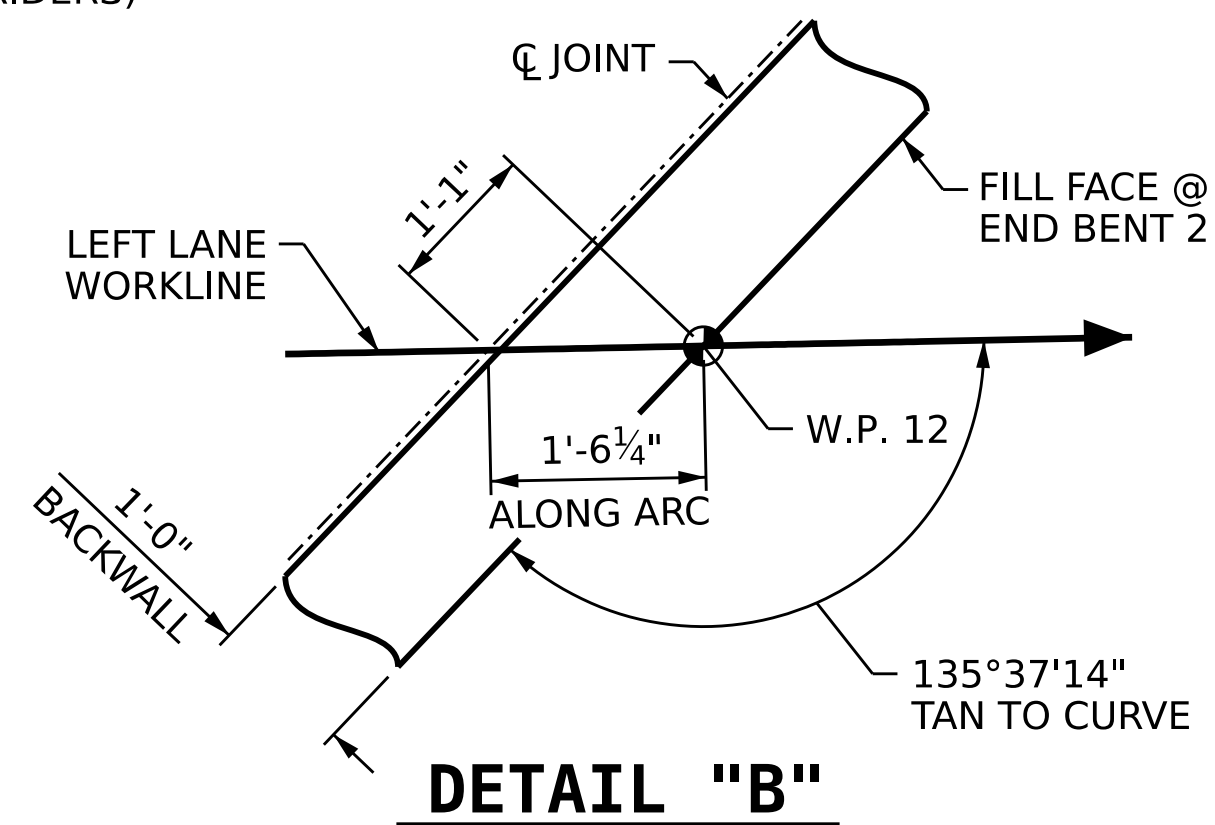


ARC OFFSETS
RIGHT EDGE OF DECK



DETAIL "C"

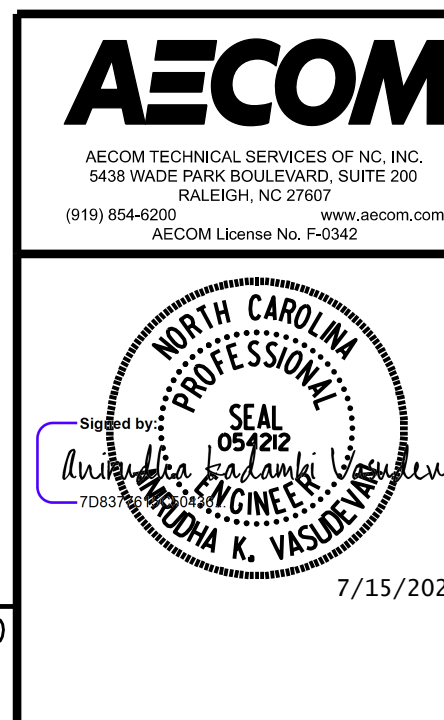
SHOWING END BENT 1 DIAPHRAGM REINFORCEMENT. END BENT 2 SIMILAR



DETAIL "B"

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 2 OF 2

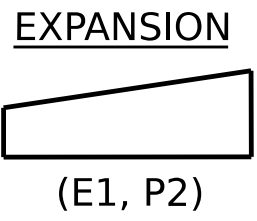
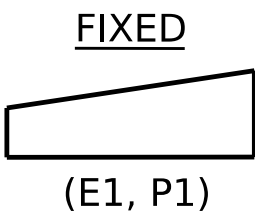
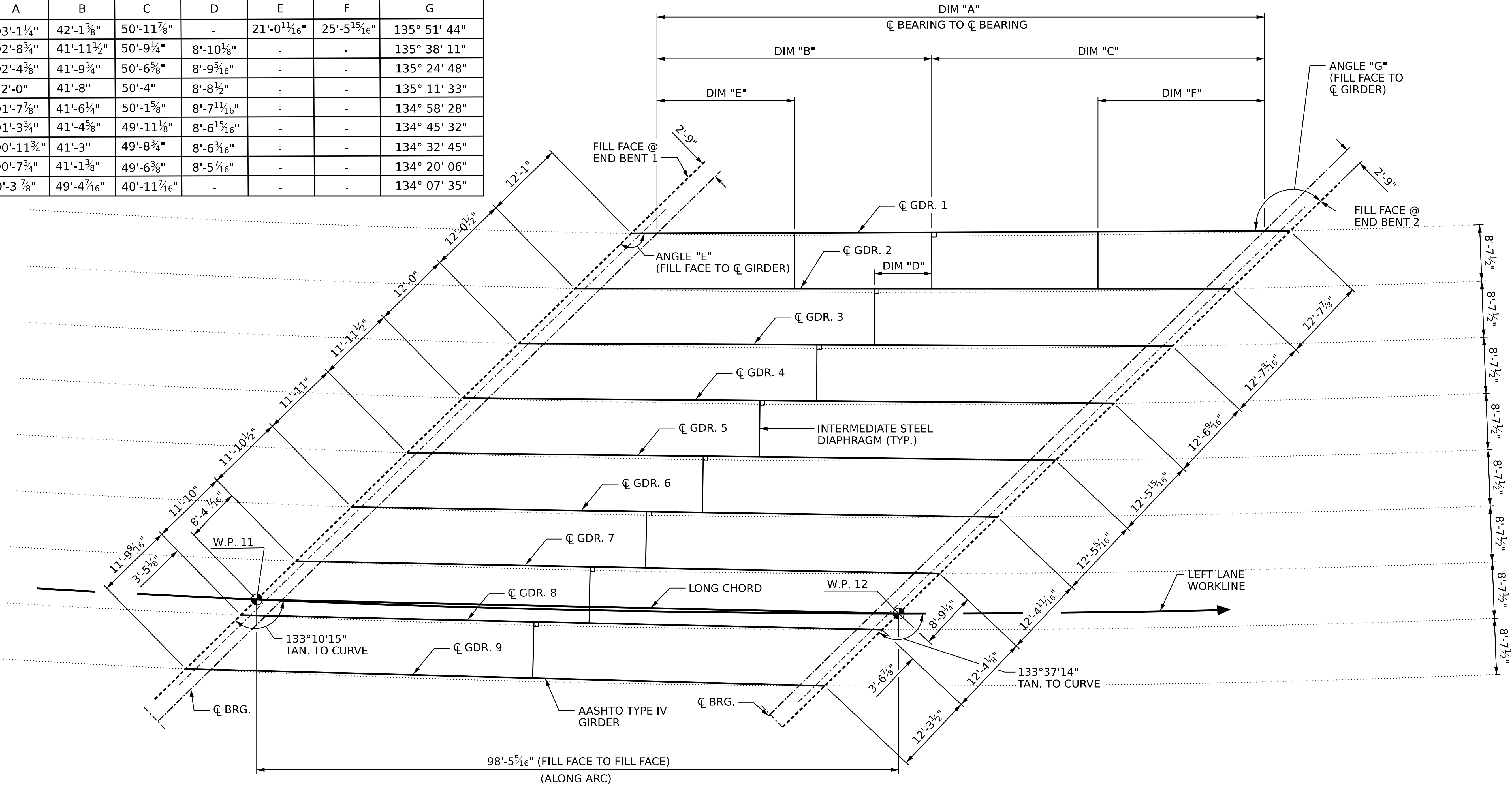


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S9-10
2			4			
TOTAL SHEETS						46

DRAWN BY : M. CATER DATE : 01/2024
CHECKED BY : A. VASUDEVAN DATE : 01/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

GIRDER	DIMENSION						ANGLE
	A	B	C	D	E	F	G
1	93'-1¼"	42'-1⅜"	50'-11⅞"	-	21'-0⅛"	25'-5⅛"	135° 51' 44"
2	92'-8¾"	41'-11½"	50'-9¼"	8'-10⅞"	-	-	135° 38' 11"
3	92'-4¾"	41'-9¾"	50'-6⅝"	8'-9⅝"	-	-	135° 24' 48"
4	92'-0"	41'-8"	50'-4"	8'-8½"	-	-	135° 11' 33"
5	91'-7⅞"	41'-6¼"	50'-1⅝"	8'-7⅛"	-	-	134° 58' 28"
6	91'-3¾"	41'-4⅝"	49'-11⅞"	8'-6⅝"	-	-	134° 45' 32"
7	90'-11¾"	41'-3"	49'-8¾"	8'-6⅜"	-	-	134° 32' 45"
8	90'-7¾"	41'-1⅜"	49'-6⅜"	8'-5⅞"	-	-	134° 20' 06"
9	90'-3 ⅞"	49'-4⅞"	40'-11⅞"	-	-	-	134° 07' 35"

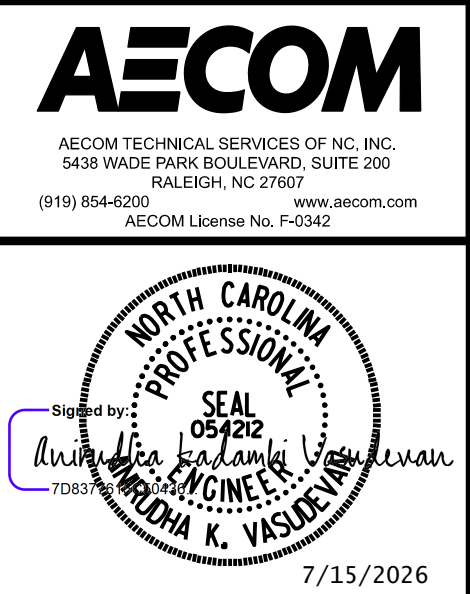


FRAMING PLAN

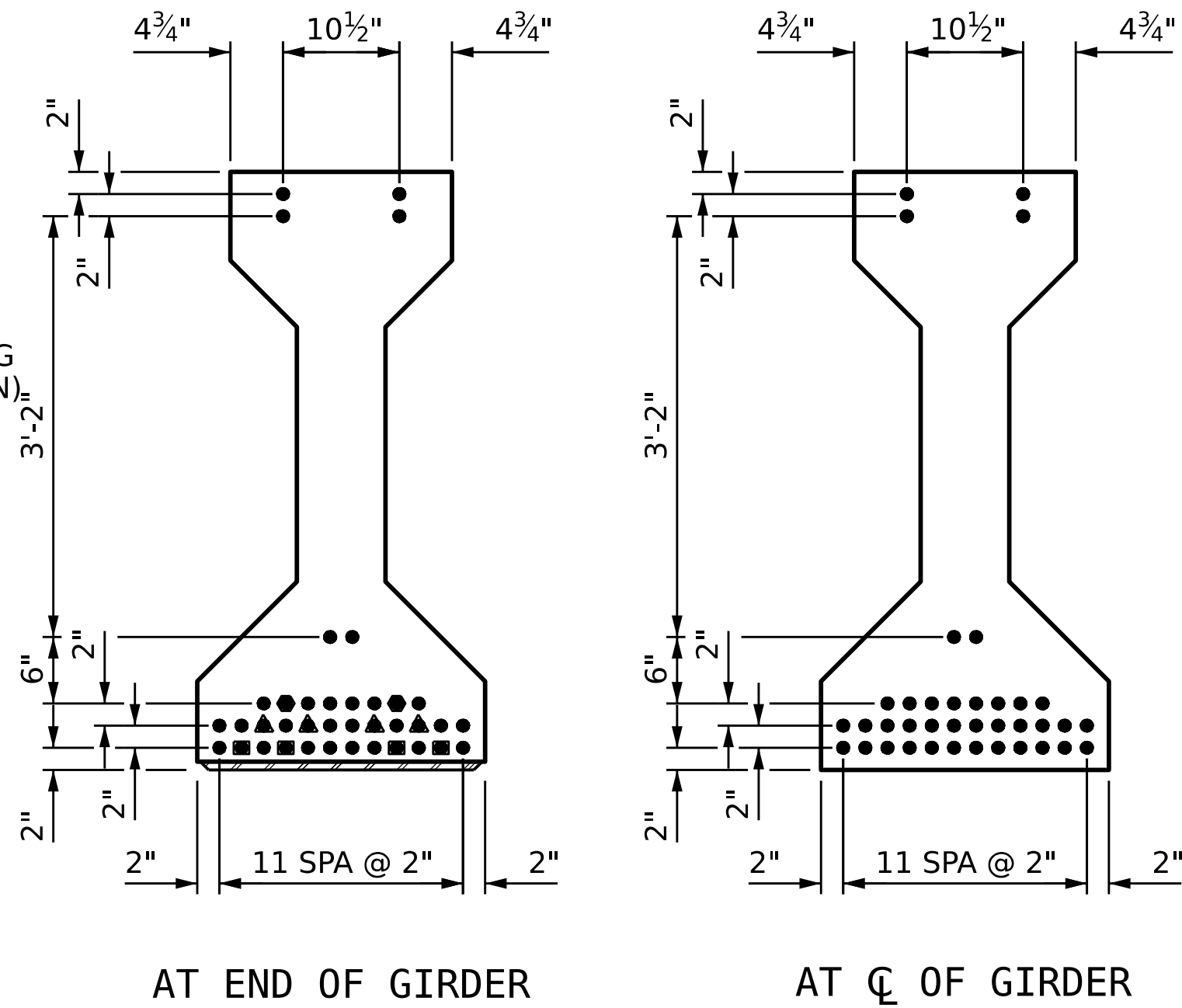
PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

DRAWN BY :	T. NEAL	DATE :	09/2023
CHECKED BY :	G. COLS	DATE :	12/2023
DESIGN ENGINEER OF RECORD:	A. VASUDEVAN	DATE :	03/2026

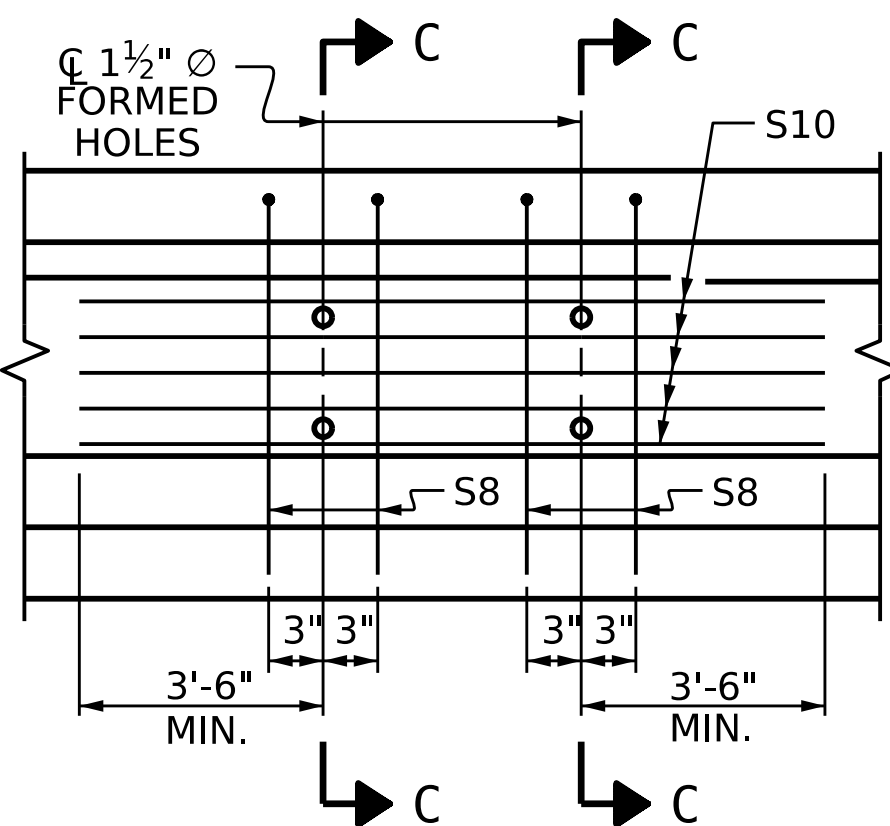
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



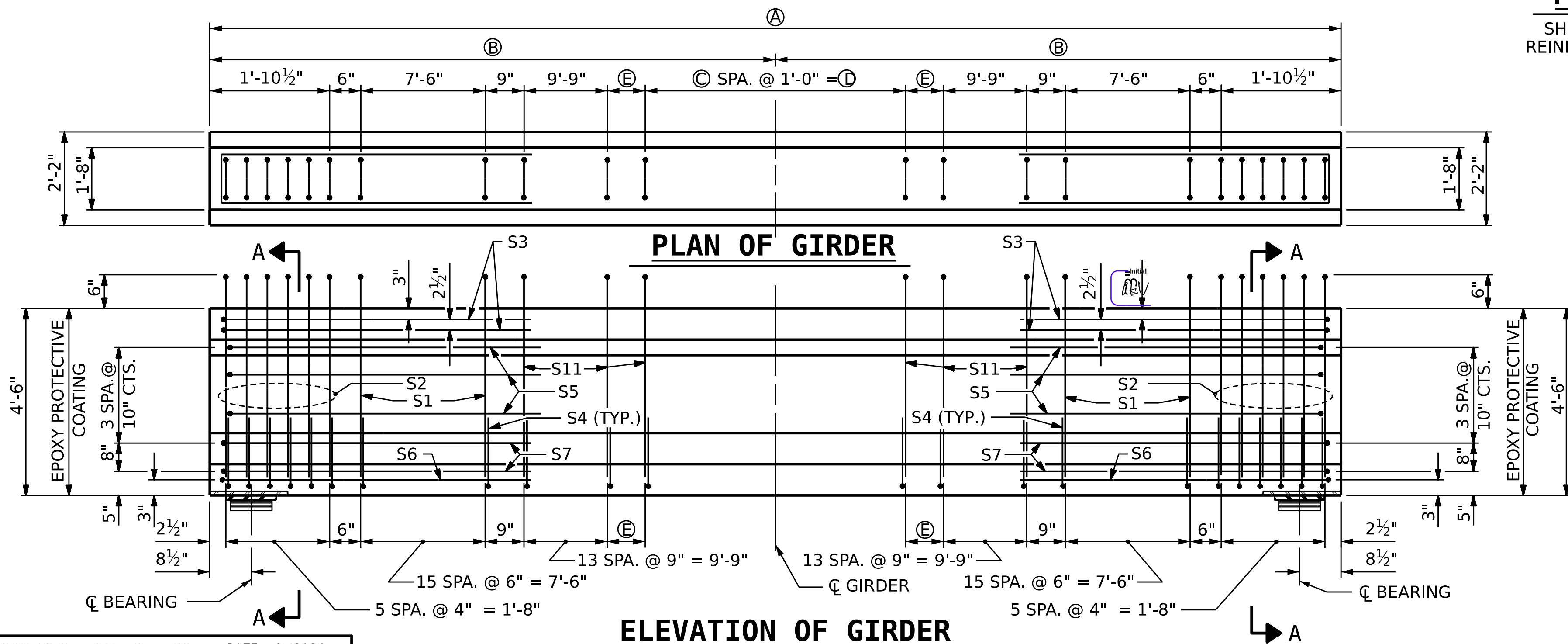
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
FRAMING PLAN					
(LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S9-11
TOTAL SHEETS					46



DIMENSION DEFINITIONS					
GIRDER	A	B	C	D	E
1	94'-6 $\frac{1}{4}$ "	47'-3 $\frac{1}{8}$ "	52	52'-0"	10 $\frac{3}{8}$ "
2	94'-1 $\frac{3}{4}$ "	47'-0 $\frac{7}{8}$ "	52	52'-0"	8 $\frac{3}{8}$ "
3	93'-9 $\frac{1}{4}$ "	46'-10 $\frac{3}{8}$ "	52	52'-0"	6 $\frac{1}{2}$ "
4	93'-5"	46'-8 $\frac{1}{2}$ "	51	51'-0"	10"
5	93'-0 $\frac{3}{4}$ "	46'-6 $\frac{3}{8}$ "	51	51'-0"	7 $\frac{1}{2}$ "
6	92'-8 $\frac{3}{4}$ "	46'-4 $\frac{3}{8}$ "	50	50'-0"	11 $\frac{1}{8}$ "
7	92'-4 $\frac{1}{2}$ "	46'-2 $\frac{1}{2}$ "	50	50'-0"	9 $\frac{1}{2}$ "
8	92'-0 $\frac{3}{4}$ "	46'-0 $\frac{3}{8}$ "	50	50'-0"	7 $\frac{7}{8}$ "
9	91'-8 $\frac{1}{4}$ "	45'-10 $\frac{3}{8}$ "	49	49'-0"	11 $\frac{1}{2}$ "



SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR GIRDER Nos. 2-8

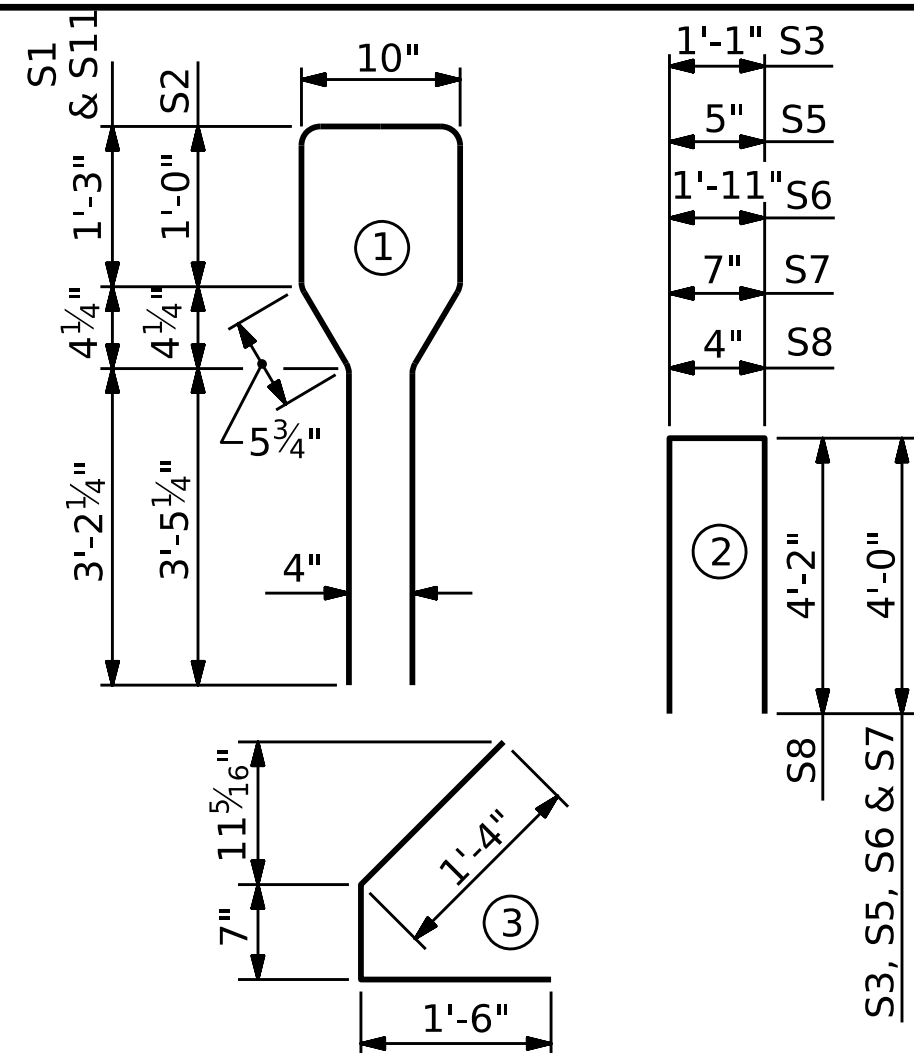


(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

ASSEMBLED BY : A.R VAN VUREN		DATE : 01/2024	
CHECKED BY : A.K. VASUDEVAN		DATE : 01/ 2024	
DRAWN BY : JMB 12/87		REV. 10/1/11	MAA/GM
CHECKED BY : ARB 12/87		REV. 1/15	MAA/TMG
		REV. 12/17	MAA/THC

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	60	#6	1	10'-8"	961
S2	12	#6	1	10'-8"	192
S3	4	#4	2	9'-1"	24
S4	144	#4	3	3'-5"	329
S5	6	#4	2	8'-5"	34
S6	2	#4	2	9'-11"	13
S7	4	#4	2	8'-7"	23

GIRDER 1	S8	6	#5	2	8'-8"	54
GIRDER 2	S8	8	#5	2	8'-8"	71
GIRDERS 3-8	S8	4	#5	2	8'-8"	36
GIRDER 9	S8	2	#5	2	8'-8"	18
GIRDER 1	S9	15	#4	STR	7'-0"	70
GIRDER 2	S9	10	#4	STR	7'-0"	47
GIRDER 9	S9	5	#4	STR	7'-0"	23
INTERIOR GDR.	S10	5	#4	STR	16'-0"	53
GIRDERS 1-3	S11	53	#5	1	10'-8"	590
GIRDERS 4-5	S11	52	#5	1	10'-8"	579
GIRDERS 6-8	S11	51	#5	1	10'-8"	791
GIRDER 9	S11	50	#5	1	10'-8"	556



	REINFORCING STEEL	8,500 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
GIRDER 1	2,290	19.2	38
GIRDER 2	2,337	19.1	38
GIRDER 3	2,255	19.0	38
GIRDER 4	2,244	19.0	38
GIRDER 5	2,244	18.9	38
GIRDER 6	2,456	18.8	38
GIRDER 7	2,456	18.8	38
GIRDER 8	2,456	18.7	38
GIRDER 9	2,173	18.6	38

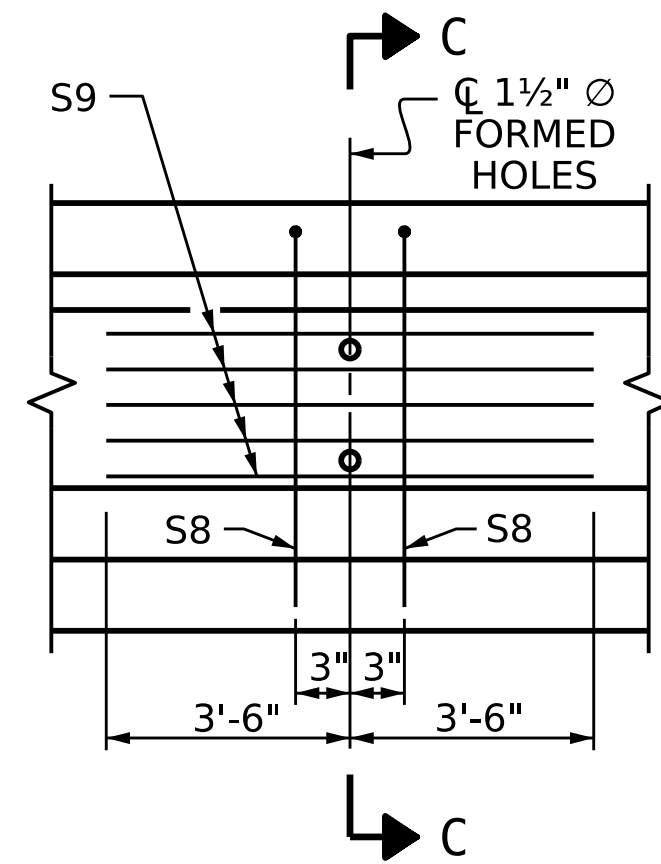
NUMBER	LENGTH	TOTAL LENGTH
9	SEE TABLE	837'-10"

SEE FRAMING PLAN FOR LOCATION OF FORMED HOLES FOR INTERMEDIATE DIAPHRAGMS.

SEE PRECAST CONCRETE FASCIA PANEL LAYOUT SHEET FOR FORMED HOLE
LOCATIONS FOR PRECAST CONCRETE FASCIA PANEL BRACING AT GIRDER 1

FABRICATOR SHALL ADJUST GIRDER SHEAR REINFORCEMENT SPACING UP TO A MAXIMUM OF 3 INCHES IN ORDER TO MISS THE PRECAST CONCRETE FASCIA PANEL BRACING CONNECTIONS.

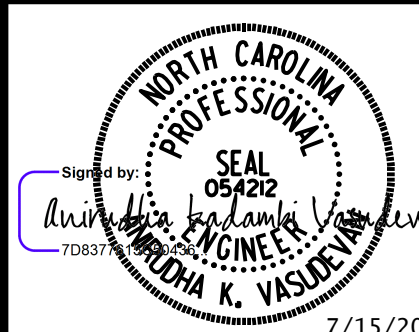
SEE SHEET 2 OF 3 FOR ADDITIONAL NOTES.



SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR GIRDER Nos. 1 & 9

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. E-0342



7/15/2020

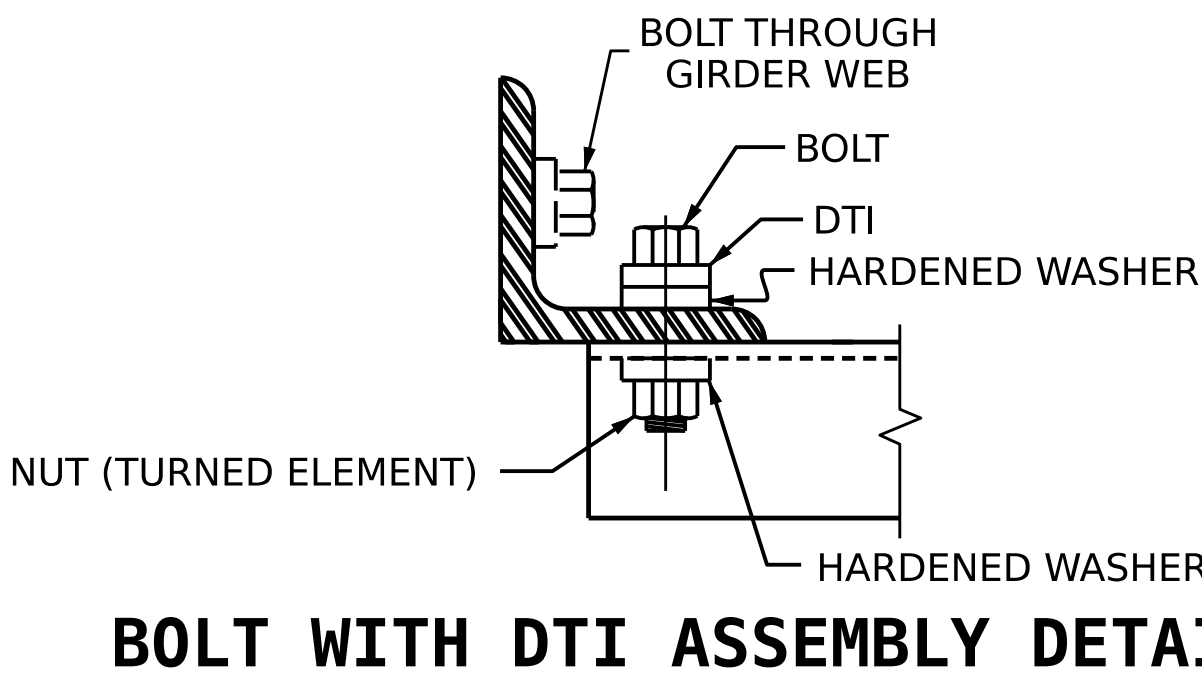
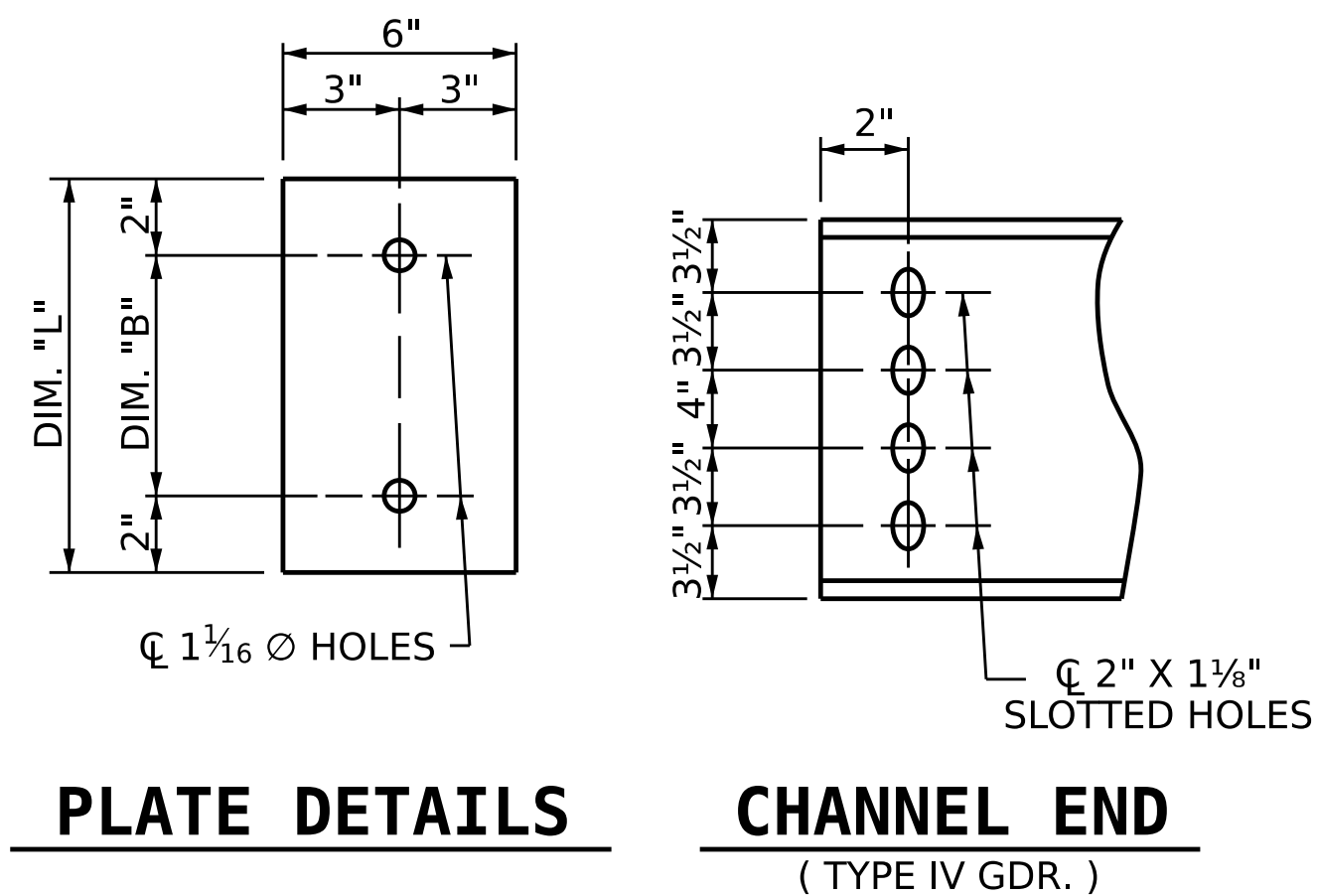
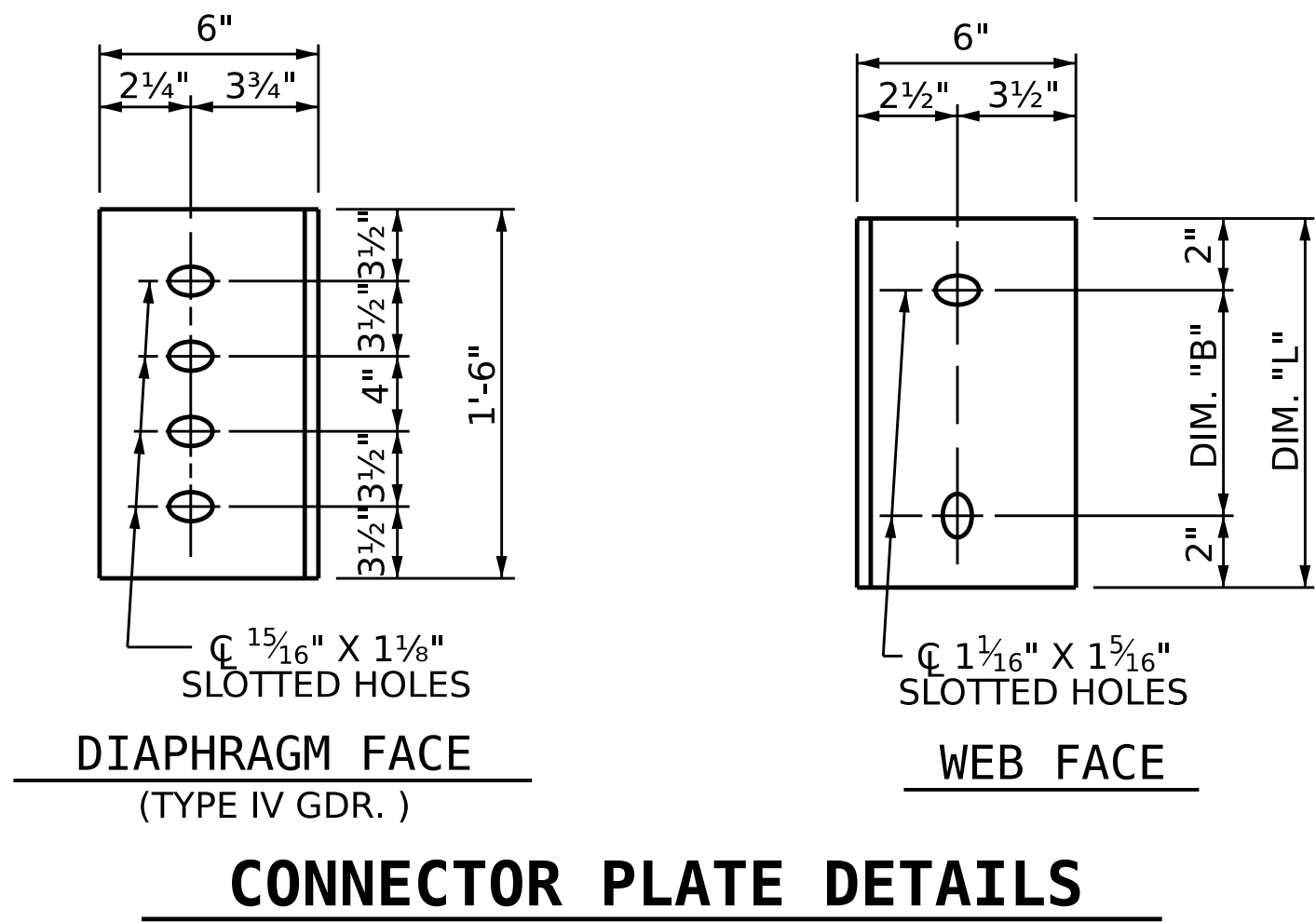
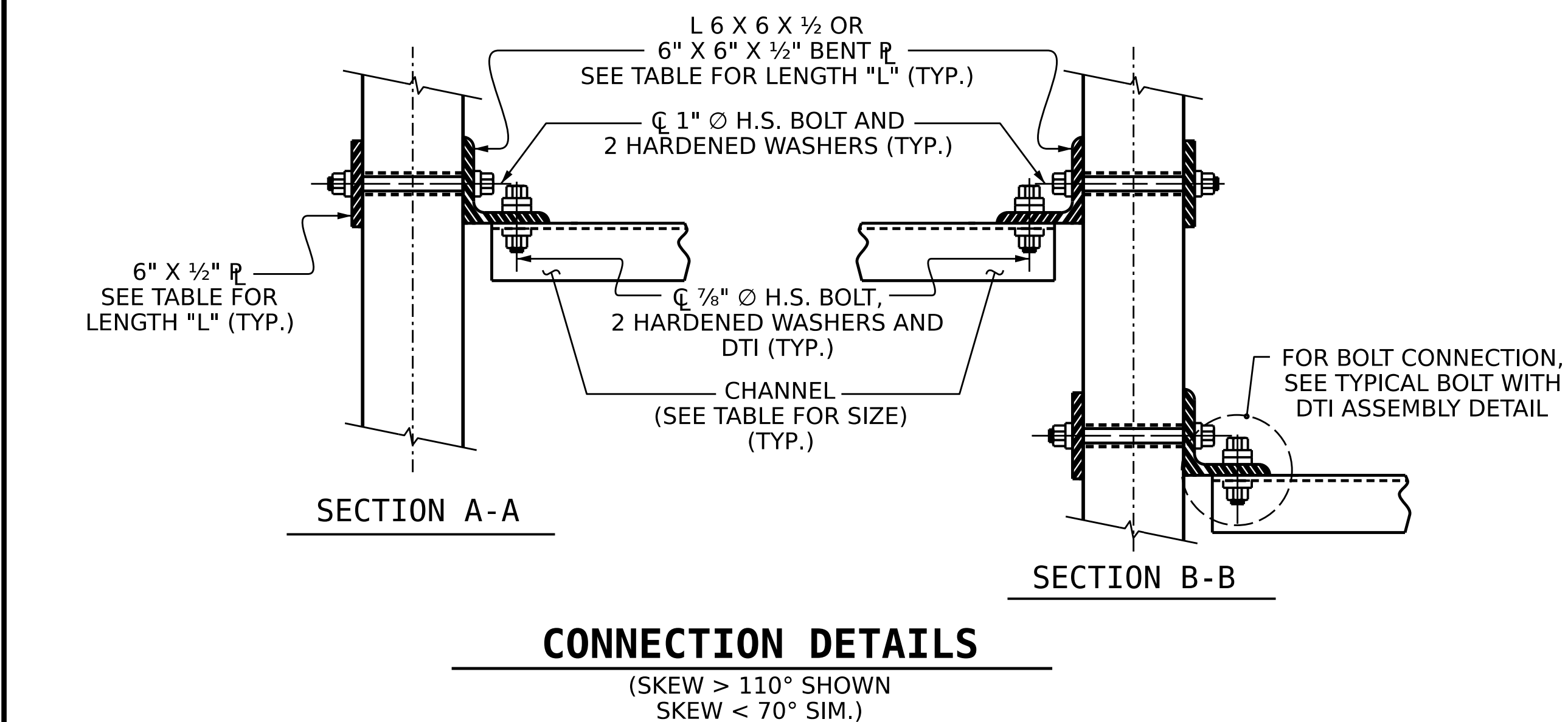
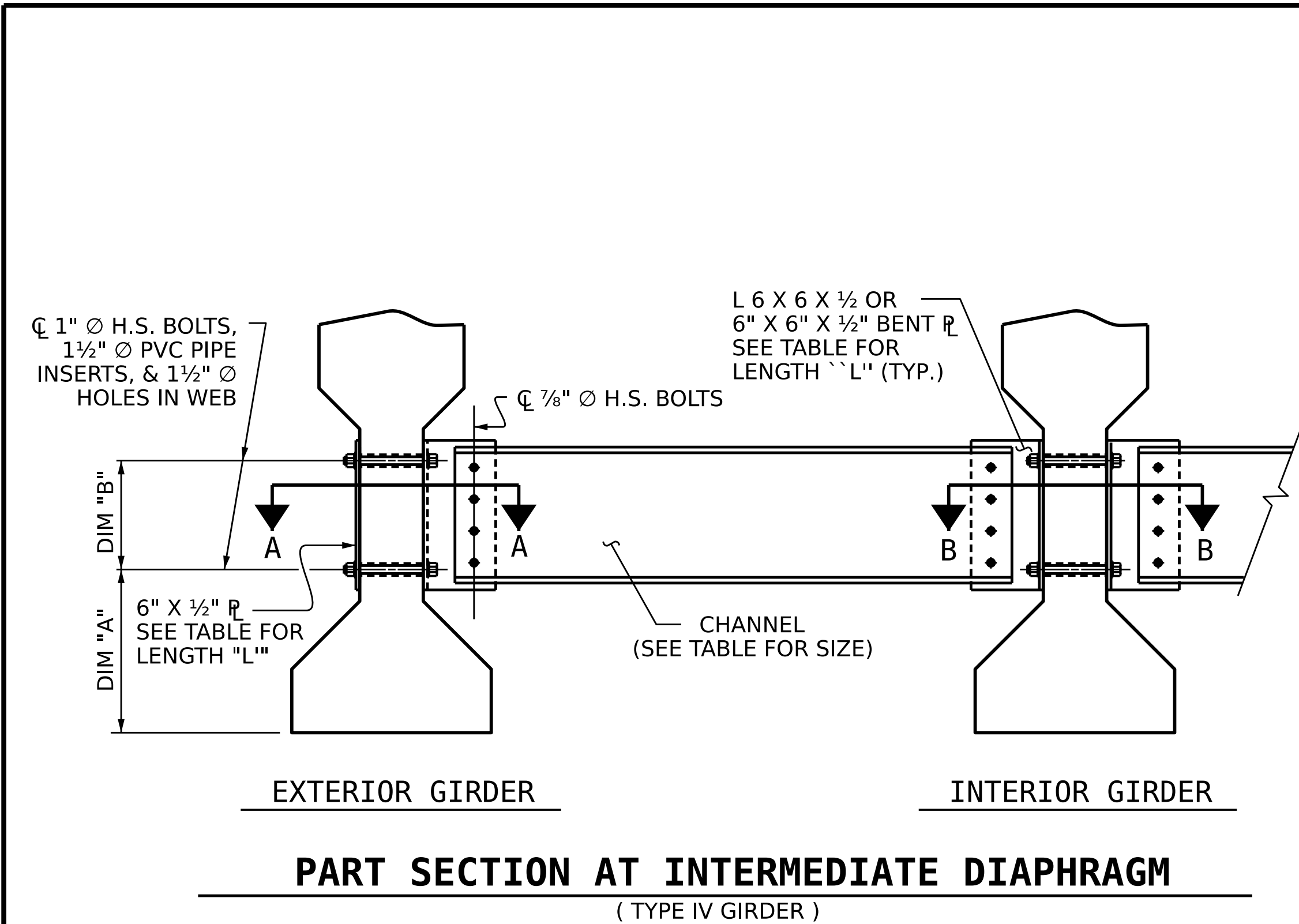
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

**54" AASHTO TYPE IV
PRESTRESSED CONCRETE
GIRDER**

(LEFT LANE)

STD.NO.PCG3



STRUCTURAL STEEL NOTES:

ALL INTERMEDIATE DIAPHRAGM STEEL AND CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE ASTM A325 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL ¼ TURN.

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

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM, THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST ¼" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

FOR DETAILS RELATED TO BRACING OF PRECAST CONCRETE FASCIA TO GIRDER 1, SEE "PRECAST CONCRETE FASCIA DETAILS" SHEETS.

TABLE				
GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
IV	MC 18 x 42.7	1'-9½"	1'-2"	1'-6"

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS (LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S9-14 TOTAL SHEETS 46					

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STD.NO.PCG10

ASSEMBLED BY : T. NEAL	DATE : 02/2024
CHECKED BY : A. VASUDEVAN	DATE : 03/2024
DRAWN BY : TLA 6/05	REV. 5/1/06RRR KMM/GM
CHECKED BY : VC 6/05	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

7/13/2026
c:\pwworking\oecom.ds21.na.2020\d0131571\409.027.I2513AC.SMU.G3.S9-14.100900.dgn
caterm

NOTES:

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

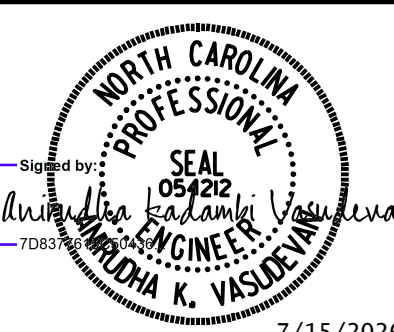
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L+L.L. (NO IMPACT)	
TYPE V	365K

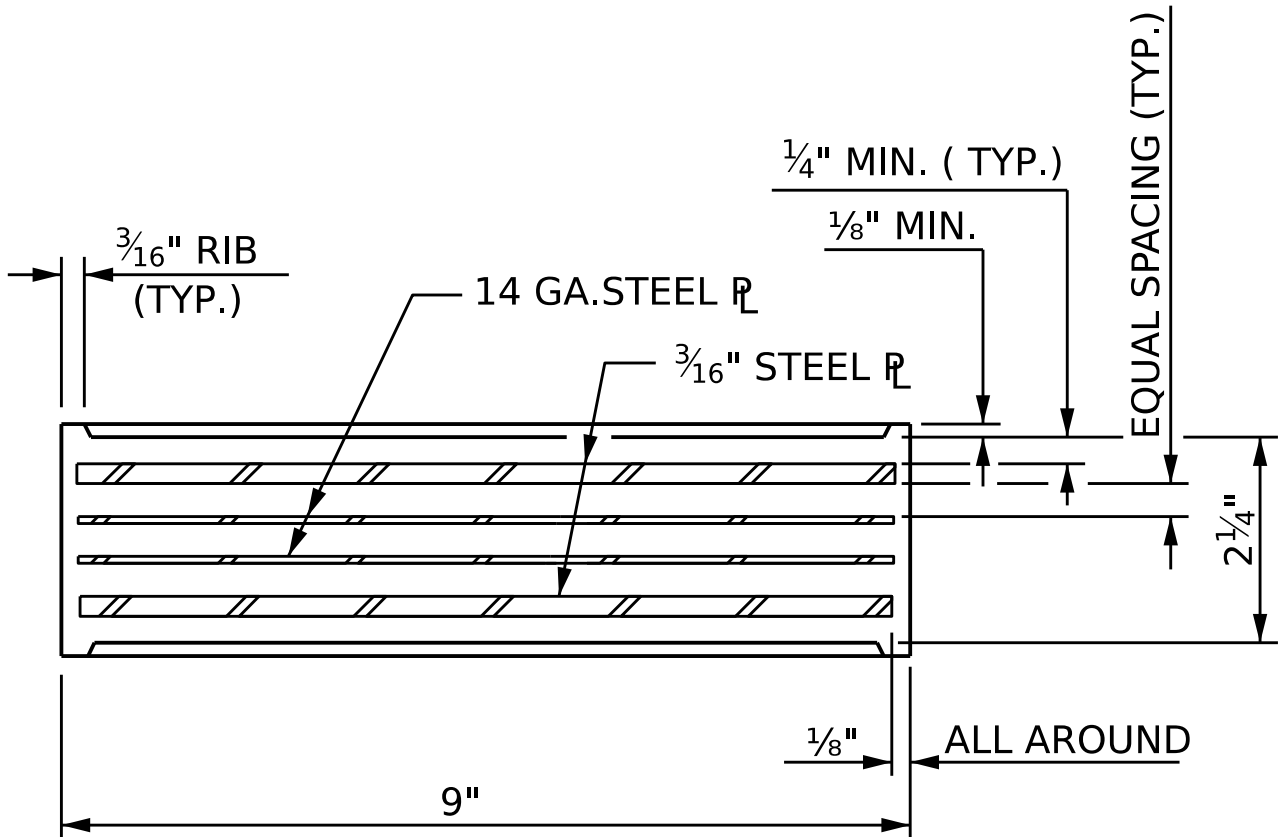
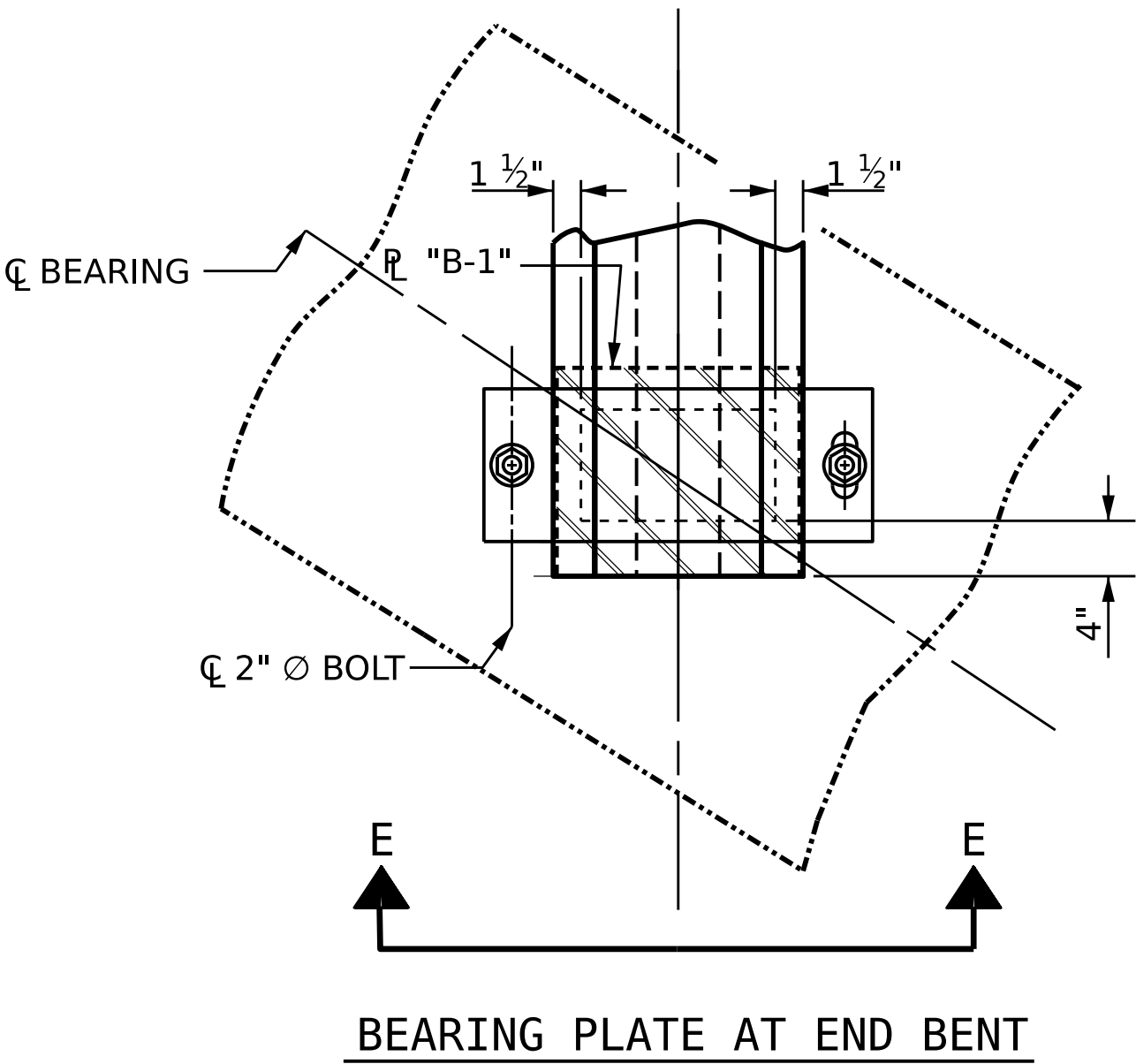
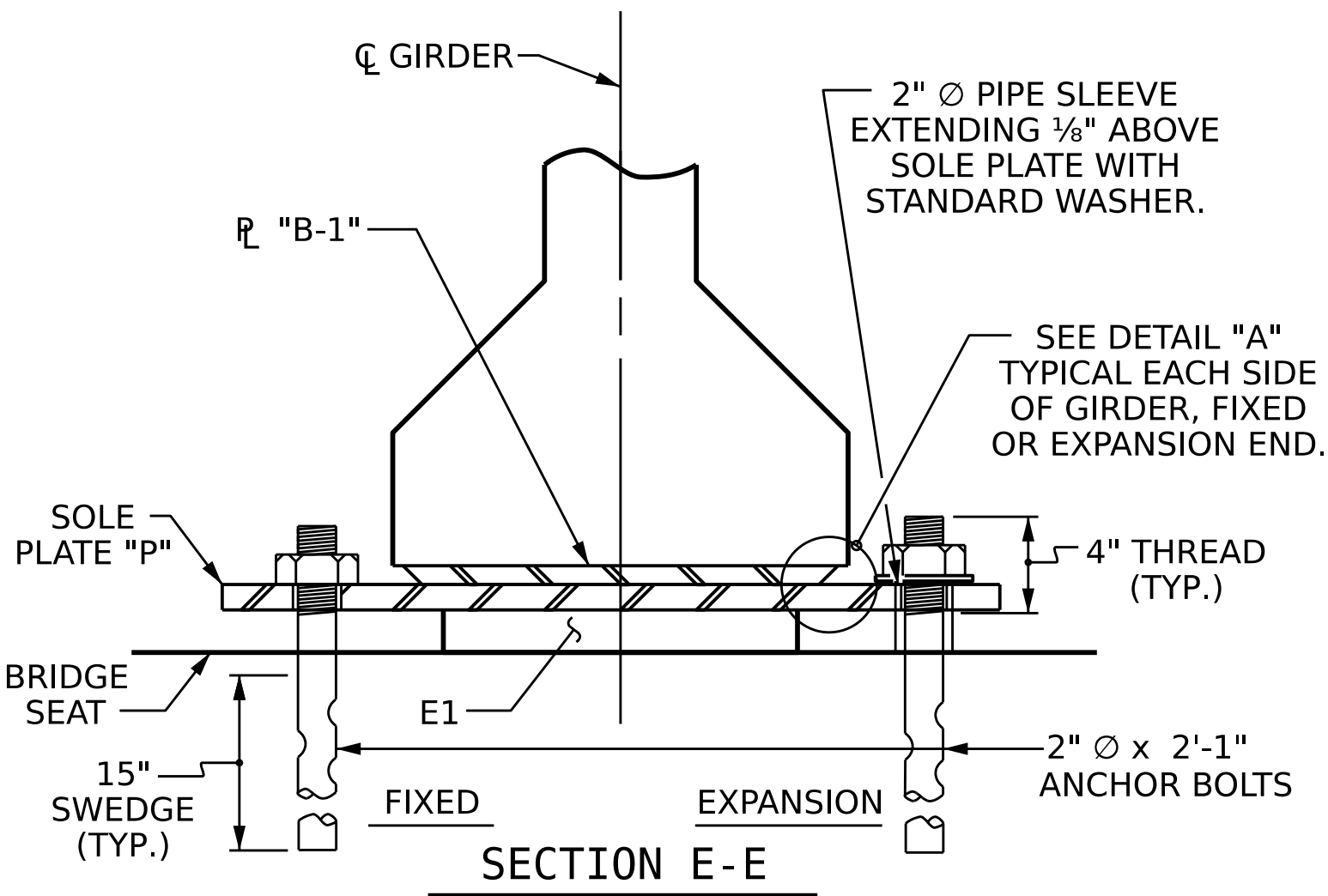


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ELASTOMERIC BEARING DETAILS
PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE

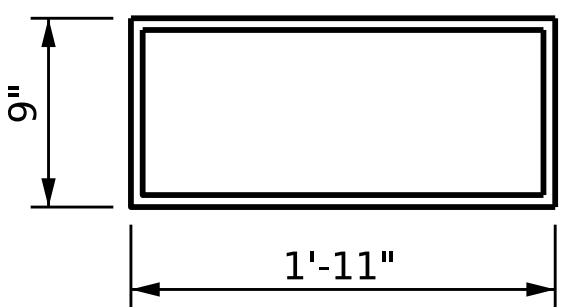
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
S9-15
TOTAL SHEETS
46

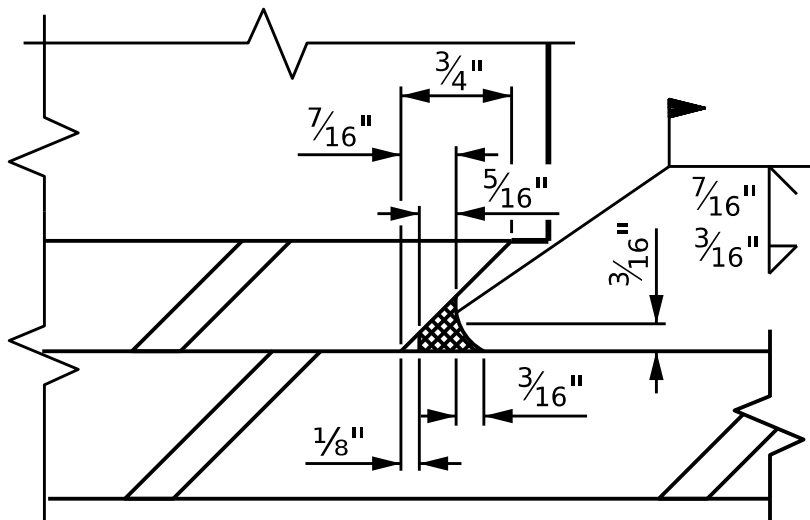
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



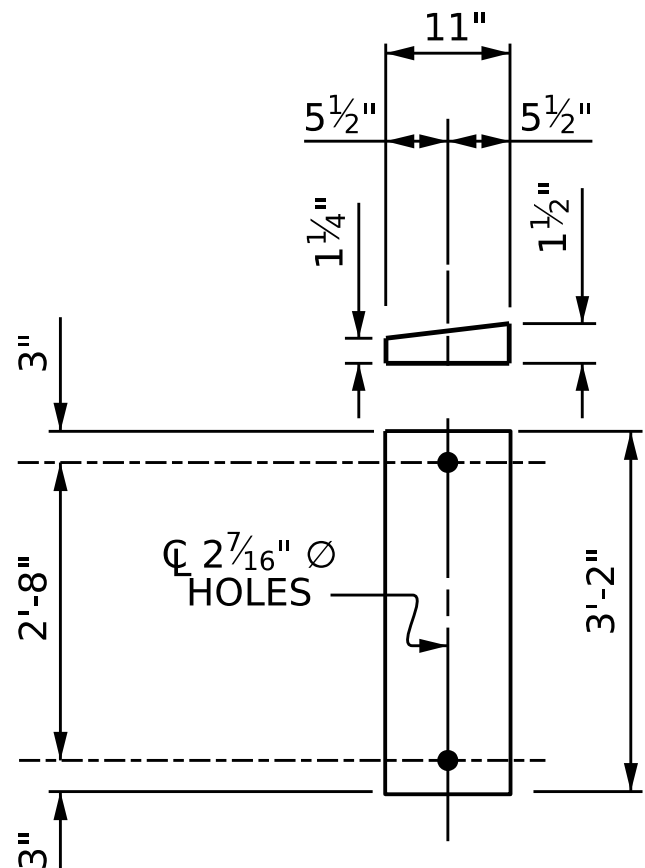
TYPICAL SECTION OF ELASTOMERIC BEARINGS



PLAN VIEW OF ELASTOMERIC BEARING
TYPE V

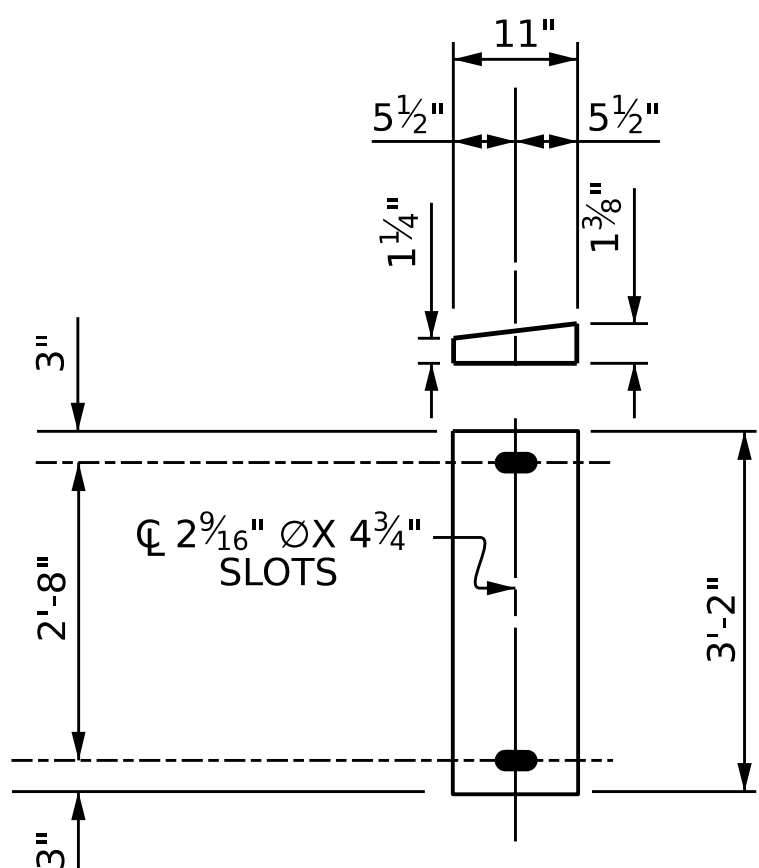


DETAIL "A"



P 1
(FIXED)
P1 (9 REQ'D)

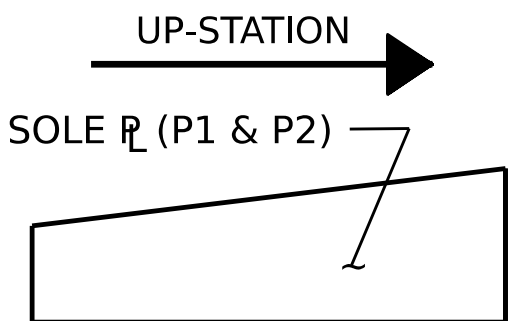
SOLE PLATE DETAILS ("P1")



P 2
(EXPANSION)
P2 (9 REQ'D)

SOLE PLATE DETAILS ("P2")

SOLE PLATE DETAILS ("P")



SOLE PLACEMENT DETAIL

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 1 OF 1

ASSEMBLED BY : L.LEE	DATE : 07/2023
CHECKED BY : D. TUTTLE	DATE : 03/2024
DRAWN BY : WJH 8/89	REV. 1/15 MAA/TMG
CHECKED BY : CRK 8/89	REV. 12/17 MAA/THC
	REV. 10/21 BNB/AAI

NOTES:

FOR 72" 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.

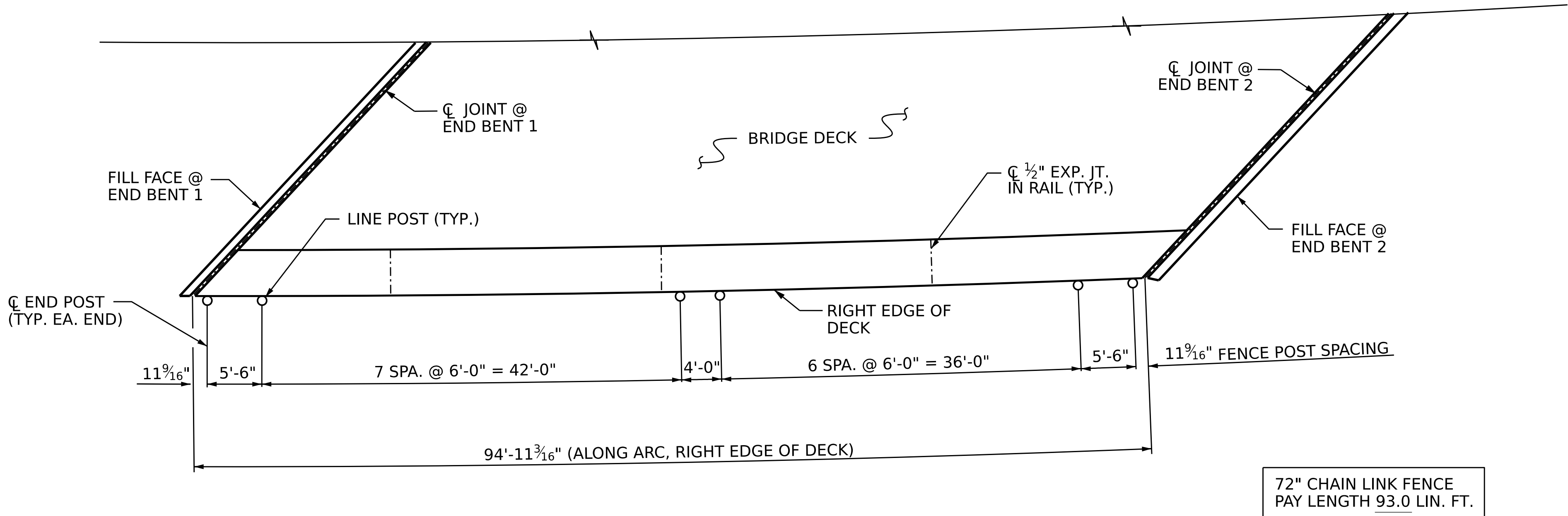
FOR SETTING ANCHOR BOLTS, THE CONTRACTOR SHALL USE AN ADHESIVE BONDING SYSTEM. SEE STANDARD SPECIFICATIONS SECTION 420-13 FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED AND THE YIELD LOAD OF THE 3/4" ~ BOLTS IS 12.0 KIPS.

ALL FENCE MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 1050 OF THE STANDARD SPECIFICATIONS, GALVANIZE ALL STEEL PARTS AND HARDWARE IN ACCORDANCE WITH ARTICLE 1076 OF THE STANDARD SPECIFICATIONS.

FENCE POST LOCATIONS SHALL BE SHIFTED, AS NECESSARY, TO MAINTAIN 12" MINIMUM DISTANCE FROM ANCHOR BOLT TO JOINTS IN BARRIER RAIL.

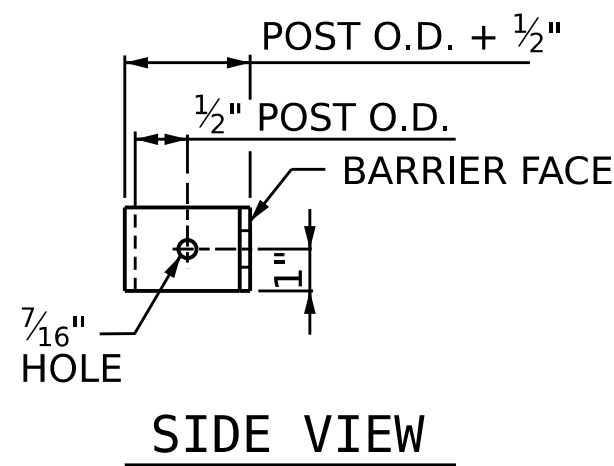
DIMENSIONS ARE SHOWN ALONG OUTSIDE EDGE OF DECK.

WELDING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

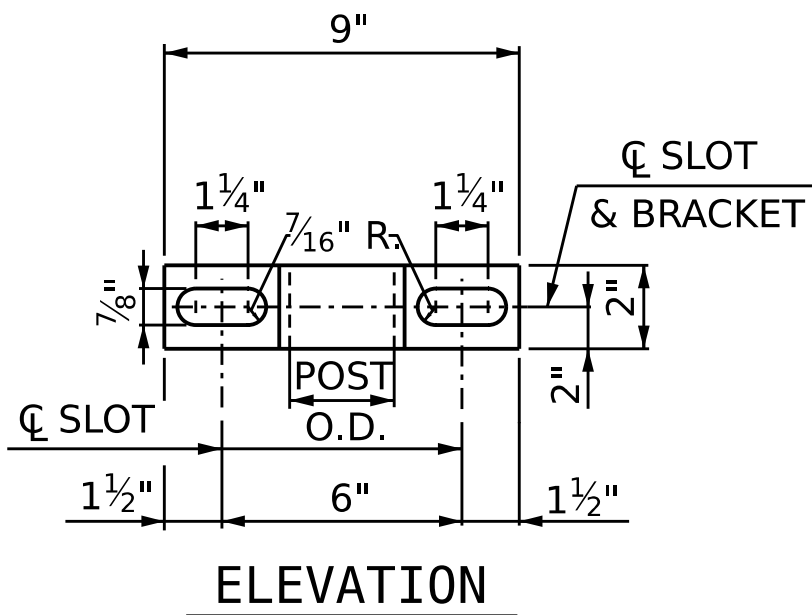


PLAN OF FENCE POST SPACING

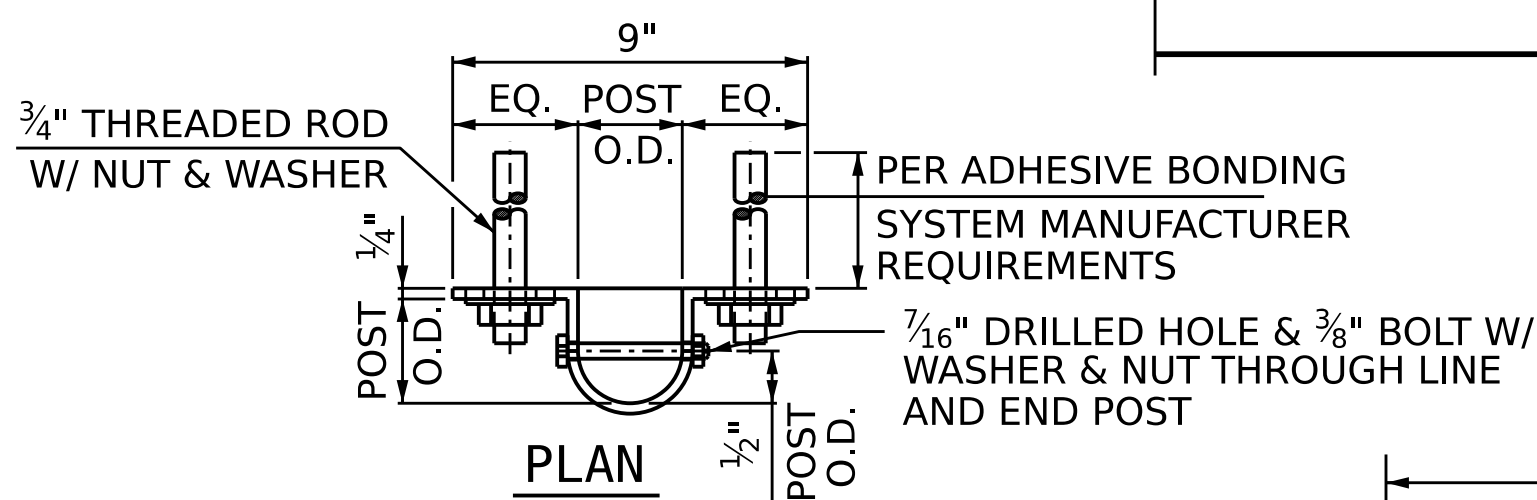
72" CHAIN LINK FENCE
PAY LENGTH 93.0 LIN. FT.



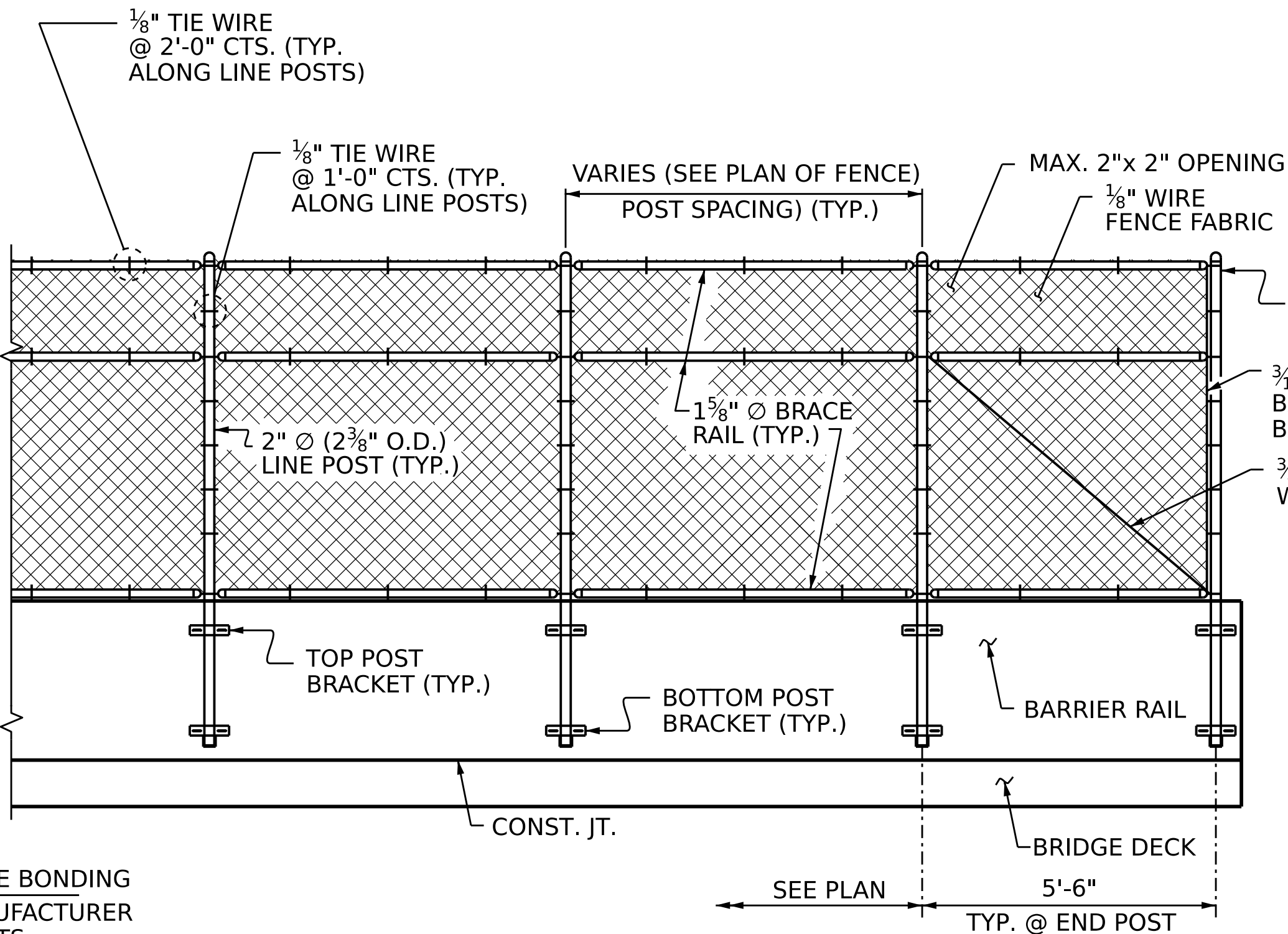
SIDE VIEW



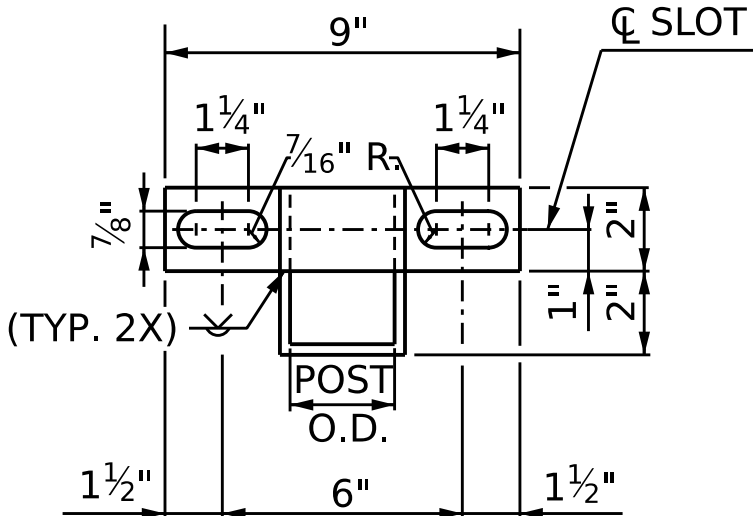
ELEVATION



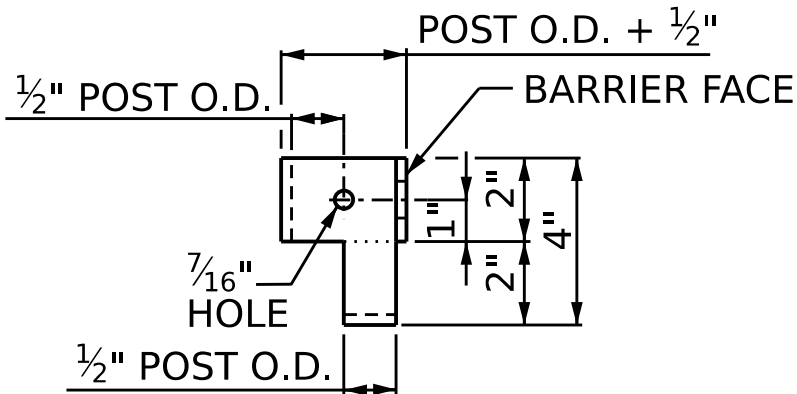
TOP POST BRACKET



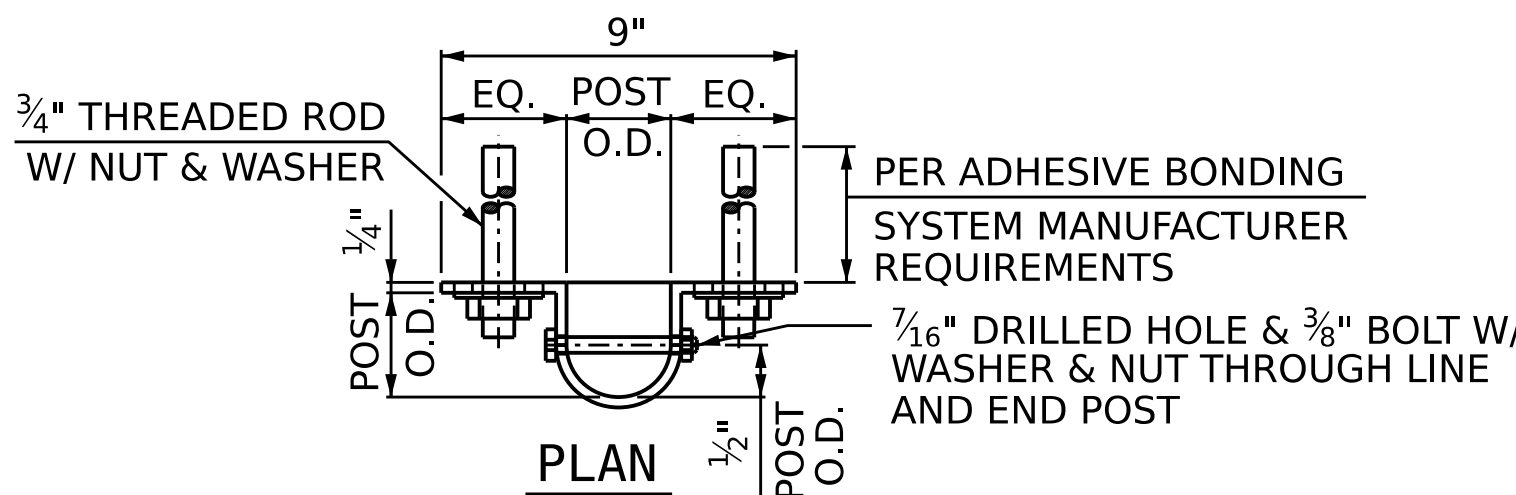
PARTIAL ELEVATION



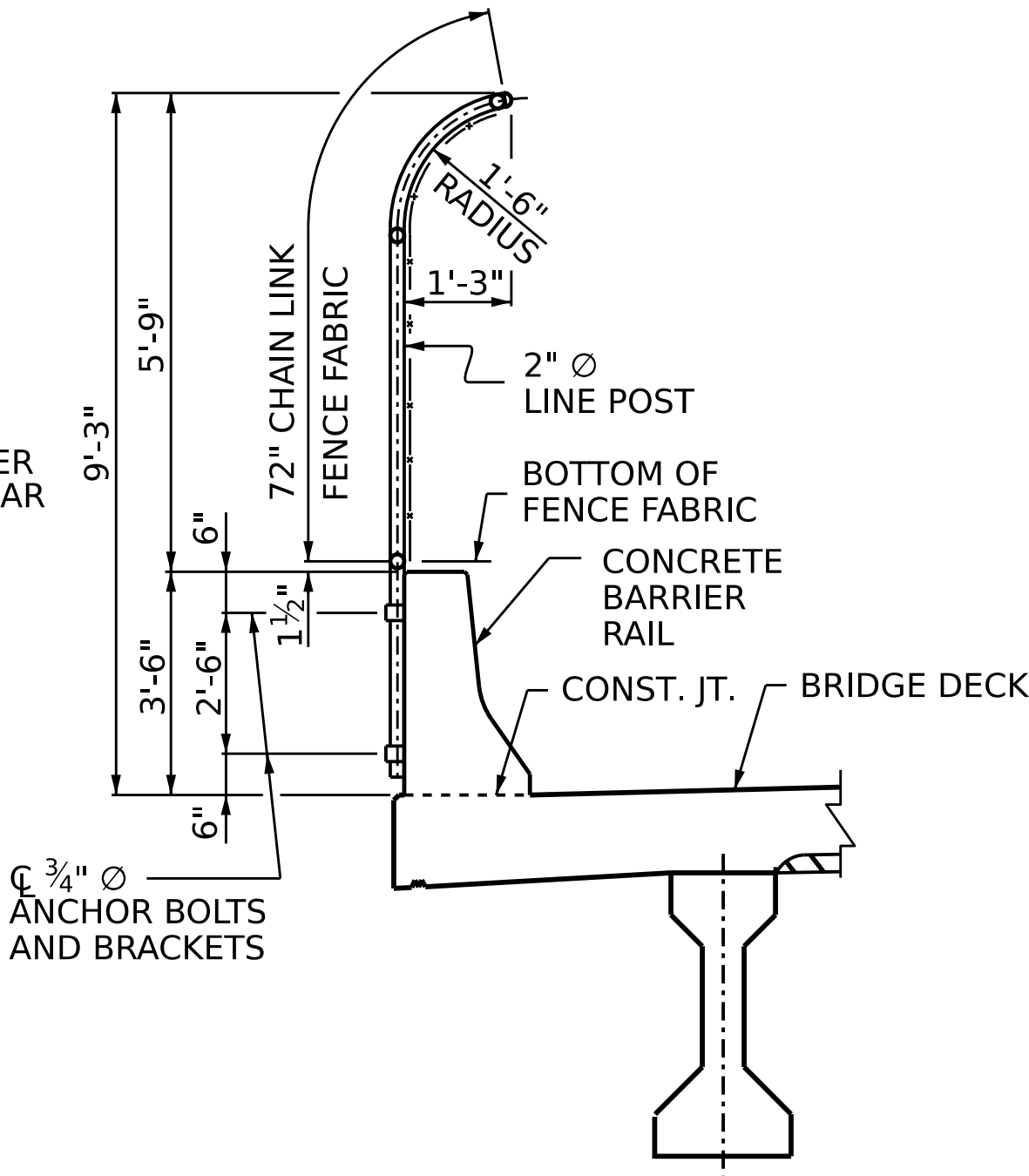
ELEVATION



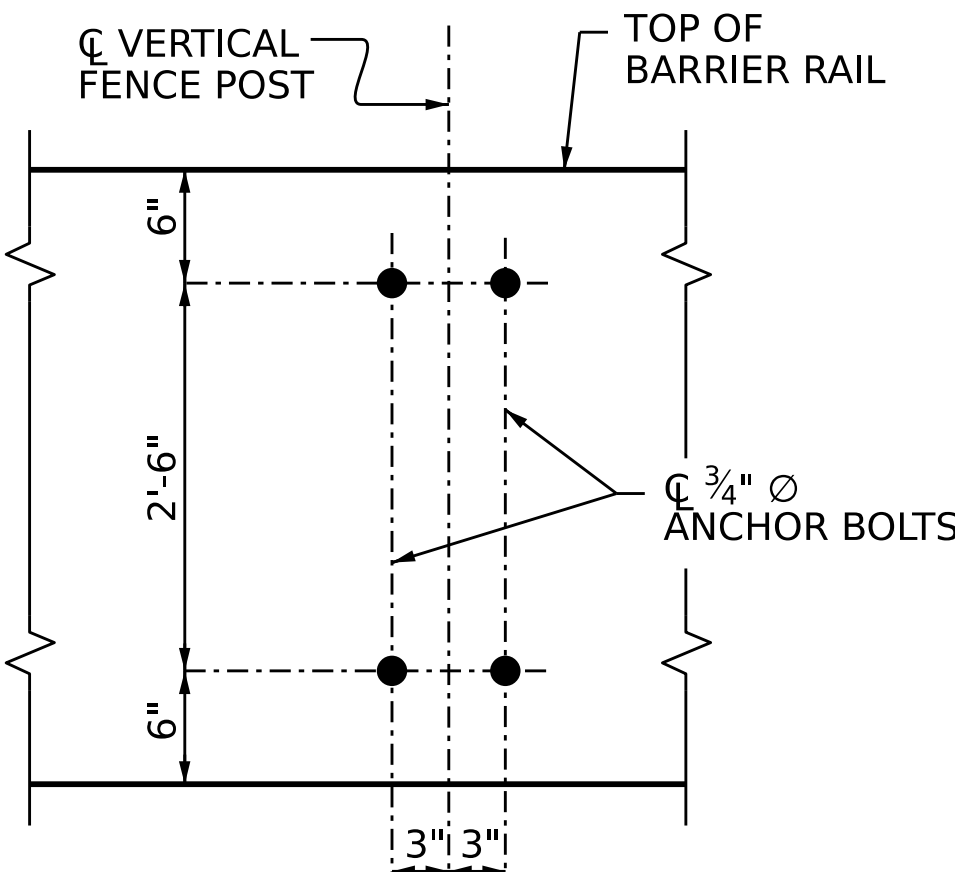
RIGHT SIDE VIEW



BOTTOM POST BRACKET



SECTION THRU FENCE



BOLT SETTING DETAIL

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 105+49.43 -L-

SHEET 1 OF 1

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. FC2422

SEAL
Professional Engineer
Matthew K. Vasudevan
7/15/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**CHAIN LINK FENCE
DETAILS**

(LEFT LANE)

REVISIONS						SHEET NO. S9-17 TOTAL SHEETS 46
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : T. NEAL
CHECKED BY : A. VASUDEVAN
DESIGN ENGINEER OF RECORD: A. VASUDEVAN
DATE : 12/2023
DATE : 12/2023
DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NOTES:

FOR VIEW A-A AND OTHER SOUND BARRIER WALL DETAILS, SEE "SOUND BARRIER WALLS DETAILS" SHEET.

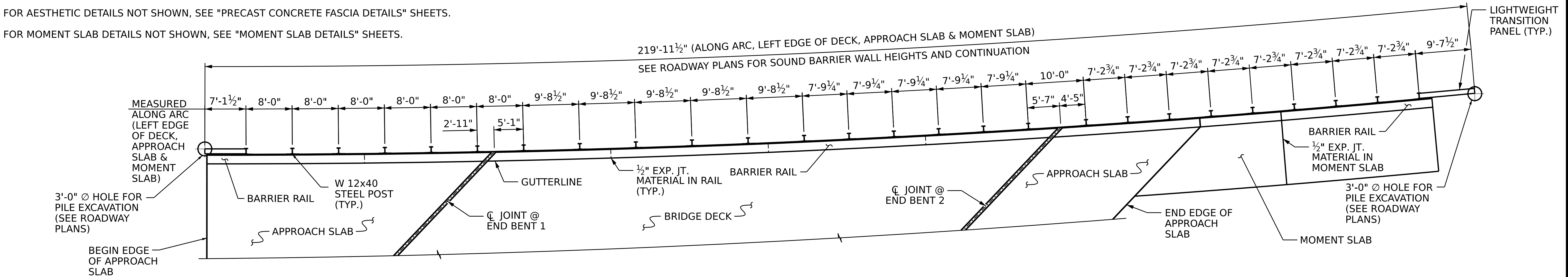
FOR SOUND BARRIER WALL ON CONCRETE PILES AND TYPICAL WALL TURN DETAILS, SEE "SOUND BARRIER WALL PLANS."

FOR SOUND BARRIER WALL CONNECTION DETAILS AT TRANSITION PANEL, SEE "SOUND BARRIER WALL PLANS."

FOR CONCRETE BARRIER DETAILS NOT SHOWN, SEE "CONCRETE BARRIER DETAILS" SHEET.

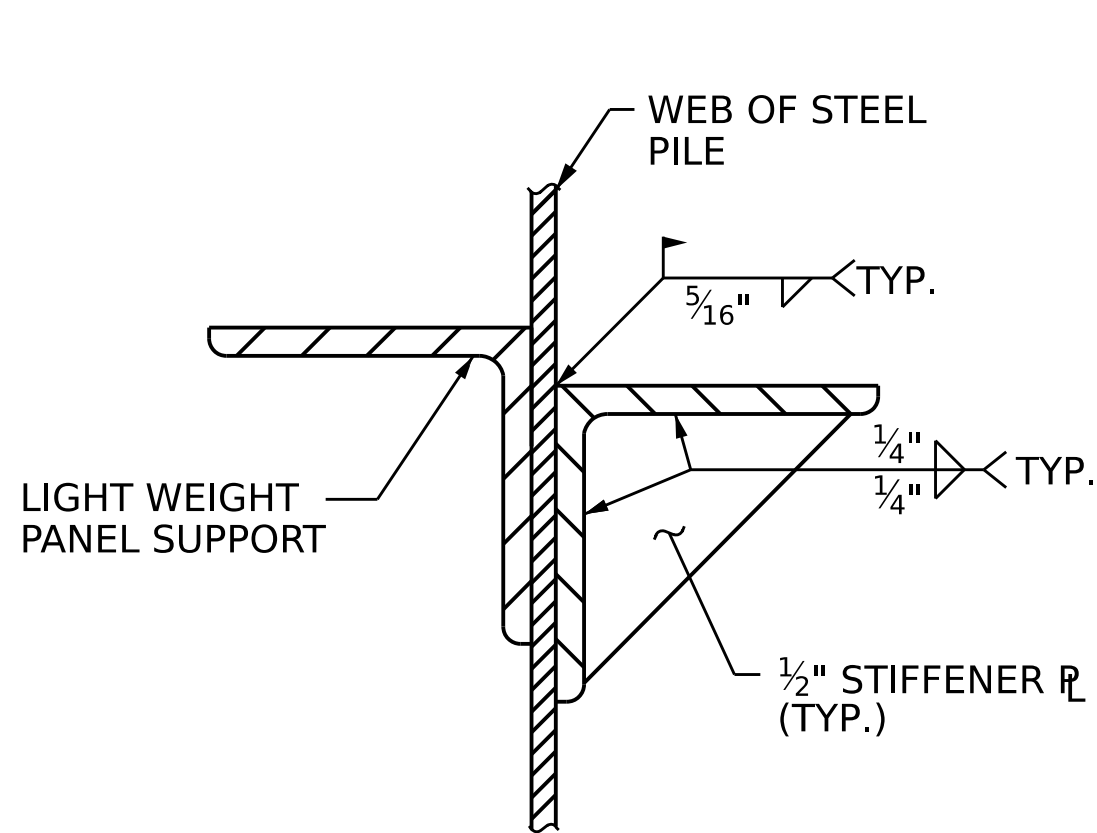
FOR AESTHETIC DETAILS NOT SHOWN, SEE "PRECAST CONCRETE FASCIA DETAILS" SHEETS.

FOR MOMENT SLAB DETAILS NOT SHOWN, SEE "MOMENT SLAB DETAILS" SHEETS.

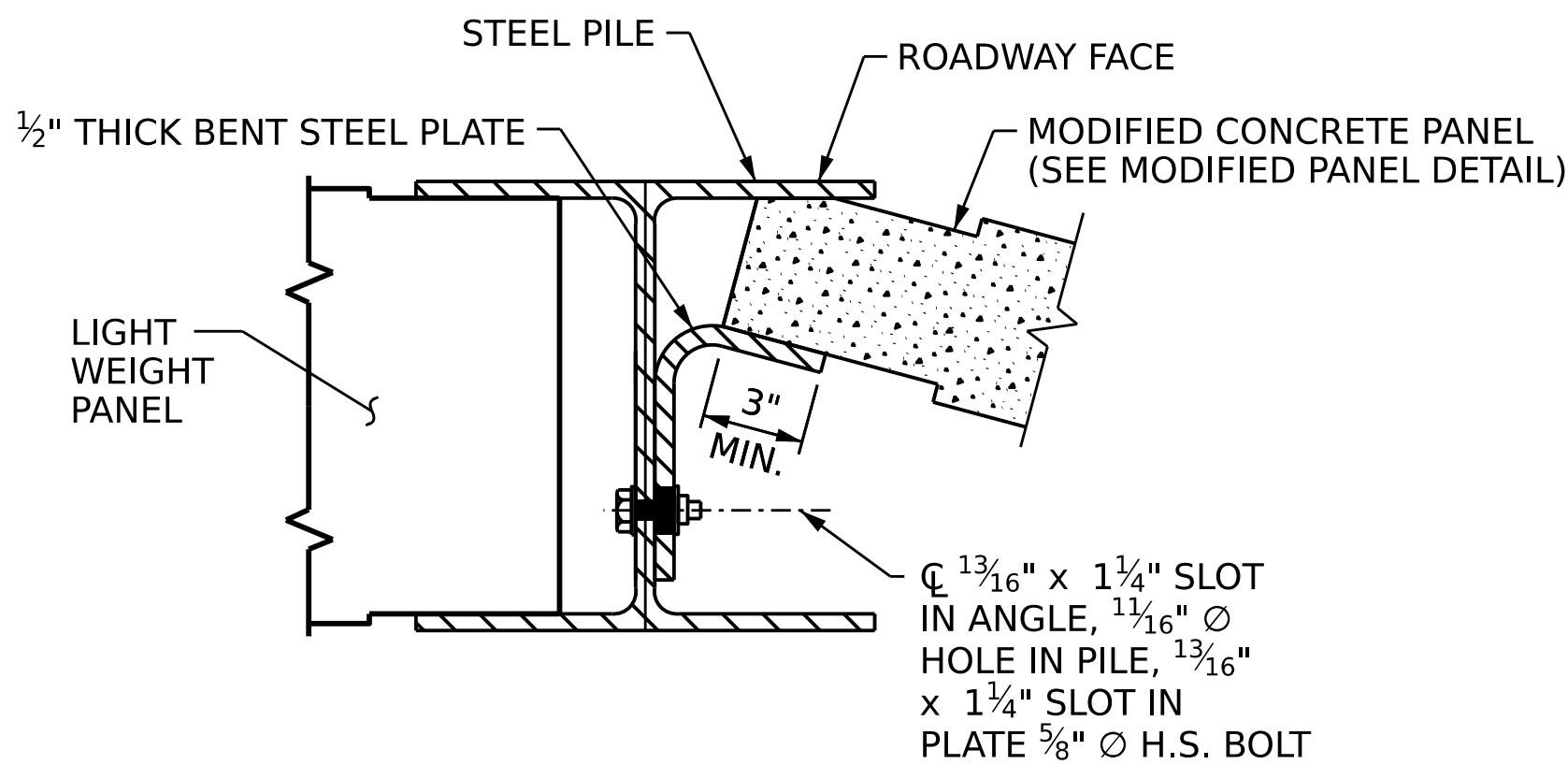


PLAN OF SOUND BARRIER WALL

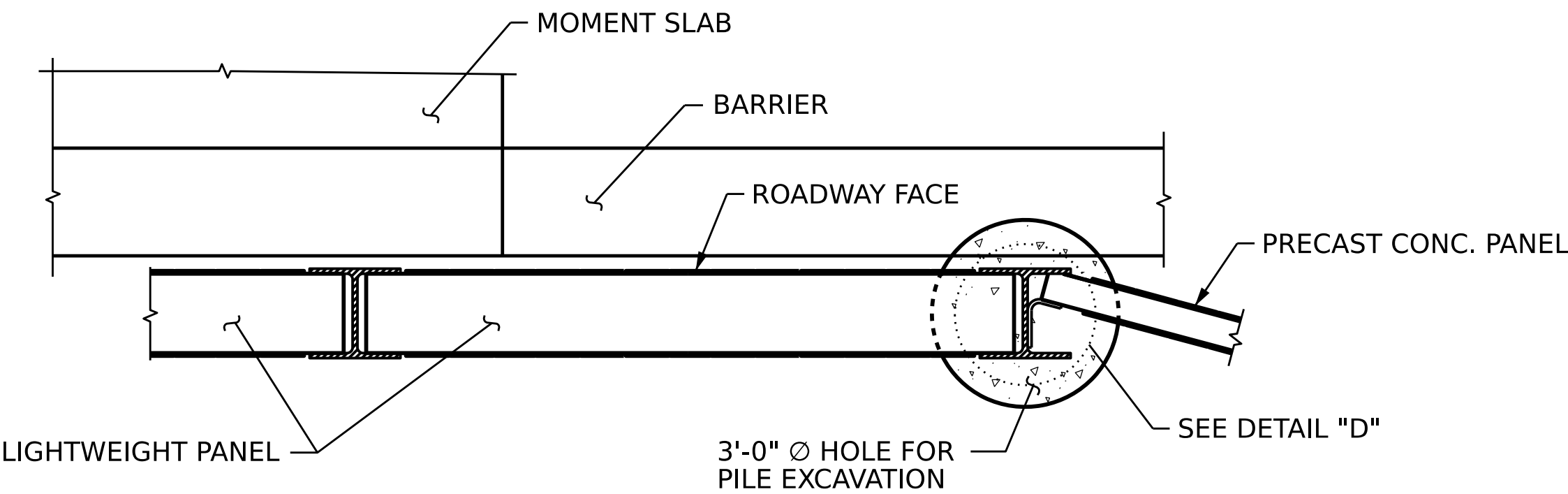
(PANELS NOT SHOWN FOR CLARITY)



SECTION X-X

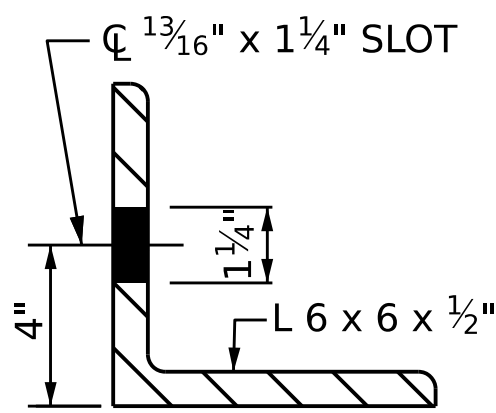


CONNECTION DETAIL

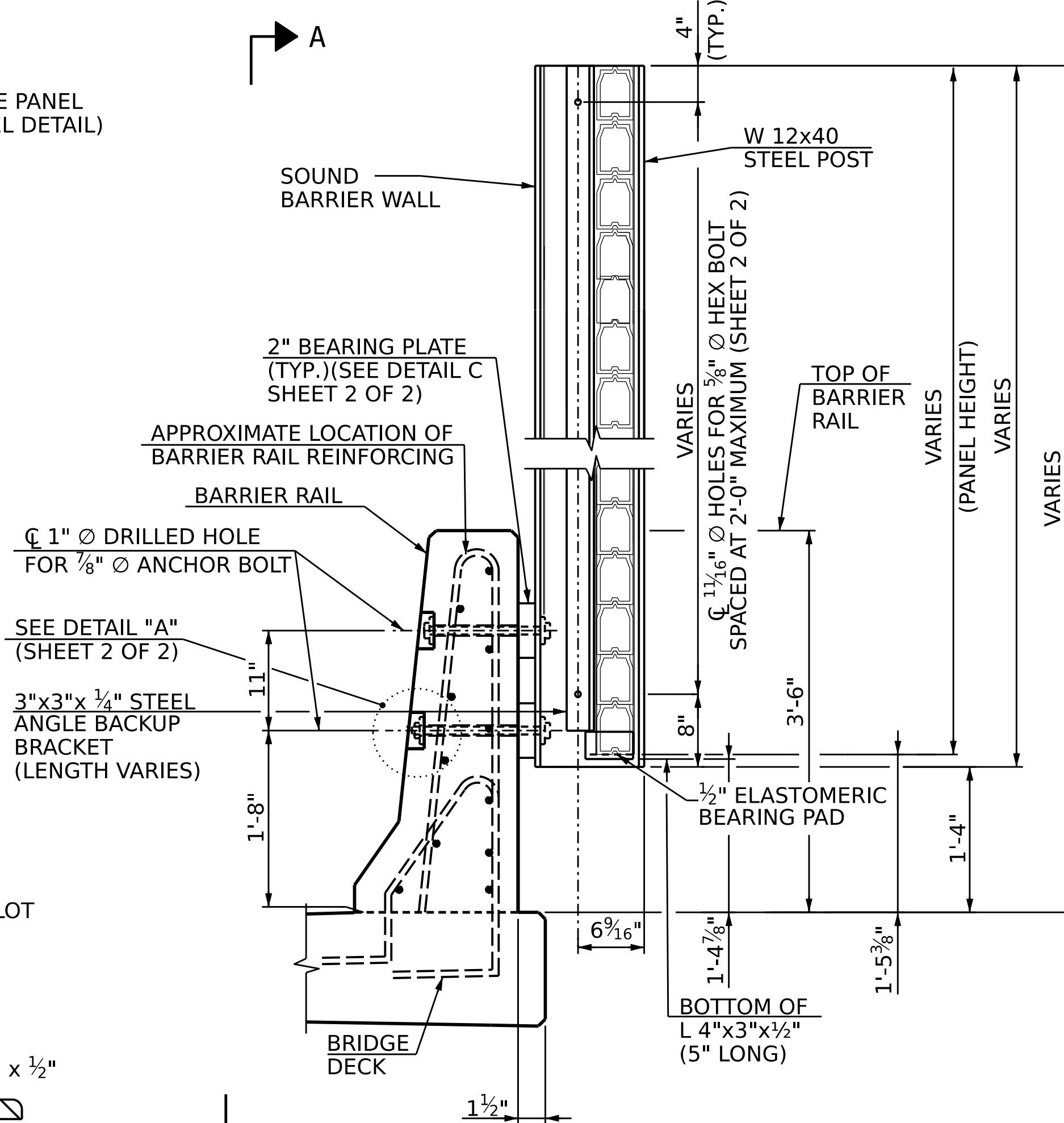


PLAN AT MOMENT SLAB TRANSITION PANEL

(BOTH ENDS SIMILAR)

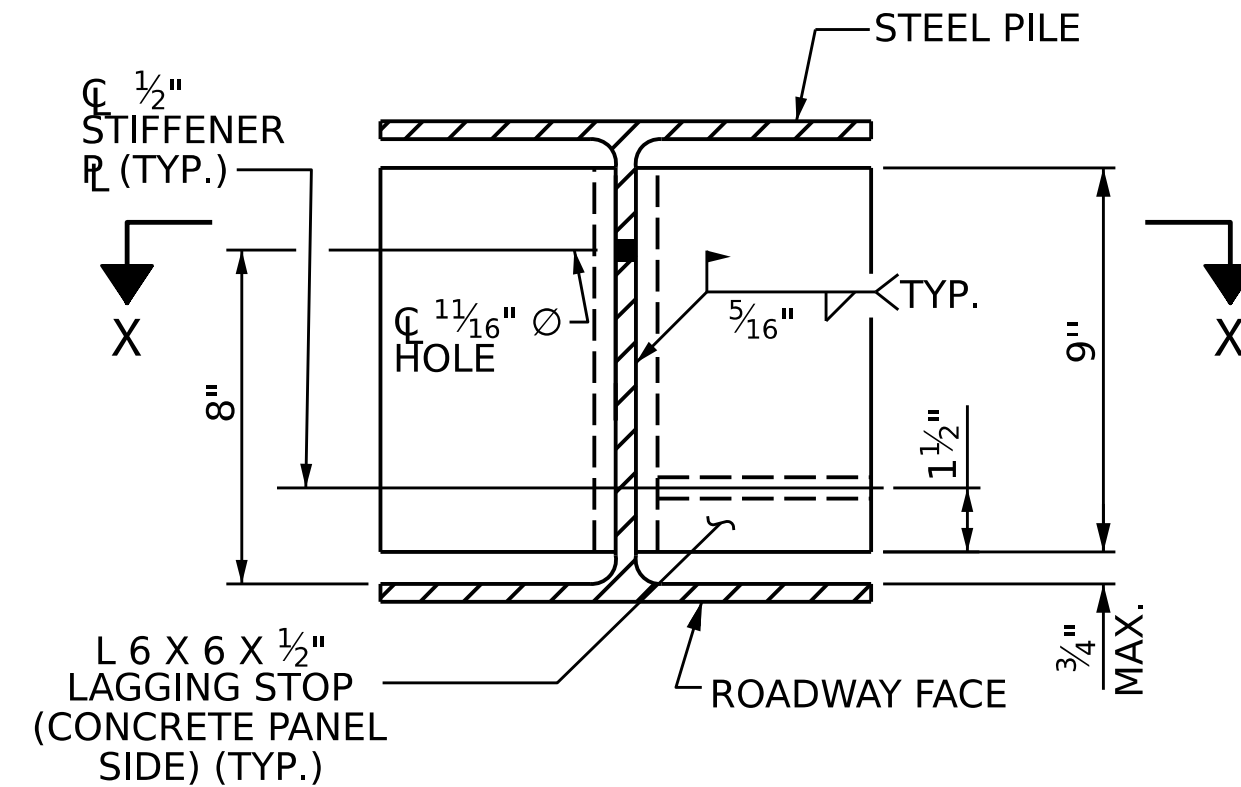


ANGLE DETAIL



POST ELEVATION

AESTHETIC PANELS NOT SHOWN



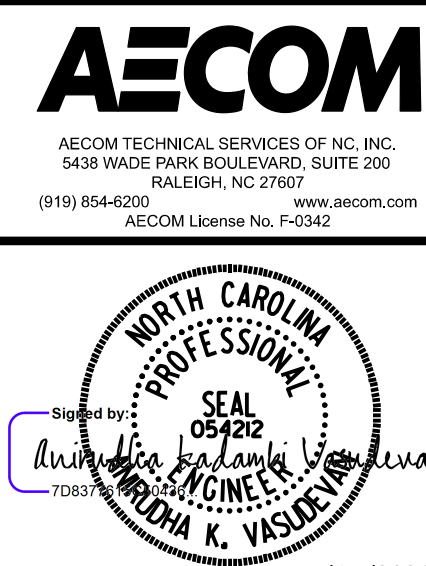
DETAIL "D"

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 105+49.43 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
SOUND BARRIER WALL

(LEFT LANE)

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S9-18
2			4			TOTAL SHEETS 46

DRAWN BY :	M. CATER	DATE :	03/2026
CHECKED BY :	A. VASUDEVAN	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	A. VASUDEVAN	DATE :	03/2026

NOTES :

WALL SUPPORT SYSTEM

POSTS, BEARING PLATES AND MISCELLANEOUS STEEL SHALL BE AASHTO 270 GRADE 50 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111 AND IN ACCORDANCE TO SECTION 1076 OF THE STANDARD SPECIFICATIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 AND SHALL BE GALVANIZED IN ACCORDANCE TO AASHTO M111.

ALL POSTS SHALL BE PLUMB.

SOUND BARRIER WALL

COLOR OF THE SOUND BARRIER WALL PANEL SHALL BE UNIFORM THROUGHOUT THE PULTRUDED COMPOSITE AND IS TO BE APPROVED BY THE ENGINEER. SEE SPECIAL PROVISIONS.

SOUND BARRIER WALL SHALL BE DESIGNED TO WITHSTAND A MINIMUM WIND VELOCITY OF 115 MPH AND A MINIMUM WIND PRESSURE OF 0.04 KSF.

WEIGHT OF SOUND BARRIER WALL SHALL NOT EXCEED 480 LBS/FT.

SOUND BARRIER WALL SHALL CONSIST OF STACKED TONGUE AND GROOVE STRUCTURAL PLANKS AS DETAILED ON PLANS. THE PLANKS SHALL BE COMPRISED OF A PULTRUDED GLASS REINFORCED THERMOSET COMPOSITE STRUCTURAL BOX FILLED WITH RECYCLED TIRE RUBBER OR ANOTHER SUBSTANCE OF COMPARABLE DENSITY AND SOUND REDUCTION CAPABILITY. ENDS SHALL BE CAPPED SO NOT TO ALLOW FILL MATERIAL TO FALL OUT.

LENGTH OF PLANKS SHALL BE CUT TO A LENGTH NO LESS THAN 4" LESS THAN THE CLEAR SPACING PROVIDED BETWEEN SUPPORT POSTS, NOR SHALL THE LENGTH BE GREATER THAN 3" LESS THAN THE CLEAR SPACING PROVIDED BETWEEN SUPPORT POSTS.

PLANKS SHALL BE CUT SO THAT THE ENDS ARE SMOOTH AND PERPENDICULAR TO EACH PLANKS BASE AND SHALL BE APPROVED BY THE ENGINEER.

EACH PANEL SHALL BE PLACED SO THAT THE TOP OF THE FINISHED PANEL MEETS FLUSH WITH THE TOP OF EACH SUPPORT POST.

FOR PREFORMED BEARING PADS AND ELASTOMERIC BEARING, SEE SECTION 1079 OF THE STANDARD SPECIFICATIONS.

FOR SOUND BARRIER WALL, SEE SPECIAL PROVISION SOUND BARRIER WALL (BRIDGE MOUNTED).

PRIOR TO DRILLING HOLES FOR ANCHOR BOLTS, CONTRACTOR SHALL LOCATE BARRIER RAIL REINFORCING. CONTRACTOR SHALL AVOID DRILLING THROUGH REINFORCING STEEL.

CONTRACTOR SHALL DRILL HOLES FOR ANCHOR BOLTS PRIOR TO PANEL FABRICATION.

FOR SOUND BARRIER WALL LAYOUT, SEE "SOUND BARRIER LAYOUT" SHEET.

SOUND BARRIER WALL WAS NOT DESIGNED FOR VEHICLE IMPACT PER OWNERS DIRECTION.

SHOP DRAWINGS OF THE SOUND BARRIER WALL AND SUPPORT SYSTEM SHALL BE SUBMITTED FOR THE ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 105+49.43 -L-

SHEET 2 OF 2

AECOM

AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

SEAL
05/2026
7/15/2026
K. VASUDEVAN

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

SOUND BARRIER WALL

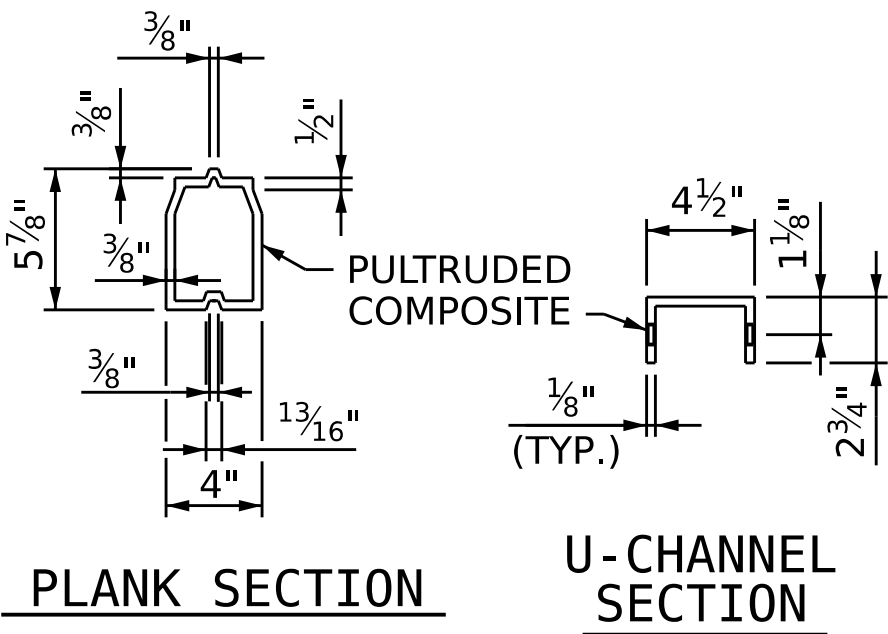
DETAILS

(LEFT LANE)

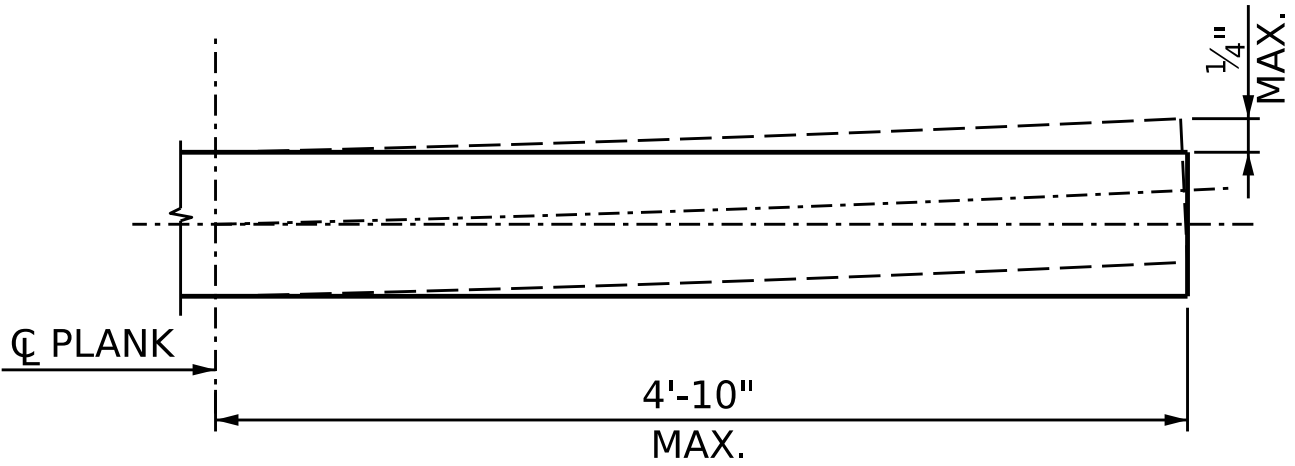
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S9-19
2			4			TOTAL SHEETS 46

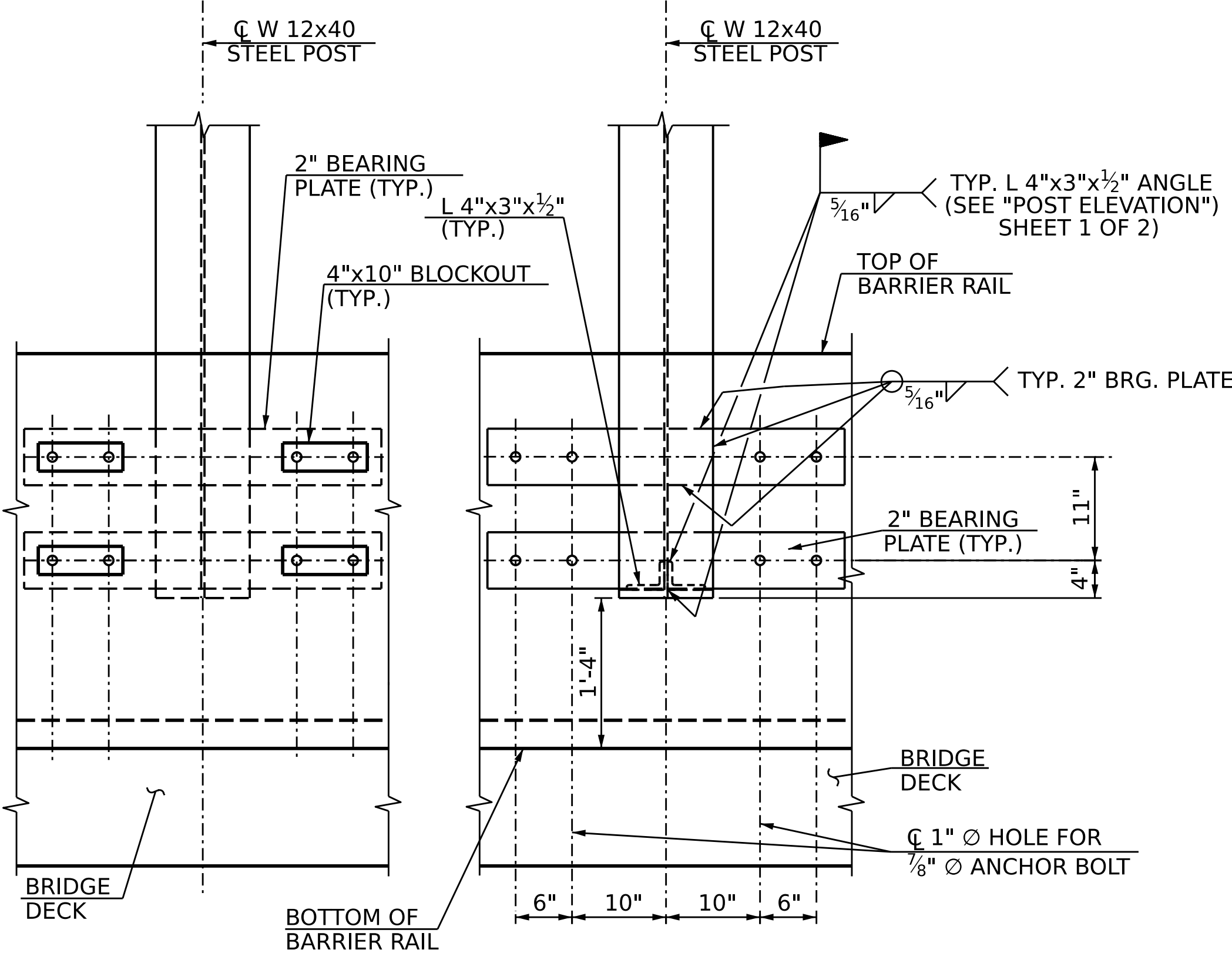
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PANEL SECTION



PLANK BOW TOLERANCE

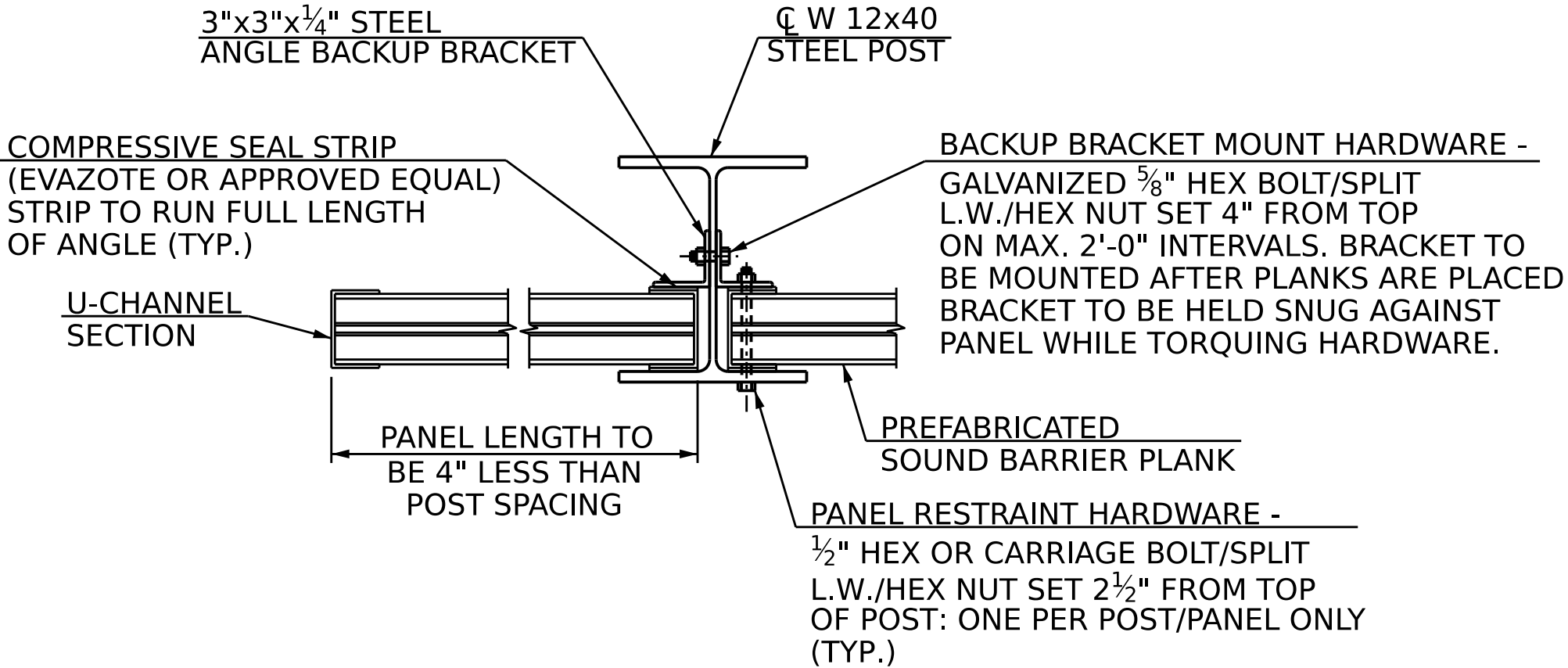


VIEW A-A

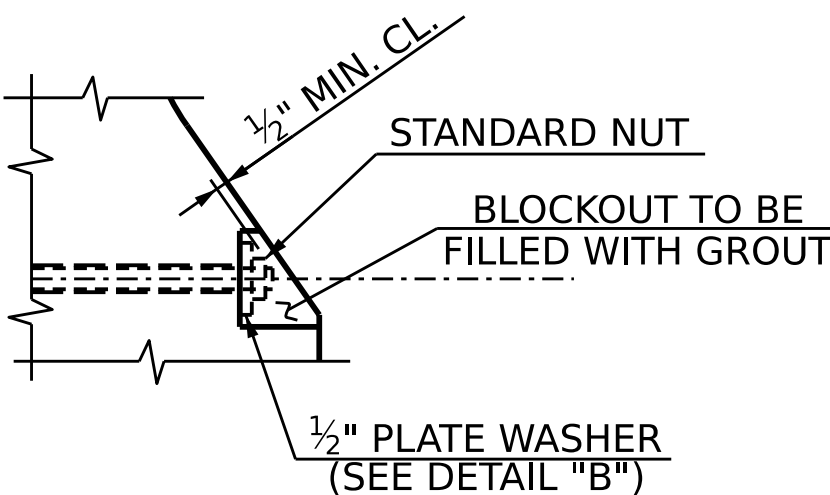
SECTION THRU POST

DRAWN BY :	M. CATER	DATE :	03/2026
CHECKED BY :	A. VASUDEVAN	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	A. VASUDEVAN	DATE :	03/2026

7/13/2026
c:\pwworking\aecom.ds21-na.2020\d0131571\409.037.I2513AC.SMU.NW2.S9-19.100900.dgn
caterm

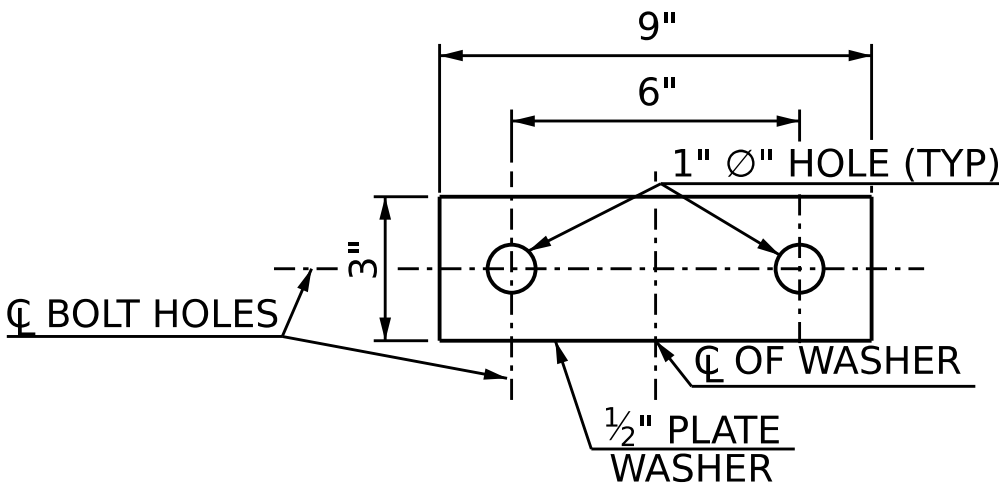


MOUNTING DETAIL

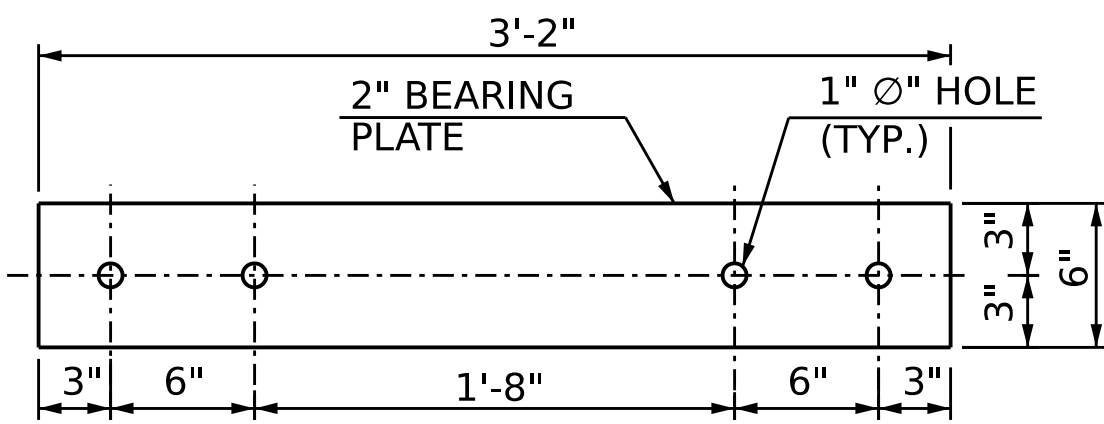


DETAIL "A"

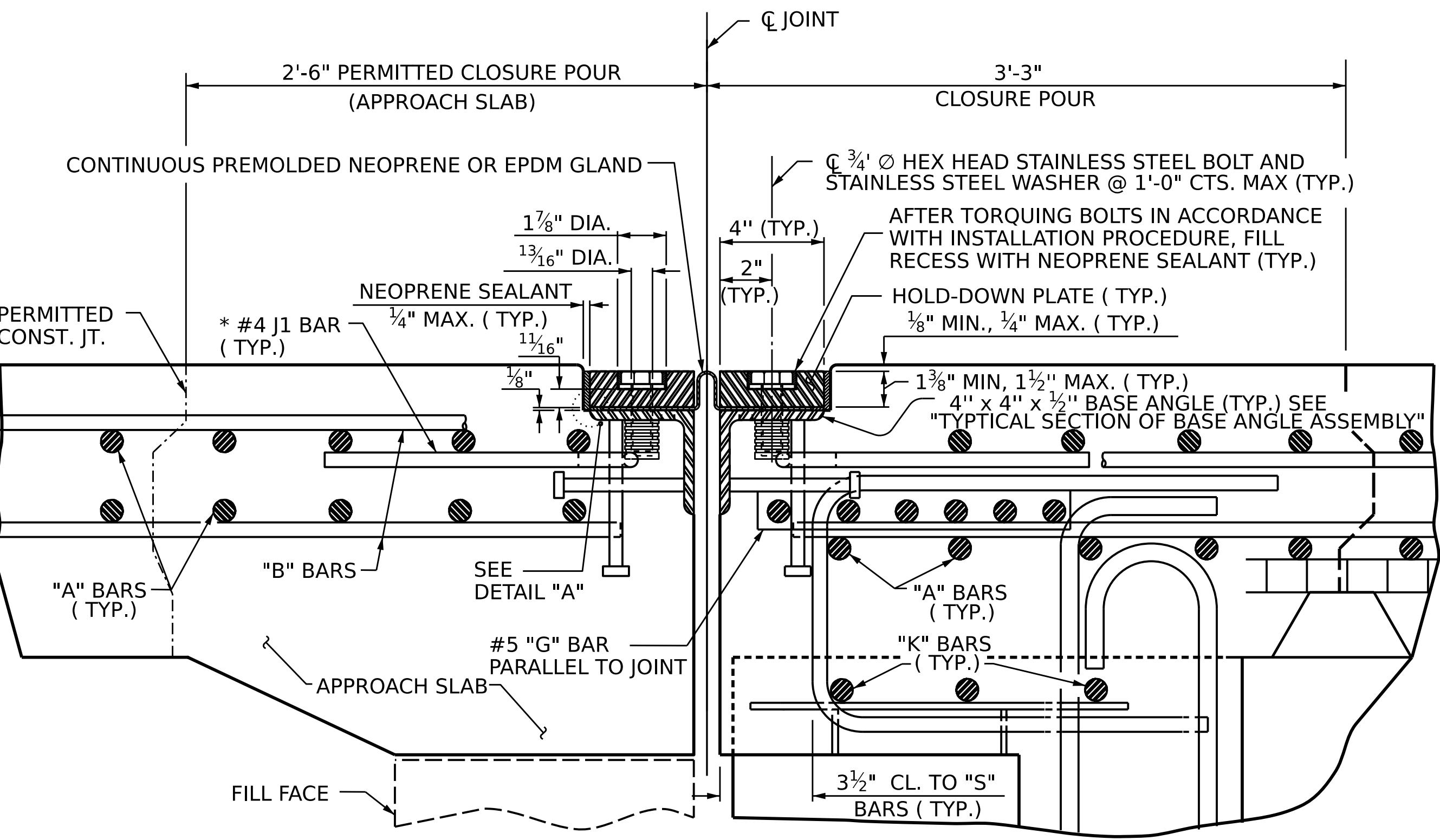
(GROUT SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS)
(LOWER BLOCKOUT SHOWN, UPPER BLOCKOUT SIMILAR)



DETAIL "B"



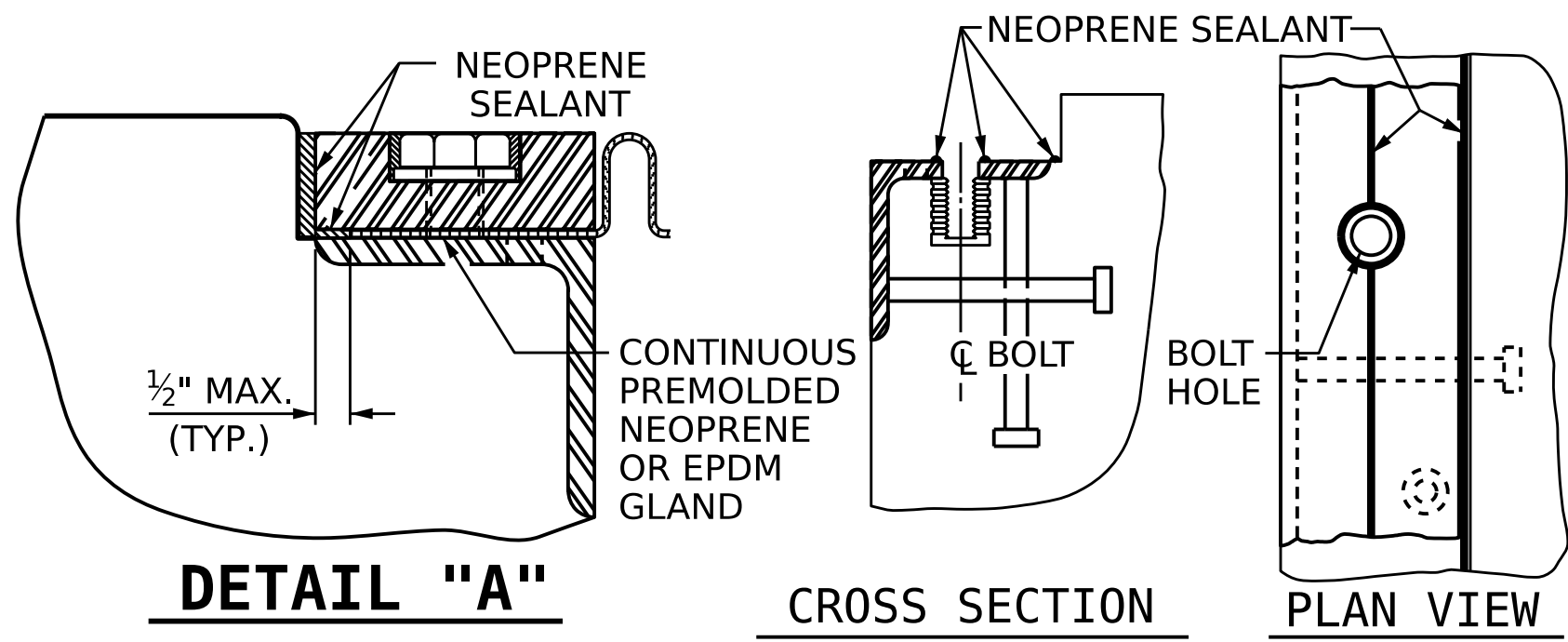
DETAIL "C"



EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE

* THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.



CROSS SECTION PLAN VIEW

INSTALLATION SKETCH

INSTALLATION PROCEDURE :

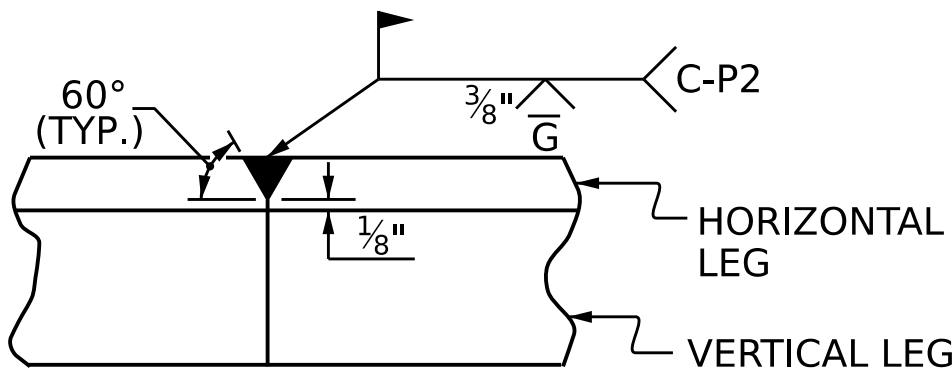
1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE 4 1/8" TO 4 1/4" WIDE AND OF SUCH THICKNESS AS TO PROVIDE FOR CORRECT FINAL ELEVATION OF TOP OF HOLD-DOWN PLATES. THE TEMPLATE SHALL BE ATTACHED TO THE BASE ANGLE ASSEMBLY WITH THE 3/4" Ø HEX HEAD BOLTS PROVIDED FOR THE HOLD-DOWN PLATES. A 1" Ø HOLE SHALL BE PROVIDED IN THE TEMPLATE CENTERED OVER EACH WEEP HOLE IN THE 4" X 4" X 1/2" BASE ANGLE. OTHER METHODS OF INSURING DRAINAGE THROUGH WEEP HOLES MAY BE EMPLOYED SUBJECT TO ENGINEER'S APPROVAL.
2. AFTER THE CONCRETE HAS BEEN CAST ON BOTH SIDES OF THE JOINT, REMOVE THE TEMPLATE. THOROUGHLY CLEAN THE BOLT HOLES AND THE ANGLE PLATE. REMOVE ANY EXCESS CONCRETE THAT COMES OUT OF THE WEEP HOLES. ANY DAMAGED STEEL SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
3. LAY THE GLAND ON THE BASE ANGLE AND FIELD MARK THE GLAND FOR THE BOLT HOLES. HOLES IN THE GLAND SHALL BE PUNCHED 7/8" IN DIAMETER WITH A HAND PUNCH.
4. IN ORDER TO CHECK FOR PROPER ALIGNMENT, PLACE THE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. DO NOT APPLY NEOPRENE SEALANT. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE BUT DO NOT TIGHTEN. THE ENGINEER SHALL INSPECT THE JOINT SEAL DEVICE FOR PROPER ALIGNMENT.
5. AFTER INSPECTION, REMOVE THE HOLD-DOWN PLATES AND GLAND. APPLY NEOPRENE SEALANT TO THE BASE ANGLE IN ACCORDANCE WITH THE "INSTALLATION SKETCH". PLACE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE ASSEMBLY AND TORQUE THE BOLTS TO 88 FT-LBS WITH A TORQUE WRENCH. CHECK THE TORQUE AFTER THREE (3) HOURS AND, IF NECESSARY, RETIGHTEN TO 88 FT-LBS. A FINAL CHECK SHALL BE MADE AT SEVEN (7) DAYS. TORQUE SHALL NOT BE LESS THAN 80 FT-LBS AFTER SEVEN (7) DAYS.
6. AFTER PROPER TORQUING, CLEAN THE BOLT HOLE RECESSES, THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE, AND THE LIFTING HOLES IN THE HOLD-DOWN PLATE, AND COMPLETELY FILL THE RECESSES AND LIFTING HOLES WITH NEOPRENE SEALANT.

MOVEMENT AND SETTING AT JOINT					
END BENT NO.	SKEW ANGLE *	TOTAL MOVEMENT (ALONG C RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
1	133°10'15"	-	1 1/2"	1 1/2"	1 1/2"
2	135°37'14"	1 1/4"	1 3/8"	1 1/2"	1 1/4"

* MEASURED TANGENT TO CURVE AT FILL FACE

NOTES :

1. FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.
2. ALL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS 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. MINIMUM.
3. A PREMOLDED CORRUGATED OR NON-CORRUGATED GLAND SHALL BE USED FOR JOINTS SKEWED BETWEEN 50° THRU 130°. FOR JOINTS SKEWED LESS THAN 50° OR MORE THAN 130°, ONLY A CORRUGATED GLAND SHALL BE USED.
4. CLOSED END FERRULES AND STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
5. SURFACES COMING IN CONTACT WITH NEOPRENE SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.
6. UPON COMPLETION OF SHOP FABRICATION, THE HOLD-DOWN PLATE AND BASE ANGLE ASSEMBLY, AS SHOWN IN THE "TYPICAL SECTION OF BASE ANGLE ASSEMBLY", SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
7. THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
8. BASE ANGLE ASSEMBLY SHALL BE CONTINUOUS FOR THE LENGTH OF THE JOINT. AT CROWN BREAKS, THE ENDS OF THE BASE ANGLE ASSEMBLY SHALL BE CUT PARALLEL TO THE BRIDGE CENTERLINE FOR SKEWS LESS THAN 80° AND GREATER THAN 100°. FINISHED WELD SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
9. FIELD SPLICES OF HOLD-DOWN PLATES SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. HOLD-DOWN PLATES SHALL NOT EXCEED 20' LENGTHS UNLESS APPROVED BY THE ENGINEER.
10. NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
11. 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.
12. THE FABRICATOR SHALL PROVIDE 1/2" Ø THREADED HOLES IN THE HOLD-DOWN PLATES TO ASSIST IN LIFTING AND PLACING. THE HOLES SHALL BE 3/4" DEEP AT 6'-0" MAXIMUM SPACING AND A MINIMUM OF TWO HOLES PER PLATE.



DETAIL- FIELD WELD SPLICE OF BASE ANGLE

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

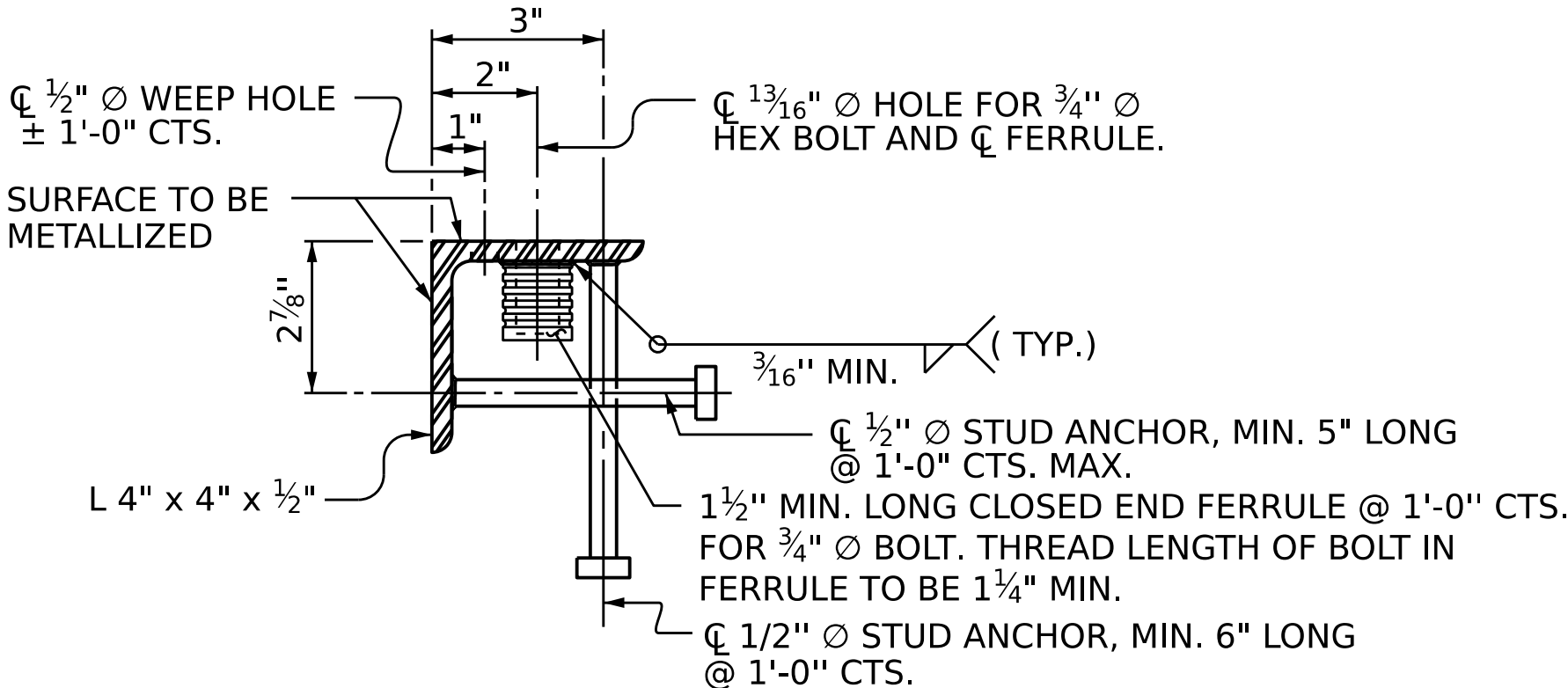
SHEET 1 OF 2

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
AECOM License No. F02342

SEAL
05/22/2023
NORTH CAROLINA PROFESSIONAL ENGINEER
VANDANA K. VASUDEVAN
7/15/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
EXPANSION JOINT SEAL DETAILS
(LEFT LANE)

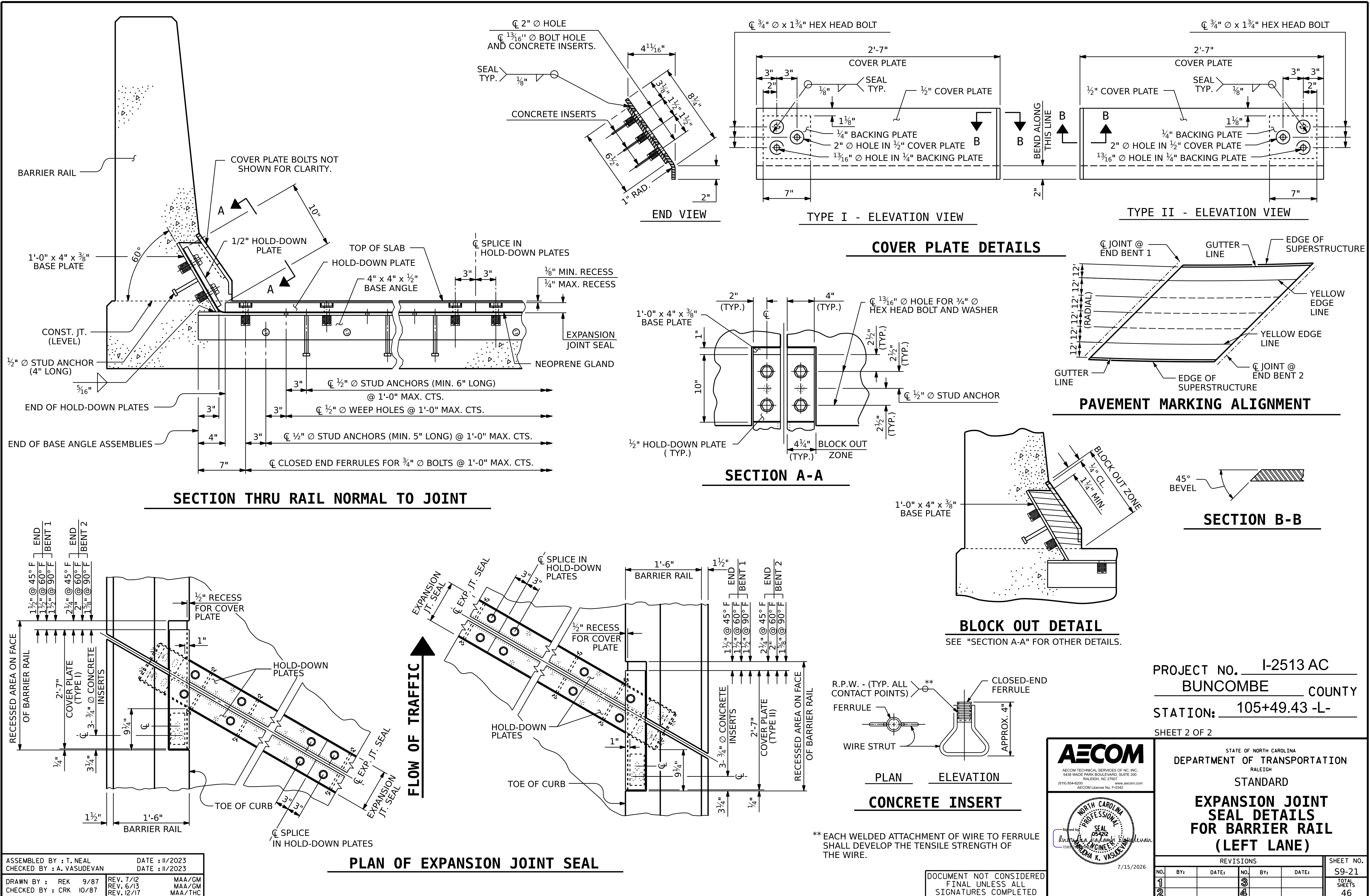
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-20
1			3			TOTAL SHEETS
2			4			46



TYPICAL SECTION OF BASE ANGLE ASSEMBLY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : T. NEAL	DATE : 11/2023
CHECKED BY : A. VASUDEVAN	DATE : 11/2023
DRAWN BY : REK 9/87	REV. 10/17/11 MAA/GM
CHECKED BY : CRK 10/87	REV. 10/17 MAA/THC
	REV. 6/18 MAA/THC



ASSEMBLED BY : T. NEAL	DATE : 11/2023
CHECKED BY : A. VASUDEVAN	DATE : 11/2023
DRAWN BY : REK	9/87
CHECKED BY : CRK	10/87
REV. 7/12	MAA/GM
REV. 6/13	MAA/GM
REV. 12/17	MAA/THC

7/13/2026
C:\pwworking\aeocom.ds21.na.2020\d0131571\409.041.12513AC.SMU.EJS2.S9-21.100900.dgn
caterm

PLAN OF EXPANSION JOINT SEAL

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
AECOM License No. F02342

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 105+49.43 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

STANDARD

EXPANSION JOINT
SEAL DETAILS
FOR BARRIER RAIL
(LEFT LANE)

REVISIONS

SHEET NO.

NO.

BY:

DATE:

NO.

BY:

DATE:

S9-21

1

2

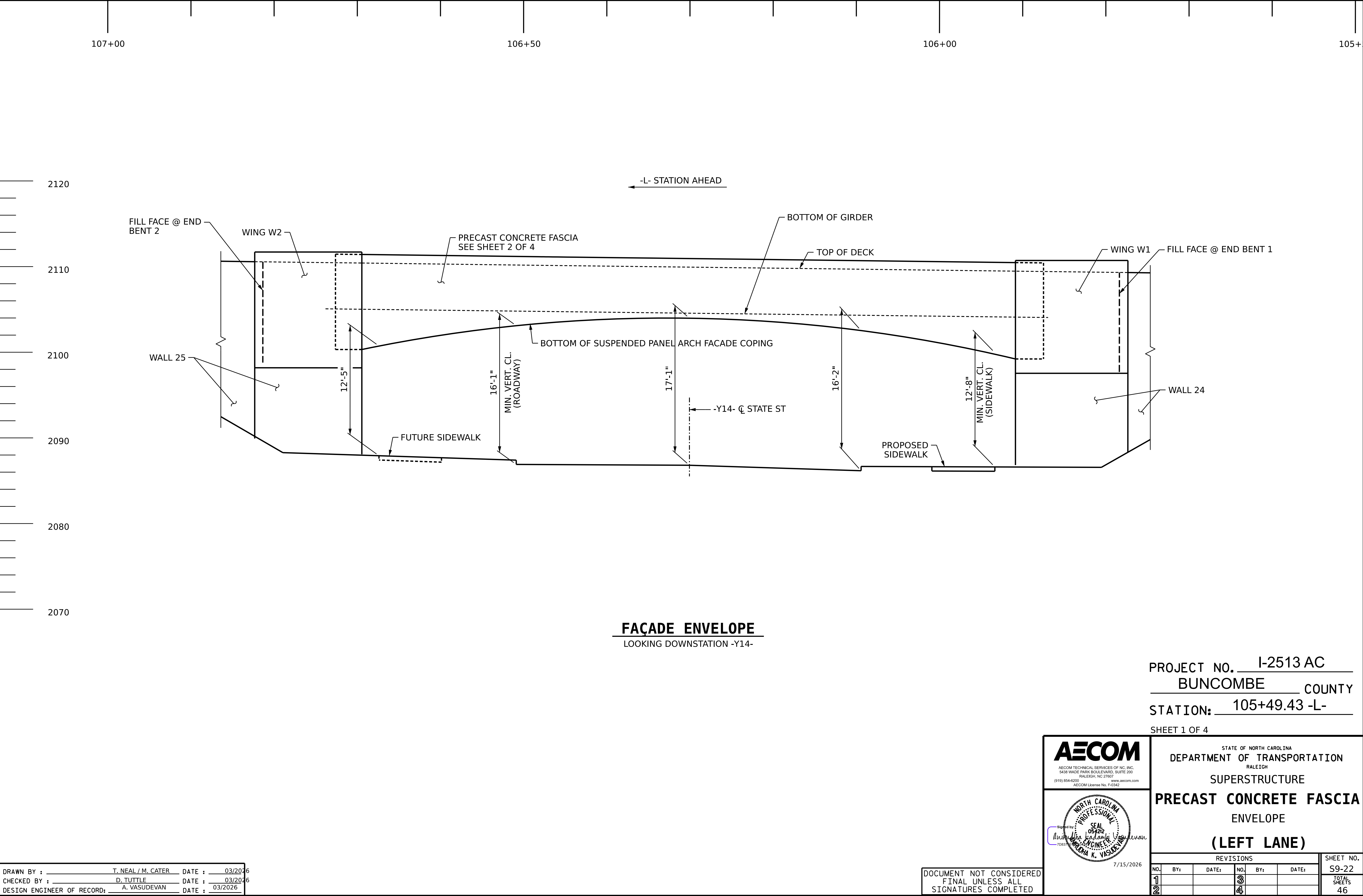
3

4

TOTAL SHEETS

46

STD.NO.EJS2



FOR PRECAST CONCRETE FASCIA, SEE SPECIAL PROVISIONS.

FOR ANCHOR BOLT SPACING, SEE SHEET 4 OF 4.

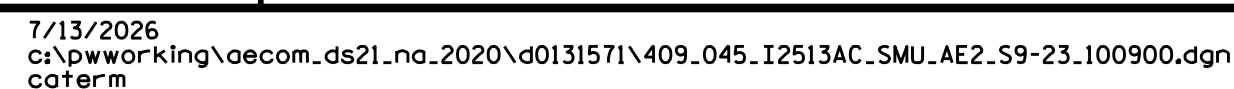
FOR SECTIONS AND DETAILS, SEE SHEETS 3 AND 4 OF 4.

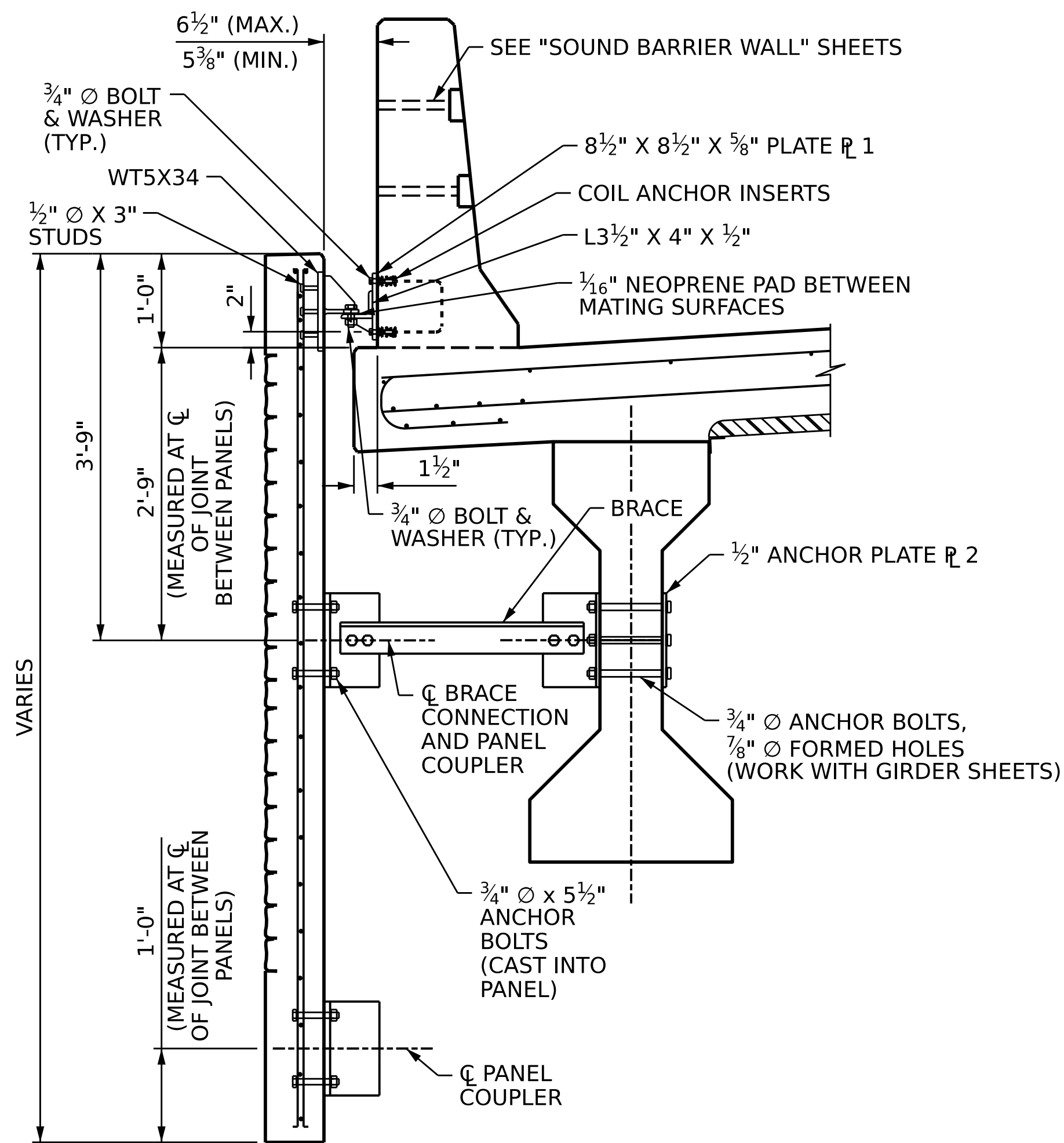


SHOWN LOOKING AT BACK SIDE OF PANEL

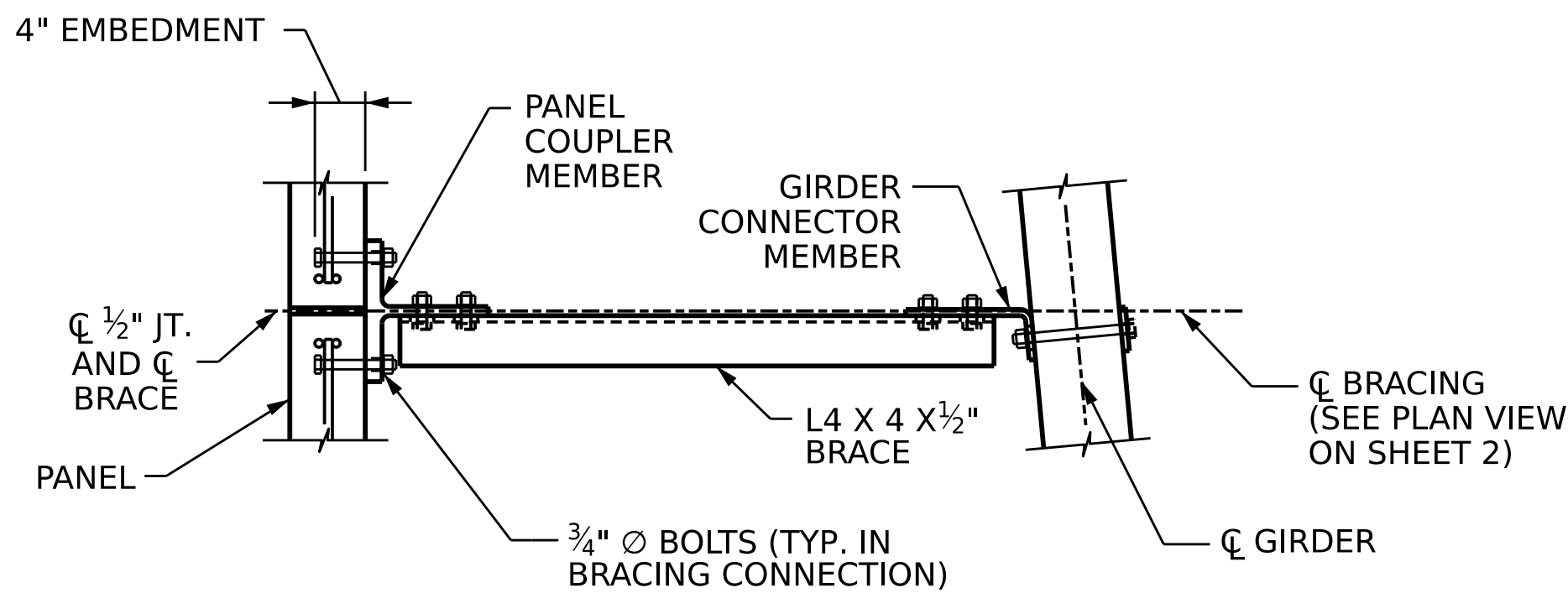
DIMENSIONS AND ELEVATIONS ARE TAKEN AT THE C OF THE 1/2" EXPANSION JOINT BETWEEN PANELS.

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

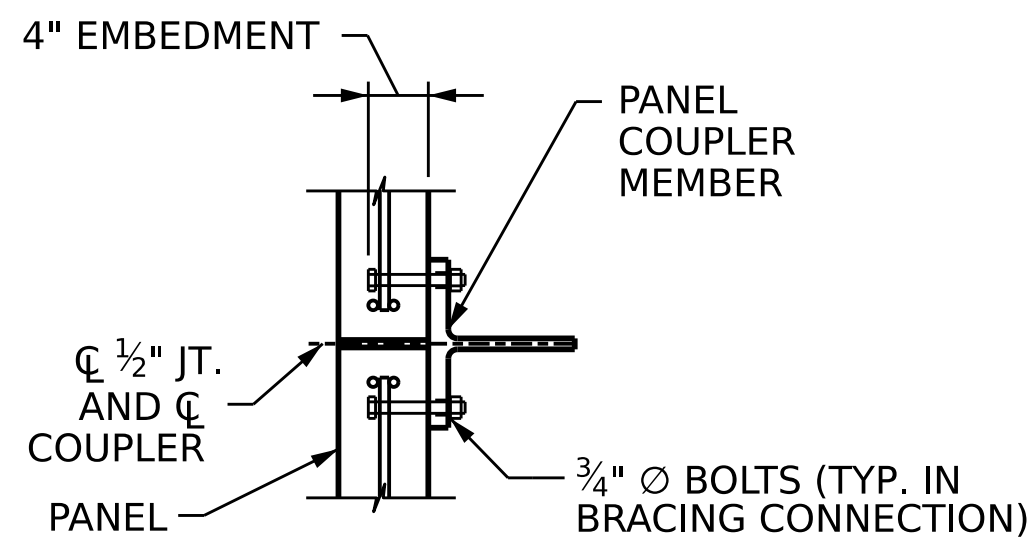




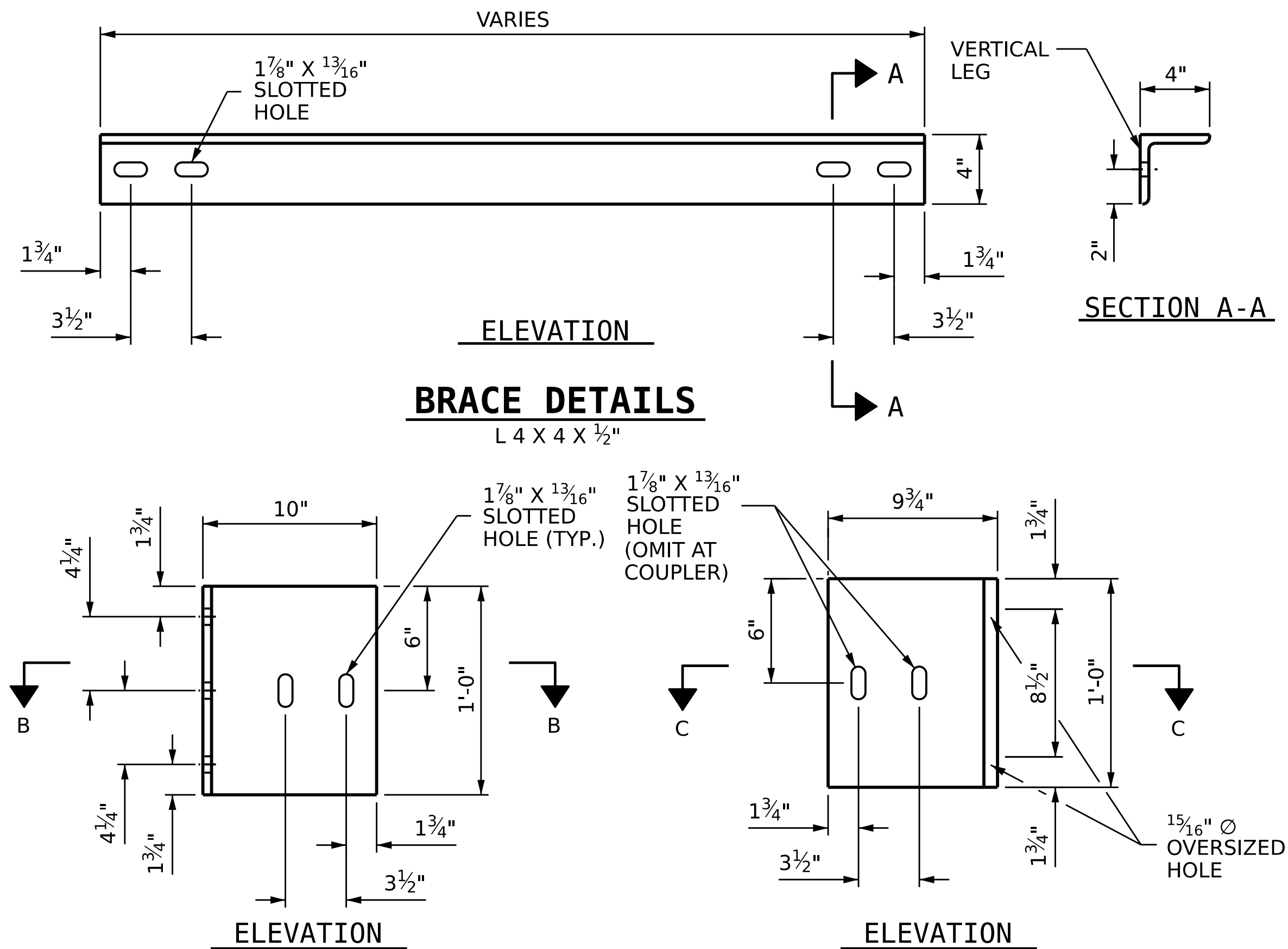
PANEL SECTION



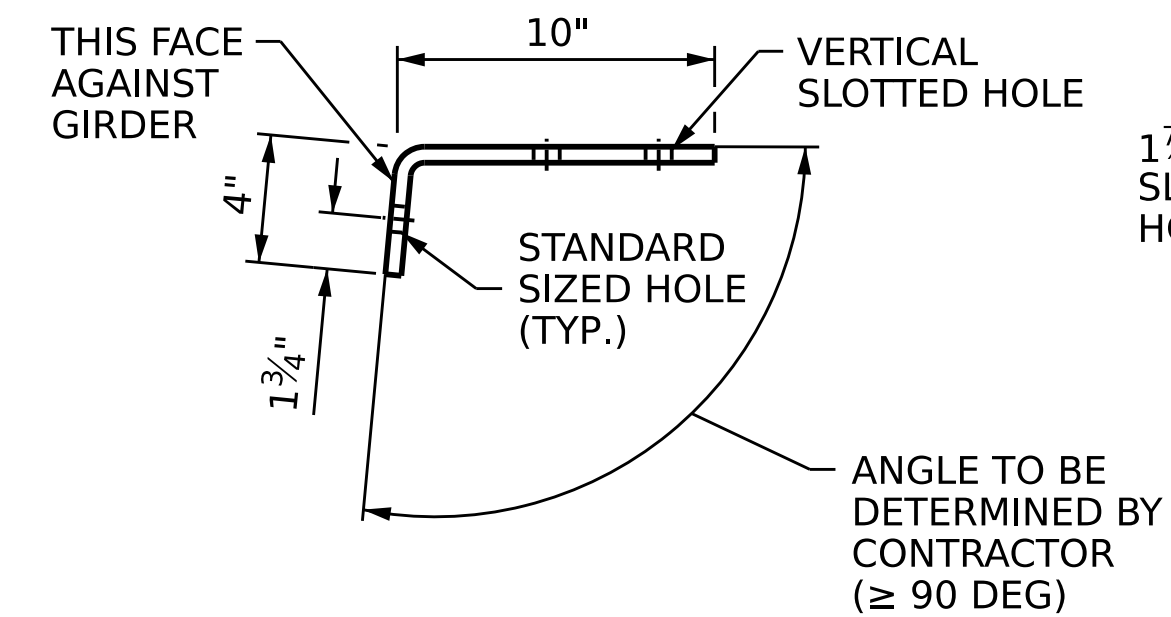
PANEL COUPLER WITH BRACING CONNECTION
9 REQUIRED



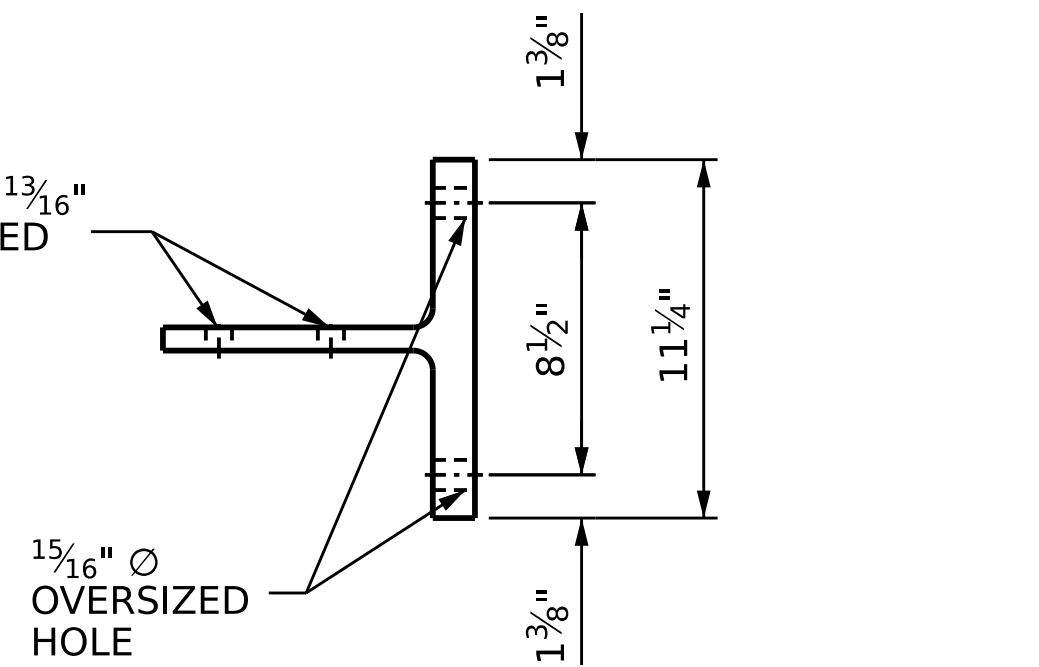
PANEL COUPLER WITHOUT BRACING CONNECTION
6 REQUIRED



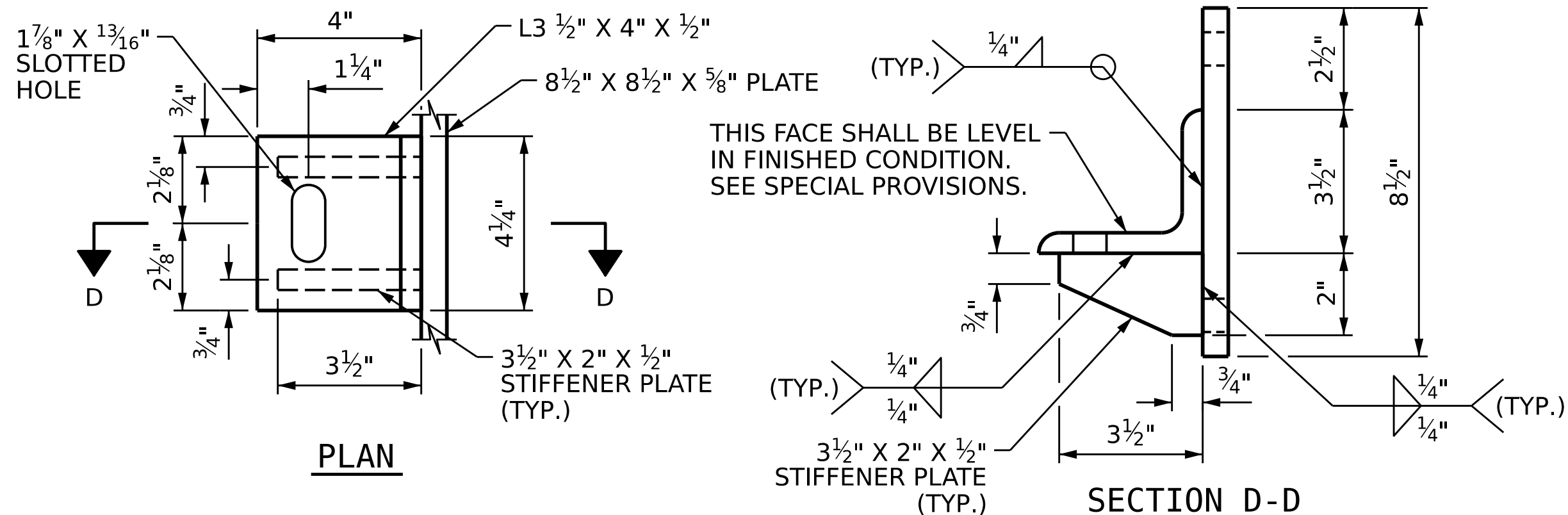
BRACE DETAILS
L 4 X 4 X 1/2"



GIRDER BRACING CONNECTOR MEMBER DETAILS
10" X 4" X 1/2" BENT PLATE



PANEL COUPLER CONNECTOR MEMBER DETAILS
WT 9 X 74.5



BARRIER ANCHORAGE MEMBER DETAILS
L3 1/2" X 4 1/2" X 1/2" WITH (2) 3 1/2" X 2" X 1/2" STIFFENER PLATES
32 REQUIRED

NOTES:

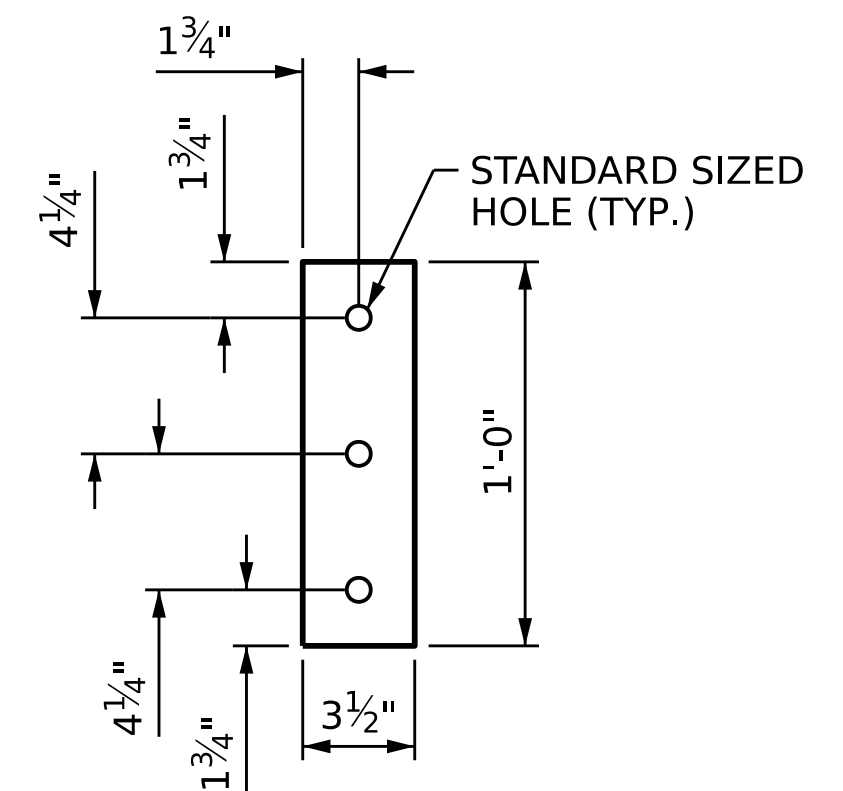
ANCHOR BOLTS SHALL BE ASTM F593, STAINLESS STEEL, ALLOY GROUP 2, CW2 CONDITION.

WT SHAPE SHALL BE ASTM A992 GALVANIZED STEEL.

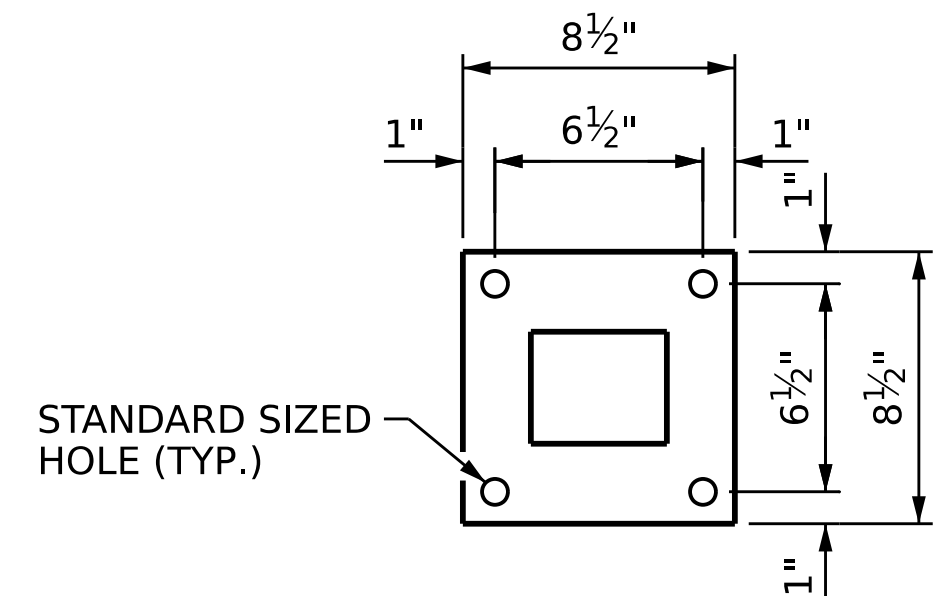
ANGLES AND BENT PLATE SHALL BE ASTM A572 GRADE 50 GALVANIZED STEEL.

LENGTH OF L 4 X 4 X 1/2" MEMBER SHALL BE DETERMINED BY THE CONTRACTOR FOR ALL LOCATIONS AFTER PLACEMENT OF GIRDER AND OVERHANG FORMWORK. THE LENGTH SHALL BE INCLUDED IN WORKING DRAWING SUBMITTAL.

COIL ANCHOR INSERTS INTO BARRIER SHALL BE DAYTON SUPERIOR C2 COIL HANGER SADDLE TYPE OR EQUIVALENT. INSTALL ANCHORS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. ANCHORS SHALL BE CAPABLE OF PROVIDING A BASE TENSION STRENGTH OF 3,600 LBS, PER BOLT (STRENGTH CONDITION). FIELD TESTING IS NOT REQUIRED.



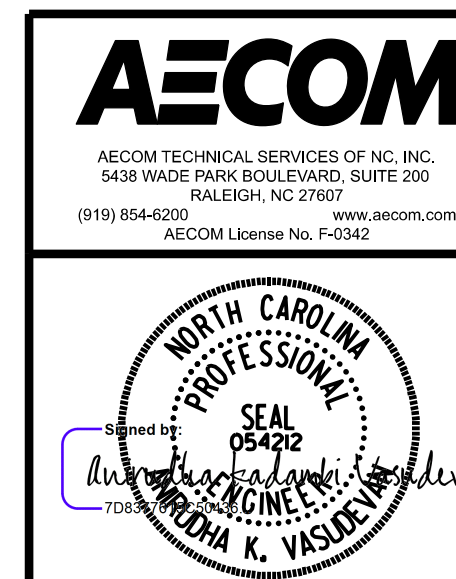
GIRDER ANCHORAGE PLATE R 2 MEMBER DETAILS
1'-0" X 3 1/2" X 1/2" PLATE



BARRIER ANCHORAGE PLATE R 1 MEMBER DETAILS
8 1/2" X 8 1/2" X 5/8" PLATE

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 3 OF 4



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S9-24
2			4			TOTAL SHEETS 46

DRAWN BY : M. CATER DATE : 03/2026
CHECKED BY : D. TUTTLE DATE : 03/2026
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

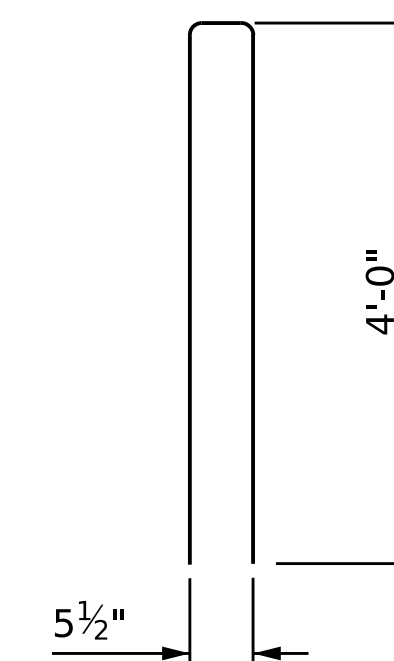
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEE SHEET 3 OF 4 FOR NOTES.

PANEL REINFORCEMENT SHALL BE DETAILED BY THE CONTRACTOR FOR EACH PANEL TO MEET THE MINIMUM REINFORCEMENT SHOWN IN THE PLANS. SEE SPECIAL PROVISIONS.

VERTICAL FACE OF "TOP BAND" AND OUTSIDE AND
BOTTOM OF "RIB" SHALL BE COATED COLOR FS #33522.
SEE SPECIAL PROVISION "APPLICATION OF BRIDGE
COATING."

BOLTS AT BARRIER AND GIRDER WEB TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

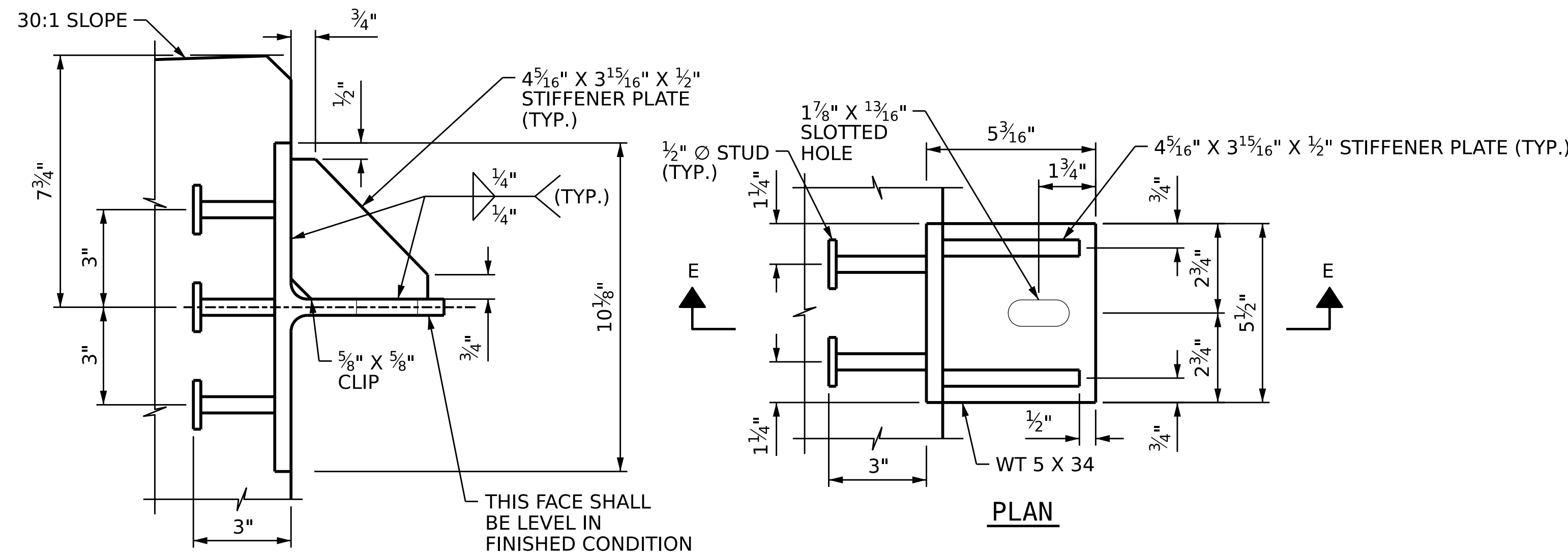


Technical drawing of a vertical shaft collar cross-section. The drawing shows a vertical rectangular section with various reinforcement details and dimensions.

Dimensions and Labels:

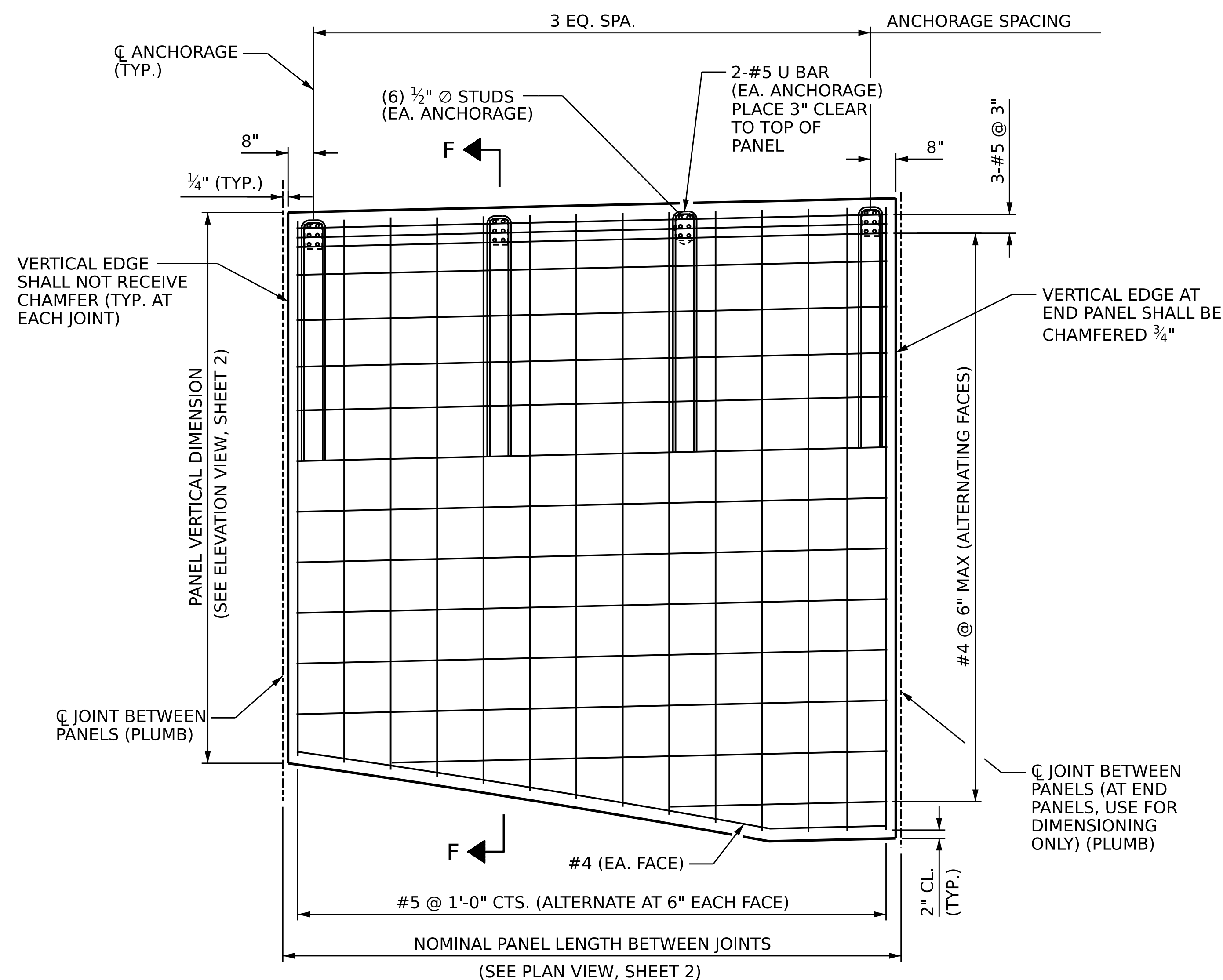
- Top Section:**
 - COATING
 - 1'-0" TOP BAND SMOOTH
 - 3'-#5 @ 3"
 - 3 1/4"
 - 7 1/2"
 - 6" MAX.
- Reinforcement Details:**
 - EMBED WT FLANGE, RECESS 1/8" AND RUN SILICONE BEAD AROUND PERIMETER
 - Panel ANCHORAGE CONNECTION
 - 2-#5 U BAR (EA. ANCHORAGE)
 - 3 1/2" CL.
 - 2" CL.
 - #5 @ 1'-0" CTS. (EA. FACE) (ALTERNATE AT 6" EACH FACE)
 - 3/4" CHAMFER (TYP.)
- Vertical Dimensions:**
 - INFILL HEIGHT VARIES STONE FORMLINER
 - RIB HEIGHT VARIES SMOOTH
 - 3"
 - #4 @ 6" MAX (ALTERNATING FACES)
- Other Labels:**
 - VERT SHAFT CHA EACH

FOR PANEL, INFILL, RIB, AND TOP BAND HEIGHTS,
SEE ELEVATIONS ON SHEET 2.



PANEL ANCHORAGE MEMBER DETAILS

WT 5 X 34 WITH (2) 4⁵/₁₆" X 3¹⁵/₁₆" X 1/2" STIFFENER PLATES



— C JOINT BETWEEN
PANELS (AT END
PANELS, USE FOR
DIMENSIONING
ONLY) (PLUMB)

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
 STATION: 105+49.43 -L-

AECOM

AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607

(919) 854-6200 www.aecom.com

AECOM License No. F-0342



SUPERSTRUCTURE

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 46
1			3			
2			4			

NOTES:

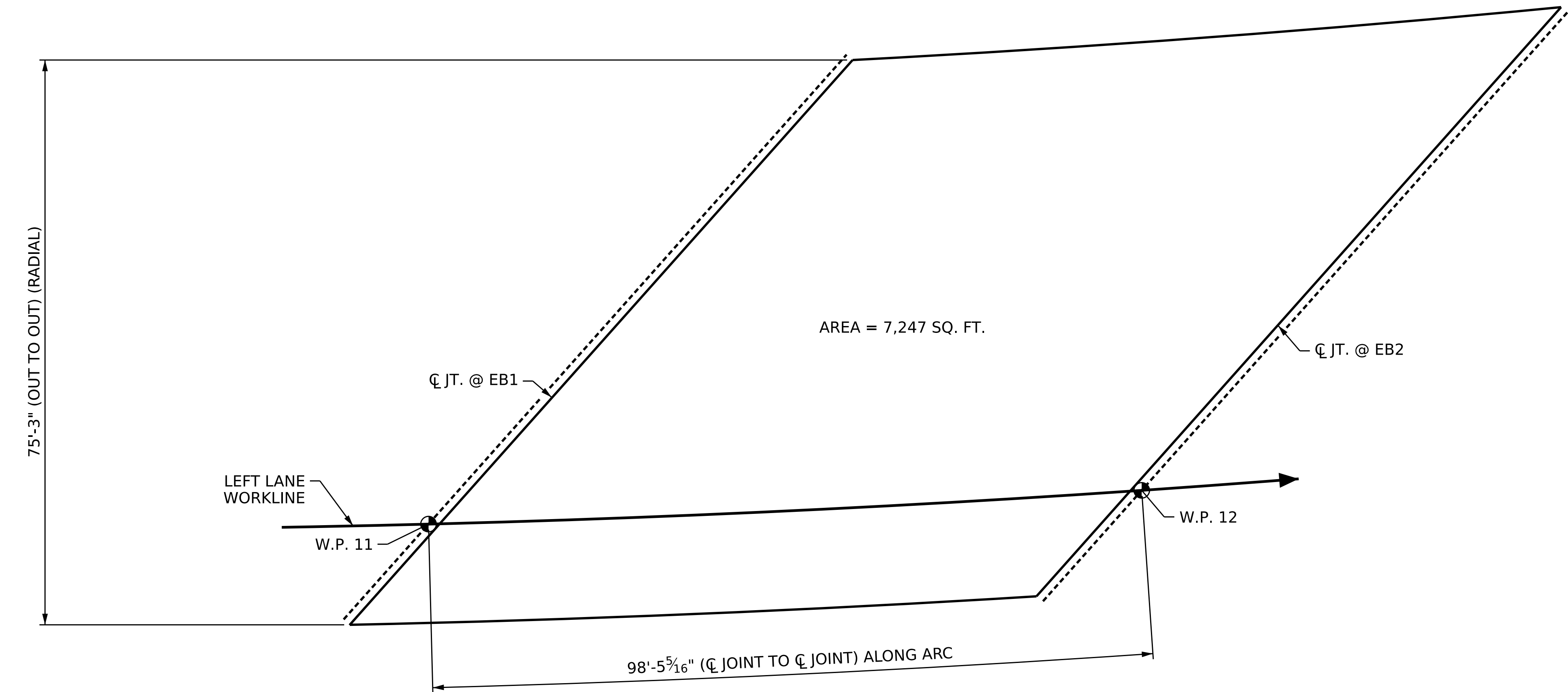
FOR DIMENSIONS NOT SHOWN, SEE SUPERSTRUCTURE SHEETS.

SUPERSTRUCTURE BILL OF MATERIAL	
SPAN A	(CU. YDS.)
POUR #1	210.7
POUR #2	36.6
TOTALS**	247.3

** QUANTITES FOR BARRIER RAILS ARE NOT INCLUDED

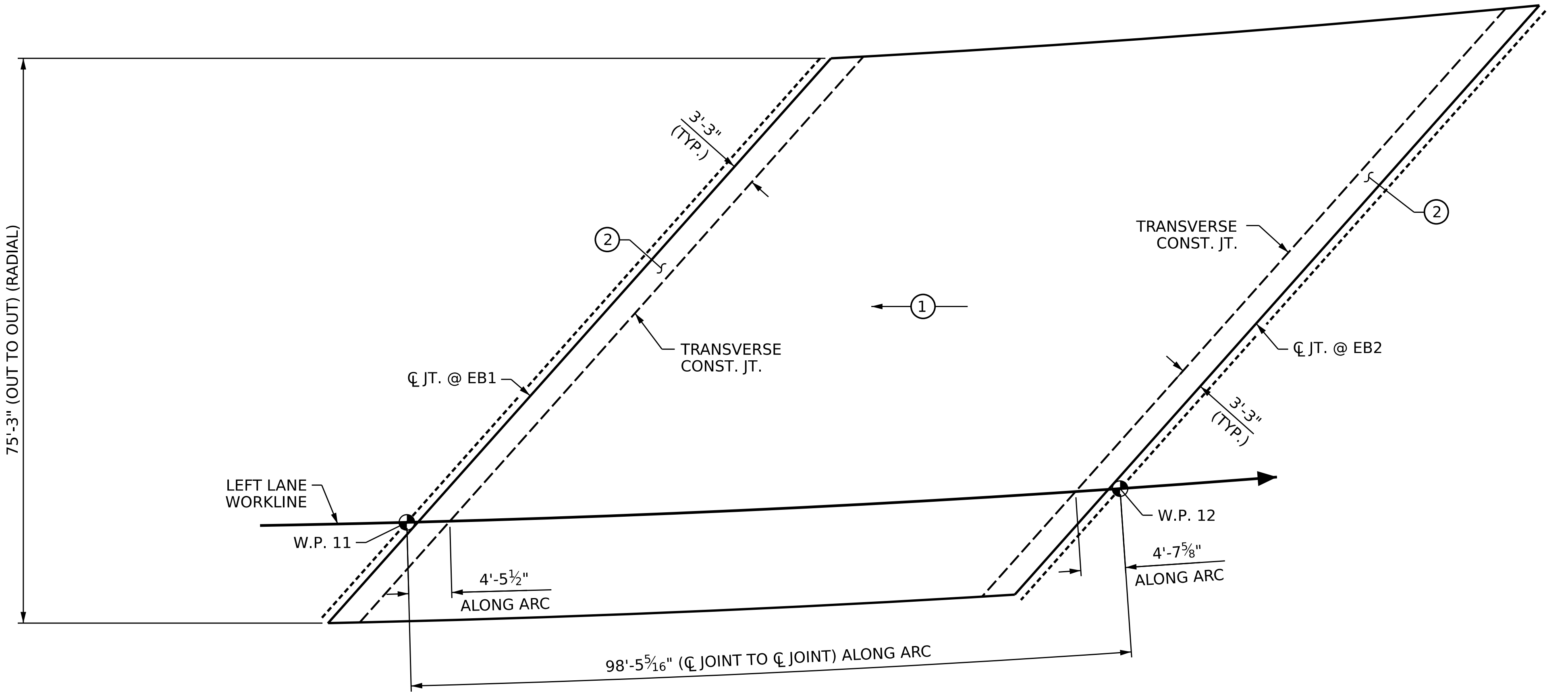
GROOVING BRIDGE FLOORS

APPROACH SLABS	4,253 SQ. FT.
BRIDGE DECK	6,644 SQ. FT.
TOTAL	10,898 SQ. FT.



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB

(SQ. FT. = 7,259)



POURING SEQUENCE - PLAN

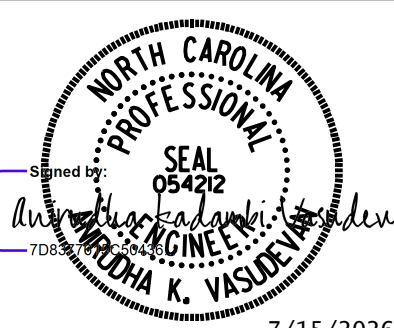
(POUR #2 CANNOT BE STARTED UNTIL
ADJACENT POUR #1 REACHES A MINIMUM OF 3000 PSI.)

① → INDICATES POUR DIRECTION AND NUMBER

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

BILL OF MATERIAL
(LEFT LANE)

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

SHEET NO.
S9-26
TOTAL SHEETS
46

DRAWN BY :	M. CATER	DATE :	01/2024
CHECKED BY :	A.K. VASUDEVAN	DATE :	02/2024
DESIGN ENGINEER OF RECORD:	A. VASUDEVAN	DATE :	03/2026

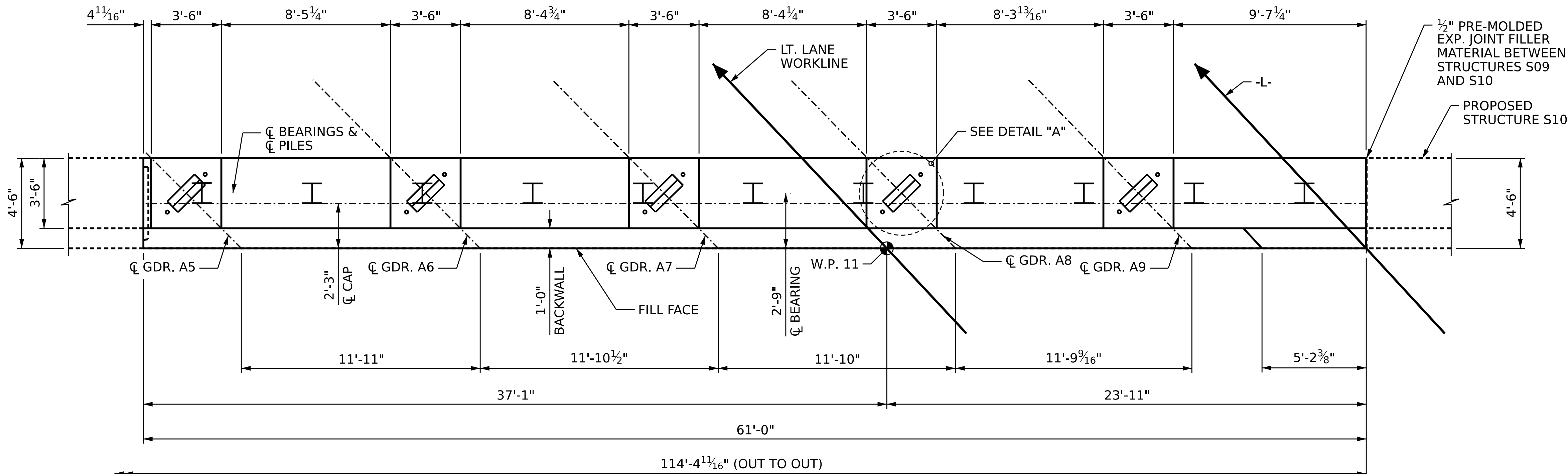
NOTES:

FOR SECTION C-C, SEE SHEET 3 OF 5.

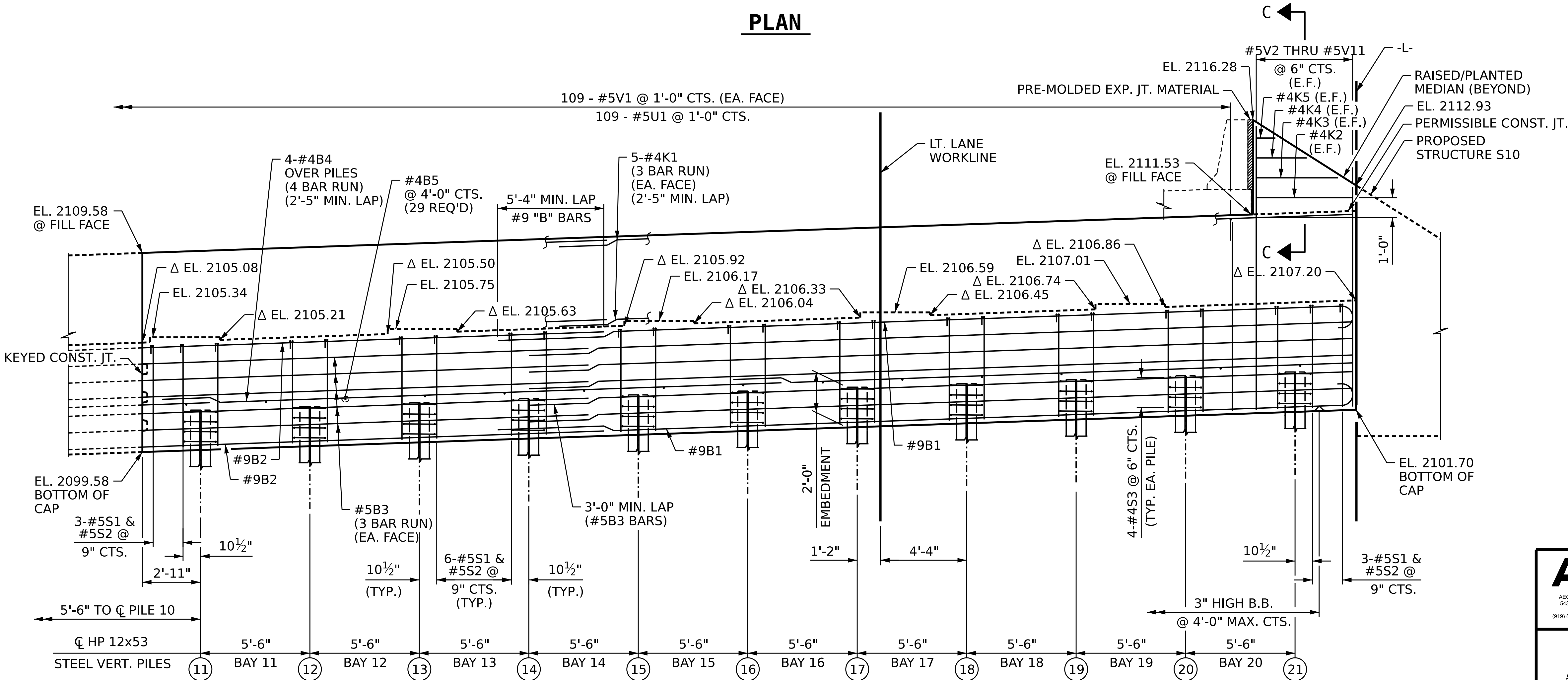
FOR DETAIL "A", SEE SHEET 4 OF 5.

THE PORTION OF BACKWALL IN POUR #2 ABOVE THE PERMITTED CONSTRUCTION JOINT MAY BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

MEDIAN WALL #4 "K" BARS SHALL BE FIELD CUT AS NEEDED TO FIT SKEW.



PLAN

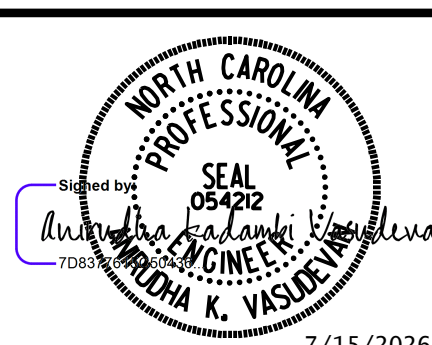


ELEVATION

TOP OF PILE ELEVATIONS	
PILE NO.	PILE CUTOFF ELEV.
11	2101.68
12	2101.87
13	2102.06
14	2102.25
15	2102.44
16	2102.64
17	2102.83
18	2103.02
19	2103.21
20	2103.40
21	2103.59

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 2 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

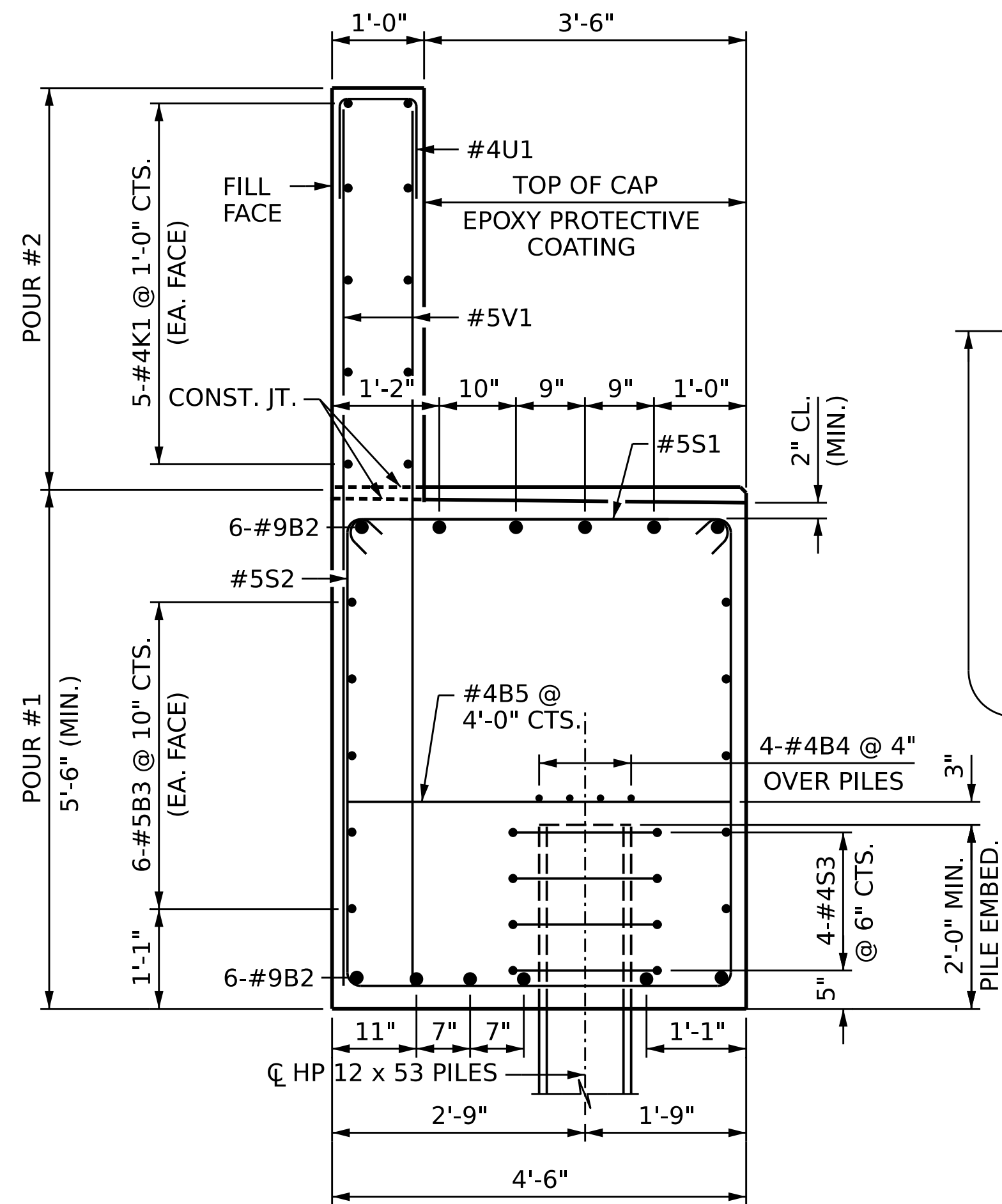
END BENT 1
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S9-29
2			4			TOTAL SHEETS 46

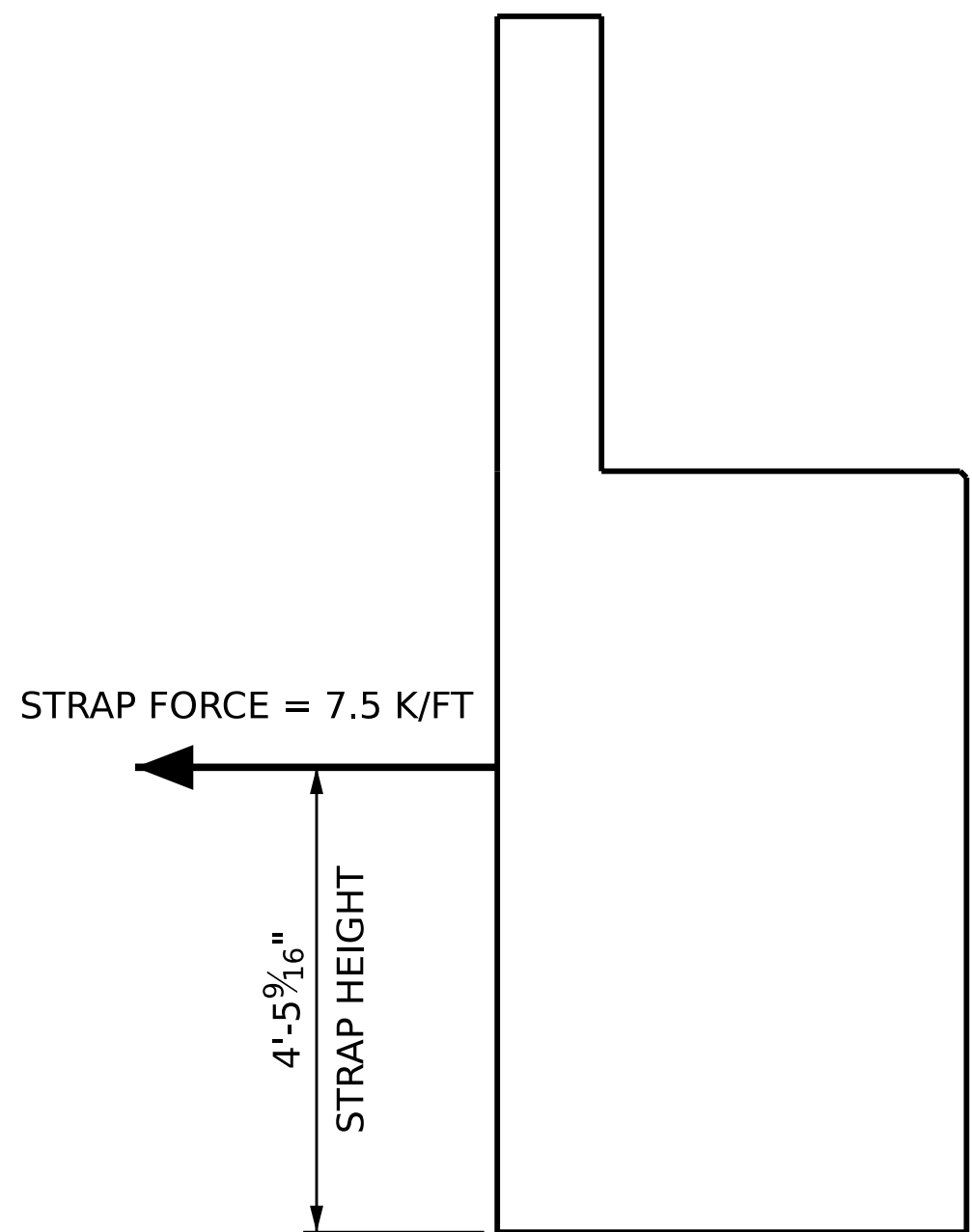
DRAWN BY : A.R. VAN VUREN / M. CATER DATE : 03/2026
CHECKED BY : A.K. VASUDEVAN DATE : 03/2026
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

Δ FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS, SEE SECTION A-A ON SHEET 3 OF 4.

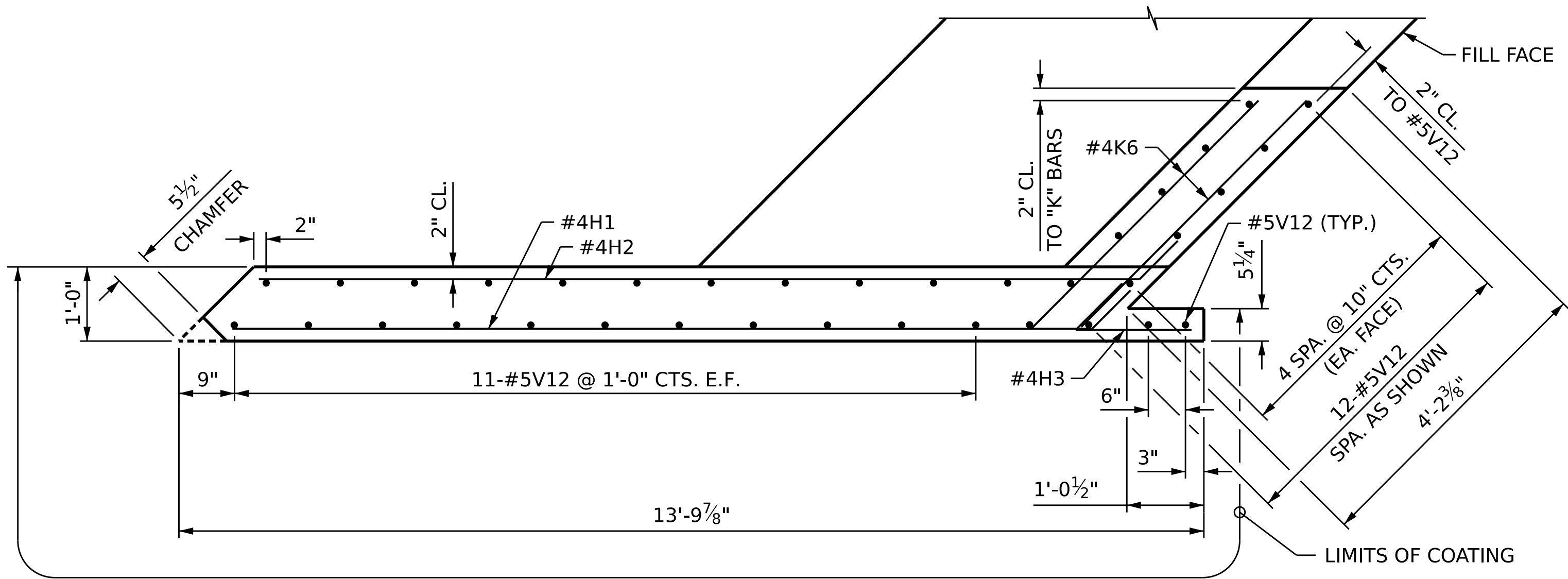
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



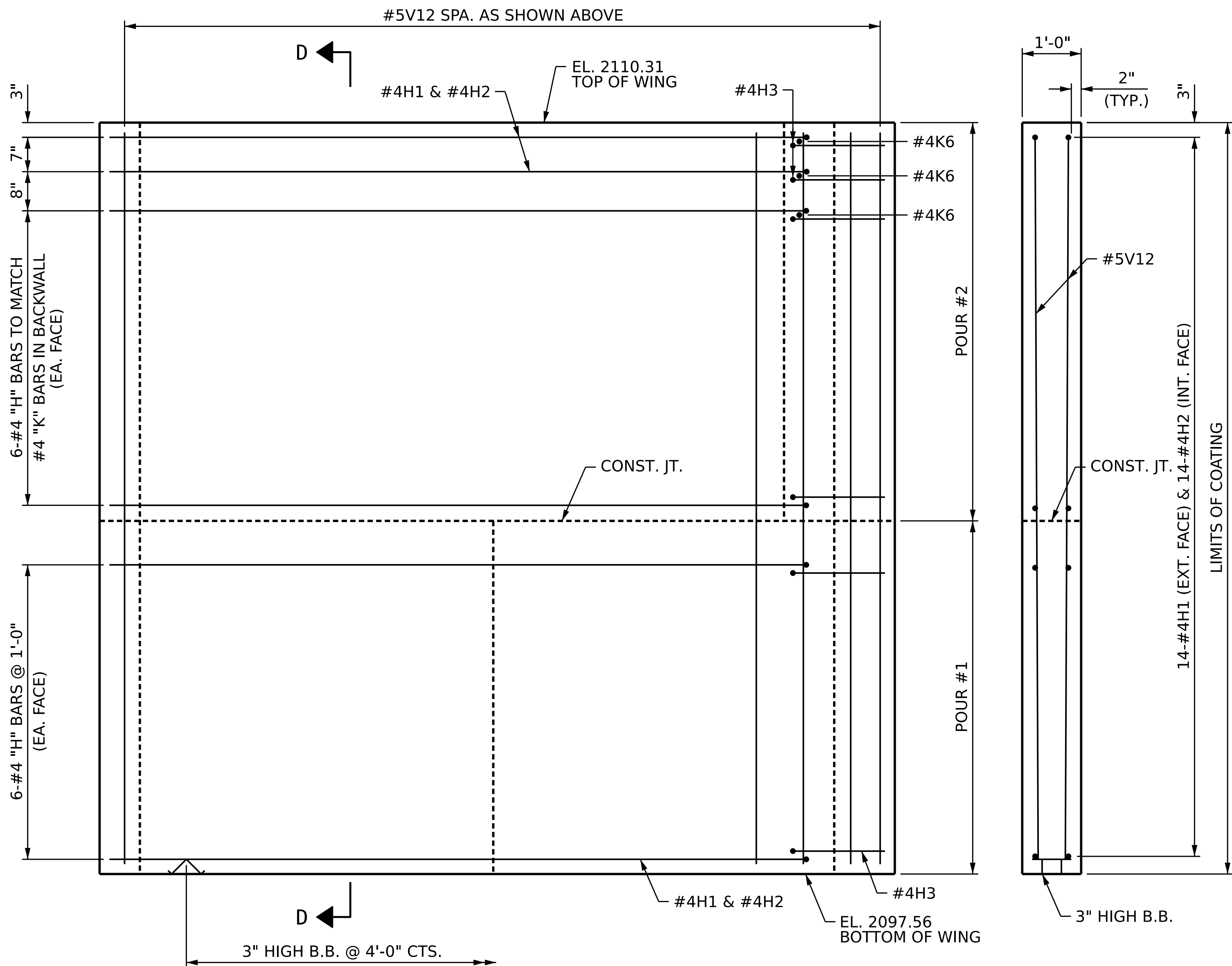
SECTION A-A



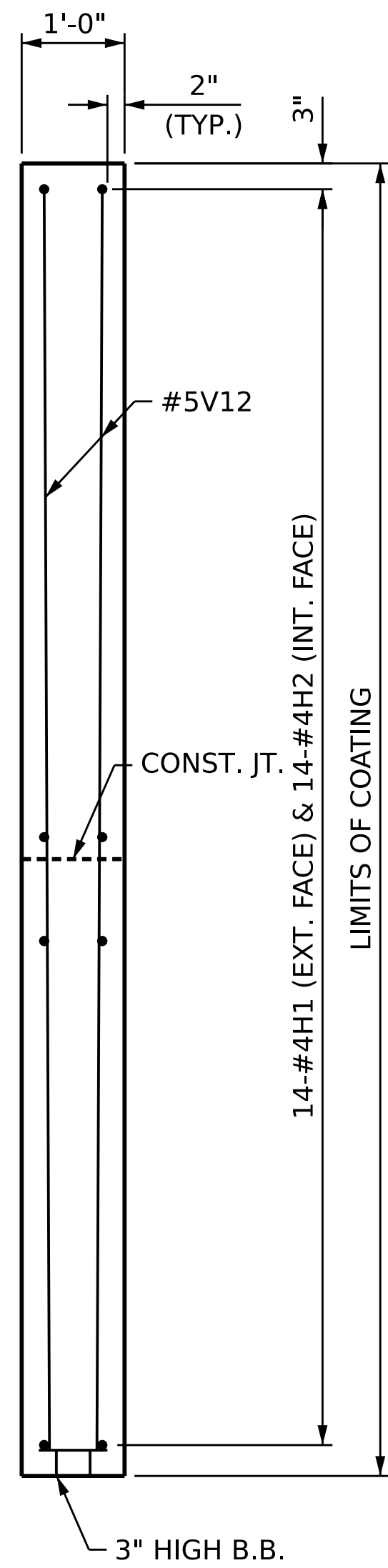
STRAP FORCE



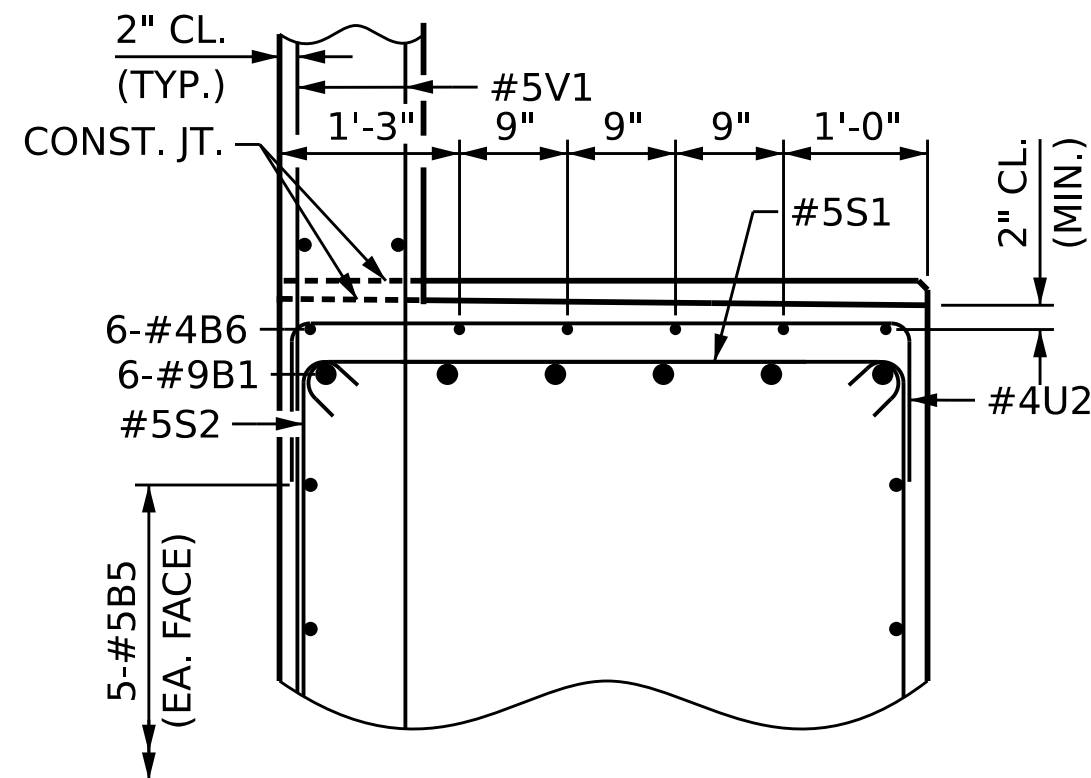
PLAN OF WING W1



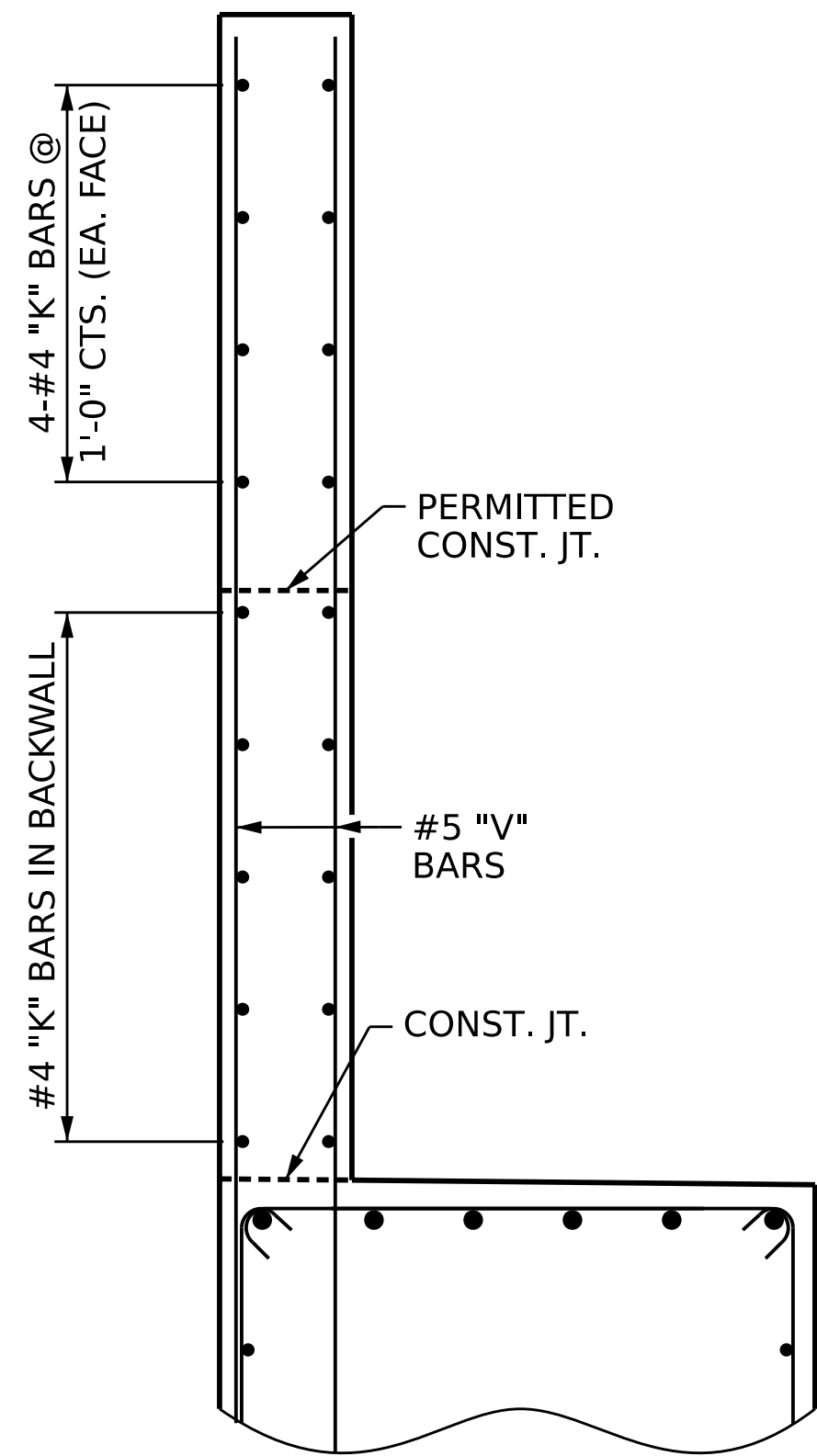
ELEVATION OF WING W1



SECTION D-D



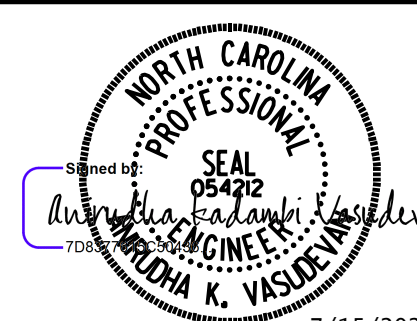
PARTIAL SECTION B-B



PARTIAL SECTION C-C

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 3 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

SECTIONS

(LEFT LANE)

REVISIONS

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

SHEET NO.	S9-30
TOTAL SHEETS	46

DRAWN BY : A.R. VAN VUREN / M. CATER DATE : 03/2026
CHECKED BY : A.K. VASUDEVAN DATE : 03/2026
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NOTES:

MSE WALL NO. 24 PLANS SHALL BE COORDINATED CLOSELY WITH THIS PLAN SET TO ACHIEVE THE INTENDED AESTHETIC APPEARANCE. THE USE OF CUSTOM CAST-IN-PLACE (CIP) OR PRECAST COPINGS SHALL BE USED TO CREATE THE INTEGRATED APPEARANCE BETWEEN BRIDGE AND WALL ELEMENTS.

THE MSE CORNER COPING SHALL BE CONSTRUCTED SUCH THAT THE LIMITS ARE CO-PLANAR WITH THE BRIDGE WINGWALL.

SHOP DRAWINGS FOR EACH WALL SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION OF THE WALL OR BRIDGES.

THE CONTRACTOR SHALL SUBMIT METHODS FOR CONSTRUCTING THE WALL TO ACHIEVE THE INTENDED APPEARANCE.

① DIM "X" SHALL BE SET TO PROVIDE 6" MINIMUM BEYOND THE BACK OF THE PRECAST FASCIA PANEL SUSPENDED FROM THE BRIDGE DECK OVERHANG.

ALL MSE WALL PANELS, NOT INCLUDING COPING, SHALL USE FORMLINER IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR ARCHITECTURAL SURFACE TREATMENT.

ALL COPING ELEMENTS FOR RETAINING WALLS AT BRIDGE 9 SHALL BE SMOOTH AND COATED COLOR FS#33522. SEE "APPLICATION OF BRIDGE COATING" SPECIAL PROVISION. FOR COATINGS ON MSE WALL, COST OF COATING COPING ELEMENTS IS CONSIDERED INCIDENTAL TO THE WALL. COATINGS ON THESE WALLS SHALL BE APPLIED AT THE SAME TIME AS COATINGS ON THE BRIDGES AND SHALL USE THE SAME MATERIAL.

② DIMENSION IS APPROXIMATE. PRECAST CONCRETE FASCIA PANEL SHALL BE ADJUSTED IF, AFTER CONSTRUCTING THE BRIDGE SUPERSTRUCTURE BUT BEFORE CONSTRUCTING THE PRECAST CONCRETE FASCIA, THIS DIMENSION WILL EXCEED 5" OR BE LESS THAN 1" BASED ON THE DIMENSIONS SHOWN ON THE "PRECAST CONCRETE FASCIA DETAILS" SHEETS.

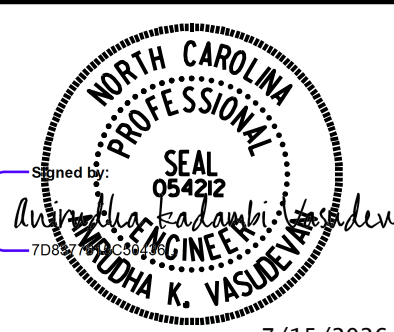
③ CORNER COPING SHALL BE PRECAST OR CAST-IN-PLACE DIRECTLY UNDER THE LIMITS OF THE END BENT CAP AND WINGWALL. COPING SEGMENTS SHALL BE 2' TALL, INCLUDING A 1" (NOMINAL) JOINT. CONSTRUCT THE COPING SEGMENTS SUCH THAT THE TOP SEGMENT DIRECTLY UNDER THE END BENT IS 2', AND ANY NON-STANDARD SEGMENTS ARE BELOW THE GROUNDLINE.

MSE WALL PANEL FORMLINER SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR ARCHITECTURAL CONCRETE SURFACE TREATMENT.

THE FULL COST FOR CONSTRUCTING APPLICABLE MSE WALLS, INCLUDING SHOP DRAWINGS, MEANS AND METHODS, COPING DETAILS, MATERIALS AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE FOR MSE WALL NO. 24, NO SEPARATE PAYMENT SHALL BE MADE FOR COORDINATION OF BRIDGE AND WALL ITEMS.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 5 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

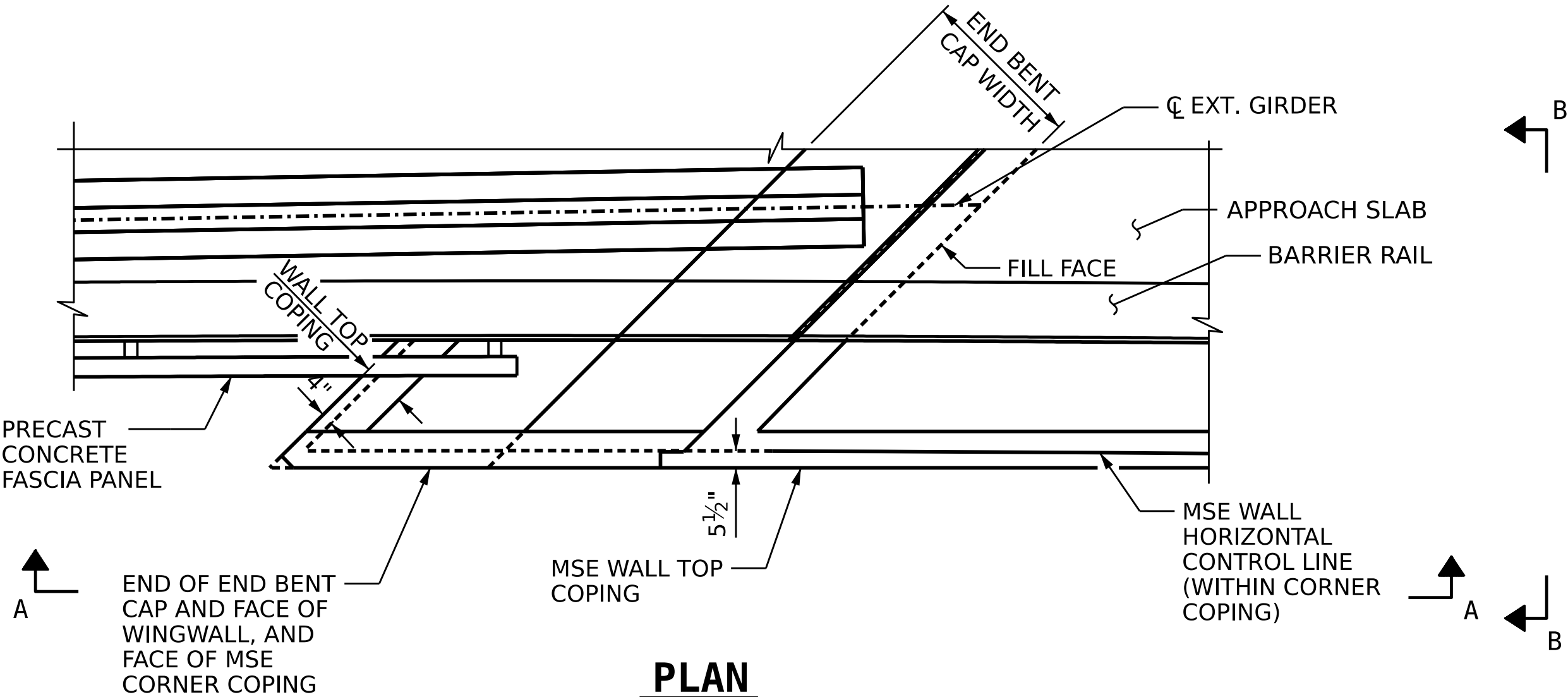
END BENT 1

MSE WALL & AESTHETIC
PRECAST PANEL DETAILS
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S9-32
2			4			

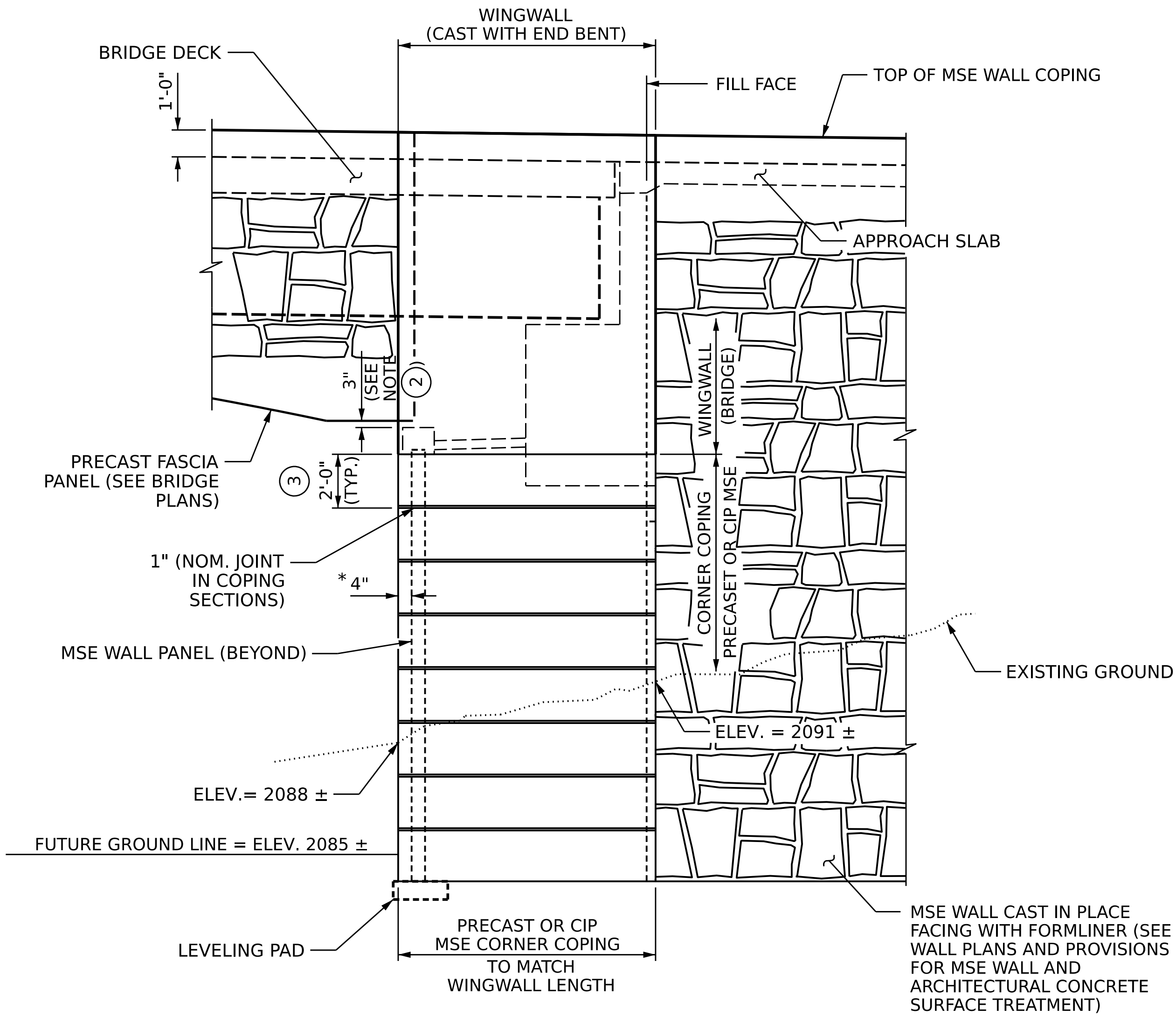
TOTAL
SHEETS
46

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PLAN

(SOUND BARRIER WALL NOT SHOWN FOR CLARITY)

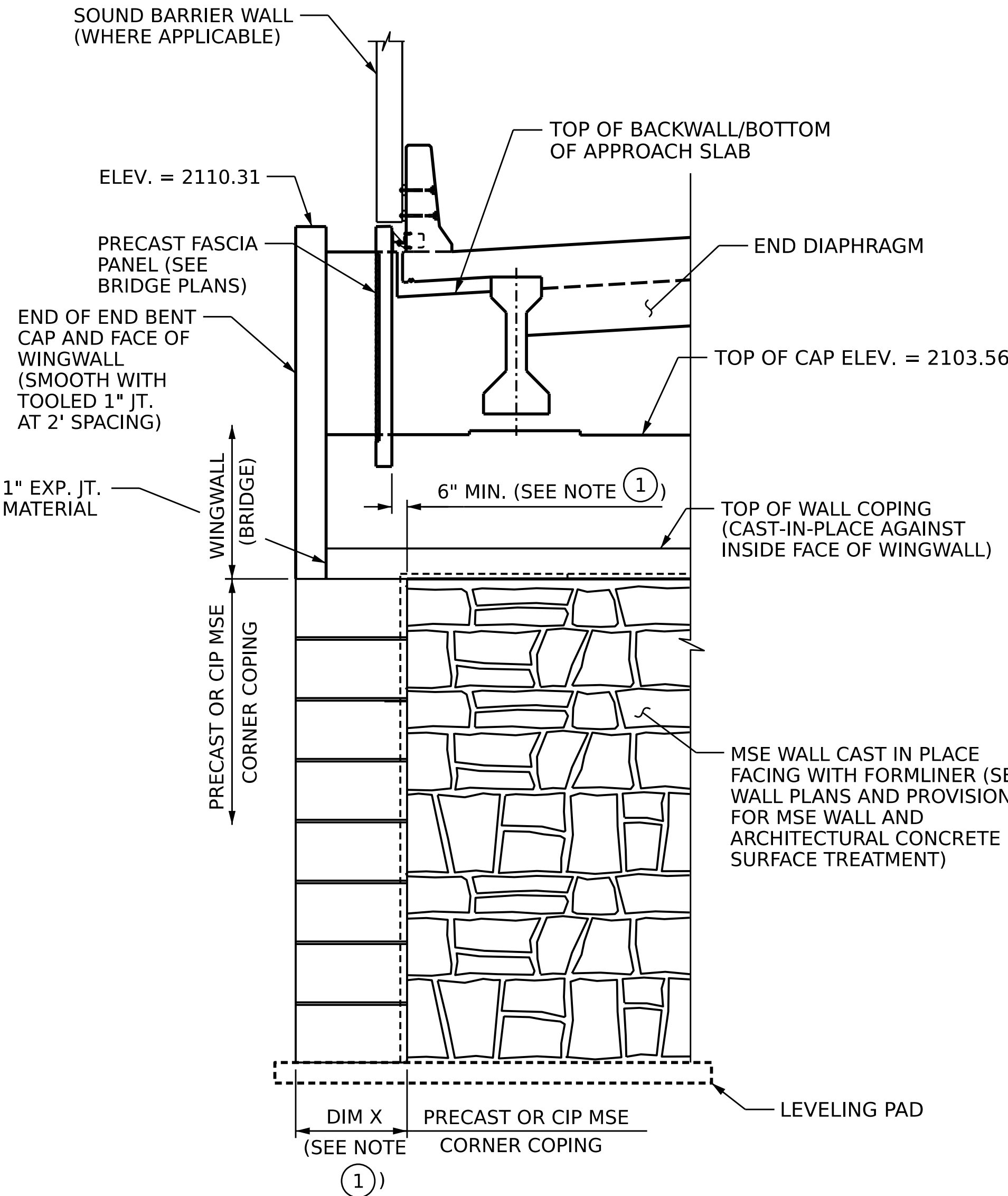


VIEW A-A

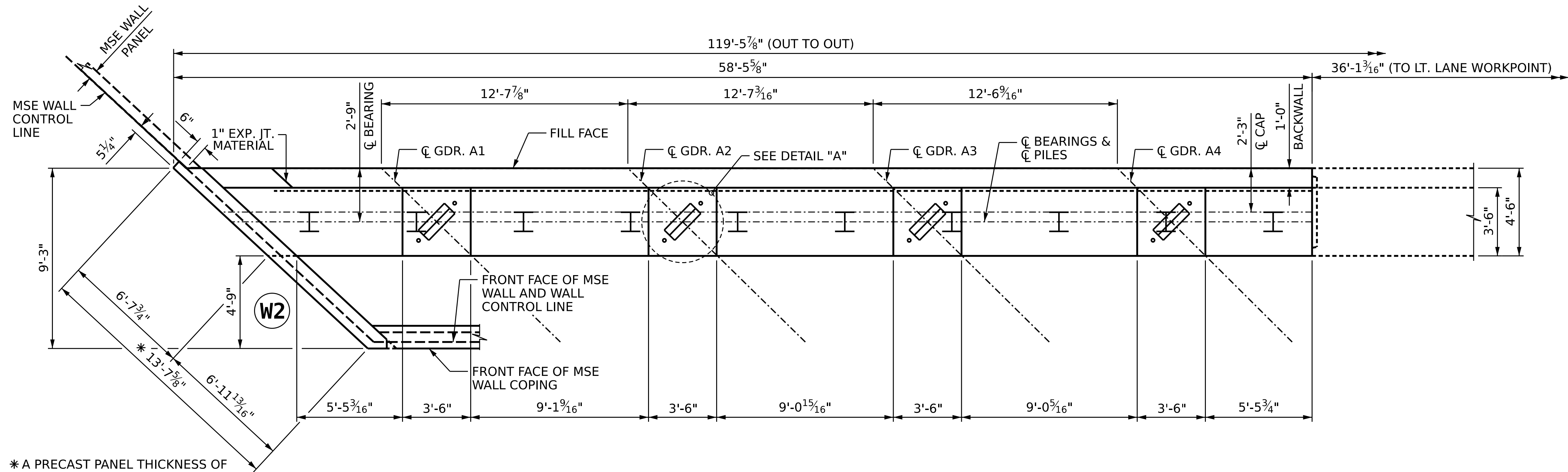
VIEW IS PROJECTED ONTO VIEW PROJECTION
LINE ALONG SKEW (SEE PLAN)

DRAWN BY : M. CATER DATE : 03/2026
CHECKED BY : A. VASUDEVAN DATE : 03/2026
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

7/13/2026
C:\pwworking\oecom.ds21.na.2020\d0131571\409.063.12513AC.SMU.E105.S9-32.100900.dgn
caterm

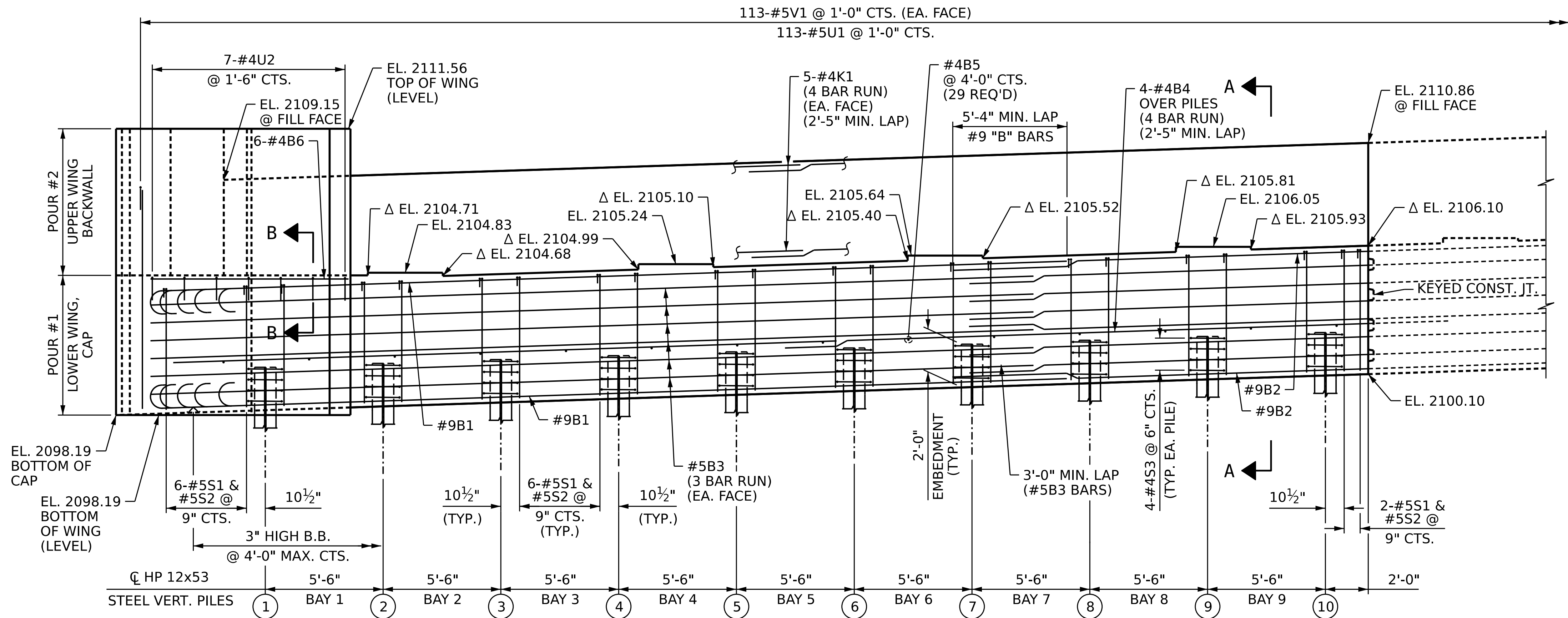


VIEW B-B



* A PRECAST PANEL THICKNESS OF 6" AND 4" OVERHANG TO FACE OF COPING WAS ASSUMED FOR ESTABLISHING WING LENGTH. CONTRACTOR SHALL ADJUST WING LENGTH AS NECESSARY.

PLAN



ELEVATION

DRAWN BY : A.R. VAN VUREN DATE : 03/2024
CHECKED BY : A.K. VASUDEVAN DATE : 03/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

Δ FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS, SEE SECTION A-A ON SHEET 3 OF 4.

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NOTES:

STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHORS.

#5 "V" BARS IN BACKWALL SHALL BE PLACED 2" CLEAR FROM TOP OF BACKWALL.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD, EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

FOR WING DETAILS, SEE SHEET 3 OF 5.

FOR SECTIONS A-A AND B-B, SEE SHEET 3 OF 5.

FOR DETAIL "A" SEE SHEET 4 OF 5.

FOR PILE SPlice DETAILS SEE SHEET 4 OF 5.

FOR TEMPORARY DRAINAGE DETAILS, SEE SHEET 4 OF 5.

SEE MSE WALL PLANS FOR MSE WALL DETAILS NOT SHOWN.

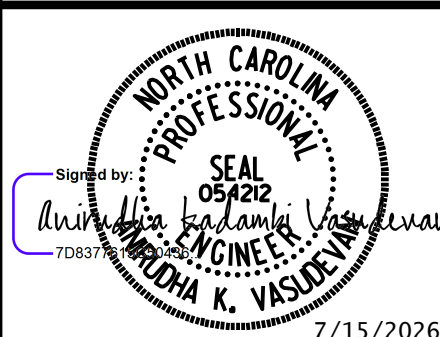
FOR FORMED RECESS DETAILS AT WING W1, SEE SHEET 4 OF 5.

THE EXPOSED SURFACE OF WINGWALL W2 AS SHOWN ON SHEET 3 SHALL BE COATED COLOR FS #33522. SEE SPECIAL PROVISIONS FOR APPLICATION OF BRIDGE COATING.

TOP OF PILE ELEVATIONS	
PILE NO.	PILE CUTOFF ELEV.
1	2100.42
2	2100.60
3	2100.78
4	2100.96
5	2100.14
6	2101.32
7	2101.50
8	2101.68
9	2101.86
10	2102.04

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 1 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S9-33
2			4			TOTAL SHEETS 46



SHEET 3 OF 5



SUBSTRUCTURE

END BENT 2

SECTIONS

(LEFT LANE)

REVISIONS						SHEET NO. S9-35
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 46
2			4			

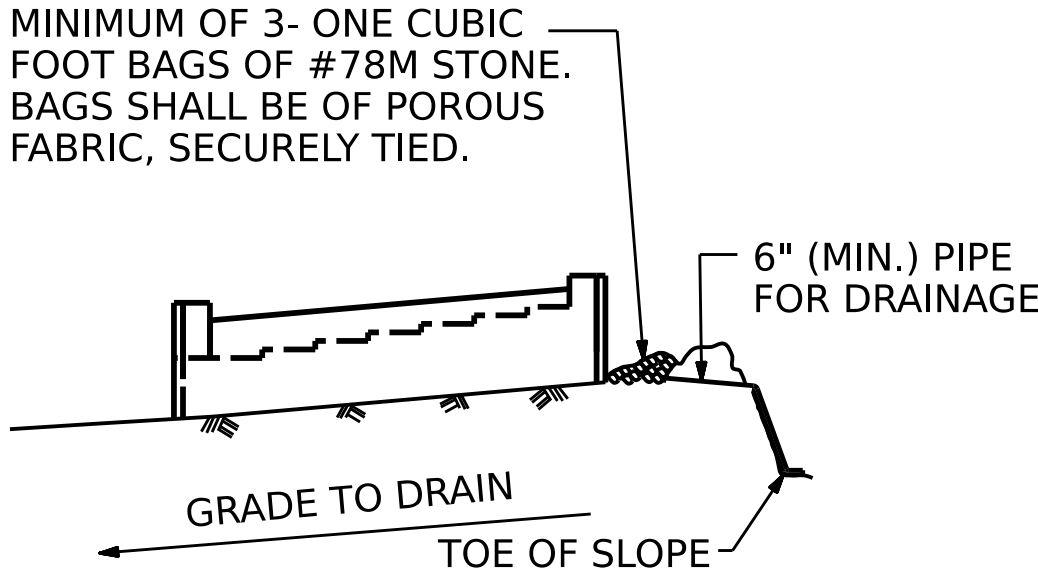
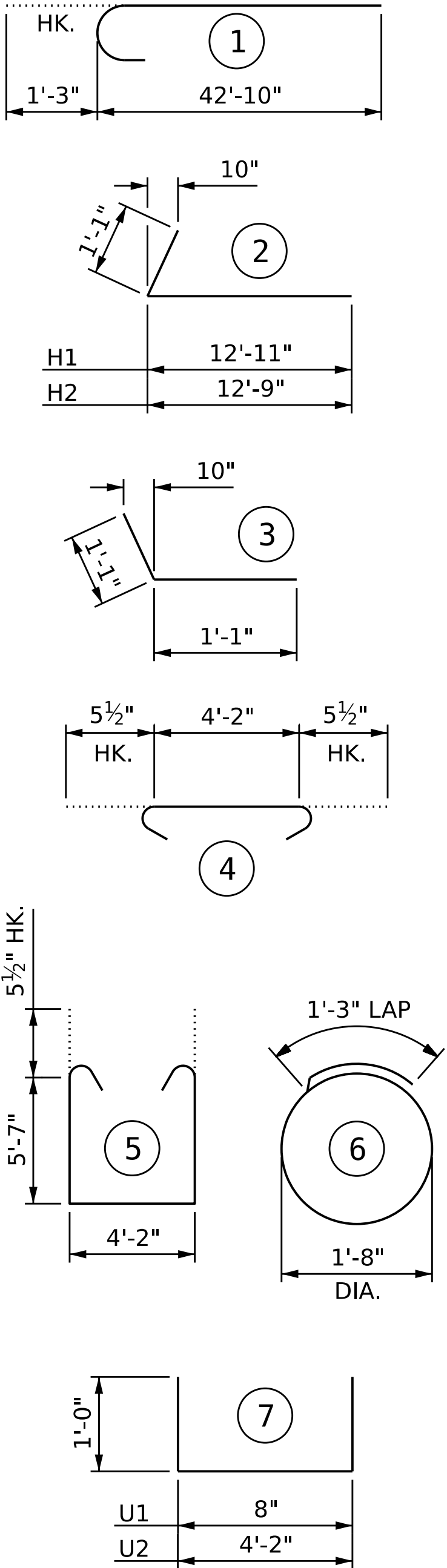
DRAWN BY :	M. CATER	DATE :	03/2026
CHECKED BY :	A.K. VASUDEVAN	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	A. VASUDEVAN	DATE :	03/2026

SECTION D-D

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	24	9	1	44'-1"	3597
B2	12	9	STR	42'-10"	1748
B3	30	5	STR	41'-3"	1291
B4	16	4	STR	31'-0"	331
B5	29	4	STR	4'-2"	81
B6	6	6	STR	11'-7"	104
H1	15	4	2	14'-0"	140
H2	15	4	2	13'-10"	139
H3	15	4	3	2'-2"	22
K1	40	4	STR	31'-7"	844
K2	2	4	STR	5'-1"	7
K3	2	4	STR	4'-7"	6
K4	2	4	STR	2'-10"	4
K5	2	4	STR	1'-1"	1
K6	4	4	STR	4'-6"	12
S1	128	5	4	5'-1"	679
S2	128	5	5	16'-3"	2169
S3	84	4	6	6'-6"	365
U1	113	4	7	2'-8"	201
U2	7	4	7	6'-2"	29
V1	113	5	STR	9'-7"	1129
V2	2	5	STR	15'-0"	31
V3	2	5	STR	14'-7"	30
V4	2	5	STR	14'-3"	30
V5	2	5	STR	13'-11"	29
V6	2	5	STR	13'-7"	28
V7	2	5	STR	13'-3"	28
V8	2	5	STR	12'-11"	27
V9	2	5	STR	12'-7"	26
V10	2	5	STR	12'-3"	26
V11	2	5	STR	11'-11"	25
V12	36	5	STR	13'-0"	488
REINFORCING STEEL				13,673 LBS.	
CLASS A CONCRETE					
POUR #1 (CAP & LOWER WINGWALL)				120.1 C.Y.	
POUR #2 (BACKWALL & UPPER WINGWALL)				64.5 C.Y.	
TOTAL =				184.6 C.Y.	
APPLICATION OF BRIDGE COATING				209.6 SQ. FT.	
NOTE: SEE GEOTECHNICAL FOUNDATION TABLES FOR ADDITIONAL PILE INFORMATION					

BAR TYPES

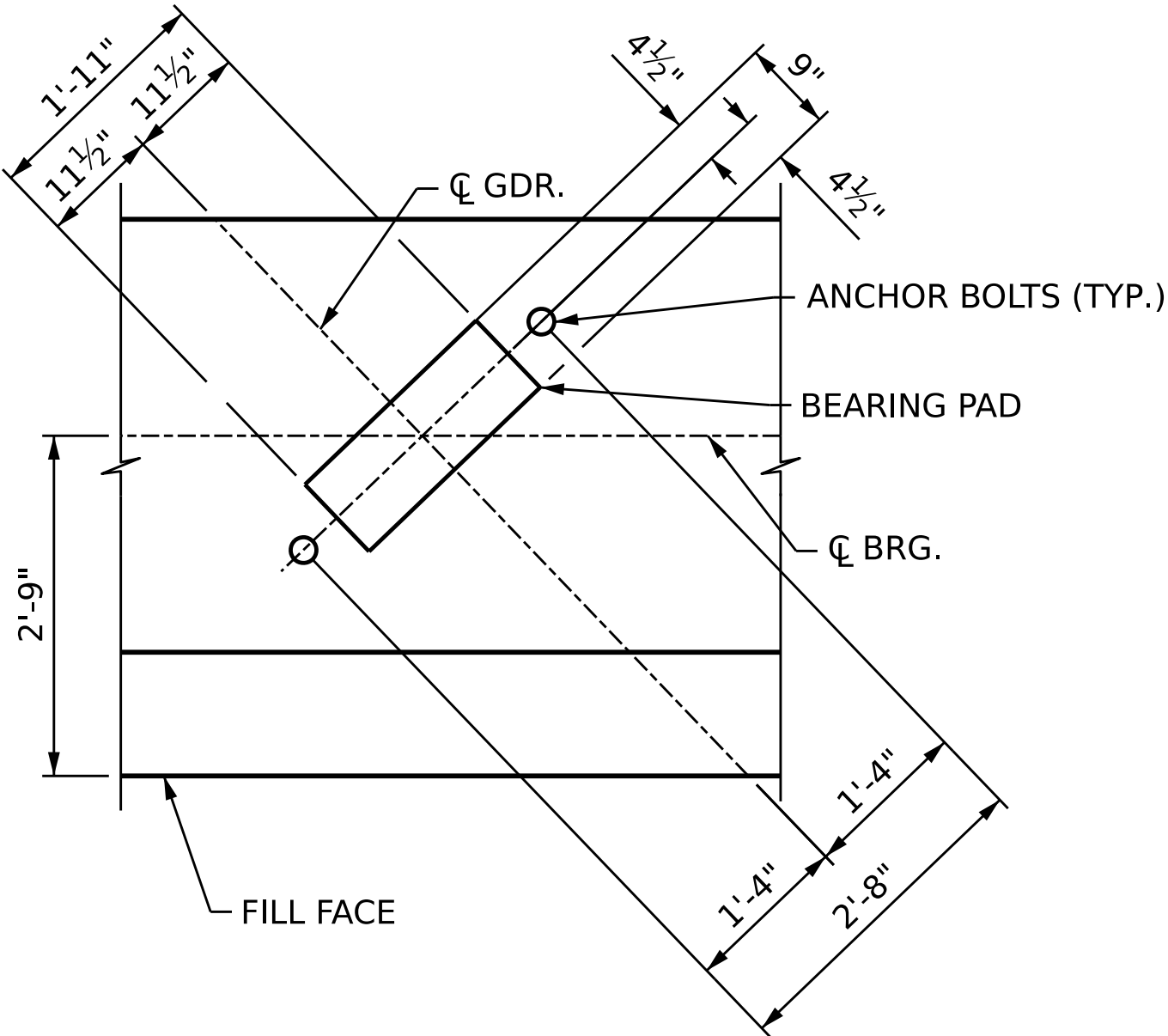


TEMPORARY DRAINAGE AT END BENT

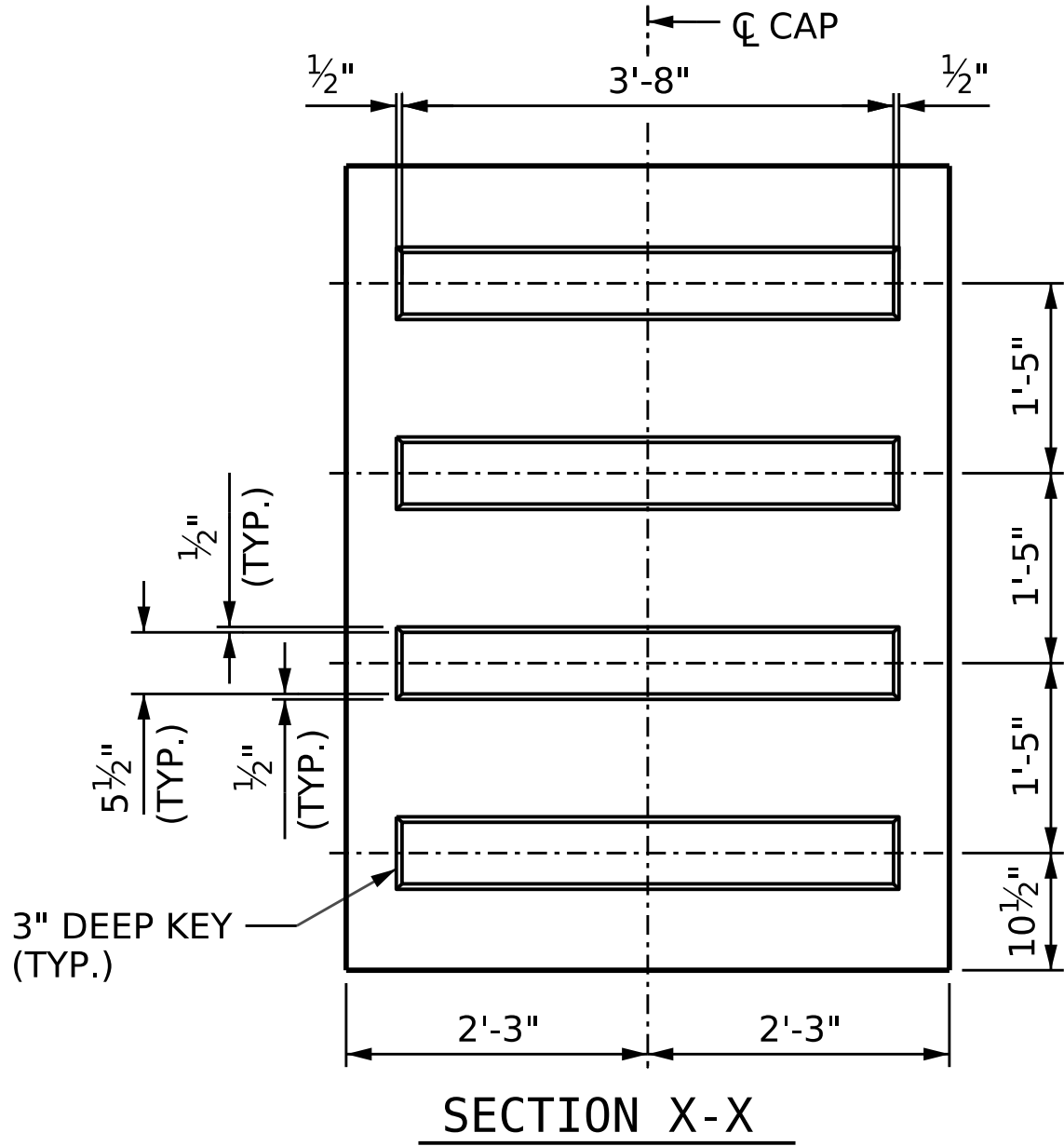
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

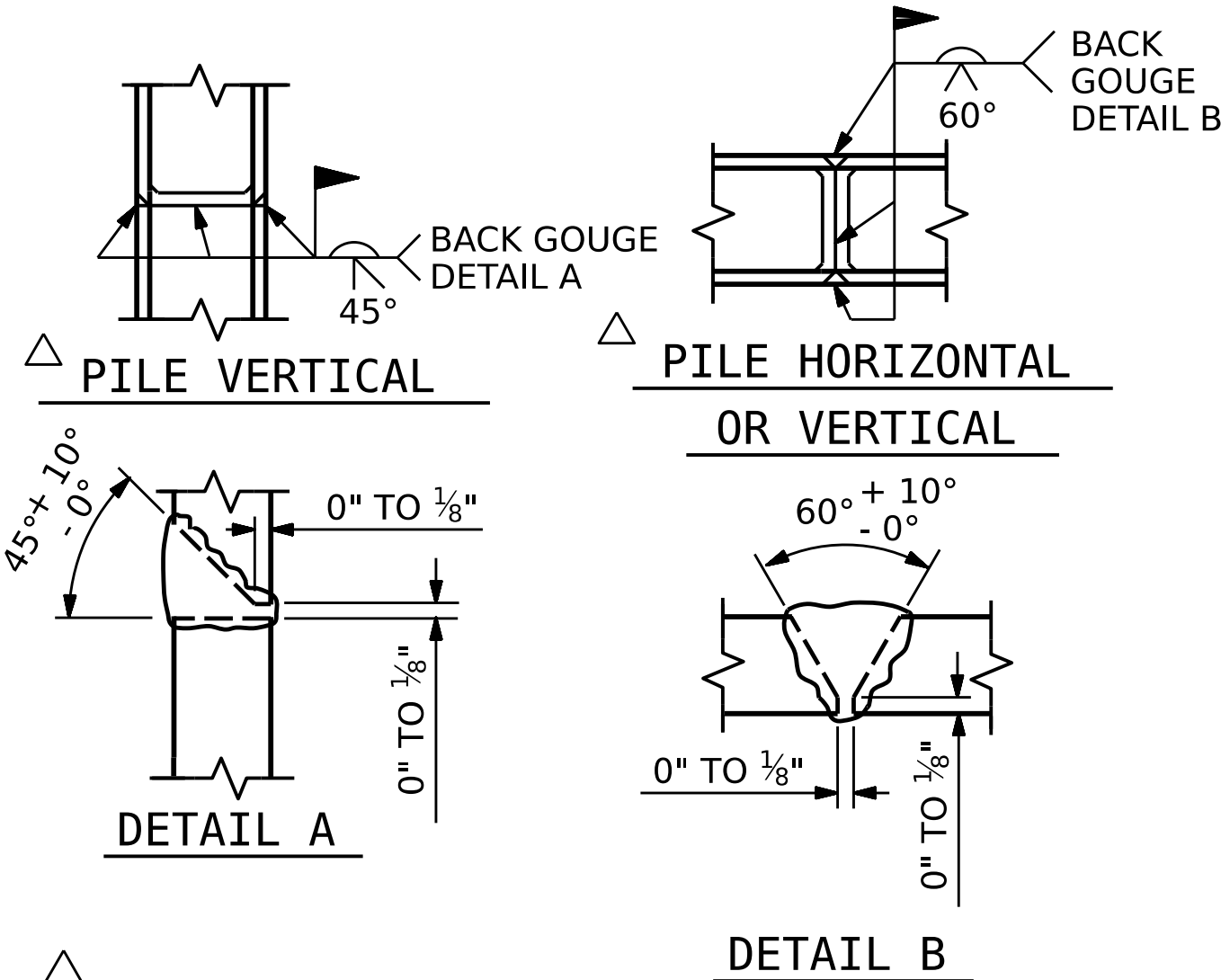
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.



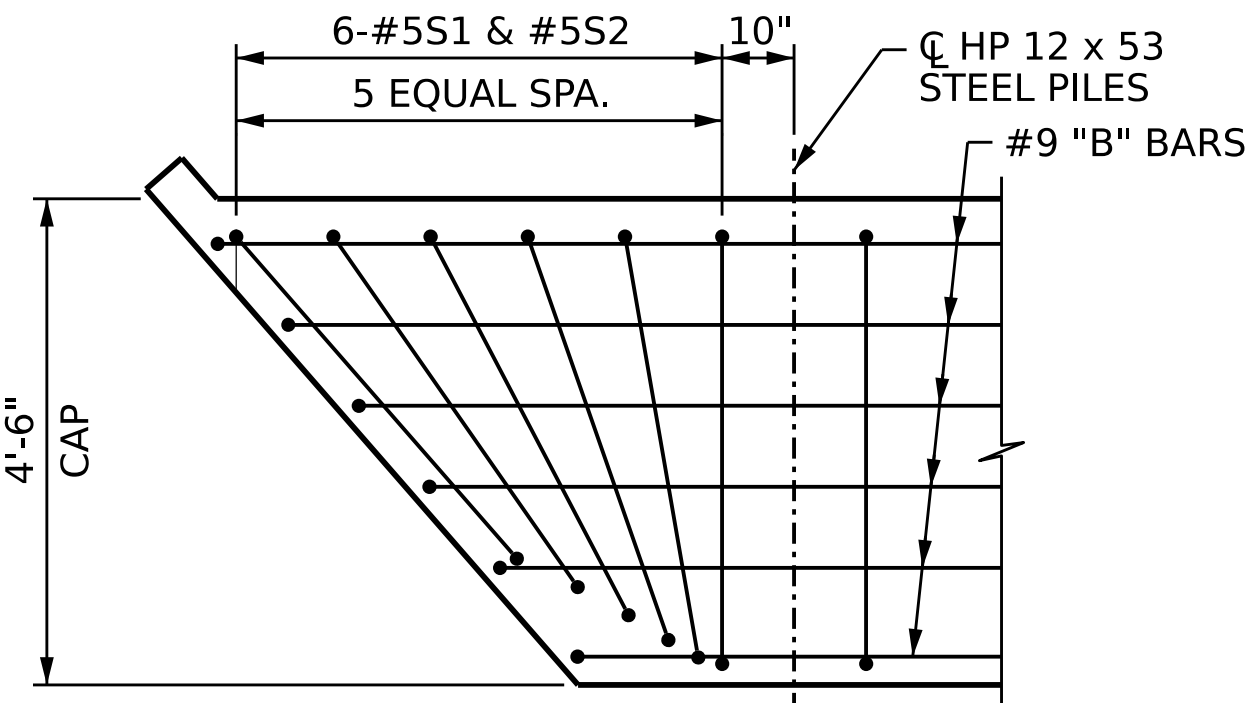
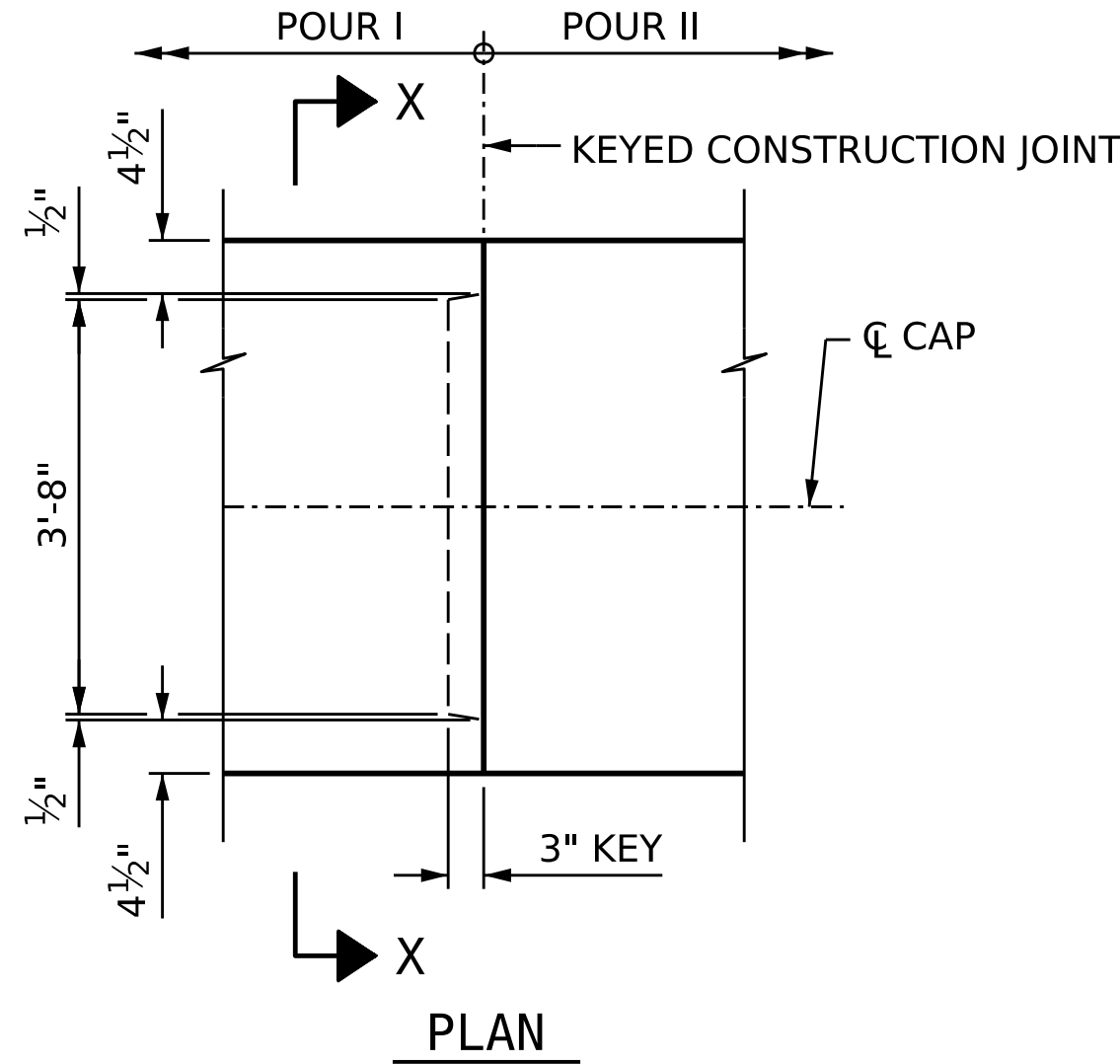
DETAIL A



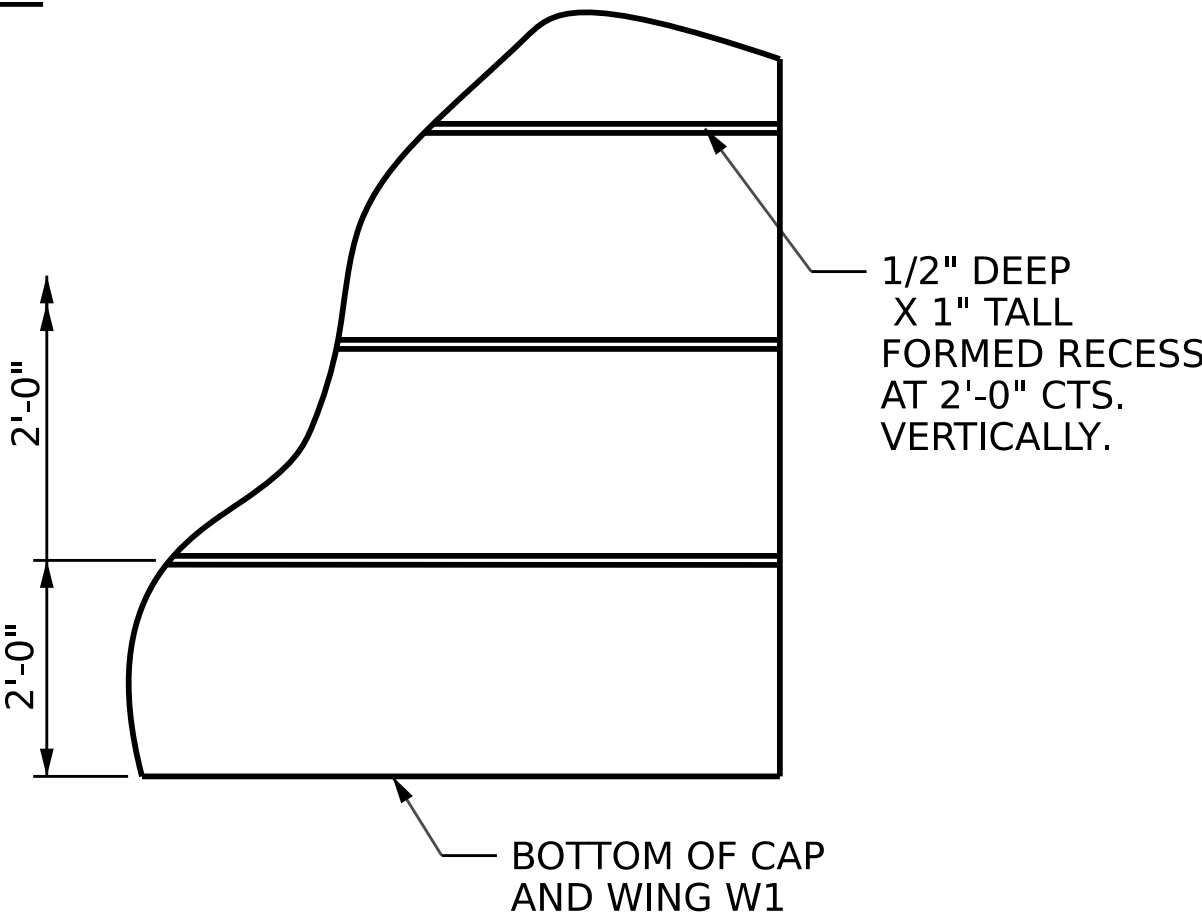
KEYED CONSTRUCTION JOINT DETAIL



PILE SPLICE DETAILS



SPLAYED BAR DETAIL



FORMED RECESS DETAIL

PROVIDE FORMED RECESS ON OUTSIDE AND END FACES OF WING W1. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF CLASS A CONCRETE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-
SHEET 4 OF 5

AECOM					
AECOM TECHNICAL SERVICES OF NC, INC. 5438 WADE PARK BOULEVARD, SUITE 200 RALEIGH, NC 27607 (919) 854-6200 www.aecom.com AECOM License No. F02342					
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2 BILL OF MATERIAL (LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S9-36 TOTAL SHEETS 46					

DRAWN BY :	A.R. VAN VUREN / M. CATER	DATE :	03/2026
CHECKED BY :	A.K. VASUDEVAN	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	A. VASUDEVAN	DATE :	03/2026

NOTES:

MSE WALL NO. 25 PLANS SHALL BE COORDINATED CLOSELY WITH THIS PLAN SET TO ACHIEVE THE INTENDED AESTHETIC APPEARANCE. THE USE OF CUSTOM CAST-IN-PLACE (CIP) OR PRECAST COPINGS SHALL BE USED TO CREATE THE INTEGRATED APPEARANCE BETWEEN BRIDGE AND WALL ELEMENTS.

THE MSE CORNER COPING SHALL BE CONSTRUCTED SUCH THAT THE LIMITS ARE CO-PLANAR WITH THE BRIDGE WINGWALL.

SHOP DRAWINGS FOR EACH WALL SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION OF THE WALL OR BRIDGES.

THE CONTRACTOR SHALL SUBMIT METHODS FOR CONSTRUCTING THE WALL TO ACHIEVE THE INTENDED APPEARANCE.

① DIM "X" SHALL BE SET TO PROVIDE 6" MINIMUM BEYOND THE BACK OF THE PRECAST FASCIA PANEL SUSPENDED FROM THE BRIDGE DECK OVERHANG.

ALL MSE WALL PANELS, NOT INCLUDING COPING, SHALL USE FORMLINER IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR ARCHITECTURAL SURFACE TREATMENT.

ALL COPING ELEMENTS FOR RETAINING WALLS AT BRIDGE 9 SHALL BE SMOOTH AND COATED COLOR FS#33522. SEE "APPLICATION OF BRIDGE COATING" SPECIAL PROVISION. FOR COATINGS ON MSE WALL, COST OF COATING COPING ELEMENTS IS CONSIDERED INCIDENTAL TO THE WALL. COATINGS ON THESE WALLS SHALL BE APPLIED AT THE SAME TIME AS COATINGS ON THE BRIDGES AND SHALL USE THE SAME MATERIAL.

② DIMENSION IS APPROXIMATE. PRECAST CONCRETE FASCIA PANEL SHALL BE ADJUSTED IF, AFTER CONSTRUCTING THE BRIDGE SUPERSTRUCTURE BUT BEFORE CONSTRUCTING THE PRECAST CONCRETE FASCIA, THIS DIMENSION WILL EXCEED 5" OR BE LESS THAN 1" BASED ON THE DIMENSIONS SHOWN ON THE "PRECAST CONCRETE FASCIA DETAILS" SHEETS.

③ CORNER COPING SHALL BE PRECAST OR CAST-IN-PLACE DIRECTLY UNDER THE LIMITS OF THE END BENT CAP AND WINGWALL. COPING SEGMENTS SHALL BE 2' TALL, INCLUDING A 1" (NOMINAL) JOINT. CONSTRUCT THE COPING SEGMENTS SUCH THAT THE TOP SEGMENT DIRECTLY UNDER THE END BENT IS 2', AND ANY NON-STANDARD SEGMENTS ARE BELOW THE GROUNDLINE.

MSE WALL PANEL FORMLINER SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR ARCHITECTURAL CONCRETE SURFACE TREATMENT.

THE FULL COST FOR CONSTRUCTING APPLICABLE MSE WALLS, INCLUDING SHOP DRAWINGS, MEANS AND METHODS, COPING DETAILS, MATERIALS AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE FOR MSE WALL NO. 25, NO SEPARATE PAYMENT SHALL BE MADE FOR COORDINATION OF BRIDGE AND WALL ITEMS.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 5 OF 5

AECOM

AECOM TECHNICAL SERVICES OF NC, INC.
5436 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

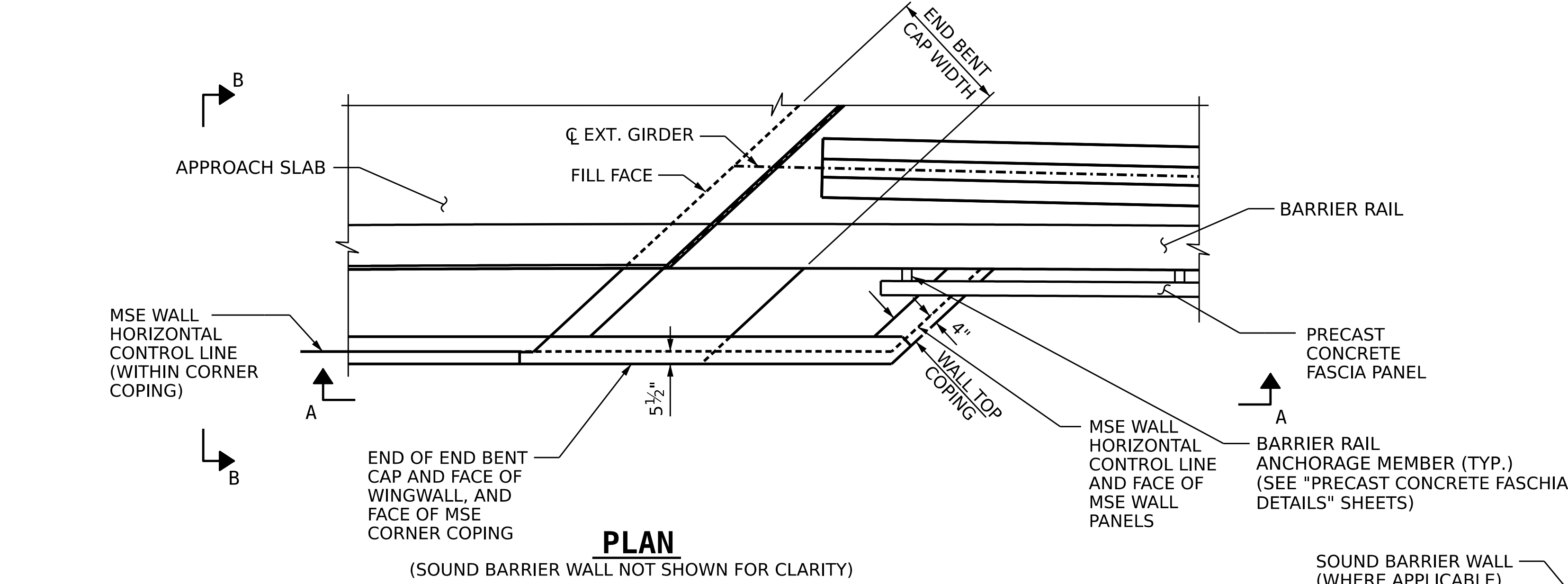
Seal of North Carolina Professional Engineer
A. VASUDEVAN
70807
7/15/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2
MSE WALL AESTHETIC DETAILS
(LEFT LANE)

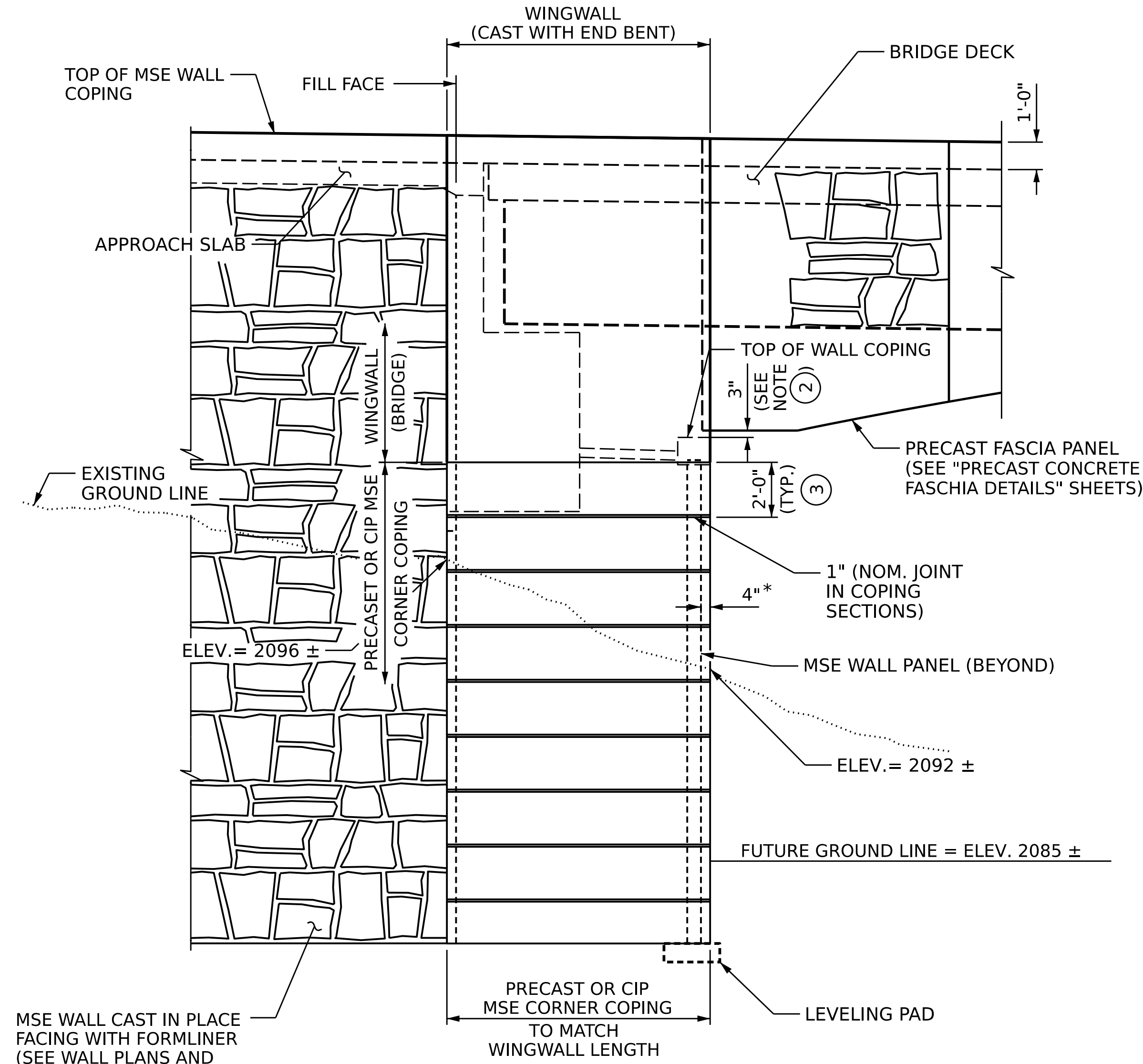
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S9-37 TOTAL SHEETS 46
2			4			

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PLAN

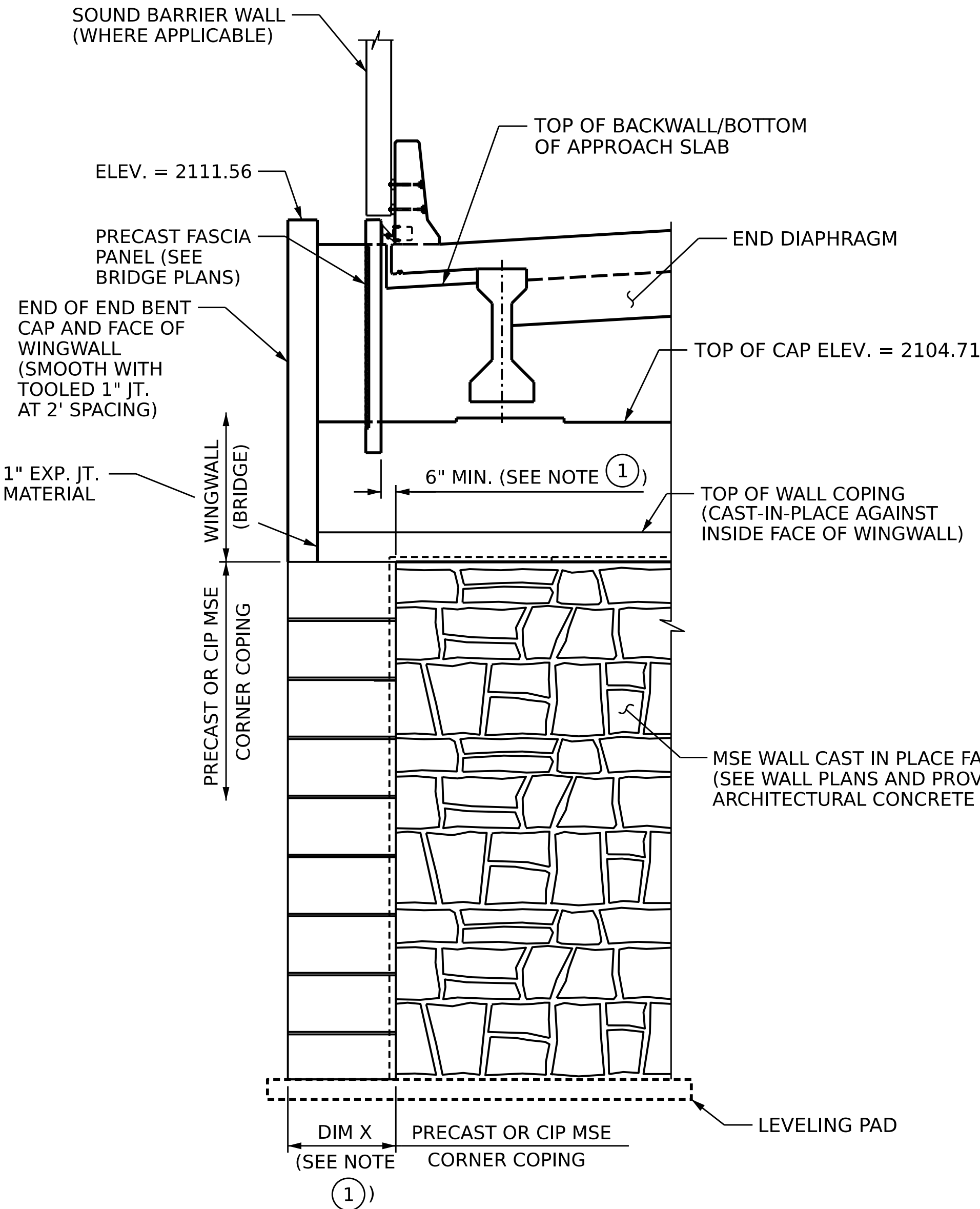
(SOUND BARRIER WALL NOT SHOWN FOR CLARITY)



VIEW A-A

VIEW IS PROJECTED ONTO VIEW PROJECTION
LINE ALONG SKEW (SEE PLAN)

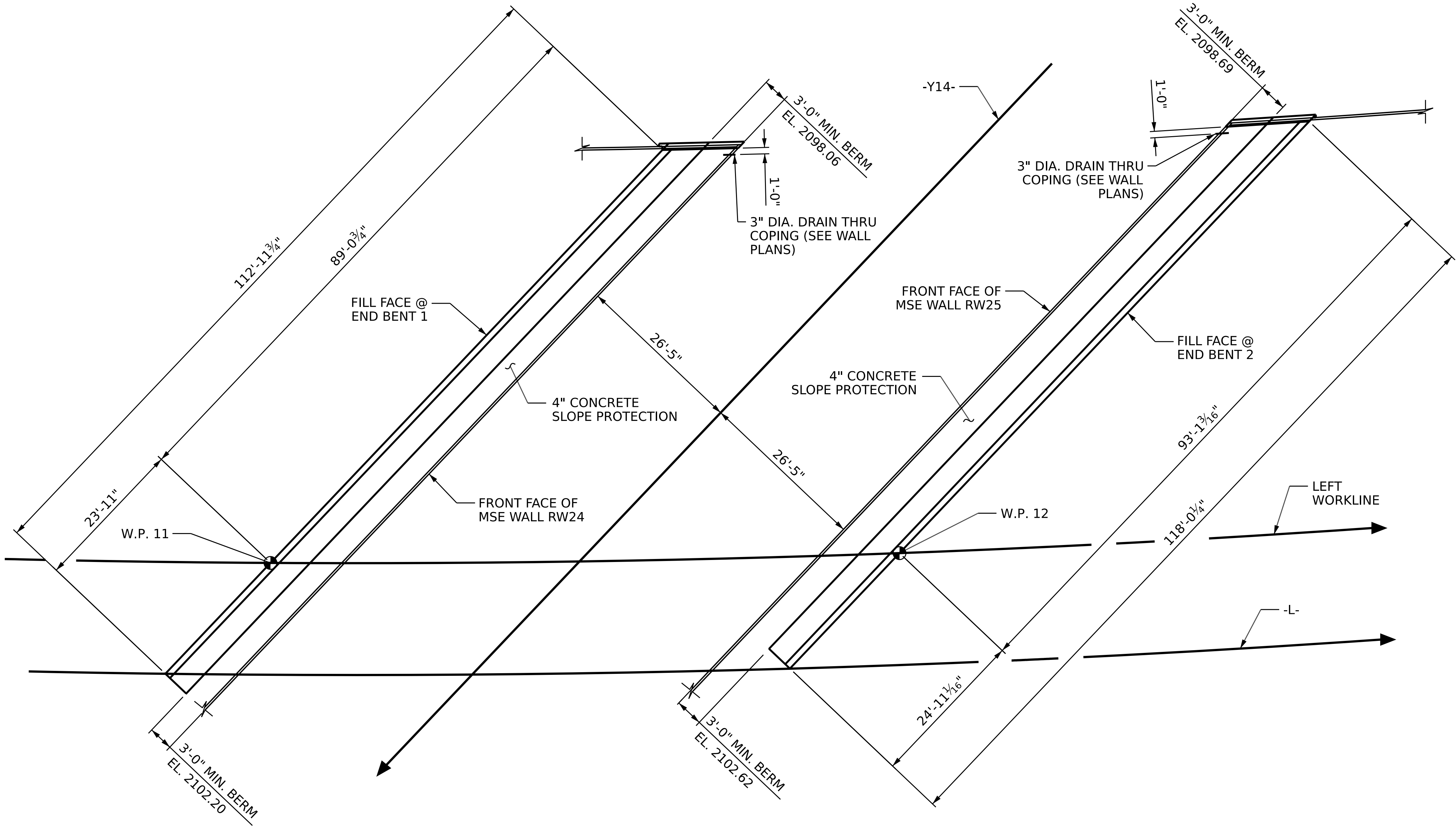
* DIMENSION NORMAL TO WALL BELOW BRIDGE



VIEW B-B

DRAWN BY : M. CATER
CHECKED BY : A. VASUDEVAN
DESIGN ENGINEER OF RECORD: A. VASUDEVAN
DATE : 03/2026
DATE : 03/2026
DATE : 03/2026

ESTIMATED QUANTITIES		
BRIDGE @ STA. 150+49.43 -L- LEFT LANE	4" SLOPE PROTECTION	WELDED WIRE FABRIC 60" WIDE
	SQ. YDS.	APPROX. LF
END BENT 1	52.6.	123.0
END BENT 2	55.1	115.0
TOTAL	107.7	238.0



END BENT 1

PLAN

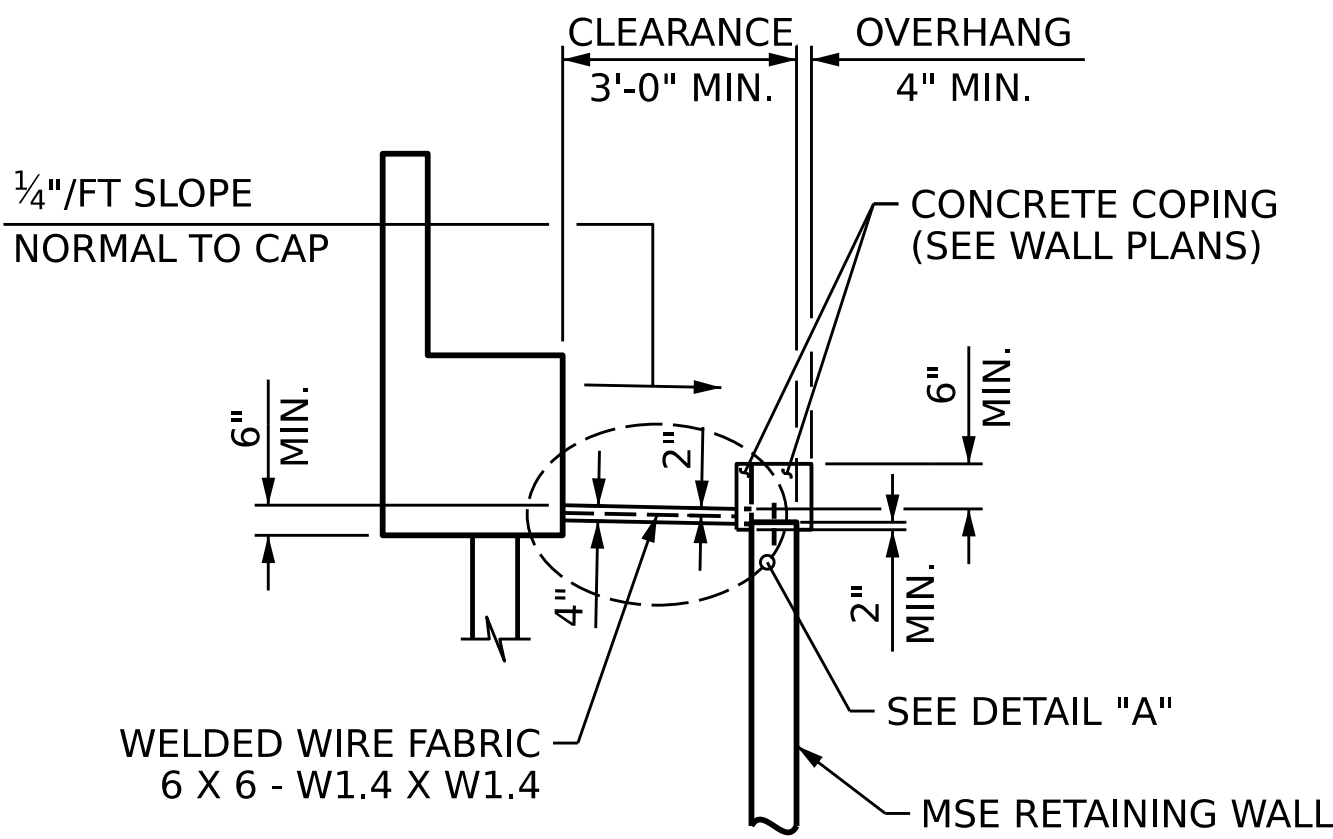
END BENT 2

NOTES:

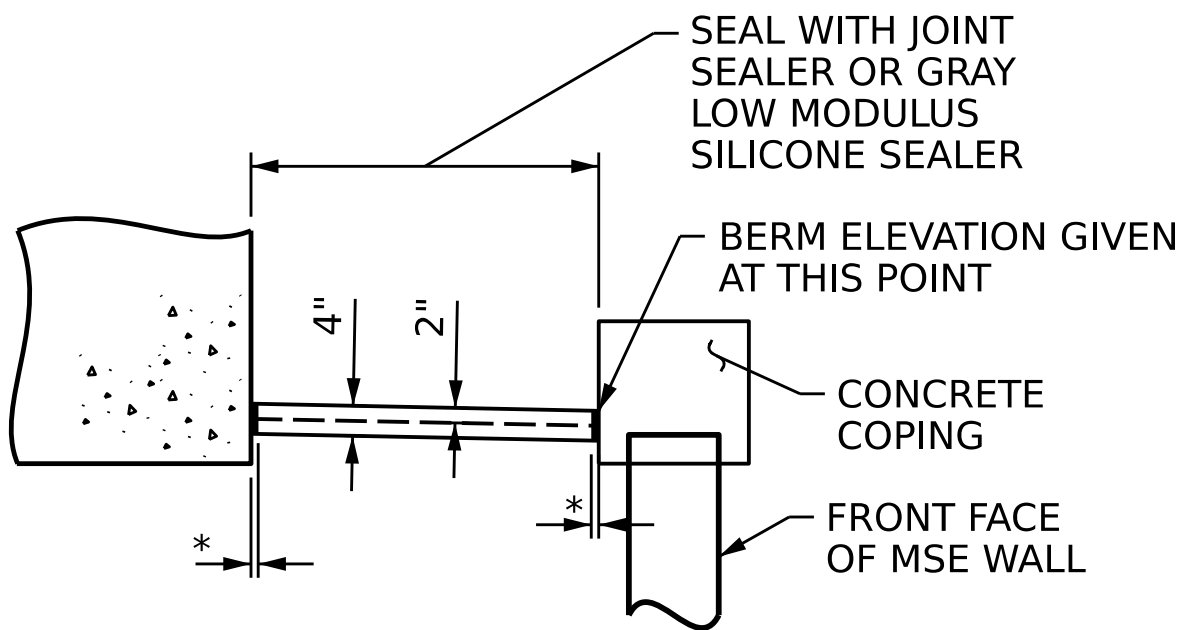
FOR BERM ELEVATIONS, SEE GENERAL DRAWINGS.

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 - W1.4.60" 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.

FOR DRAINAGE DETAILS BEHIND RETAINING WALLS, SEE RETAINING WALLS SHEETS.

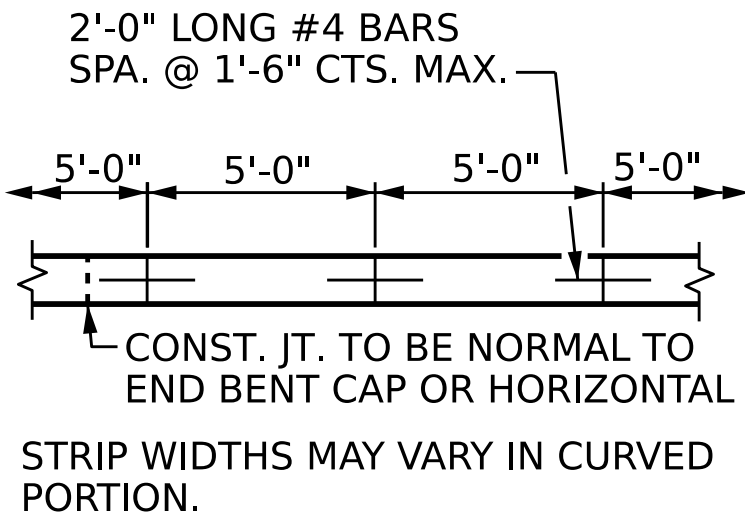


SECTION AT END BENT

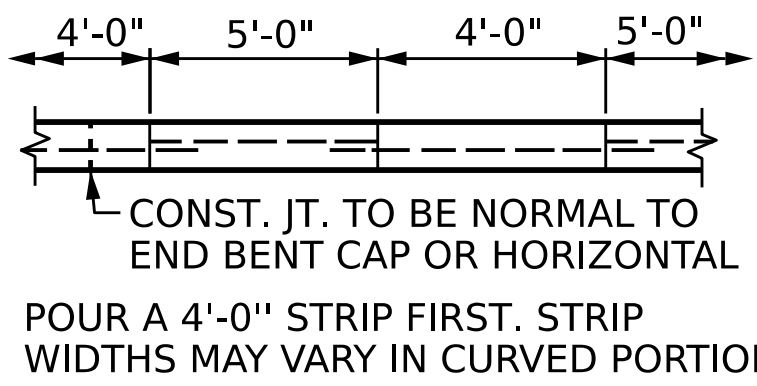


DETAIL "A"

* 1" EXP. JT. MAT'L (PLACE DEBONDING TAPE ON TOP OF EXP. JT. MAT'L)



POURING DETAIL



OPTIONAL POURING DETAIL

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 1 OF 1



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SLOPE PROTECTION
DETAILS

(LEFT LANE)

DRAWN BY : T. NEAL DATE : 12/2023
CHECKED BY : A. VASUDEVAN DATE : 01/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S9-38
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 46
2			4			



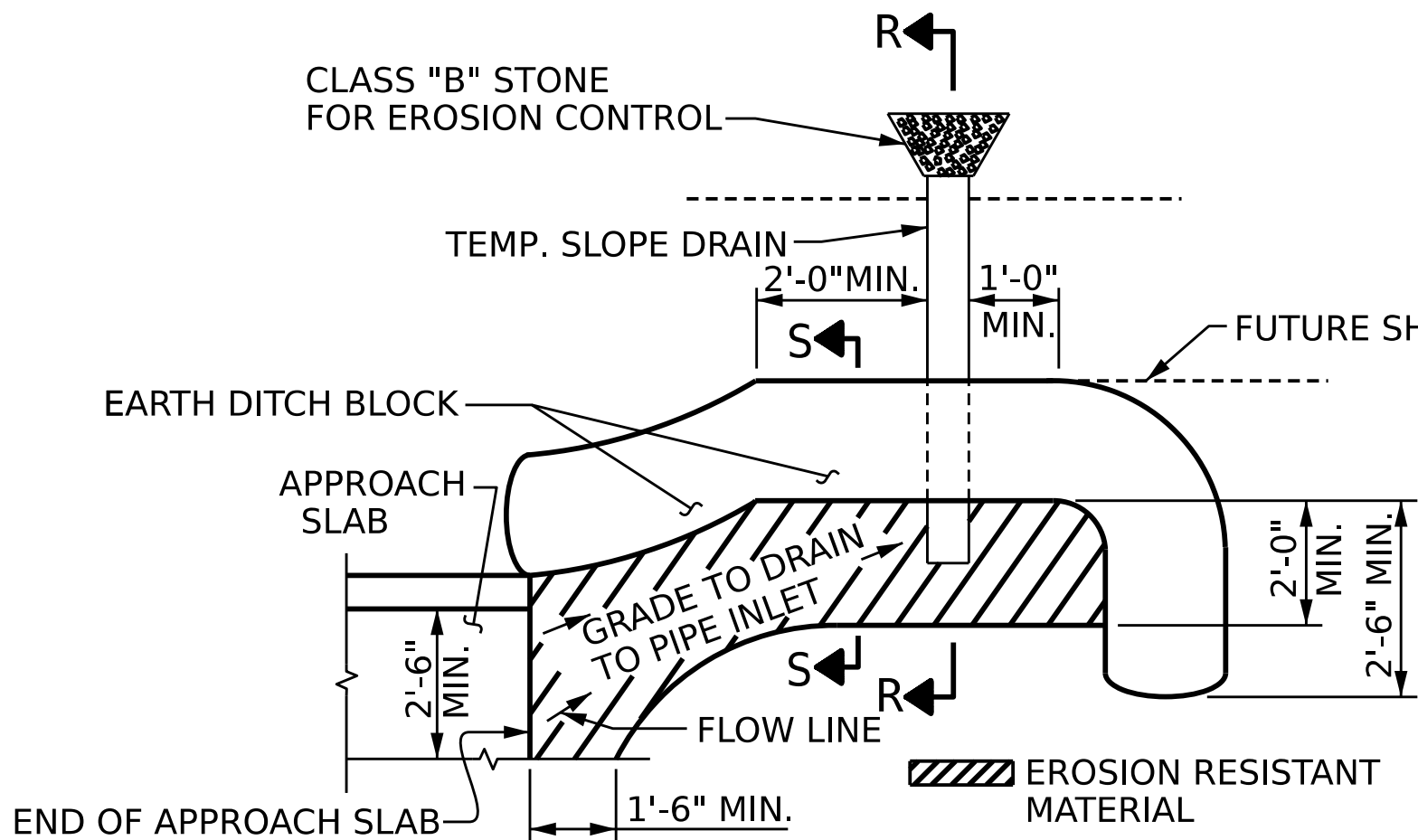
NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

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

AREA BETWEEN THE MSE WALL 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.

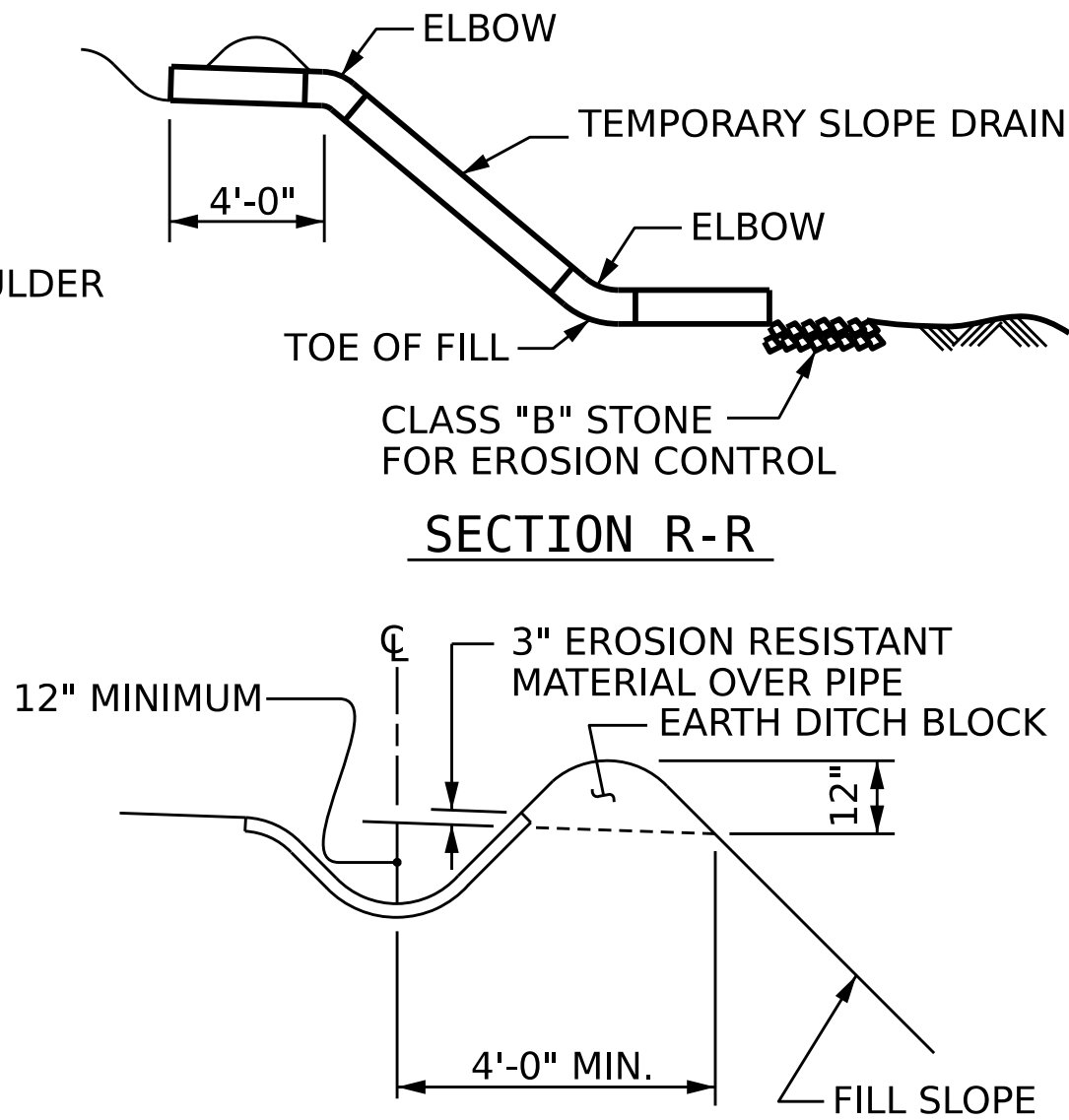


NOTE:
IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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.

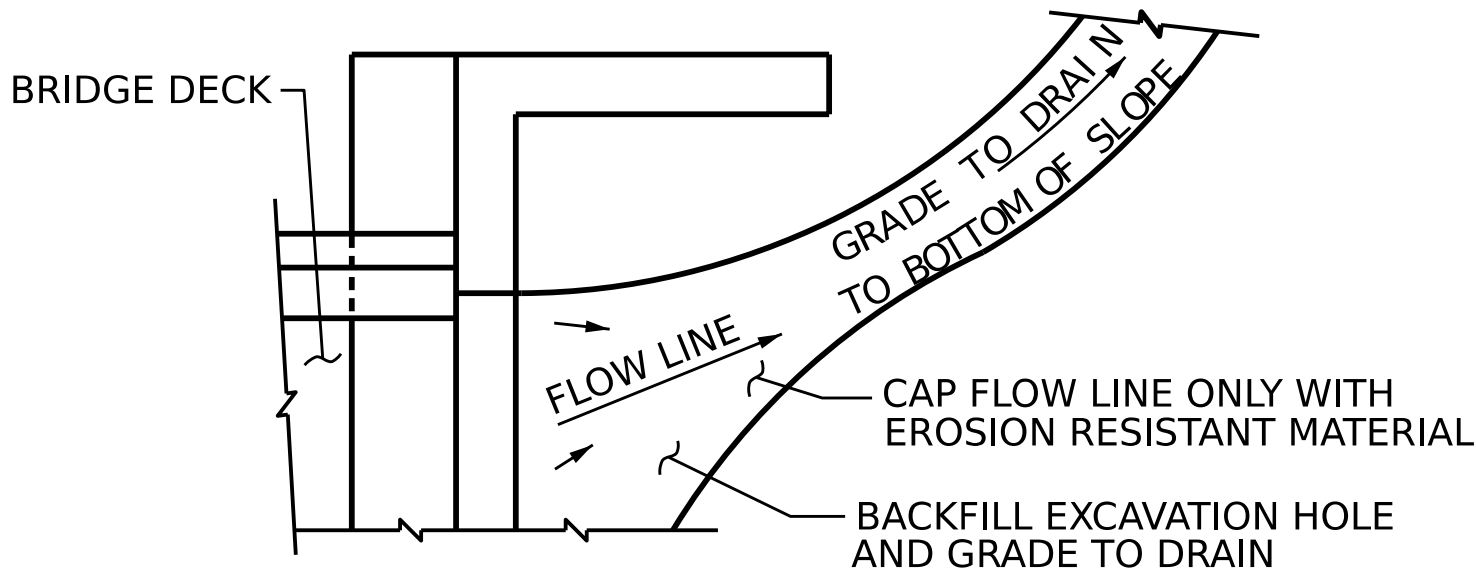
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

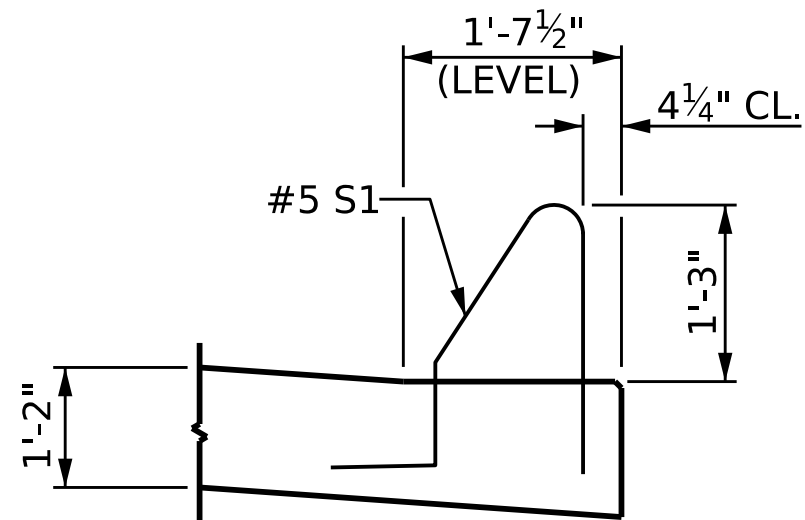
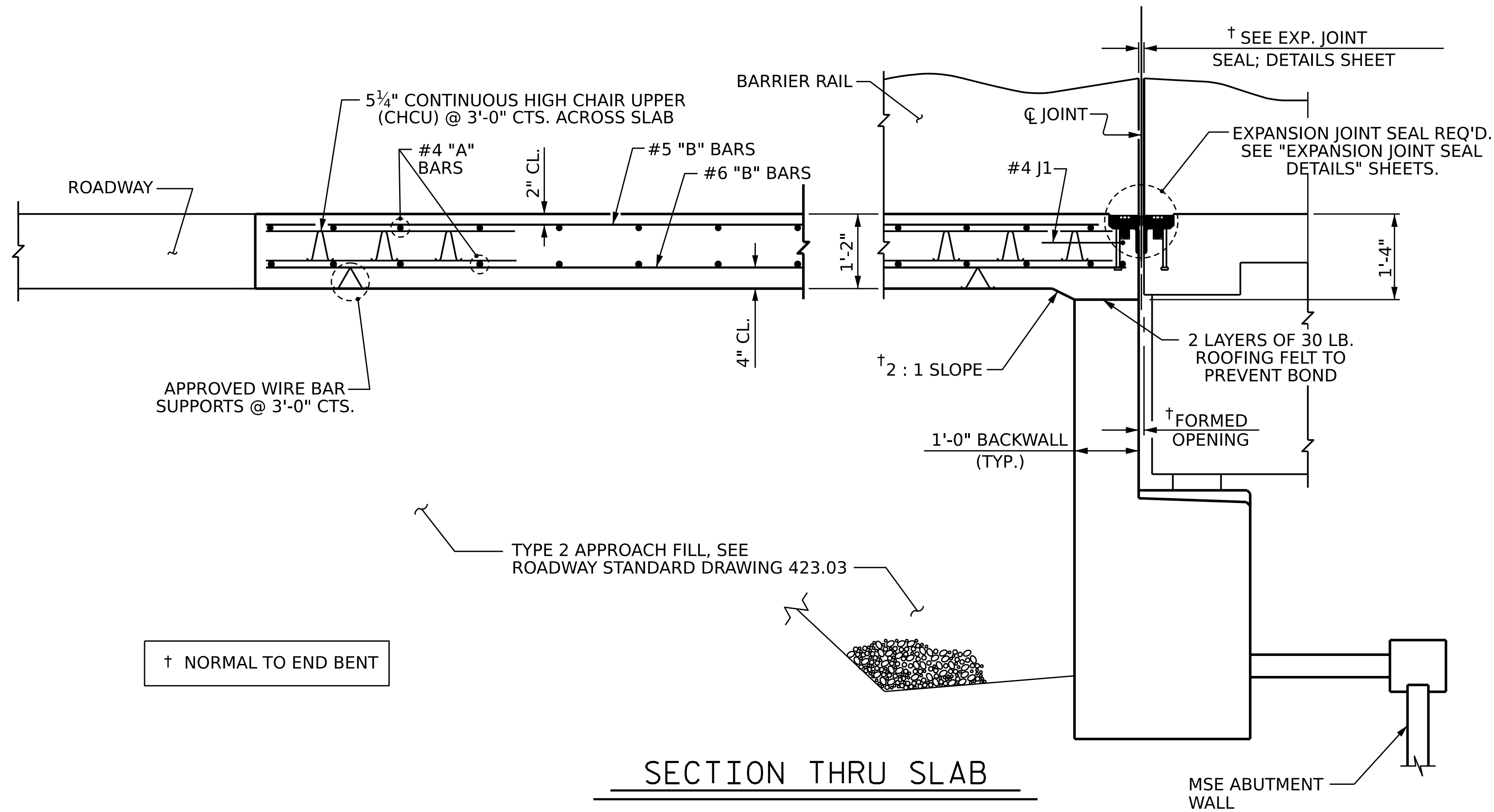


SECTION S-S



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.

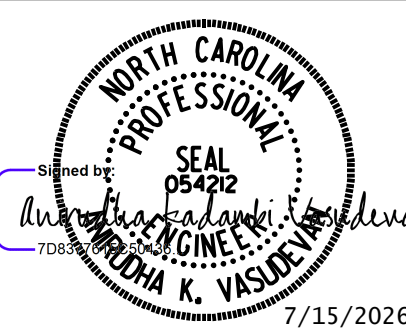
TEMPORARY DRAINAGE DETAIL



SECTION K-K

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 3 OF 6



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR RIGID PAVEMENT
(LEFT LANE)

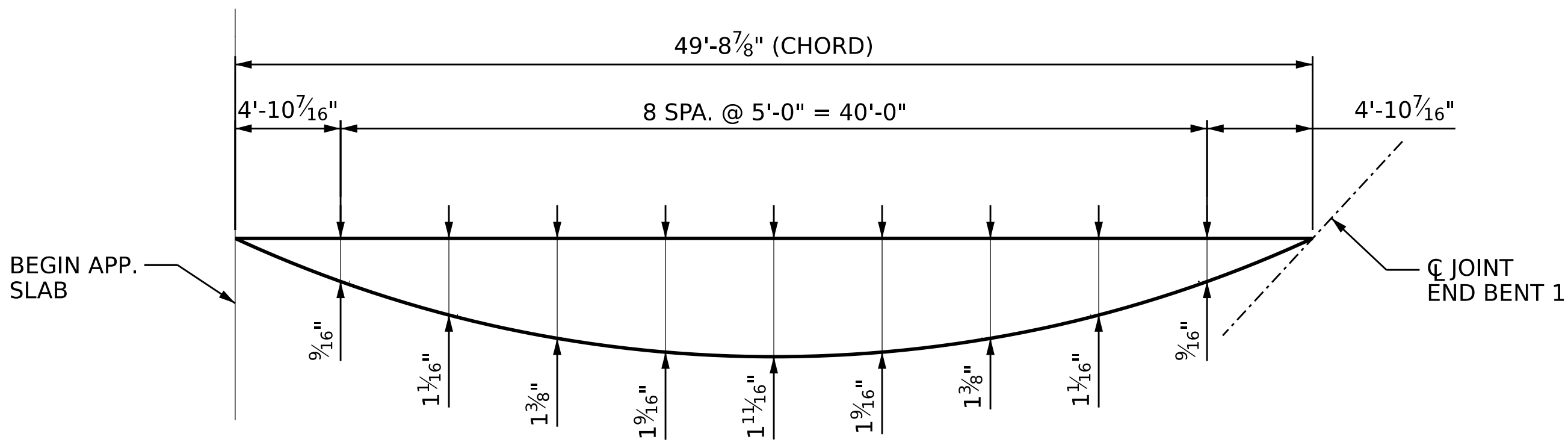
REVISIONS						SHEET NO. S9-41 TOTAL SHEETS 46
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

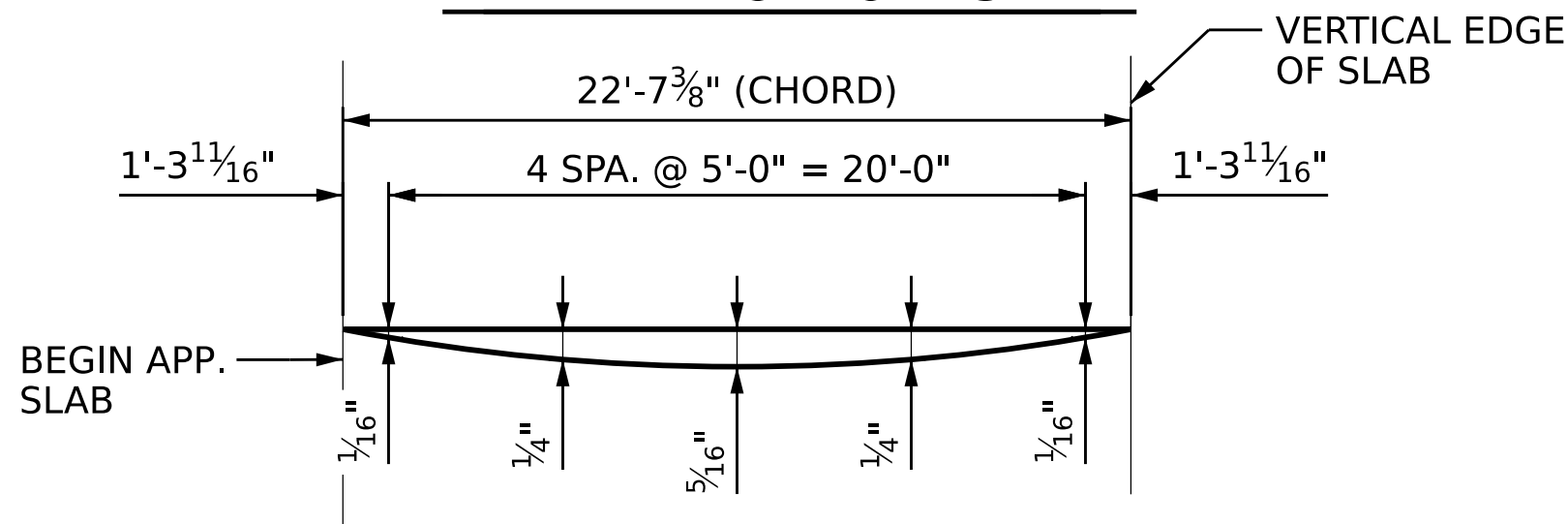
ASSEMBLED BY: T. NEAL		DATE : 11/2023	
CHECKED BY : A. K. VASUDEVAN		DATE : 01/2024	
DRAWN BY :	RH	5/99	REV. 6/13 MAA/GM
CHECKED BY :	RDR	5/99	REV. 12/17 MAA/THC
			REV. 6/13 RNR/SNM

NOTES:

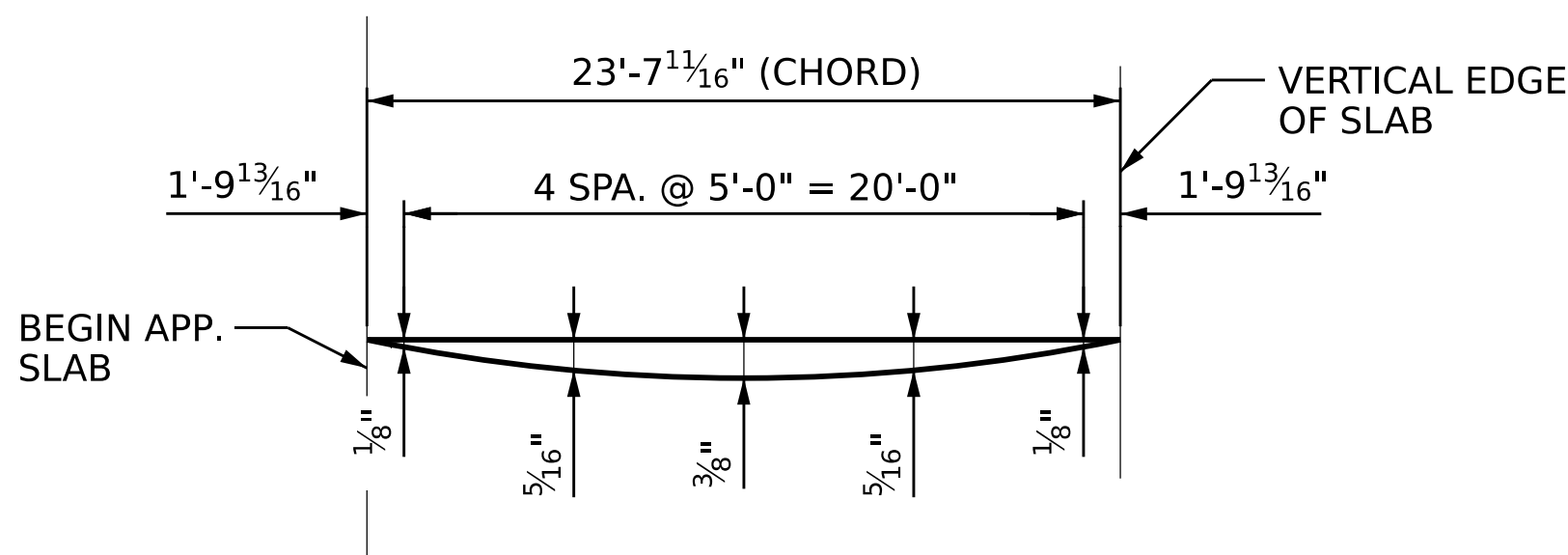
SEE SHEET 1 OF 6 AND 2 OF 6 FOR LOCATIONS OF EDGES OF APPROACH SLAB.



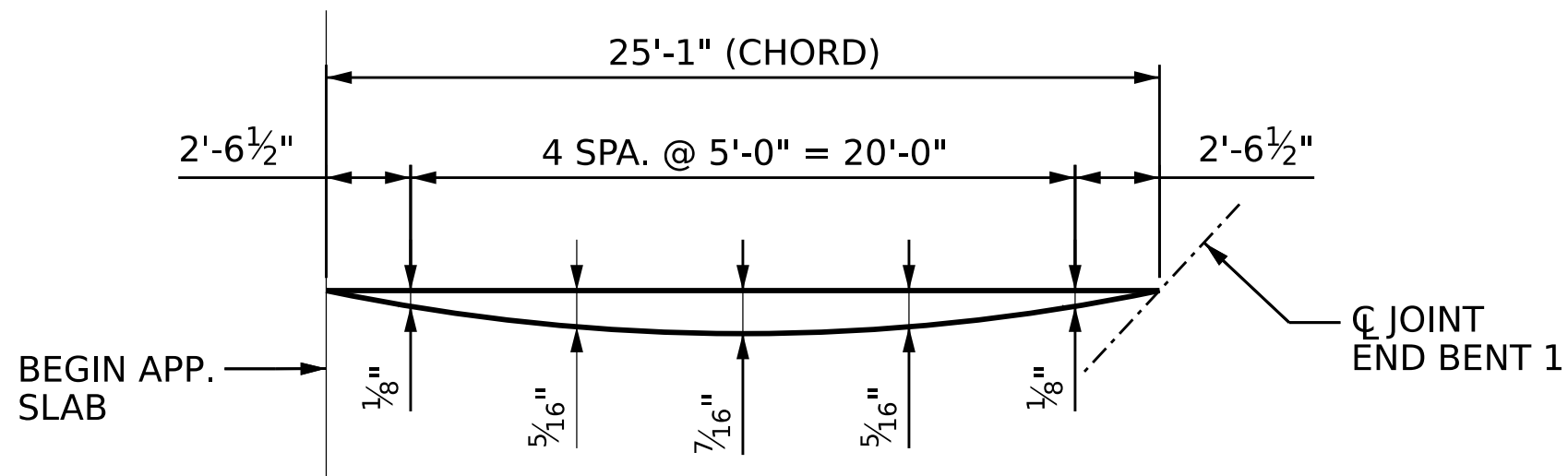
LEFT EDGE OF SLAB



EDGE OF SLAB AT 53'-6" FROM -L-



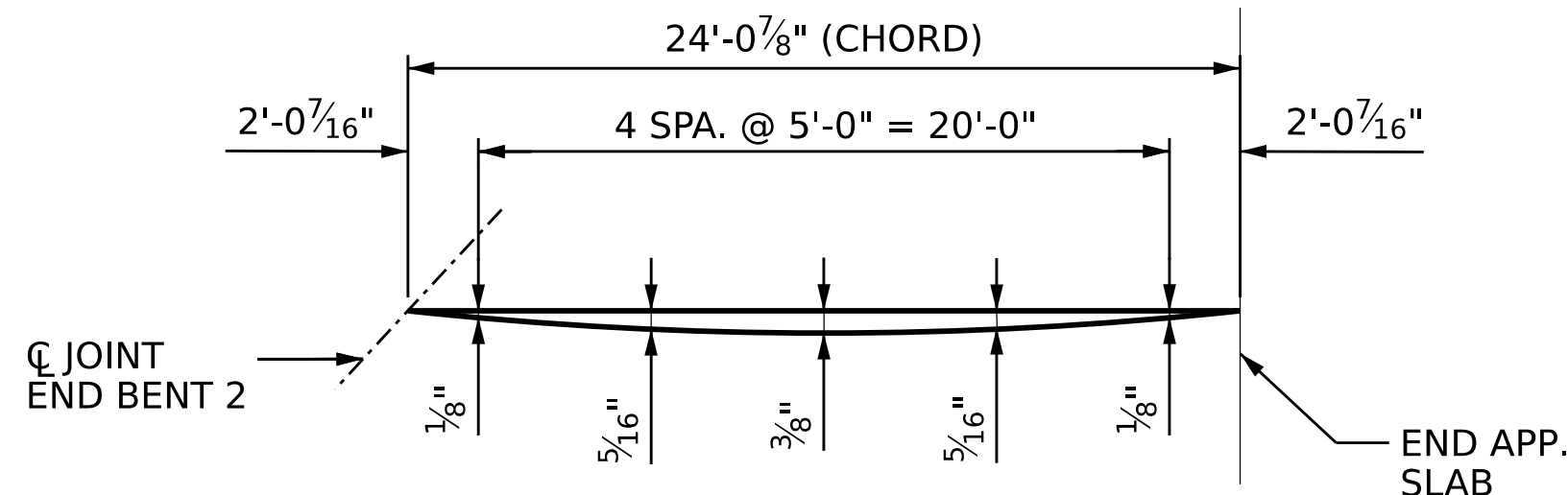
EDGE OF SLAB AT 29'-6" FROM -L-



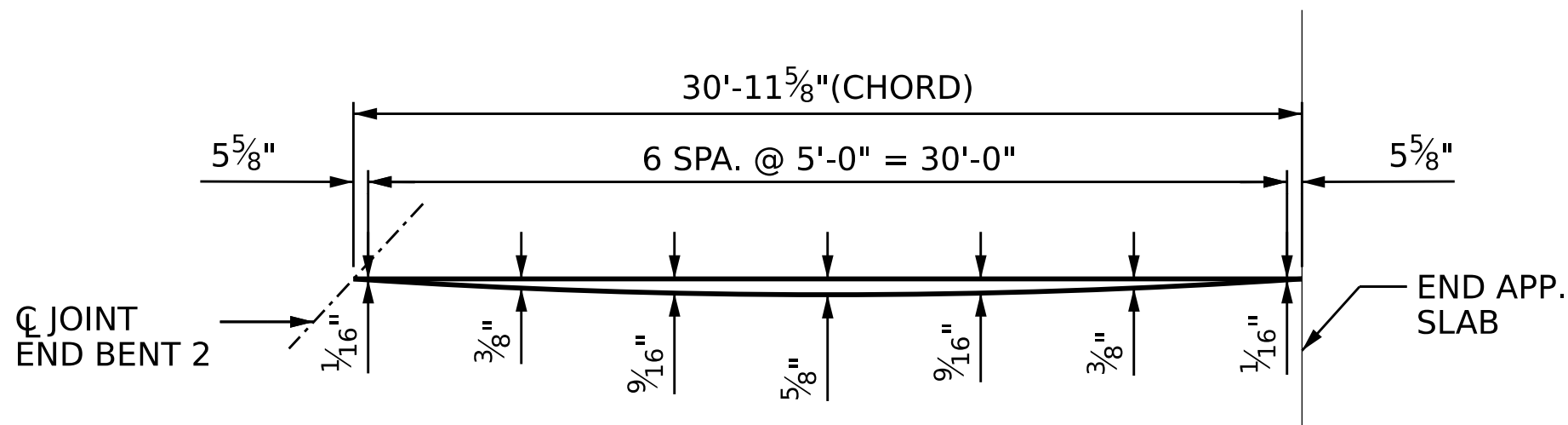
RIGHT EDGE OF SLAB

ARC OFFSETS - APPROACH SLAB AT END BENT 1

(NOT DRAWN TO SCALE)



LEFT EDGE OF SLAB



RIGHT EDGE OF SLAB

ARC OFFSETS - APPROACH SLAB AT END BENT 2

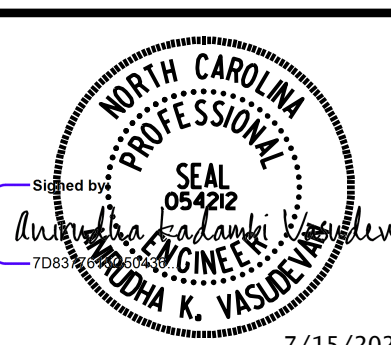
(NOT DRAWN TO SCALE)

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 105+49.43 -L-

SHEET 4 OF 6



7/15/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH
SLAB DETAILS

(LEFT LANE)

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S9-42
2			4			TOTAL SHEETS 46

DRAWN BY : S. NATARAJAN DATE : 01/2024
CHECKED BY : A. VASUDEVAN DATE : 01/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

BILL OF MATERIAL

APPROACH SLAB AT END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A101*	6	#4	STR	9'-0"	36
A102*	24	#4	STR	25'-4"	405
A103*	12	#4	STR	26'-6"	213
A104*	12	#4	STR	25'-7"	205
A105*	12	#4	STR	23'-11"	191
A106*	12	#4	STR	22'-4"	179
A107*	12	#4	STR	20'-9"	166
A108*	12	#4	STR	19'-2"	154
A109*	12	#4	STR	17'-7"	141
A110*	16	#4	STR	16'-0"	171
A111*	1	#4	STR	25'-11"	17
A112*	1	#4	STR	24'-11"	17
A113*	1	#4	STR	23'-10"	16
A114*	1	#4	STR	22'-9"	15
A115*	1	#4	STR	21'-9"	15
A116*	1	#4	STR	20'-8"	14
A117*	1	#4	STR	19'-8"	13
A118*	1	#4	STR	18'-7"	12
A119*	1	#4	STR	17'-7"	12
A120*	1	#4	STR	16'-6"	11
A121*	1	#4	STR	15'-6"	10
A122*	1	#4	STR	14'-5"	10
A123*	1	#4	STR	13'-5"	9
A124*	1	#4	STR	12'-4"	8
A125*	1	#4	STR	11'-4"	8
A126*	1	#4	STR	10'-3"	7
A127*	1	#4	STR	9'-3"	6
A128*	1	#4	STR	8'-3"	5
A129*	1	#4	STR	7'-2"	5
A130*	1	#4	STR	6'-2"	4
A131*	1	#4	STR	5'-1"	3
A132*	1	#4	STR	4'-1"	3
A133*	1	#4	STR	3'-0"	2
A134*	1	#4	STR	2'-0"	1
A201	6	#4	STR	9'-0"	36
A202	24	#4	STR	25'-4"	405
A203	12	#4	STR	26'-6"	213
A204	12	#4	STR	25'-7"	205
A205	12	#4	STR	23'-11"	191
A206	12	#4	STR	22'-4"	179
A207	12	#4	STR	20'-9"	166
A208	12	#4	STR	19'-2"	154
A209	12	#4	STR	17'-7"	141
A210	16	#4	STR	16'-0"	171
A211	1	#4	STR	25'-11"	17
A212	1	#4	STR	24'-11"	17
A213	1	#4	STR	23'-10"	16
A214	1	#4	STR	22'-9"	15
A215	1	#4	STR	21'-9"	15
A216	1	#4	STR	20'-8"	14
A217	1	#4	STR	19'-8"	13

BILL OF MATERIAL

APPROACH SLAB AT END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A301*	75	4	STR	37'-8"	1888
A401	75	4	STR	37'-8"	1888
A501*	7	4	STR	7'-1"	33
A601	7	4	STR	7'-1"	33
B301*	302	5	STR	16'-4"	5140
B401	302	6	STR	16'-4"	7402
J1*	108	4	1	1'-5"	102
REINFORCING STEEL				LBS.	9356
* EPOXY COATED REINFORCING STEEL				LBS.	7130
CLASS AA CONCRETE				C.Y.	83.64
QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED, SEE APPROACH SLAB BARRIER DETAILS SHEET					
B101*	30	#5	STR	15'-3"	477
B102*	30	#5	STR	16'-0"	500
B103*	30	#5	STR	17'-2"	538
B104*	30	#5	STR	18'-5"	576
B105*	30	#5	STR	19'-7"	614
B106*	30	#5	STR	20'-10"	652
B107*	30	#5	STR	22'-0"	690
B108*	30	#5	STR	23'-3"	728
B109*	30	#5	STR	24'-8"	773
B110*	30	#5	STR	25'-8"	803
B201	30	#6	STR	15'-3"	687
B202	30	#6	STR	16'-0"	721
B203	30	#6	STR	17'-2"	775
B204	30	#6	STR	18'-5"	830
B205	30	#6	STR	19'-7"	884
B206	30	#6	STR	20'-10"	939
B207	30	#6	STR	22'-0"	993
B208	30	#6	STR	23'-3"	1,048
B209	30	#6	STR	24'-8"	1,113
B210	30	#6	STR	25'-8"	1,157
J1*	104	#4	1	1'-5"	98
REINFORCING STEEL				LBS.	11,125
* EPOXY COATED REINFORCING STEEL				LBS.	8,427
CLASS AA CONCRETE				C.Y.	120.39
QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED, SEE APPROACH SLAB BARRIER DETAILS SHEET					

BAR TYPE

1'-0½"

4½"

HK.

1

ALL BAR DIMENSIONS ARE OUT TO OUT

NOTE:

THE QUANTITY OF #4J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

SPLICE LENGTHS

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

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 105+49.43 -L-

SHEET 5 OF 6

AECOM

AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

Seal of North Carolina Professional Engineer

Seal 05422

Signature of A. Vasudevan

7/15/2026

BRIDGE APPROACH SLAB DETAILS

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-43
1			3			TOTAL SHEETS
2			4			46

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

7/13/2026

C:\pwworking\oecom.ds21.na.2020\d0131571\409.085.12513AC.SMU.BAS5.S9-43.100900.dgn

caterm

NOTES:

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS.

THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

#5 "S" BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO PROVIDE 2" CLEAR TO THE ½" EXPANSION JOINT OR TO THE SOUND BARRIER WALL ANCHOR HOLES.

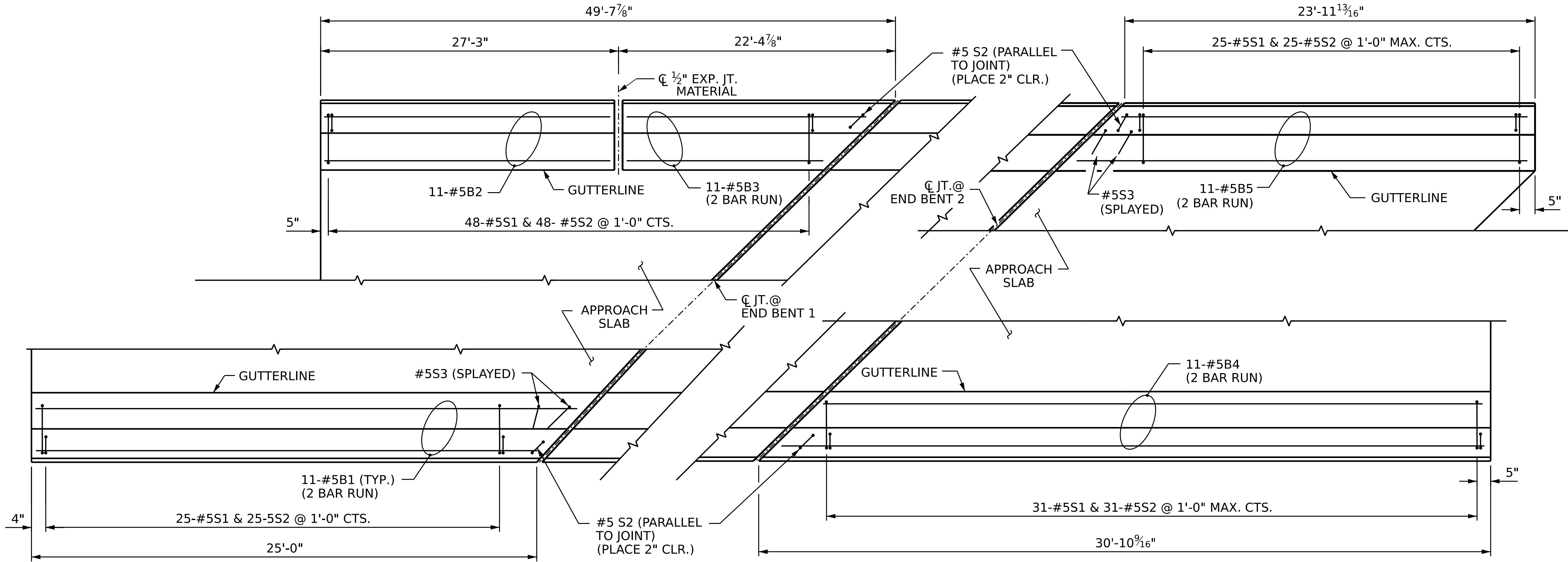
FOR LOCATION OF SOUND BARRIER WALL POSTS AND ANCHORAGES, SEE "SOUND BARRIER WALL" SHEETS.

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.

SHIFT, BEND, OR CUT REINFORCING STEEL AS NECESSARY TO CLEAR JOINT BLOCKOUT.

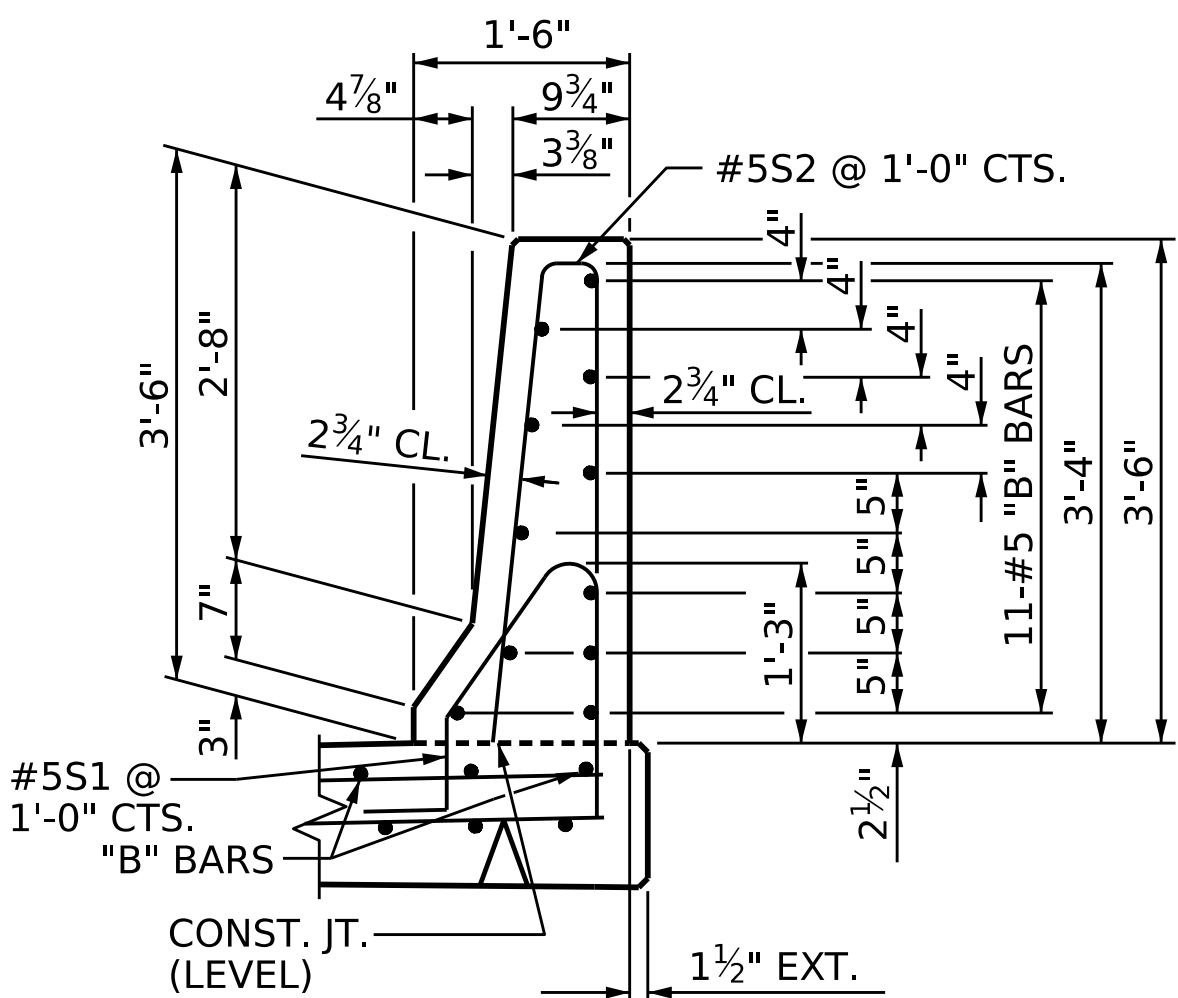


END BENT 1

END BENT 2

PLAN OF BARRIER RAIL

ALL DIMENSIONS MEASURED ALONG ARC AT EDGE OF APPROACH SLAB.
ARC NOT SHOWN FOR CLARITY.
EXPANSION JOINT SEAL REQUIRED, SEE "EXPANSION JOINT SEAL DETAILS" SHEETS.



SECTION THRU RAIL

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

BILL OF MATERIAL

CONCRETE BARRIER RAIL
ON APPROACH SLABS

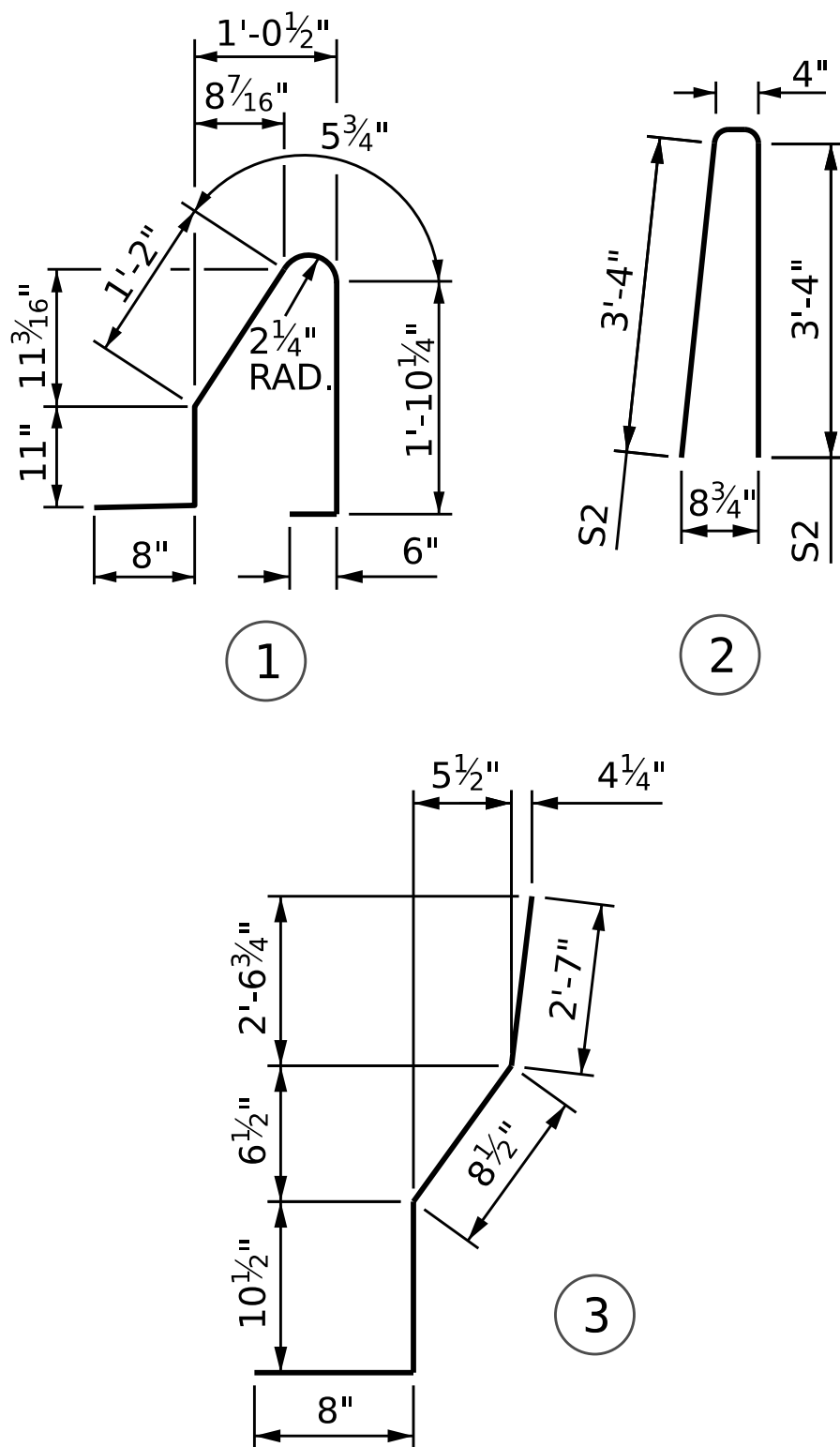
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	22	5	STR	14'-8"	337
* B2	11	5	STR	26'-10"	308
* B3	22	5	STR	12'-8"	291
* B4	22	5	STR	16'-9"	384
* B5	22	5	STR	14'-3"	327
* S1	129	5	1	5'-7"	751
* S2	133	5	2	7'-0"	971
* S3	4	5	3	7'-9"	32

* EPOXY COATED
REINFORCING STEEL 3,401 LBS.

CLASS AA CONCRETE 17.6 C.Y.

CONCRETE BARRIER RAIL 129.5 L.F.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 6 OF 6

AECOM

AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

Seal of the State of North Carolina
Professional Engineer
K. VASUDHAN
7/15/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
APPROACH SLAB
DETAILS

(LEFT LANE)

REVISIONS						SHEET NO. S9-44
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 46
2			4			

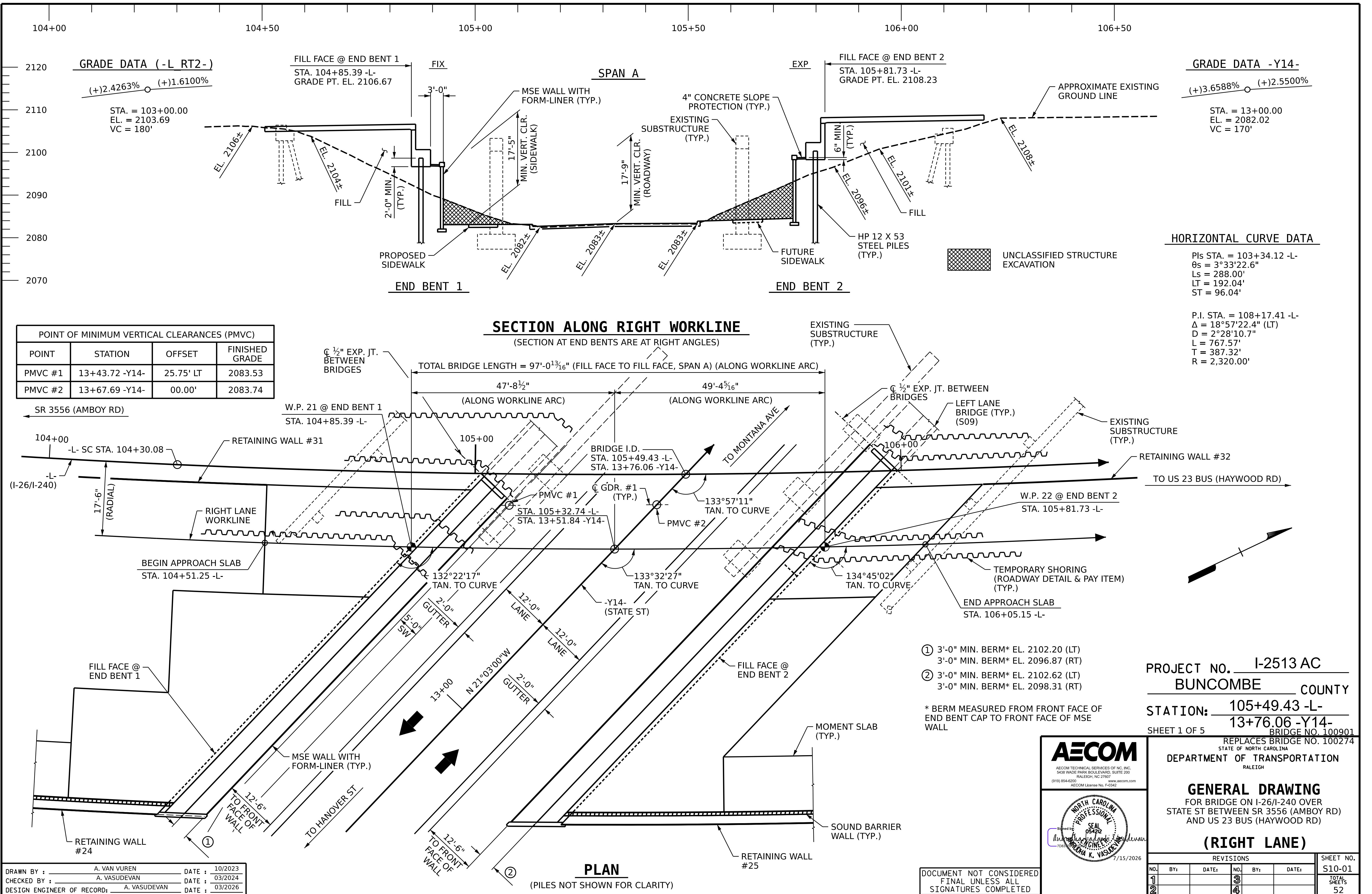
ASSEMBLED BY : T. NEAL	DATE : 11/2023
CHECKED BY : G. COLS	DATE : 12/2023
DRAWN BY : FCJ 6/87	REV. 6/13 MAA/GM
CHECKED BY : EGA 6/87	REV. 12/17 MAA/THC
	REV. 06/19 BNB/THC

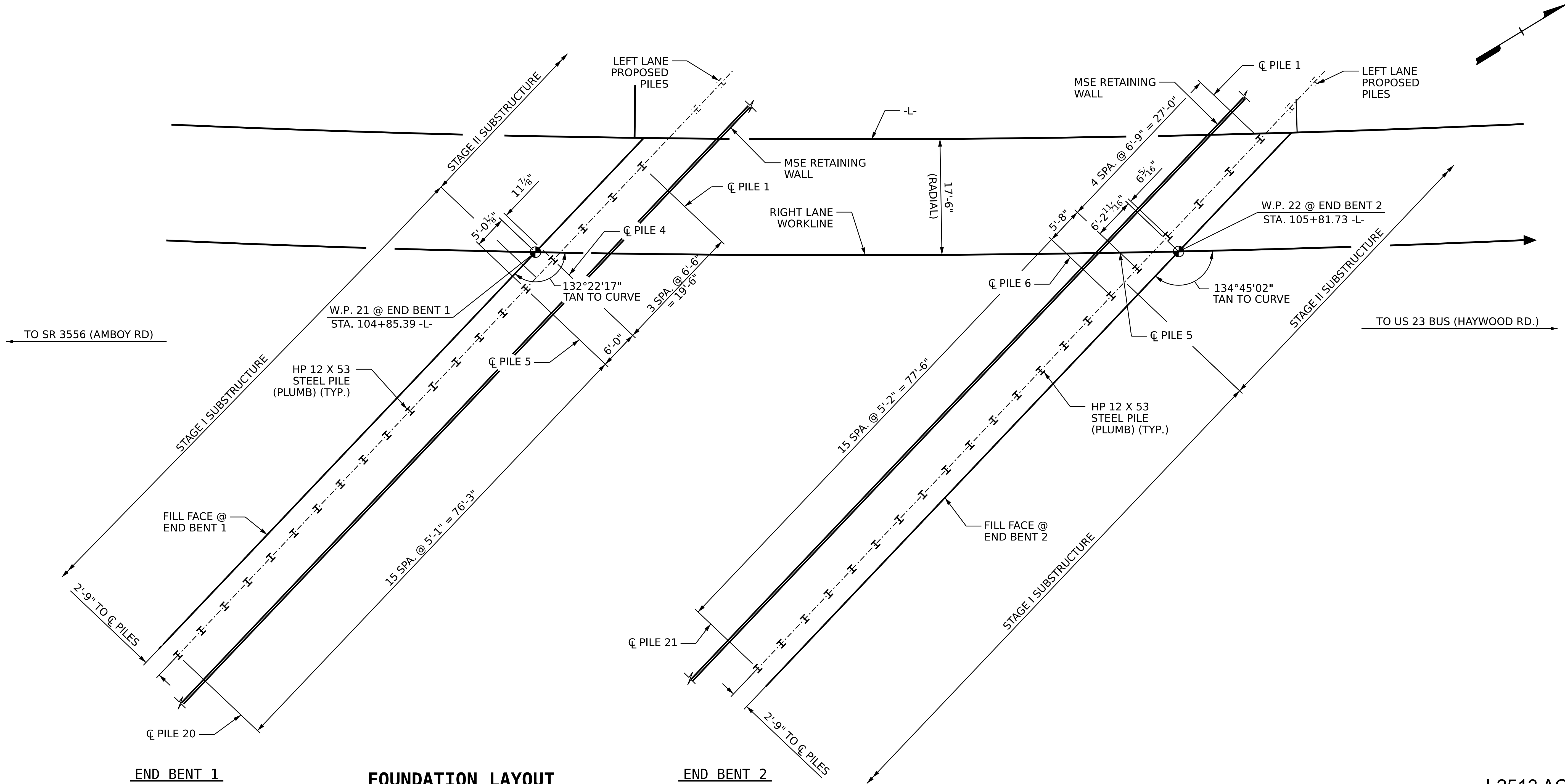


SHEET 1 OF 2

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

7/13/2026
c:\pwworking\aecom.ds21.no.2020\d0131571\409.089.I2513AC.SMU.MS1.S9-45.100900.dgn
caterm





FOUNDATION LAYOUT
DIMENSIONS LOCATING PILES ARE TO CENTERLINES OF PILES

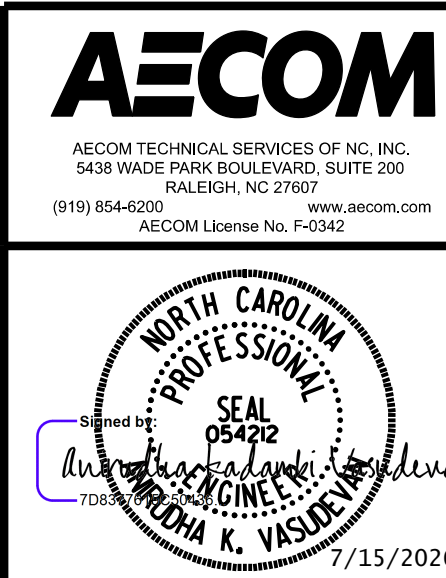
FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
INSTALL PILES FOR END BENT NOS. 1 AND 2 PRIOR TO MSE WALL CONSTRUCTION
AND AFTER MSE WALL IS EXCAVATED.

DRAWN BY :	T. NEAL	DATE :	12/2023
CHECKED BY :	A. VASUDEVAN	DATE :	12/2023
DESIGN ENGINEER OF RECORD:	A. VASUDEVAN	DATE :	03/2026

7/13/2026
c:\pwworking\oecom.ds21.na.2020\d0223929\410.003.I2513AC.SMU.FL.S10-02.100901.dgn
caterm

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-
SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON I-26/I-240 OVER
STATE ST BETWEEN SR 3556 (AMBOY RD)
AND US 23 BUS (HAYWOOD RD)

(RIGHT LANE)

REVISIONS						SHEET NO. S10-02
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 52
2			4			

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Number of Piles per Line	Factored Resistance per Pile KIPS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles **			Drilled-In Piles		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent 1,Piles 1-20	20	240	2098.41	75			400	0						
End Bent 2, Piles 1-5	5	240	2099.86	70			400	0						
End Bent 2, Piles 6-21	16	240	2099.86	80			400	0						
TOTAL QUANTITY:														

$$*RDR = \frac{\text{Factored Resistance} + \text{Factored Drag Load} + \text{Factored Dead Load}}{\text{Dynamic Resistance Factor}} + \text{Nominal Drag Load Resistance} + \text{Nominal Resistance from Scourable Material}$$

** Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent 1, Piles 1-20	240			0.60		
End Bent 2, Piles 1-21	240			0.60		

* Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
End Bent 1, Piles 1-20				20
End Bent 2, Piles 1-21				21
TOTAL QUANTITY:				41

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
End Bent 1, Piles 1-21		
End Bent 2, Piles 6-21	85	1
TOTAL QUANTITY:		1

Pile Order Lengths for Concrete Piles	
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	Pile Order Length Basis* EST or DPT

* EST = Pile order lengths from estimated pile lengths; DPT = Pile order lengths based on Dynamic Pile Testing. For groups of end bents/bents with pile order lengths based on DPT testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the DPT.

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Abner F. Riggs, Jr., #014155) on 07-14-2026.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.

PROJECT NO. I-2513AC

BUNCOMBE COUNTY

STATION: 105+49.43 -L-/13+76.06 -Y14-

SHEET 3 OF 5 BRIDGE NO. 901



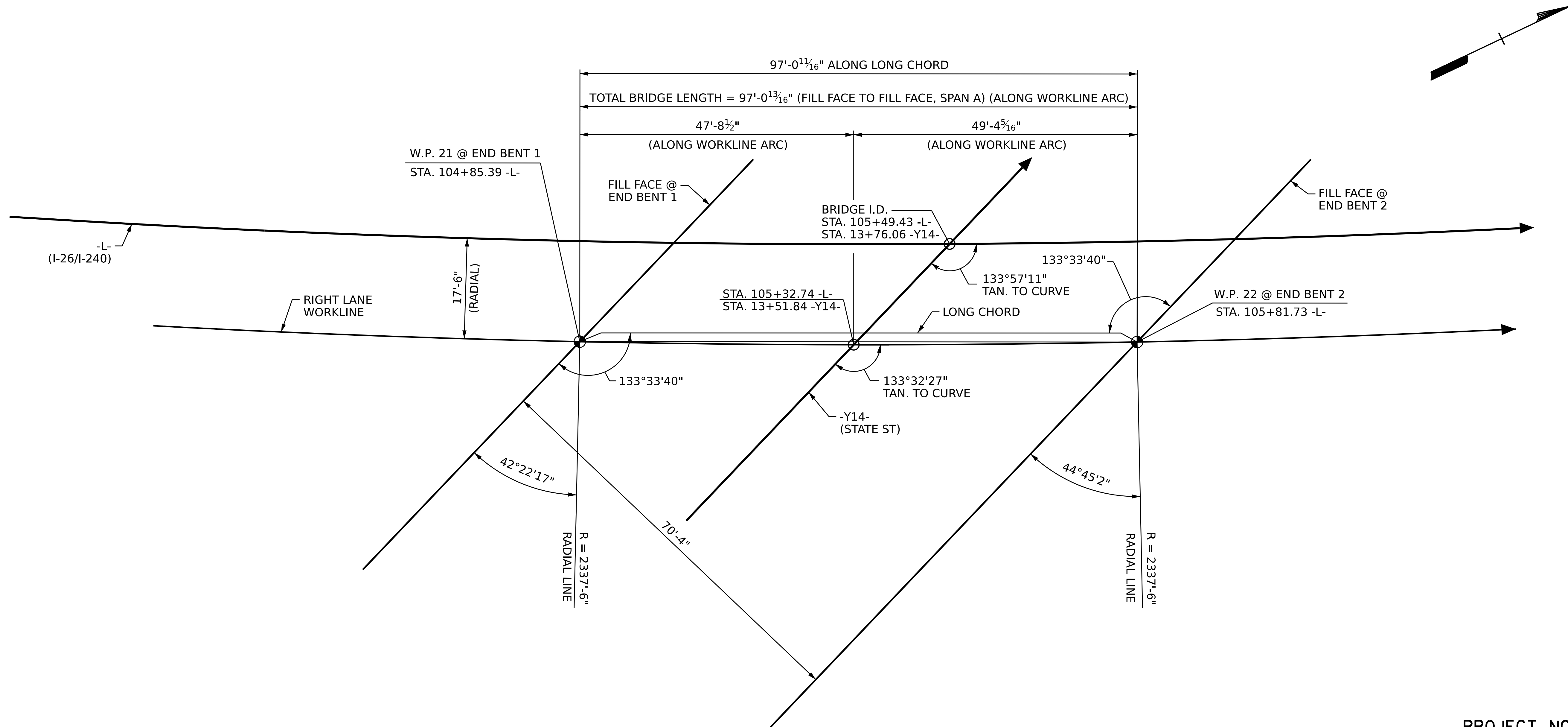
DocuSigned by:
Abner Riggs Jr.
CERACAS000081
SIGNATURE DATE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE
FOUNDATION
TABLES

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-03 TOTAL SHEETS 52
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



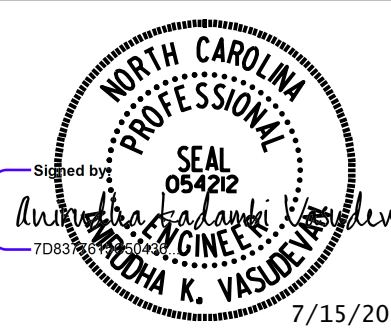
END BENT 1

END BENT 2

LONG CHORD LAYOUT
END BENTS ARE PARALLEL

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 4 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON I-26/I-240 OVER
STATE ST BETWEEN SR 3556 (AMBOY RD)
AND US 23 BUS (HAYWOOD RD)

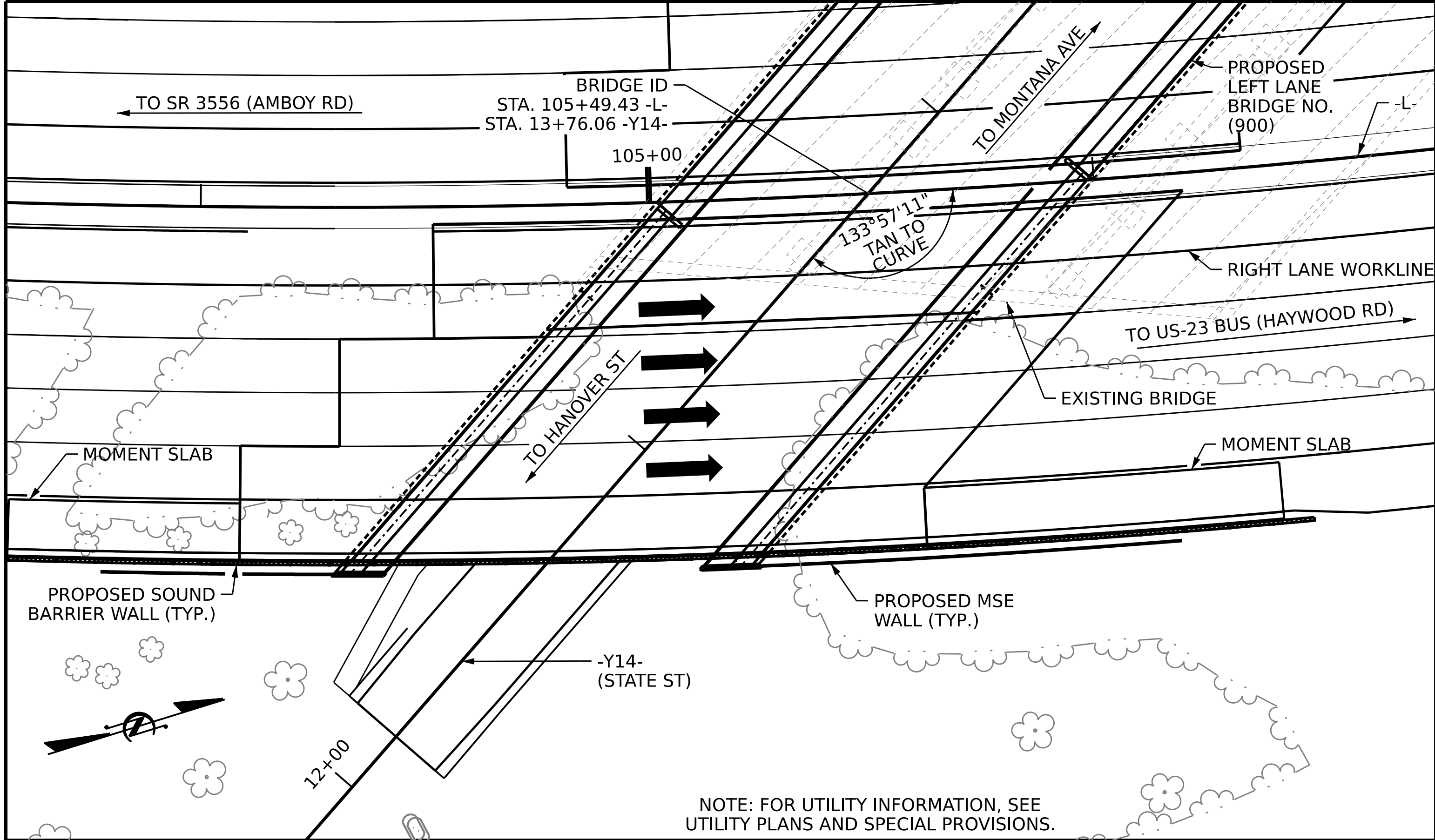
(RIGHT LANE)

DRAWN BY : T. NEAL DATE : 10/2023
CHECKED BY : G. COLS DATE : 10/2023
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-04
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 52
2			4			

BENCHMARK: BM10; CHISELED SQUARE IN CONC BASE OF EXIT 2 SIGN (W. ASHEVILLE) ON I-240 EB;
STA. 90+38.17 -L-, OFFSET 70.43' RT; N 681,430 E 934,082 EL. 2075.78'



LOCATION SKETCH

GENERAL NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

TEMPORARY SHORING WILL BE REQUIRED IN THE AREAS INDICATED IN THE PLAN VIEW.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION & RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR MSE WALLS, SEE GEOTECHNICAL SPECIAL PROVISIONS.

THE ELEVATIONS AND CLEARANCES SHOWN ON THE PLANS AT THE POINTS OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATIONS ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 20 FT LEFT AND 70 FT RIGHT OF THE WORKLINE AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

WORK SHALL NOT BE STARTED ON THIS BRIDGE (OR SPECIFIC PARTS OF BRIDGE) UNTIL ROADWAY SECTION HAS BEEN EXCAVATED.

FOR PRECAST CONCRETE FASCIA, SEE SPECIAL PROVISIONS.

FOR INTEGRATION OF ABUTMENT MSE WALLS' AESTHETIC SCHEME WITH BRIDGE, SEE WALL PLANS.

FOR SOUND BARRIER WALL (BRIDGE MOUNTED), SEE SPECIAL PROVISIONS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB AT SOUND BARRIER WALL, SEE SPECIAL PROVISIONS.

FOR APPLICATION OF BRIDGE COATING, SEE SPECIAL PROVISIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD FOR THE EXISTING STRUCTURE, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 105+49.43 -L- (RT)".

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF A 3 SPAN (45' - 60' - 45') CONCRETE DECK ON ROLLED STEEL W-SHAPE GIRDERS, WITH 94.0 FT CLEAR ROADWAY WIDTH, SUPPORTED BY PILE BENT CONCRETE END BENTS AND CONCRETE POST AND BEAM BENTS ON PILES, AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGES DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

TOTAL BILL OF MATERIAL

	ASBESTOS ASSESSMENT	REMOVAL OF EXISTING STRUCTURE AT STA. 105+49.43 -L- (RT)	UNCLASSIFIED STRUCTURE EXCAVATION AT STA. 105+49.43 -L- (RT)	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	54" PRESTRESSED CONCRETE GIRDERS		ELECTRICAL CONDUIT SYSTEM FOR SIGNALS
	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	LUMP SUM
SUPERSTRUCTURE				7,021	10,612				9	811.3	
END BENT 1						125.1		14,209			
END BENT 2						137.0		14,986			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	7,021	10,612	262.1	LUMP SUM	29,195	9	811.3	LUMP SUM

TOTAL BILL OF MATERIAL

	PILE DRIVING EQUIPMENT SETUP FOR HP 12X53 STEEL PILES	HP 12X53 STEEL PILES		STEEL PILE POINTS	DYNAMIC PILE TESTING	CONCRETE BARRIER RAIL	72" CHAIN LINK FENCE	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	PRECAST CONCRETE FASCIA AT STA. 105+49.43 -L- (RT)	APPLICATION OF BRIDGE COATING	SOUND BARRIER WALL (BRIDGE MOUNTED)	CONCRETE BARRIER RAIL WITH MOMENT SLAB AT SOUND BARRIER WALL
	EACH	NO.	LIN. FT.	NO.	EACH	LIN. FT.	LIN. FT.	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.	LUMP SUM	LIN. FT.
SUPERSTRUCTURE						321.3	93.0							
END BENT 1	20	20	1,500.0	20				45.8				199.0		52.0
END BENT 2	21	21	1,630.0	21	1			59.6				211.1		80.0
TOTAL	41	41	3,130.0	41	1	321.3	93.0	105.4	LUMP SUM	LUMP SUM	LUMP SUM	410.1	LUMP SUM	132.0

DRAWN BY : T. NEAL DATE : 11/2023
CHECKED BY : A. VASUDEVAN DATE : 03/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 5 OF 5

AECOM

AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02822

Seal of the State of North Carolina
Professional Engineer
No. 05422
Name: ANANDH K. VASUDHAN
7083
8/4/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON I-26/I-240 OVER
STATE ST BETWEEN SR 3556 (AMBOY RD)
AND US 23 BUS (HAYWOOD RD)

(RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S10-05
1			3			TOTAL SHEETS
2			4			52

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ DC	γ DW
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

#

CONTROLLING LOAD RATING

1

DESIGN LOAD RATING (HL-93)

2

DESIGN LOAD RATING (HS-20)

3

LEGAL LOAD RATING * *

4

EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER

EL - EXTERIOR LEFT GIRDER

ER - EXTERIOR RIGHT GIRDER

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 105+49.43 -L-

SHEET 1 OF 1

AECOM

AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F02342

Seal of North Carolina Professional Engineer

Signed by

7/15/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
PRESTRESSED
CONCRETE GIRDERS
(INTERSTATE TRAFFIC)

REVISIONS

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

SHEET NO.
S10-06

TOTAL SHEETS
52

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																							
LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								SERVICE III LIMIT STATE								COMMENT NUMBER	
						LIVE-LOAD FACTORS (γ LL)	MOMENT				SHEAR					MOMENT							
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	1	1.48	--	1.75	0.710	1.78	A	ER	44.9	1.090	2.88	A	I	63.4	0.80	0.710	1.48	A	ER	44.9	
	HL-93 (OPERATING)	N/A		2.31	--	1.35	0.710	2.31	A	ER	44.9	1.090	3.79	A	I	63.4	N/A	--	--	--	--	--	
	HS-20 (INVENTORY)	36.000	2	2.03	73.08	1.75	0.710	2.43	A	ER	44.9	1.090	3.64	A	I	63.4	0.80	0.710	2.03	A	ER	44.9	
	HS-20 (OPERATING)	36.000		3.15	113.40	1.35	0.710	3.15	A	ER	44.9	1.090	4.78	A	I	63.4	N/A	--	--	--	--	--	
LEGAL LOAD	SINGLE VEHICLE (SV)	SH		5.15	64.38	1.40	0.710	7.72	A	ER	44.9	1.090	12.14	A	I	63.4	0.80	0.710	5.15	A	ER	44.9	
		S3C		3.01	64.72	1.40	0.710	4.51	A	ER	44.9	1.090	7.06	A	I	63.4	0.80	0.710	3.01	A	ER	44.9	
		S3A		2.85	64.84	1.40	0.710	4.28	A	ER	44.9	1.090	6.69	A	I	63.4	0.80	0.710	2.85	A	ER	44.9	
		S4A		2.51	67.14	1.40	0.710	3.76	A	ER	44.9	1.090	5.85	A	I	63.4	0.80	0.710	2.51	A	ER	44.9	
		S5A		2.21	67.41	1.40	0.710	3.32	A	ER	44.9	1.090	5.40	A	I	63.4	0.80	0.710	2.21	A	ER	44.9	
		S6A		2.00	69.00	1.40	0.710	3.01	A	ER	44.9	1.090	4.87	A	I	63.4	0.80	0.710	2.00	A	ER	44.9	
		S7B		1.82	70.07	1.40	0.710	2.73	A	ER	44.9	1.090	4.59	A	I	63.4	0.80	0.710	1.82	A	ER	44.9	
		S7A	3	1.80	72.00	1.40	0.710	2.70	A	ER	44.9	1.090	4.77	A	I	63.4	0.80	0.710	1.80	A	ER	44.9	
	TRUCK-TRACTOR SEMI-TRAILER (TTST)	T4A		2.47	69.78	1.40	0.710	3.70	A	ER	44.9	1.090	5.70	A	I	63.4	0.80	0.710	2.47	A	ER	44.9	
		T5B		2.17	69.44	1.40	0.710	3.25	A	ER	44.9	1.090	5.50	A	I	63.4	0.80	0.710	2.17	A	ER	44.9	
		T6A		1.98	71.28	1.40	0.710	2.98	A	ER	44.9	1.090	5.08	A	I	63.4	0.80	0.710	1.98	A	ER	44.9	
		T7A		1.84	73.60	1.40	0.710	2.76	A	ER	44.9	1.090	4.77	A	I	63.4	0.80	0.710	1.84	A	ER	44.9	
		T7B		1.95	78.00	1.40	0.710	2.93	A	ER	44.9	1.090	4.40	A	I	63.4	0.80	0.710	1.95	A	ER	44.9	
EMERGENCY VEHICLE (EV)	EV2	28.750		2.44	70.15	1.30	0.710	3.94	A	ER	44.9	1.090	5.93	A	I	63.4	0.80	0.710	2.44	A	ER	44.9	
	EV3	43.000	4	1.60	68.80	1.30	0.710	2.59	A	ER	44.9	1.090	3.39	A	I	63.4	0.80	0.710	1.60	A	ER	44.9	

DIM "A" (BRG TO BRG) SEE TABLE

1

2

3

4

END BENT 1

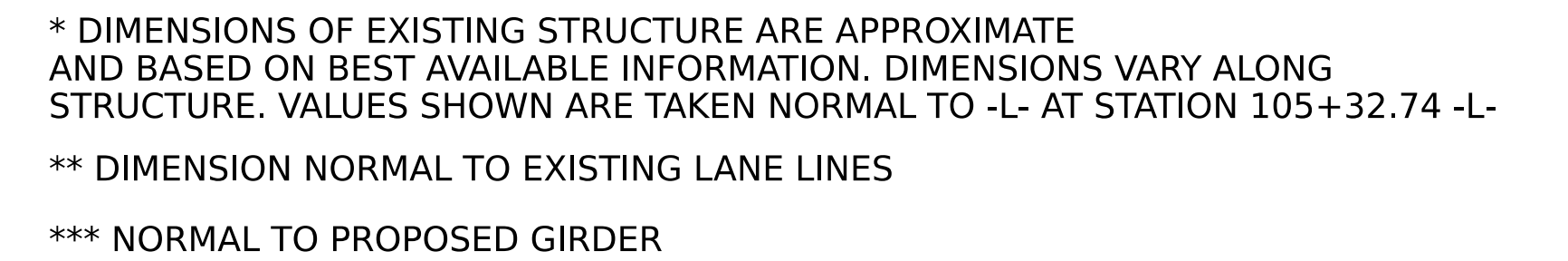
END BENT 2

LRFR SUMMARY

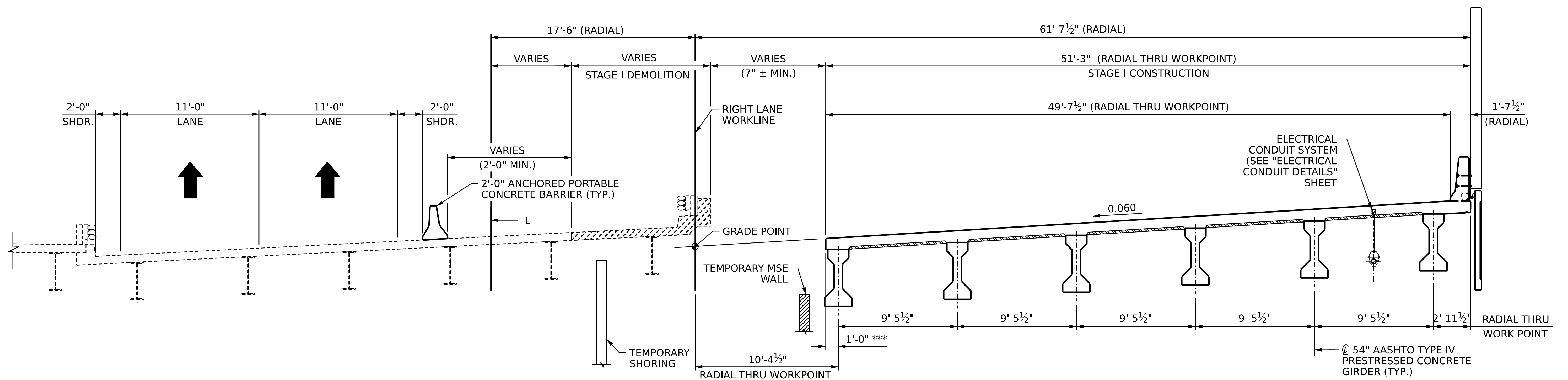
DIM "A"	
GIRDER	"A"
1	89'-9¾"
2	89'-6¼"
3	89'-3"
4	89'-1"
5	88'-9¼"
6	88'-5½"
7	88'-2"
8	87'-10¾"
9	87'-7"

ASSEMBLED BY : L. LEE	DATE : 07/2023
CHECKED BY : D. TUTTLE	DATE : 03/2024
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 04/23 BNB/AAI

STD . NO . LRFR2



SHOWING PARTIAL SECTION



MAINTAIN 2 LANES OF RIGHT LANE TRAFFIC ON EXISTING BRIDGE RIGHT SIDE
PARTIALLY REMOVE RIGHT SIDE OF EXISTING BRIDGE
CONSTRUCT STAGE I

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY

STATION: 105+49.43 -L-

SHEET 1 OF 2



AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F-0342

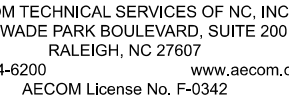
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

RALEIGH

CONSTRUCTION SEQUENCE

STAGE I

(RIGHT LANE)



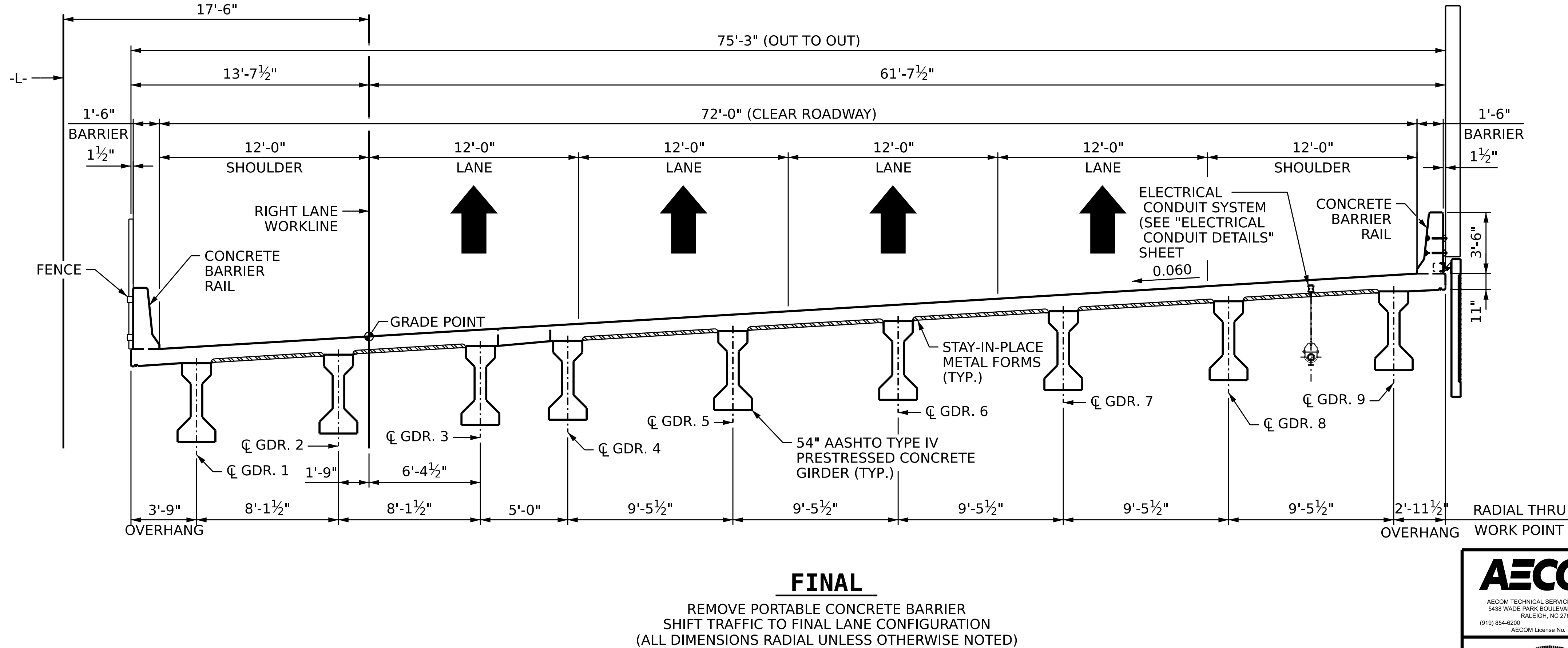
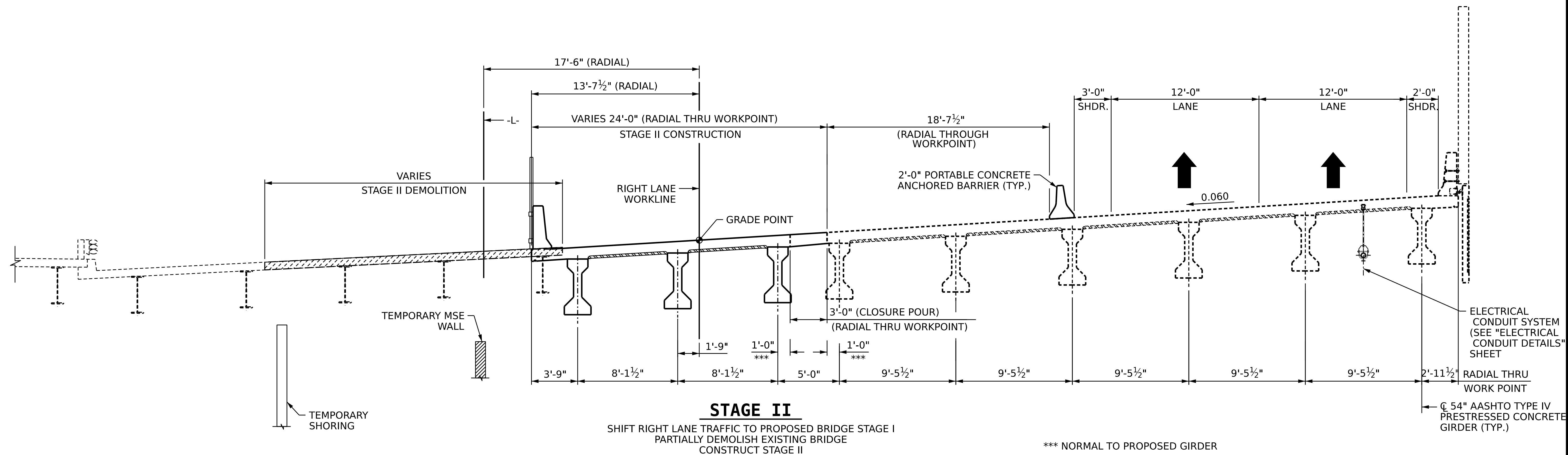
Signed by: *Anna K. Vasile*
703P
ANNA K. VASILE

7/15/2026

REVISONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S10-07 TOTAL SHEETS 52
1			3			
2			4			

DRAWN BY :	A. VAN VUREN	DATE :	10/2023
CHECKED BY :	A. VASUDEVAN	DATE :	03/2024
DESIGN ENGINEER OF RECORD:	A. VASUDEVAN	DATE :	03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-
SHEET 2 OF 2

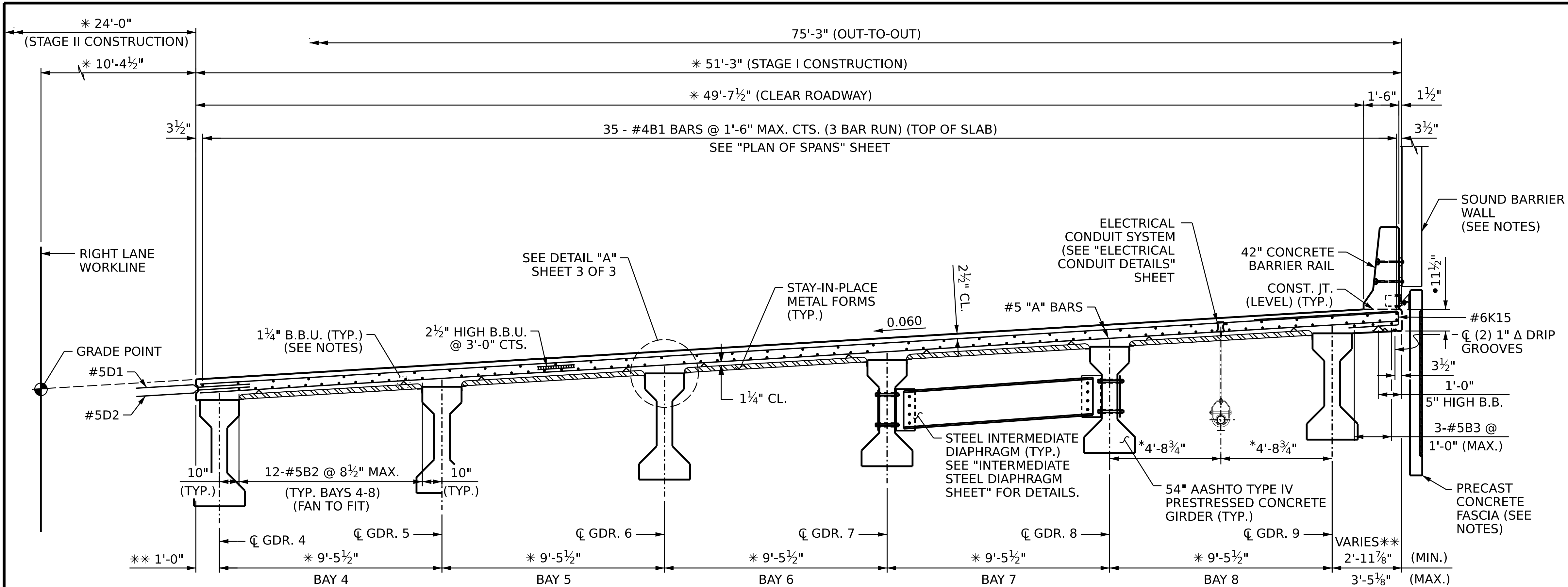
AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

Professional Engineer Seal
NORTH CAROLINA
Professional Engineer
Seal
A. Vasudevan
7/15/2026

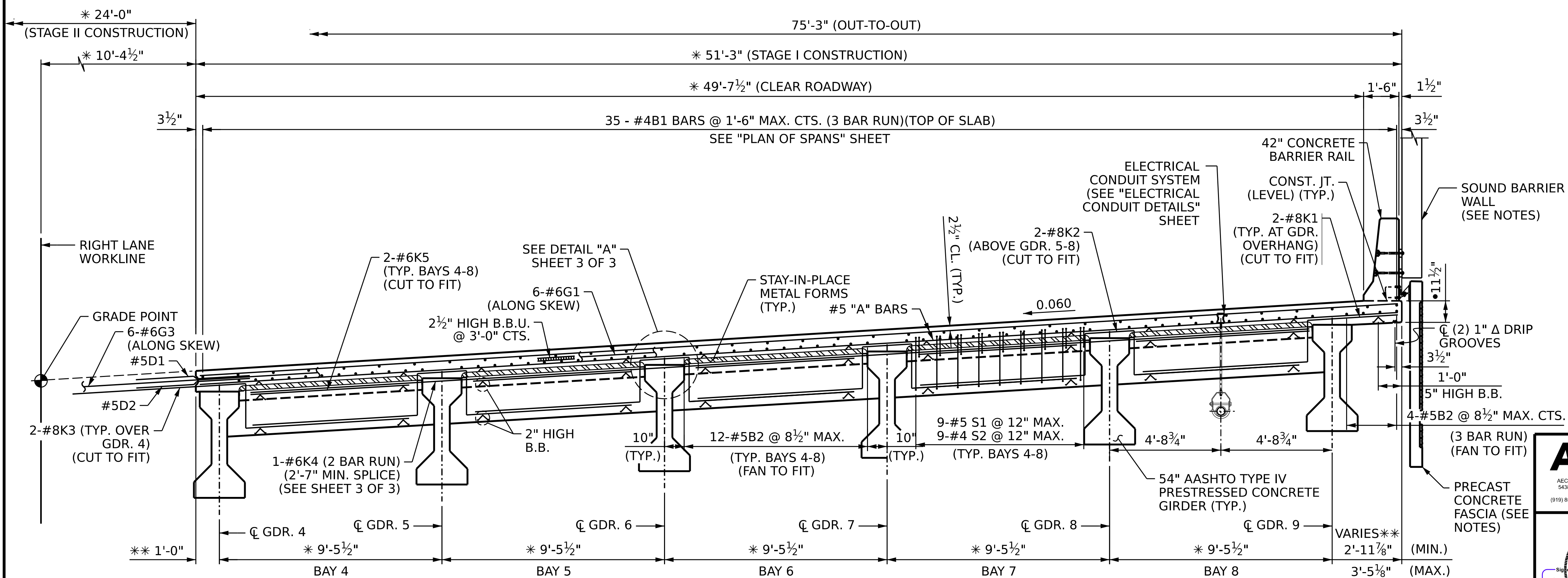
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S10-08
2			4			
TOTAL SHEETS						52

DRAWN BY : A. VAN VUREN DATE : 11/2023
CHECKED BY : A. VASUDEVAN DATE : 03/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



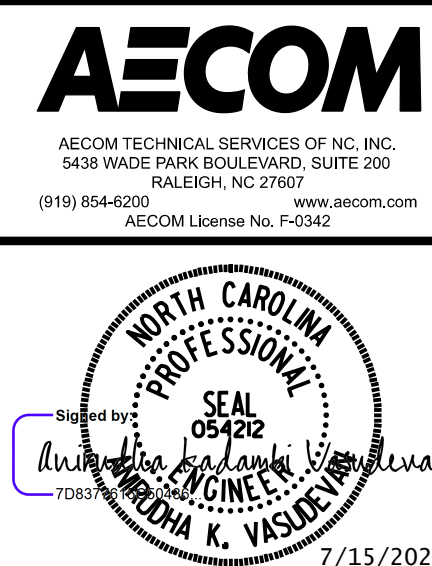
TYPICAL SECTION AT MIDSPAN
ALL HORIZONTAL DIMENSIONS ARE RADIAL UNLESS NOTED OTHERWISE



TYPICAL SECTION AT END BENT
ALL HORIZONTAL DIMENSIONS ARE RADIAL UNLESS NOTED OTHERWISE
END BENT 1 SHOWN, END BENT 2 SIMILAR

- NOTES:**
- PROVIDE 1¼" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY IN PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (CHCM) AT 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE FROM 2 ½ ABOVE THE TOP OF THE REMOVABLE FORM.
- LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.
- PREVIOUSLY CAST CONCRETE IN A SPAN A SHALL HAVE 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.
- DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP AND BOTTOM SLAB REINFORCING STEEL.
- SEE CONSTRUCTION SEQUENCE SHEETS FOR LOCATION OF TEMPORARY PORTABLE CONCRETE BARRIER (ANCHORED).
- FOR SOUND BARRIER WALL LOCATION AND CONNECTION DETAILS, SEE "SOUND BARRIER WALL DETAILS" SHEETS.
- FOR "PRECAST CONCRETE FASCIA" LOCATION AND CONNECTION DETAILS, SEE "PRECAST CONCRETE FASCIADetails" SHEETS.
- * = MEASURED RADIAL THRU WORKPOINT
- ** = MEASURED NORMAL TO CL GIRDERS

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-
SHEET 1 OF 3



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S10-09
2			4			

TOTAL SHEETS: 52

DRAWN BY : M. CATER
CHECKED BY : A. VASUDEVAN
DESIGN ENGINEER OF RECORD: A. VASUDEVAN
DATE : 12/2023
DATE : 01/2024
DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NOTES:

PROVIDE 1¼" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY IN PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (CHCM) AT 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE FROM 2½" ABOVE THE TOP OF THE REMOVABLE FORM.

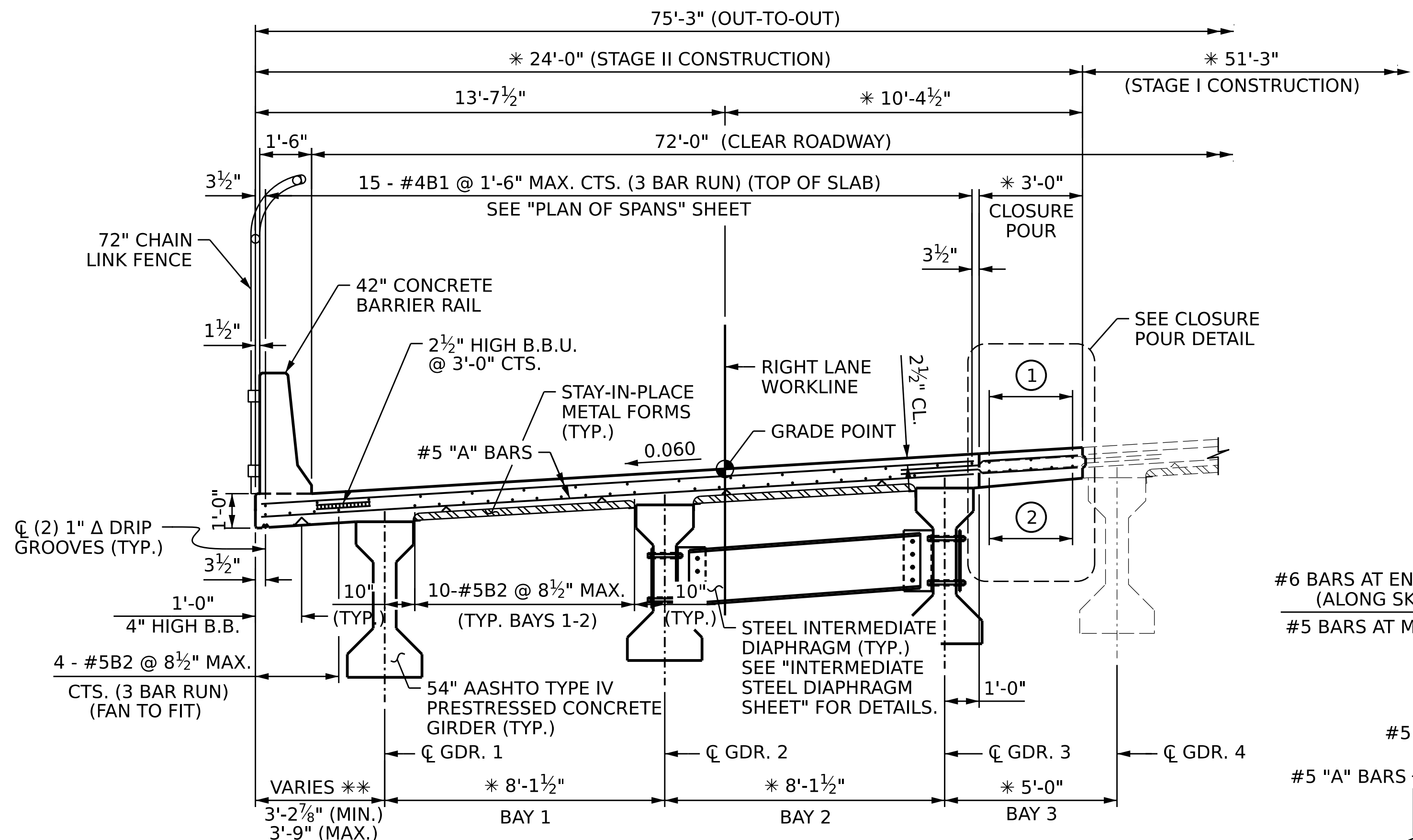
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP AND BOTTOM SLAB REINFORCING STEEL.

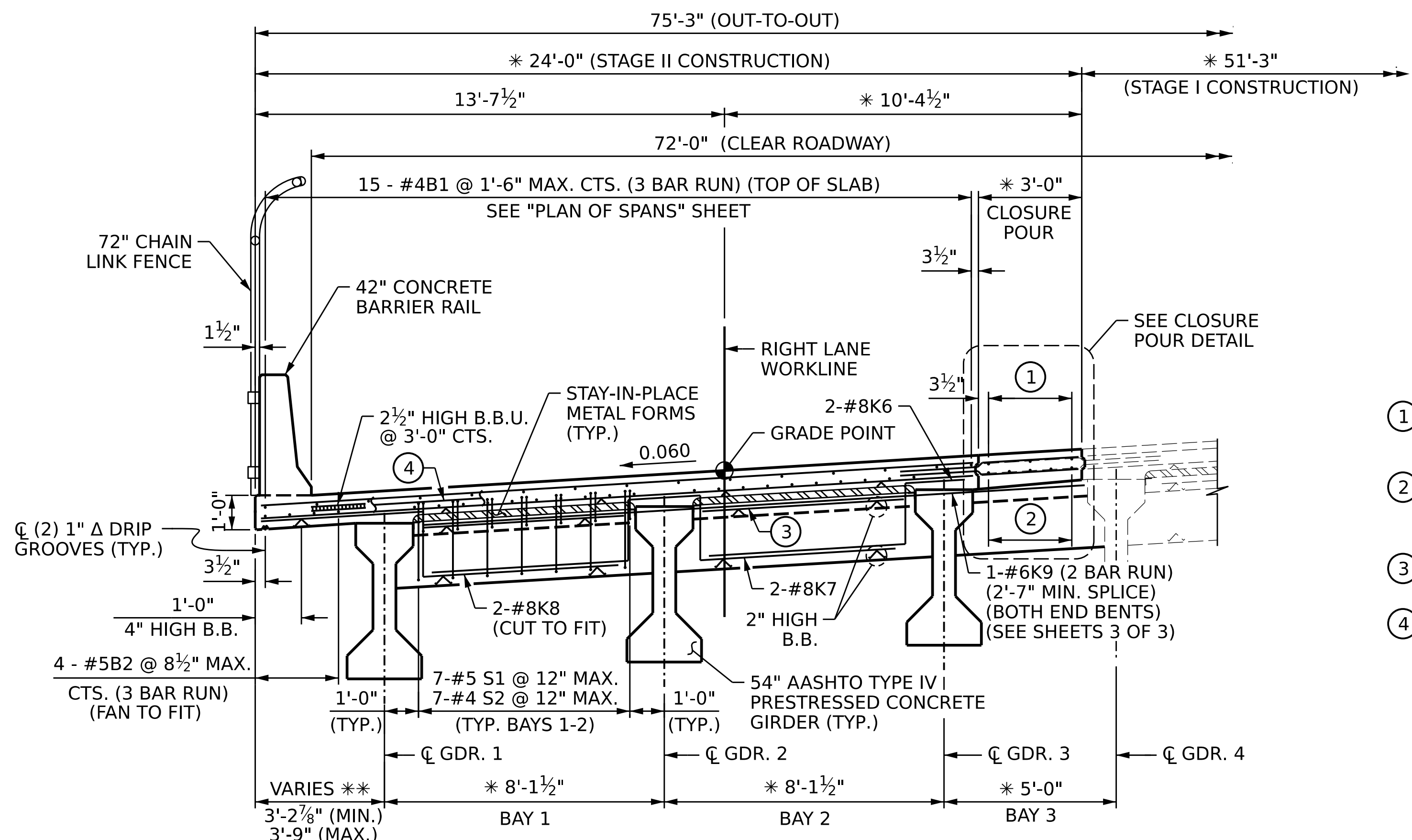
SEE CONSTRUCTION SEQUENCE SHEETS FOR LOCATION OF TEMPORARY PORTABLE CONCRETE BARRIER (ANCHORED).

* = MEASURED RADIAL THRU WORKPOINT
** = MEASURED NORMAL TO C GIRDERS



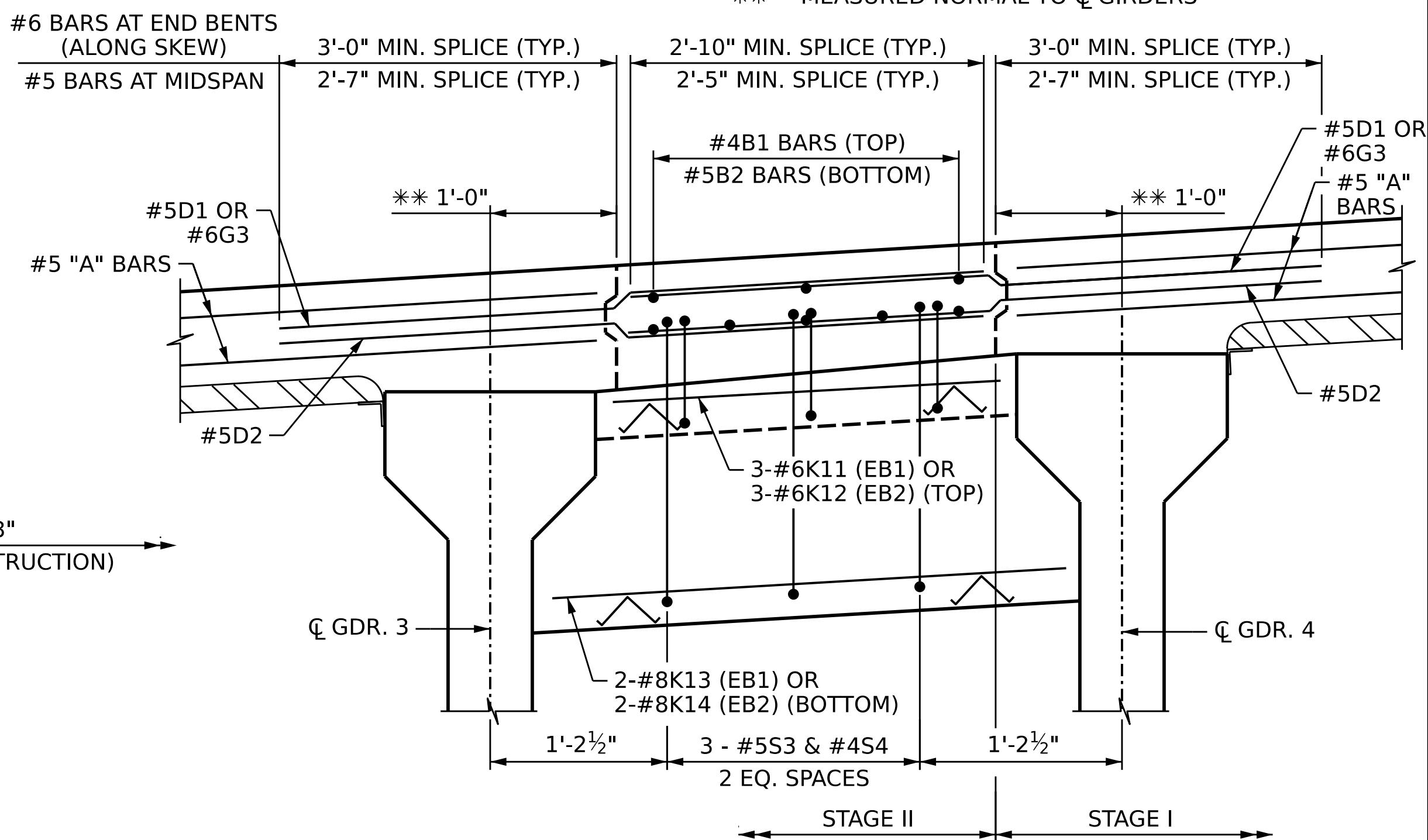
TYPICAL SECTION AT MIDSPAN

ALL HORIZONTAL DIMENSIONS ARE RADIAL UNLESS NOTED OTHERWISE



TYPICAL SECTION AT END BENT

ALL HORIZONTAL DIMENSIONS ARE RADIAL UNLESS NOTED OTHERWISE



CLOSURE POUR DETAIL

DECK CLOSURE POUR DETAIL AT END BENT AND MIDSPAN

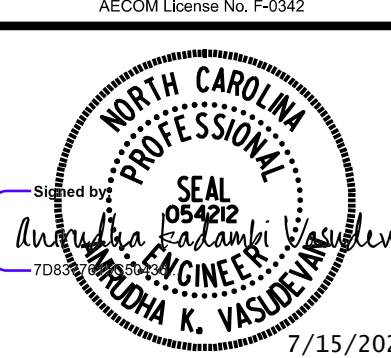
- ① 3 - #4B1 @ 1'-6" MAX. CTS. (TOP OF CLOSURE POUR) (3 BAR RUN)
② 5 - #5B2 @ 8½" MAX. CTS. (BOTTOM OF CLOSURE POUR) (3 BAR RUN)
③ 2-#6K10 (TYP. BAYS 1 & 2)
④ 6-#6G2 (ALONG SKEW)

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 105+49.43 -L-

SHEET 2 OF 3



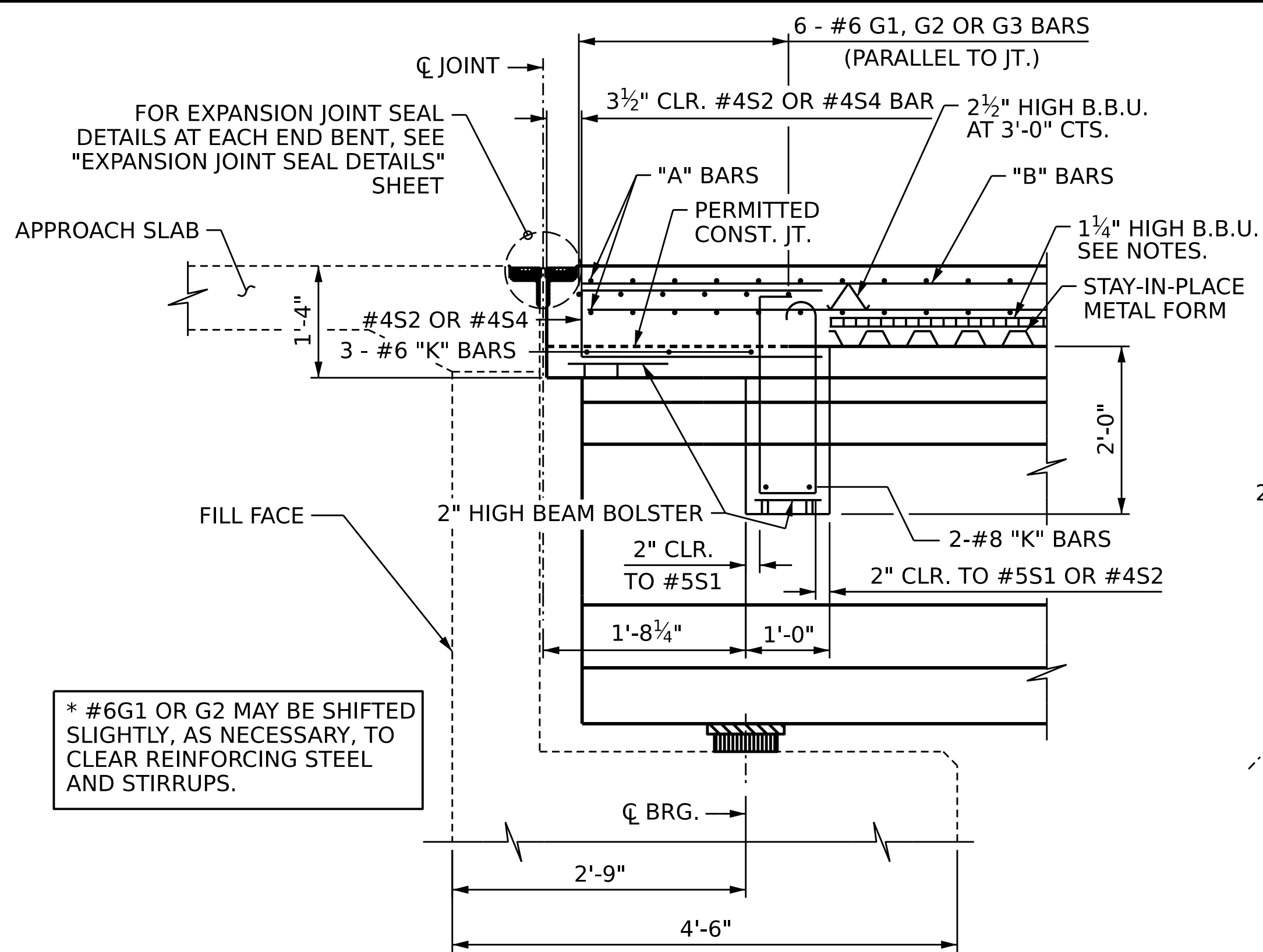
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION
STAGE II
(RIGHT LANE)

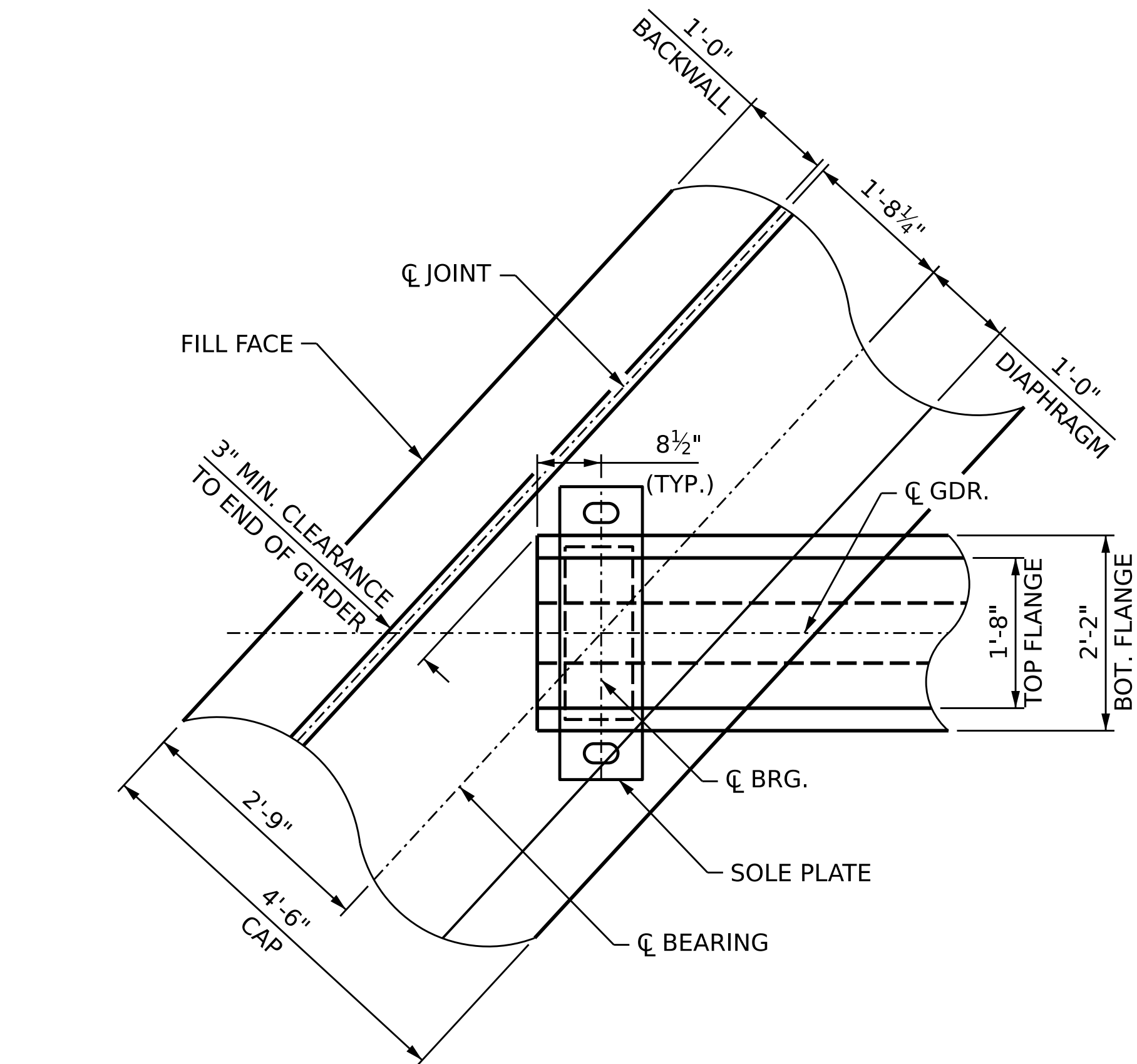
REVISIONS						SHEET NO. S10-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 52
2			4			

DRAWN BY : M. CATER
CHECKED BY : A. VASUDEVAN
DESIGN ENGINEER OF RECORD: A. VASUDEVAN
DATE : 12/2023
DATE : 01/2024
DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

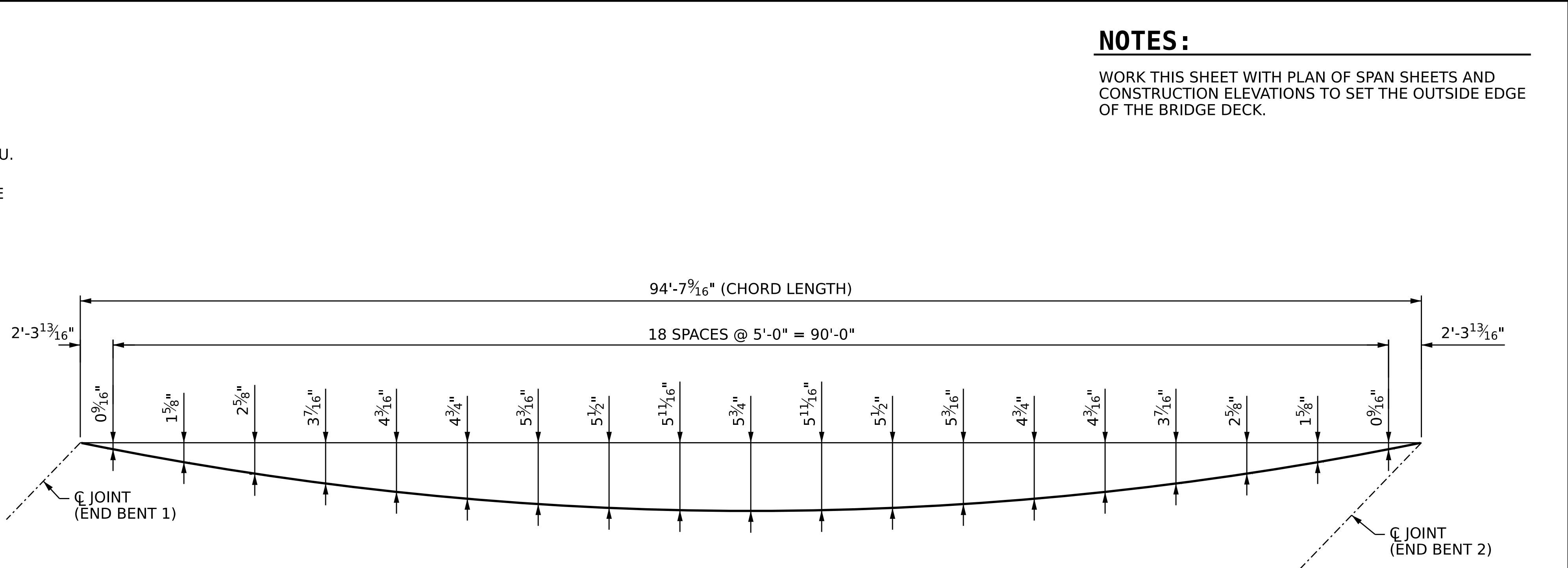


SECTION THRU END BENT DIAPHRAGMS
(DIMENSIONS SHOWN ARE NORMAL TO END BENT)
(END BENT 1 SHOWN, END BENT 2 SIMILAR)

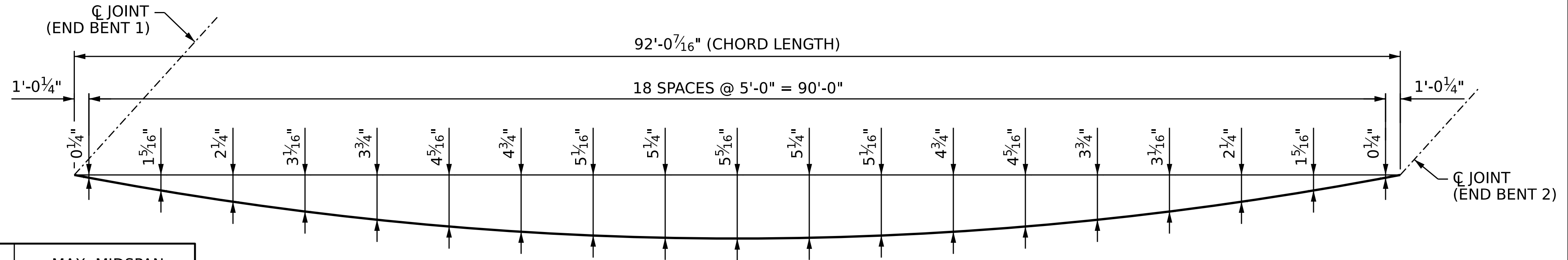


PLAN OF GIRDER AT END BENT DIAPHRAGM

DRAWN BY : M. CATER DATE : 12/2023
CHECKED BY : A. VASUDEVAN DATE : 01/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026



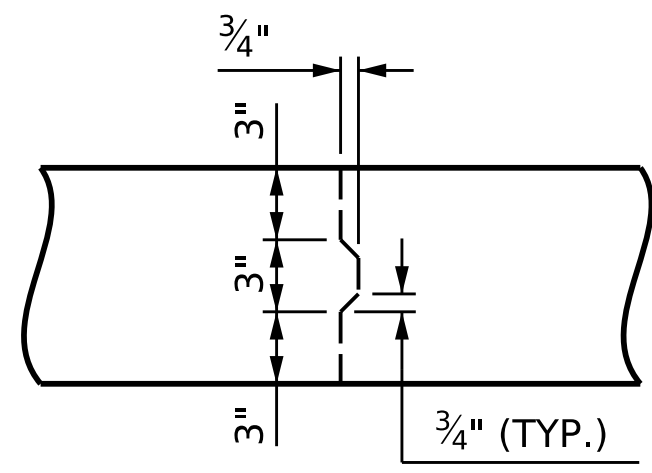
ARC OFFSETS
LEFT EDGE OF DECK - STAGE II CONSTRUCTION



ARC OFFSETS
RIGHT EDGE OF DECK - STAGE I CONSTRUCTION

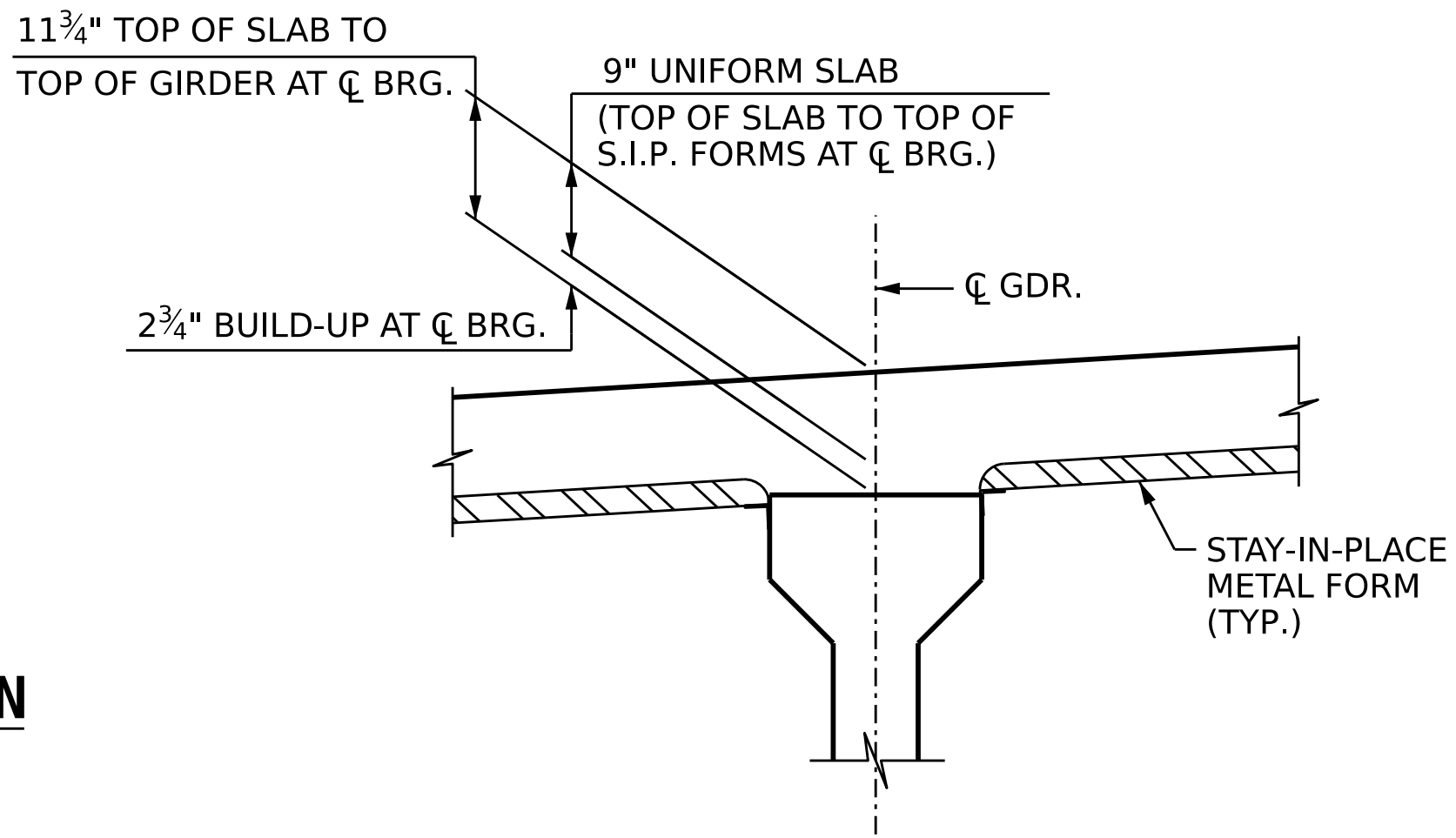
GIRDER	MAX. MIDSPAN BUILD-UP (INCHES)*
1 - 2	2 5/8"
3	2 1/2"
4 - 8	2 5/16"
9	2 3/16"

* BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS



TRANSVERSE CONSTRUCTION
JOINT IN DECK SLAB

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



DETAIL "A"

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

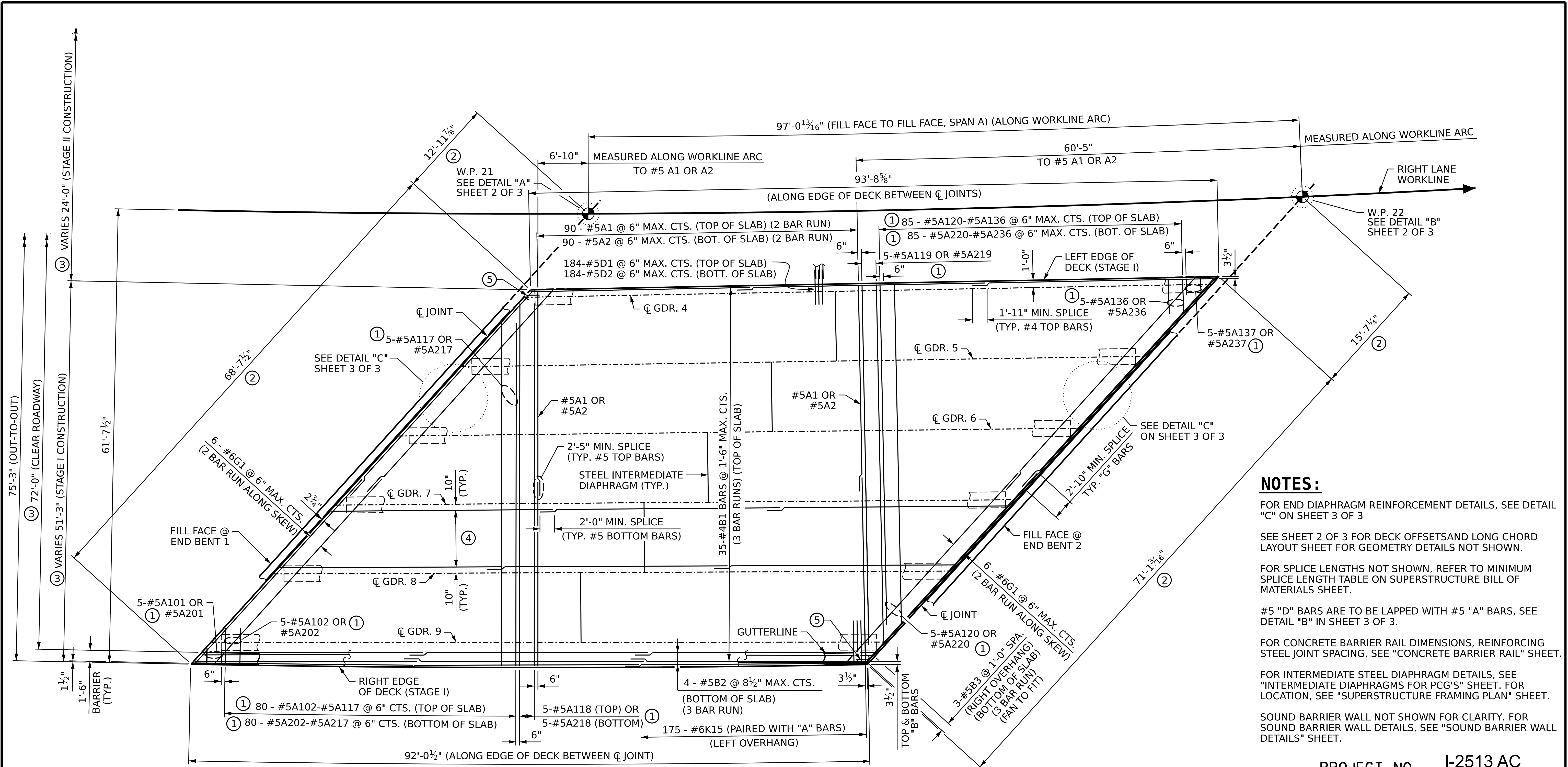
WORK THIS SHEET WITH PLAN OF SPAN SHEETS AND CONSTRUCTION ELEVATIONS TO SET THE OUTSIDE EDGE OF THE BRIDGE DECK.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-
SHEET 3 OF 3

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

North Carolina Professional Engineer
Seal of A. Vasudevan
No. 05422
7/15/2026

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION DETAILS (RIGHT LANE)					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					52



NOTES:

FOR END DIAPHRAGM REINFORCEMENT DETAILS, SEE DETAIL "C" ON SHEET 3 OF 3

SEE SHEET 2 OF 3 FOR DECK OFFSETS AND LONG CHORD LAYOUT SHEET FOR GEOMETRY DETAILS NOT SHOWN.

FOR SPLICE LENGTHS NOT SHOWN, REFER TO MINIMUM SPLICE LENGTH TABLE ON SUPERSTRUCTURE BILL OF MATERIALS SHEET.

#5 "D" BARS ARE TO BE LAPPED WITH #5 "A" BARS, SEE DETAIL "B" IN SHEET 3 OF 3.

FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCING STEEL JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEET.

FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE DIAPHRAGMS FOR PCG'S" SHEET. FOR LOCATION, SEE "SUPERSTRUCTURE FRAMING PLAN" SHEET.

SOUND BARRIER WALL NOT SHOWN FOR CLARITY. FOR SOUND BARRIER WALL DETAILS, SEE "SOUND BARRIER WALL DETAILS" SHEET.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

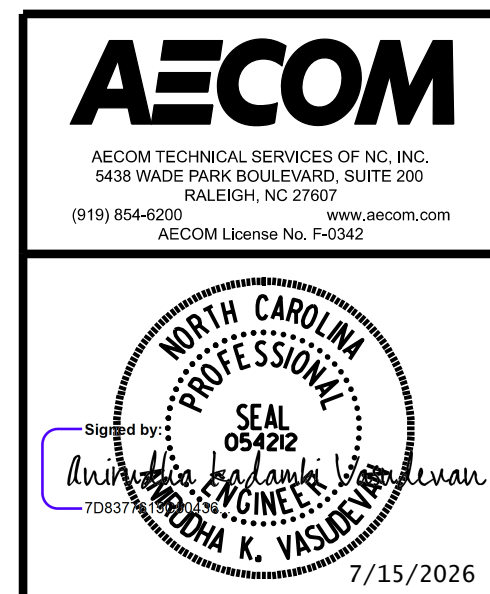
SHEET 1 OF 3

- ① TOP BARS #5A101 THRU #5A118, #5A119 THRU #5A137 AND BOTTOM BARS #5201 THRU #5A218, #5A219 THRU #5A237 SHALL BE PLACED IN 5 BAR INCREMENTS @ 6" MAX. AS SHOWN
- ② MEASURED ALONG ϕ JOINT
- ③ MEASURED RADIAL THRU WORK POINT
- ④ 12 - #5B2 @ 8 1/2" MAX. CTS. (TYPICAL BOTTOM EACH STAGE I BAY) (3 BAR RUN) (FAN TO FIT)
- ⑤ #4J1 BARS PLACED AT 1'-0" CENTERS AT EACH VERTICAL STUD ANCHOR BOLT OF EXPANSION JOINT. SEE EXPANSION JOINT SHEETS FOR DETAILS. TYPICAL AT EACH END BENT AND APPROACH SLABS.

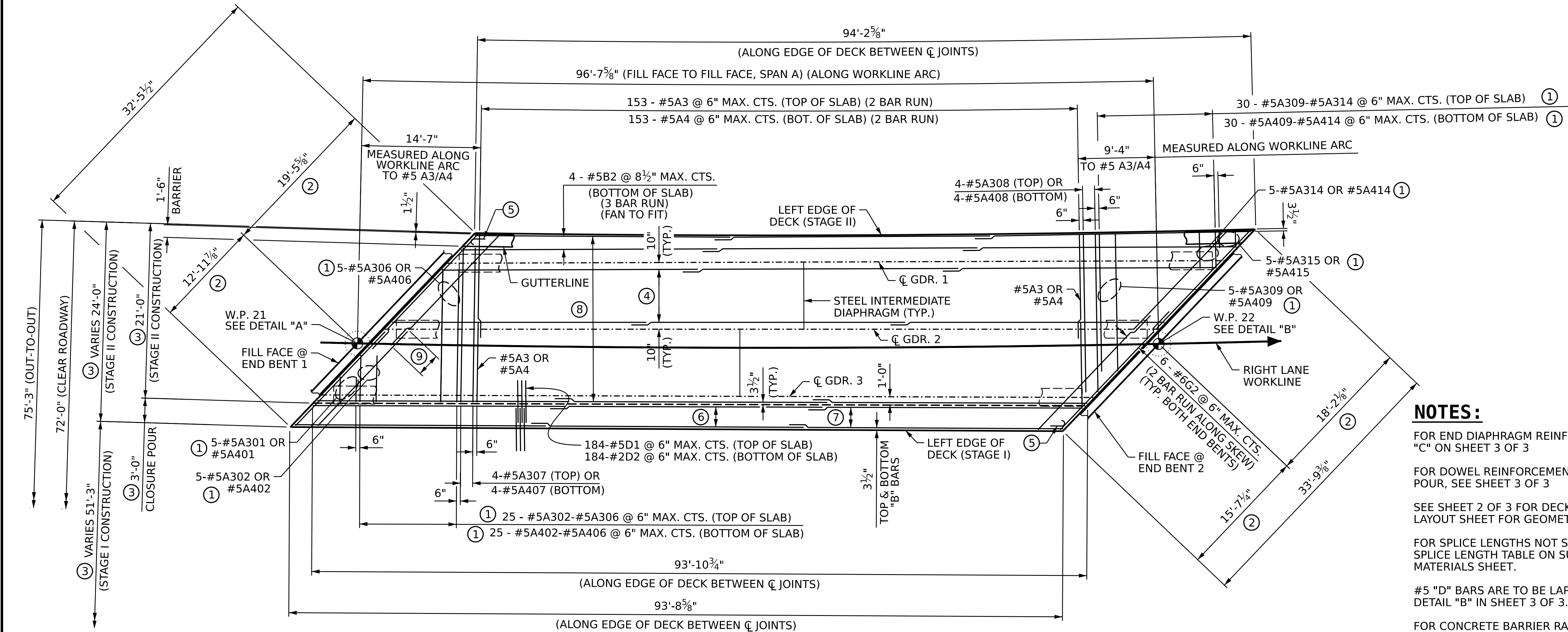
SPAN "A"
END DIAPHRAGMS NOT SHOWN FOR CLARITY

DRAWN BY : M. CATER DATE : 12/2023
CHECKED BY : A. VASUDEVAN DATE : 01/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S10-12
2			4			
TOTAL SHEETS						52



NOTES:

FOR END DIAPHRAGM REINFORCEMENT DETAILS, SEE DETAIL "C" ON SHEET 3 OF 3

FOR DOWEL REINFORCEMENT DETAILS IN CLOSURE POUR, SEE SHEET 3 OF 3

SEE SHEET 2 OF 3 FOR DECK OFFSETS AND LONG CHORD LAYOUT SHEET FOR GEOMETRY DETAILS NOT SHOWN.

FOR SPLICE LENGTHS NOT SHOWN, REFER TO MINIMUM SPLICE LENGTH TABLE ON SUPERSTRUCTURE BILL OF MATERIALS SHEET.

#5 "D" BARS ARE TO BE LAPPED WITH #5 "A" BARS, SEE DETAIL "B" IN SHEET 3 OF 3.

FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCING STEEL JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEET.

FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE DIAPHRAGMS FOR PCG'S" SHEET. FOR LOCATION, SEE "SUPERSTRUCTURE FRAMING PLAN" SHEET.

SOUND BARRIER WALL NOT SHOWN FOR CLARITY. FOR SOUND BARRIER WALL DETAILS, SEE "SOUND BARRIER WALL DETAILS" SHEET.

① TOP BARS #5A301 THRU #5A306, #5A309 THRU #5A316 AND BOTTOM BARS #5A401 THRU #5A406 #5A409 THRU #5A416 SHALL BE PLACED IN 5 BAR INCREMENTS @ 6" MAX. AS SHOWN

② MEASURED ALONG ϕ JOINT

③ MEASURED RADIAL THRU WORK POINT

④ 10 - #5B2 @ 8 1/2" MAX. CTS. (TYPICAL BOTTOM EACH STAGE II BAY) (3 BAR RUN) (FAN TO FIT)

⑤ #4J1 BARS PLACED AT 1'-0" CENTERS AT EACH VERTICAL STUD ANCHOR BOLT OF EXPANSION JOINT. SEE EXPANSION JOINT SHEETS FOR DETAILS. TYPICAL AT EACH END BENT AND APPROACH SLABS.

⑥ 5 - #5B1 @ 8 1/2" MAX. CTS. (BOTTOM OF CLOSURE POUR) (3 BAR RUN)

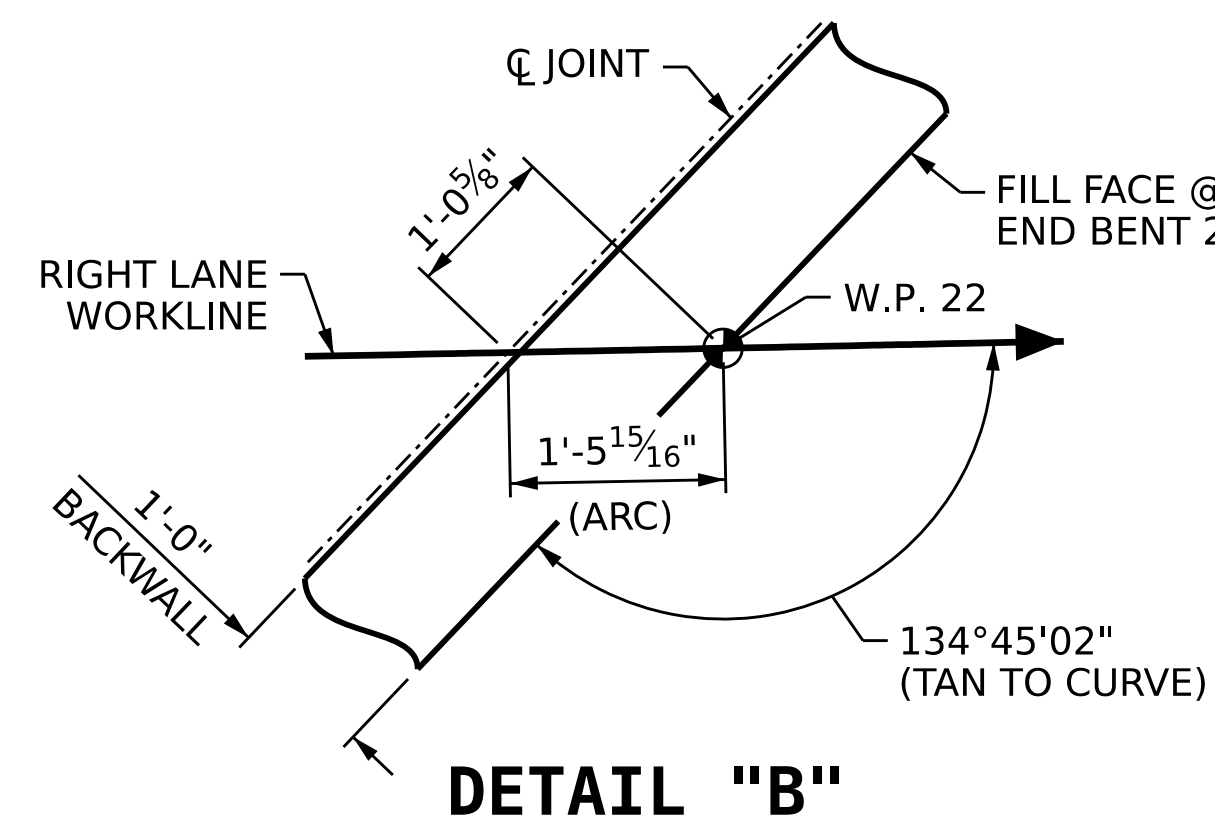
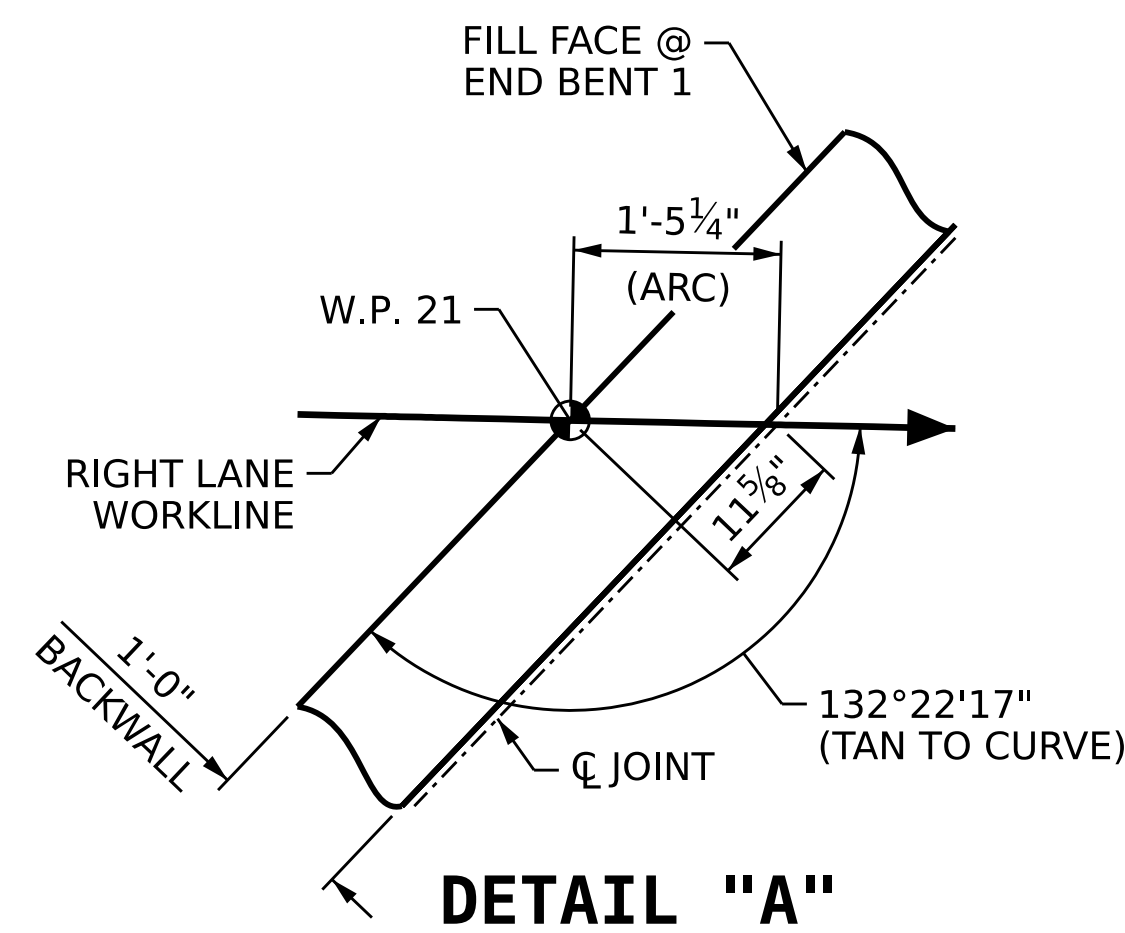
⑦ 3 - #4B1 @ 1'-6" MAX. CTS. (TOP OF CLOSURE POUR) (3 BAR RUN)

⑧ 15 - #4B1 @ 1'-6" MAX. CTS. (TOP OF SLAB) (3 BAR RUN)

⑨ 2'-10" MIN. SPLICE (TYP. "G" BARS)

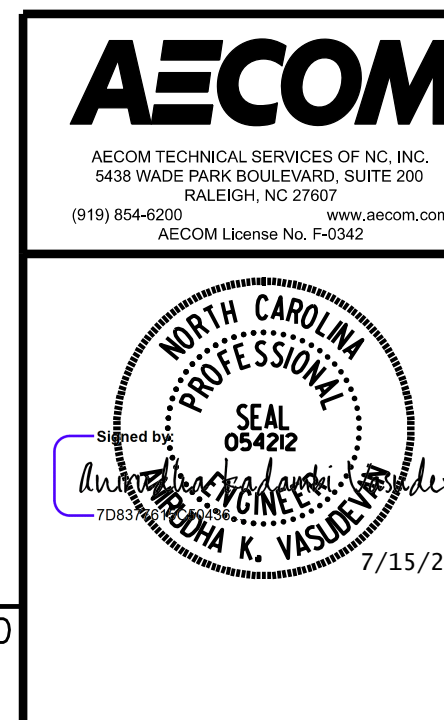
SPAN "A"

END DIAPHRAGMS NOT SHOWN FOR CLARITY



PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 2 OF 3



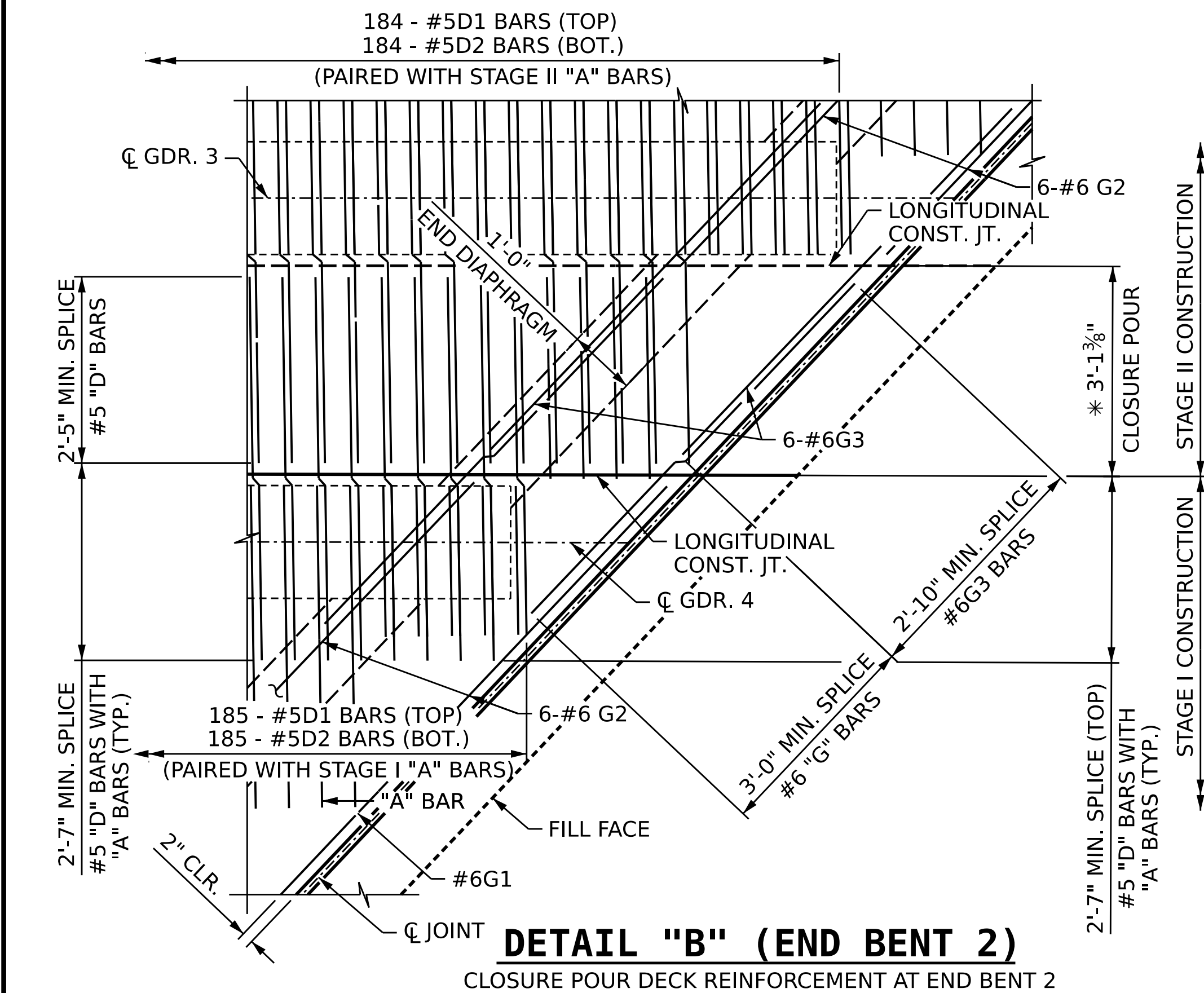
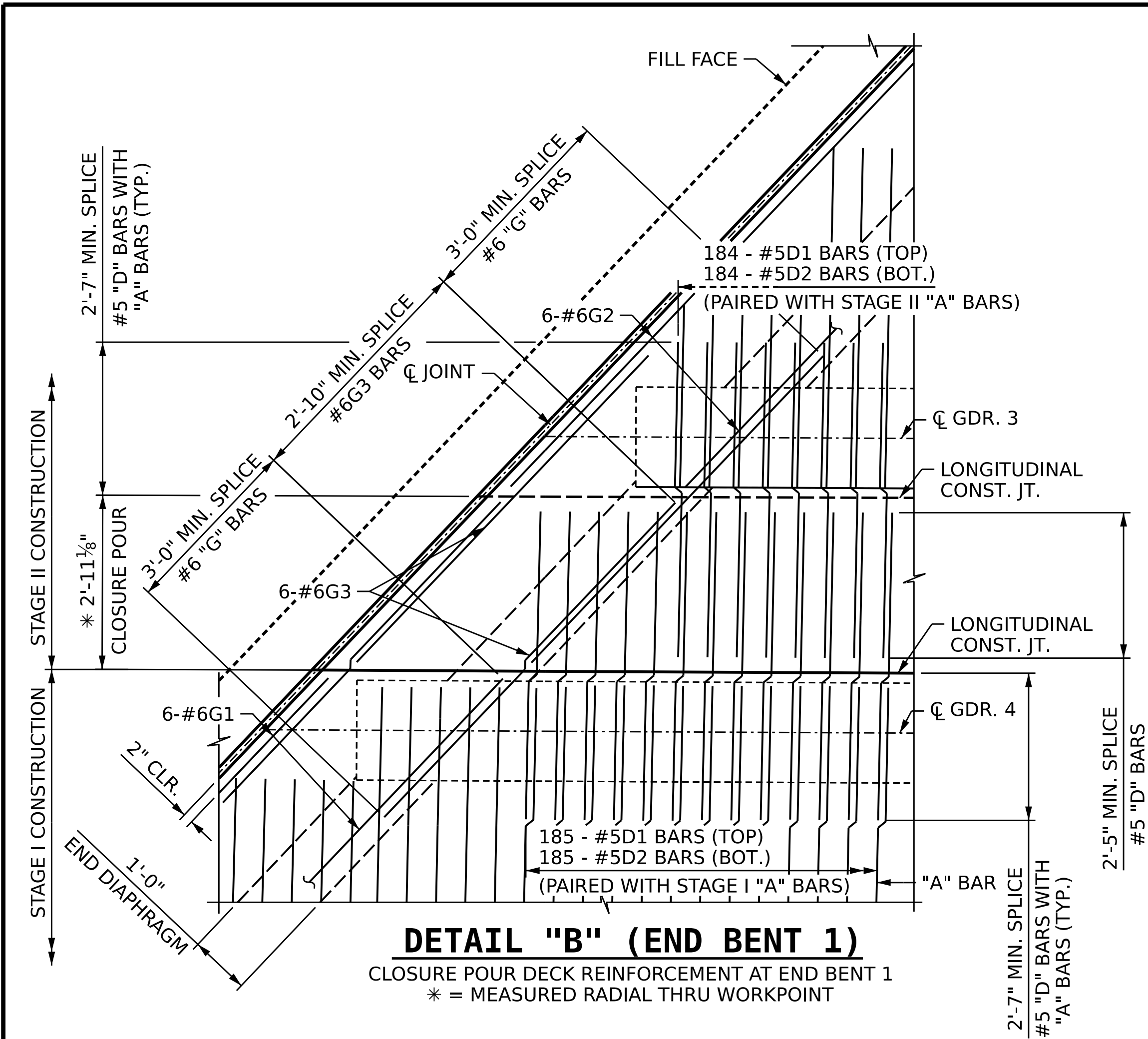
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPAN
STAGE II
(RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S10-13
2			4			
TOTAL SHEETS						52

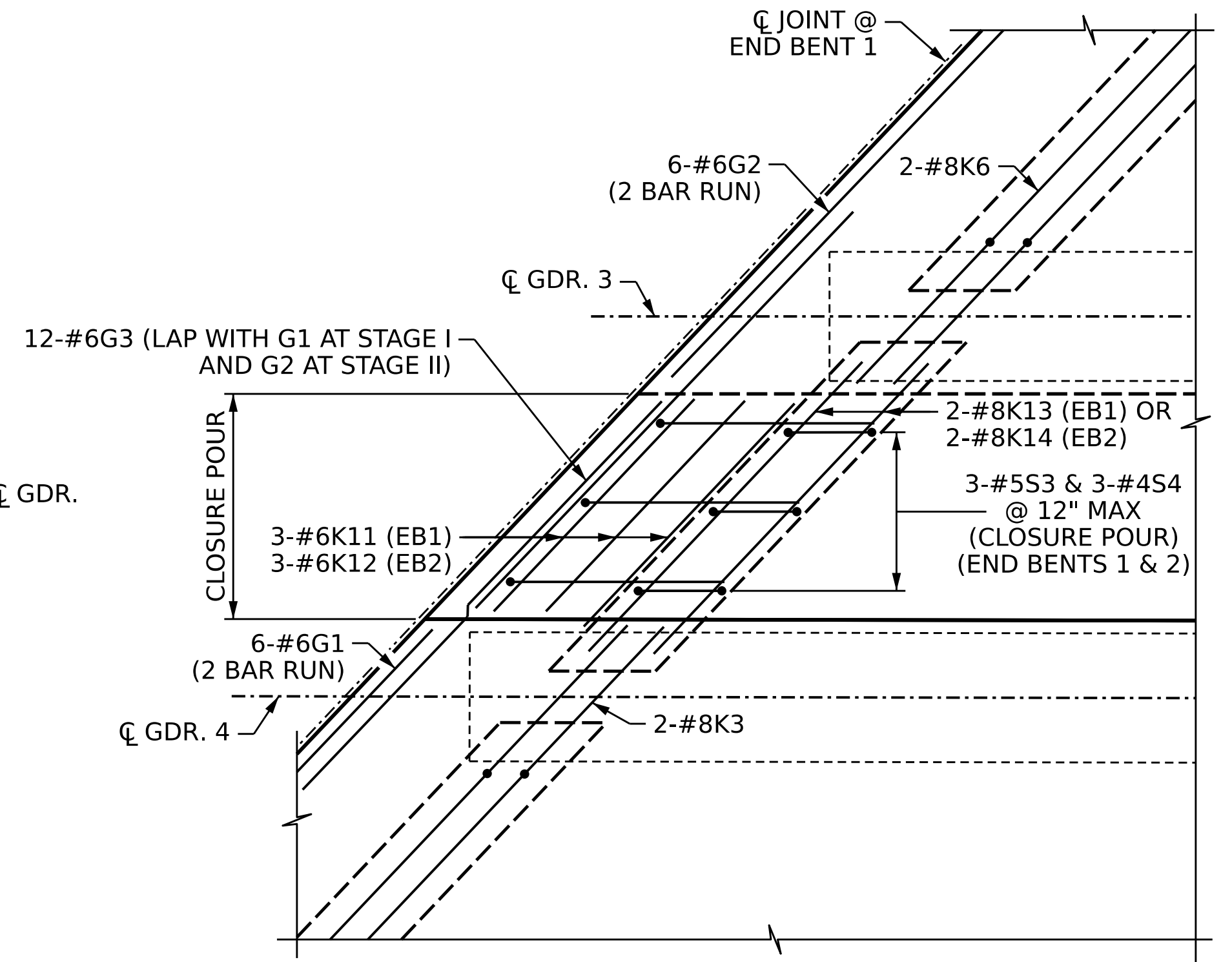
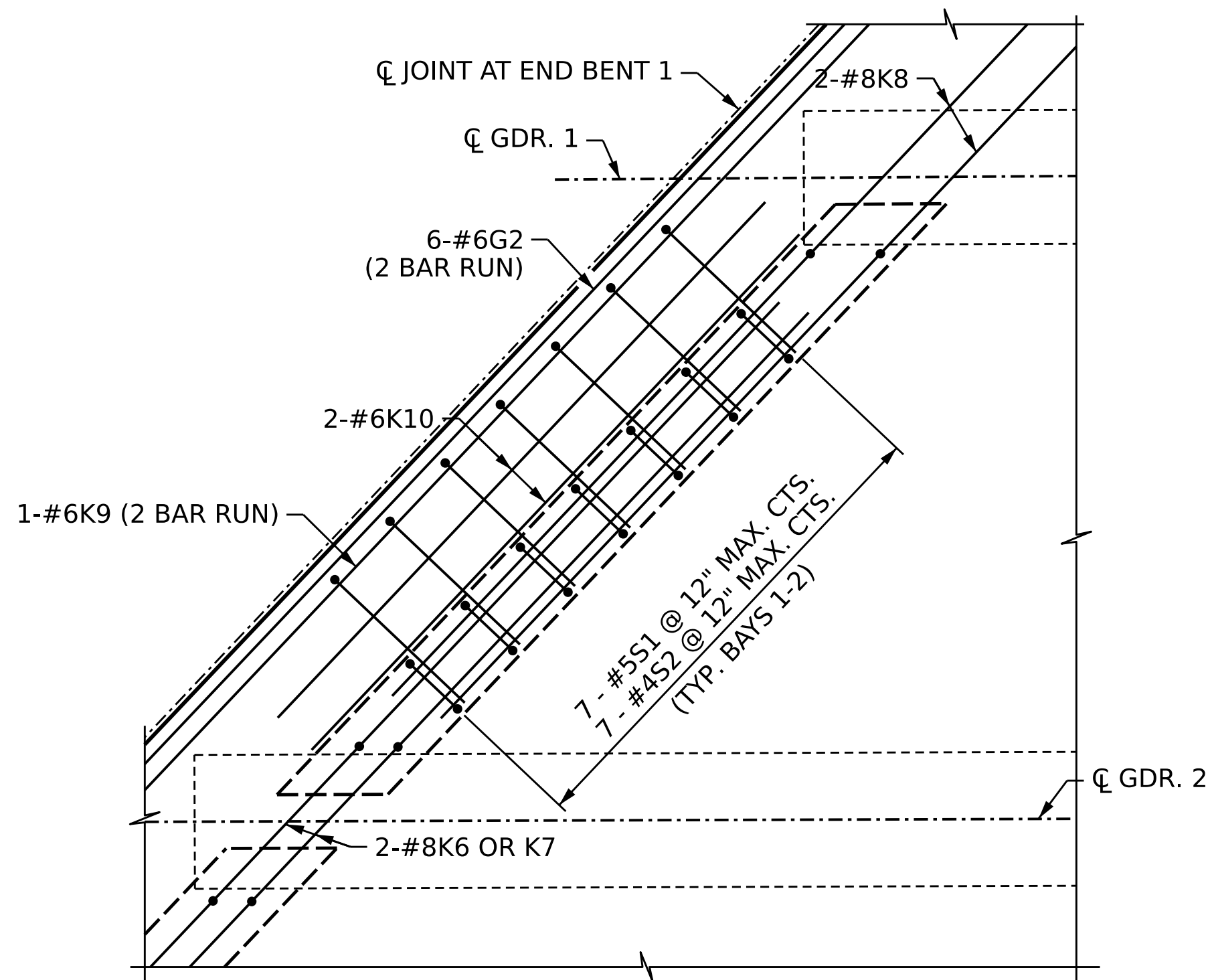
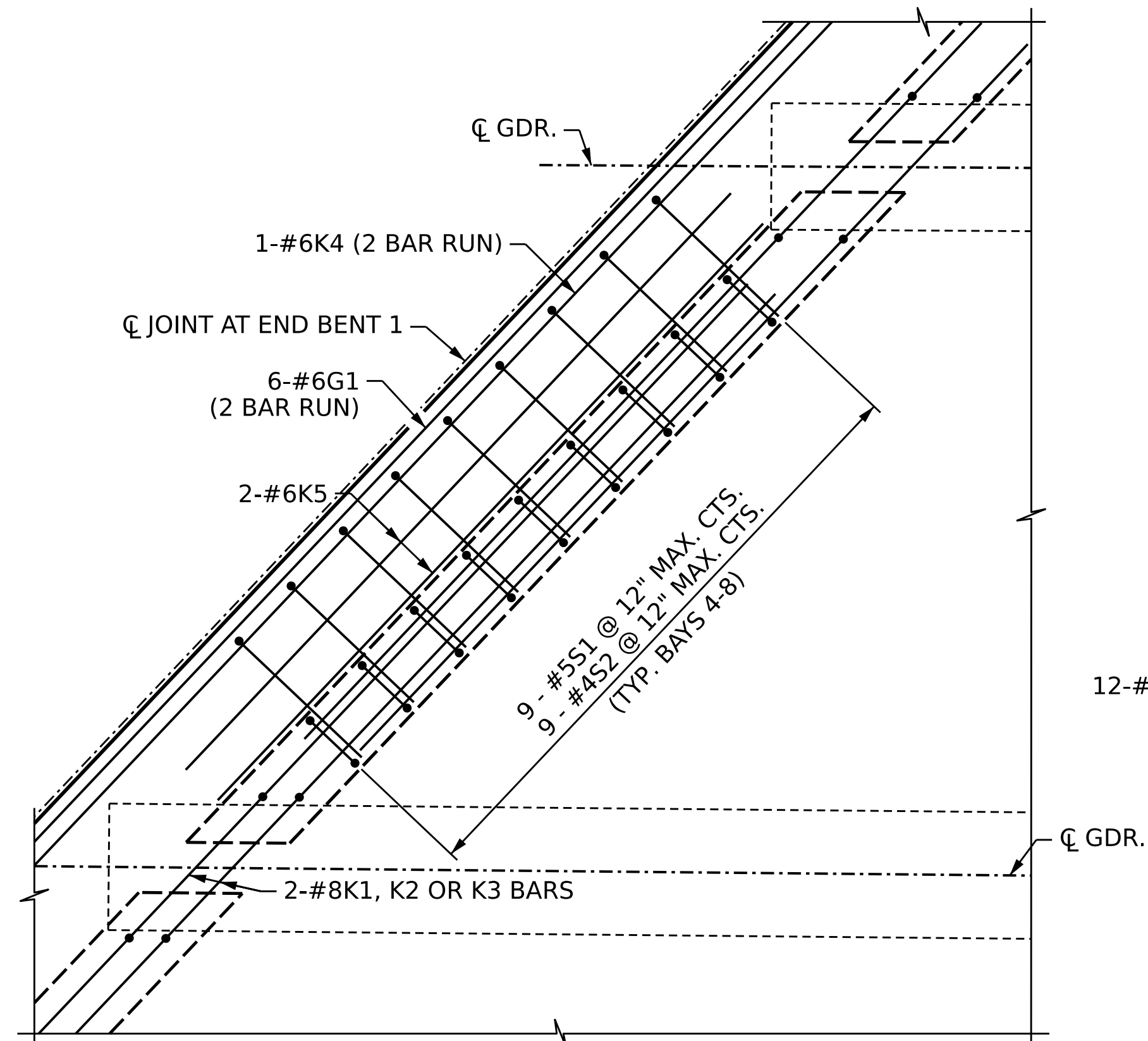
DRAWN BY : M. CATER DATE : 12/2023
CHECKED BY : A. VASUDEVAN DATE : 01/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



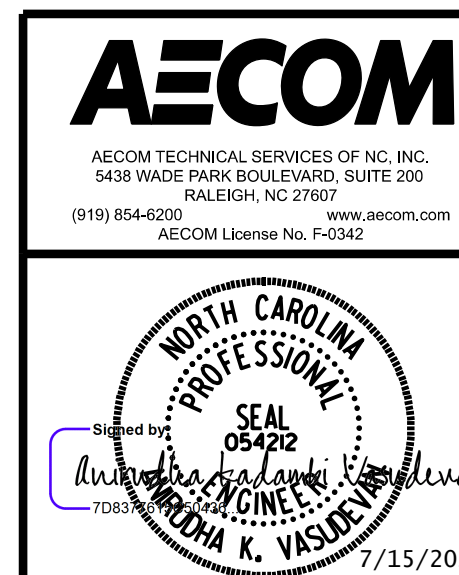
DRAWN BY : M. CATER DATE : 12/2023
CHECKED BY : A. VASUDEVAN DATE : 01/2024
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

7/13/2026
C:\pwworking\oecom.ds21.na.2020\d0223929\410.027.I2513AC.SMU.S3.S10-14.100901.dgn
caterm



PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 3 OF 3



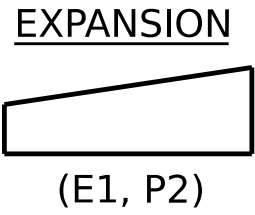
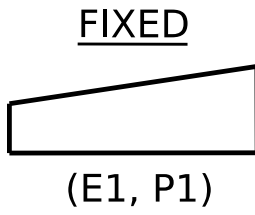
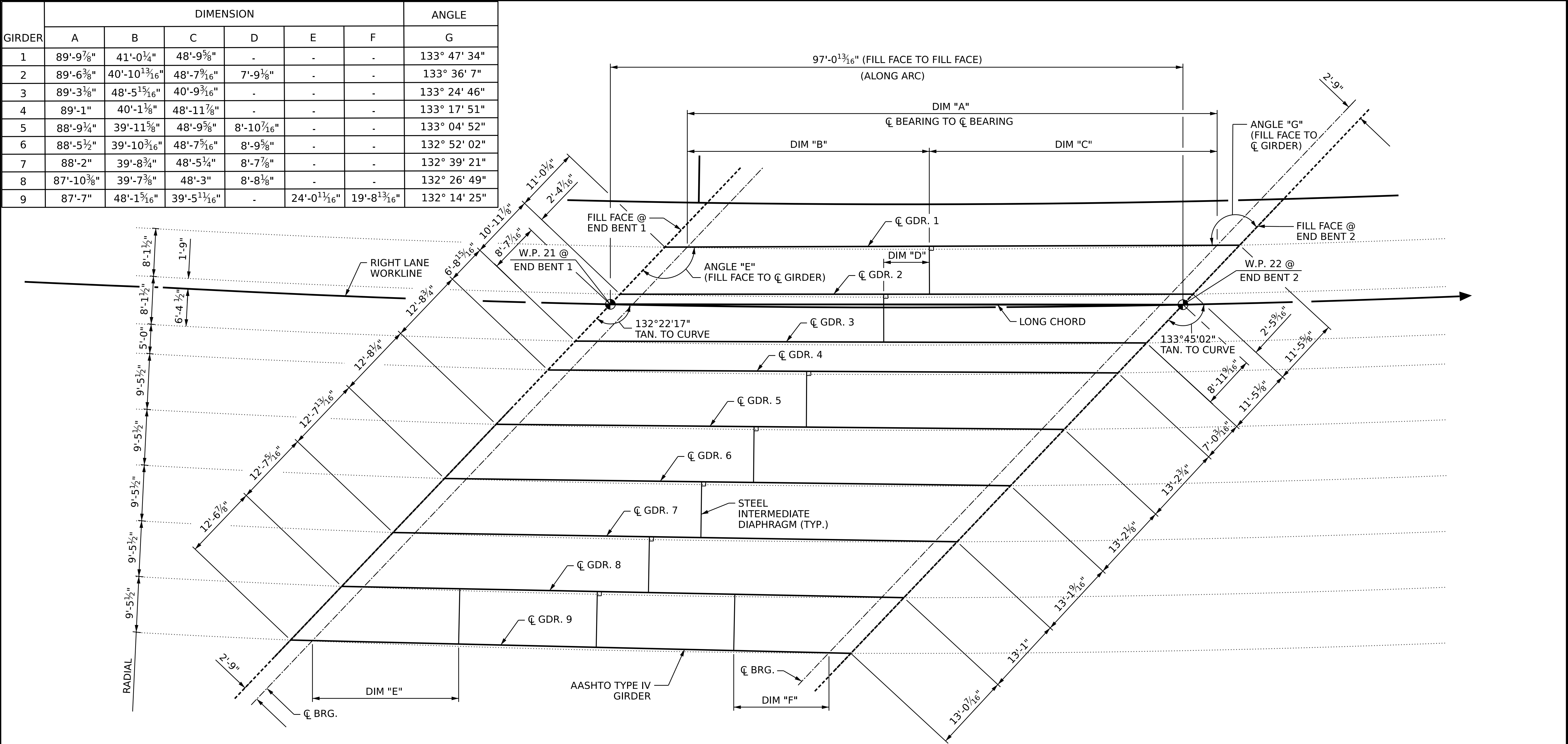
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPAN
DETAILS
(RIGHT LANE)

REVISIONS						SHEET NO. S10-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 52
2			4			

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

GIRDER	DIMENSION						ANGLE
	A	B	C	D	E	F	G
1	89'-9 ⁷ / ₈ "	41'-0 ¹ / ₄ "	48'-9 ⁵ / ₈ "	-	-	-	133° 47' 34"
2	89'-6 ³ / ₈ "	40'-10 ¹³ / ₁₆ "	48'-7 ⁹ / ₁₆ "	7'-9 ¹ / ₈ "	-	-	133° 36' 7"
3	89'-3 ¹ / ₈ "	48'-5 ¹⁵ / ₁₆ "	40'-9 ³ / ₁₆ "	-	-	-	133° 24' 46"
4	89'-1"	40'-1 ¹ / ₈ "	48'-11 ⁷ / ₈ "	-	-	-	133° 17' 51"
5	88'-9 ¹ / ₄ "	39'-11 ⁵ / ₈ "	48'-9 ⁵ / ₈ "	8'-10 ⁷ / ₁₆ "	-	-	133° 04' 52"
6	88'-5 ¹ / ₂ "	39'-10 ³ / ₁₆ "	48'-7 ⁵ / ₁₆ "	8'-9 ⁵ / ₈ "	-	-	132° 52' 02"
7	88'-2"	39'-8 ³ / ₄ "	48'-5 ¹ / ₄ "	8'-7 ⁷ / ₈ "	-	-	132° 39' 21"
8	87'-10 ³ / ₈ "	39'-7 ³ / ₈ "	48'-3"	8'-8 ¹ / ₈ "	-	-	132° 26' 49"
9	87'-7"	48'-1 ⁵ / ₁₆ "	39'-5 ¹¹ / ₁₆ "	-	24'-0 ¹¹ / ₁₆ "	19'-8 ¹³ / ₁₆ "	132° 14' 25"



SPAN A

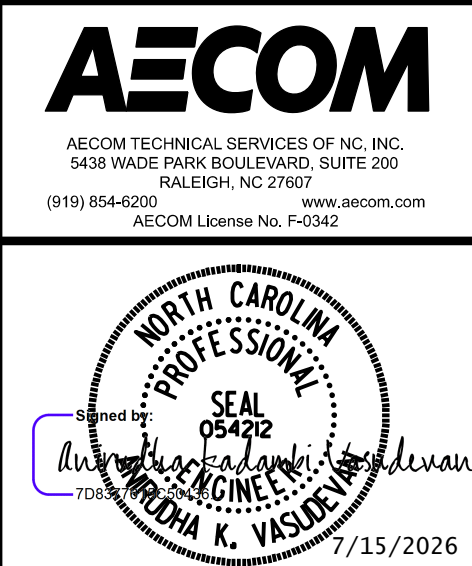
FRAMING PLAN

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

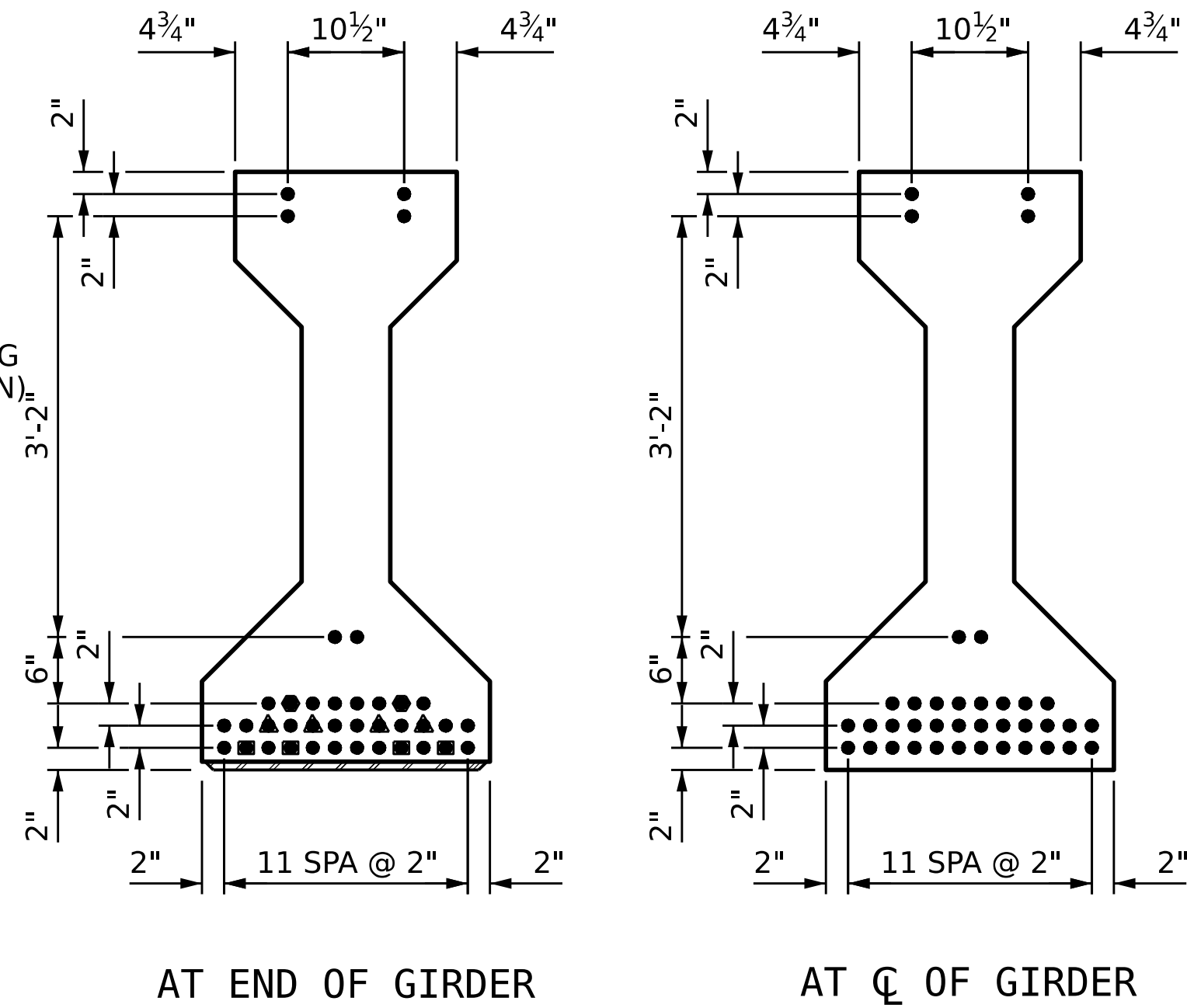
SHEET 1 OF 1

DRAWN BY :	T. NEAL	DATE :	11/2023
CHECKED BY :	A. VASUDEVAN	DATE :	11/2023
DESIGN ENGINEER OF RECORD:	A. VASUDEVAN	DATE :	03/2026

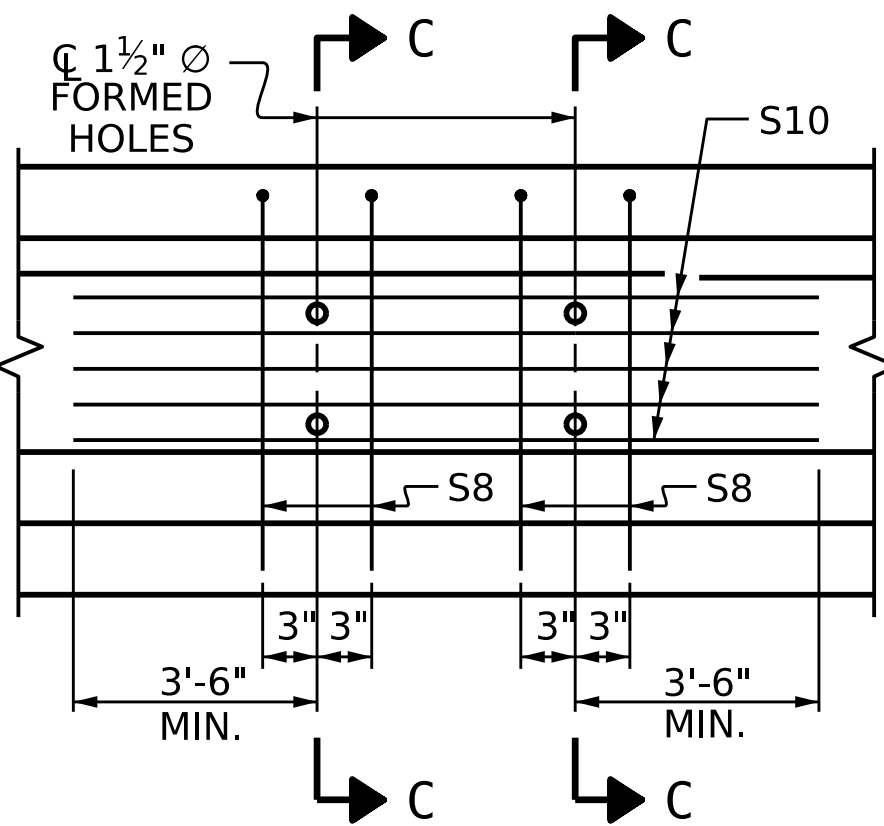
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



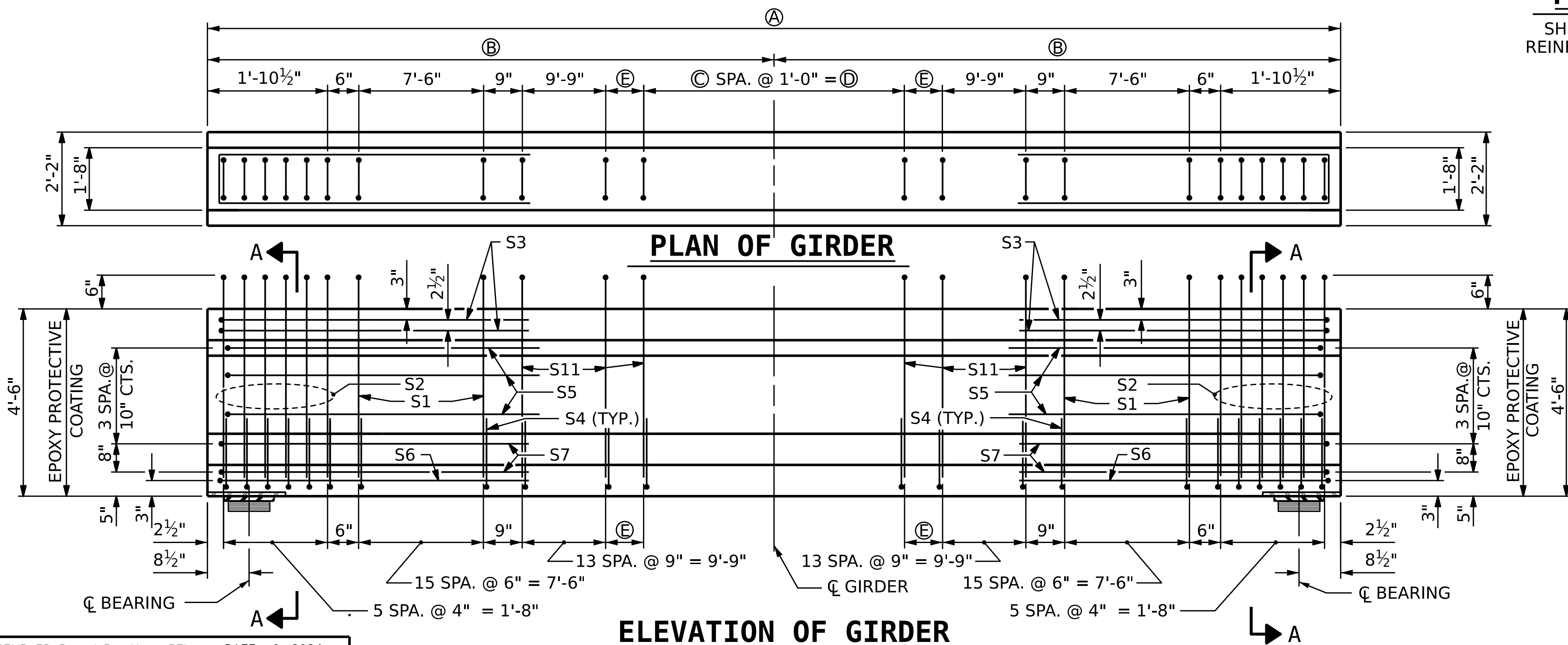
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S10-15
2			4			
TOTAL SHEETS						52



DIMENSION DEFINITIONS					
GIRDER	A	B	C	D	E
1	91'-2 $\frac{3}{4}$ "	45'-7 $\frac{3}{8}$ "	49	49'-0"	8 $\frac{1}{8}$ "
2	90'-11 $\frac{1}{4}$ "	45'-5 $\frac{5}{8}$ "	49	49'-0"	7 $\frac{1}{8}$ "
3	90'-8"	45'-4"	48	48'-0"	11 $\frac{1}{2}$ "
4	90'-6"	45'-3"	48	48'-0"	10 $\frac{1}{2}$ "
5	90'-2 $\frac{1}{4}$ "	45'-1 $\frac{1}{8}$ "	48	48'-0"	8 $\frac{1}{8}$ "
6	89'-10 $\frac{1}{2}$ "	44'-11 $\frac{1}{4}$ "	48	48'-0"	6 $\frac{3}{4}$ "
7	89'-7"	44'-9 $\frac{1}{2}$ "	47	47'-0"	11"
8	89'-3 $\frac{1}{2}$ "	44'-7 $\frac{3}{8}$ "	47	47'-0"	9 $\frac{1}{8}$ "
9	89'-0"	44'-6"	47	47'-0"	7 $\frac{1}{2}$ "



SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR GIRDER Nos. 2-8

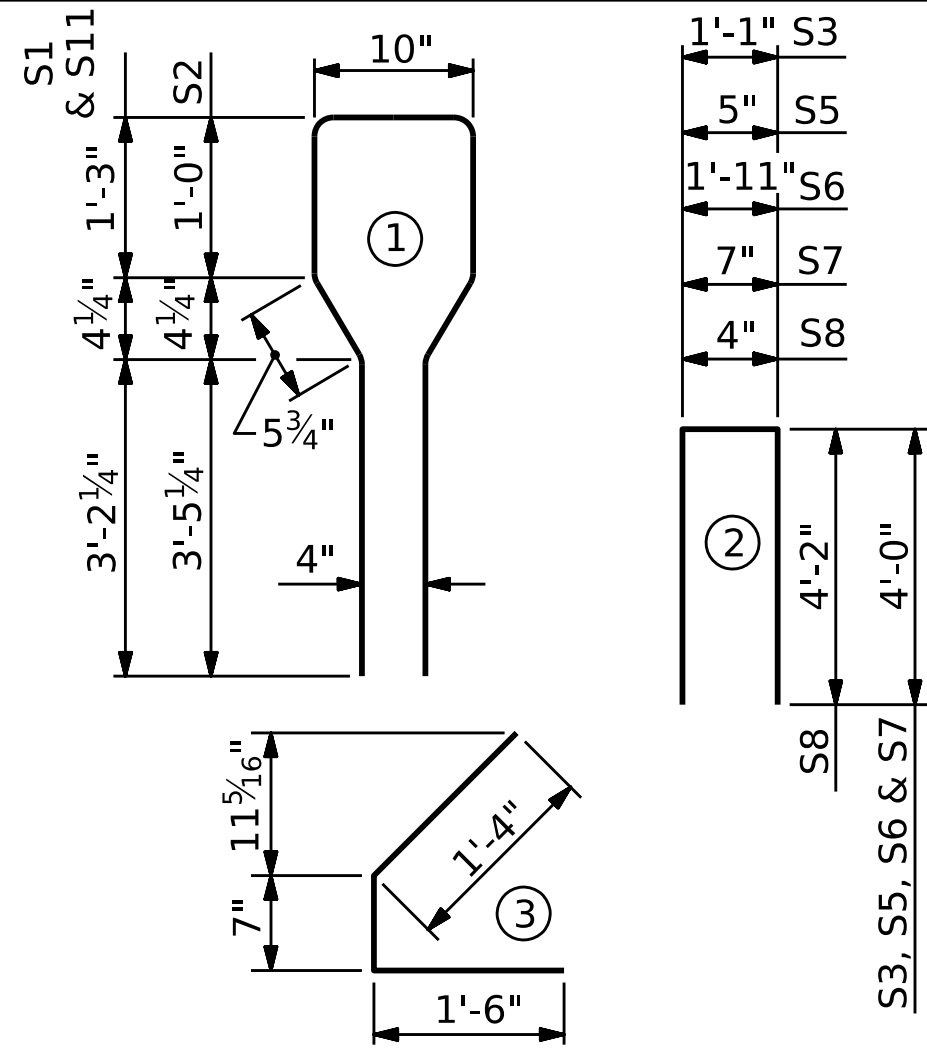


(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

ASSEMBLED BY : A.R. VAN VUREN	DATE : 01/2024
CHECKED BY : A.K. VASUDEVAN	DATE : 01/2024
DRAWN BY : JMB 12/87	REV. 10/1/11 MAA/GM
CHECKED BY : ARB 12/87	REV. 1/15 MAA/TMC
	REV. 12/17 MAA/THC

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	60	#6	1	10'-8"	961
S2	12	#6	1	10'-8"	192
S3	4	#4	2	9'-1"	24
S4	144	#4	3	3'-5"	329
S5	6	#4	2	8'-5"	34
S6	2	#4	2	9'-11"	13
S7	4	#4	2	8'-7"	23

GIRDERS 1, 3 & 4	S8	2	#5	2	8'-8"	18
GIRDERS 2, 5-7	S8	4	#5	2	8'-8"	36
GIRDER 8	S8	8	#5	2	8'-8"	72
GIRDER 9	S8	6	#5	2	8'-8"	54
GIRDER 1, 3 & 4	S9	5	#4	STR	7'-0"	23
GIRDER 8	S9	10	#4	STR	7'-0"	47
GIRDER 9	S9	15	#4	STR	7'-0"	70
GIRDERS 2, 5-8	S10	5	#4	STR	16'-0"	53
GIRDERS 1-2	S11	53	#5	1	10'-8"	556
GIRDERS 3-6	S11	52	#5	1	10'-8"	545
GIRDERS 7-9	S11	51	#5	1	10'-8"	534



	REINFORCING STEEL	8,500 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
GIRDER 1	2,173	18.5	38
GIRDER 2	2,221	18.5	38
GIRDER 3	2,162	18.4	38
GIRDER 4	2,262	18.4	38
GIRDER 5	2,210	18.3	38
GIRDER 6	2,210	18.2	38
GIRDER 7	2,199	18.2	38
GIRDER 8	2,181	18.1	38
GIRDER 9	2,234	18.1	38

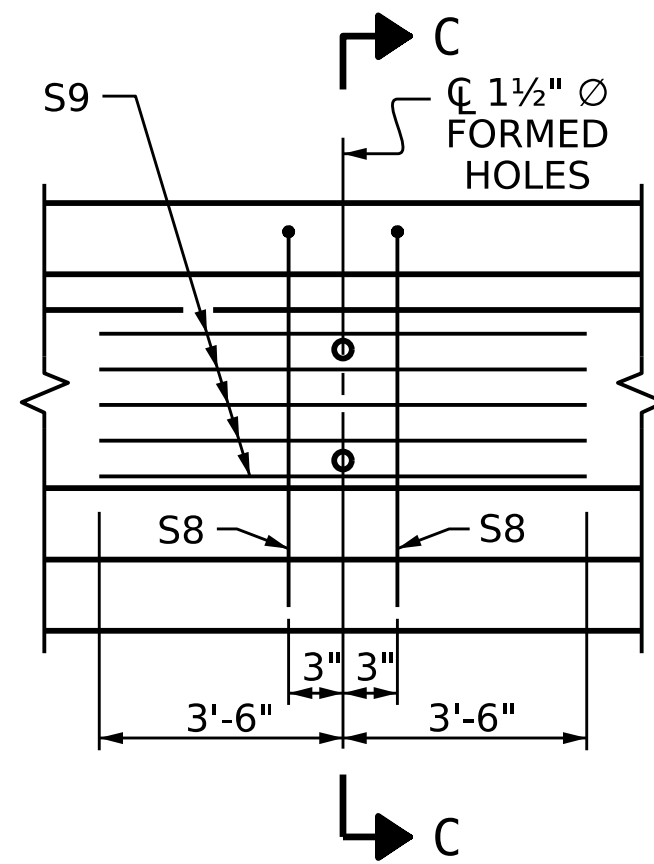
NUMBER	LENGTH	TOTAL LENGTH
9	SEE TABLE	811'-3"

SEE FRAMING PLAN FOR LOCATION OF FORMED HOLES FOR INTERMEDIATE DIAPHRAGMS.

SEE PRECAST CONCRETE FASCIA PANEL LAYOUT SHEET FOR FORMED HOLE
LOCATIONS FOR PRECAST CONCRETE FASCIA PANEL BRACING AT GIRDER 9

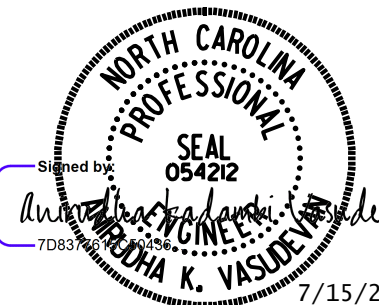
FABRICATOR SHALL ADJUST GIRDER SHEAR REINFORCEMENT SPACING UP TO A MAXIMUM OF 3 INCHES IN ORDER TO MISS THE PRECAST CONCRETE FASCIA PANEL BRACING CONNECTIONS.

SEE SHEET 2 OF 3 FOR ADDITIONAL NOTES.



SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR GIRDER Nos. 1 & 9

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PROJECT NO. I-2513 AC
BUNCOMBE COUNTY

STATION: 105+49.43 -L-

SHEET 1 OF 3

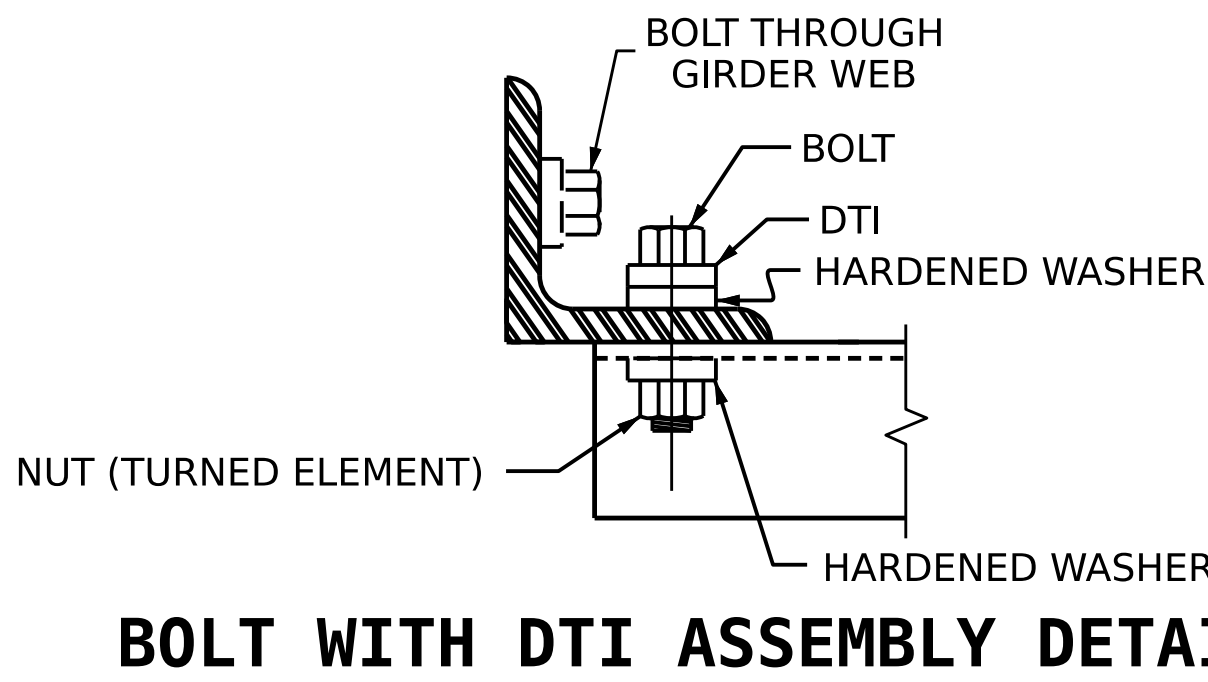
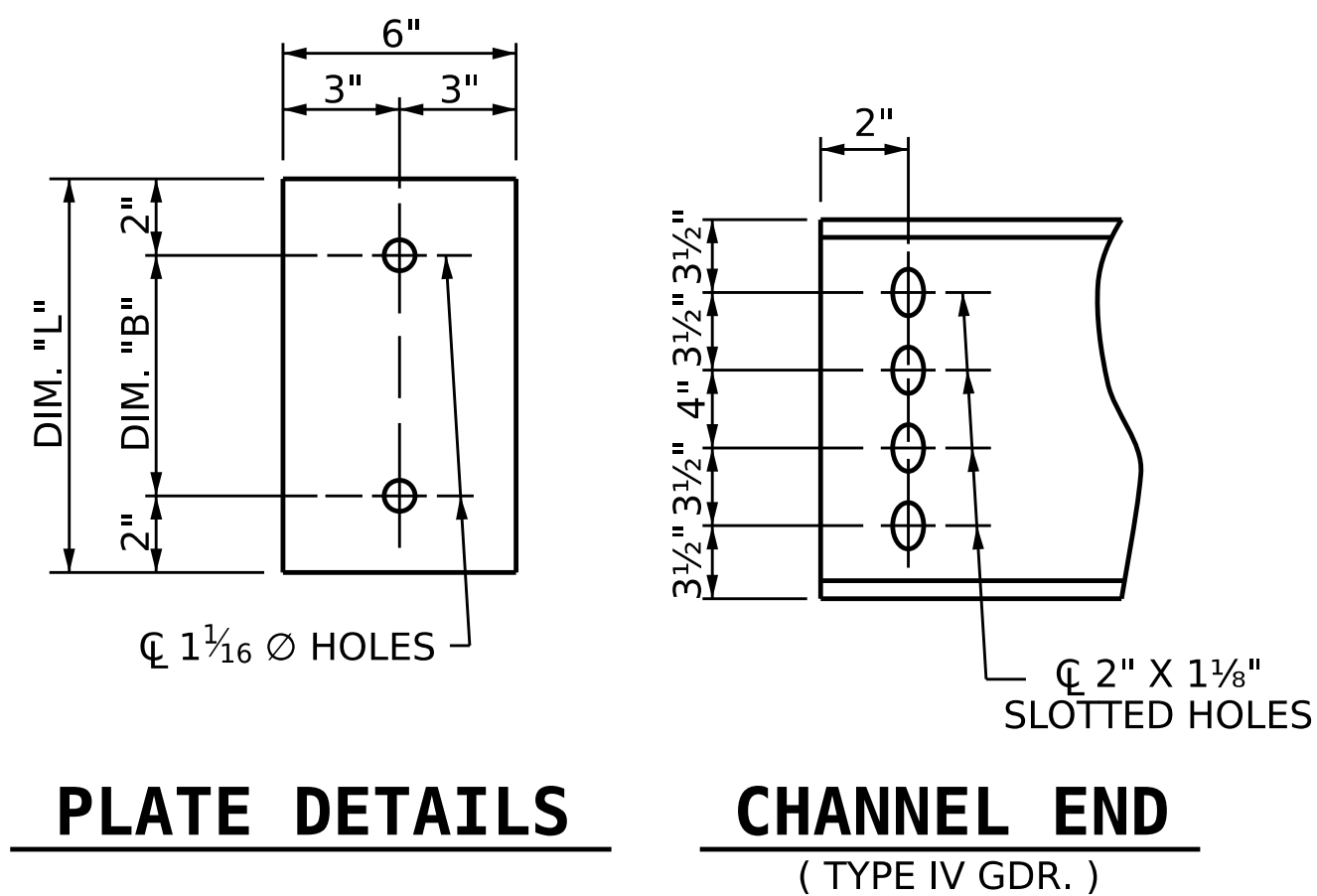
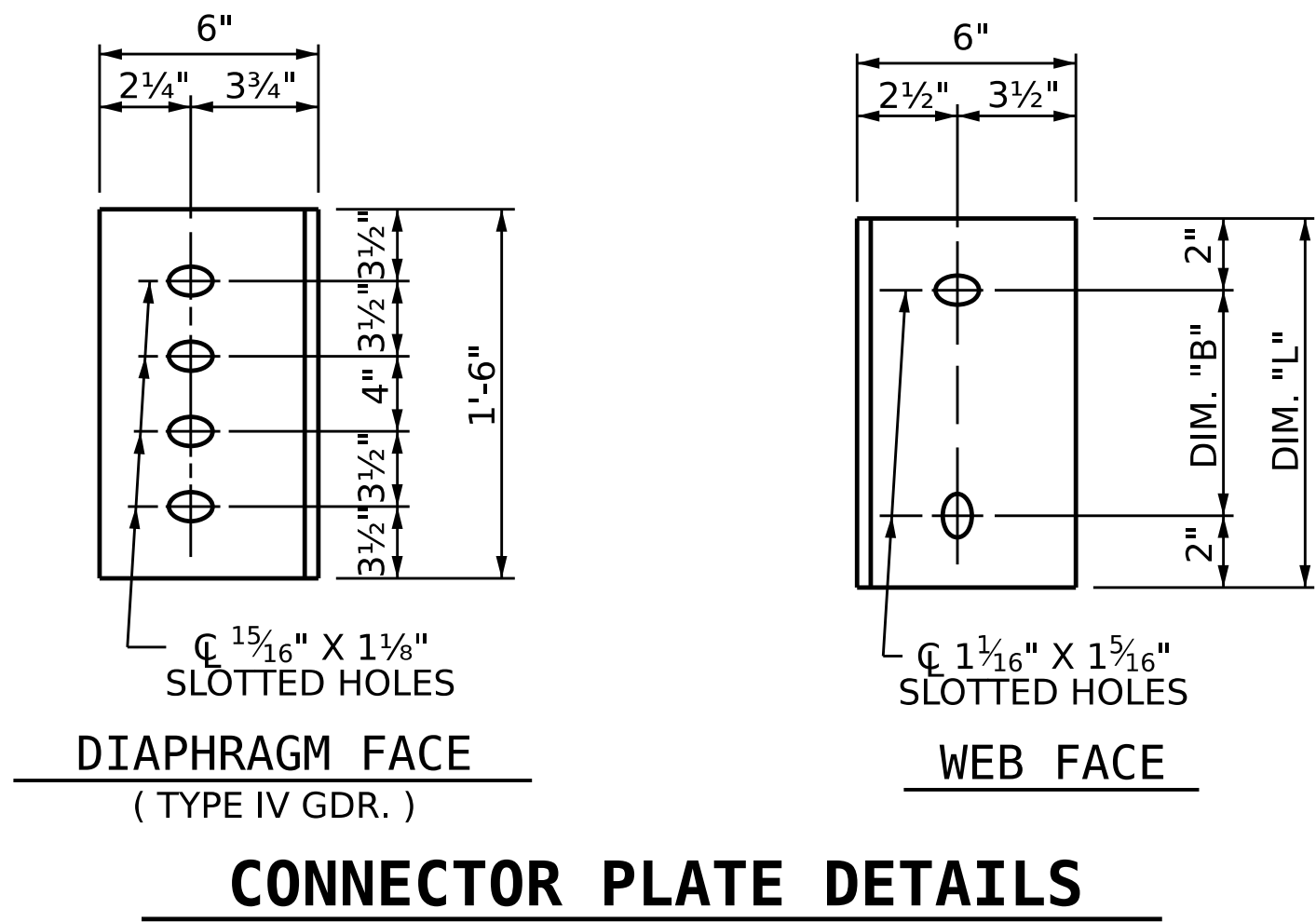
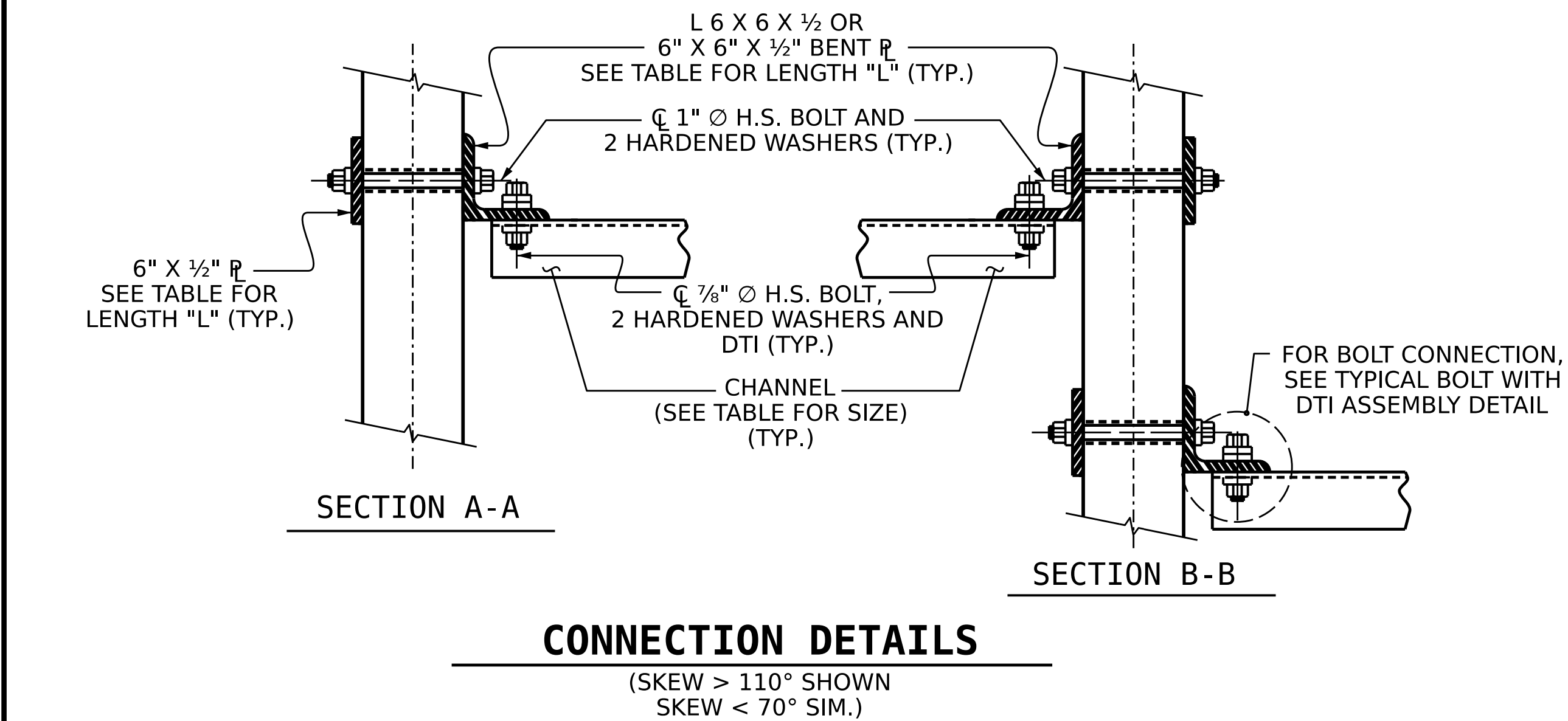
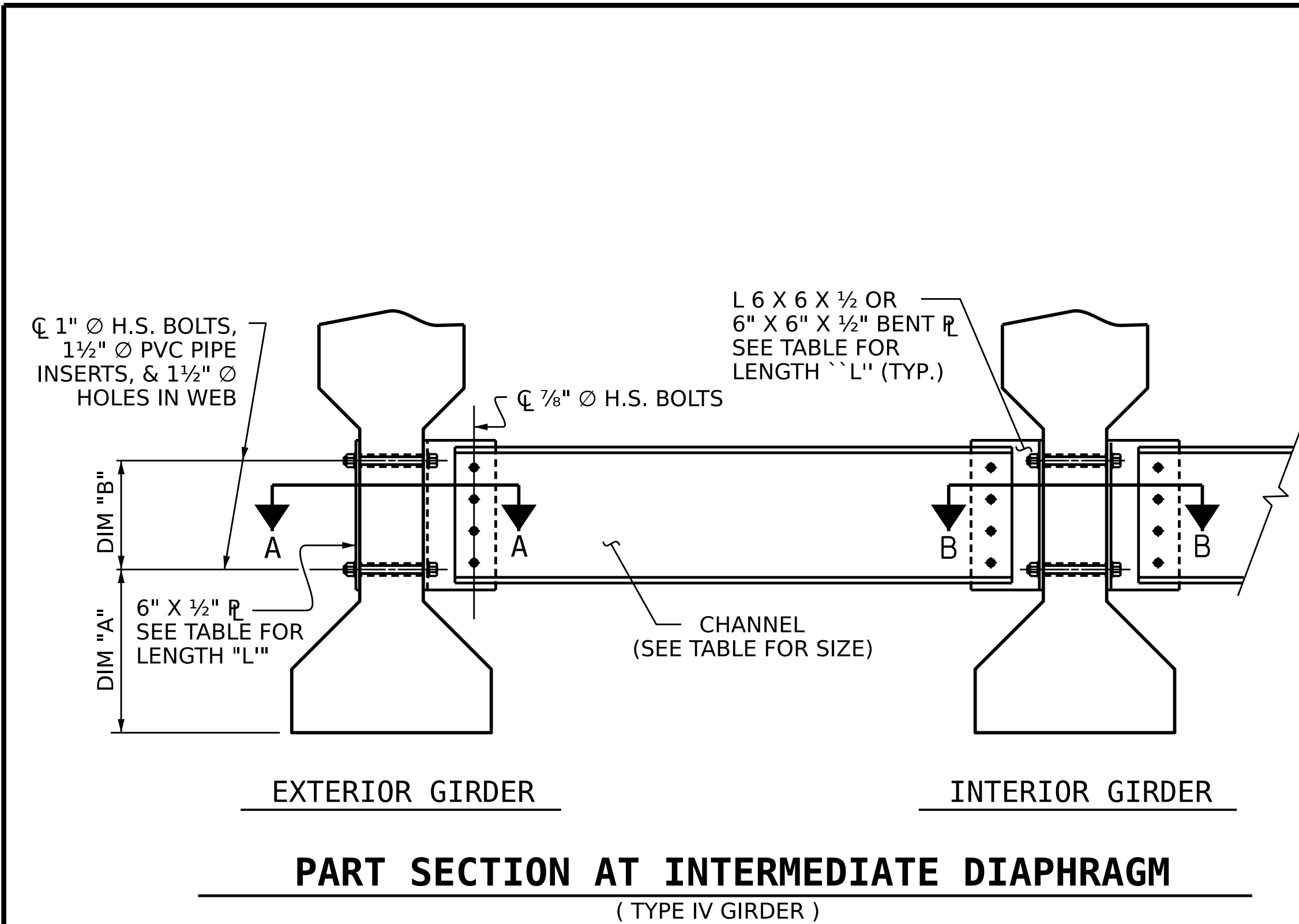
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
54" AASHTO TYPE IV
PRESTRESSED CONCRETE
GIRDER

(RIGHT LANE)

REVISIONS						SHEET NO. S10-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 52
2			4			

STD.NO.PCG3



STRUCTURAL STEEL NOTES:

ALL INTERMEDIATE DIAPHRAGM STEEL AND CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE ASTM A325 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL ¼ TURN.

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

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM, THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST ¼" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

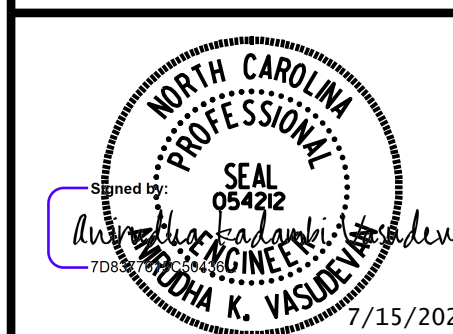
FOR DETAILS RELATED TO BRACING OF PRECAST CONCRETE FASCIA TO GIRDER 9, SEE "PRECAST CONCRETE FASCIA" SHEETS.

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
IV	MC 18 x 42.7	1'-9½"	1'-2"	1'-6"

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

INTERMEDIATE STEEL DIAPHRAGMS
FOR TYPE IV PRESTRESSED
CONCRETE GIRDERS

(RIGHT LANE)

REVISIONS						SHEET NO. S10-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 52
2			4			

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STD. NO. PCG10

ASSEMBLED BY : T. NEAL	DATE : 02/2024
CHECKED BY : A. VASUDEVAN	DATE : 03/2024
DRAWN BY : TLA 6/05	REV. 5/1/06RRR KMM/GM
CHECKED BY : VC 6/05	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

NOTES:

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

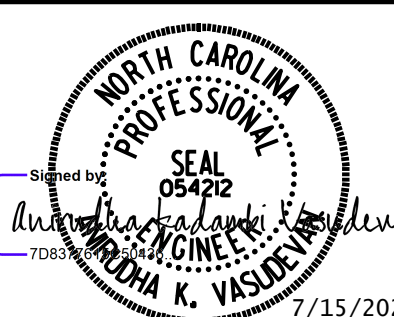
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L+L.L. (NO IMPACT)	
TYPE V	365K

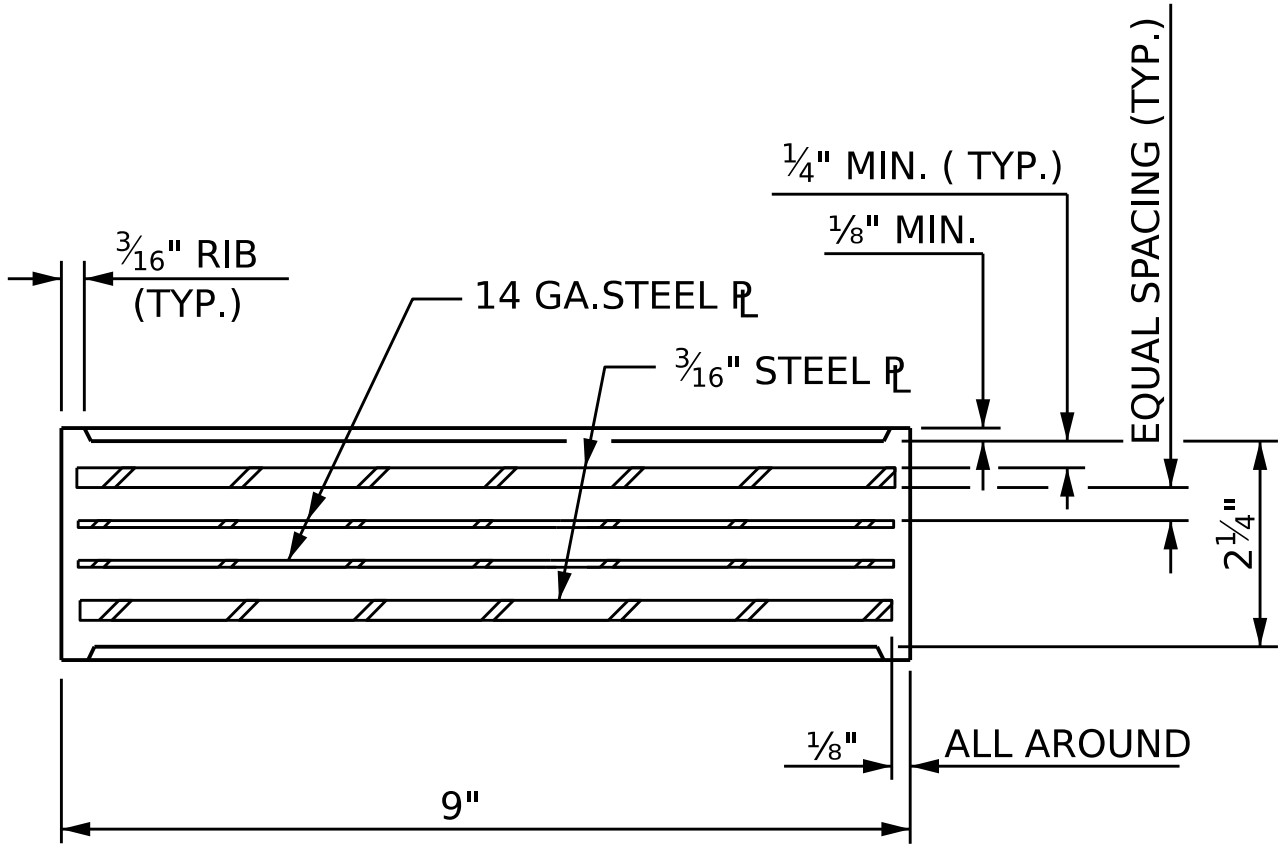
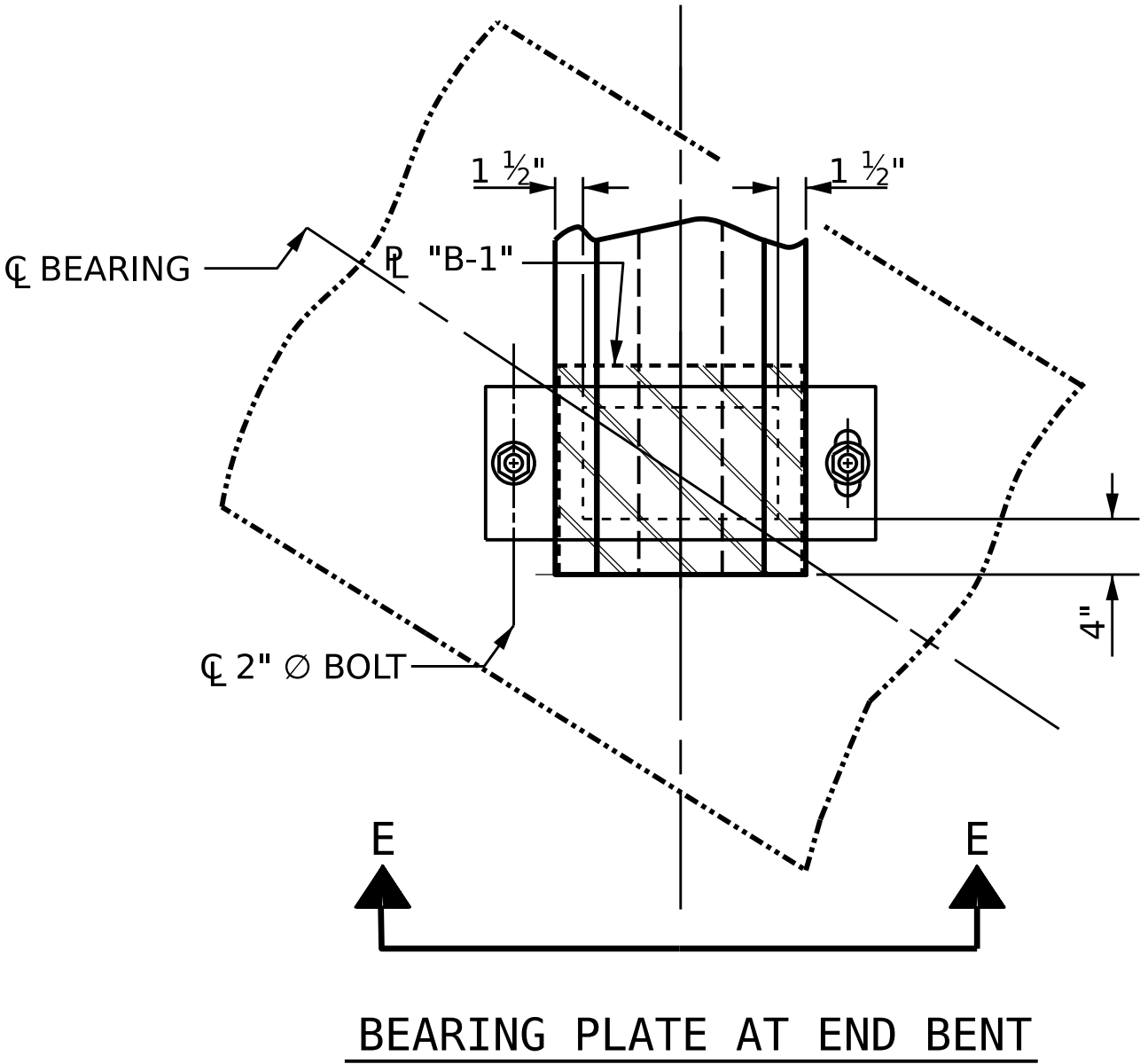
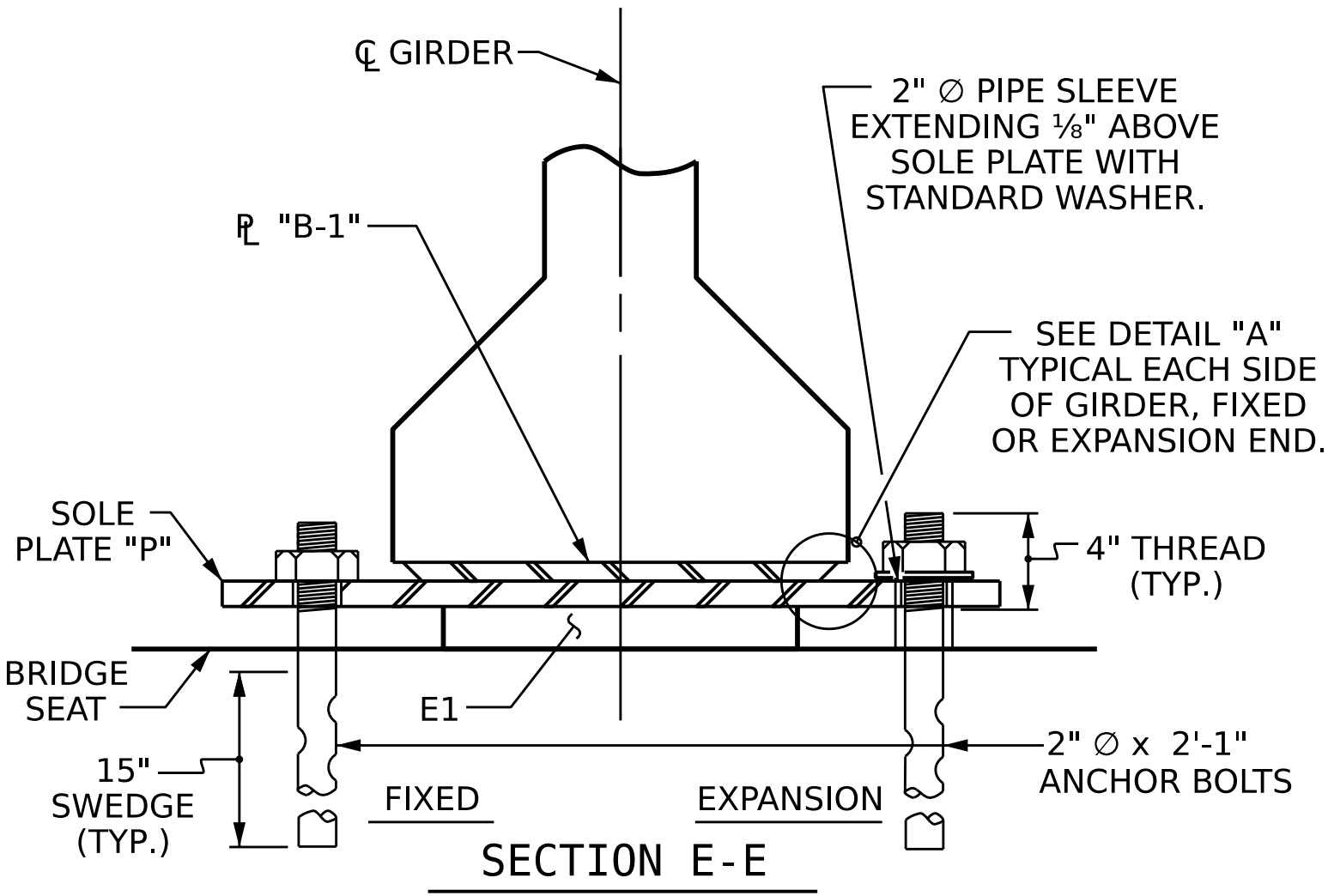


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ELASTOMERIC BEARING DETAILS
PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE

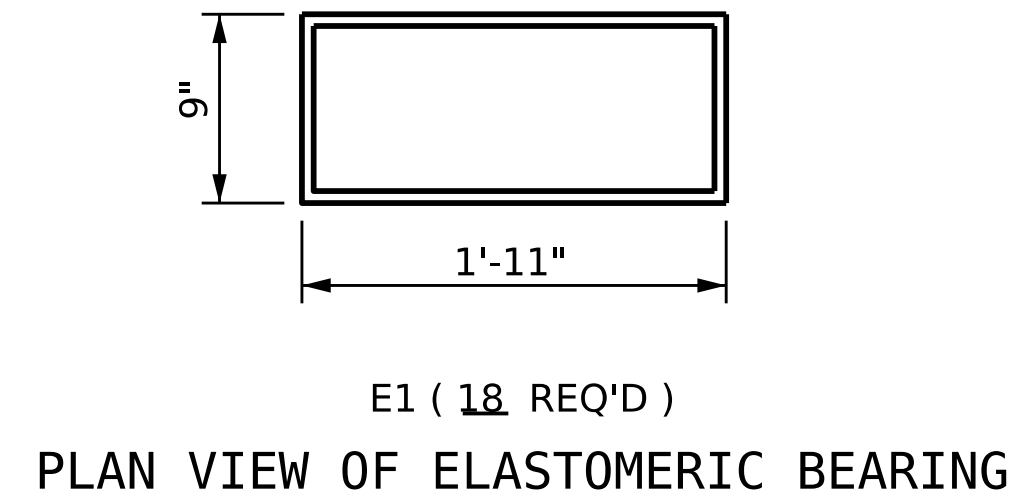
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
S10-19
TOTAL SHEETS
52

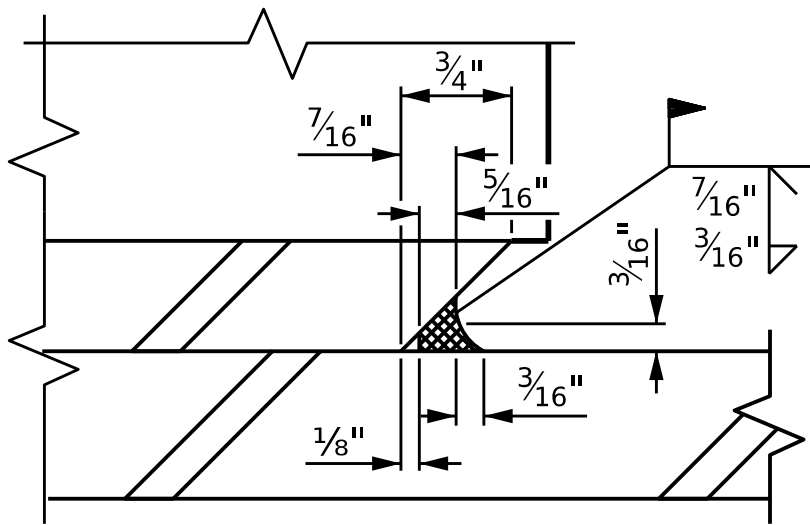
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



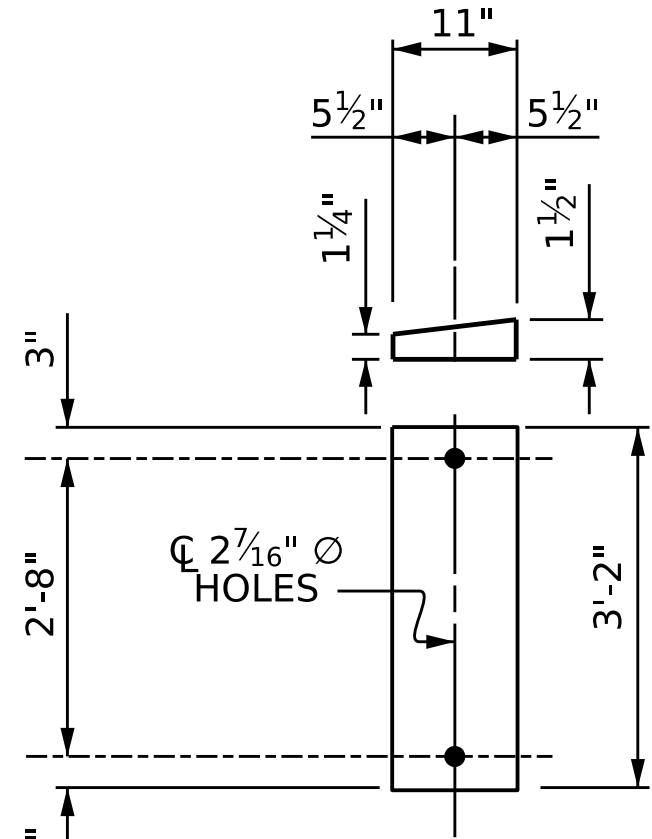
TYPICAL SECTION OF ELASTOMERIC BEARINGS



TYPE V

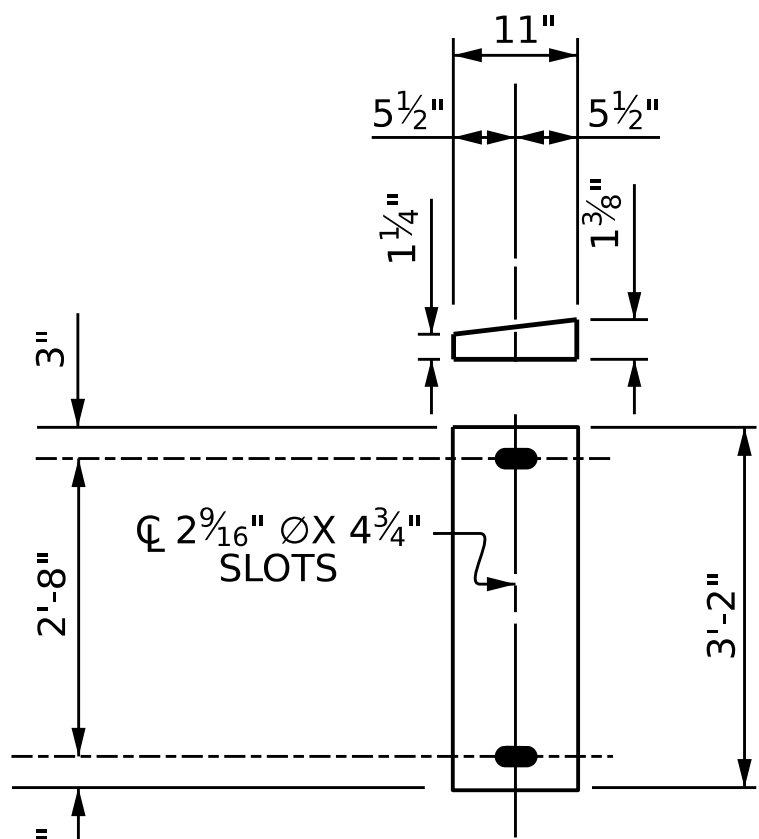


DETAIL "A"



P 1
(FIXED)
P1 (9 REQ'D)

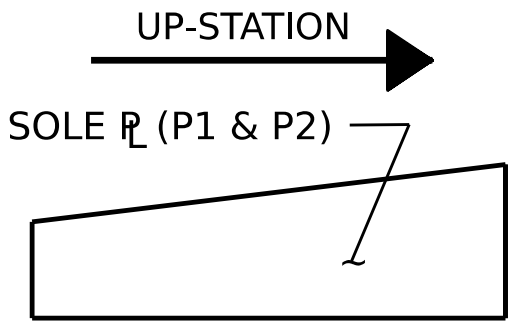
SOLE PLATE DETAILS ("P1")



P 2
(EXPANSION)
P2 (9 REQ'D)

SOLE PLATE DETAILS ("P2")

SOLE PLATE DETAILS ("P")



SOLE PLACEMENT DETAIL

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 1 OF 1

ASSEMBLED BY : L.LEE	DATE : 07/2023
CHECKED BY : A.K. VASUDEVAN	DATE : 12/2023
DRAWN BY : WJH 8/89	REV. 1/15 MAA/TMG
CHECKED BY : CRK 8/89	REV. 12/17 MAA/THC
	REV. 10/21 BNB/AAI

STD.NO.CBR1

NOTES:

FOR 72" 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.

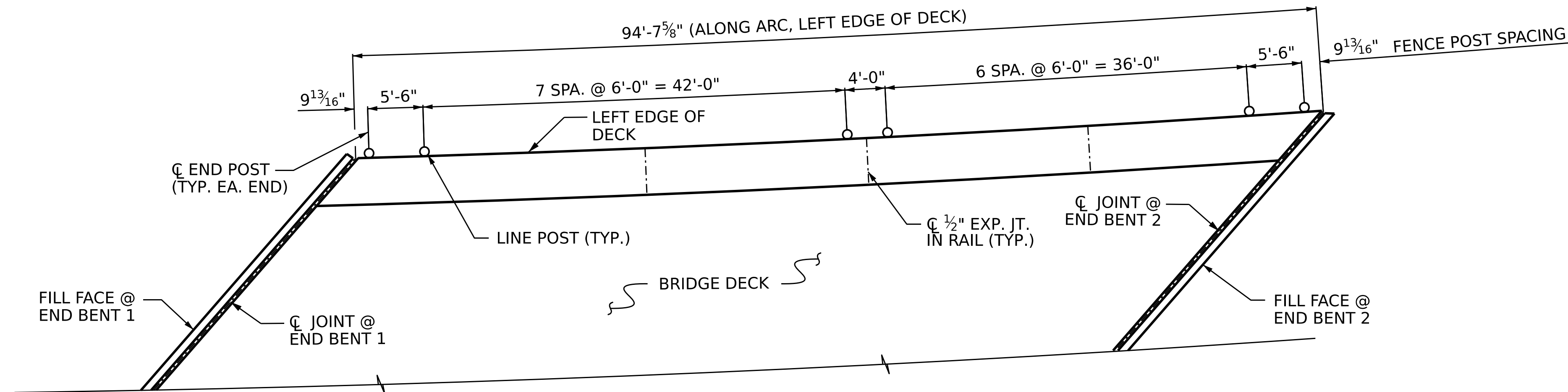
FOR SETTING ANCHOR BOLTS, THE CONTRACTOR SHALL USE AN ADHESIVE BONDING SYSTEM. SEE STANDARD SPECIFICATIONS SECTION 420-13 FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED AND THE YIELD LOAD OF THE 3/4" ~ BOLTS IS 12.0 KIPS.

ALL FENCE MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 1050 OF THE STANDARD SPECIFICATIONS, GALVANIZE ALL STEEL PARTS AND HARDWARE IN ACCORDANCE WITH ARTICLE 1076 OF THE STANDARD SPECIFICATIONS.

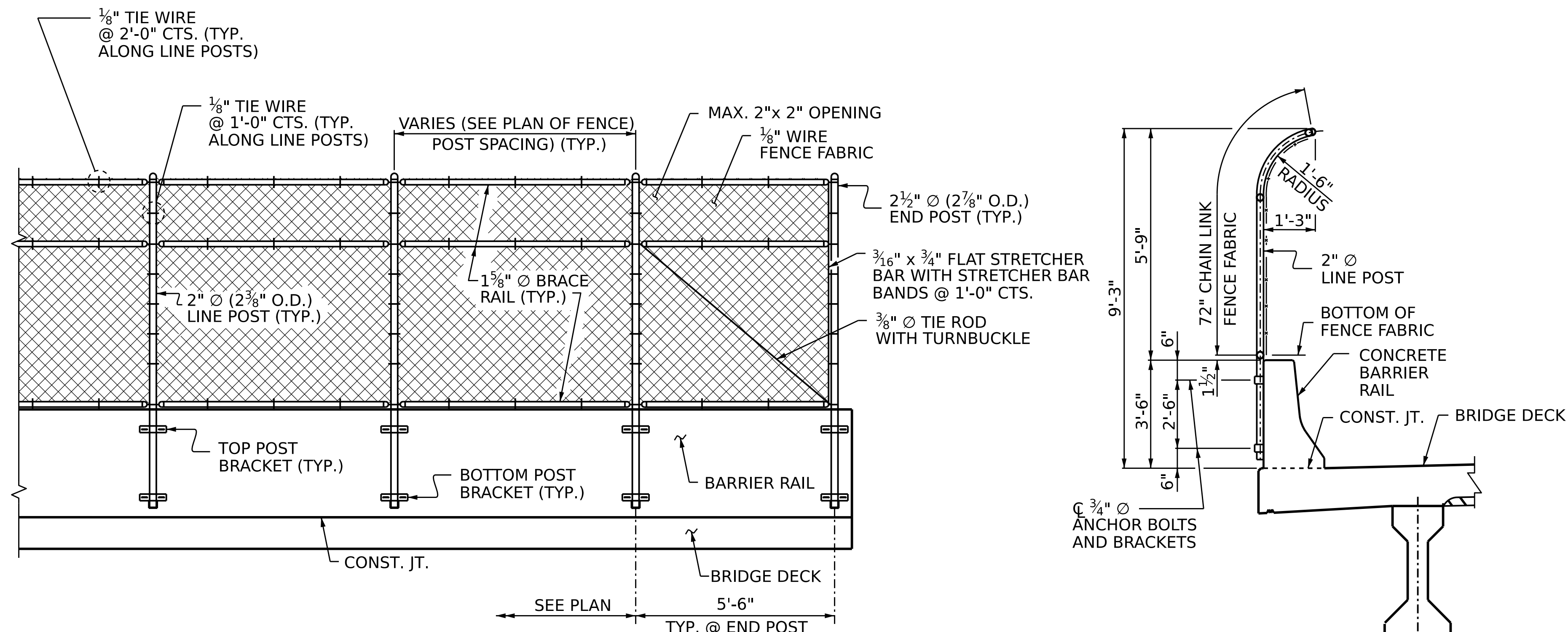
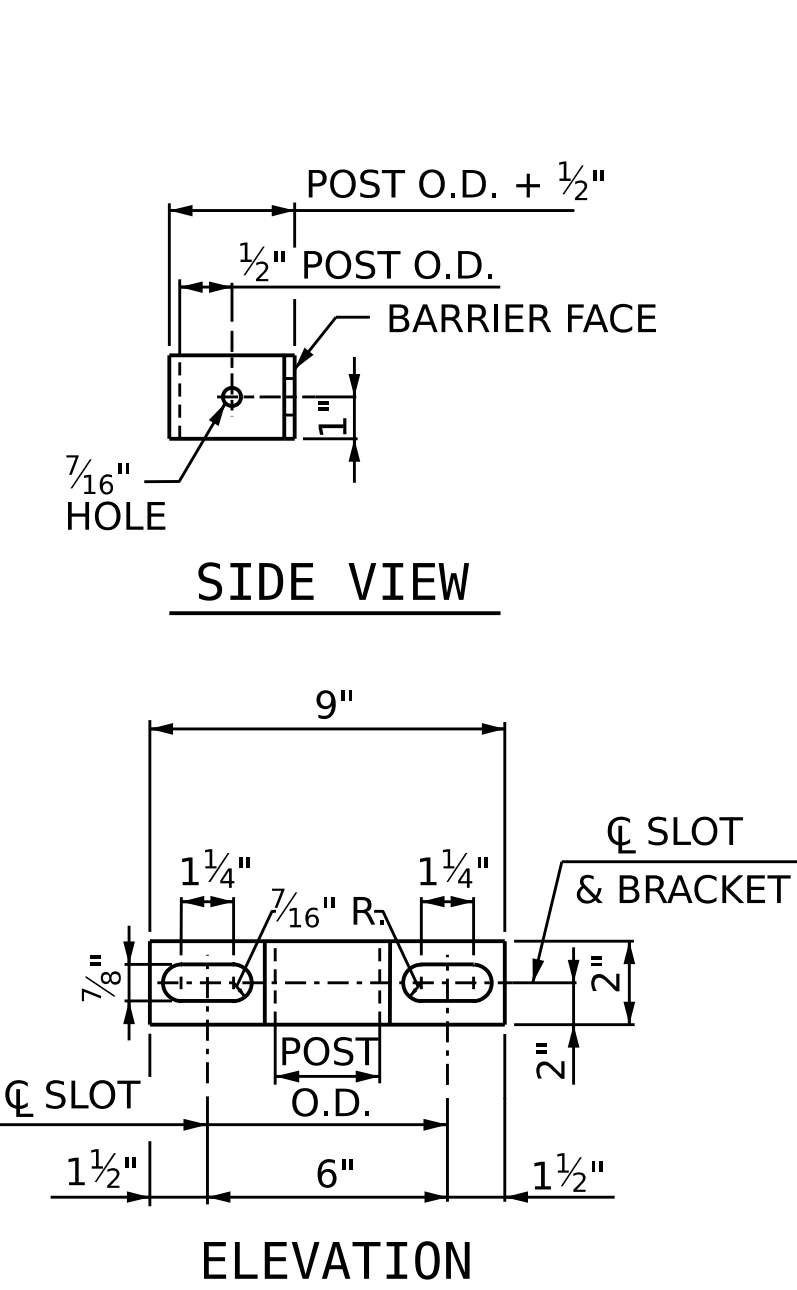
FENCE POST LOCATIONS SHALL BE SHIFTED, AS NECESSARY, TO MAINTAIN 12" MINIMUM DISTANCE FROM ANCHOR BOLT TO JOINTS IN BARRIER RAIL.

DIMENSIONS ARE SHOWN ALONG OUTSIDE EDGE OF DECK.

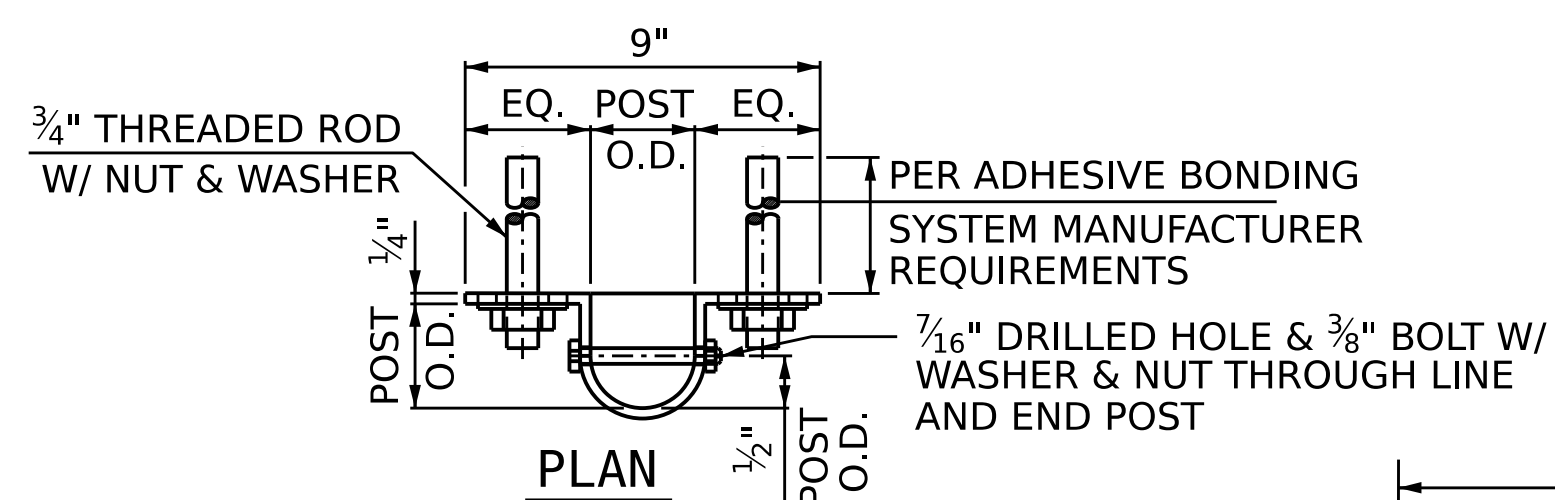
WELDING SHALL BE DONE IN ACCORDANCE WITH
ARTICLE 1072-18 OF THE STAMDARD SPECIFICATIONS.



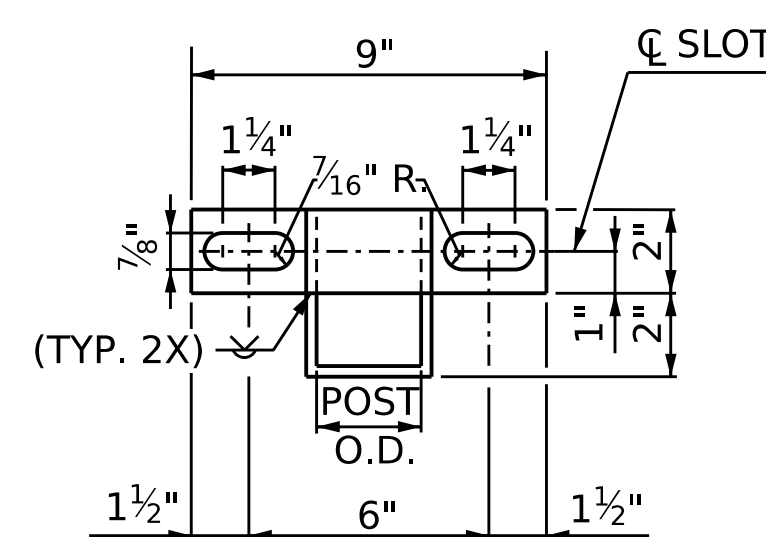
PLAN OF FENCE POST SPACING



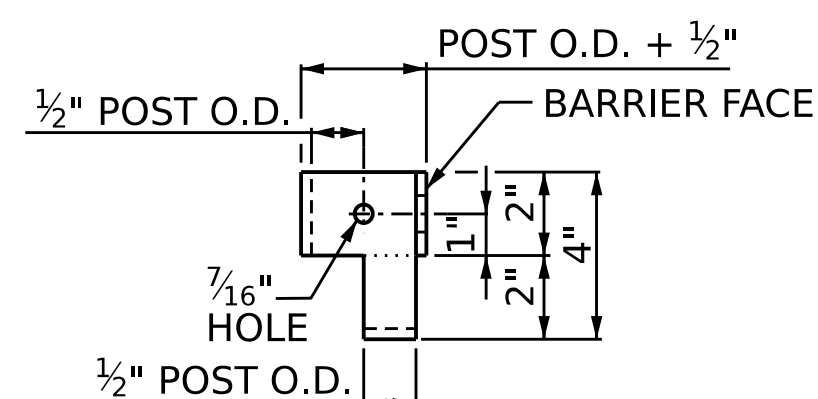
PARTIAL ELEVATION



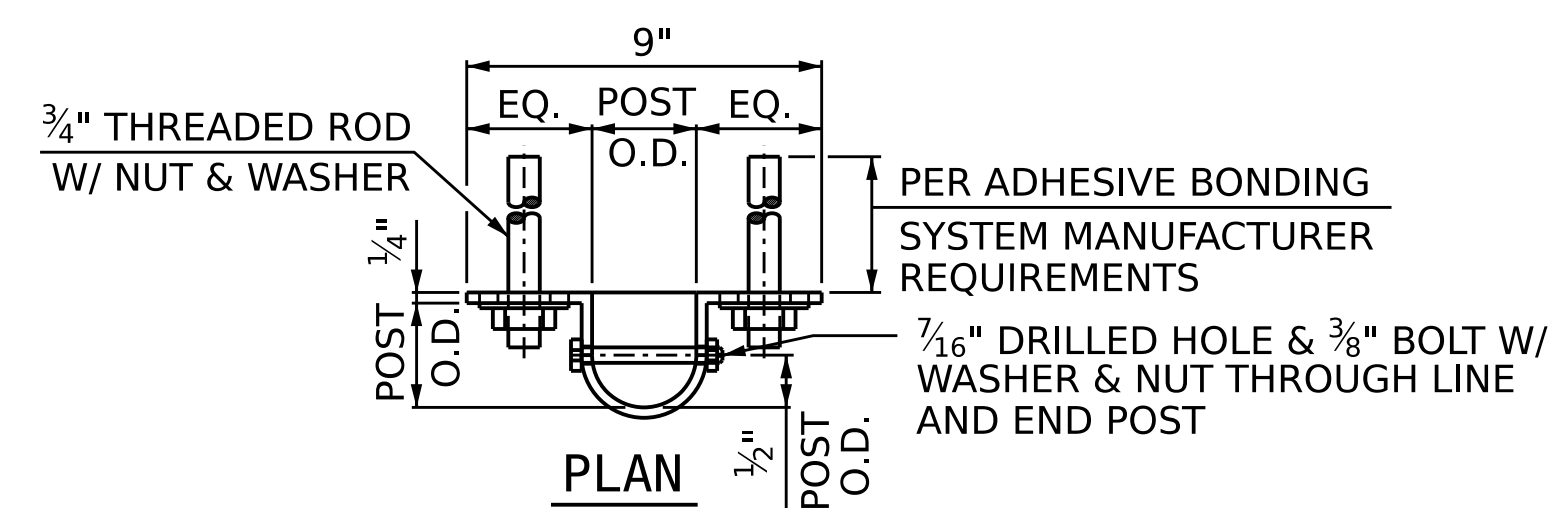
TOP POST BRACKET



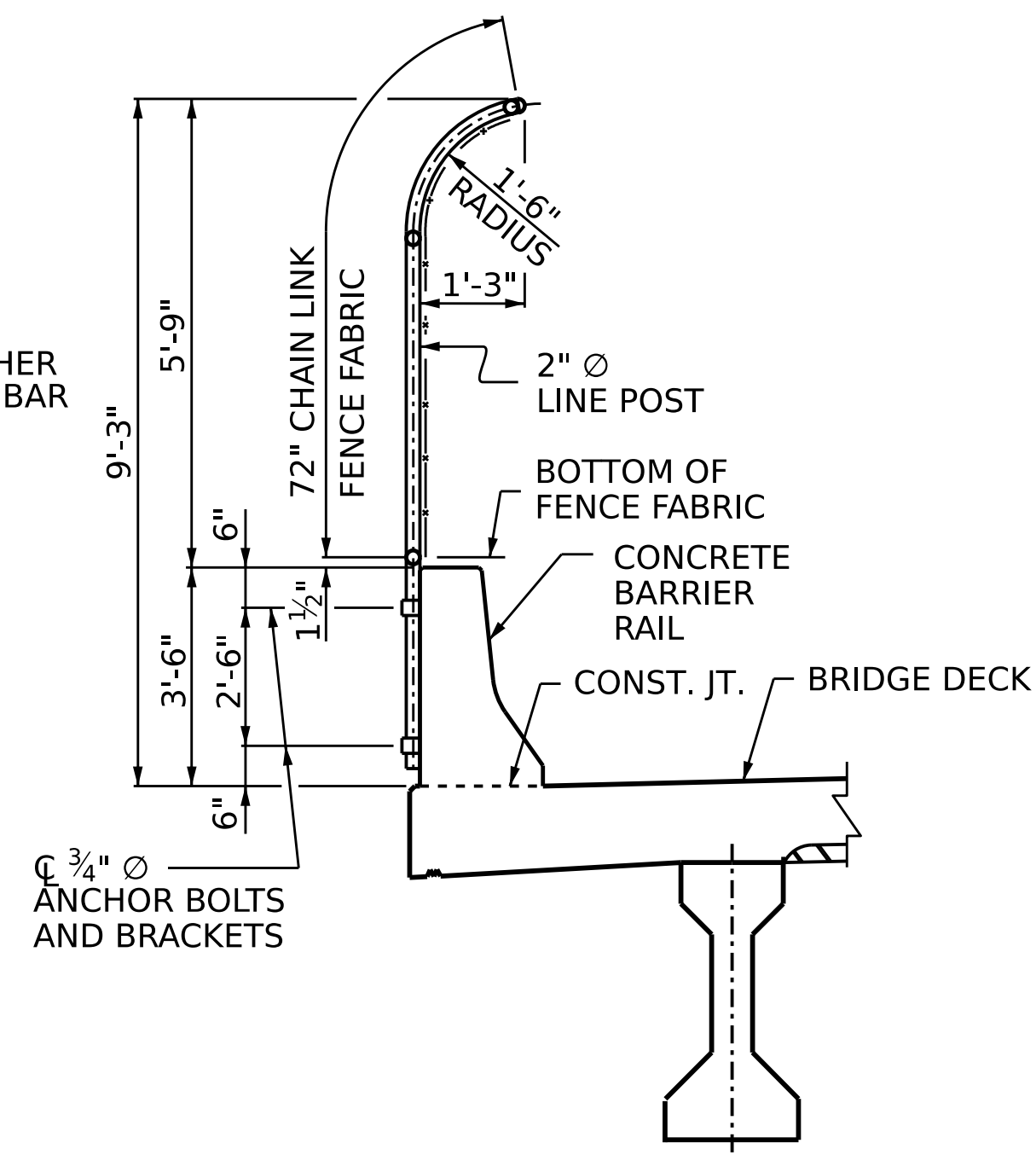
ELEVATION



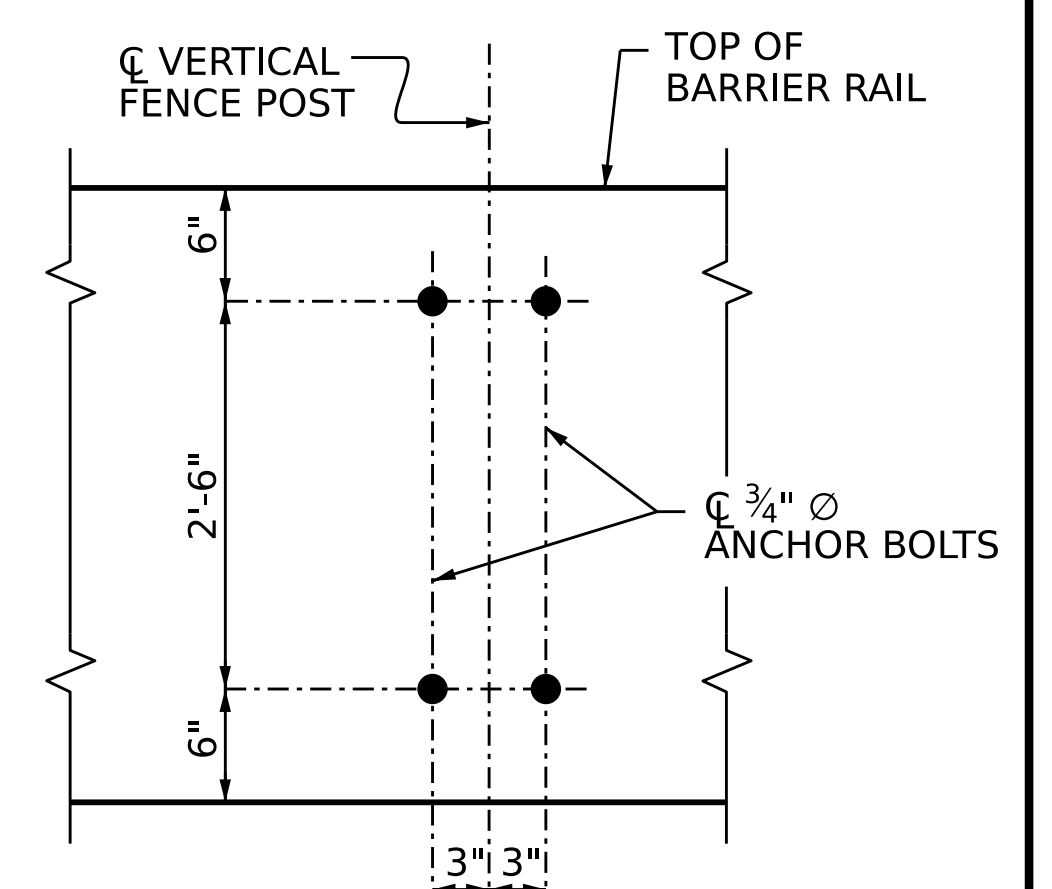
RIGHT SIDE VIEW



BOTTOM POST BRACKET



SECTION THRU FENCE



BOLT SETTING DETAIL

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY

STATION: 105+49.43 -L-

SHEET 2 OF 2



AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F-0292

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**CHAIN LINK FENCE
DETAILS**

(RIGHT LANE)



Signed by: *Randolph K. Vasdek*
7/15/2026

REVISIONS			SHEET NO.
NO.	BY:	DATE:	S10-21 TOTAL SHEETS 52
1			
2			

NOTES:

FOR VIEW A-A AND OTHER SOUND BARRIER WALL DETAILS, SEE "SOUND BARRIER WALLS DETAILS" SHEET.

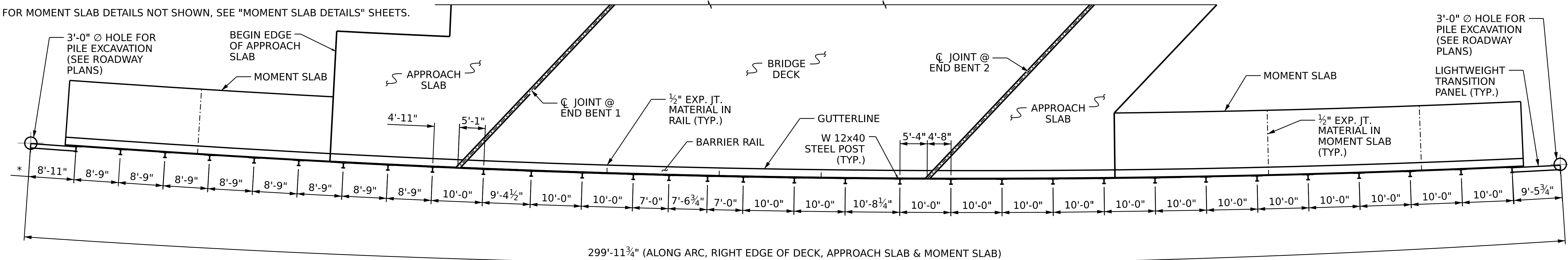
FOR SOUND BARRIER WALL ON CONCRETE PILES AND TYPICAL WALL TURN DETAILS, SEE "SOUND BARRIER WALL PLANS."

FOR SOUND BARRIER WALL CONNECTION DETAILS AT TRANSITION PANEL, SEE "SOUND BARRIER WALL PLANS."

FOR CONCRETE BARRIER DETAILS NOT SHOWN, SEE "CONCRETE BARRIER DETAILS" SHEET.

FOR AESTHETIC DETAILS NOT SHOWN, SEE "PRECAST CONCRETE FASCIA" SHEETS.

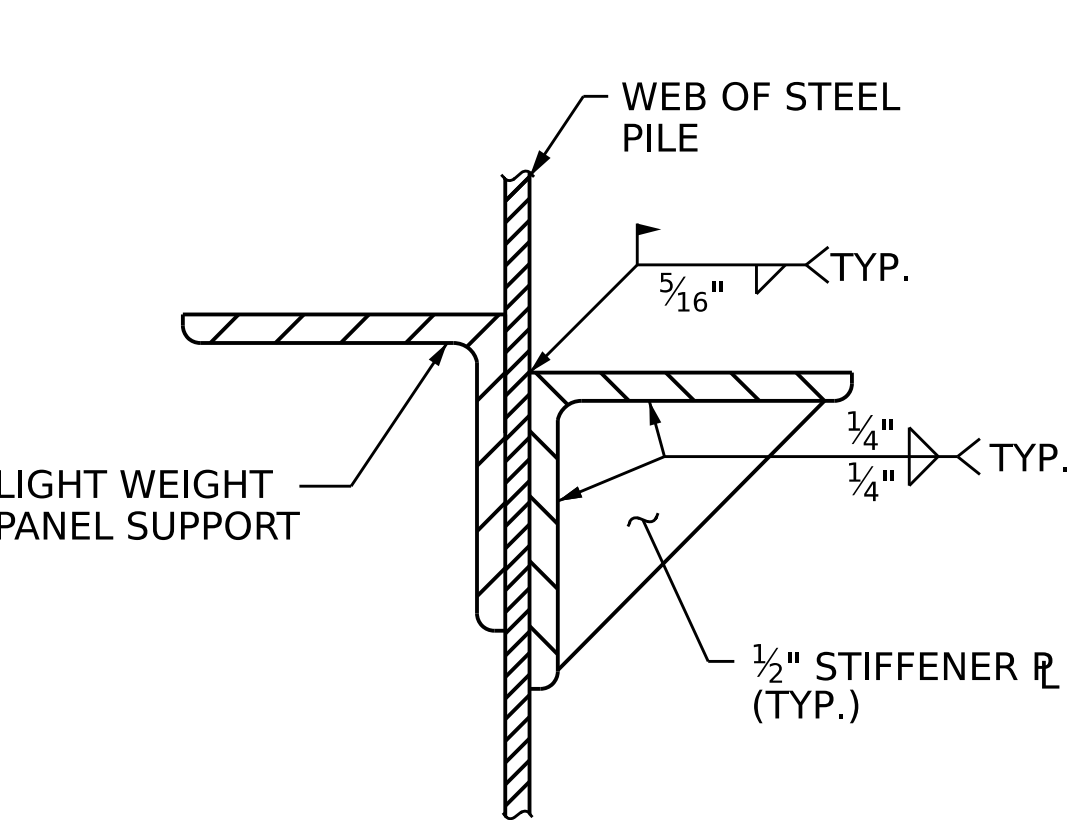
FOR MOMENT SLAB DETAILS NOT SHOWN, SEE "MOMENT SLAB DETAILS" SHEETS.



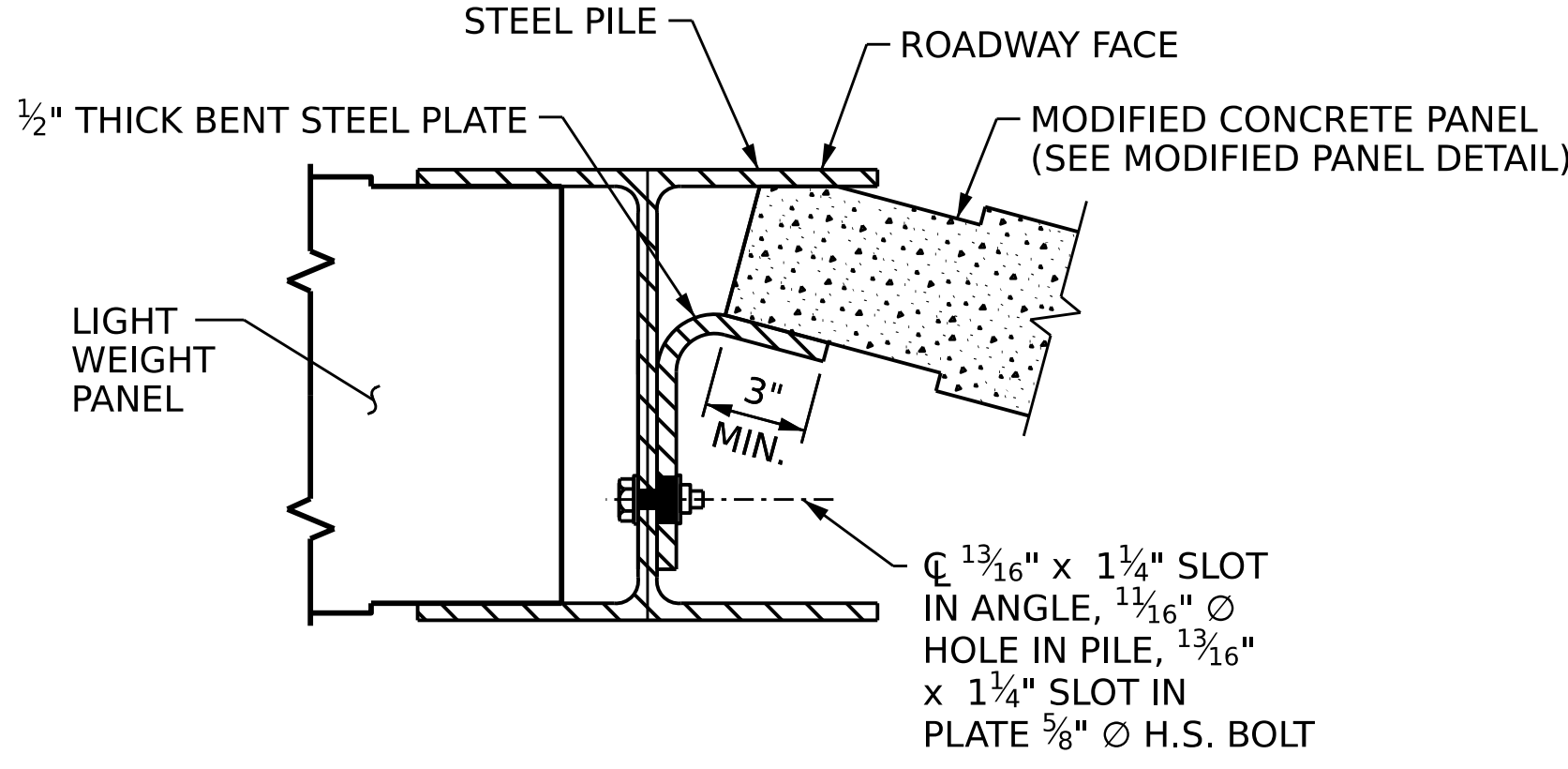
* MEASURED ALONG ARC, RIGHT EDGE OF DECK, APPROACH SLAB & MOMENT SLAB

SEE ROADWAY PLANS FOR SOUND BARRIER WALL HEIGHTS AND CONTINUATION

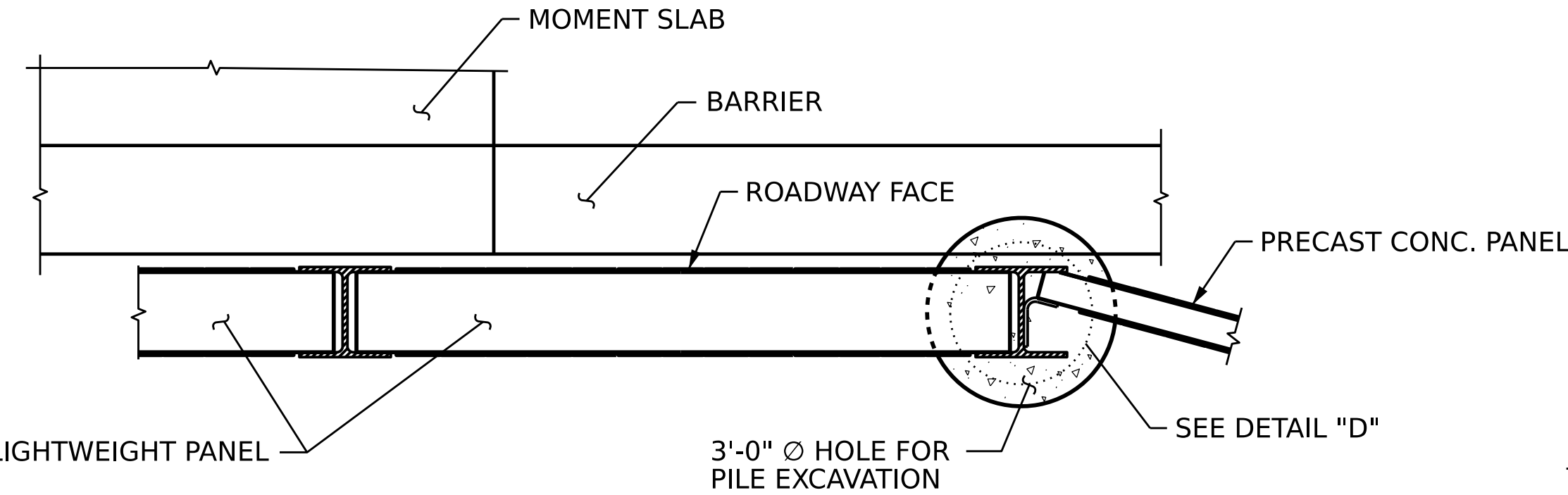
PLAN OF SOUND BARRIER WALL
(PANELS NOT SHOWN FOR CLARITY)



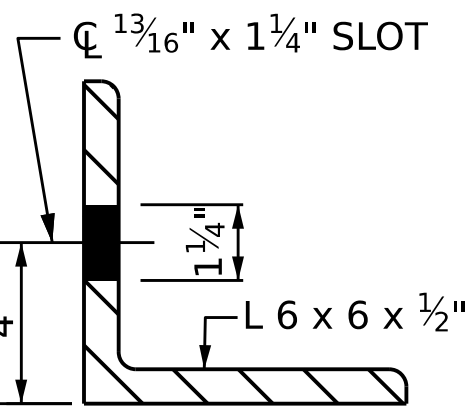
SECTION X-X



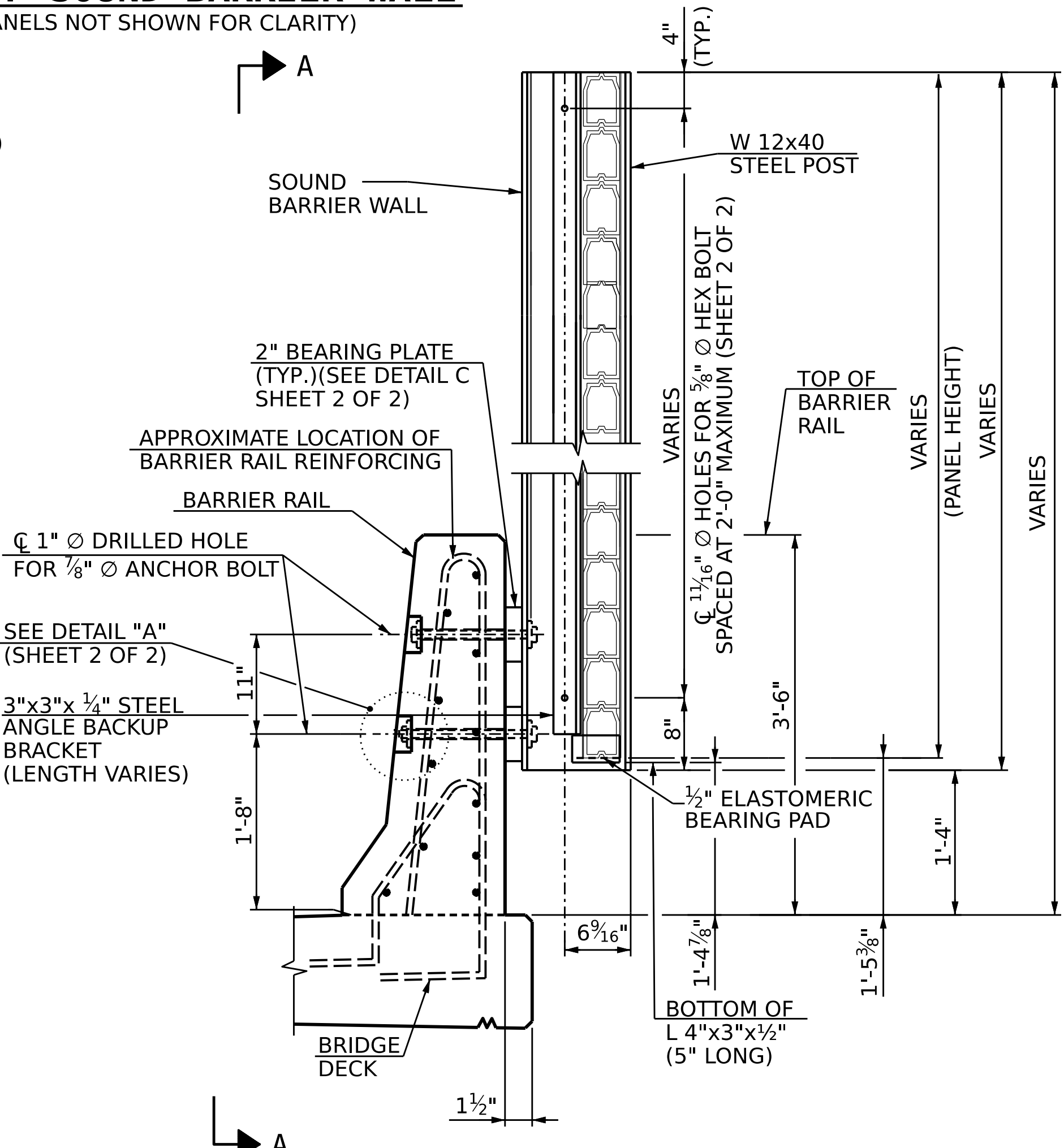
CONNECTION DETAIL



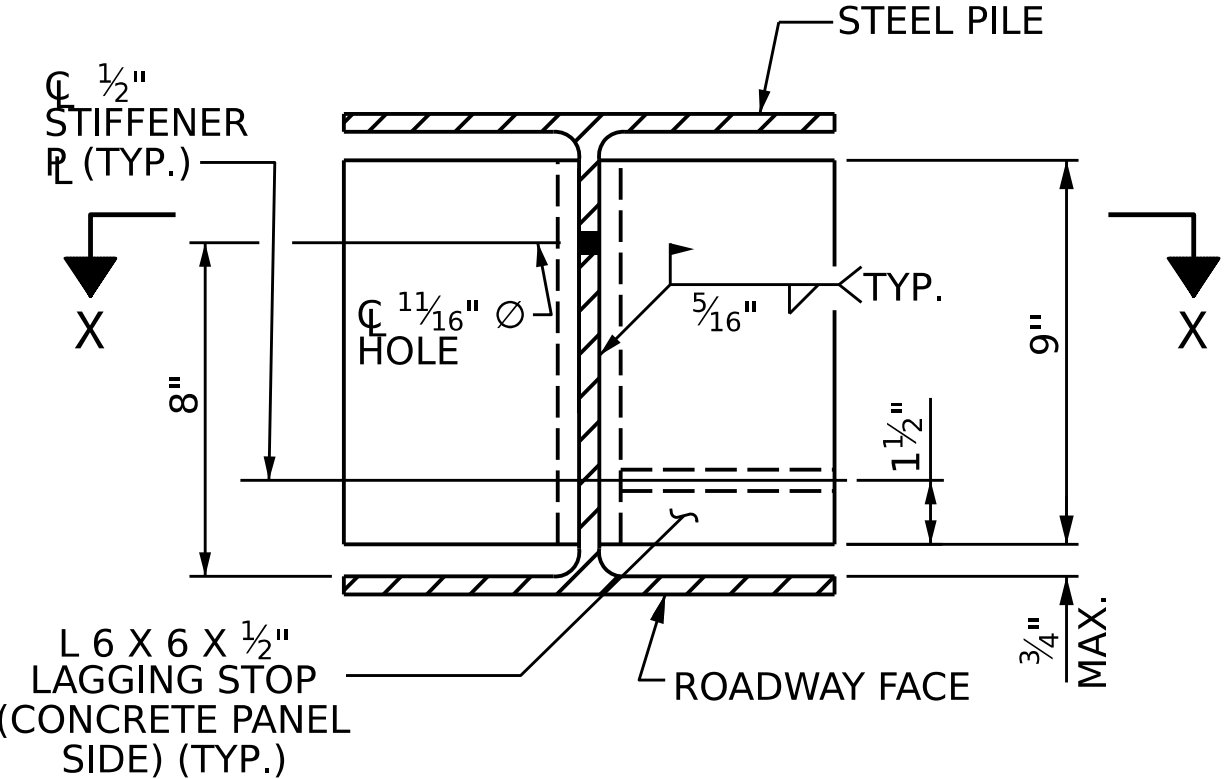
PLAN AT MOMENT SLAB TRANSITION PANEL
(BOTH ENDS SIMILAR)



ANGLE DETAIL



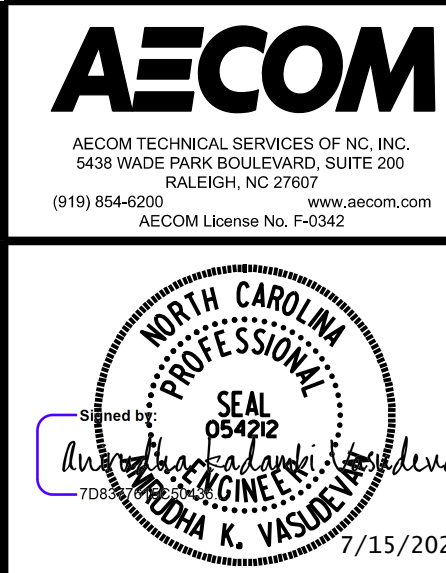
POST ELEVATION
AESTHETIC PANELS NOT SHOWN



DETAIL "D"

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
SOUND BARRIER WALL

(RIGHT LANE)

DRAWN BY : M. CATER DATE : 03/2026
CHECKED BY : A. VASUDEVAN DATE : 03/2026
DESIGN ENGINEER OF RECORD: A. VASUDEVAN DATE : 03/2026

REVISIONS						SHEET NO. S10-22
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 52
2			4			

NOTES :

WALL SUPPORT SYSTEM

POSTS, BEARING PLATES AND MISCELLANEOUS STEEL SHALL BE AASHTO 270 GRADE 50 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111 AND IN ACCORDANCE TO SECTION 1076 OF THE STANDARD SPECIFICATIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 AND SHALL BE GALVANIZED IN ACCORDANCE TO AASHTO M111.

ALL POSTS SHALL BE PLUMB.

SOUND BARRIER WALL

COLOR OF THE SOUND BARRIER WALL PANEL SHALL BE UNIFORM THROUGHOUT THE PULTRUDED COMPOSITE AND IS TO BE APPROVED BY THE ENGINEER. SEE SPECIAL PROVISIONS.

SOUND BARRIER WALL SHALL BE DESIGNED TO WITHSTAND A MINIMUM WIND VELOCITY OF 115 MPH AND A MINIMUM WIND PRESSURE OF 0.04 KSF.

WEIGHT OF SOUND BARRIER WALL SHALL NOT EXCEED 480 LBS/FT.

SOUND BARRIER WALL SHALL CONSIST OF STACKED TONGUE AND GROOVE STRUCTURAL PLANKS AS DETAILED ON PLANS. THE PLANKS SHALL BE COMPRISED OF A PULTRUDED GLASS REINFORCED THERMOSET COMPOSITE STRUCTURAL BOX FILLED WITH RECYCLED TIRE RUBBER OR ANOTHER SUBSTANCE OF COMPARABLE DENSITY AND SOUND REDUCTION CAPABILITY. ENDS SHALL BE CAPPED SO NOT TO ALLOW FILL MATERIAL TO FALL OUT.

LENGTH OF PLANKS SHALL BE CUT TO A LENGTH NO LESS THAN 4" LESS THAN THE CLEAR SPACING PROVIDED BETWEEN SUPPORT POSTS, NOR SHALL THE LENGTH BE GREATER THAN 3" LESS THAN THE CLEAR SPACING PROVIDED BETWEEN SUPPORT POSTS.

PLANKS SHALL BE CUT SO THAT THE ENDS ARE SMOOTH AND PERPENDICULAR TO EACH PLANKS BASE AND SHALL BE APPROVED BY THE ENGINEER.

EACH PANEL SHALL BE PLACED SO THAT THE TOP OF THE FINISHED PANEL MEETS FLUSH WITH THE TOP OF EACH SUPPORT POST.

FOR PREFORMED BEARING PADS AND ELASTOMERIC BEARING, SEE SECTION 1079 OF THE STANDARD SPECIFICATIONS.

FOR SOUND BARRIER WALL, SEE SPECIAL PROVISION SOUND BARRIER WALL (BRIDGE MOUNTED).

PRIOR TO DRILLING HOLES FOR ANCHOR BOLTS, CONTRACTOR SHALL LOCATE BARRIER RAIL REINFORCING. CONTRACTOR SHALL AVOID DRILLING THROUGH REINFORCING STEEL.

CONTRACTOR SHALL DRILL HOLES FOR ANCHOR BOLTS PRIOR TO PANEL FABRICATION.

FOR SOUND BARRIER WALL LAYOUT, SEE "SOUND BARRIER LAYOUT" SHEET.

SOUND BARRIER WALL WAS NOT DESIGNED FOR VEHICLE IMPACT PER OWNERS DIRECTION.

SHOP DRAWINGS OF THE SOUND BARRIER WALL AND SUPPORT SYSTEM SHALL BE SUBMITTED FOR THE ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 105+49.43 -L-

SHEET 2 OF 2

AECOM

AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
SOUND BARRIER WALL
DETAILS
(RIGHT LANE)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

SOUND BARRIER WALL

DETAILS

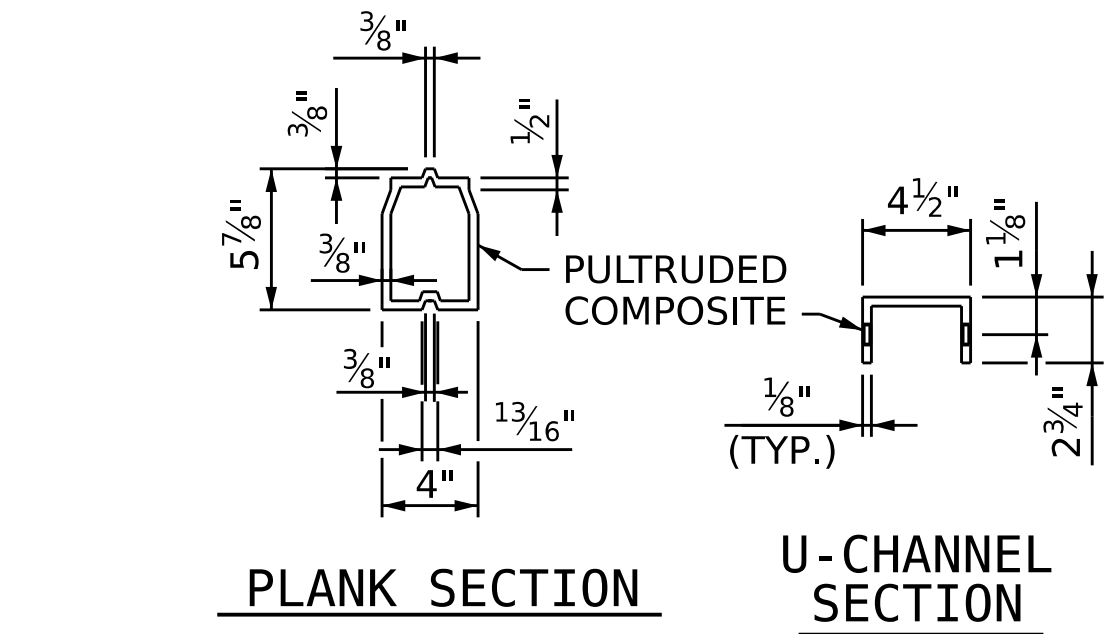
(RIGHT LANE)

REVISIONS

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

SHEET NO.
S10-23
TOTAL
SHEETS
52

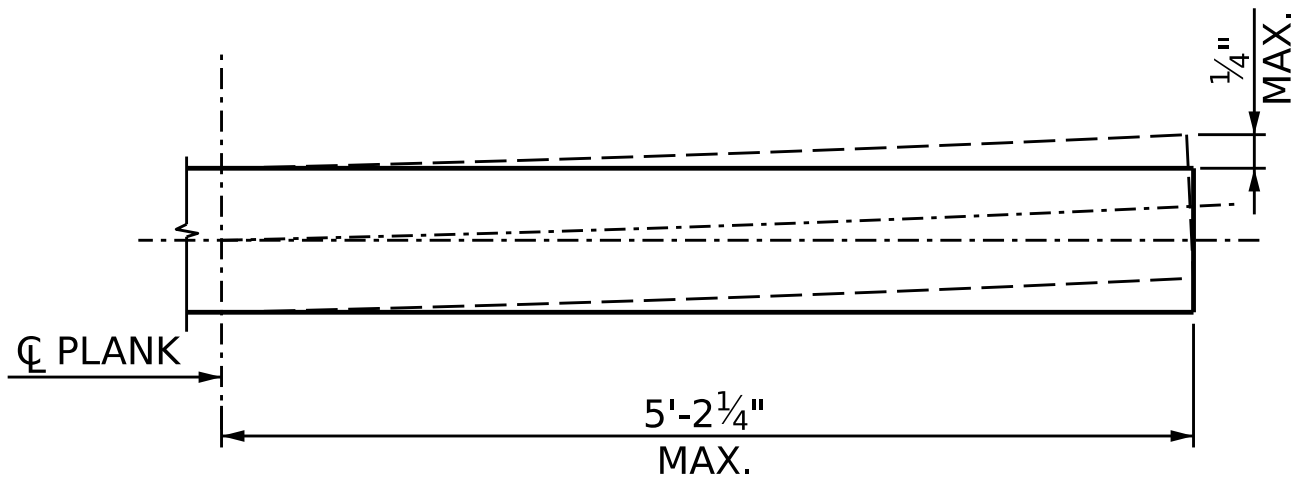
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



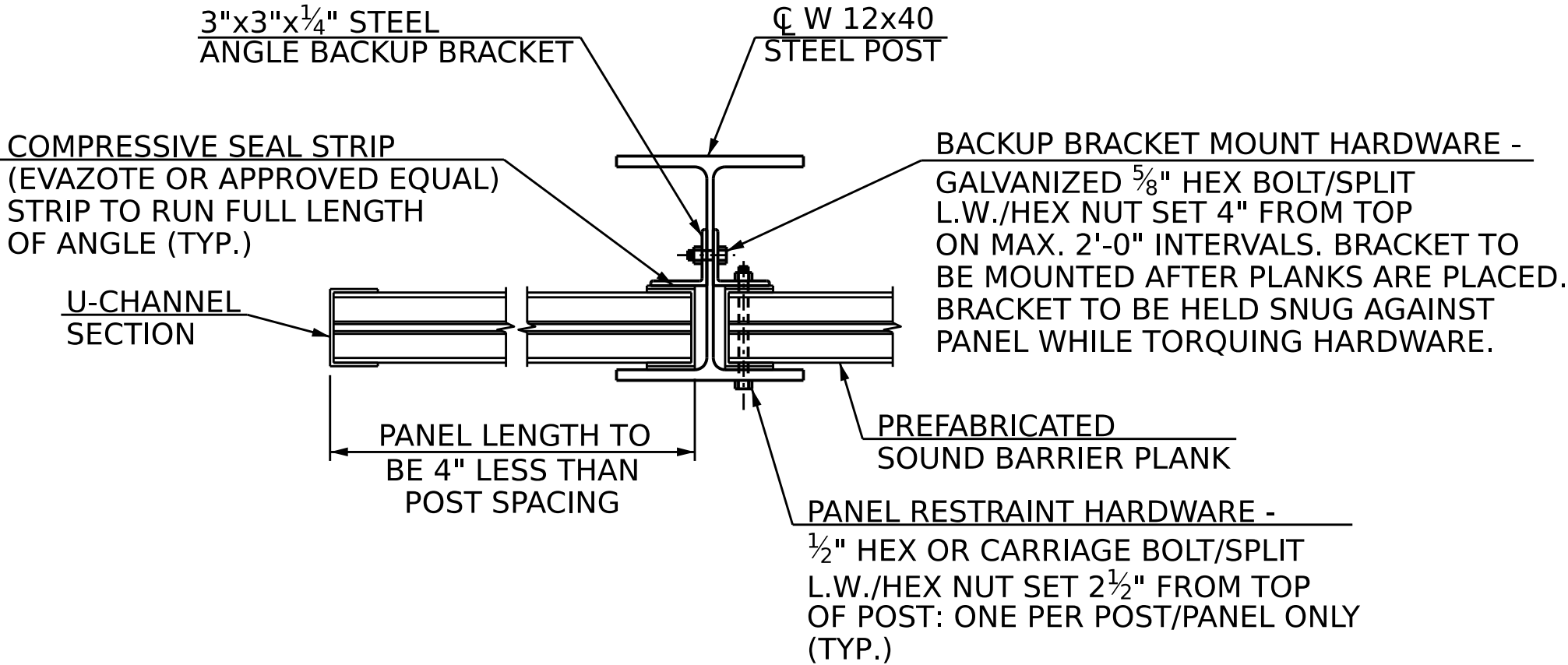
PLANK SECTION

U-CHANNEL SECTION

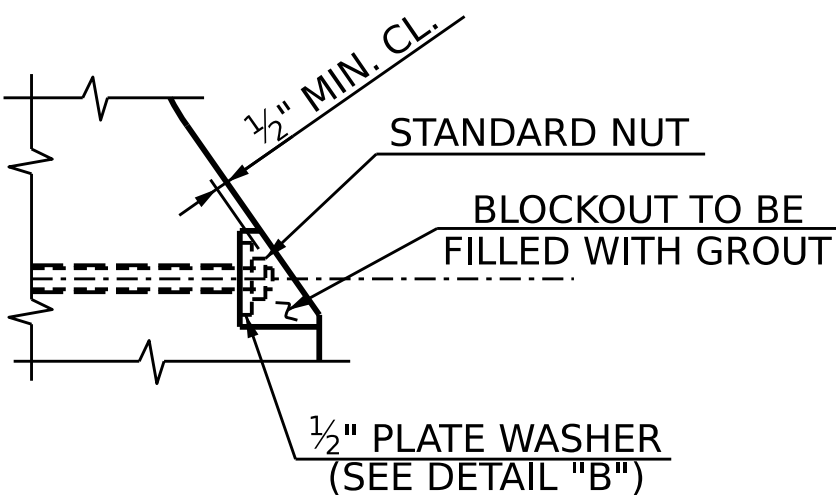
PANEL SECTION



PLANK BOW TOLERANCE

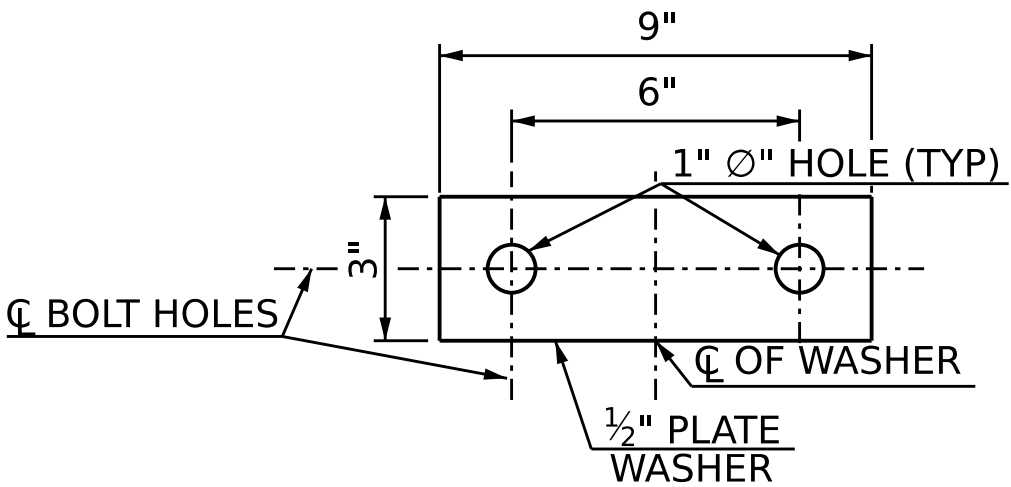


MOUNTING DETAIL

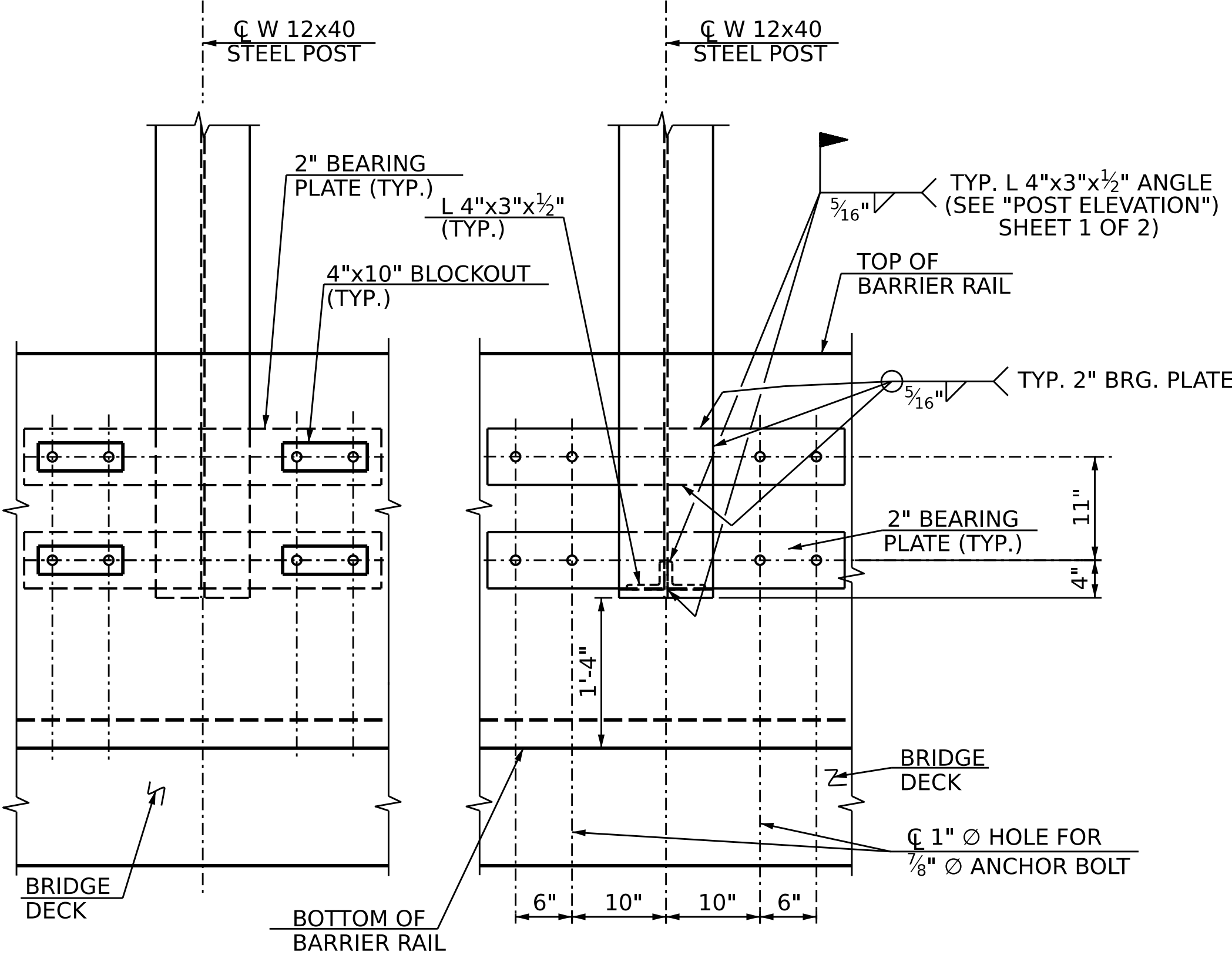


DETAIL "A"

(GROUT SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS)
(LOWER BLOCKOUT SHOWN, UPPER BLOCKOUT SIMILAR)



DETAIL "B"



VIEW A-A

SECTION THRU POST

DRAWN BY : M. CATER
CHECKED BY : A. VASUDEVAN
DESIGN ENGINEER OF RECORD: A. VASUDEVAN
DATE : 03/2026
DATE : 03/2026
DATE : 03/2026

7/13/2026
c:\pwworking\aecom.ds21.na.2020\d0223929\410.045.I2513AC.SMU.NW2.S10-23.100901.dgn
caterm