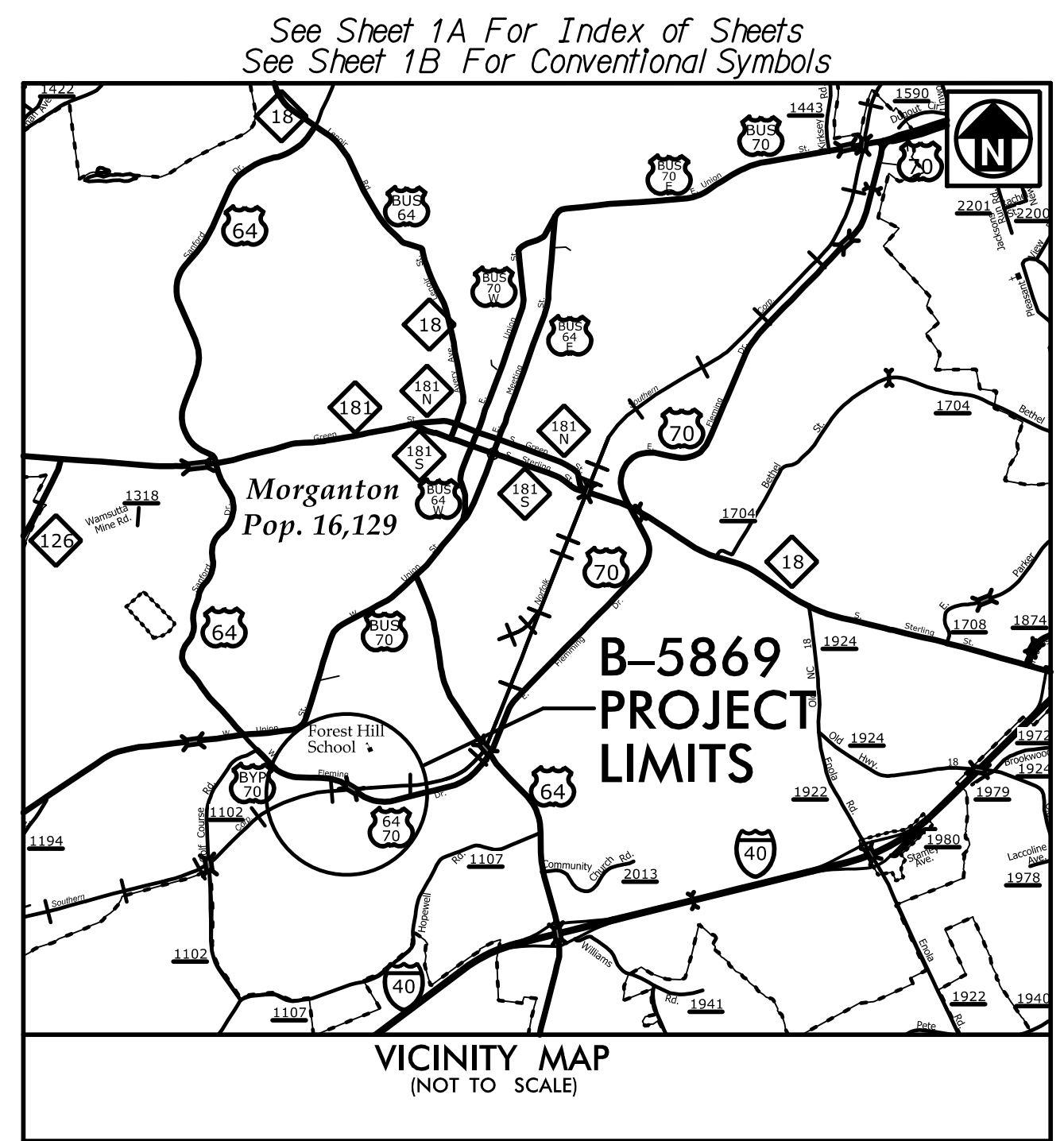


09, 08, 2019

PROJECT: B-5869

CONTRACT: C204716



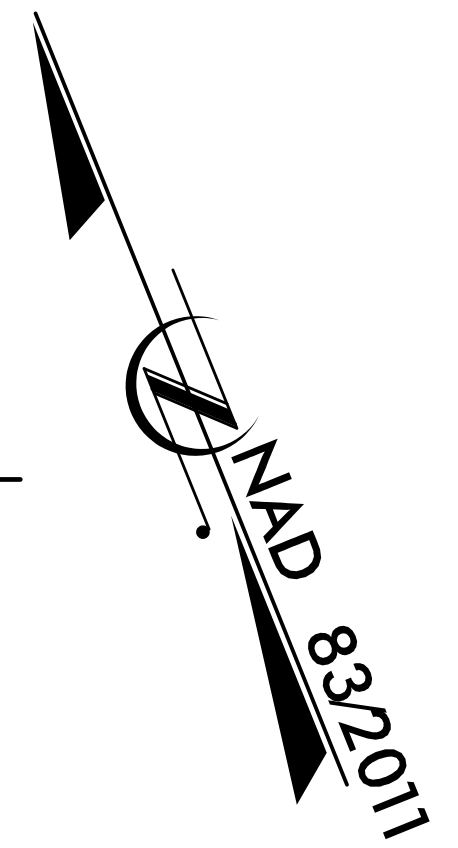
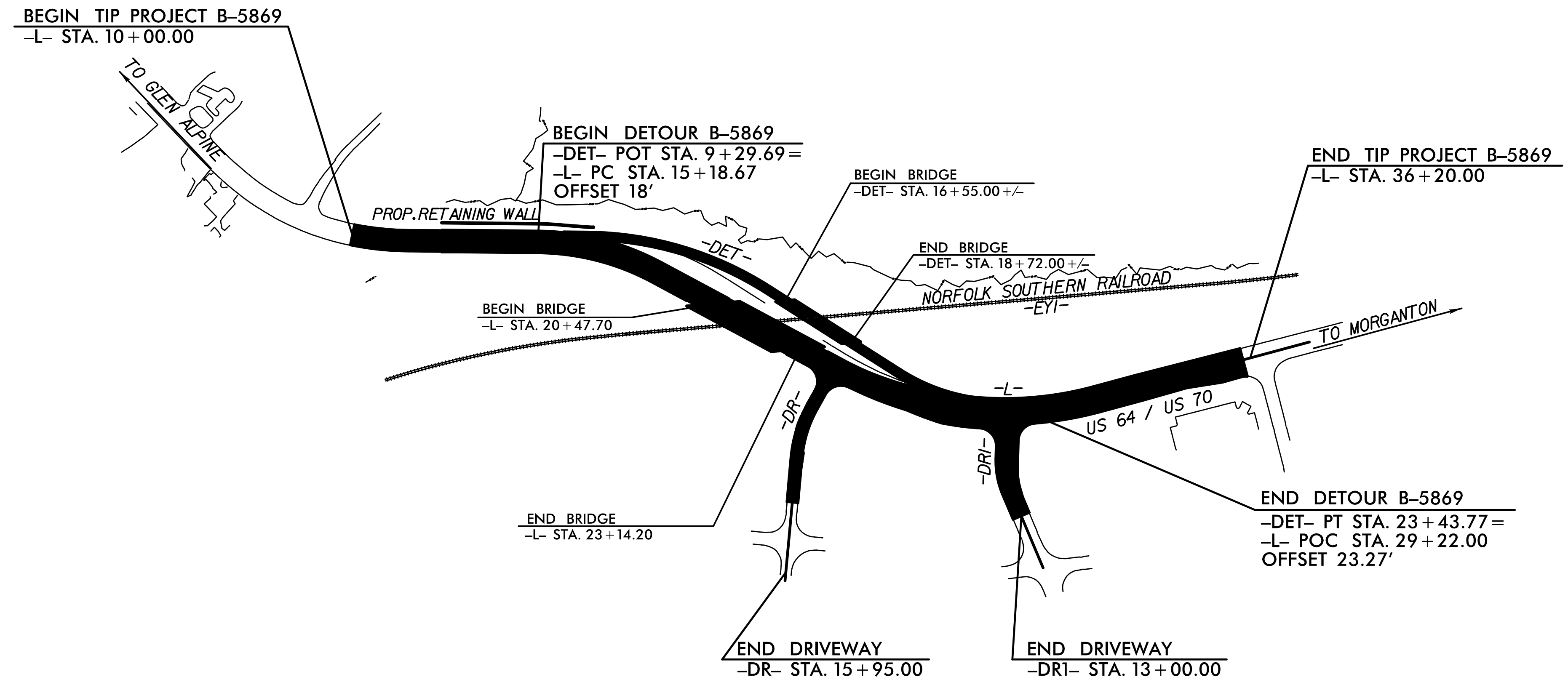
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
BURKE COUNTY

LOCATION: BRIDGE NO. 99 ON US 64/US 70 (FLEMING DRIVE)
OVER NORFOLK SOUTHERN RAILROAD IN MORGANTON

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RETAINING WALLS,
SIDEWALKS, AND STRUCTURE

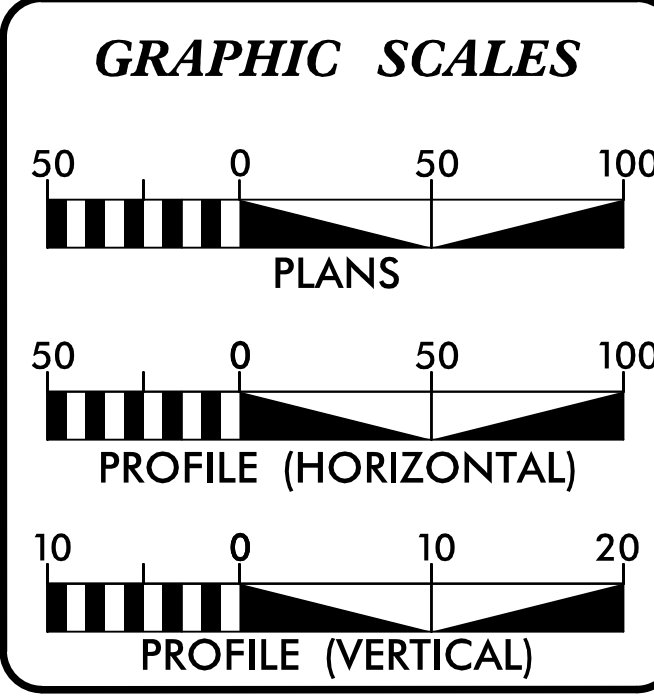
STRUCTURE PLANS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5869	1	70
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
48063.1.FR1	NHPP-0064(180)	PE	
48063.2.1	NHPP-0064(180)	RW	
48063.2.2	NHPP-0064(180)	UTILITIES	
48063.3.1	NHPP-0064(180)	CONST	



PLANS PREPARED BY:

WGI
5640 Dillard Drive
Suite 200
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.wgino.com
LICENSE NO. C-4434



DESIGN DATA

ADT 2021 =	20,620
ADT 2040 =	23,200
K =	9 %
D =	55 %
T =	5 %*
V =	50 MPH
* TTST = 2% DUAL 3%	
URBAN ARTERIAL REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5869	=	0.446 MILES
LENGTH STRUCTURE TIP PROJECT B-5869	=	0.050 MILES
TOTAL LENGTH TIP PROJECT B-5869	=	0.496 MILES

PLANS PREPARED FOR NCDOT BY:

M M
MOTT MACDONALD
2018 STANDARD SPECIFICATIONS

7621 Purfoy Rd., Suite 115
Fuquay-Varina, NC 27526
(919) 552-2253
(919) 552-2254 (Fax)
www.mottmac.com/americas
LICENSE NO. F-0669

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
TEL (919) 855-2249
ENG FIRM LICENSE NO. C-890

MICHAEL PEKAREK, PE
PROJECT ENGINEER

JOSH DALTON, PE
HYDRAULIC ENGINEER

DAVID STUTTS, PE
NCDOT BRIDGE PROGRAM MANAGER

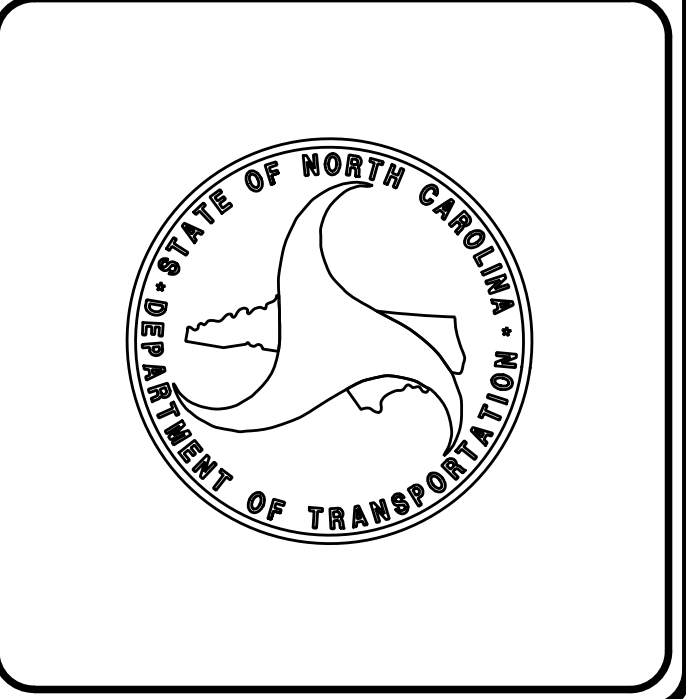
RIGHT OF WAY DATE:
May 13, 2021

LETTING DATE:
May 16, 2023

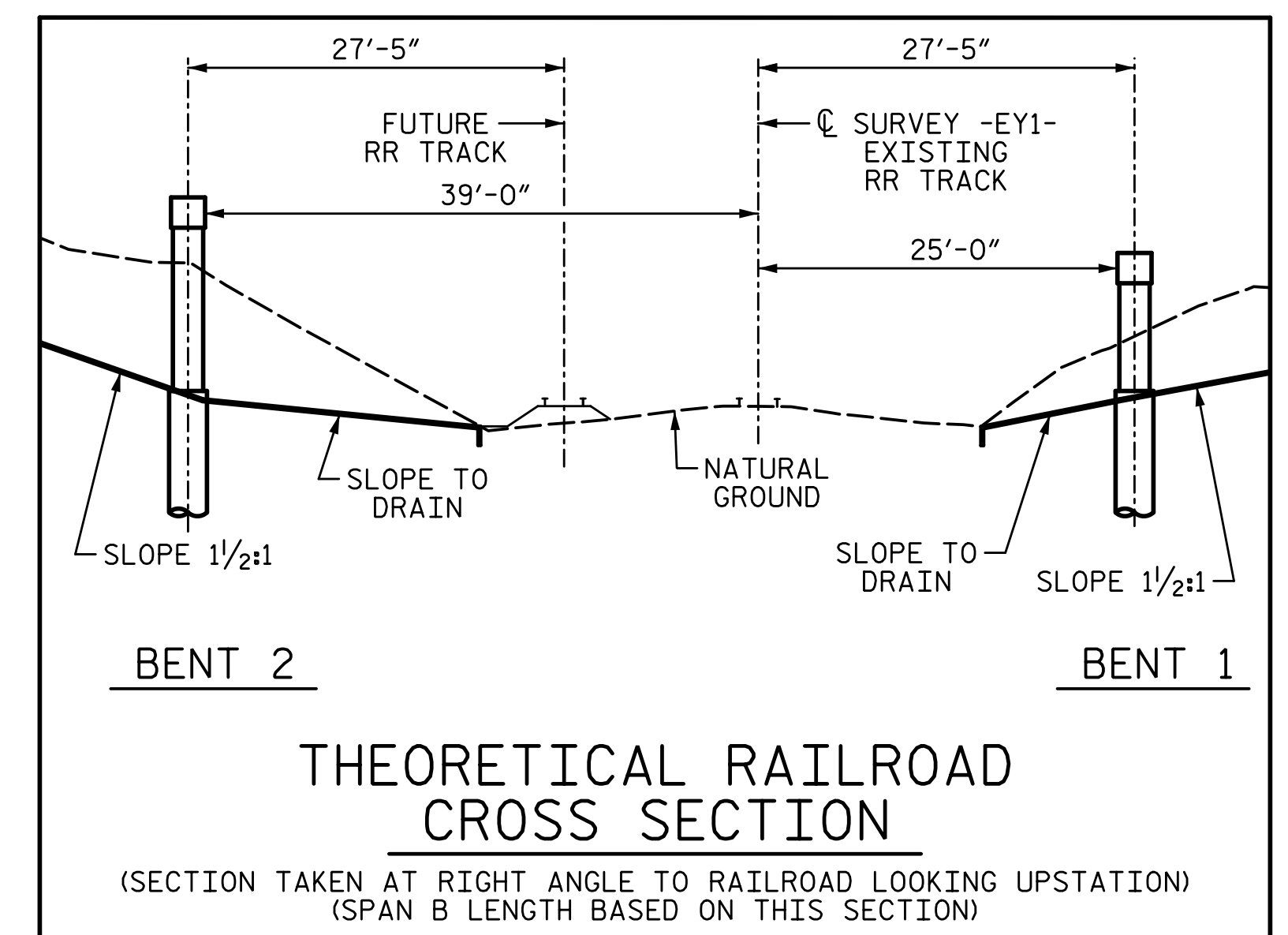
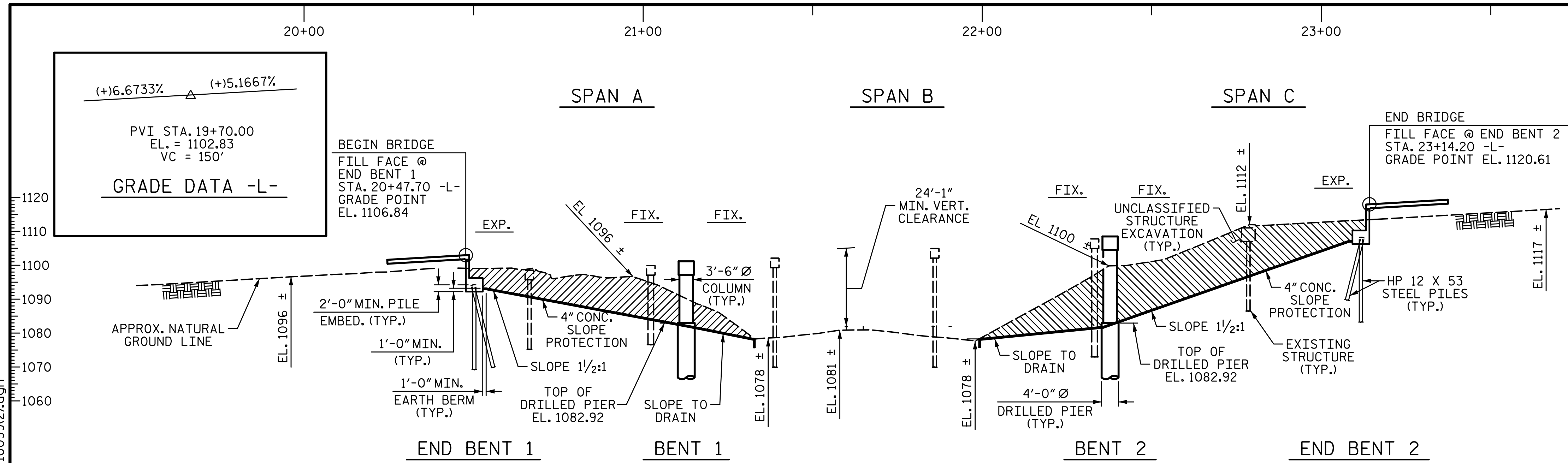
ENGINEER

4/5/2023 | 8:53 AM PDT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

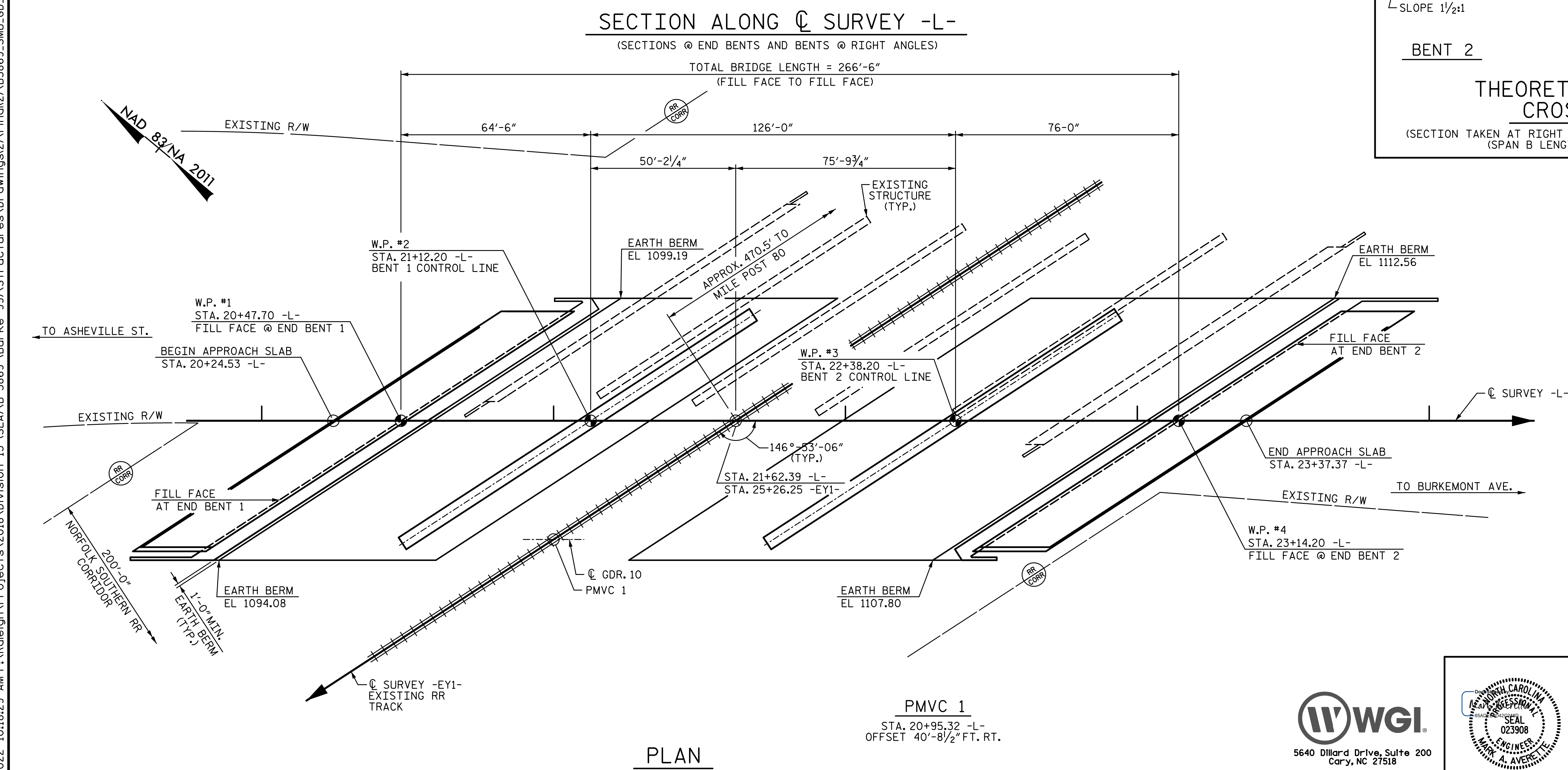


\$\$\$\$\$ SYSTEM \$\$\$\$\$\$
\$\$\$\$\$ DGN \$\$\$\$\$\$
\$\$\$\$\$ USERNAME \$\$\$\$\$\$



TOP OF RAIL ELEVATIONS

STATION -EY1-	ELEVATION
24+00	1082.37
24+20	1082.21
24+40	1082.00
24+60	1081.75
24+80	1081.50
25+00	1081.26
25+20	1080.98
25+40	1080.71
25+60	1080.50
25+80	1080.29
26+00	1080.09
26+20	1079.88
26+40	1079.67
26+60	1079.44
26+80	1079.22
27+00	1079.01

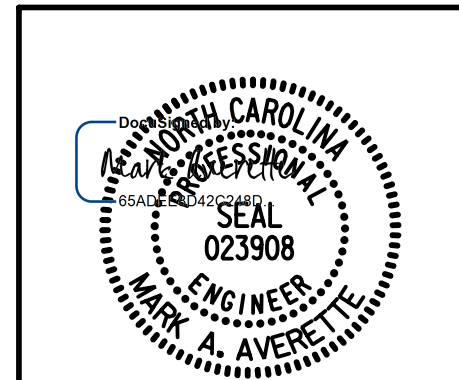


PROJECT NO. B-5869
BURKE COUNTY
STATION: 21+62.39 -L-

SHEET 1 OF 4 REPLACES BRIDGE #110099
MILE POST 80.1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON US64/US 70
(W. FLEMING DR.) OVER
NORFOLK SOUTHERN RR
BETWEEN ASHEVILLE ST.
AND BURKEMONT AVE.



LICENSURE NO. C-4434

DRAWN BY: S.D. COOPER DATE: 3-2022
CHECKED BY: M. AVERETTE DATE: 3-2022
DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

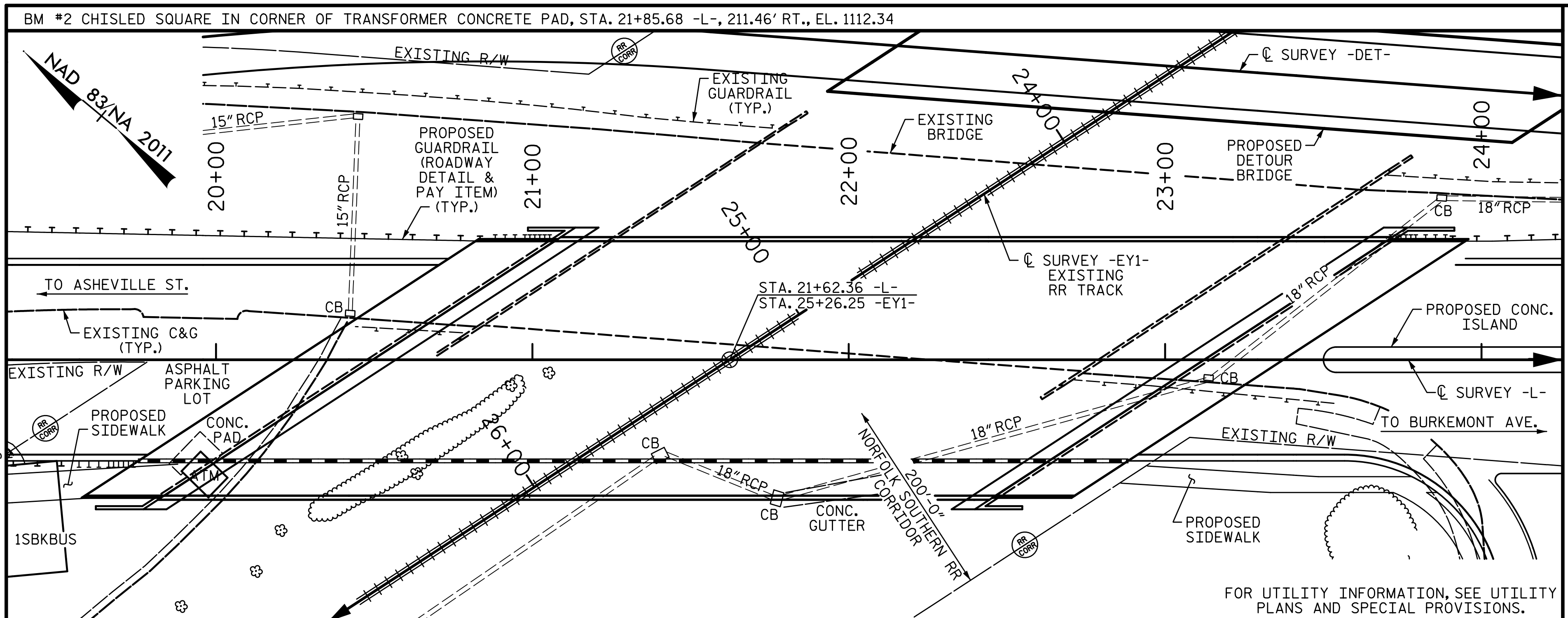
REVISIONS

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

SHEET NO. S-2
TOTAL SHEETS 72

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

11/21/2022 10:18:29 AM P:\Raleigh\Projects\2018\Division 13 (SEA)\B-5869 (Burke 99)\Structures\Drawings\2\Final\2\B5869_SMU_CD_110099(2).dgn



LOCATION SKETCH

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 SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS.

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.

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.

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.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, 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 21+62.39.'

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 42 FT LEFT AND 48 FT RIGHT EACH SIDE OF CENTERLINE ROADWAY 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.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 2 SPANS AT 32'-6" AND 3 SPANS AT 42'-6" SHALL BE REMOVED. THE SUPERSTRUCTURE HAS A CLEAR ROADWAY WIDTH OF 64'-0" WITH REINFORCED CONCRETE DECK ON I BEAMS. END BENT 1, BENT 2, BENT 3, AND END BENT 2 CONSIST OF REINFORCED CONCRETE CAPS ON H-PILES. BENT 1 AND BENT 4 CONSIST OF REINFORCED CONCRETE CAPS ON H-PILES WITH FULL CONCRETE ENCASUREMENT. THE EXISTING BRIDGE IS LOCATED EAST OF THE PROPOSED STRUCTURE. THE EXISTING STRUCTURE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE 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.

EXISTING PILES AT BENT 4 SHALL BE REMOVED IN ENTIRETY AS DIRECTED BY THE ENGINEER TO AVOID INTERFERENCE WITH PROPOSED DRILLED PIERS AT BENT 2.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

THE RAILROAD TRACK TOP OF RAIL ELEVATIONS ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL ELEVATIONS AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

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

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARD REMOVE A TEMPORARY STRUCTURE AT STATION 21+62.39 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

FOR ARCHITECTURAL CONCRETE SURFACE TREATMENT SEE SPECIAL PROVISIONS.

FOR APPLICATION OF BRIDGE COATING, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTANANCE & REMOVAL OF TEMP. STRUCTURE	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	4'-0" DIA. DRILLED PIERS IN SOIL	4'-0" DIA. DRILLED PIERS NOT IN SOIL	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	REINF. CONC. DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINF. STEEL	SPIRAL COLUMN REINF. STEEL
	LS	LS	LS	LF	LF	EA	LS	SF	SF	CY	LS	LB	LB
SUPERSTRUCTURE								21,981	20,865		LS		
END BENT 1							LS			185.8		21,505	
BENT 1				328.4	95					183.1		51,631	13,759
BENT 2				331.4	92					202.6		54,451	15,190
END BENT 2							LS			180.8		22,054	
TOTAL	LS	LS	LS	659.8	187	4	LS	21,981	20,865	752.3	LS	149,641	28,949

TOTAL BILL OF MATERIAL

	MODIFIED 63" PRESTRESSED CONCRETE GIRDERS	PILE DRIVING EQUIP. SETUP HP 12 X 53 STEEL PILES	HP 12x53 STEEL PILES	TWO BAR METAL RAIL	VERTICAL CONC. BARRIER RAIL	1'-4" X 2'-6" CONCRETE PARAPET	1'-4" X 3'-3" CONCRETE PARAPET	90" CHAIN LINK FENCE	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	STRIP SEAL EXP. JOINT	ARCHITECTURAL CONCRETE SURFACE TREATMENT	APPLICATION OF BRIDGE COATING
	NO.	LF	EA	NO.	LF	LF	LF	LF	SY	LS	LS	SF	SF
SUPERSTRUCTURE	30	2544				556	287.5	312.5	262.5	524.92	LS	LS	3450
END BENT 1			18	18	990				955				
BENT 1													
BENT 2													
END BENT 2			18	18	945				1075				
TOTAL	30	2544	36	36	1935	556	287.5	312.5	262.5	524.92	LS	LS	3450

SAMPLE BAR REPLACEMENT

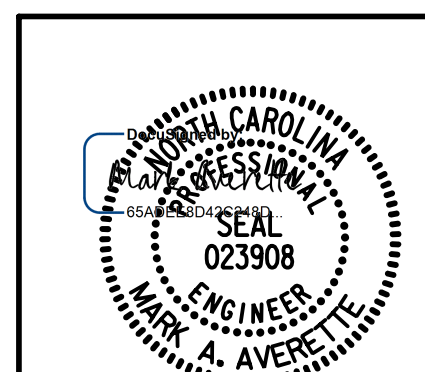
SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

NOTE:
SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND fy = 60 ksi.



5640 Dillard Drive, Suite 200
Cary, NC 27518

LICENSURE NO. C-4434



3/23/2023 | 5:11 AM PM

PROJECT NO. B-5869
BURKE COUNTY
STATION: 21+62.39 -L-

SHEET 3 OF 4 REPLACES BRIDGE #99
MILE POST 80.1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON US64/US 70
(W. FLEMING DR.) OVER
NORFOLK SOUTHERN RR
BETWEEN ASHEVILLE ST.
AND BURKEMONT AVE.

REVISIONS

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

SHEET NO.
S-4
TOTAL SHEETS
72

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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DRAWN BY: S.D. COOPER DATE: 3-2022
CHECKED BY: M. AVERETTE DATE: 3-2022
DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

11/21/2022 10:18:31 AM P:\Raleigh\Projects\2018\Division 13 (SEA)\B-5869 (Burke 99)\Structures\Drawings\2\Final\2\B5869_SMJ_LRFR_110099(2).dgn

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS

LEVEL	VEHICLE	WEIGHT (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ _L)	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 _L)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.06	- -	1.75	0.732	1.53	B	EXT	61.9	1.072	1.06	B	EXT	11.8	0.80	0.732	1.15	B	EXT	61.9		
	HL-93 (OPERATING)	N/A		1.41	- -	1.35	0.732	1.98	B	EXT	61.9	1.072	1.41	B	EXT	11.8	N/A	- -	- -	- -	- -	- -	- -	
	HS-20 (INVENTORY)	36.00	②	1.54	55.4	1.75	0.732	2.25	B	EXT	61.9	1.072	1.54	B	EXT	11.8	0.80	0.732	1.70	B	EXT	61.9		
	HS-20 (OPERATING)	36.00		2.04	73.4	1.35	0.732	2.92	B	EXT	61.9	1.072	2.04	B	EXT	11.8	N/A	- -	- -	- -	- -	- -	- -	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.31	44.7	1.40	0.732	6.84	B	EXT	61.9	1.072	5.10	B	EXT	11.8	0.80	0.732	3.31	B	EXT	61.9	
		SNGARBS2	20.000		2.36	47.2	1.40	0.732	4.88	B	EXT	61.9	1.072	3.51	B	EXT	11.8	0.80	0.732	2.36	B	EXT	61.9	
		SNAGRIS2	22.000		2.19	48.2	1.40	0.732	4.54	B	EXT	61.9	1.072	3.21	B	EXT	11.8	0.80	0.732	2.19	B	EXT	61.9	
		SNCOTTS3	27.250		1.64	44.7	1.40	0.732	3.40	B	EXT	61.9	1.072	2.47	B	EXT	11.8	0.80	0.732	1.64	B	EXT	61.9	
		SNAGGRS4	34.925		1.33	46.5	1.40	0.732	2.76	B	EXT	61.9	1.072	1.97	B	EXT	11.8	0.80	0.732	1.33	B	EXT	61.9	
		SNS5A	35.550		1.30	46.2	1.40	0.732	2.70	B	EXT	61.9	1.072	1.97	B	EXT	11.8	0.80	0.732	1.30	B	EXT	61.9	
		SNS6A	39.950		1.18	47.1	1.40	0.732	2.44	B	EXT	61.9	1.072	1.76	B	EXT	11.8	0.80	0.732	1.18	B	EXT	61.9	
	SNS7B	42.000		1.12	47.0	1.40	0.732	2.33	B	EXT	61.9	1.072	1.71	B	EXT	11.8	0.80	0.732	1.12	B	EXT	61.9		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.44	47.5	1.40	0.732	2.97	B	EXT	61.9	1.072	2.14	B	EXT	11.8	0.80	0.732	1.44	B	EXT	61.9	
		TNT4A	33.075		1.44	47.6	1.40	0.732	2.97	B	EXT	61.9	1.072	2.11	B	EXT	11.8	0.80	0.732	1.44	B	EXT	61.9	
		TNT6A	41.600		1.16	48.3	1.40	0.732	2.40	B	EXT	61.9	1.072	1.78	B	EXT	11.8	0.80	0.732	1.16	B	EXT	61.9	
		TNT7A	42.000		1.16	48.7	1.40	0.732	2.40	B	EXT	61.9	1.072	1.74	B	EXT	11.8	0.80	0.732	1.16	B	EXT	61.9	
		TNT7B	42.000		1.18	49.6	1.40	0.732	2.44	B	EXT	61.9	1.072	1.68	B	EXT	11.8	0.80	0.732	1.18	B	EXT	61.9	
		TNAGRIT4	43.000		1.14	49.0	1.40	0.732	2.35	B	EXT	61.9	1.072	1.63	B	EXT	11.8	0.80	0.732	1.14	B	EXT	61.9	
TNAGT5A		45.000		1.08	48.6	1.40	0.732	2.23	B	EXT	61.9	1.072	1.59	B	EXT	11.8	0.80	0.732	1.08	B	EXT	61.9		
TNAGT5B	45.000	③	1.07	48.2	1.40	0.732	2.22	B	EXT	61.9	1.072	1.55	B	EXT	11.8	0.80	0.732	1.07	B	EXT	61.9			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.
 ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.
 DISTANCE FROM LEFT END OF SPAN IS MEASURED FROM \bar{C} BEARING.

③ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

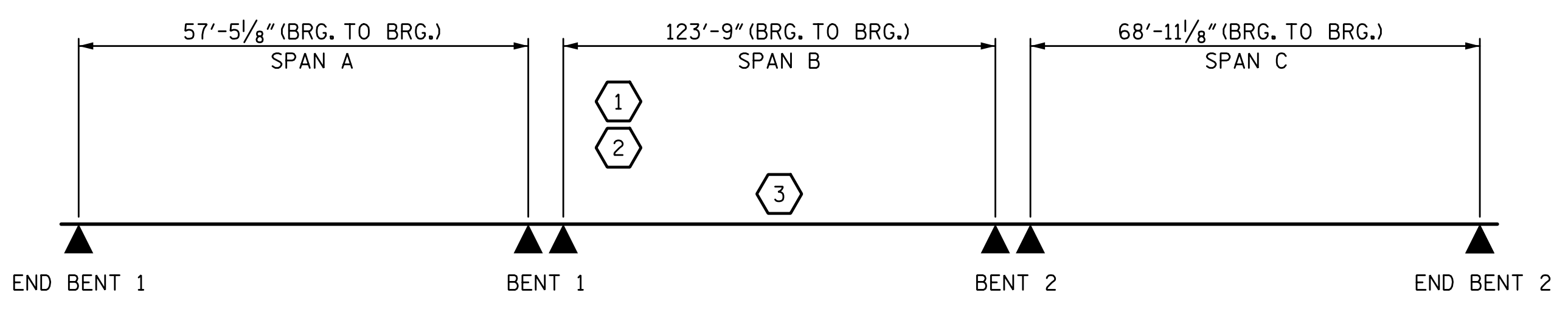
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EXT - EXTERIOR GIRDER

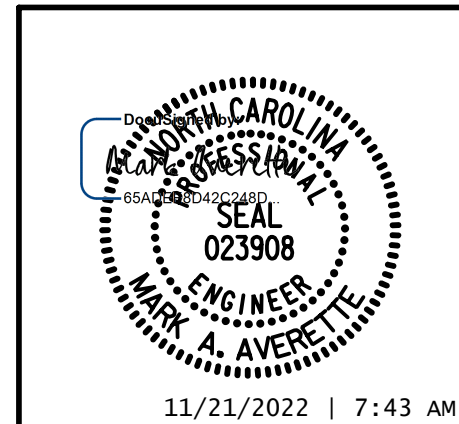


LRFR SUMMARY

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 4 OF 4

DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022



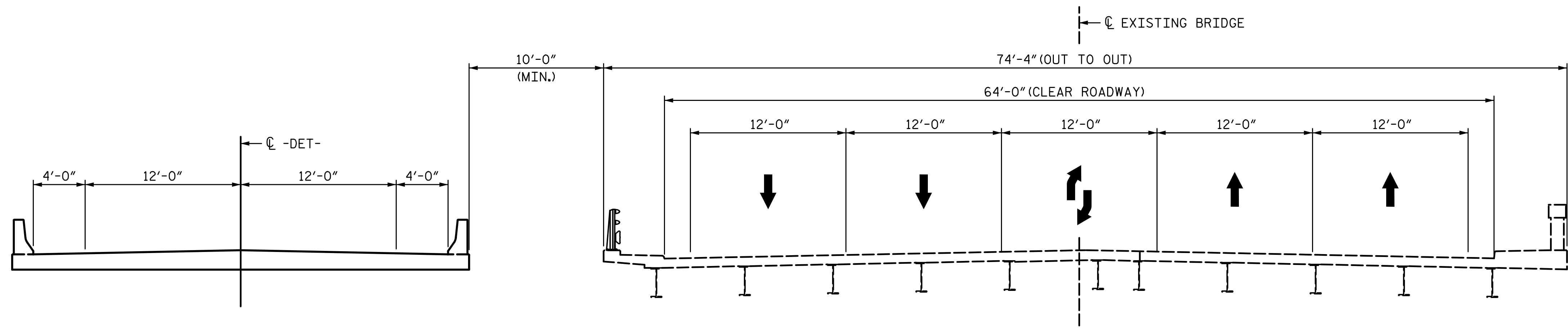
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 LRFR SUMMARY
 FOR PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			72

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

LICENSURE NO. C-4434

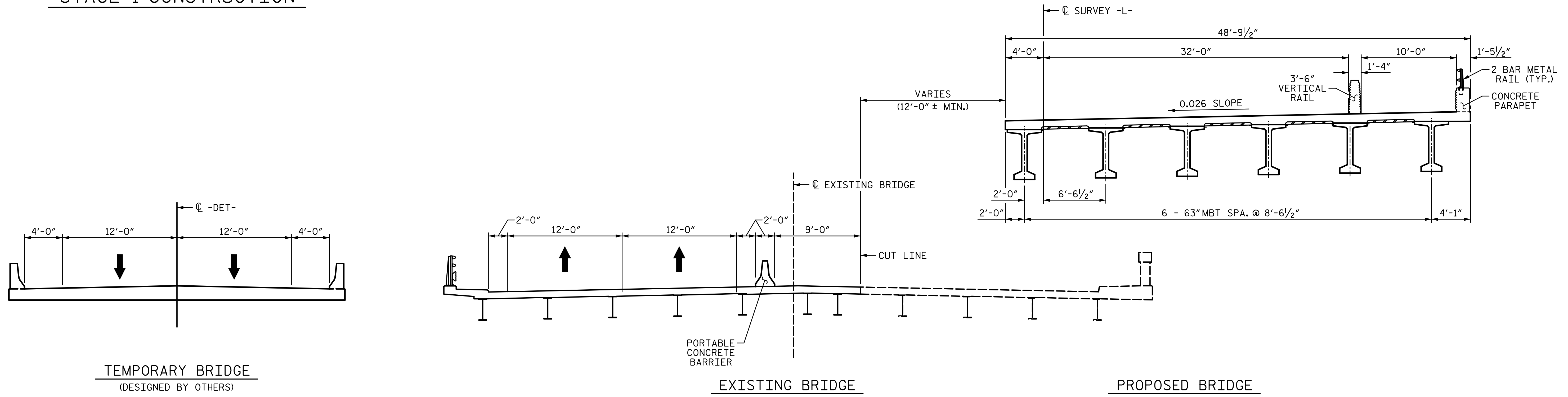
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TEMPORARY BRIDGE
(DESIGNED BY OTHERS)

EXISTING BRIDGE

STAGE 1 CONSTRUCTION



TEMPORARY BRIDGE
(DESIGNED BY OTHERS)

EXISTING BRIDGE

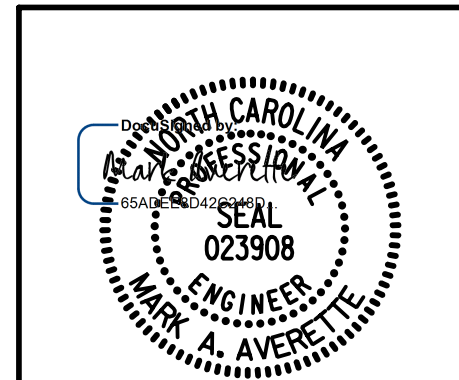
PROPOSED BRIDGE

STAGE 2 CONSTRUCTION

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CONSTRUCTION
 SEQUENCE



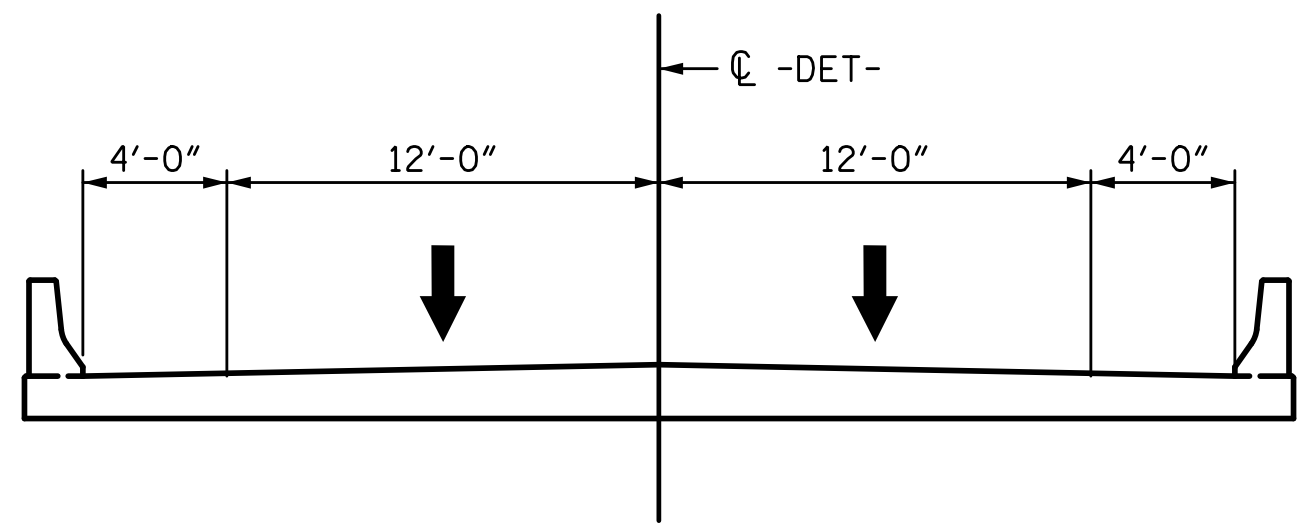
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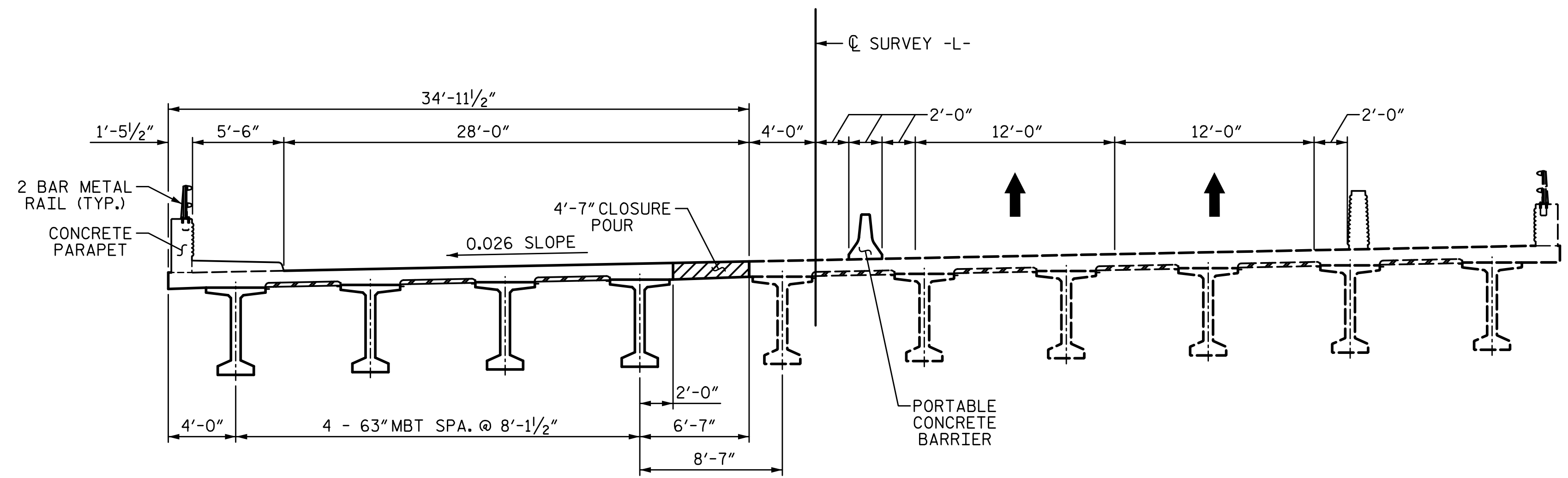
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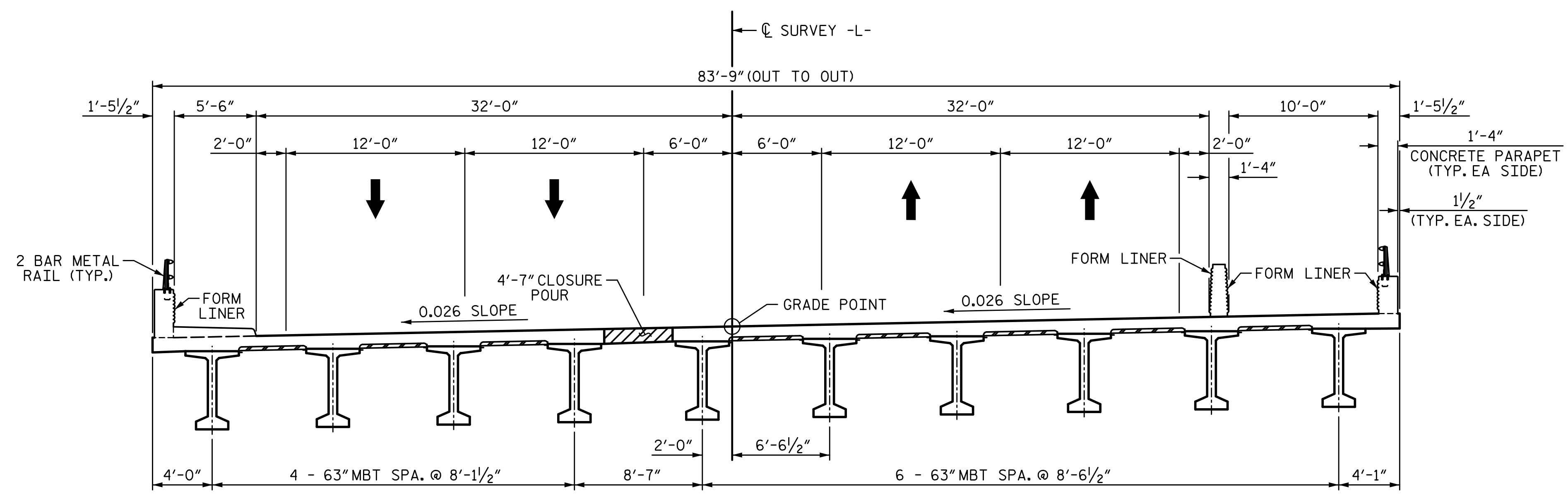


TEMPORARY BRIDGE
(DESIGNED BY OTHERS)



PROPOSED BRIDGE

STAGE 3 CONSTRUCTION

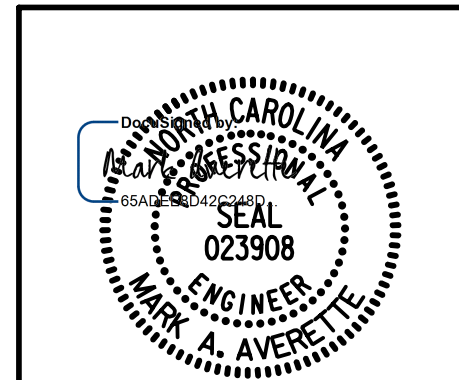


FINAL TRAFFIC PATTERN

PROJECT NO. B-5869
BURKE COUNTY
STATION: 21+62.39 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
CONSTRUCTION
SEQUENCE



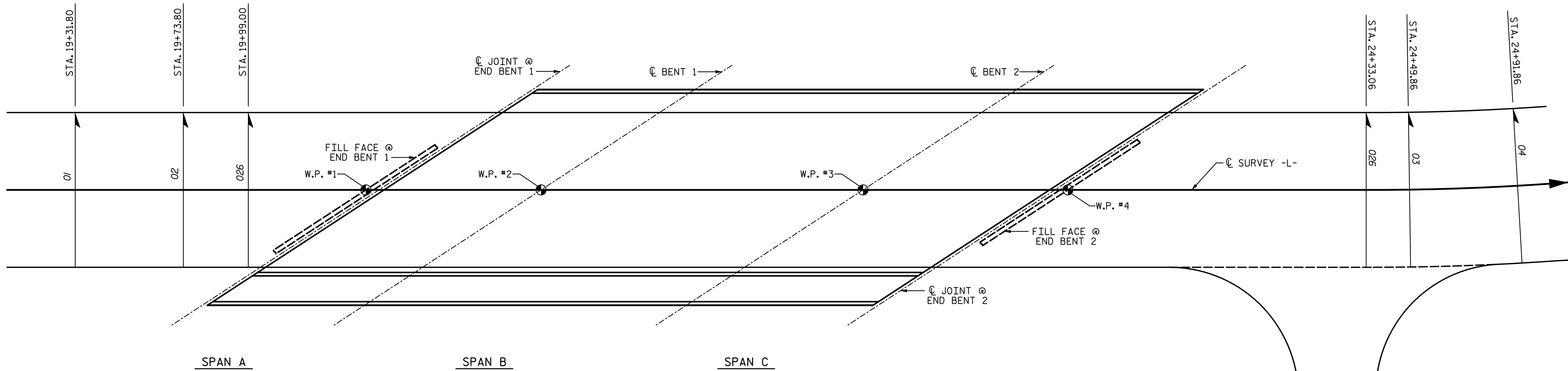
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LAYOUT FOR SUPERELEVATION

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 LAYOUT FOR SUPERELEVATION

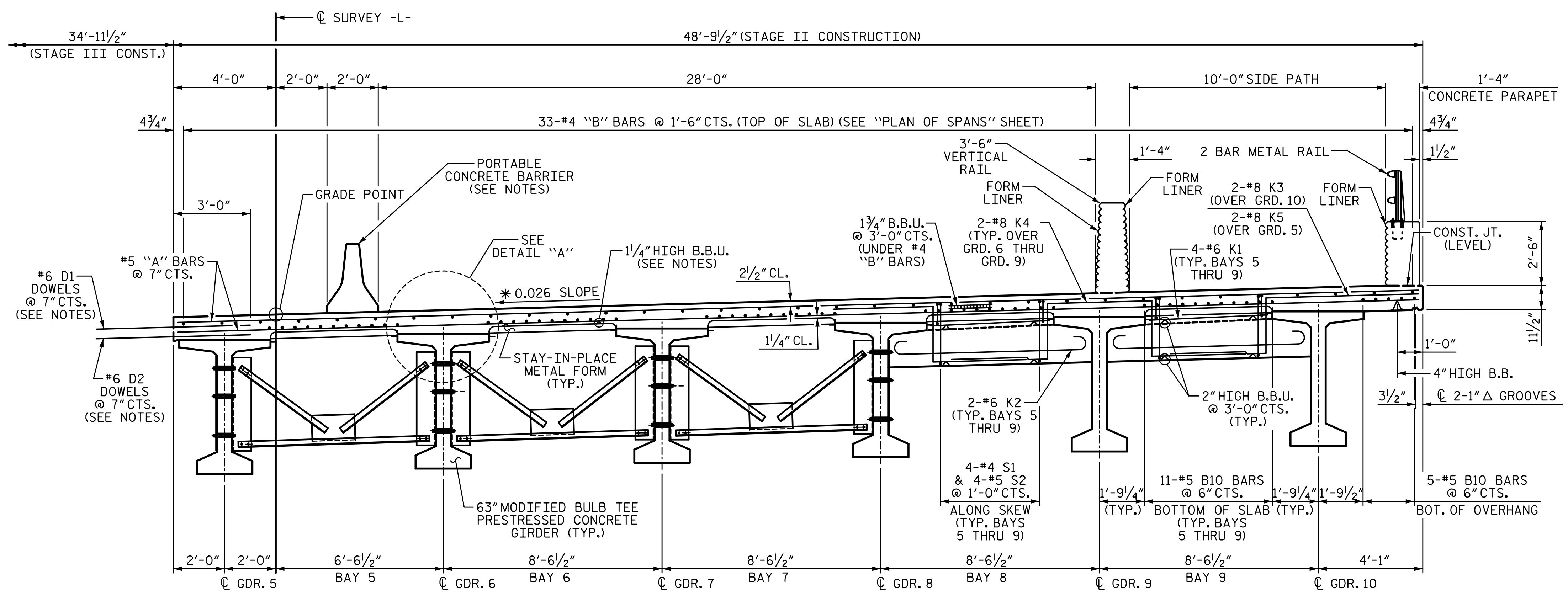


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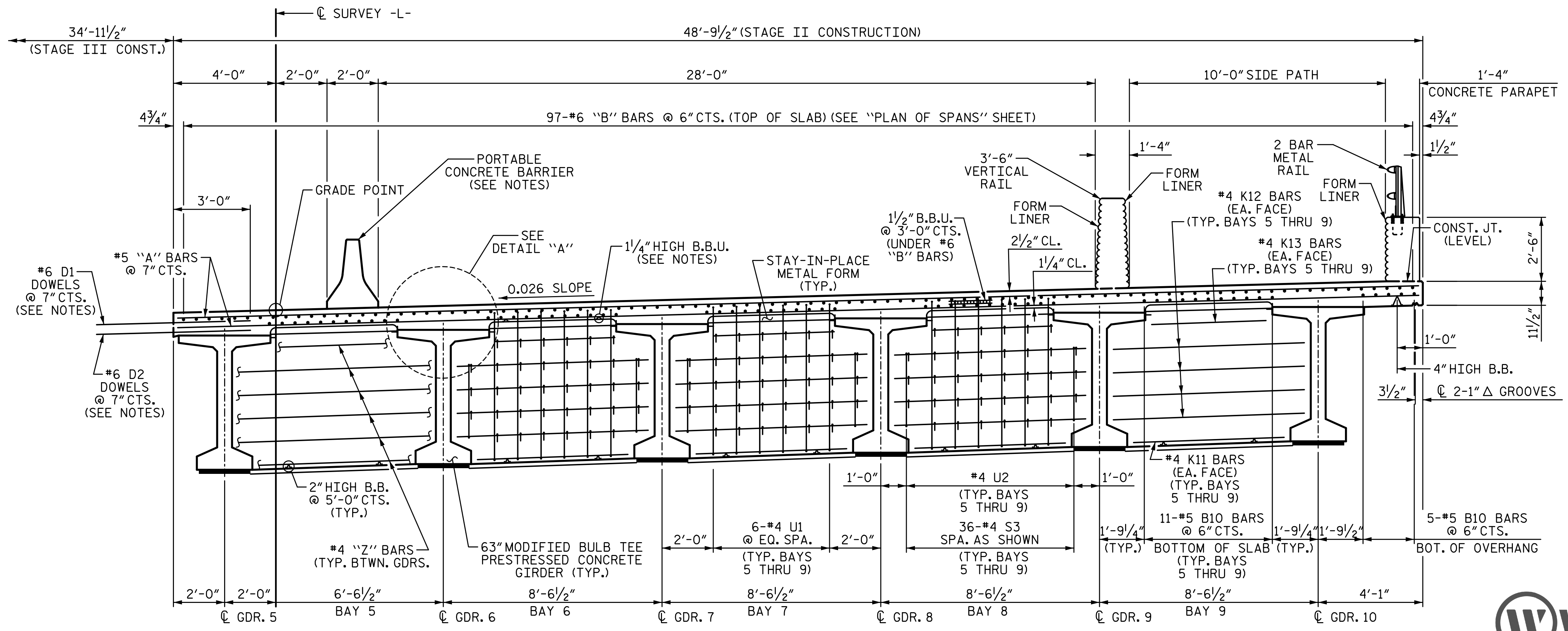
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PARTIAL TYPICAL SECTION (SHOWING INTERMEDIATE DIAPHRAGM)

PARTIAL TYPICAL SECTION (SHOWING END BENT DIAPHRAGM) * (SEE "LAYOUT FOR SUPERELEVATION" SHEET)



PARTIAL TYPICAL SECTION (SHOWING BENT DIAPHRAGM)

NOTES:

PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE STAY-IN-PLACE METAL FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

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

FOR EACH STAGE, PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

FOR EACH STAGE, CONCRETE RAIL AND SIDEWALK IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

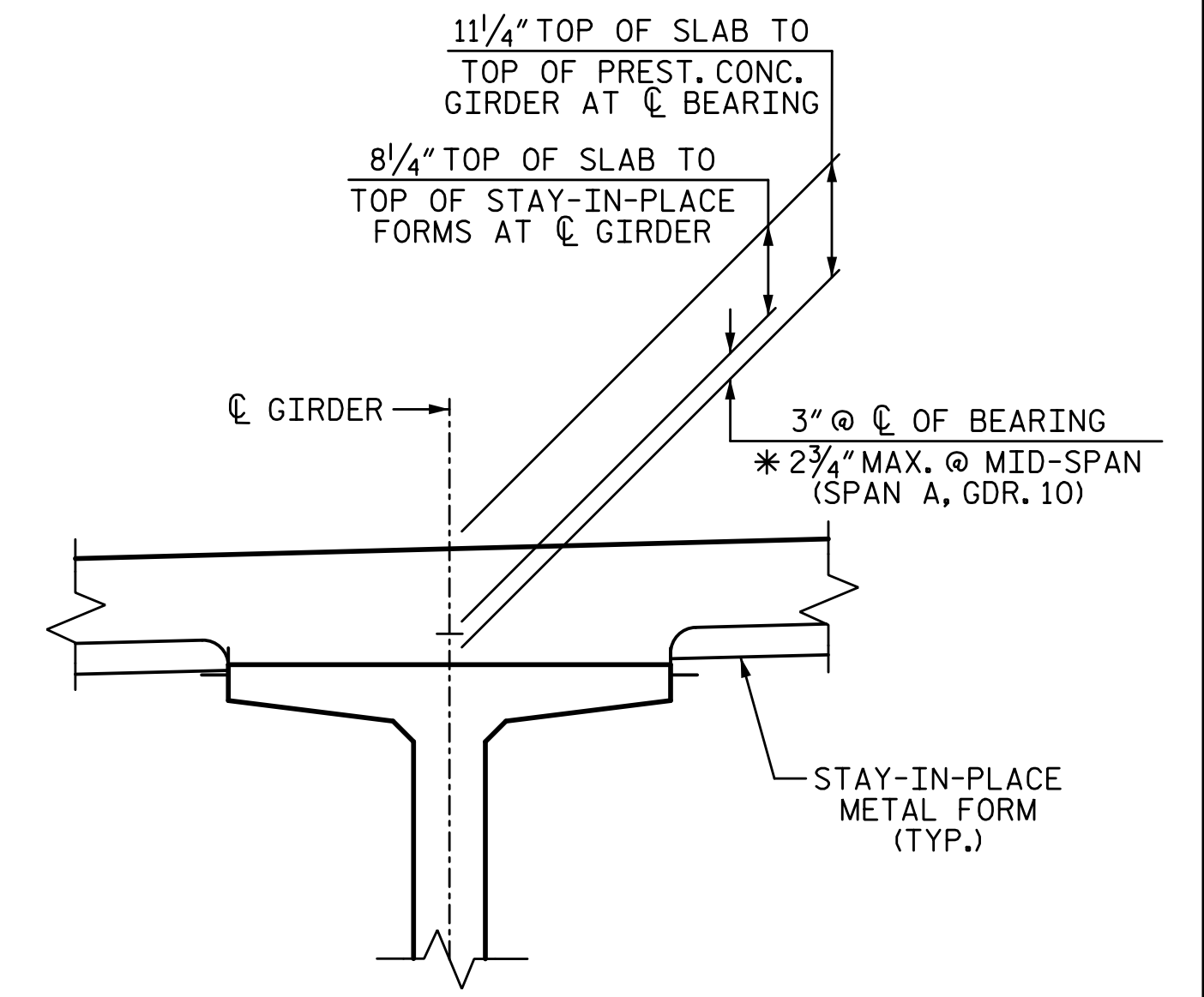
#6 D1 AND #6 D2 DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP AND BOTTOM SLAB REINFORCING STEEL.

SEE TRAFFIC MANAGEMENT PLANS FOR LOCATION AND PAY LIMITS OF THE PORTABLE CONCRETE BARRIER.

#5 "G" BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

FOR FORM LINER DETAILS, SEE SPECIAL PROVISIONS.

BRIDGE MOUNTED CHAIN LINK FENCE NOT SHOWN FOR CLARITY. SEE "BRIDGE MOUNTED CHAIN LINK FENCE DETAILS" SHEETS.



DETAIL "A" (TYP. EA. GDR.)

* BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE ELEVATIONS.

PROJECT NO. B-5869
BURKE COUNTY
STATION: 21+62.39 -L-

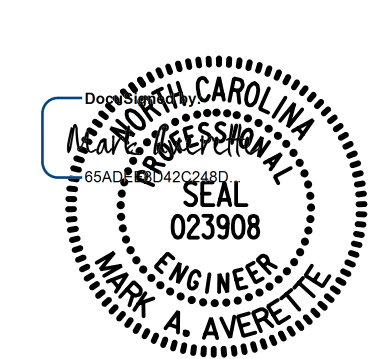
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

TYPICAL SECTIONS

STAGE II

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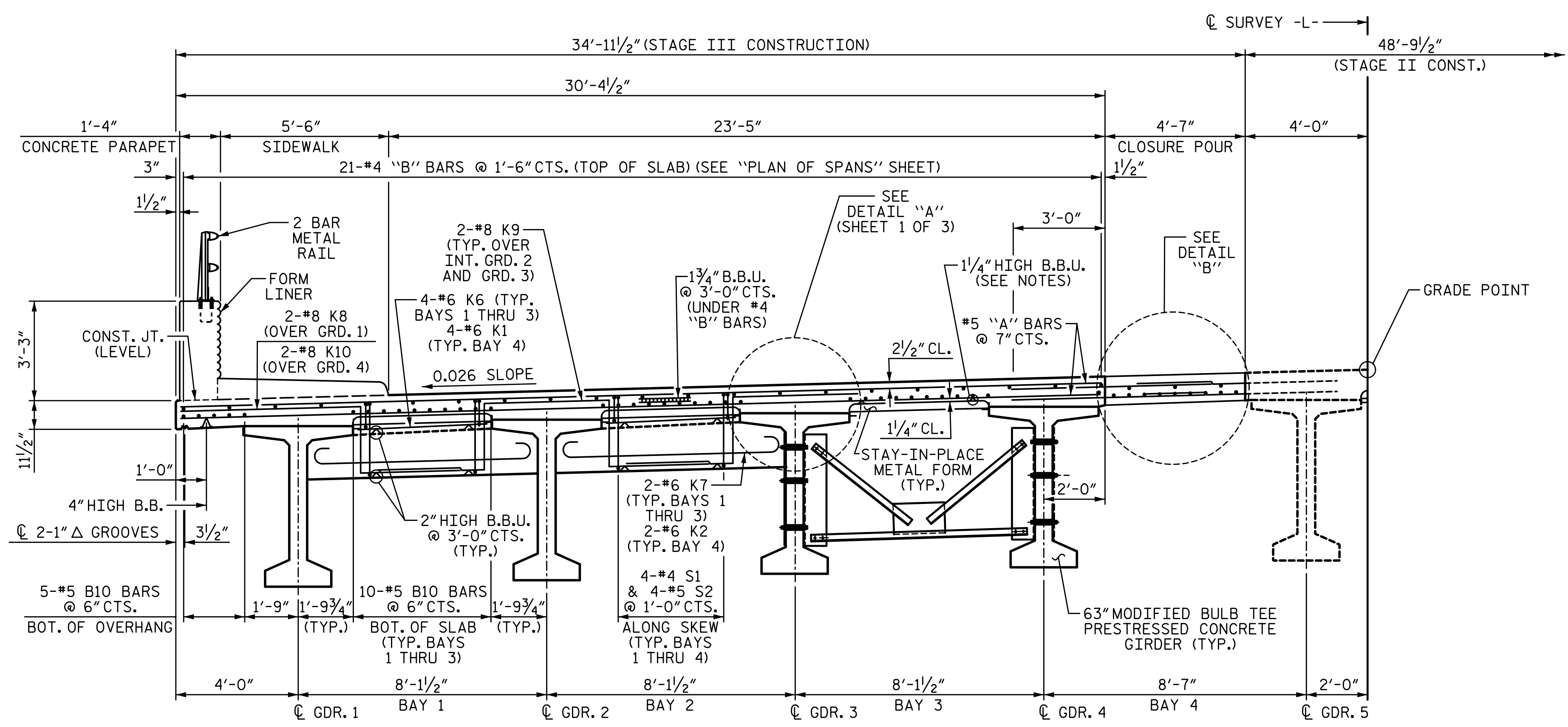
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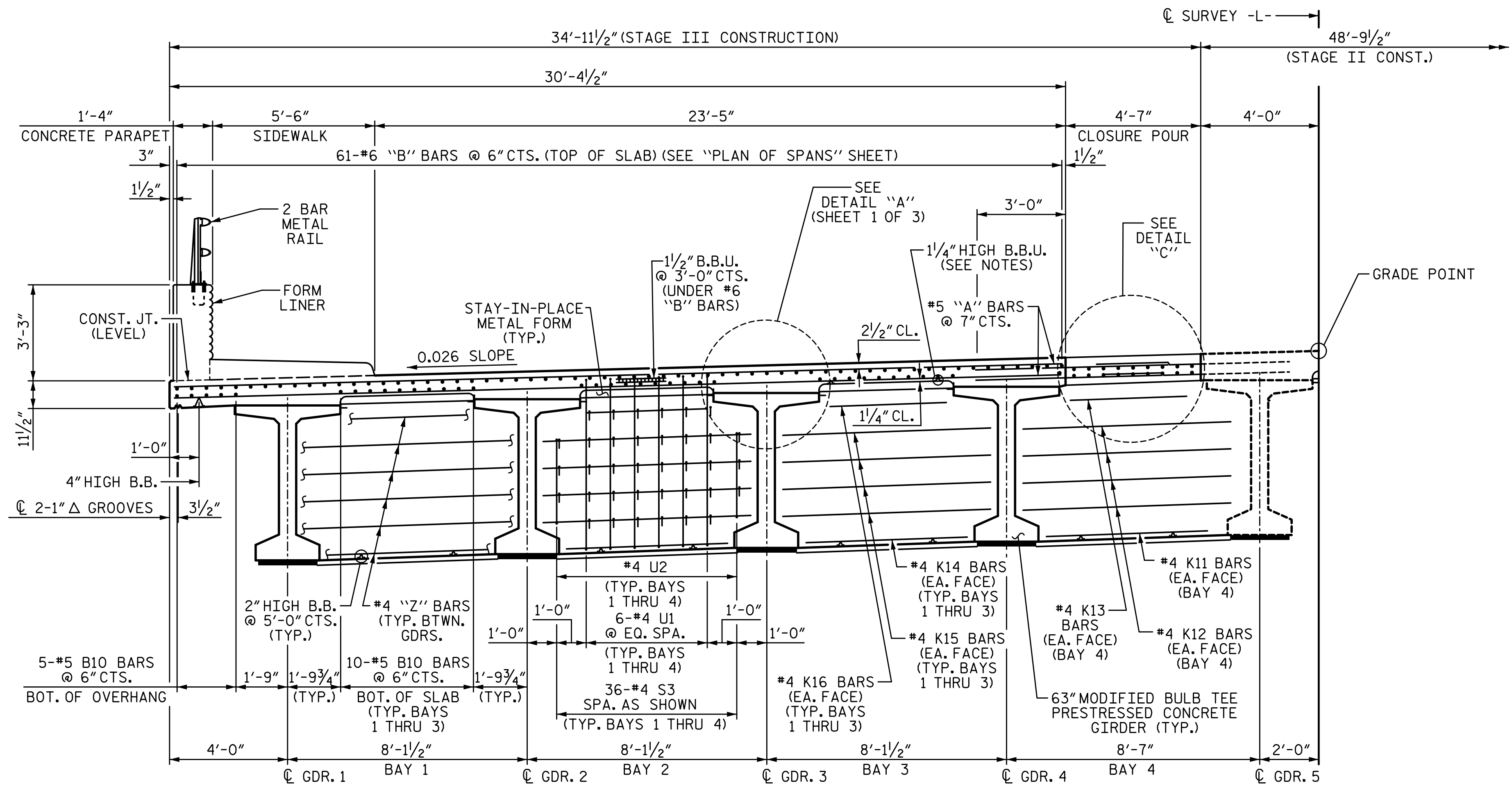
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TOTAL SHEETS 72

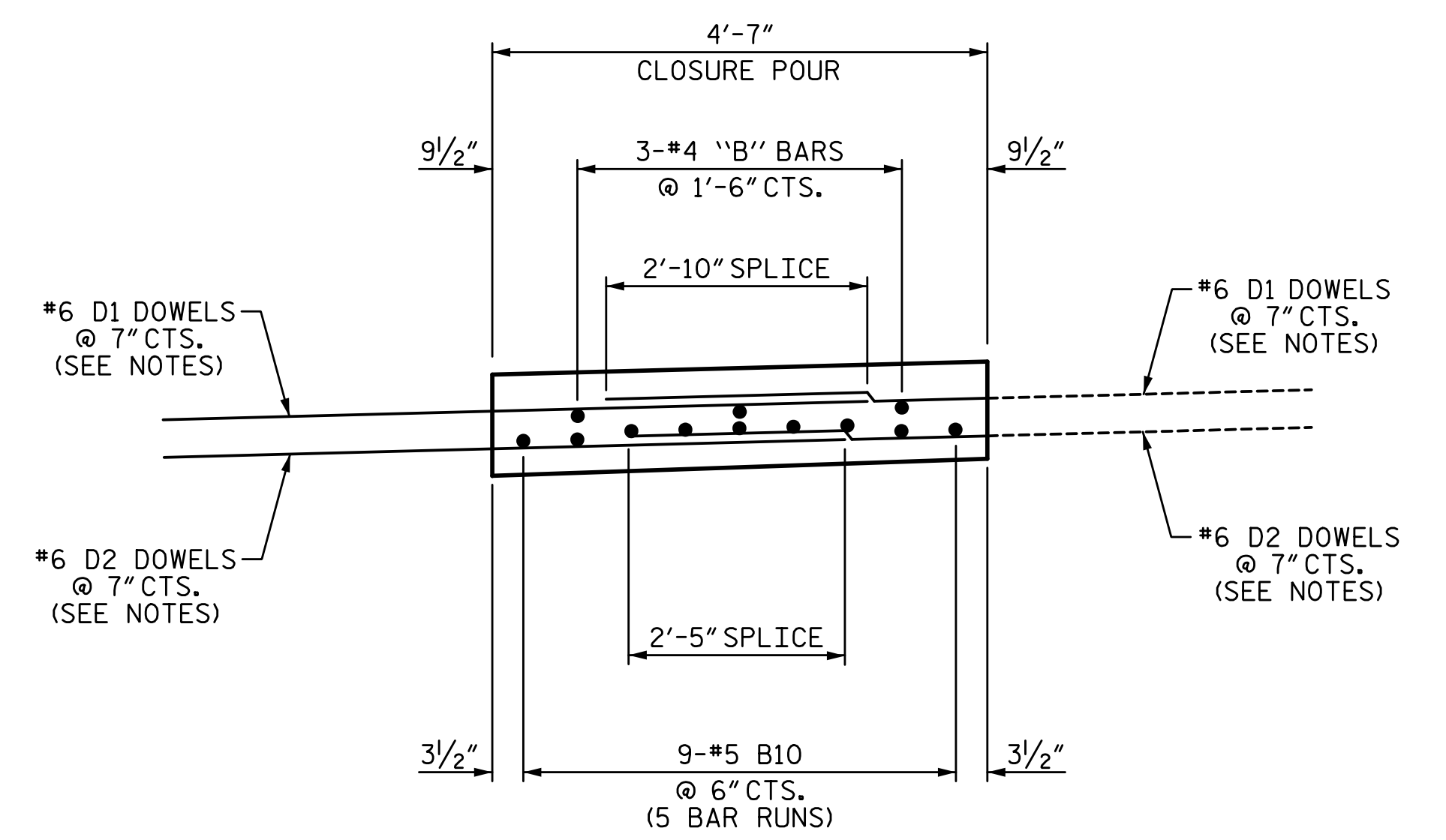
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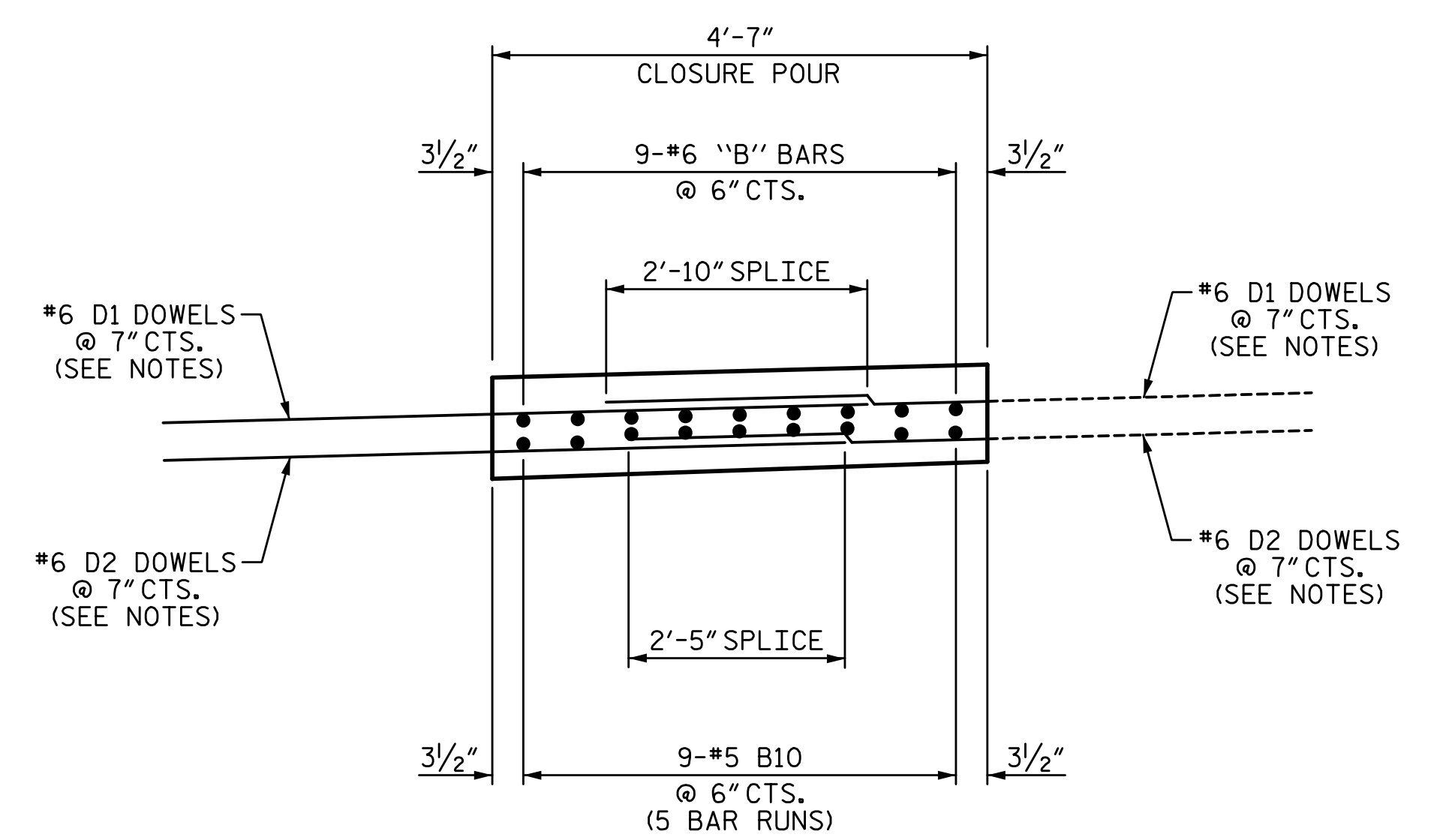
PARTIAL TYPICAL SECTION (SHOWING END BENT DIAPHRAGM) **PARTIAL TYPICAL SECTION (SHOWING INTERMEDIATE DIAPHRAGM)**



PARTIAL TYPICAL SECTION (SHOWING BENT DIAPHRAGM)



DETAIL "B"
 SEE "TOP OF DECK "B" BAR PLACEMENT" DETAIL ON SHEETS S-13 AND S-14

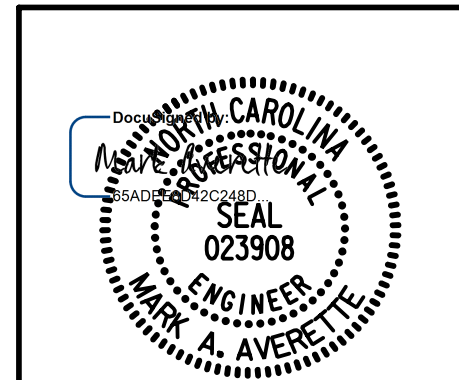


DETAIL "C"
 SEE "TOP OF DECK "B" BAR PLACEMENT" DETAIL ON SHEETS S-13 AND S-14

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
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 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTIONS
 STAGE III



WVGI
 5640 Dillard Drive, Suite 200
 Cary, NC 27518
 LICENSURE NO. C-4434

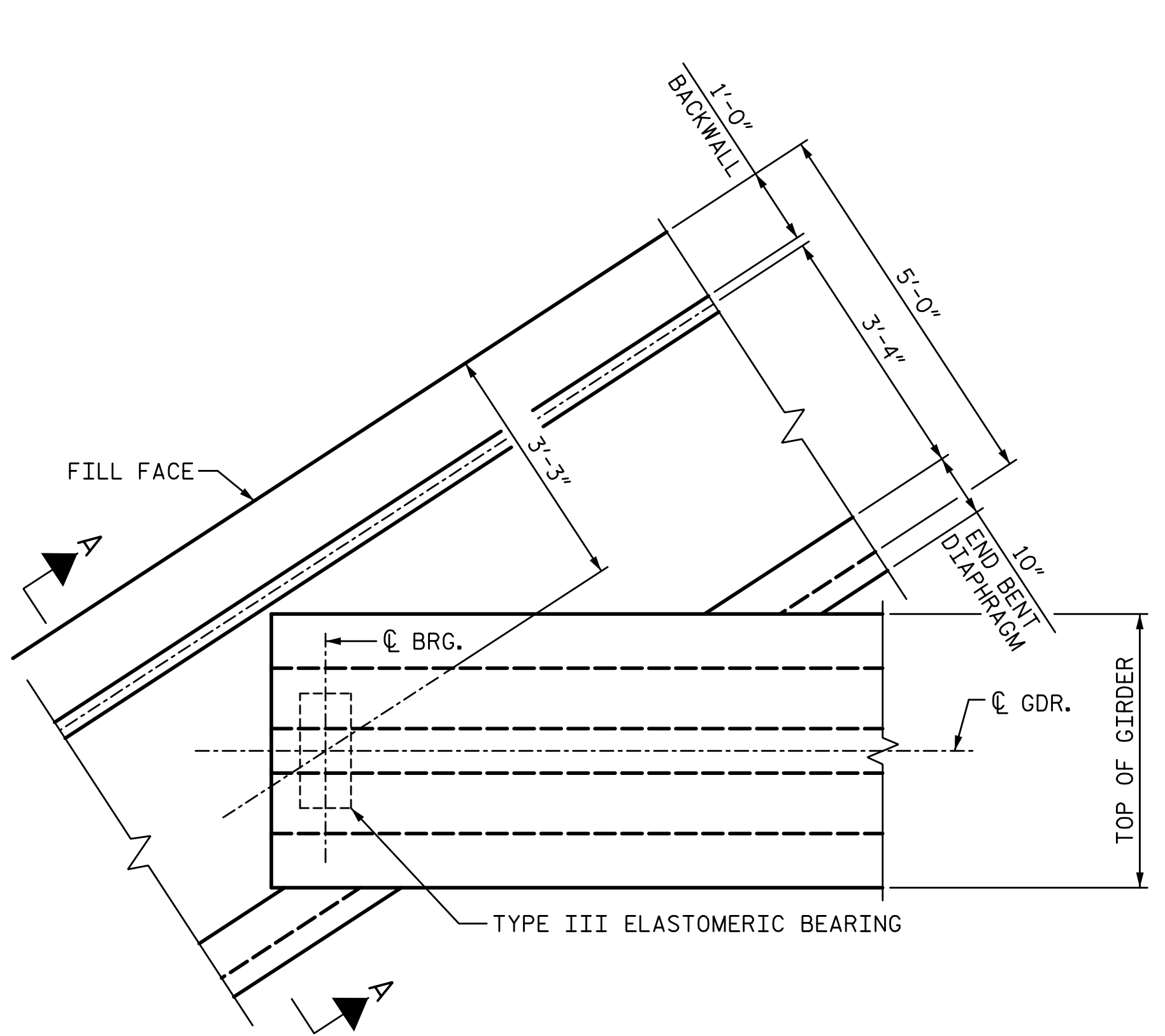
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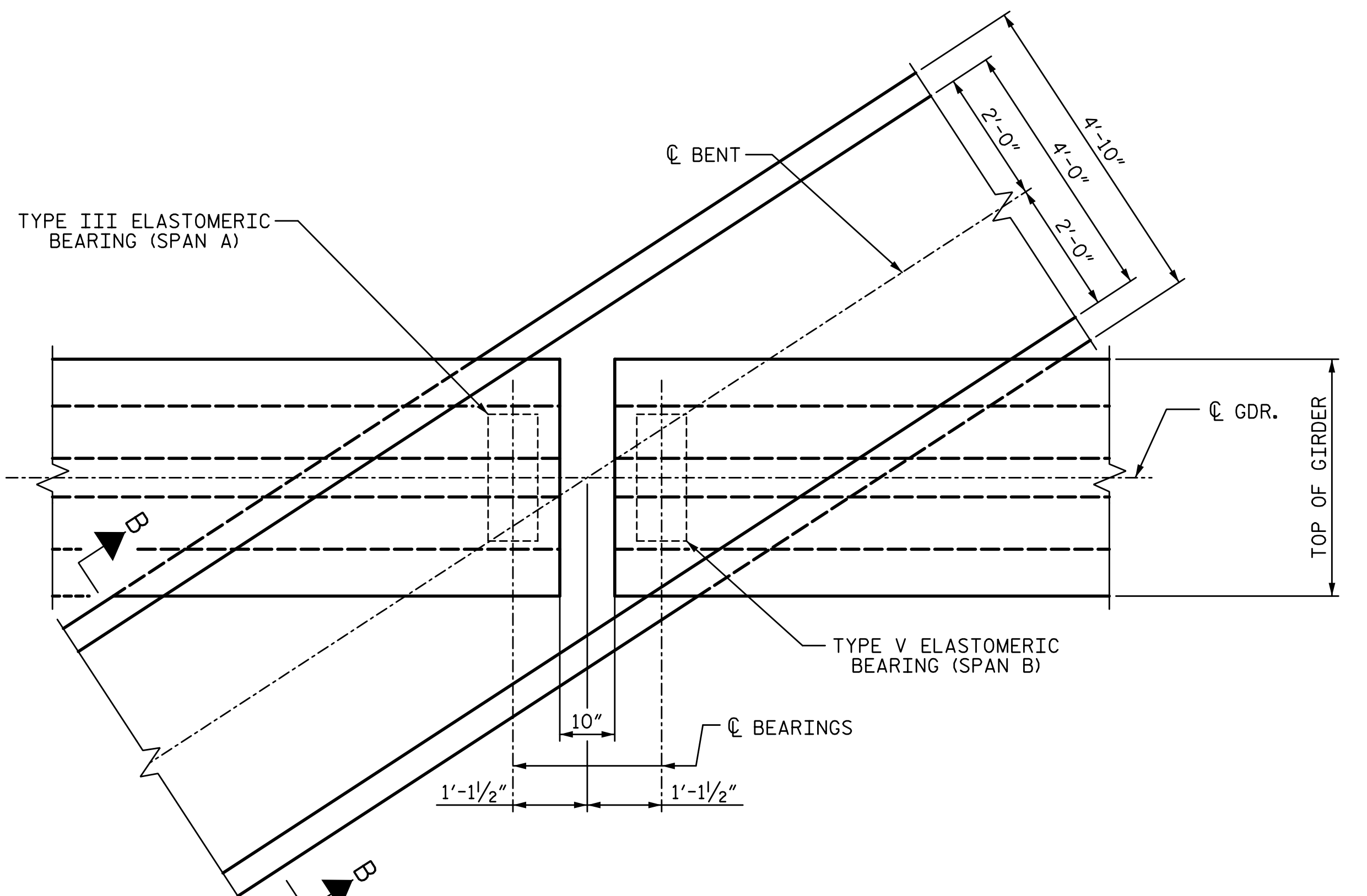
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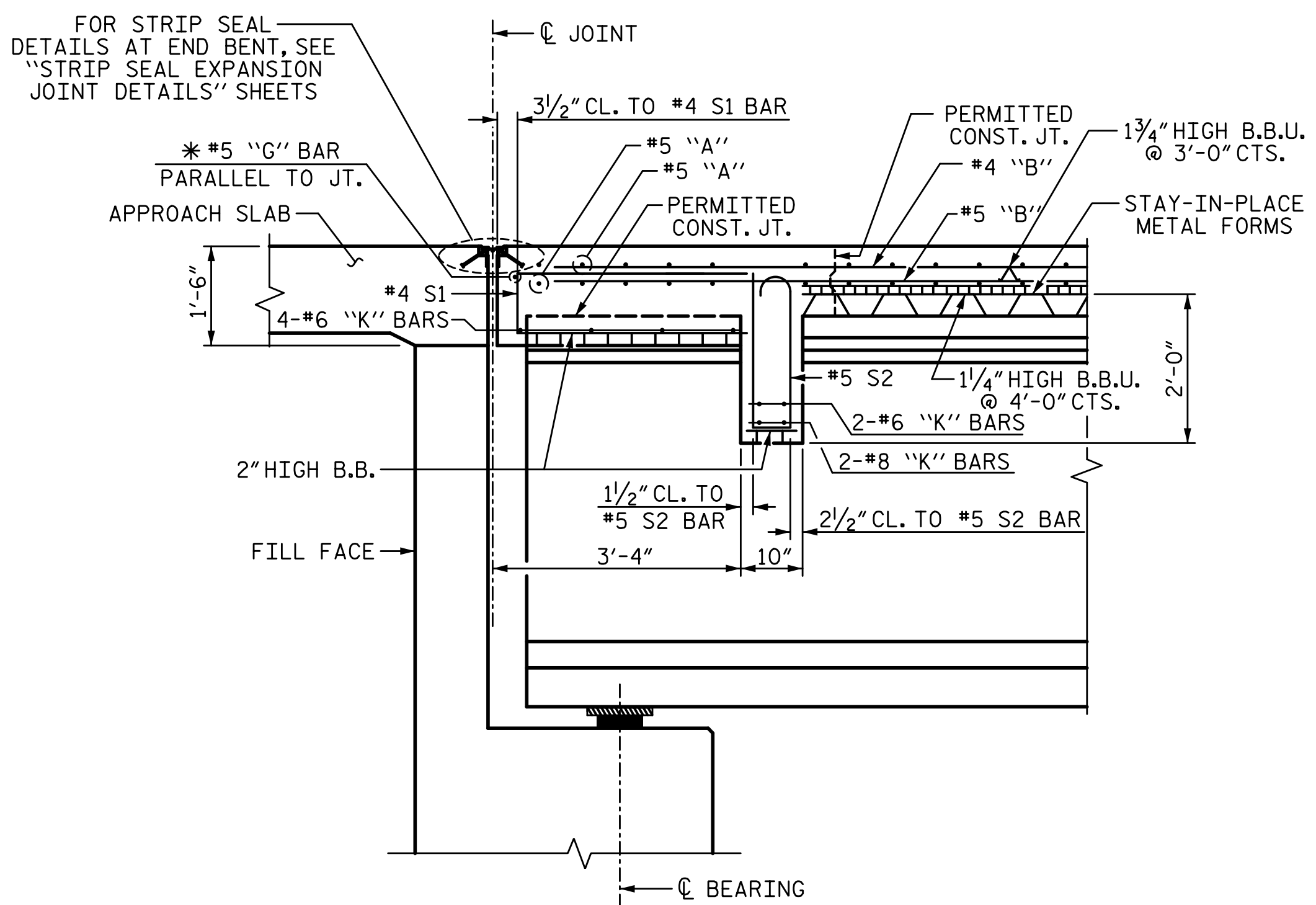
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PLAN DETAIL OF END BENT
(END BENT 1 SHOWN, END BENT 2 SIMILAR)



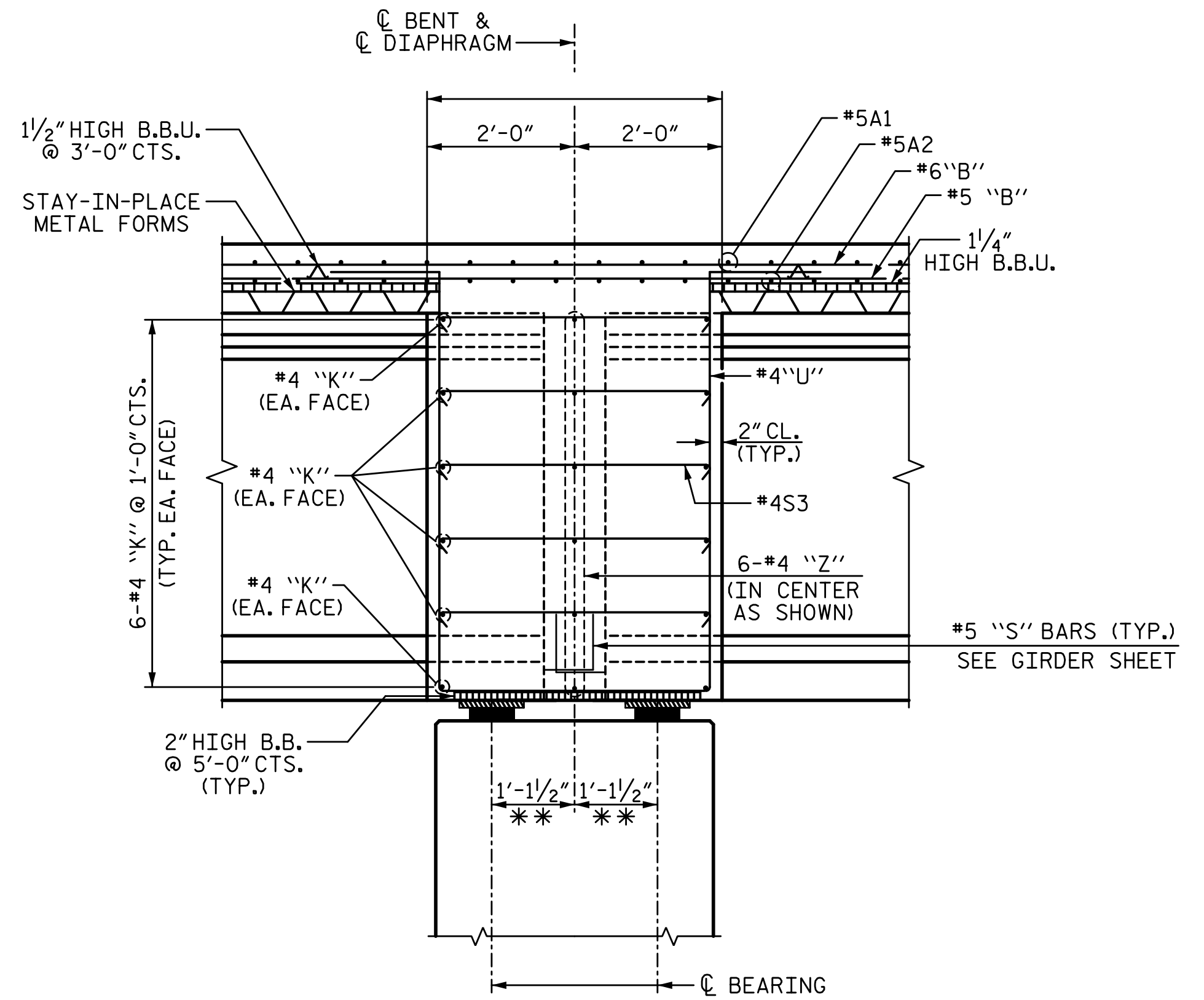
PLAN DETAIL OF INTERIOR BENT
(BENT 1 SHOWN, BENT 2 SIMILAR)
(CONTINUOUS DECK SLAB NOT SHOWN FOR CLARITY)
(*S" BARS IN GIRDER NOT SHOWN FOR CLARITY)



SECTION A-A

SECTION THROUGH END BENT DIAPHRAGM

(DIMENSIONS SHOWN ARE NORMAL TO THE END BENT UNLESS OTHERWISE NOTED)
(END BENT 1 SHOWN, END BENT 2 SIMILAR)
* #5 "G" BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.



SECTION B-B

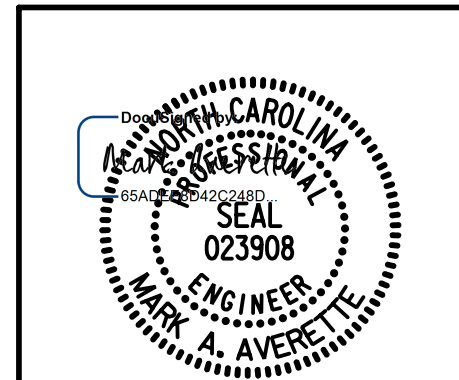
SECTION THROUGH INTERIOR BENT DIAPHRAGM

** MEASURED ALONG CL GIRDER

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BURKE COUNTY
STATION: 21+62.39 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION DETAILS



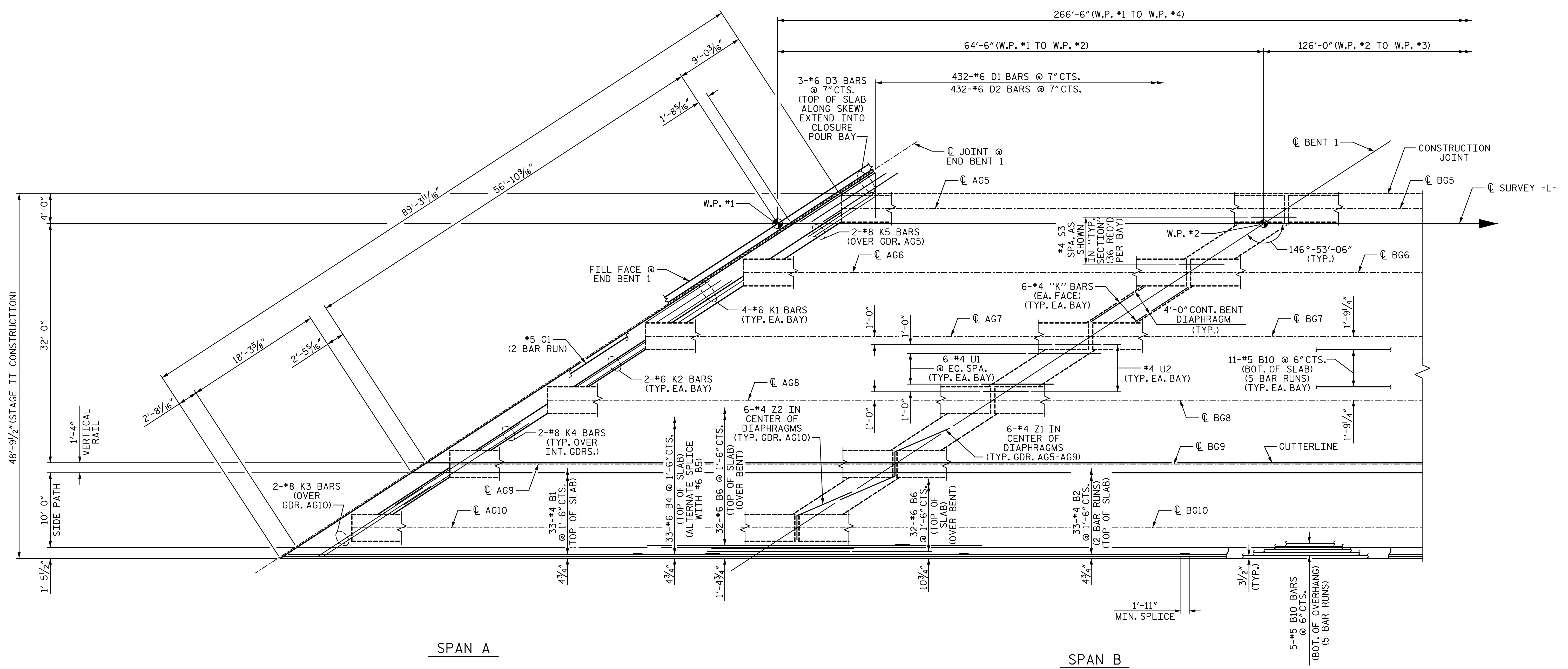
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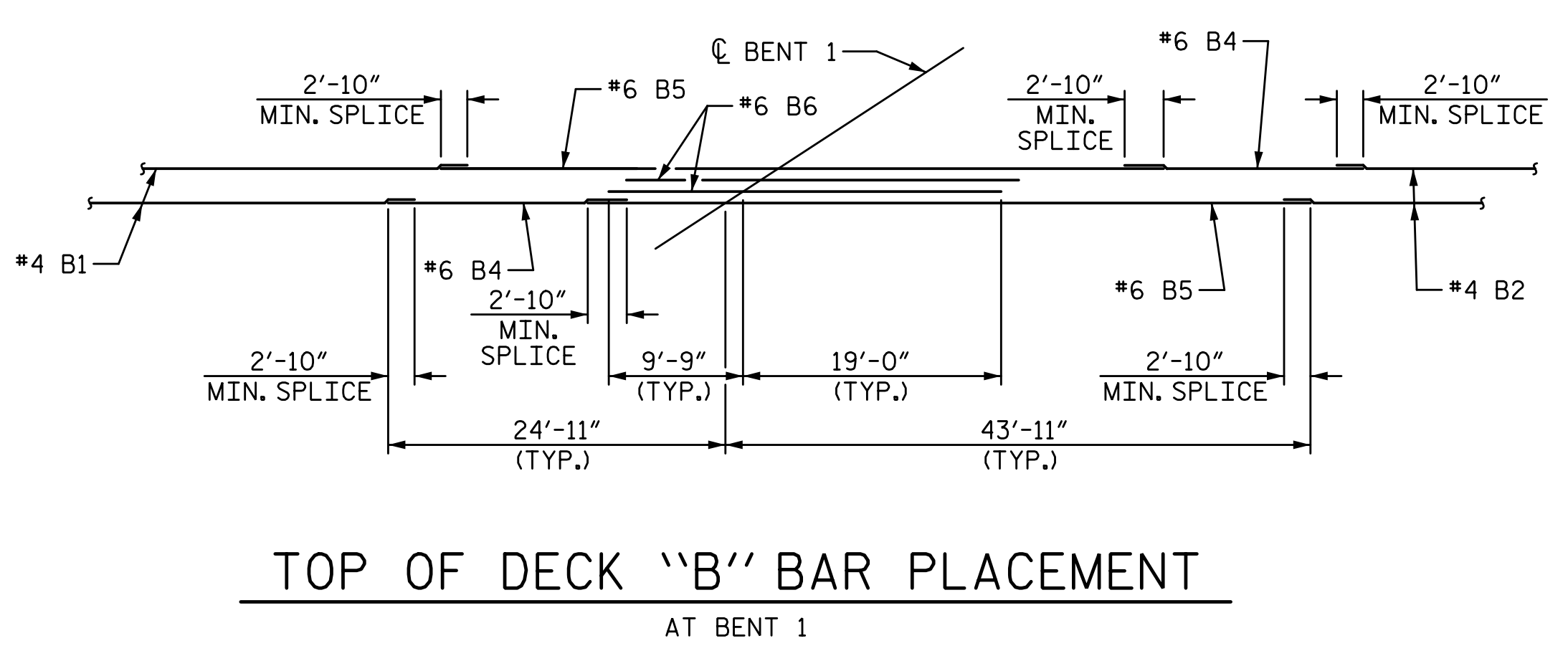
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PLAN OF SPANS



TOP OF DECK "B" BAR PLACEMENT AT BENT 1

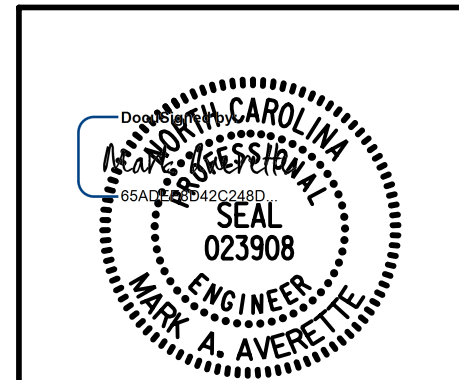
NOTES:

- "A" BARS NOT SHOWN FOR CLARITY. SEE "A" BAR PLACEMENT DETAILS" SHEETS.
- SEE "CONCRETE PARAPET, VERTICAL RAIL, AND SIDEWALK" SHEETS FOR ADDITIONAL REINFORCING STEEL IN SLAB, SIDEWALK AND RAILS.
- SEE "TYPICAL SECTION DETAILS" SHEETS FOR SECTIONS THRU END BENT AND BENT DIAPHRAGMS.
- FOR LOCATION OF INTERMEDIATE DIAPHRAGMS SEE "FRAMING PLAN" SHEET.
- FOR POUR SEQUENCE AND LOCATION OF TRANSVERSE CONSTRUCTION JOINTS, SEE "BILL OF MATERIAL" SHEET.
- S1 AND S2 BARS IN END BENT DIAPHRAGMS ARE NOT SHOWN FOR CLARITY. SEE TYPICAL SECTION FOR BAR LOCATIONS.

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 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS
 STAGE II

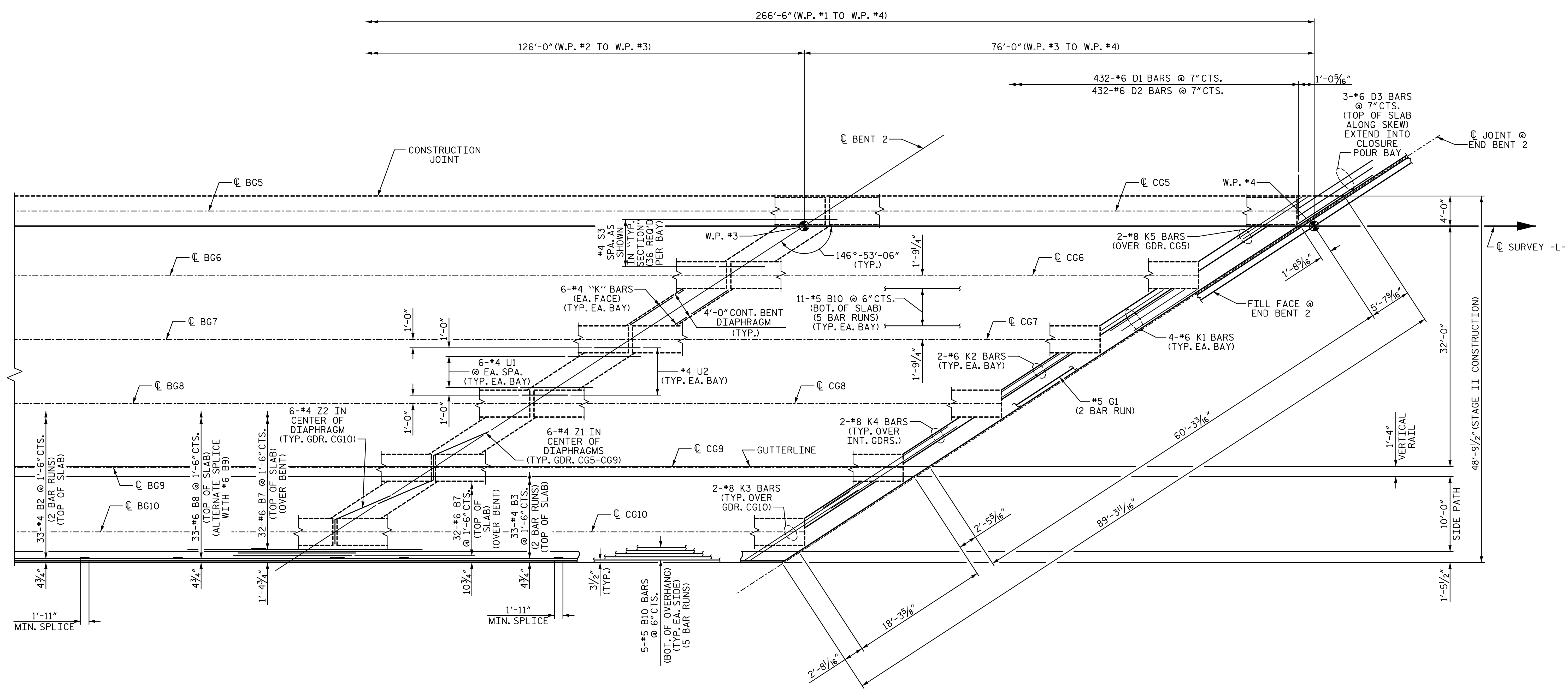


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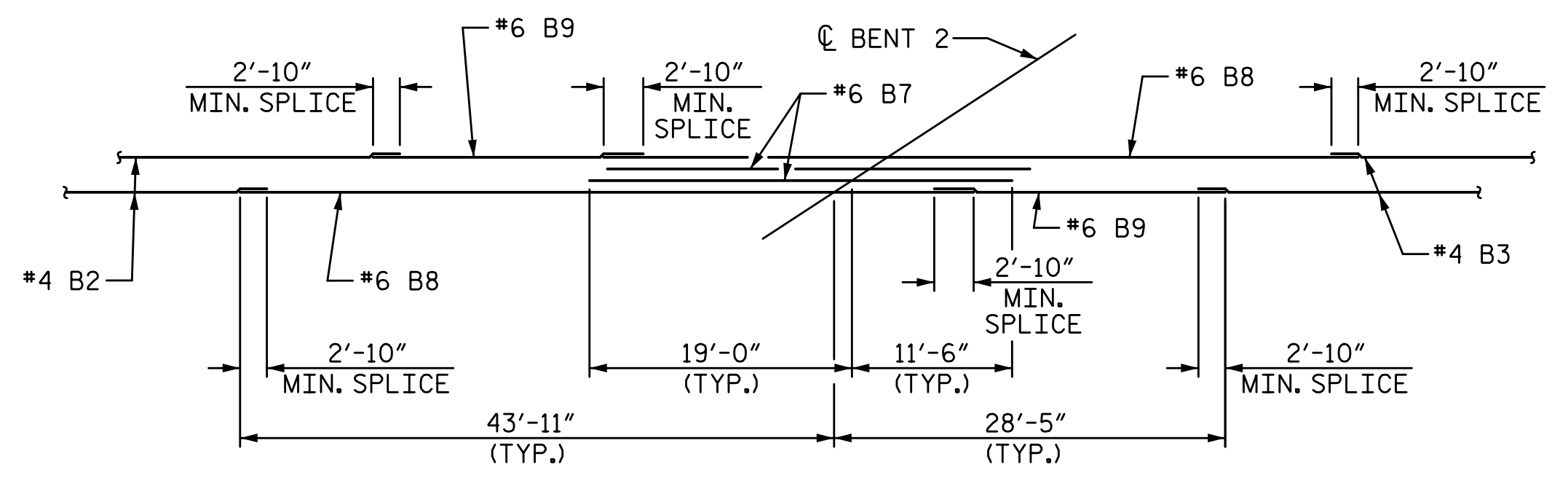
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SPAN B
SPAN C
PLAN OF SPANS



TOP OF DECK "B" BAR PLACEMENT
AT BENT 2

NOTES:

- "A" BARS NOT SHOWN FOR CLARITY. SEE "A" BAR PLACEMENT DETAILS" SHEETS.
- SEE "CONCRETE PARAPET, VERTICAL RAIL, AND SIDEWALK" SHEETS FOR ADDITIONAL REINFORCING STEEL IN SLAB, SIDEWALK AND RAILS.
- SEE "TYPICAL SECTION DETAILS" SHEETS FOR SECTIONS THRU END BENT AND BENT DIAPHRAGMS.
- FOR LOCATION OF INTERMEDIATE DIAPHRAGMS SEE "FRAMING PLAN" SHEET.
- FOR POUR SEQUENCE AND LOCATION OF TRANSVERSE CONSTRUCTION JOINTS, SEE "BILL OF MATERIAL" SHEET.
- S1 AND S2 BARS IN END BENT DIAPHRAGMS ARE NOT SHOWN FOR CLARITY. SEE TYPICAL SECTION FOR BAR LOCATIONS.

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
PLAN OF SPANS
 STAGE II



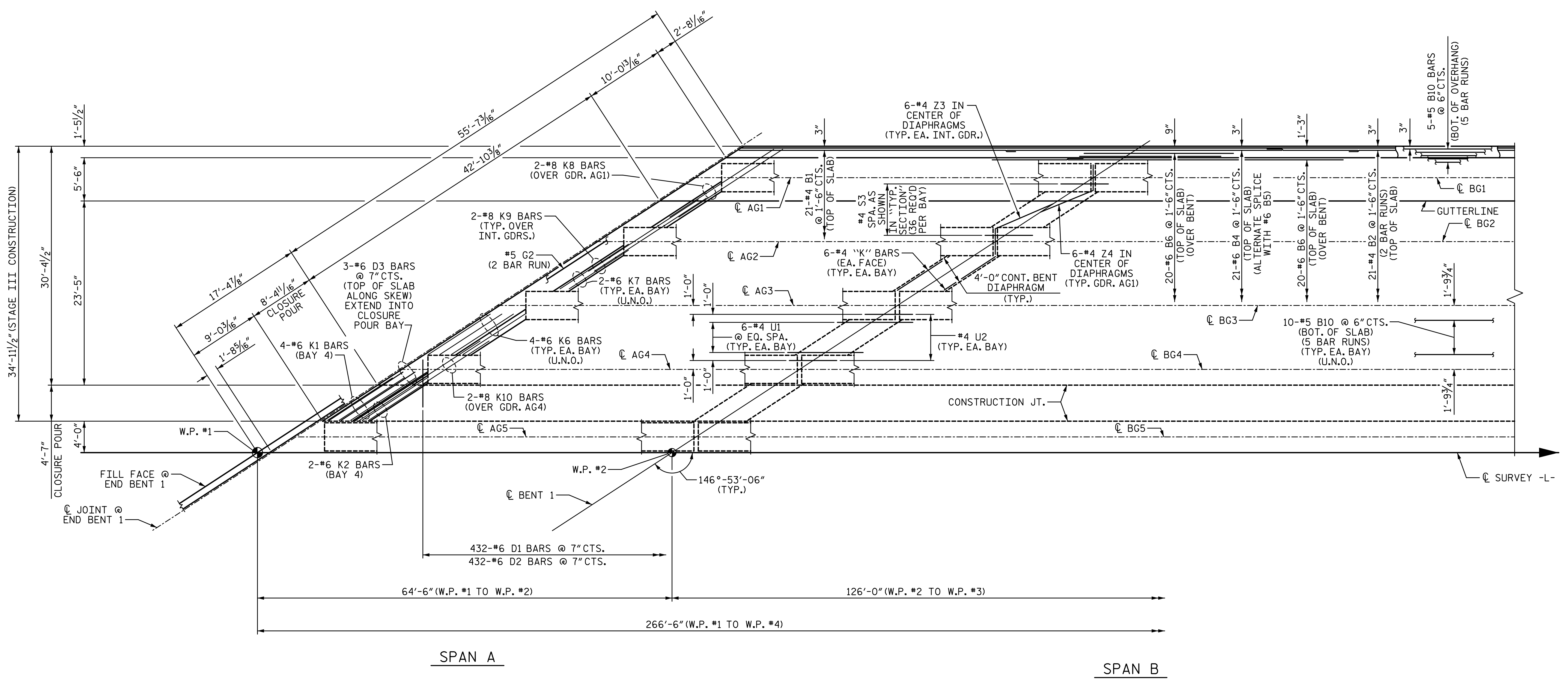
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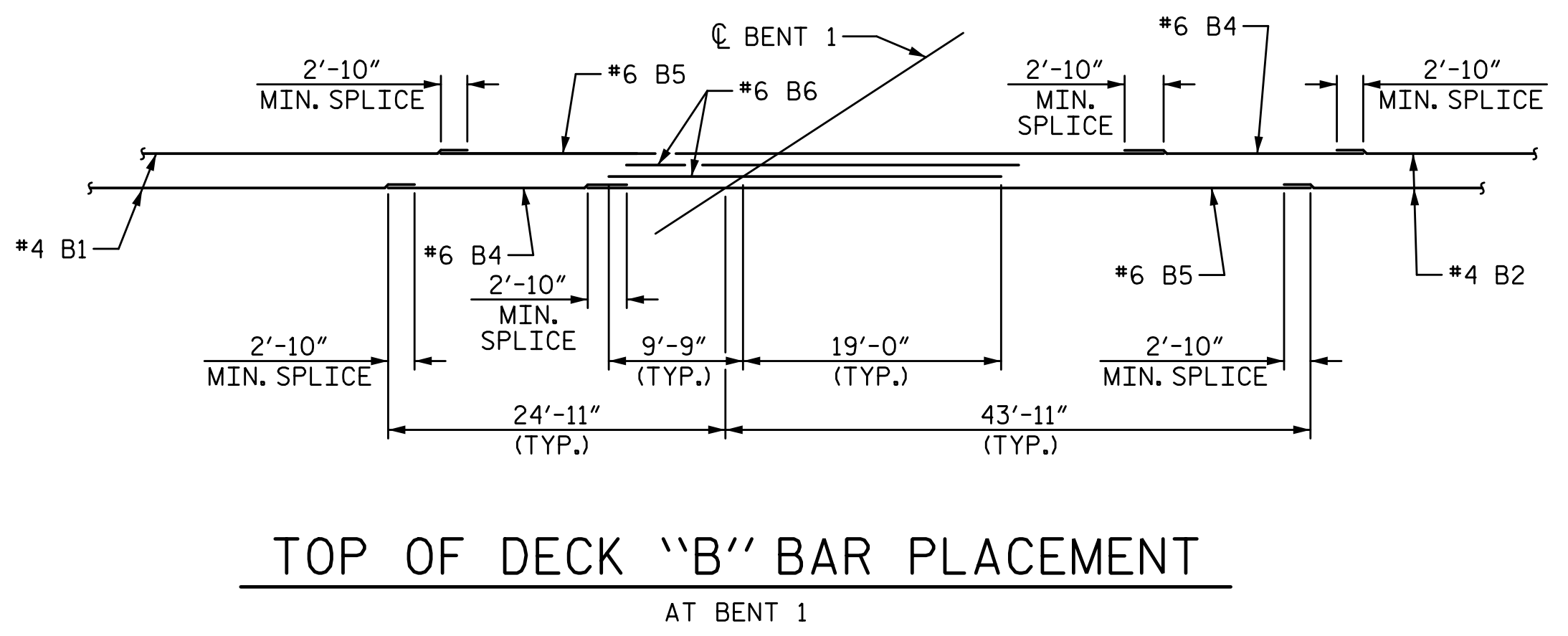
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PLAN OF SPANS



TOP OF DECK "B" BAR PLACEMENT AT BENT 1

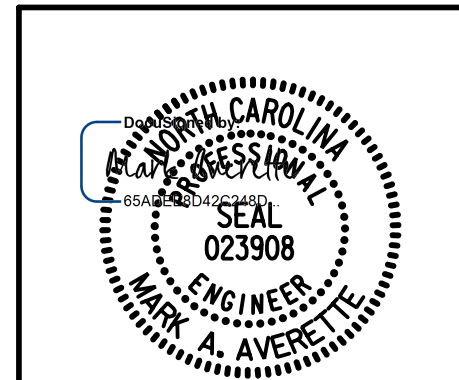
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- SEE "CONCRETE PARAPET, AND SIDEWALK" SHEETS FOR ADDITIONAL REINFORCING STEEL IN SLAB, SIDEWALK AND PARAPET.
- SEE "TYPICAL SECTION DETAILS" SHEETS FOR SECTIONS THRU END BENT AND BENT DIAPHRAGMS.
- FOR LOCATION OF INTERMEDIATE DIAPHRAGMS SEE "FRAMING PLAN" SHEET.
- FOR POUR SEQUENCE AND LOCATION OF TRANSVERSE CONSTRUCTION JOINTS, SEE "BILL OF MATERIAL" SHEET.
- S1 AND S2 BARS IN END BENT DIAPHRAGMS ARE NOT SHOWN FOR CLARITY. SEE TYPICAL SECTION FOR BAR LOCATIONS.
- "B" BARS IN CLOSURE BAY SHOWN ON SHEET S-9.
- U.N.O. = UNLESS NOTED OTHERWISE.

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS
 STAGE III



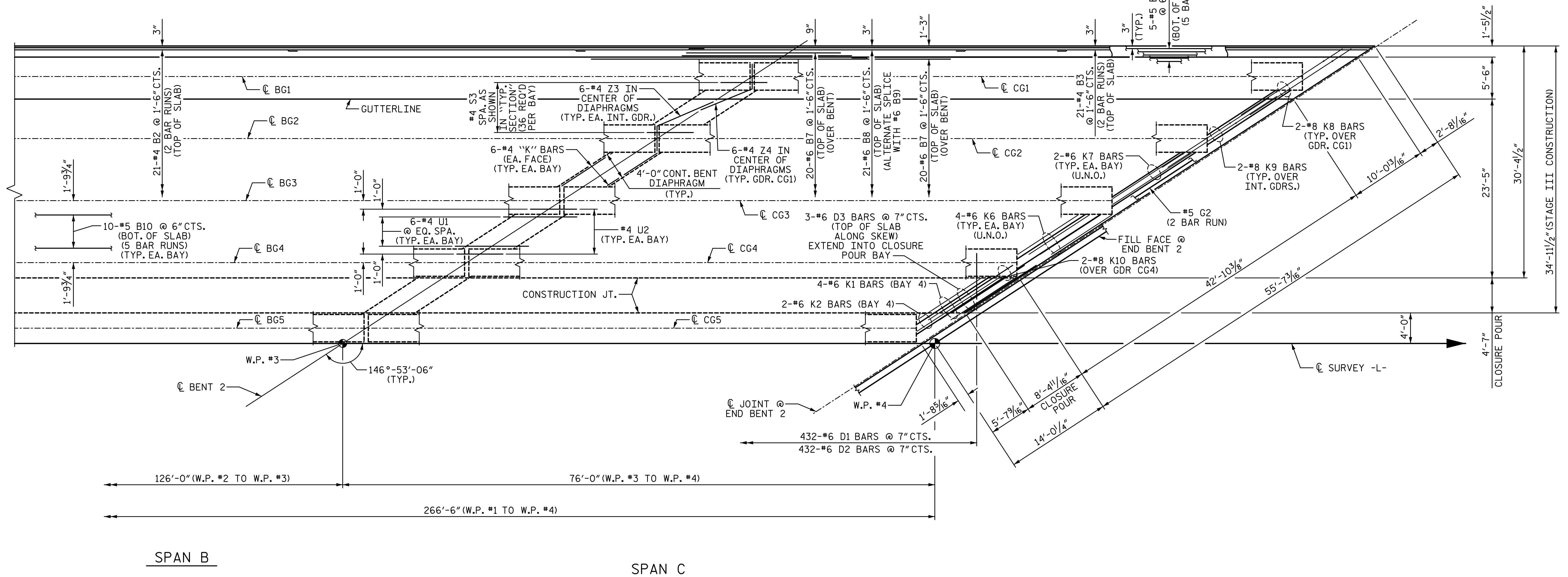
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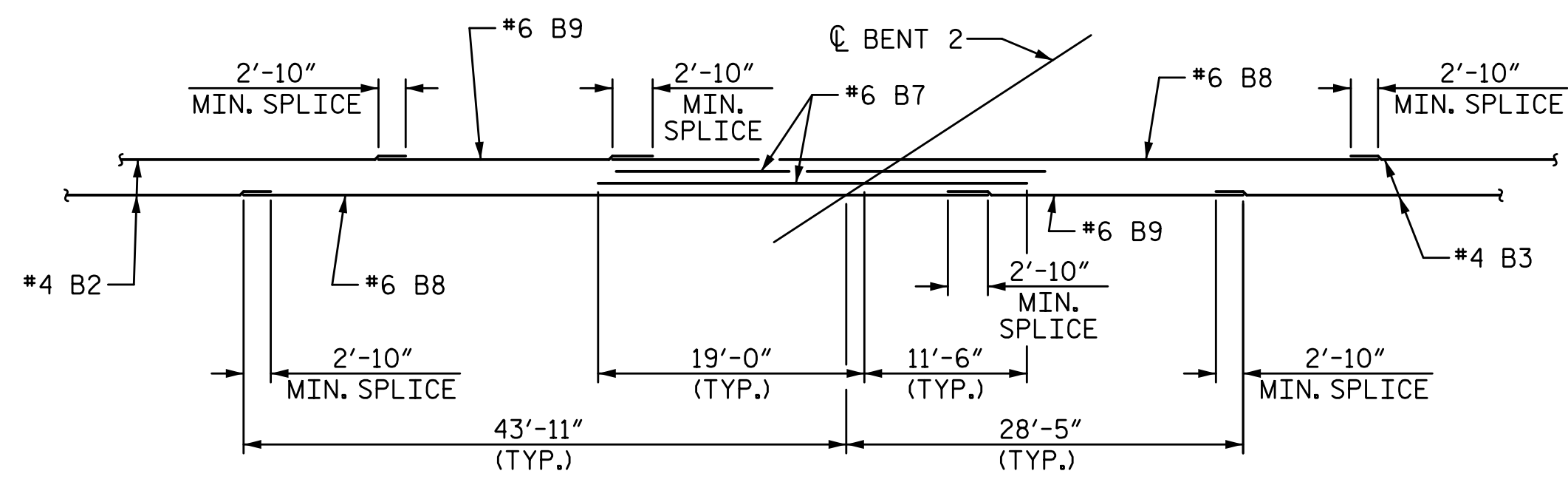
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SPAN B

SPAN C

PLAN OF SPANS



TOP OF DECK "B" BAR PLACEMENT
AT BENT 2

NOTES:

- "A" BARS NOT SHOWN FOR CLARITY. SEE "A" BAR PLACEMENT DETAILS" SHEETS.
- SEE "CONCRETE PARAPET, AND SIDEWALK" SHEETS FOR ADDITIONAL REINFORCING STEEL IN SLAB, SIDEWALK AND PARAPET.
- SEE "TYPICAL SECTION DETAILS" SHEETS FOR SECTIONS THRU END BENT AND BENT DIAPHRAGMS.
- FOR LOCATION OF INTERMEDIATE DIAPHRAGMS SEE "FRAMING PLAN" SHEET.
- FOR POUR SEQUENCE AND LOCATION OF TRANSVERSE CONSTRUCTION JOINTS, SEE "BILL OF MATERIAL" SHEET.
- S1 AND S2 BARS IN END BENT DIAPHRAGMS ARE NOT SHOWN FOR CLARITY. SEE TYPICAL SECTION FOR BAR LOCATIONS.
- "B" BARS IN CLOSURE BAY SHOWN ON SHEET S-9.
- U.N.O. = UNLESS NOTED OTHERWISE.

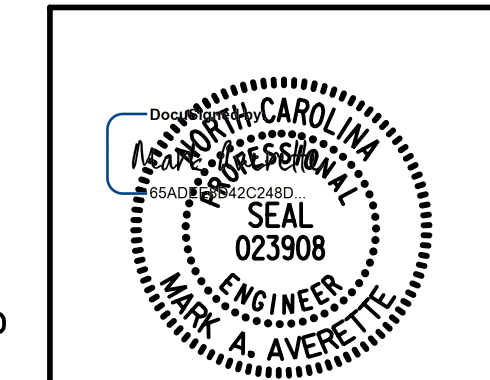
PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS

STAGE III



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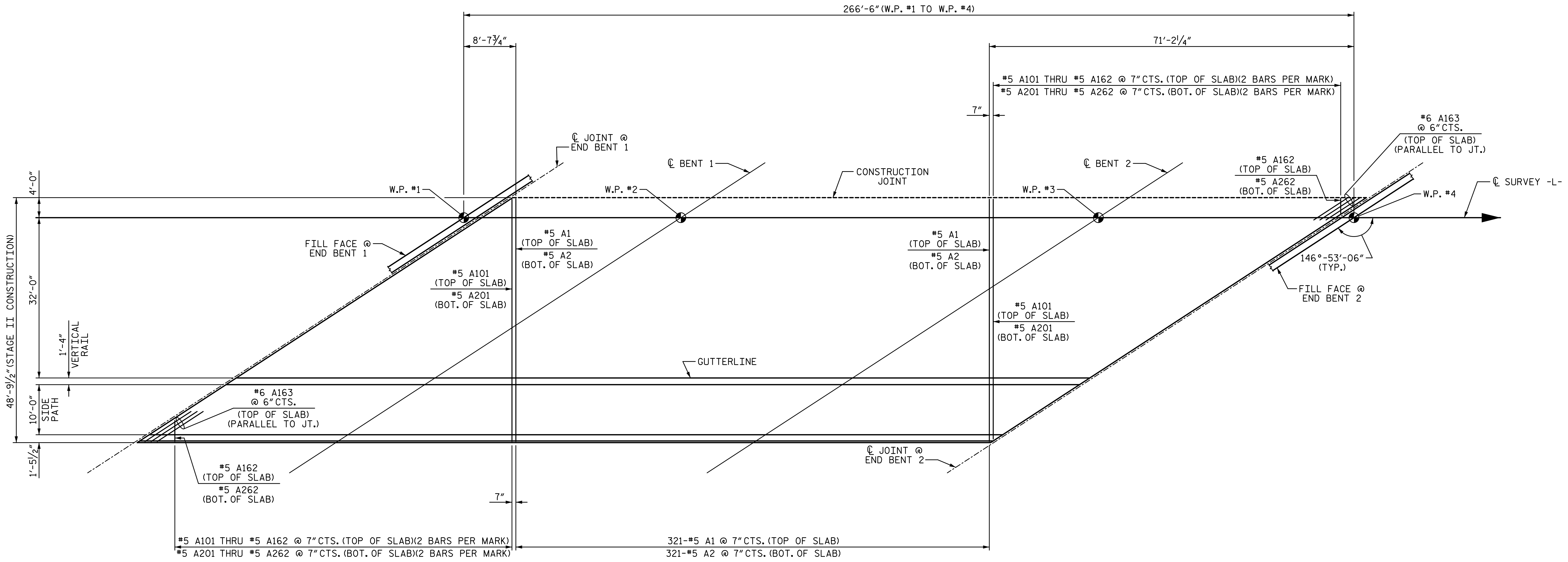
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SPAN A

SPAN B

SPAN C

"A" BAR PLACEMENT DETAIL

A163 HAS 2" MINIMUM CLEAR FROM END OF DECK SLAB

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SHEET 1 OF 2

STATE OF NORTH CAROLINA
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 RALEIGH
 SUPERSTRUCTURE
 "A" BAR
 PLACEMENT DETAIL
 STAGE II

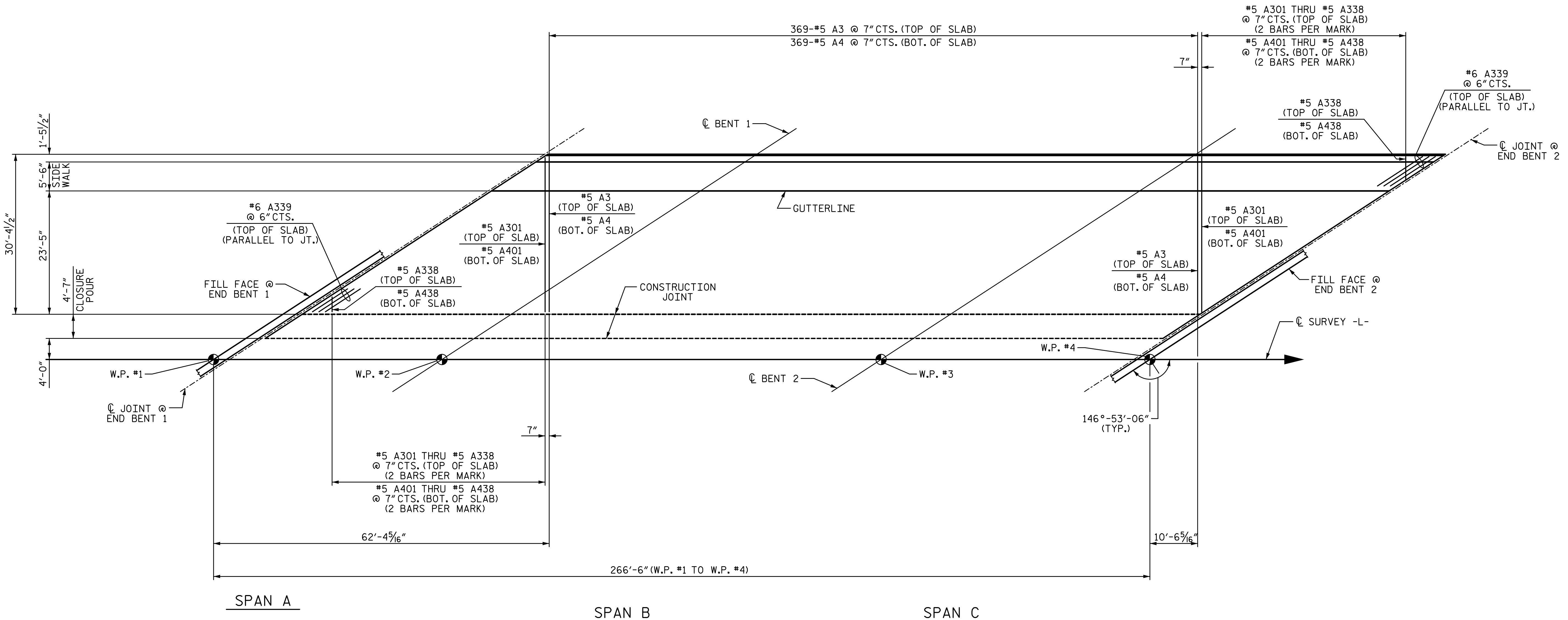


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1			3			TOTAL SHEETS
2			4			72

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“A” BAR PLACEMENT DETAIL
 A339 HAS 2" MINIMUM CLEAR FROM END OF DECK SLAB

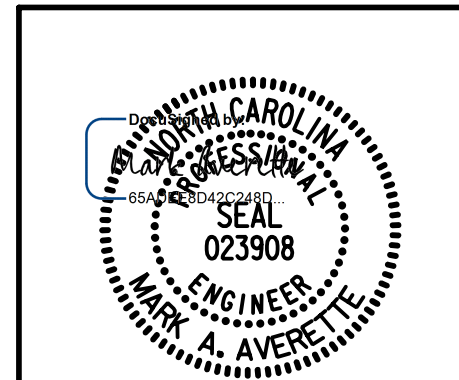
PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

**“A” BAR
 PLACEMENT DETAIL**

STAGE III

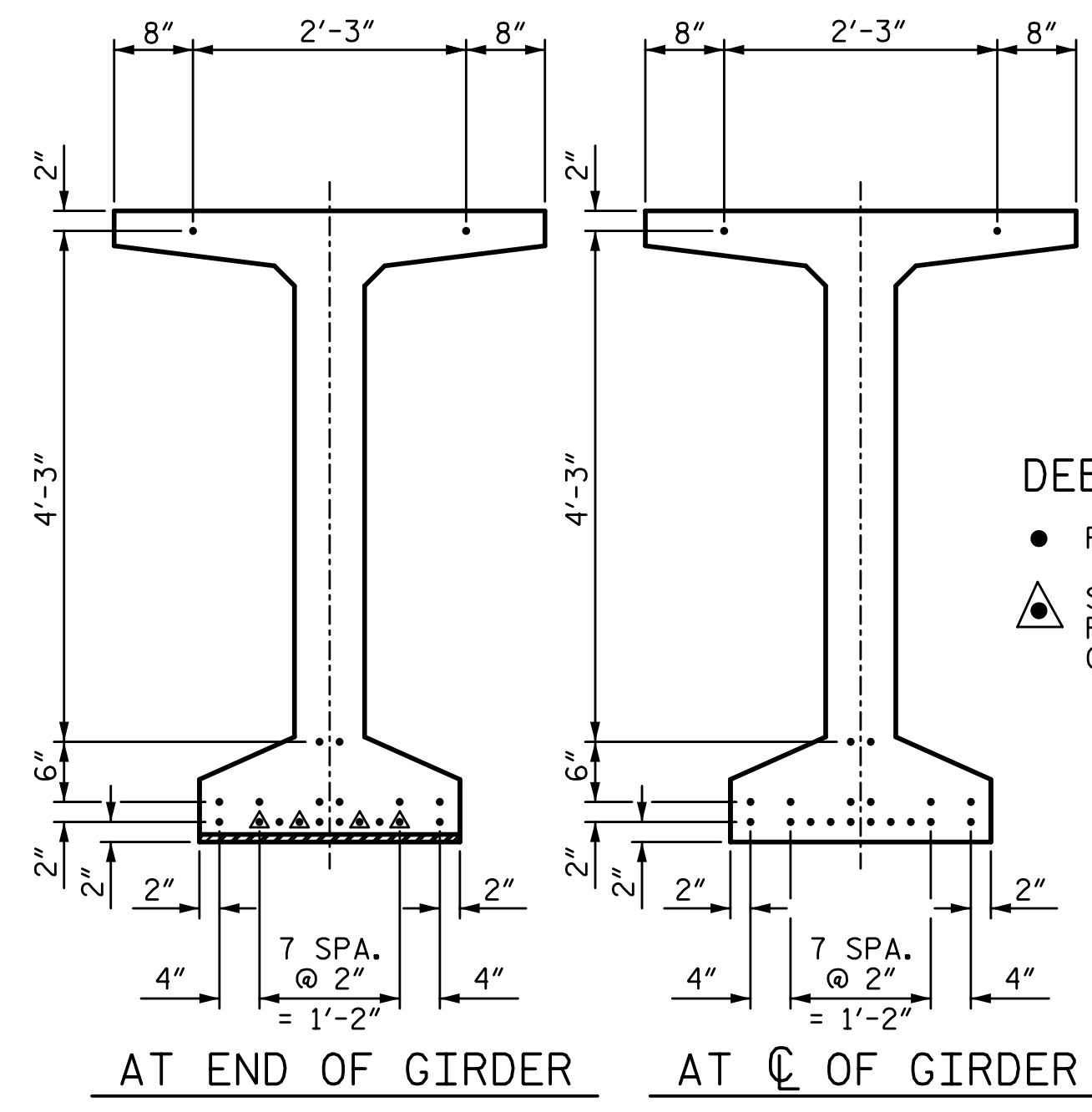
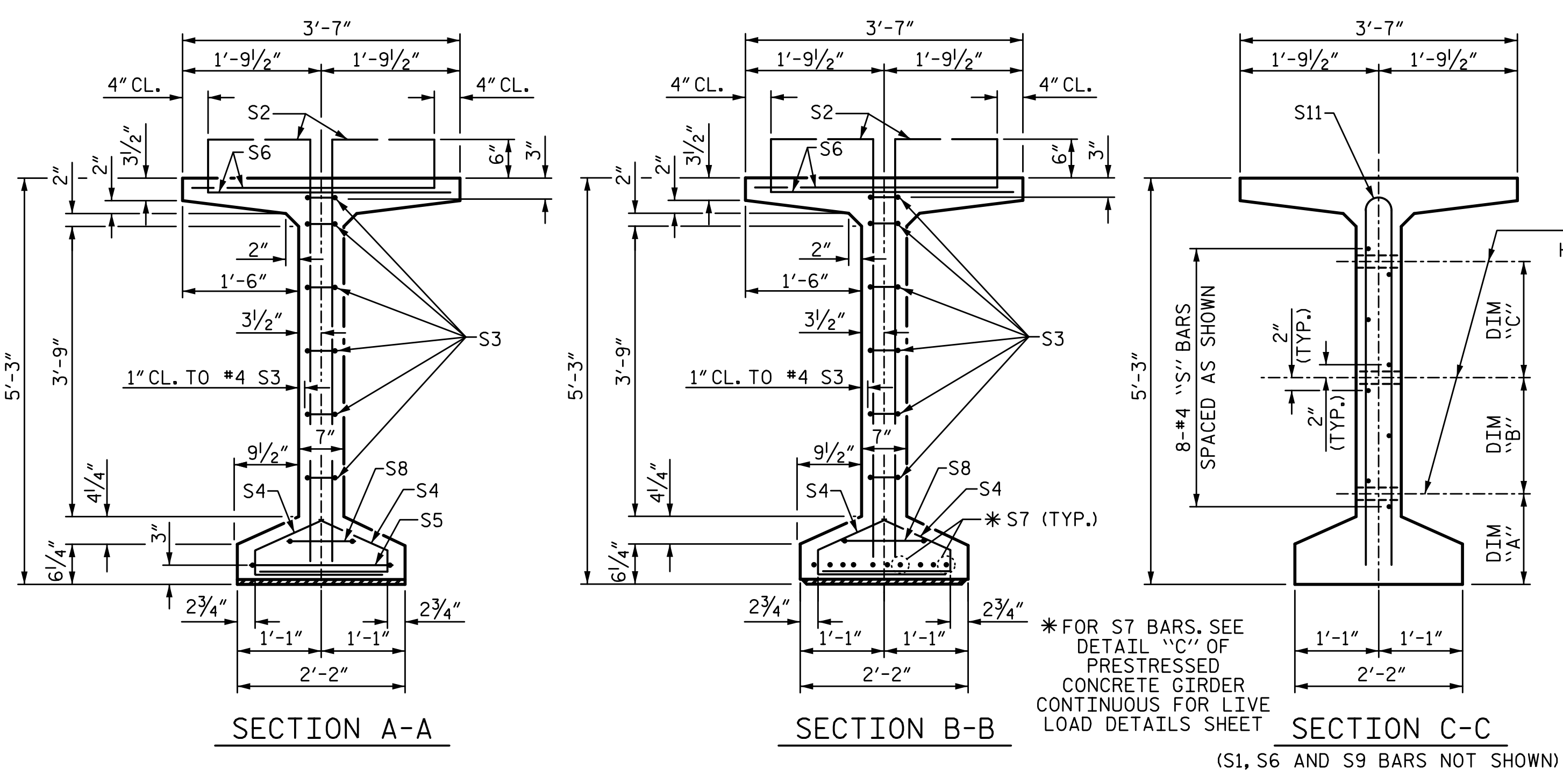


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			72

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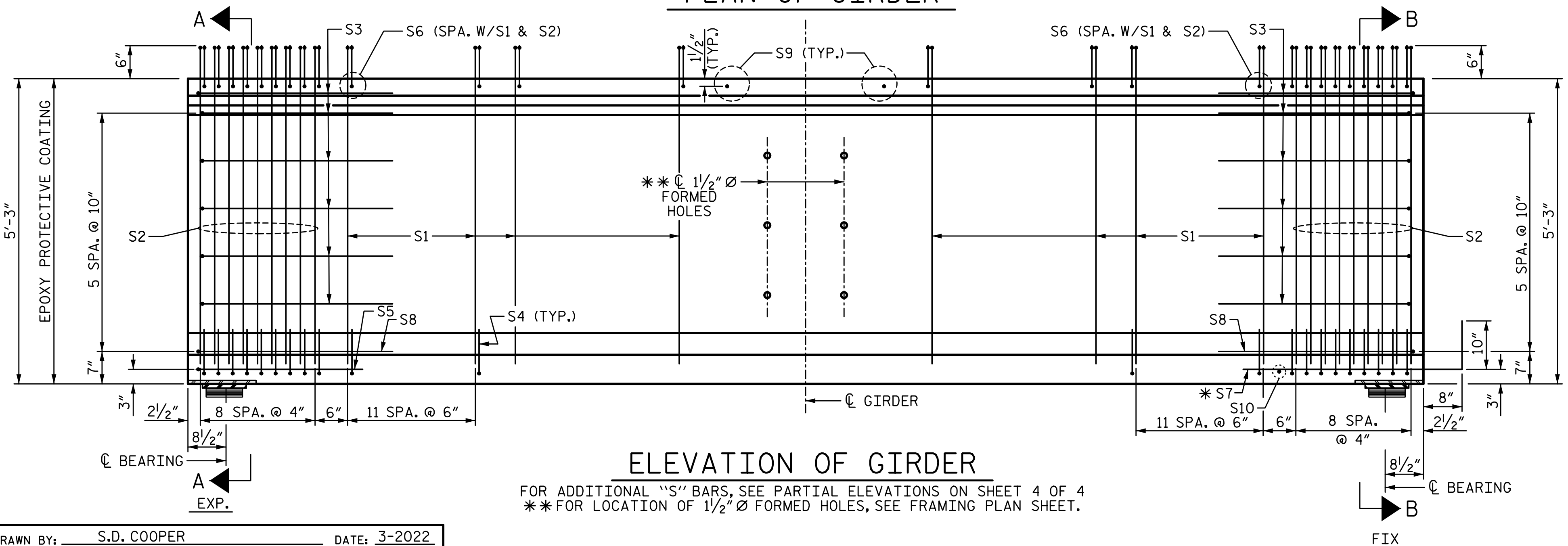
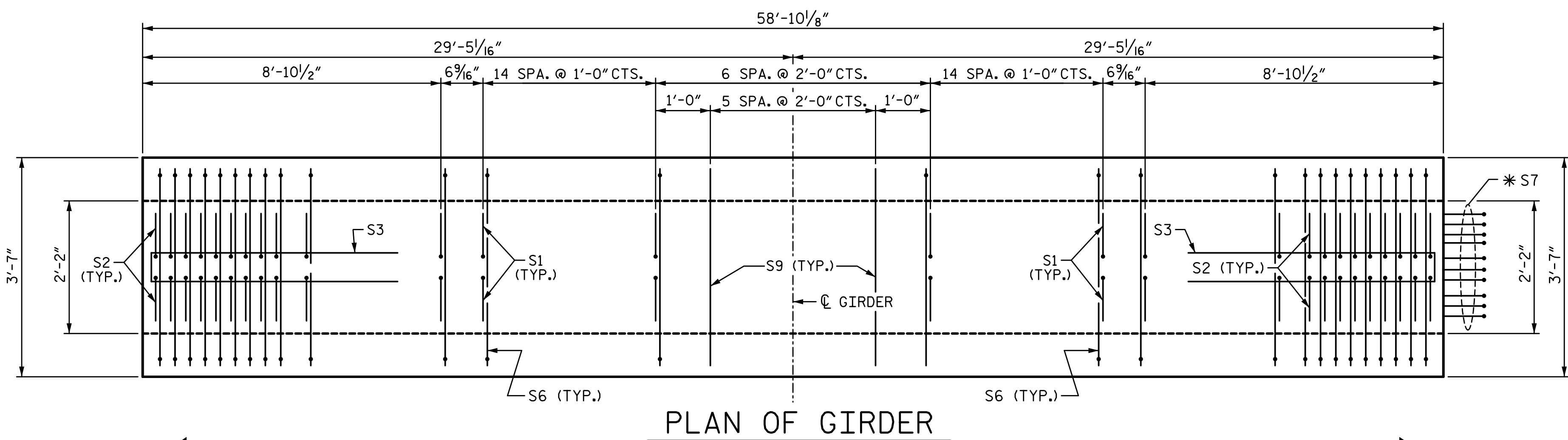
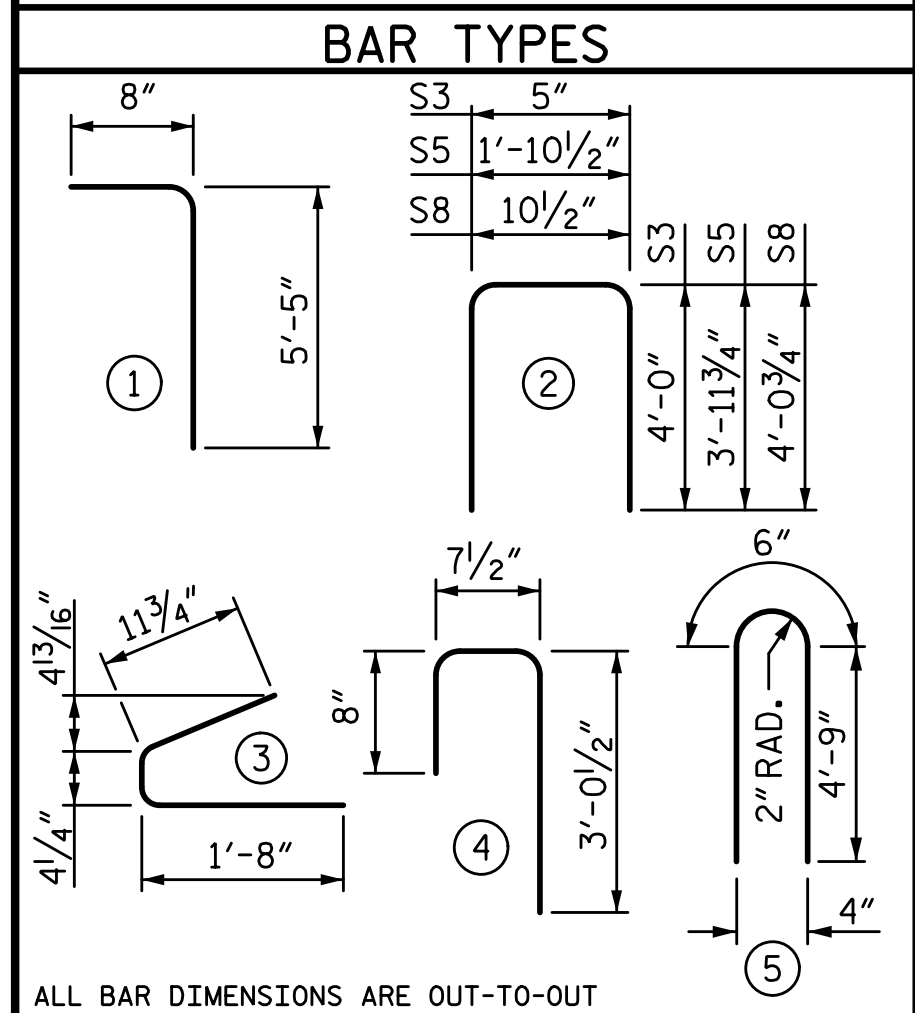


DEBONDING LEGEND

- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
S1	118	#4	1	6'-1"	480	
S2	36	#5	1	6'-1"	228	
S3	12	#4	2	8'-5"	67	
S4	84	#4	3	3'-0"	168	
S5	1	#5	2	9'-10"	10	
S6	154	#5	4	4'-4"	696	
* S7	10	#5	STR	3'-8"	38	
S8	2	#5	2	9'-0"	19	
S9	6	#5	STR	3'-3"	20	
S10	1	#3	STR	1'-10"	1	
AG1,AG4,AG5,AG10	S11	4	#5	5	10'-0"	42
AG2,AG3,AG6,AG7,AG8,AG9	S11	8	#5	5	10'-0"	83
AG1,AG4,AG5,AG10	S12	8	#4	STR	8'-0"	43
AG2,AG3,AG6,AG7,AG8,AG9	S13	8	#4	STR	21'-2"	113

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



QUANTITIES FOR ONE GIRDER

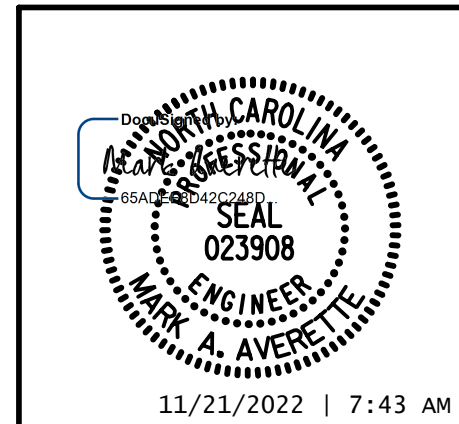
	REINFORCING STEEL	6000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
AG1,AG4,AG5,AG10	1812	11.7	20
AG2,AG3,AG6,AG7,AG8,AG9	1923	11.7	20

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
10	58'-10 1/8"	588.44'

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 1 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 63" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN A

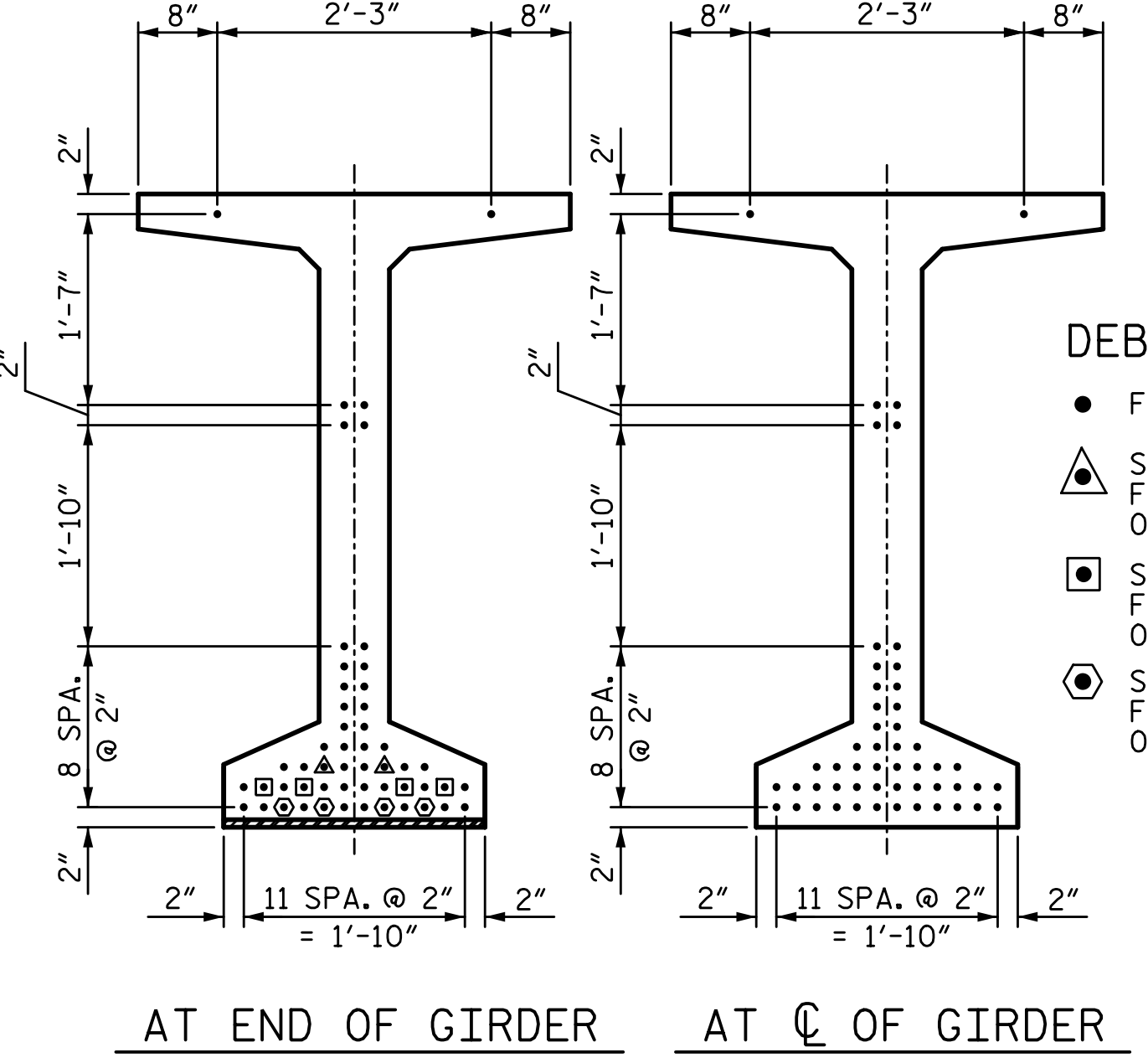
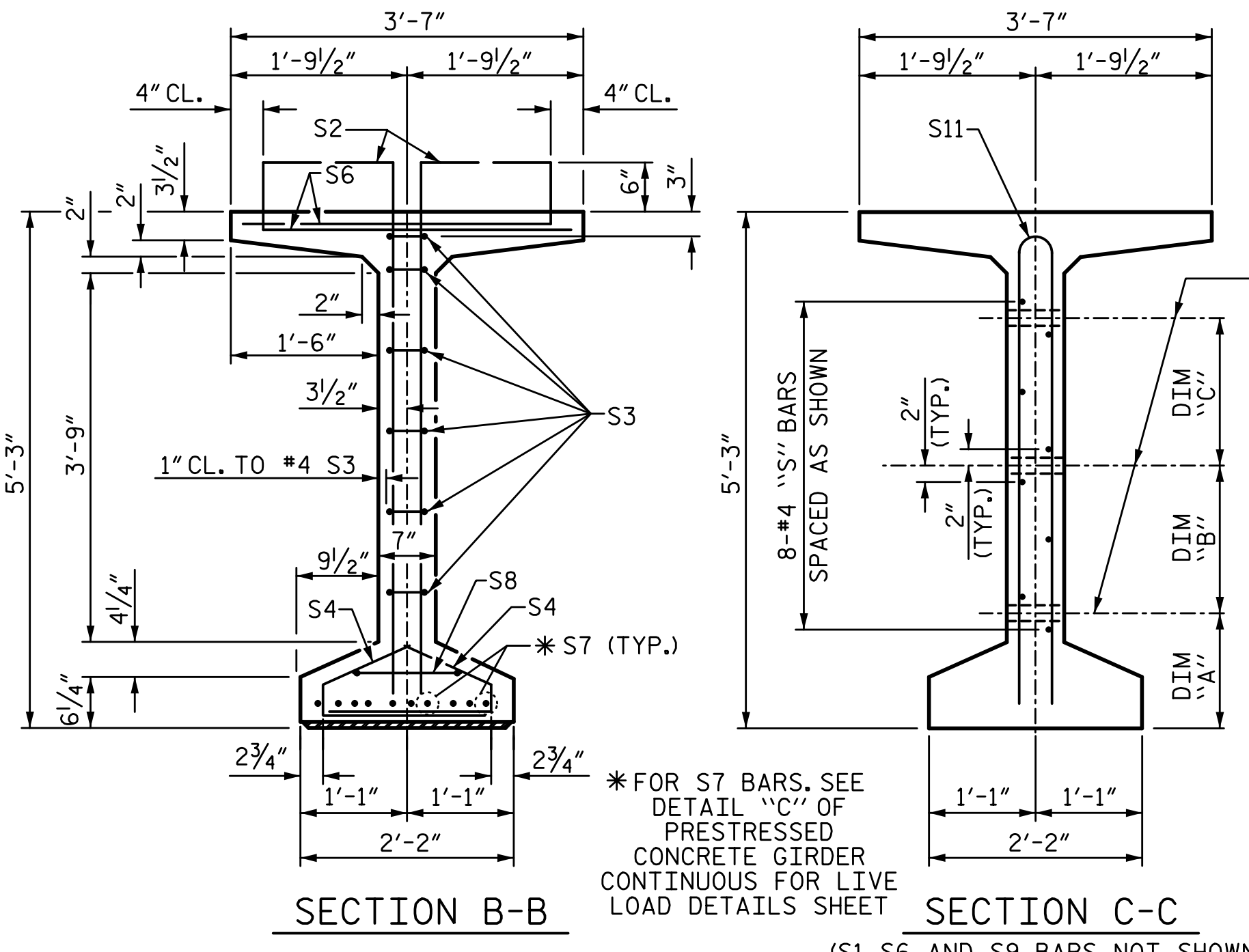
DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

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

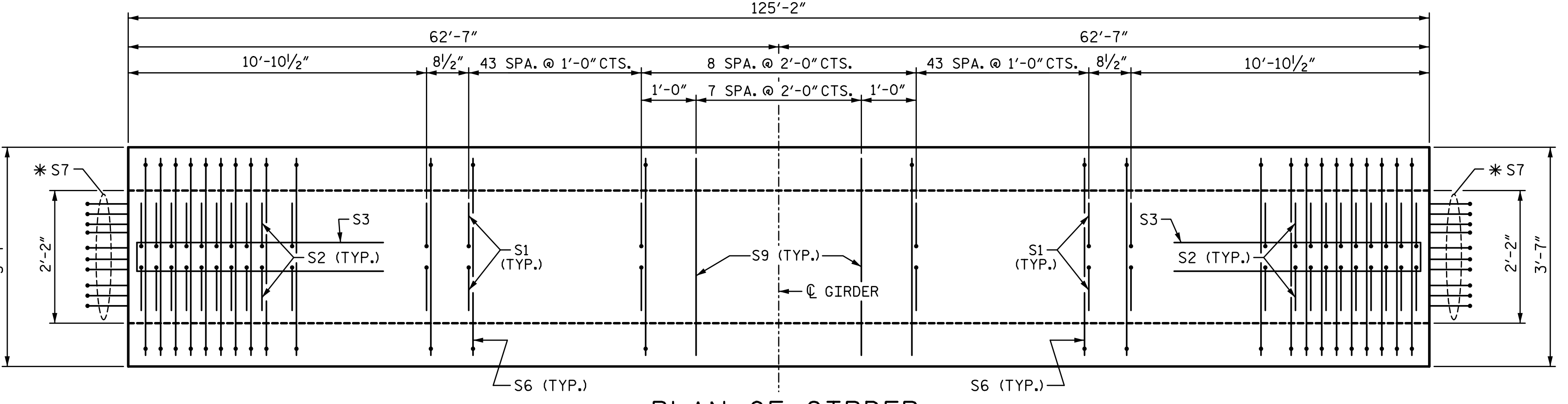
TOTAL SHEETS: 72

LICENSURE NO. C-4434
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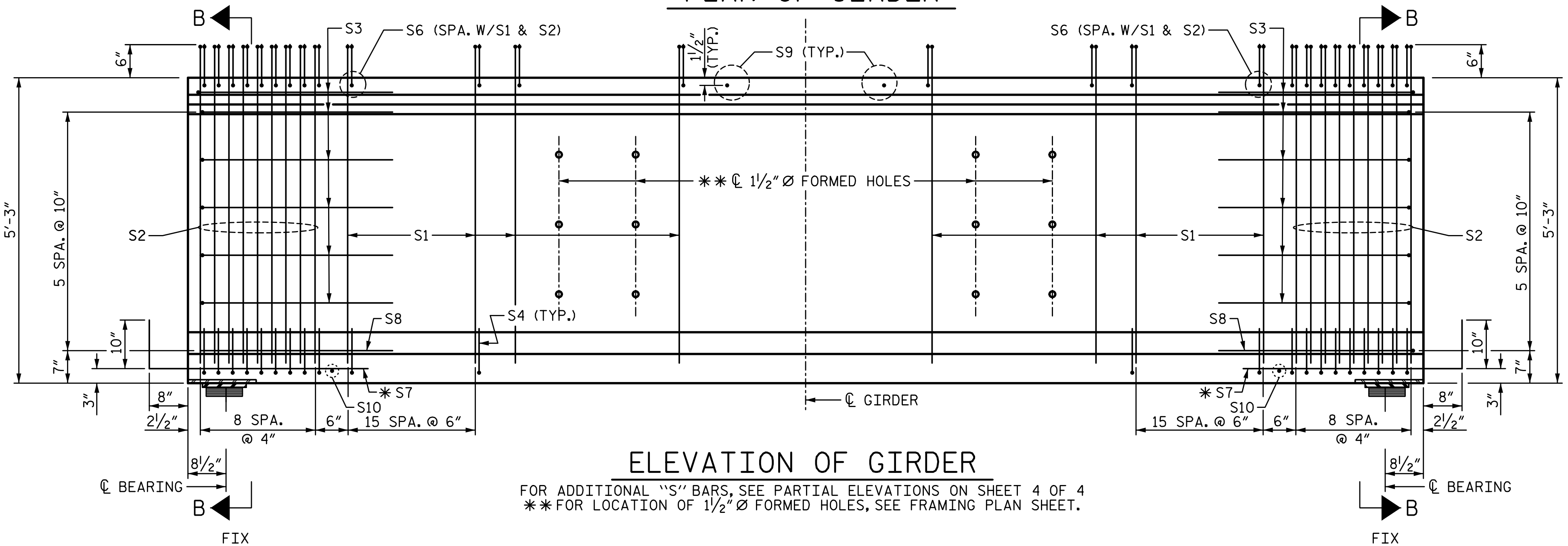
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0.6" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



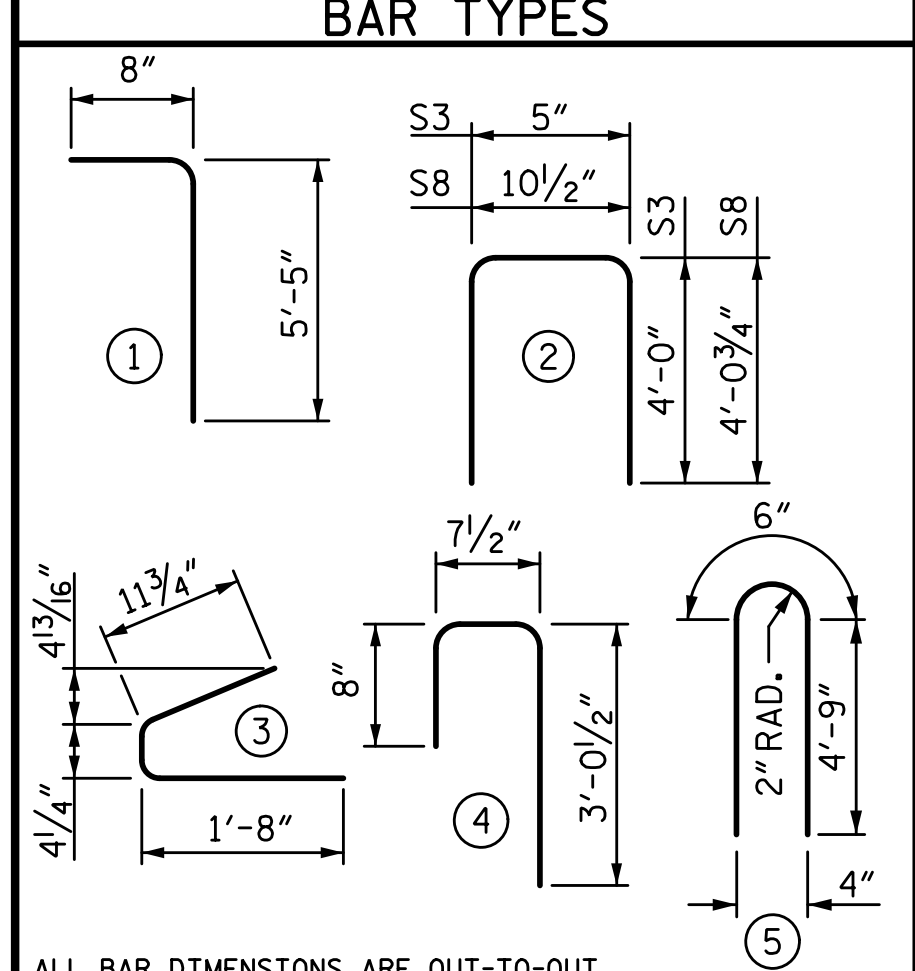
ELEVATION OF GIRDER

FOR ADDITIONAL "S" BARS, SEE PARTIAL ELEVATIONS ON SHEET 4 OF 4
 ** FOR LOCATION OF 1/2" Ø FORMED HOLES, SEE FRAMING PLAN SHEET.

0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
S1	254	#4	1	6'-1"	1,032	
S2	36	#5	1	6'-1"	228	
S3	12	#4	2	8'-5"	67	
S4	100	#4	3	3'-0"	200	
S6	290	#5	4	4'-4"	1,311	
*S7	20	#5	STR	3'-8"	76	
S8	2	#5	2	9'-0"	19	
S9	8	#5	STR	3'-3"	27	
S10	2	#3	STR	1'-10"	1	
BG1, BG4, BG5, BG10	S11	8	#5	5	10'-0"	83
BG2, BG3, BG6, BG7, BG8, BG9	S11	16	#5	5	10'-0"	167
BG1, BG4, BG5, BG10	S12	16	#4	STR	8'-0"	86
BG2, BG3, BG6, BG7, BG8, BG9	S13	16	#4	STR	21'-2"	226

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



ALL BAR DIMENSIONS ARE OUT-TO-OUT

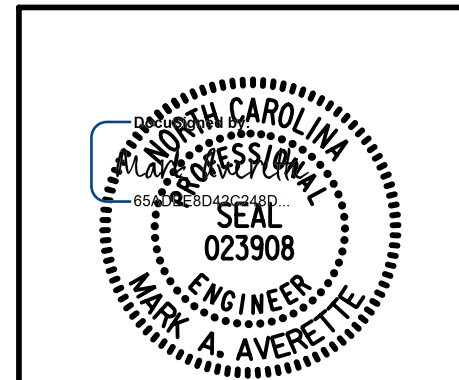
QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	9500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
BG1, BG4, BG5, BG10	3130	24.8	52
BG2, BG3, BG6, BG7, BG8, BG9	3354	24.8	52

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
10	125'-2"	1251.67'

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 63" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN B



LICENSURE NO. C-4434

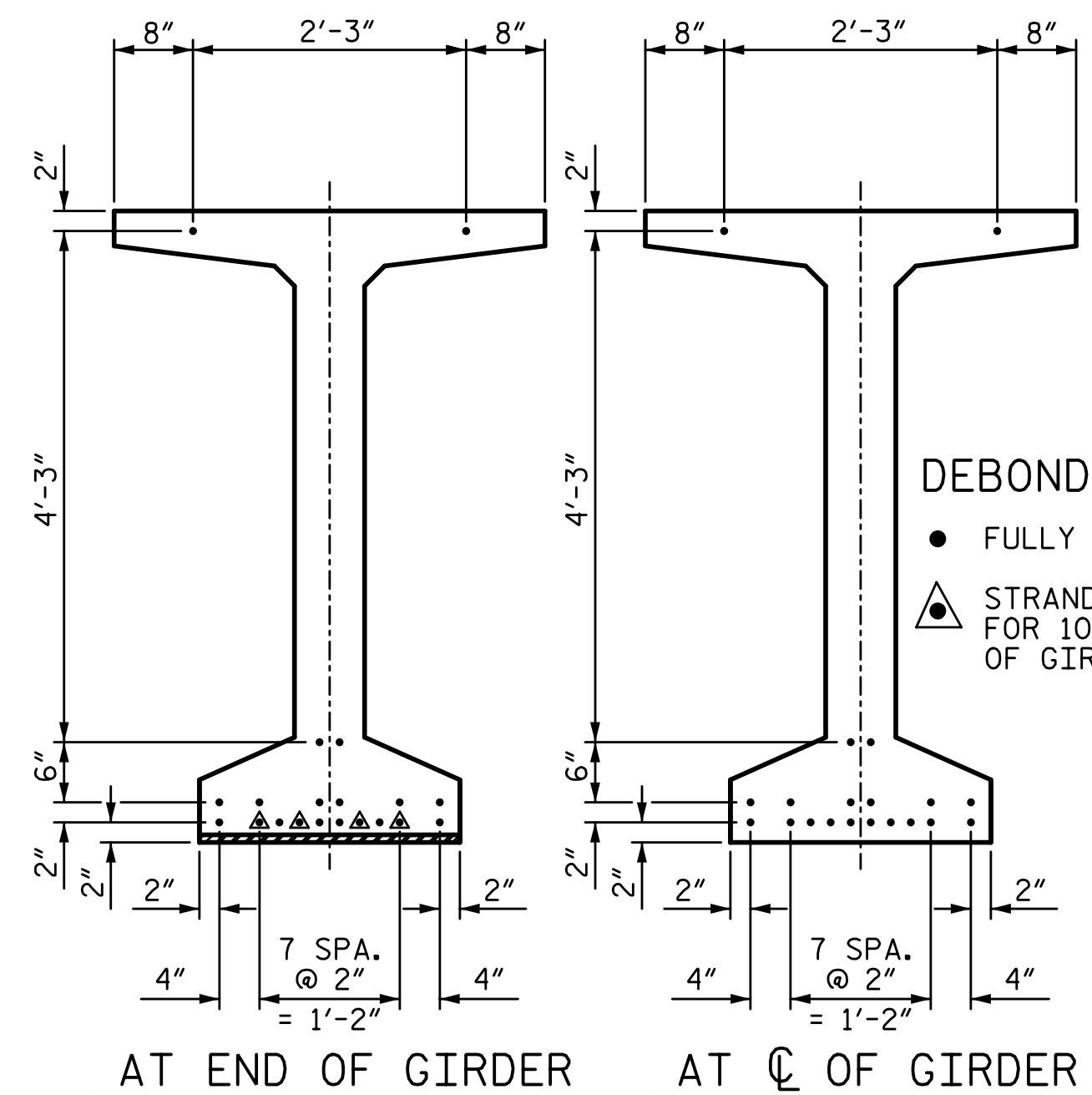
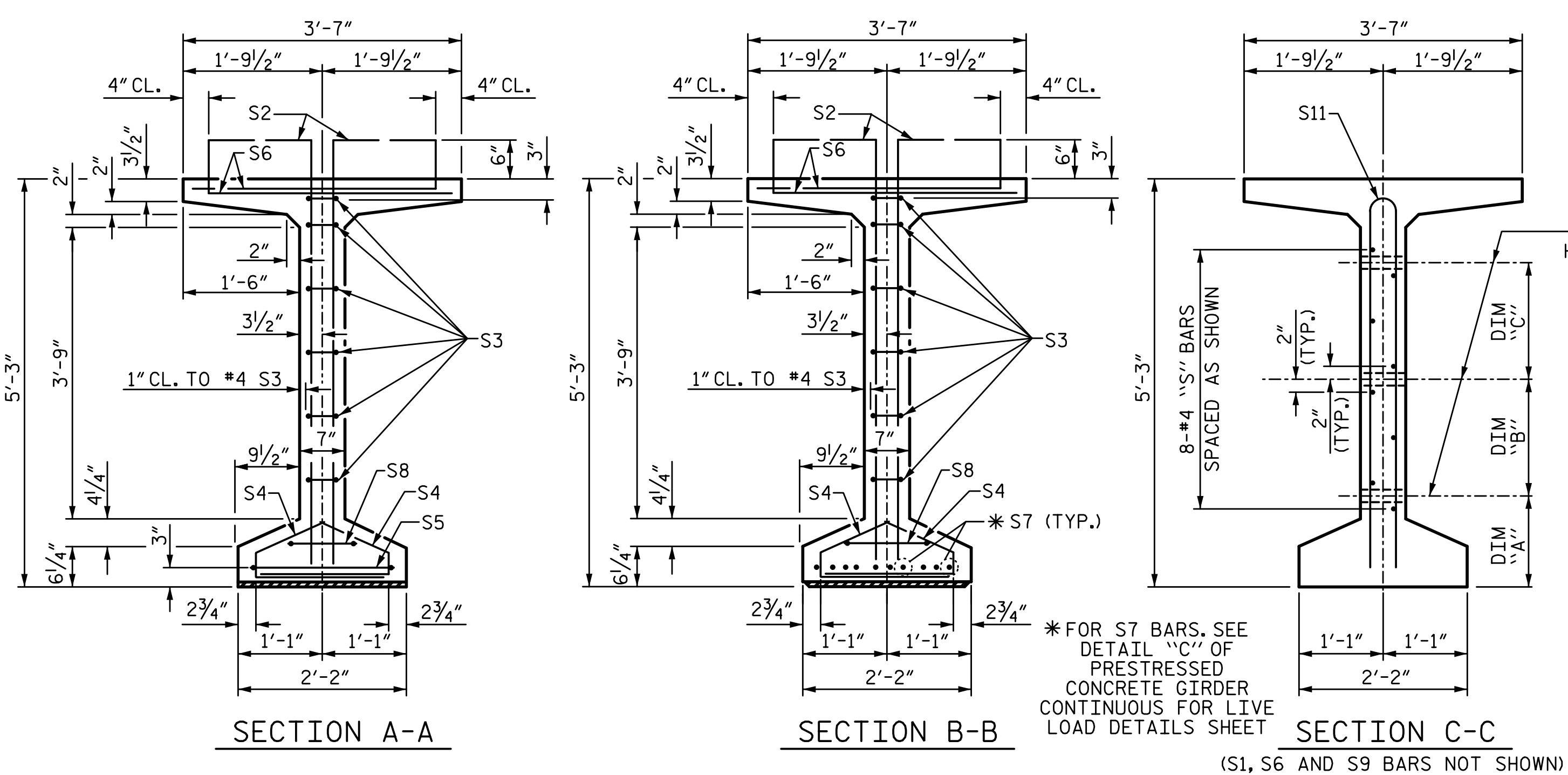
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2			4			

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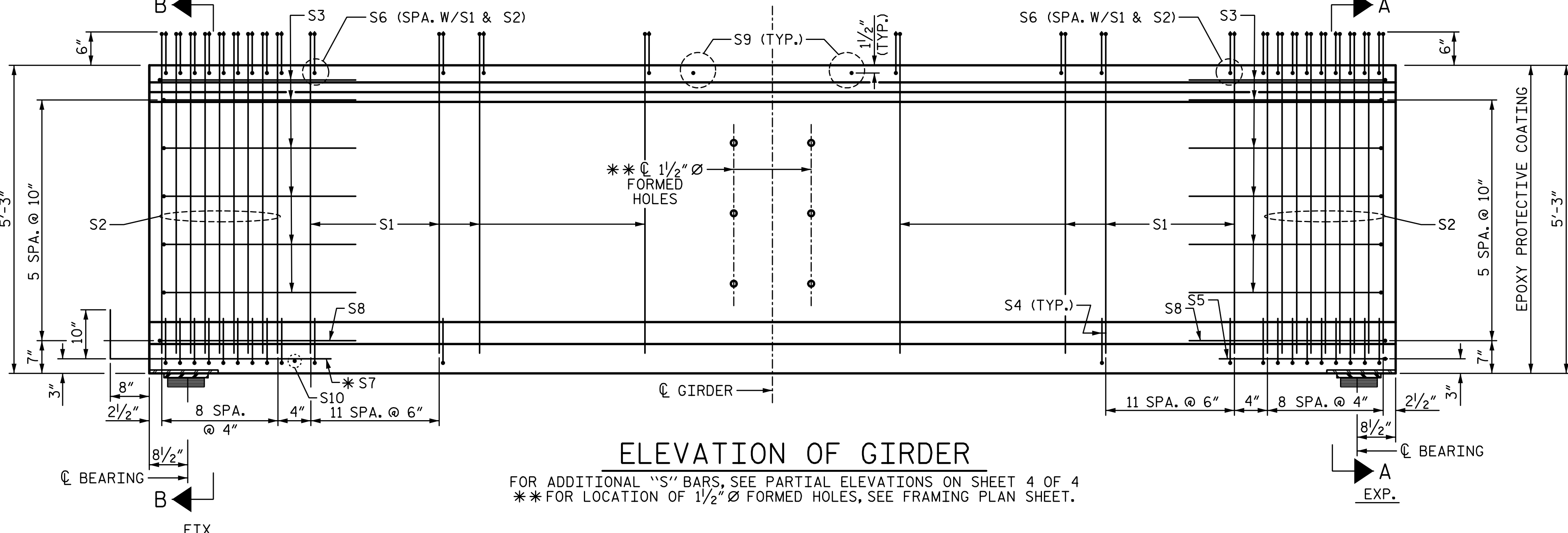
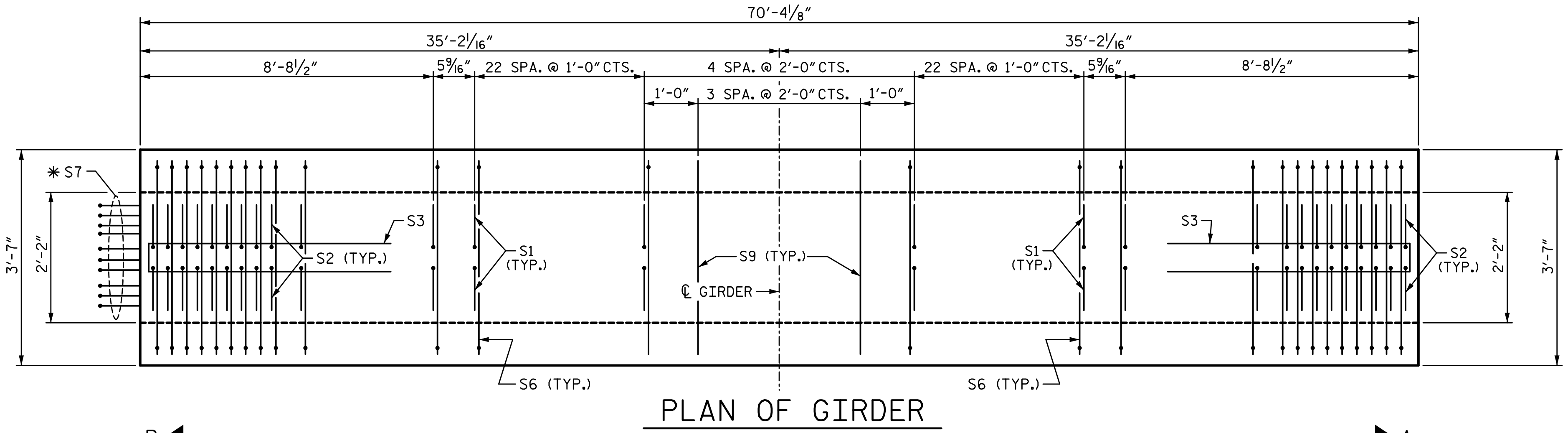
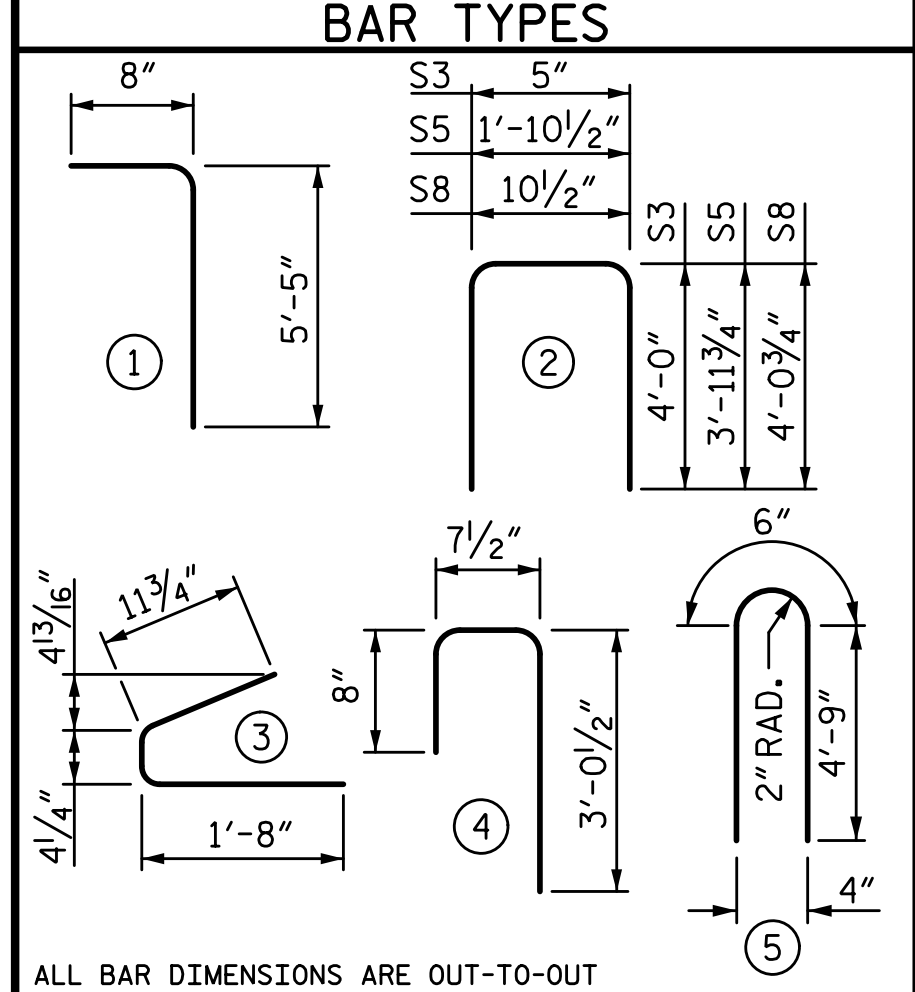
0.6" \bar{O} LOW RELAXATION STRAND LAYOUT

CG1,CG4,CG5,CG10	S11	4	#5	5	10'-0"	42
CG2,CG3,CG6,CG7,CG8,CG9	S11	8	#5	5	10'-0"	83
CG1,CG4,CG5,CG10	S12	8	#4	STR	8'-0"	43
CG2,CG3,CG6,CG7,CG8,CG9	S13	8	#4	STR	21'-2"	113

0.6" \bar{O} L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	146	#4	1	6'-1"	593
S2	36	#5	1	6'-1"	228
S3	12	#4	2	8'-5"	67
S4	84	#4	3	3'-0"	168
S5	1	#5	2	9'-10"	10
S6	182	#5	4	4'-4"	823
* S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	4	#5	STR	3'-3"	14
S10	1	#3	STR	1'-10"	1

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



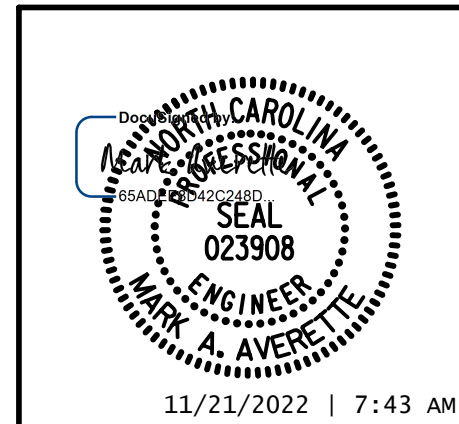
QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	6000 PSI CONCRETE	0.6" \bar{O} L.R. STRANDS
	LB.	C.Y.	No.
CG1,CG4,CG5,CG10	2046	14.0	20
CG2,CG3,CG6,CG7,CG8,CG9	2157	14.0	20

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
10	70'-4 1/8"	703.44'

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 63" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN C



LICENSURE NO. C-4434

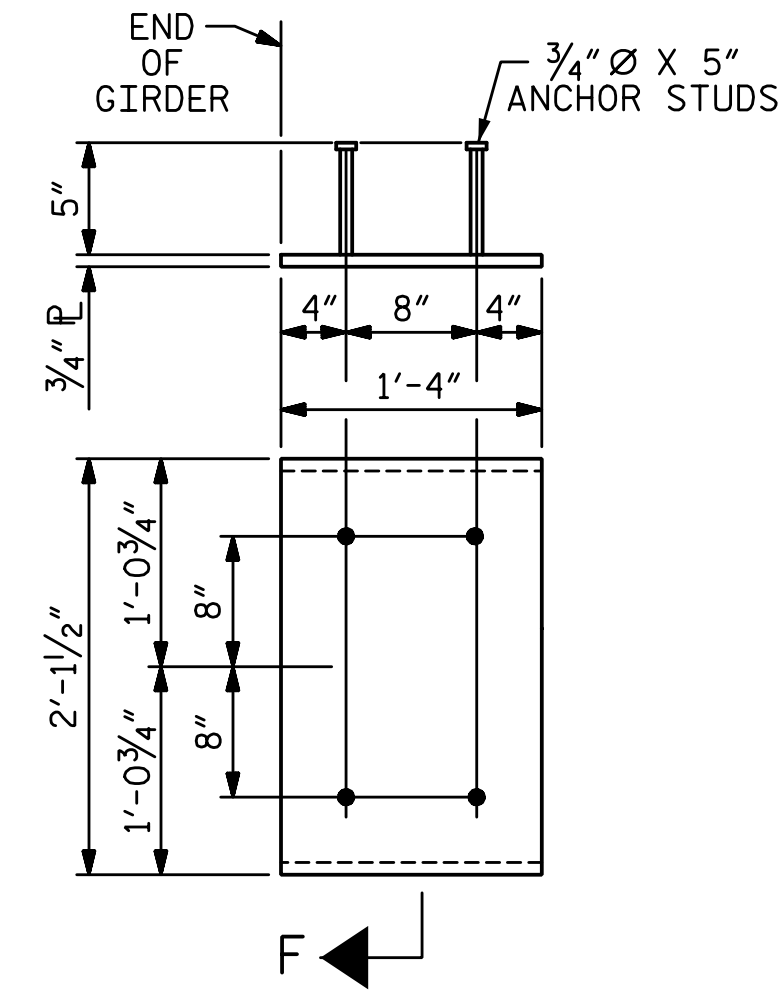
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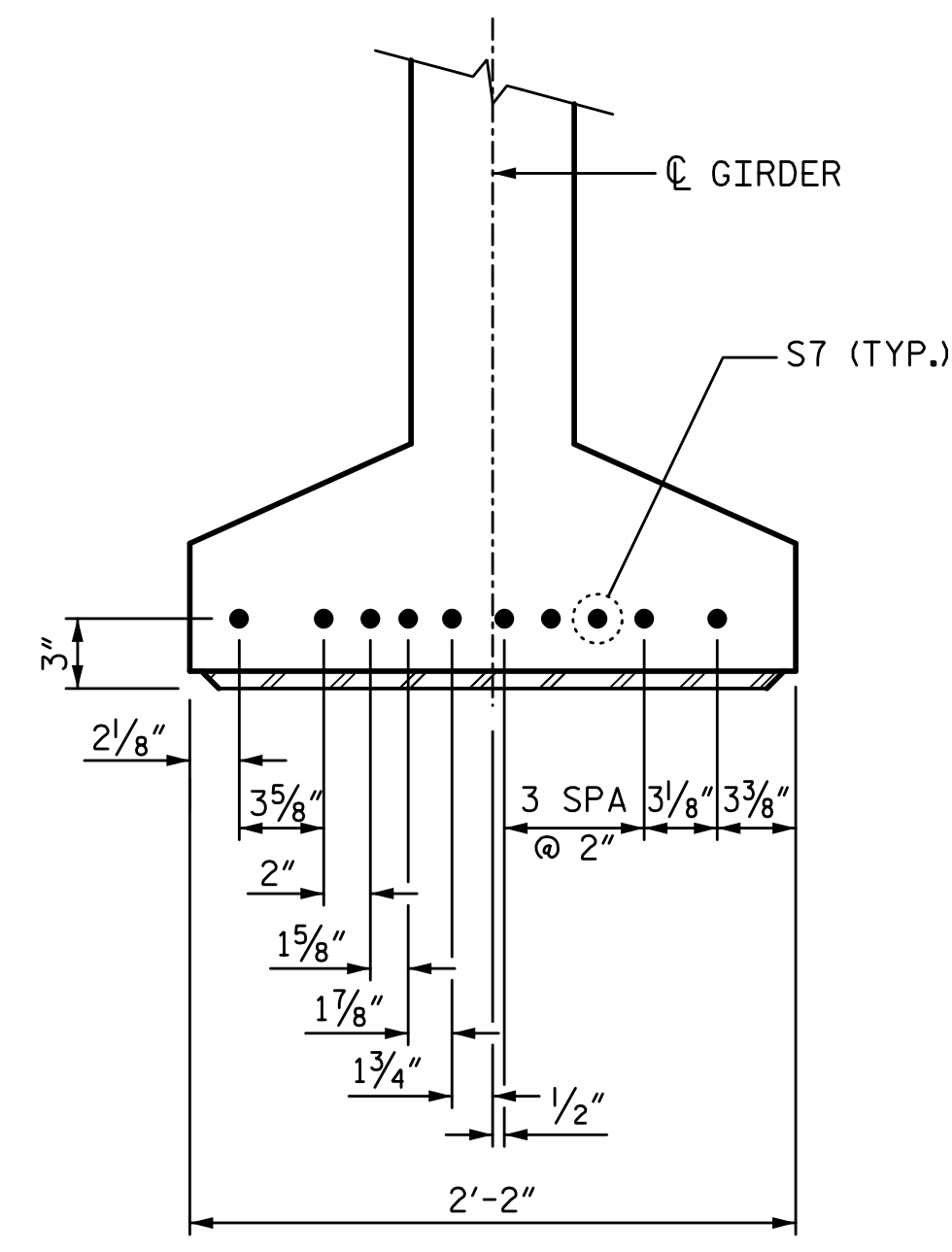
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2			4			

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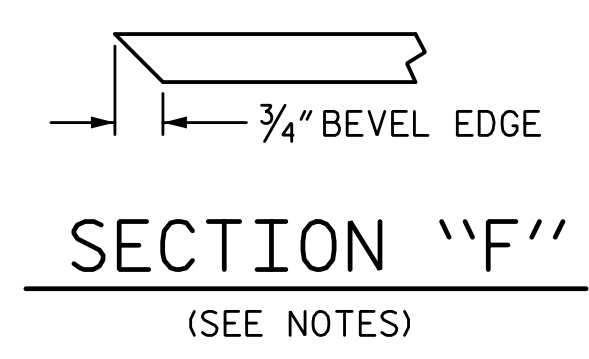
EMBEDDED PLATE "B-1" DETAILS FOR 63" MODIFIED BULB TEES
(2 REQ'D PER GIRDER)



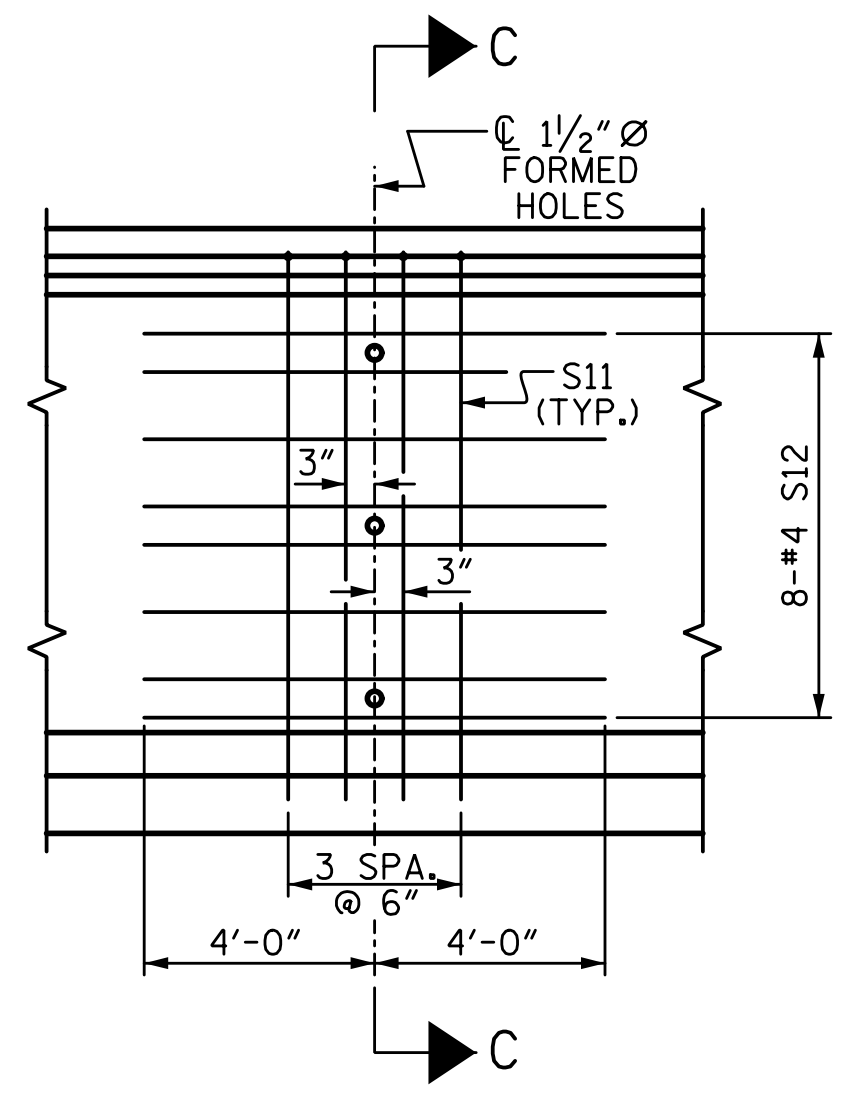
DETAIL "C"

NOTES:

- ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- ALL REINFORCING STEEL SHALL BE GRADE 60.
- APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.
- EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.
- AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.
- THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4500 PSI FOR SPANS A AND C AND 7500 PSI FOR SPAN B.
- DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.
- THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4"
- A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 63" AND 72" MODIFIED BULB TEES ONLY.
- THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.

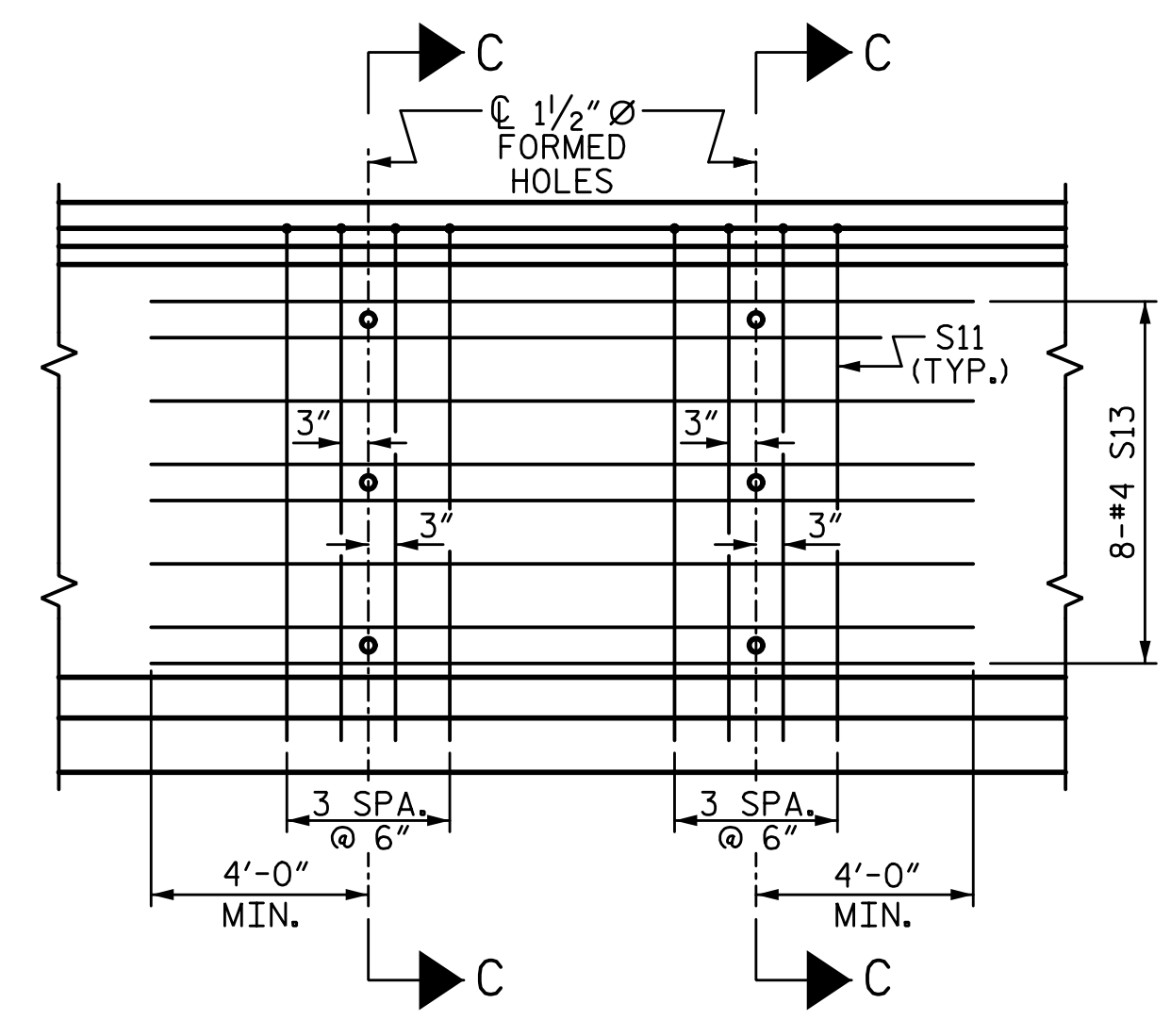


SECTION "F"
(SEE NOTES)



PARTIAL ELEVATION

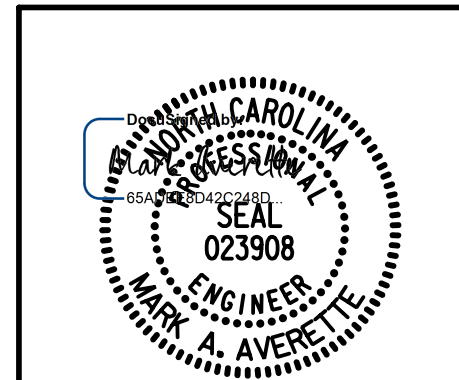
SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDERS 1,4,5,10
SEE SHEET 1 OF 4, 2 OF 4, OR 3 OF 4 FOR SECTION C-C.



PARTIAL ELEVATION

SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDERS 2,3,6,7,8,9
SEE SHEET 1 OF 4, 2 OF 4 OR 3 OF 4 FOR SECTION C-C.

DRAWN BY: S.D. COOPER	DATE: 3-2022
CHECKED BY: M. AVERETTE	DATE: 3-2022
DESIGN ENGINEER OF RECORD: M. AVERETTE	DATE: 3-2022



PROJECT NO. B-5869
BURKE COUNTY
STATION: 21+62.39 -L-

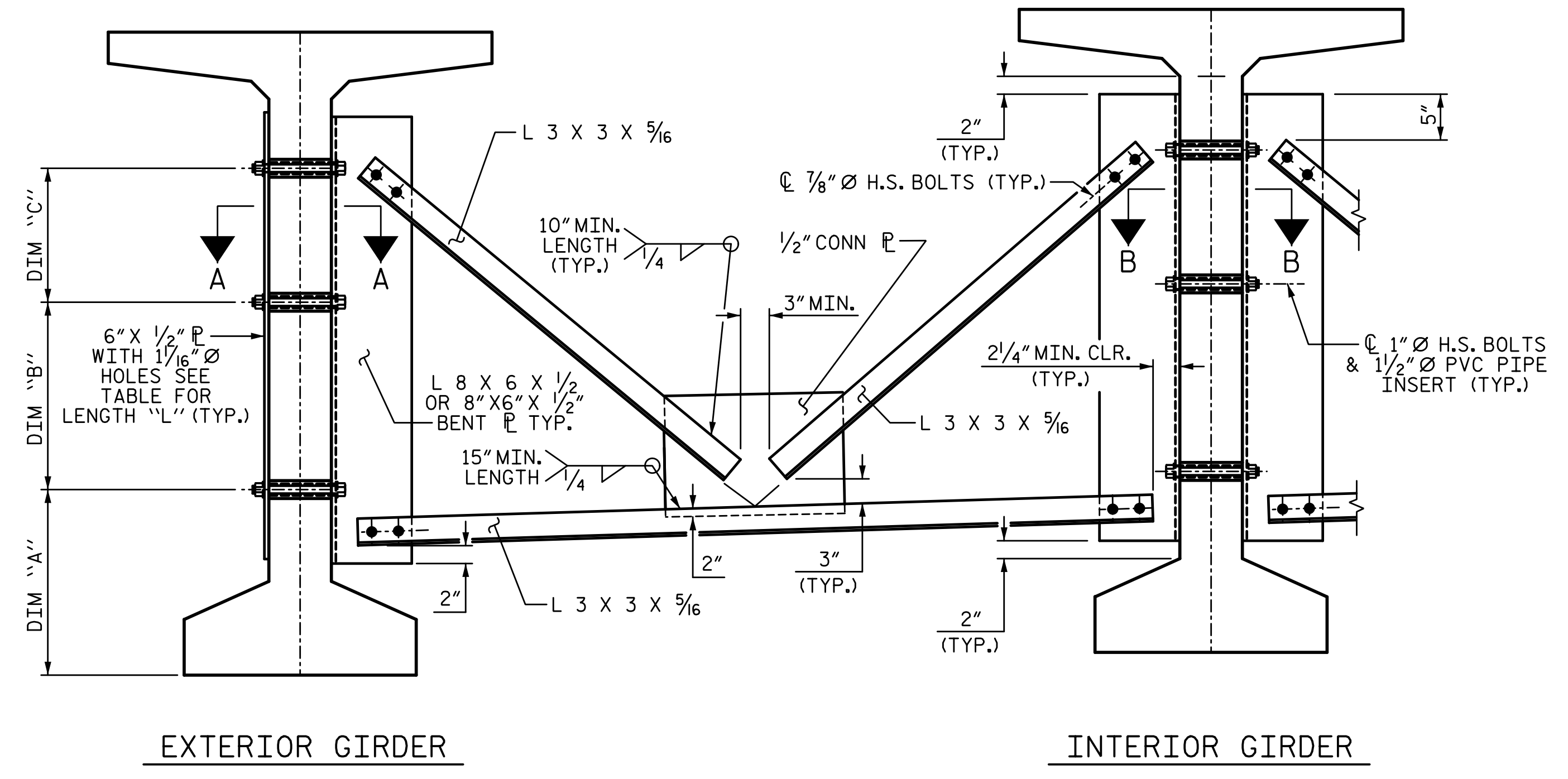
SHEET 4 OF 4

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

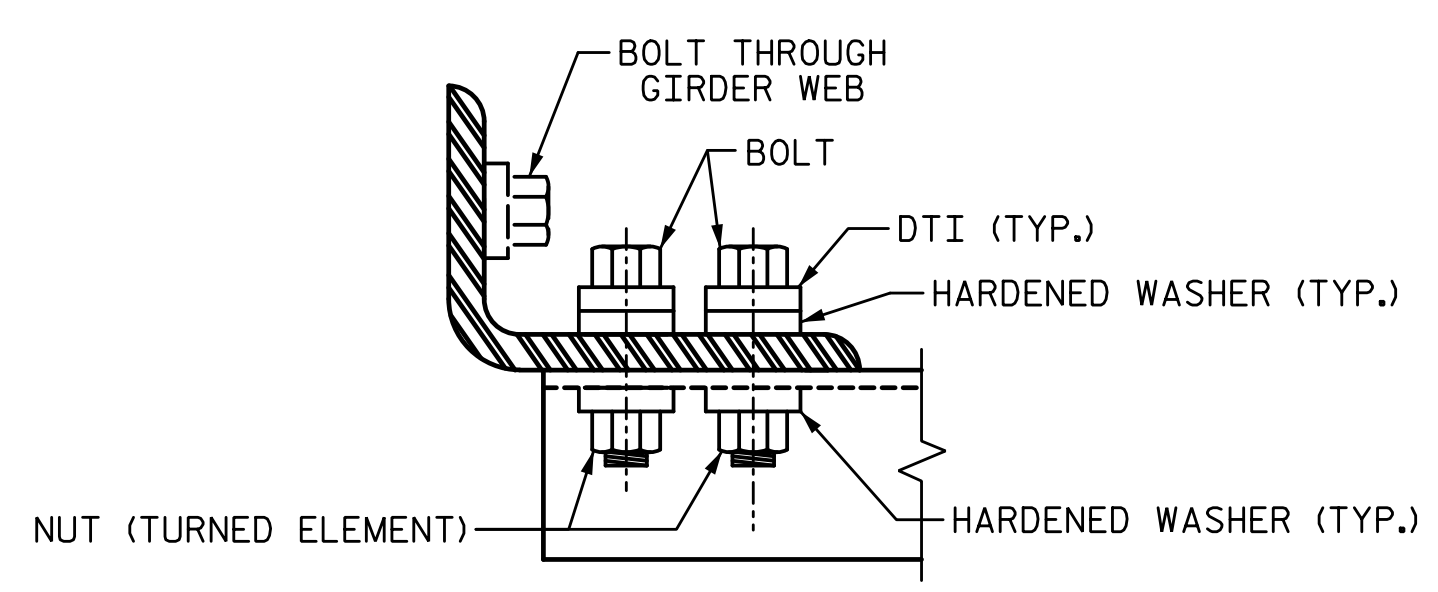
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
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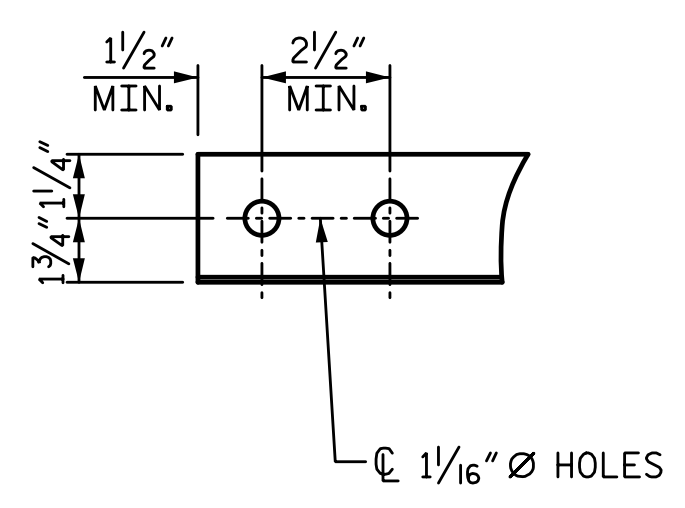
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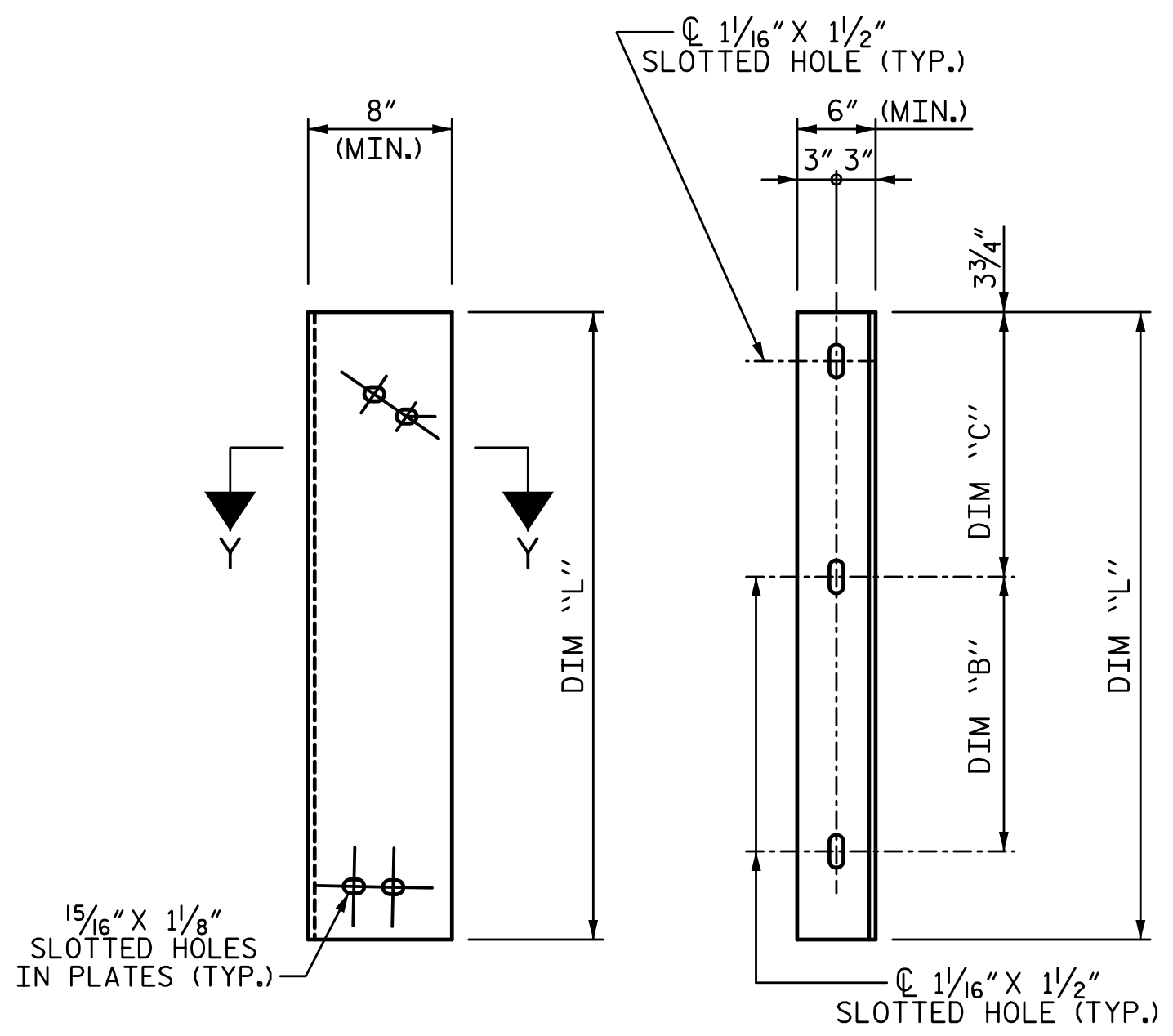
PART SECTION AT INTERMEDIATE DIAPHRAGM



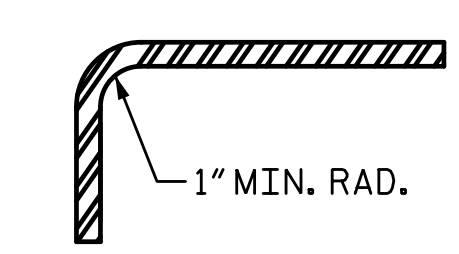
BOLT WITH DTI ASSEMBLY DETAIL



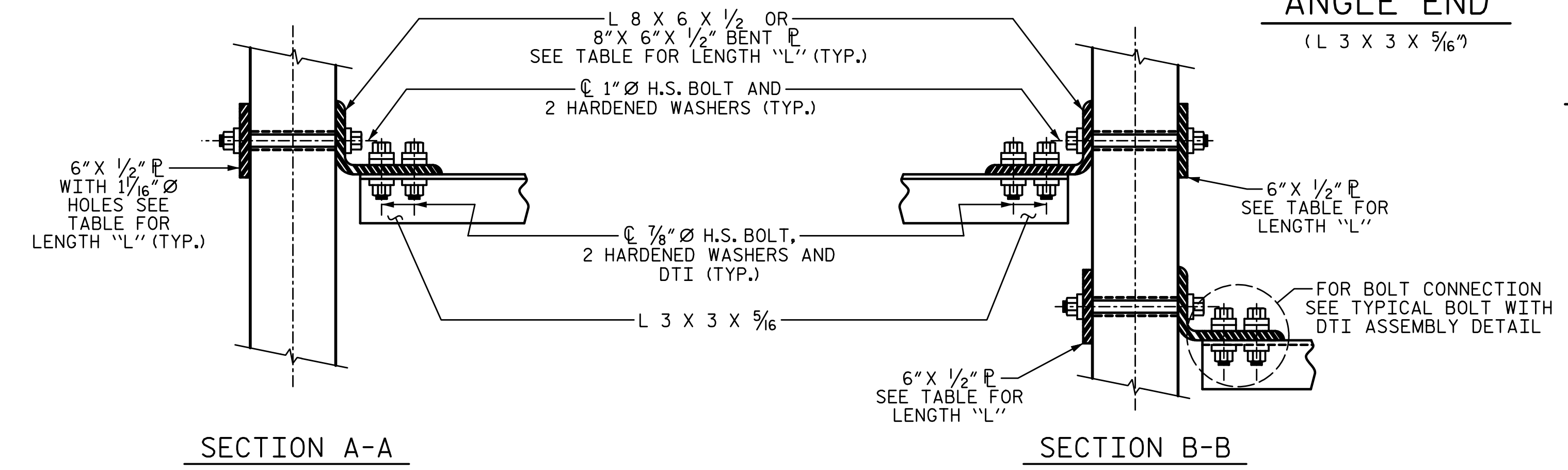
ANGLE END
(L 3 X 3 X 5/16")



DIAPHRAGM FACE **WEB FACE**



SECTION Y-Y



CONNECTION DETAILS

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 ANGLE 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 1/4" TURN.

THE PLATES, BENT PLATES, 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 1/4" 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.

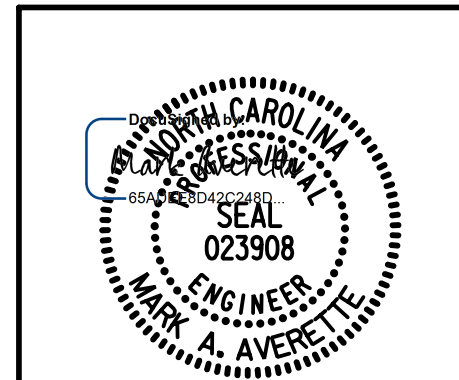
TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
63" BULB TEE	1'-9"	1'-3"	1'-2"	3'-5"

CONNECTOR PLATE DETAILS

PROJECT NO. B-5869
 COUNTY BURKE
 STATION: 21+62.39 -L-

DRAWN BY: S.D. COOPER DATE: 3-2022
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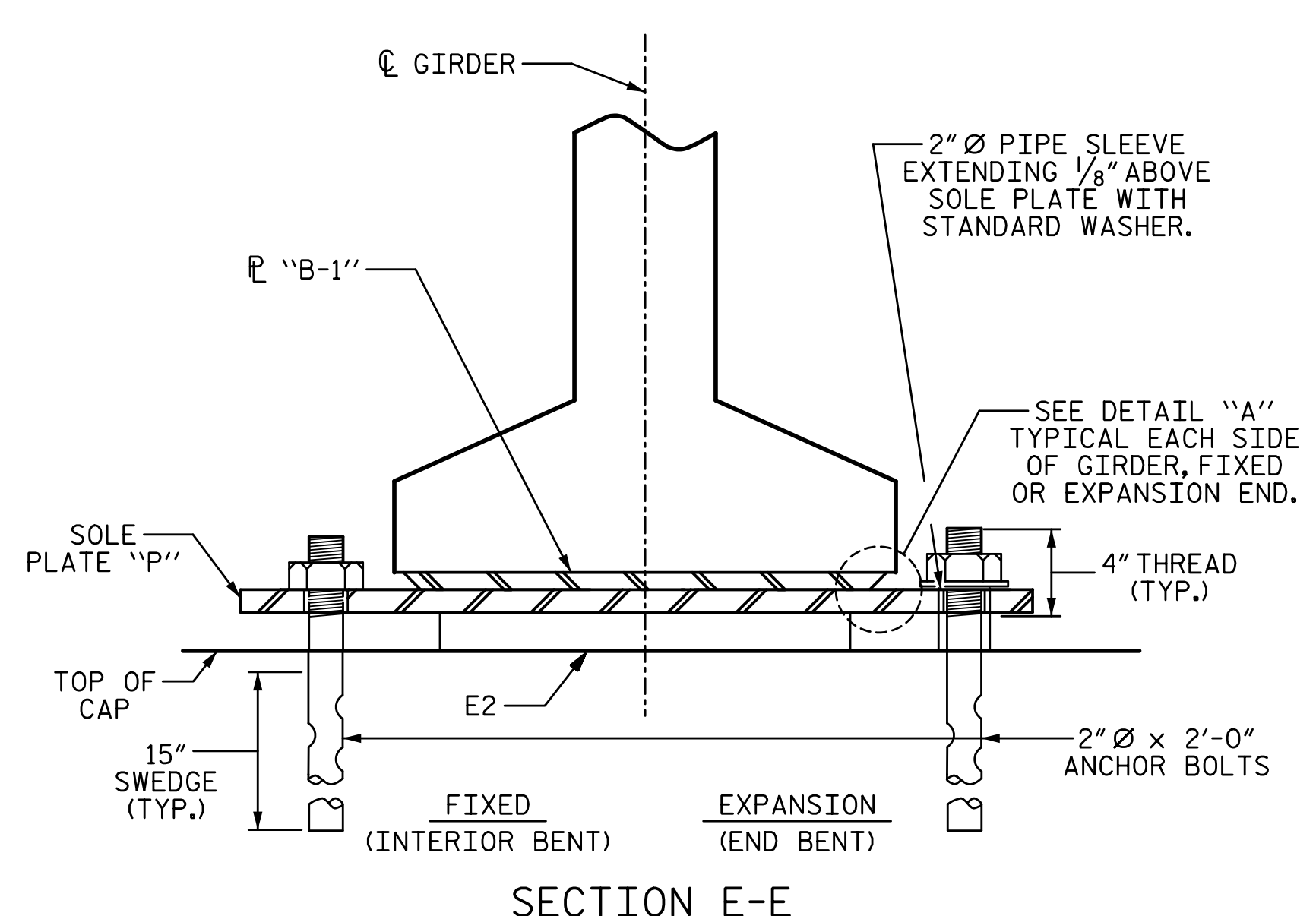


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 INTERMEDIATE STEEL
 DIAPHRAGMS FOR 63" MODIFIED
 BULB TEE PRESTRESSED
 CONCRETE GIRDERS

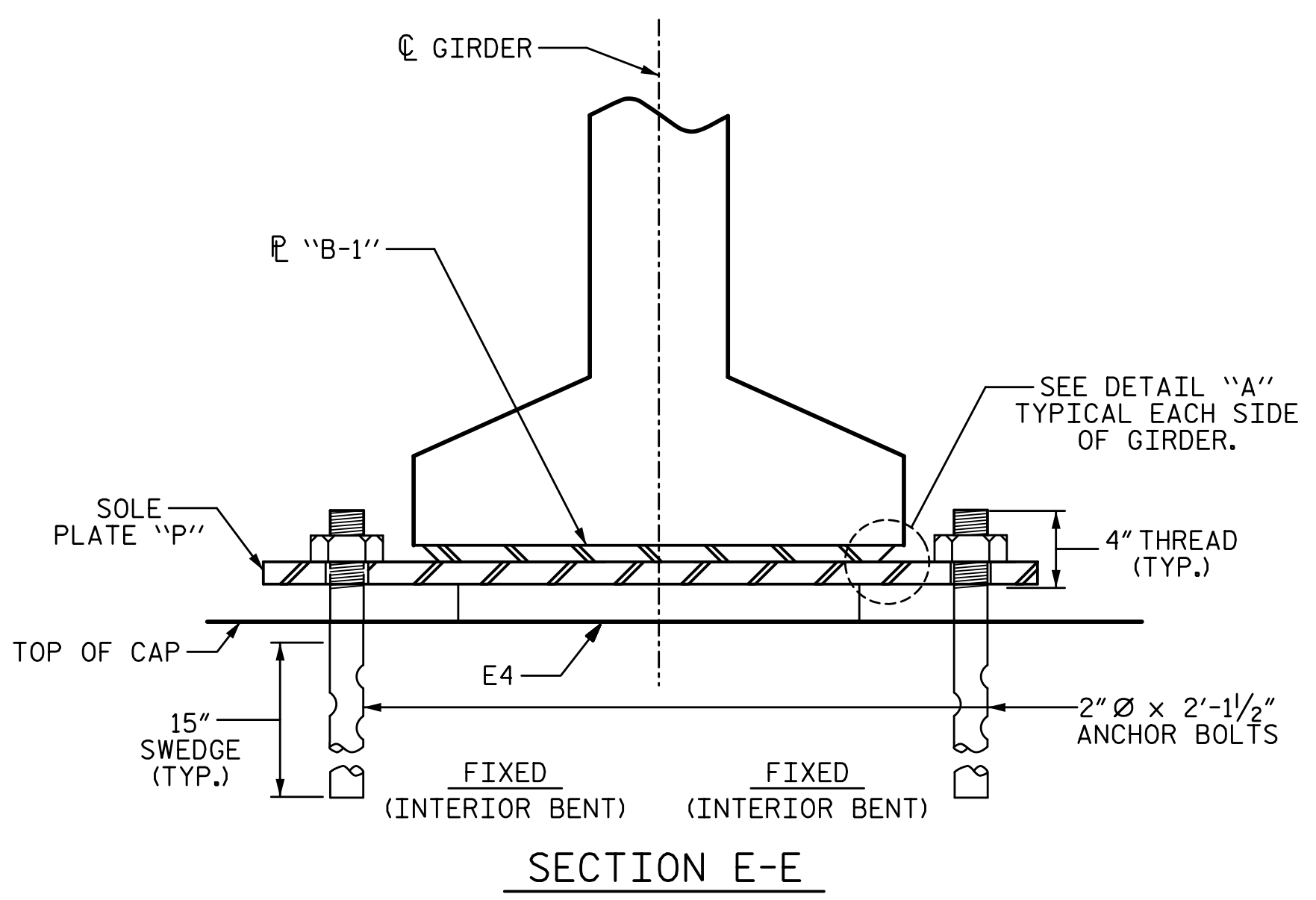
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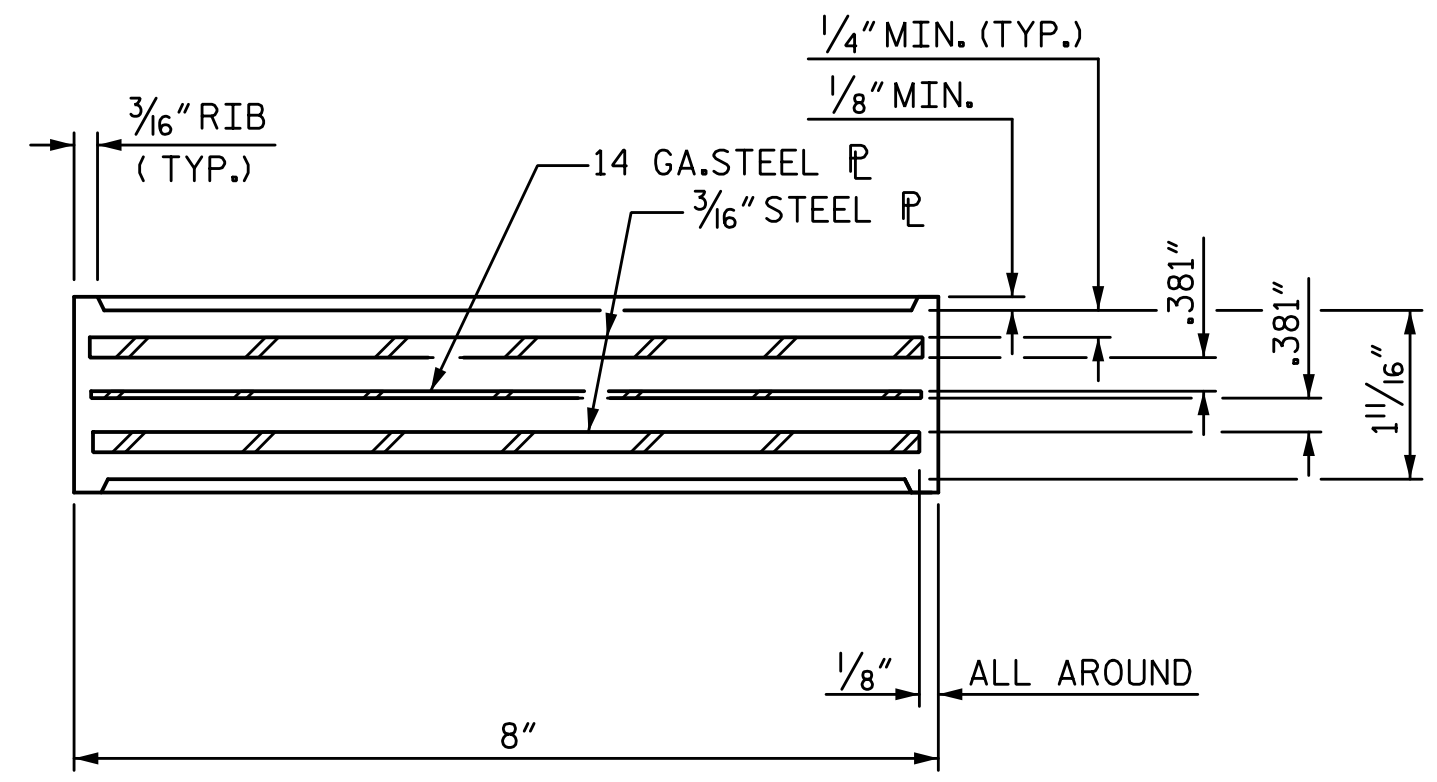
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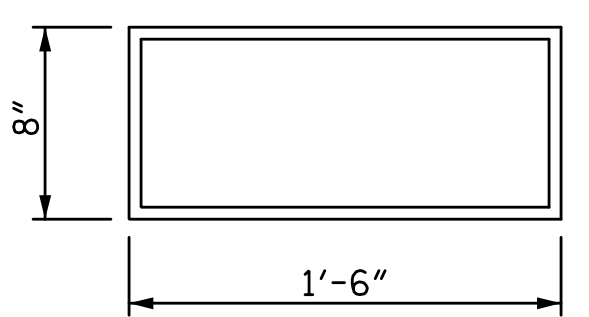
SECTION E-E



SECTION E-E



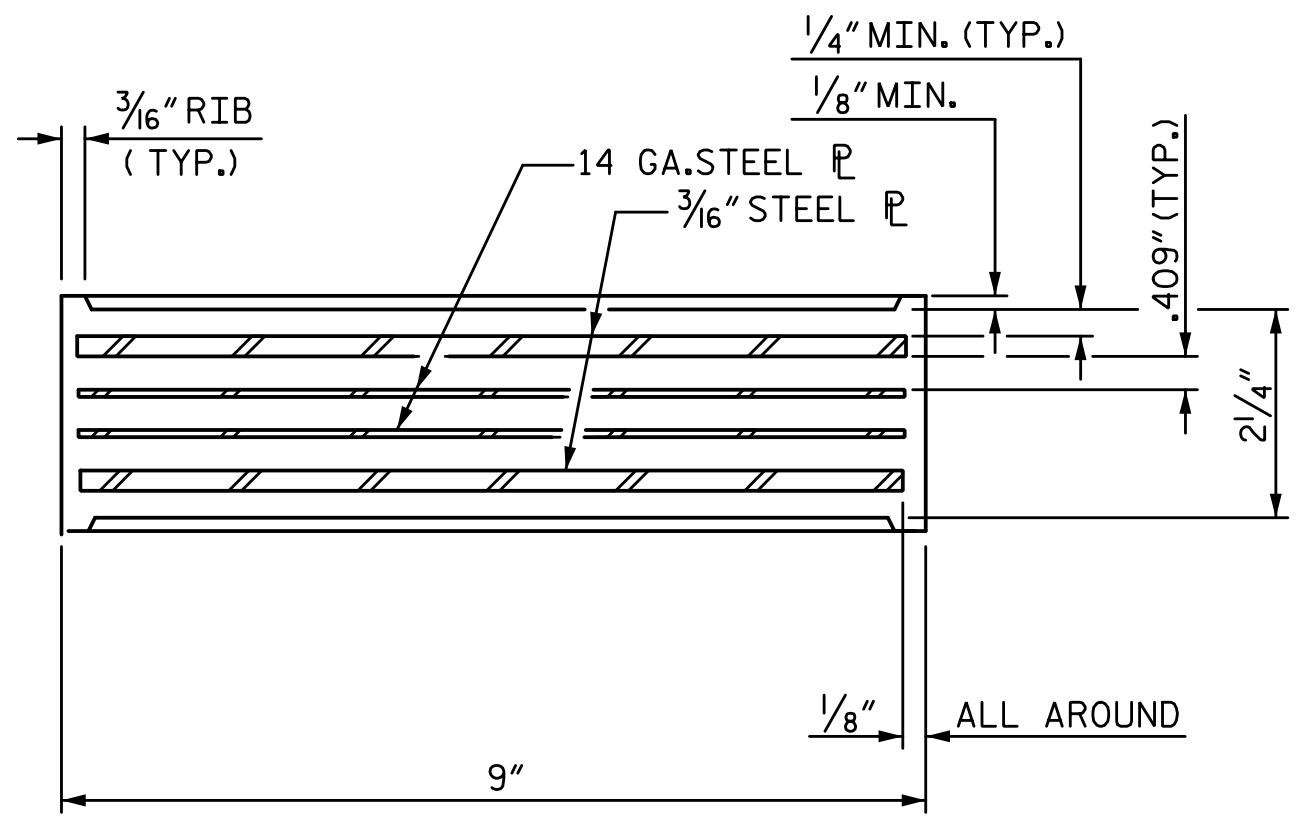
TYPICAL SECTION OF ELASTOMERIC BEARINGS



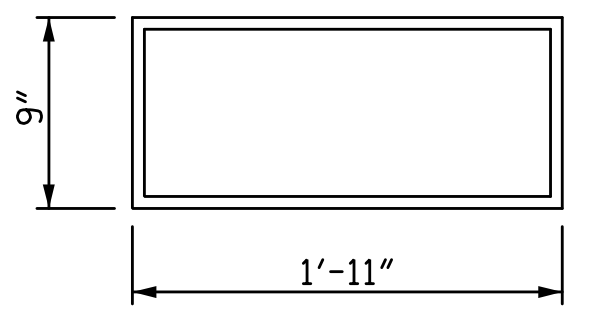
E2 (40 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE III



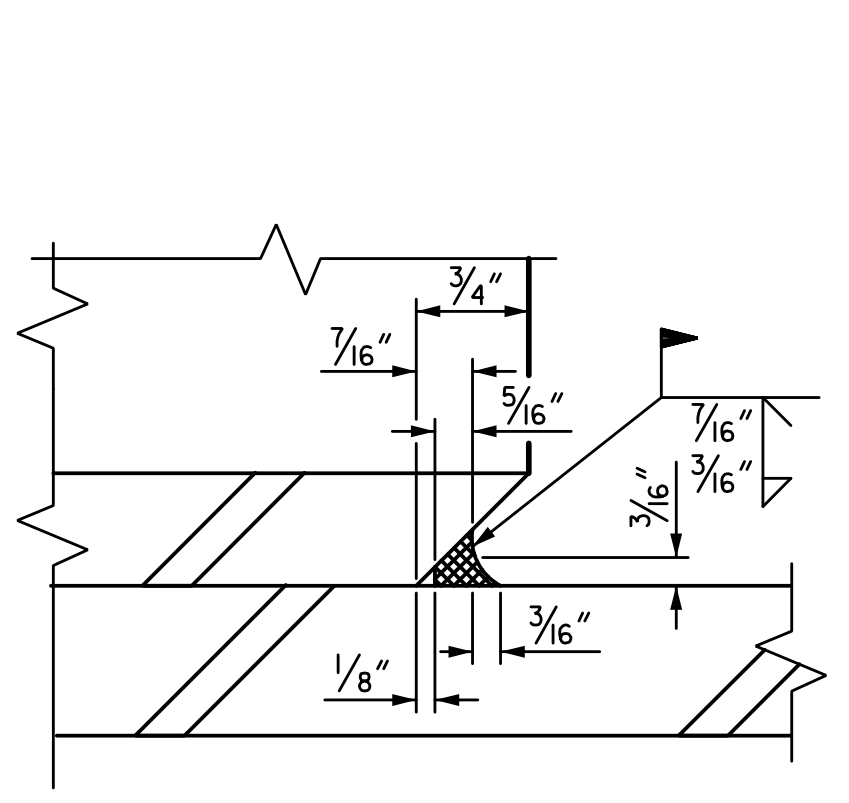
TYPICAL SECTION OF ELASTOMERIC BEARINGS



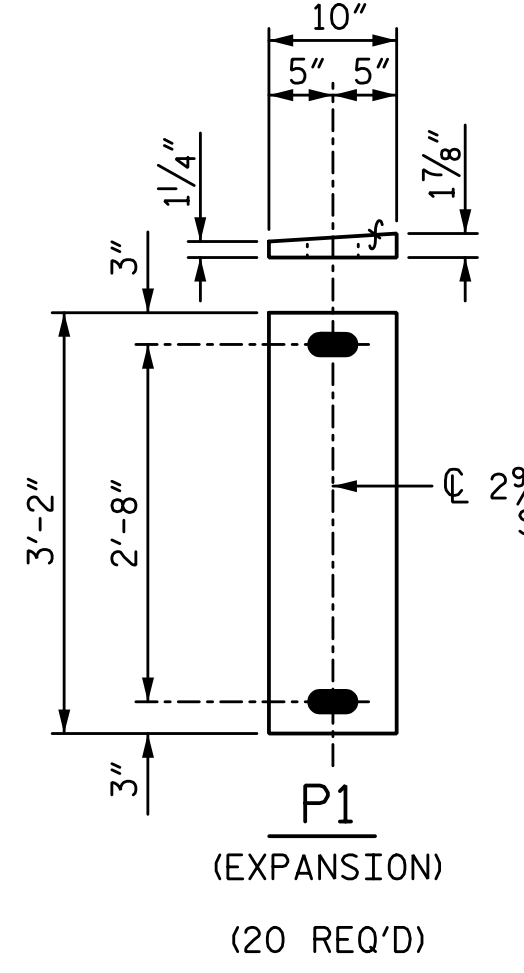
E4 (20 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

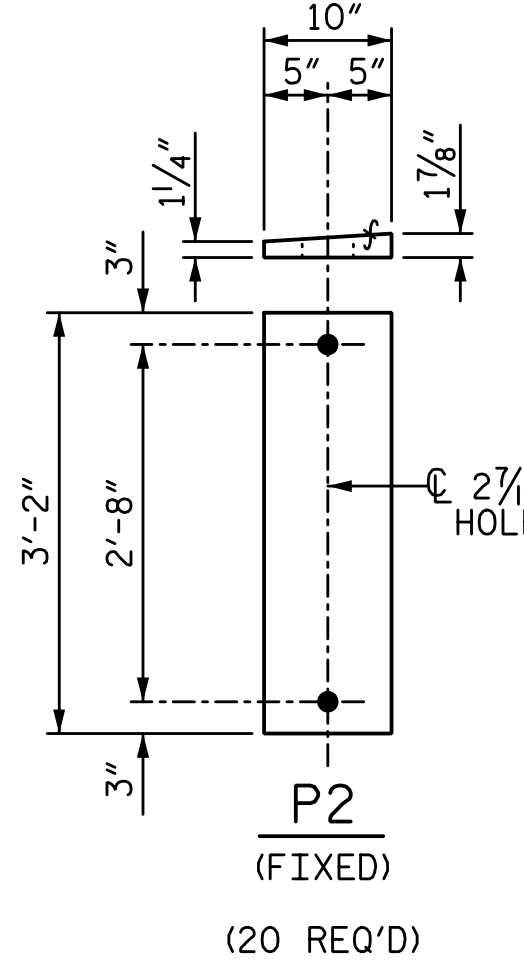
TYPE V



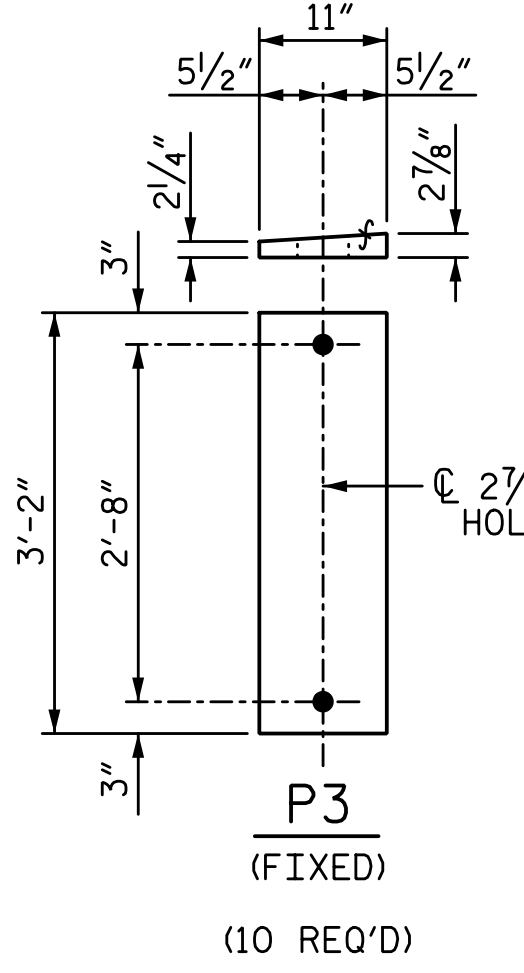
DETAIL "A"



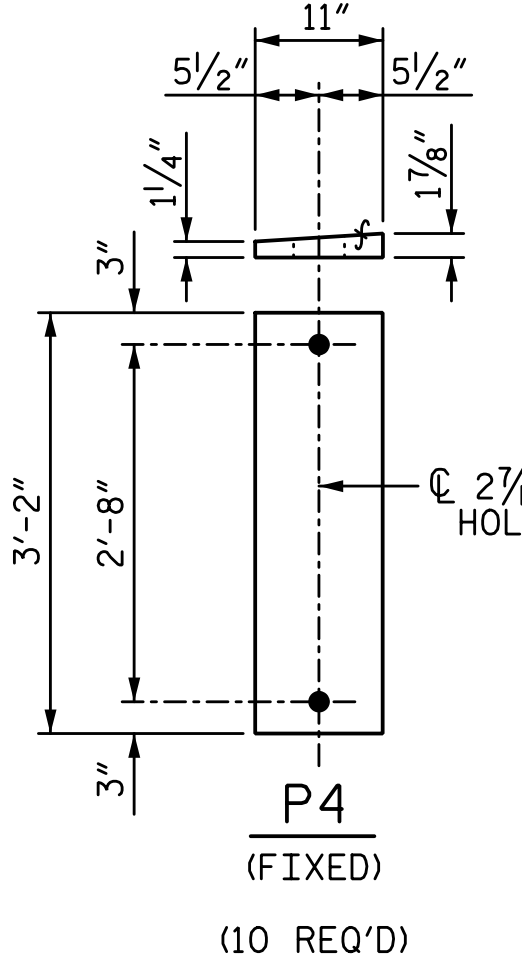
P1 (EXPANSION) (20 REQ'D)



P2 (FIXED) (20 REQ'D)

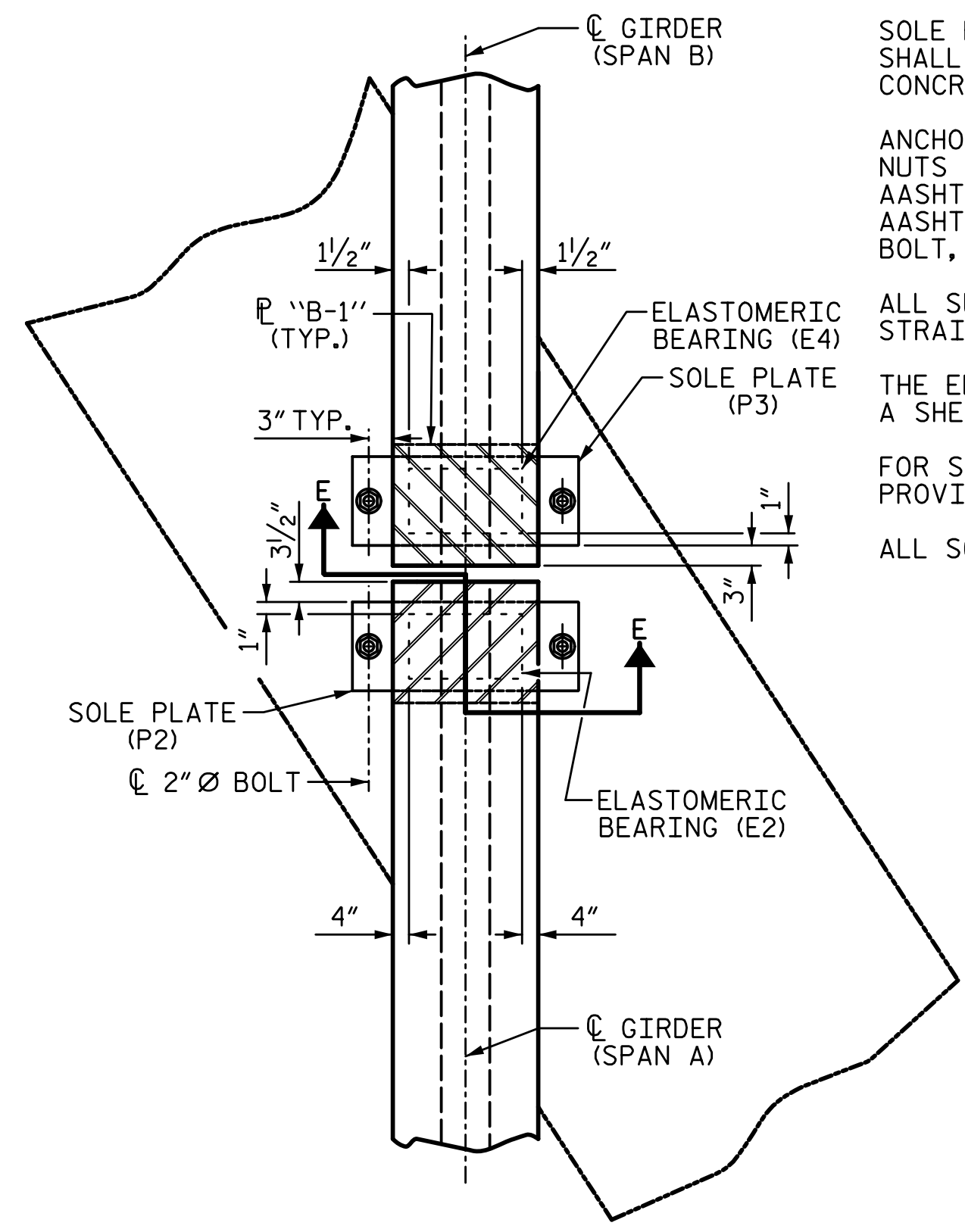


P3 (FIXED) (10 REQ'D)



P4 (FIXED) (10 REQ'D)

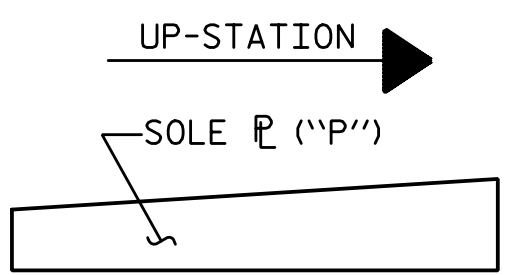
SOLE PLATE DETAILS



TYPICAL PLAN (BENT 1 SHOWN, BENT 2 SIMILAR)

SOLE P PLACEMENT DETAIL

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE III	205 k
TYPE V	365 k



NOTES:

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 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.

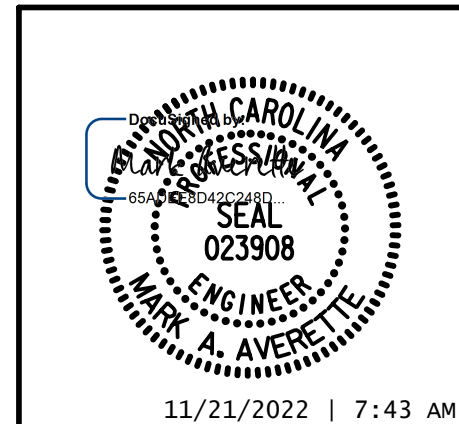
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

PROJECT NO. B-5869
BURKE COUNTY
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
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ELASTOMERIC BEARING DETAILS



DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

REVISIONS				SHEET NO.	
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1			3		
2			4		

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SHEET NO. S-24
 TOTAL SHEETS 72

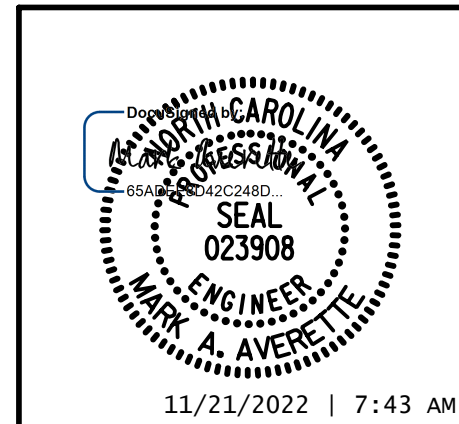
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DEAD LOAD DEFLECTION AND CAMBER TABLE FOR GIRDERS - SPAN A																					
0.6" Ø LOW RELAXATION		GIRDER 1																			
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.011	0.021	0.031	0.040	0.048	0.055	0.060	0.064	0.067	0.068	0.067	0.064	0.060	0.055	0.048	0.040	0.031	0.021	0.011	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.002	0.004	0.007	0.009	0.011	0.012	0.013	0.014	0.015	0.015	0.015	0.014	0.013	0.012	0.011	0.009	0.007	0.004	0.002	0
FINAL CAMBER ↑	0	1/8"	3/16"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	9/16"	1/2"	7/16"	3/8"	5/16"	3/16"	1/8"
0.6" Ø LOW RELAXATION		GIRDER 2, 3 & 4																			
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.011	0.021	0.031	0.040	0.048	0.055	0.060	0.064	0.067	0.068	0.067	0.064	0.060	0.055	0.048	0.040	0.031	0.021	0.011	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.002	0.004	0.006	0.008	0.010	0.012	0.013	0.014	0.014	0.015	0.014	0.014	0.013	0.012	0.010	0.008	0.006	0.004	0.002	0
FINAL CAMBER ↑	0	1/8"	3/16"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	9/16"	1/2"	7/16"	3/8"	5/16"	3/16"	1/8"
0.6" Ø LOW RELAXATION		GIRDER 5, 6, 7, 8 & 9																			
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.011	0.021	0.031	0.040	0.048	0.055	0.060	0.064	0.067	0.068	0.067	0.064	0.060	0.055	0.048	0.040	0.031	0.021	0.011	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.002	0.004	0.006	0.009	0.010	0.012	0.013	0.014	0.015	0.015	0.015	0.014	0.013	0.012	0.010	0.009	0.006	0.004	0.002	0
FINAL CAMBER ↑	0	1/8"	3/16"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	9/16"	1/2"	7/16"	3/8"	5/16"	3/16"	1/8"
0.6" Ø LOW RELAXATION		GIRDER 10																			
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.011	0.021	0.031	0.040	0.048	0.055	0.060	0.064	0.067	0.068	0.067	0.064	0.060	0.055	0.048	0.040	0.031	0.021	0.011	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.002	0.004	0.007	0.009	0.011	0.012	0.014	0.015	0.015	0.015	0.015	0.015	0.014	0.012	0.011	0.009	0.007	0.004	0.002	0
FINAL CAMBER ↑	0	1/8"	3/16"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	9/16"	1/2"	7/16"	3/8"	5/16"	3/16"	1/8"

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. B-5869
BURKE COUNTY
STATION: 21+62.39 -L-

SHEET 1 OF 3
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER CAMBER
DETAILS
SPAN A



DRAWN BY: S.D. COOPER DATE: 3-2022
CHECKED BY: M. AVERETTE DATE: 3-2022
DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

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DEAD LOAD DEFLECTION AND CAMBER TABLE FOR GIRDERS - SPAN B

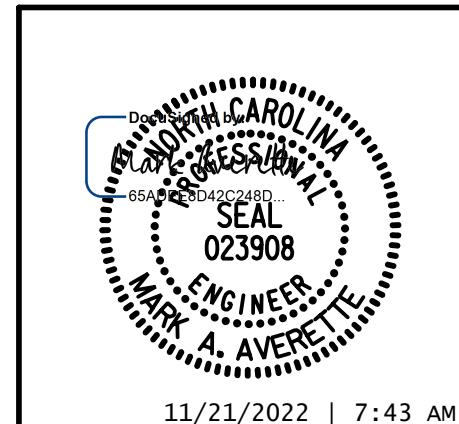
Table with 30 columns (span points) and 4 rows per girder section. Sections include GIRDERS 1, 2, 3 & 4, 5, 6, 7, 8 & 9, and GIRDERS 10. Rows include FORTIETH POINTS, CAMBER (GIRDER ALONE IN PLACE), * DEFLECTION DUE TO SUPERIMPOSED D.L., and FINAL CAMBER.

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

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BURKE COUNTY
STATION: 21+62.39 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER CAMBER
DETAILS
SPAN B

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2			4			72

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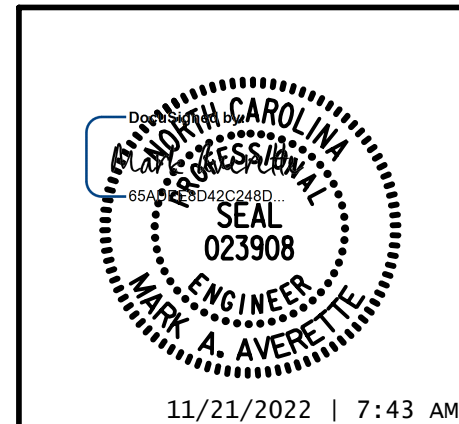
DEAD LOAD DEFLECTION AND CAMBER TABLE FOR GIRDERS - SPAN C																					
0.6" Ø LOW RELAXATION		GIRDER 1																			
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.014	0.028	0.041	0.053	0.063	0.072	0.079	0.084	0.087	0.089	0.087	0.084	0.079	0.072	0.063	0.053	0.041	0.028	0.014	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.004	0.009	0.014	0.018	0.022	0.025	0.028	0.030	0.031	0.032	0.031	0.030	0.028	0.025	0.022	0.018	0.014	0.009	0.004	0
FINAL CAMBER ↑	0	1/8"	1/4"	5/16"	7/16"	1/2"	9/16"	5/8"	5/8"	11/16"	11/16"	11/16"	5/8"	5/8"	9/16"	1/2"	7/16"	5/16"	1/4"	1/8"	0
0.6" Ø LOW RELAXATION		GIRDER 2, 3 & 4																			
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.014	0.028	0.041	0.053	0.063	0.072	0.079	0.084	0.087	0.089	0.087	0.084	0.079	0.072	0.063	0.053	0.041	0.028	0.014	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.004	0.009	0.013	0.017	0.021	0.024	0.027	0.029	0.030	0.030	0.030	0.029	0.027	0.024	0.021	0.017	0.013	0.009	0.004	0
FINAL CAMBER ↑	0	1/8"	1/4"	5/16"	7/16"	1/2"	9/16"	5/8"	11/16"	11/16"	11/16"	11/16"	11/16"	5/8"	9/16"	1/2"	7/16"	5/16"	1/4"	1/8"	0
0.6" Ø LOW RELAXATION		GIRDER 5, 6, 7, 8 & 9																			
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.014	0.028	0.041	0.053	0.063	0.072	0.079	0.084	0.087	0.089	0.087	0.084	0.079	0.072	0.063	0.053	0.041	0.028	0.014	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.004	0.009	0.014	0.018	0.022	0.025	0.027	0.029	0.030	0.031	0.030	0.029	0.027	0.025	0.022	0.018	0.014	0.009	0.004	0
FINAL CAMBER ↑	0	1/8"	1/4"	5/16"	7/16"	1/2"	9/16"	5/8"	11/16"	11/16"	11/16"	11/16"	11/16"	5/8"	9/16"	1/2"	7/16"	5/16"	1/4"	1/8"	0
0.6" Ø LOW RELAXATION		GIRDER 10																			
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.014	0.028	0.041	0.053	0.063	0.072	0.079	0.084	0.087	0.089	0.087	0.084	0.079	0.072	0.063	0.053	0.041	0.028	0.014	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.004	0.009	0.014	0.018	0.022	0.026	0.028	0.030	0.031	0.032	0.031	0.030	0.028	0.026	0.022	0.018	0.014	0.009	0.004	0
FINAL CAMBER ↑	0	1/8"	1/4"	5/16"	7/16"	1/2"	9/16"	5/8"	5/8"	11/16"	11/16"	11/16"	5/8"	5/8"	9/16"	1/2"	7/16"	5/16"	1/4"	1/8"	0

* INCLUDES FUTURE WEARING SURFACE
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PROJECT NO. B-5869
BURKE COUNTY
STATION: 21+62.39 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER CAMBER
DETAILS
SPAN C



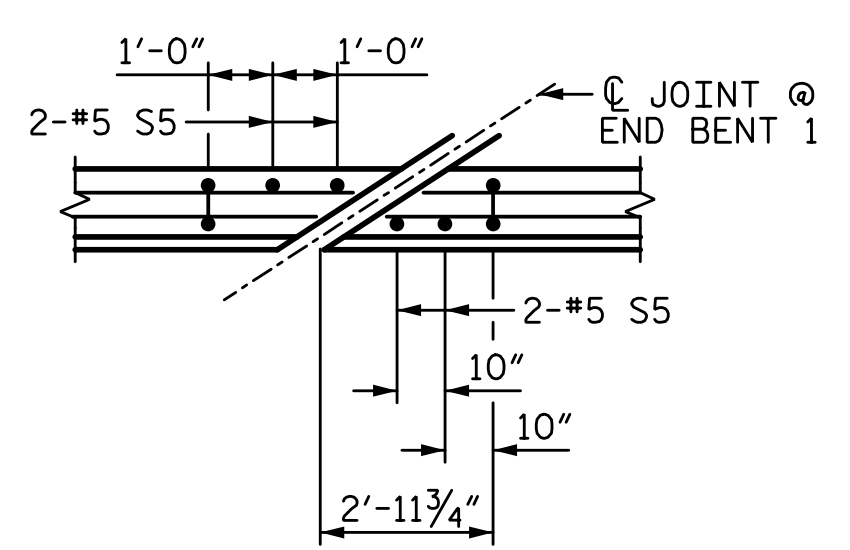
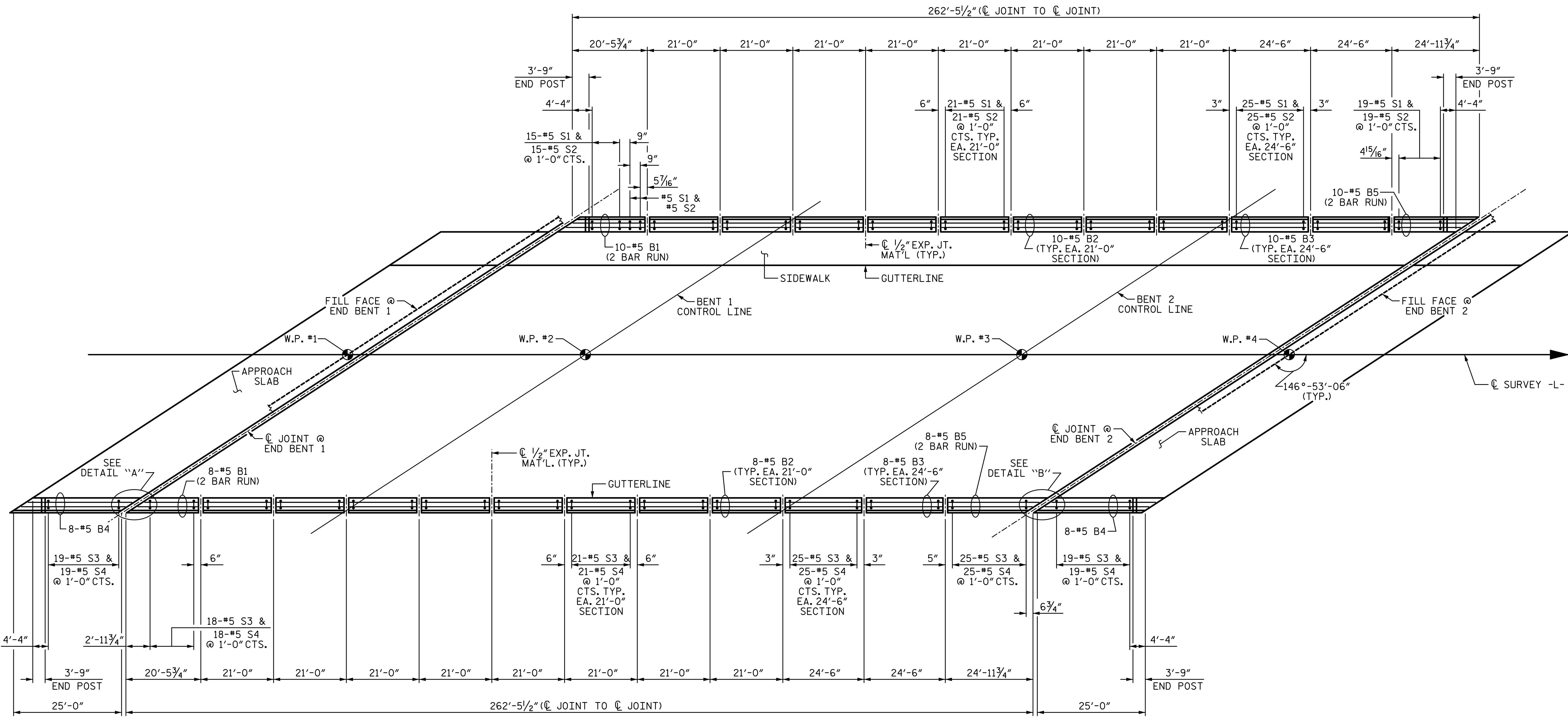
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DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			72

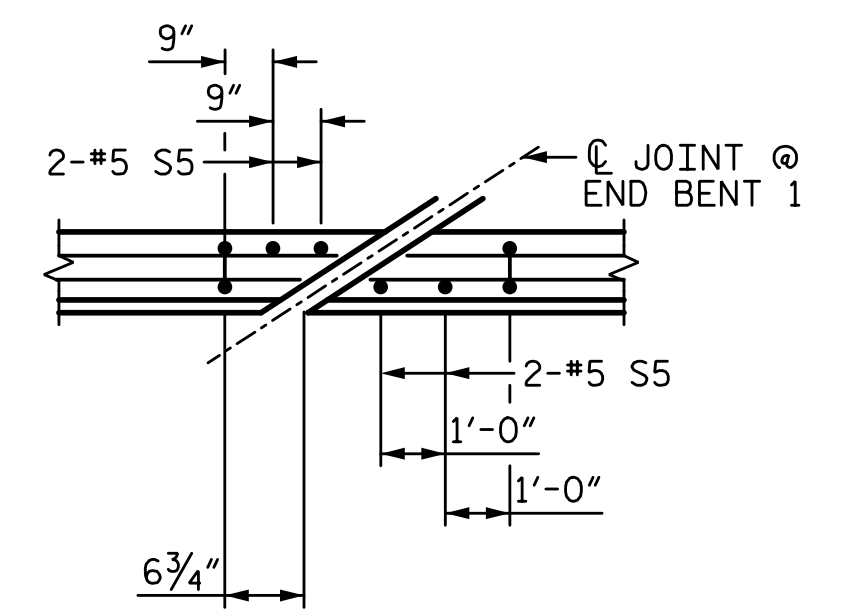
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DETAIL "A"

NOTE: ALL DIMENSIONS ARE MEASURED ALONG OUTSIDE FACE OF CONCRETE PARAPET
 GROOVED CONTRACTION JOINTS NOT SHOWN FOR CLARITY, SEE "RAIL POST SPACINGS
 AND END OF RAIL DETAILS" SHEET FOR LOCATION.
 STAGE II CONCRETE PARAPET EXTENDS FULL LENGTH OF APPROACH SLABS.
 FOR FORM LINER DETAILS, SEE SPECIAL PROVISIONS
 SEE SHEET 2 OF 3 AND SHEET 3 OR 3 FOR END POST DETAILS
 S5 BARS MAY SHIFT SLIGHTLY TO AVOID CONFLICT WITH
 STRIP SEAL ASSEMBLY

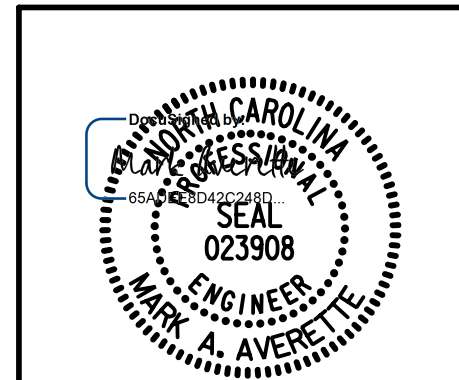


DETAIL "B"

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CONCRETE PARAPET



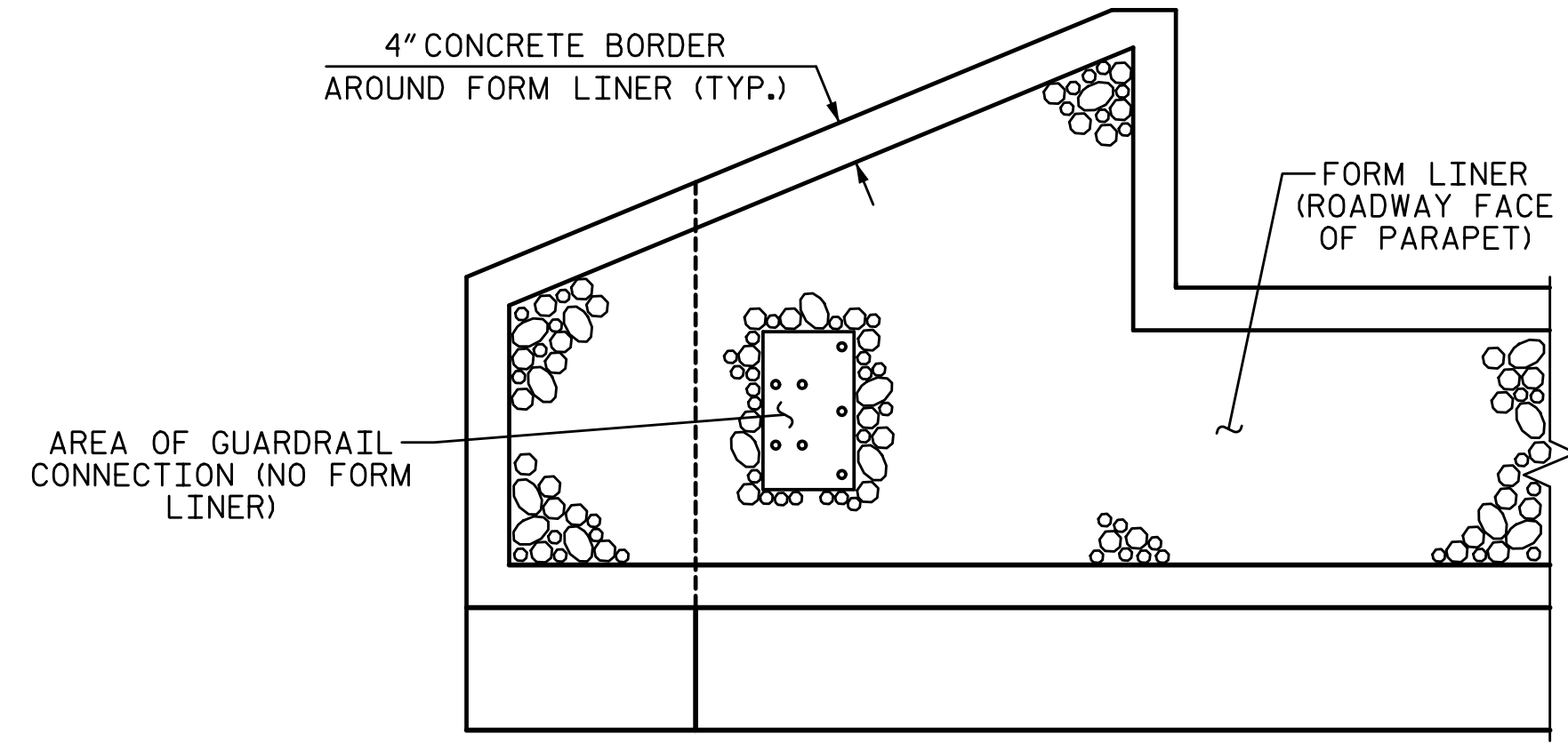
W WGI
 5640 Dillard Drive, Suite 200
 Cary, NC 27518
 LICENSURE NO. C-4434

DRAWN BY: S.D. COOPER	DATE: 3-2022
CHECKED BY: M. AVERETTE	DATE: 3-2022
DESIGN ENGINEER OF RECORD: M. AVERETTE	DATE: 3-2022

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			72

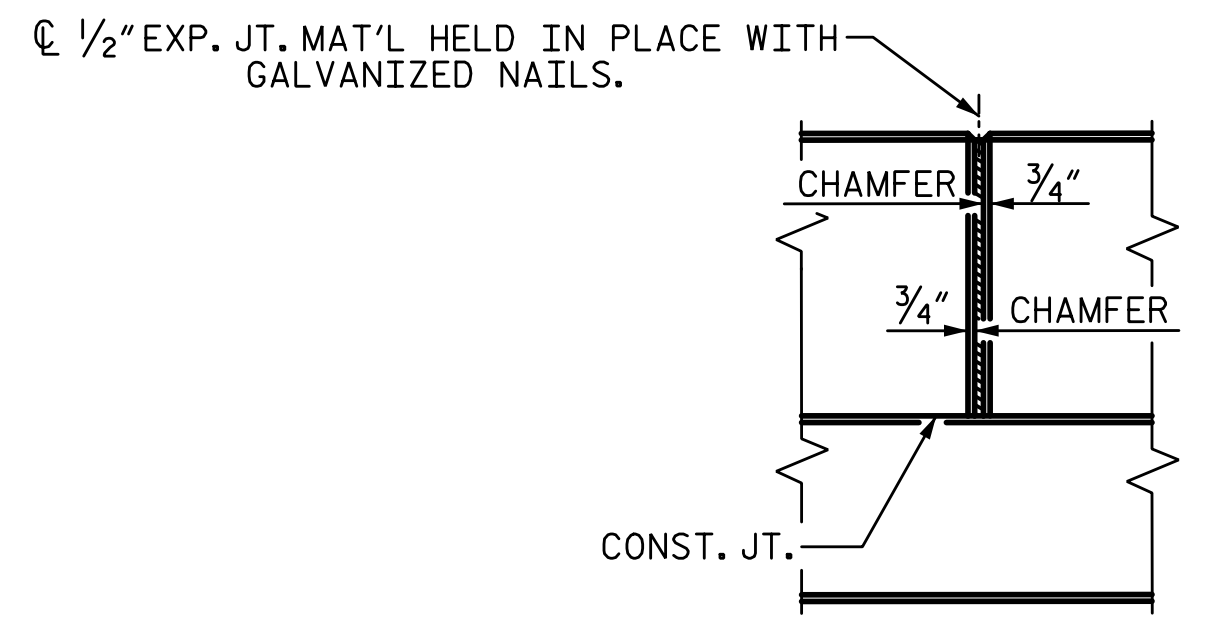
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FORM LINER DETAIL

FOR LOCATION OF GUARDRAIL CONNECTION AND AREA WITH NO FORM LINER SEE "GUARDRAIL ANCHORAGE DETAILS" SHEET



ELEVATION AT EXPANSION JOINTS

NOTES:

CONCRETE PARAPET IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN PARAPET AND END POSTS SHALL BE EPOXY COATED.

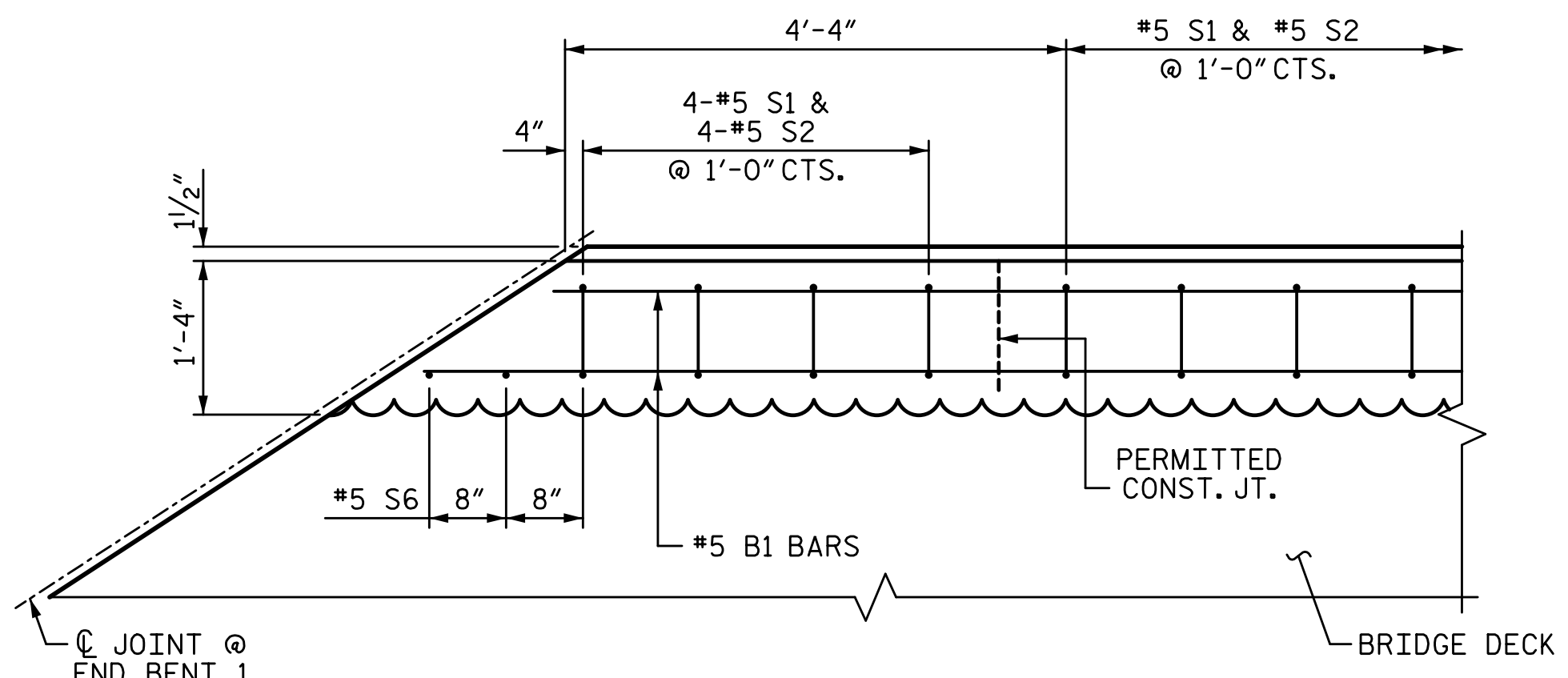
FOR DETAILS OF CONCRETE INSERTS IN END POSTS, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET.

FOR DETAILS AND LOCATION OF GUARDRAIL ANCHOR ASSEMBLIES, SEE "GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS" SHEET.

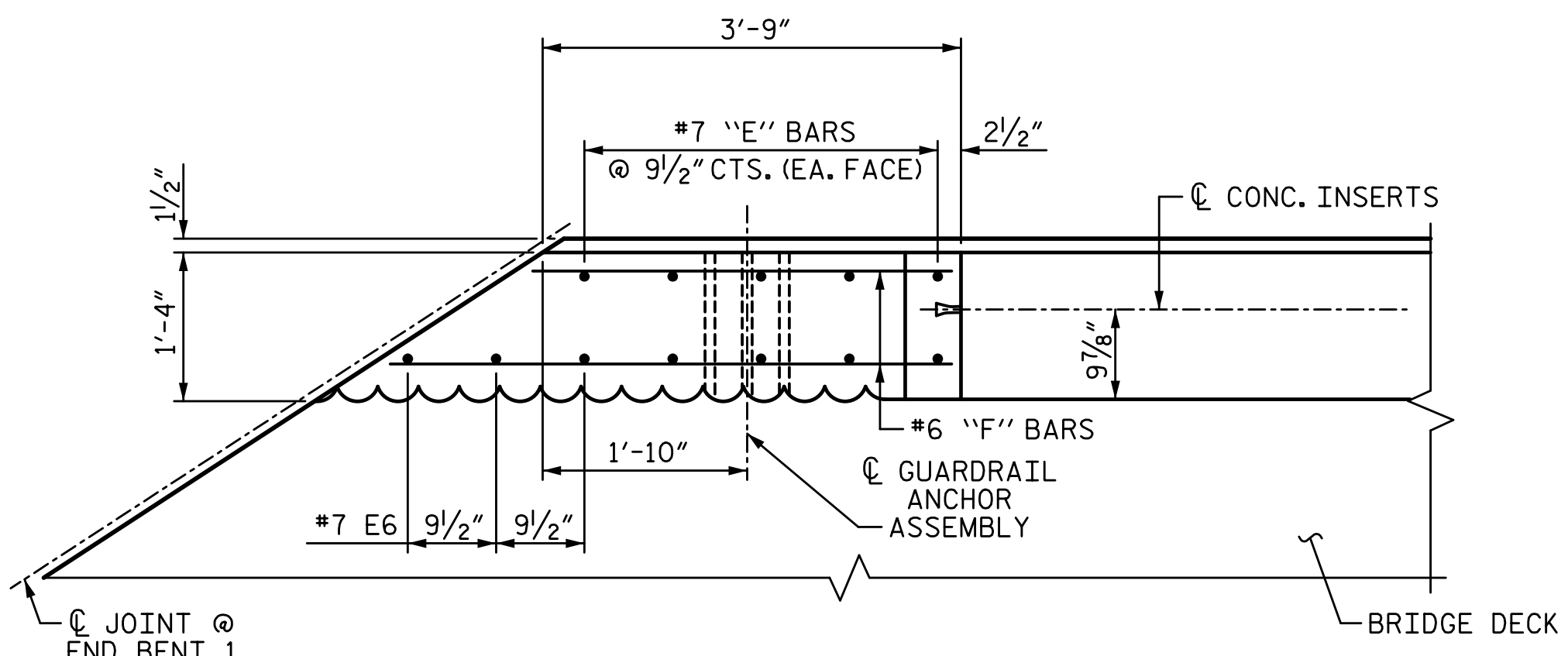
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN EXTERIOR FACE AND TOP SURFACE OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FOR ARCHITECTURAL CONCRETE SURFACE TREATMENT, SEE SPECIAL PROVISIONS.

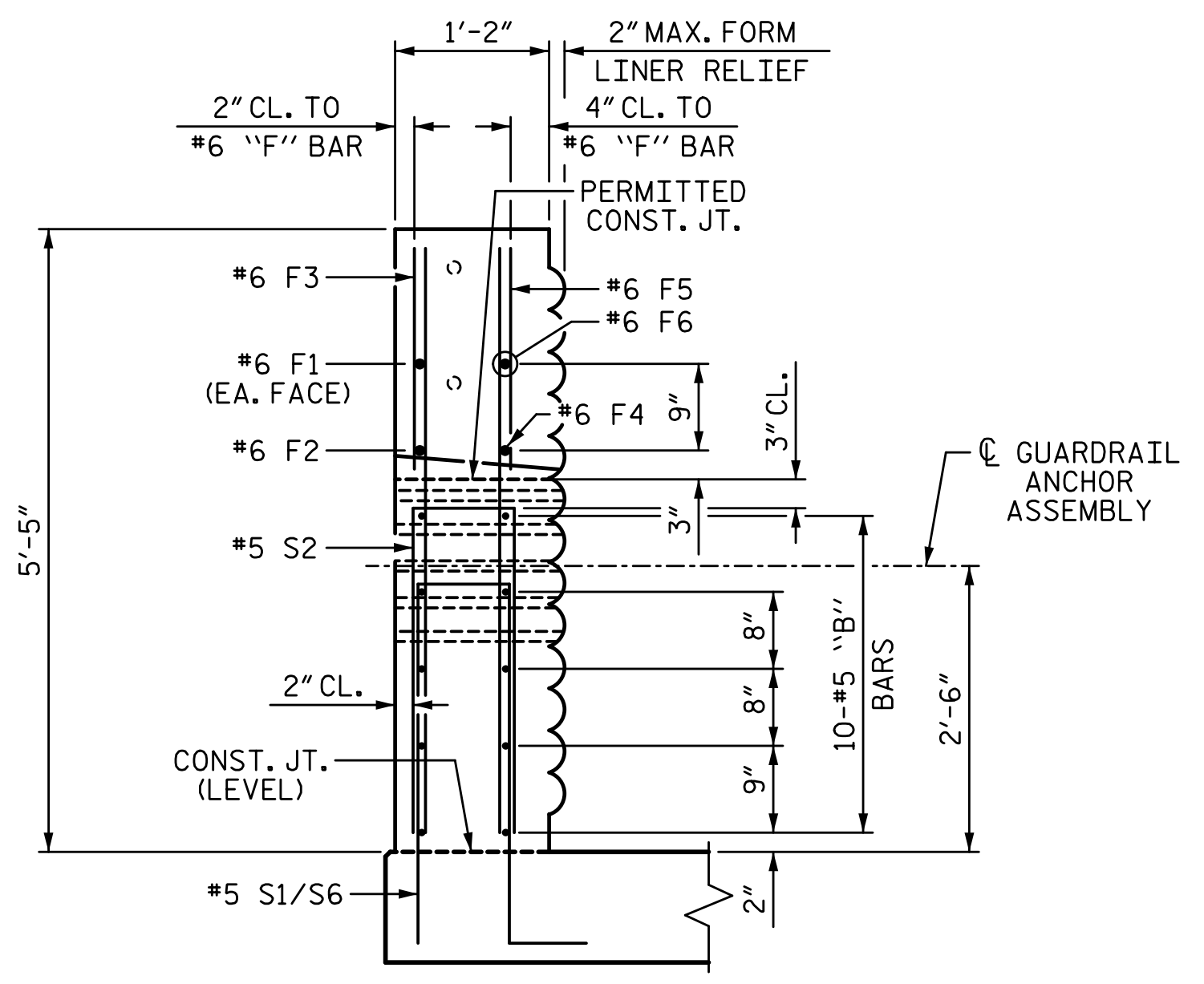
FOR APPLICATION OF BRIDGE COATING, SEE SPECIAL PROVISIONS.



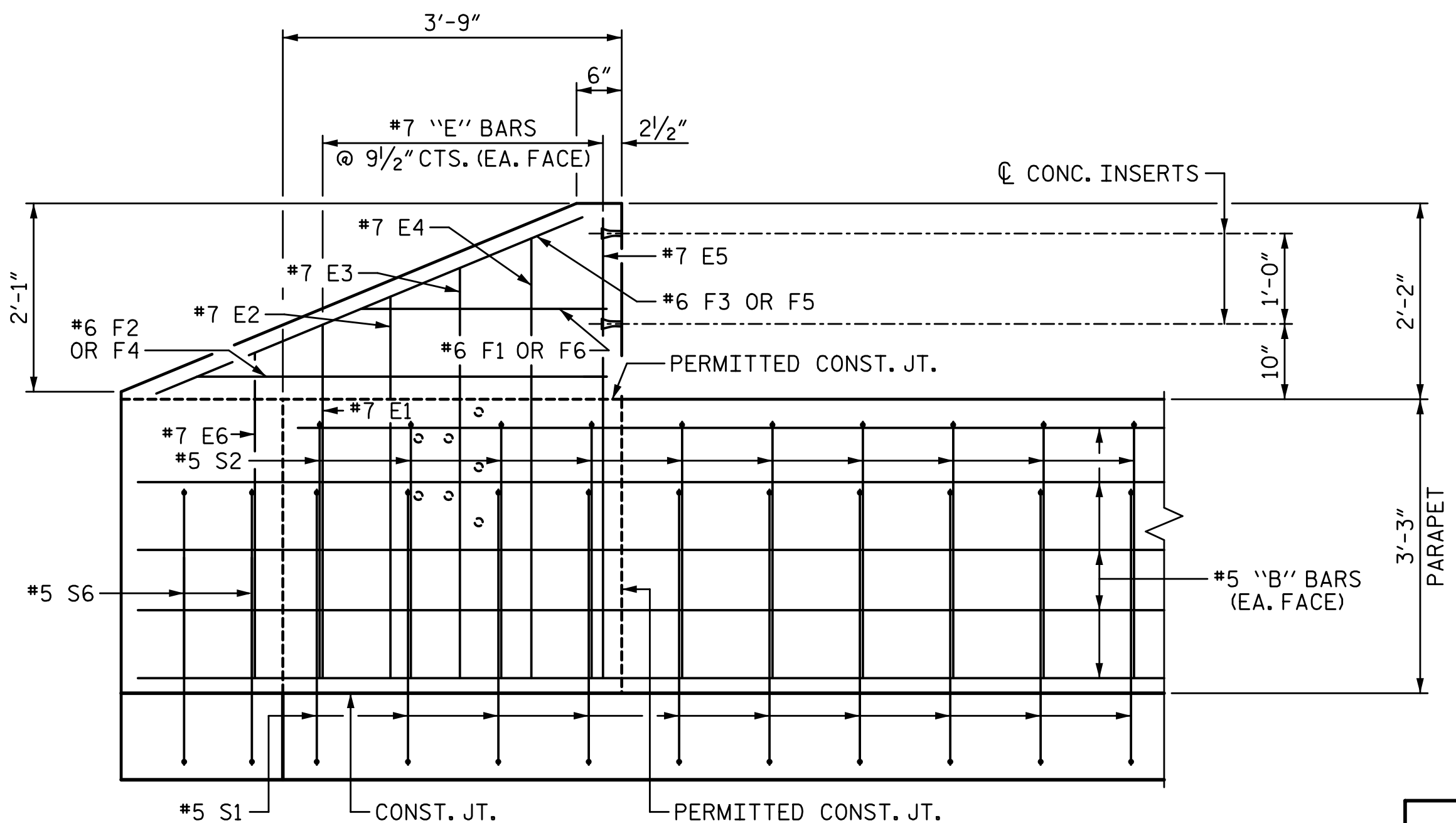
PLAN OF PARAPET



PLAN OF END POST



END VIEW

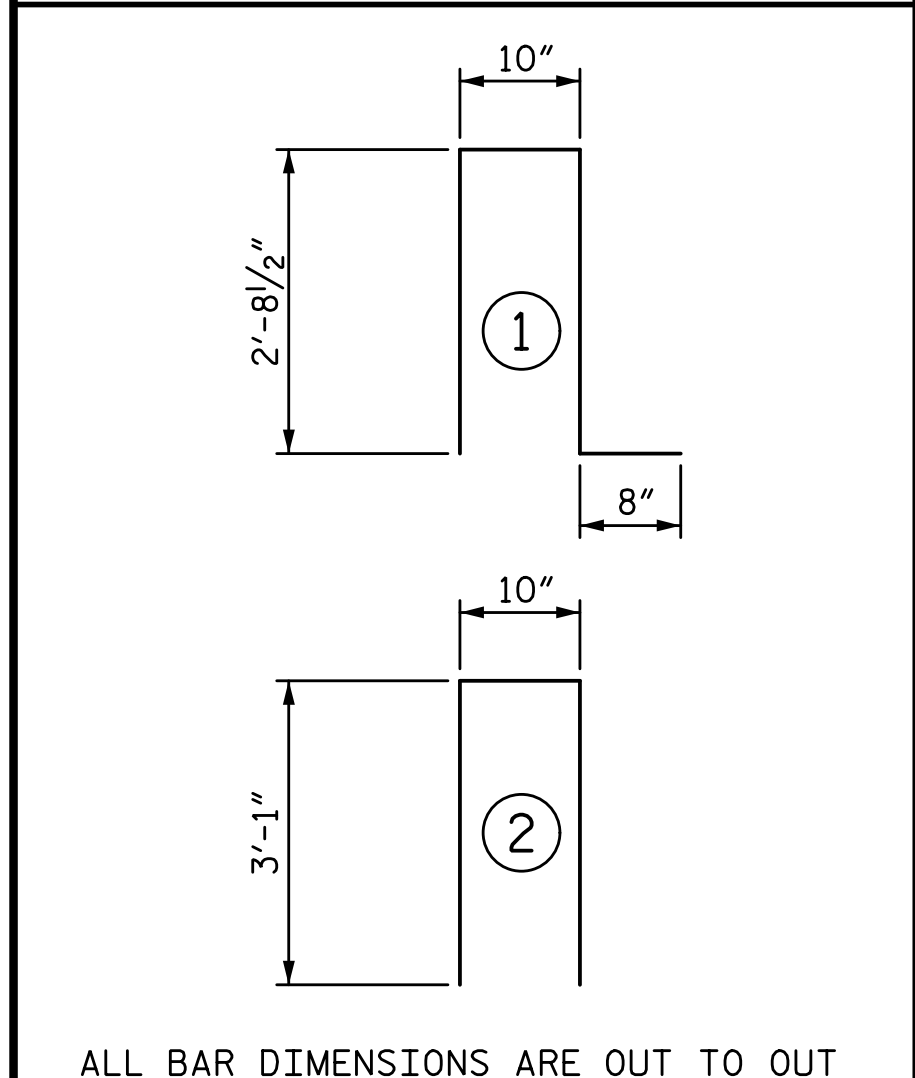


ELEVATION

PARAPET AND END POST FOR TWO BAR METAL RAIL

(1'-4" x 3'-3" PARAPET)

BILL OF MATERIAL						
1'-4" X 3'-3" PARAPET AND END POSTS						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B1	20	#5	STR	12'-11"	269	
*B2	80	#5	STR	20'-7"	1,717	
*B3	20	#5	STR	24'-1"	502	
*B5	20	#5	STR	14'-8"	306	
*E1	4	#7	STR	3'-10"	31	
*E2	4	#7	STR	4'-2"	34	
*E3	4	#7	STR	4'-6"	37	
*E4	4	#7	STR	4'-10"	40	
*E5	4	#7	STR	5'-1"	42	
*E6	2	#7	STR	3'-7"	15	
*F1	2	#6	STR	1'-3"	4	
*F2	2	#6	STR	3'-1"	9	
*F3	2	#6	STR	3'-10"	12	
*F4	2	#6	STR	4'-4"	13	
*F5	2	#6	STR	5'-4"	16	
*F6	2	#6	STR	2'-5"	7	
*S1	262	#5	1	6'-11"	1,890	
*S2	262	#5	2	7'-0"	1,913	
*S6	4	#5	STR	3'-9"	16	
EPOXY COATED REINFORCING STEEL				6,873 LB		
CLASS AA CONCRETE				42.5 CY		
1'-4" X 3'-3" CONCRETE PARAPET				262.46 LF		

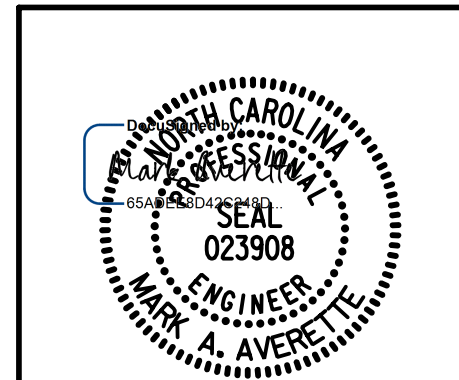


ALL BAR DIMENSIONS ARE OUT TO OUT
*EPOXY COATED REINFORCING STEEL

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
CONCRETE PARAPET DETAILS
 STAGE III



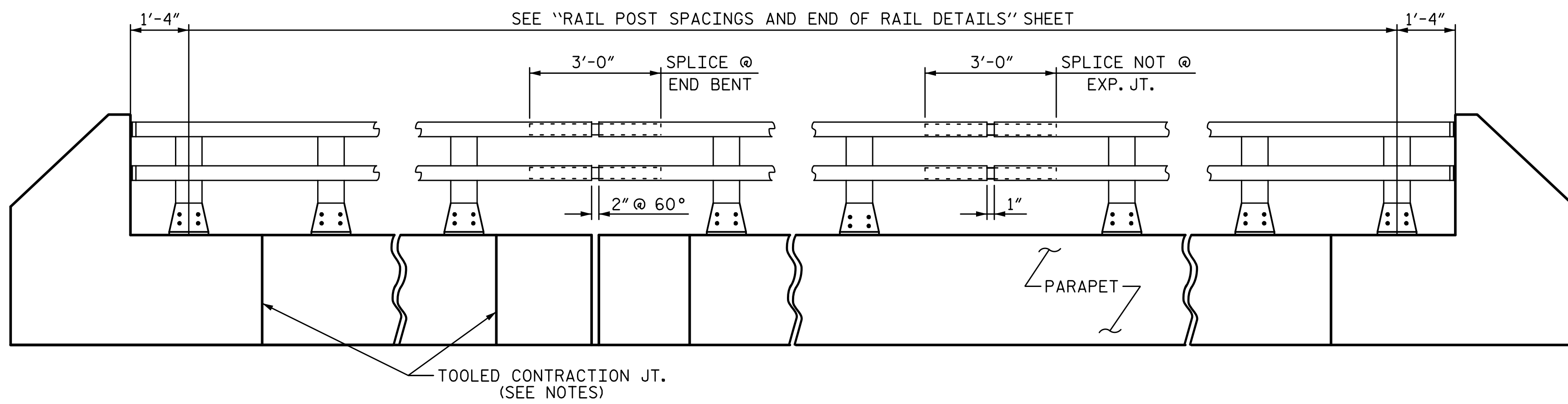
WVGI
 5640 Dillard Drive, Suite 200
 Cary, NC 27518
 LICENSURE NO. C-4434

DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

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1			3			TOTAL SHEETS
2			4			72

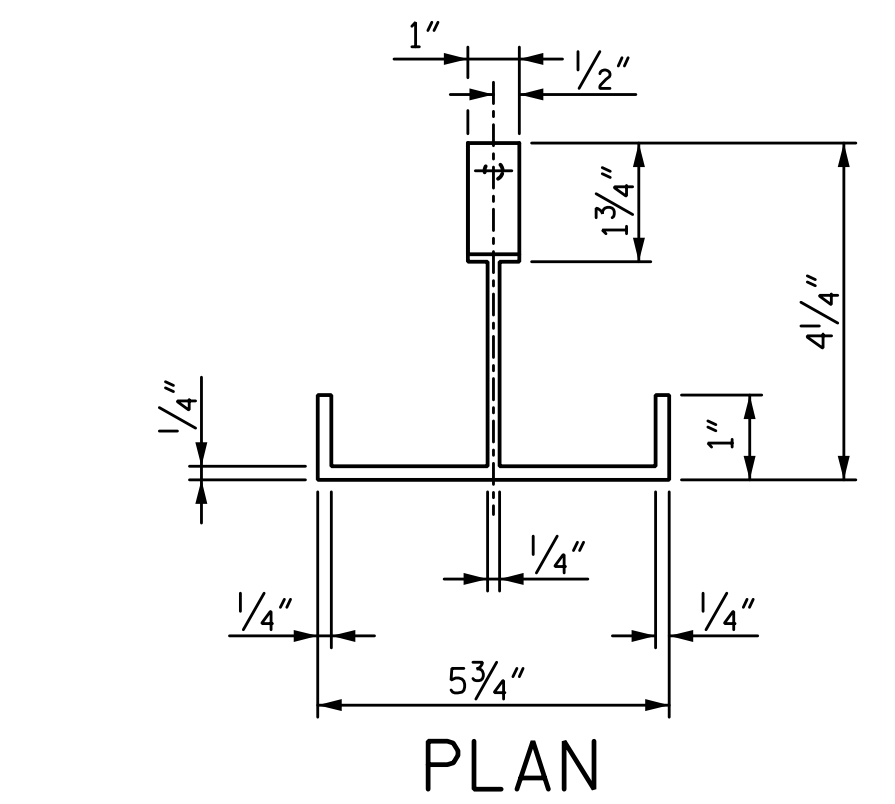
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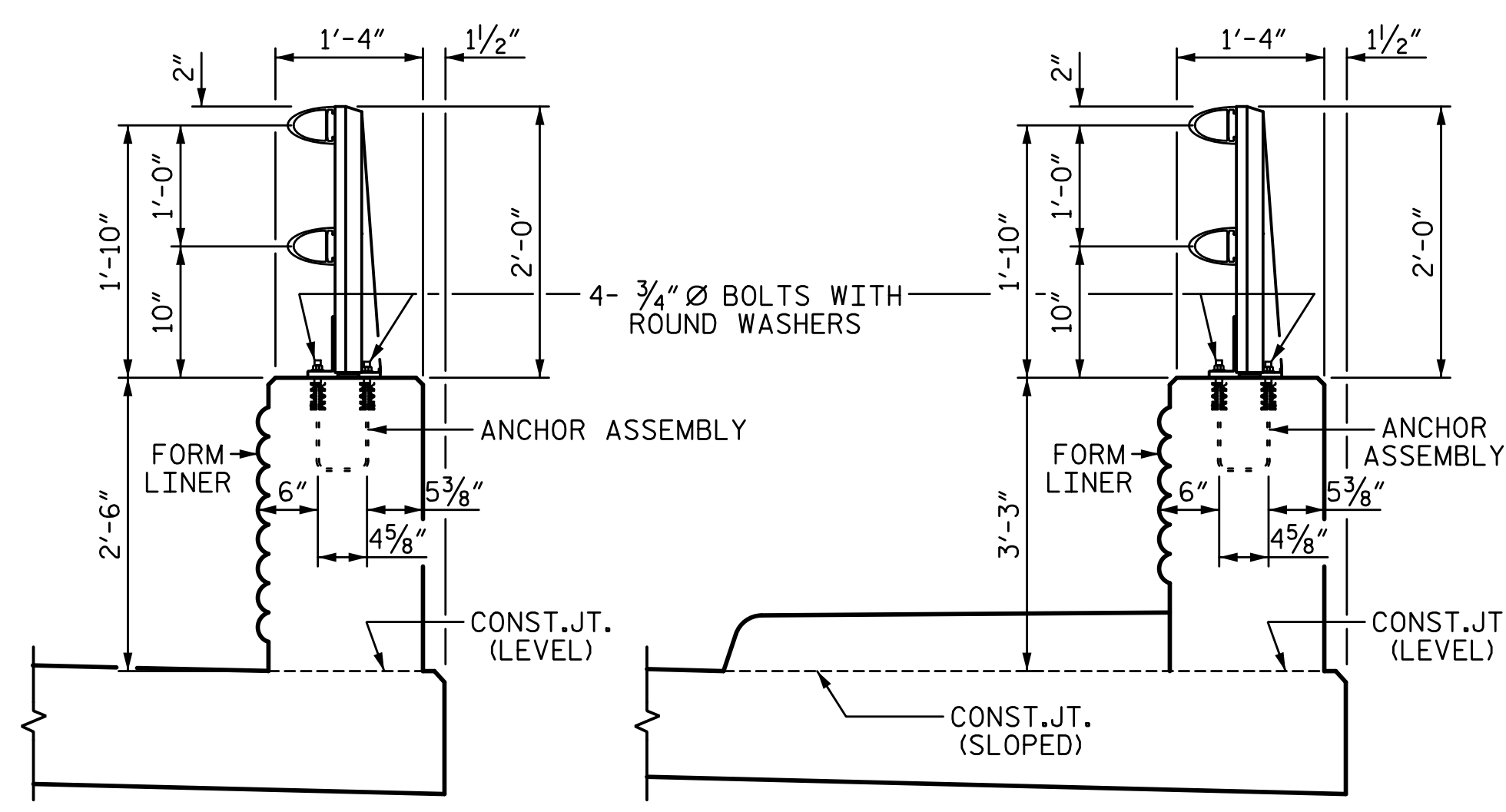


ELEVATION

NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE "END OF RAIL DETAILS" SHEET



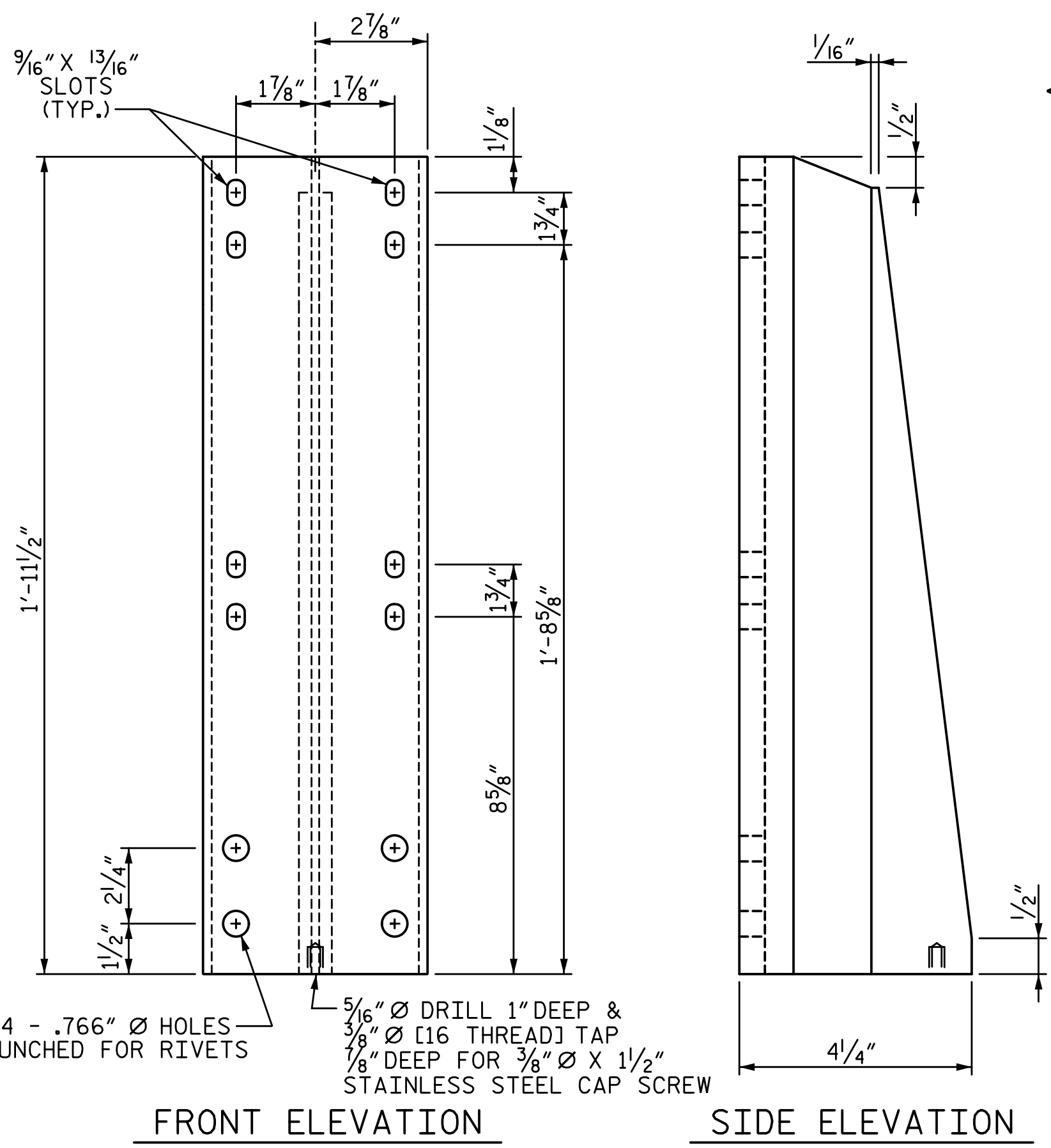
PLAN



STAGE II

STAGE III

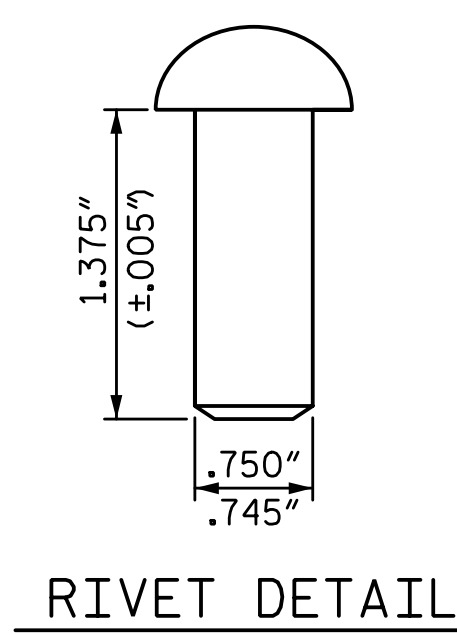
SECTION THRU PARAPET AND RAIL



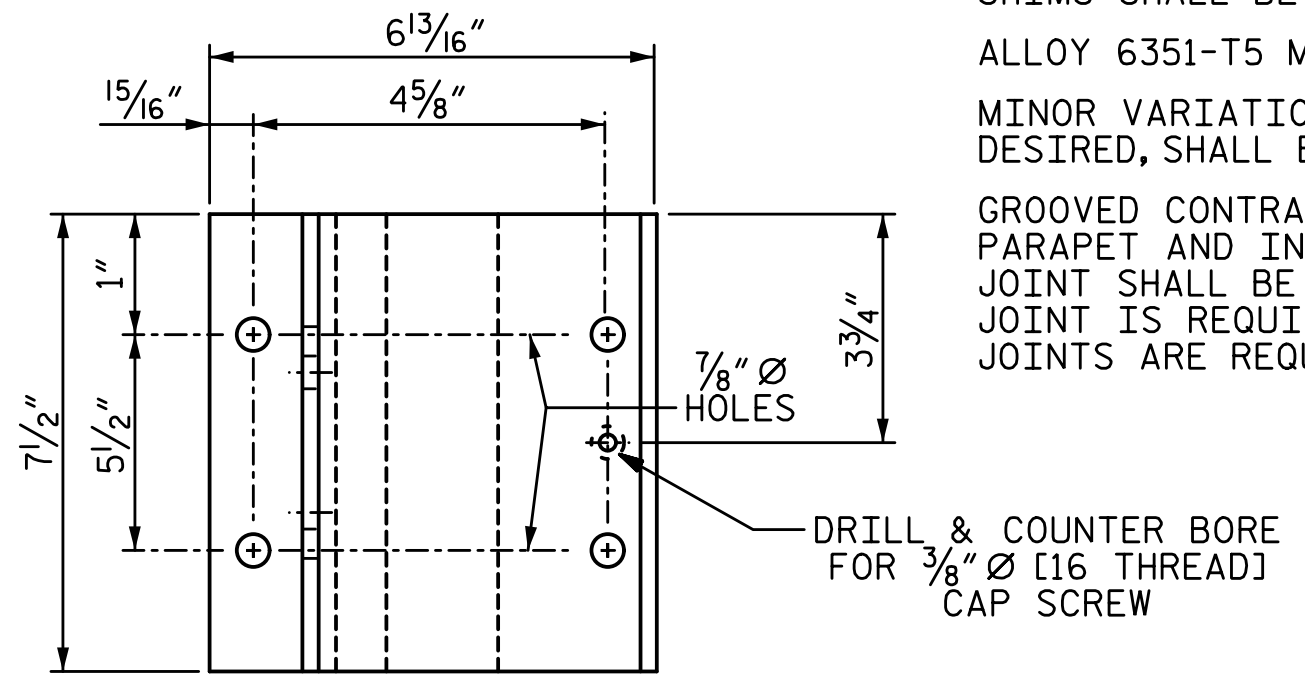
FRONT ELEVATION

SIDE ELEVATION

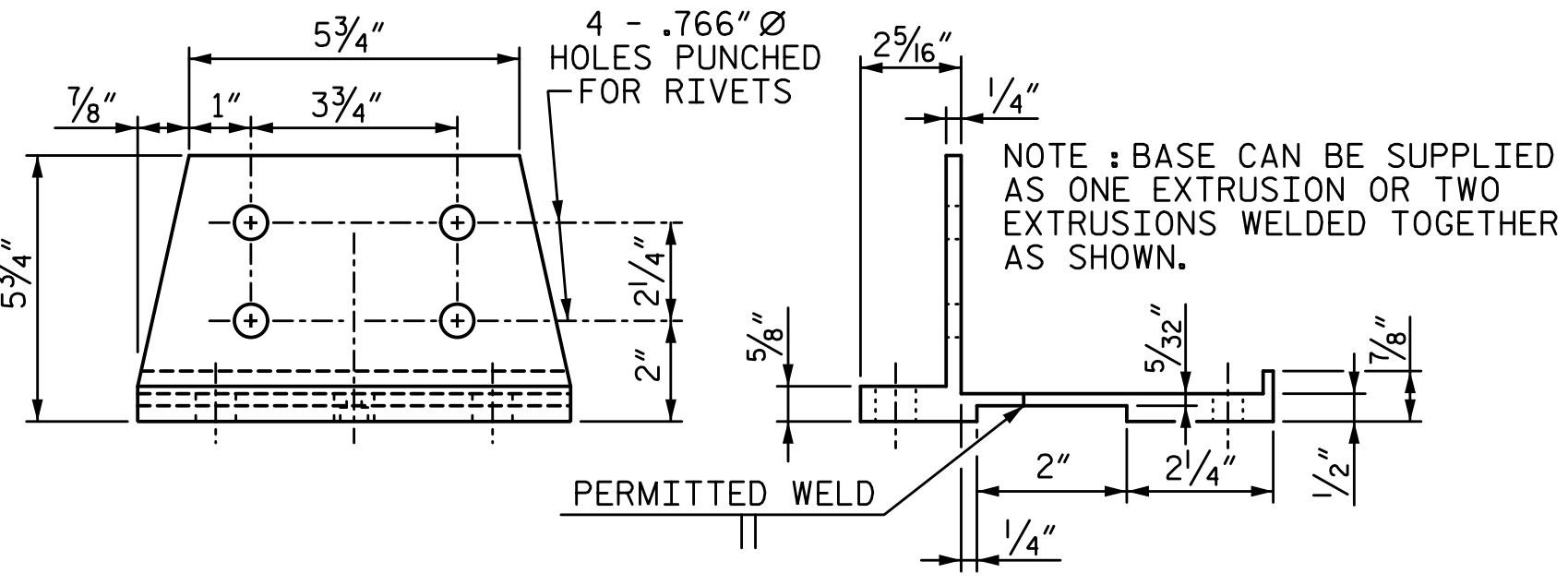
DETAILS OF POST



RIVET DETAIL



PLAN



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS

NOTES:

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

UNLESS OTHERWISE REQUIRED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR HAS THE OPTION TO USE AN ALTERNATE TO THE 2 BAR METAL RAIL. THE ALTERNATE RAIL SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST (APL) UNDER "2 BAR METAL RAIL ALTERNATE". ADJUSTMENTS TO THE CONCRETE PARAPET WILL NOT BE ALLOWED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE "END OF RAIL DETAILS" SHEET.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

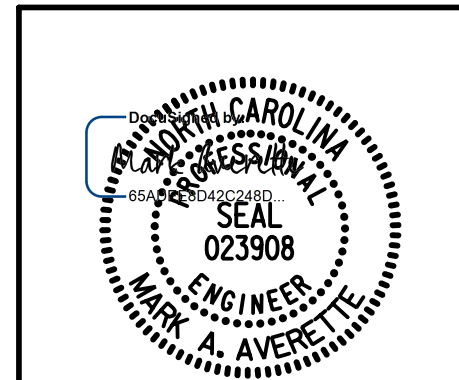
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN EXTERIOR FACE AND TOP SURFACE OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

PAY LENGTH = 555.83 LF

PROJECT NO. B-5869
 COUNTY BURKE
 STATION: 21+62.39 -L-

SHEET 1 OF 2

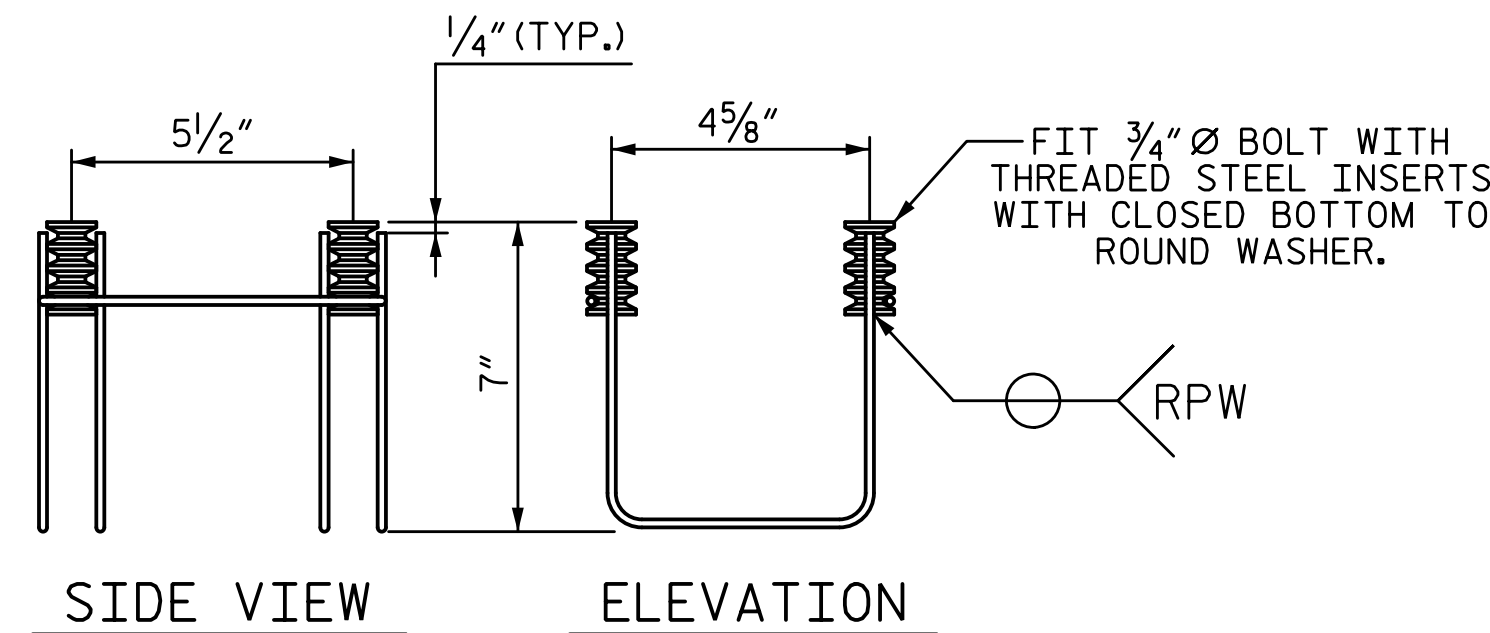
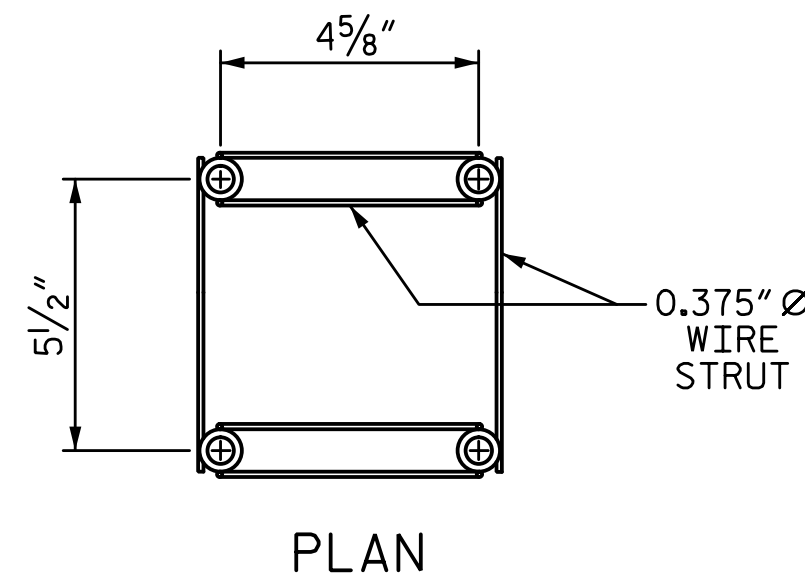
DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE					
2 BAR METAL RAIL					
REVISIONS					
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2			4		
					SHEET NO. S-31 TOTAL SHEETS 72

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4-BOLT METAL RAIL ANCHOR ASSEMBLY
(99 ASSEMBLIES REQUIRED)

NOTES:

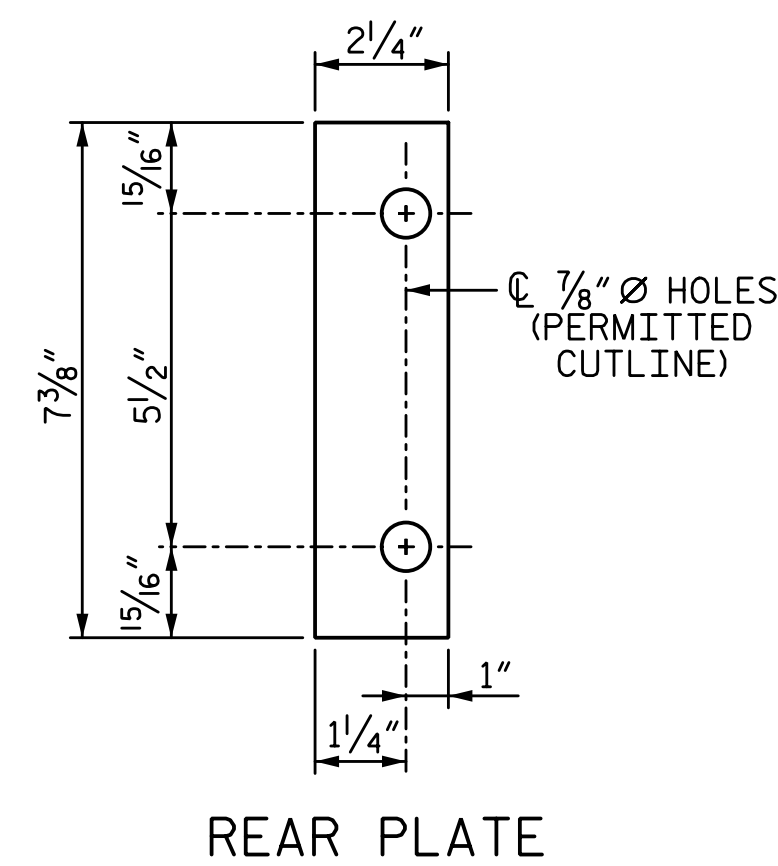
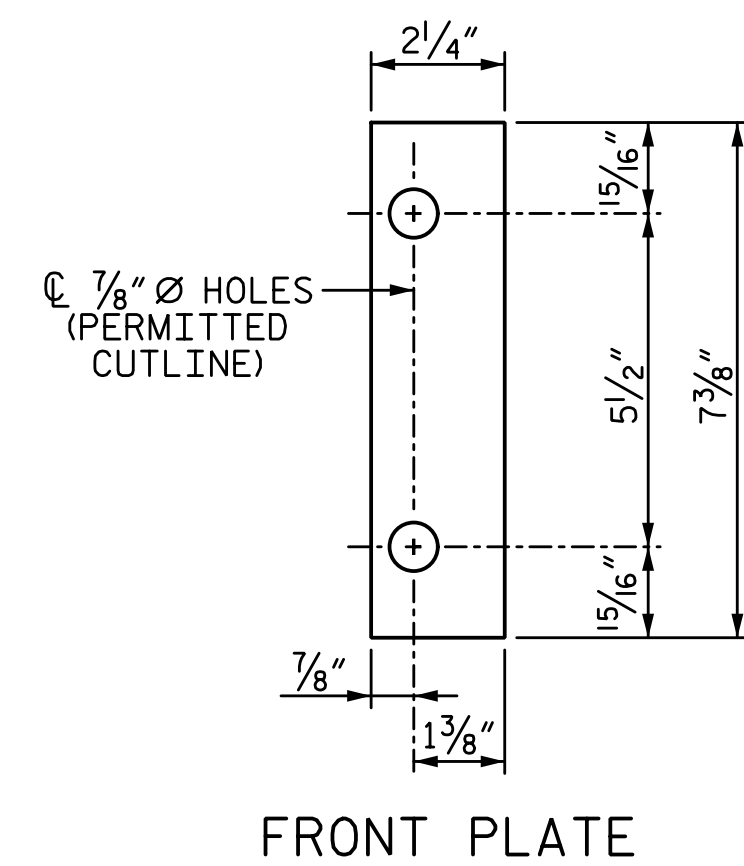
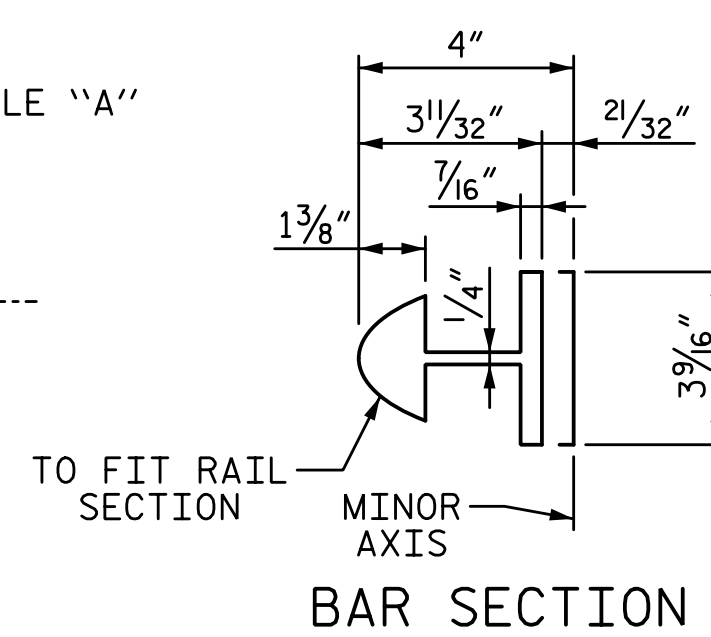
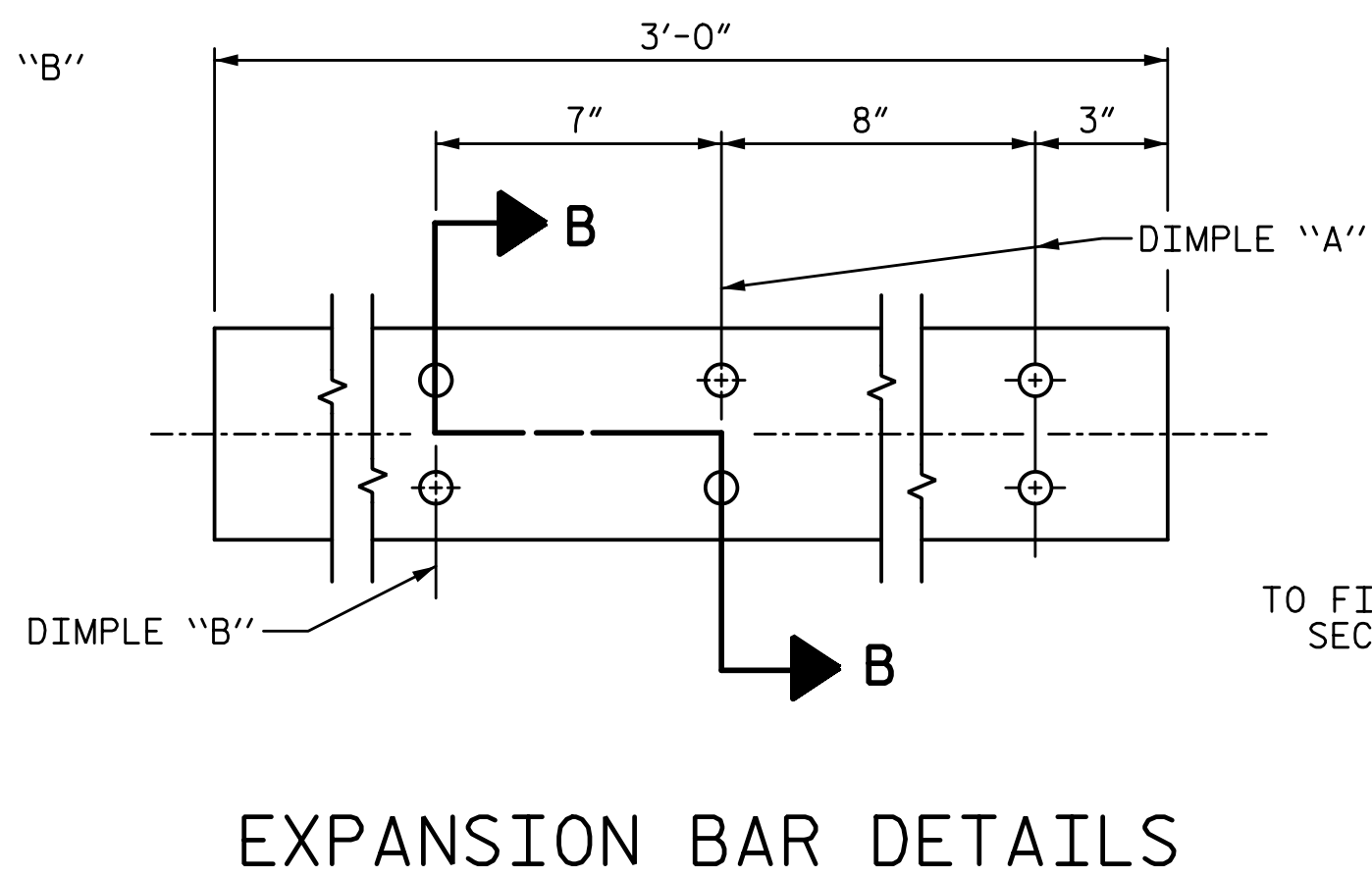
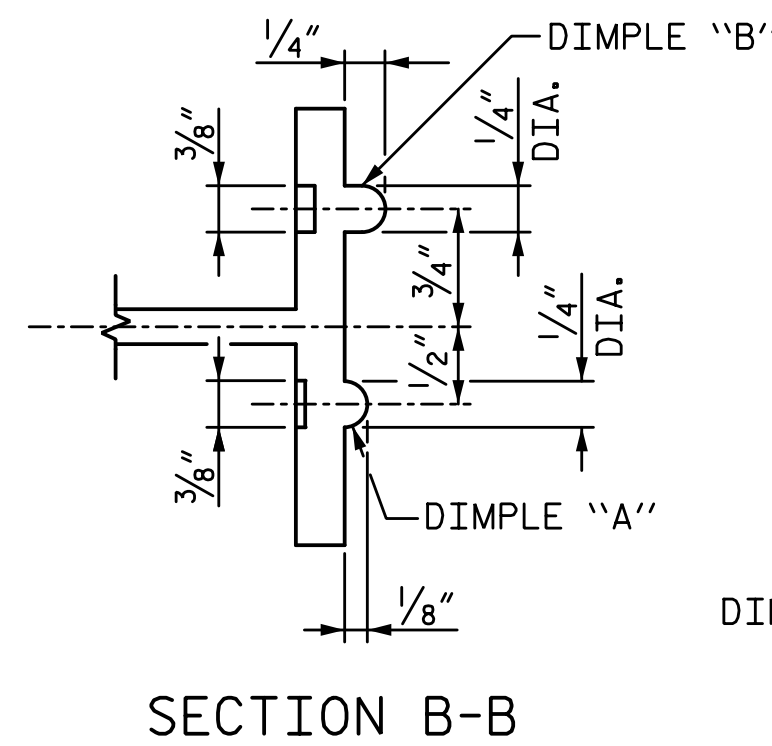
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

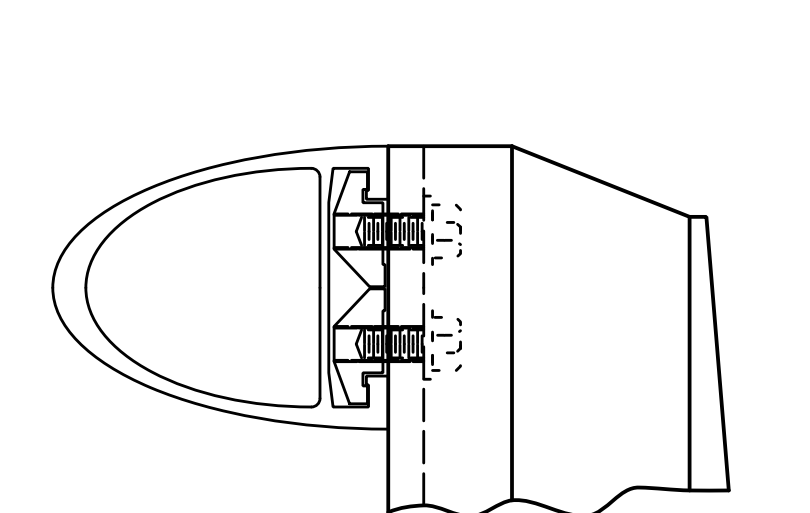
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

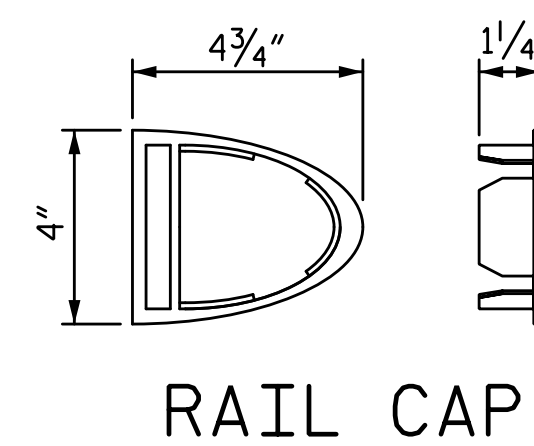


SHIM DETAILS

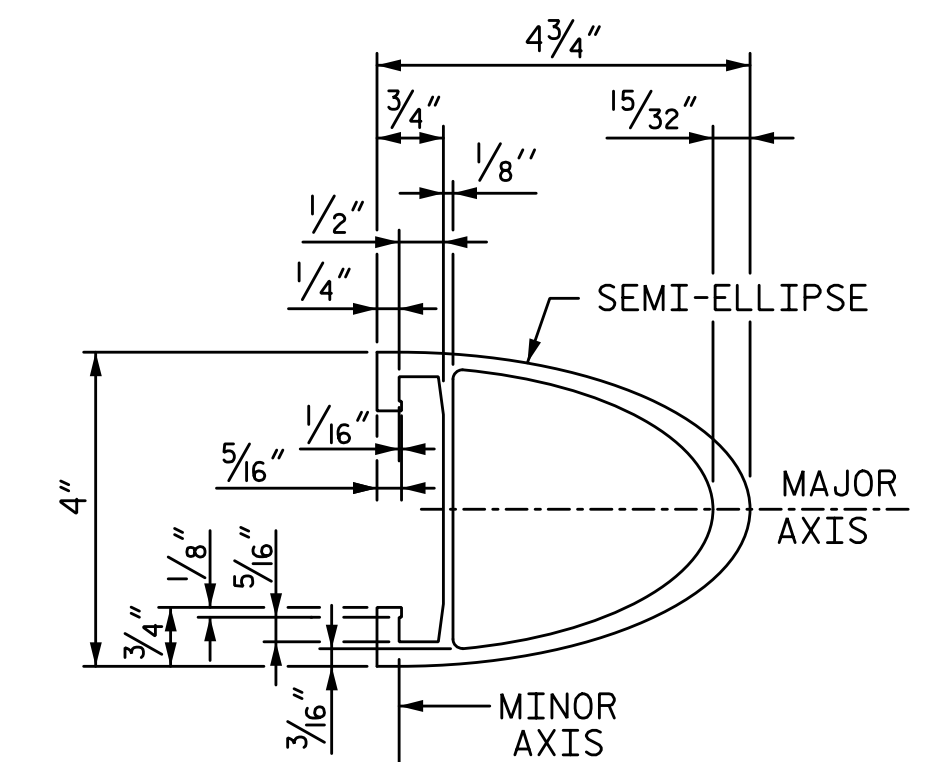
NOTE: SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLAEMENT.



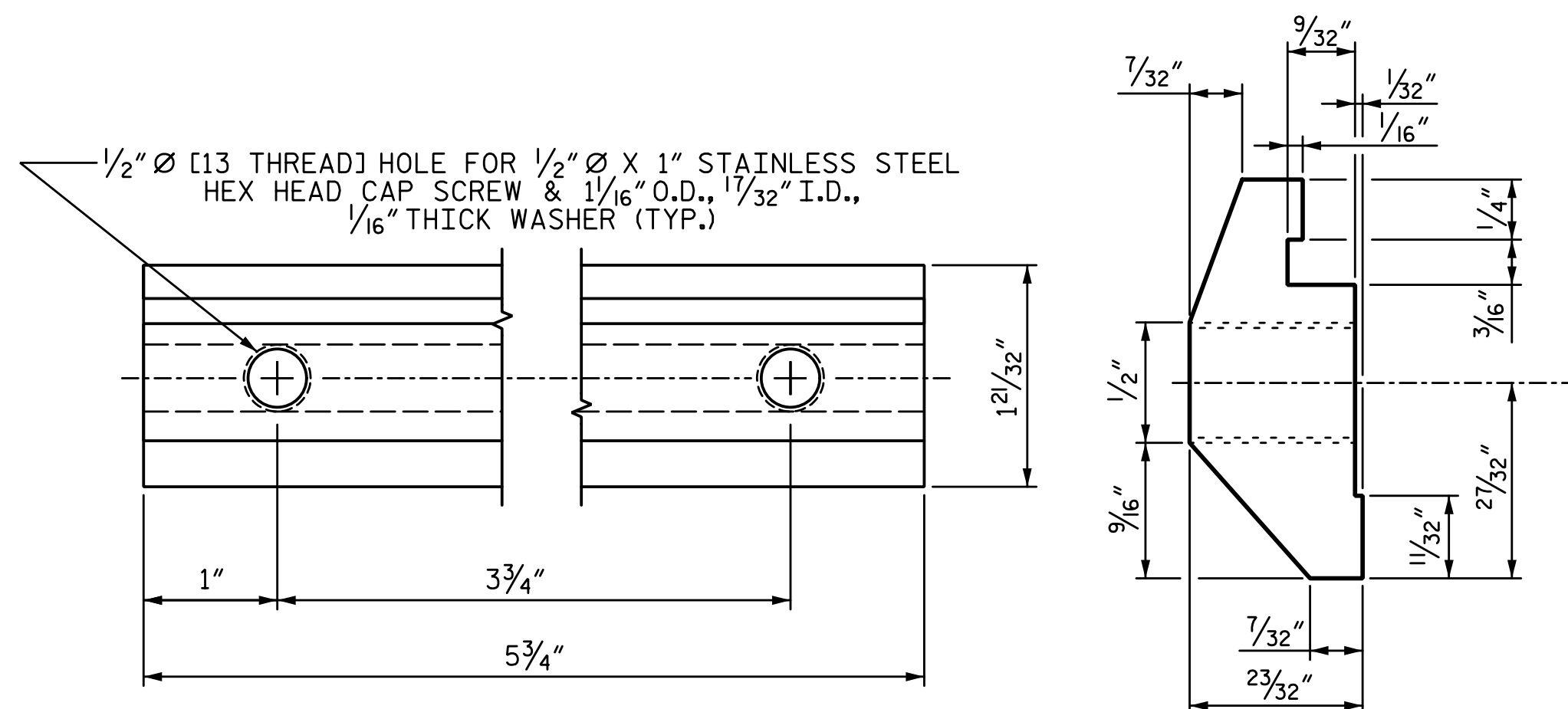
CLAMP ASSEMBLY



RAIL CAP



RAIL SECTION



CLAMP BAR DETAIL
(4 REQUIRED PER POST)

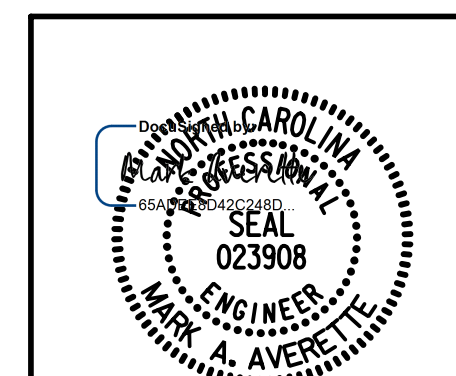
PROJECT NO. B-5869
BURKE COUNTY
STATION: 21+62.39 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

2 BAR METAL RAIL

DRAWN BY: S.D. COOPER DATE: 3-2022
CHECKED BY: M. AVERETTE DATE: 3-2022
DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022



LICENSURE NO. C-4434

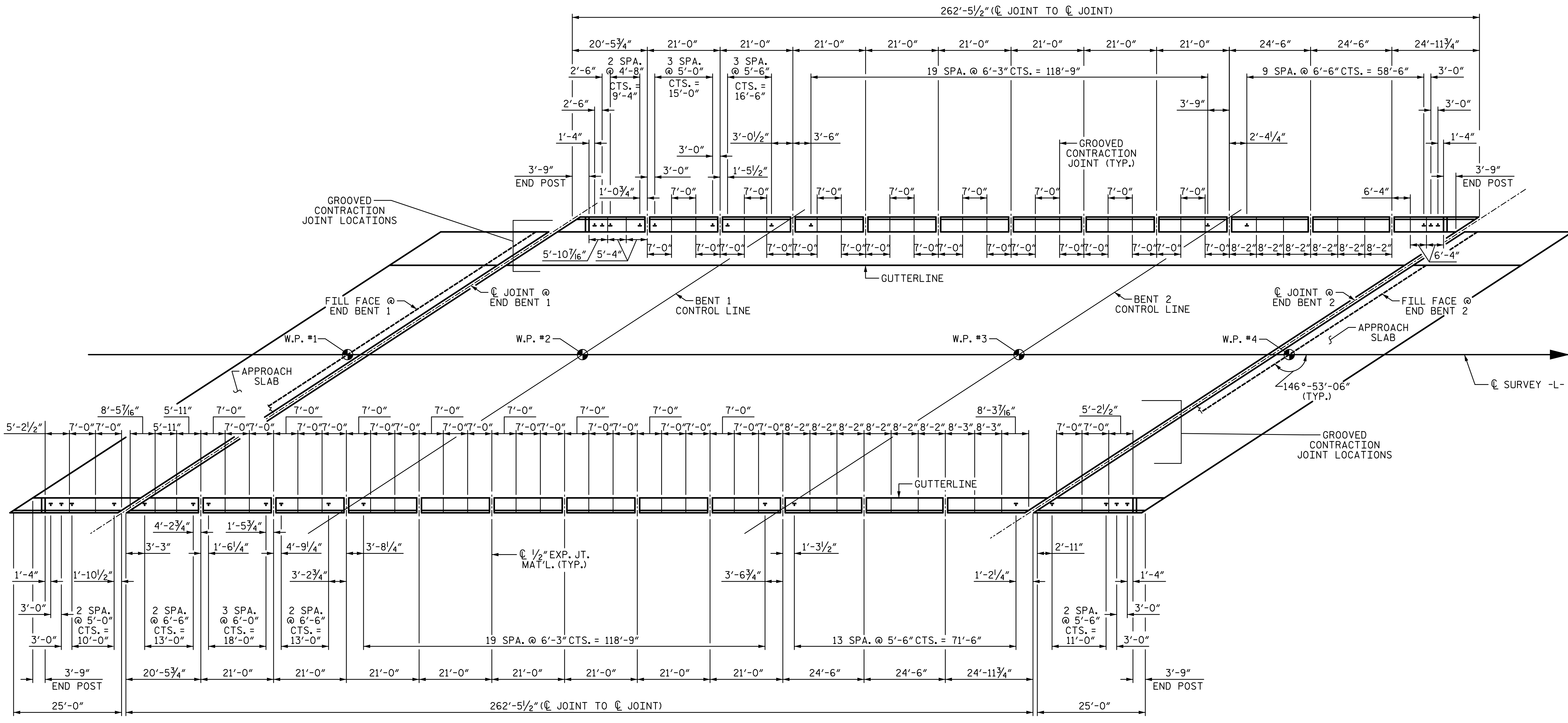
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S-32
TOTAL SHEETS
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SPAN A

SPAN B

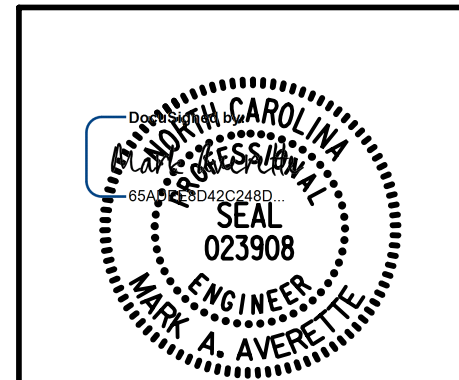
SPAN C

PLAN OF RAIL POST SPACING
 ALL DIMENSION ARE MEASURED ALONG OUTSIDE FACE OF CONCRETE PARAPET.

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 1 OF 2

DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022



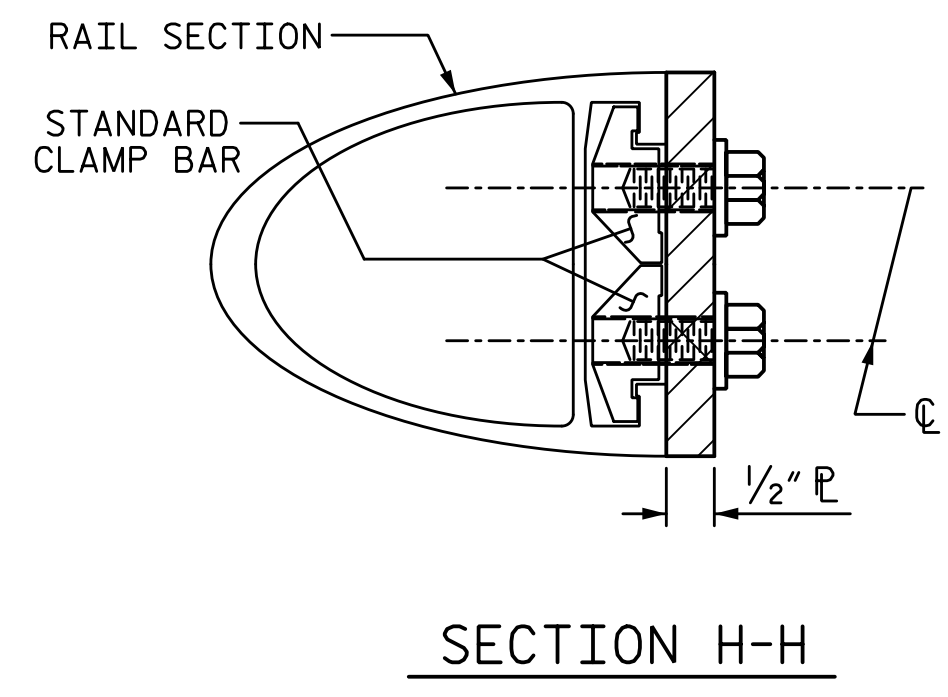
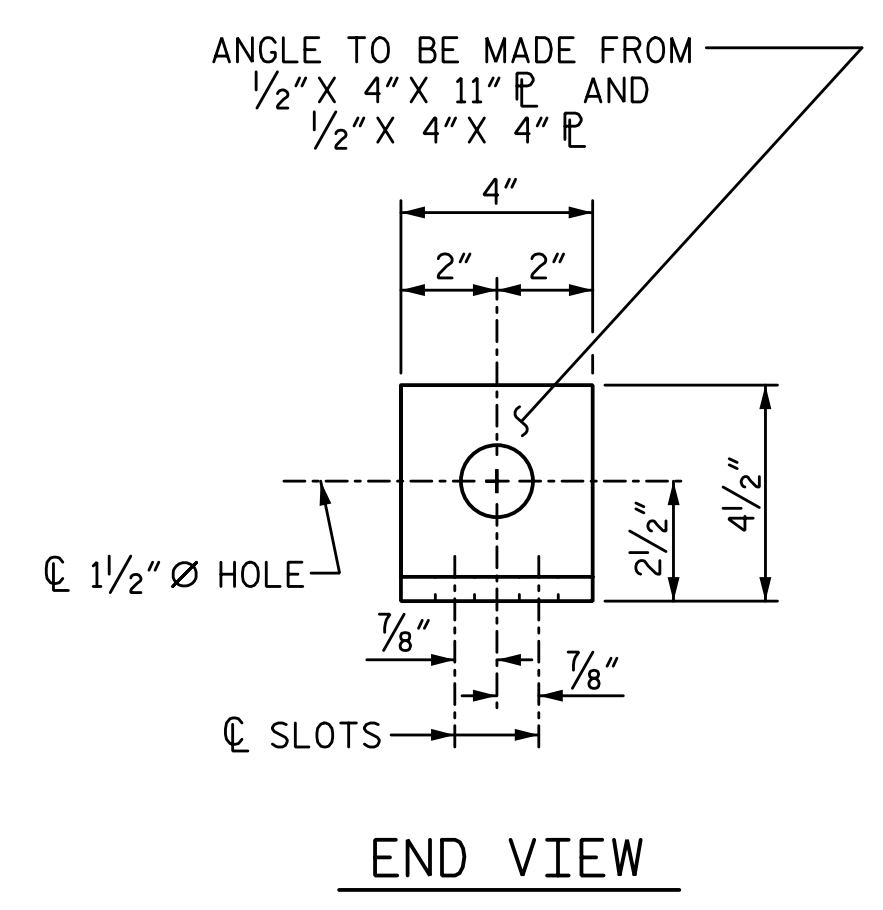
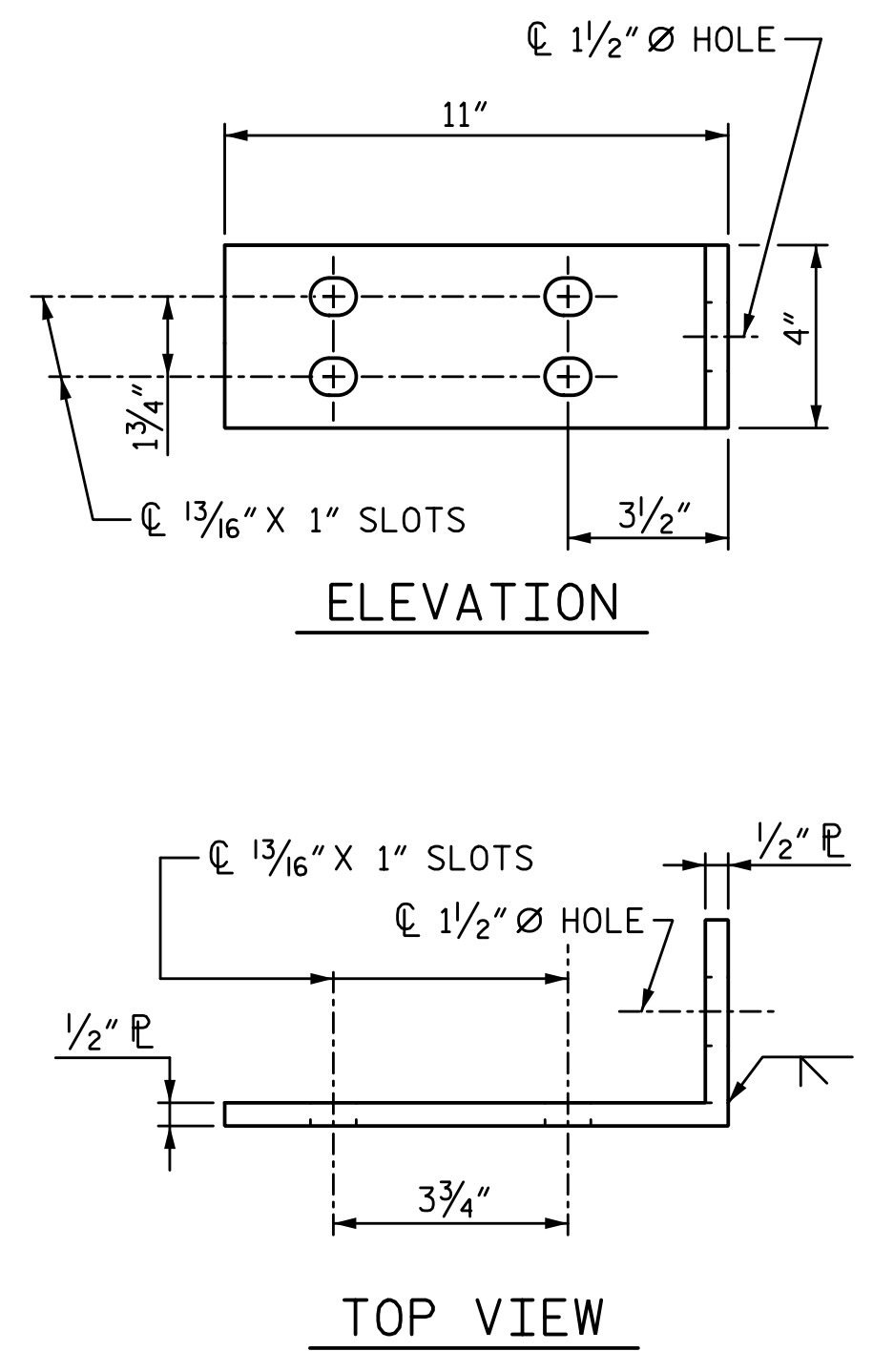
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

RAIL POST SPACING

REVISIONS						SHEET NO.	
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1			3			TOTAL SHEETS	
2			4			72	

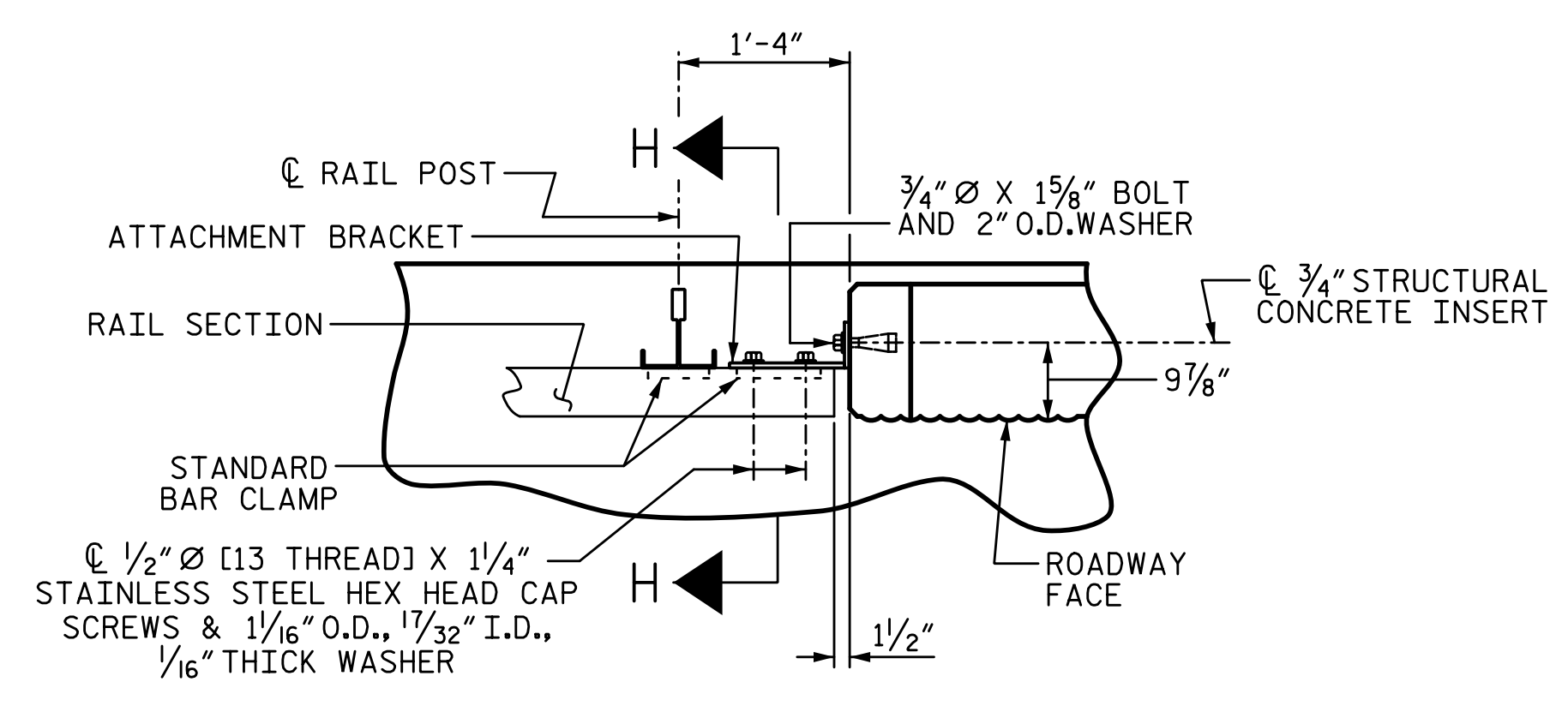
LICENSURE NO. C-4434
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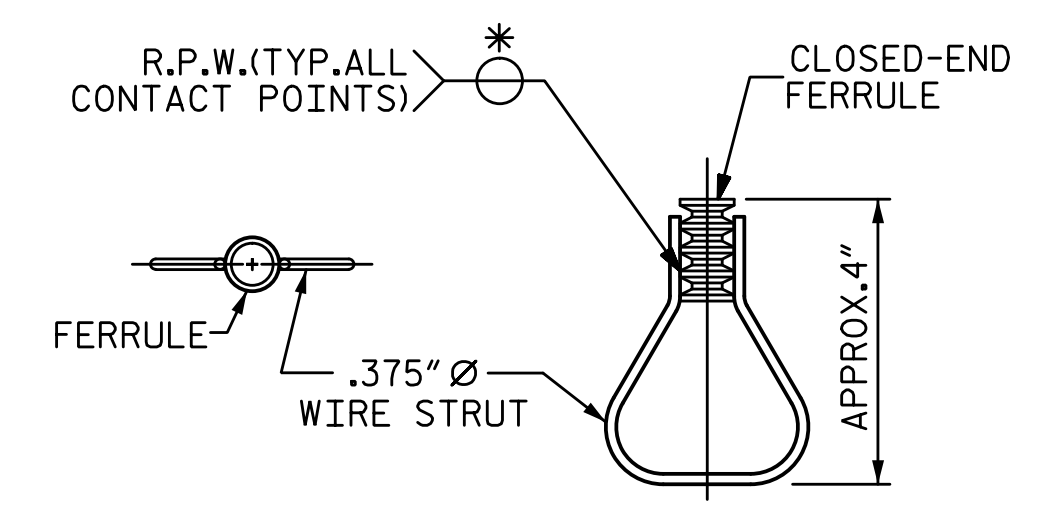


FIXED

DETAILS FOR ATTACHING METAL RAIL TO END POST



PLAN - RAIL AND END POST



STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

NOTES:

STRUCTURAL CONCRETE INSERT

- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF 1 1/2".
 - B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

METAL RAIL TO END POST CONNECTION

- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N.C. THREADS.
 - C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
 - D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
 - E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 2 BAR METAL RAILS.

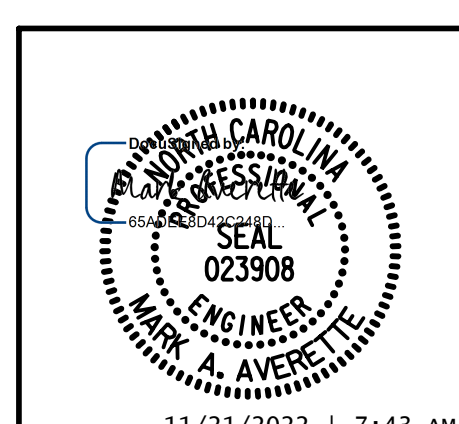
THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

PROJECT NO. B-5869
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 STATION: 21+62.39 -L-

SHEET 2 OF 2



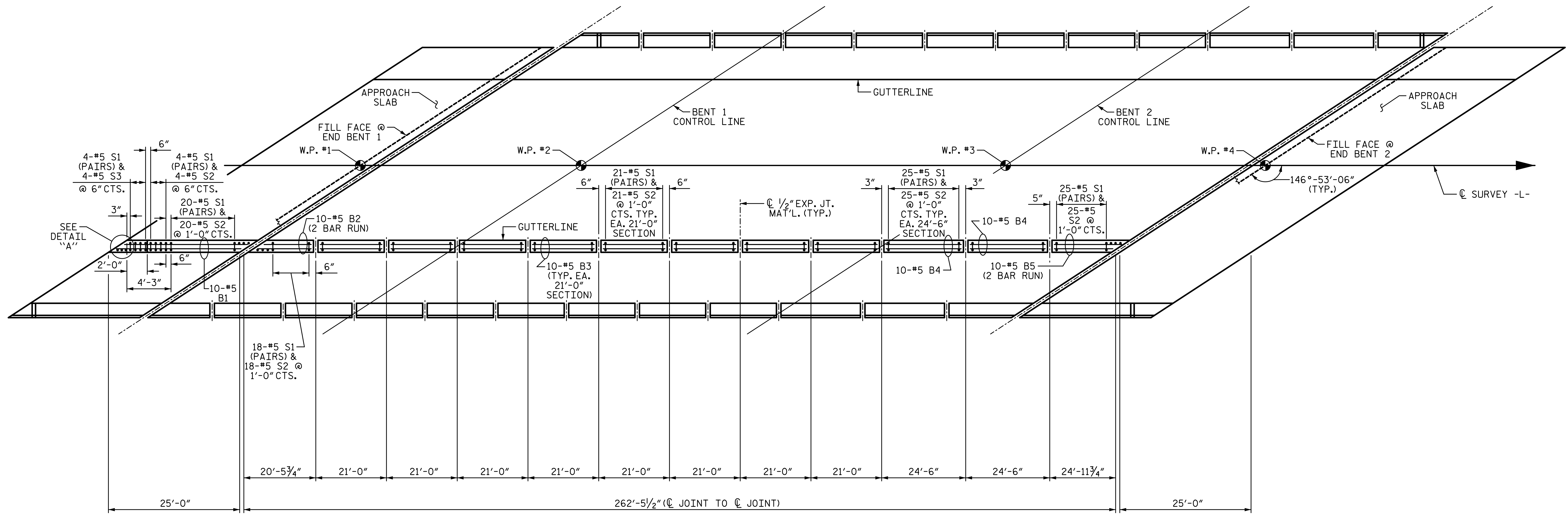
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 END OF RAIL
 DETAILS

DRAWN BY: S.D. COOPER	DATE: 3-2022
CHECKED BY: M. AVERETTE	DATE: 3-2022
DESIGN ENGINEER OF RECORD: M. AVERETTE	DATE: 3-2022

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1			3			TOTAL SHEETS
2			4			72

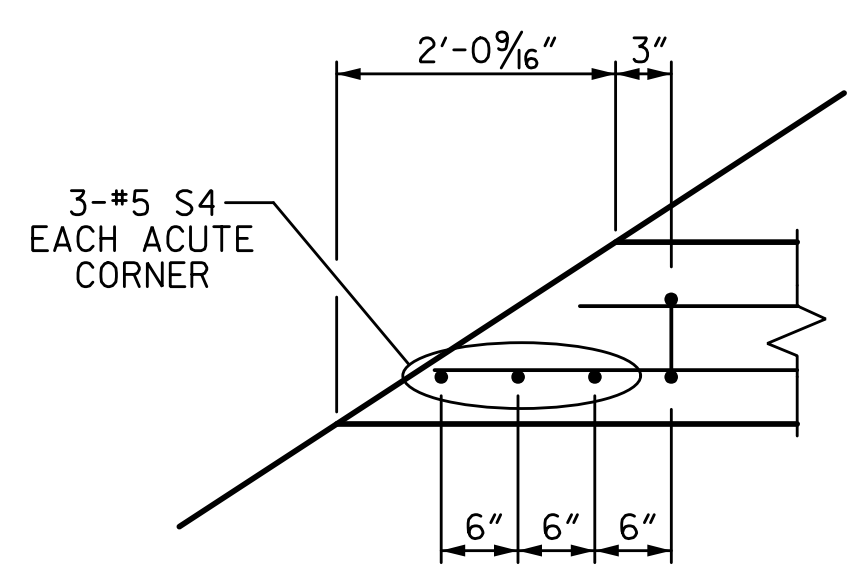
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PLAN

ALL DIMENSIONS ARE MEASURED ALONG THE OUTSIDE FACE OF VCBR.



DETAIL "A"
EACH ACUTE CORNER

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 VERTICAL CONCRTE
 BARRIER RAIL



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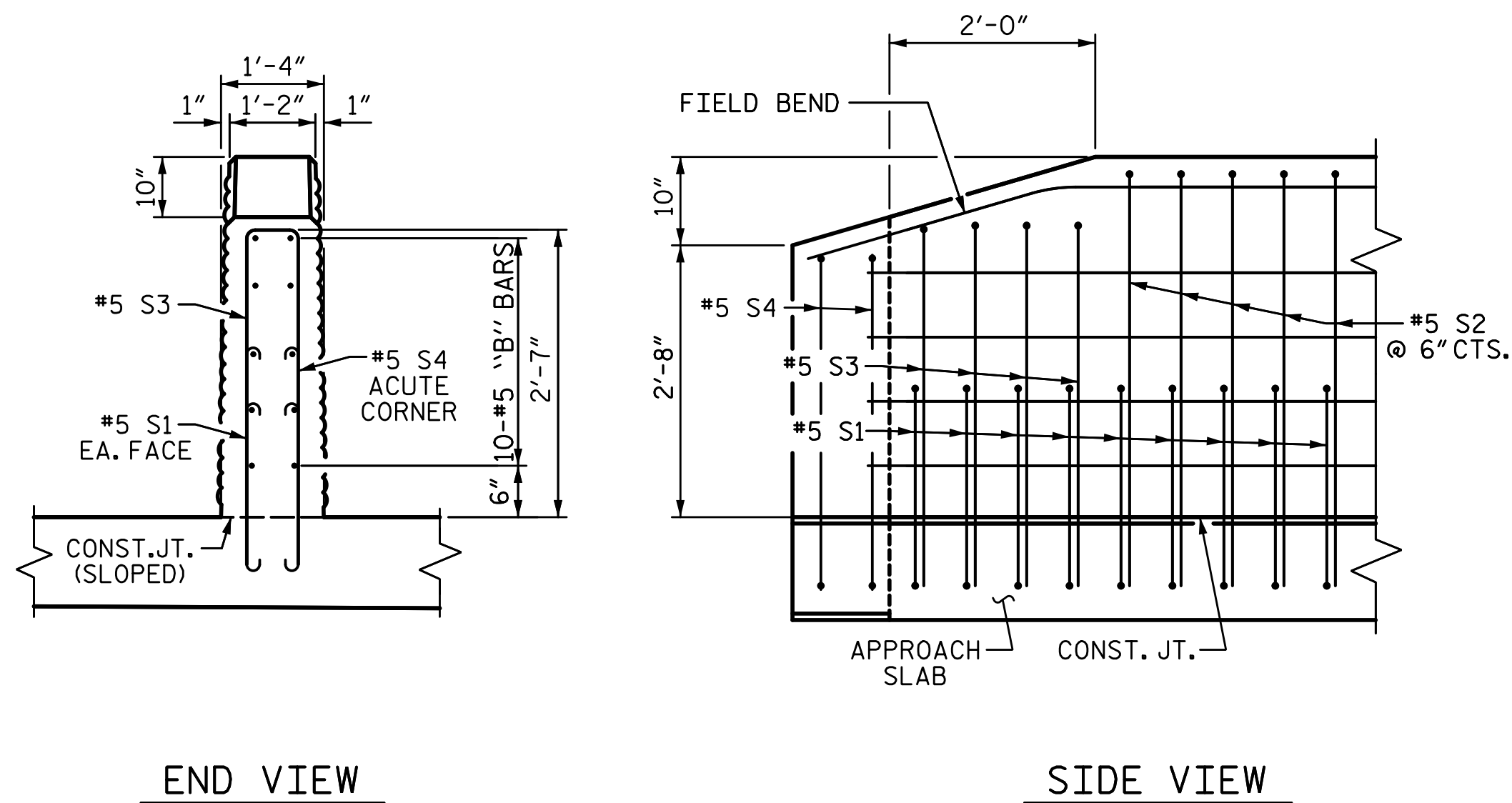
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1			3			TOTAL SHEETS
2			4			72

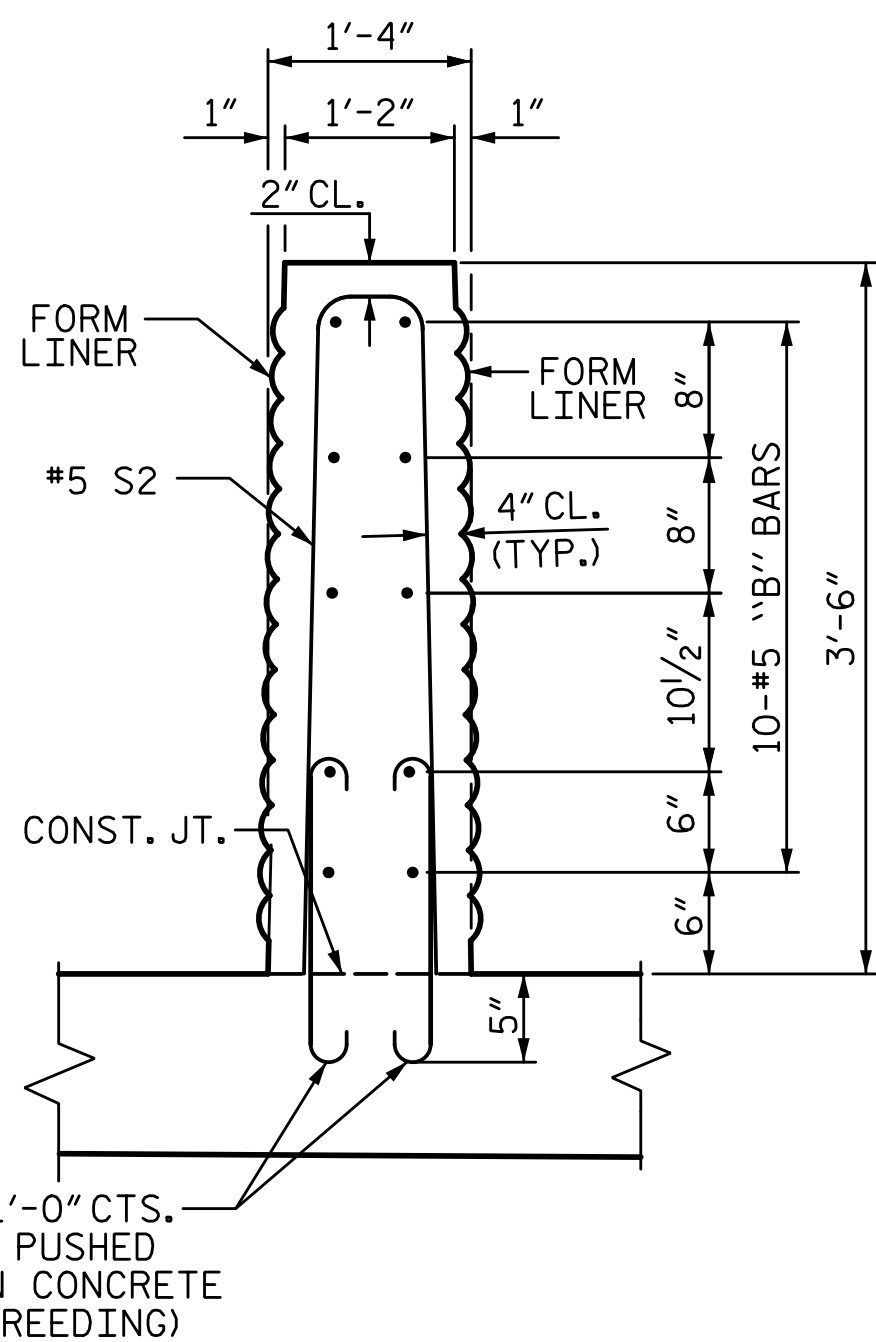
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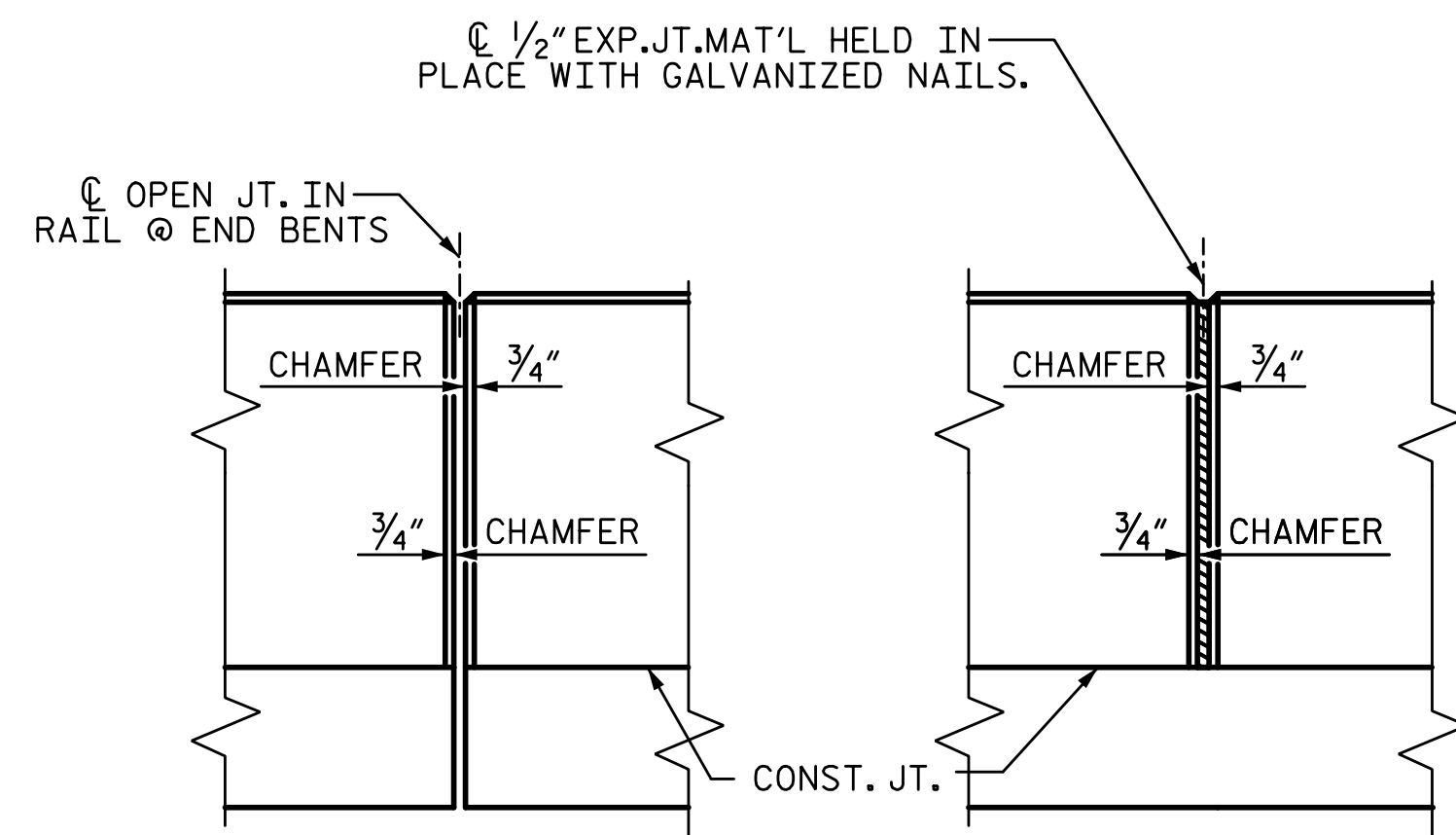
END VIEW

SIDE VIEW

END OF RAIL DETAILS



SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

NOTES:

THE BARRIER RAIL IN CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

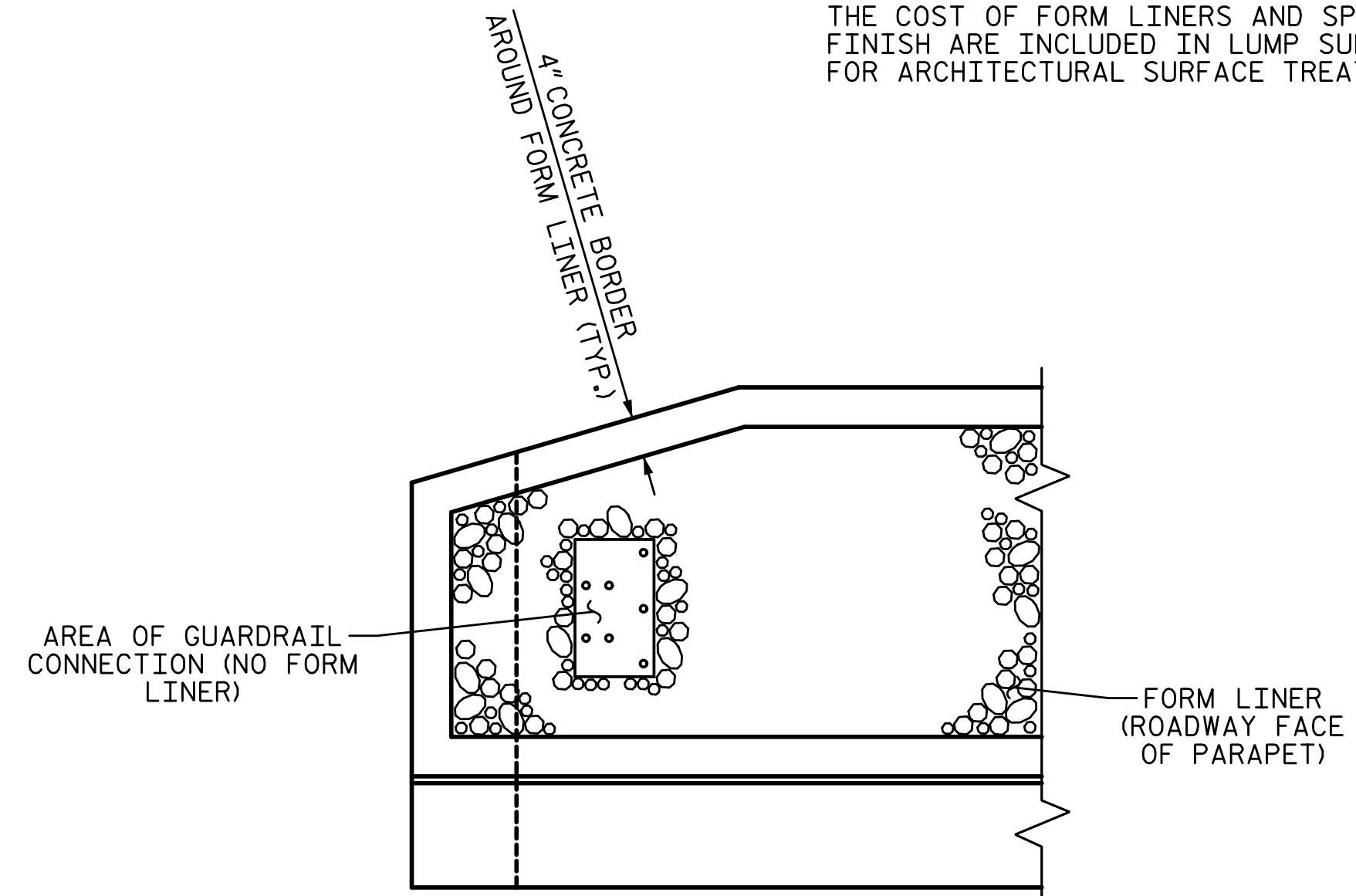
ALL REINFORCING STEEL IN BARRIER RAIL SHALL BE EPOXY COATED.

*5S1 BARS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO AVOID INTERFERENCE WITH DECK STEEL.

FOR ARCHITECTURAL CONCRETE SURFACE TREATMENT, SEE SPECIAL PROVISIONS

FOR APPLICATION OF BRIDGE COATING, SEE SPECIAL PROVISIONS.

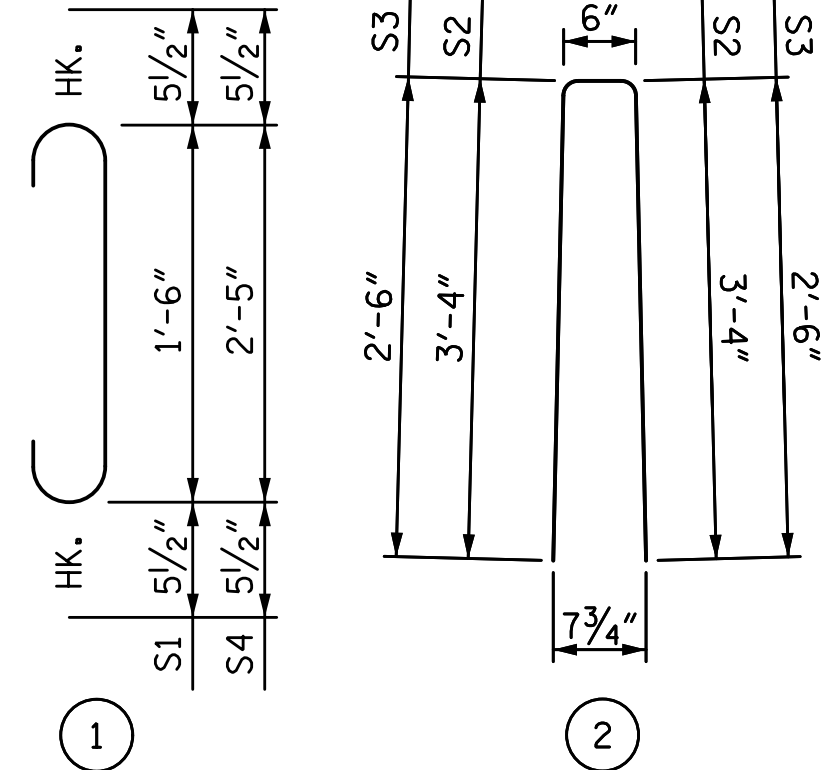
THE COST OF FORM LINERS AND SPECIAL SURFACE FINISH ARE INCLUDED IN LUMP SUM PRICE BED FOR ARCHITECTURAL SURFACE TREATMENT.



FORM LINER DETAIL

FOR LOCATION OF GUARDRAIL CONNECTION AND AREA WITH NO FORM LINER SEE "GUARDRAIL ANCHORAGE DETAILS" SHEET

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR VERTICAL CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	20	#5	STR	24'-7"	513
* B2	20	#5	STR	11'-7"	242
* B3	80	#5	STR	20'-7"	1,717
* B4	20	#5	STR	24'-1"	502
* B5	20	#5	STR	14'-10"	309
* S1	578	#5	1	2'-5"	1,457
* S2	285	#5	2	7'-2"	2,130
* S3	4	#5	2	5'-6"	23
* S4	12	#5	1	3'-4"	42

* EPOXY COATED REINFORCING STEEL 6,935 LB

CLASS AA CONCRETE 46.6 CY

VERTICAL CONCRETE

BARRIER RAIL 287.46 LF

* EPOXY COATED REINFORCING STEEL

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 2

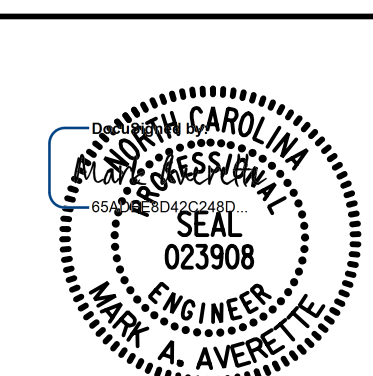
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 RALEIGH
 SUPERSTRUCTURE

VERTICAL CONCRETE
 BARRIER RAIL



5640 Dillard Drive, Suite 200
 Cary, NC 27518

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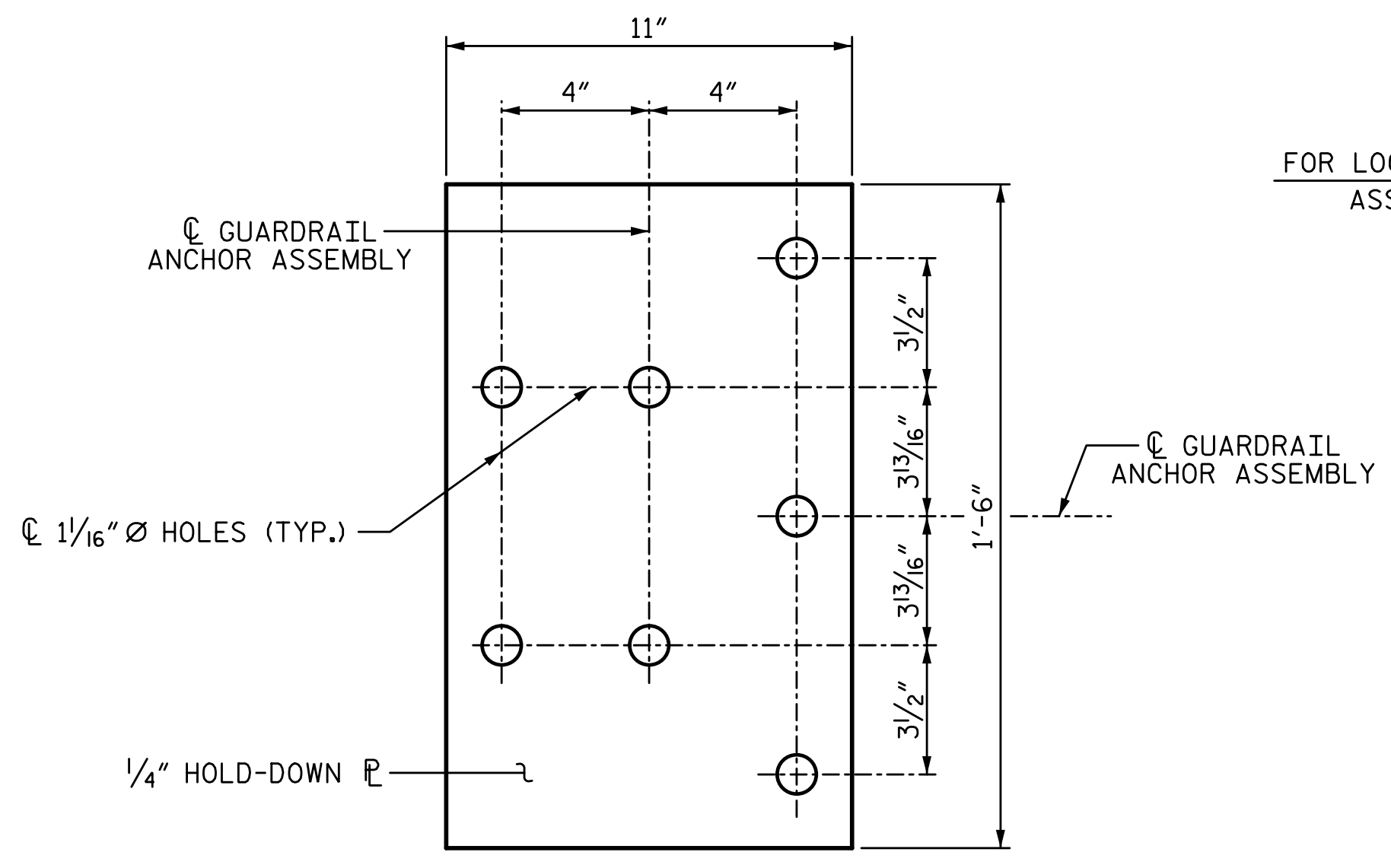
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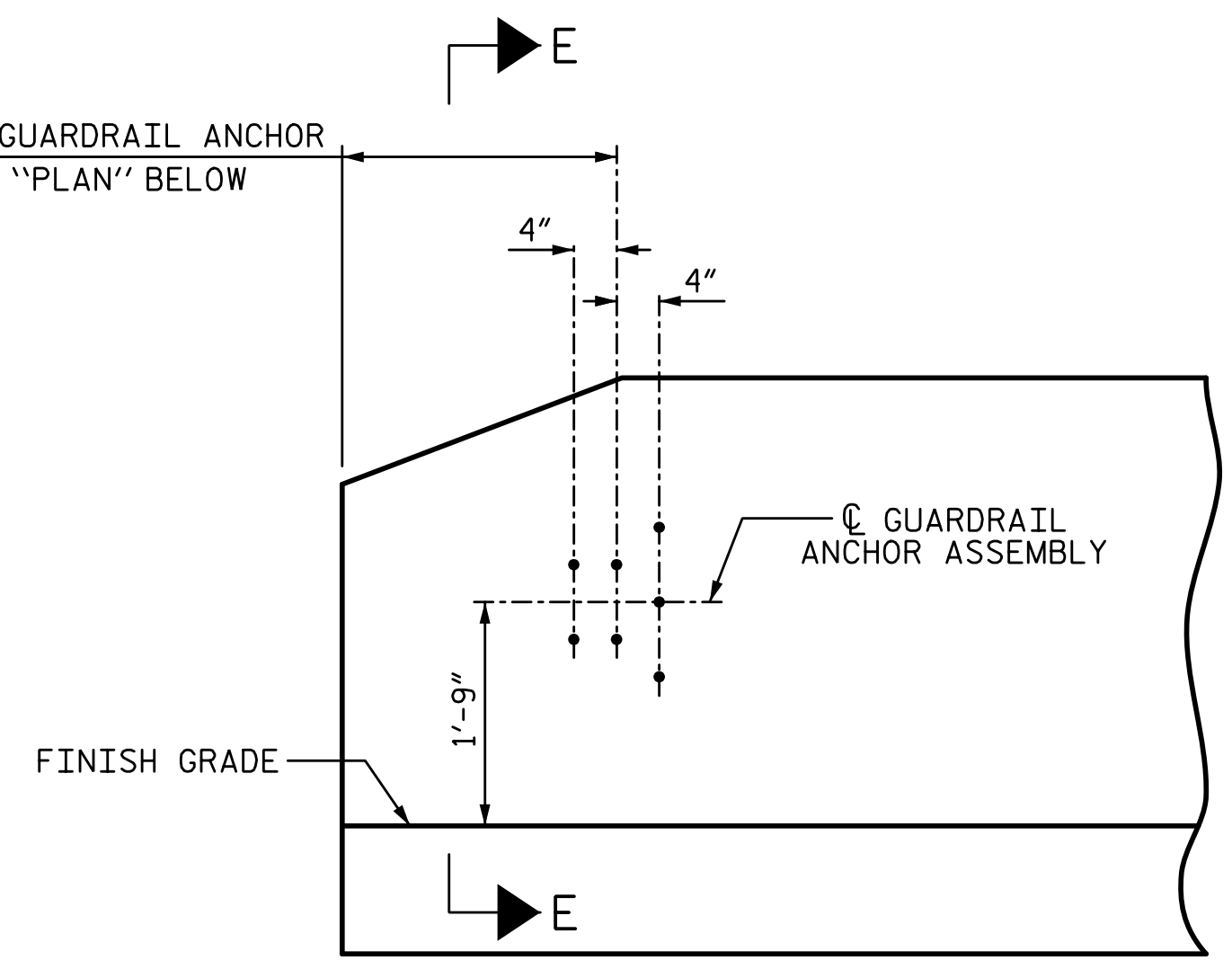
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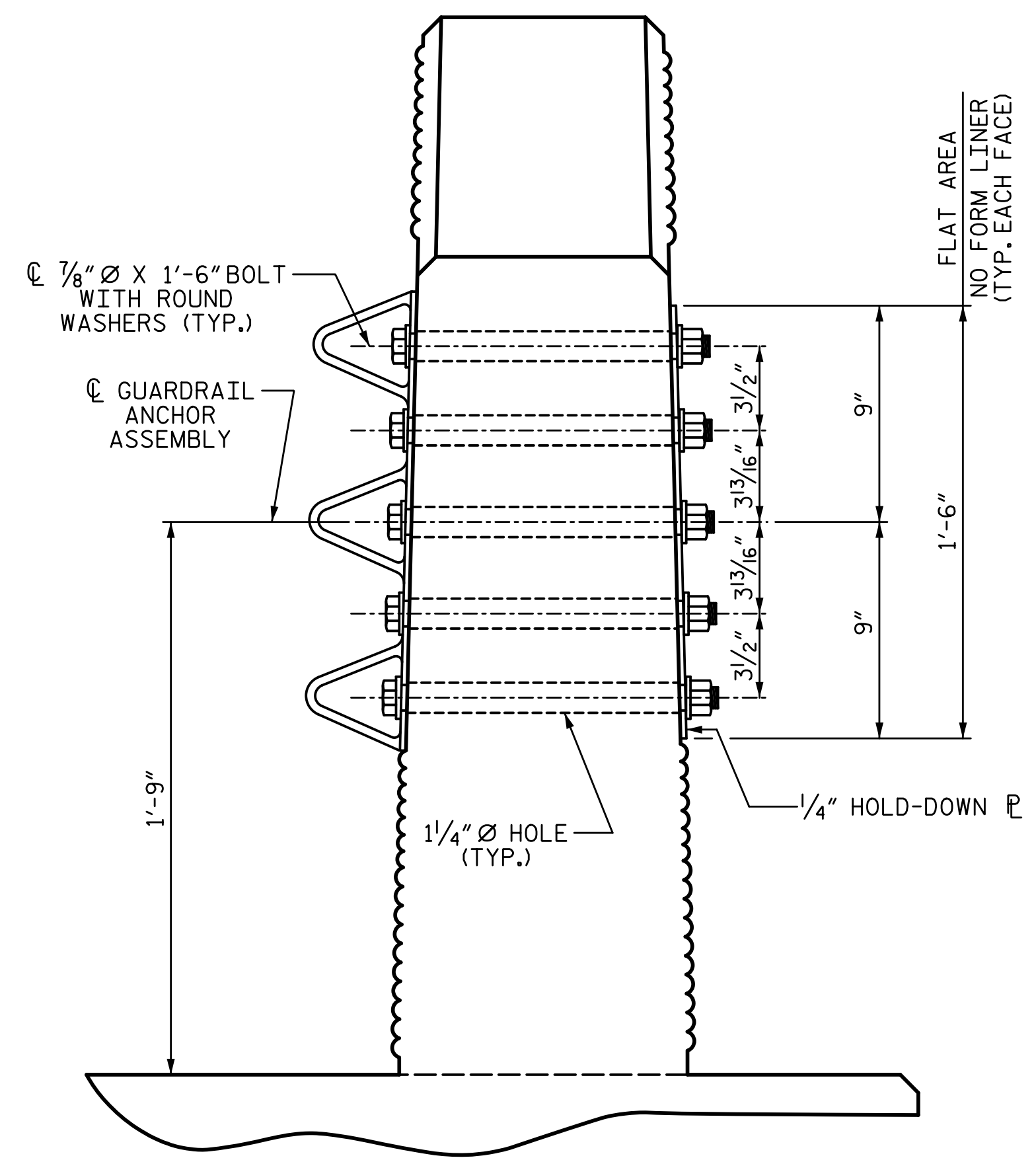


PLAN

FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

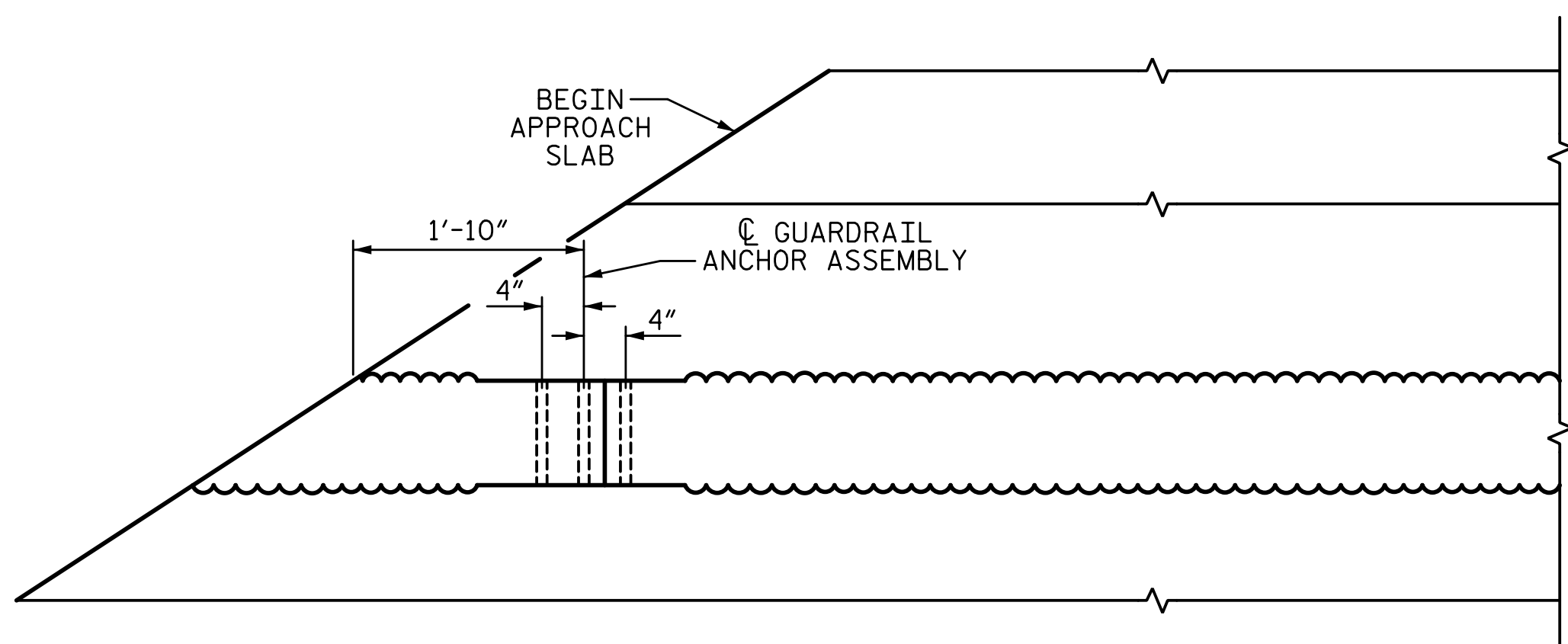


ELEVATION



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



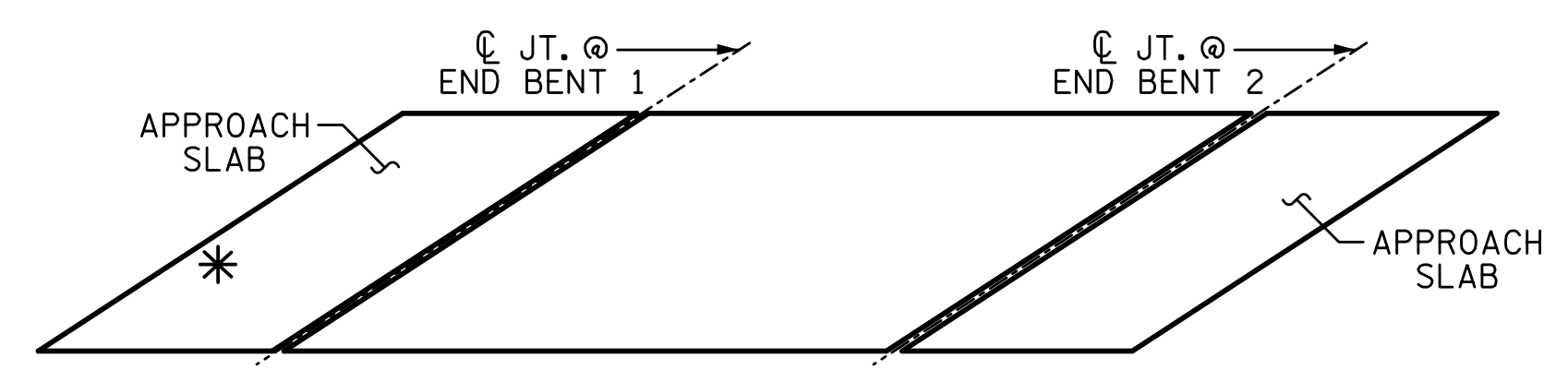
PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN

NOTES:

- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.
- AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.
- THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.
- THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.
- THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

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 BURKE COUNTY
 STATION: 21+62.39 -L-

DRAWN BY: S.D. COOPER	DATE: 3-2022
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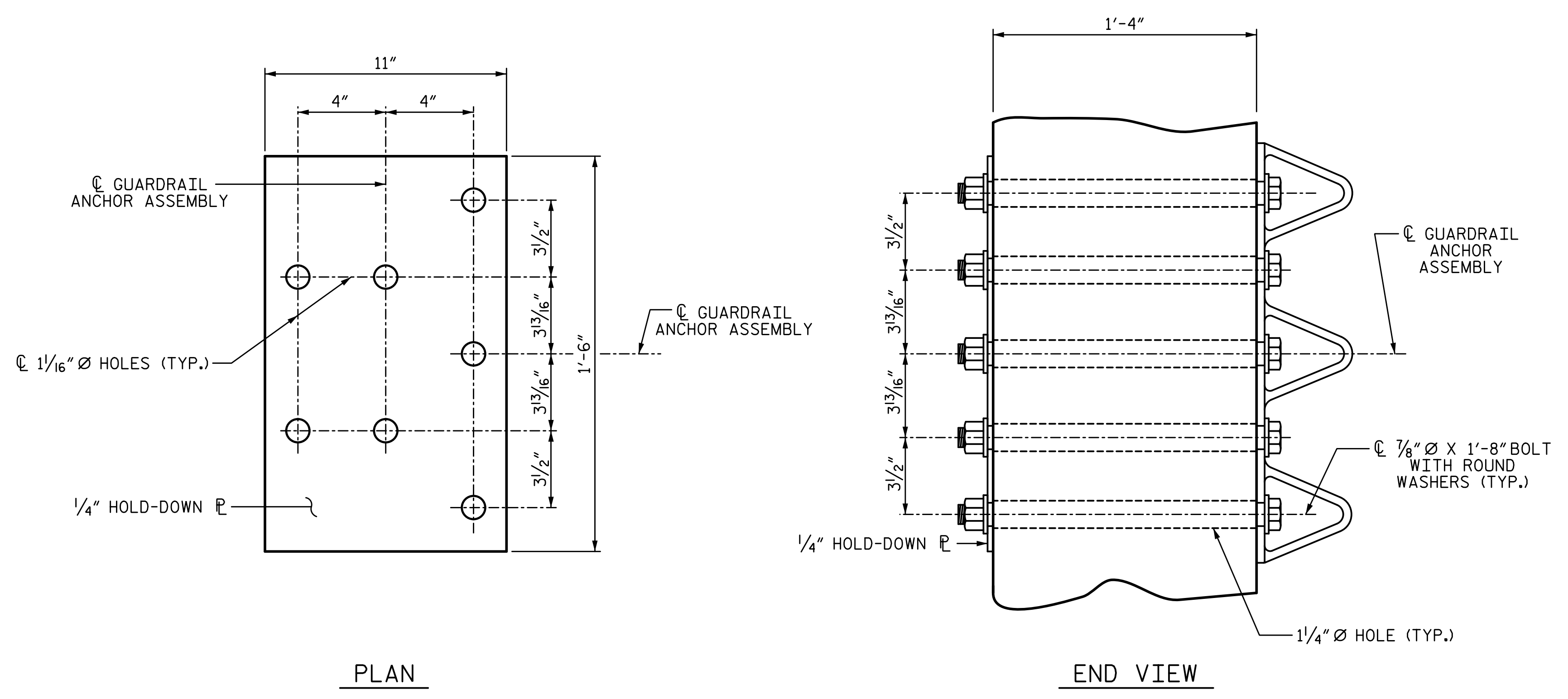


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GUARDRAIL ANCHORAGE
 DETAILS FOR VERTICAL
 CONCRETE BARRIER RAIL
 STAGE II

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PLAN

END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS

NOTES:

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

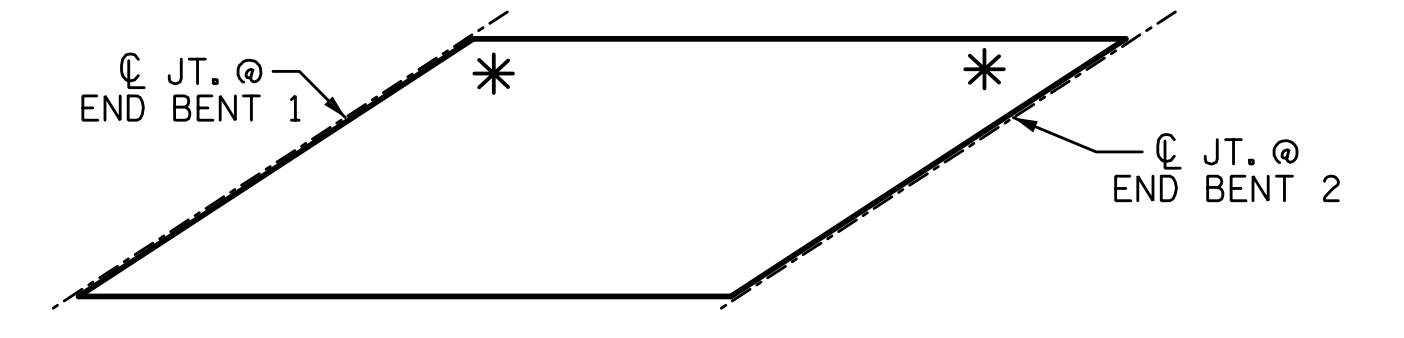
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

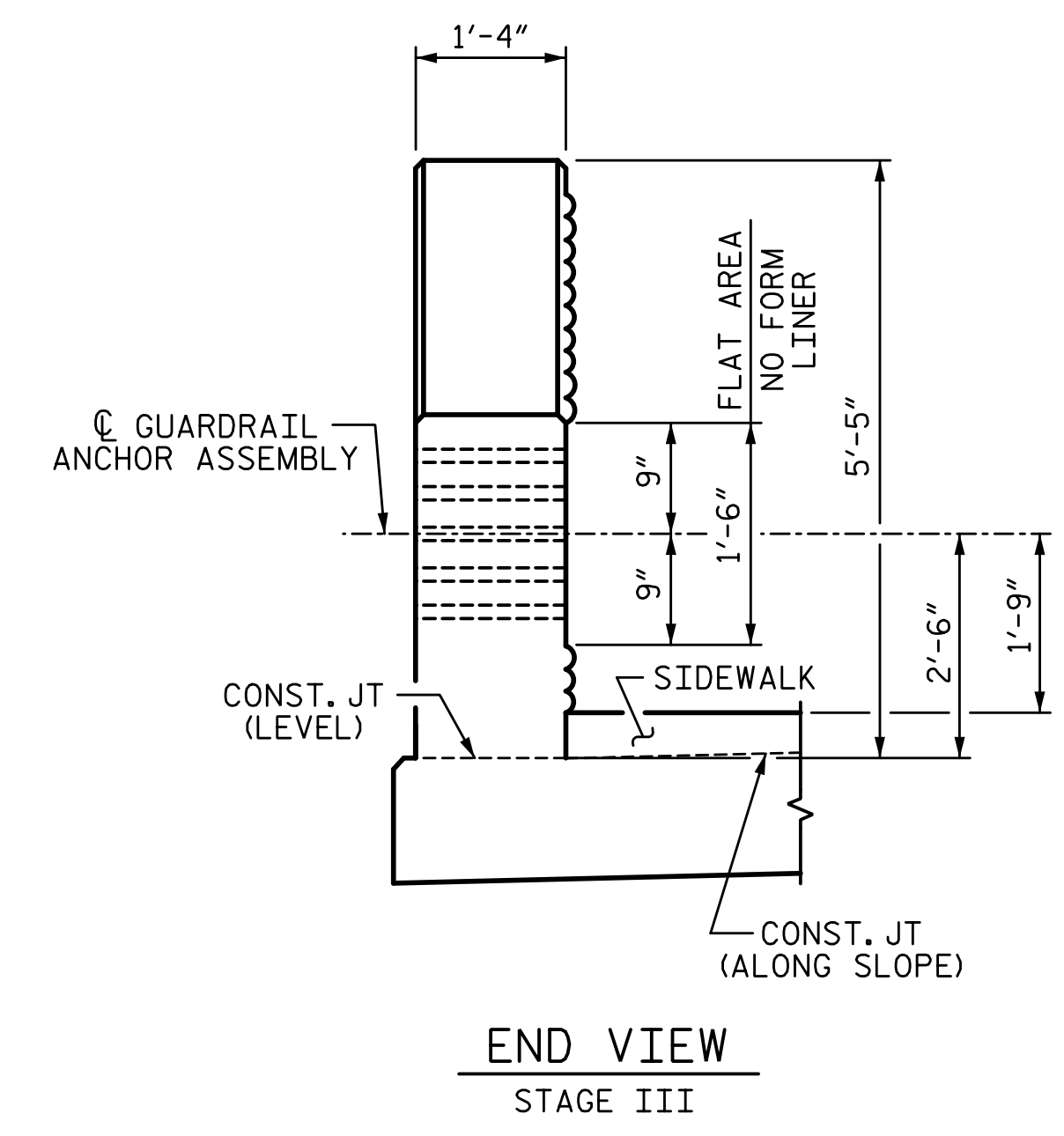
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

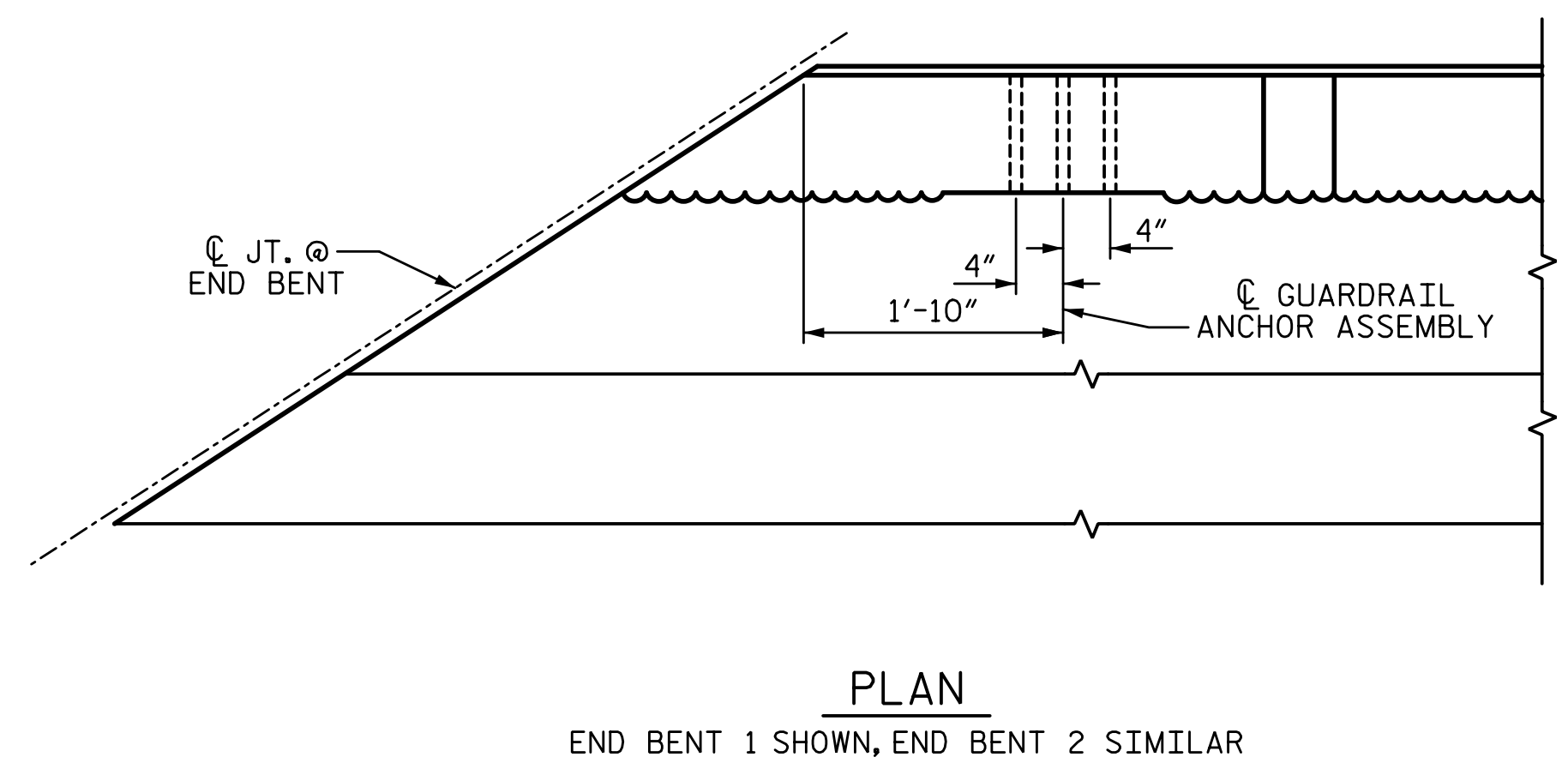


SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY



END VIEW
STAGE III

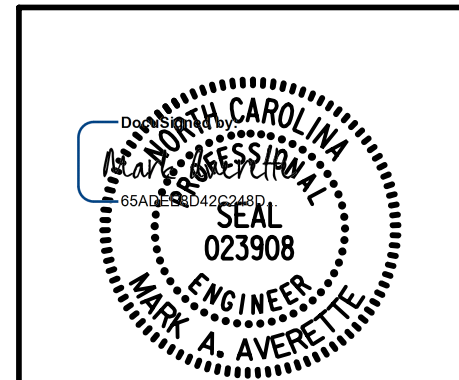


PLAN
END BENT 1 SHOWN, END BENT 2 SIMILAR

LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

DRAWN BY: S.D. COOPER DATE: 3-2022
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STATE OF NORTH CAROLINA
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 RALEIGH
 SUPERSTRUCTURE
 GUARDRAIL ANCHORAGE
 DETAILS FOR
 METAL RAILS
 STAGE III

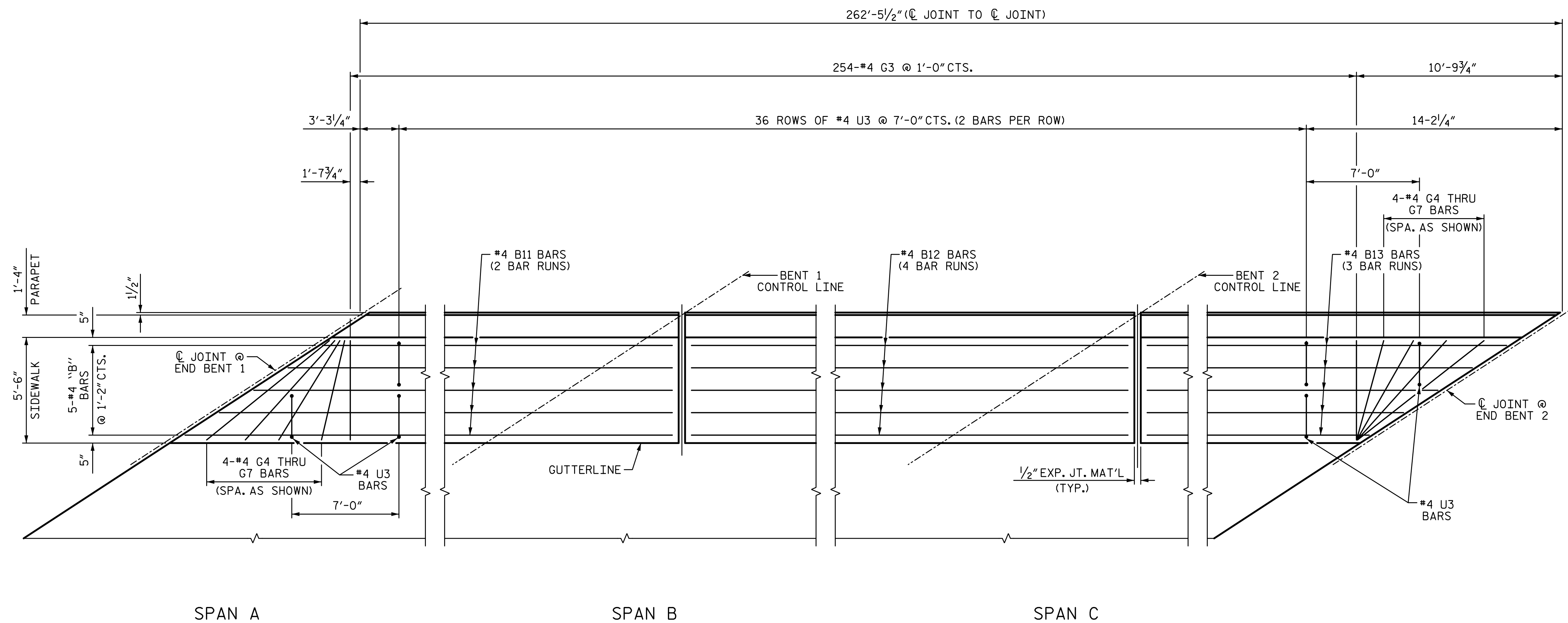
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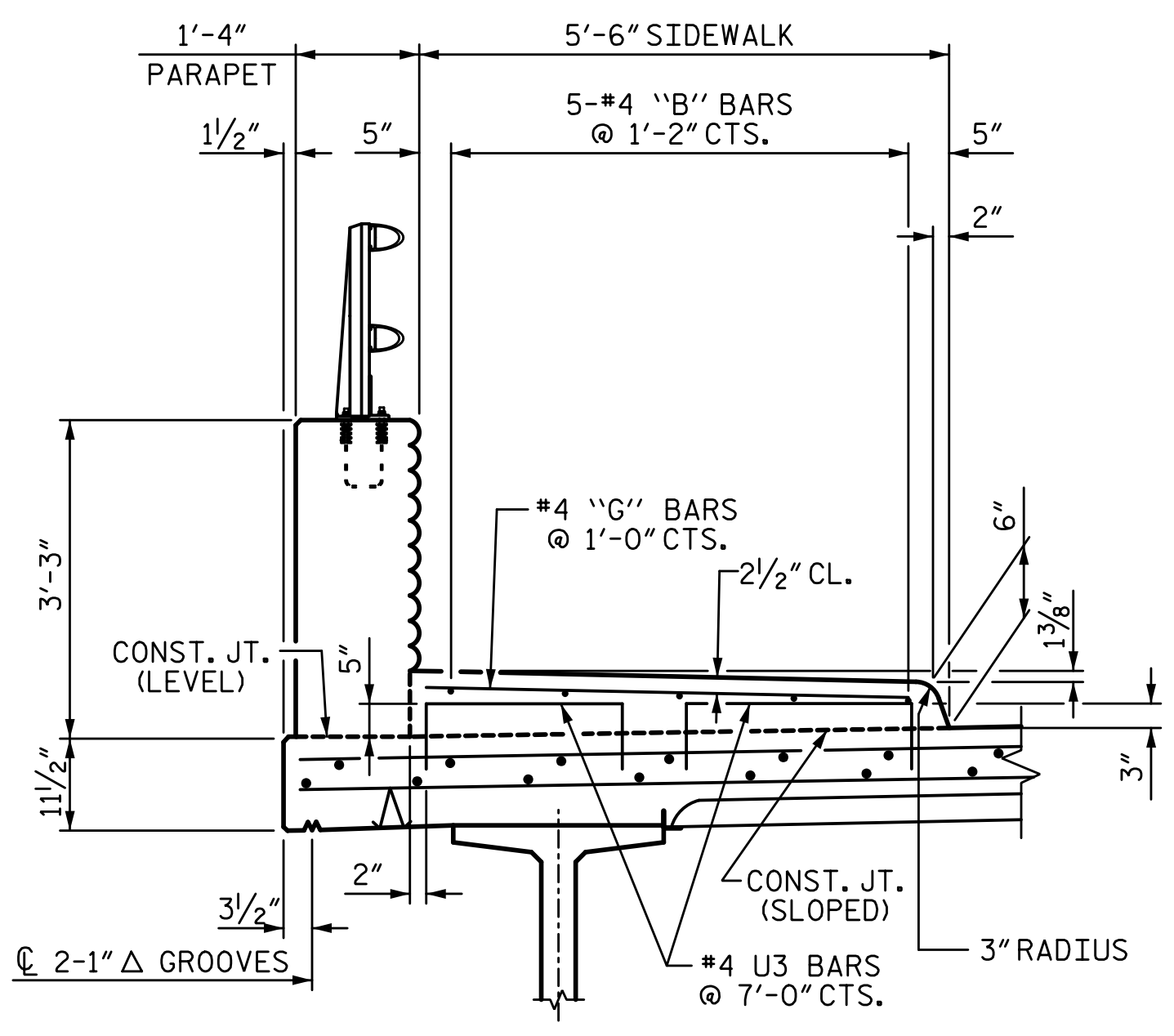
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TOTAL SHEETS 72

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PLAN OF SIDEWALK
 DIMENSIONS ARE MEASURED ALONG OUTSIDE FACE OF CONCRETE PARAPET



SECTION THRU SIDEWALK

NOTES:
 THE #4U3 BARS MAY BE PUSHED INTO GREEN CONCRETE AFTER SPAN HAS BEEN SCREEDED OFF.
 SIDEWALK IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
 GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE SIDEWALK IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINT WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FT. IN LENGTH.
 ALL REINFORCING STEEL IN SIDEWALK SHALL BE EPOXY COATED.
 SEE "STRIP SEAL DETAILS FOR SIDEWALK" SHEETS FOR SIDEWALK COVER PLATES AT END BENTS.
 CONCRETE AND REINFORCING STEEL FOR THE SIDEWALK ARE INCLUDED IN THE SUPERSTRUCTURE BILL OF MATERIAL. PAYMENT FOR THE SIDEWALK SHALL BE INCLUDED IN THE PAY ITEM "REINFORCED CONCRETE DECK SLAB".
 FOR SIDEWALK ON APPROACH SLABS, SEE "BRIDGE APPROACH SLAB DETAILS" SHEETS.

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

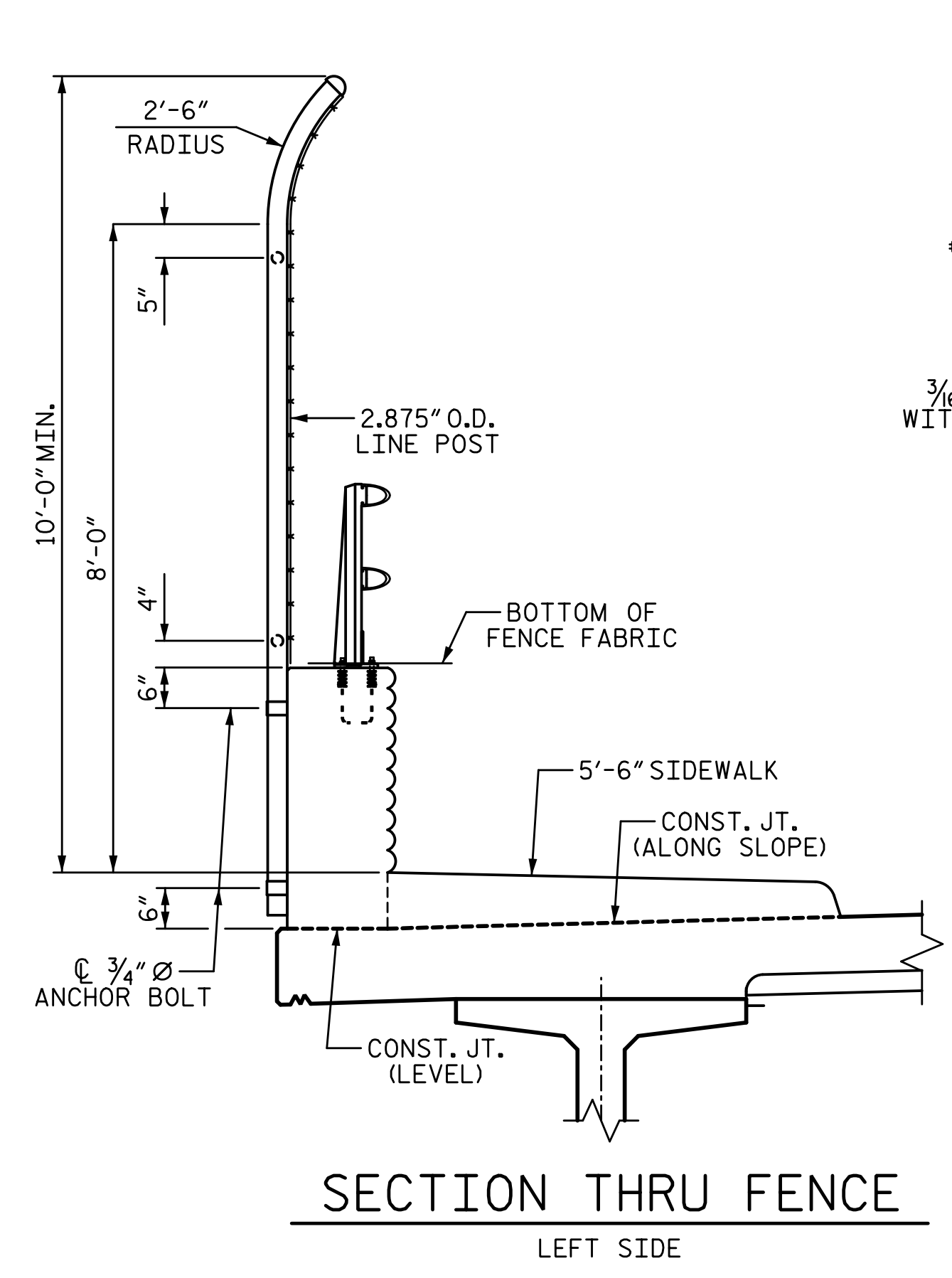
STATE OF NORTH CAROLINA
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 SUPERSTRUCTURE
SIDEWALK DETAILS

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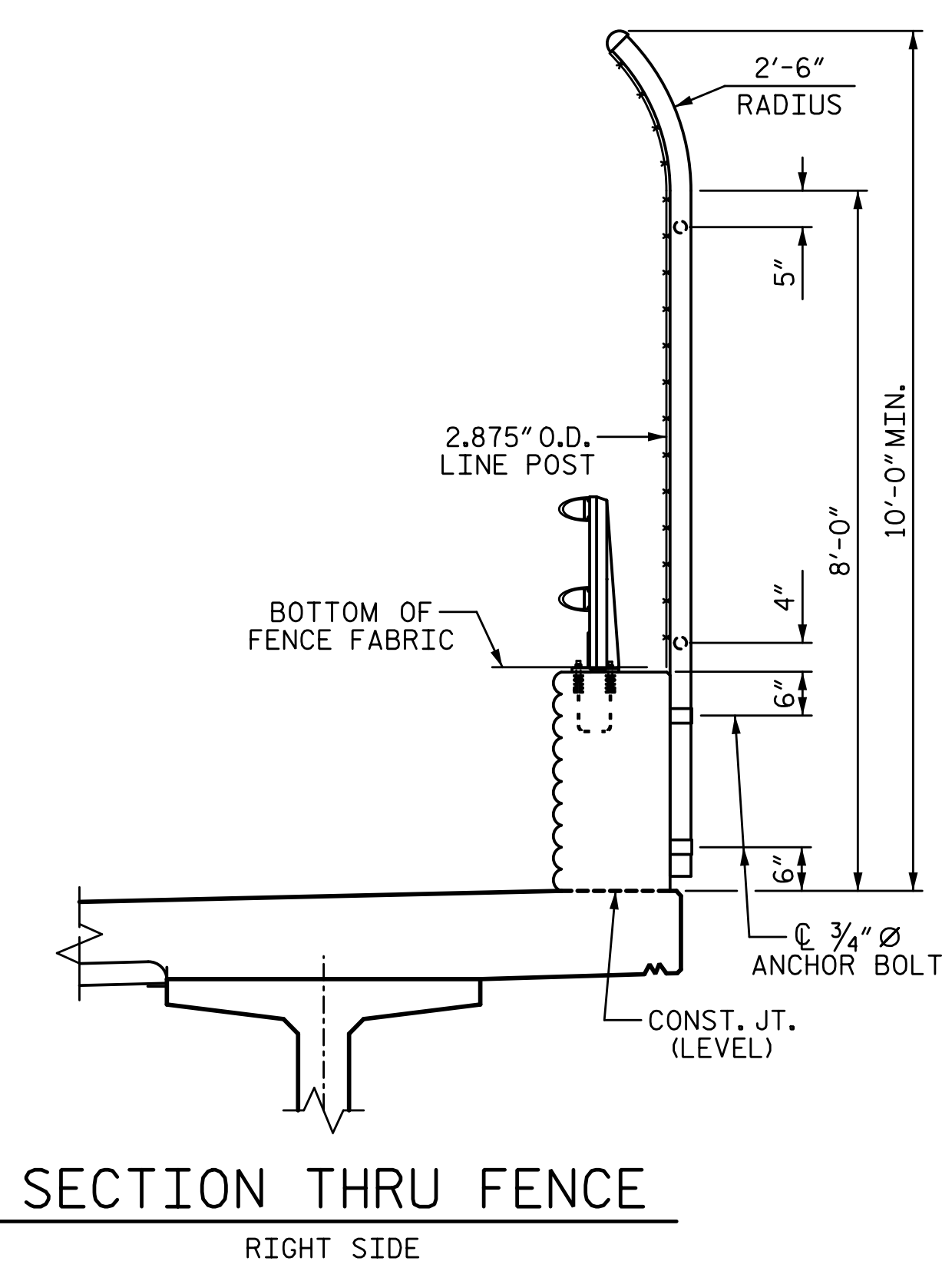


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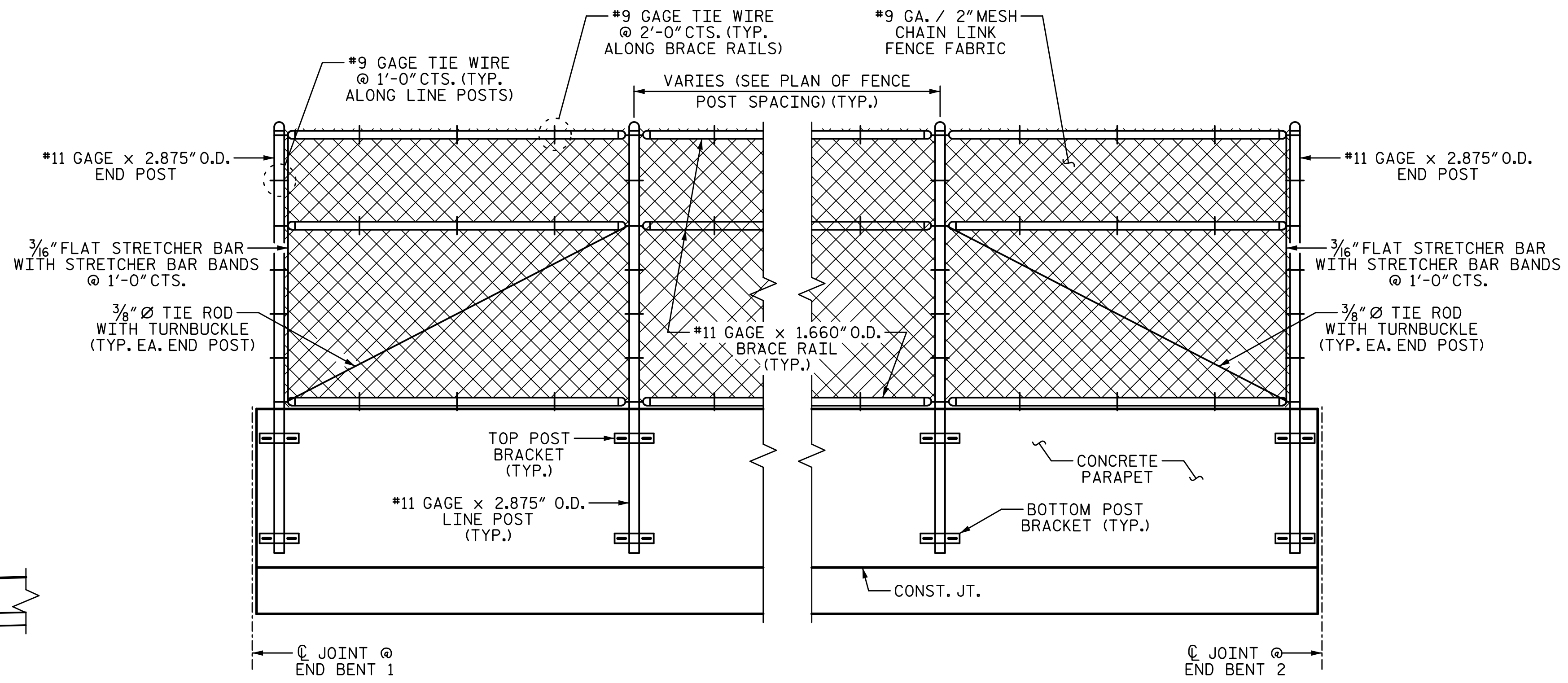
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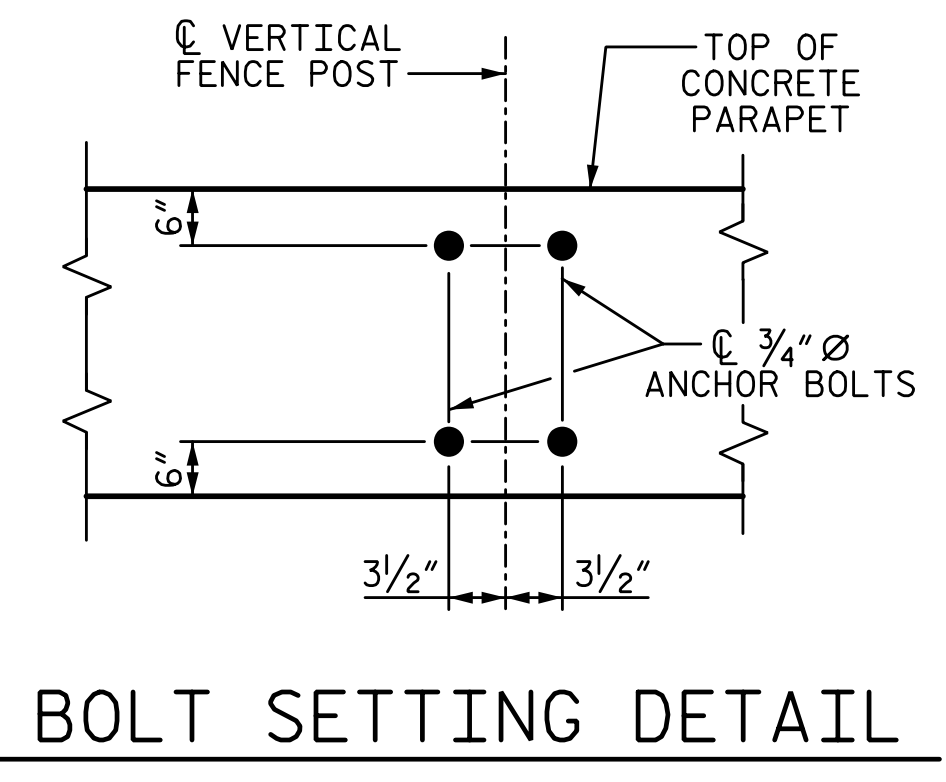
SECTION THRU FENCE
LEFT SIDE



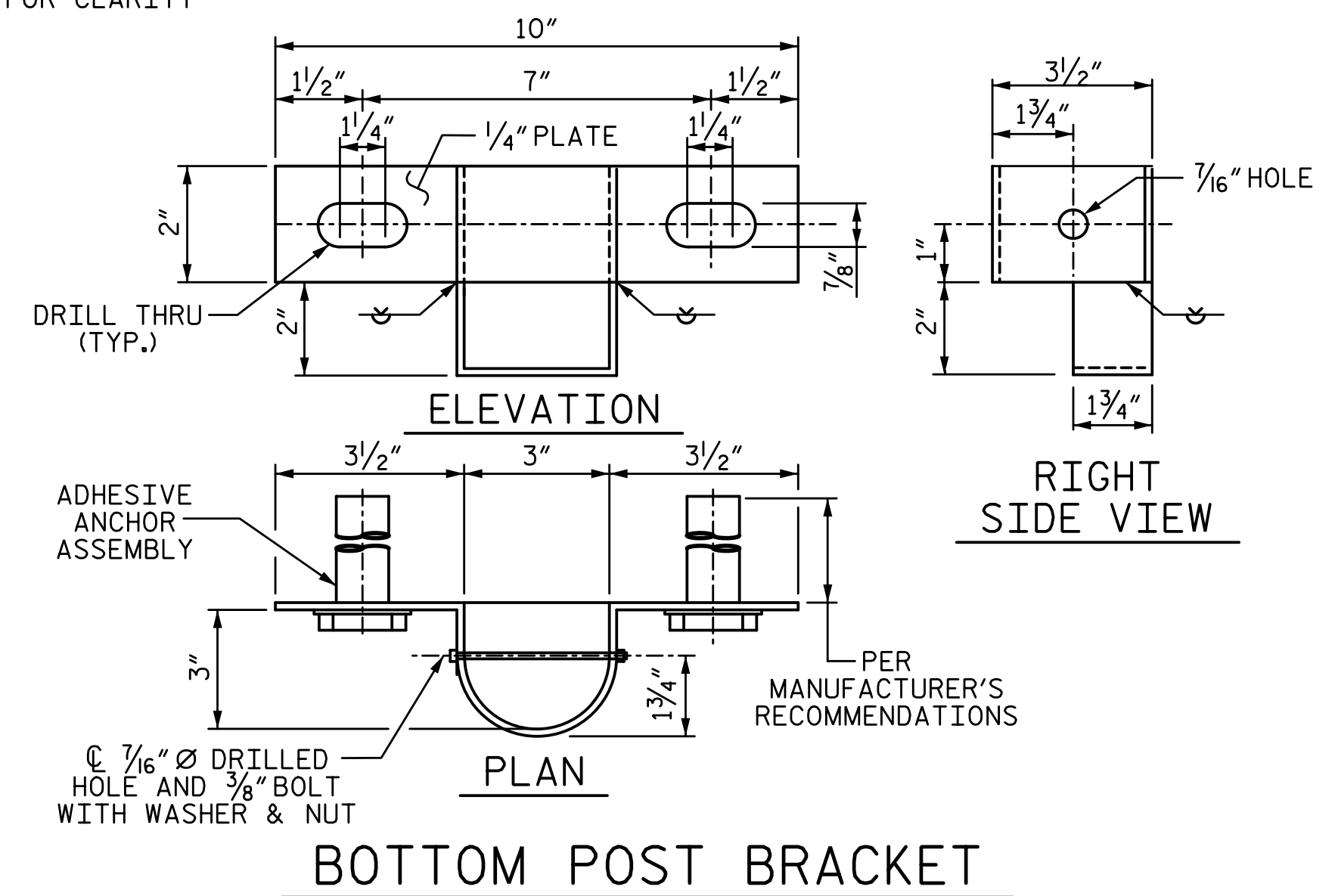
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RIGHT SIDE



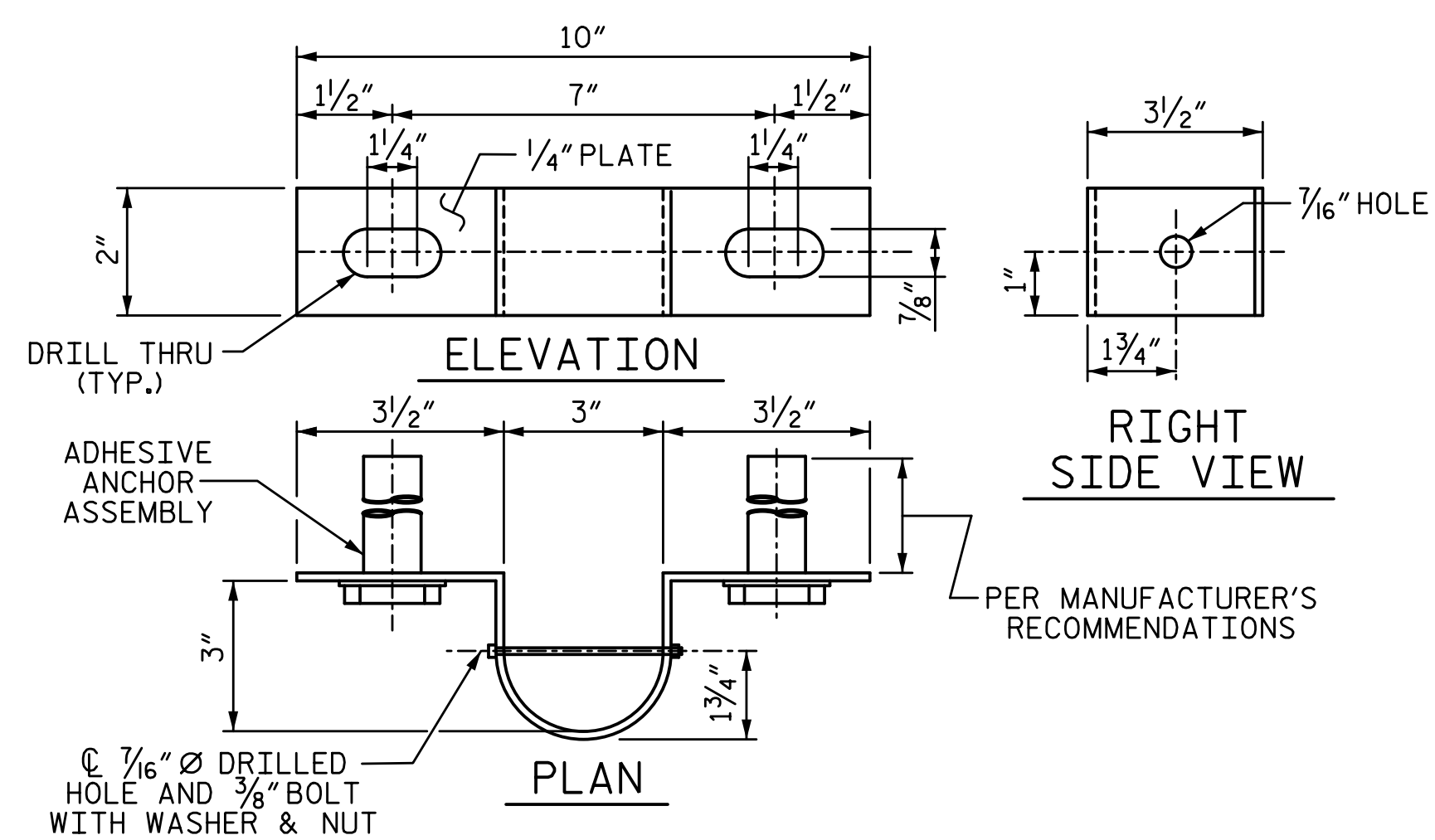
PARTIAL ELEVATION
TWO BAR METAL RAIL NOT SHOWN FOR CLARITY



BOLT SETTING DETAIL



BOTTOM POST BRACKET



TOP POST BRACKET

NOTES:

FOR BRIDGE MOUNTED CHAIN LINK FENCE, SEE SPECIAL PROVISIONS.

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

FOR SETTING ANCHOR BOLTS, THE CONTRACTOR SHALL USE AN ADHESIVE BONDING SYSTEM. SEE SECTION 420-13 OF THE STANDARD SPECIFICATIONS FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED.

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 1'-0" (UNLESS OTHERWISE NOTED AT BENT 2) MINIMUM DISTANCE FROM C ANCHOR BOLT TO JOINTS IN CONCRETE PARAPET.

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

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

90" CHAIN LINK FENCE	
TOTAL PAY LENGTH	524.92 LF

PROJECT NO. B-5869
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 STATION: 21+62.39 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 BRIDGE MOUNTED
 CHAIN LINK FENCE
 DETAILS

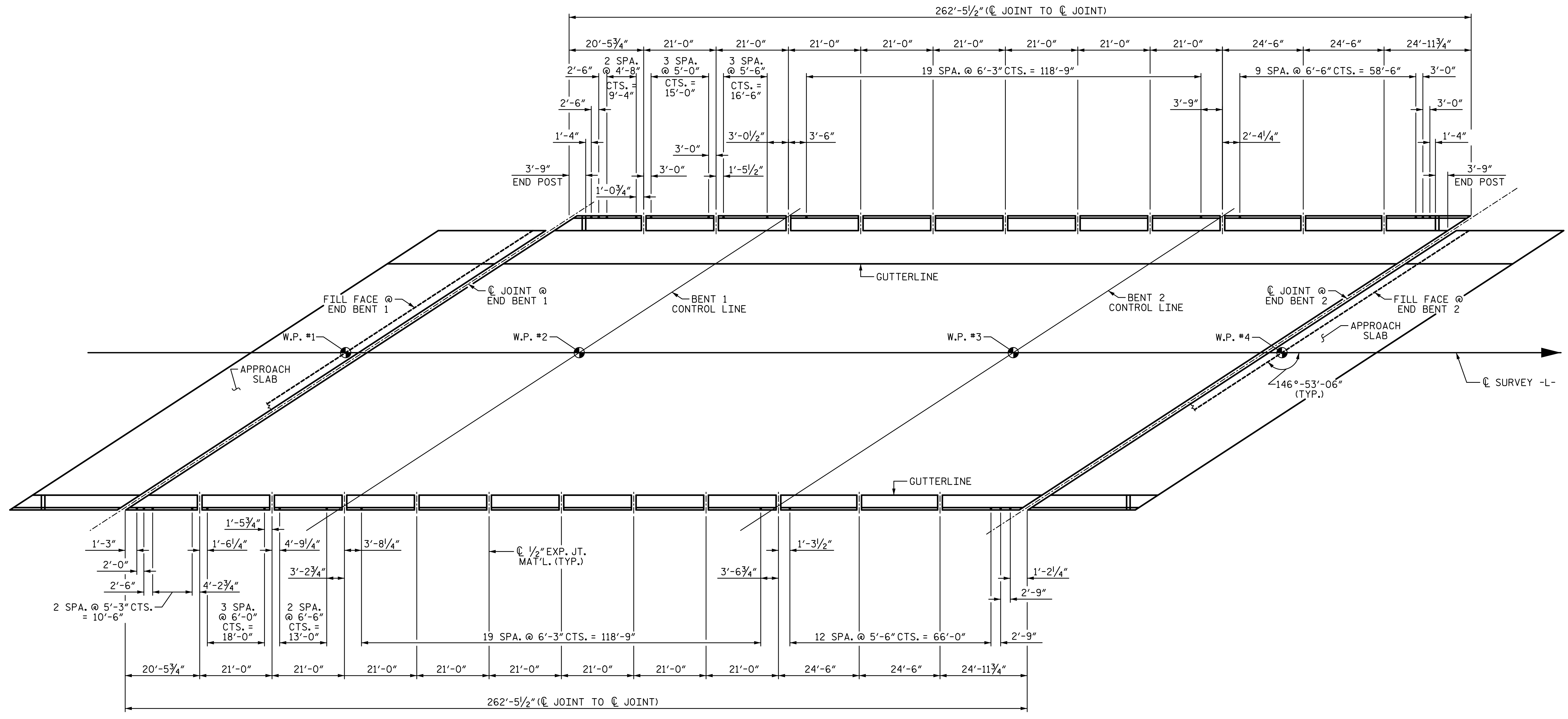


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SPAN A

SPAN B

SPAN C

PLAN OF FENCE POST SPACING
 ALL DIMENSION ARE MEASURED ALONG OUTSIDE FACE OF CONCRETE PARAPET.

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
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 RALEIGH
 SUPERSTRUCTURE
 BRIDGE MOUNTED
 CHAIN LINK FENCE
 DETAILS

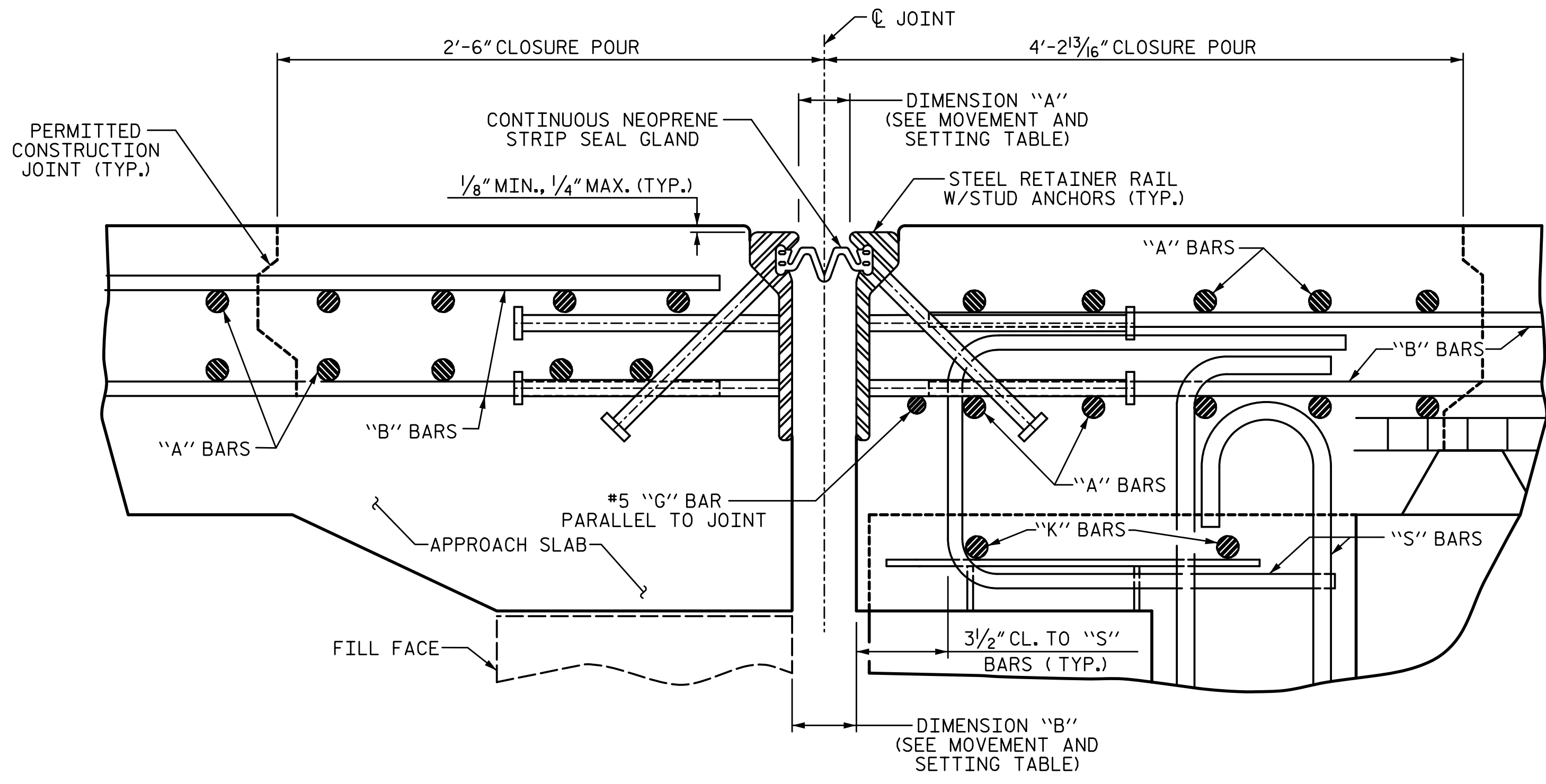


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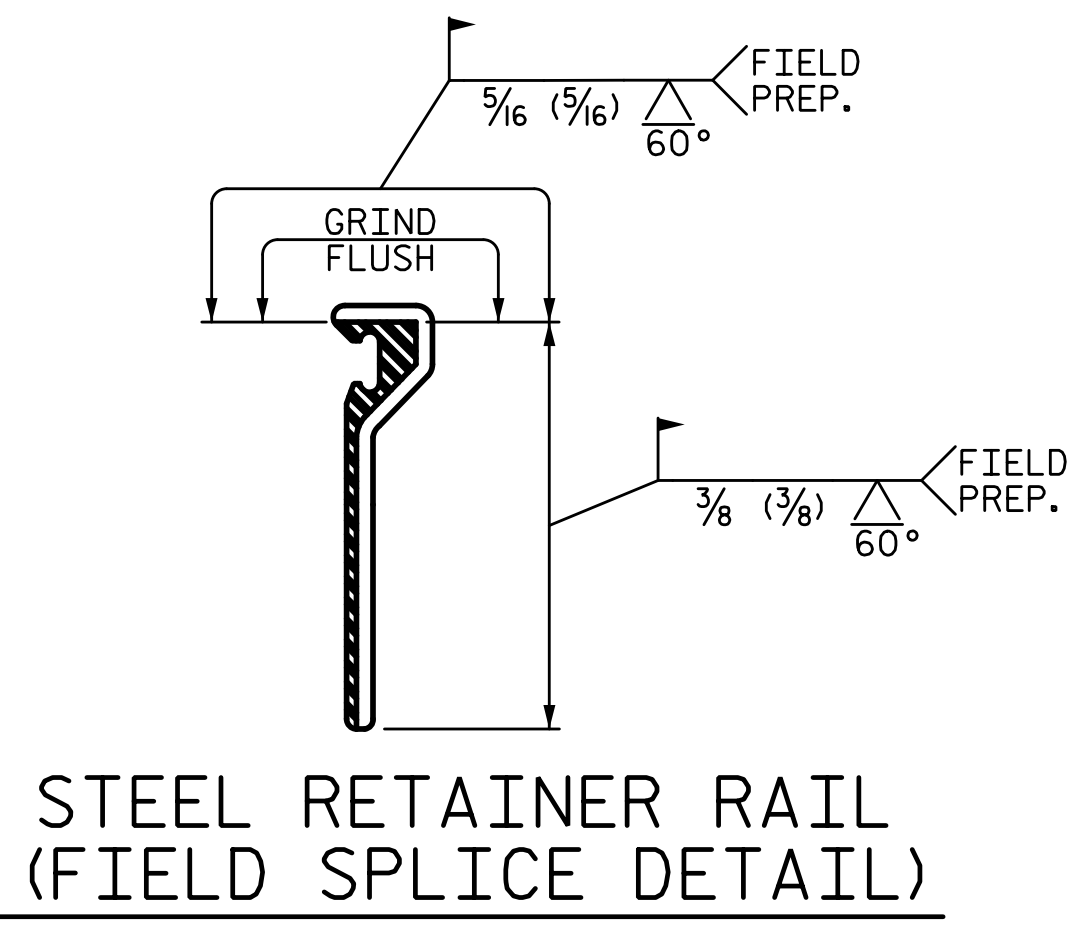
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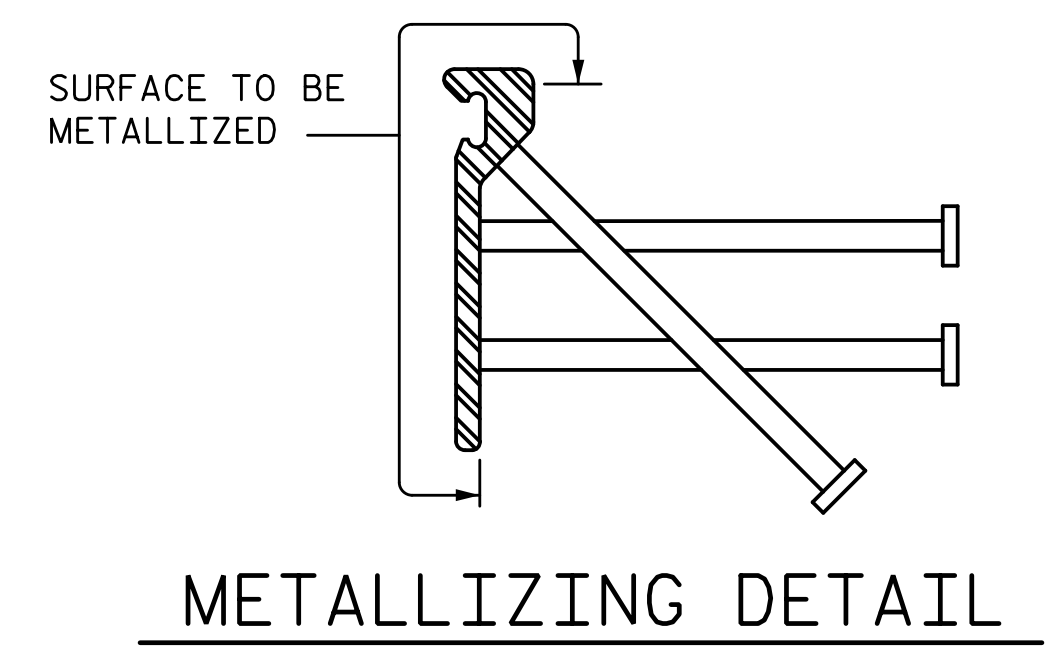
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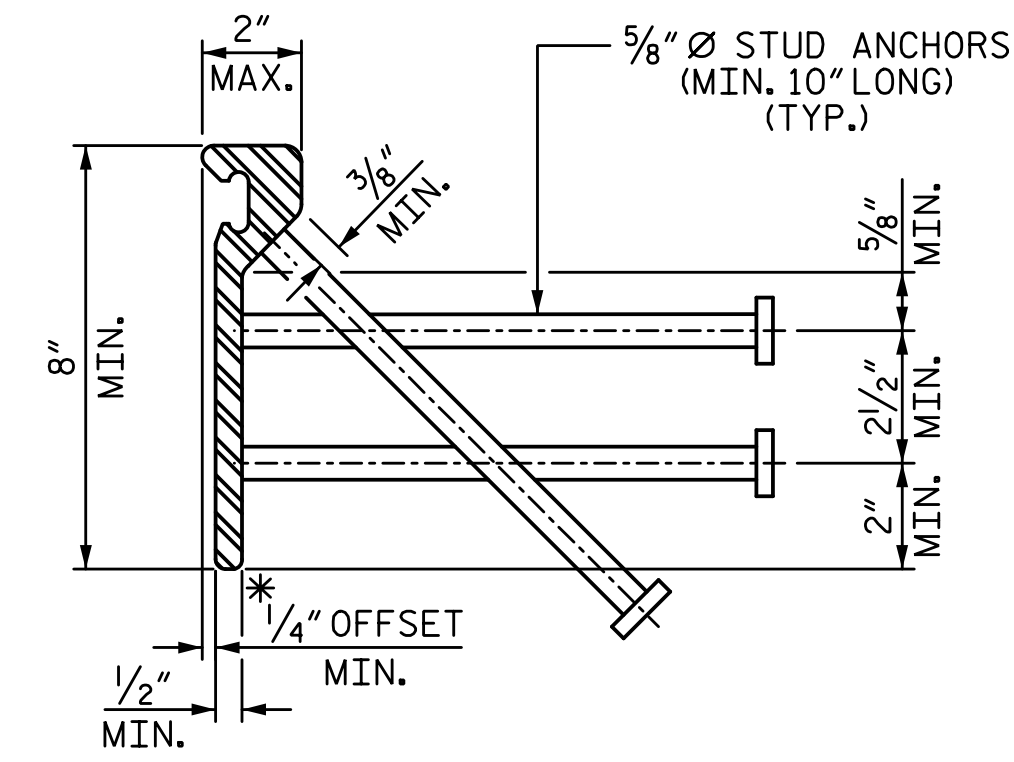
STRIP SEAL EXPANSION JOINT DETAILS
SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE



STEEL RETAINER RAIL (FIELD SPLICE DETAIL)



METALLIZING DETAIL



TYPICAL SECTION STEEL RETAINER RAIL

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

JOINT INSTALLATION PROCEDURE:

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

GENERAL NOTES:

FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.

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

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

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

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

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

INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.

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

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

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

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

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

A TEMPORARY GLAND IS REQUIRED FOR STAGE II. NO SEPARATE PAYMENT WILL BE MADE FOR TEMPORARY GLANDS.

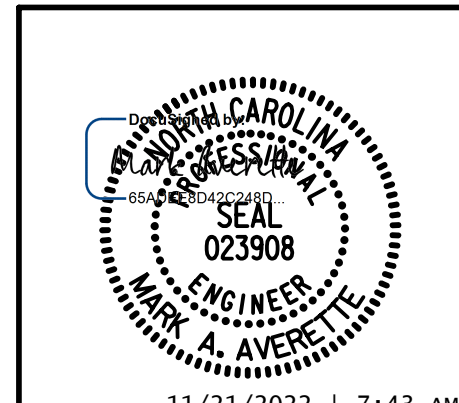
PROJECT NO. B-5869
BURKE COUNTY
STATION: 21+62.39 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

STRIP SEAL EXPANSION JOINT DETAILS

LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG C RDWY)	DIMENSION "A"			DIMENSION "B"		
			PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
END BENT 1	146°-53'-06"	3/8"	2 1/16"	2"	1 15/16"	2 9/16"	2 1/2"	2 7/16"
END BENT 2	146°-53'-06"	7/16"	2 1/16"	2"	1 15/16"	2 9/16"	2 1/2"	2 7/16"

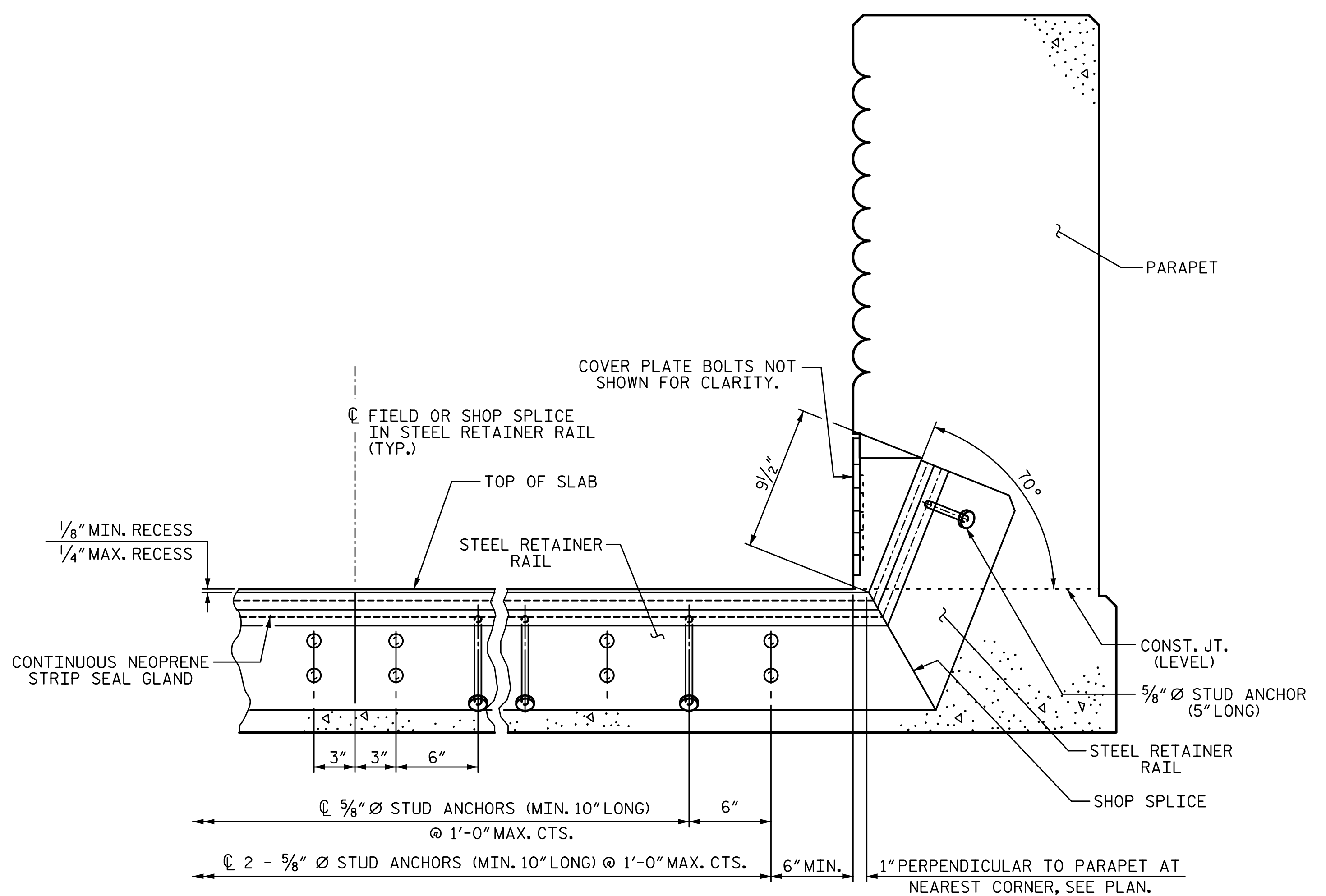
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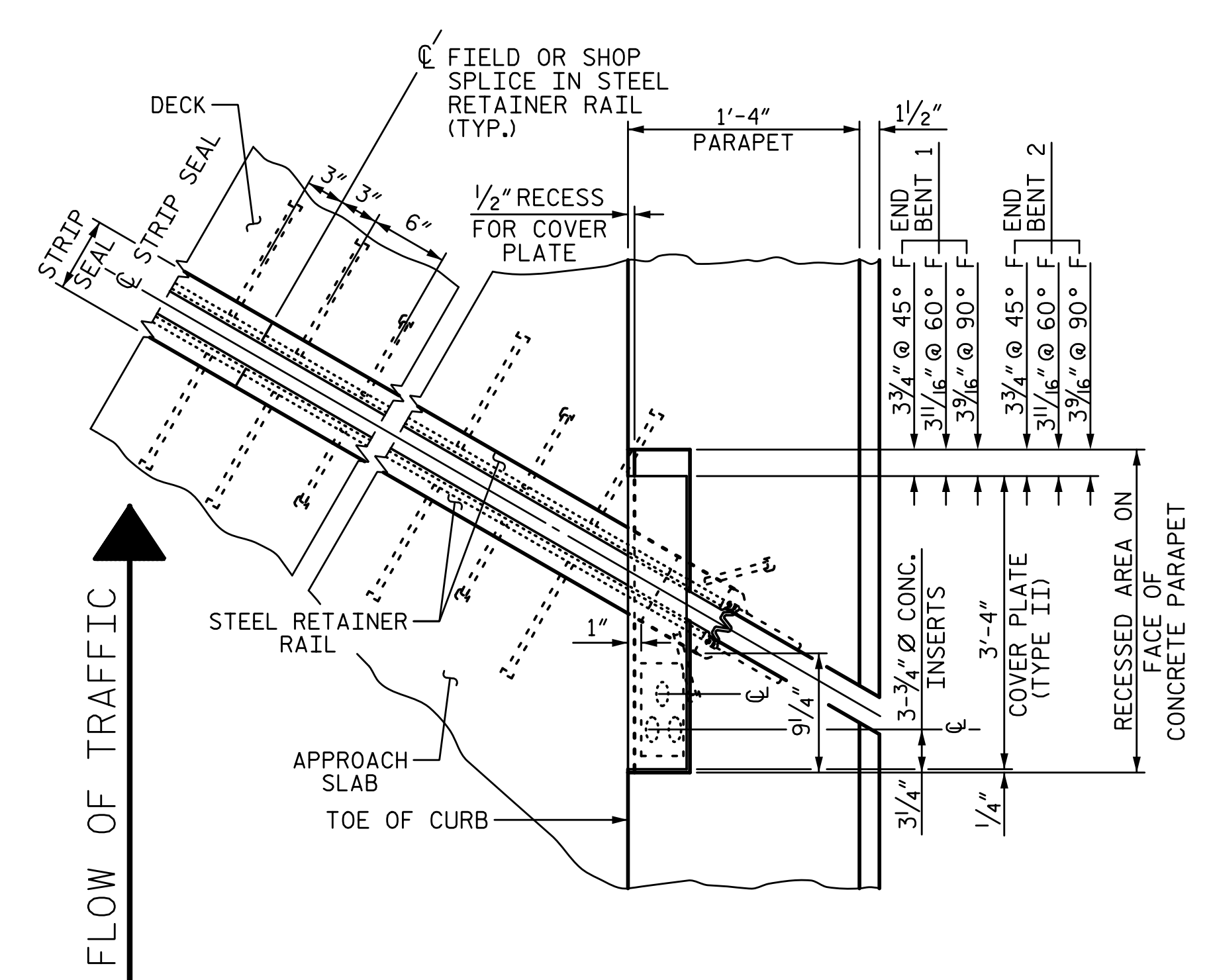
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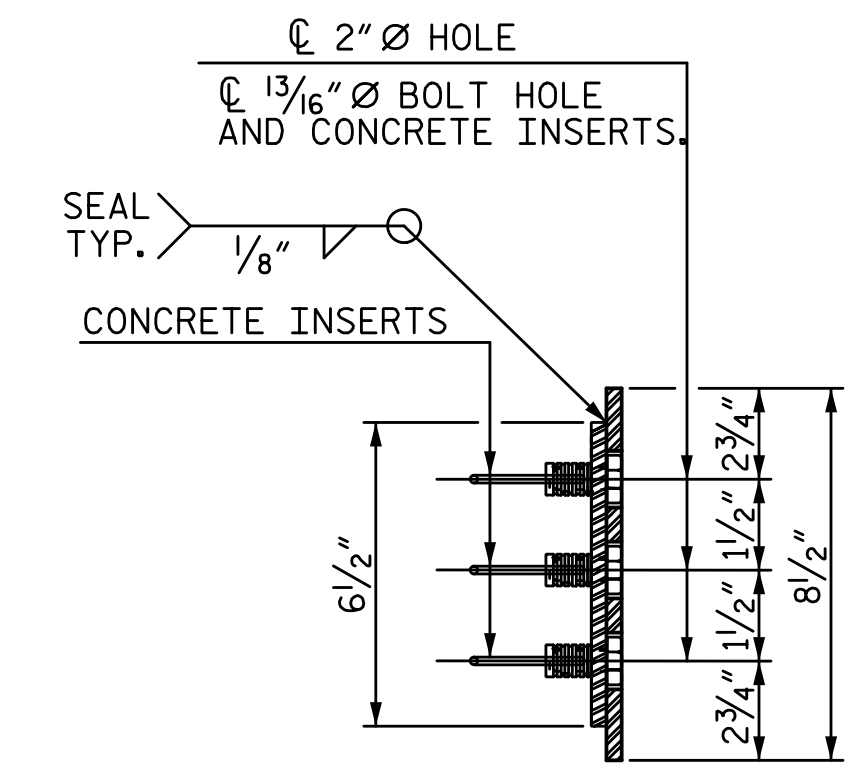


SECTION THRU PARAPET NORMAL TO JOINT

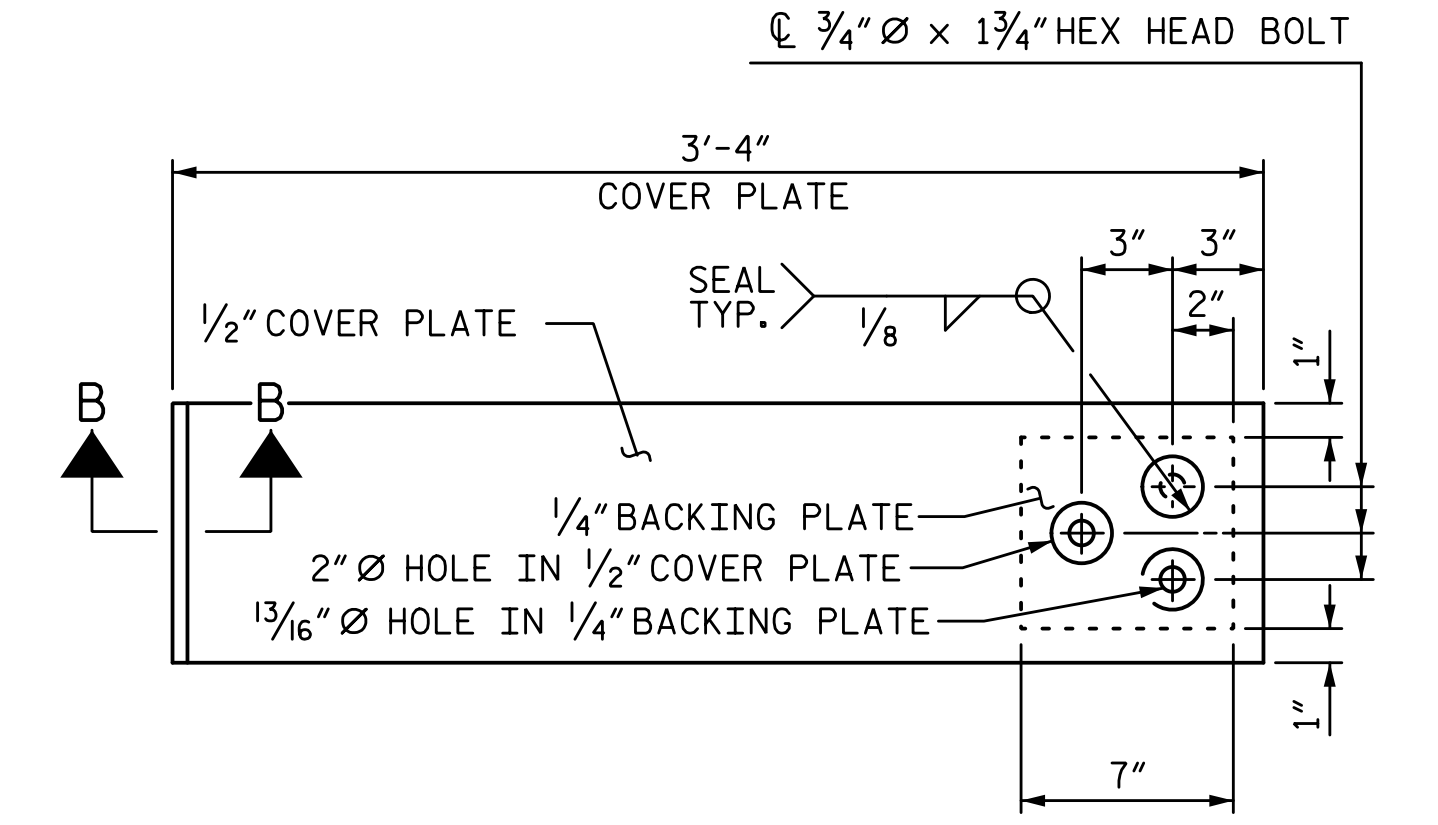


PLAN OF STRIP SEAL EXPANSION JOINT

END BENT 1 SHOWN, END BENT 2 SIMILAR

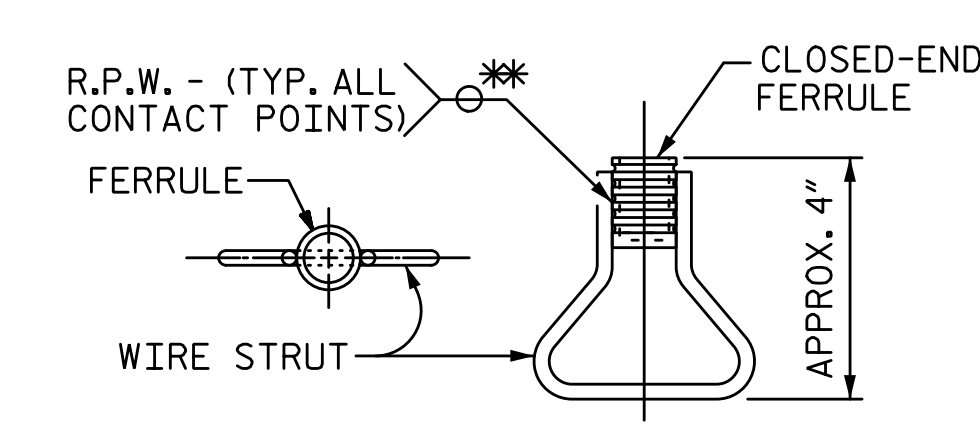


END VIEW



TYPE II - ELEVATION VIEW

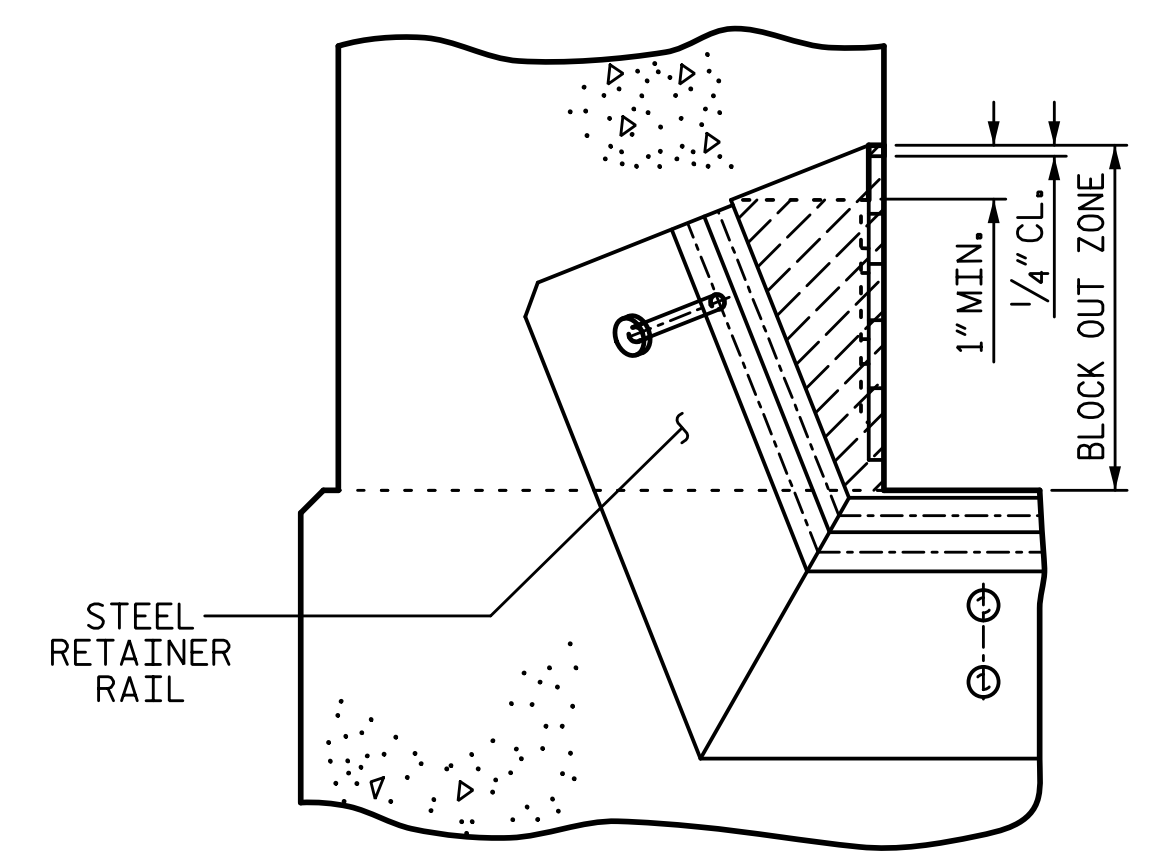
COVER PLATE DETAILS



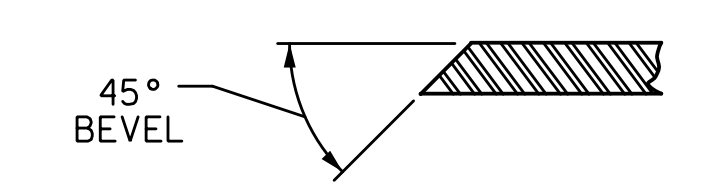
PLAN ELEVATION

CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



BLOCK OUT DETAIL

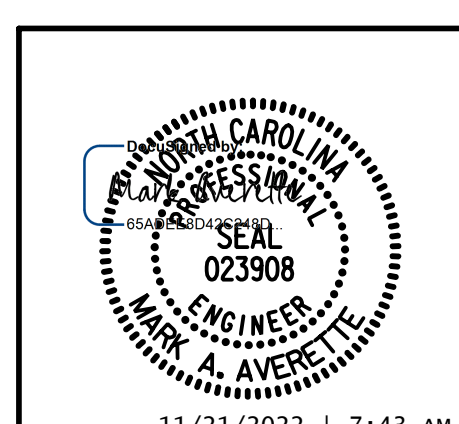


SECTION B-B

PROJECT NO. B-5869
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SHEET 2 OF 5

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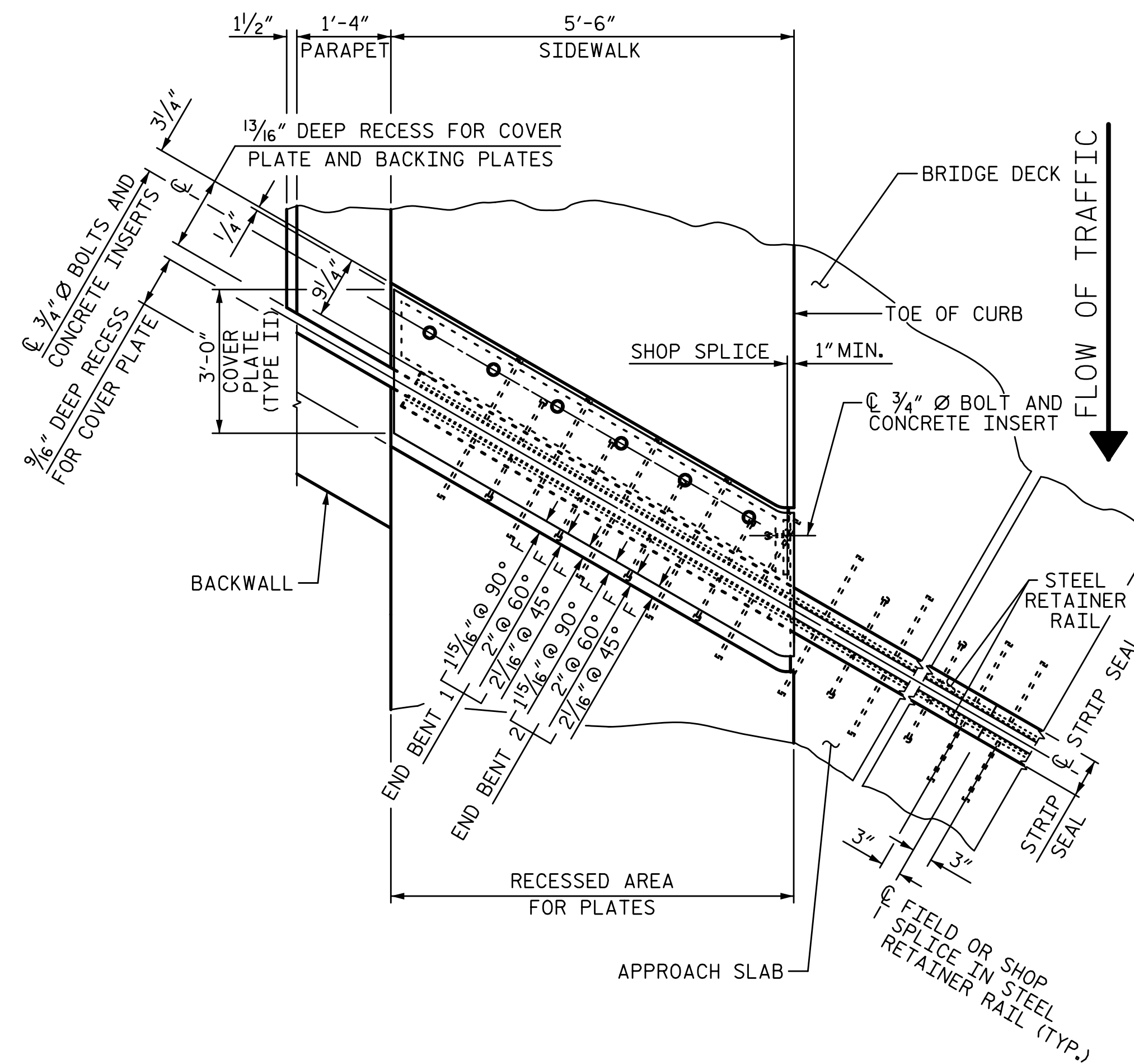
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRIP SEAL
 EXPANSION JOINT
 DETAILS FOR
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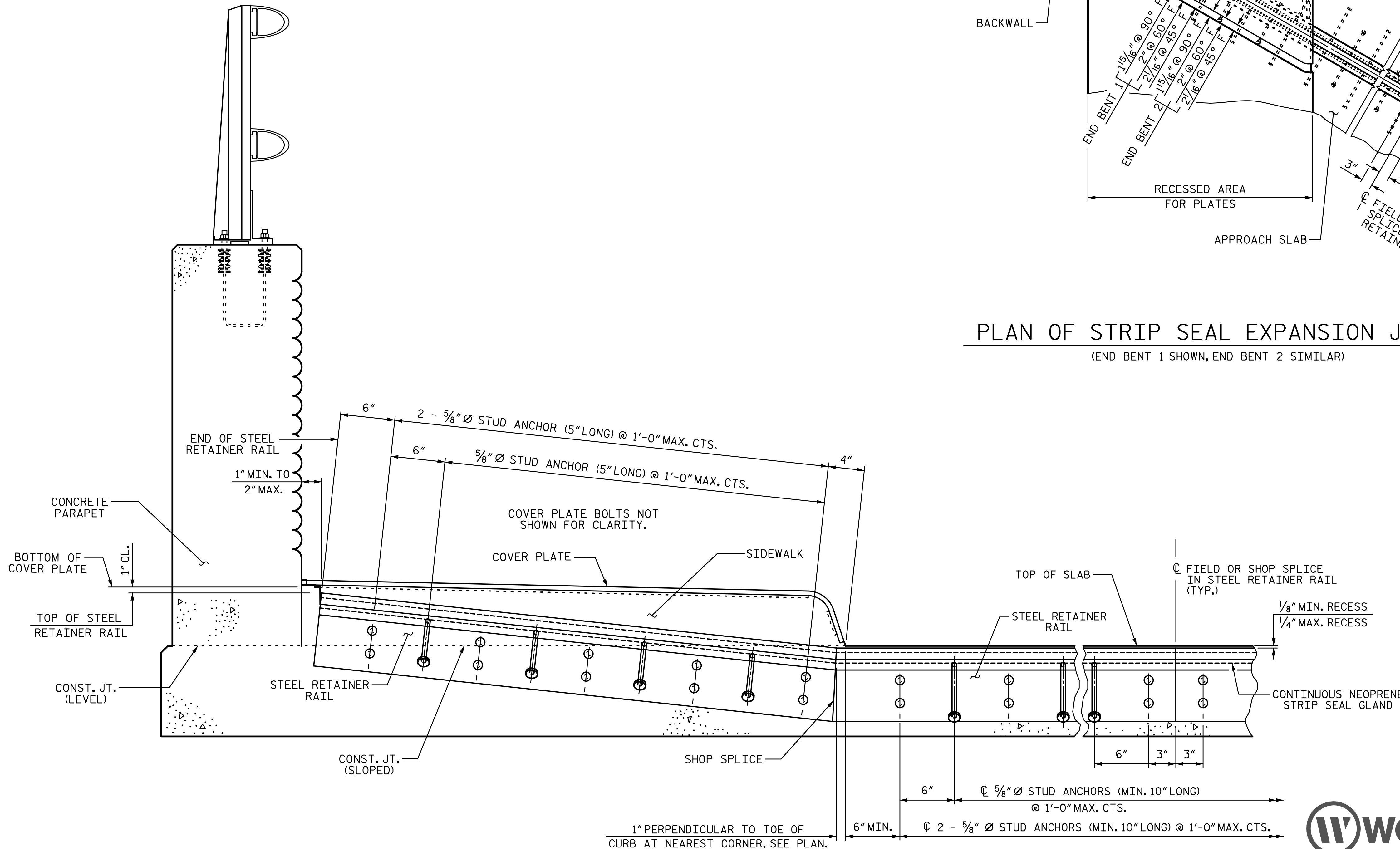
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PLAN OF STRIP SEAL EXPANSION JOINT
(END BENT 1 SHOWN, END BENT 2 SIMILAR)



SECTION THRU SIDEWALK NORMAL TO JOINT

PROJECT NO. B-5869
BURKE COUNTY
STATION: 21+62.39 -L-

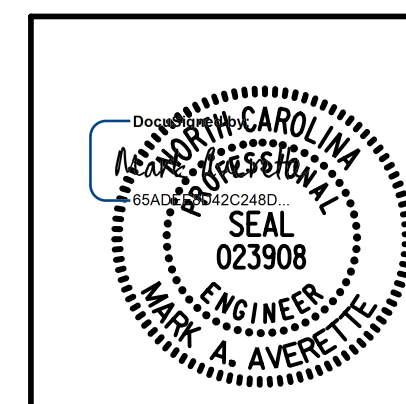
SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
STRIP SEAL EXPANSION JOINT DETAILS FOR SIDEWALK



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Cary, NC 27518

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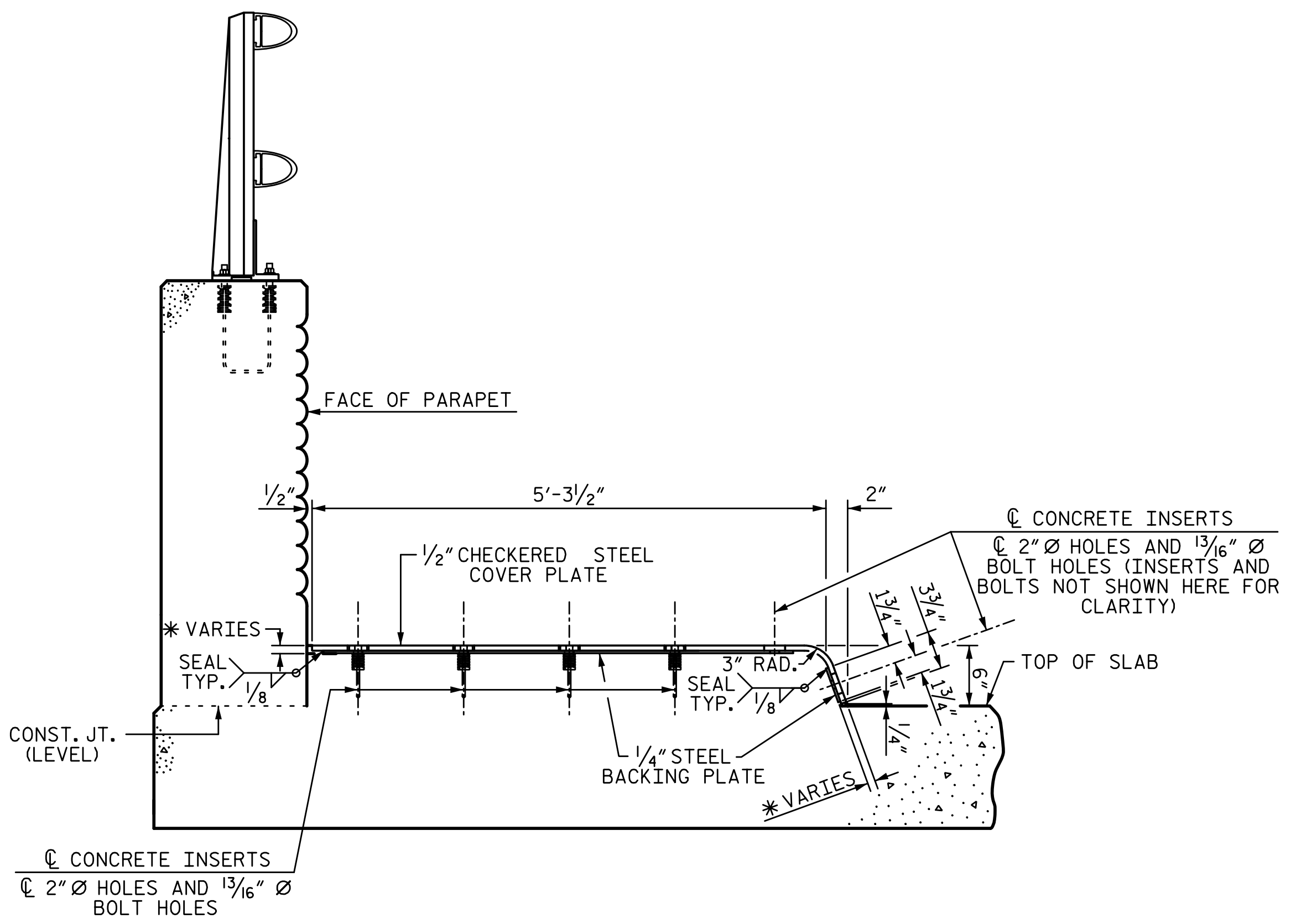
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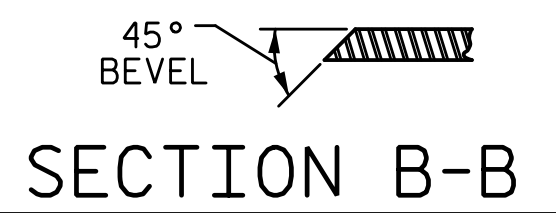
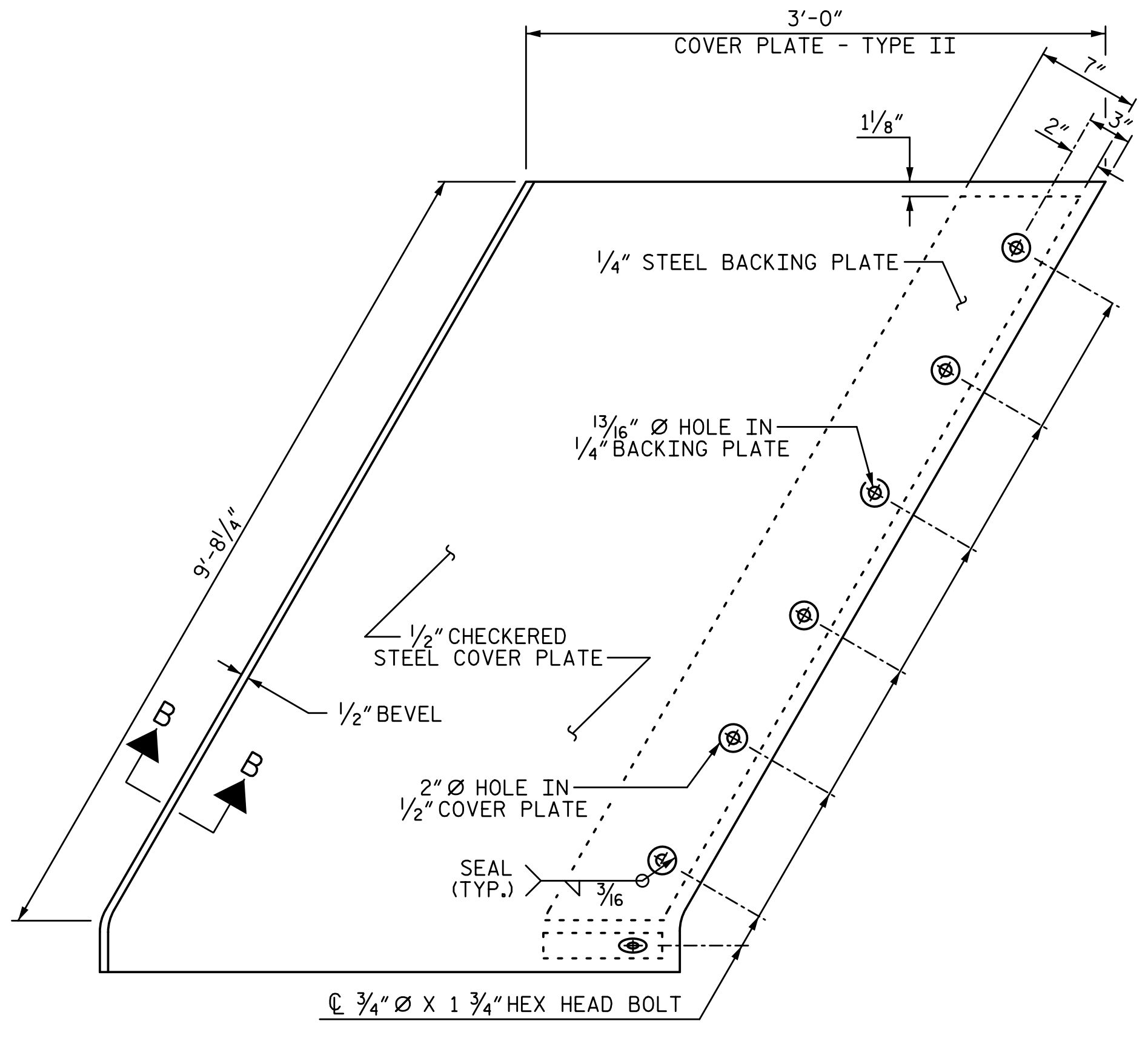
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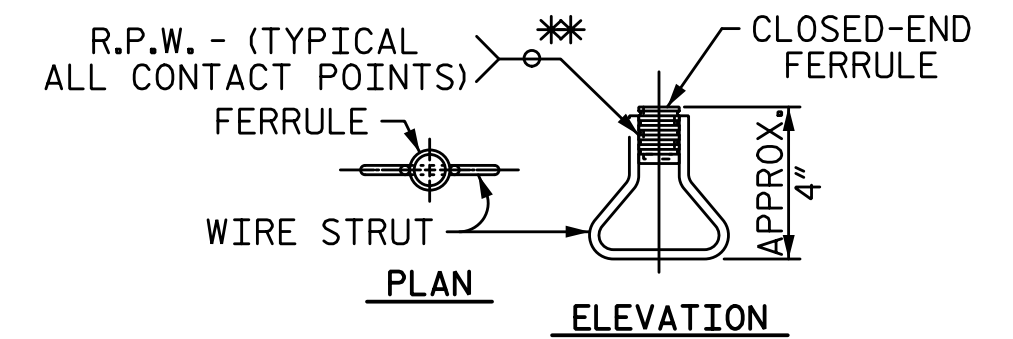
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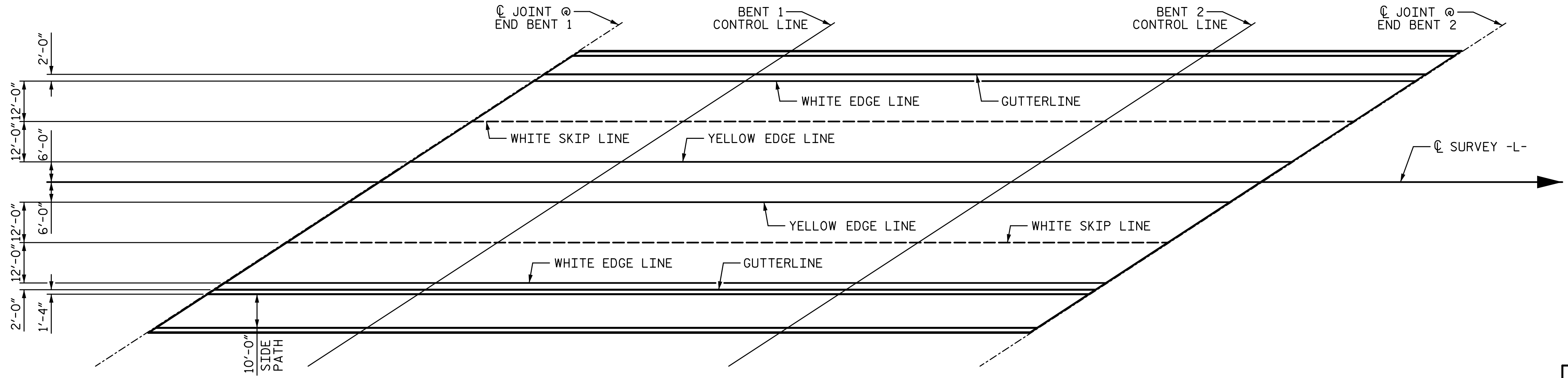
* CONCRETE RECESS DIMENSIONS:
 1 3/16" FOR THE SIDE OF THE JOINT HAVING THE 1/2" COVER PLATE WITH A 1/4" BACKING PLATE.
 3/16" FOR THE SIDE OF THE JOINT HAVING ONLY THE 1/2" COVER PLATE.



COVER PLATE DETAILS



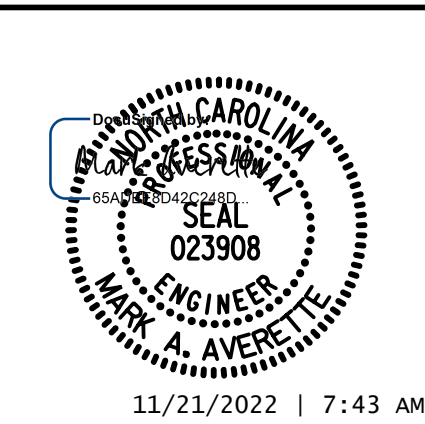
** EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



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 BURKE COUNTY
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SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRIP SEAL EXPANSION JOINT DETAILS FOR SIDEWALK

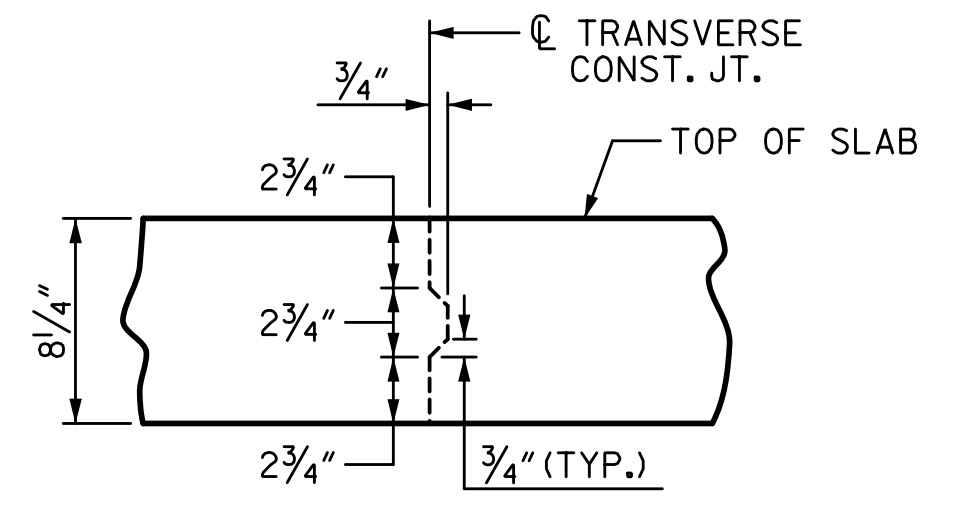
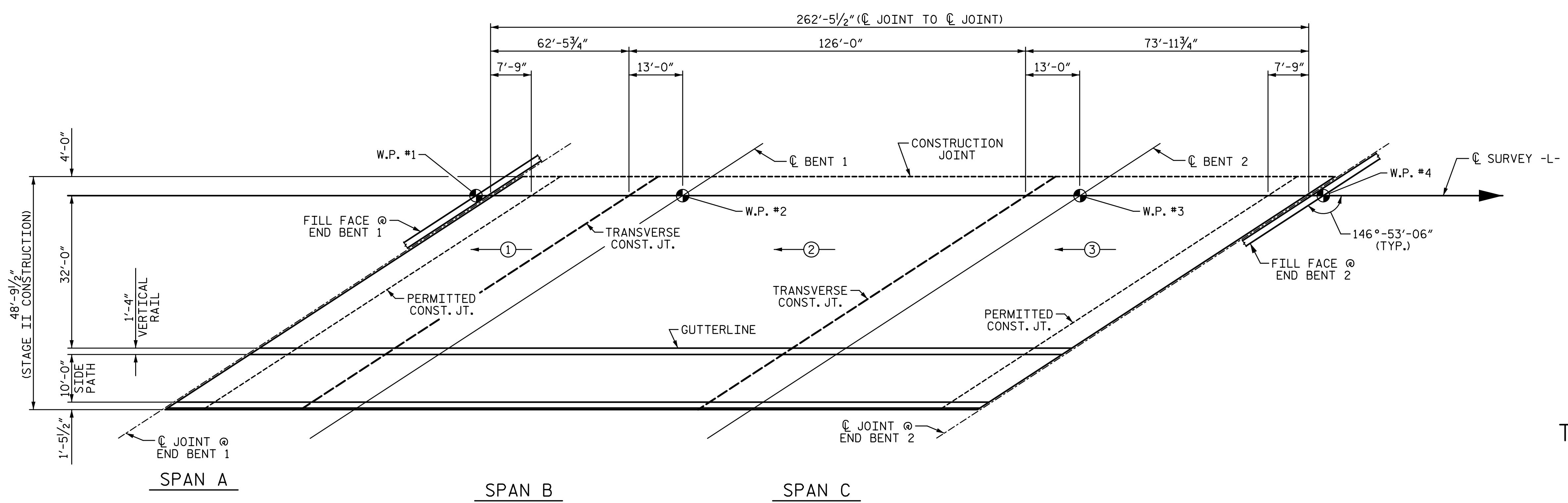


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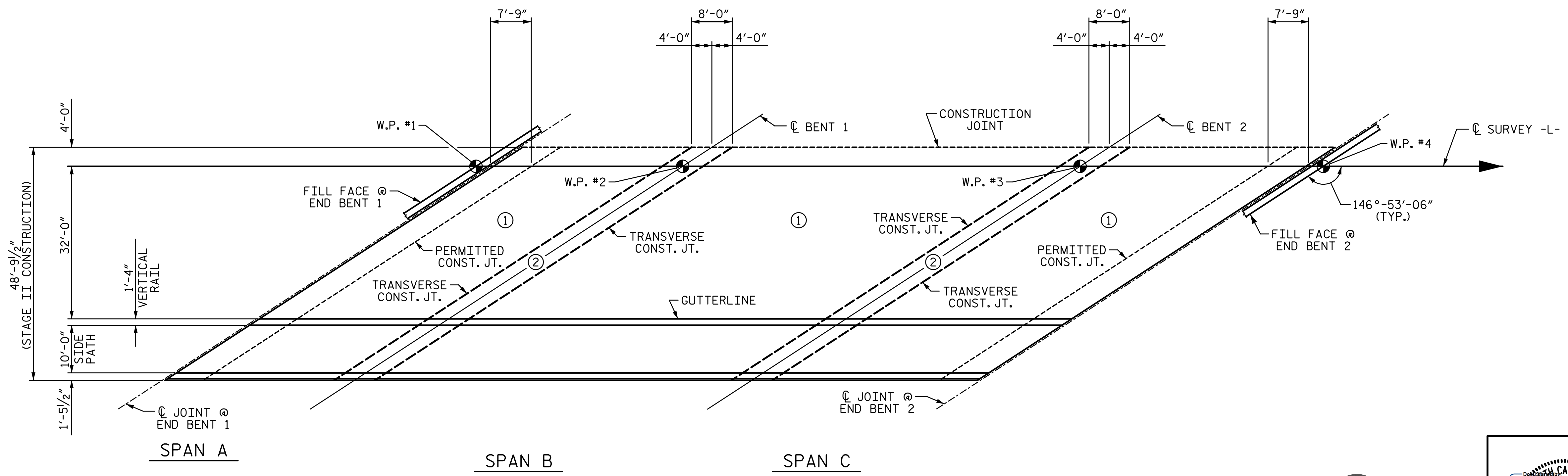


TRANSVERSE CONSTRUCTION JOINT DETAIL

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

POUR SEQUENCE AND LAYOUT FOR COMPUTING REINFORCED CONCRETE DECK SLAB AREA

(SQ. FT. = 12,806)



OPTIONAL POUR SEQUENCE

POUR CAN NOT BE STARTED UNTIL BOTH ADJACENT POURS REACH A MINIMUM OF 3000 PSI

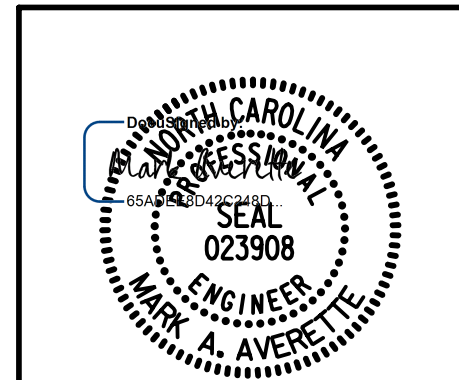
PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

BILL OF MATERIAL

STAGE II



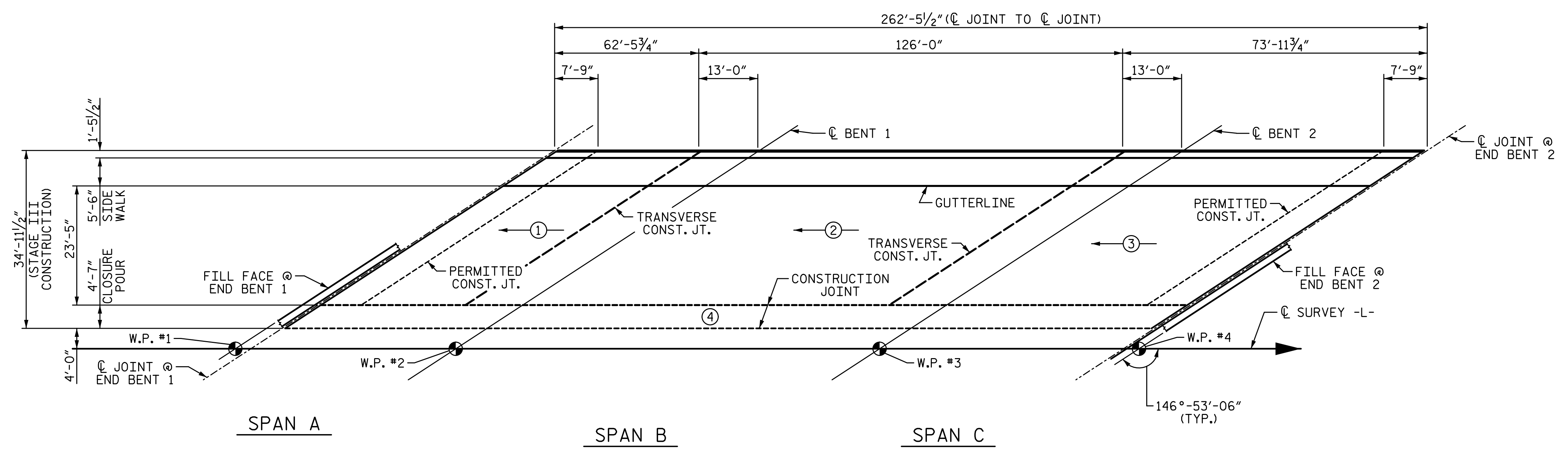
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TOTAL SHEETS: 72

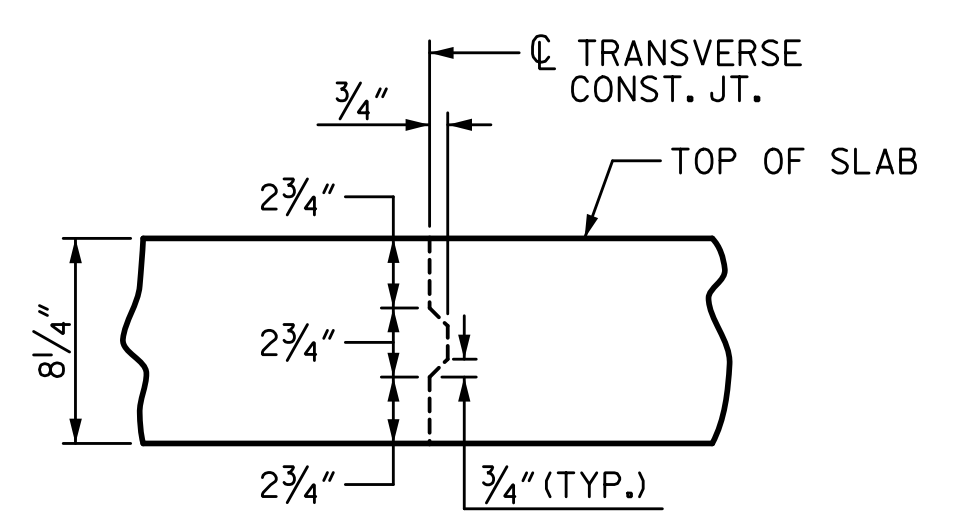
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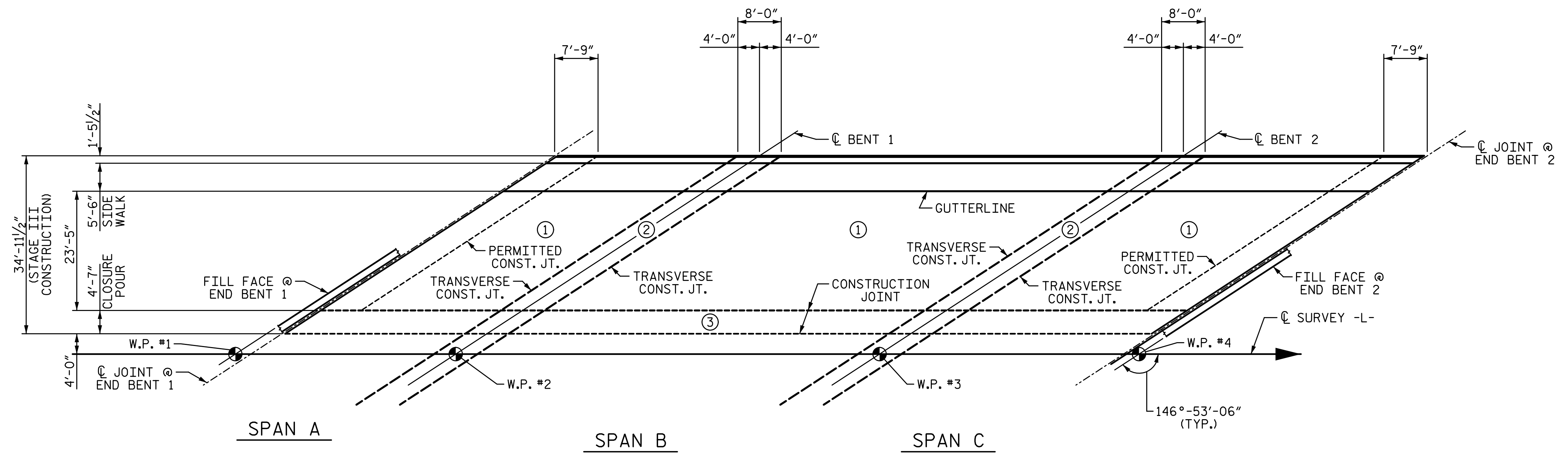


POUR SEQUENCE AND LAYOUT FOR COMPUTING REINFORCED CONCRETE DECK SLAB AREA
(SQ. FT. = 9,175)



TRANSVERSE CONSTRUCTION JOINT DETAIL

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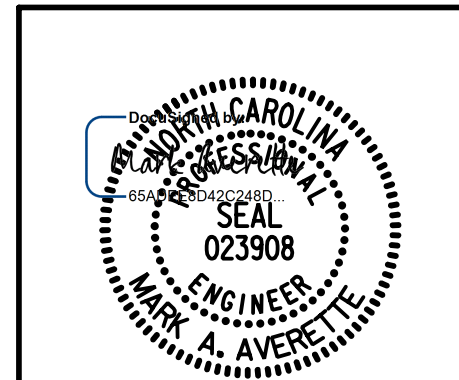


OPTIONAL POUR SEQUENCE

POUR CAN NOT BE STARTED UNTIL BOTH ADJACENT POURS REACH A MINIMUM OF 3000 PSI

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 4



STATE OF NORTH CAROLINA
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 RALEIGH
 SUPERSTRUCTURE
BILL OF MATERIAL
 STAGE III

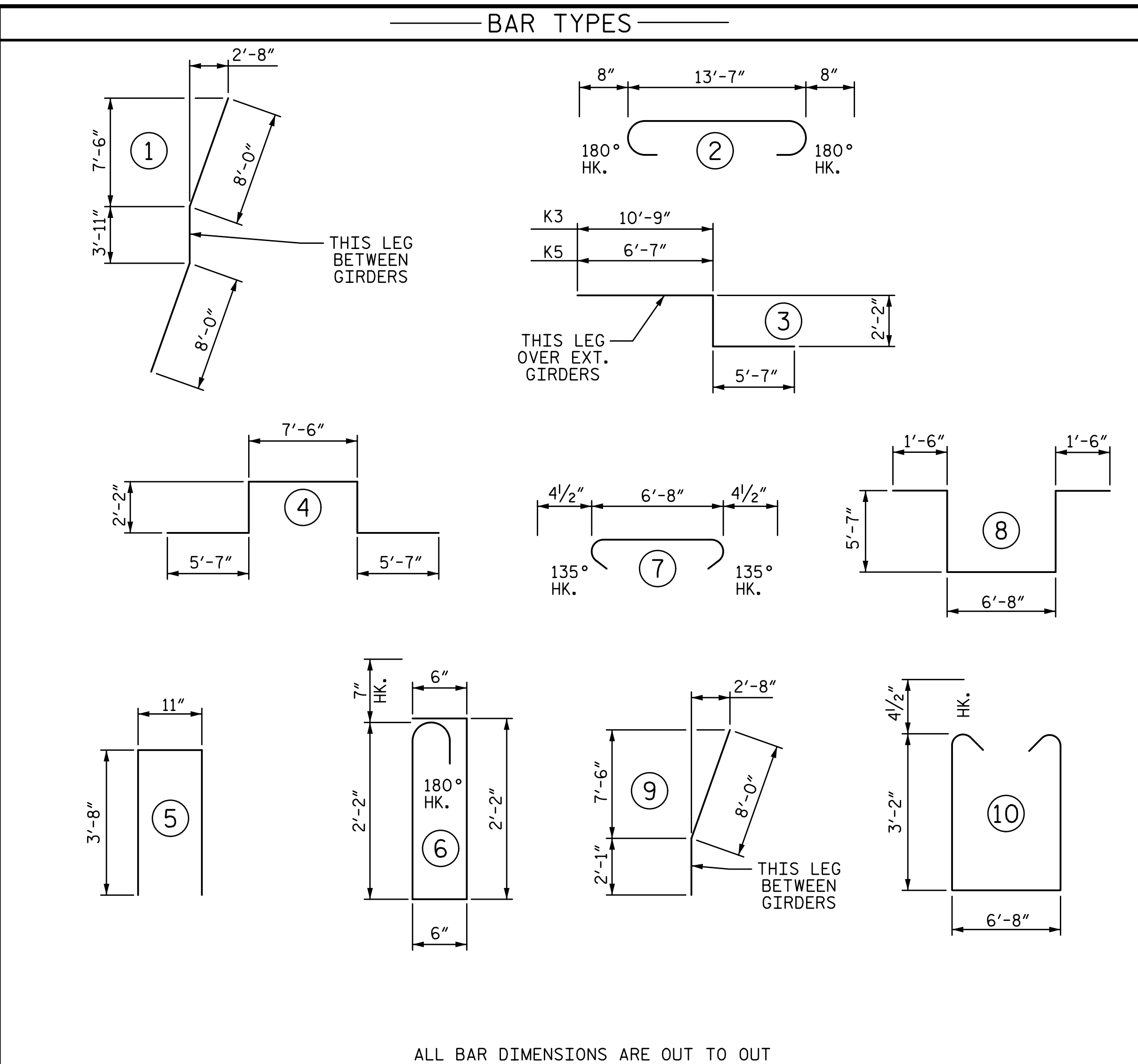
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ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL																																
STAGE II																																
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT			
* A1	321	#5	STR	48'-5"	16210	* A141	4	#5	STR	17'-5"	73	A220	4	#5	STR	33'-4"	139	A261	4	#5	STR	2'-2"	9	A262	4	#5	STR	1'-5"	6			
A2	321	#5	STR	48'-5"	16210	* A142	4	#5	STR	16'-7"	69	A221	4	#5	STR	32'-7"	136															
* A101	4	#5	STR	47'-10"	200	* A143	4	#5	STR	15'-10"	66	A222	4	#5	STR	31'-10"	133	* B1	33	#4	STR	39'-0"	860									
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* A103	4	#5	STR	46'-4"	193	* A145	4	#5	STR	14'-4"	60	A224	4	#5	STR	30'-4"	127	* B3	66	#4	STR	25'-0"	1102									
* A104	4	#5	STR	45'-6"	190	* A146	4	#5	STR	13'-7"	57	A225	4	#5	STR	29'-7"	123	* B4	33	#6	STR	11'-8"	578									
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* A114	4	#5	STR	38'-8"	161	* A156	4	#5	STR	6'-0"	25	A235	4	#5	STR	21'-11"	91	D2	432	#6	STR	6'-6"	4218									
* A115	4	#5	STR	37'-11"	158	* A157	4	#5	STR	5'-2"	22	A236	4	#5	STR	21'-2"	88	* D3	6	#6	STR	9'-10"	89									
* A116	4	#5	STR	37'-2"	155	* A158	4	#5	STR	4'-5"	18	A237	4	#5	STR	20'-5"	85															
* A117	4	#5	STR	36'-5"	152	* A159	4	#5	STR	3'-8"	15	A238	4	#5	STR	19'-8"	82	* G1	4	#5	STR	45'-9"	191									
* A118	4	#5	STR	35'-8"	149	* A160	4	#5	STR	2'-11"	12	A239	4	#5	STR	18'-11"	79															
* A119	4	#5	STR	34'-11"	146	* A161	4	#5	STR	2'-2"	9	A240	4	#5	STR	18'-2"	76	K1	40	#6	STR	8'-5"	506									
* A120	4	#5	STR	34'-1"	142	* A162	4	#5	STR	1'-5"	6	A241	4	#5	STR	17'-5"	73	K2	20	#6	2	14'-11"	448									
* A121	4	#5	STR	33'-4"	139	* A163	6	#6	STR	23'-6"	212	A242	4	#5	STR	16'-7"	69	* K3	4	#8	3	18'-6"	198									
* A122	4	#5	STR	32'-7"	136							A243	4	#5	STR	15'-10"	66	* K4	16	#8	4	23'-0"	983									
* A123	4	#5	STR	31'-10"	133	A201	4	#5	STR	47'-10"	200	A244	4	#5	STR	15'-1"	63	* K5	4	#8	3	14'-4"	153									
* A124	4	#5	STR	31'-1"	130	A202	4	#5	STR	47'-1"	196	A245	4	#5	STR	14'-4"	60	K11	20	#4	STR	11'-0"	147									
* A125	4	#5	STR	30'-4"	127	A203	4	#5	STR	46'-4"	193	A246	4	#5	STR	13'-7"	57	K12	80	#4	STR	13'-11"	744									
* A126	4	#5	STR	29'-7"	123	A204	4	#5	STR	45'-6"	190	A247	4	#5	STR	12'-10"	54	K13	20	#4	STR	8'-5"	112									
* A127	4	#5	STR	28'-10"	120	A205	4	#5	STR	44'-9"	187	A248	4	#5	STR	12'-1"	50															
* A128	4	#5	STR	28'-0"	117	A206	4	#5	STR	44'-0"	184	A249	4	#5	STR	11'-4"	47	* S1	40	#4	5	8'-3"	220									
* A129	4	#5	STR	27'-3"	114	A207	4	#5	STR	43'-3"	180	A250	4	#5	STR	10'-6"	44	* S2	40	#5	6	5'-11"	247									
* A130	4	#5	STR	26'-6"	111	A208	4	#5	STR	42'-6"	177	A251	4	#5	STR	9'-9"	41	S3	360	#4	7	7'-5"	1784									
* A131	4	#5	STR	25'-9"	107	A209	4	#5	STR	41'-9"	174	A252	4	#5	STR	9'-0"	38															
* A132	4	#5	STR	25'-0"	104	A210	4	#5	STR	41'-0"	171	A253	4	#5	STR	8'-3"	34	* U1	60	#4	8	20'-10"	835									
* A133	4	#5	STR	24'-3"	101	A211	4	#5	STR	40'-3"	168	A254	4	#5	STR	7'-6"	31	U2	20	#4	10	13'-9"	184									
* A134	4	#5	STR	23'-6"	98	A212	4	#5	STR	39'-5"	164	A255	4	#5	STR	6'-9"	28															
* A135	4	#5	STR	22'-9"	95	A213	4	#5	STR	38'-8"	161	A256	4	#5	STR	6'-0"	25	Z1	60	#4	1	19'-11"	798									
* A136	4	#5	STR	21'-11"	91	A214	4	#5	STR	37'-11"	158	A257	4	#5	STR	5'-2"	22	Z2	12	#4	9	10'-1"	81									
* A137	4	#5	STR	21'-2"	88	A215	4	#5	STR	37'-2"	155	A258	4	#5	STR	4'-5"	18															
* A138	4	#5	STR	20'-5"	85	A216	4	#5	STR	36'-5"	152	A259	4	#5	STR	3'-8"	15															
* A139	4	#5	STR	19'-8"	82	A217	4	#5	STR	35'-8"	149	A260	4	#5	STR	2'-11"	12															
* A140	4	#5	STR	18'-11"	79	A218	4	#5	STR	34'-11"	146																					
* A140	4	#5	STR	18'-2"	76	A219	4	#5	STR	34'-1"	142																					
																		REINFORCING STEEL								48494 LB						
																		* EPOXY COATED REINFORCING STEEL								46029 LB						
																		* INDICATES EPOXY COATED REINFORCING STEEL														

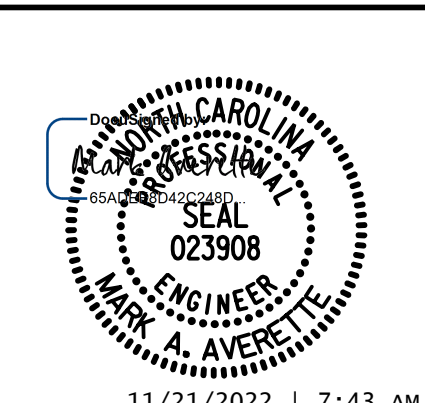
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS					
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	1'-11"	1'-7"	1'-11"	1'-7"	2'-6"
#5	2'-5"	2'-0"	2'-5"	2'-0"	3'-1"
#6	2'-10"	2'-5"	3'-7"	2'-5"	3'-8"
#7	4'-2"	2'-9"			
#8	4'-9"	3'-2"			

GROOVING BRIDGE FLOORS		
APPROACH SLABS	1,908	SQ. FT.
BRIDGE DECK	10,826	SQ. FT.
TOTAL	12,734	SQ. FT.

SUPERSTRUCTURE BILL OF MATERIAL-STAGE II			
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	100.0		
POUR 2	248.9		
POUR 3	172.2		
TOTALS**	521.1	48494	46029

** QUANTITIES FOR VERTICAL BARRIER RAIL AND CONCRETE PARAPET ARE NOT INCLUDED

DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022



PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 3 OF 4
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 BILL OF MATERIAL
 STAGE II

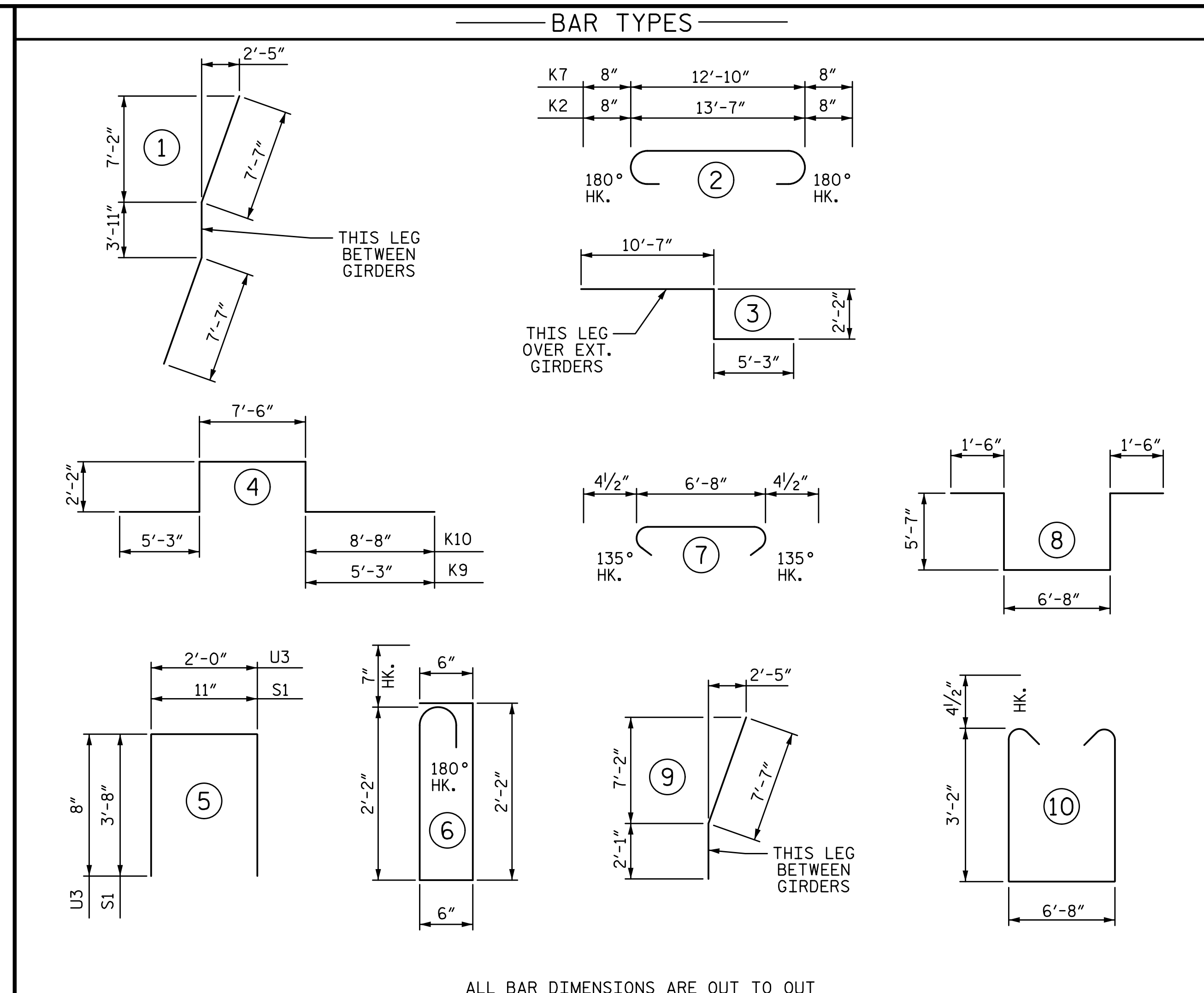
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
1			3			TOTAL SHEETS 72
2			4			

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BILL OF MATERIAL

STAGE III

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* A3	369	#5	STR	30'-0"	11546	A406	4	#5	STR	25'-8"	107	* D1	432	#6	STR	6'-9"	4380	
A4	369	#5	STR	30'-0"	11546	A407	4	#5	STR	24'-11"	104	D2	432	#6	STR	6'-6"	4218	
						A408	4	#5	STR	24'-2"	101	* D3	6	#6	STR	9'-10"	89	
* A301	4	#5	STR	29'-6"	123	A409	4	#5	STR	23'-5"	98							
* A302	4	#5	STR	28'-9"	120	A410	4	#5	STR	22'-8"	95	* G2	4	#5	STR	28'-11"	121	
* A303	4	#5	STR	28'-0"	117	A411	4	#5	STR	21'-10"	91	* G3	254	#4	STR	5'-0"	848	
* A304	4	#5	STR	27'-2"	113	A412	4	#5	STR	21'-1"	88	* G4	2	#4	STR	5'-3"	7	
* A305	4	#5	STR	26'-5"	110	A413	4	#5	STR	20'-4"	85	* G5	2	#4	STR	5'-10"	8	
* A306	4	#5	STR	25'-8"	107	A414	4	#5	STR	19'-7"	82	* G6	2	#4	STR	6'-10"	9	
* A307	4	#5	STR	24'-11"	104	A415	4	#5	STR	18'-10"	79	* G7	2	#4	STR	8'-2"	11	
* A308	4	#5	STR	24'-2"	101	A416	4	#5	STR	18'-1"	75							
* A309	4	#5	STR	23'-5"	98	A417	4	#5	STR	17'-4"	72	K1	8	#6	STR	8'-5"	101	
* A310	4	#5	STR	22'-8"	95	A418	4	#5	STR	16'-7"	69	K2	4	#6	2	14'-11"	90	
* A311	4	#5	STR	21'-10"	91	A419	4	#5	STR	15'-9"	66	K6	24	#6	STR	7'-8"	276	
* A312	4	#5	STR	21'-1"	88	A420	4	#5	STR	15'-0"	63	K7	12	#6	2	14'-2"	255	
* A313	4	#5	STR	20'-4"	85	A421	4	#5	STR	14'-3"	59	* K8	4	#8	3	18'-0"	192	
* A314	4	#5	STR	19'-7"	82	A422	4	#5	STR	13'-6"	56	* K9	8	#8	4	22'-4"	477	
* A315	4	#5	STR	18'-10"	79	A423	4	#5	STR	12'-9"	53	* K10	4	#8	4	25'-9"	275	
* A316	4	#5	STR	18'-1"	75	A424	4	#5	STR	12'-0"	50	K11	4	#4	STR	11'-0"	29	
* A317	4	#5	STR	17'-4"	72	A425	4	#5	STR	11'-3"	47	K12	16	#4	STR	13'-11"	149	
* A318	4	#5	STR	16'-7"	69	A426	4	#5	STR	10'-5"	43	K13	4	#4	STR	8'-5"	22	
* A319	4	#5	STR	15'-9"	66	A427	4	#5	STR	9'-8"	40	K14	12	#4	STR	10'-3"	82	
* A320	4	#5	STR	15'-0"	63	A428	4	#5	STR	8'-11"	37	K15	48	#4	STR	13'-2"	422	
* A321	4	#5	STR	14'-3"	59	A429	4	#5	STR	8'-2"	34	K16	12	#4	STR	7'-8"	61	
* A322	4	#5	STR	13'-6"	56	A430	4	#5	STR	7'-5"	31							
* A323	4	#5	STR	12'-9"	53	A431	4	#5	STR	6'-8"	28	* S1	32	#4	5	8'-3"	176	
* A324	4	#5	STR	12'-0"	50	A432	4	#5	STR	5'-11"	25	* S2	32	#5	6	5'-11"	197	
* A325	4	#5	STR	11'-3"	47	A433	4	#5	STR	5'-2"	22	S3	288	#4	7	7'-5"	1427	
* A326	4	#5	STR	10'-5"	43	A434	4	#5	STR	4'-4"	18							
* A327	4	#5	STR	9'-8"	40	A435	4	#5	STR	3'-7"	15	* U1	48	#4	8	20'-10"	668	
* A328	4	#5	STR	8'-11"	37	A436	4	#5	STR	2'-10"	12	U2	16	#4	10	13'-9"	147	
* A329	4	#5	STR	8'-2"	34	A437	4	#5	STR	2'-1"	9	* U3	74	#4	STR	3'-4"	165	
* A330	4	#5	STR	7'-5"	31	A438	4	#5	STR	1'-4"	6							
* A331	4	#5	STR	6'-8"	28								Z3	36	#4	1	19'-1"	459
* A332	4	#5	STR	5'-11"	25	* B1	24	#4	STR	39'-0"	625	Z4	12	#4	9	9'-8"	77	
* A333	4	#5	STR	5'-2"	22	* B2	48	#4	STR	22'-11"	735	REINFORCING STEEL 34195 LB						
* A334	4	#5	STR	4'-4"	18	* B3	45	#4	STR	25'-0"	752	* EPOXY COATED REINFORCING STEEL 34266 LB						
* A335	4	#5	STR	3'-7"	15	* B4	24	#6	STR	11'-8"	421	* INDICATES EPOXY COATED REINFORCING STEEL						
* A336	4	#5	STR	2'-10"	12	* B5	24	#6	STR	60'-0"	2163							
* A337	4	#5	STR	2'-1"	9	* B6	46	#6	STR	28'-9"	1986							
* A338	4	#5	STR	1'-4"	6	* B7	46	#6	STR	30'-6"	2107							
* A339	6	#6	STR	22'-6"	203	* B8	24	#6	STR	60'-0"	2163							
						* B9	24	#6	STR	15'-2"	547							
A401	4	#5	STR	29'-6"	123	B10	220	#5	STR	54'-0"	12391							
A402	4	#5	STR	28'-9"	120	* B11	10	#4	STR	37'-6"	251							
A403	4	#5	STR	28'-0"	117	* B12	20	#4	STR	32'-11"	440							
A404	4	#5	STR	27'-2"	113	* B13	15	#4	STR	26'-0"	261							
A405	4	#5	STR	26'-5"	110													

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

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

GROOVING BRIDGE FLOORS

APPROACH SLABS	1218	SQ. FT.
BRIDGE DECK	6,913	SQ. FT.
TOTAL	8,131	SQ. FT.

—SUPERSTRUCTURE BILL OF MATERIAL-STAGE III—

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	62.5		
POUR 2	159.3		
POUR 3	104.4		
POUR 4	67.2		
SIDEWALK	33.3		
TOTALS**	426.7	34195	34266

** QUANTITIES FOR CONCRETE PARAPET ARE NOT INCLUDED

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 4 OF 4

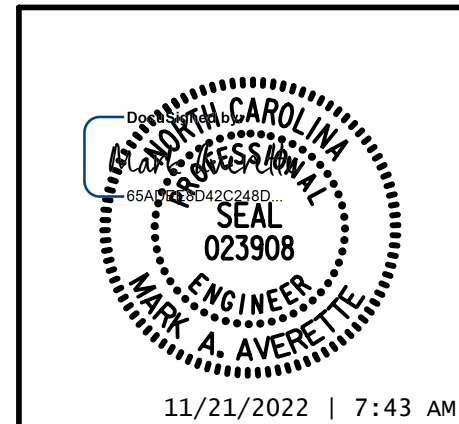
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

BILL OF MATERIAL

STAGE III

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

TOTAL SHEETS 72

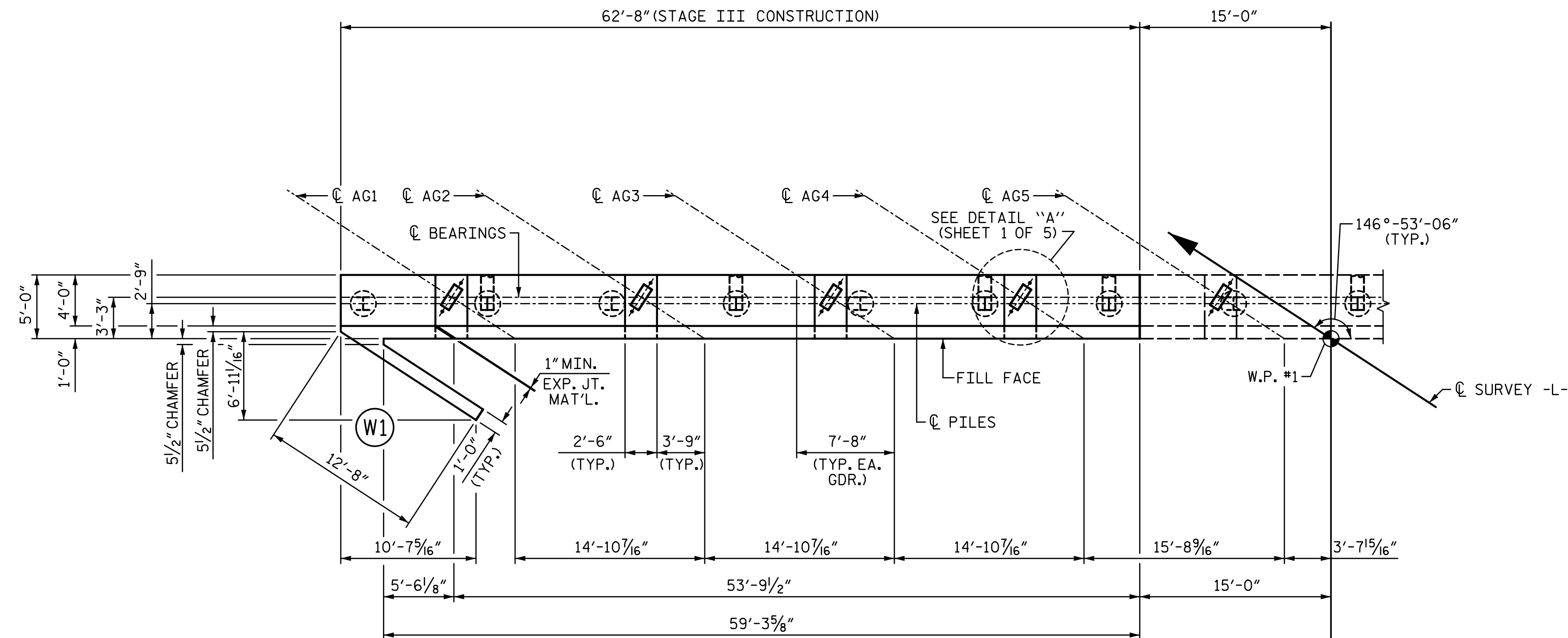


DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

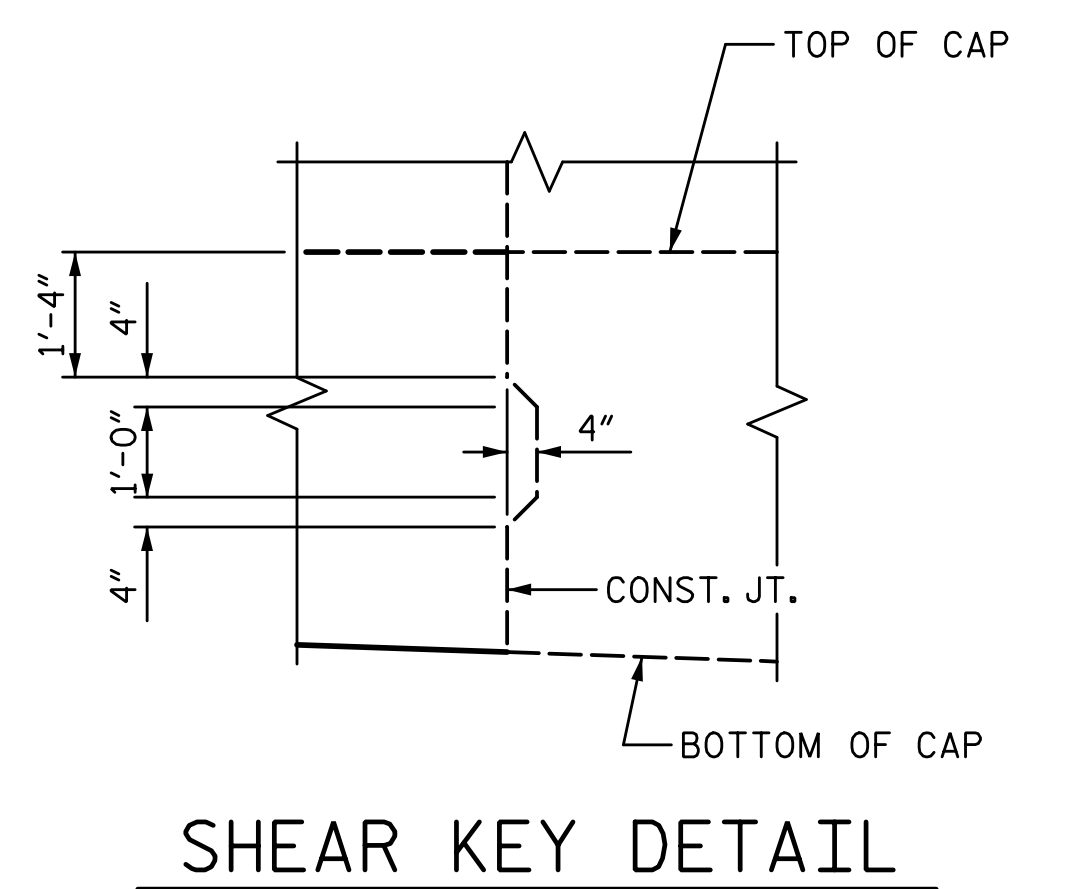
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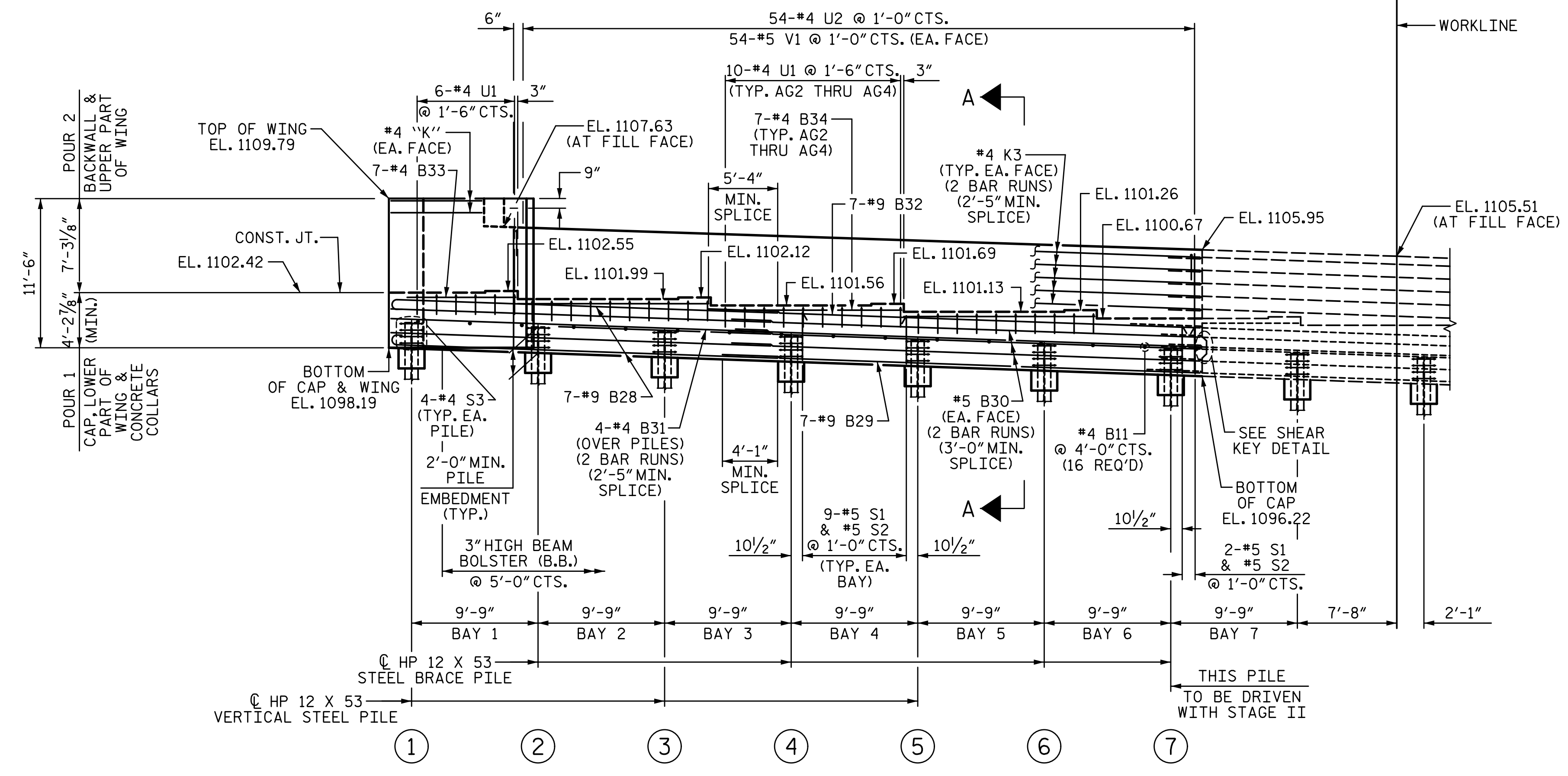
NOTES:
 FOR SECTION A-A, SEE SHEET 5 OF 5.
 FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS SEE SECTION A-A, SEE SHEET 5 OF 5.
 FOR ALL OTHER NOTES, SEE SHEET 1 OF 5.



PLAN
 * 2'-0" BLOCK OUT



TOP OF PILE ELEVATIONS			
PILE	ELEVATION	PILE	ELEVATION
1	1100.13	4	1099.22
2	1099.83	5	1098.91
3	1099.52	6	1098.61



ELEVATION

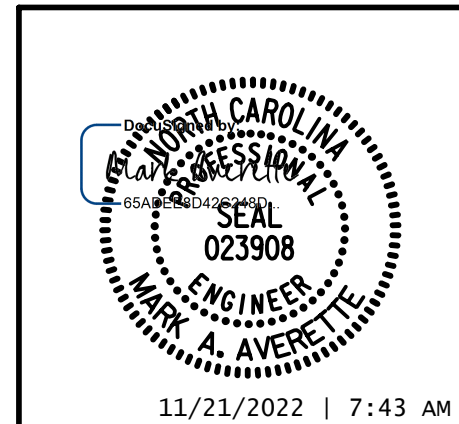
PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

END BENT 1

STAGE III

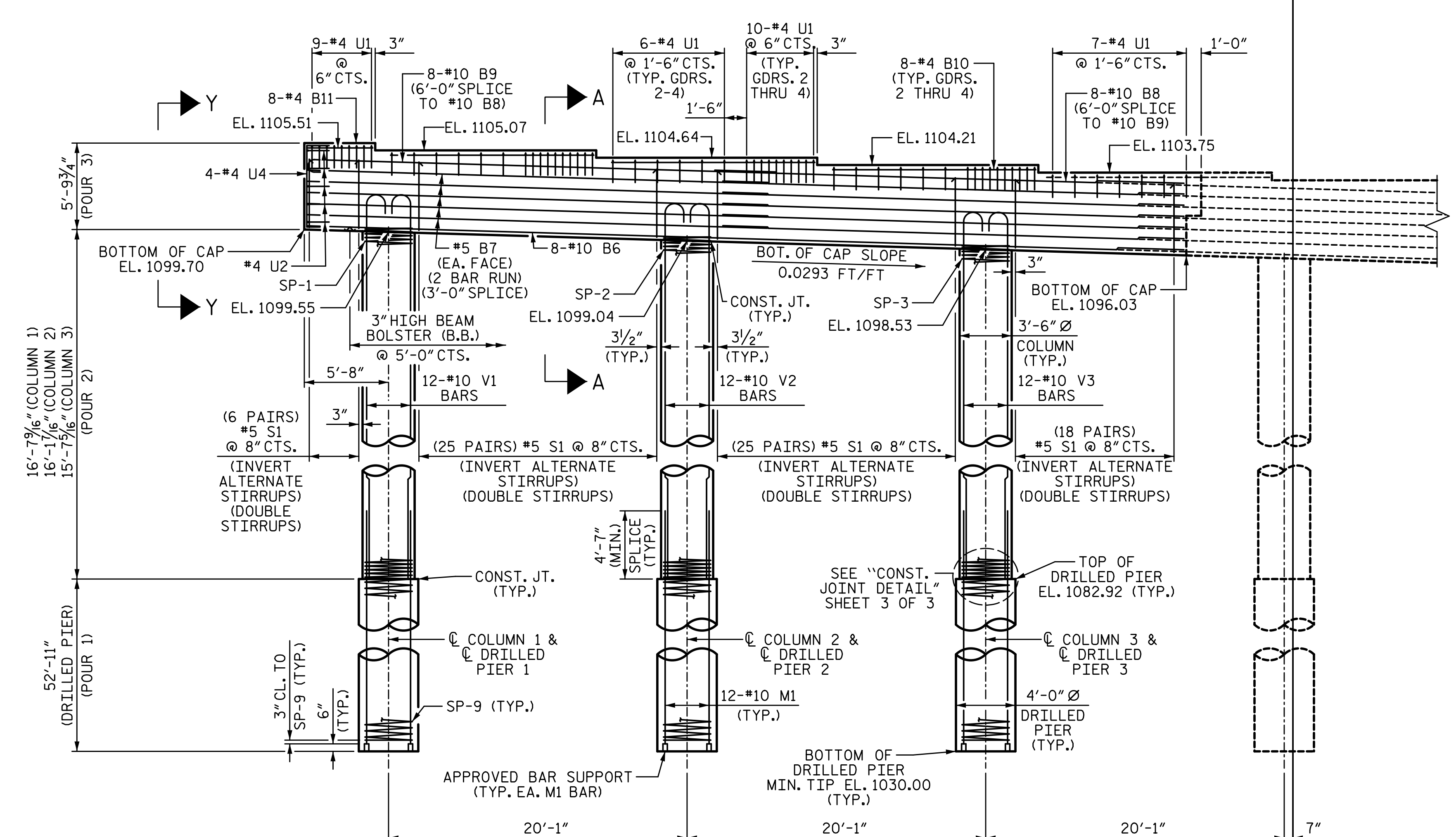
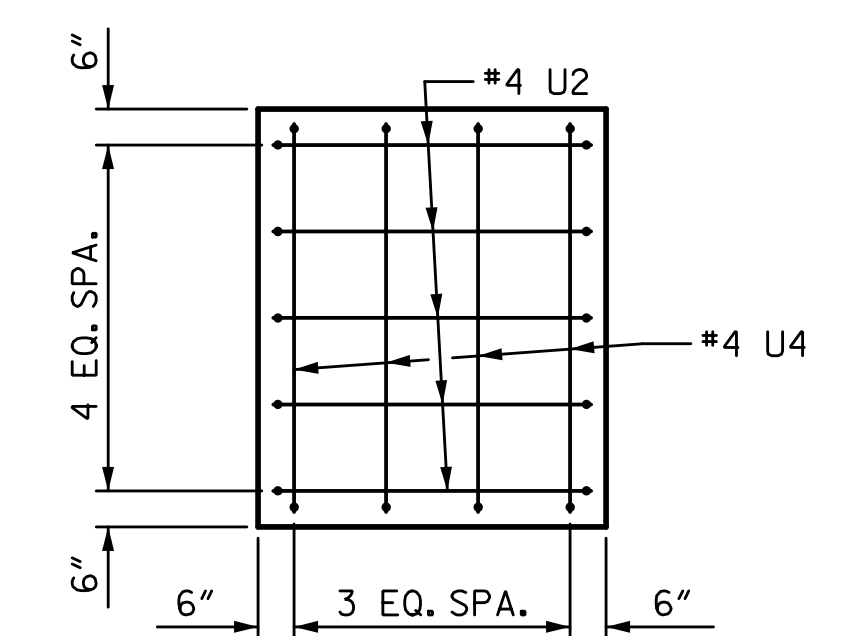
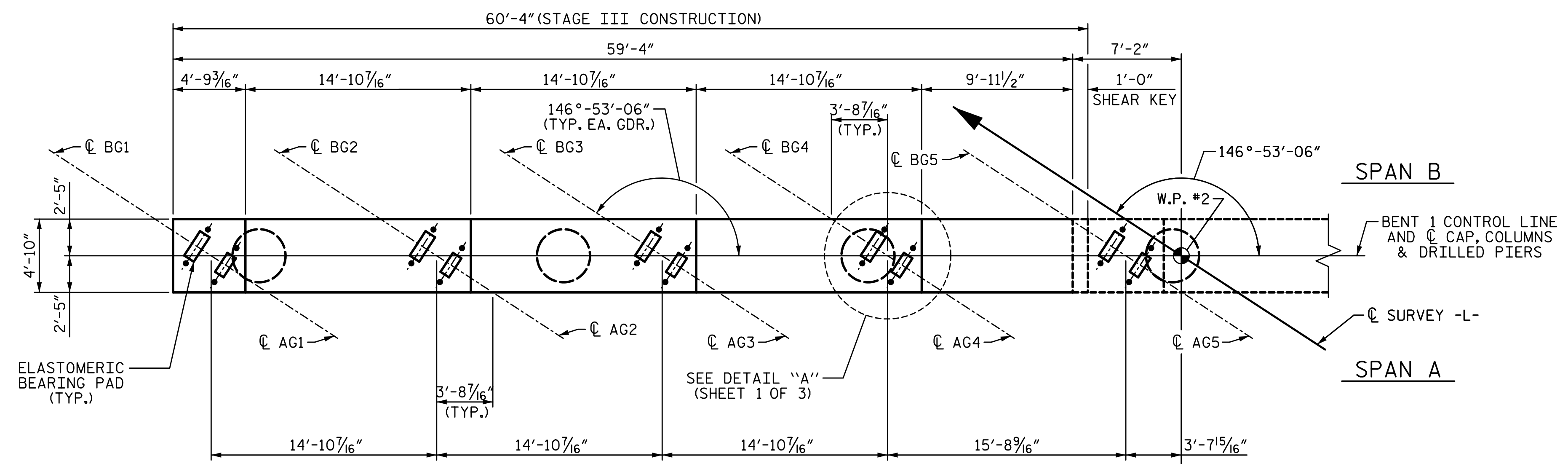


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 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-52
1			3			TOTAL SHEETS
2			4			72

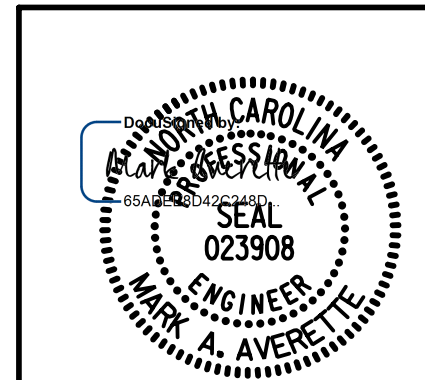
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PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

BENT 1

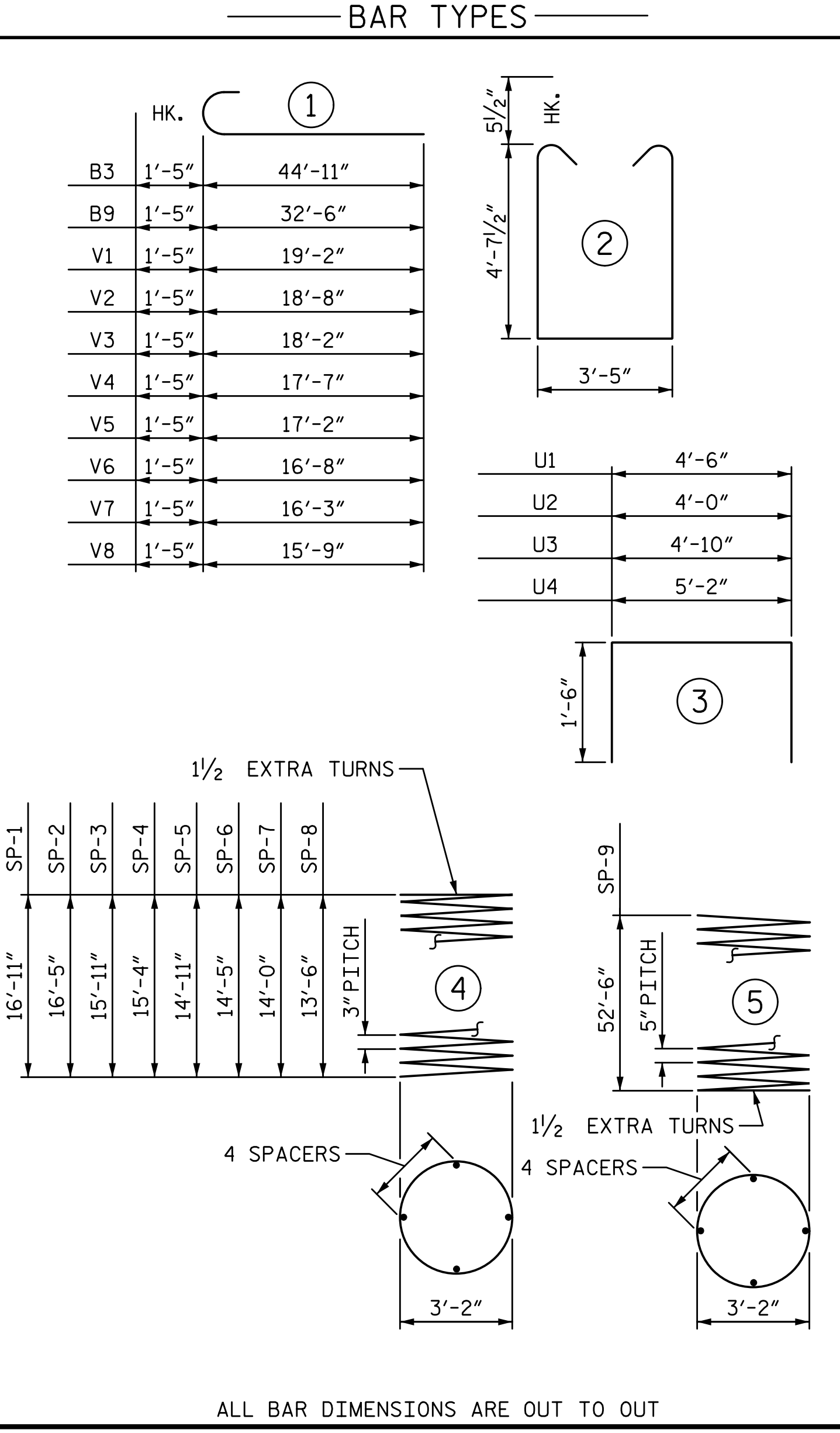
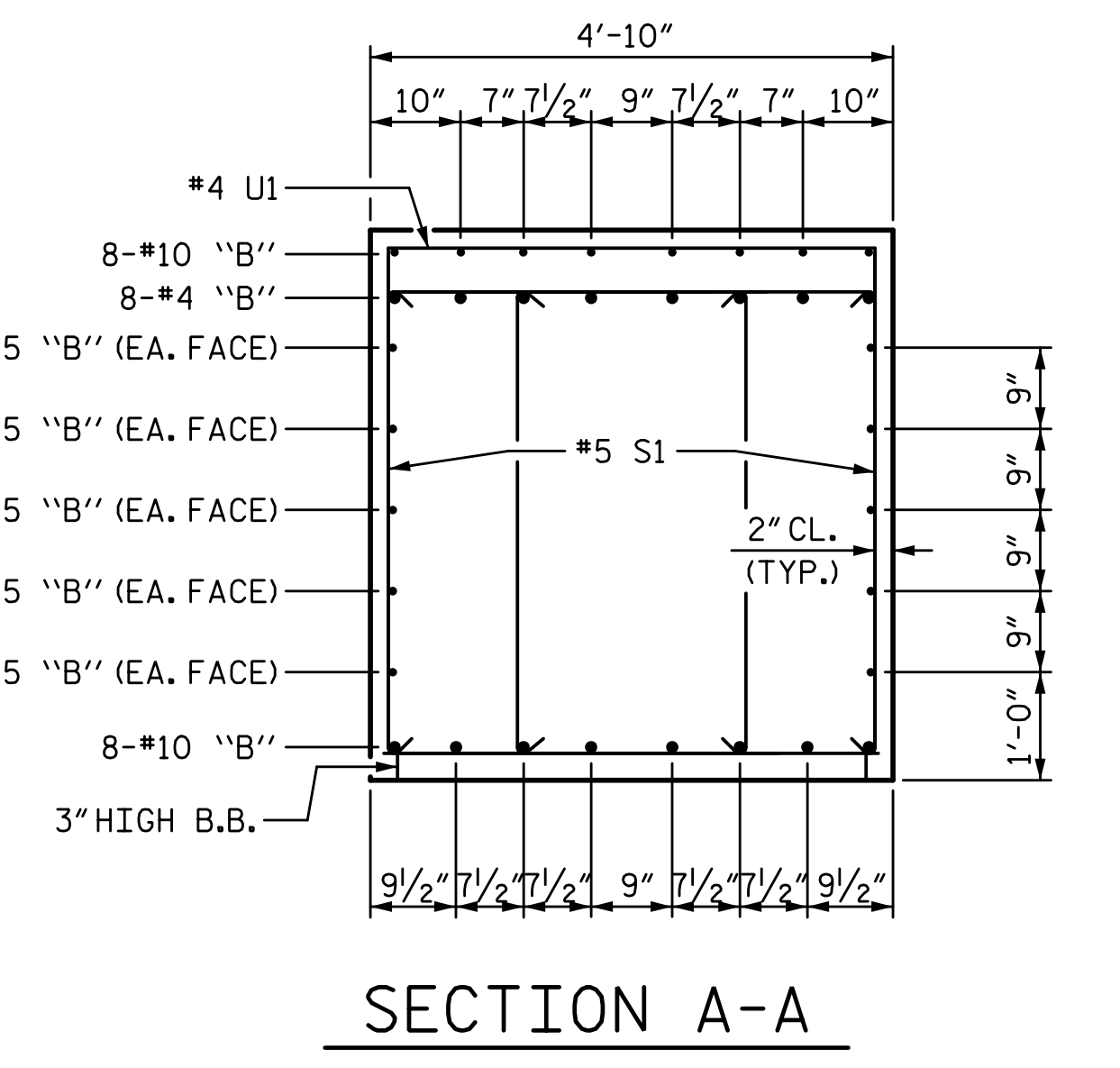
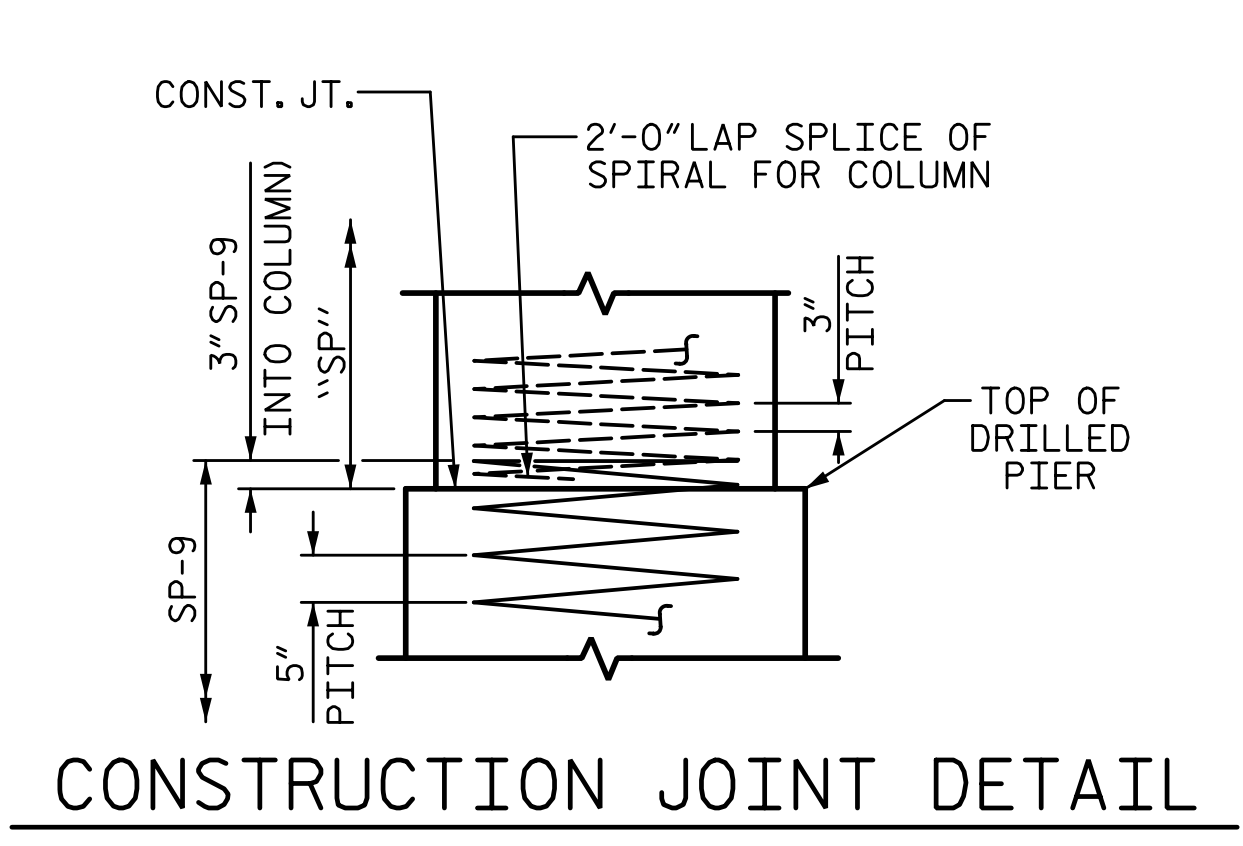
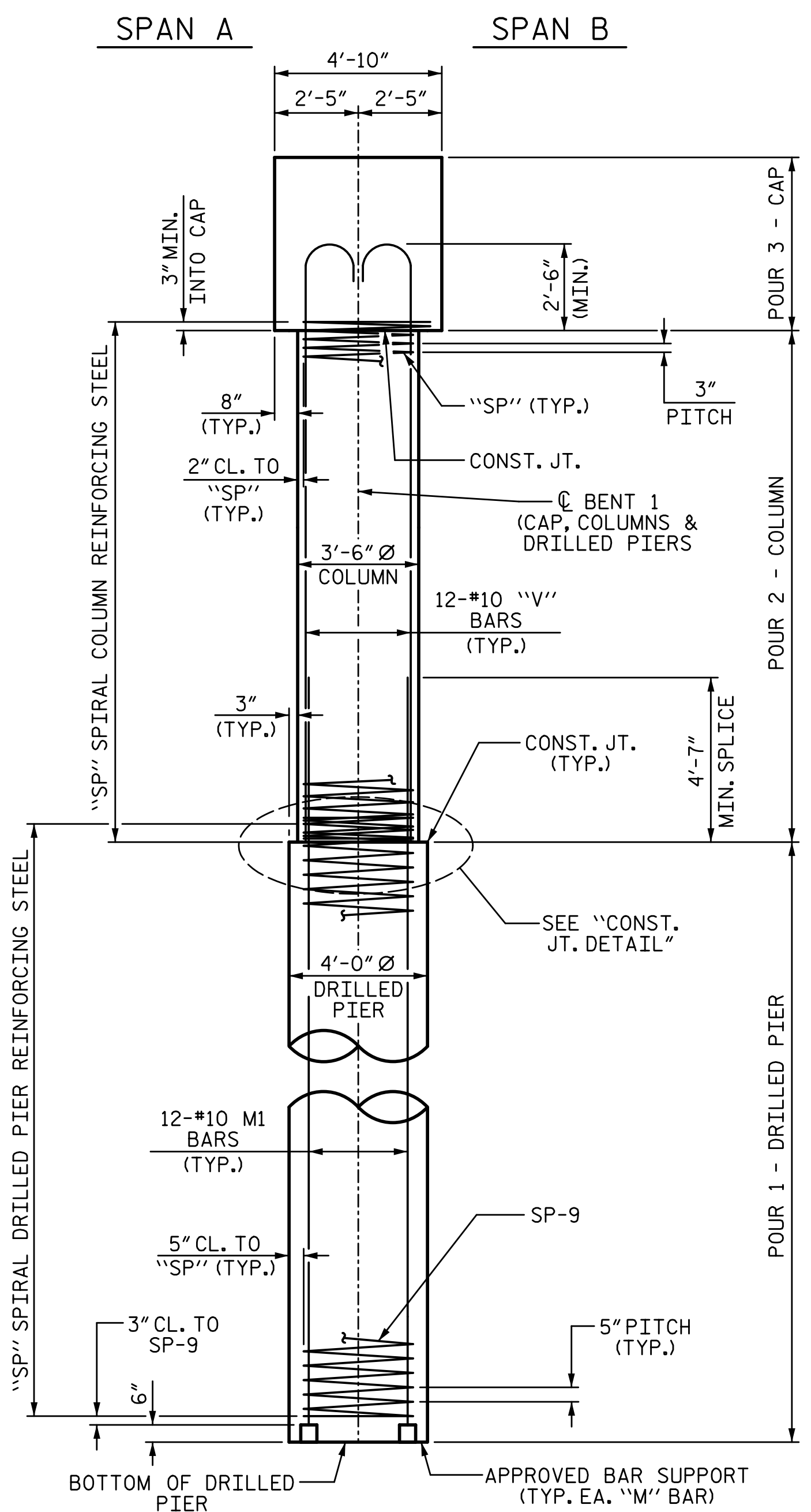
STAGE III

DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

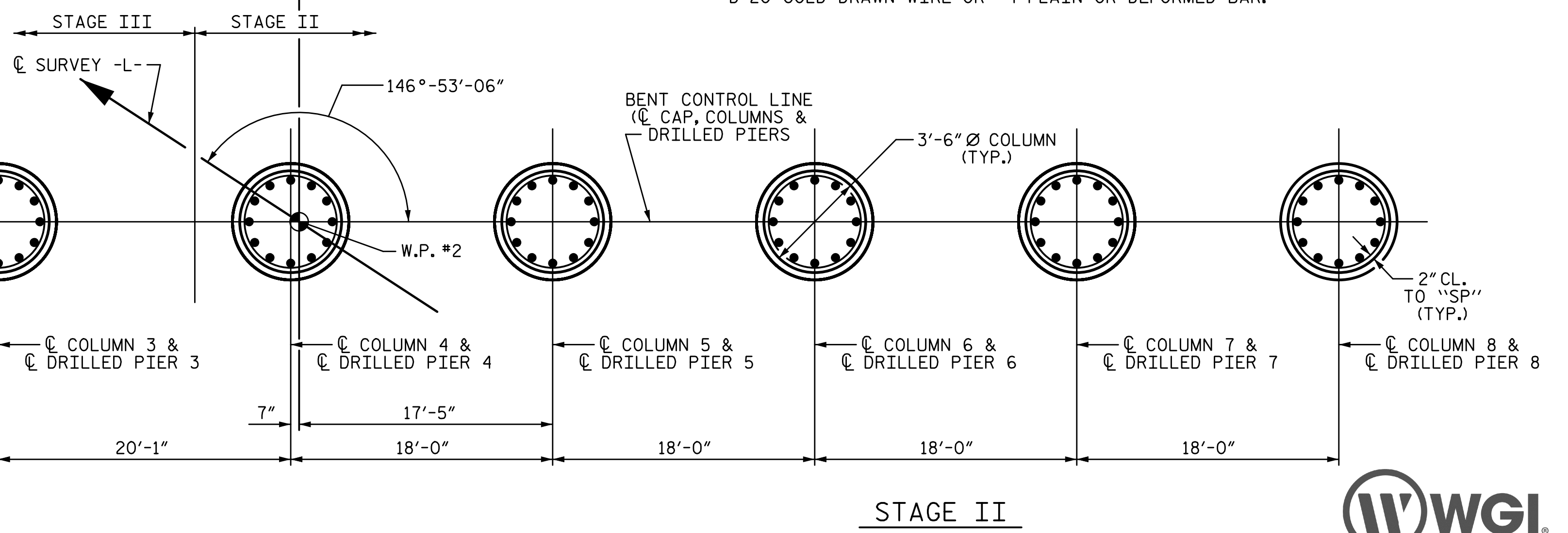
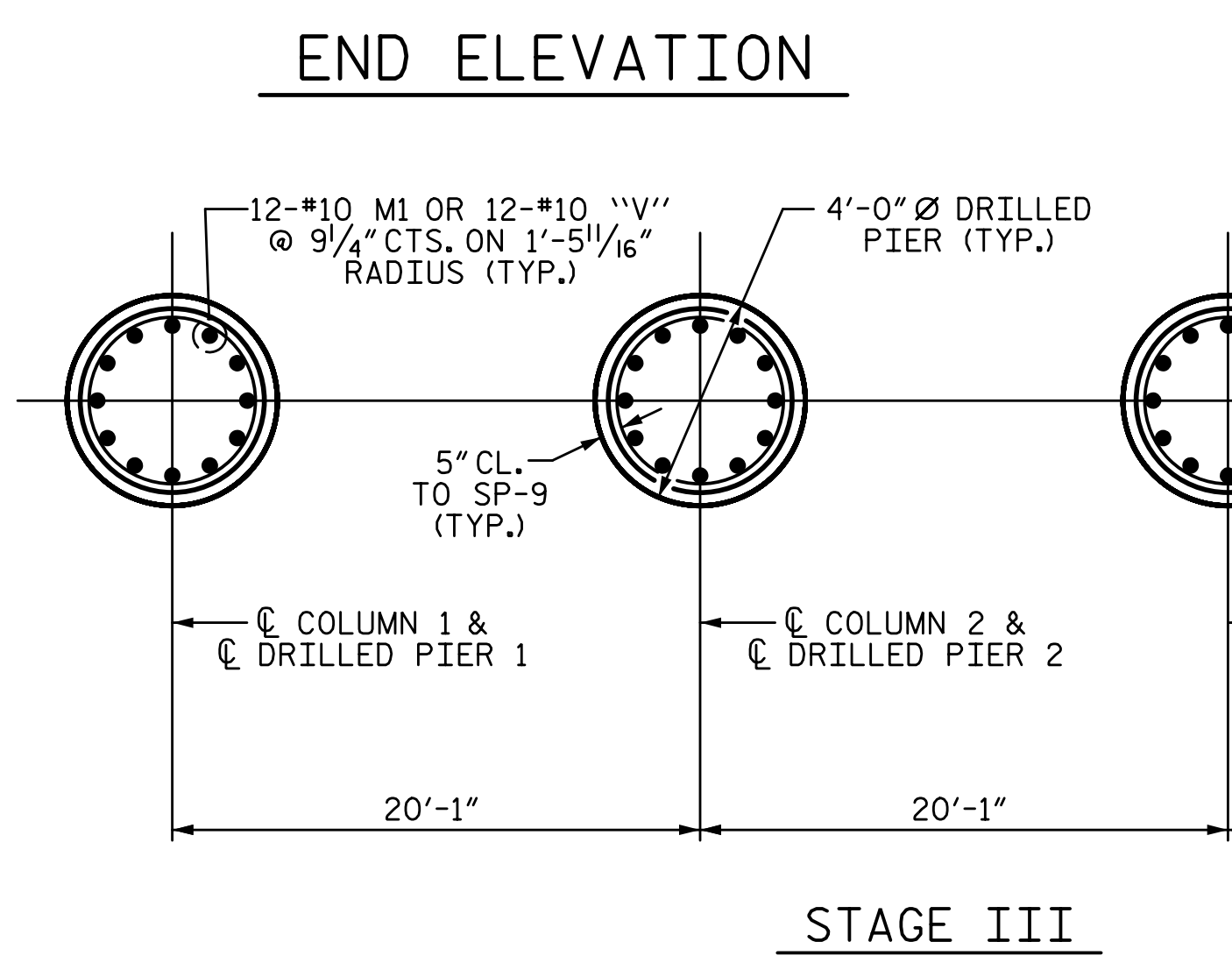
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1						3						5-57	
2						4						TOTAL SHEETS	72

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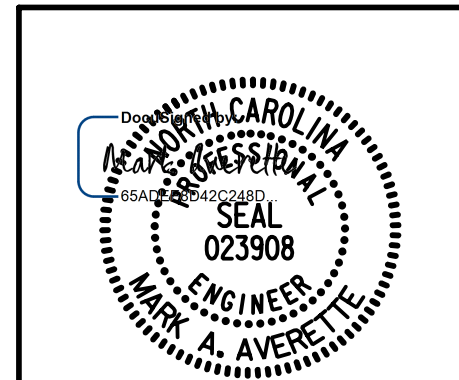
BILL OF MATERIAL BENT 1 - STAGE II						BILL OF MATERIAL BENT 1 - STAGE III							
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	16	#10	STR	46'-8"	3213	B6	8	#10	STR	59'-0"	2031		
B2	20	#5	STR	45'-1"	940	B7	20	#5	STR	31'-0"	647		
B3	8	#10	1	46'-4"	1595	B8	8	#10	STR	32'-6"	1119		
B4	8	#10	STR	51'-3"	1764	B9	8	#10	1	33'-11"	1168		
B5	48	#4	STR	15'-3"	489	B10	24	#4	STR	14'-6"	232		
						B11	8	#4	STR	4'-5"	24		
M1	60	#10	STR	60'-0"	15491	M1	36	#10	STR	60'-0"	9294		
S1	202	#5	2	13'-7"	2862	S1	148	#5	2	13'-7"	2097		
U1	94	#4	3	7'-6"	471	U1	64	#4	3	7'-6"	321		
U2	5	#4	3	7'-0"	23	U2	5	#4	3	7'-0"	23		
U3	4	#4	3	7'-10"	21	U4	4	#4	3	8'-2"	22		
V4	12	#10	1	19'-0"	981	V1	12	#10	1	20'-7"	1063		
V5	12	#10	1	18'-7"	960	V2	12	#10	1	20'-1"	1037		
V6	12	#10	1	18'-1"	934	V3	12	#10	1	19'-7"	1011		
V7	12	#10	1	17'-8"	912								
V8	12	#10	1	17'-2"	886								
SP-4	1	*	4	618'-9"	413	SP-1	1	*	4	687'-6"	459		
SP-5	1	*	4	608'-11"	407	SP-2	1	*	4	667'-10"	446		
SP-6	1	*	4	589'-3"	394	SP-3	1	*	4	648'-2"	433		
SP-7	1	*	4	569'-8"	381	SP-9	3	**	5	1253'-7"	3922		
SP-8	1	*	4	550'-0"	367								
SP-9	5	**	5	1253'-7"	6537								
REINFORCING STEEL						20089 LB							
REINFORCING STEEL						31542 LB							
SPIRAL COL. REINF. STEEL						8499 LB							
CLASS "A" CONCRETE BREAKDOWN						CLASS "A" CONCRETE BREAKDOWN							
POUR 2 (COLUMNS)						POUR 2 (COLUMNS)						17.3	CY
POUR 3 (CAP)						POUR 3 (CAP)						60.2	CY
TOTAL						TOTAL						77.5	CY
DRILLED PIERS:						DRILLED PIERS:							
DRILLED PIER CONCRETE POUR 1 (DRILLED PIERS)						DRILLED PIER CONCRETE POUR 1 (DRILLED PIERS)						73.9	CY
DRILLED PIER CONCRETE POUR 1 (DRILLED PIERS) NOT IN SOIL						4'-0" Ø DRILLED PIER NOT IN SOIL						35.6	LF
4'-0" Ø DRILLED PIER NOT IN SOIL						4'-0" Ø DRILLED PIER IN SOIL						123.2	LF
4'-0" Ø DRILLED PIER IN SOIL						CSL TUBES						653.0	LF
CSL TUBES						1088.3						LF	



PLAN OF DRILLED PIERS AND COLUMNS

* THE SP-9 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 * THE "SP" SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022



PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

BENT 1

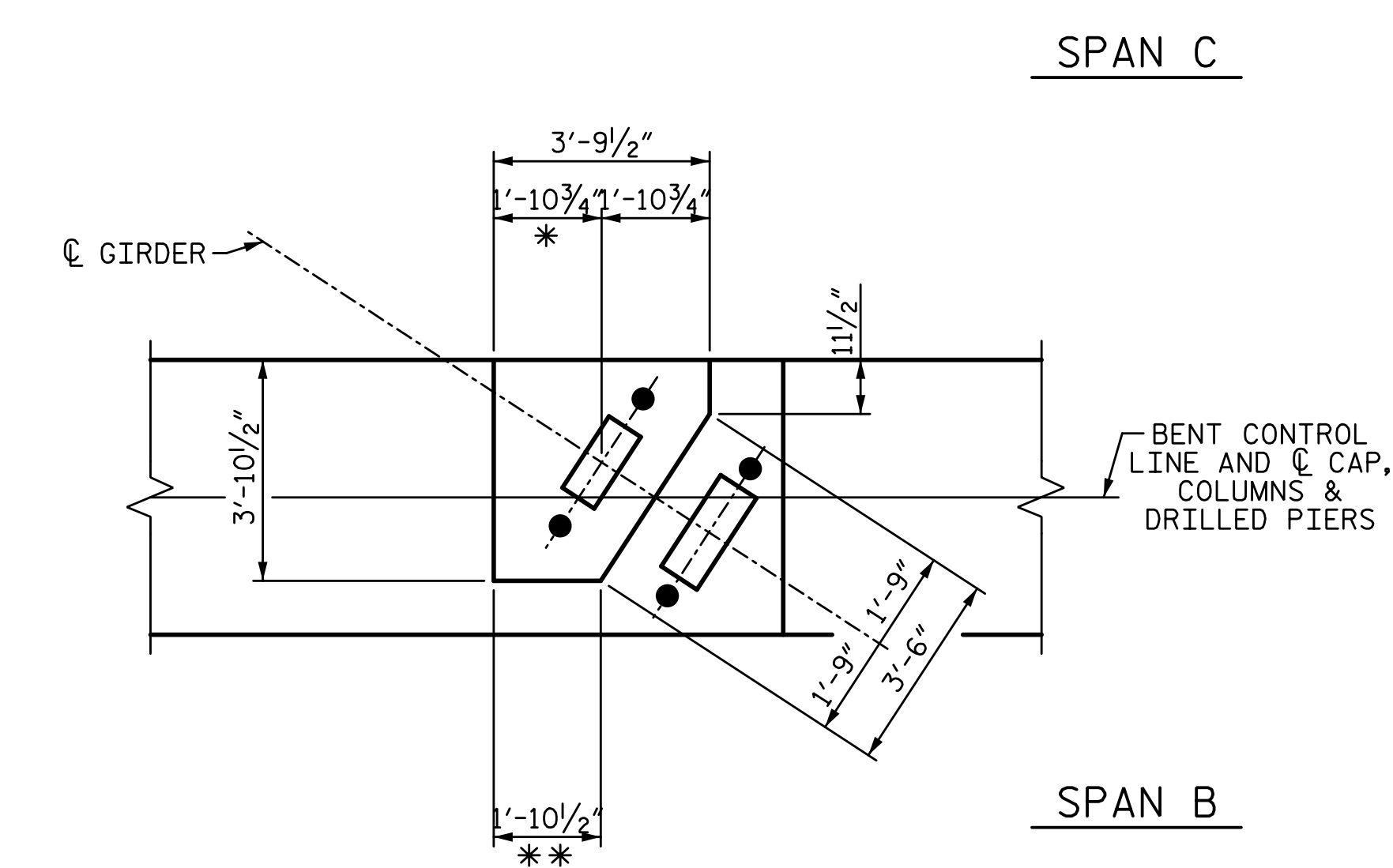
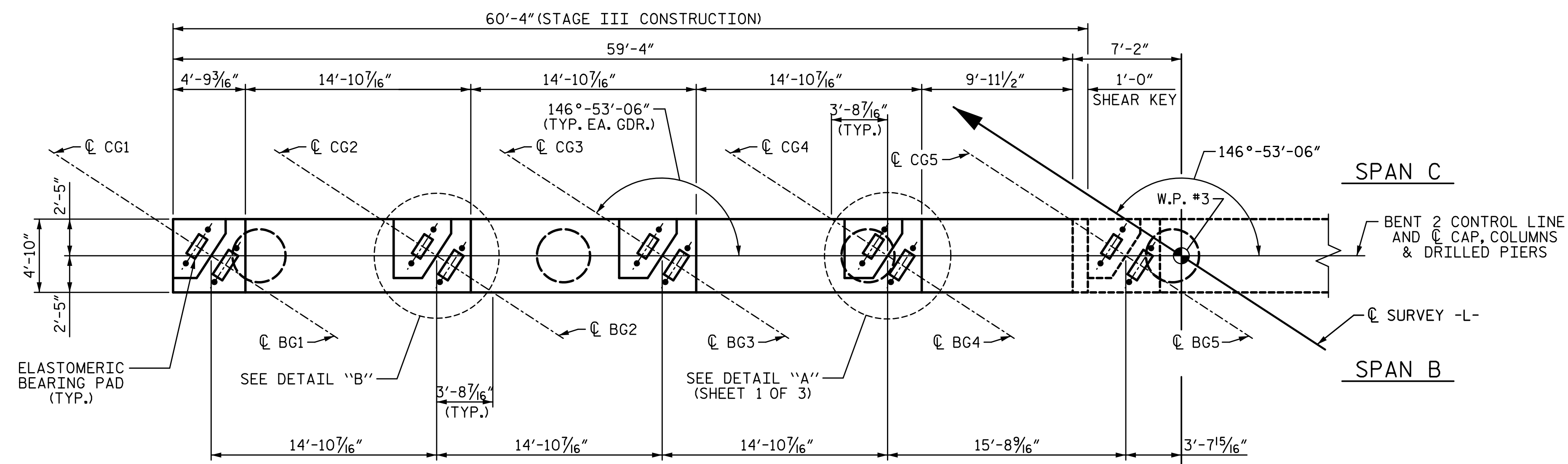
STAGE II & III

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

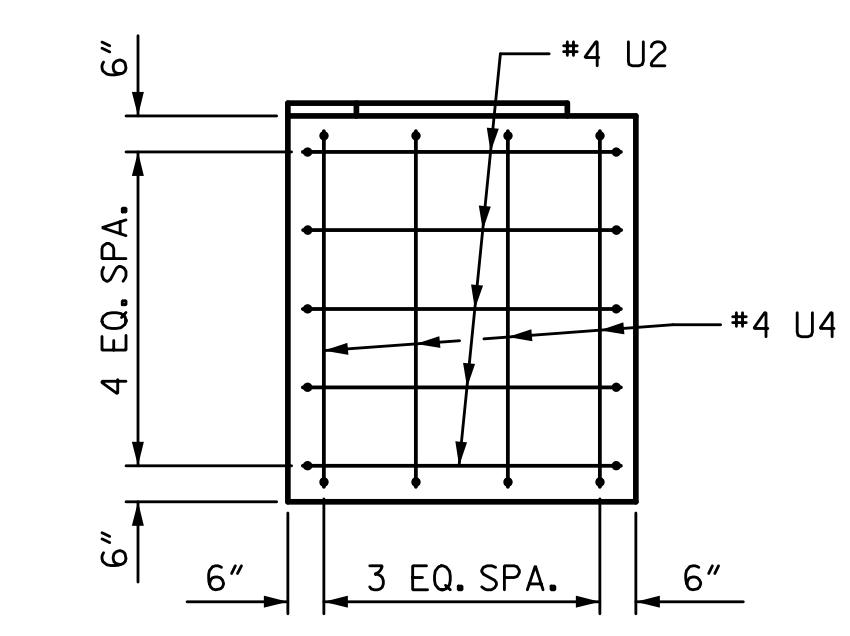
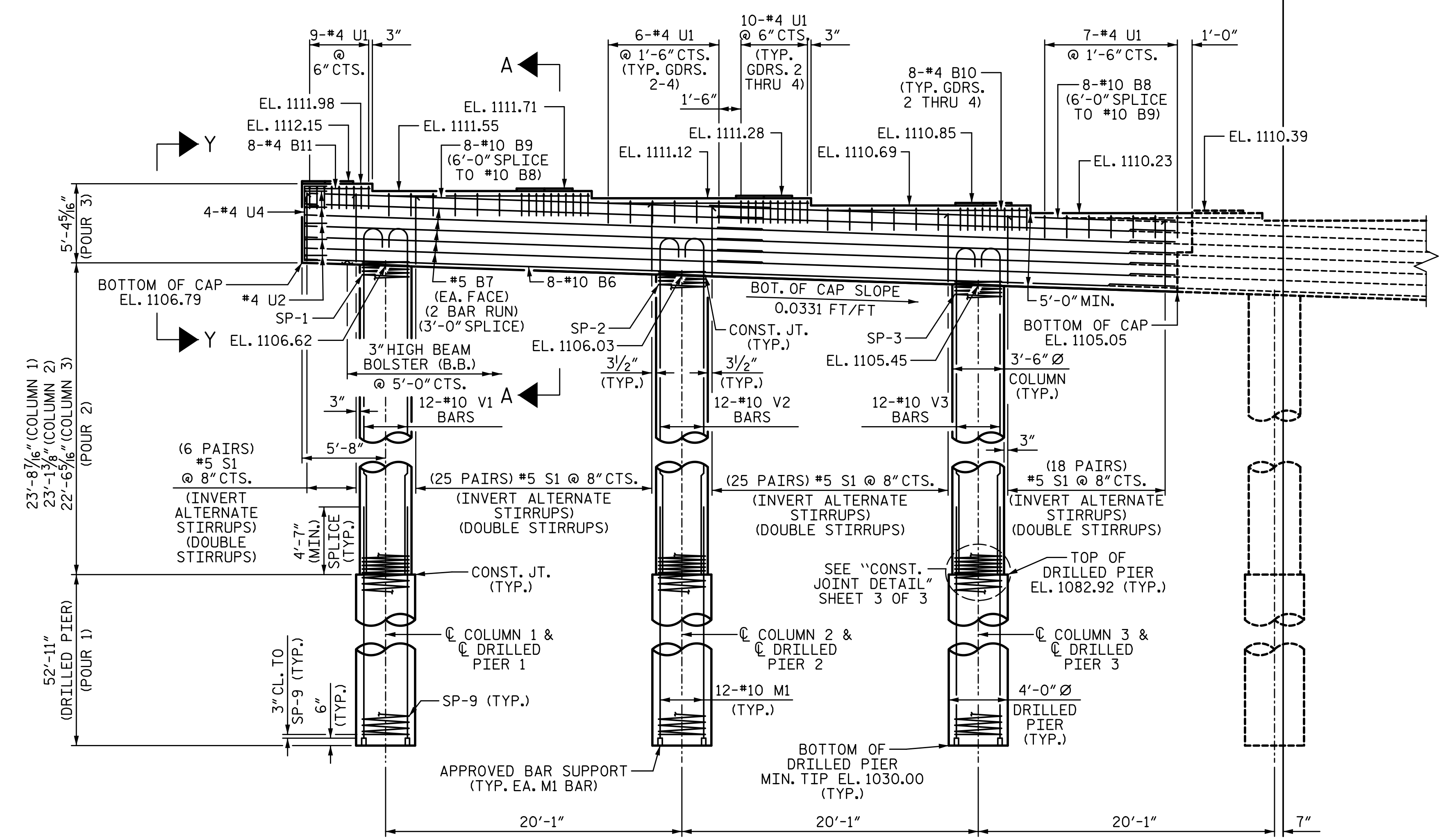
SHEET NO. S-58
 TOTAL SHEETS 72

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DETAIL "B"
 * 1'-6 3/4" @ GIRDER CG1 AND CG5
 ** 1'-6 5/8" @ GIRDER CG1 AND CG5

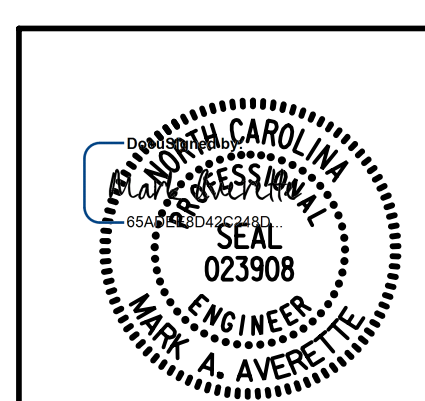


VIEW Y-Y

ELEVATION

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 2
 STAGE III

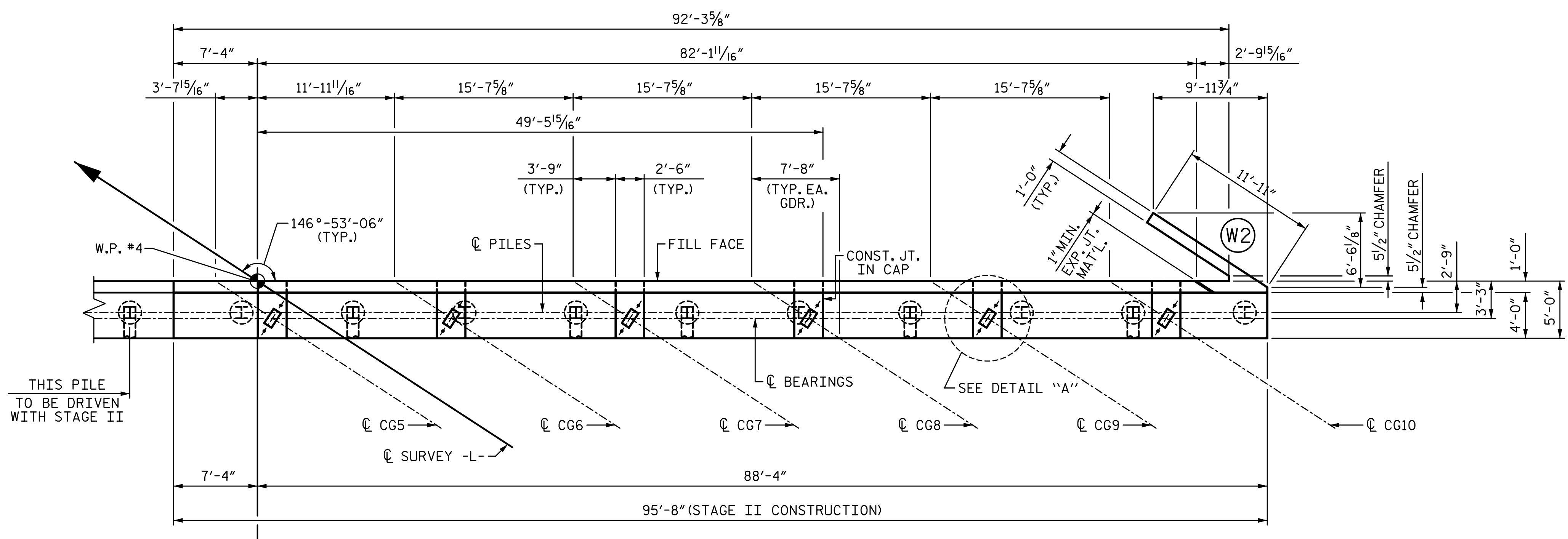
DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

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

11/21/2022 7:43 AM PST
 TOTAL SHEETS 72

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PLAN

NOTES:

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

FOR SECTION A-A, SEE SHEET 5 OF 5.

FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS SEE SECTION A-A, SEE SHEET 5 OF 5.

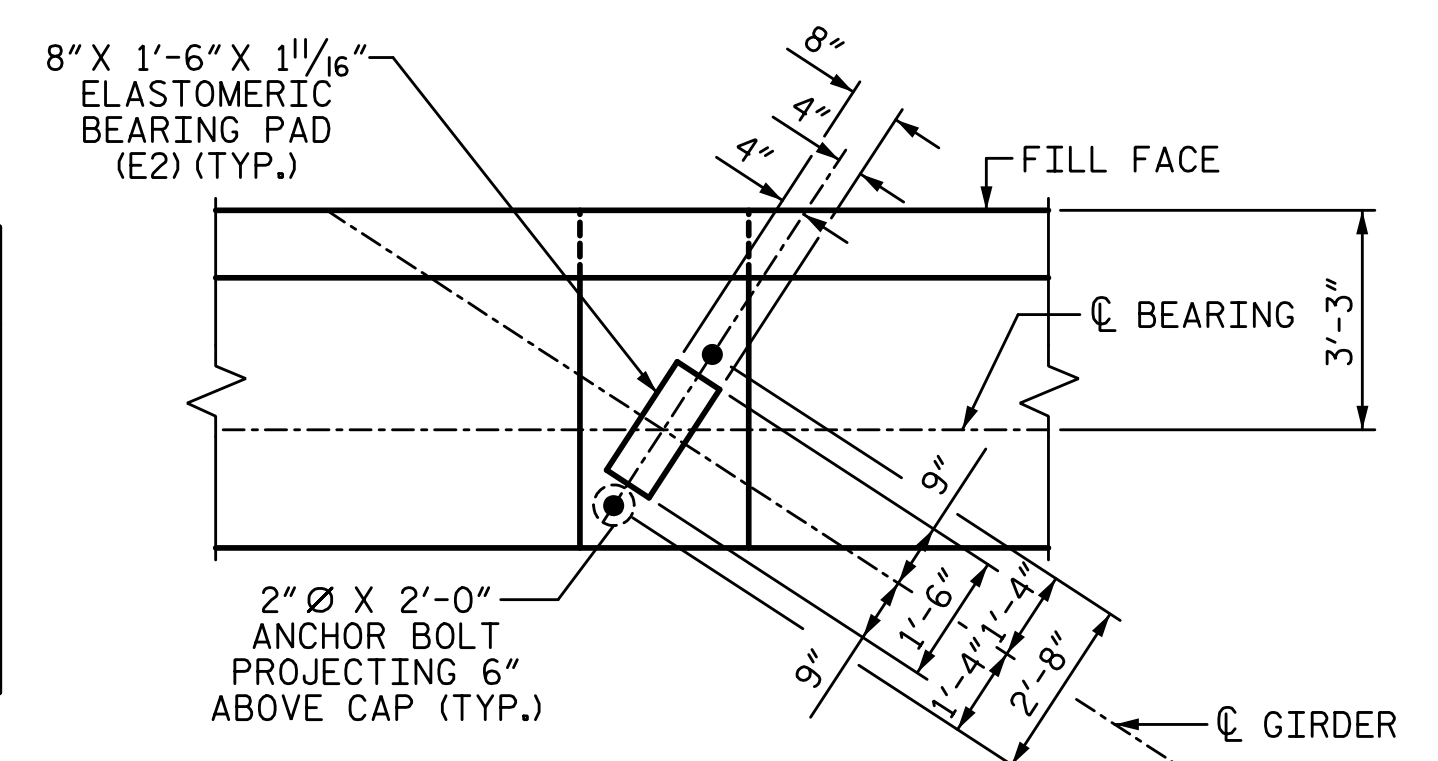
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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

SEE GENERAL DRAWING "FOUNDATION LAYOUT" FOR ADDITIONAL NOTES FOR DRIVING PILES.

EXTENSION SPLICE CHART	
#9 B1 (BOTTOM) SPLICE LENGTH = 4'-3"	
#9 B1 (TOP) SPLICE LENGTH = 5'-6"	
#5 B3 SPLICE LENGTH = 3'-2"	
#4 B4 SPLICE LENGTH = 2'-7"	
#4 K1 SPLICE LENGTH = 2'-7"	



DETAIL "A"
(TYP. EA. GIRDER)

TOP OF PILE ELEVATIONS			
PILE	ELEVATION	PILE	ELEVATION
7	1111.81	13	1110.04
8	1111.51	14	1109.74
9	1111.22	15	1109.45
10	1110.92	16	1109.15
11	1110.63	17	1108.86
12	1110.33		

PROJECT NO. B-5869
 COUNTY BURKE
 STATION: 21+62.39 -L-

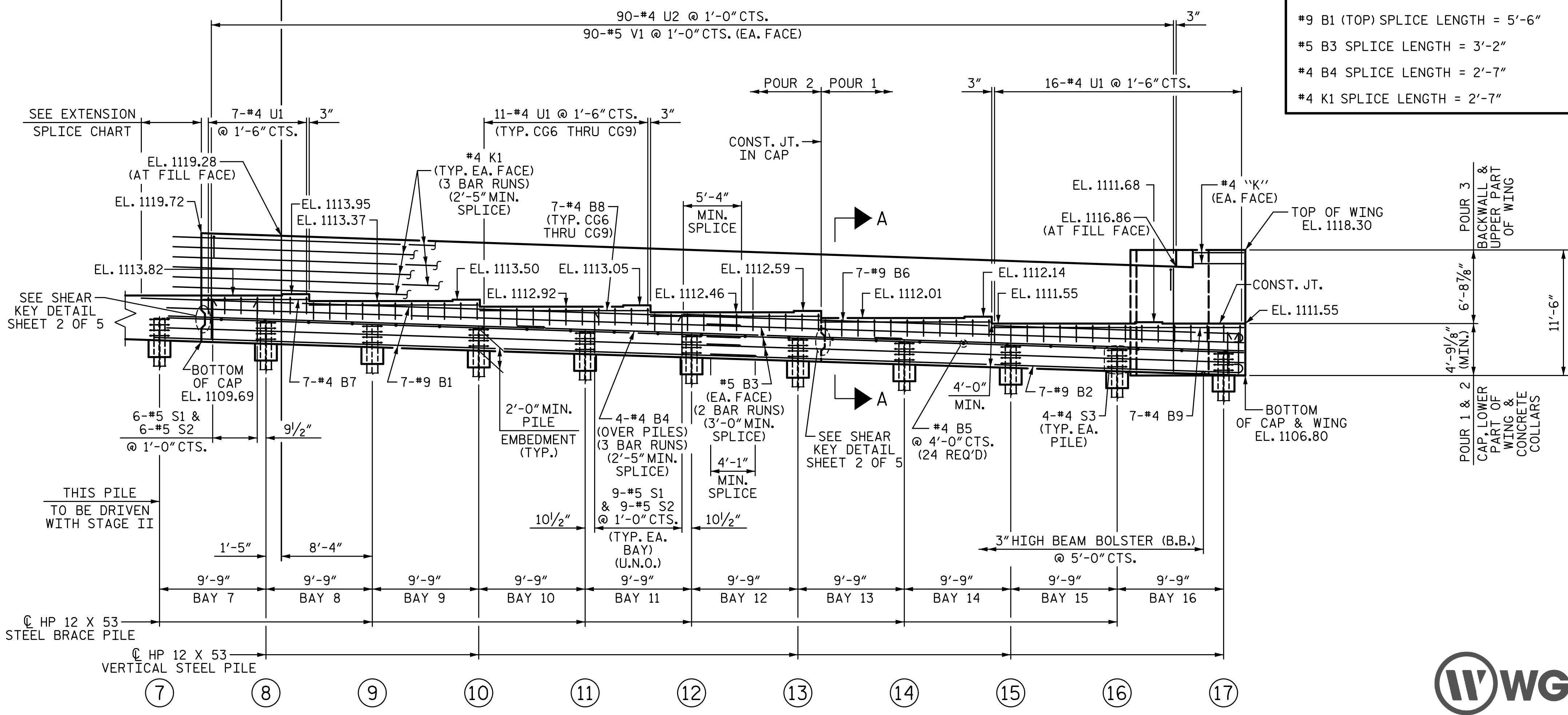
SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

END BENT 2

STAGE II

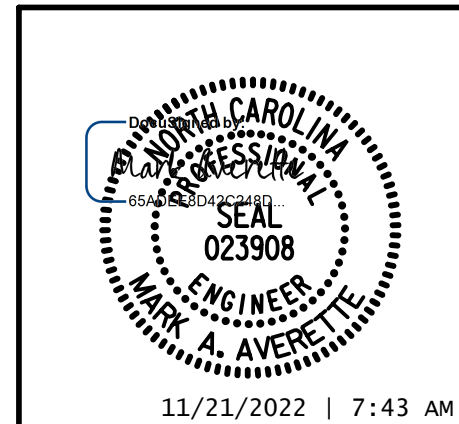
REVISIONS						SHEET NO. 5-62
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 72
2			4			



ELEVATION

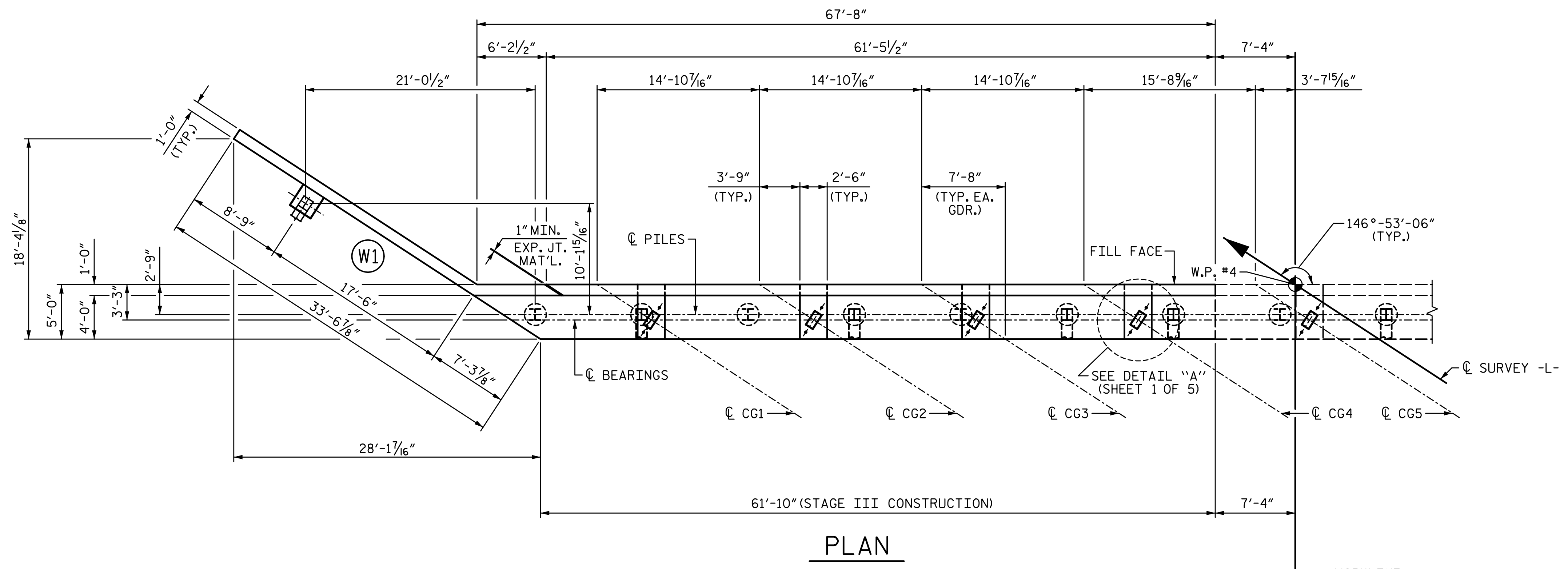
U.N.O. = UNLESS NOTED OTHERWISE

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 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

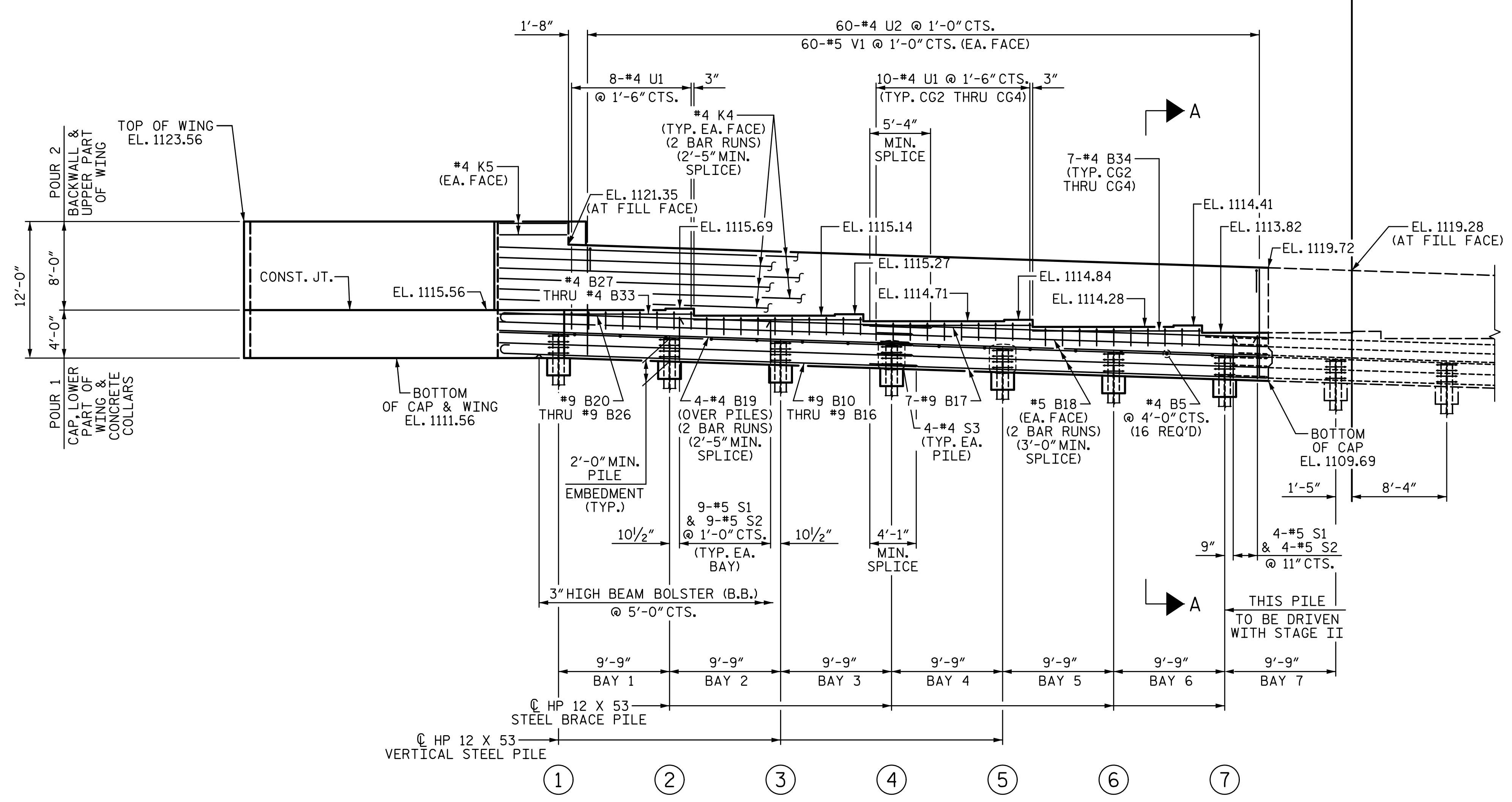


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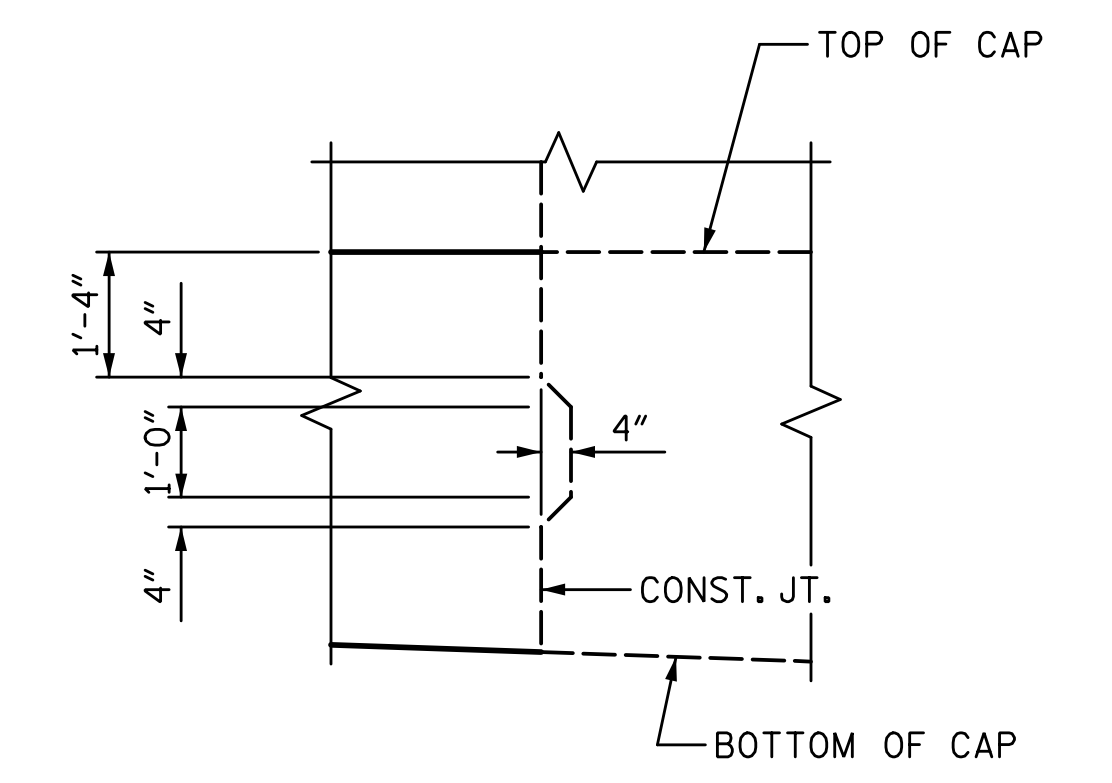
PLAN



ELEVATION

NOTES:

FOR SECTION A-A, SEE SHEET 5 OF 5.
 FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS SEE SECTION A-A, SEE SHEET 5 OF 5.
 FOR ALL OTHER NOTES, SEE SHEET 1 OF 5.



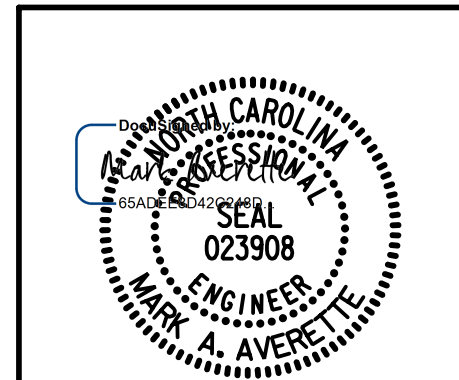
SHEAR KEY DETAIL

TOP OF PILE ELEVATIONS			
PILE	ELEVATION	PILE	ELEVATION
1	1113.56	4	1112.69
2	1113.28	5	1112.40
3	1112.99	6	1112.10

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 STAGE III



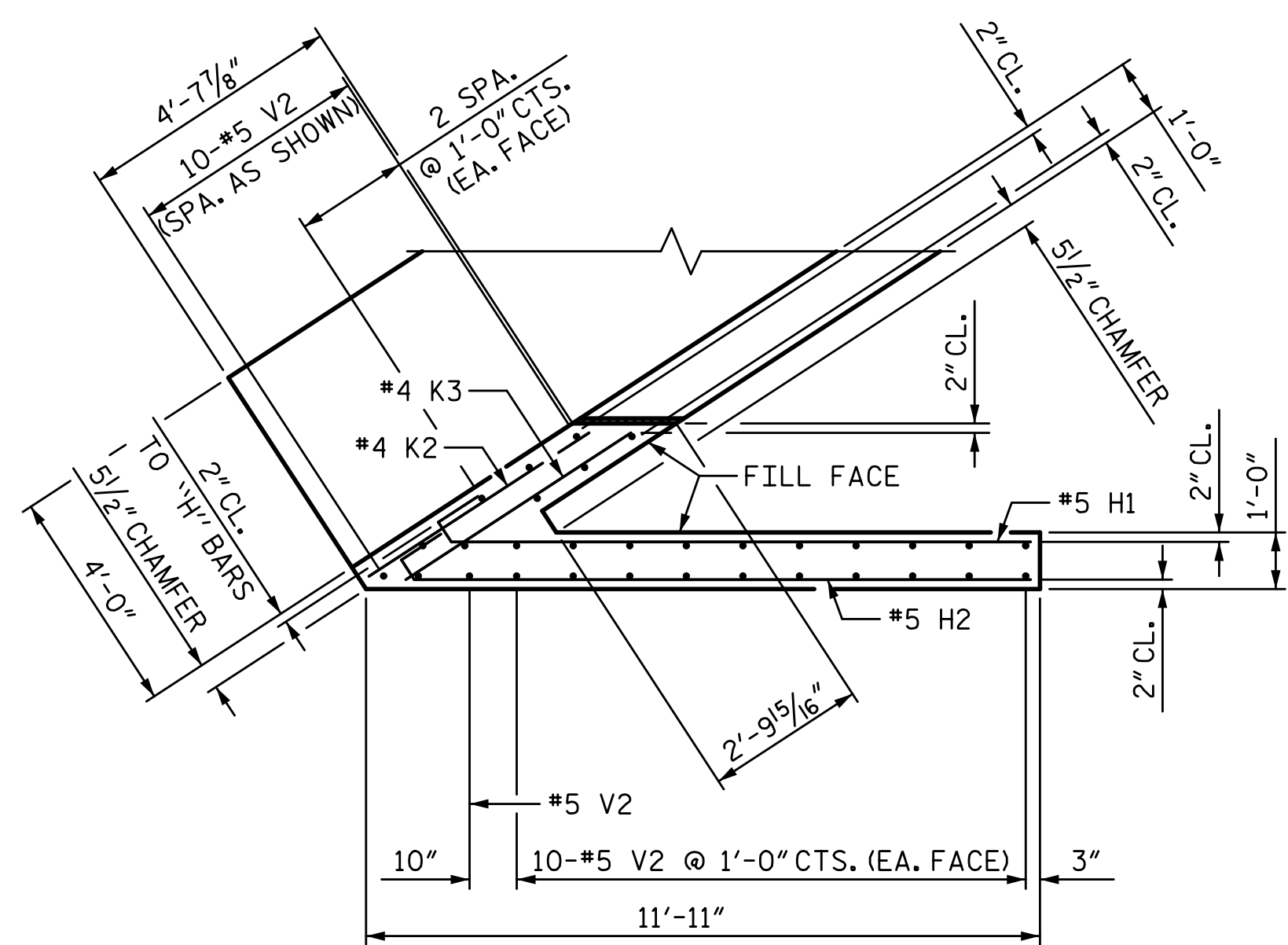
DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

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2			4		

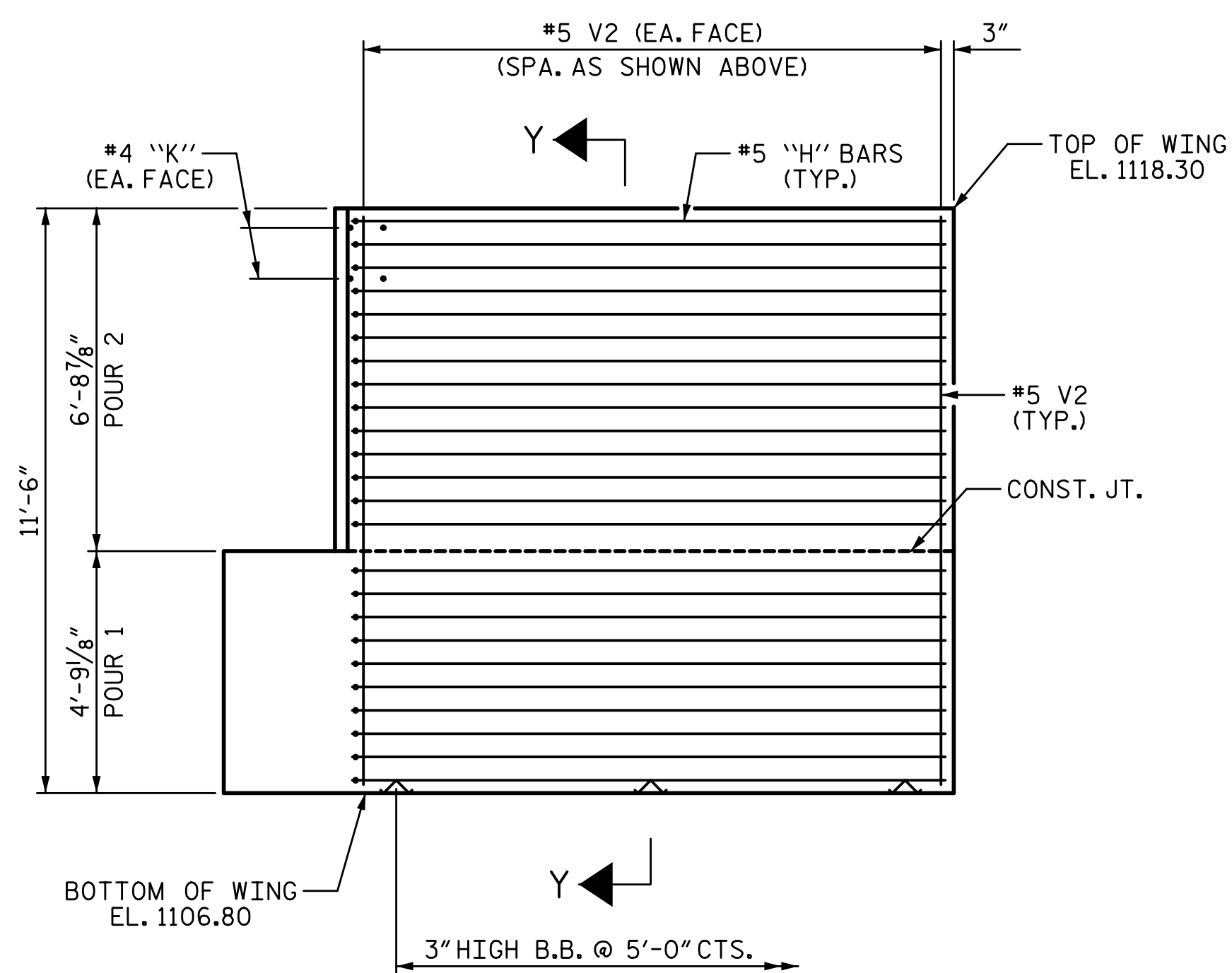
SHEET NO. S-63
 TOTAL SHEETS 72

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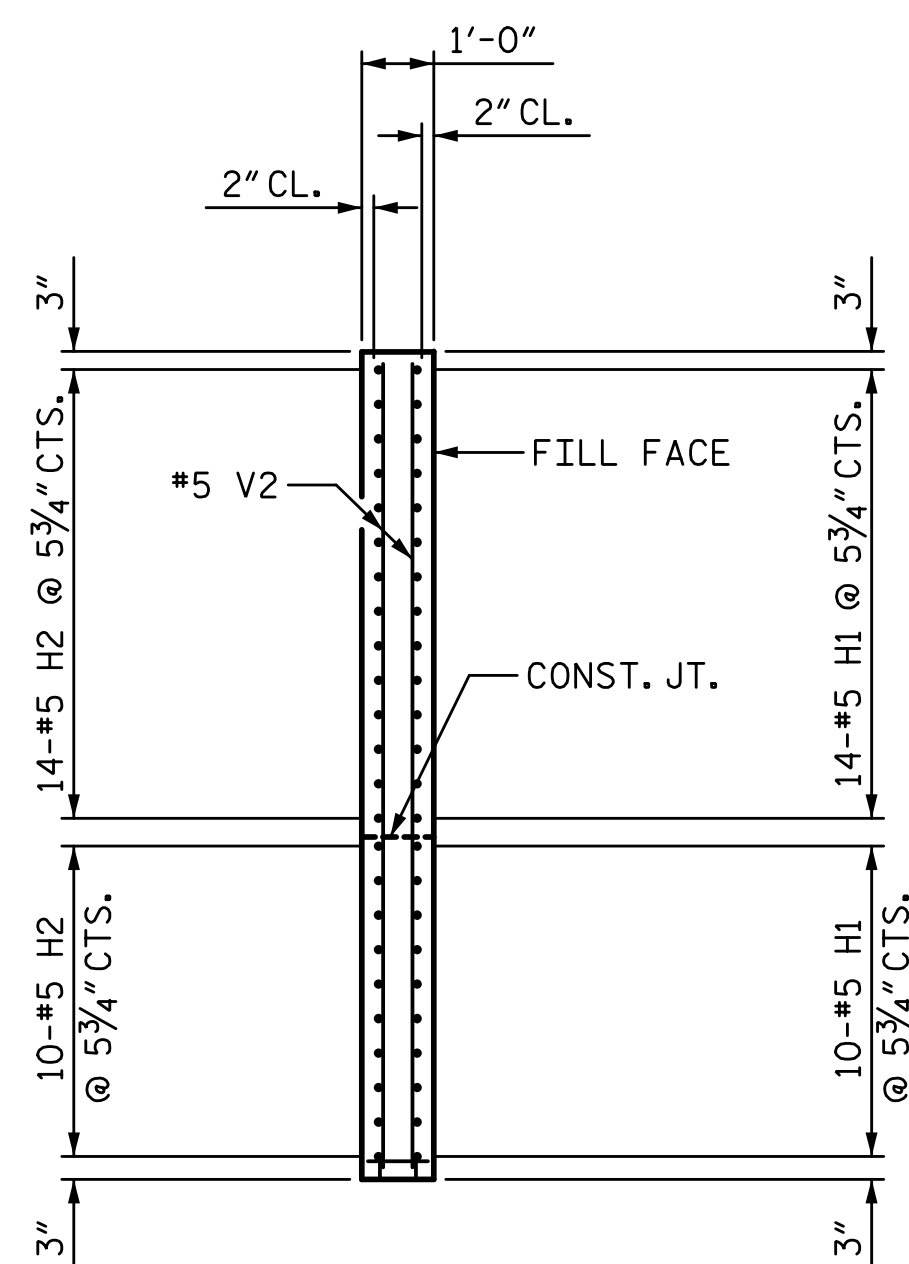
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PLAN OF WING (W2)



ELEVATION OF WING (W2)



SECTION Y-Y

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

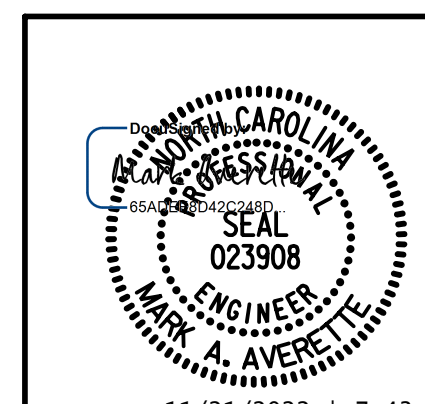
END BENT 2

STAGE II



5640 Dillard Drive, Suite 200
 Cary, NC 27518

LICENSURE NO. C-4434



11/21/2022 7:43 AM PST

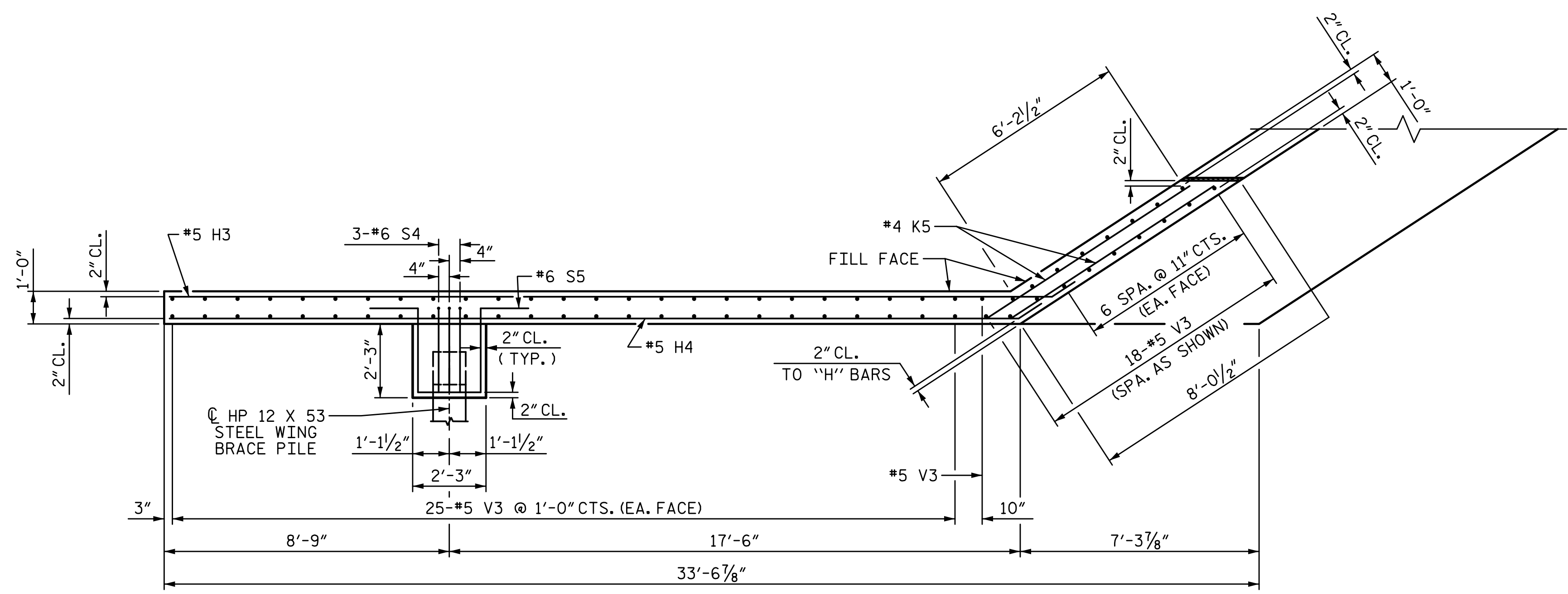
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			5-64
2			4			TOTAL SHEETS 72

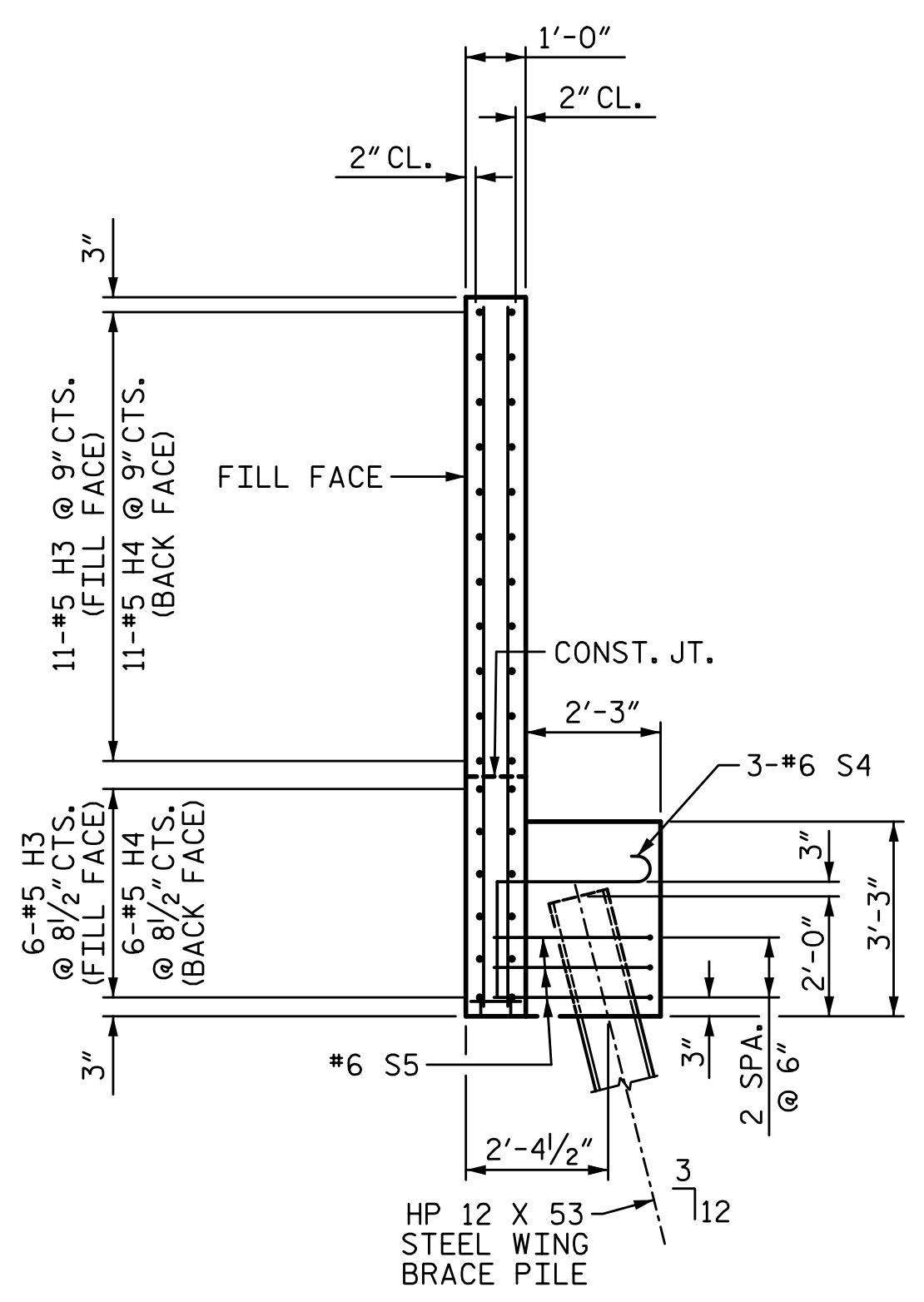
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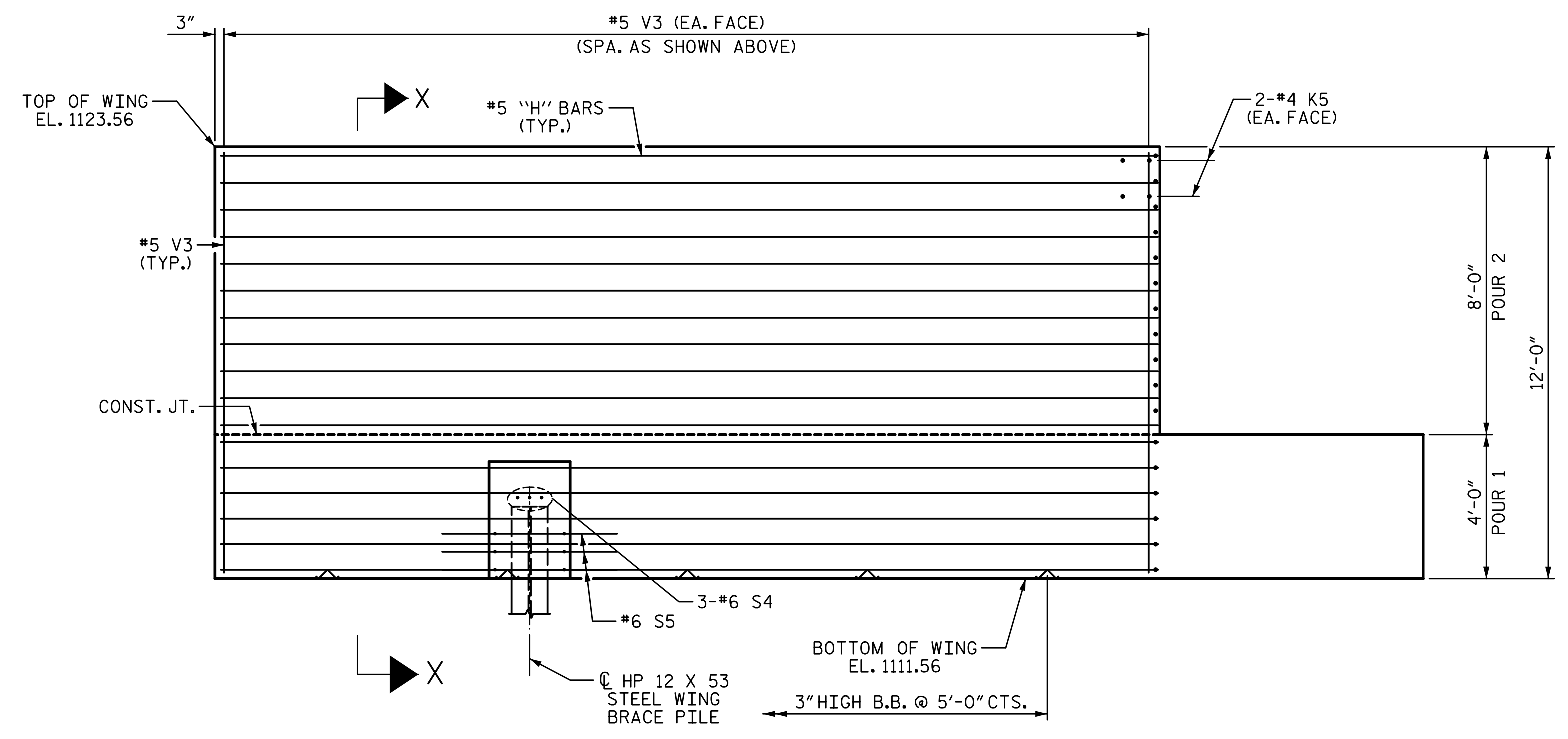
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PLAN OF WING (W1)



SECTION X-X

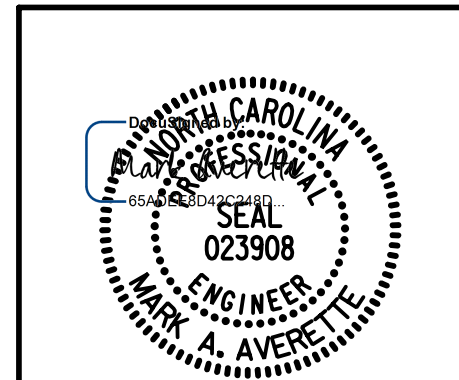


ELEVATION OF WING (W1)

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 STAGE III

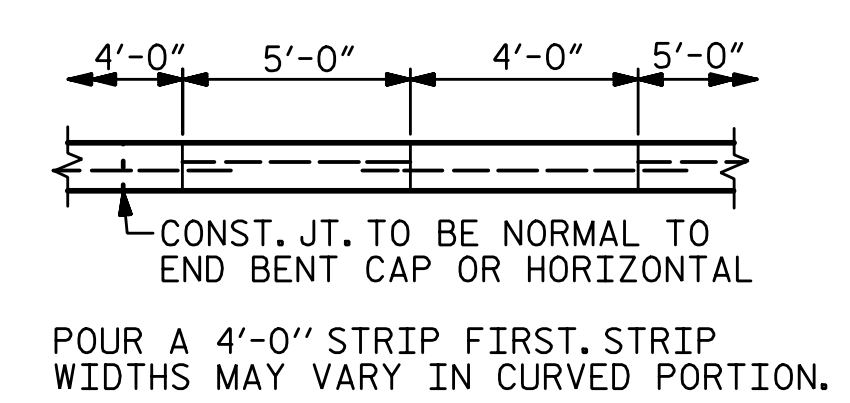
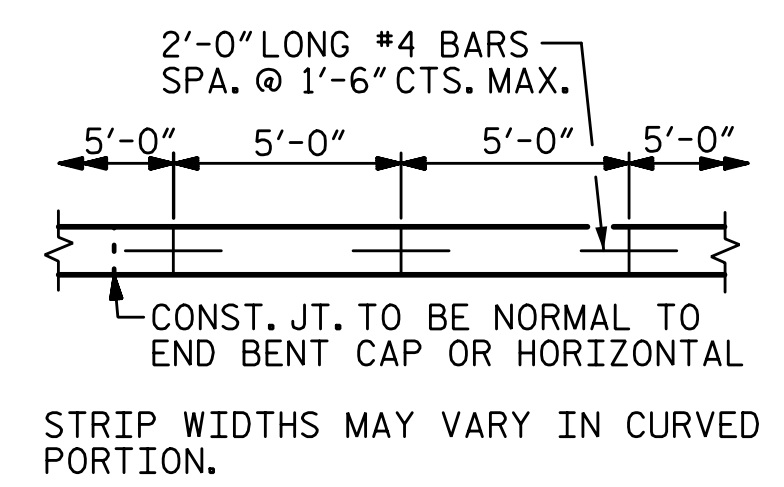
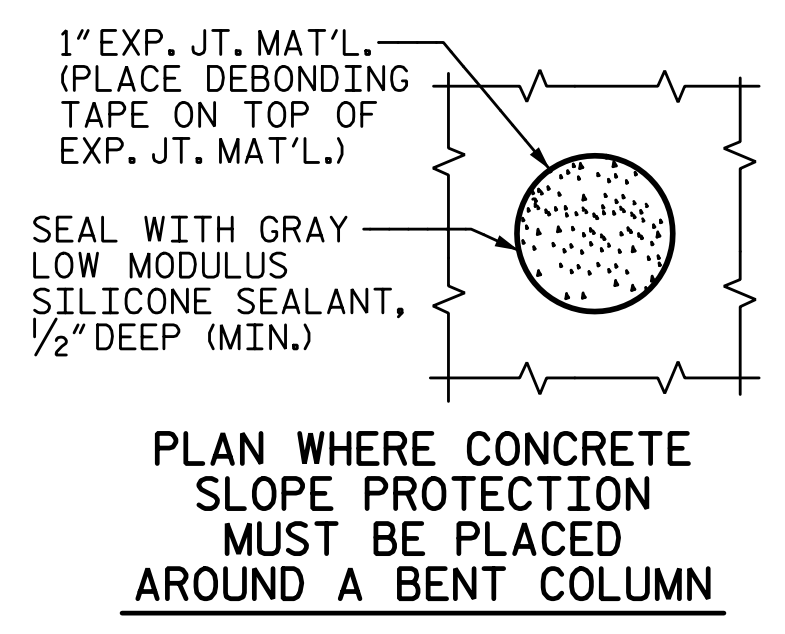
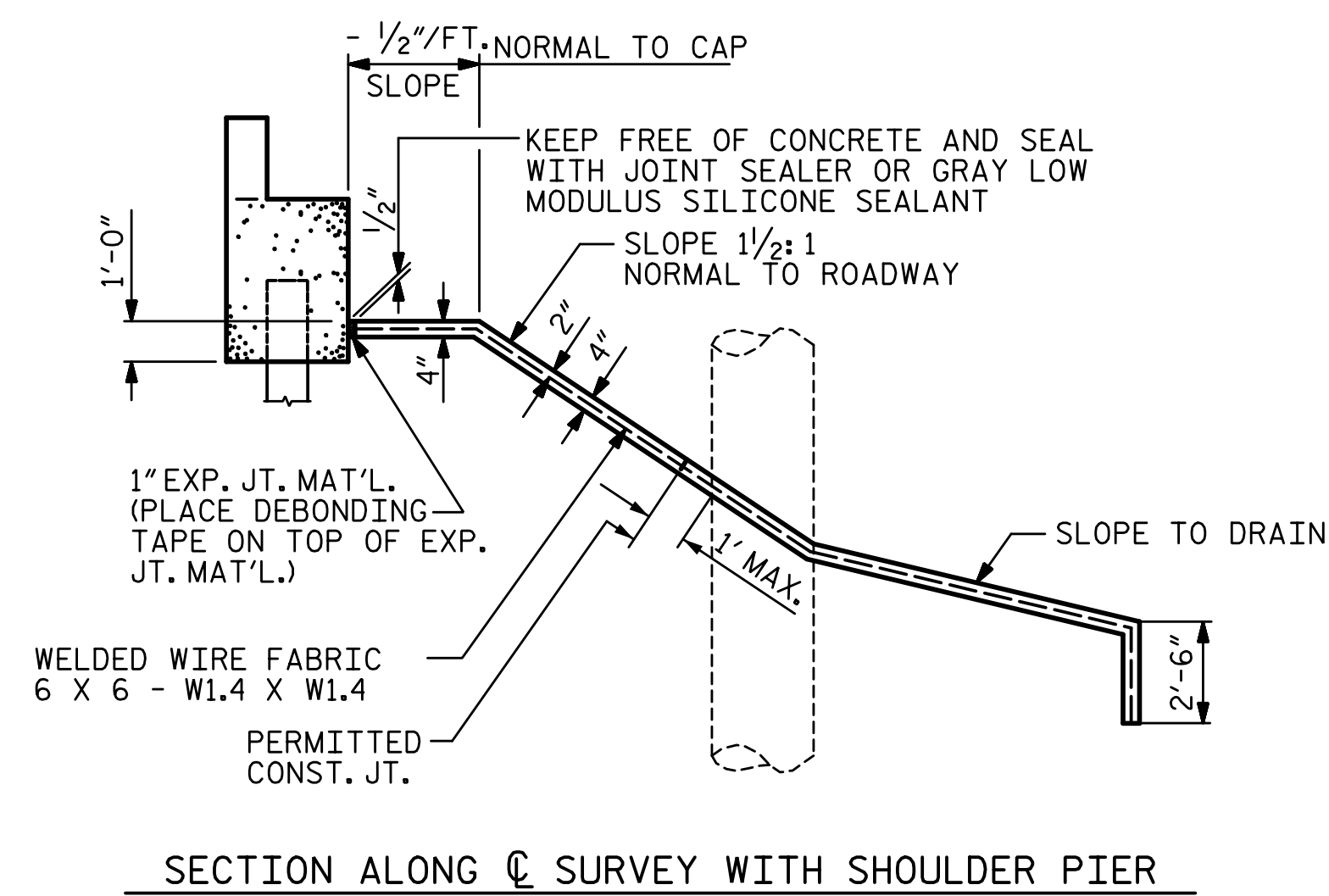


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-65
1			3			TOTAL SHEETS
2			4			72

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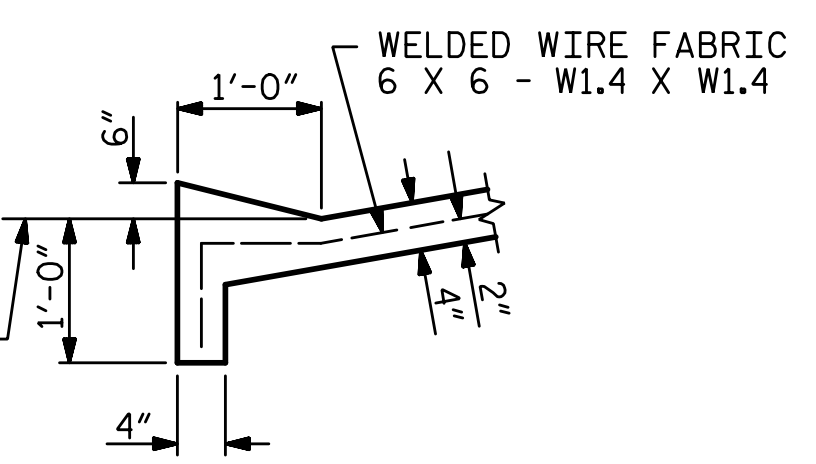
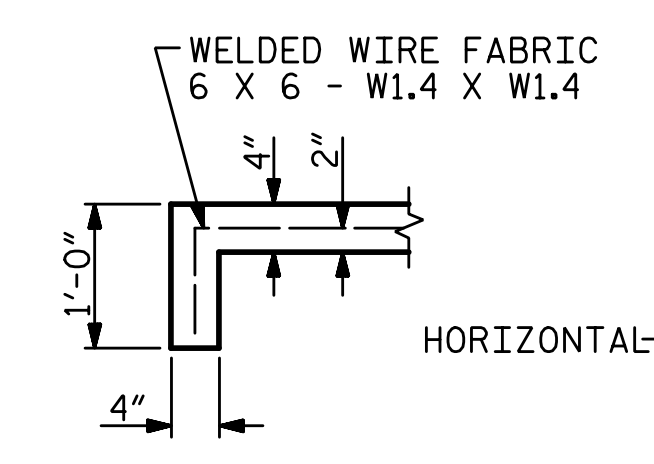
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POURING DETAIL

OPTIONAL POURING DETAIL



SECTION A-A

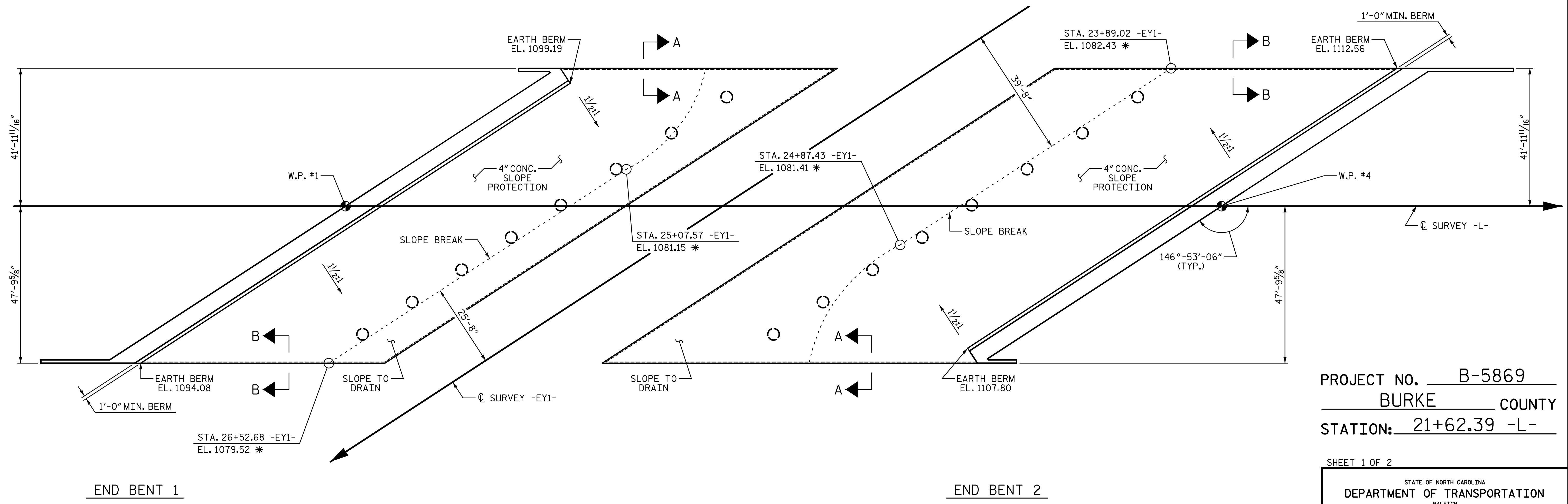
SECTION B-B

NOTES:

STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING. SLOPE PROTECTION SHALL CONSIST OF 4\"/>

BRIDGE @ STA. 21+62.39 -L-	4\"/>	
	SQUARE YARDS	APPROX. L.F.
END BENT 1	955	1720
END BENT 2	1075	1935

* QUANTITY SHOWN IS BASED ON 5' POURS.



PLAN

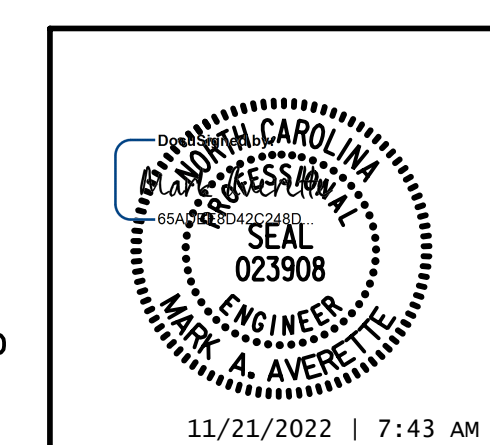
* ELEVATIONS AT TOP OF SLOPE PROTECTION

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SLOPE PROTECTION DETAILS



WVGI
 5640 Dillard Drive, Suite 200
 Cary, NC 27518
 LICENSURE NO. C-4434

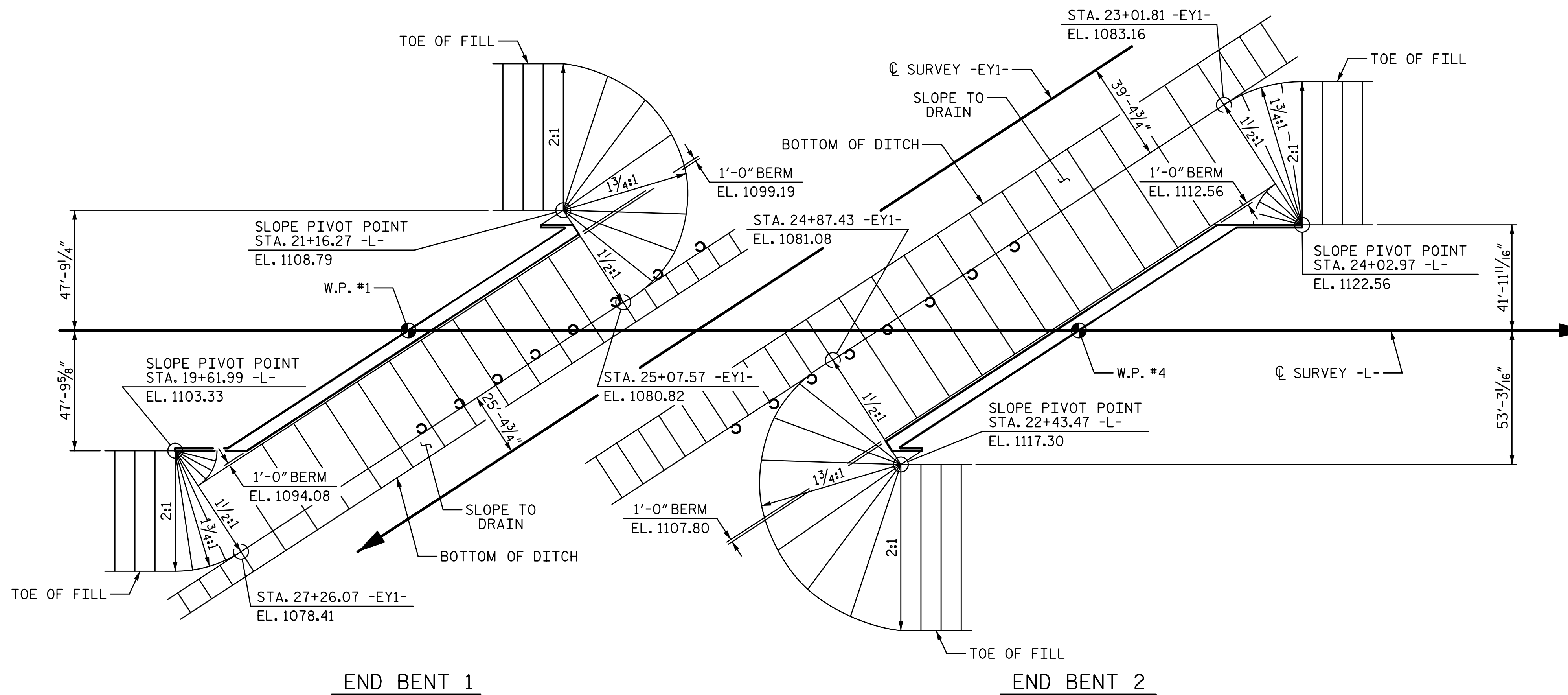
11/21/2022 7:43 AM PST

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DESIGN ENGINEER OF RECORD: M. AVERETTE	DATE: 3-2022

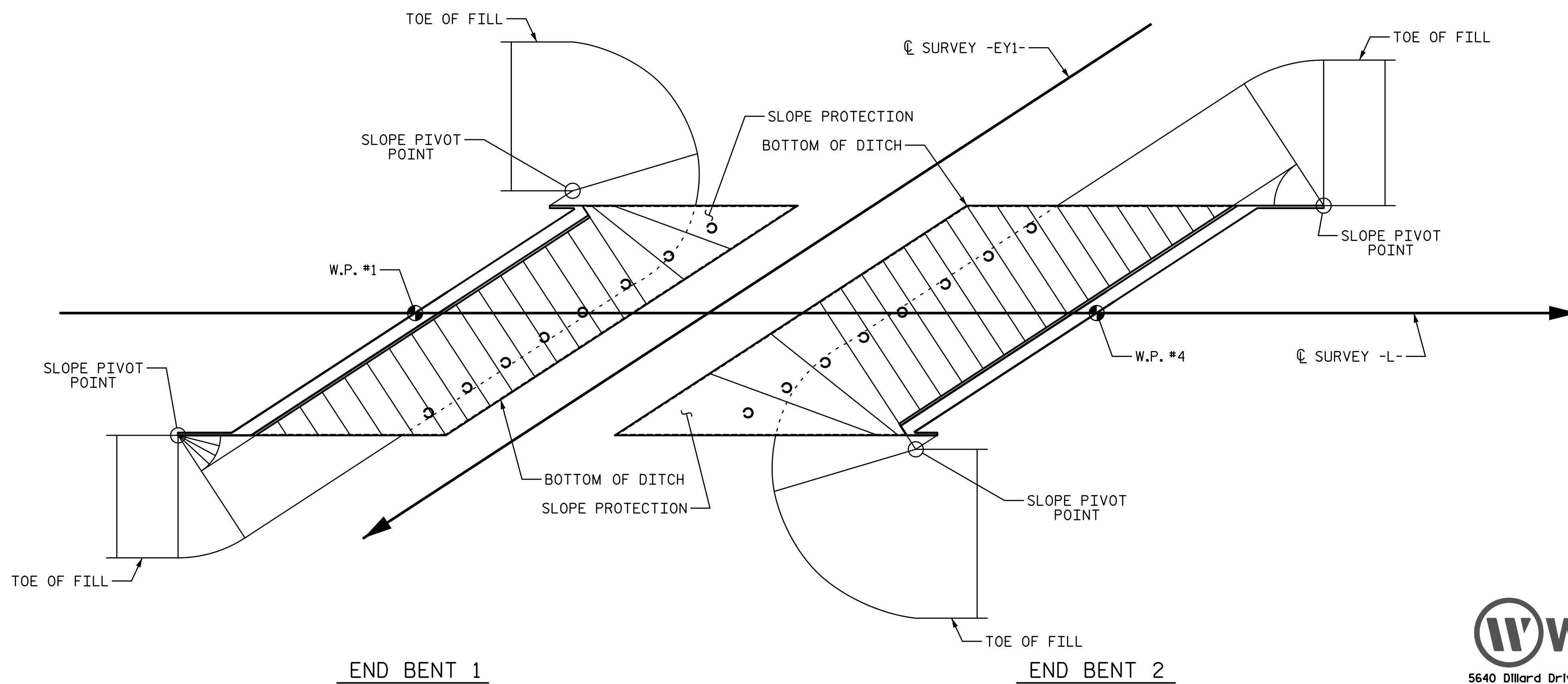
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 72
2			4			

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PLAN - GRADING



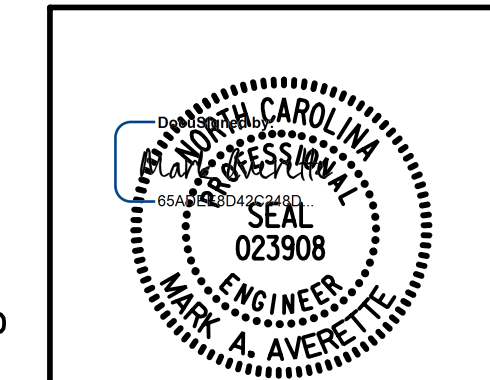
PLAN - CONCRETE PLACEMENT

PROJECT NO. B-5869
 BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SLOPE PROTECTION
 DETAILS**



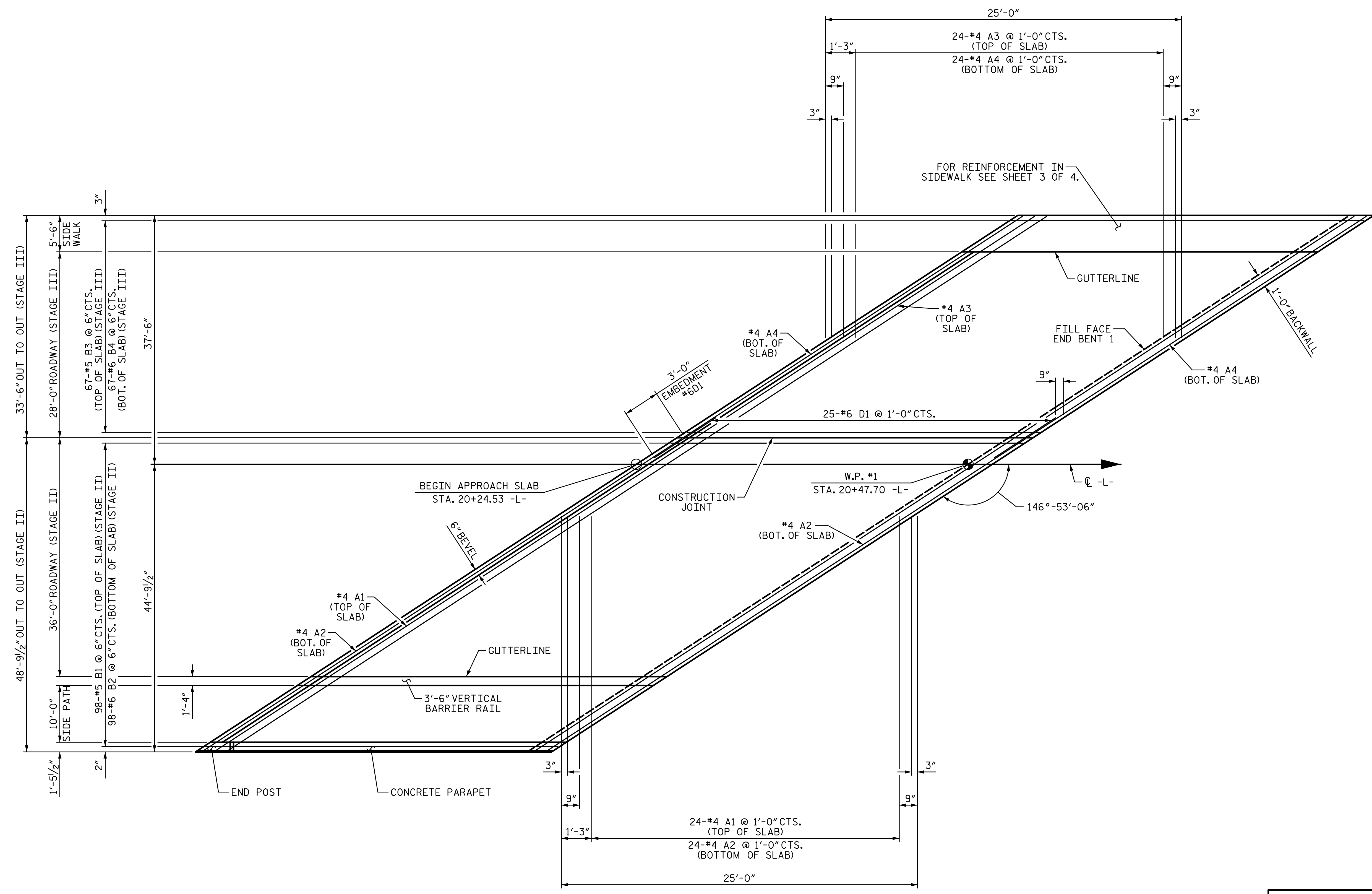
11/21/2022 | 7:43 AM

DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-68
1			3			TOTAL SHEETS
2			4			72

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NOTES:

FOR ADDITIONAL REINFORCING STEEL IN CONCRETE PARAPET, END POST AND APPROACH SLAB AND DIMENSIONS AND PAY ITEMS, SEE "CONCRETE PARAPET DETAILS" SHEETS.

FOR ADDITIONAL REINFORCING STEEL IN VERTICAL BARRIER RAIL AND APPROACH SLAB AND DIMENSIONS AND PAY ITEMS, SEE "VERTICAL BARRIER RAIL" SHEET.

#6 D1 DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP SLAB REINFORCING STEEL.

SEE "STRIP SEAL EXPANSION JOINT DETAILS FOR CONCRETE PARAPET" SHEETS FOR COVER PLATES AT END BENT.

PLAN @ END BENT 1

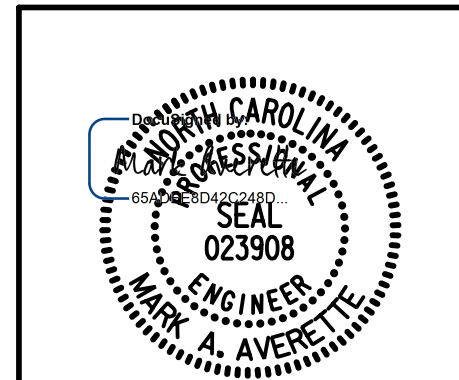
A1 & A2 BARS ARE 3 BAR RUNS
 A3 & A4 BARS ARE 2 BAR RUNS

PROJECT NO. B-5869
BURKE COUNTY
 STATION: 21+62.39 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB



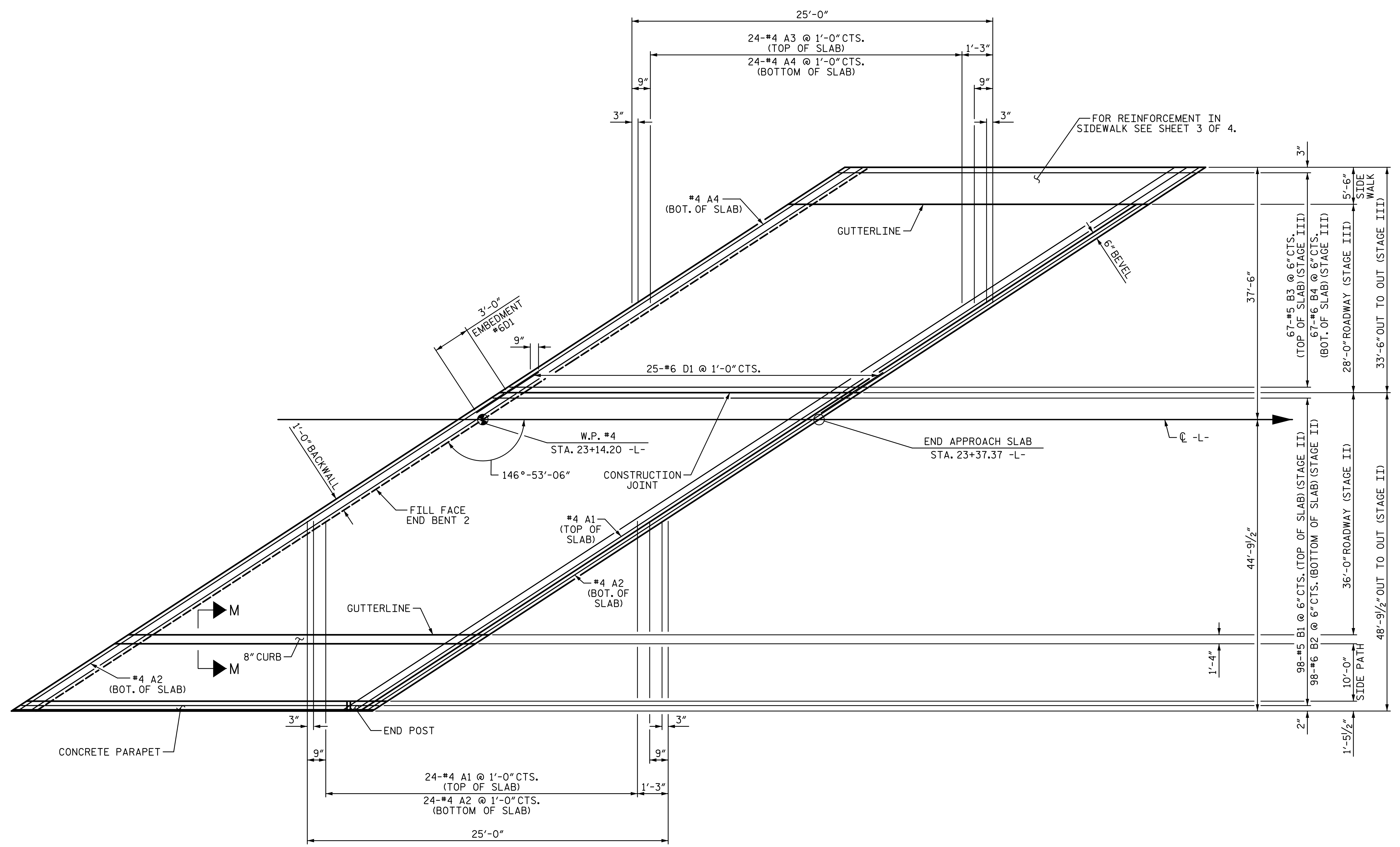
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: S.D. COOPER DATE: 3-2022
 CHECKED BY: M. AVERETTE DATE: 3-2022
 DESIGN ENGINEER OF RECORD: M. AVERETTE DATE: 3-2022

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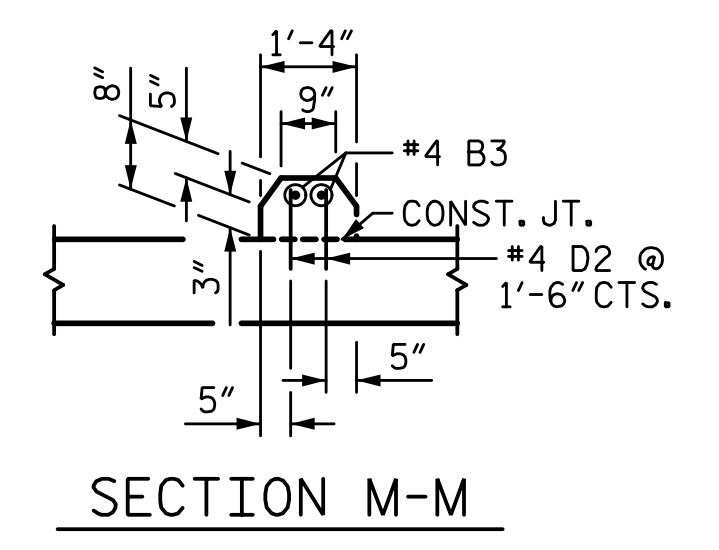
TOTAL SHEETS
72

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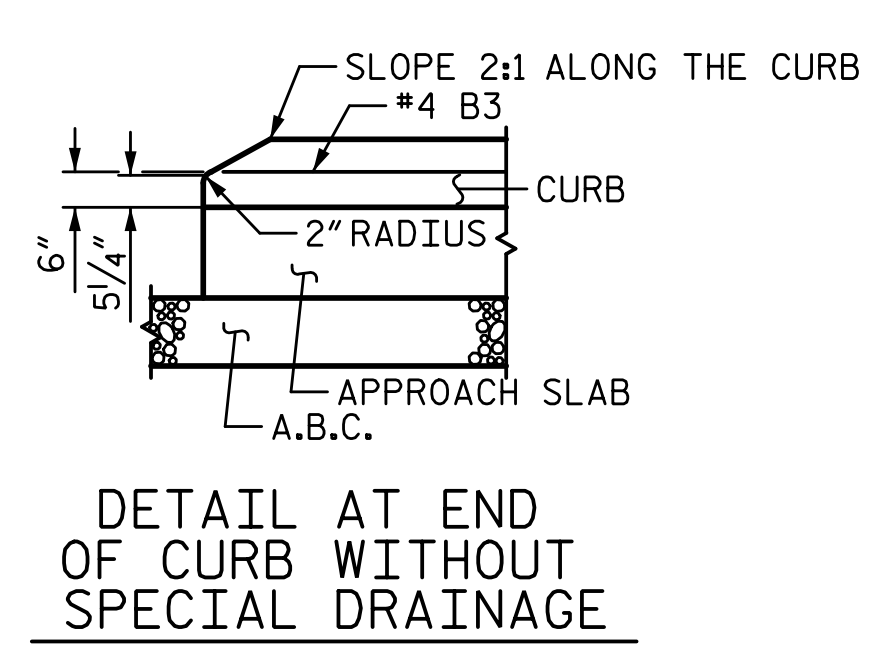


PLAN @ END BENT 2

A1 & A2 BARS ARE 3 BAR RUNS
A3 & A4 BARS ARE 2 BAR RUNS



SECTION M-M



DETAIL AT END OF CURB WITHOUT SPECIAL DRAINAGE

CURB DETAILS

NOTES:

FOR ADDITIONAL REINFORCING STEEL IN CONCRETE PARAPET, END POST AND APPROACH SLAB AND DIMENSIONS AND PAY ITEMS, SEE "CONCRETE PARAPET DETAILS" SHEETS.

FOR ADDITIONAL REINFORCING STEEL IN VERTICAL BARRIER RAIL AND APPROACH SLAB AND DIMENSIONS AND PAY ITEMS, SEE "VERTICAL BARRIER RAIL" SHEET.

#6 D1 DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP SLAB REINFORCING STEEL.

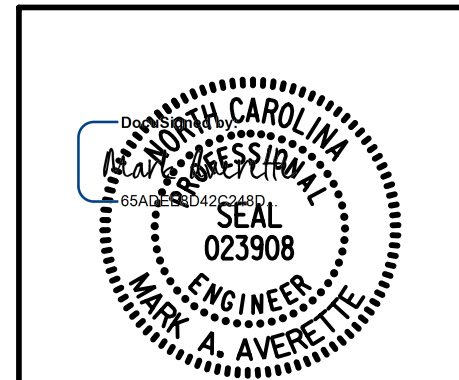
SEE "STRIP SEAL EXPANSION JOINT DETAILS FOR CONCRETE PARAPET" SHEETS FOR COVER PLATES AT END BENT.

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SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB

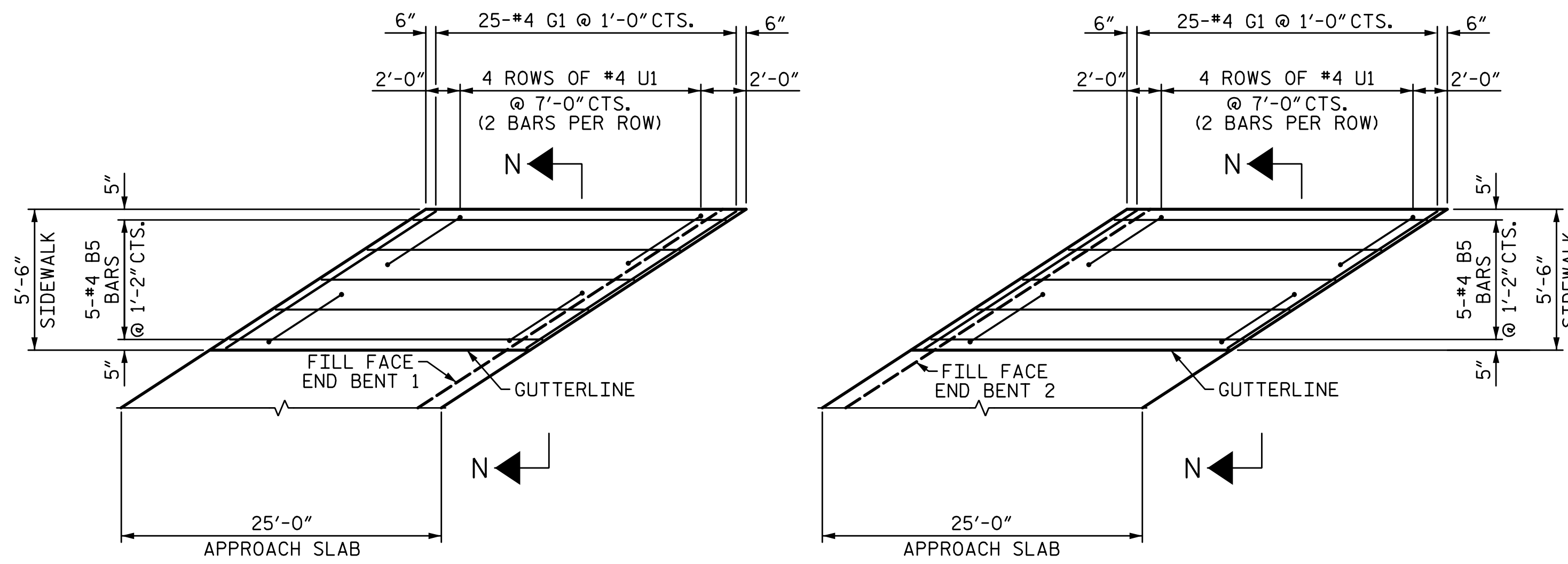


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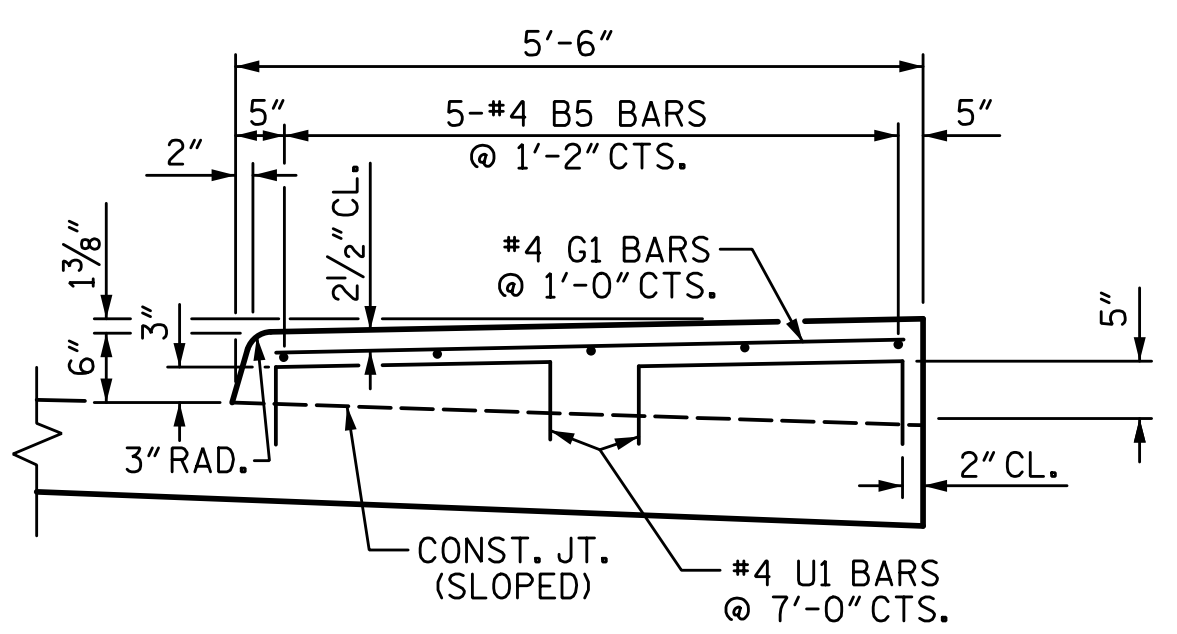
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PLAN OF SIDEWALKS



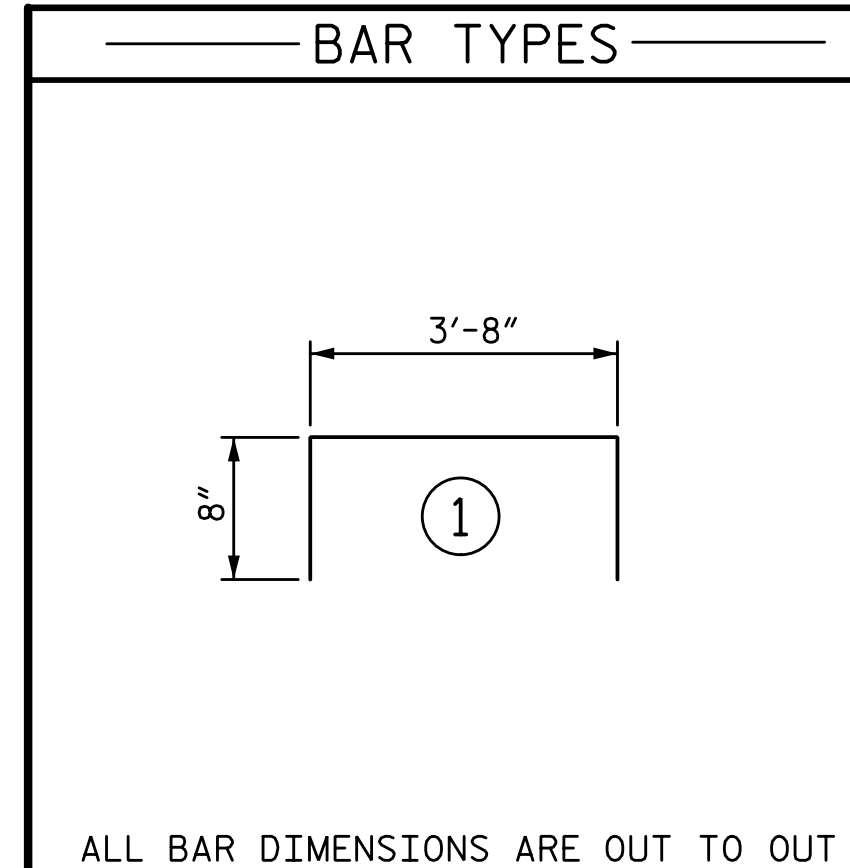
NOTES:

ALL REINFORCING STEEL IN THE SIDEWALK SHALL BE EPOXY COATED.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE SIDEWALK IN ACCORDANCE WITH THE ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINT WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FT. IN LENGTH.

U1 BARS MAY BE PUSHED INTO GREEN CONCRETE AFTER THE APPROACH SLAB HAS BEEN SCREEDED OFF.

SEE "STRIP SEAL EXPANSION JOINT DETAILS FOR SIDEWALK" SHEETS FOR SIDEWALK COVER PLATES AT END BENTS.



SPLICE CHART

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

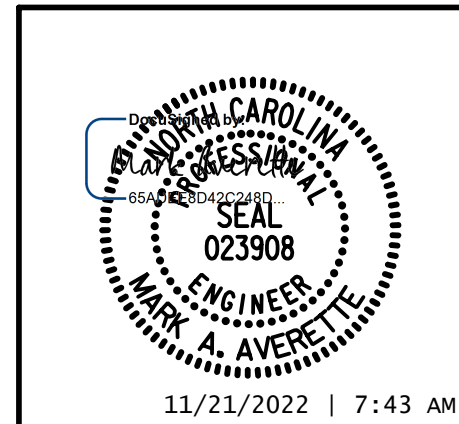
BILL OF MATERIAL						BILL OF MATERIAL					
APPROACH SLAB @ END BENT 1 (STAGE II)						APPROACH SLAB @ END BENT 2 (STAGE II)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	75	#4	STR	30'-11"	1549	*A1	75	#4	STR	30'-11"	1549
A2	78	#4	STR	30'-8"	1598	A2	78	#4	STR	30'-8"	1598
*B1	98	#5	STR	23'-9"	2428	*B1	98	#5	STR	23'-9"	2428
B2	98	#6	STR	24'-4"	3582	B2	98	#6	STR	24'-4"	3582
*D1	25	#6	STR	6'-0"	225	*D1	25	#6	STR	6'-0"	225
REINFORCING STEEL 5180 LB						REINFORCING STEEL 5180 LB					
*EPOXY COATED REINFORCING STEEL 4202 LB						*EPOXY COATED REINFORCING STEEL 4256 LB					
CLASS AA CONCRETE BREAKDOWN POUR 1 (SLAB) 56.2 CY						CLASS AA CONCRETE BREAKDOWN POUR 1 (SLAB) 56.2 CY					
TOTAL 56.2 CY						TOTAL 57.7 CY					

BILL OF MATERIAL						BILL OF MATERIAL					
APPROACH SLAB @ END BENT 1 (STAGE III)						APPROACH SLAB @ END BENT 2 (STAGE III)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A3	50	#4	STR	31'-4"	1047	*A3	50	#4	STR	31'-4"	1047
A4	52	#4	STR	31'-2"	1083	A4	52	#4	STR	31'-2"	1083
*B3	67	#5	STR	23'-9"	1660	*B3	67	#5	STR	23'-9"	1660
B4	67	#6	STR	24'-4"	2449	B4	67	#6	STR	24'-4"	2449
*B5	5	#4	STR	24'-4"	81	*B5	5	#4	STR	24'-4"	81
*G1	25	#4	STR	9'-2"	153	*G1	25	#4	STR	9'-2"	153
*U1	8	#4	1	5'-0"	27	*U1	8	#4	1	5'-0"	27
REINFORCING STEEL 3532 LB						REINFORCING STEEL 3532 LB					
*EPOXY COATED REINFORCING STEEL 2968 LB						*EPOXY COATED REINFORCING STEEL 2968 LB					
CLASS AA CONCRETE BREAKDOWN POUR 1 (SLAB) 38.6 CY						CLASS AA CONCRETE BREAKDOWN POUR 1 (SLAB) 38.6 CY					
POUR 2 (SIDEWALK) 3.2 CY						POUR 2 (SIDEWALK) 3.2 CY					
TOTAL 41.8 CY						TOTAL 41.8 CY					

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SHEET 3 OF 4
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 RALEIGH

BRIDGE APPROACH SLAB DETAILS



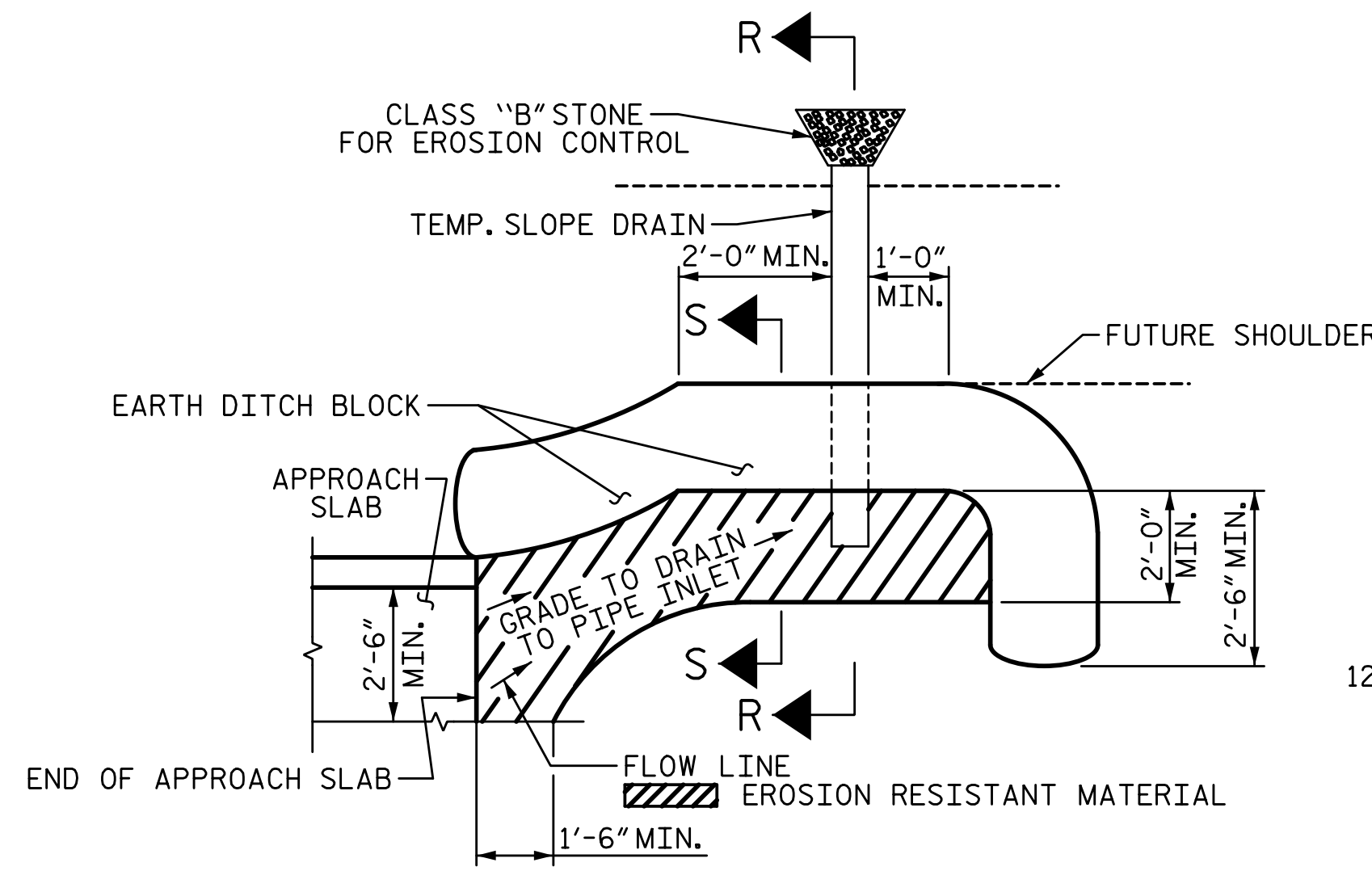
LICENSURE NO. C-4434

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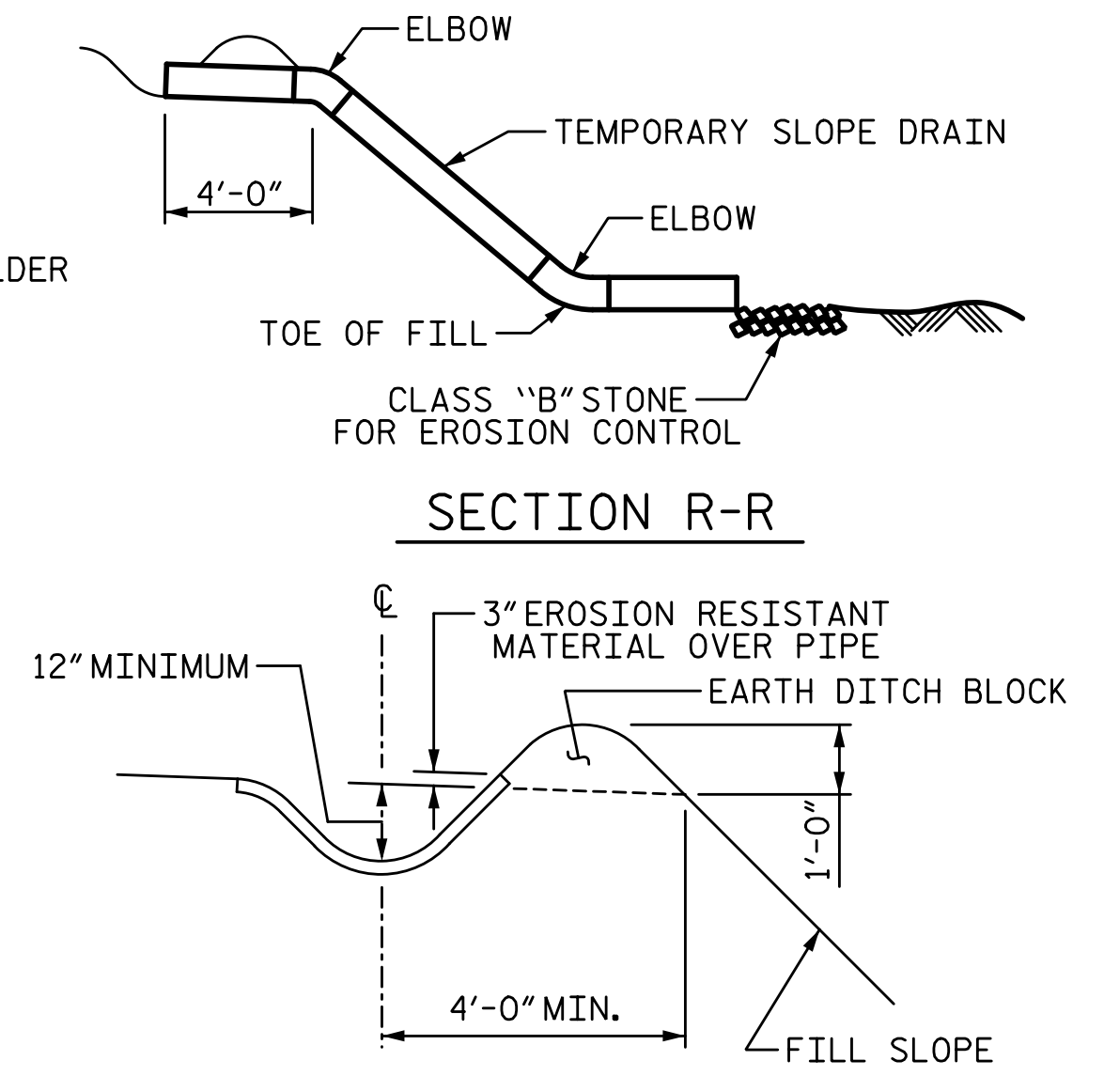
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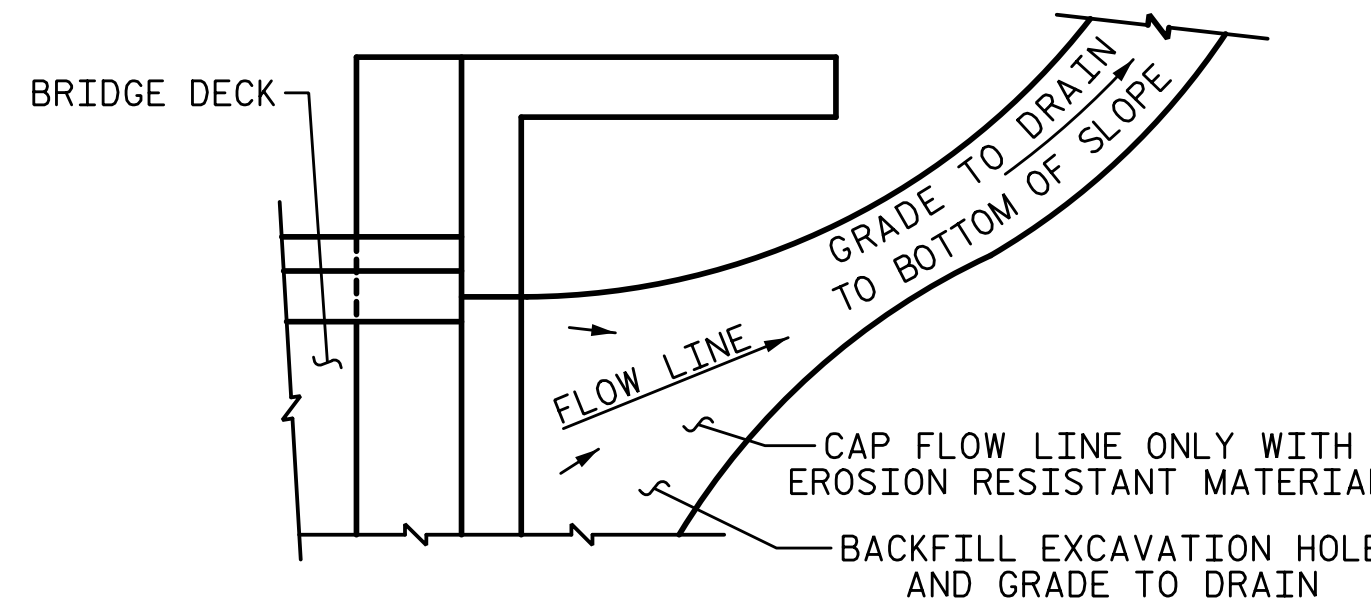
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



SECTION R-R

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

NOTES:

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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

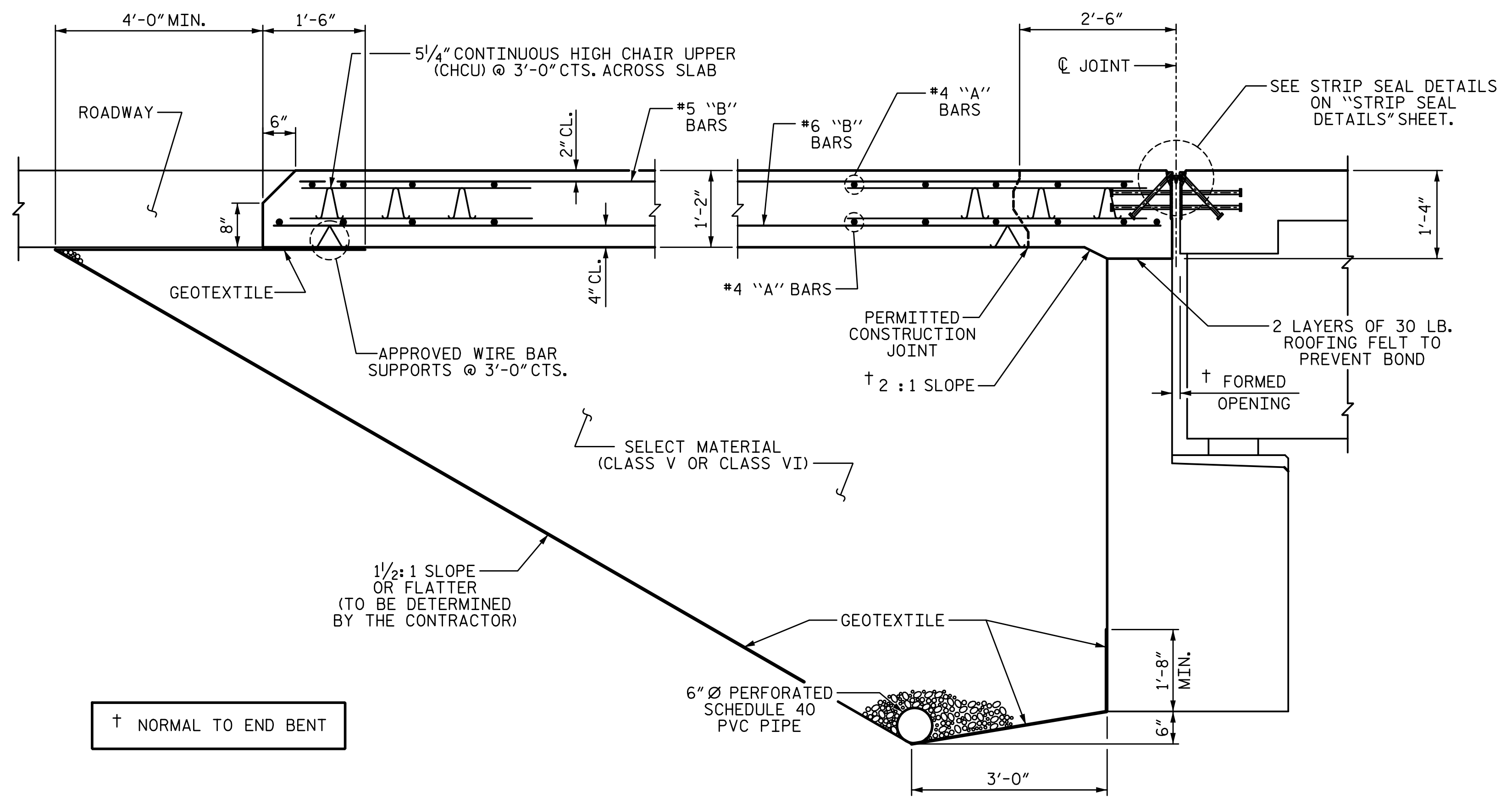
APPROACH SLAB IN EACH STAGE SHALL NOT BE CONSTRUCTED PRIOR TO THE COMPLETION OF THE BRIDGE DECK IN THAT STAGE.

FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

FOR STRIP SEAL EXPANSION JOINTS, SEE PROJECT SPECIAL PROVISIONS.

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION THRU SLAB

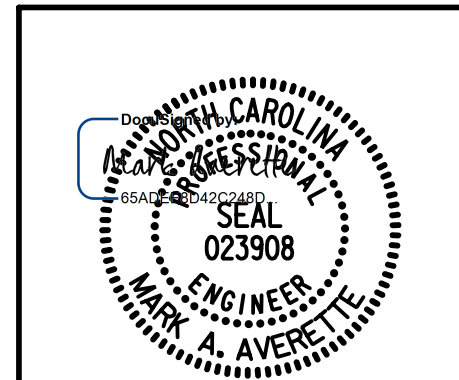
(TYPE I - STANDARD APPROACH FILL)

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STATE OF NORTH CAROLINA
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BRIDGE APPROACH
 SLAB DETAILS



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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.
IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.
DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.
WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".
EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.
WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.
METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

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