

TIP PROJECT: B-5818

CONTRACT: C204555

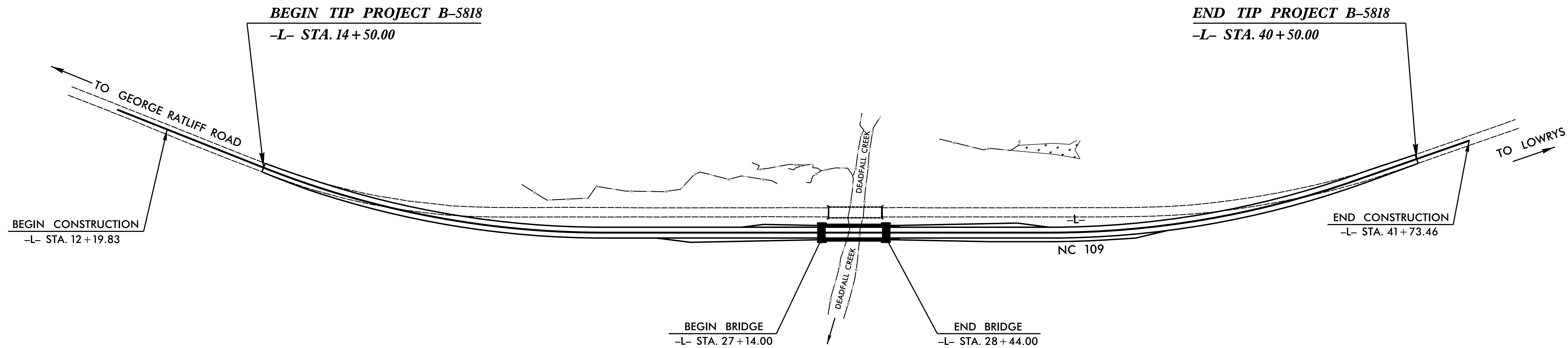
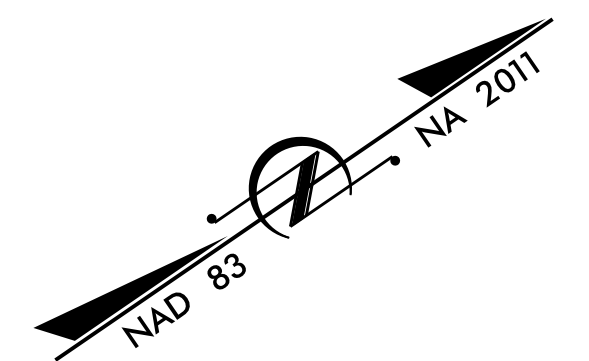
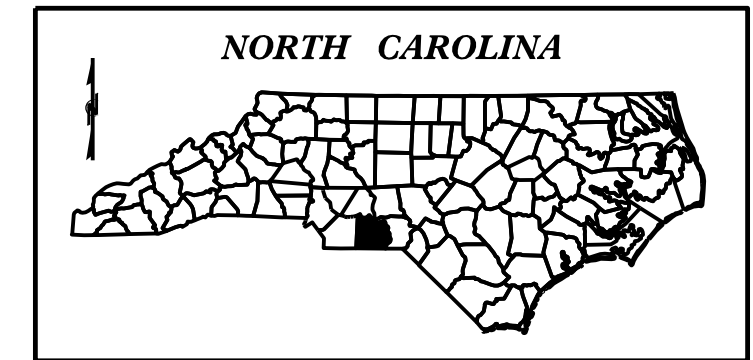
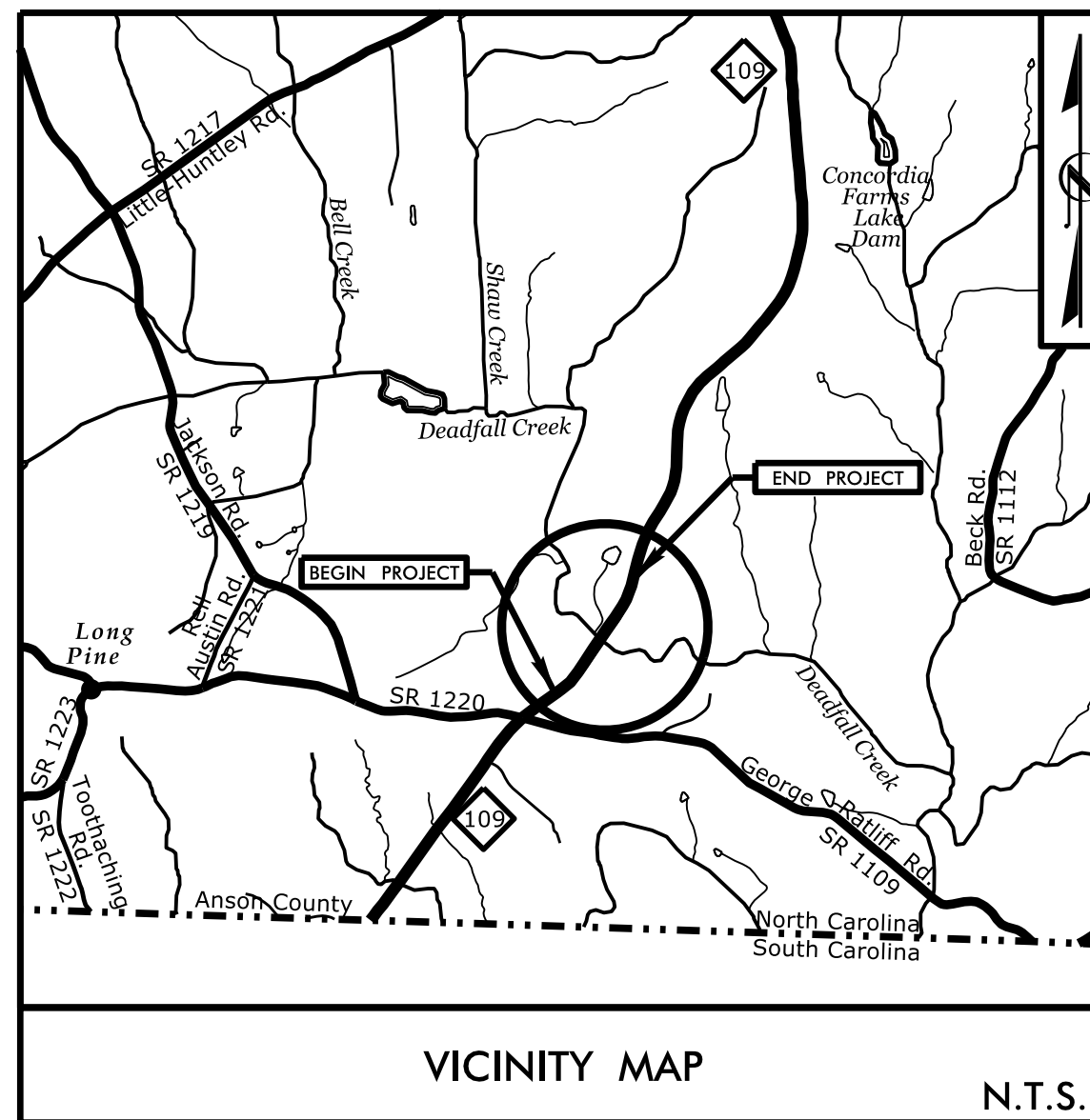
STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

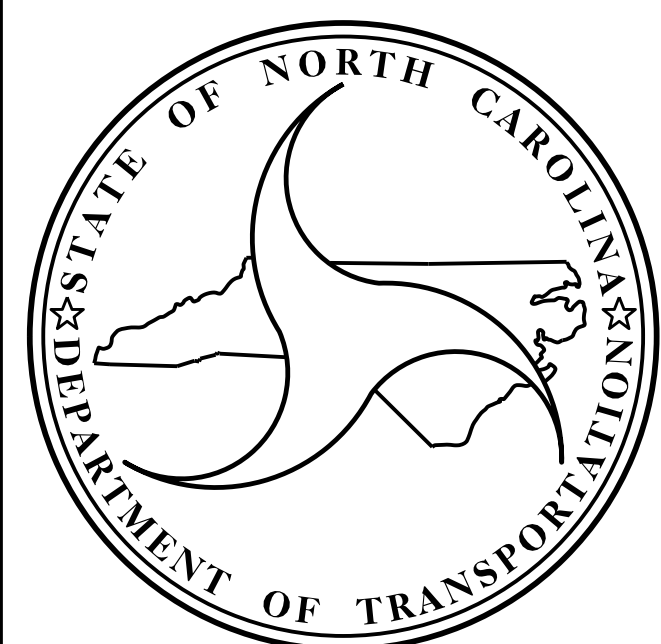
ANSON COUNTY

LOCATION: BRIDGE #011 OVER DEADFALL CREEK ON NC 109
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5818	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
45771.1.1	-	P.E.	
45771.2.1	-	ROW & UTILITIES	
45771.3.1	-	CONST.	



STRUCTURE



DESIGN DATA

ADT 2018 = 1,320
 ADT 2043 = 2,640
 K = 9%
 D = 60%
 T = 22%*
 V = 55 MPH
 FUNC. CLASSIFICATION:
 MAJOR COLLECTOR
 * (TTST 15% + DUALS 7%)
 REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5818 = 0.467 MILES
 LENGTH OF STRUCTURE TIP PROJECT B-5818 = 0.025 MILES
 TOTAL LENGTH OF TIP PROJECT B-5818 = 0.492 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
 STRUCTURES MANAGEMENT UNIT
 1000 BIRCH RIDGE DR.
 RALEIGH, N.C. 27610

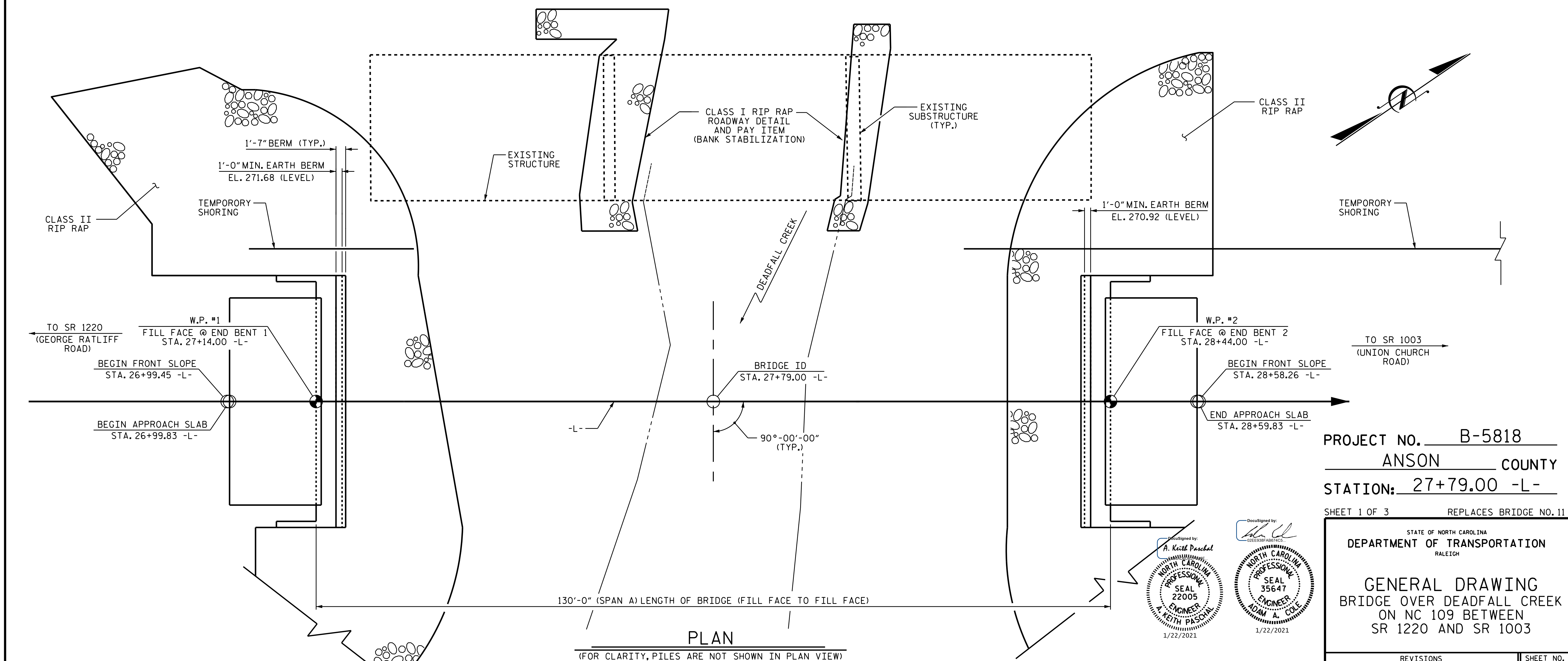
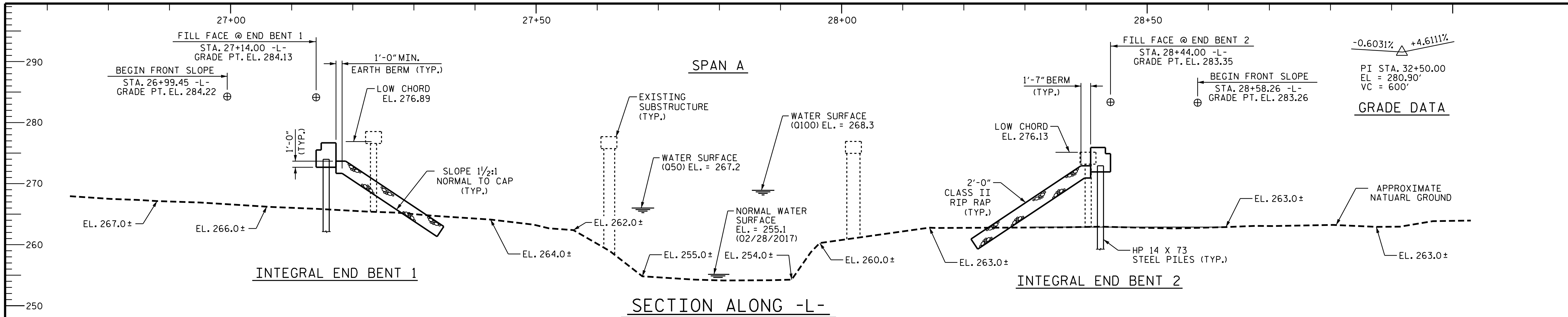
2018 STANDARD SPECIFICATIONS

LETTING DATE :

MAY 18, 2021

A. KEITH PASCHAL, P.E.
 PROJECT ENGINEER

ADAM A. COLE, P.E.
 PROJECT DESIGN ENGINEER



DRAWN BY : M. G. SHAIKH DATE : 01/2020
 CHECKED BY : H. LOCKLEAR DATE : 02/2020
 DESIGN ENGINEER OF RECORD: REZA KOUCHEKI DATE : 11/2019

DocuSigned by:
 A. Keith Paschal
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 22005
 1/22/2021

DocuSigned by:
 ADAM A. COLE
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 35647
 1/22/2021

PROJECT NO. B-5818
 ANSON COUNTY
 STATION: 27+79.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 11

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

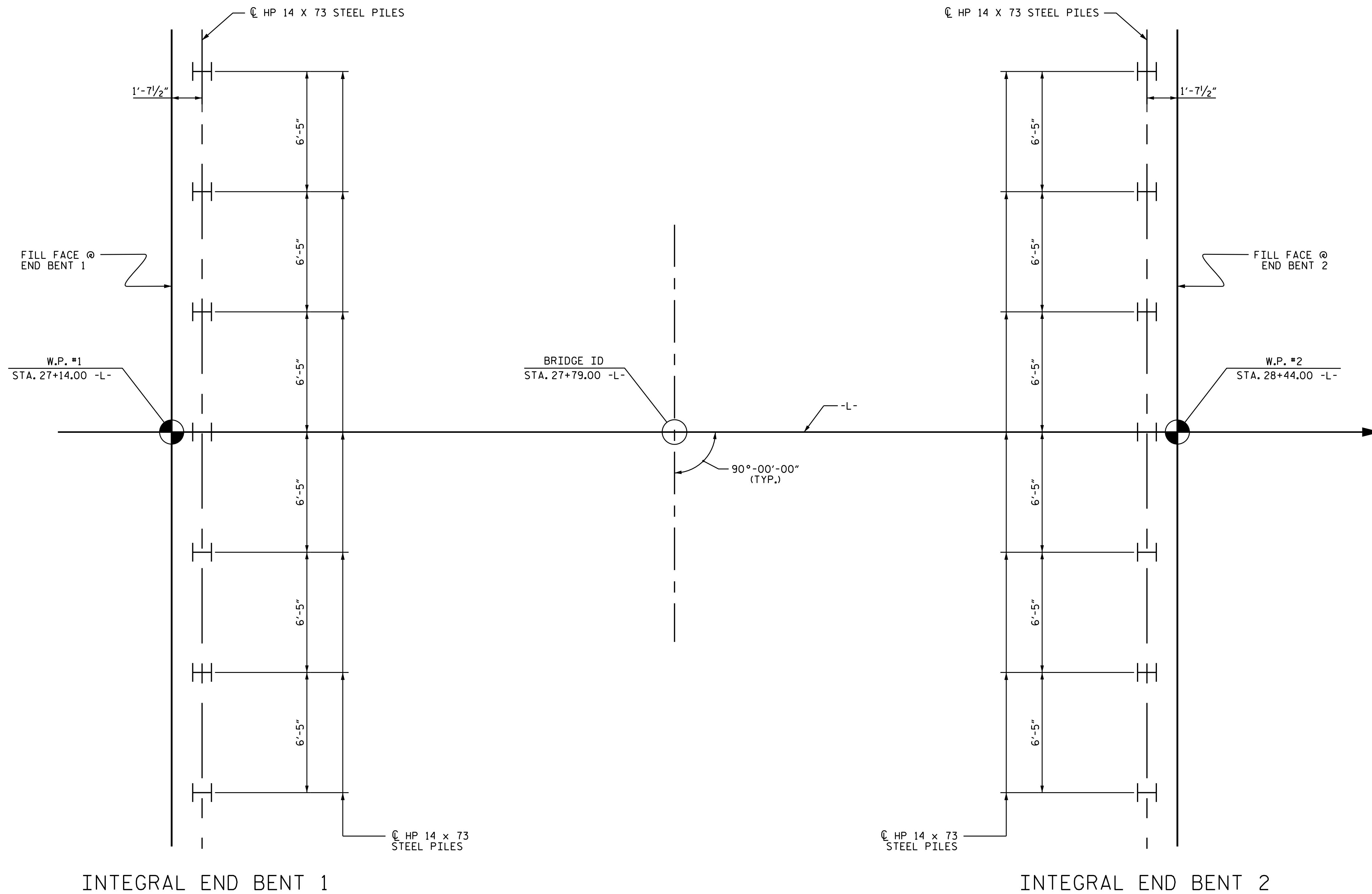
GENERAL DRAWING
 BRIDGE OVER DEADFALL CREEK
 ON NC 109 BETWEEN
 SR 1220 AND SR 1003

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED AXIAL RESISTANCE OF 141 TONS PER PILE.
 DRIVE PILES AT END BENT NO.1 AND END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 235 TONS PER PILE.
 STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1 AND END BENT NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO CENTERLINE OF PILES

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+79.00 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

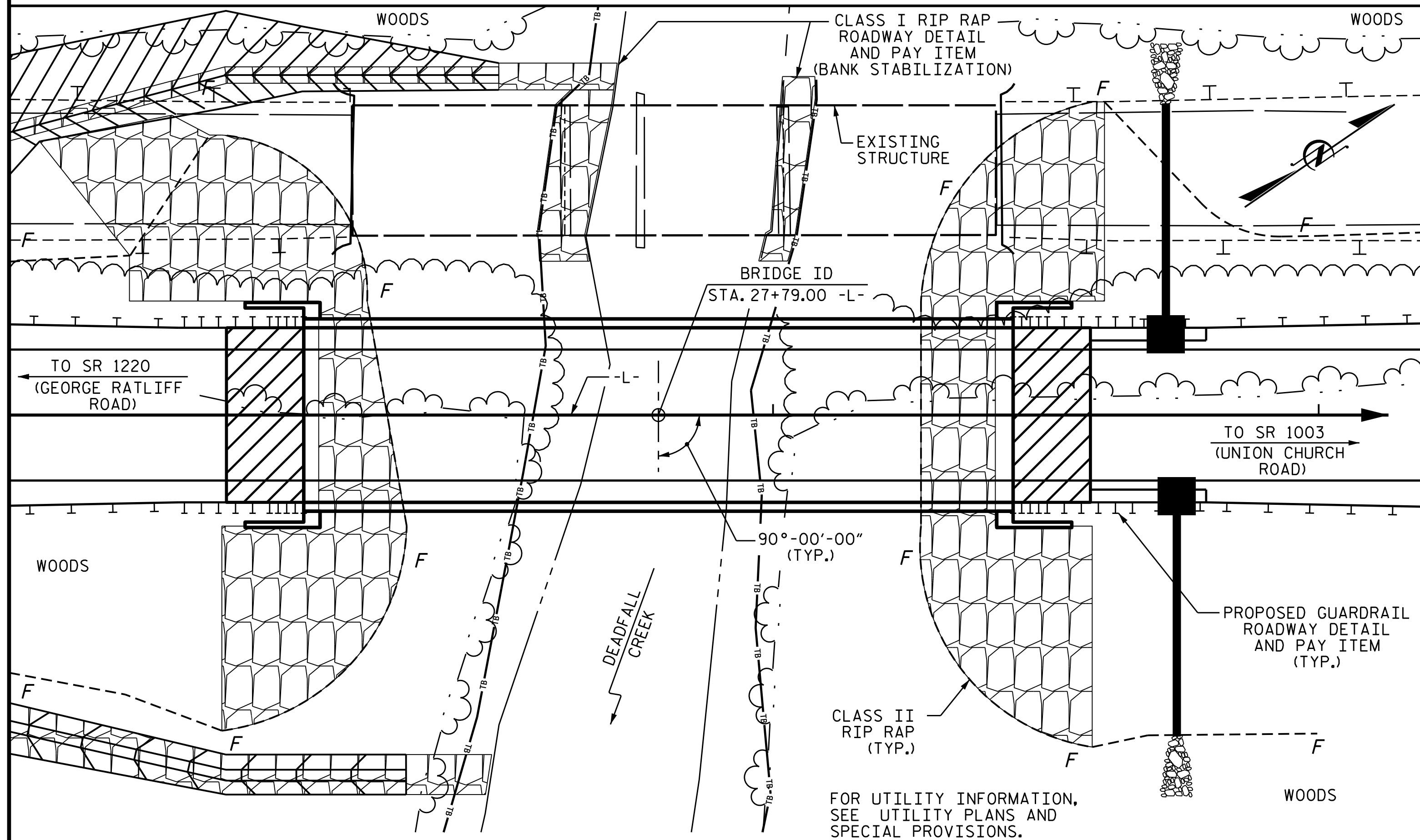
GENERAL DRAWING
 BRIDGE OVER DEADFALL CREEK
 ON NC 109 BETWEEN
 SR 1220 AND SR 1003

DRAWN BY : M. G. SHAIKH DATE : 01/2020
 CHECKED BY : H. LOCKLEAR DATE : 02/2020
 DESIGN ENGINEER OF RECORD: REZA KOUCHEKI DATE : 11/2019

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BENCHMARK 2., RAIL ROAD SPIKE SET IN 30" Ø OAK TREE, 80.43' LT. OF STA. 21+28.00 -L-, ELEV. 292.53



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE _____ 4,600 CFS.
 FREQUENCY OF DESIGN FLOOD _____ 50 YRS.
 DESIGN HIGH WATER ELEVATION _____ 267.2 FT.
 DRAINAGE AREA _____ 25.0 SQ.MI.
 BASE DISCHARGE (Q100) _____ 5,300 CFS.
 BASE HIGH WATER ELEVATION _____ 268.3 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE _____ 20,000 CFS.
 FREQUENCY OF OVERTOPPING FLOOD _____ 500+ YRS.
 OVERTOPPING FLOOD ELEVATION _____ 282.9 FT.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL
	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.
SUPERSTRUCTURE			4524	4563			
END BENT 1					35.3		5544
END BENT 2					35.3		5544
TOTAL	LUMP SUM	LUMP SUM	4524	4563	70.6	LUMP SUM	11,088

TOTAL BILL OF MATERIAL

	MODIFIED 72" PRESTRESSED CONCRETE GIRDERS		PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 STEEL PILES		HP 14 X 73 STEEL PILES		STEEL PILE POINTS	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS
	NO.	LIN. FT.	EA.	NO.	LIN. FT.	EA.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	
SUPERSTRUCTURE	4	512.67					256.7			LUMP SUM	
END BENT 1			7	7	160	7		330	367		
END BENT 2			7	7	195	7		290	322		
TOTAL	4	512.67	14	14	355	14	256.7	620	689	LUMP SUM	

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS 1 @ 39'-11", 1 @ 40'-0" AND 1 @ 39'-11" WITH REINFORCED CONCRETE DECK WITH 4 LINES OF 18 X 26 1/2 RC DECK GIRDER @ 6'-10" CTS. SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 23'-11" ON A SUBSTRUCTURE, END BENT CONSISTING OF RC CAPS SPILL THROUGH, AND BENT CONSISTING RC ROUND NOSE POST & WEB AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE 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.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES."

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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.

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

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

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

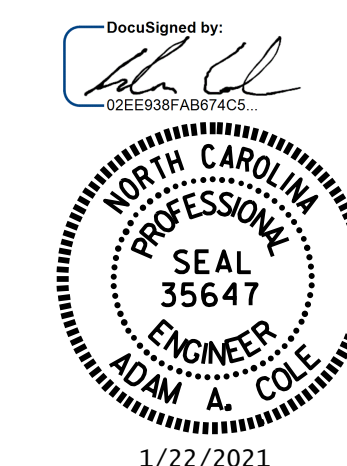
THE CONTRACTOR'S ATTENTION IS CALLED TO THE CLOSE PROXIMITY OF TEMPORARY SHORING TO THE PROPOSED END BENTS. SHORING MUST BE INSTALLED ACCURATELY IN ACCORDANCE WITH TRAFFIC CONTROL PLANS.

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.

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+79.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE OVER DEADFALL CREEK
 ON NC 109 BETWEEN
 SR 1220 AND SR 1003

DRAWN BY : M. G. SHAIKH DATE : 09/2020
 CHECKED BY : H. LOCKLEAR DATE : 09/2020
 DESIGN ENGINEER OF RECORD: REZA KOUCHEKI DATE : 11/2019

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
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LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD FACTORS:

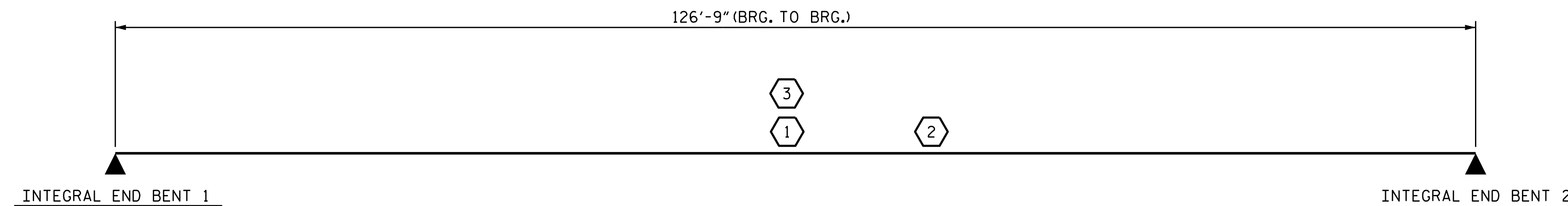
DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.026	--	1.75	0.867	1.236	A	EL	63.38	0.867	1.055	A	EL	88.73	0.80	0.867	1.026	A	EL	63.38		
	HL-93 (OPERATING)	N/A		1.368	--	1.35	0.867	1.602	A	EL	63.38	0.867	1.368	A	EL	88.73	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.405	50.566	1.75	0.867	1.832	A	EL	63.38	0.867	1.405	A	EL	88.73	0.80	0.867	1.522	A	EL	63.38		
	HS-20 (OPERATING)	36.000		1.821	65.549	1.35	0.867	2.375	A	EL	63.38	0.867	1.821	A	EL	88.73	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV) TRUCK TRACTOR SEMI-TRAILER (TTST)	SNSH		3.713	50.125	1.40	0.867	5.587	A	EL	63.38	0.867	4.316	A	EL	88.73	0.80	0.867	3.713	A	EL	63.38		
		SNGARBS2	20.000		2.645	52.895	1.40	0.867	3.979	A	EL	63.38	0.867	3.025	A	EL	88.73	0.80	0.867	2.645	A	EL	63.38	
		SNAGRIS2	22.000		2.457	54.044	1.40	0.867	3.696	A	EL	63.38	0.867	2.791	A	EL	88.73	0.80	0.867	2.457	A	EL	63.38	
		SNCOTTS3	27.250		1.844	50.250	1.40	0.867	2.775	A	EL	63.38	0.867	2.150	A	EL	88.73	0.80	0.867	1.844	A	EL	63.38	
		SNAGGRS4	34.925		1.494	52.169	1.40	0.867	2.248	A	EL	63.38	0.867	1.754	A	EL	88.73	0.80	0.867	1.494	A	EL	63.38	
		SNS5A	35.550		1.464	52.039	1.40	0.867	2.203	A	EL	63.38	0.867	1.761	A	EL	88.73	0.80	0.867	1.464	A	EL	63.38	
		SNS6A	39.950		1.324	52.898	1.40	0.867	1.992	A	EL	63.38	0.867	1.595	A	EL	88.73	0.80	0.867	1.324	A	EL	63.38	
		SNS7B	42.000		1.260	52.931	1.40	0.867	1.896	A	EL	63.38	0.867	1.552	A	EL	88.73	0.80	0.867	1.260	A	EL	63.38	
		TNAGRIT3	33.000		1.609	53.102	1.40	0.867	2.421	A	EL	63.38	0.867	1.907	A	EL	88.73	0.80	0.867	1.609	A	EL	63.38	
		TNT4A	33.075		1.611	53.289	1.40	0.867	2.424	A	EL	63.38	0.867	1.872	A	EL	88.73	0.80	0.867	1.611	A	EL	63.38	
		TNT6A	41.600		1.300	54.076	1.40	0.867	1.956	A	EL	63.38	0.867	1.625	A	EL	88.73	0.80	0.867	1.300	A	EL	63.38	
		TNT7A	42.000		1.297	54.486	1.40	0.867	1.952	A	EL	63.38	0.867	1.598	A	EL	88.73	0.80	0.867	1.297	A	EL	63.38	
		TNT7B	42.000		1.320	55.442	1.40	0.867	1.986	A	EL	63.38	0.867	1.526	A	EL	88.73	0.80	0.867	1.320	A	EL	63.38	
		TNAGRIT4	43.000		1.272	54.698	1.40	0.867	1.914	A	EL	63.38	0.867	1.481	A	EL	88.73	0.80	0.867	1.272	A	EL	63.38	
		TNAGRIT5A	45.000		1.207	54.322	1.40	0.867	1.816	A	EL	63.38	0.867	1.455	A	EL	88.73	0.80	0.867	1.207	A	EL	63.38	
TNAGRIT5B	45.000		3	1.200	53.980	1.40	0.867	1.805	A	EL	63.38	0.867	1.411	A	EL	88.73	0.80	0.867	1.200	A	EL	63.38		

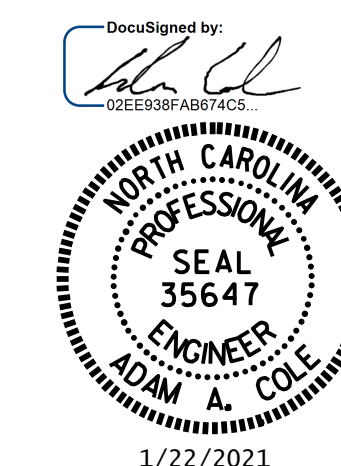
NOTES:
 MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.
 ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:
 1.
 2.
 3.
 4.

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



PROJECT NO. B-5818
 ANSON COUNTY
 STATION: 27+79.00 -L-



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

ASSEMBLED BY : M. G. SHAIKH DATE : 01/2020
 CHECKED BY : H. LOCKLEAR DATE : 02/2020
 DRAWN BY : MAA /O/B REV. 10/1/17 MAA/GM
 CHECKED BY : GM/DI 2/08 REV. 12/17 MAA/THC

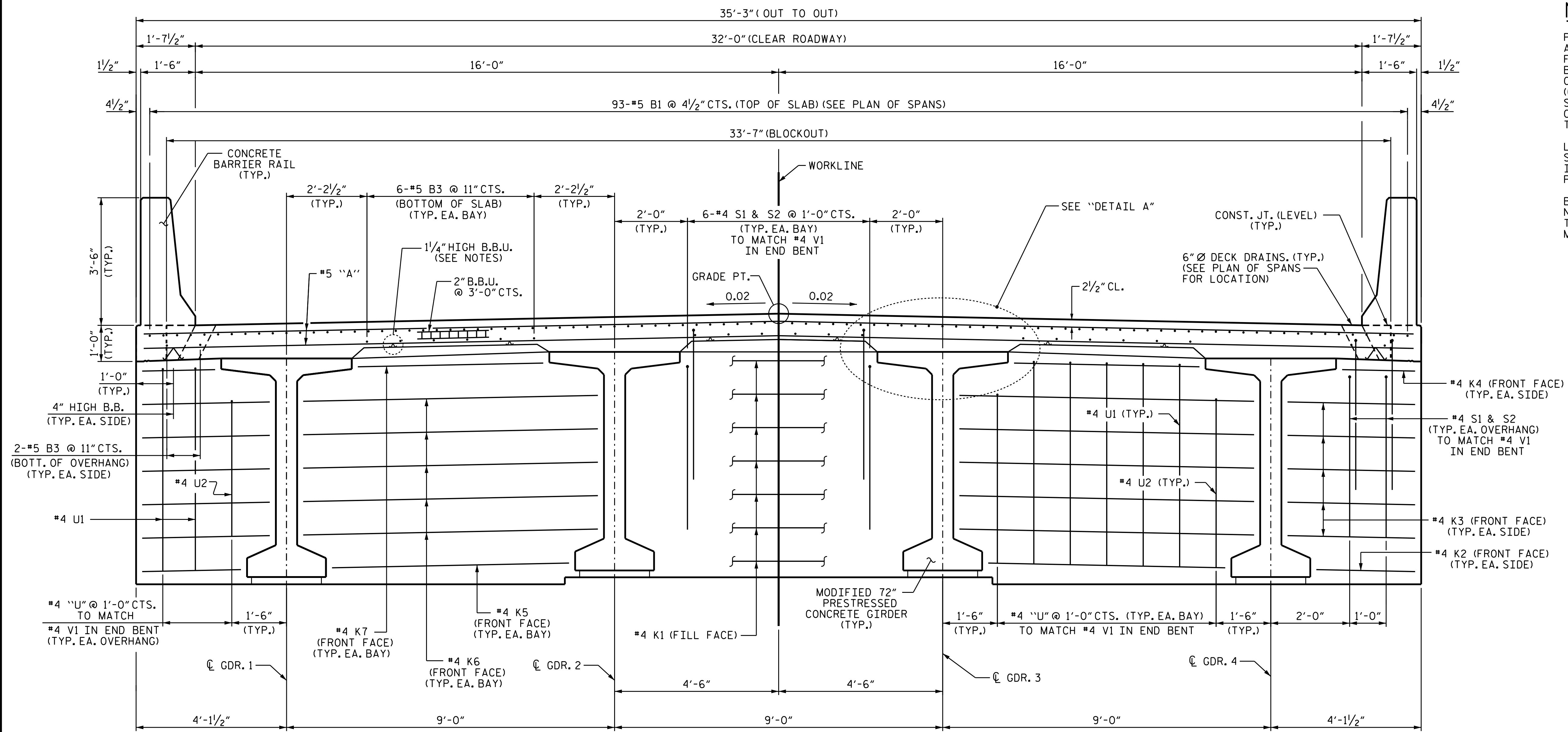
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	NO.	BY:	DATE:	NO.	BY:	DATE:	
	1			3			
	2			4			

NOTES

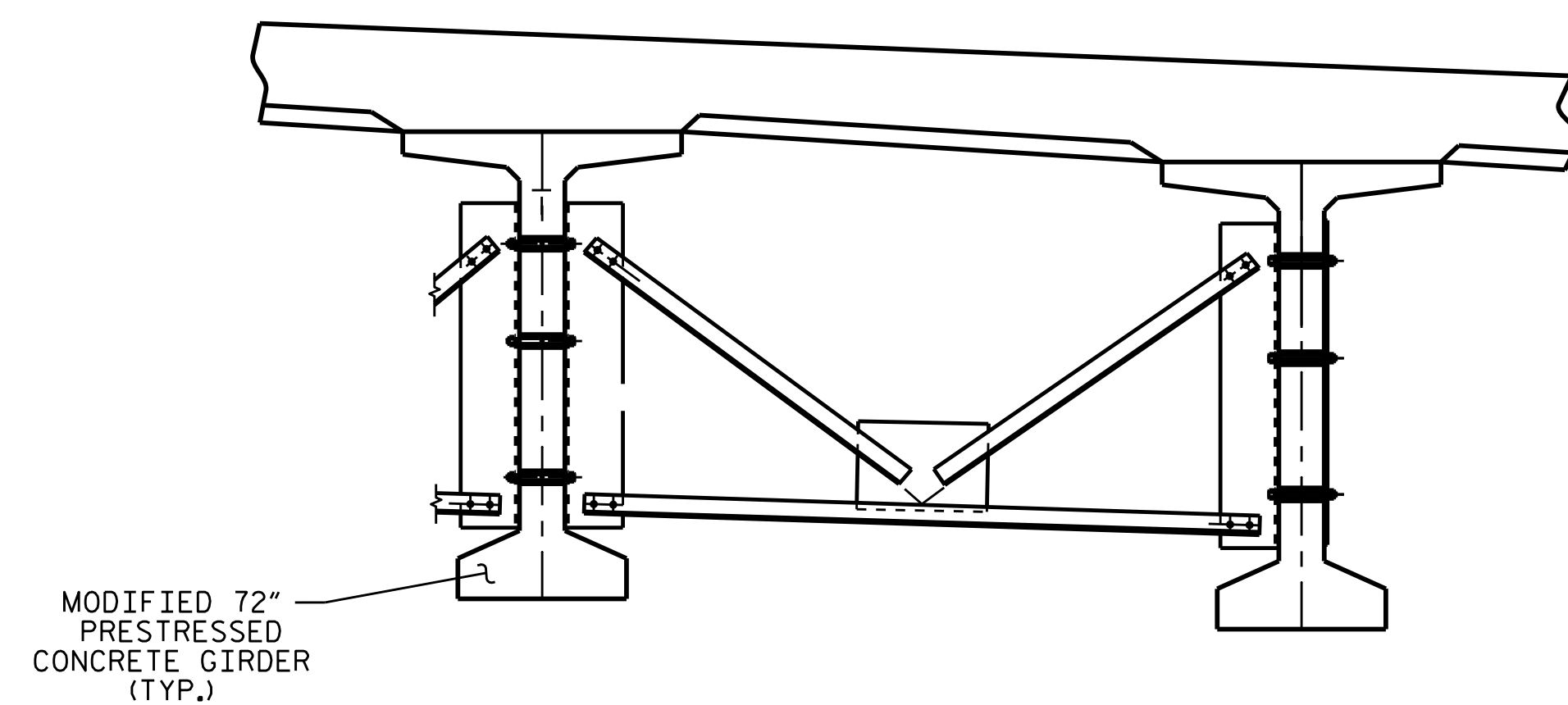
PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2"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

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

BARRIER RAIL 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.

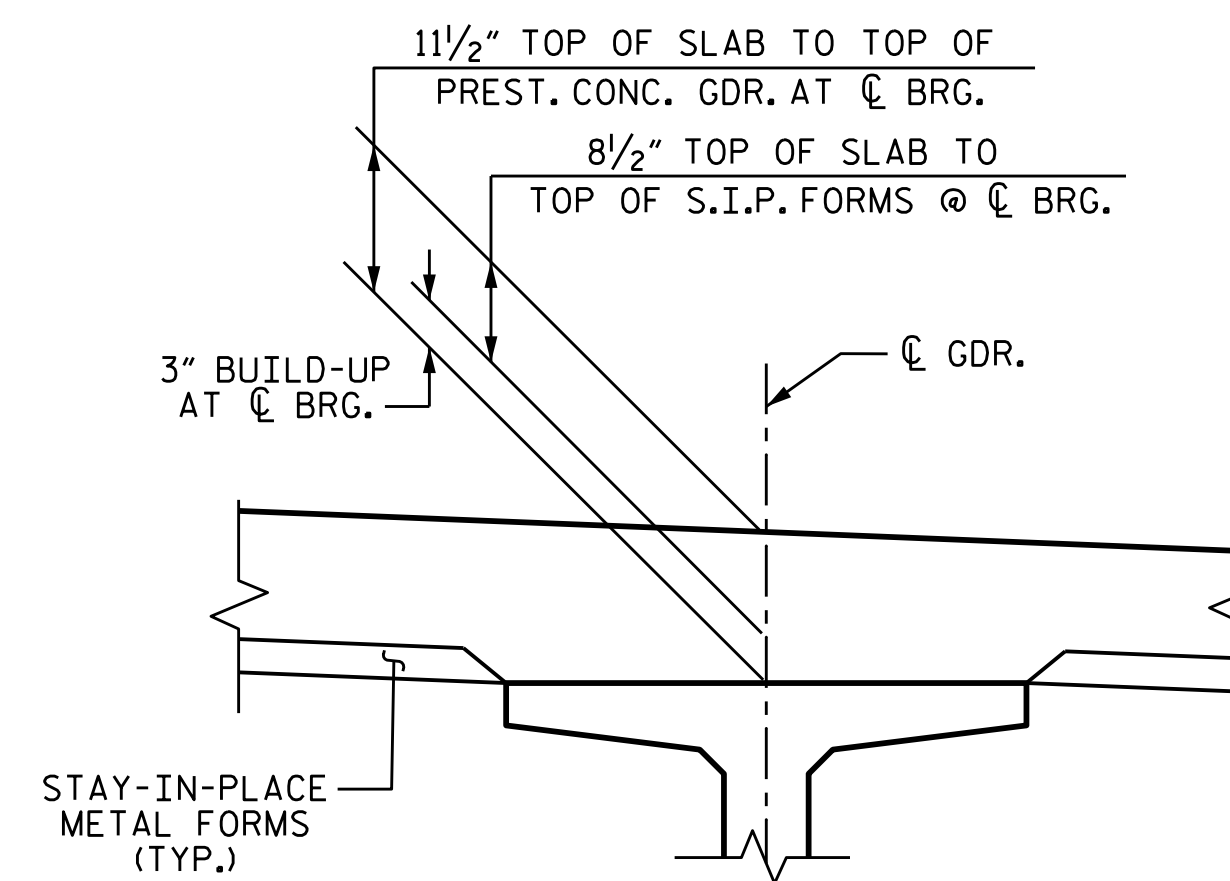


TYPICAL SECTION @ INTEGRAL END BENT DIAPHRAGMS



PART SECTION AT INTERMEDIATE DIAPHRAGM

SHOWING INTERMEDIATE DIAPHRAGM (FOR INTERMEDIATE STEEL DIAPHRAGMS DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 72" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS") (TYP. EA. BAY)



DETAIL A

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+79.00 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 TYPICAL SECTION**

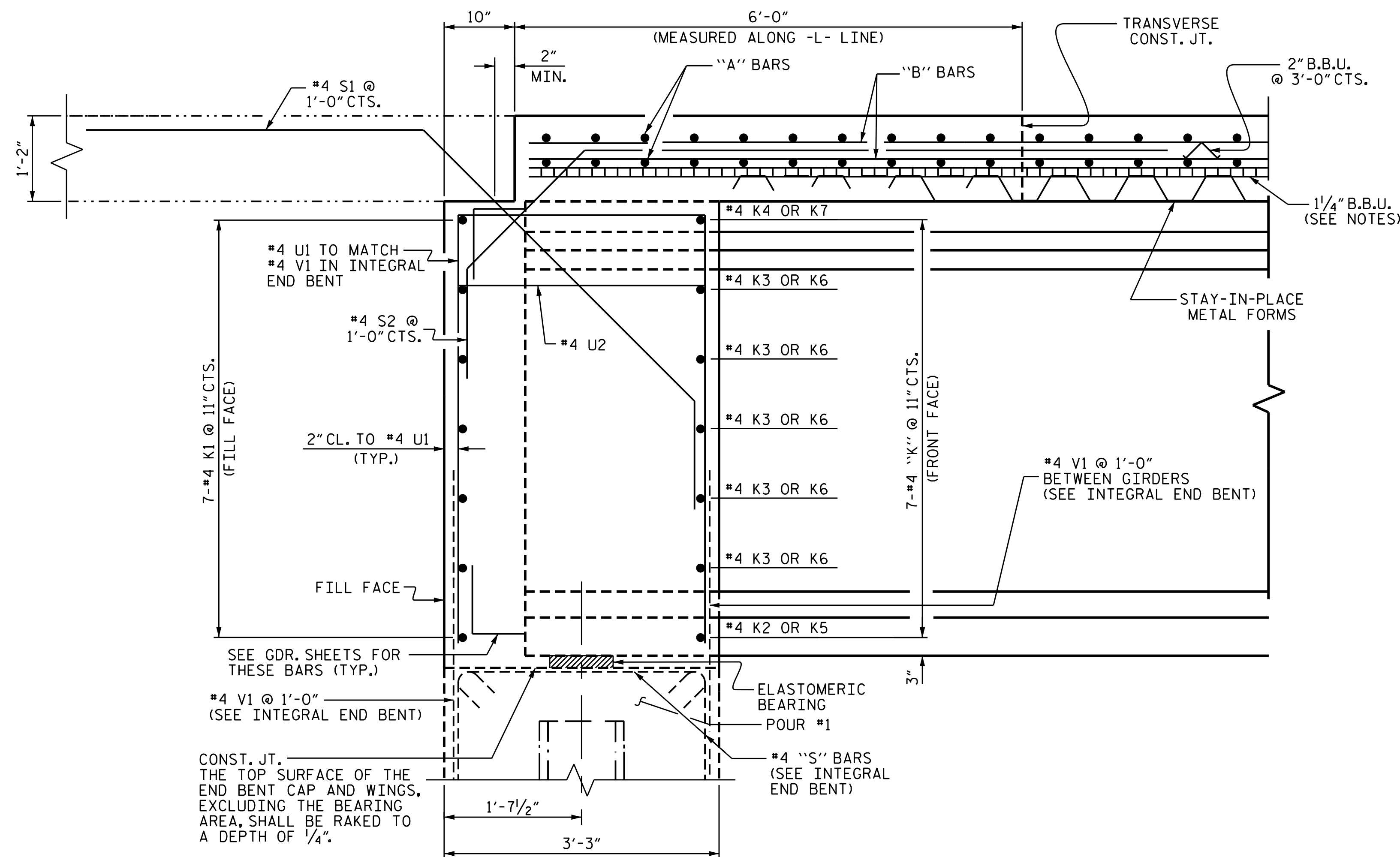
DRAWN BY : M. G. SHAIKH DATE : 01/2020
 CHECKED BY : H. LOCKLEAR DATE : 02/2020
 DESIGN ENGINEER OF RECORD: REZA KAUCHEKI DATE : 11/2019

22-JAN-2021 12:21

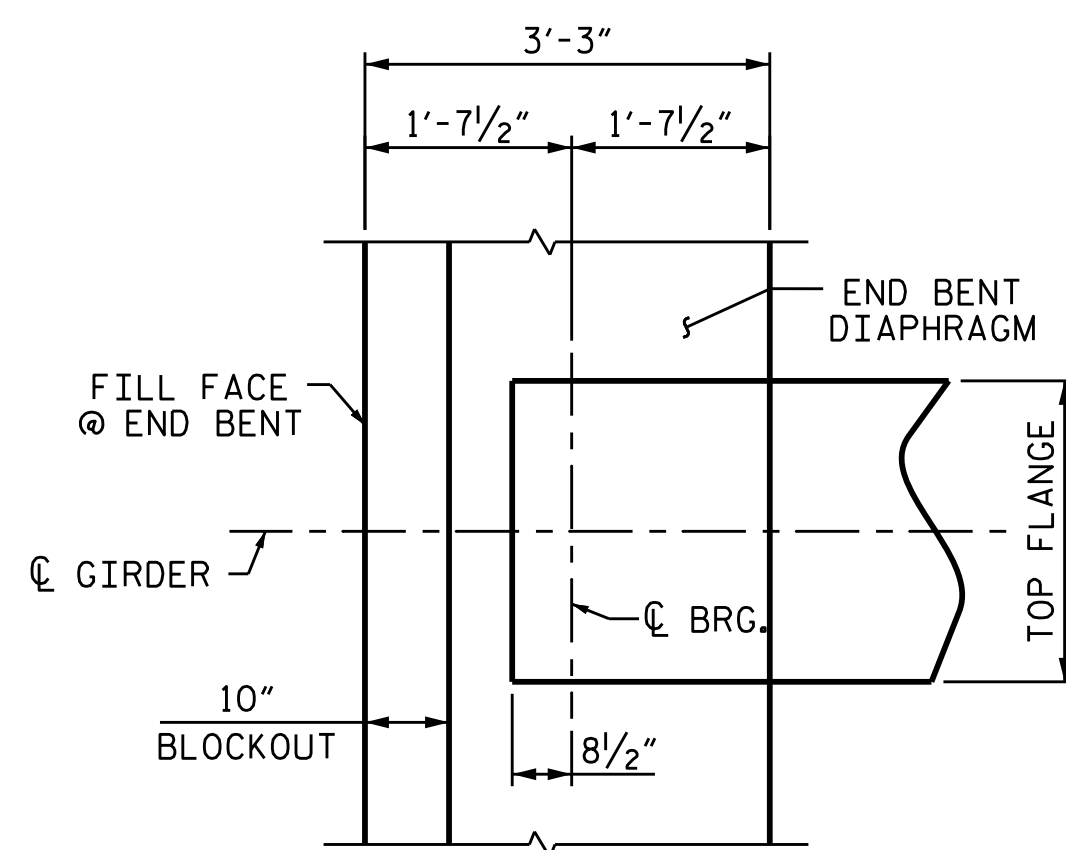
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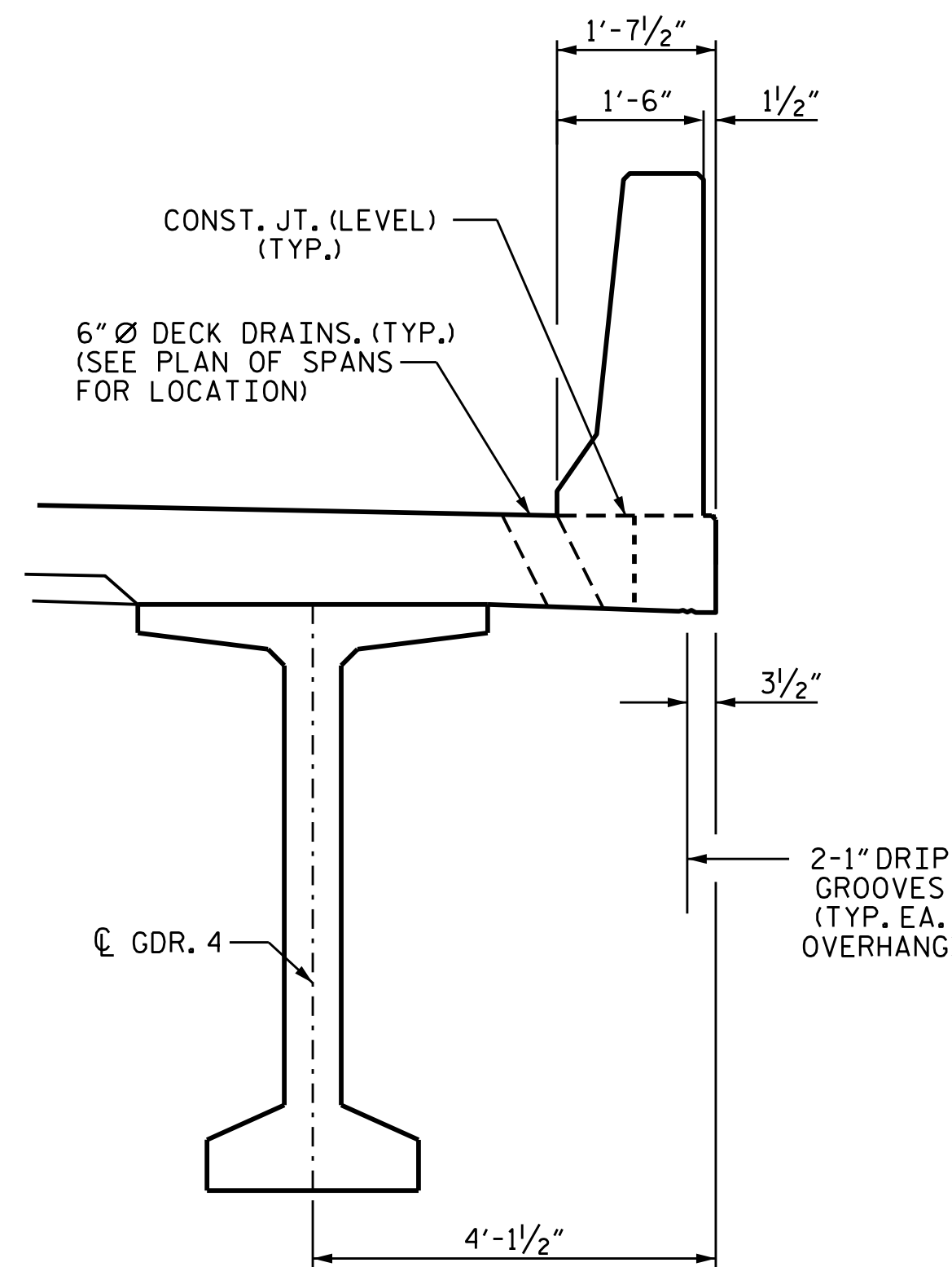
REVISIONS						SHEET NO.
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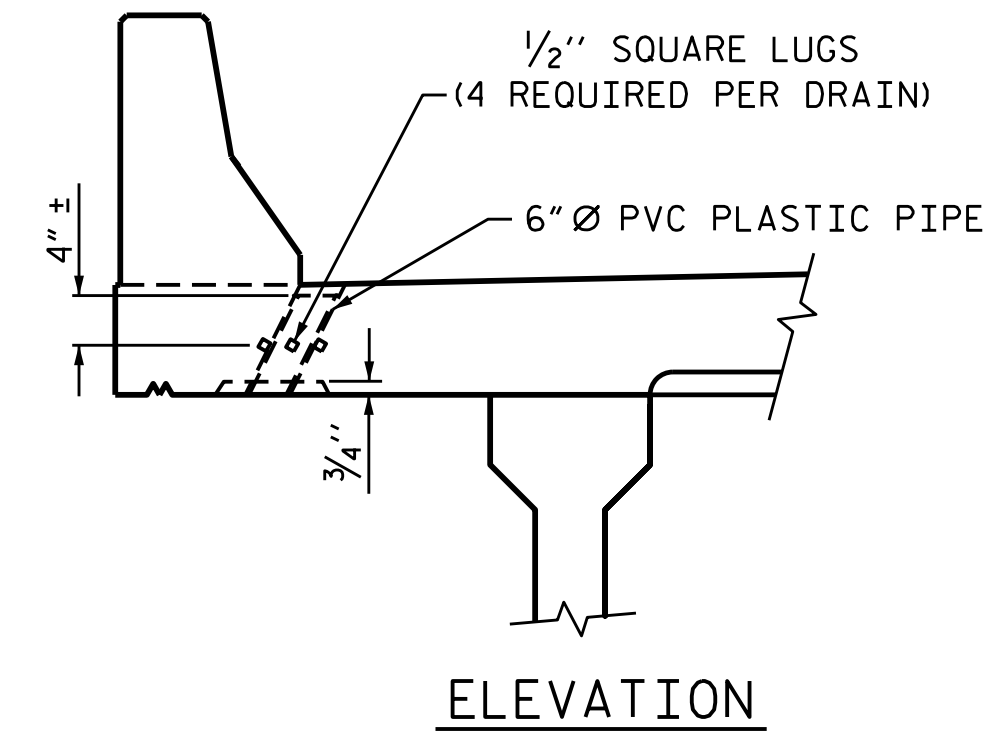
SECTION THRU INTEGRAL END BENT



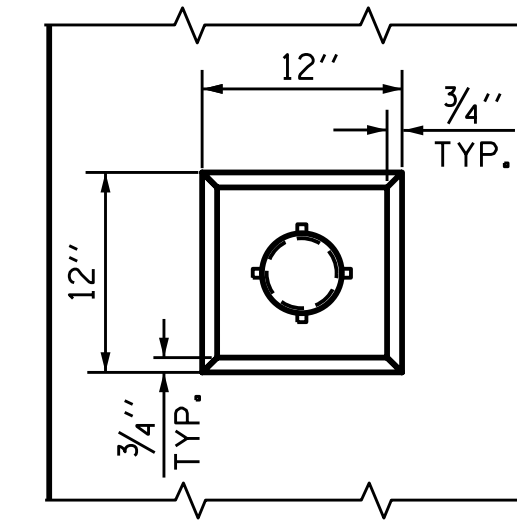
PLAN OF GIRDER AT INTEGRAL END BENT



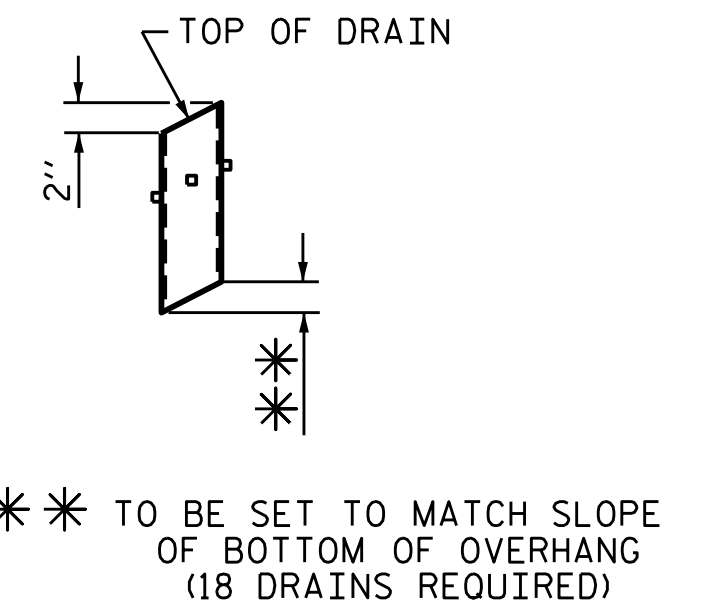
TYPICAL SECTION @ MIDSPAN
(OVERHANG FOR DRIP GROOVES)



ELEVATION



PLAN OF RECESS



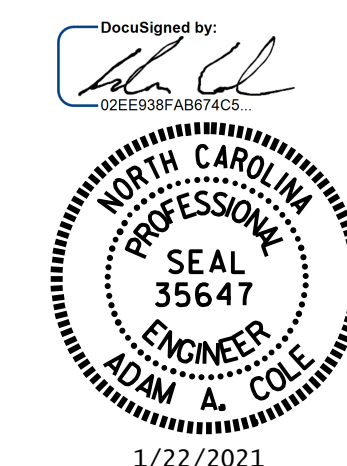
PIPE DETAIL

TOP OF FLOOR DRAINS TO BE SET $\frac{3}{8}$ " BELOW SURFACE OF SLAB.
 4 - $\frac{1}{2}$ " SQUARE LUGS TO BE GLUED TO THE P.V.C. PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.
 THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

DRAIN DETAILS

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+79.00 -L-

SHEET 2 OF 2



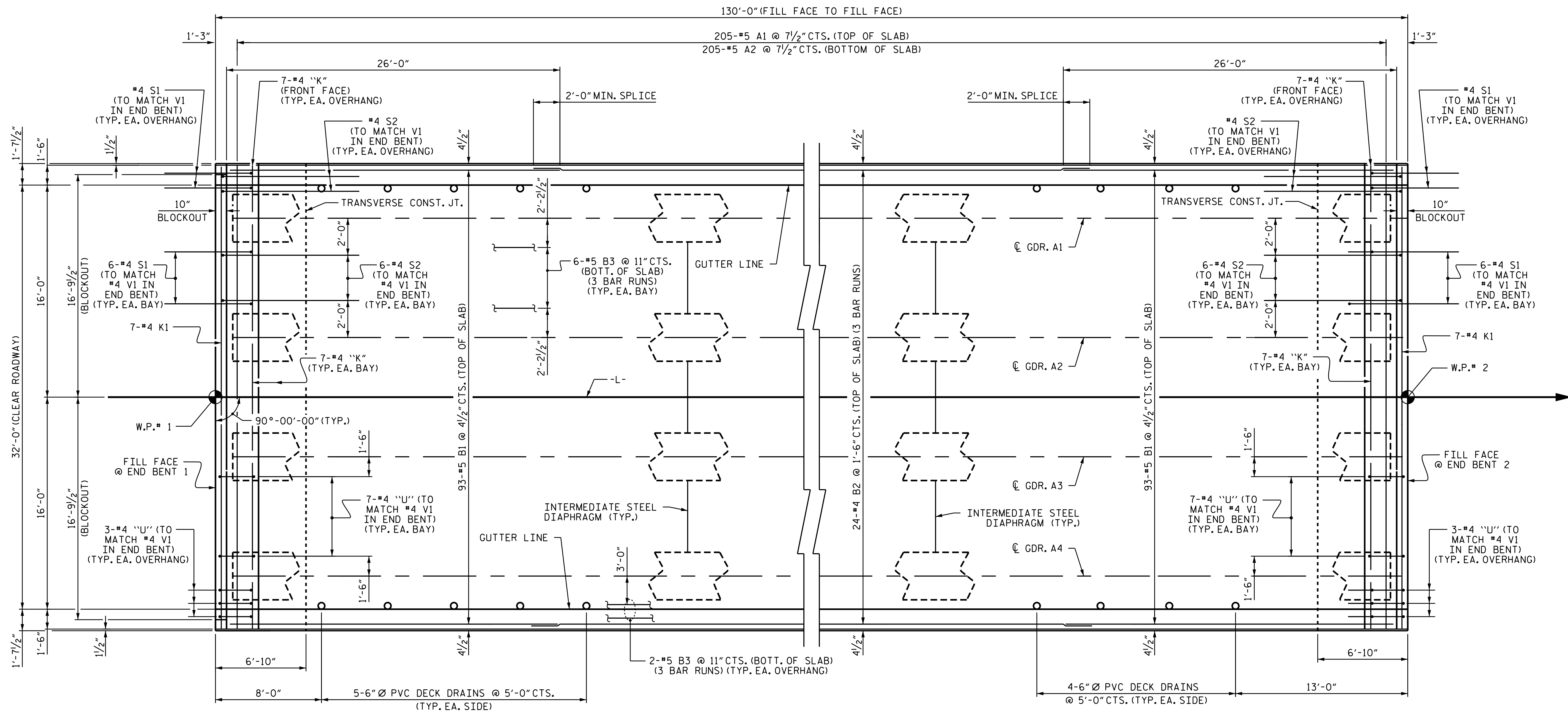
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION

DRAWN BY : M. G. SHAIKH DATE : 01/2020
 CHECKED BY : H. LOCKLEAR DATE : 02/2020
 DESIGN ENGINEER OF RECORD: REZA KAUCHEKI DATE : 11/2019

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 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			24



PLAN OF SPAN A

FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS" SHEET.

PROJECT NO. B-5818
ANSON COUNTY
STATION: 27+79.00 -L-



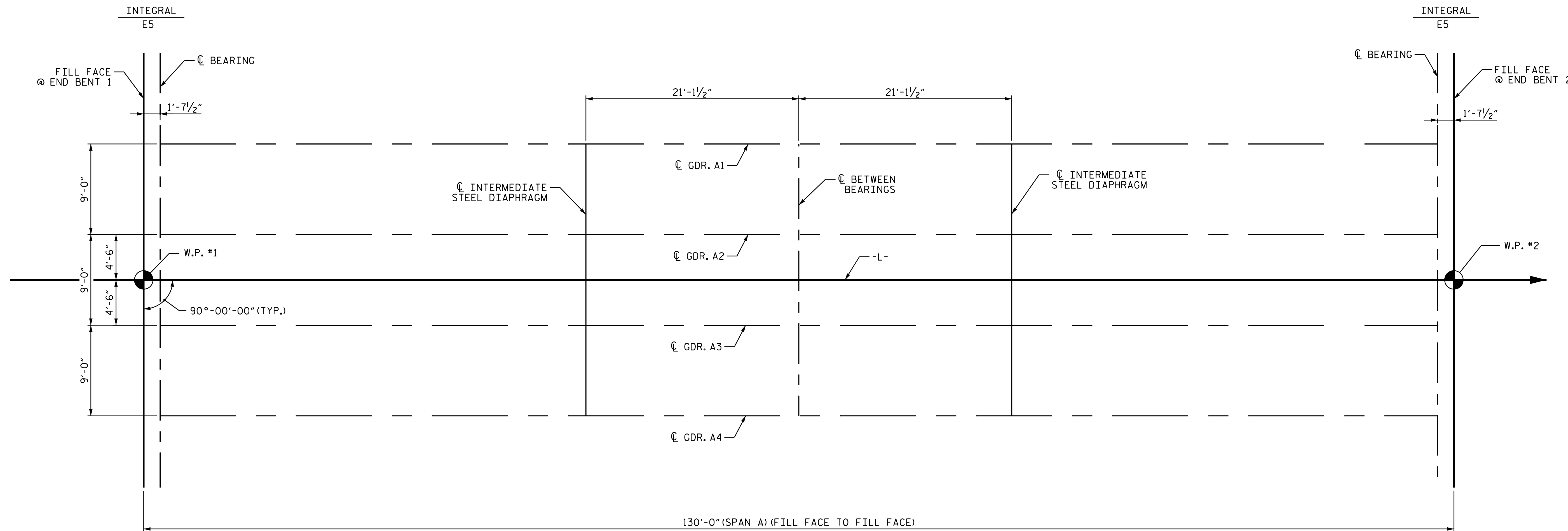
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN A

DRAWN BY: M. G. SHAIKH DATE: 01/2020
CHECKED BY: H. LOCKLEAR DATE: 02/2020
DESIGN ENGINEER OF RECORD: REZA KAUCHEKI DATE: 11/2019

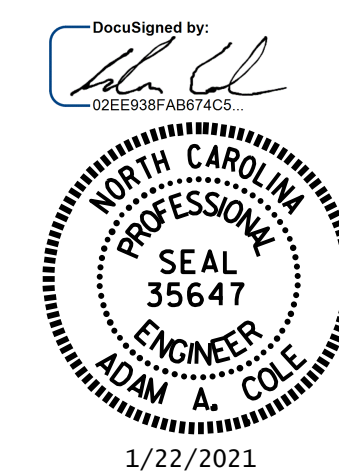
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SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
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2			4			24



FRAMING PLAN

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+79.00 -L-

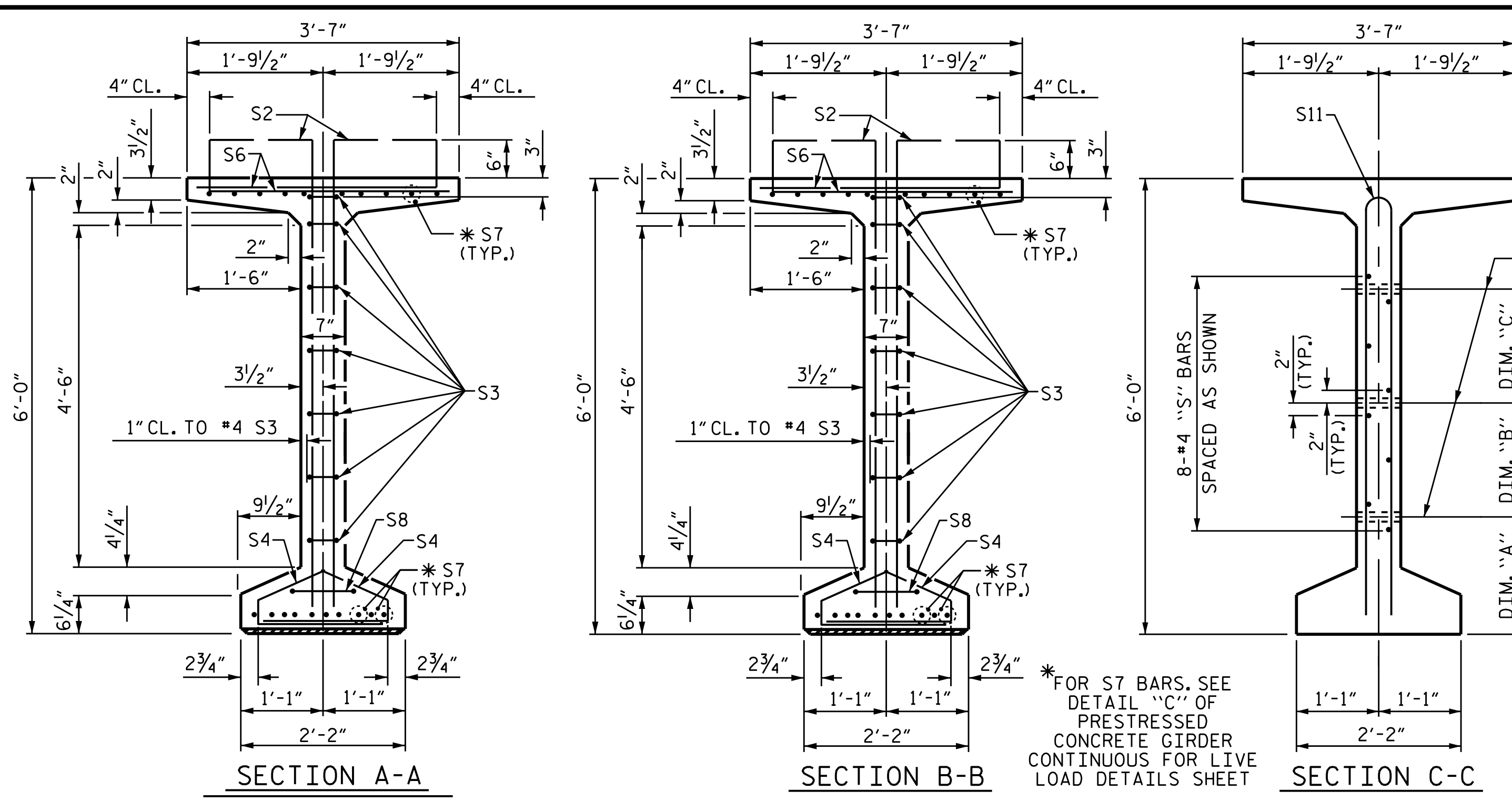


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN

DRAWN BY : M. G. SHAIKH DATE : 01/2020
 CHECKED BY : H. LOCKLEAR DATE : 02/2020
 DESIGN ENGINEER OF RECORD: REZA KAUCHEKI DATE : 11/2019

DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

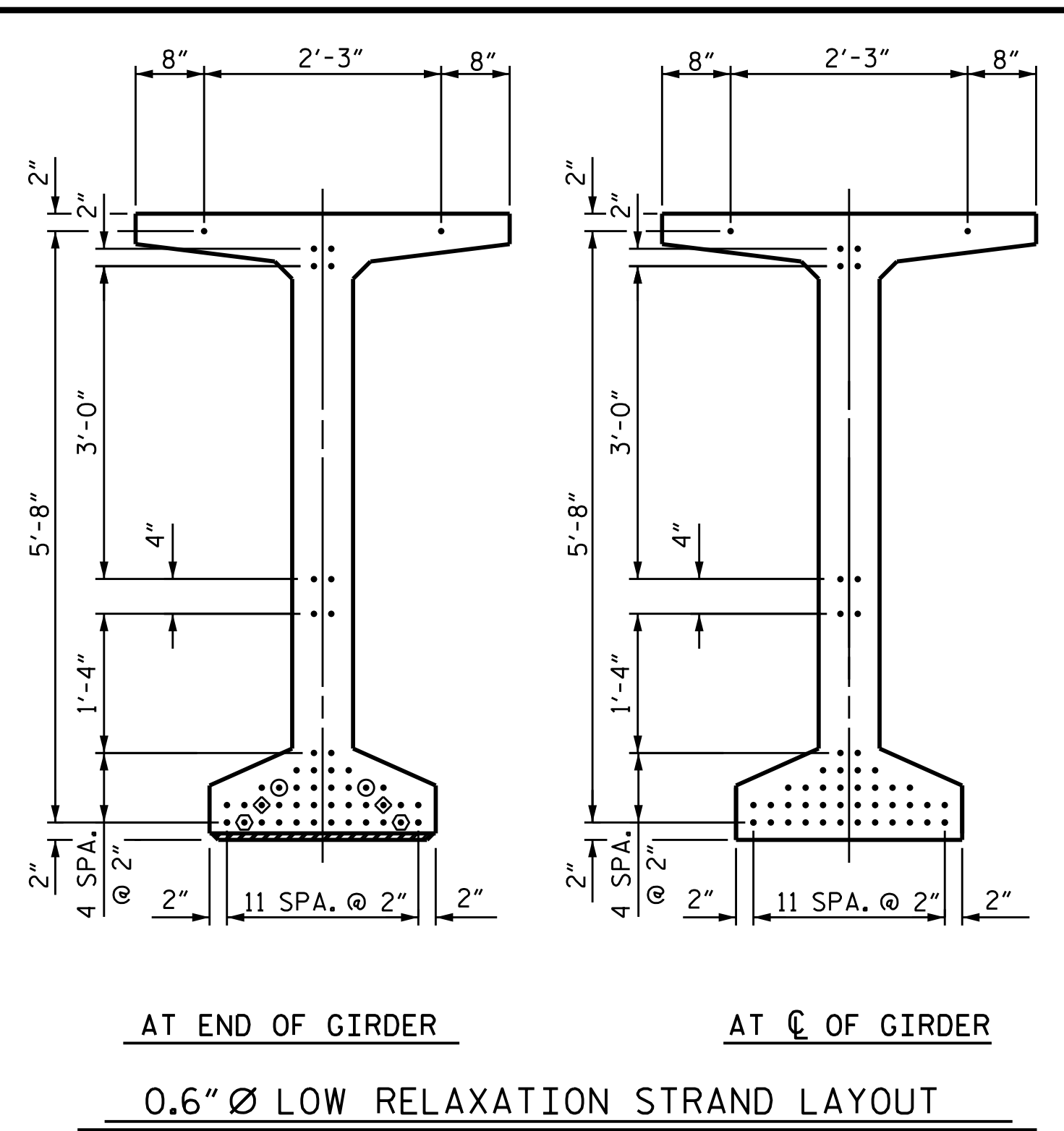
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			24



1/2" FORMED HOLE. SEE ELEVATION FOR LOCATION. FOR DIM. "A", "B" & "C" SEE "INTERMEDIATE STEEL DIAPHRAGMS" SHEET.

DEBONDING LEGEND

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER



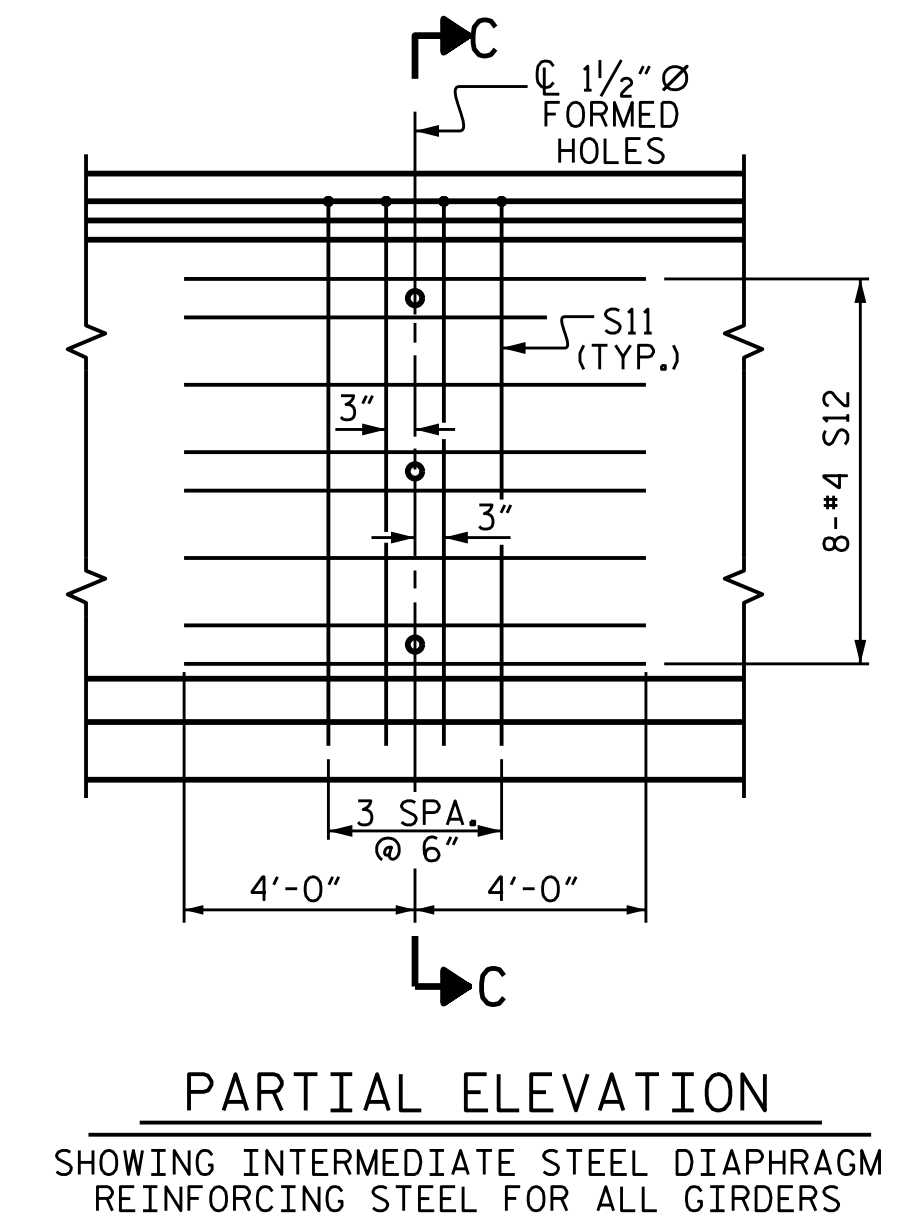
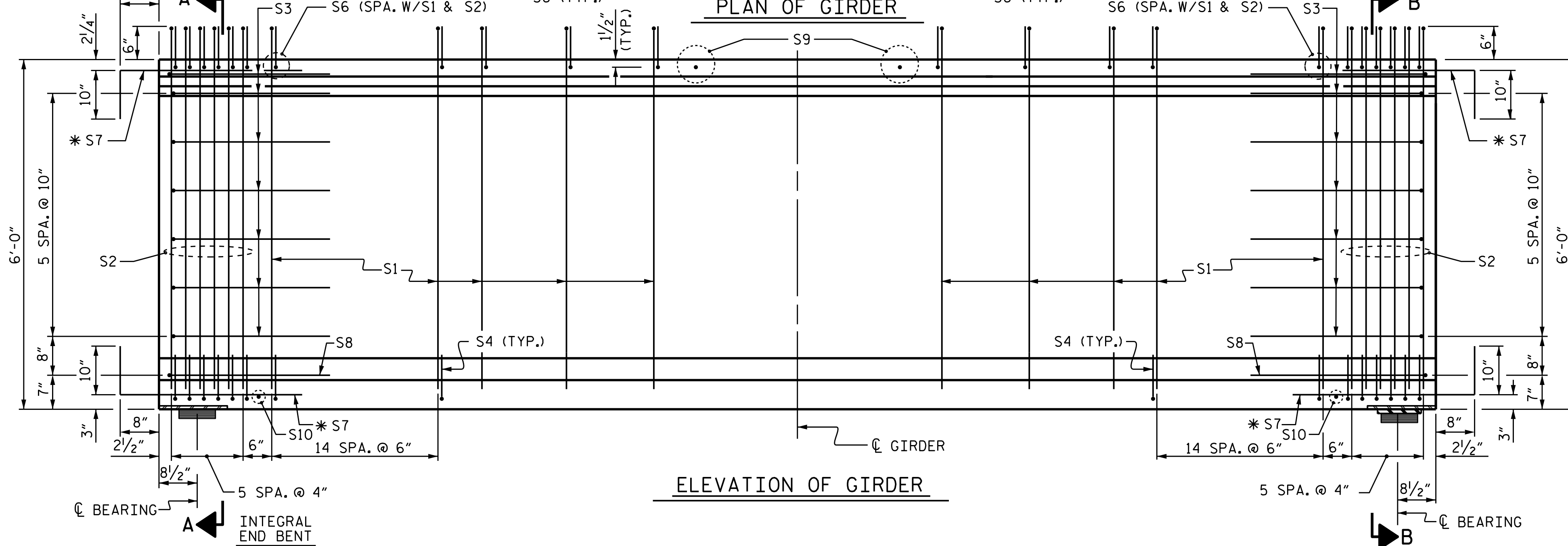
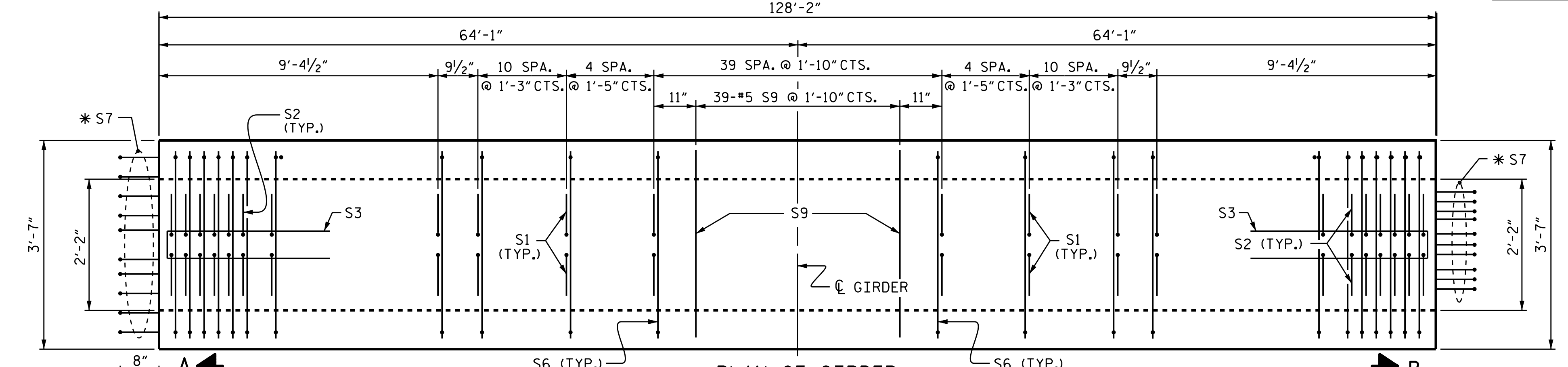
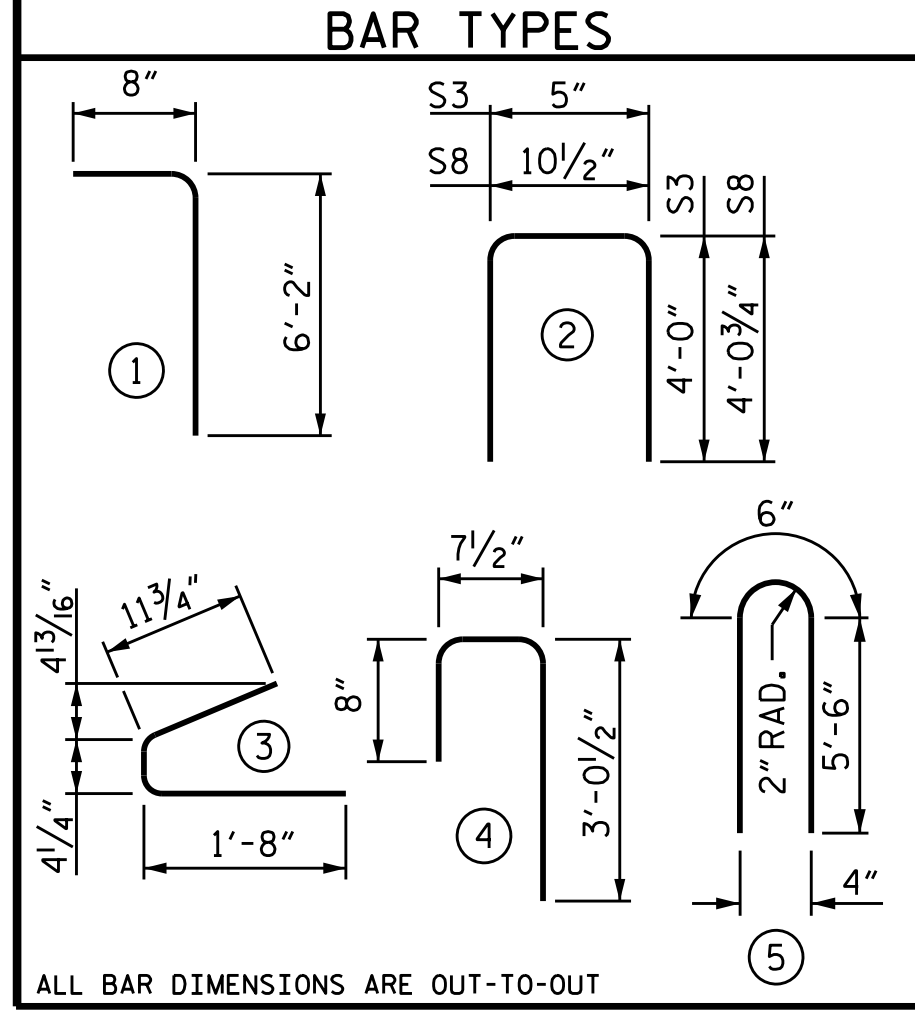
0.6" Ø L. R. GRADE 270 STRANDS

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	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	196	#4	1	6'-10"	895
S2	24	#5	1	6'-10"	171
S3	14	#4	2	8'-5"	79
S4	84	#4	3	3'-0"	168
S6	220	#5	4	4'-4"	994
*S7	40	#5	STR	3'-3"	153
S8	2	#5	2	9'-0"	19
S9	39	#5	STR	3'-3"	132
S10	2	#3	STR	1'-10"	1
S11	8	#5	5	11'-6"	96
S12	16	#4	STR	8'-0"	86

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



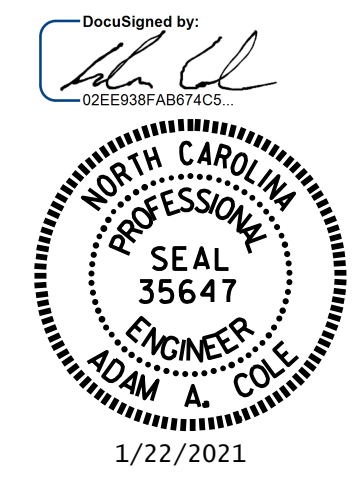
QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	10,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
LB.	C.Y.	No.
2794	27.5	48

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	128'-2"	512'-8"

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+79.00 -L-
 SHEET 1 OF 3



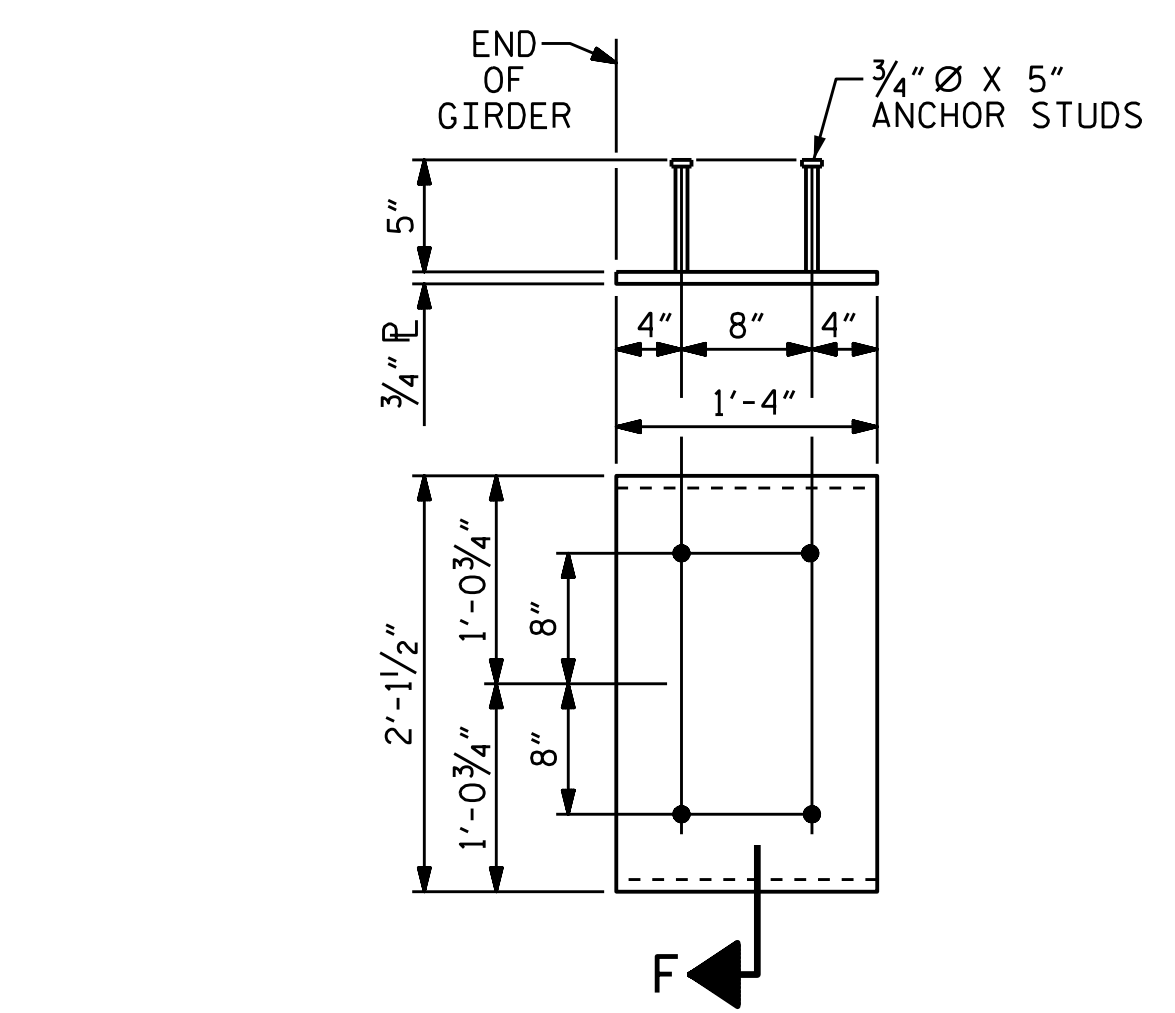
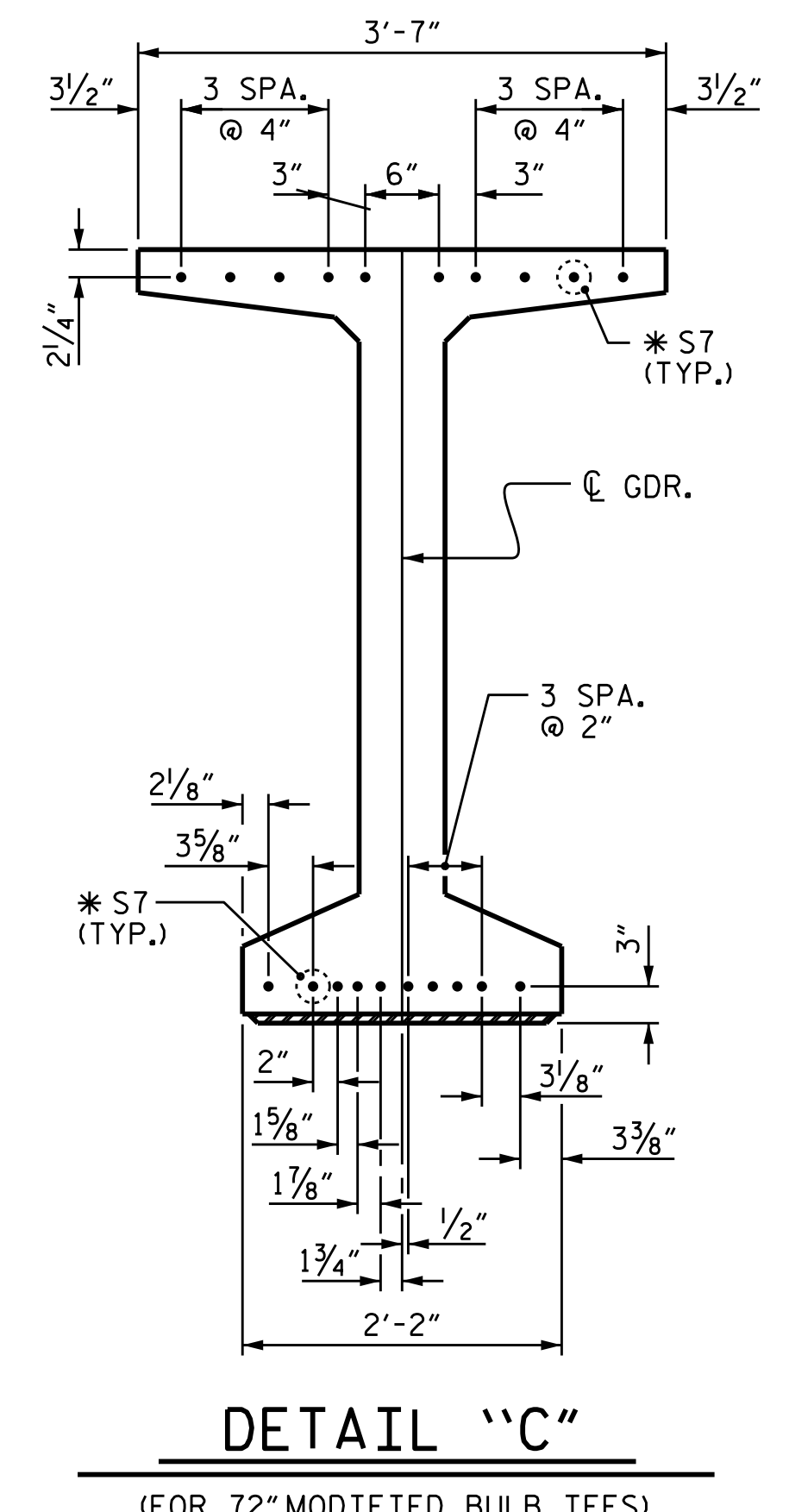
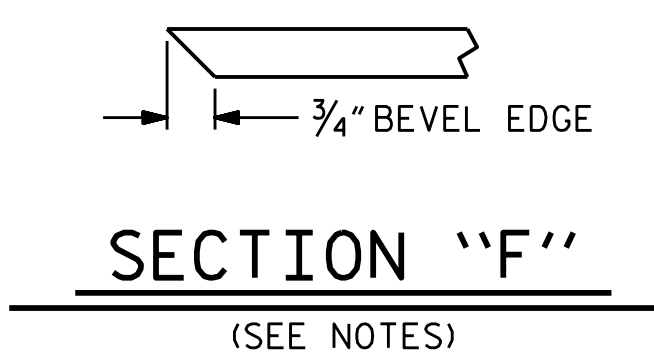
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 (SPAN A)

ASSEMBLED BY : M. G. SHAIKH	DATE : 01/2020
CHECKED BY : H. LOCKLEAR	DATE : 02/2020
DRAWN BY : EEM 2/6/97	REV. 6/13 MAA/GM
CHECKED BY : VAP 2/6/97	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			24



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.
- 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 8000 PSI.
- 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.

DEAD LOAD DEFLECTION TABLE

0.6" Ø LOW RELAXATION	GIRDERS 1 & 4																				
TWENTIETH POINTS	0	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.044	0.086	0.126	0.162	0.195	0.222	0.244	0.260	0.270	0.273	0.270	0.260	0.244	0.222	0.195	0.162	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L. †	0.000	0.034	0.067	0.098	0.126	0.151	0.173	0.190	0.202	0.210	0.213	0.210	0.202	0.190	0.173	0.151	0.126	0.098	0.067	0.034	0.000
FINAL CAMBER †	0	1/8"	1/4"	5/16"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	3/4"	3/4"	11/16"	5/8"	9/16"	1/2"	7/16"	5/16"	1/4"	1/8"	0

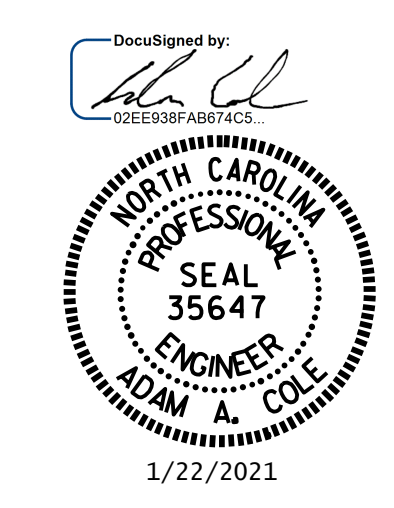
* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE

0.6" Ø LOW RELAXATION	GIRDERS 2 & 3																				
TWENTIETH POINTS	0	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.043	0.086	0.125	0.162	0.194	0.222	0.244	0.260	0.269	0.273	0.269	0.260	0.244	0.222	0.194	0.162	0.125	0.086	0.043	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L. †	0.000	0.034	0.068	0.099	0.128	0.154	0.173	0.193	0.206	0.213	0.216	0.213	0.206	0.193	0.173	0.154	0.128	0.099	0.068	0.034	0.000
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

* 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-5818
ANSON COUNTY
STATION: 27+79.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS

ASSEMBLED BY : M. G. SHAIKH	DATE : 01/2020
CHECKED BY : H. LOCKLEAR	DATE : 02/2020
DRAWN BY : ELR 11/91	REV. 1/15 MAA/TMG
CHECKED BY : GRP 11/91	REV. 2/15 MAA/TMG
	REV. 12/17 MAA/THC

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
	BY:	DATE:			BY:	DATE:		
1				3				S-10
2				4				TOTAL SHEETS 24

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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.

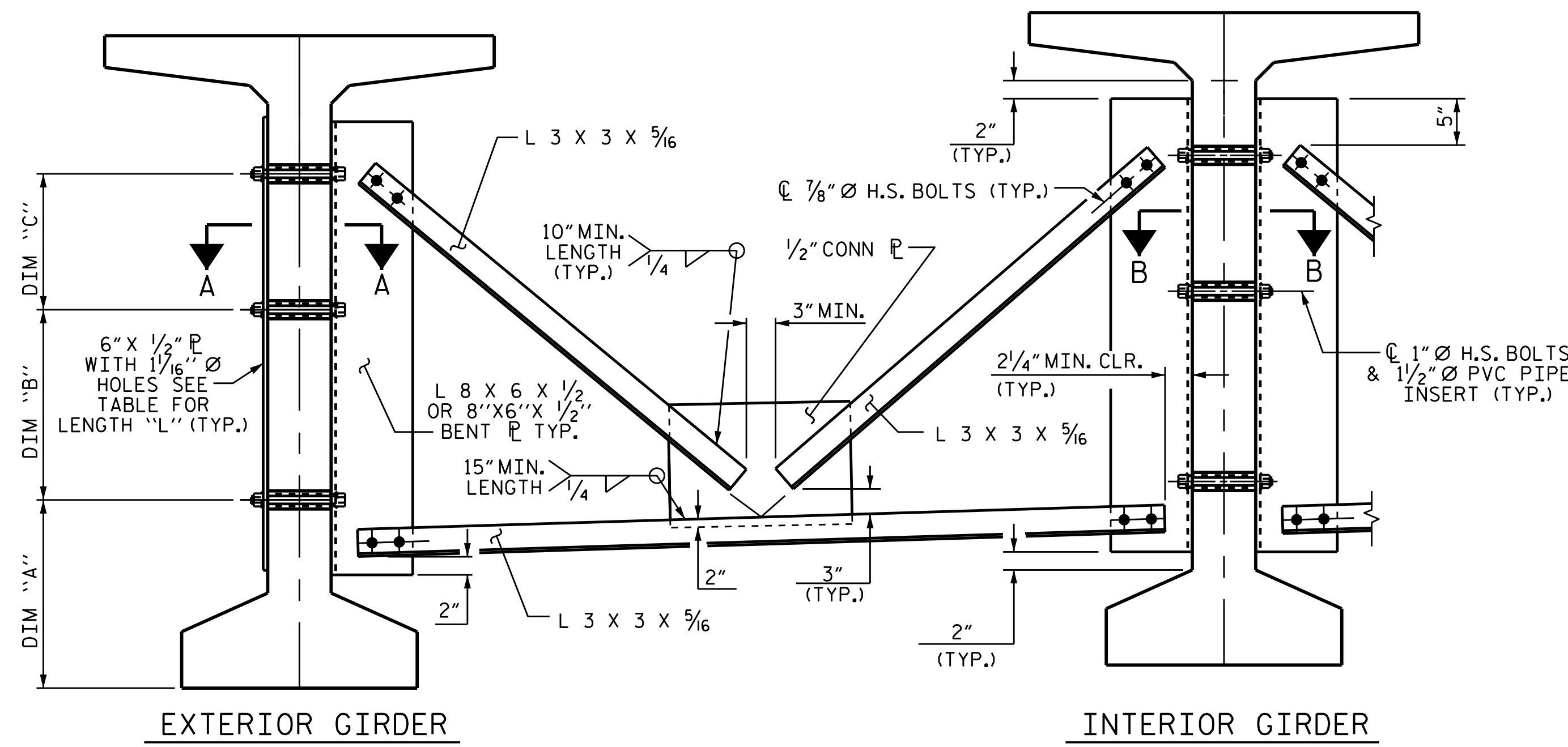
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

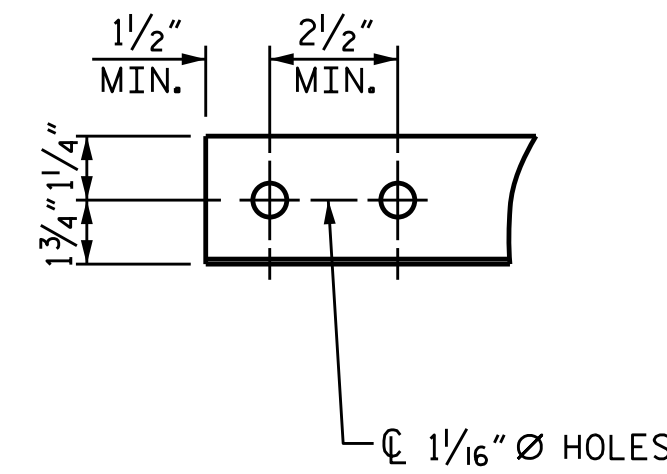
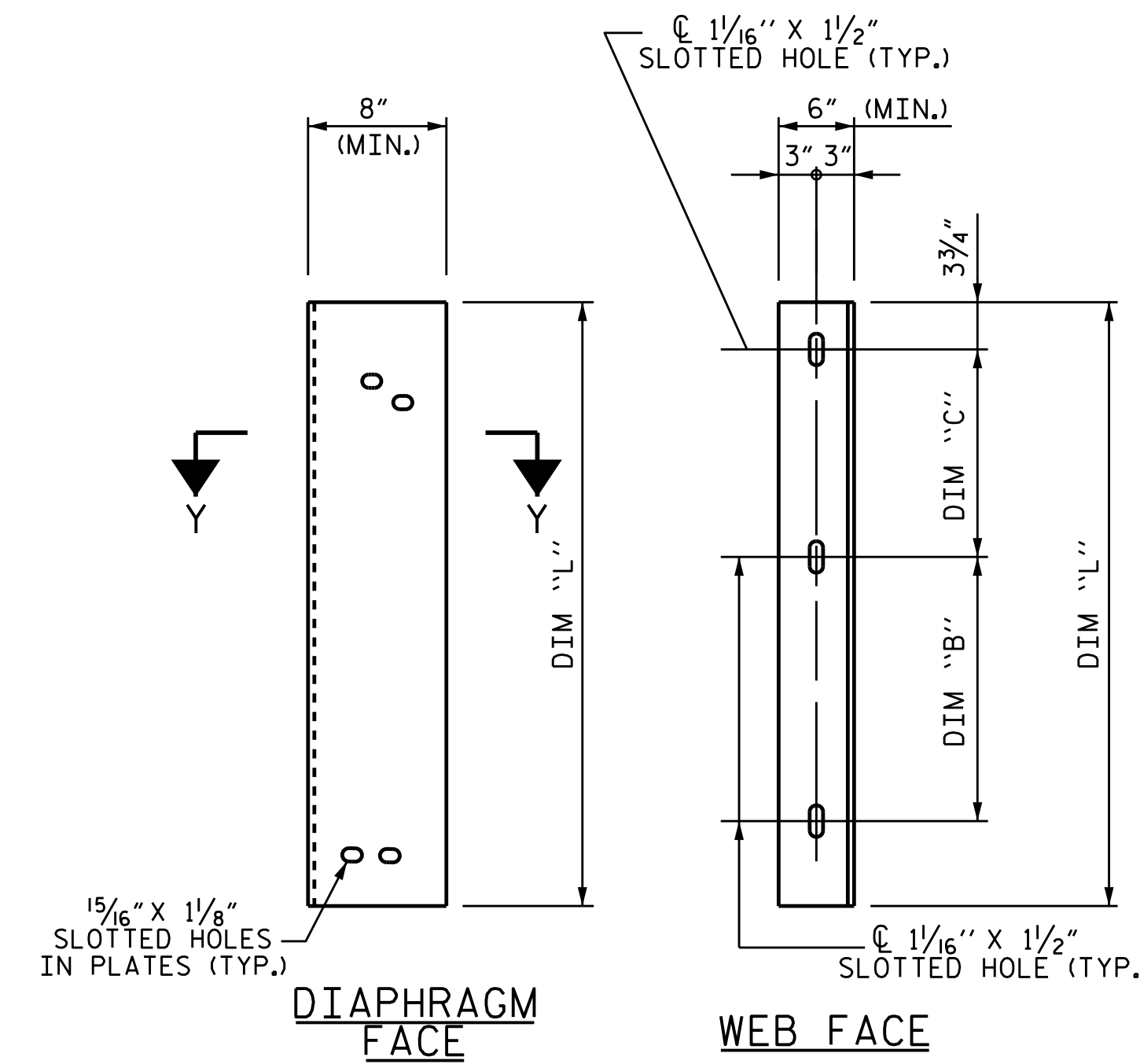
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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.

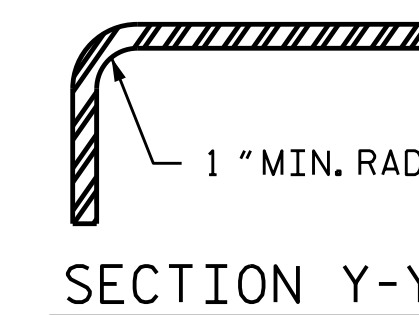
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



PART SECTION AT INTERMEDIATE DIAPHRAGM
(72" BULB TEE BULB TEE GIRDER SHOWN)



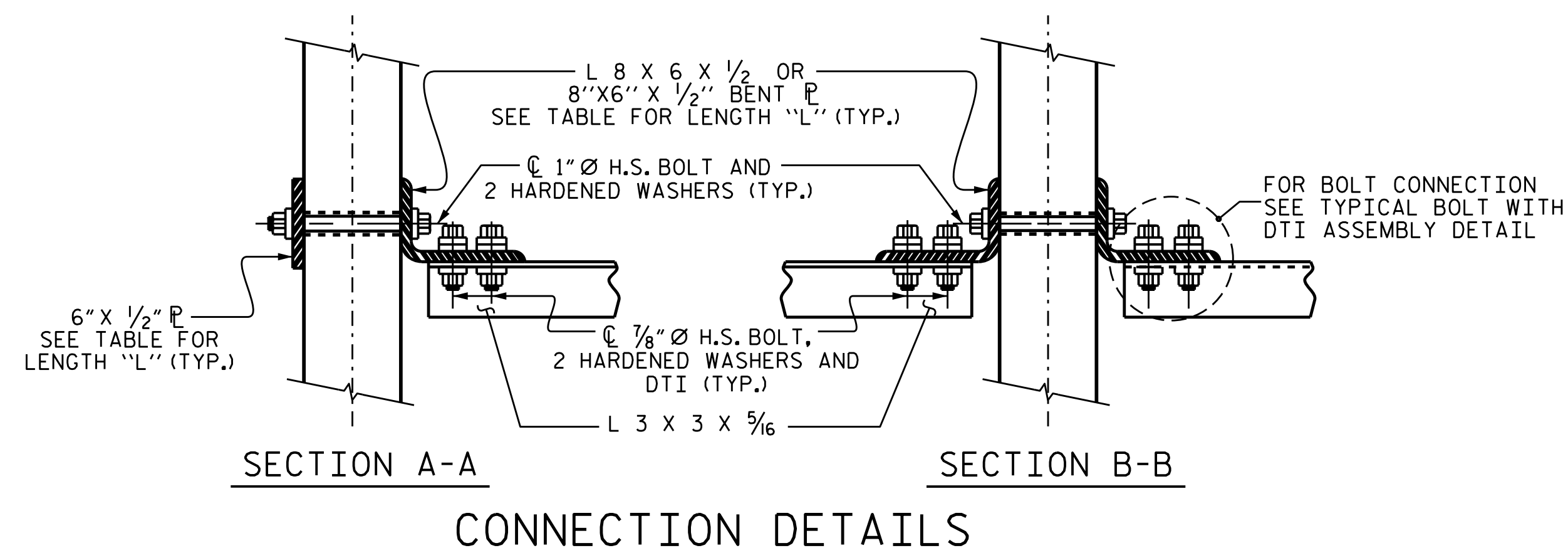
ANGLE END
(L 3 x 3 x 5/16)



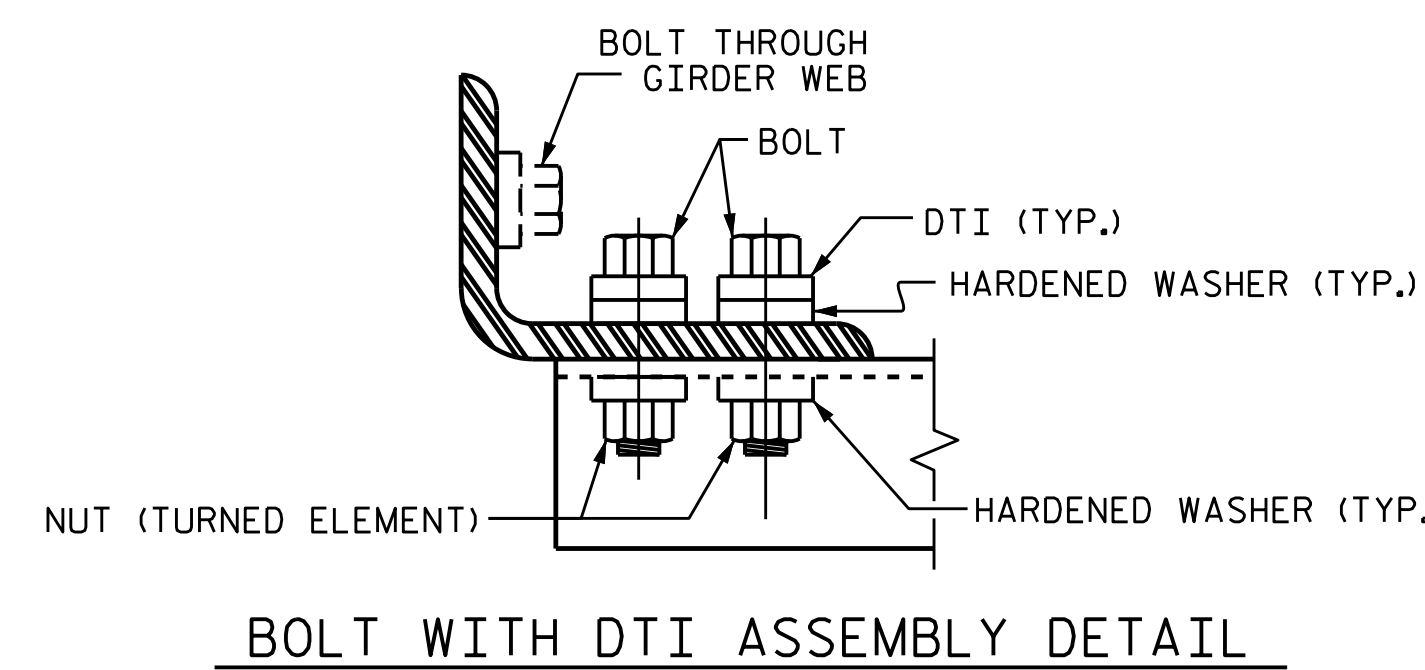
CONNECTOR PLATE DETAIL

TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
72" BULB TEE	1'-9"	1'-9"	1'-4 3/4"	4'-2"



CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL



PROJECT NO. B-5818
ANSON COUNTY
STATION: 27+79.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
INTERMEDIATE
STEEL DIAPHRAGMS
FOR 72"
MODIFIED BULB TEE
PRESTRESSED CONCRETE
GIRDERS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			24

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STD. NO. PCG11

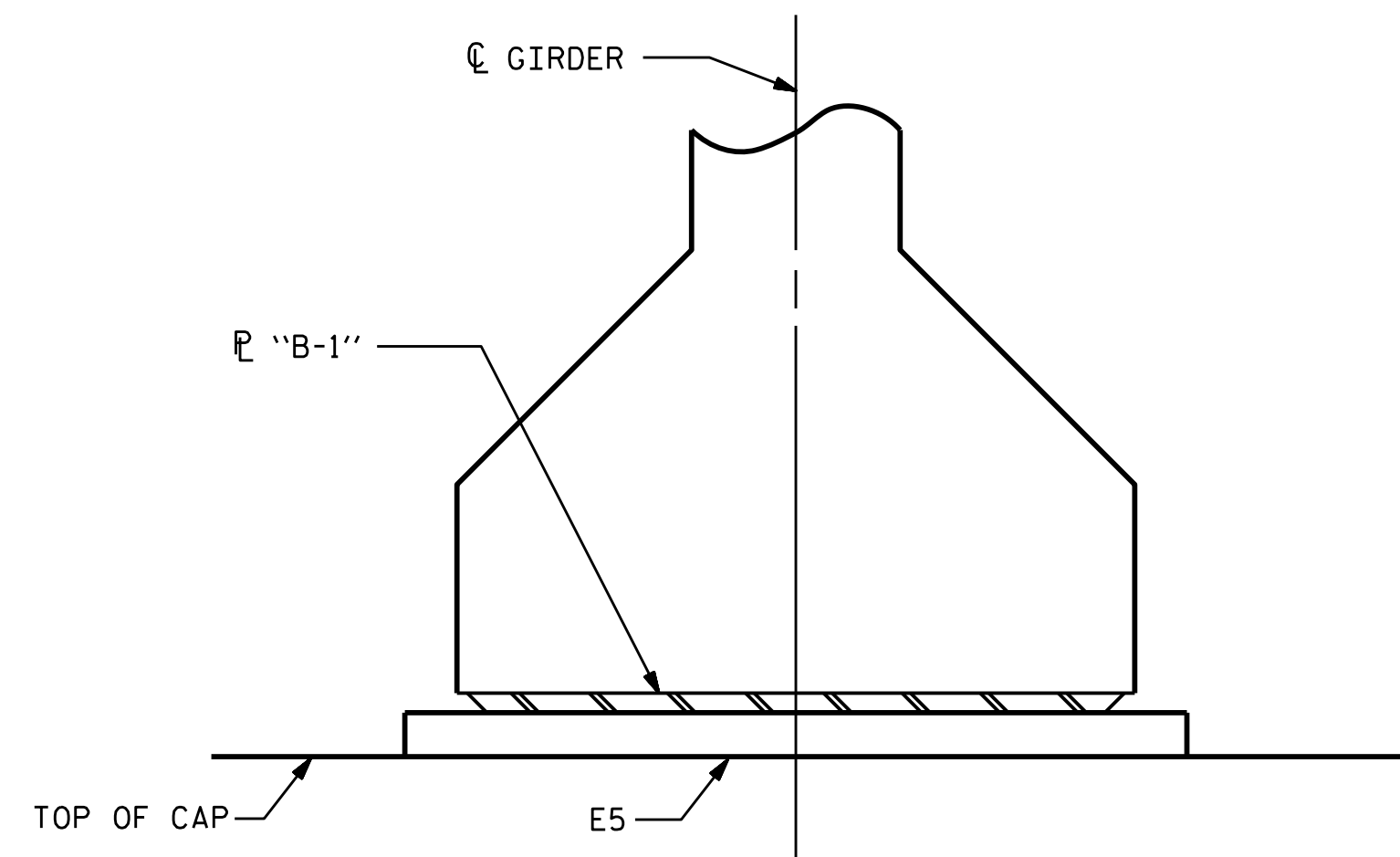
ASSEMBLED BY : M. G. SHAIKH DATE : 01/2020
CHECKED BY : H. LOCKLEAR DATE : 02/2020
DRAWN BY : RWW 11/09 REV. 10/11 MAA/GM
CHECKED BY : GM 11/09 REV. 12/17 MAA/THC

NOTES

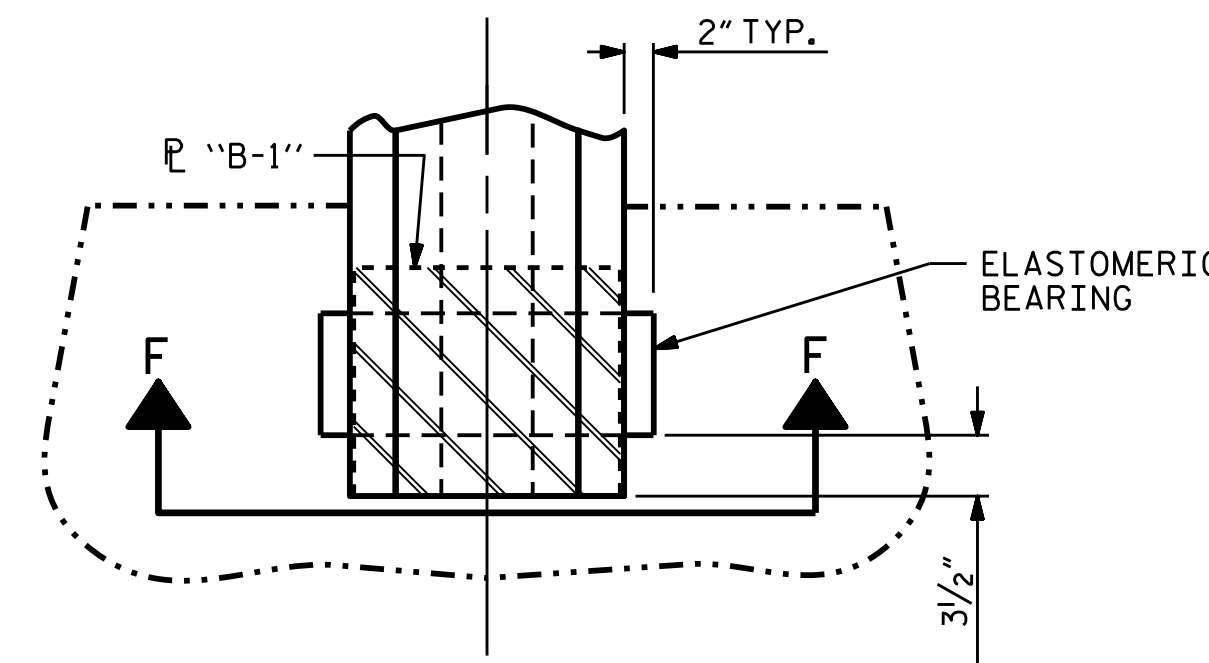
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

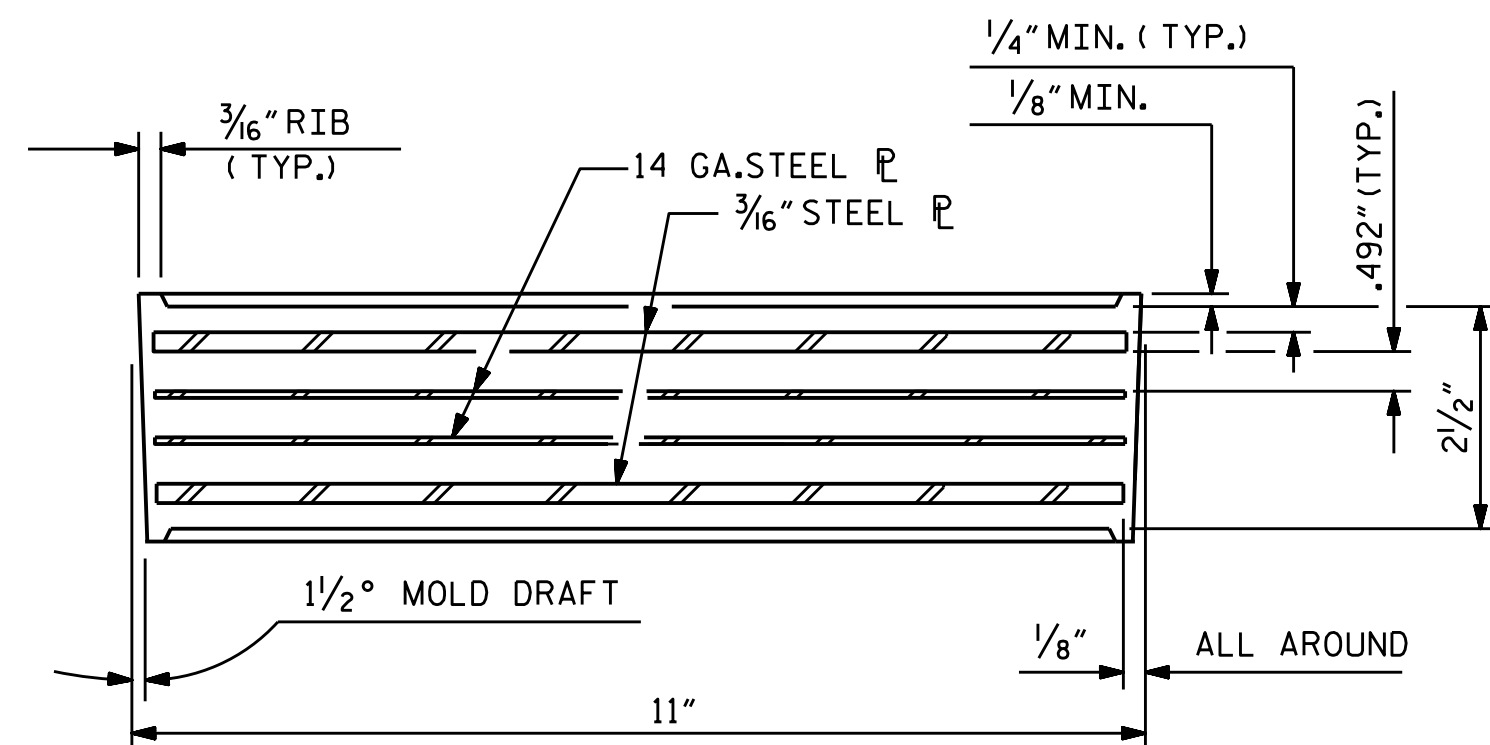
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.



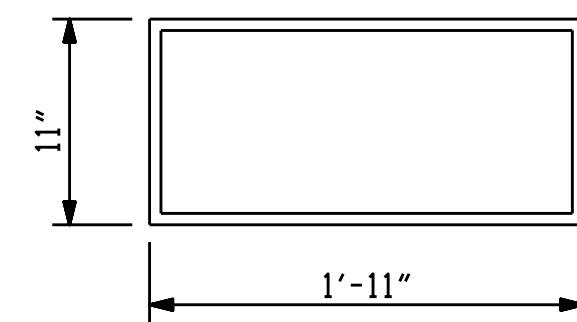
SECTION F-F
SHOWING SECTION AT INTEGRAL END BENT



TYPICAL HALF-PLAN
(SHOWING INTEGRAL END BENT)



TYPICAL SECTION OF ELASTOMERIC BEARINGS

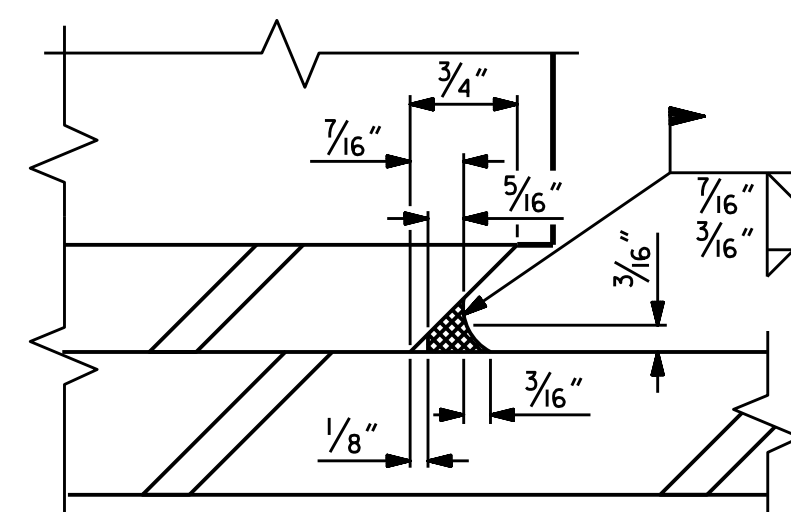


E5 (8 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE VI

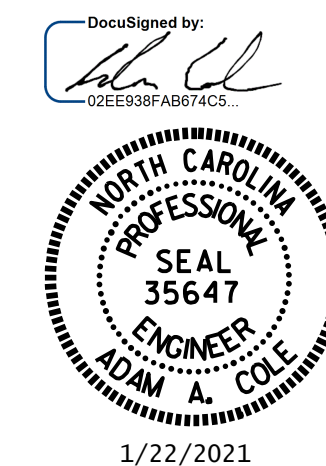
(FOR INTEGRAL END BENTS ONLY)



DETAIL "A"

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE VI	420 k

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+79.00 -L-

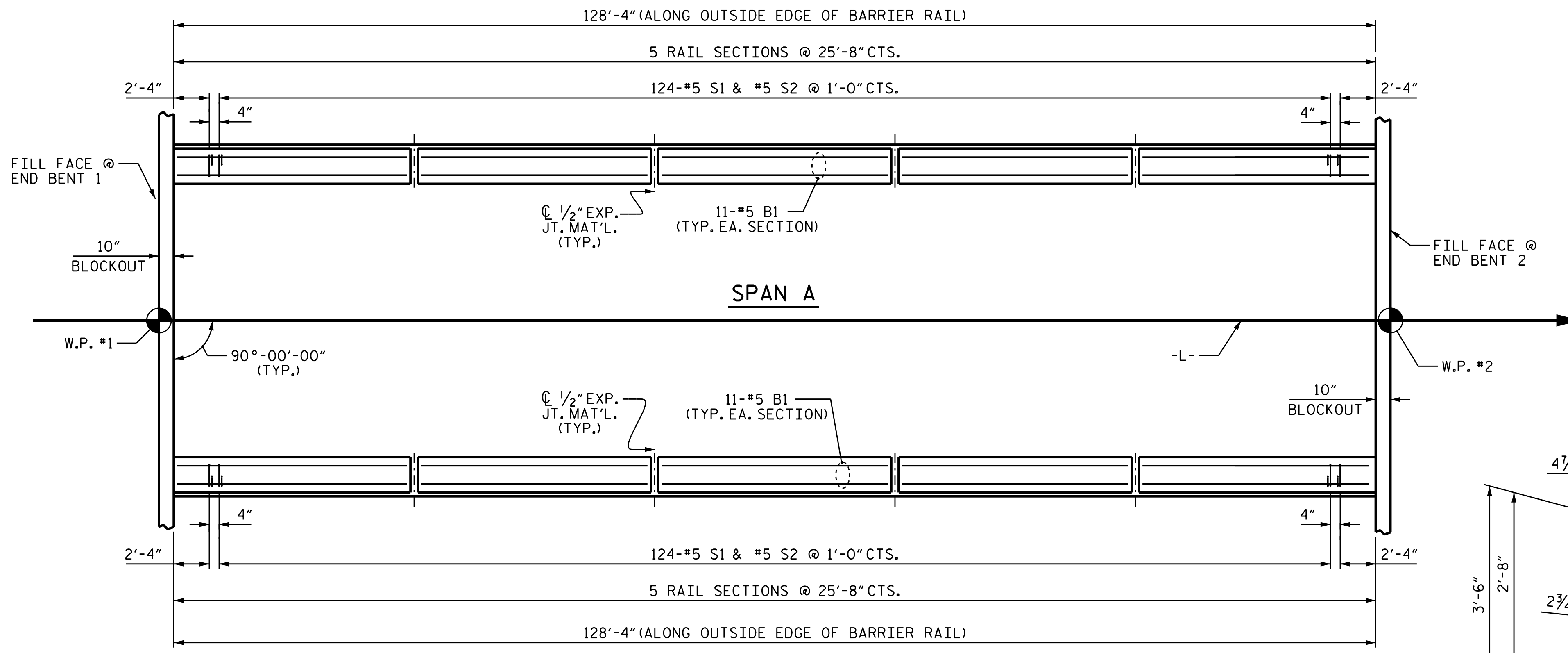


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
ELASTOMERIC BEARING
DETAILS
 PRESTRESSED CONCRETE GIRDER
 SUPERSTRUCTURE

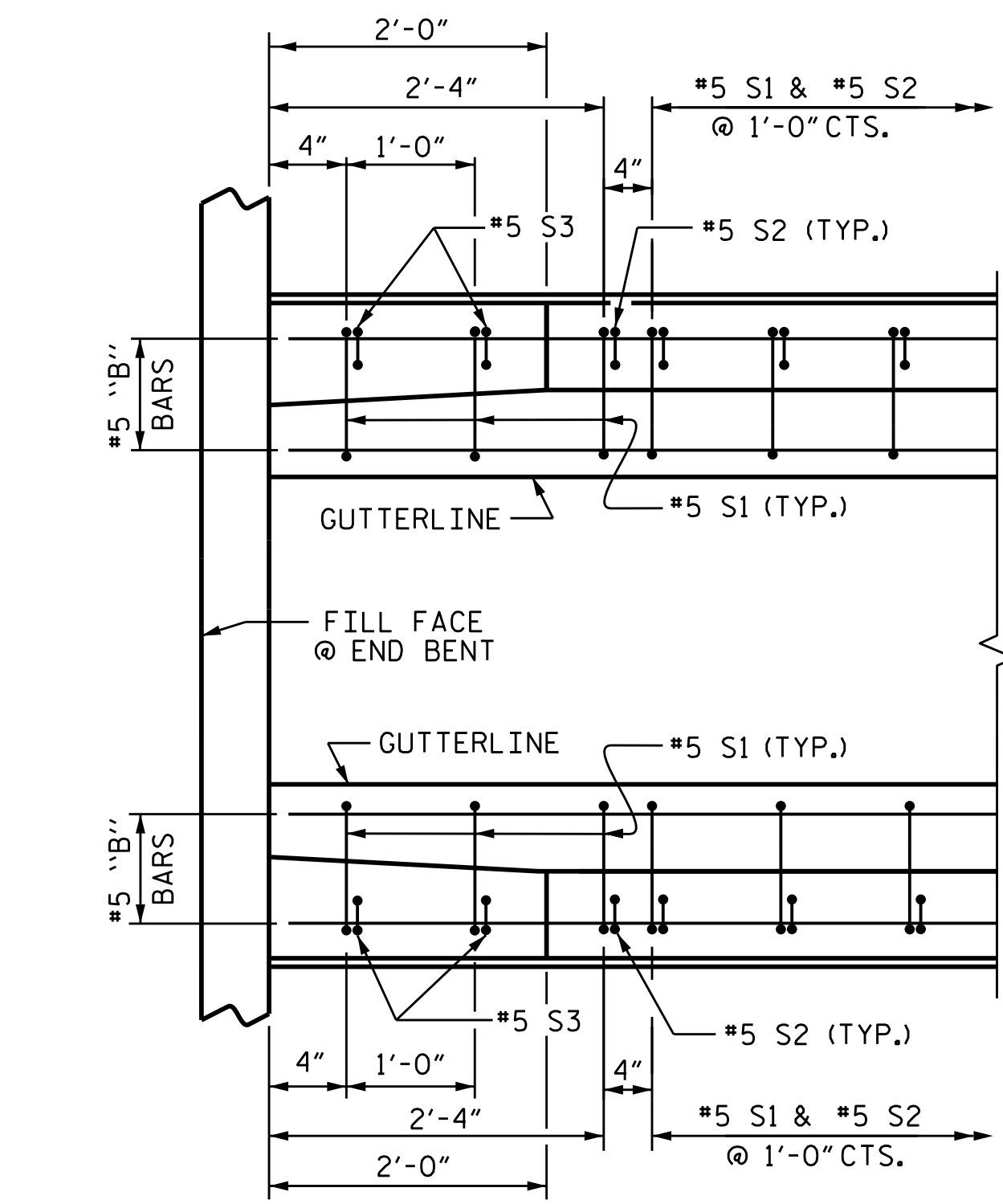
ASSEMBLED BY : M. G. SHAIKH	DATE : 01/2020
CHECKED BY : H. LOCKLEAR	DATE : 02/2020
DRAWN BY : WJH 8/89	REV. 10/1/11 MAA/GM
CHECKED BY : CRK 8/89	REV. 6/13 AAC/MAA
	REV. 1/15 MAA/TMG

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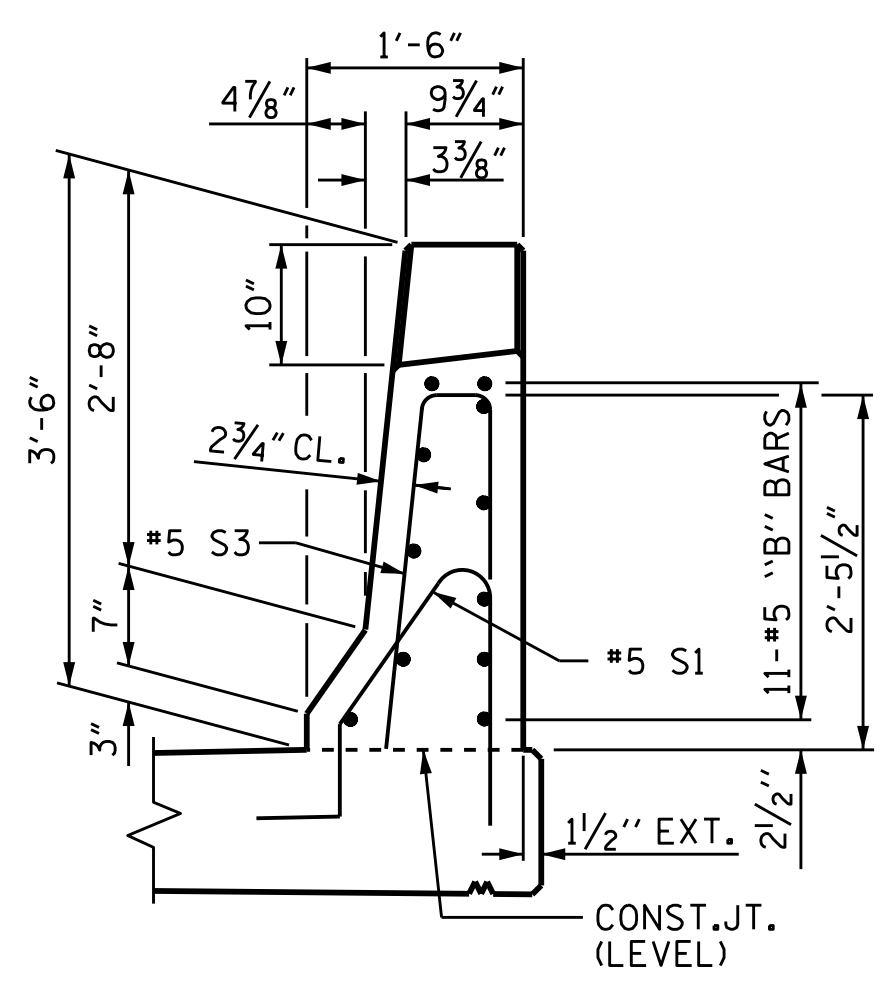
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			24
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PLAN

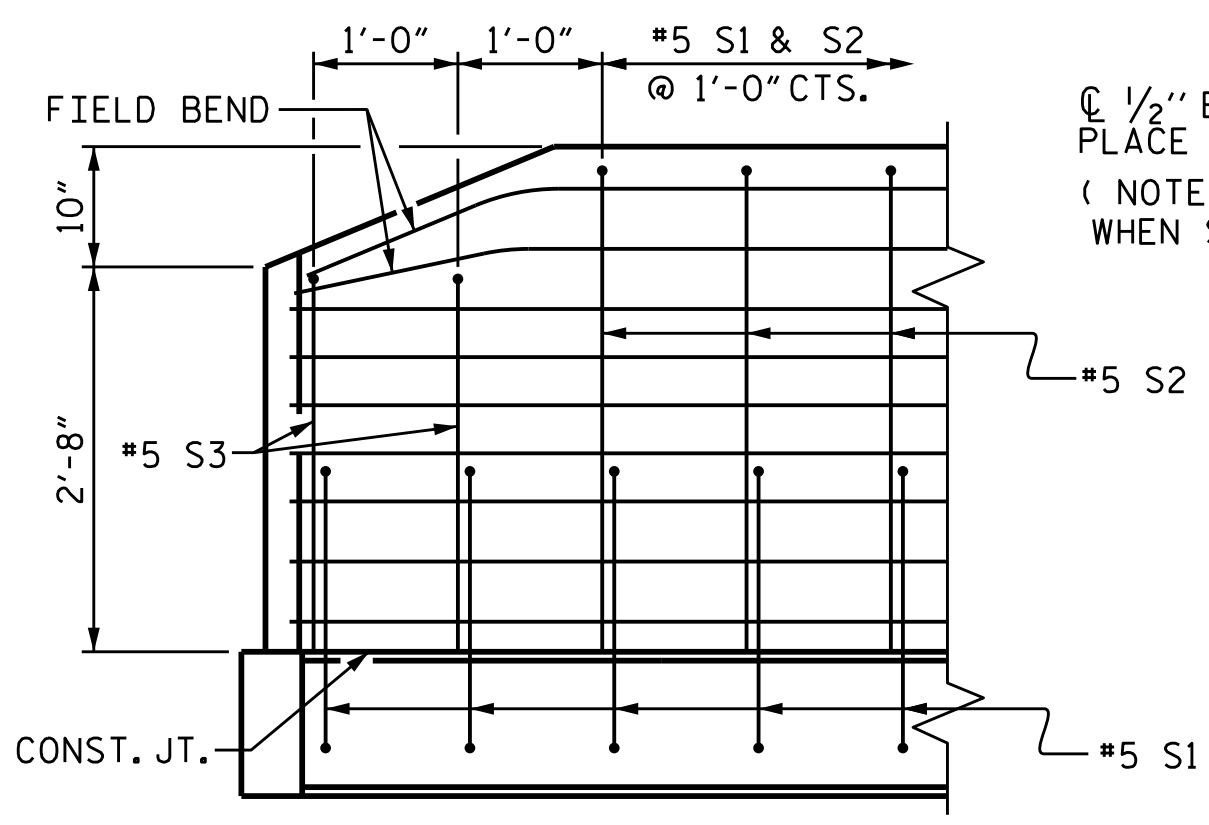


PLAN

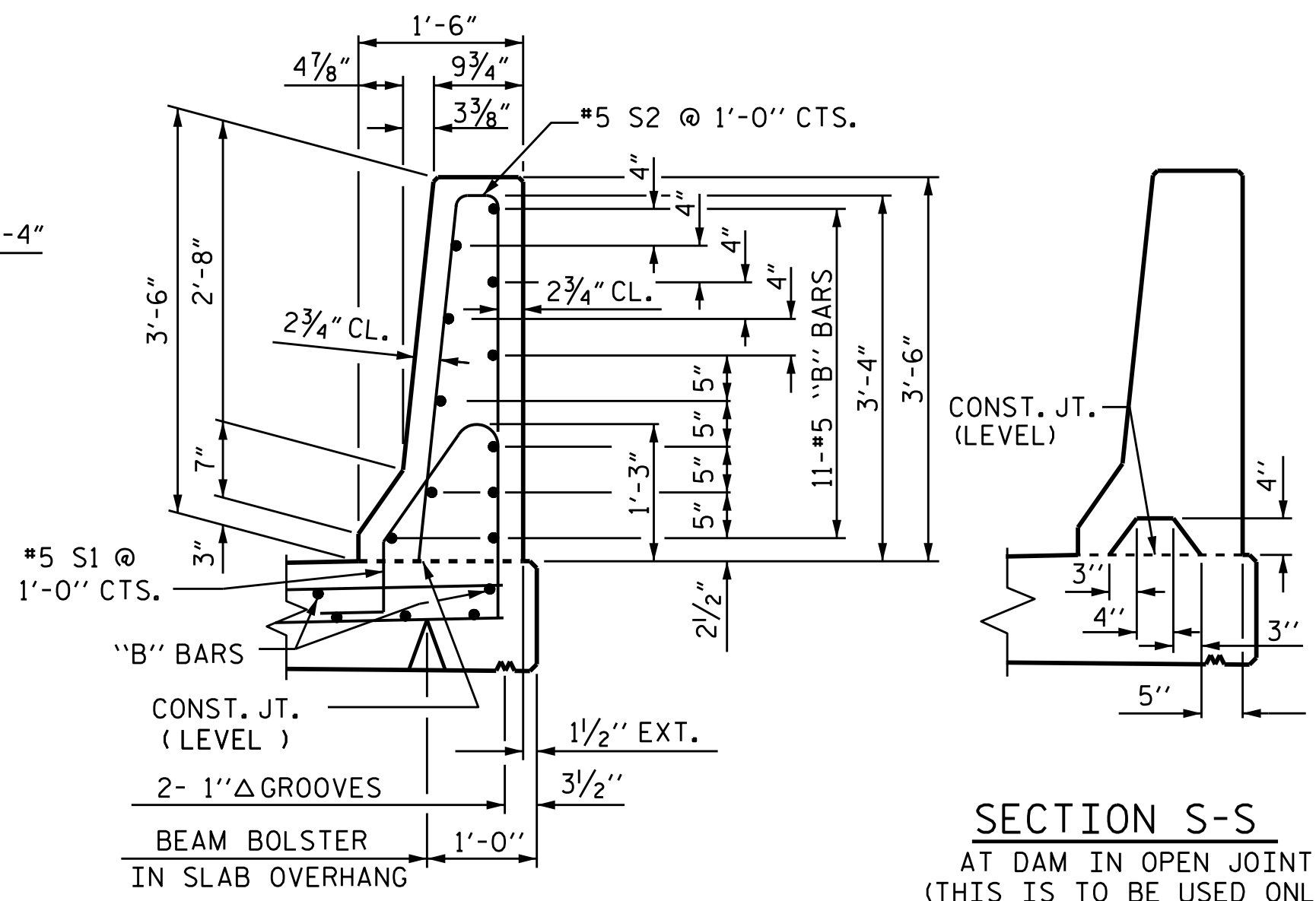


END VIEW

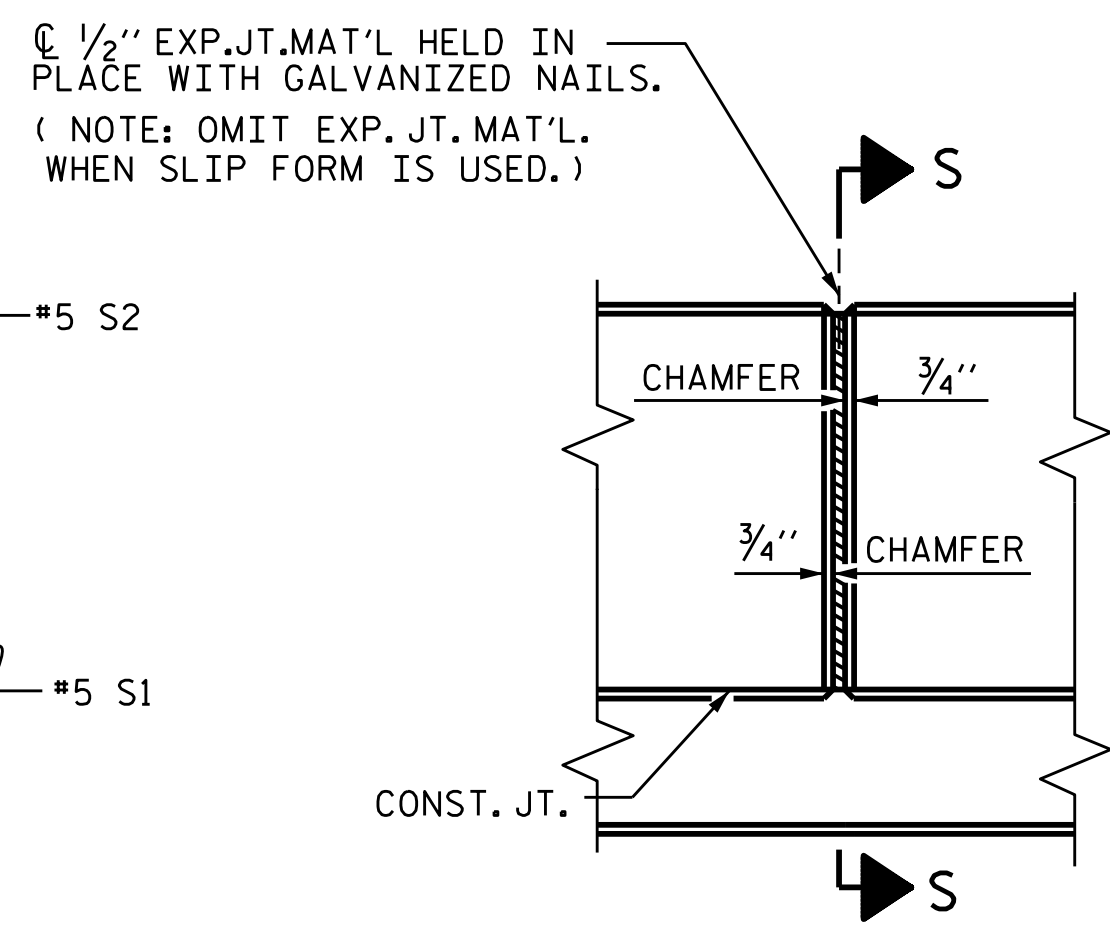
END OF RAIL DETAILS



SIDE VIEW



SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS
BARRIER RAIL DETAILS

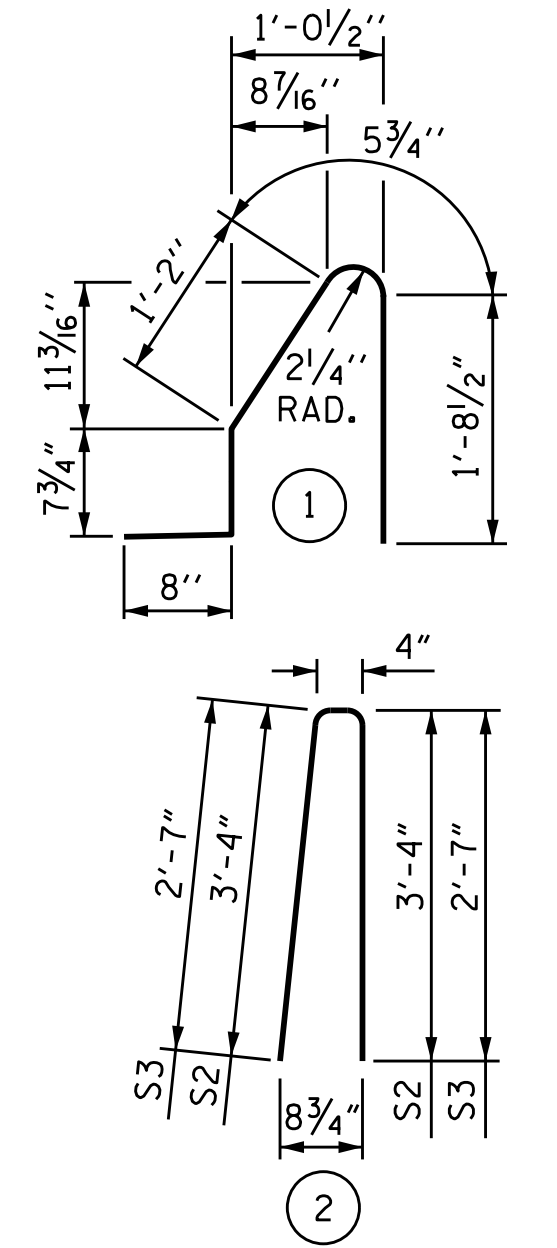
NOTES

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

BAR TYPES

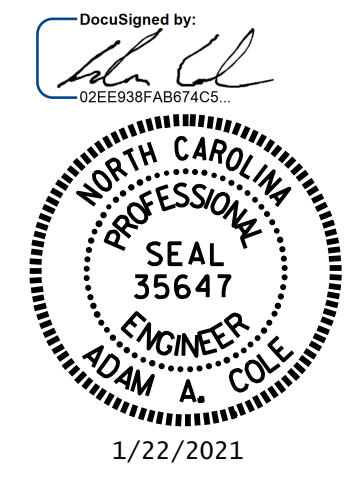


ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
FOR CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	110	#5	STR	25'-3"	2897
* S1	260	#5	1	4'-8"	1266
* S2	252	#5	2	7'-0"	1840
* S3	8	#5	2	5'-6"	46
* EPOXY COATED REINFORCING STEEL					6,049 LBS.
CLASS AA CONCRETE					34.9 CU. YDS.
CONCRETE BARRIER RAIL					256.7 LIN. FT.

SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

PROJECT NO. B-5818
ANSON COUNTY
STATION: 27+79.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
CONCRETE
BARRIER RAIL

DRAWN BY : M. G. SHAIKH DATE : 01/2020
CHECKED BY : H. LOCKLEAR DATE : 02/2020
DESIGN ENGINEER OF RECORD: REZA KOUCHEKI DATE : 11/2019

DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			24

NOTES

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

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 1/8" 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.)

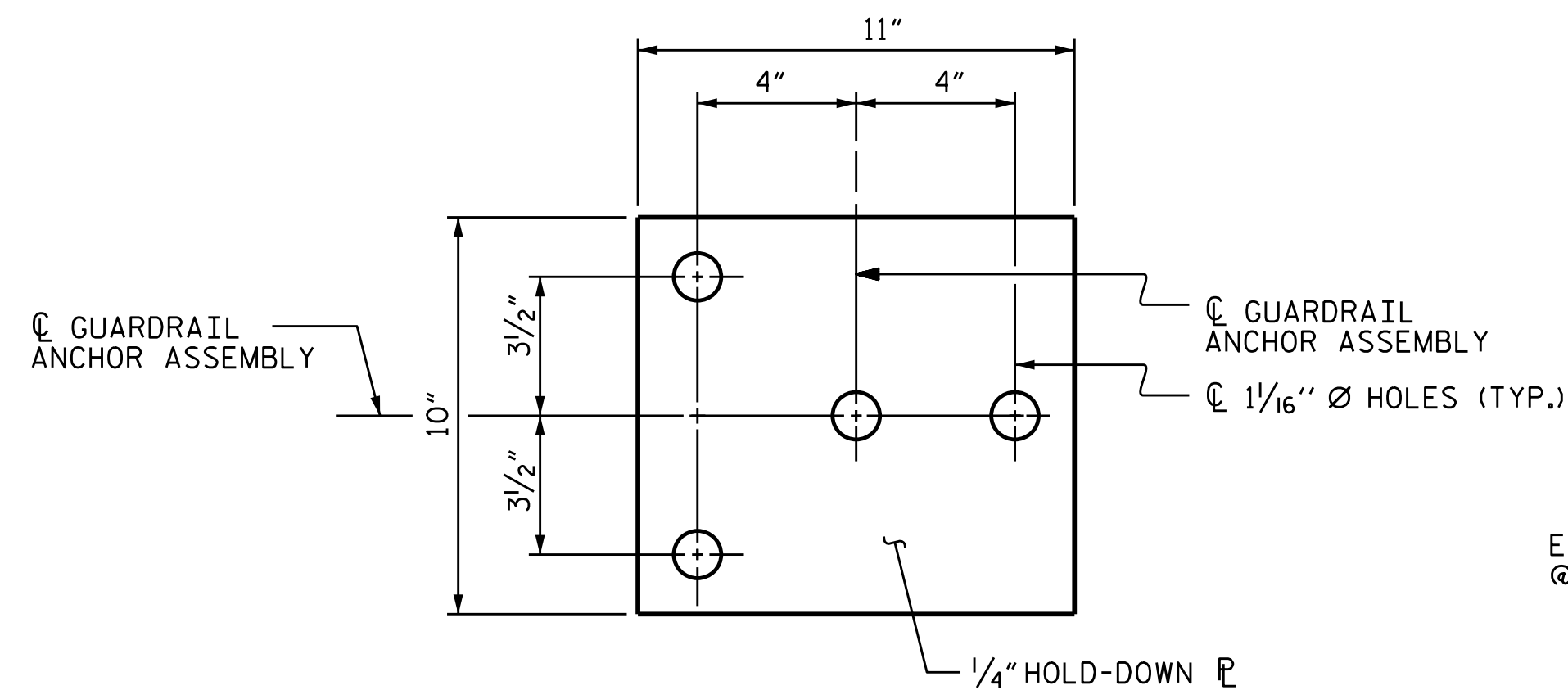
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

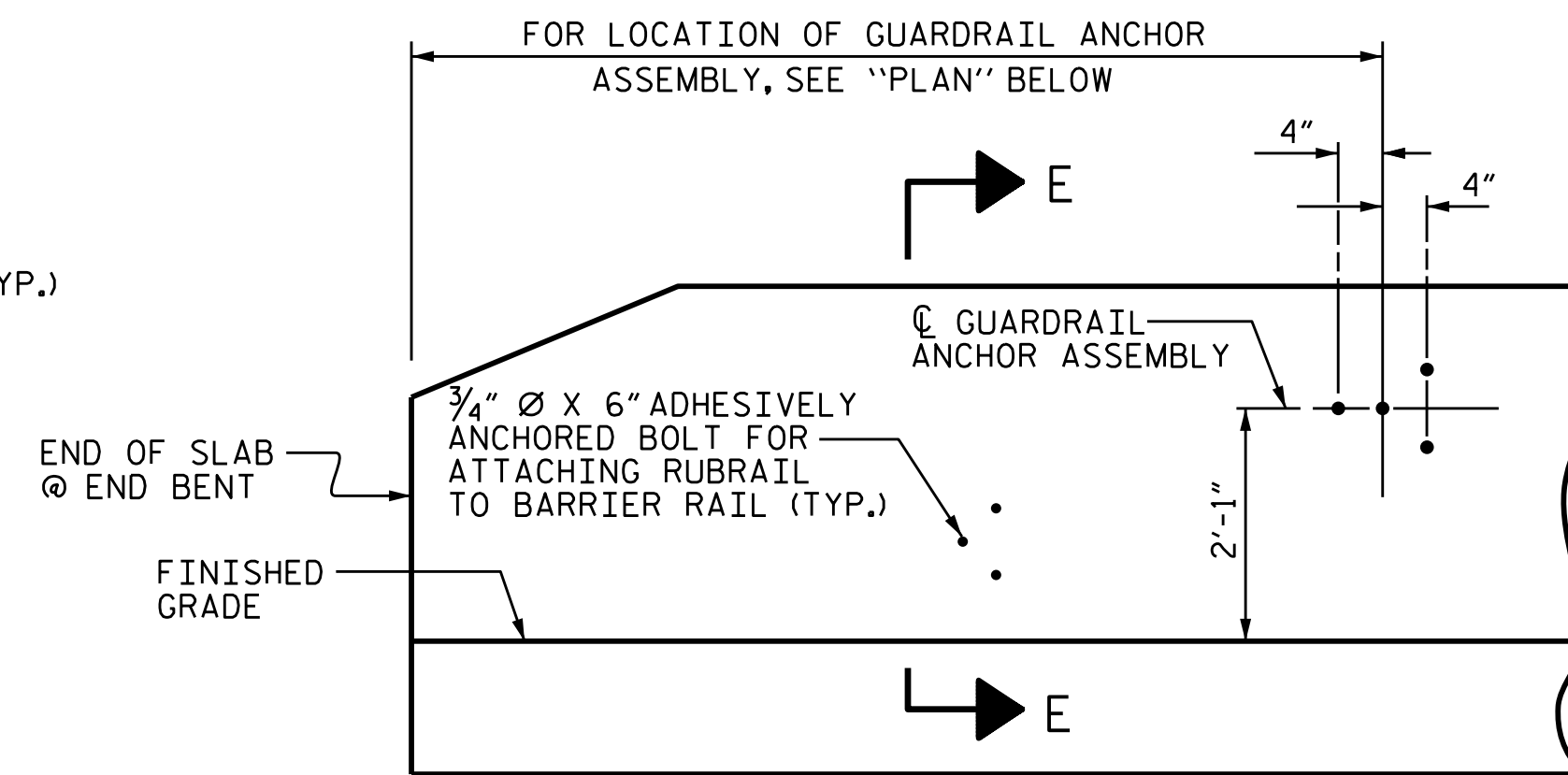
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 1 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.

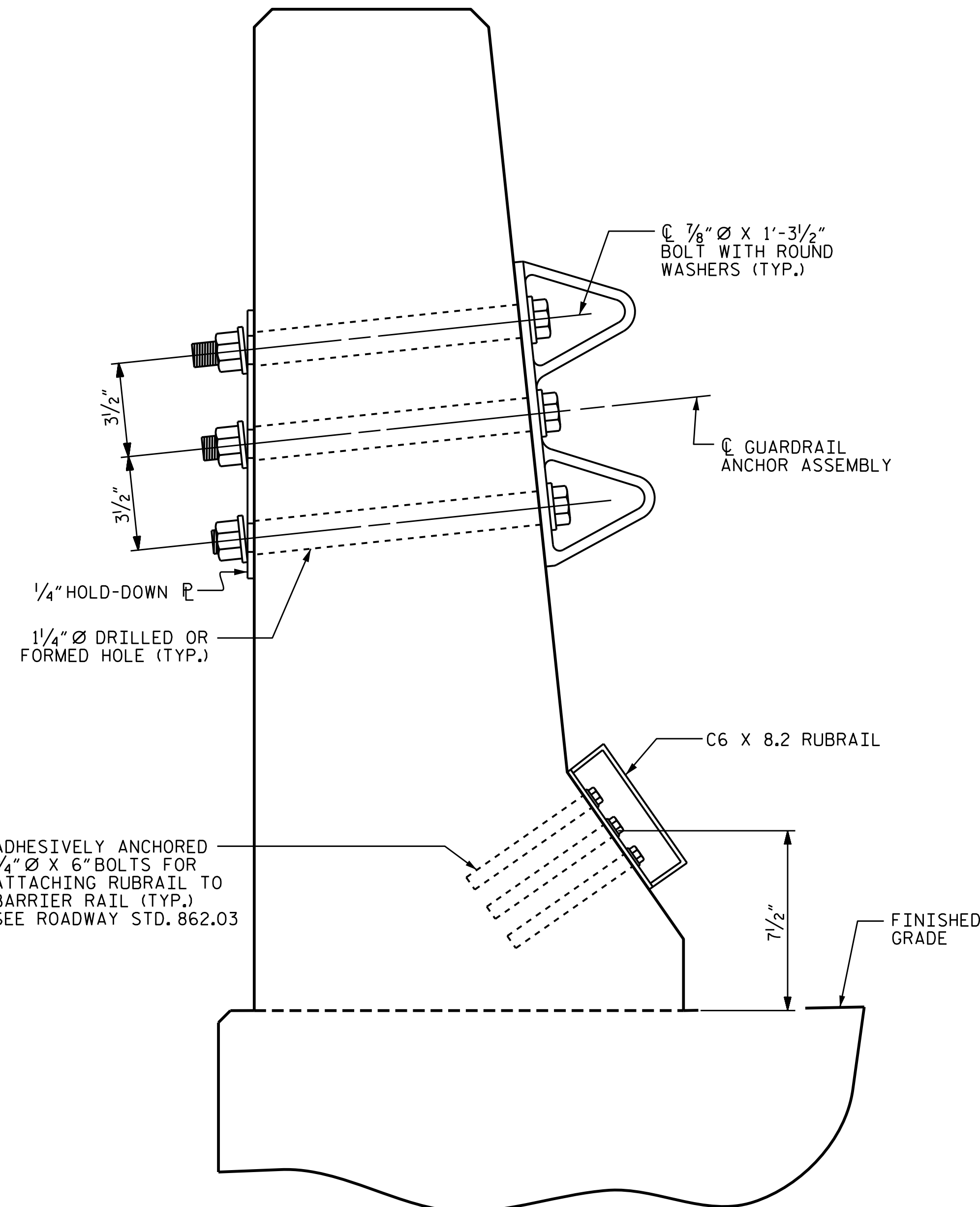
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



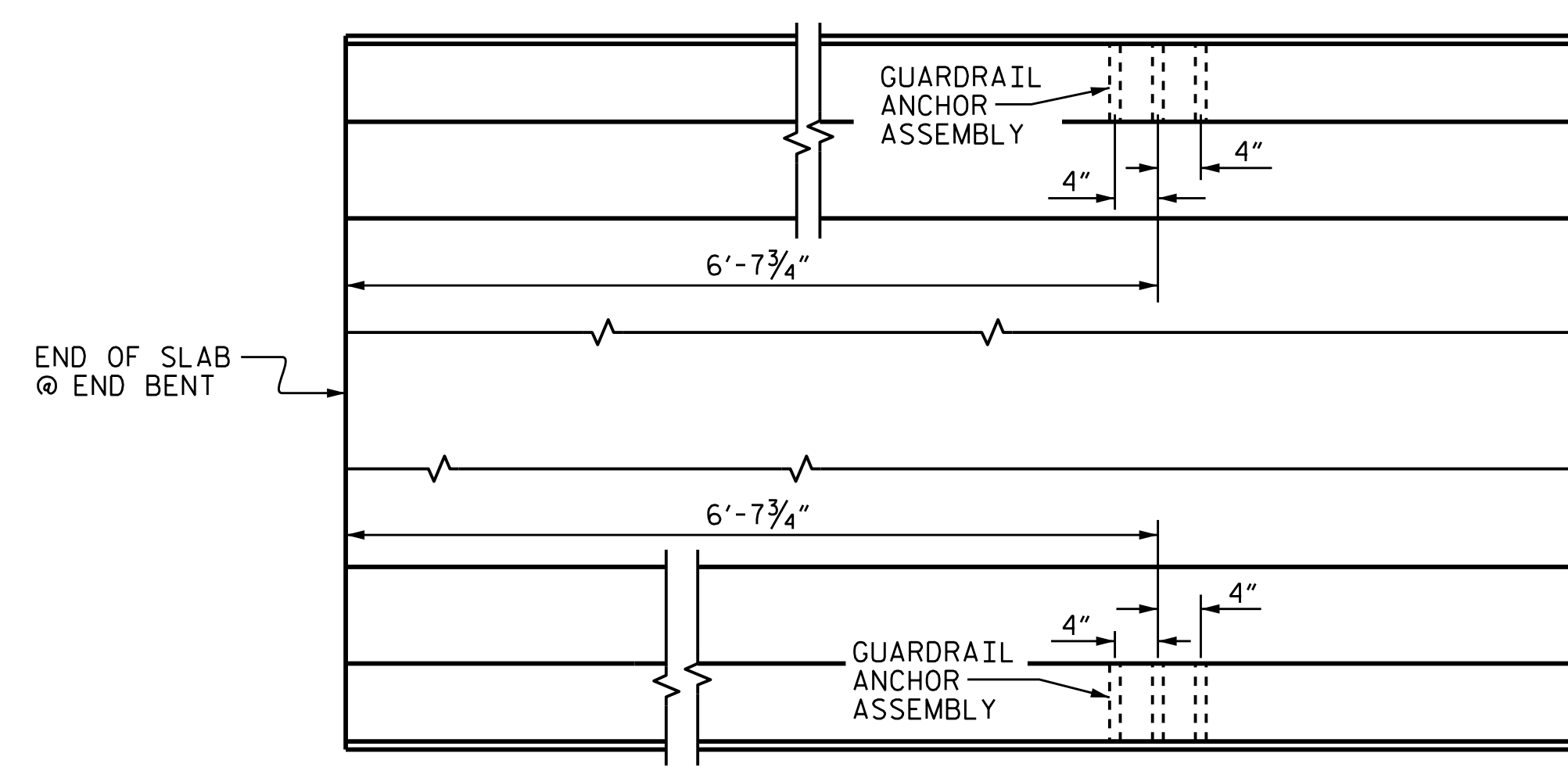
PLAN



ELEVATION



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

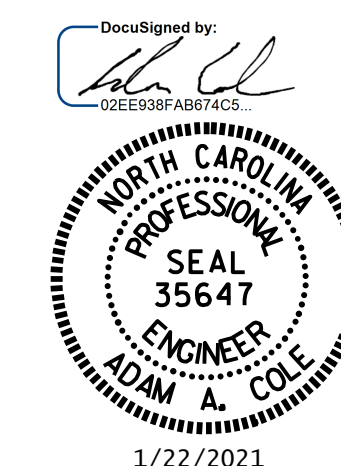
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+79.00 -L-

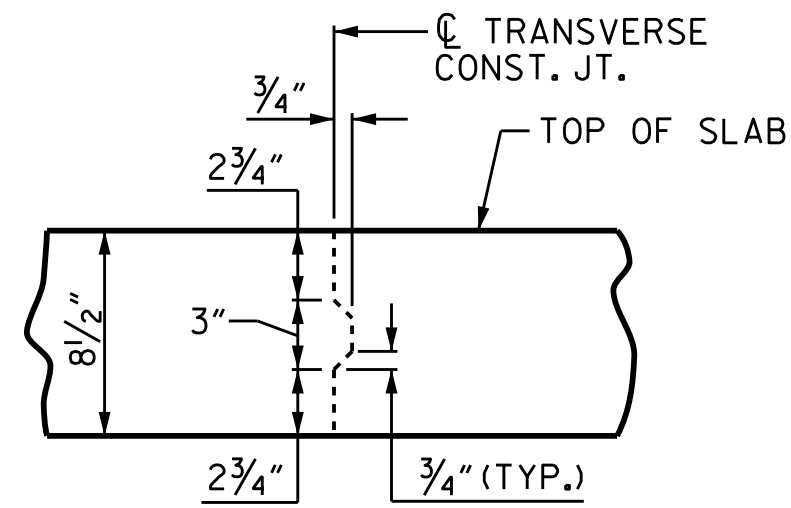


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL

ASSEMBLED BY : M. G. SHAIKH	DATE : 01/2020
CHECKED BY : H. LOCKLEAR	DATE : 02/2020
DRAWN BY : TLA 5/06	REV. 7/12 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

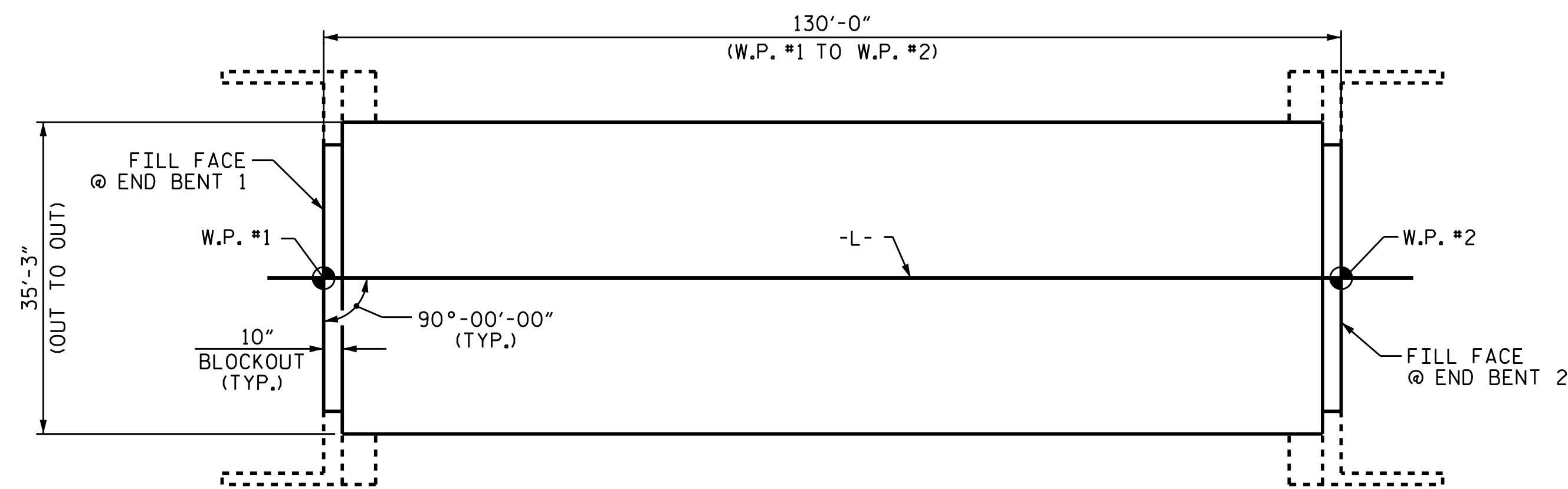
DOCUMENT NOT CONSIDERED
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			24

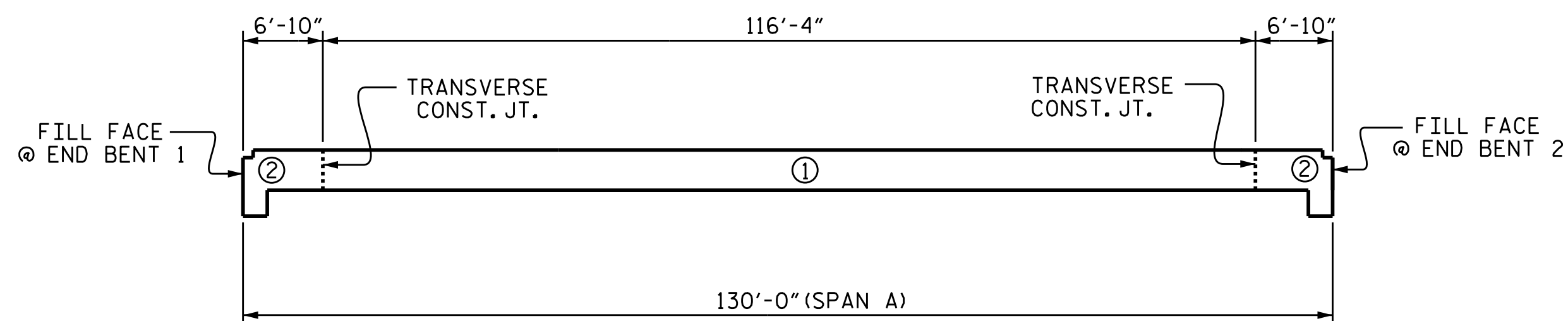


TRANSVERSE CONSTRUCTION JOINT DETAIL

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

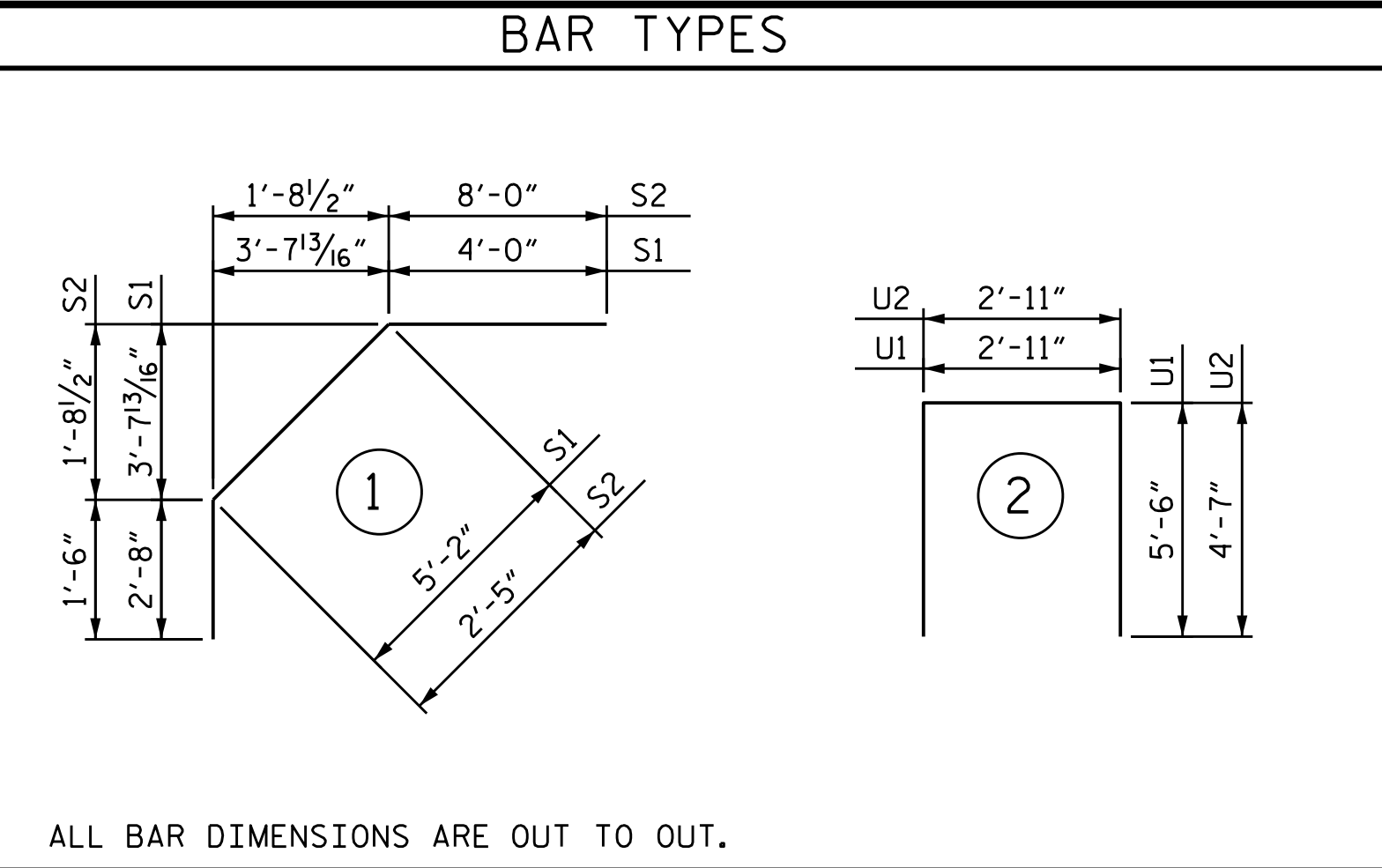


LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 4,524)



POUR SEQUENCE

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	205	#5	STR	34'-11"	7466
A2	205	#5	STR	34'-11"	7466
* B1	186	#5	STR	26'-0"	5044
* B2	72	#4	STR	28'-3"	1359
B3	66	#5	STR	44'-0"	3029
K1	14	#4	STR	34'-11"	327
K2	4	#4	STR	2'-10"	8
K3	20	#4	STR	3'-8"	49
K4	4	#4	STR	2'-0"	5
K5	6	#4	STR	6'-6"	26
K6	30	#4	STR	8'-1"	162
K7	6	#4	STR	5'-1"	20
* S1	44	#4	1	11'-10"	348
* S2	44	#4	1	11'-11"	350
U1	38	#4	2	13'-11"	353
U2	16	#4	2	12'-1"	129
REINFORCING STEEL				LBS.	11,574
* EPOXY COATED REINFORCING STEEL				LBS.	14,567



ALL BAR DIMENSIONS ARE OUT TO OUT.

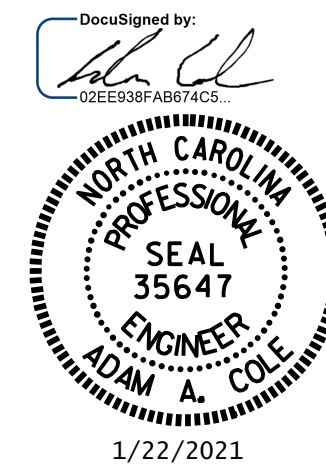
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPETS, AND BARRIER RAILS		APPROACH SLABS		PARAPETS AND BARRIER RAILS
	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"			

—SUPERSTRUCTURE BILL OF MATERIAL—			
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR #1	134.5	11,574	14,567
POUR #2	62.2		
TOTALS	196.7	11,574	14,567

GROOVING BRIDGE FLOORS	
APPROACH SLABS	841 SQ.FT.
BRIDGE DECK	3722 SQ.FT.
TOTAL	4563 SQ.FT.

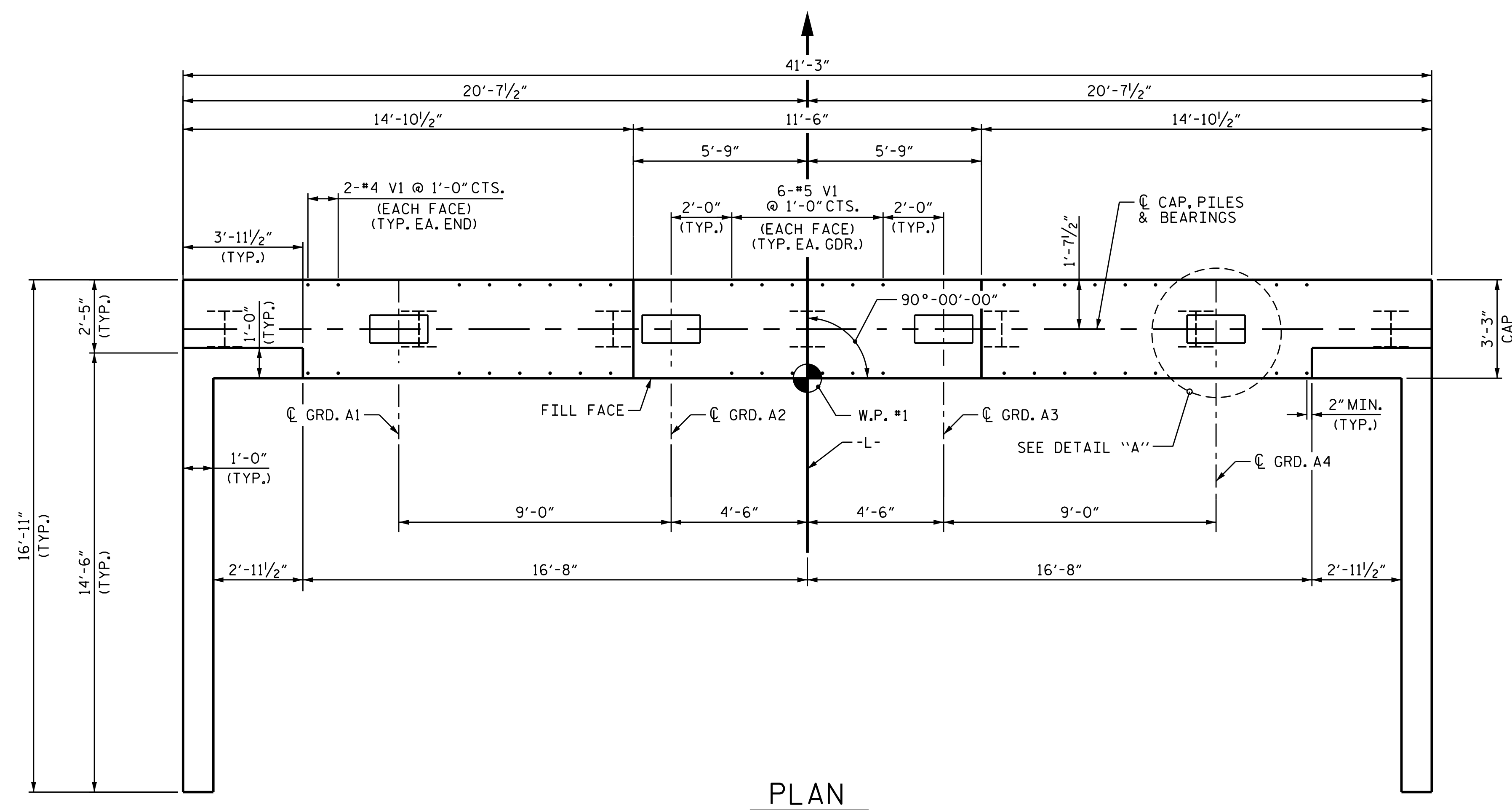
PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+79.00 -L-



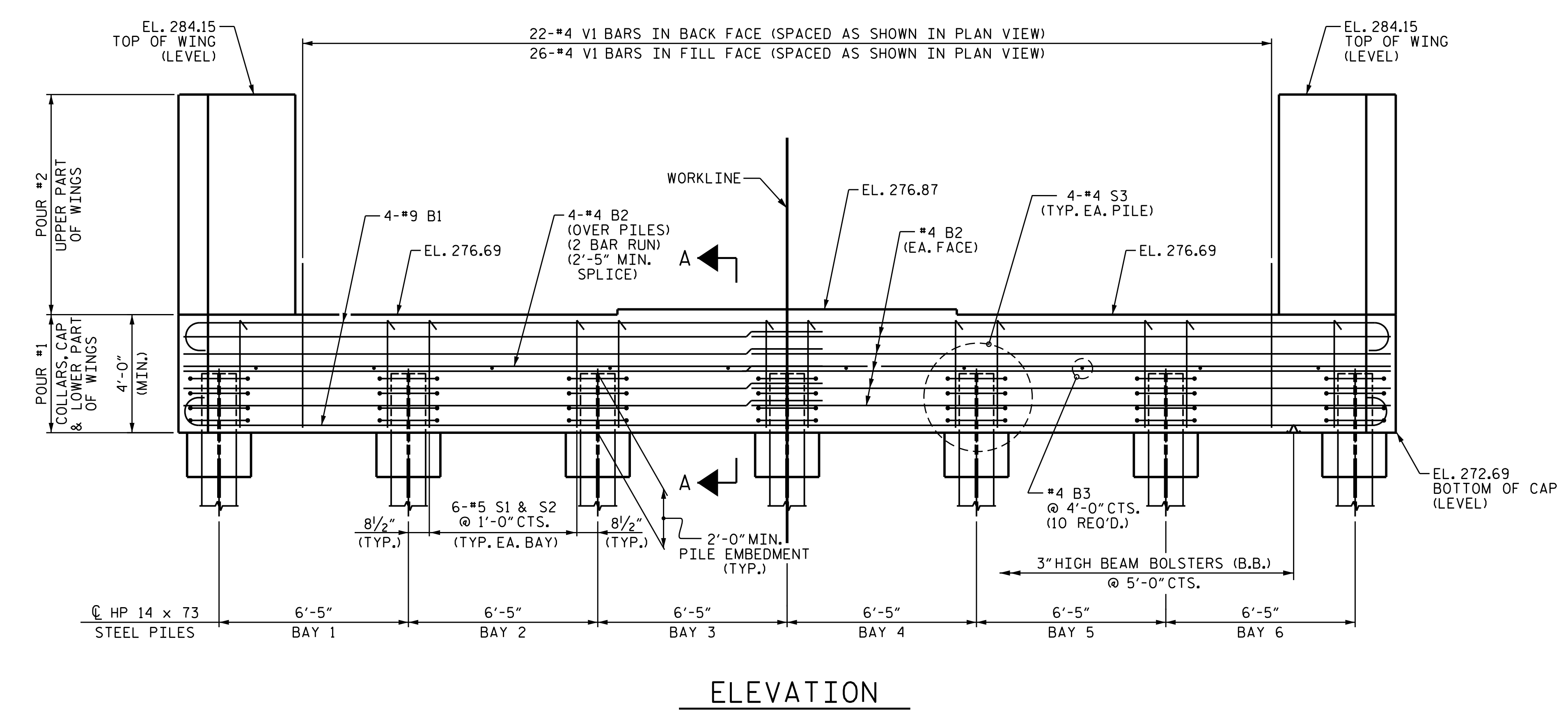
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 BILL OF MATERIAL

DRAWN BY : M. G. SHAIKH DATE: 01/2020
 CHECKED BY : H. LOCKLEAR DATE: 02/2020
 DESIGN ENGINEER OF RECORD : REZA KAUCHEKI DATE: 11/2019

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			24



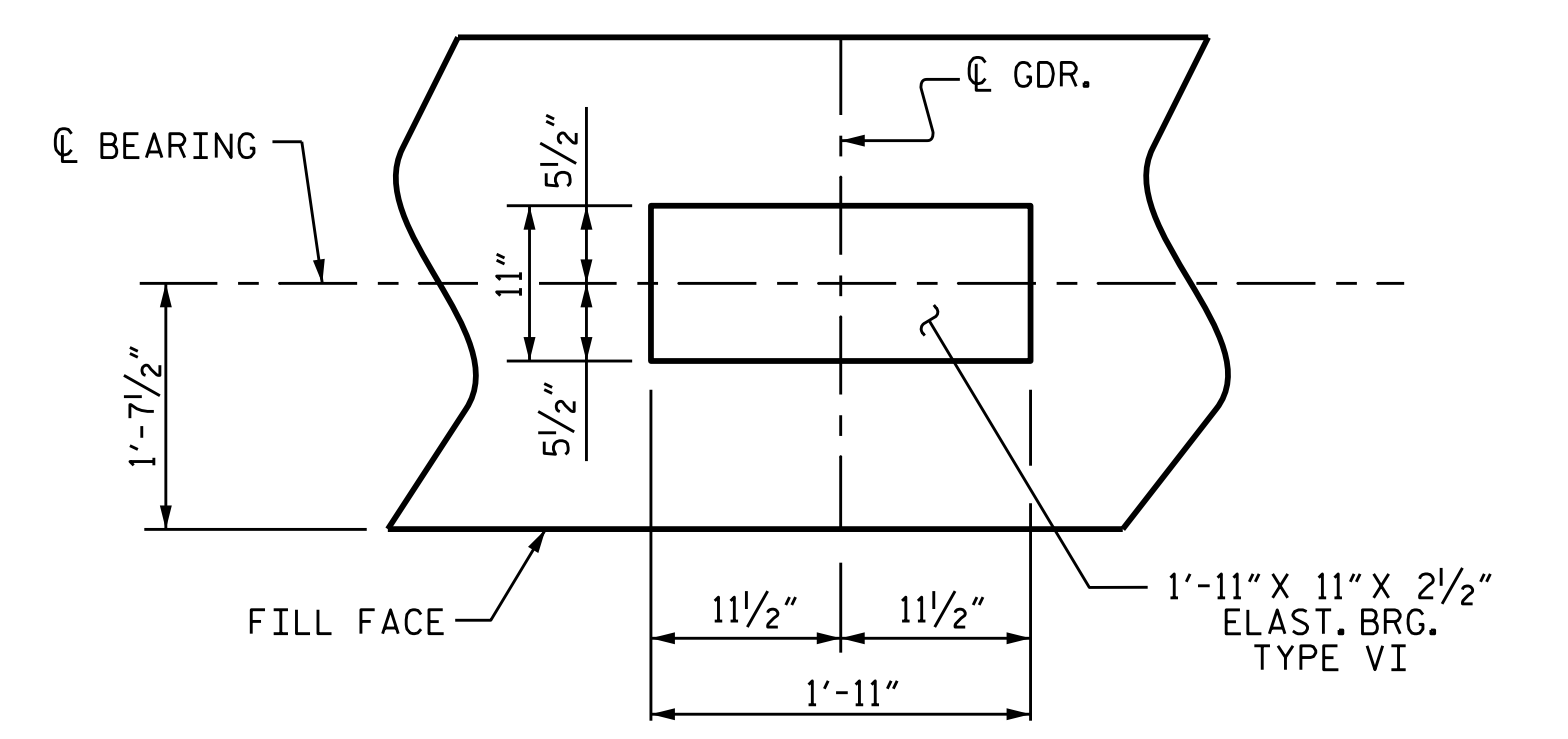
PLAN



ELEVATION

NOTES:

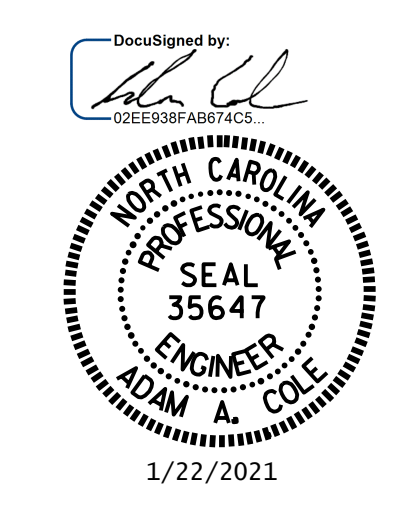
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #4 V1 BARS.
 THE TOP PART OF THE END BENT CAP AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".



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

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+19.00 -L-

SHEET 1 OF 3



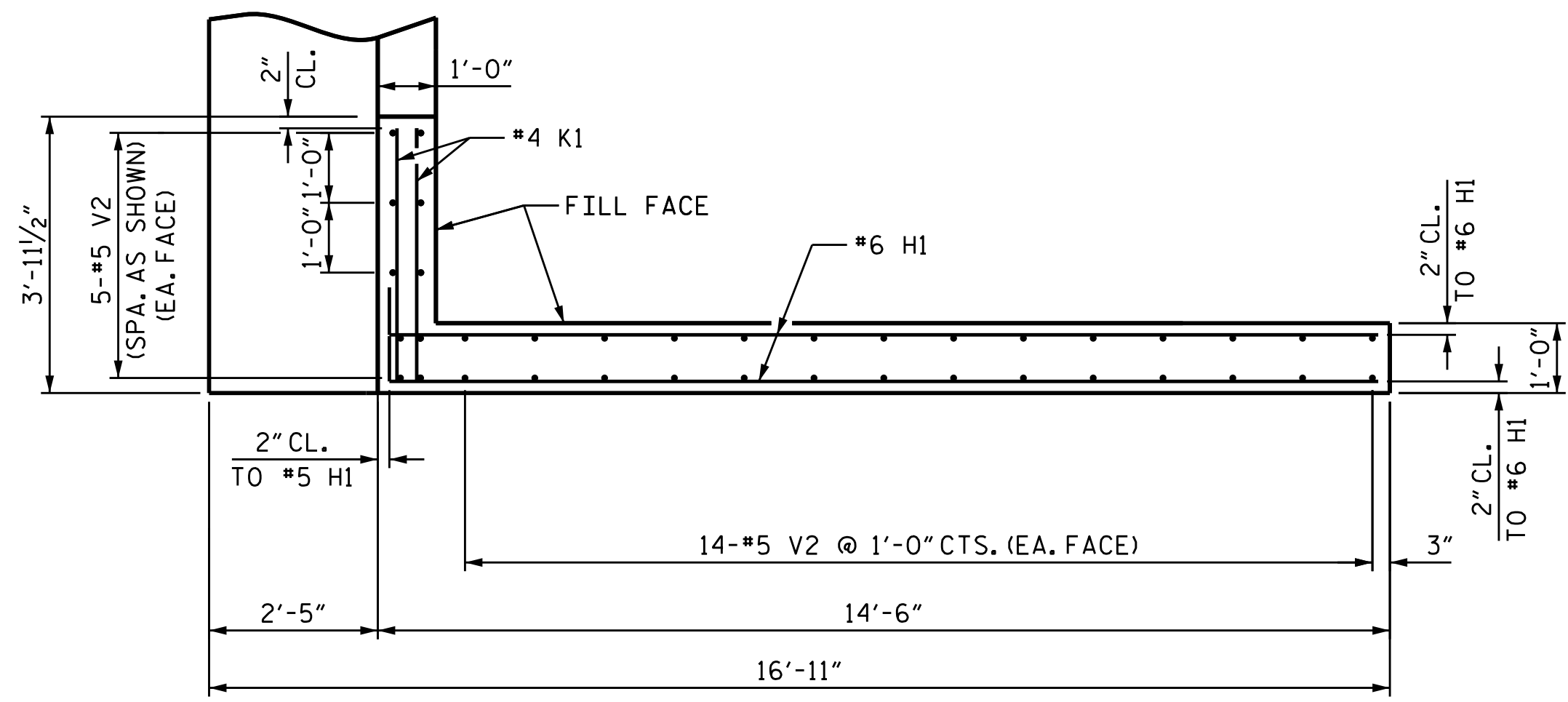
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL END BENT 1

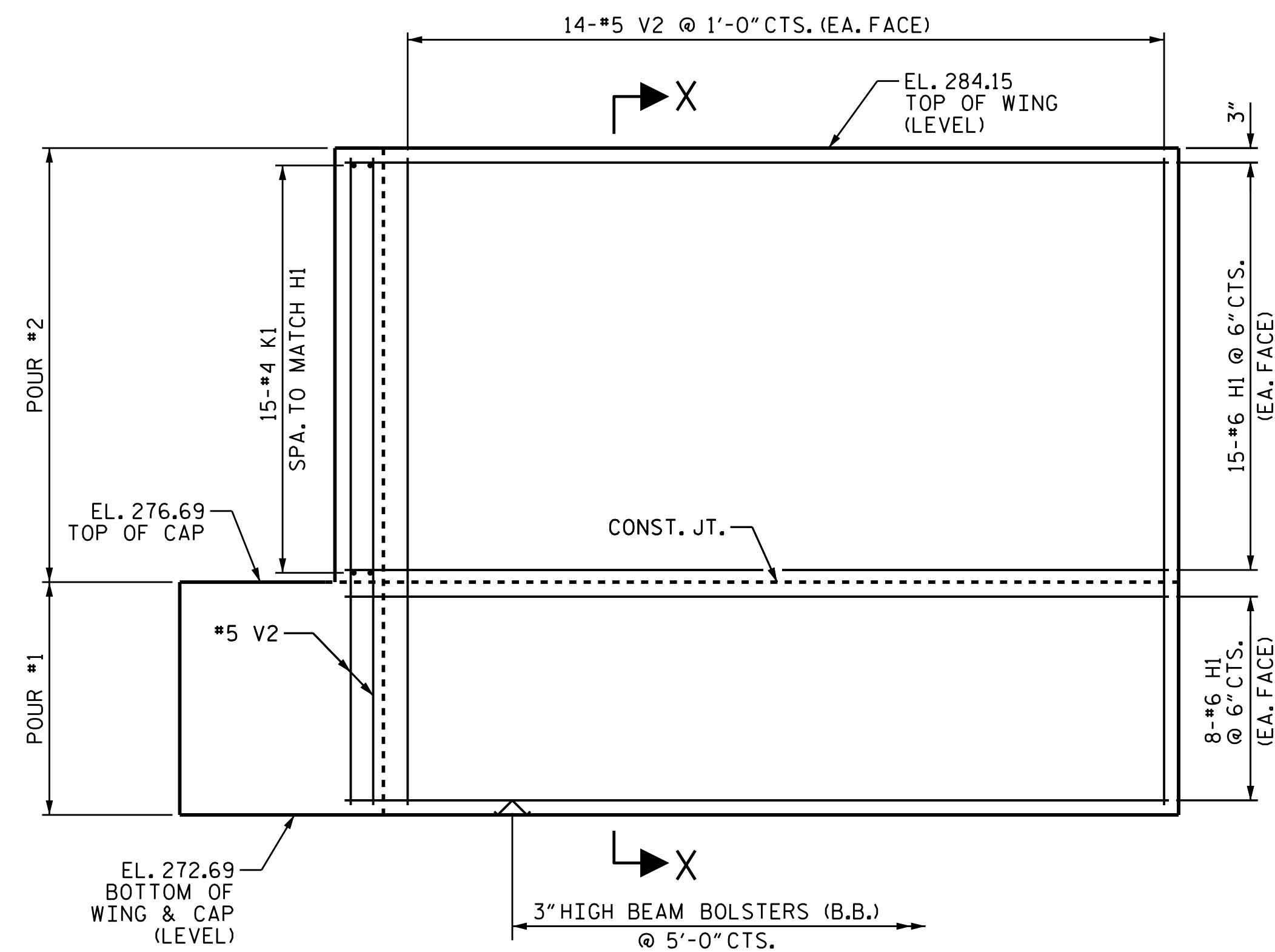
DRAWN BY : M. G. SHAIKH DATE : 08/2020
 CHECKED BY : H. A. LOCKLEAR DATE : 09/2020
 DESIGN ENGINEER OF RECORD: REZA KOUCHEKI DATE : 12/2019

DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

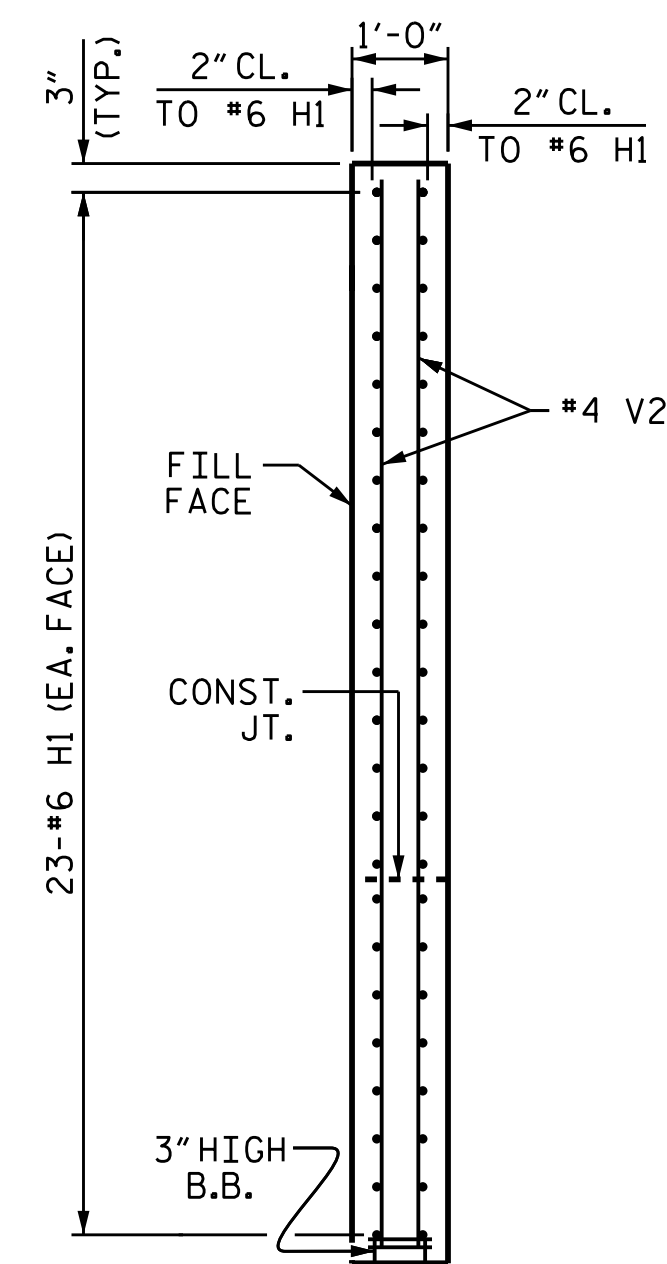
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			24



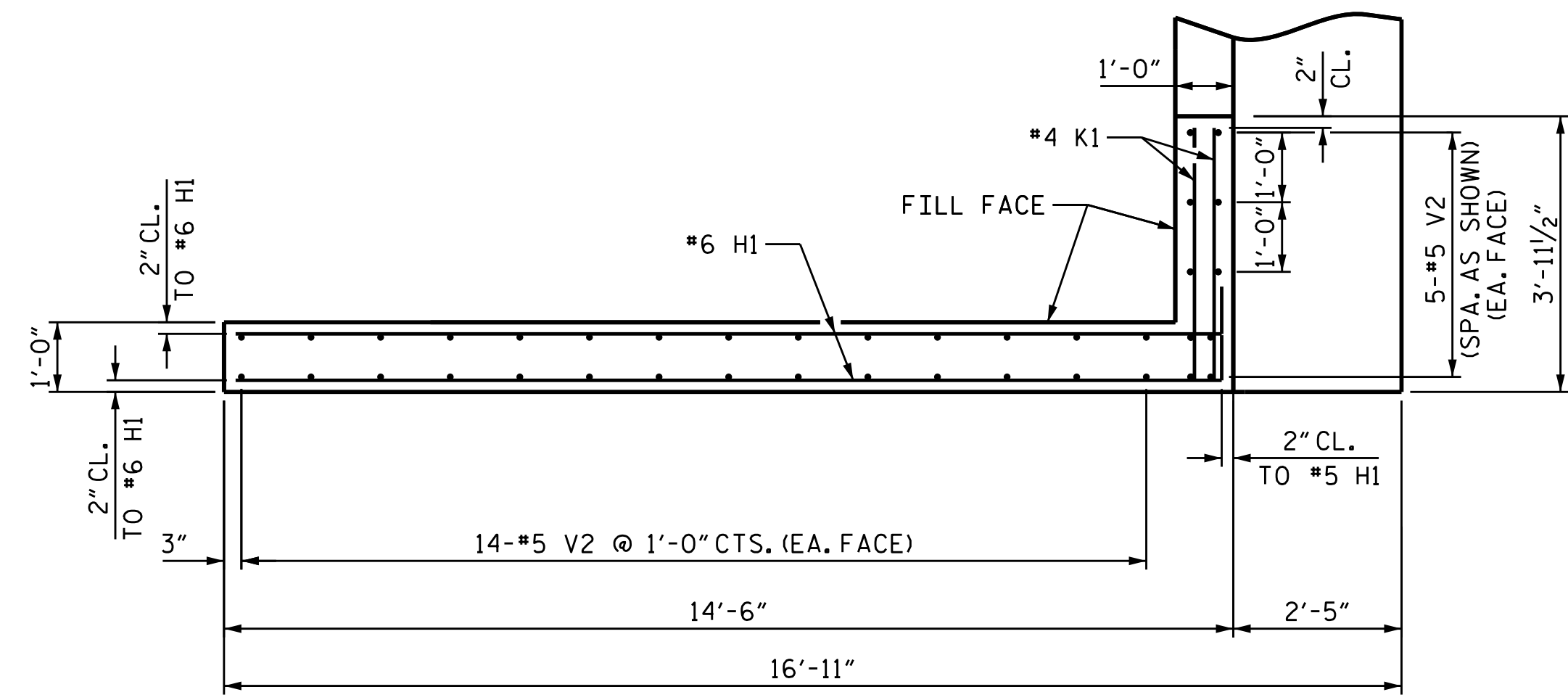
PLAN OF LEFT WING - W1



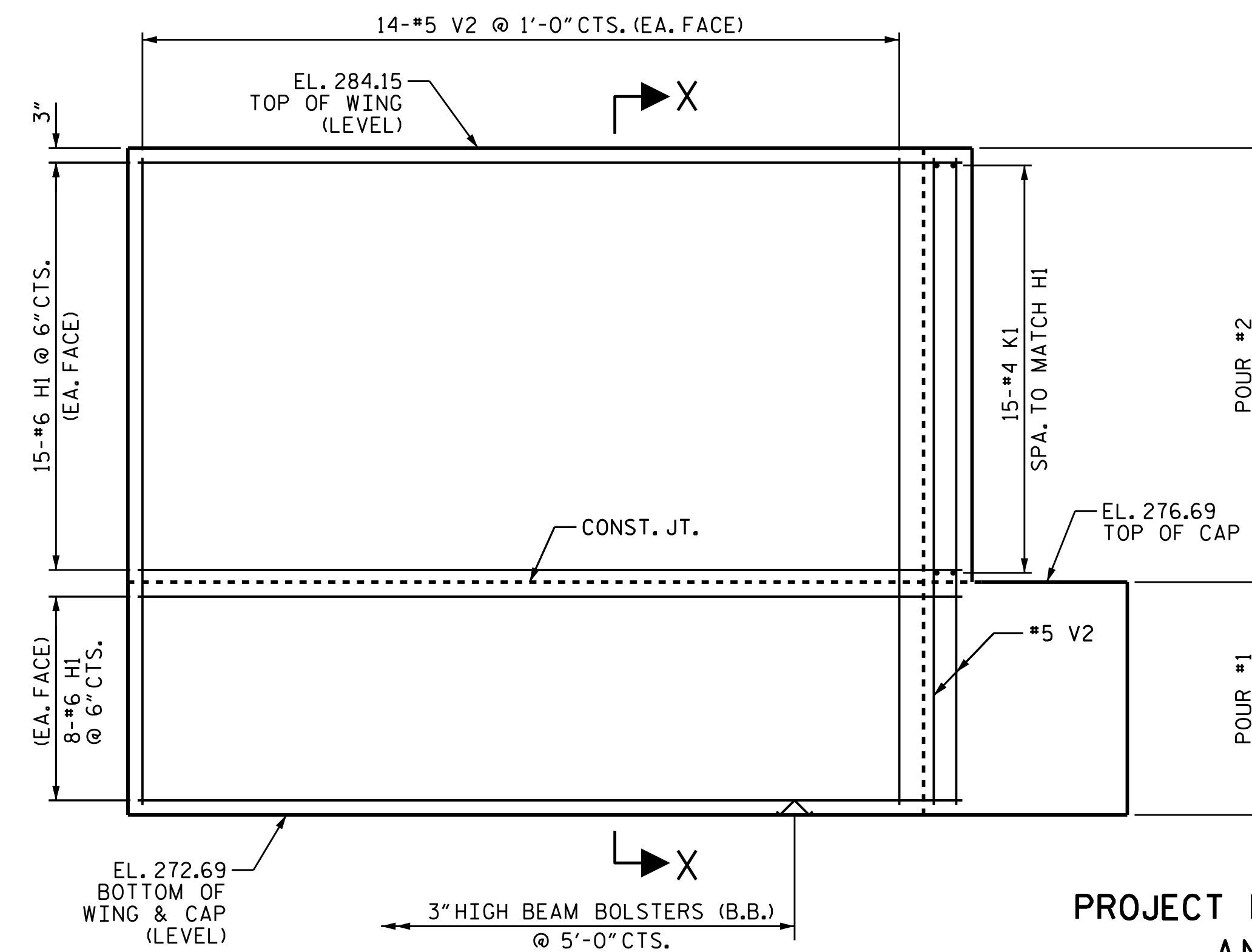
ELEVATION OF LEFT WING - W1



SECTION X-X



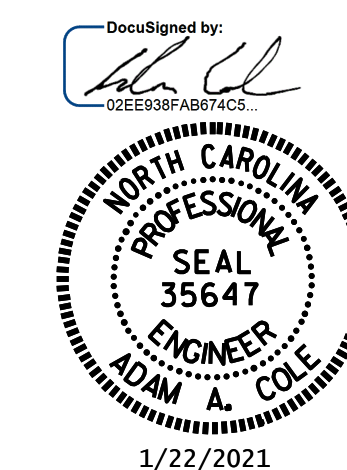
PLAN OF RIGHT WING - W2



ELEVATION OF RIGHT WING - W2

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+19.00 -L-

SHEET 2 OF 3

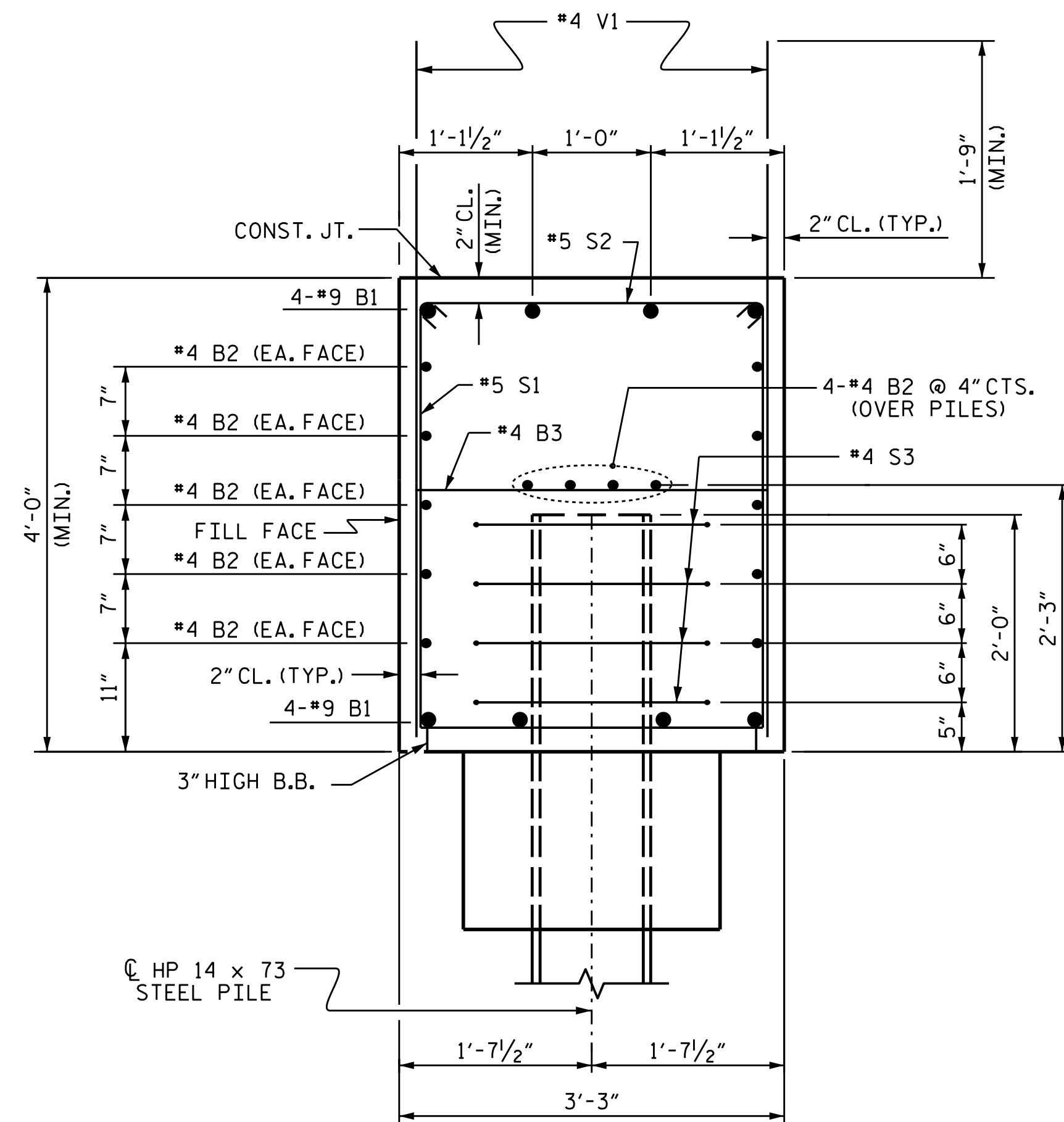


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 INTEGRAL
 END BENT 1

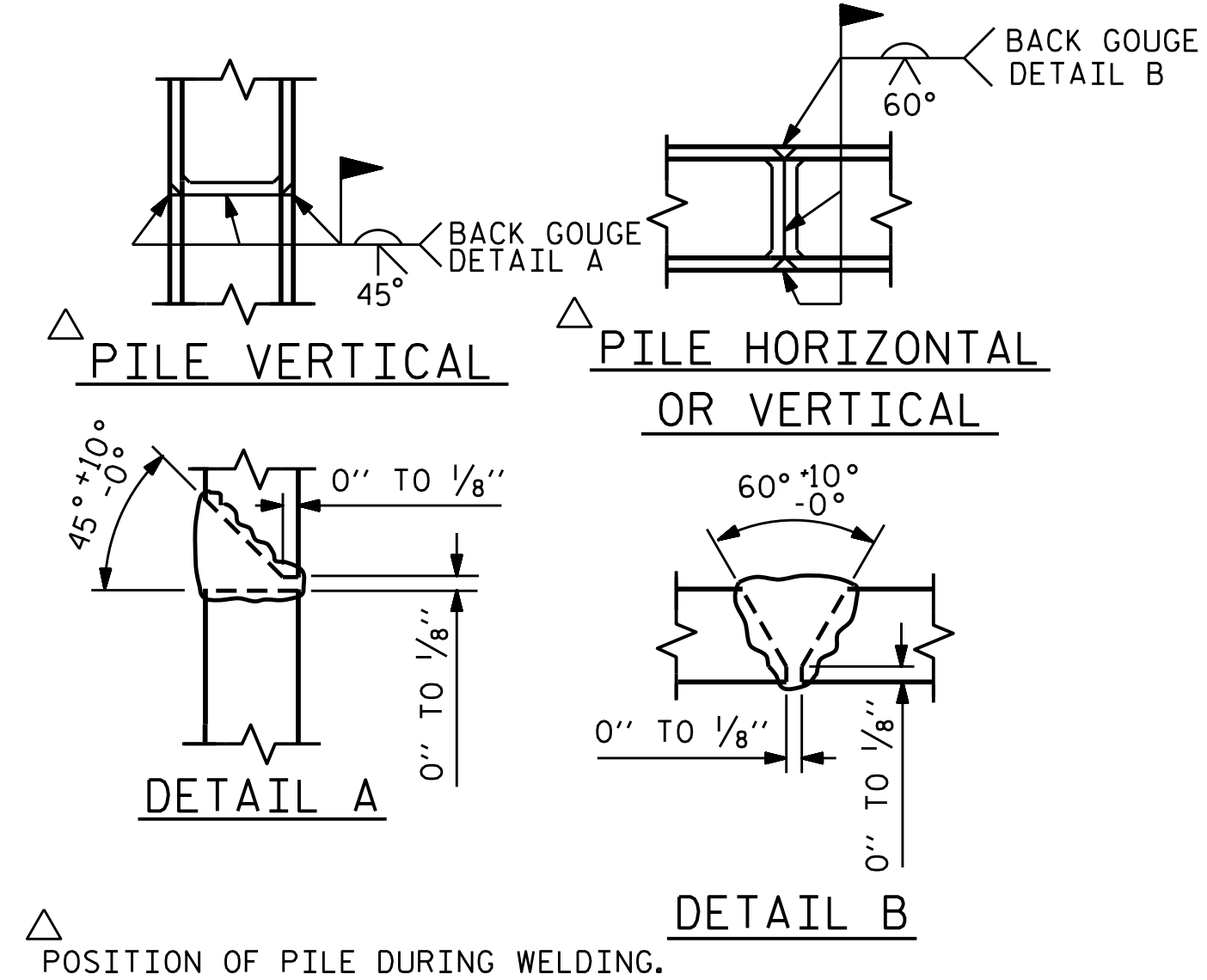
DRAWN BY : M. G. SHAIKH DATE : 08/2020
 CHECKED BY : H. A. LOCKLEAR DATE : 09/2020
 DESIGN ENGINEER OF RECORD: REZA KOUCHEKI DATE : 12/2019

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			24



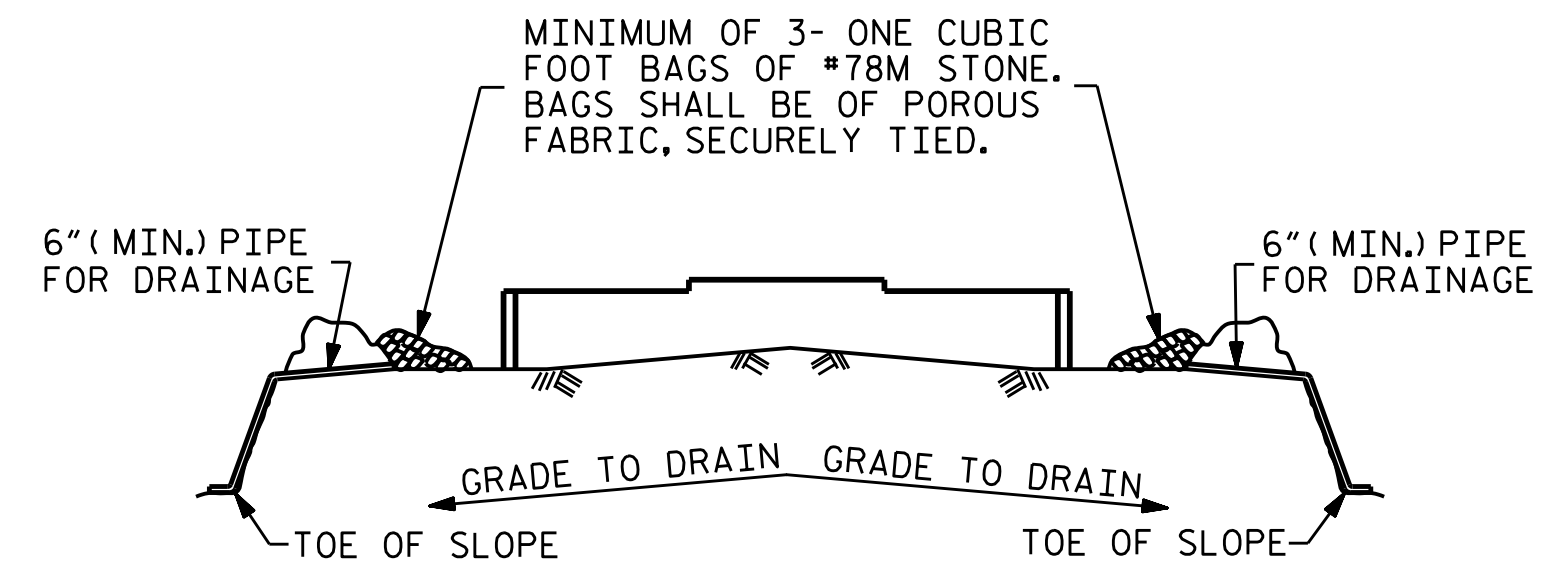
SECTION A-A



PILE SPLICE DETAILS

BAR TYPES				BILL OF MATERIAL		
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9	1	43'-3"	1176	
B2	28	#4	STR	21'-8"	405	
B3	10	#4	STR	2'-11"	19	
H1	92	#6	2	14'-10"	2050	
K1	60	#4	STR	3'-7"	144	
S1	36	#5	3	11'-1"	416	
S2	36	#5	4	3'-10"	144	
S3	28	#4	5	7'-7"	142	
V1	44	#4	STR	5'-9"	169	
V2	76	#5	STR	11'-1"	879	
REINFORCING STEEL					= 5544 LBS.	
CLASS A CONCRETE						
POUR #1 (CAP, CON. COLLARS, & LOWER PART OF WINGS)					= 25.5 C.Y.	
POUR #2 (UPPER PART OF WINGS)					= 9.8 C.Y.	
TOTAL					= 35.3 C.Y.	
HP 14 X 73 STEEL PILES						
No. 7 _____ LIN FT. 160						
STEEL PILE POINTS _____ NO. 7						
PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 STEEL PILES _____ 7 EA.						

ALL BAR DIMENSIONS ARE OUT TO OUT.

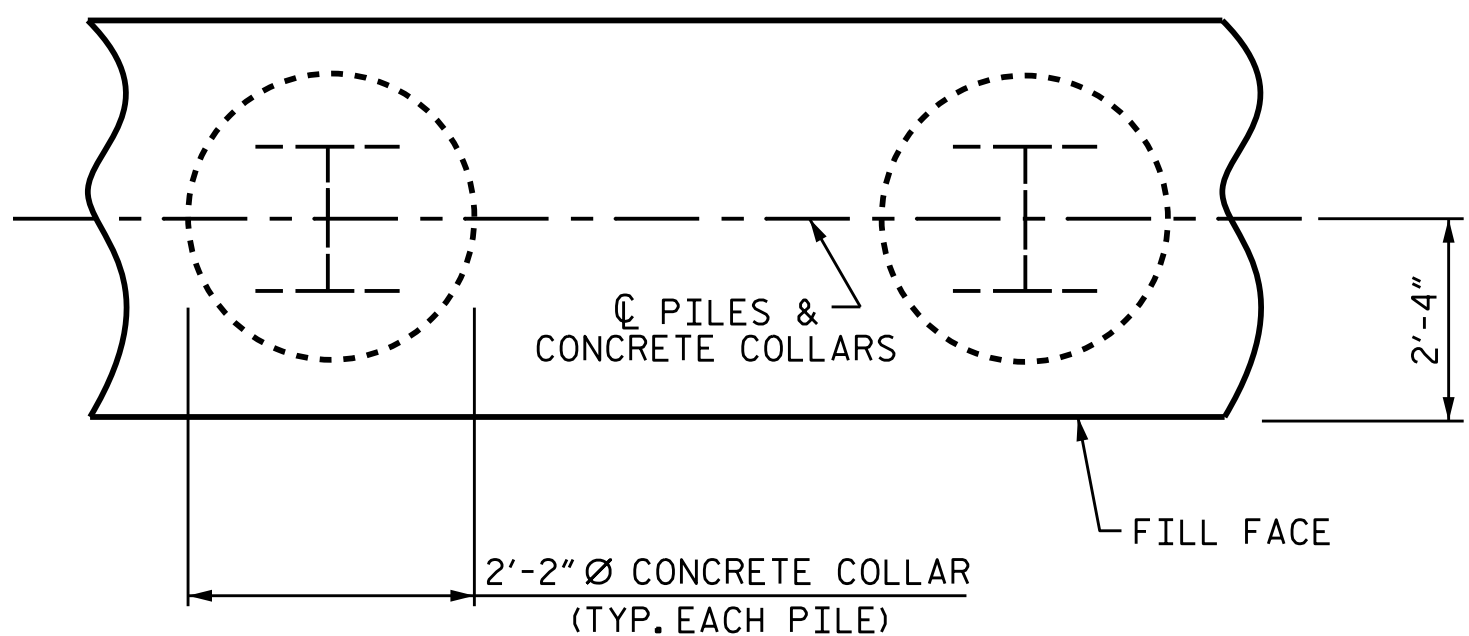


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

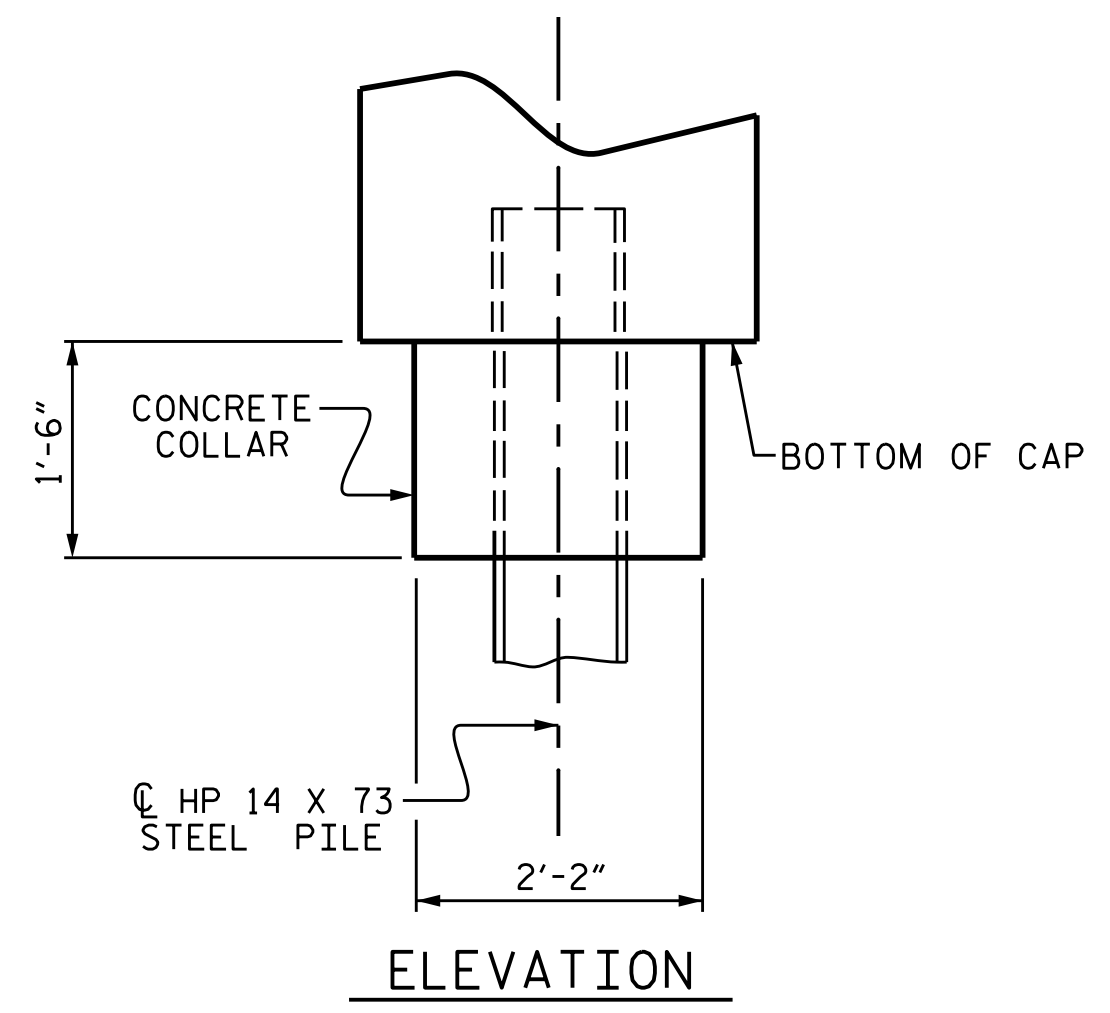
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



CORROSION PROTECTION FOR STEEL PILES DETAIL



PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+19.00 -L-

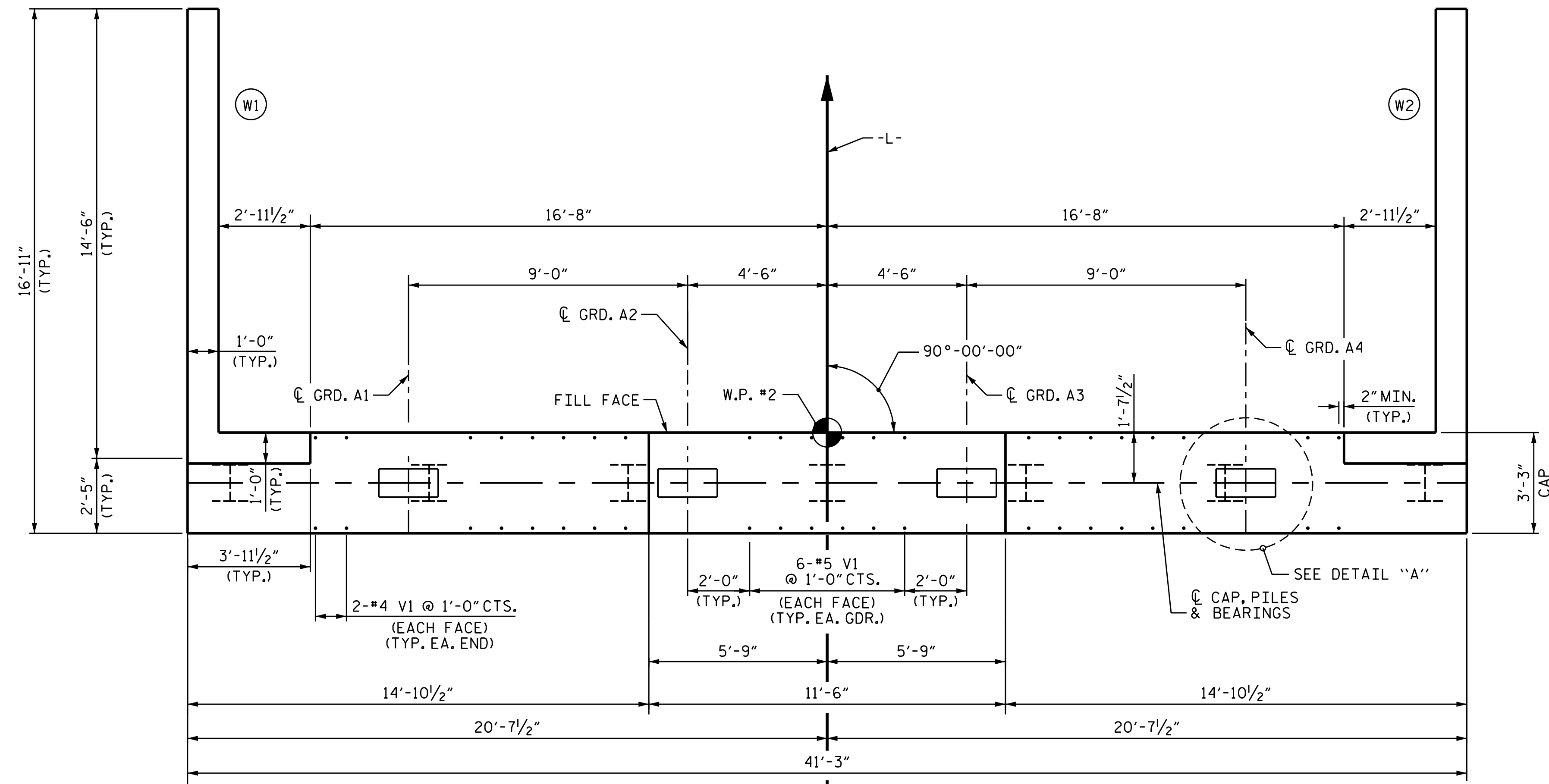


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 INTEGRAL
 END BENT 1

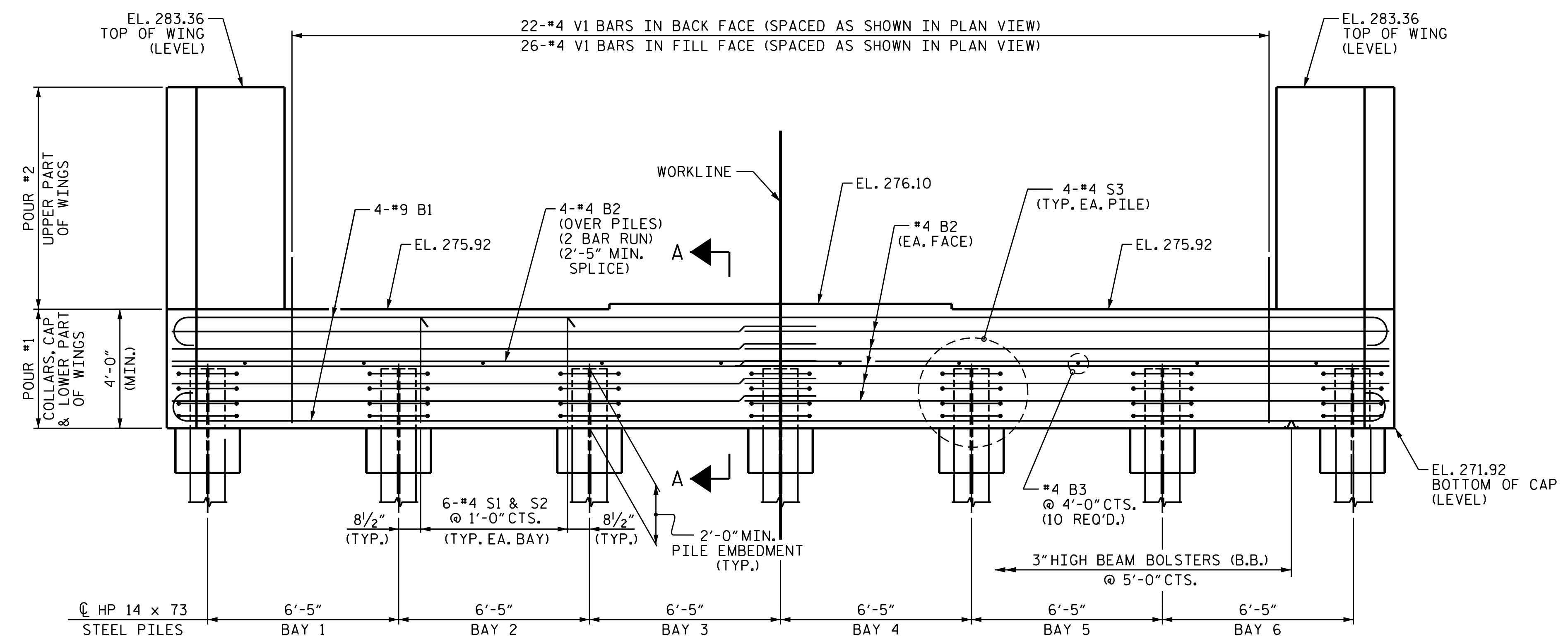
DRAWN BY :	M. G. SHAIKH	DATE :	08/2020
CHECKED BY :	H. A. LOCKLEAR	DATE :	09/2020
DESIGN ENGINEER OF RECORD:	REZA KOUCHEKI	DATE :	12/2019

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			24

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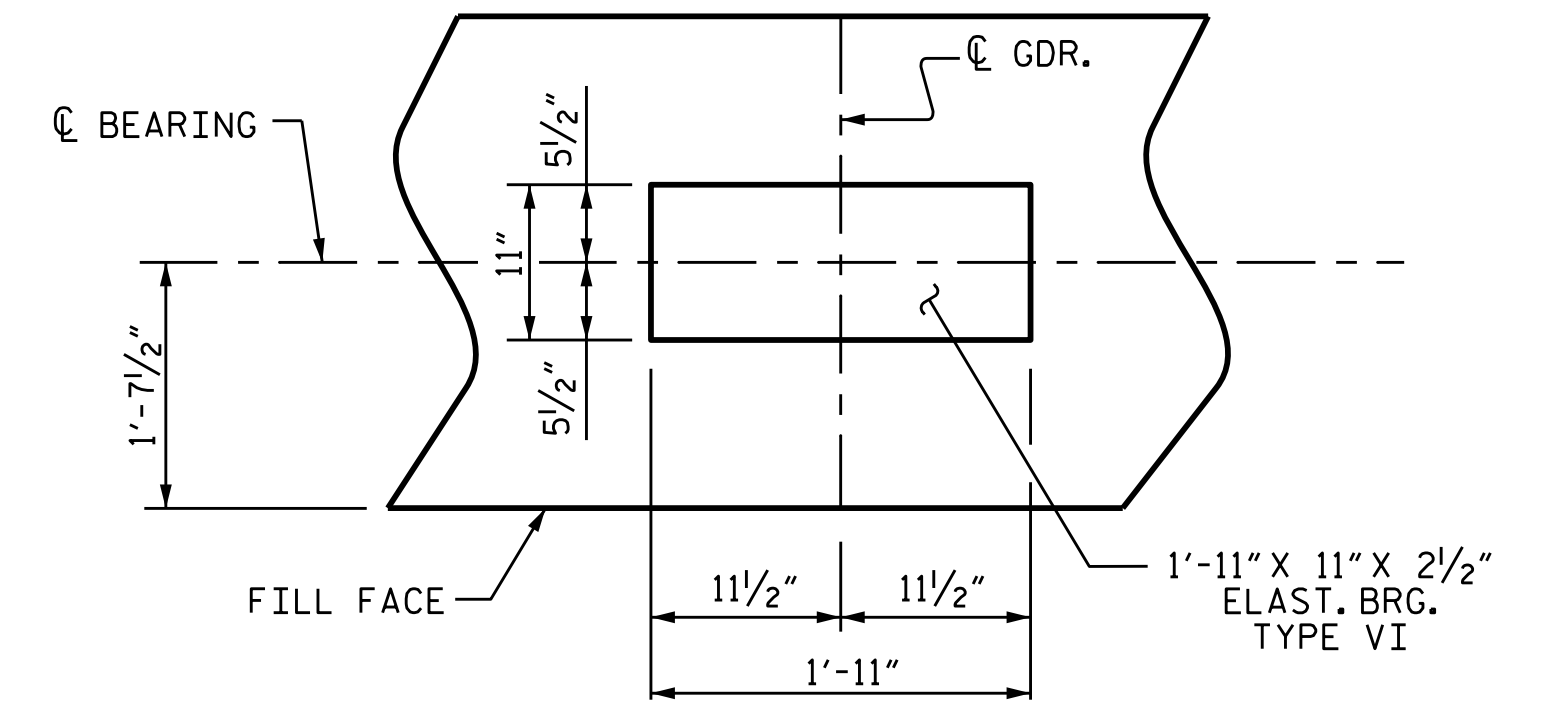
PLAN



ELEVATION

NOTES:

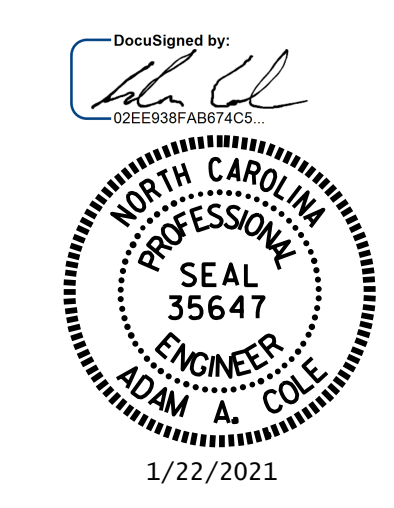
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #4 V1 BARS.
 THE TOP PART OF THE END BENT CAP AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".



DETAIL "A"

PROJECT NO. B-5818
 ANSON COUNTY
 STATION: 27+19.00 -L-

SHEET 1 OF 3

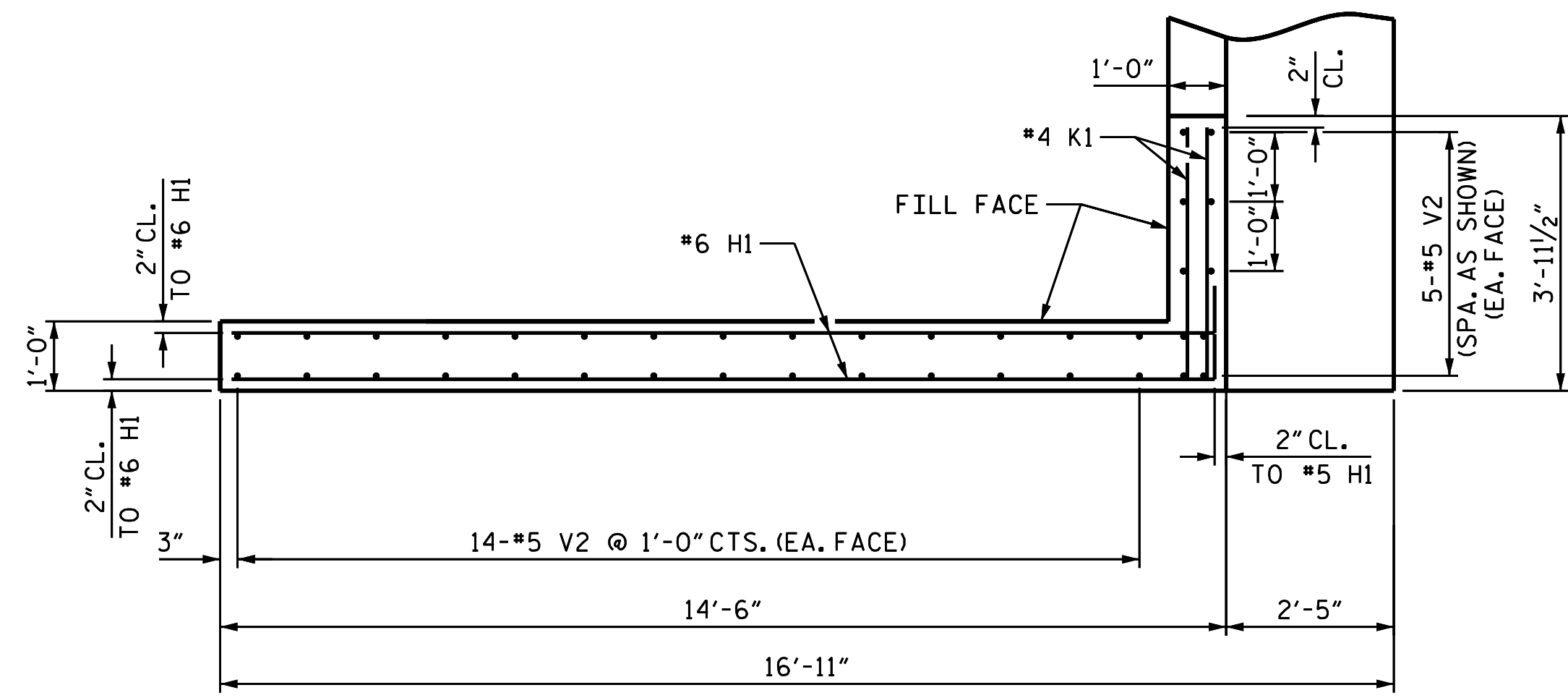


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 INTEGRAL END BENT 2

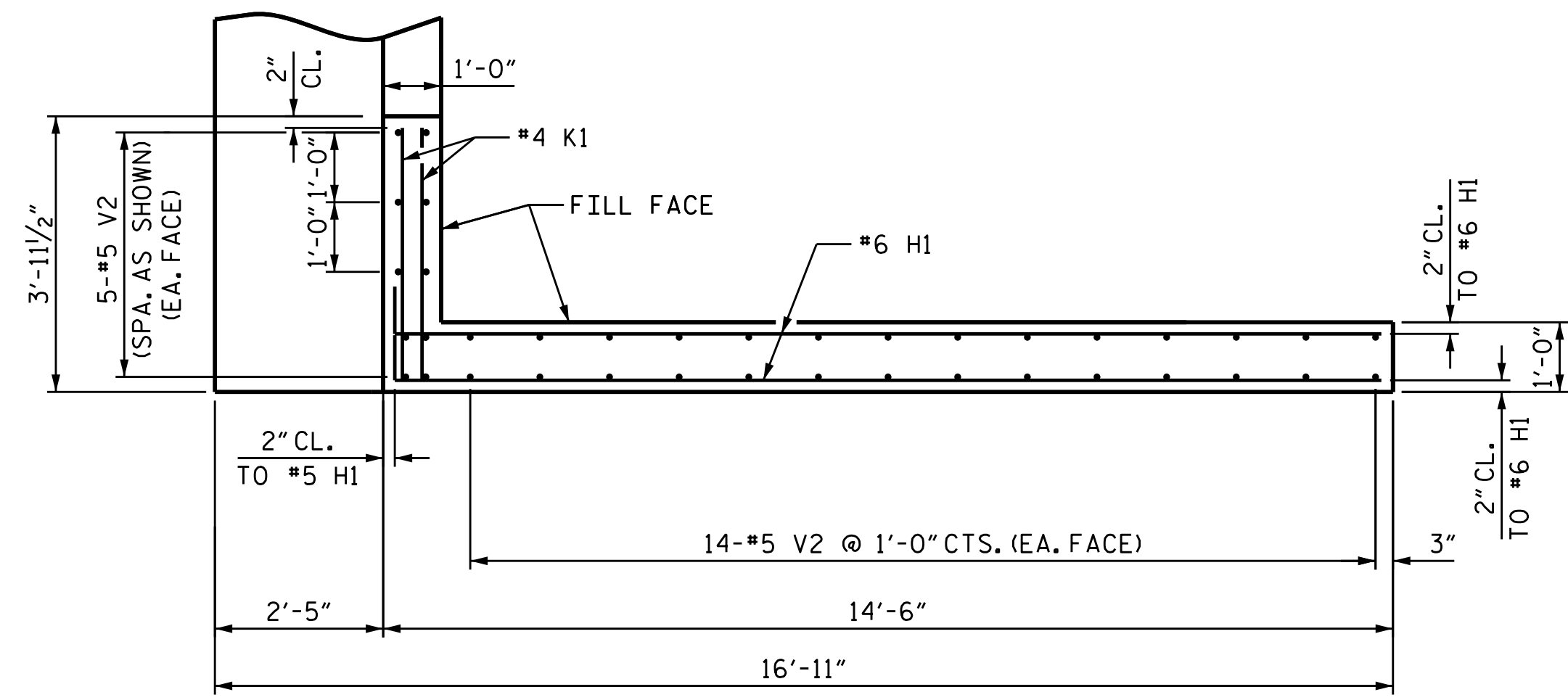
DRAWN BY: M. G. SHAIKH DATE: 08/2020
 CHECKED BY: H. A. LOCKLEAR DATE: 09/2020
 DESIGN ENGINEER OF RECORD: REZA KOUCHEKI DATE: 12/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

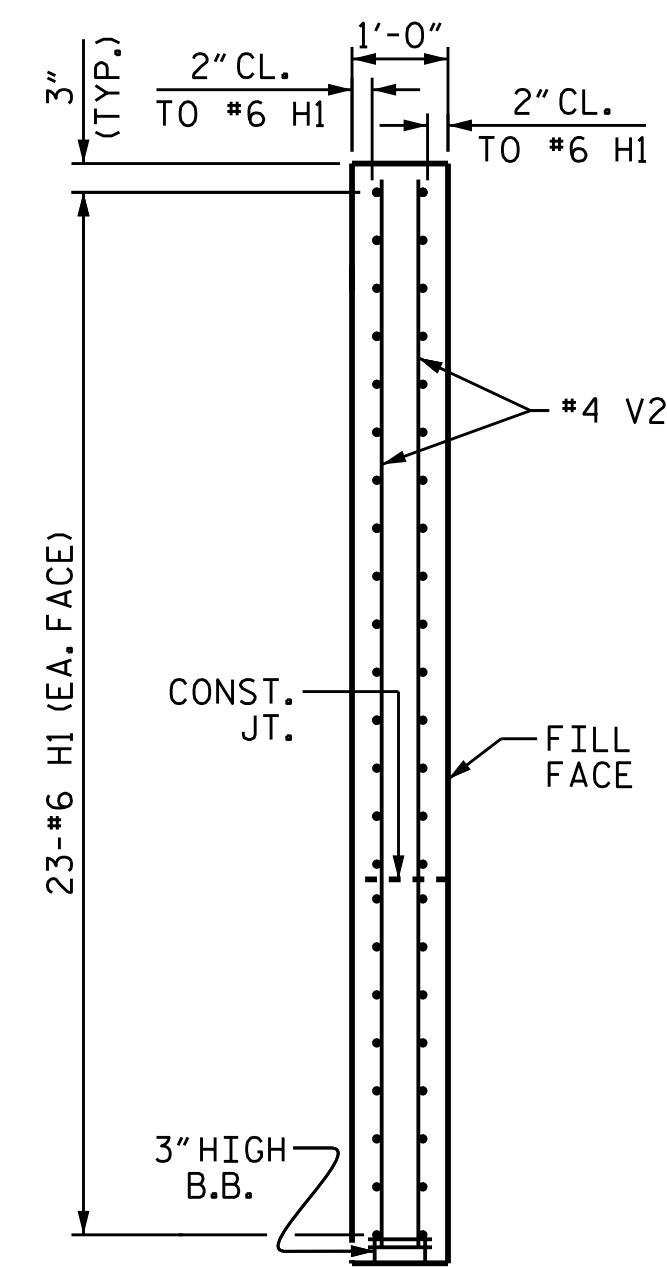
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			24



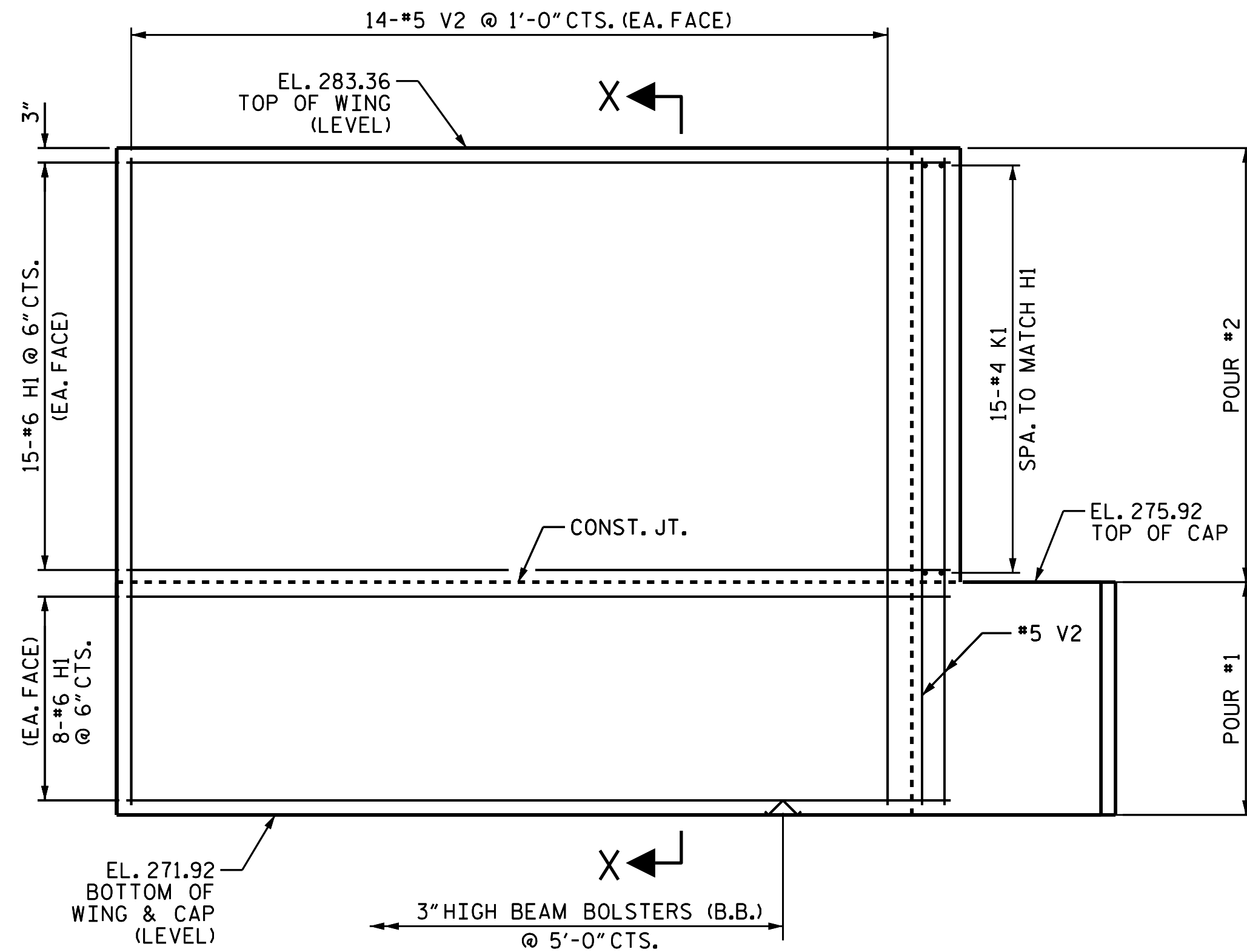
PLAN OF LEFT WING - W1



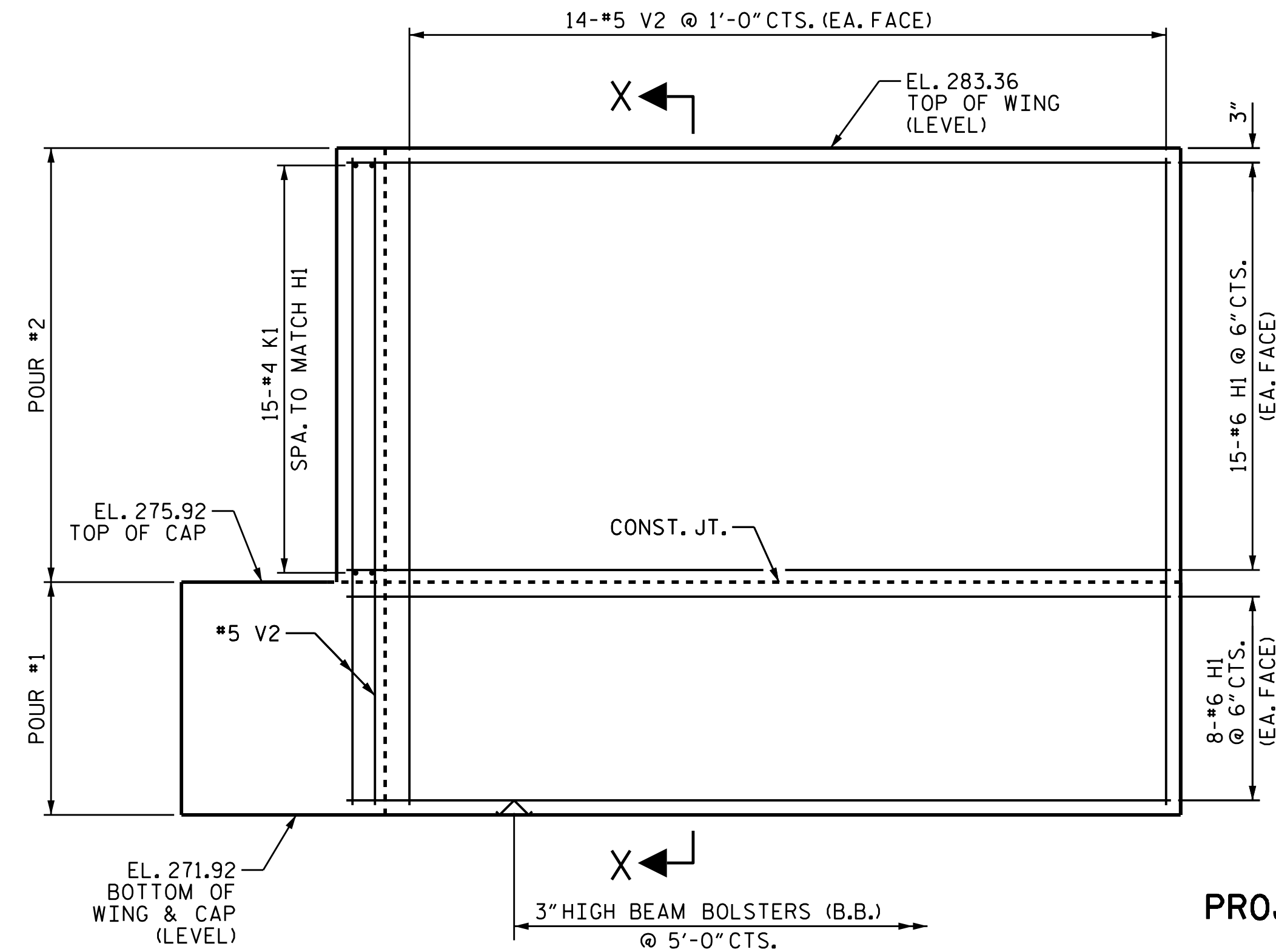
PLAN OF RIGHT WING - W2



SECTION X-X



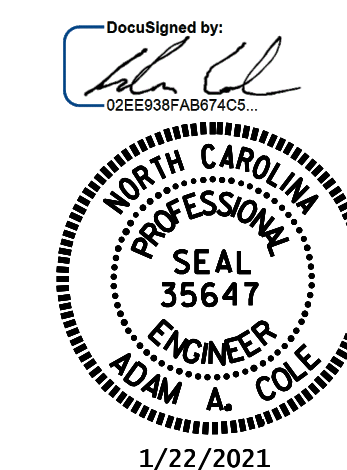
ELEVATION OF LEFT WING - W1



ELEVATION OF RIGHT WING - W2

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+19.00 -L-

SHEET 2 OF 3

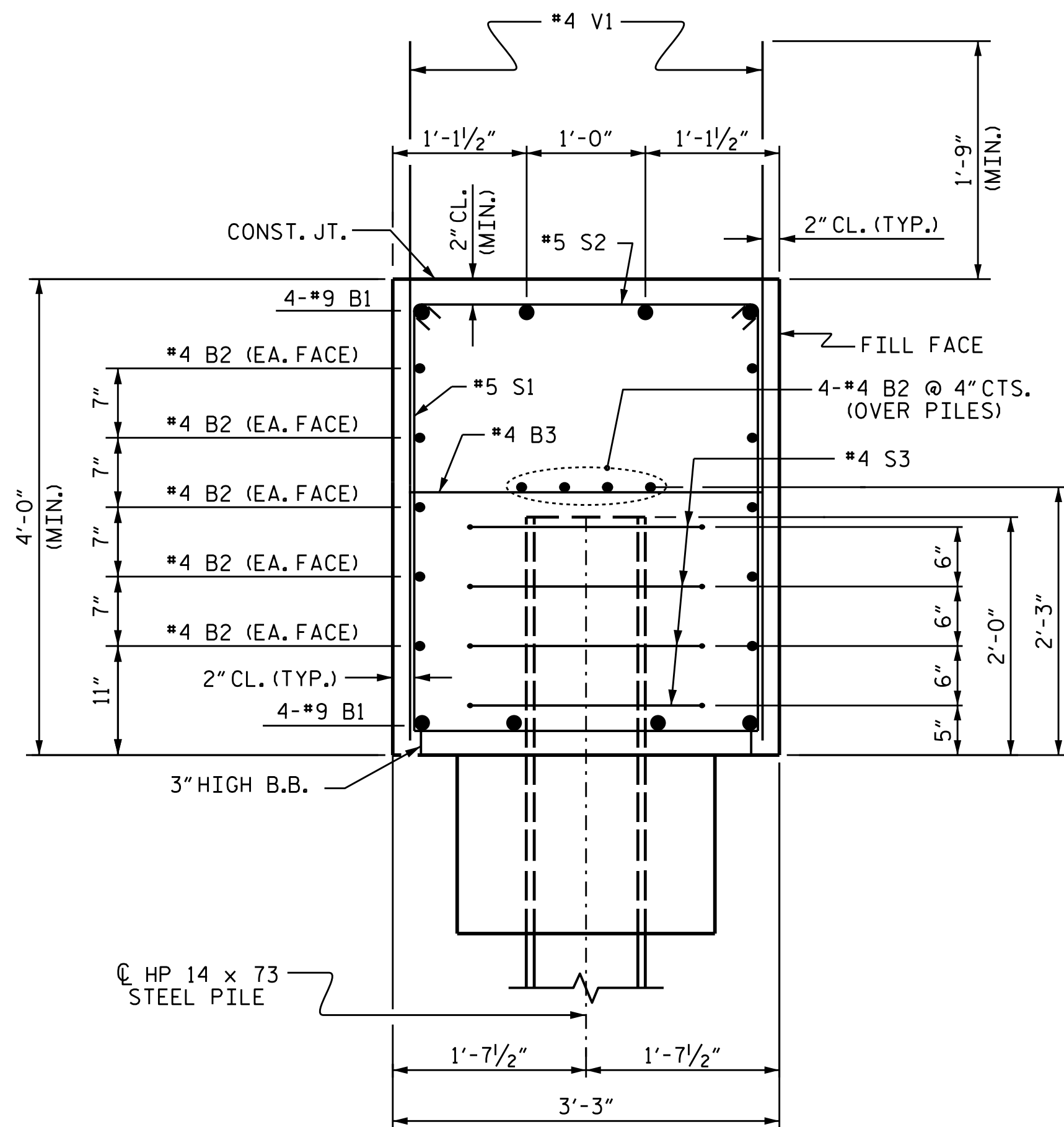


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 INTEGRAL
 END BENT 2

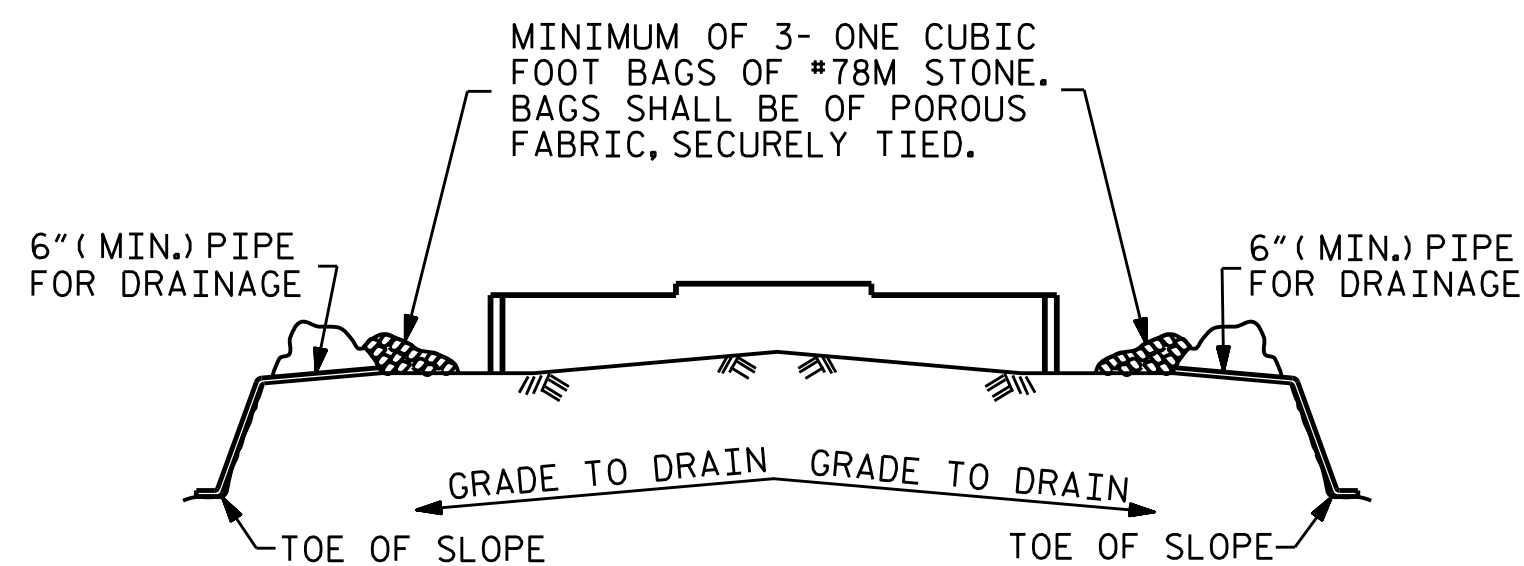
DRAWN BY : M. G. SHAIKH DATE : 08/2020
 CHECKED BY : H. A. LOCKLEAR DATE : 09/2020
 DESIGN ENGINEER OF RECORD: REZA KOUCHEKI DATE : 12/2019

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			24



SECTION A-A



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

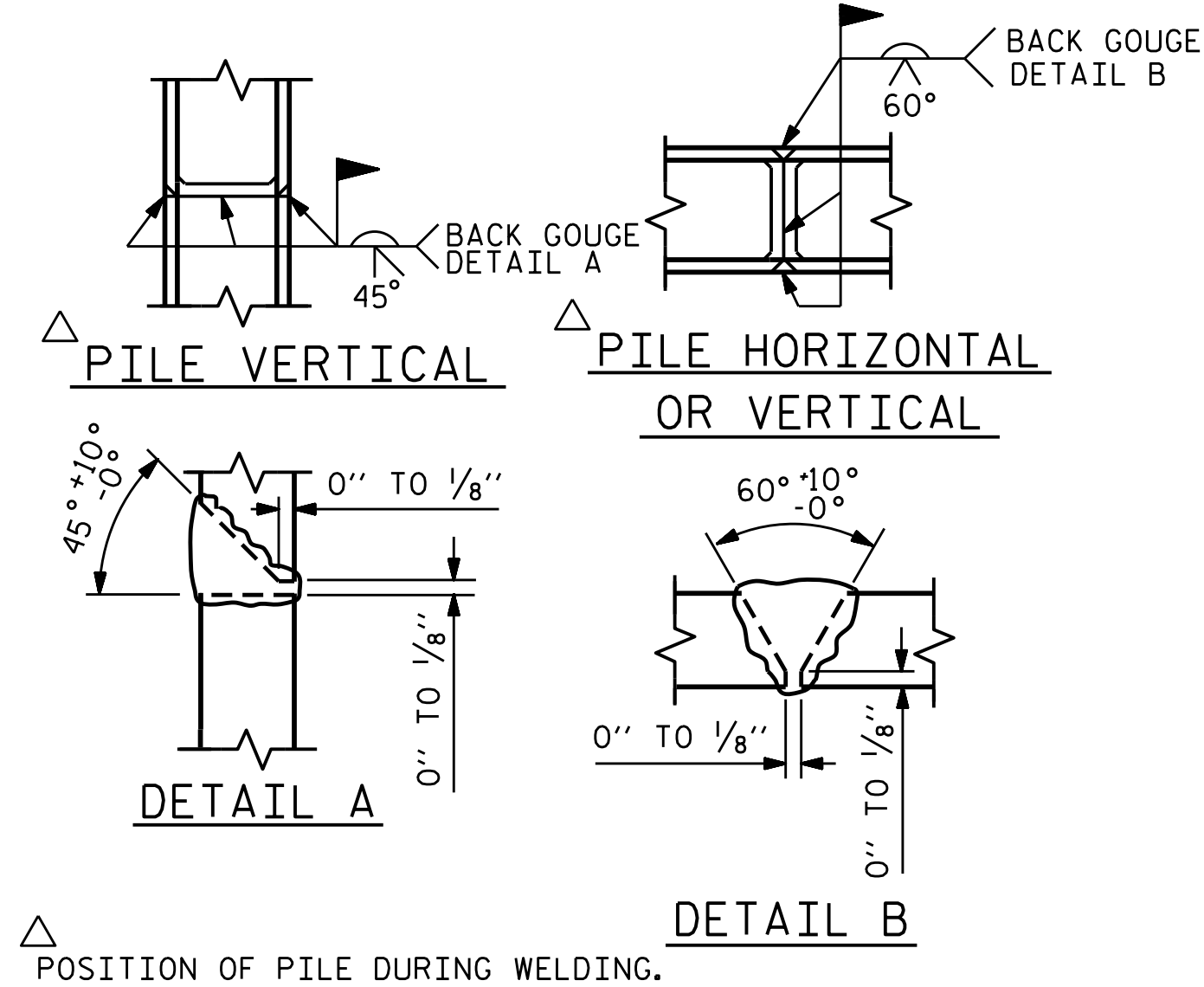
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

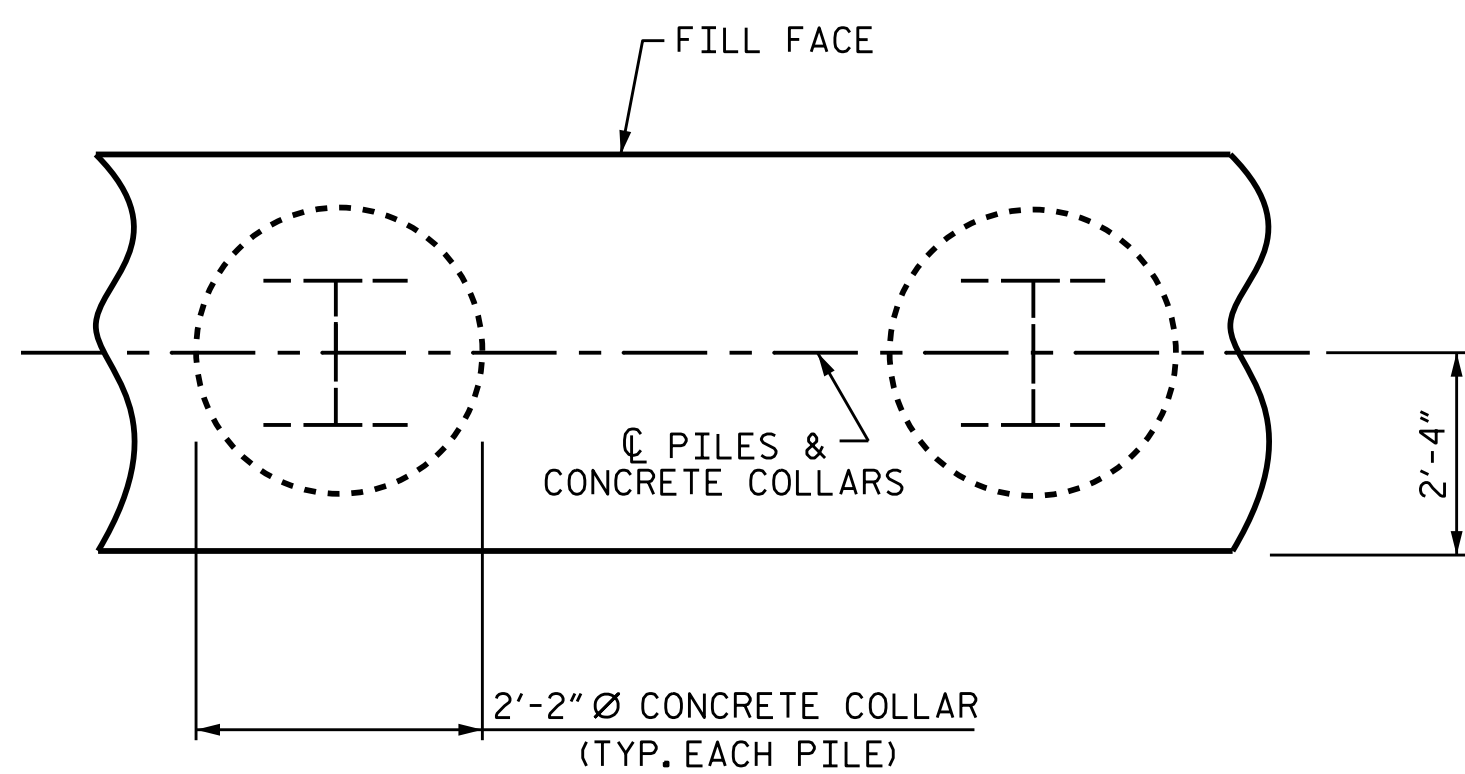
TEMPORARY DRAINAGE AT END BENT

DRAWN BY : M. G. SHAIKH DATE : 08/2020
 CHECKED BY : H. A. LOCKLEAR DATE : 09/2020
 DESIGN ENGINEER OF RECORD: REZA KOUCHEKI DATE : 12/2019

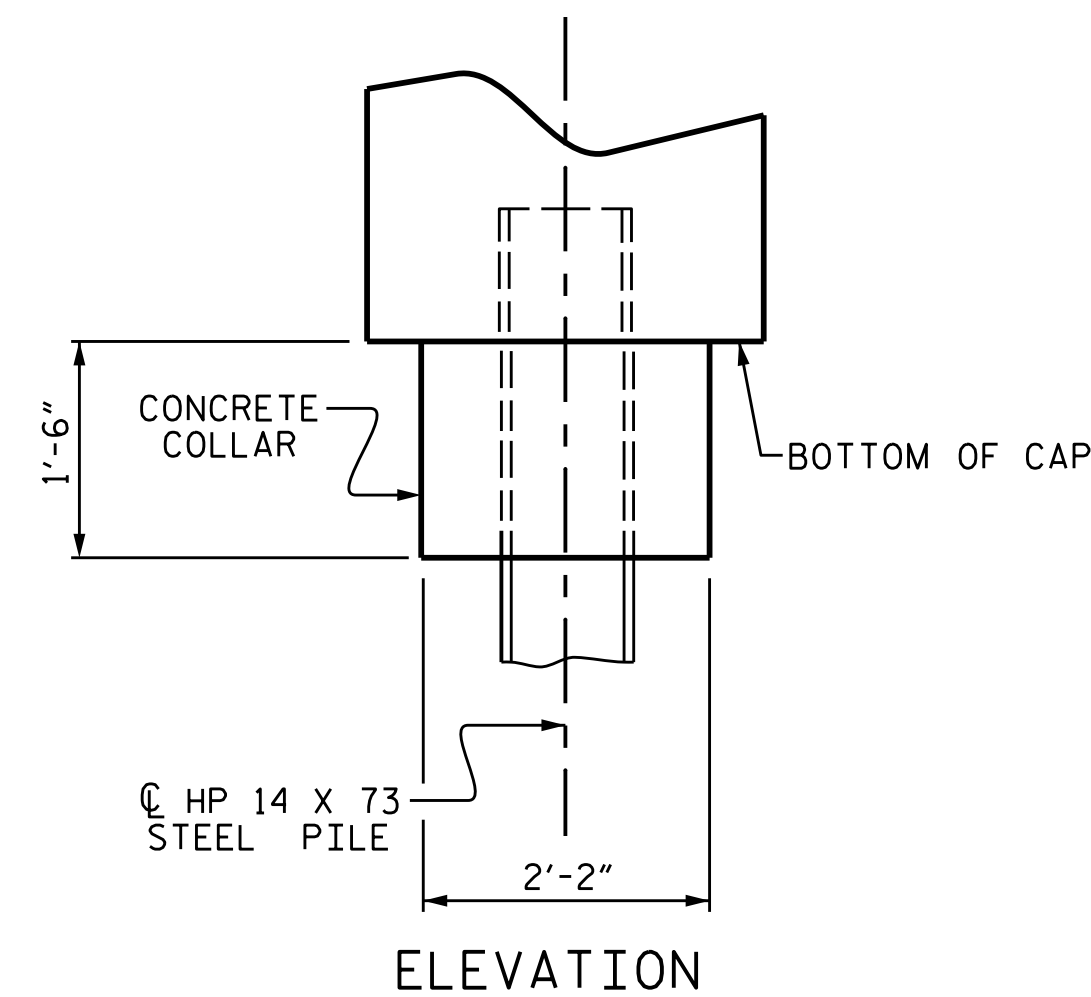
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PILE SPLICE DETAILS



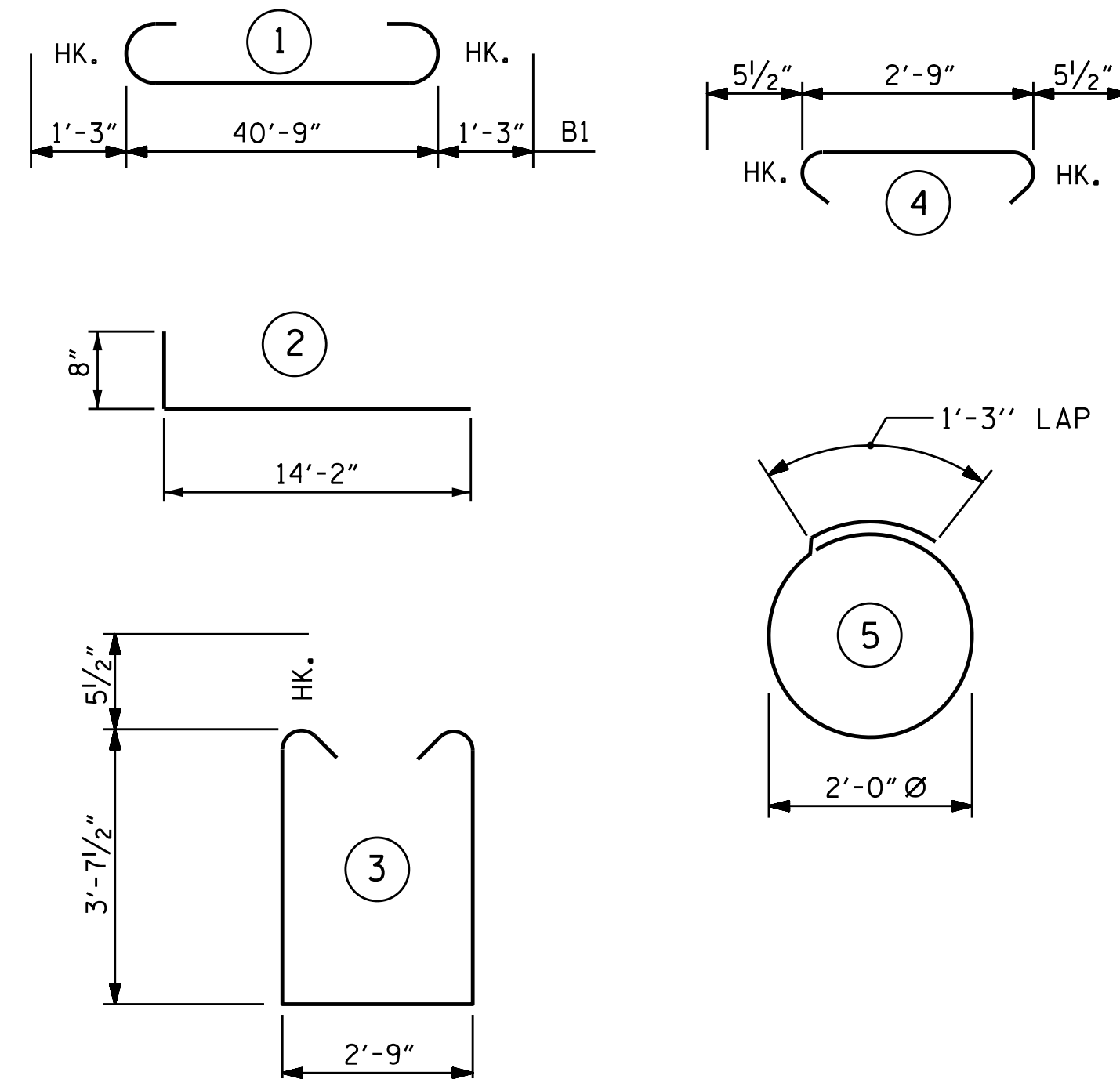
PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	43'-3"	1176
B2	28	#4	STR	21'-8"	405
B3	10	#4	STR	2'-11"	19
H1	92	#6	2	14'-10"	2050
K1	60	#4	STR	3'-7"	144
S1	36	#5	3	11'-1"	416
S2	36	#5	4	3'-10"	144
S3	28	#4	5	7'-7"	142
V1	44	#4	STR	5'-9"	169
V2	76	#5	STR	11'-1"	879

REINFORCING STEEL = 5544 LBS.

CLASS A CONCRETE

POUR #1 (CAP, CON. COLLARS, & LOWER PART OF WINGS) = 25.5 C.Y.

POUR #2 (UPPER PART OF WINGS) = 9.8 C.Y.

TOTAL = 35.3 C.Y.

HP 14 X 73 STEEL PILES

No. 7 _____ LIN FT. 195

STEEL PILE POINTS _____ NO. 7

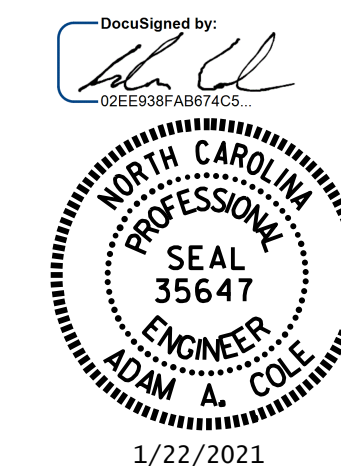
PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 STEEL PILES _____ 7 EA.

PROJECT NO. B-5818

ANSON COUNTY

STATION: 27+19.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL
 END BENT 2

REVISIONS

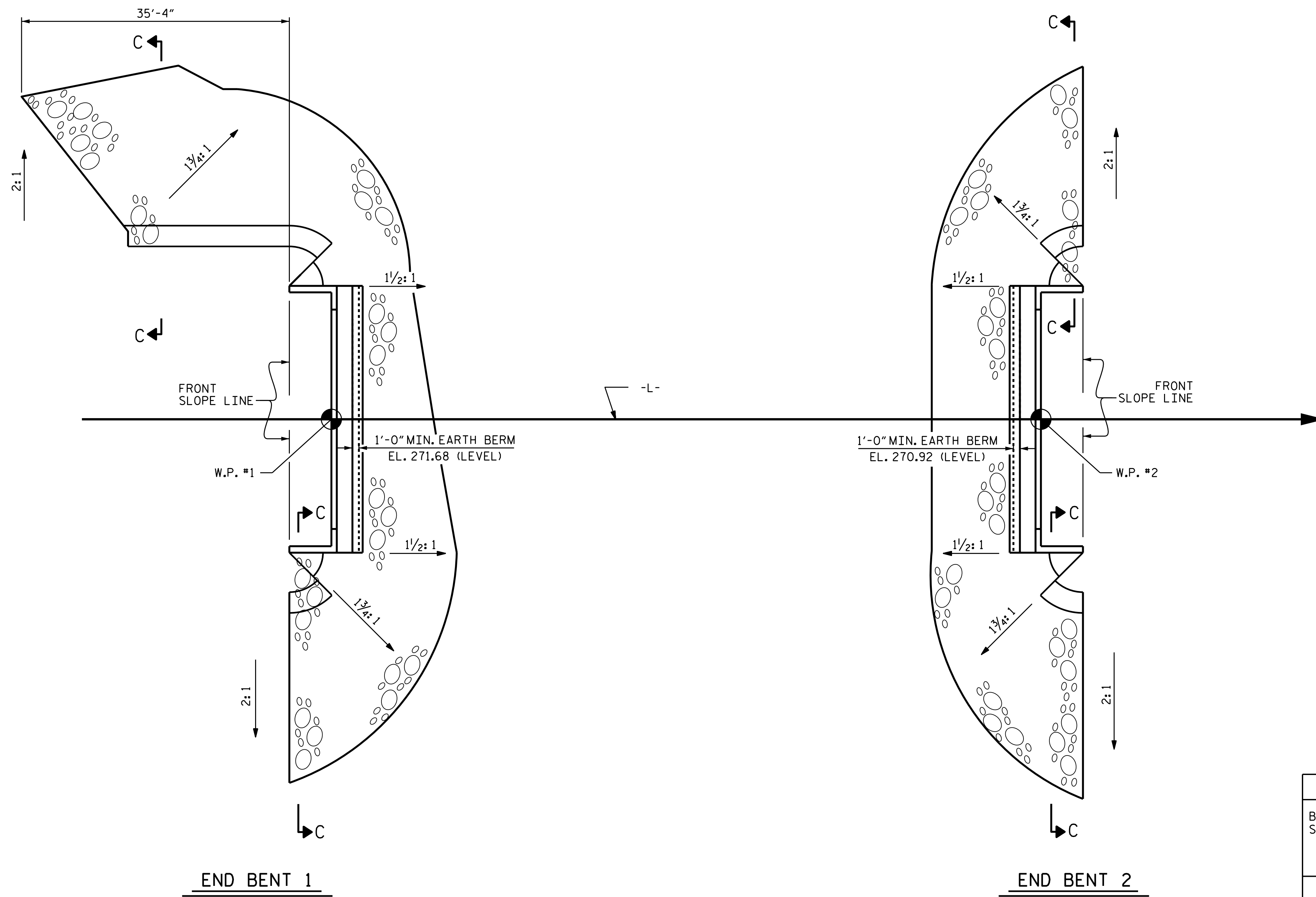
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SHEET NO.
S-21

TOTAL SHEETS
24

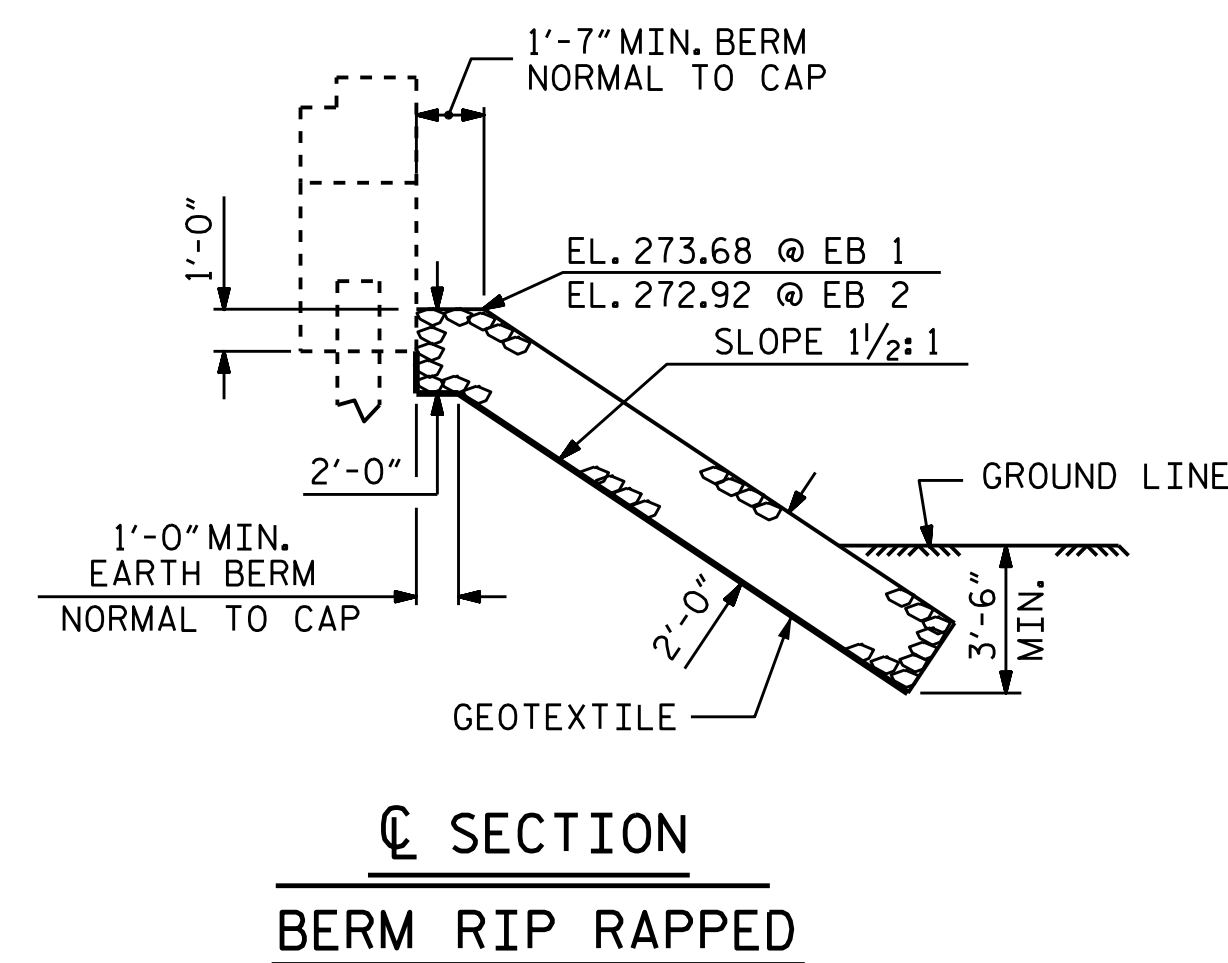
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NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

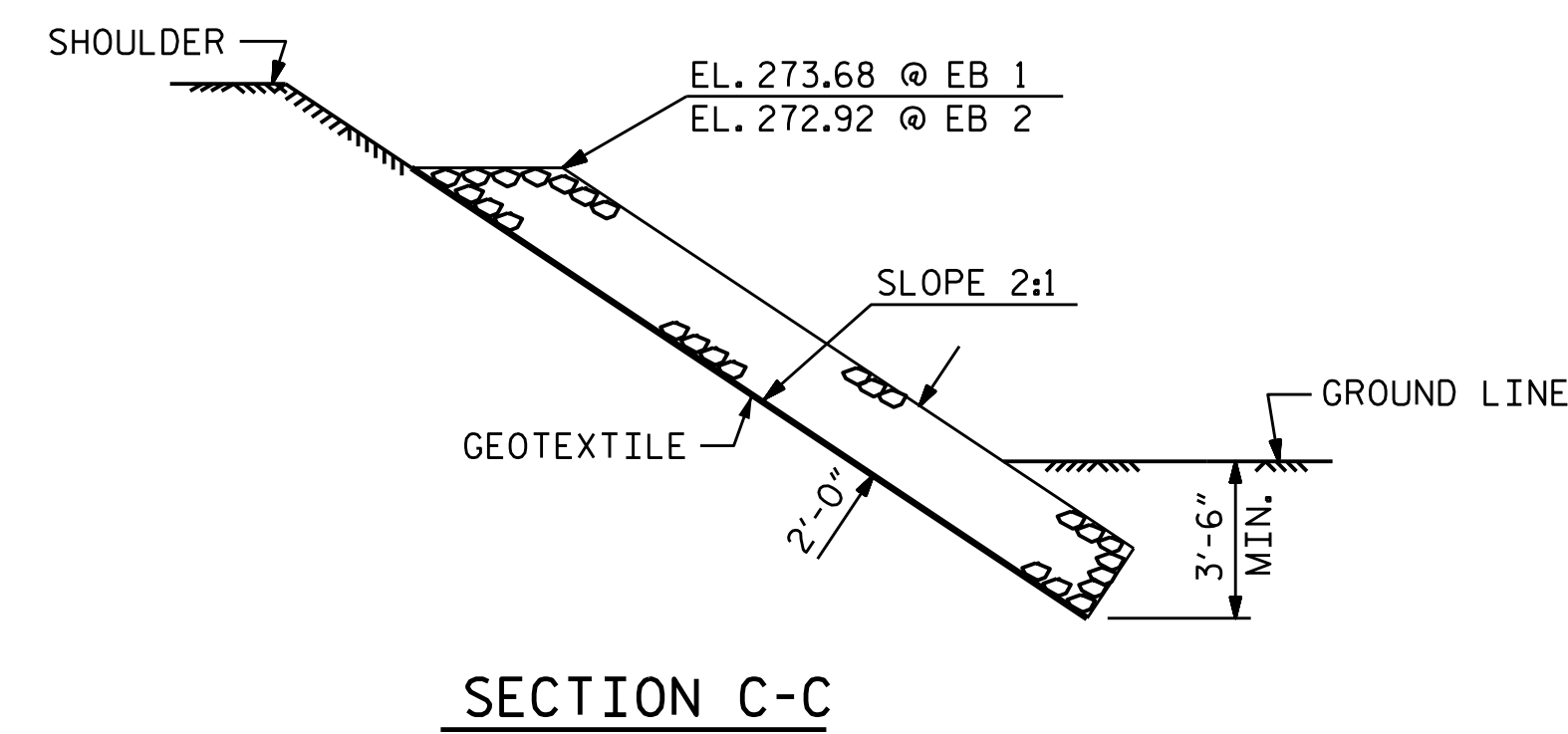


PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 27+79.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	330	367
END BENT 2	290	322

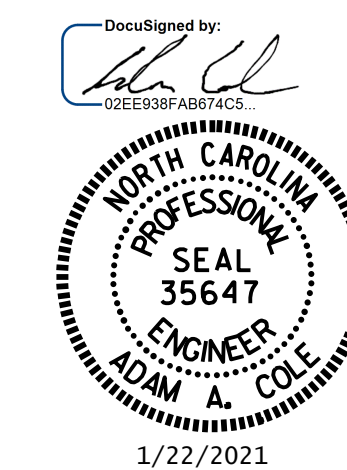


SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-5818
ANSON COUNTY
STATION: 27+79.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

DRAWN BY : M. G. SHAIKH DATE : 01/2020
CHECKED BY : H. LOCKLEAR DATE : 02/2020
DESIGN ENGINEER OF RECORD: REZA KAUCHEKI DATE : 11/2019

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
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BILL OF MATERIAL

FOR ONE APPROACH SLAB
(2 REQ'D)

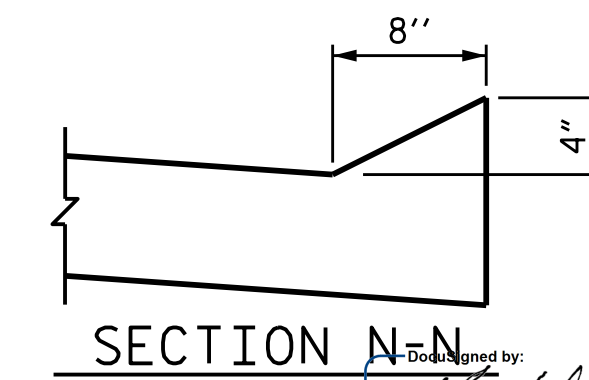
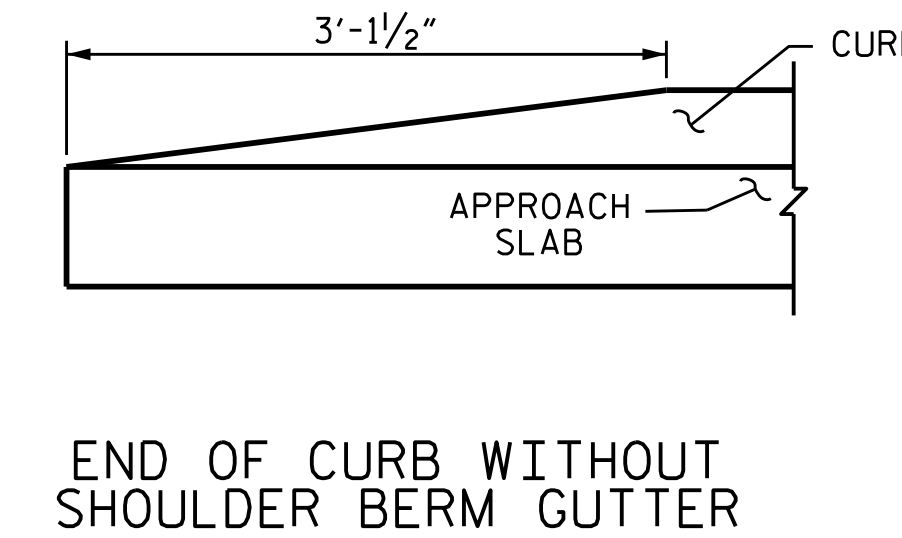
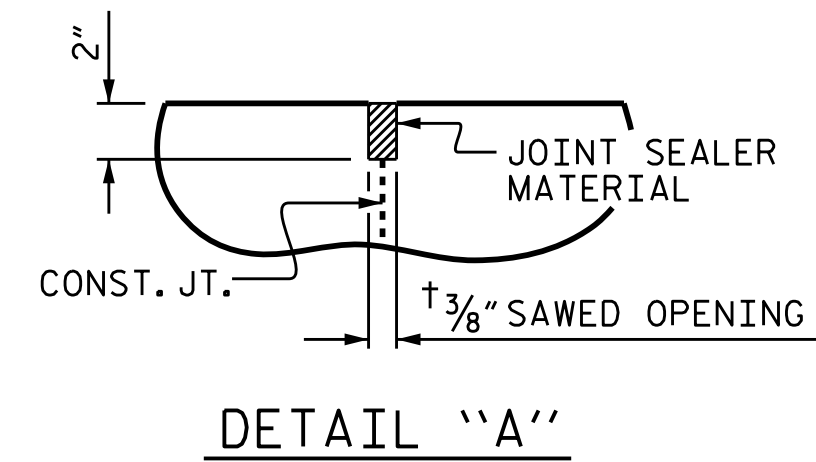
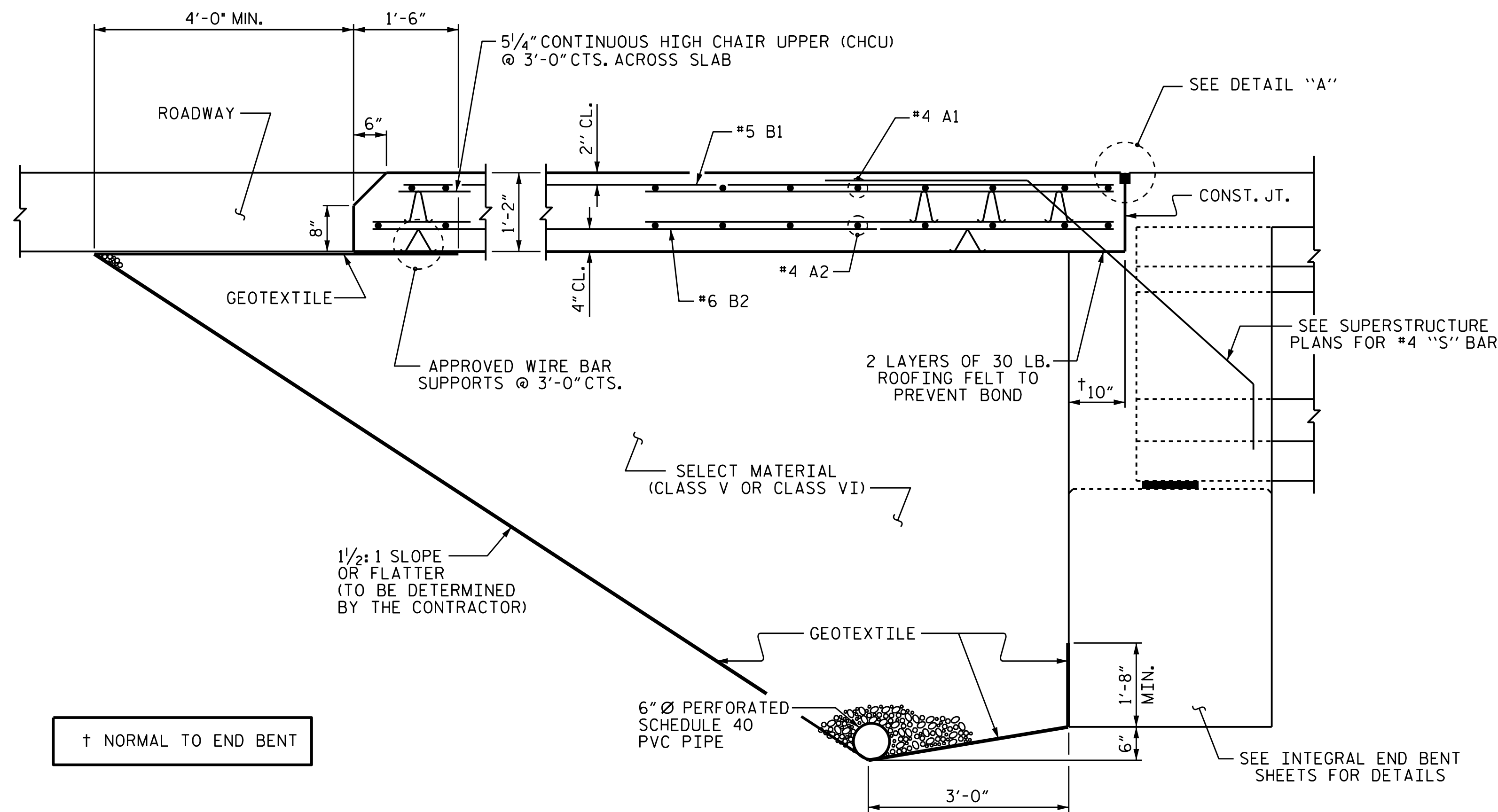
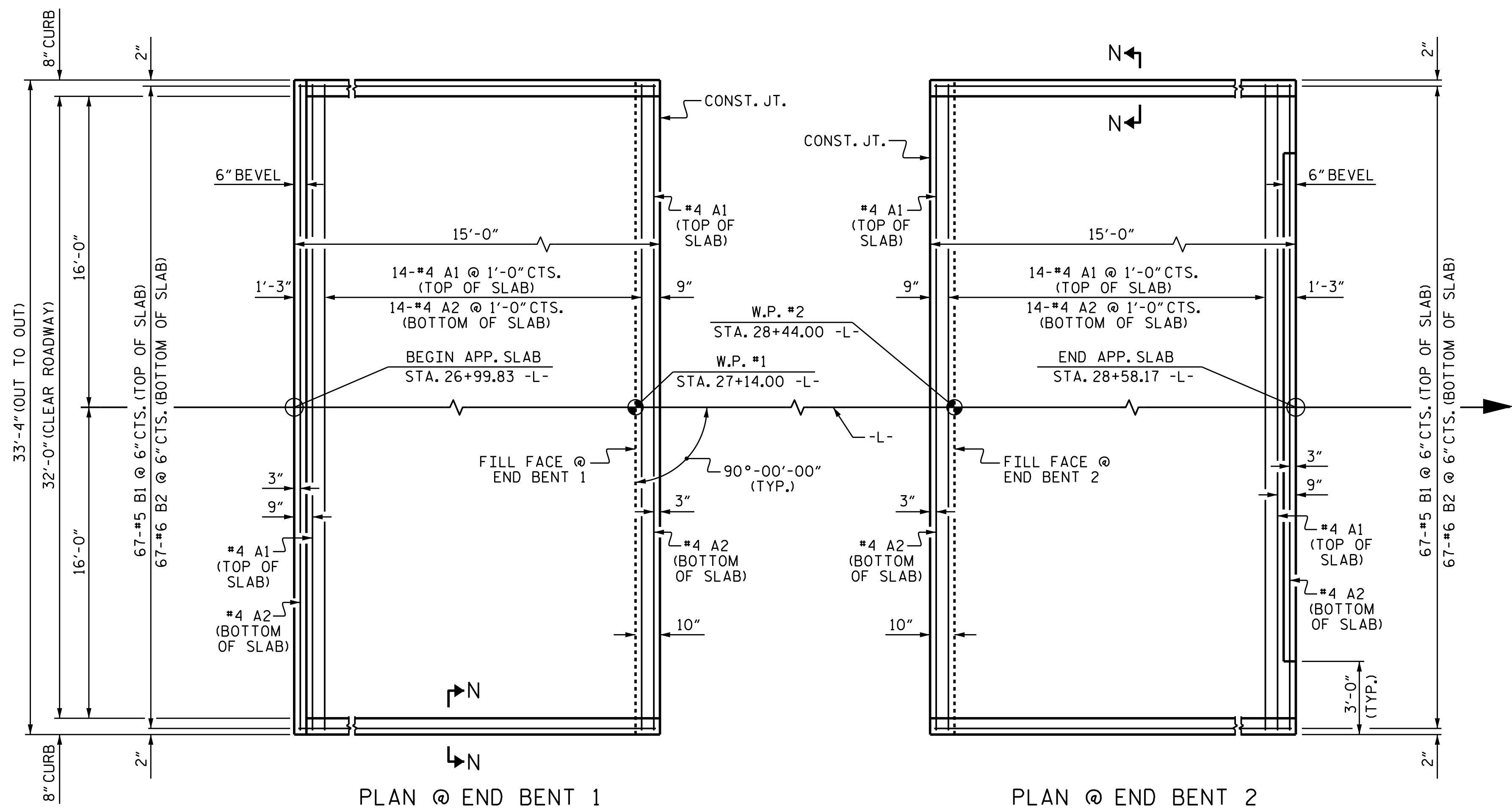
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	16	#4	STR	33'-0"	353
A2	16	#4	STR	33'-0"	353
* B1	67	#5	STR	14'-3"	996
B2	67	#6	STR	14'-8"	1476
REINFORCING STEEL				LBS.	1829
* EPOXY COATED REINFORCING STEEL				LBS.	1349
CLASS AA CONCRETE				C. Y.	21.5

SPLICE LENGTHS

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

NOTES

- APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
- FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, AND SELECT MATERIAL, 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.
- FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.
- 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.
- THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

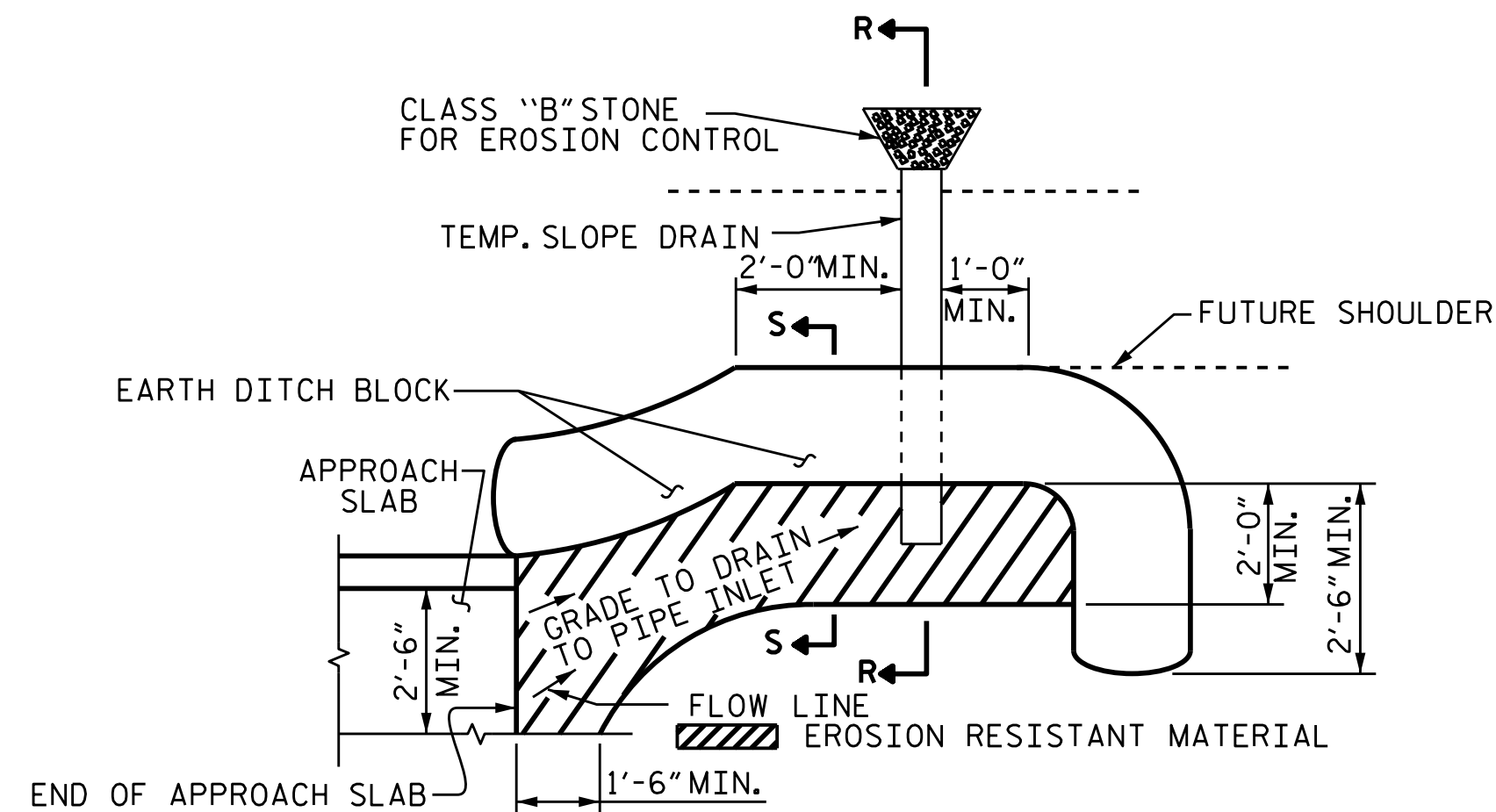


PROJECT NO. B-5818
ANSON COUNTY
STATION: 27+79.00 -L-

SHEET 1 OF 2
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR INTEGRAL ABUTMENT
WITH FLEXIBLE PAVEMENT

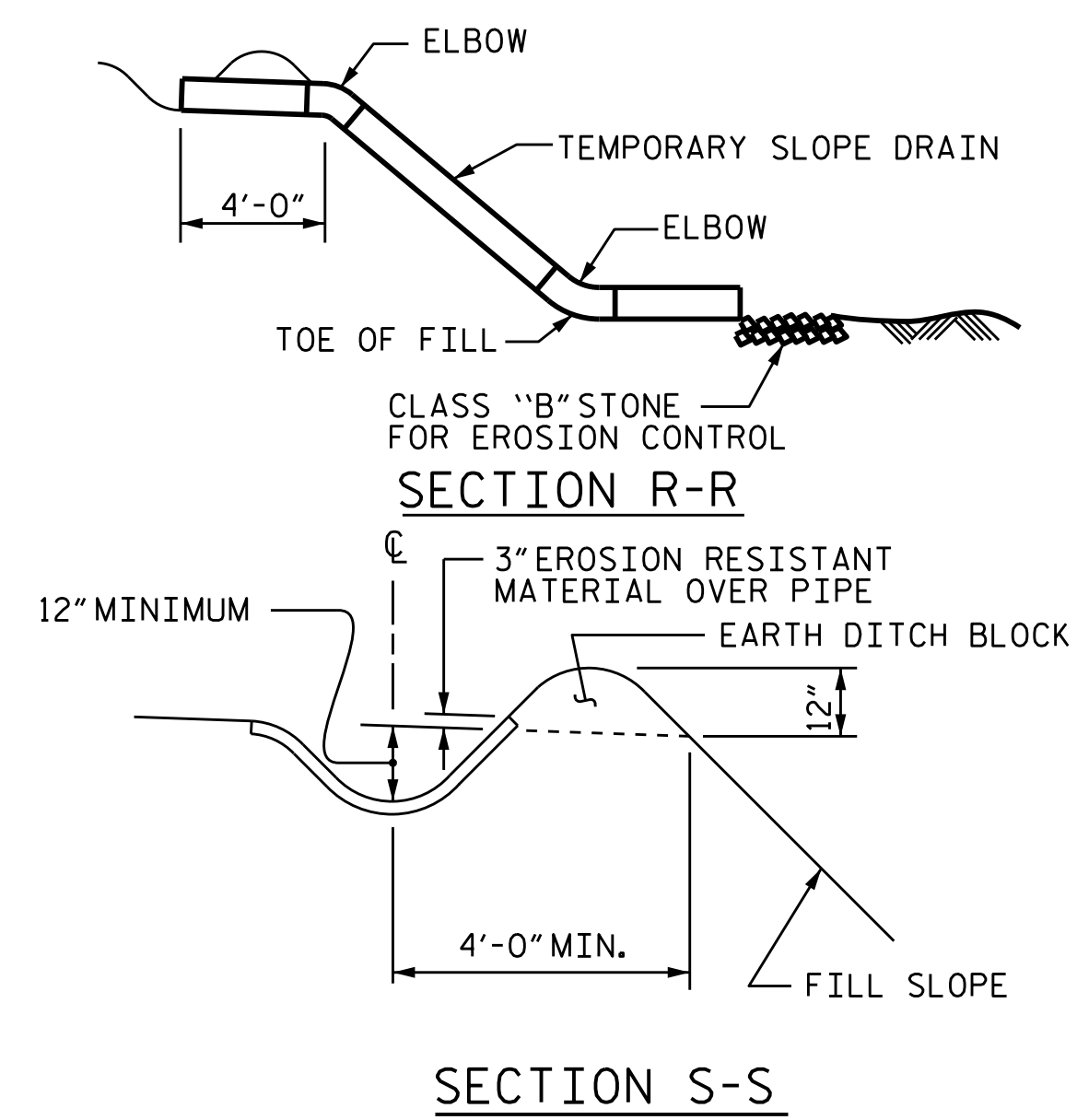
ASSEMBLED BY : M. G. SHAIKH	DATE : 01/2020
CHECKED BY : H. LOCKLEAR	DATE : 02/2020
DRAWN BY : TLA 10/05	REV. 6/13 MAA/GM
CHECKED BY : GM 5/06	REV. 12/17 MAA/THC
	REV. 06/19 BNB/THC

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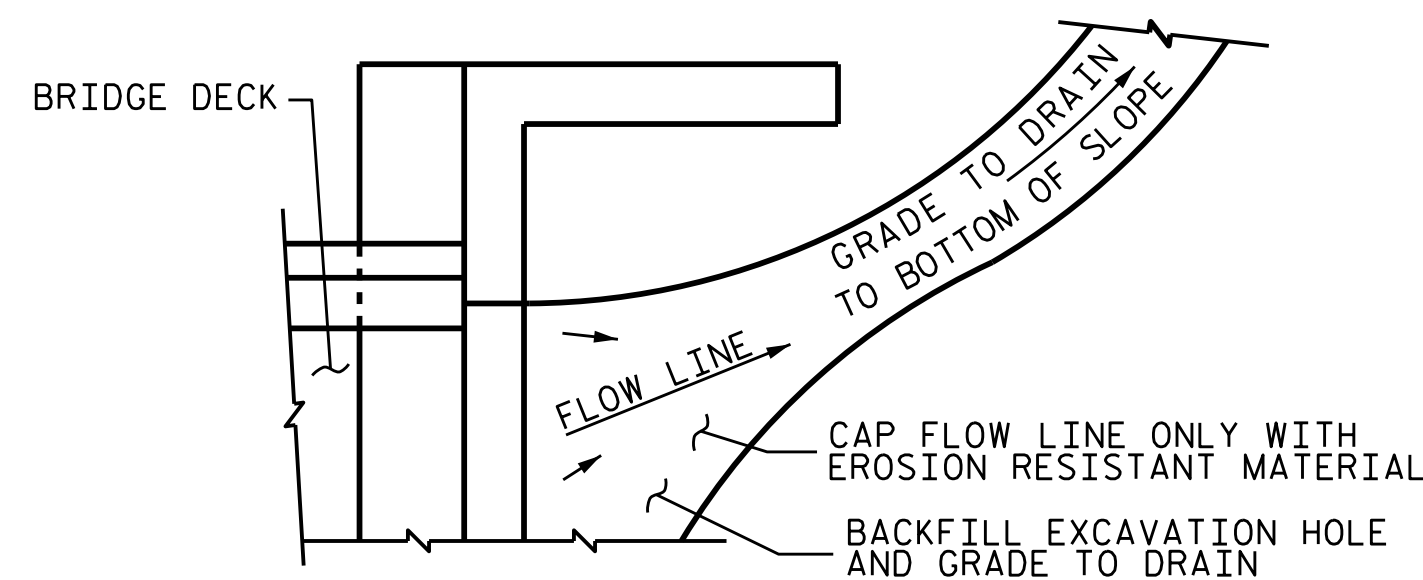
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

PROJECT NO. B-5818
ANSON COUNTY
 STATION: 27+79.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH SLAB
 FOR INTEGRAL ABUTMENT
 WITH FLEXIBLE PAVEMENT

ASSEMBLED BY : M. G. SHAIKH	DATE : 01/2020
CHECKED BY : H. LOCKLEAR	DATE : 02/2020
DRAWN BY : TLA 10/05	REV. 12/21/11 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

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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.
	--	27,000 LBS. PER SQ. IN.
	--	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 $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " 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 $\frac{1}{4}$ " 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 $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset 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 $\frac{3}{16}$ " 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 $\frac{1}{16}$ " 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. FINS 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.

ENGLISH

JANUARY, 1990

STD. NO. SN