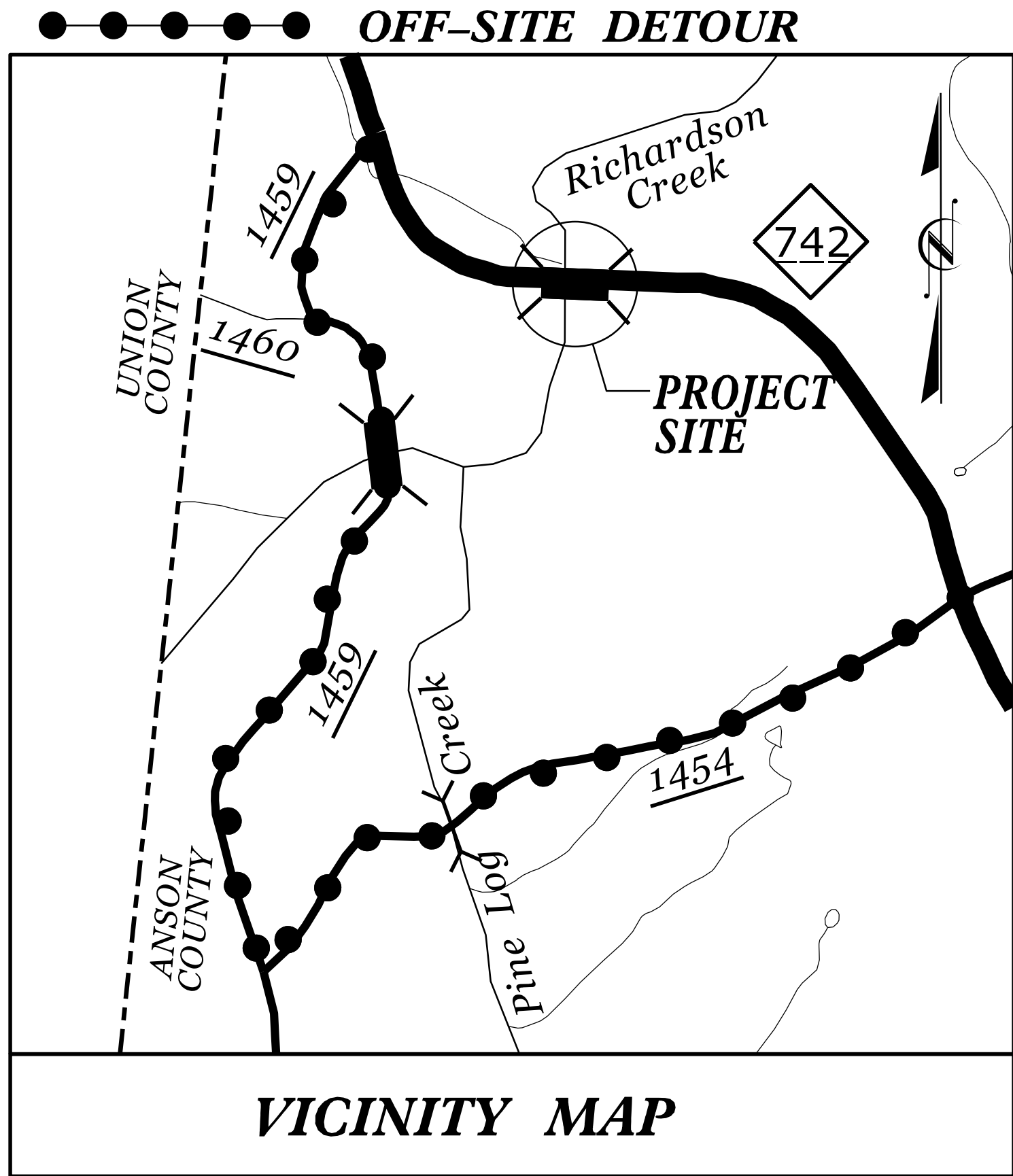


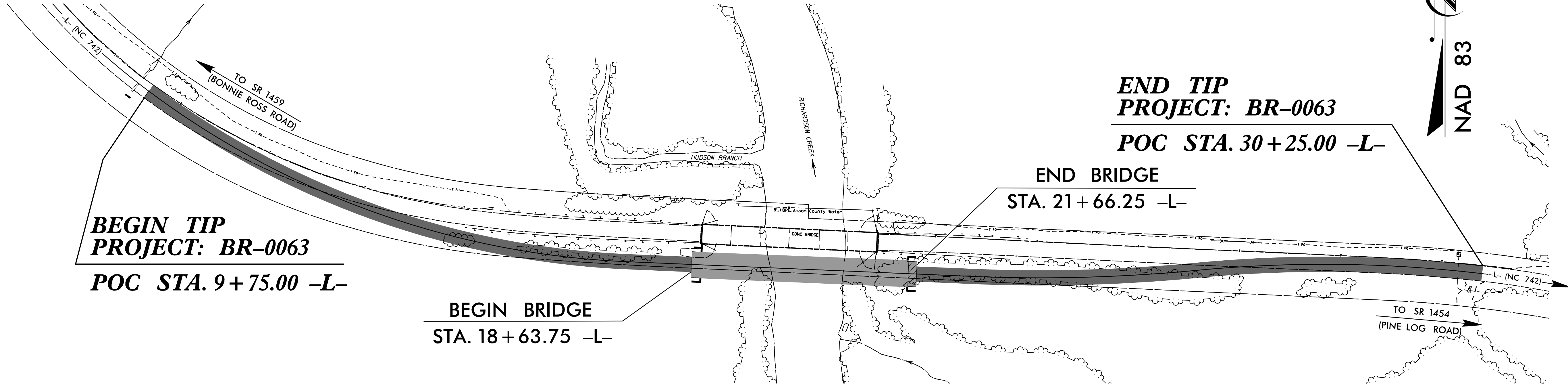
TIP PROJECT: BR-0063

CONTRACT: C204969

STRUCTURE



VICINITY MAP



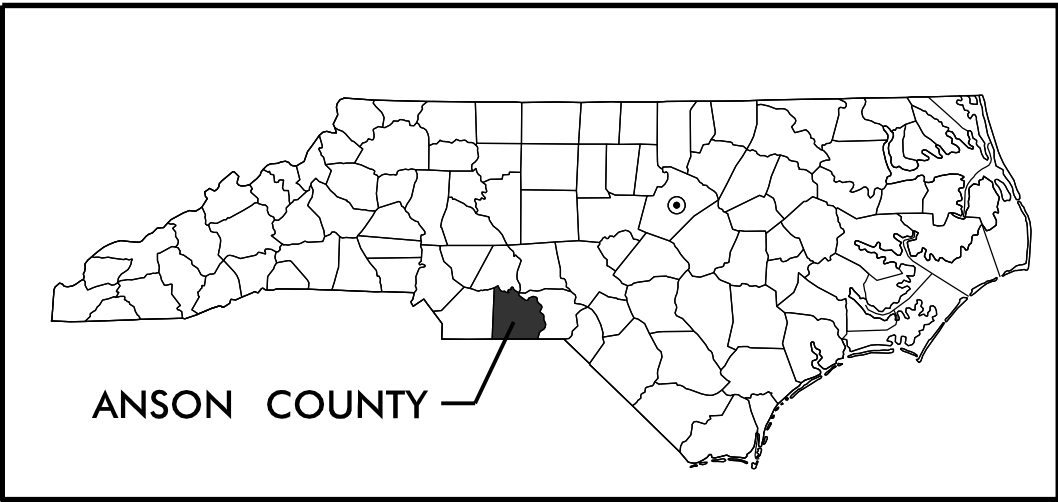
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ANSON COUNTY

LOCATION: BRIDGE No. 030087 OVER RICHARDSON CREEK ON NC 742

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0063		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
67063.1.1		PE	
67063.1.2		RW & UTILITY	
67063.1.3		CONSTRUCTION	



DESIGN DATA
ADT 2024 = 2,000
ADT 2044 = 3,050
K = 10 %
D = 60 %
T = 15 % *
V = 50 MPH
* (TTST = 7% DUAL = 8%)
FUNC CLASS =
RUAL COLLECTOR
STATEWIDE TIER

PROJECT LENGTH
LENGTH OF ROADWAY TIP PROJECT: BR-0063 = 0.331 MILES
LENGTH OF STRUCTURE TIP PROJECT: BR-0063 = 0.057 MILES
TOTAL LENGTH OF TIP PROJECT: BR-0063 = 0.388 MILES

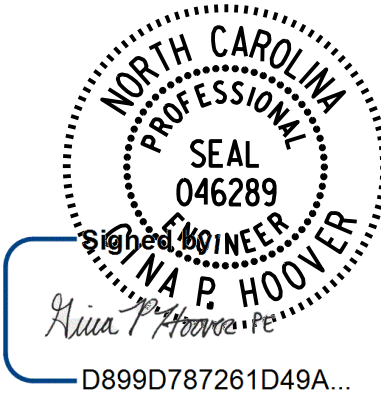
PLANS PREPARED BY :
ARCADIS
5420 WADE PARK BLVD, SUITE 350
RALEIGH, NORTH CAROLINA 27607
NC LICENSE No. 0486277
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

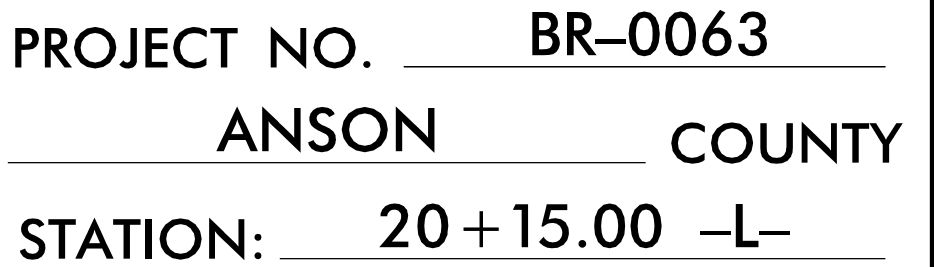
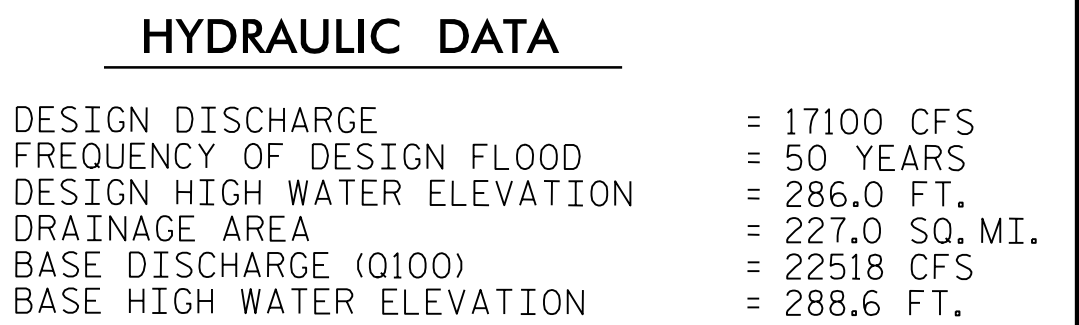
2024 STANDARD SPECIFICATIONS

LETTING DATE:
DECEMBER 17, 2024

ZAK HAMIDI-SAKR P.E.
PROJECT ENGINEER

GINA HOOVER, P.E.
PROJECT DESIGN ENGINEER





SHEET 1 OF 3 REPLACES BRIDGE No. 030087

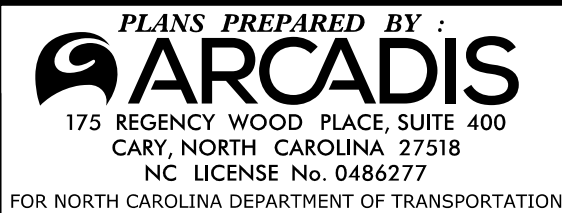
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE OVER RICHARDSON
CREEK ON NC 742 BETWEEN
SR 1459 AND SR 1454

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

DRAWN BY : K. E. LOFTON DATE : 1-23
CHECKED BY : G. P. HOOVER DATE : 9-23
ENGINEER OF RECORD: G. P. HOOVER DATE : 9-23



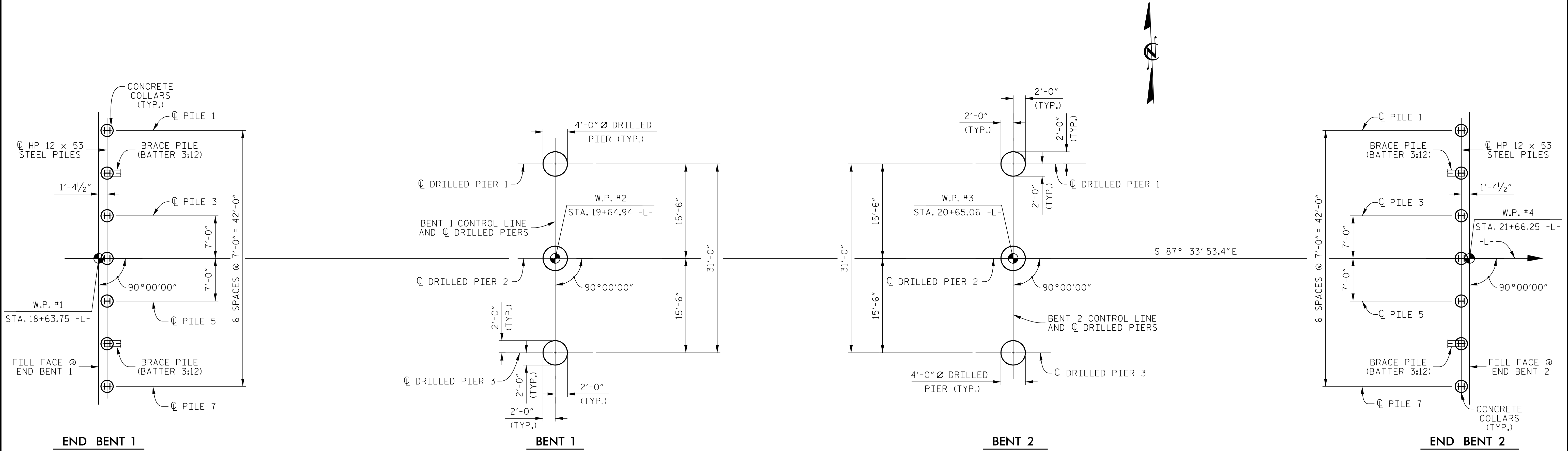
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**NORTH CAROLINA
PROFESSIONAL
SEAL
046289
ENGINEER**

James P. Hoover
James P. Hoover
D8990787261C49A...

10/23/2024

10/23/2024



FOUNDATION LAYOUT

NOTES

A WAITING PERIOD IS NOT REQUIRED FOR THE CONSTRUCTION OF END BENT 1 AND END BENT 2.

ALL PILES ARE HP 12 x 53 STEEL PILES.

PILE DIMENSIONS ARE SHOWN TO THE CENTERLINE OF THE PILES AT THE BOTTOM OF THE END BENT CAPS.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

DO NOT DEWATER DRILLED PIER EXCAVATIONS AT BENT 1 AND BENT 2. CLEAN THE BOTTOM OF EXCAVATIONS WITH A SUBMERSIBLE PUMP OR AN AIRLIFT. WET PLACEMENT OF CONCRETE IS REQUIRED.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. BR-0063

ANSON COUNTY

STATION: 20+15.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE OVER RICHARDSON
CREEK ON NC 742 BETWEEN
SR 1459 AND SR 1454

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

PLANS PREPARED BY :
ARCADIS
175 REGENCY WOOD PLACE, SUITE 400
CARY, NORTH CAROLINA 27518
NC LICENSE No. 0486277
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

Signature
D8690787261D48A...

SEAL
046289
ENGINEER
G. P. HOOVER

10/2/2024

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Lenth per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent 1, Piles 1-7	126	296.46	30			210							
End Bent 2, Piles 1-7	126	298.88	25			210							

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

** $RDR = \frac{Factored\ Resistance + Factored\ Downdrag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + \frac{Nominal\ Downdrag\ Resistance}{Scour\ Resistance\ Factor} + \frac{Nominal\ Scour\ Resistance}{Scour\ Resistance\ Factor}$

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent 1, Piles 1-7	126			0.60			
End Bent 2, Piles 1-7	126			0.60			

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

SUMMARY OF DRILLED PIER INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pier(s) #-# (e.g., "Bent 1, Piers 1-3")	Factored Resistance per Pier TONS	Minimum Pier Tip (Tip No Higher Than) Elevation FT	Required Tip Resistance per Pier TSF	Scour Critical Elevation FT	Minimum Drilled Pier Penetration Into Rock per Pier Lin FT	Drilled Pier Length per Pier Lin FT	Drilled Pier Length Not In Soil per Pier Lin FT	Drilled Pier Length In Soil per Pier Lin FT	Permanent Steel Casing Required? YES or MAYBE	Permanent Steel Casing Tip Elevation (Elev Not To Extend Casing Below) FT	Permanent Steel Casing Length* per Pier Lin FT
Bent 1, Piers 1-3	650	246.0	15	265	6.0		16.7	10.1	Yes	268.1	4.7
Bent 2, Piers 1-3	650	246.0	50	262	6.0		16.3	10.5	Yes	265.4	7.4
TOTAL QTY:							99	62			37

*Permanent Steel Casing Length equals the difference between the ground line or top of drilled pier elevation, whichever is higher, and the permanent casing tip elevation.

SUMMARY OF PDA/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Pile Driving Analyzer (PDA)				Pile Order Lengths	
End Bent/ Bent No	PDA Testing Required? YES or MAYBE	PDA Test Pile Length FT	Total PDA Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or PDA
End Bent 1	Yes		2		
End Bent 2	Yes				

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

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates Required? YES or MAYBE	Steel Pile Points			Steel Pile Tips Required? YES
		Pipe Pile Cutting Shoes Required? YES	Pipe Pile Conical Points Required? YES	H-Pile Points Required? YES	
End Bent 1, Piles 1-7				Yes	
End Bent 2, Piles 1-7				Yes	
TOTAL QTY:				14	

SUMMARY OF DRILLED PIER TESTING

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pier(s) #-# (e.g., "Bent 1, Piers 1-3")	Standard Penetration Test (SPT) Required? YES or MAYBE	Crosshole Sonic Logging (CSL) Required?* YES or MAYBE	Total CSL Tube Length (For All Tubes) per Pier Lin FT	Shaft Inspection Device (SID) Required? YES or MAYBE	Pile Integrity Test (PIT) Required? MAYBE
Bent 1, Piers 1-3		Maybe	114	Maybe	
Bent 2, Piers 1-3		Maybe	114	Maybe	
TOTAL QTY:		1	684	1	

*CSL Tubes are required if CSL Testing is or may be required. The number of CSL Tubes per drilled pier is equal to one tube per foot of design pier diameter with at least 4 tubes per pier. The length of each CSL Tube is equal to the drilled pier length plus 1.5 ft.

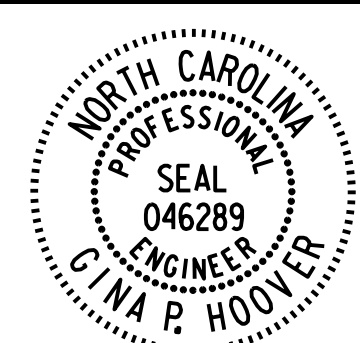
PROJECT NO. 67063.1.1 (BR-0063)

Anson COUNTY

STATION: STA. 20+15.00 -L-

NOTES:

- The Pile and Drilled Pier Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Yinhui Liu, PE # 034020) on 8-17-2023.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
- The Engineer will determine the need for PDA Testing, CSL Testing, and SID Inspections when these items may be required.



Signed by: Yinhui Liu, PE
DATE: 10/2/2024

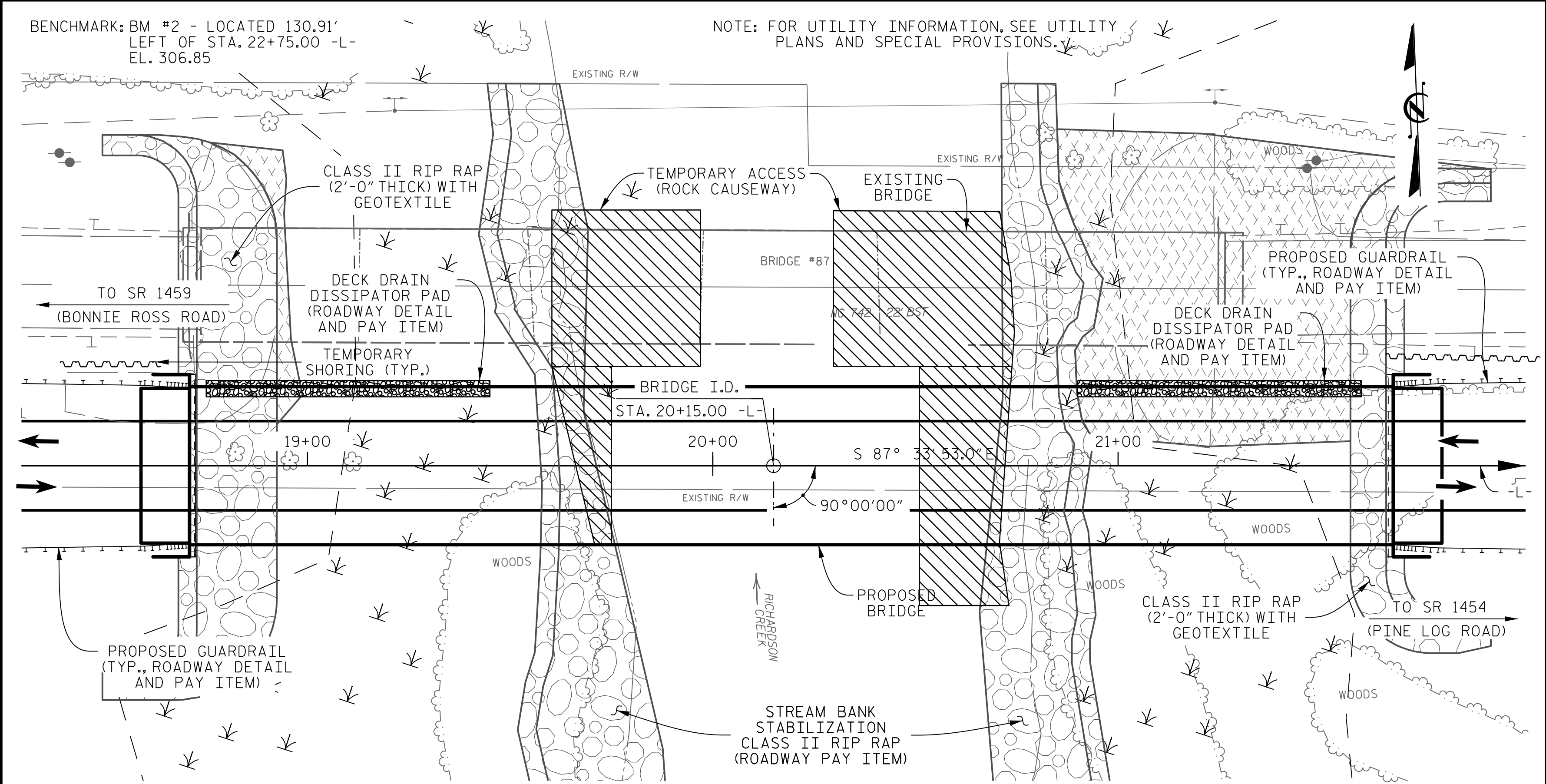
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SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE AND DRILLED PIER
FOUNDATION
TABLES

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



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 "STANDARD NOTES" SHEET.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS AT STATION 20+15.00 -L-.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

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

FOR SURVEY CONTROL SHEET, SEE ROADWAY PLANS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 35'-0" 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.

ASPHALT WEARING SURFACE IS INCLUDED IN THE ROADWAY QUANTITY ON ROADWAY PLANS.

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.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 6 SPANS @ 42'-6" EACH WITH A CLEAR ROADWAY WIDTH OF 24'-0" ON RC DECK GIRDERS; END BENT 1 CONSISTING OF 2 SLOPED COLUMN ON SPREAD FOOTING, END BENT 2 CONSISTING OF RC CAP ON PCC PILES, INTERIOR BENTS CONSISTING OF 2 COLUMN RC POST & BEAM BENT ON SPREAD FOOTINGS WITH CONCRETE STRUTS AT BENTS 2, 3, AND 4; AND LOCATED AT THE SITE OF PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY 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.

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.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STA. 20+15.00 -L-	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA. 20+15.00 -L-	ASBESTOS ASSESSMENT	4'-0" Ø DRILLED PIERS IN SOIL	4'-0" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIERS	SID INSPECTION	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION AT STA. 20+15.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS AT STA. 20+15.00 -L-
	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LUMP SUM	CU. YDS.	LUMP SUM
SUPERSTRUCTURE											
END BENT 1										31.8	
BENT 1				30.3	50.1	14.1				49.5	
BENT 2				31.5	48.9	22.2				50.3	
END BENT 2										31.8	
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	61.8	99.0	36.3	1	1	LUMP SUM	163.4	LUMP SUM

	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 x 53 STEEL PILES	HP 12 x 53 STEEL PILES		STEEL PILE POINTS	DYNAMIC PILE TESTING	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 3'-3" PRESTRESSED CONCRETE BOX BEAMS	
	LBS.	LBS.	EACH	No.	LIN. FT.	EACH	EACH	LIN. FT.	TON	SQ. YD.	LUMP SUM	No.	LIN. FT.
SUPERSTRUCTURE								600.0				39	3,900.0
END BENT 1	4,545		7	7	210.0	7			325	361			
BENT 1	14,420	3,838											
BENT 2	14,620	3,947											
END BENT 2	4,545		7	7	175.0	7			172	191			
TOTAL	38,130	7,785	14	14	385.0	14	2	600.0	497	552	LUMP SUM	39	3,900.0

PROJECT NO. BR-0063

ANSON COUNTY

STATION: 20+15.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE OVER RICHARDSON CREEK ON NC 742 BETWEEN SR 1459 AND SR 1454

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



Signed: Gina P. Hoover, PE

08190787261048A...

10/23/2024

PLANS PREPARED BY :
ARCADIS

1735-4825-0000-0000-0000-0000-0000-0000
RALEIGH, NC 27601-1600
NC LICENSE No. 0486277

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWN BY : K. E. LOFTON
CHECKED BY : G. P. HOOVER
ENGINEER OF RECORD: G. P. HOOVER

DATE : 9-23
DATE : 9-23
DATE : 9-23

LOAD FACTORS

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

NOTES

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

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

COMMENTS

1.
2.
3.
4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

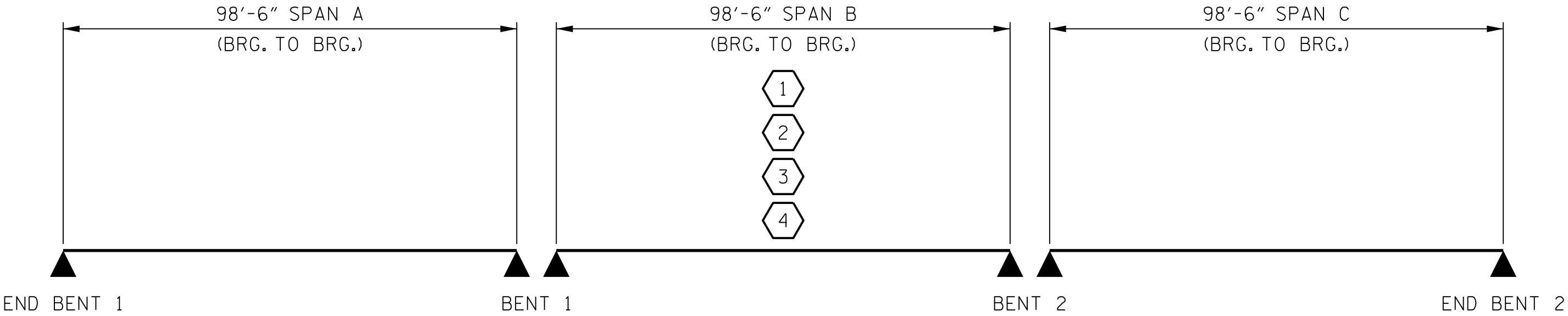
4 EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING ⬡	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVE-LOAD FACTORS	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft.)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft.)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft.)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	⬡1	1.035	--	1.75	0.272	1.26	100'	EL	49.25	0.489	1.34	100'	EL	4.925	0.80	0.272	1.04	100'	EL	49.25		
	HL-93 (OPERATING)	N/A	--	1.633	--	1.35	0.272	1.63	100'	EL	49.25	0.489	1.73	100'	EL	4.925	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	⬡2	1.44	51.84	1.75	0.272	1.75	100'	EL	49.25	0.489	1.81	100'	EL	4.925	0.80	0.272	1.44	100'	EL	49.25		
	HS-20 (OPERATING)	36.000	--	2.271	81.756	1.35	0.272	2.27	100'	EL	49.25	0.489	2.35	100'	EL	4.925	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	--	3.413	46.079	1.4	0.272	5.19	100'	EL	49.25	0.489	5.59	100'	EL	4.925	0.80	0.272	3.41	100'	EL	49.25	
		SNGARBS2	20.000	--	2.473	49.452	1.4	0.272	3.76	100'	EL	49.25	0.489	3.91	100'	EL	4.925	0.80	0.272	2.47	100'	EL	49.25	
		SNAGRIS2	22.000	--	2.313	50.885	1.4	0.272	3.52	100'	EL	49.25	0.489	3.6	100'	EL	4.925	0.80	0.272	2.31	100'	EL	49.25	
		SNCOTTS3	27.250	--	1.696	46.228	1.4	0.272	2.58	100'	EL	49.25	0.489	2.78	100'	EL	4.925	0.80	0.272	1.70	100'	EL	49.25	
		SNAGGRS4	34.925	--	1.39	48.556	1.4	0.272	2.11	100'	EL	49.25	0.489	2.26	100'	EL	4.925	0.80	0.272	1.39	100'	EL	49.25	
		SNS5A	35.550	--	1.361	48.398	1.4	0.272	2.07	100'	EL	49.25	0.489	2.27	100'	EL	4.925	0.80	0.272	1.36	100'	EL	49.25	
		SNS6A	39.950	--	1.238	49.456	1.4	0.272	1.88	100'	EL	49.25	0.489	2.05	100'	EL	4.925	0.80	0.272	1.24	100'	EL	49.25	
		SNS7B	42.000	--	1.178	49.496	1.4	0.272	1.79	100'	EL	49.25	0.489	2	100'	EL	4.925	0.80	0.272	1.18	100'	EL	49.25	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000	--	1.506	49.709	1.4	0.272	2.29	100'	EL	49.25	0.489	2.46	100'	EL	4.925	0.80	0.272	1.51	100'	EL	49.25	
		TNT4A	33.075	--	1.510	49.942	1.4	0.272	2.3	100'	EL	49.25	0.489	2.41	100'	EL	4.925	0.80	0.272	1.51	100'	EL	49.25	
		TNT6A	41.600	--	1.224	50.926	1.4	0.272	1.86	100'	EL	49.25	0.489	2.09	100'	EL	4.925	0.80	0.272	1.22	100'	EL	49.25	
		TNT7A	42.000	--	1.225	51.442	1.4	0.272	1.86	100'	EL	49.25	0.489	2.05	100'	EL	4.925	0.80	0.272	1.22	100'	EL	49.25	
		TNT7B	42.000	--	1.254	52.657	1.4	0.272	1.91	100'	EL	49.25	0.489	1.96	100'	EL	4.925	0.80	0.272	1.25	100'	EL	49.25	
		TNAGRIT4	43.000	--	1.203	51.711	1.4	0.272	1.83	100'	EL	49.25	0.489	1.91	100'	EL	4.925	0.80	0.272	1.20	100'	EL	49.25	
EMERGENCY VEHICLE	EV2	28.750	--	2.129	61.213	1.3	0.272	2.87	100'	EL	49.25	0.489	3.06	100'	EL	4.925	0.80	0.272	2.13	100'	EL	49.25		
	EV3	43.000	⬡4	1.403	60.325	1.3	0.272	1.89	100'	EL	49.25	0.489	2.06	100'	EL	4.925	0.80	0.272	1.40	100'	EL	49.25		



LRFR SUMMARY

PROJECT NO. **BR-0063**
ANSON COUNTY
STATION: **20+15.00 -L-**

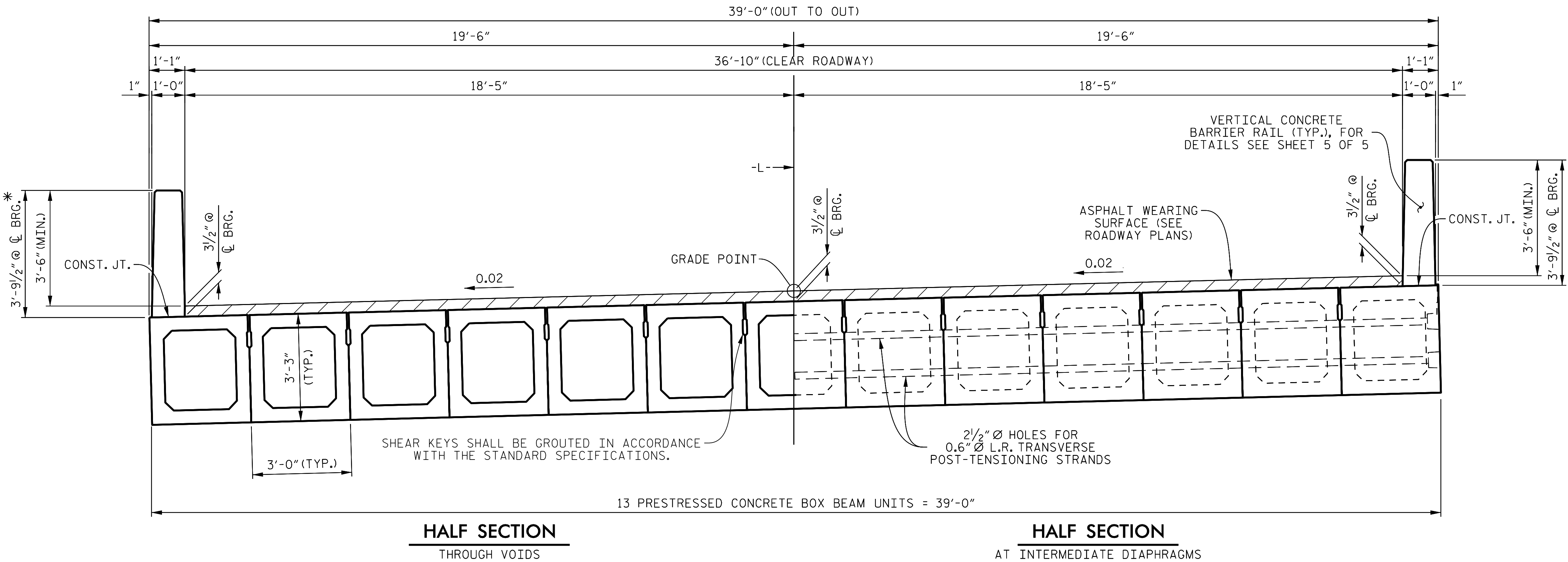
ASSEMBLED BY : K. E. LOFTON	DATE : 5-22
CHECKED BY : G. P. HOOVER	DATE : 9-23
DRAWN BY : TMG 11/11	REV. 06/23 APK/AAT
CHECKED BY : AAC 11/11	

DRAWN BY : K. E. LOFTON	DATE : 5-22
CHECKED BY : G. P. HOOVER	DATE : 9-23
ENGINEER OF RECORD: G. P. HOOVER	DATE : 9-23

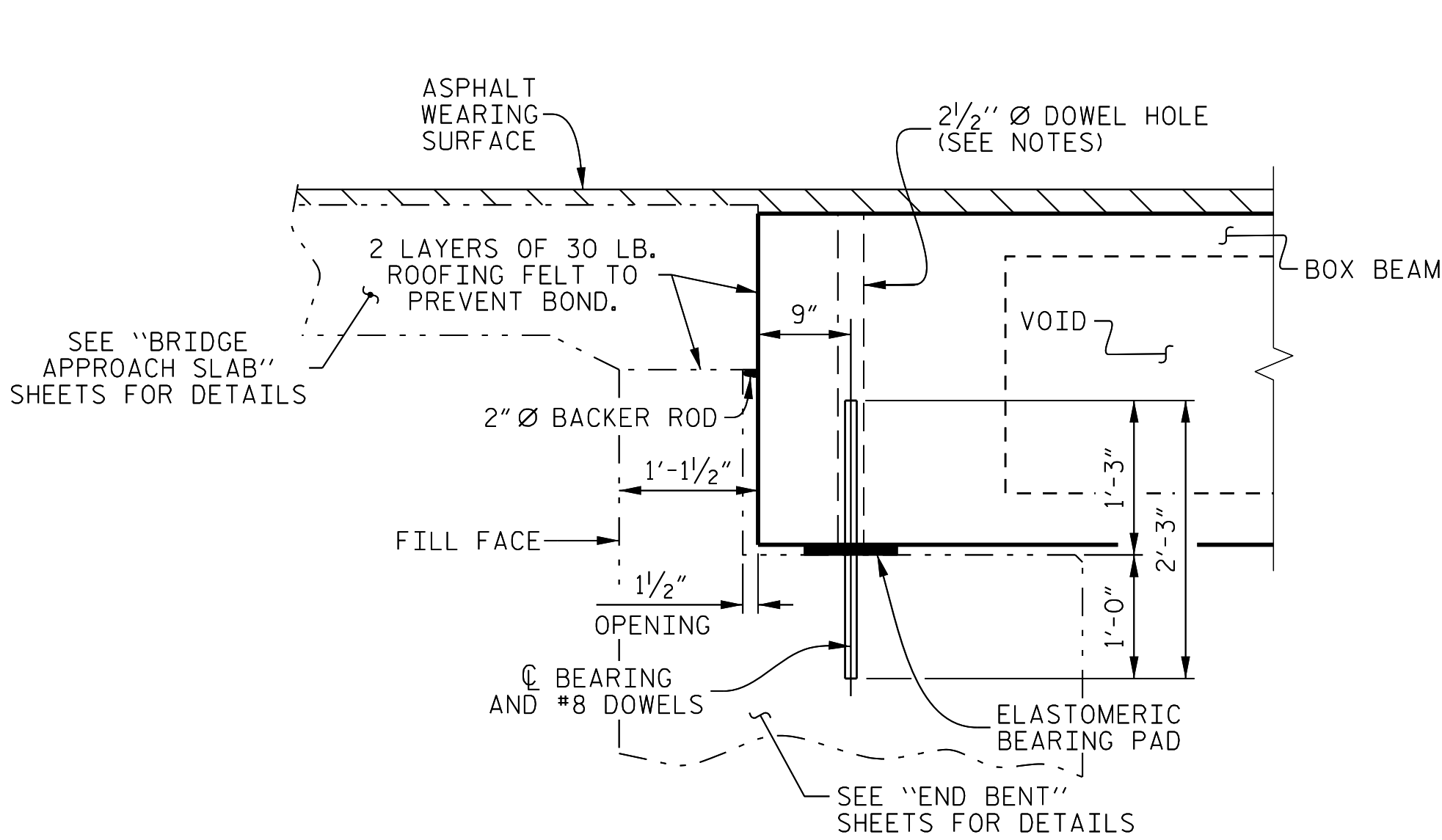
PLANS PREPARED BY :
ARCADIS
175 REGENCY WOOD PLACE, SUITE 400
CARY, NORTH CAROLINA 27518
NC LICENSE No. 0486277
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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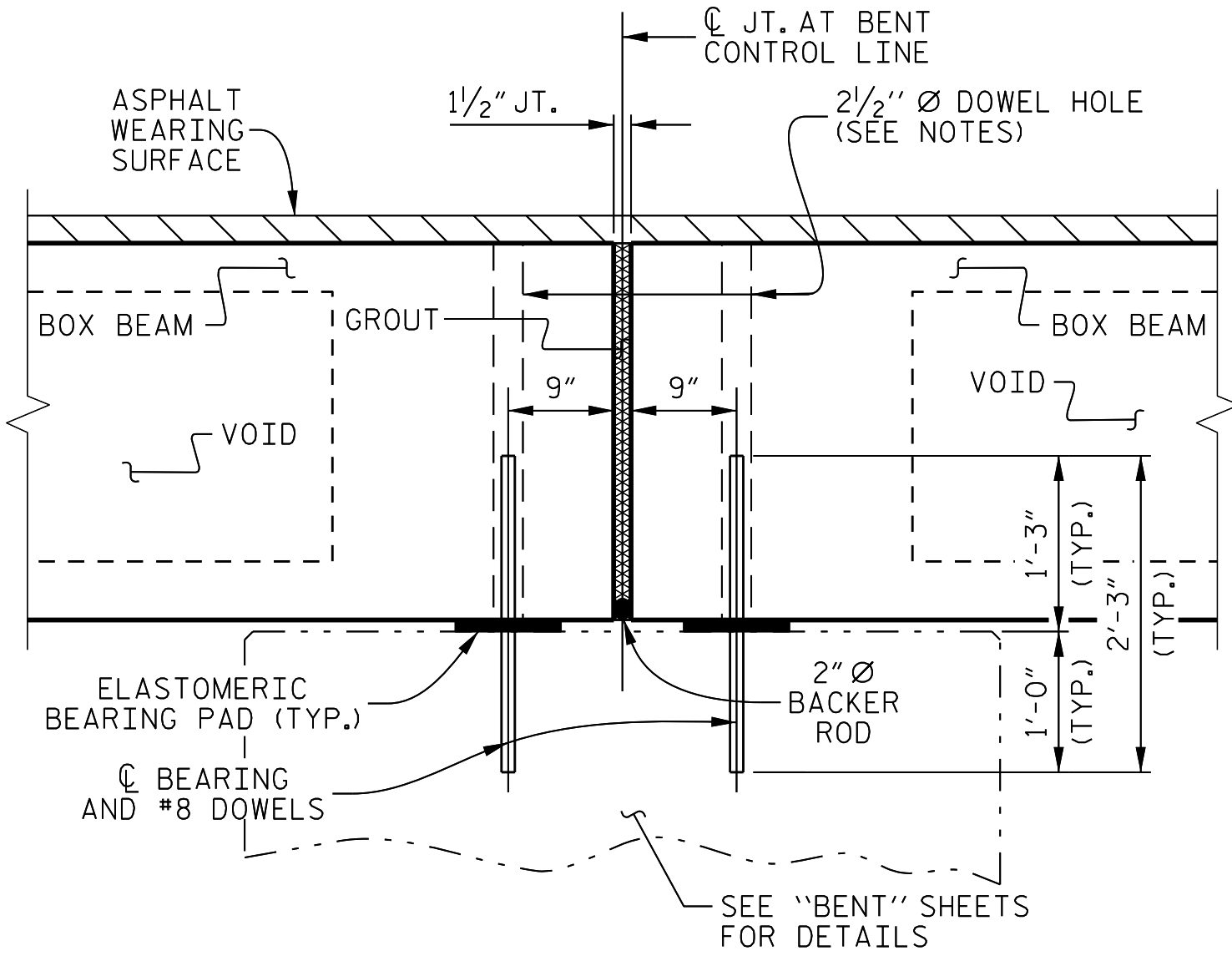
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No.	BY:	DATE:	No.	BY:	DATE:	
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2			4			



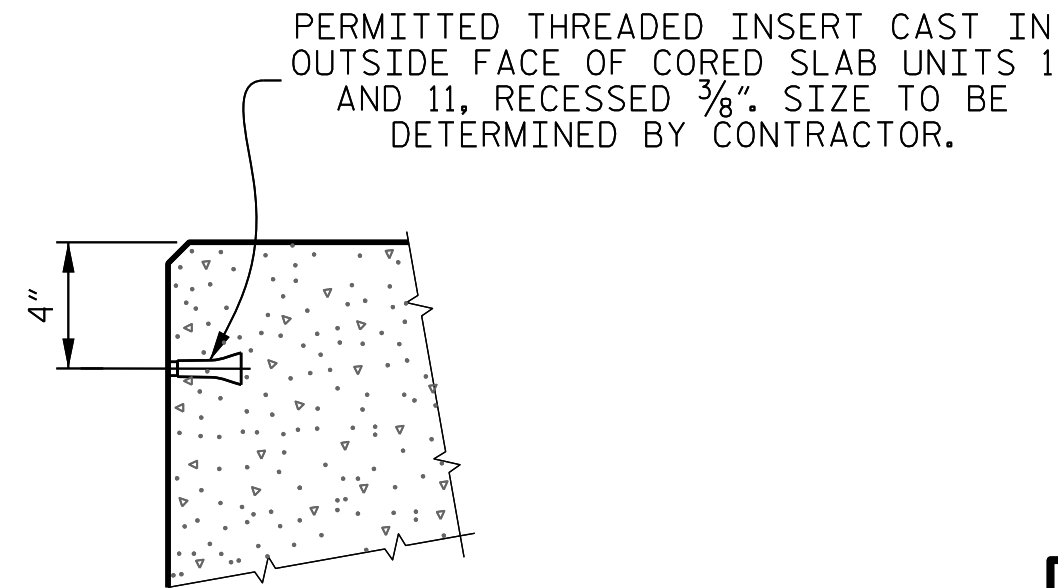
* - THE MAXIMUM BARRIER RAIL HEIGHT AND CONCRETE OVERLAY THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND CONCRETE OVERLAY THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND CONCRETE OVERLAY THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL DETAILS", SHEET 5 OF 5.



SECTION AT END BENT



SECTION AT BENT



THREADED INSERT DETAIL

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 CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6500 PSI.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL 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. A VERTICAL 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.

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 5" x 6". THE HEIGHT OF THE BLOCKOUT IN THE VERTICAL CONCRETE BARRIER RAIL SHALL EXTEND FROM THE TOP OF THE BOX BEAM UNIT TO THE TOP OF THE DRAIN OPENING.

APPLY EPOXY PROTECTIVE COATING TO EXTERIOR FACE OF THE EXTERIOR BOX BEAM UNITS THAT REQUIRE DRAINS IN THE BARRIER RAIL.

PROJECT NO. **BR-0063**

ANSON COUNTY

STATION: **20+15.00 -L-**

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" x 3'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT
90° SKEW

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			

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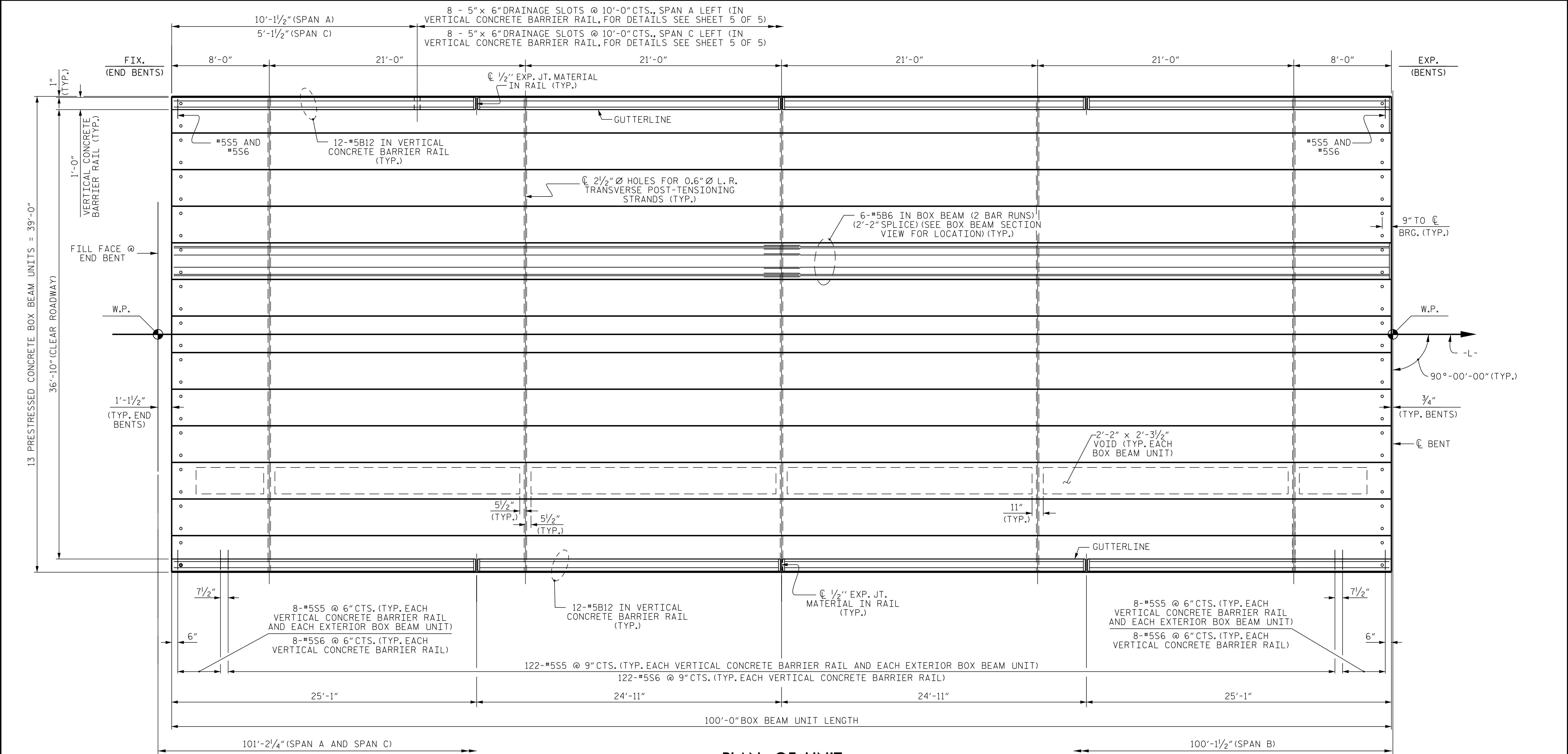
10/2/2024

PLANS PREPARED BY :
ARCADIS
175 REGENCY WOOD PLACE, SUITE 400
CARY, NORTH CAROLINA 27518
NC LICENSE No. 0486277
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

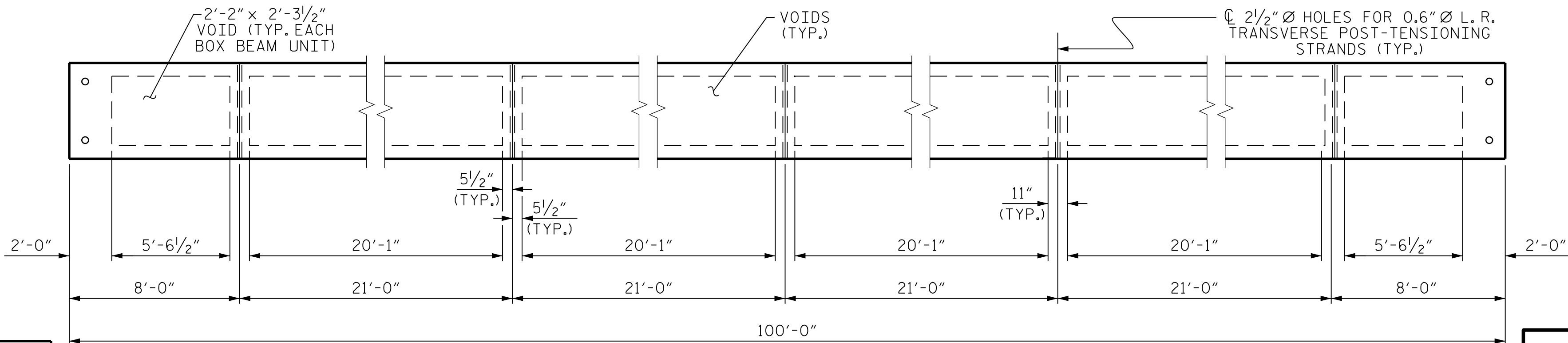
DRAWN BY : **K. E. LOFTON** DATE : **6-22**
CHECKED BY : **G. P. HOOVER** DATE : **9-23**
ENGINEER OF RECORD: **G. P. HOOVER** DATE : **9-23**

ASSEMBLED BY : **K. E. LOFTON** DATE : **6-22**
CHECKED BY : **G. P. HOOVER** DATE : **9-23**
DRAWN BY : **DGE** 8/11
CHECKED BY : **TMG** 11/11
REV. 10/15 MAA/TMG

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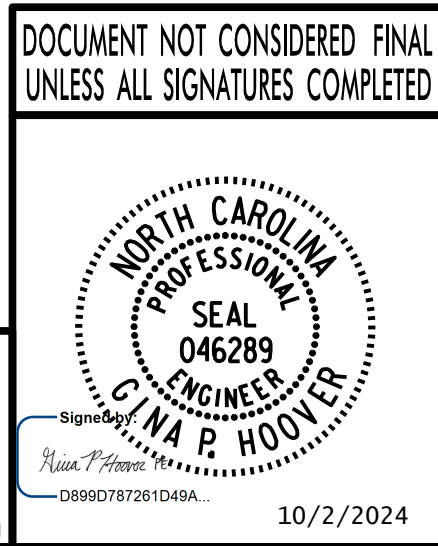
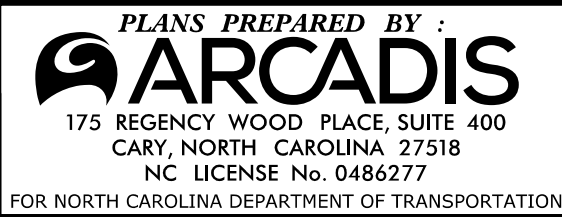
PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

ASSEMBLED BY :	K. E. LOFTON	DATE :	6-22
CHECKED BY :	G. P. HOOVER	DATE :	9-23
DRAWN BY :	DGE	8/10	REV. 8/14
CHECKED BY :	TMG	11/11	MAA/TMG

DRAWN BY :	K. E. LOFTON	DATE :	6-22
CHECKED BY :	G. P. HOOVER	DATE :	9-23
ENGINEER OF RECORD:	G. P. HOOVER	DATE :	9-23



PROJECT NO. BR-0063

ANSON COUNTY

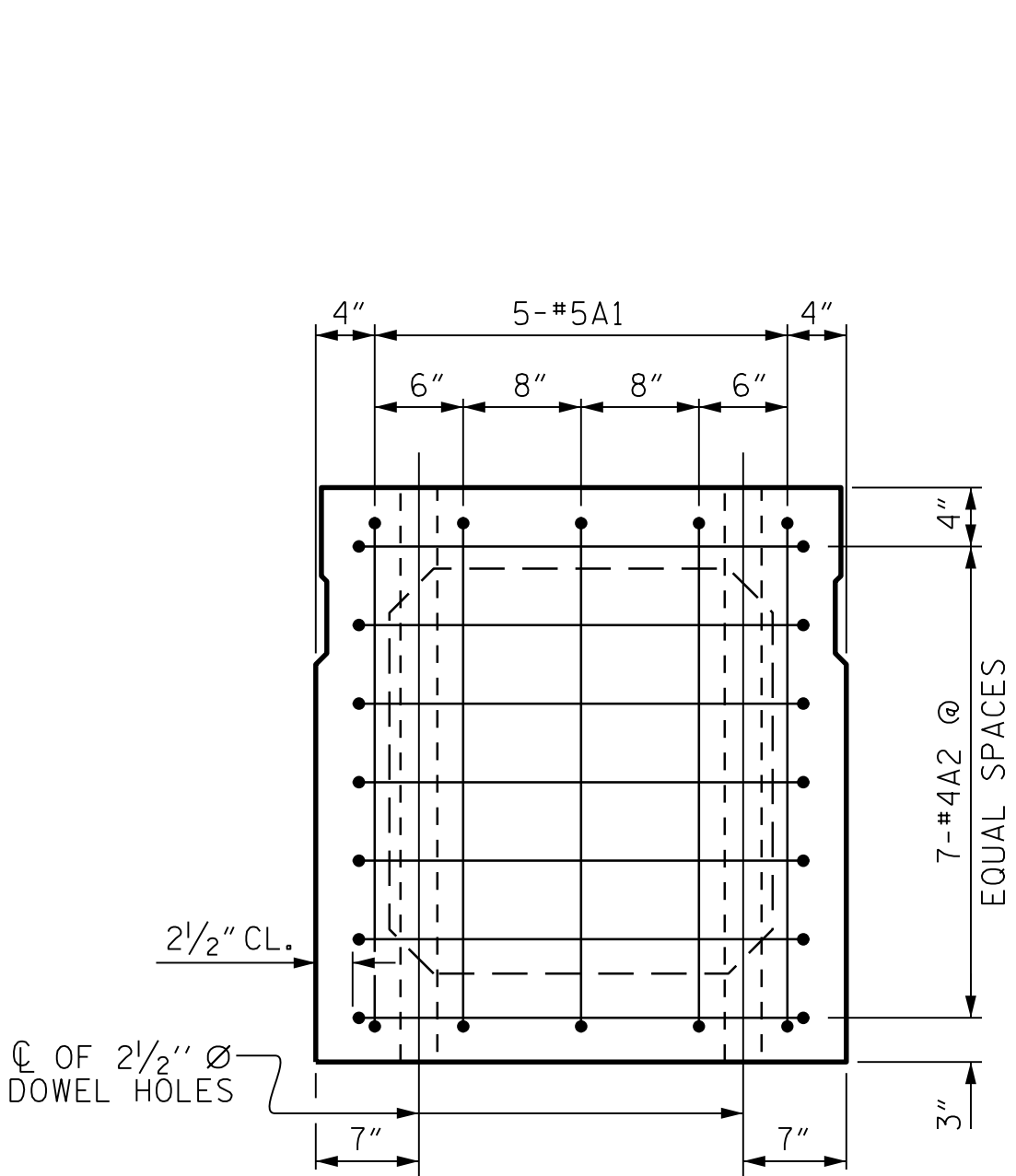
STATION: 20+15.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD PLAN OF 100' UNIT 36'-10" CLEAR ROADWAY 90° SKEW					
REVISIONS					
No.	BY:	DATE:	No.	BY:	DATE:
1			3		
2			4		
SHEET No. S-6					TOTAL SHEETS 19

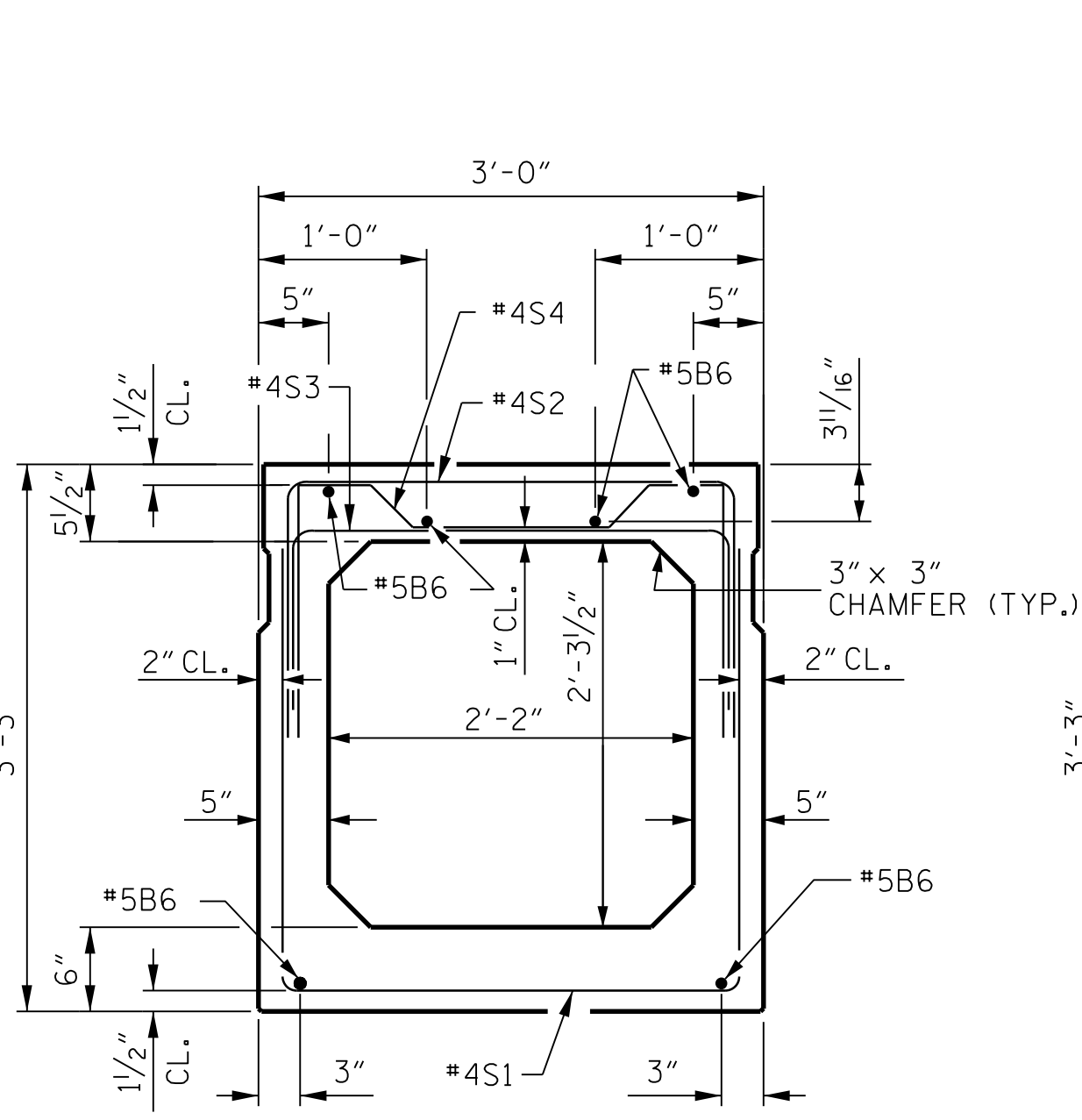
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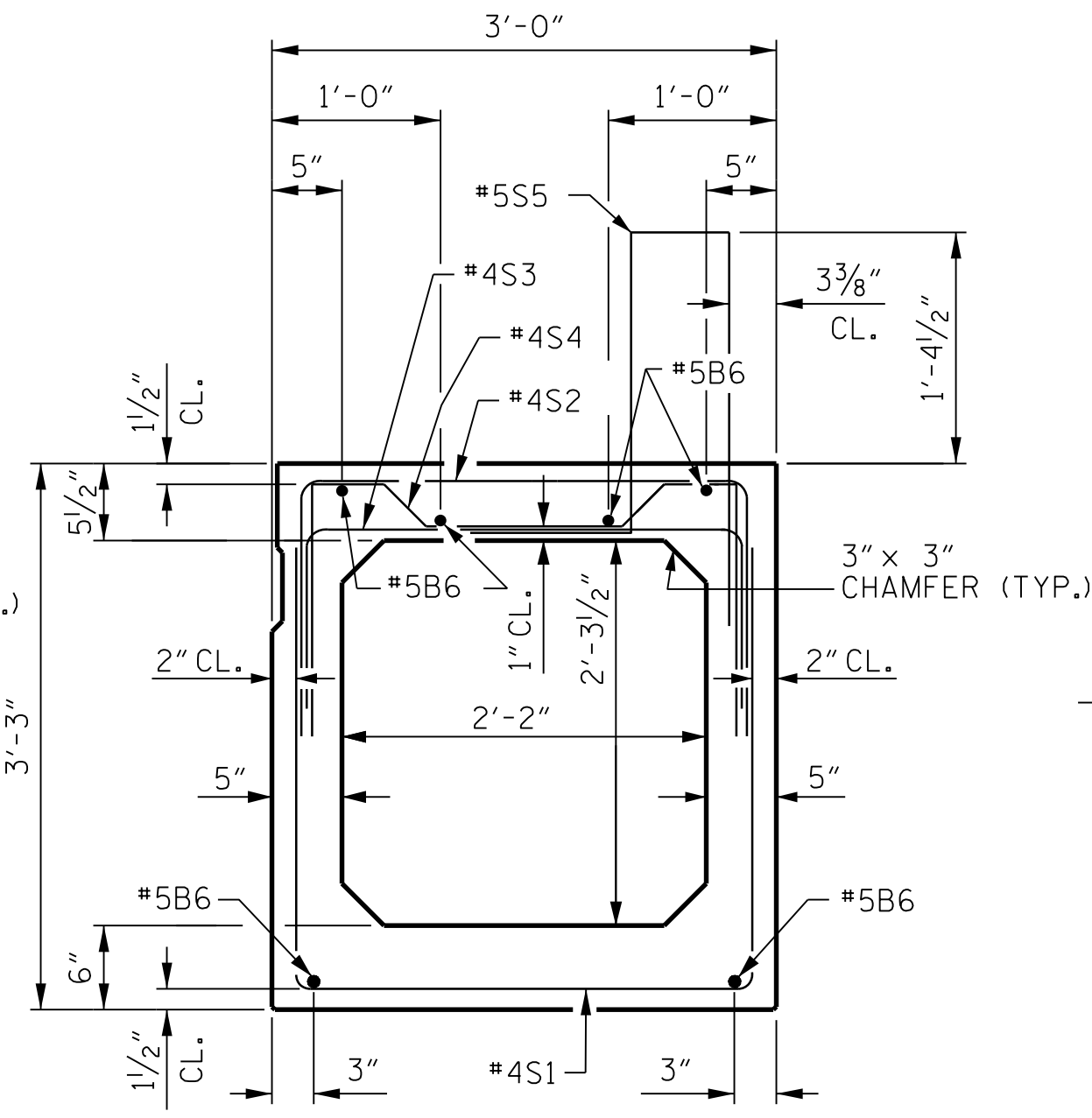
END ELEVATION

SHOWING PLACEMENT OF #5 AND #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN, EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



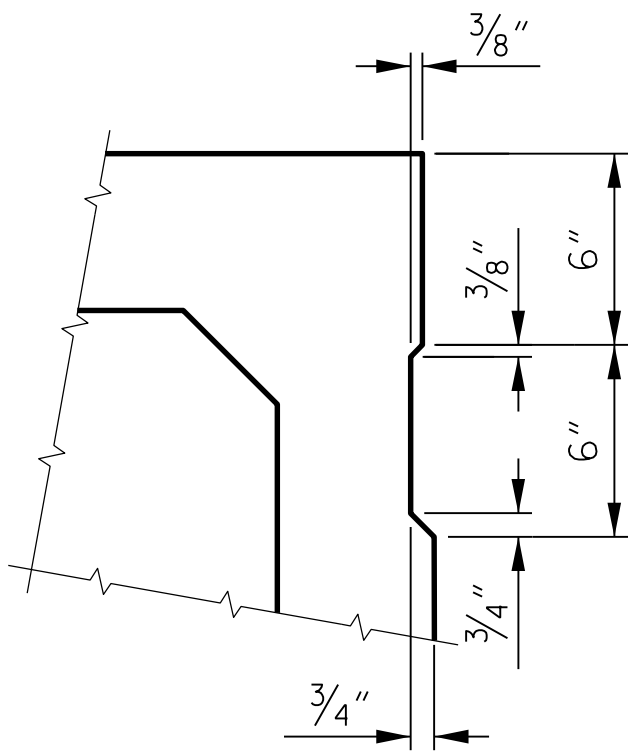
INTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

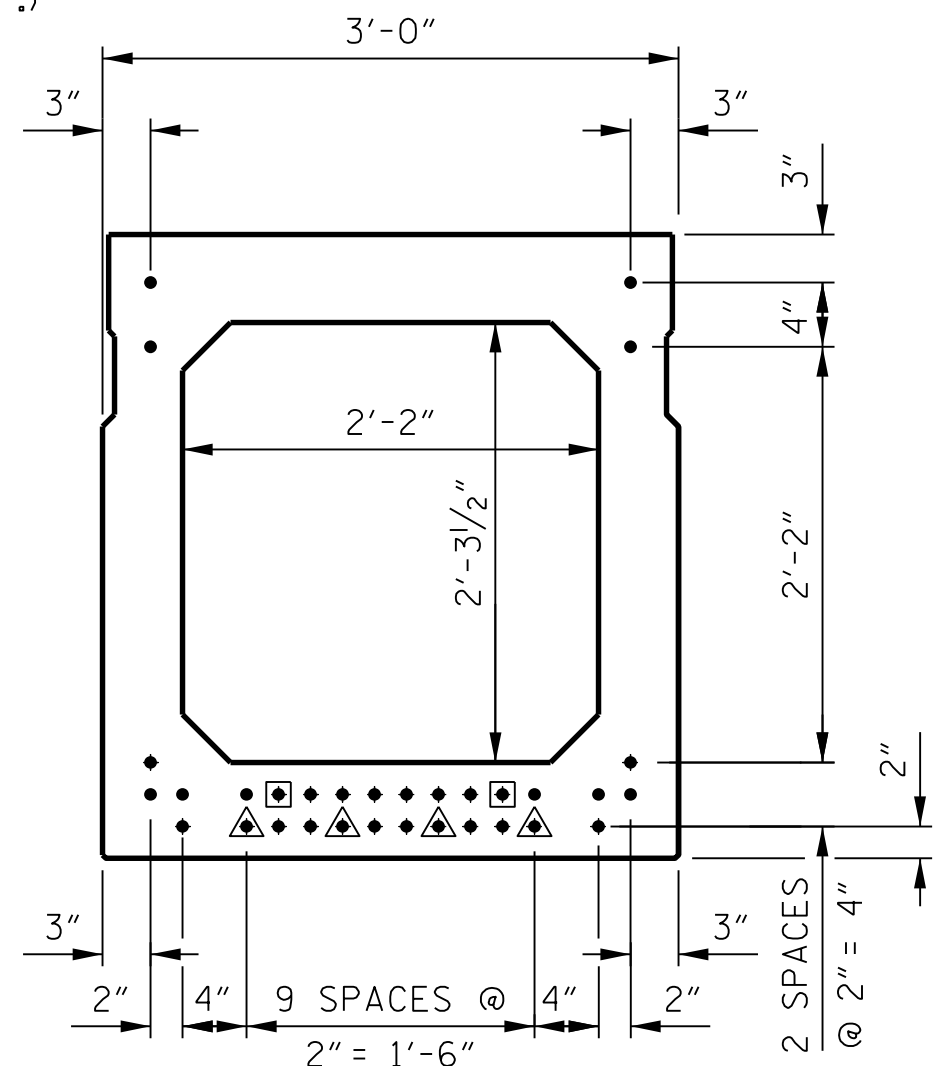


SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAM UNITS.

DEBONDING LEGEND

- FULLY BONDED STRANDS
 - STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER
- BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



TYPICAL STRAND LOCATION

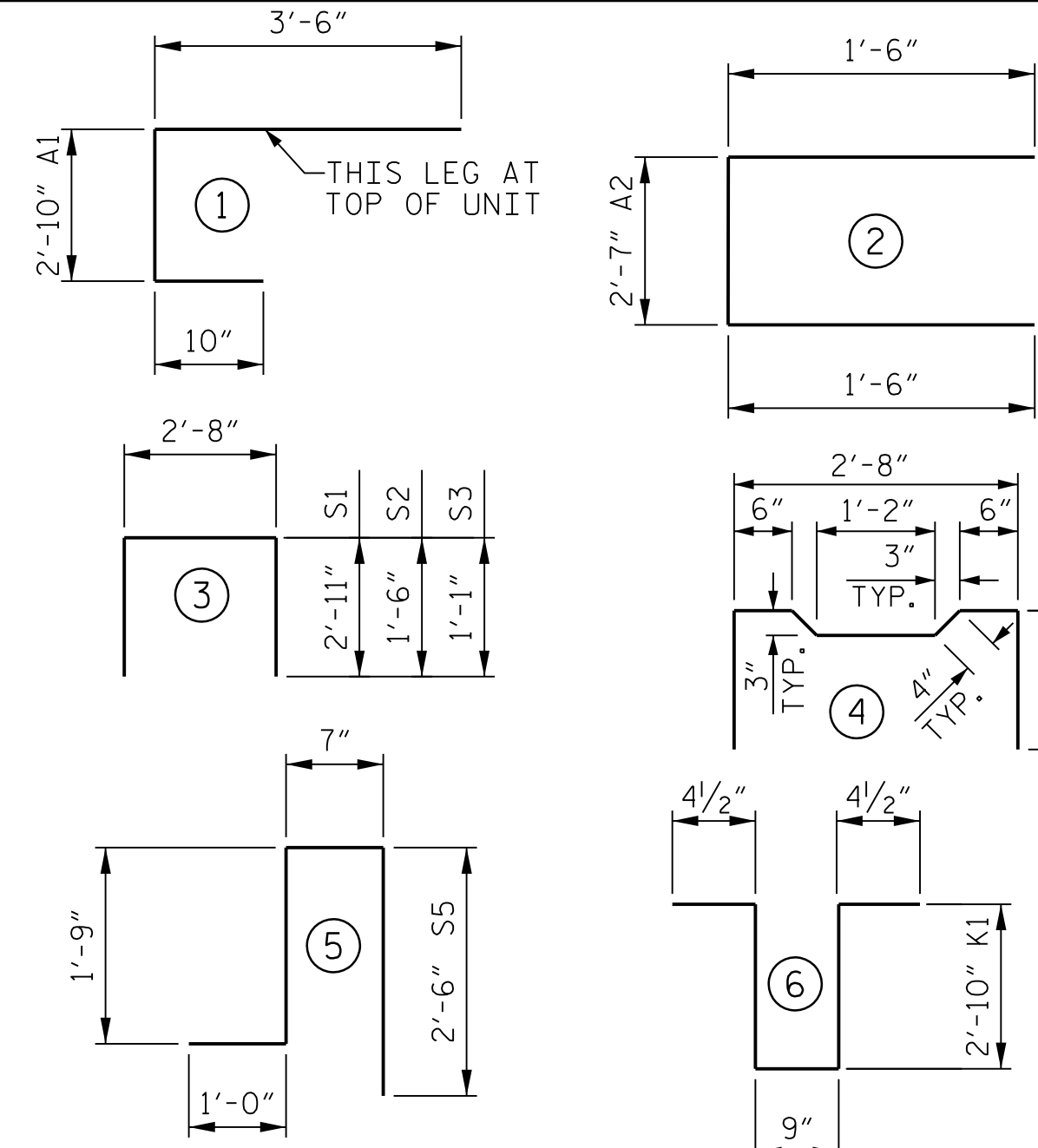
32 - 0.6" Ø LOW RELAXATION STRAND LAYOUT

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

NOTES

- EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5S5 BARS.
- FOR LOCATION OF DIAPHRAGMS, SEE "PLAN OF UNIT", SHEET 2 OF 5.
- FOR THREADED INSERTS, SEE "THREADED INSERT DETAIL", SHEET 1 OF 5.
- FOR REINFORCING STEEL IN DIAPHRAGMS, SEE "DOUBLE DIAPHRAGM DETAILS", SHEET 4 OF 5.

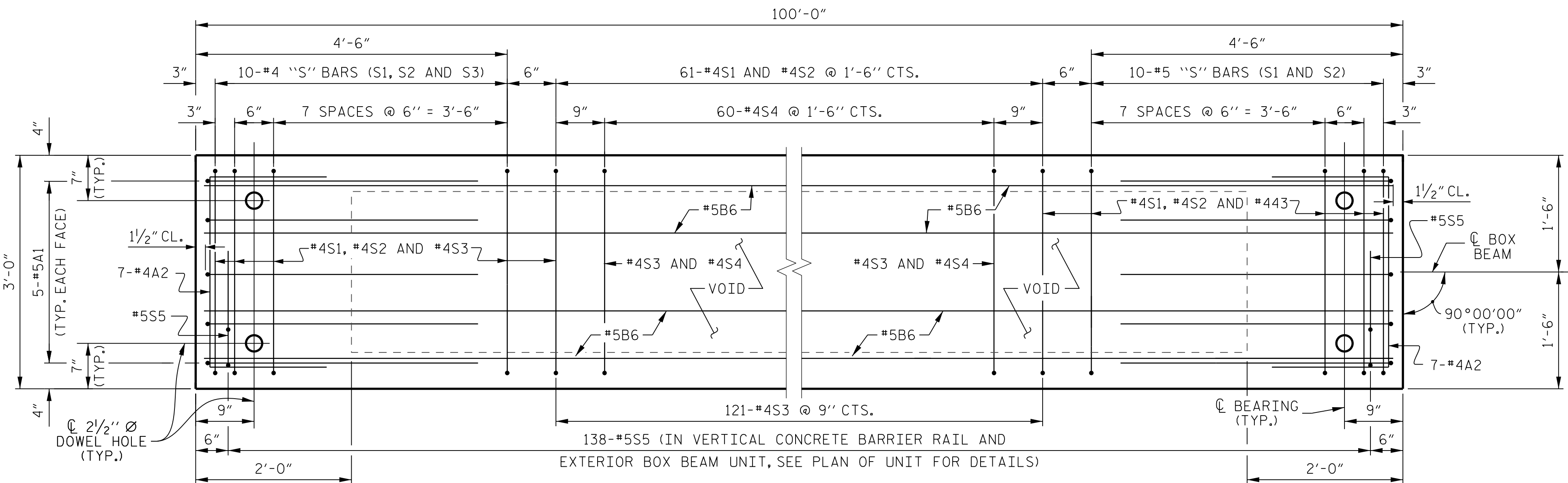
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	7'-2"	75	7'-2"	75
A2	44	#4	2	5'-7"	164	5'-7"	164
B6	12	#5	STR	50'-11"	637	50'-11"	637
K1	15	#4	6	7'-2"	72	7'-2"	72
K2	10	#4	STR	2'-7"	17	2'-7"	17
S1	81	#4	3	78'-6"	460	8'-6"	460
S2	81	#4	3	5'-8"	307	5'-8"	307
S3	141	#4	3	4'-10"	455	4'-10"	455
S4	60	#4	4	5'-10"	237	5'-10"	234
*S5	138	#4	4	5'-10"	840	--	--
REINFORCING STEEL				2,421 LBS.		2,421 LBS.	
*EPOXY COATED REINFORCING STEEL				840 LBS.		--	
9000 P.S.I. CONCRETE				19.6 CU. YDS.		19.4 CU. YDS.	
0.6" Ø L.R. STRANDS				No. = 32		No. = 32	

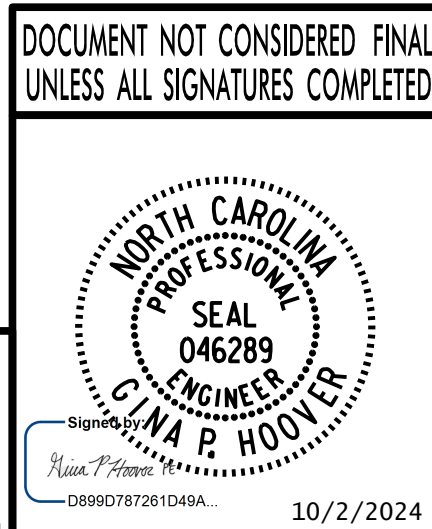


PLAN OF BOX BEAM

(STRAND LAYOUT NOT SHOWN)

ASSEMBLED BY :	K. E. LOFTON	DATE :	6-22
CHECKED BY :	G. P. HOOVER	DATE :	9-23
DRAWN BY :	DGE	11/11	REV. 9/14
CHECKED BY :	TMG	11/11	MAA/TMG

DRAWN BY :	K. E. LOFTON	DATE :	6-22
CHECKED BY :	G. P. HOOVER	DATE :	9-23
ENGINEER OF RECORD:	G. P. HOOVER	DATE :	9-23

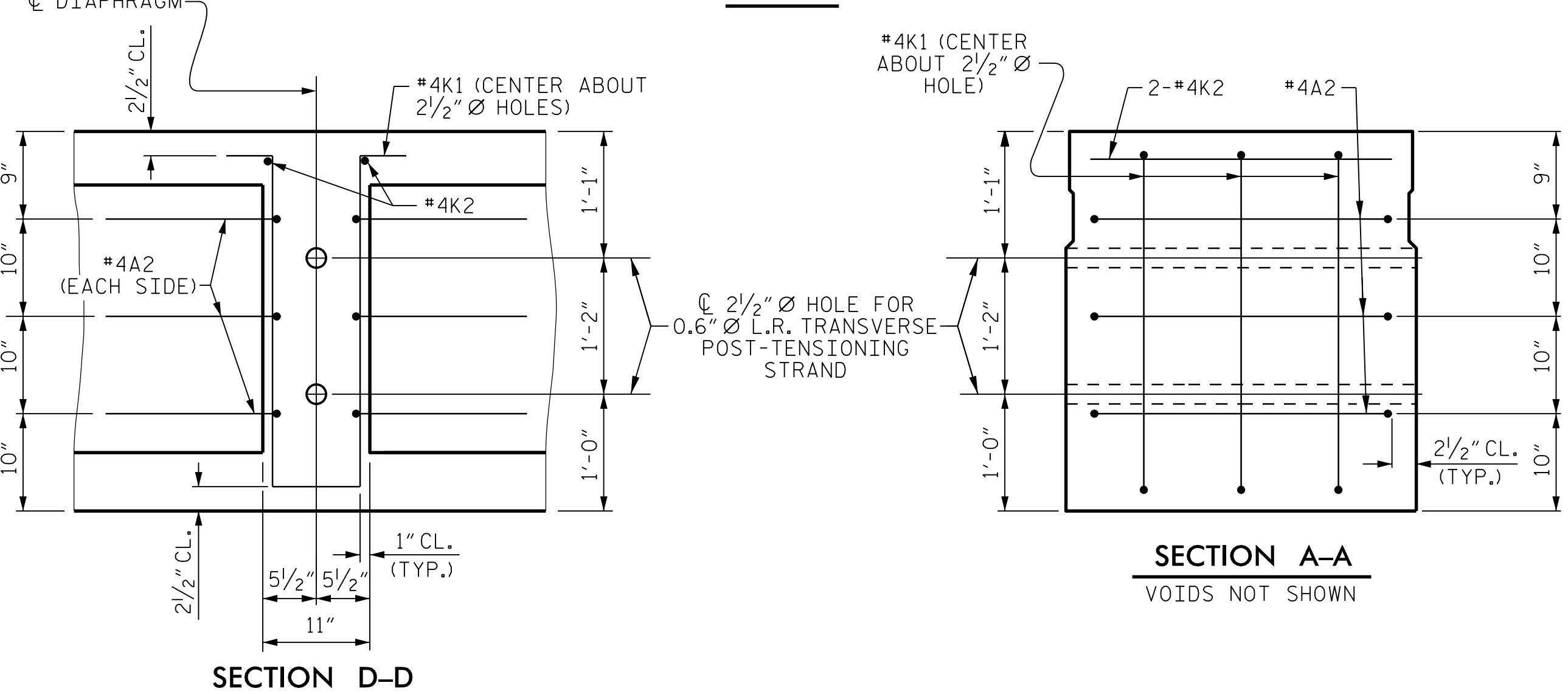
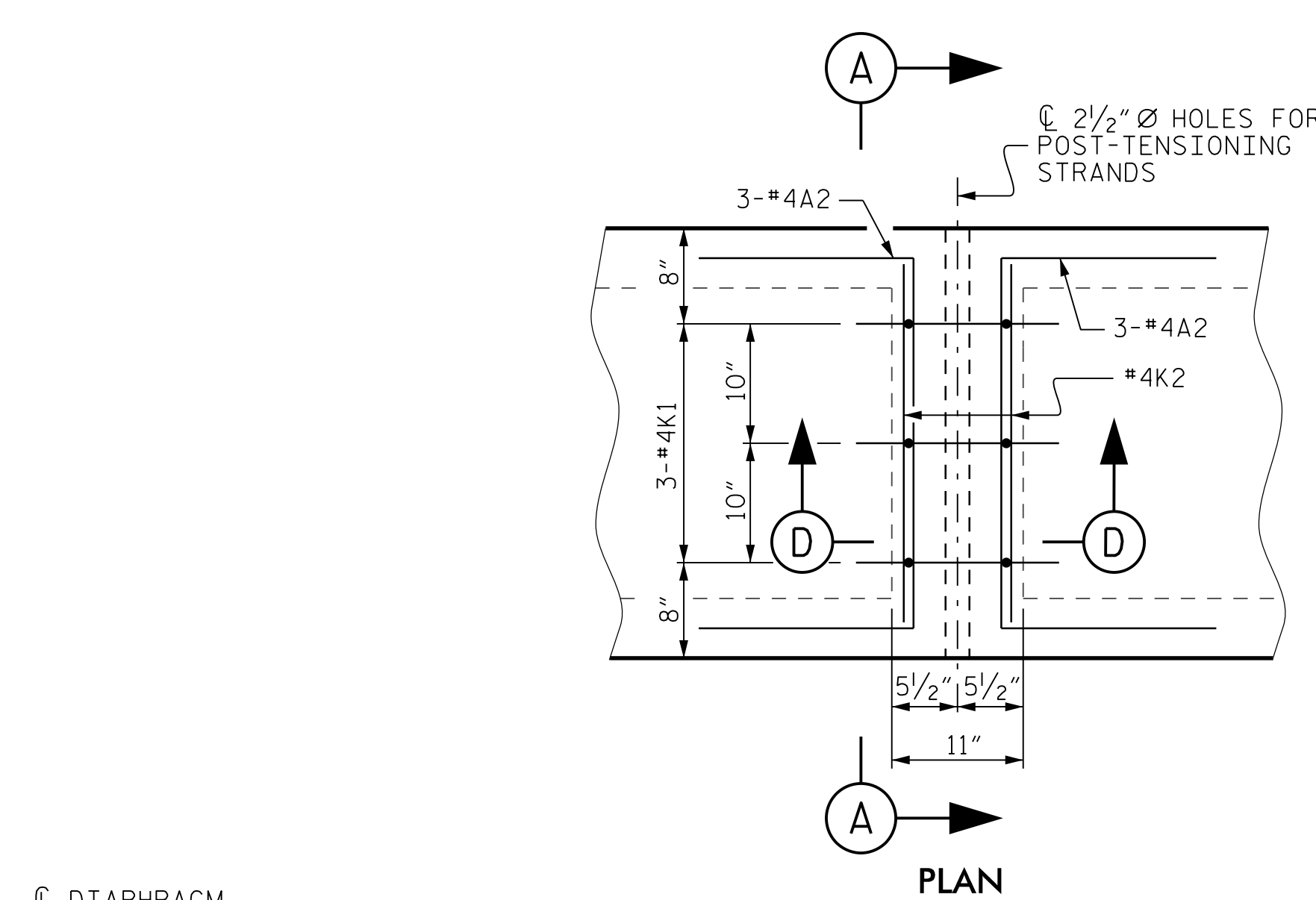


PROJECT NO. BR-0063
ANSON COUNTY
STATION: 20+15.00 -L-

SHEET 3 OF 5

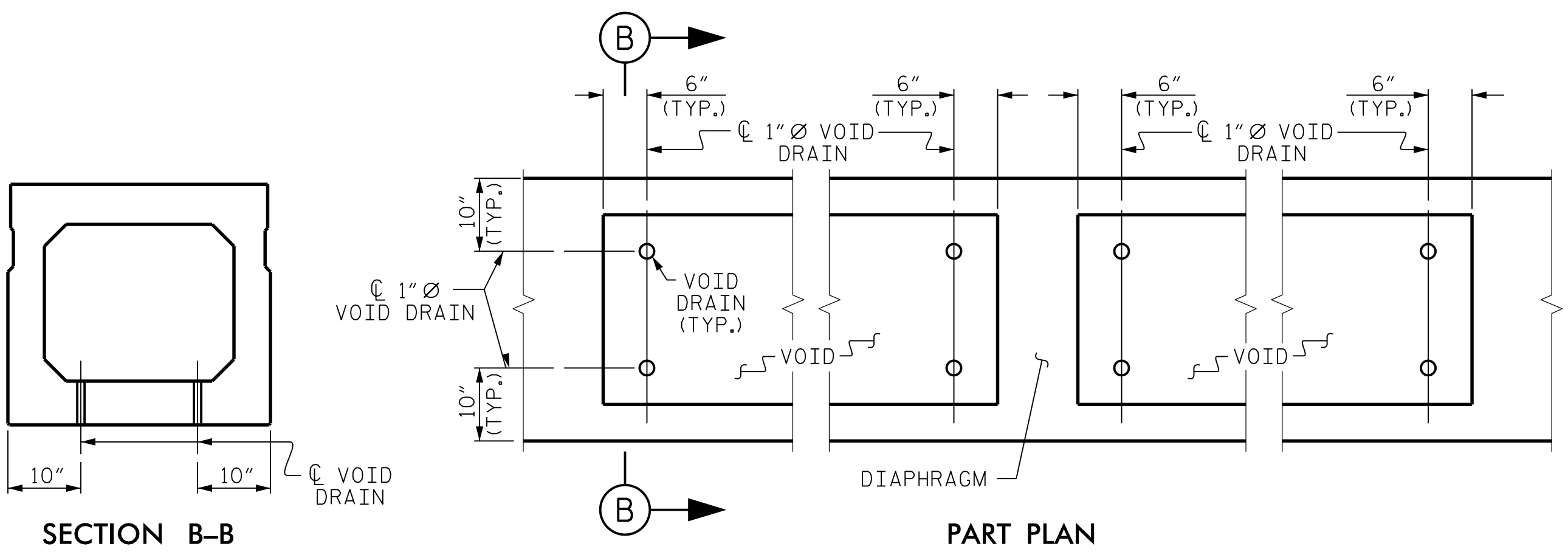
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TOTAL SHEETS						19

STD. No. 39PCBB6_90S_100L



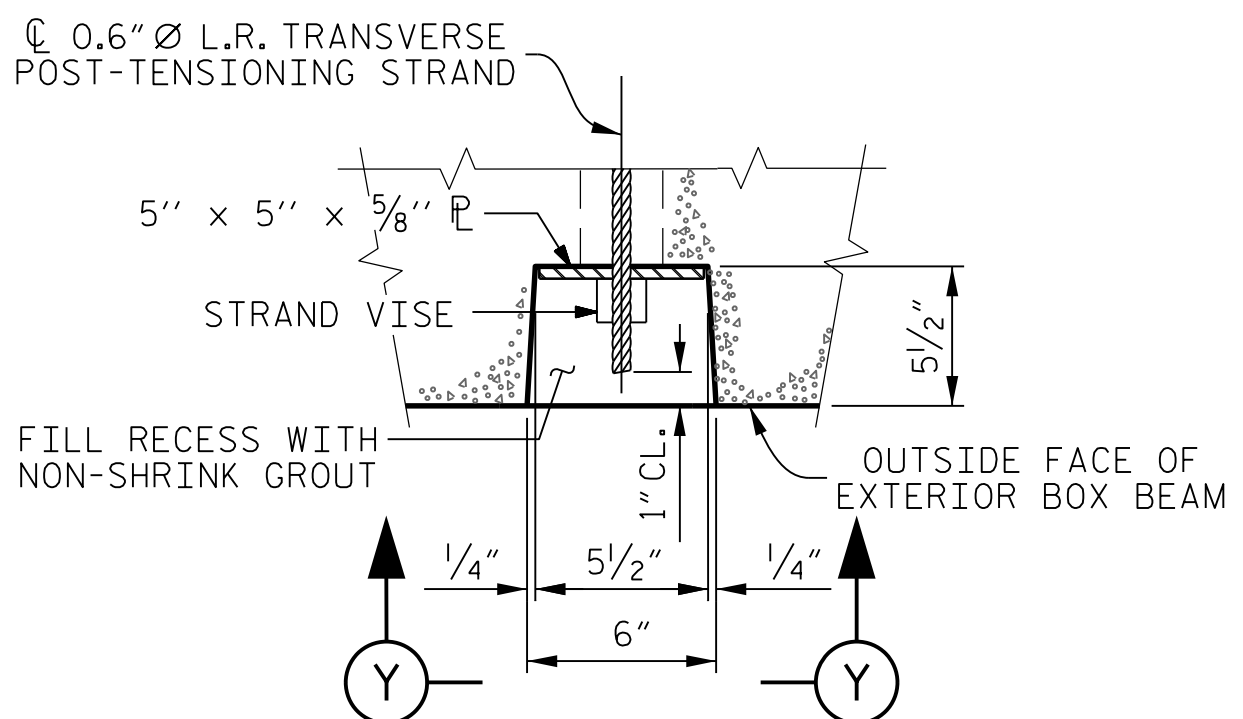
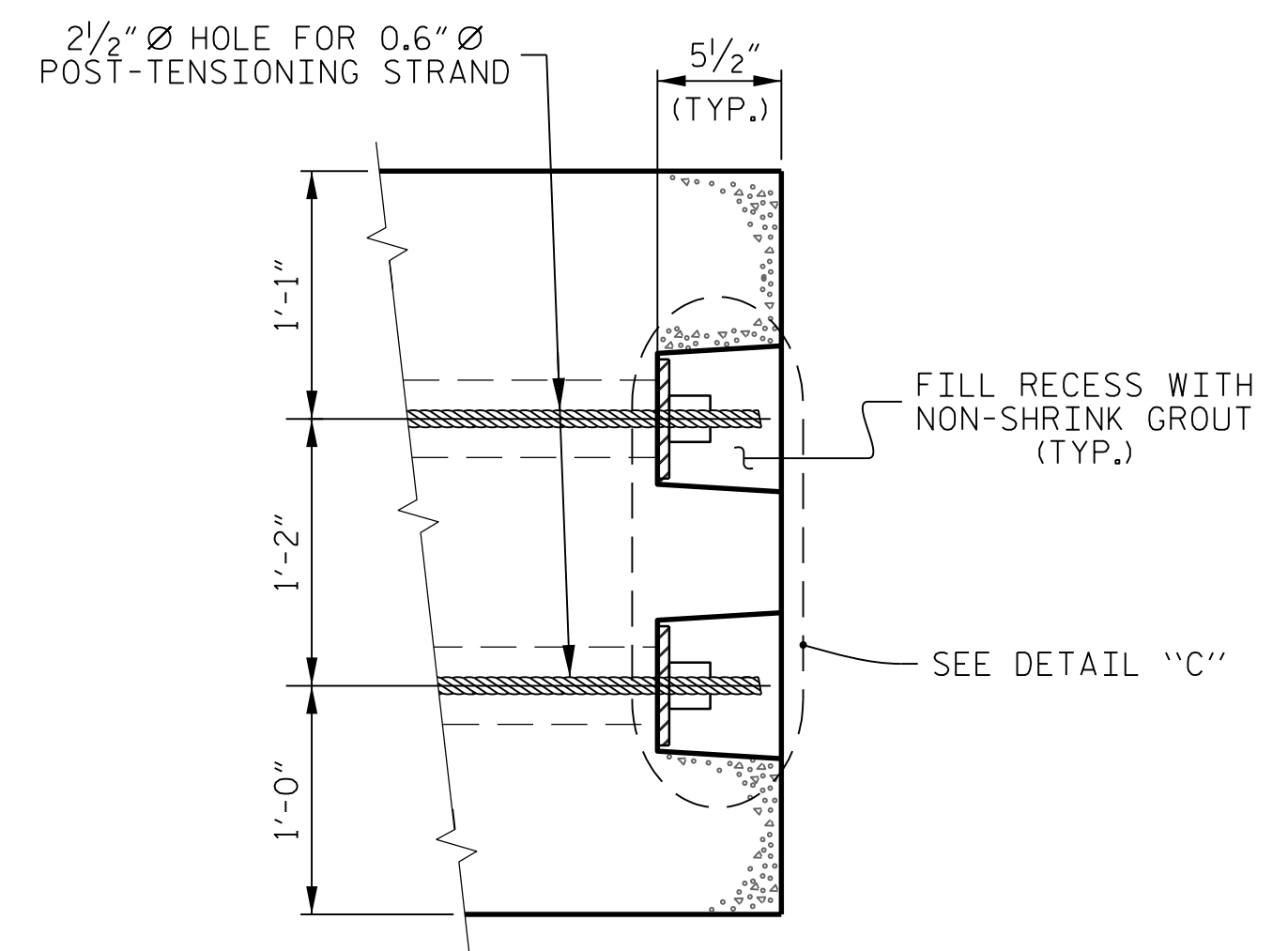
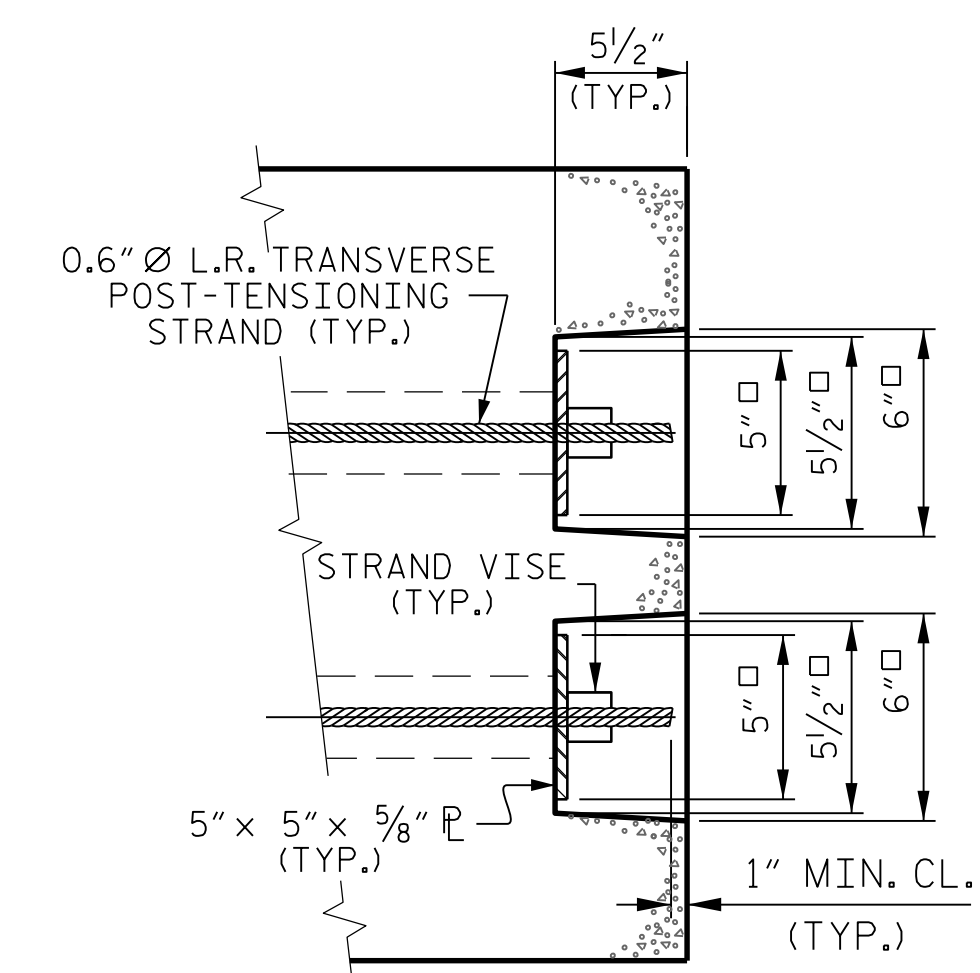
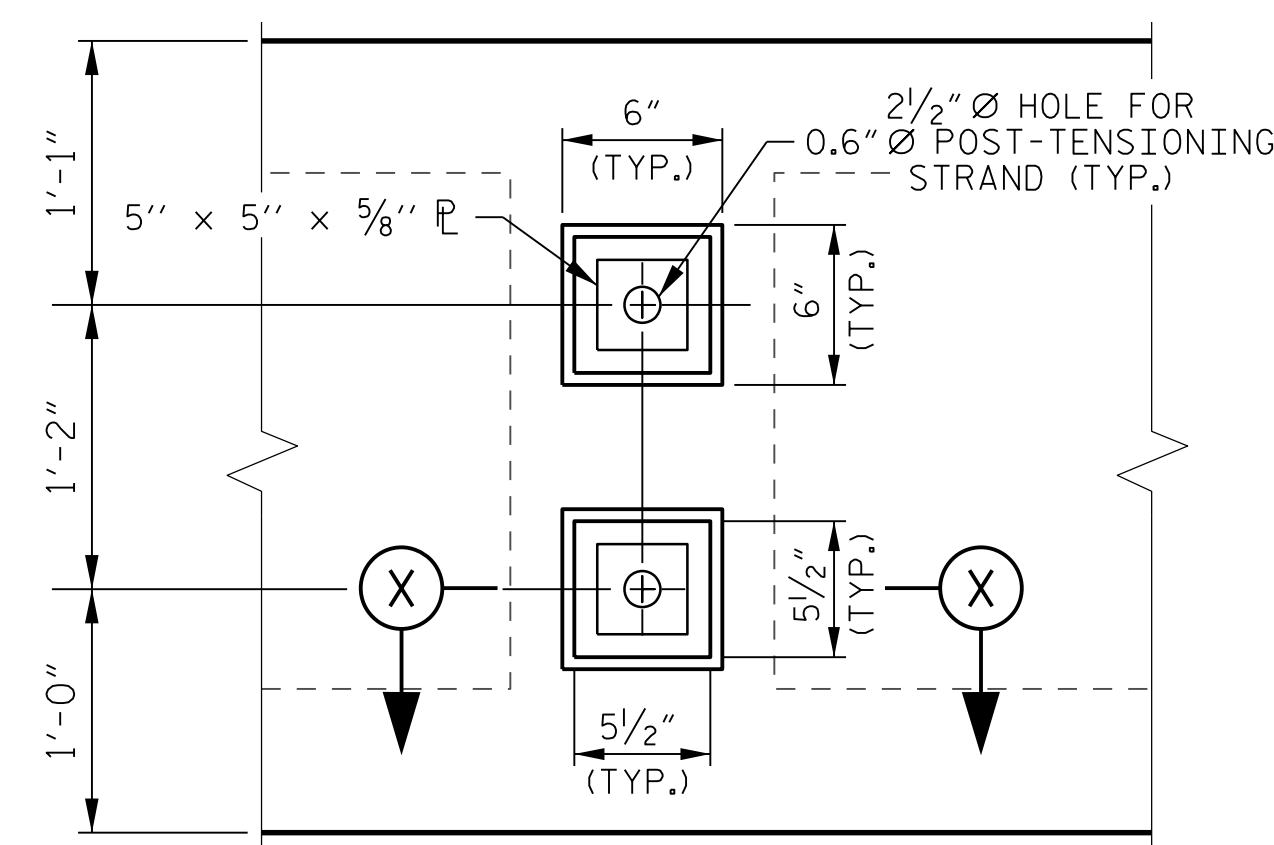
DOUBLE DIAPHRAGM DETAILS

*4 "S" BARS NOT SHOWN. *4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.



VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID DRAIN)



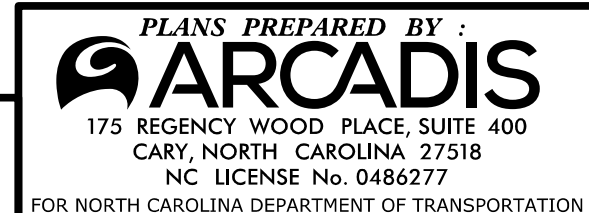
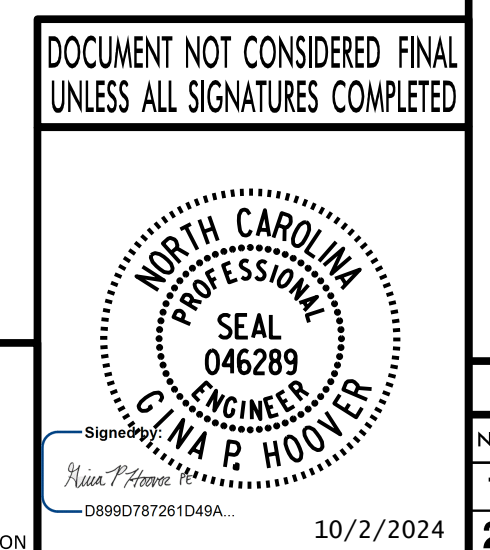
GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRAND OF EXTERIOR BOX BEAM

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 3'-3"
SPAN A, SPAN B OR SPAN C	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2" ↑
** DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	7/8" ↓
FINAL CAMBER	1 1/8" ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. **BR-0063**
ANSON COUNTY
STATION: **20 + 15.00 -L-**

SHEET 4 OF 5



REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	
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TOTAL SHEETS: 19

STD. No. 39PCBB7.90S

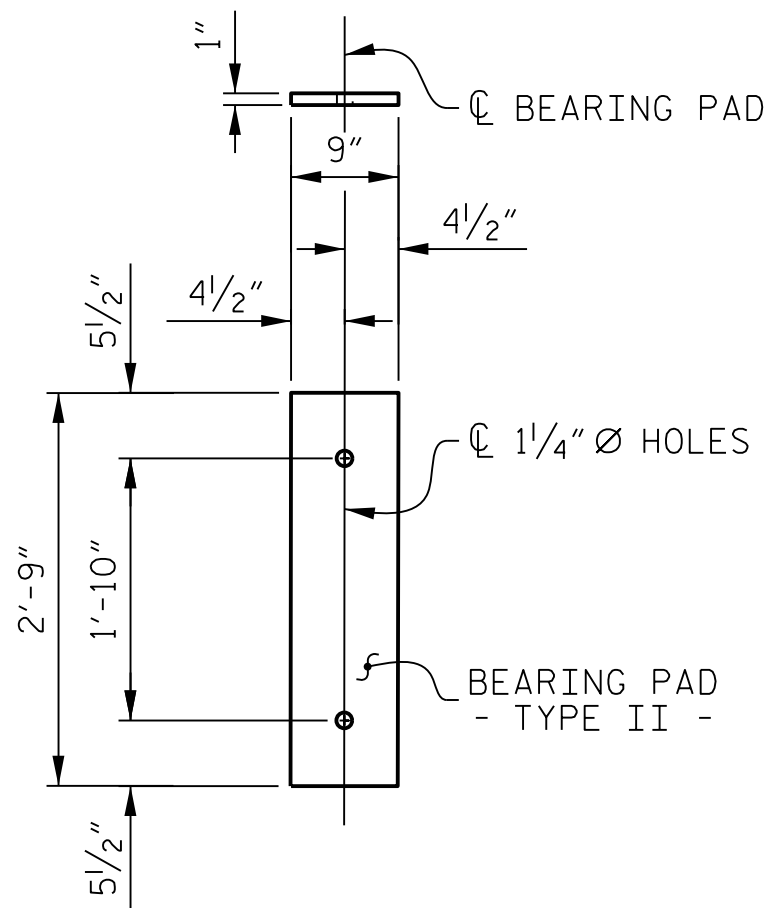
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ASSEMBLED BY : K. E. LOFTON	DATE : 6-22
CHECKED BY : G. P. HOOVER	DATE : 9-23
DRAWN BY : DGE	11/11
CHECKED BY : TMG	11/11
REV. 8/14	MAA/TMG

DRAWN BY : K. E. LOFTON	DATE : 6-22
CHECKED BY : G. P. HOOVER	DATE : 9-23
ENGINEER OF RECORD: G. P. HOOVER	DATE : 9-23

PLANS PREPARED BY :
ARCADIS
175 REGENCY WOOD PLACE, SUITE 400
CARY, NORTH CAROLINA 27518
NC LICENSE No. 0486277
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

10/2/2024

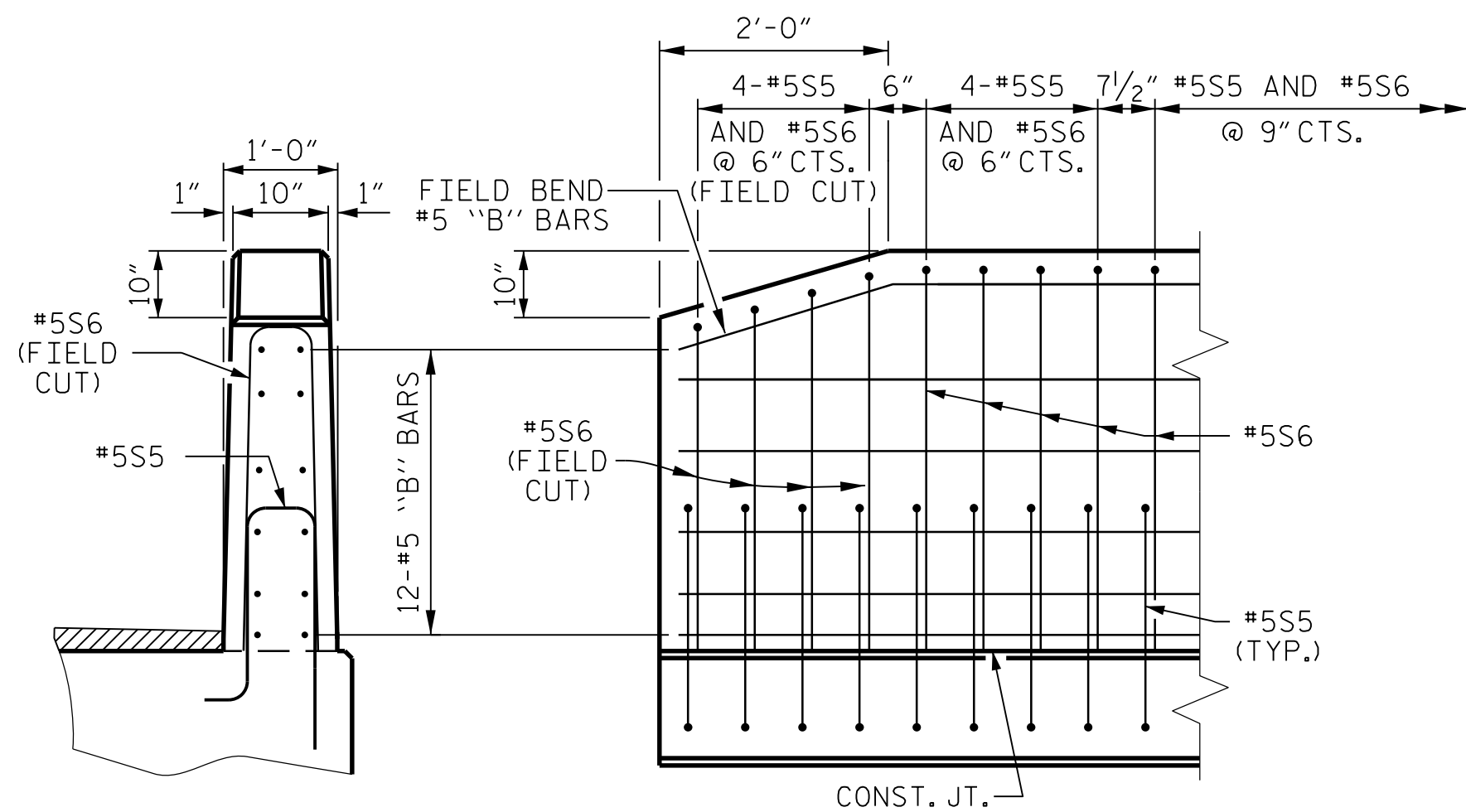


FIXED END

(TYPE II - 78 REQUIRED)

ELASTOMERIC BEARING DETAILS

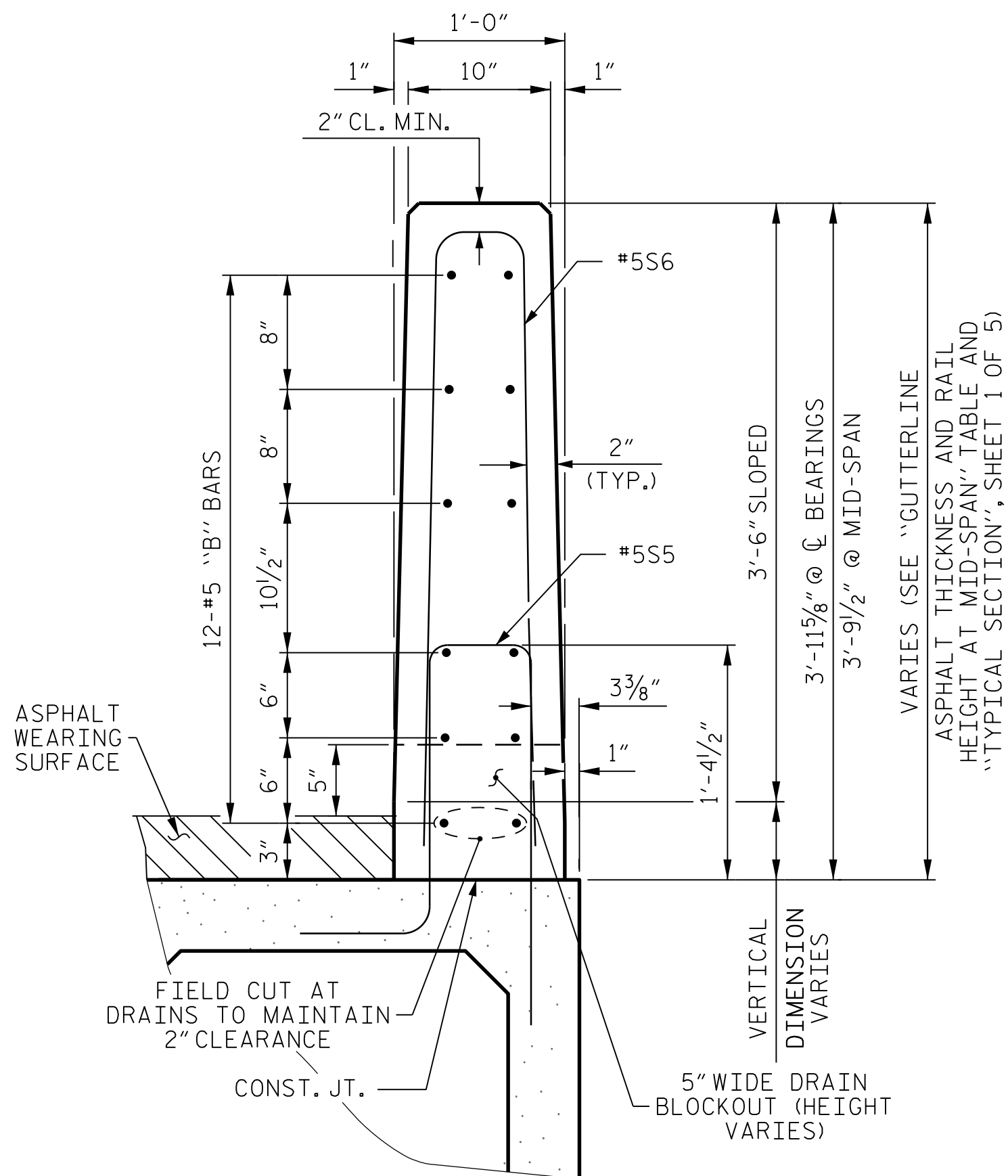
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



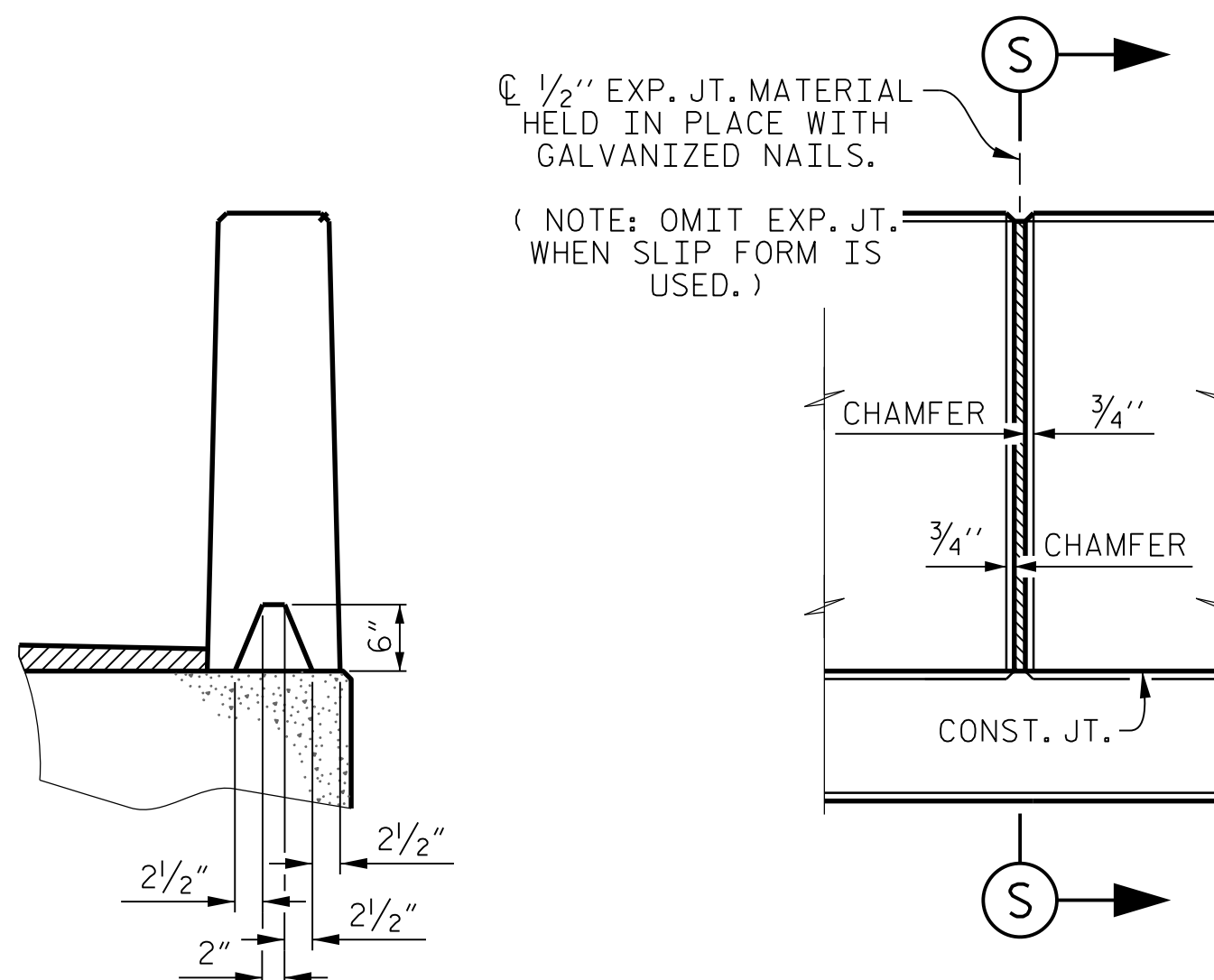
END VIEW

ELEVATION VIEW

END OF RAIL DETAILS



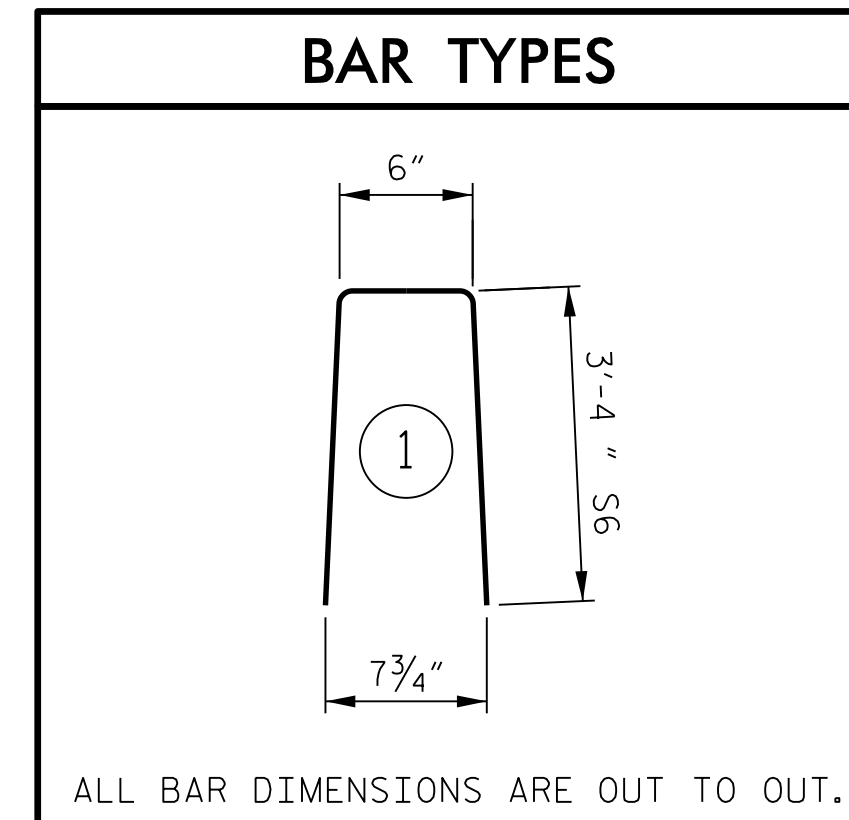
VERTICAL CONCRETE BARRIER RAIL SECTION



SECTION S-S

ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER ONE EXTERIOR UNITS	TOTAL No.	SIZE	TYPE	LENGTH	WEIGHT
	100'-0" UNIT					
* B12	48	96	#5	STR	24'- 7"	2,461
* S6	138	276	#5	1	7'- 2"	2,063
* EPOXY COATED REINFORCING STEEL						4,524 LBS.
CLASS AA CONCRETE					25.9 CU. YDS.	
VERTICAL CONCRETE BARRIER RAIL					200.0 LIN. FT.	

BOX BEAMS REQUIRED			
SPAN A, SPAN B OR SPAN C	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR BOX BEAM	2	100'-0"	200'-0"
INTERIOR BOX BEAM	11	100'-0"	1,100'-0"
TOTAL	13		1,300'-0"

GUTTERLINE ASPHALT THICKNESS AND RAIL HEIGHT AT MID-SPAN		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
LEFT	2 3/8"	3'-8 3/8"
RIGHT	2 3/8"	3'-8 3/8"

PROJECT NO. BR-0063

ANSON COUNT

STATION: 20+15.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" x 3'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT
90° SKEW

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	S-9 TOTAL SHEETS 19
1			3			
2			4			

STD. No. 39PCBB8_90S

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ASSEMBLED BY :	K. E. LOFTON	DATE :	6-22
CHECKED BY :	G. P. HOOVER	DATE :	9-23
DRAWN BY :	DGE 10/11	REV. 5/18	MAA/THC
CHECKED BY :	TMG 11/11		

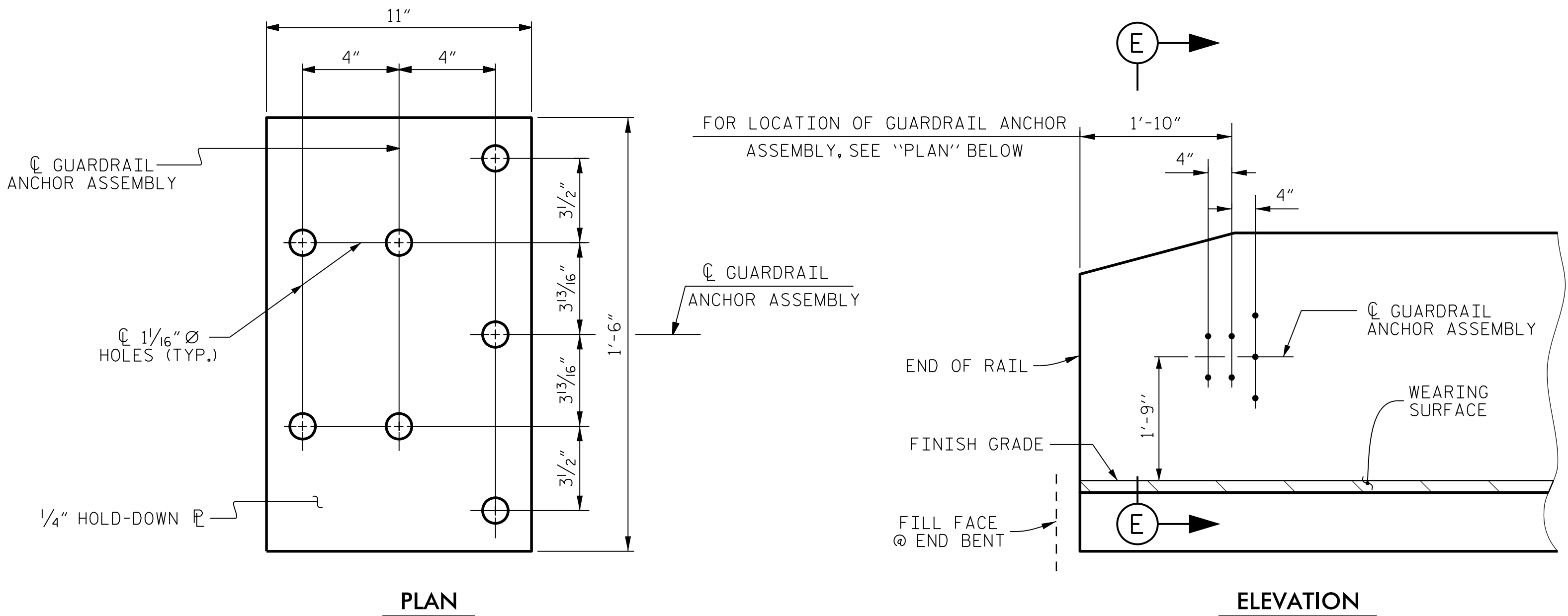
DRAWN BY : K. E. LOFTON DATE : 6-22
 CHECKED BY : G. P. HOOVER DATE : 9-23
 ENGINEER OF RECORD: G. P. HOOVER DATE : 9-23

PLANS PREPARED BY :
 **ARCADIS**
175 REGENCY WOOD PLACE, SUITE 400
CARY, NORTH CAROLINA 27518
NC LICENSE No. 0486277
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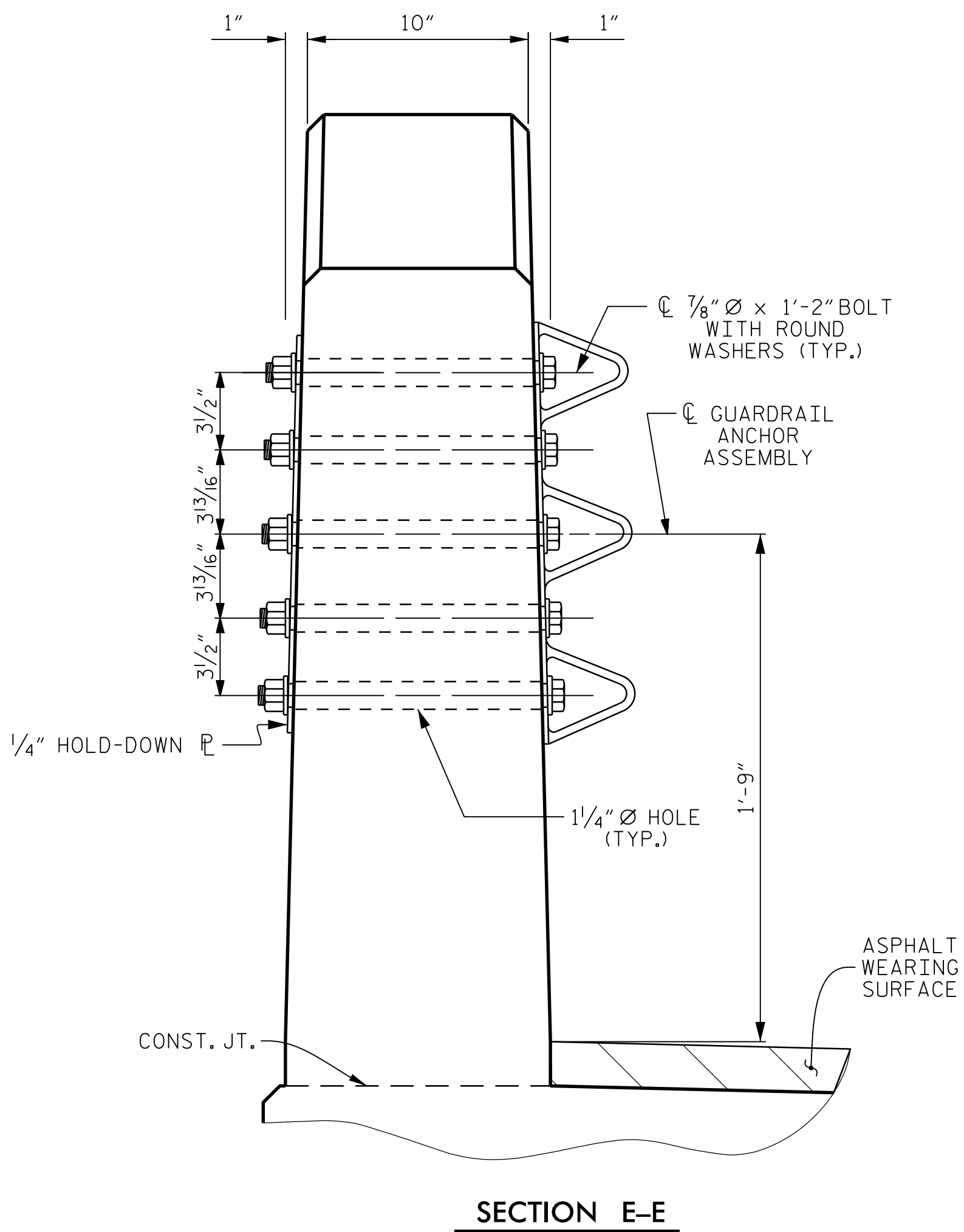


Signed By: Kiana T. Hoover PE
 D899D787261D45A... 10/2/2024



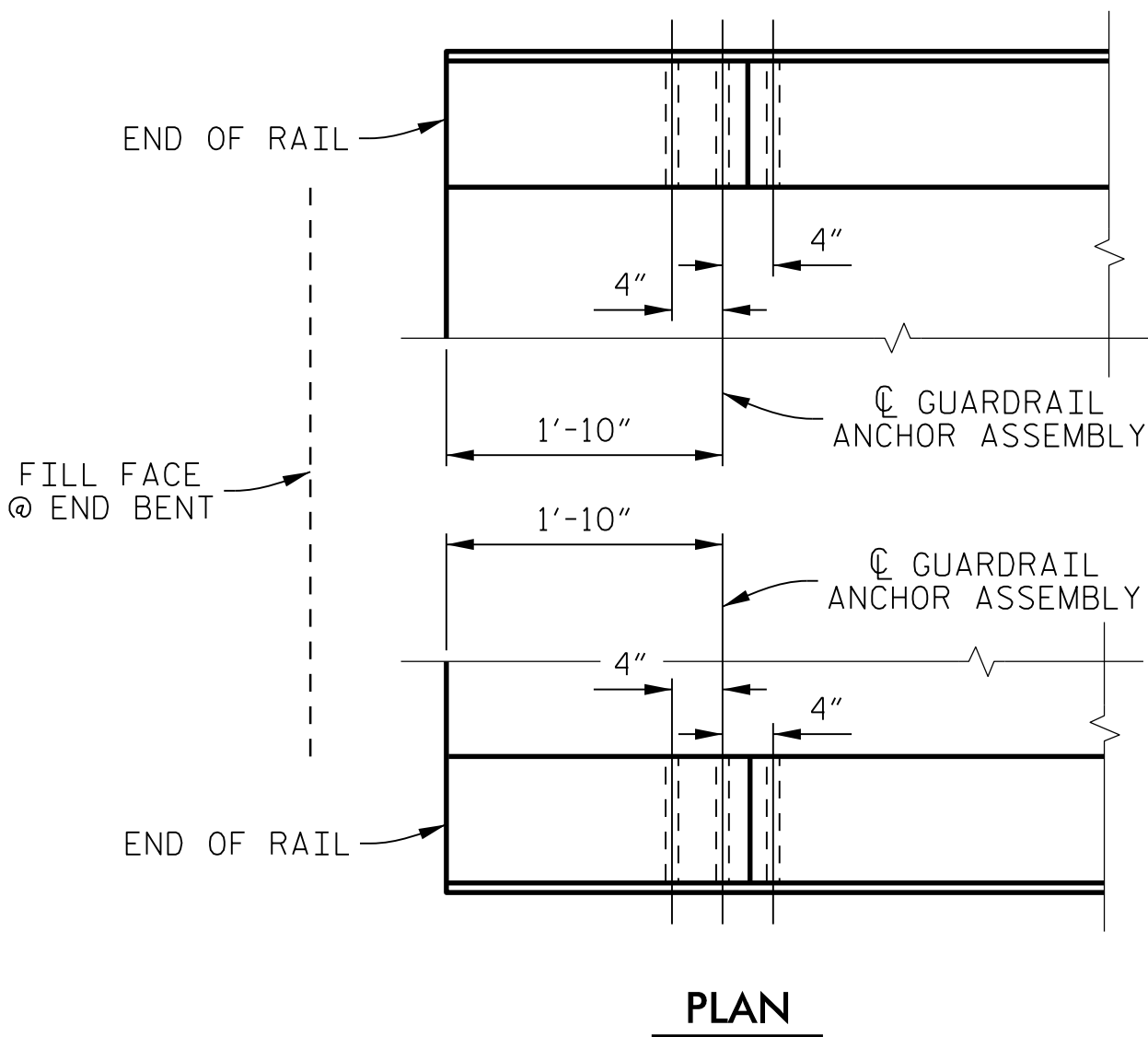
PLAN

ELEVATION



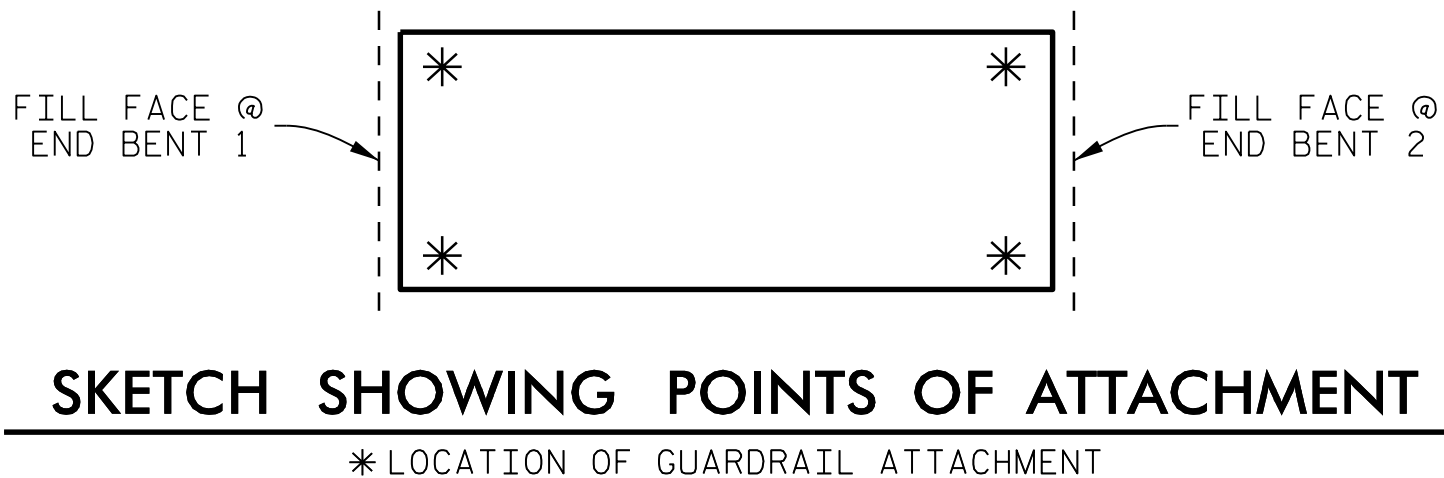
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.



NOTES

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

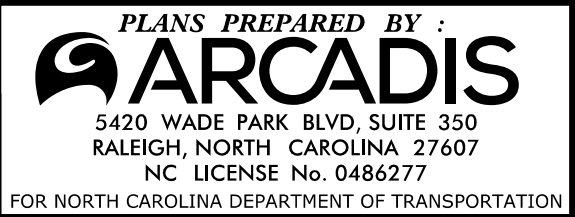
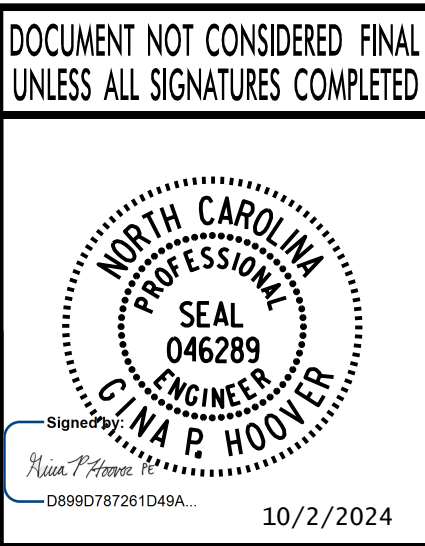
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.

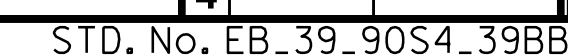
PROJECT NO. **BR-0063**
ANSON COUNTY
STATION: **20 + 15.00 -L-**

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL					
REVISIONS					
No.	BY:	DATE:	No.	BY:	DATE:
1			3		
2			4		
SHEET No. S-10					TOTAL SHEETS 19



DRAWN BY :	K. E. LOFTON	DATE :	6-22
CHECKED BY :	G. P. HOOVER	DATE :	9-23
DESIGN ENGINEER :	S. K. CHRISTOPH	DATE :	9-23

ASSEMBLED BY :	K. E. LOFTON	DATE :	6-22
CHECKED BY :	G. P. HOOVER	DATE :	9-23
DRAWN BY:	MAA 5/10	REV. 1/15	MAA/TMG
CHECKED BY:	GM 5/10	REV. 12/17	MAA/THC
		REV. 5/18	MAA/THC





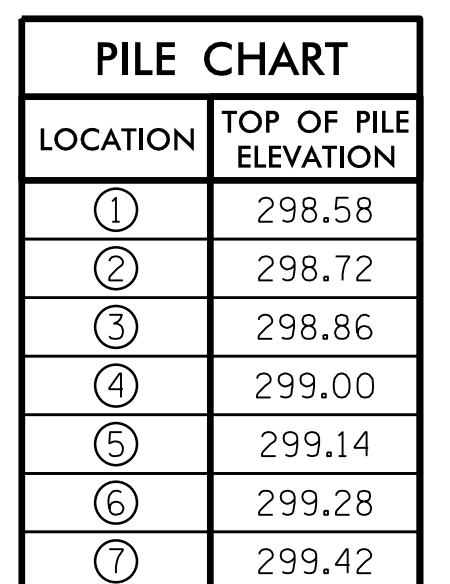
THE CONCRETE IN THE SHADED AREA
OF THE WING SHALL BE POURED
AFTER THE VERTICAL CONCRETE
BARRIER RAIL IS CAST IF SLIP
FORMING IS USED.

FOR WING DETAILS, SEE "END BENT
WING DETAILS" SHEET.

FOR SECTION A-A, SEE "END BENT
DETAILS" SHEET.

FOR TEMPORARY DRAINAGE AT END
BENT DETAIL, SEE "END BENT
DETAILS" SHEET.

CONCRETE COLLARS FOR STEEL PILES
NOT SHOWN IN PLAN AND ELEVATION
VIEWS. SEE "CORROSION PROTECTION
FOR STEEL PILES DETAIL" ON "END
BENT DETAILS" SHEET.



PROJECT NO. BR-0063
ANSON COUNTY
 STATION: 20+15.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

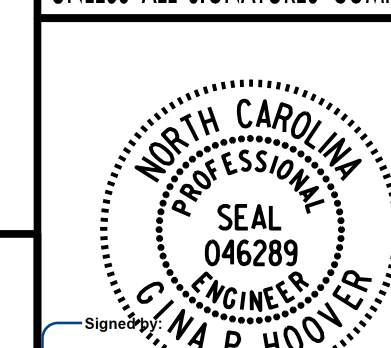
SUBSTRUCTURE

END BENT 2

REVISIONS						SHEET No. S-12
No.	BY:	DATE:	No.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			

STD. No. EB_33_90S4_39BB

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



Anna P. Hume

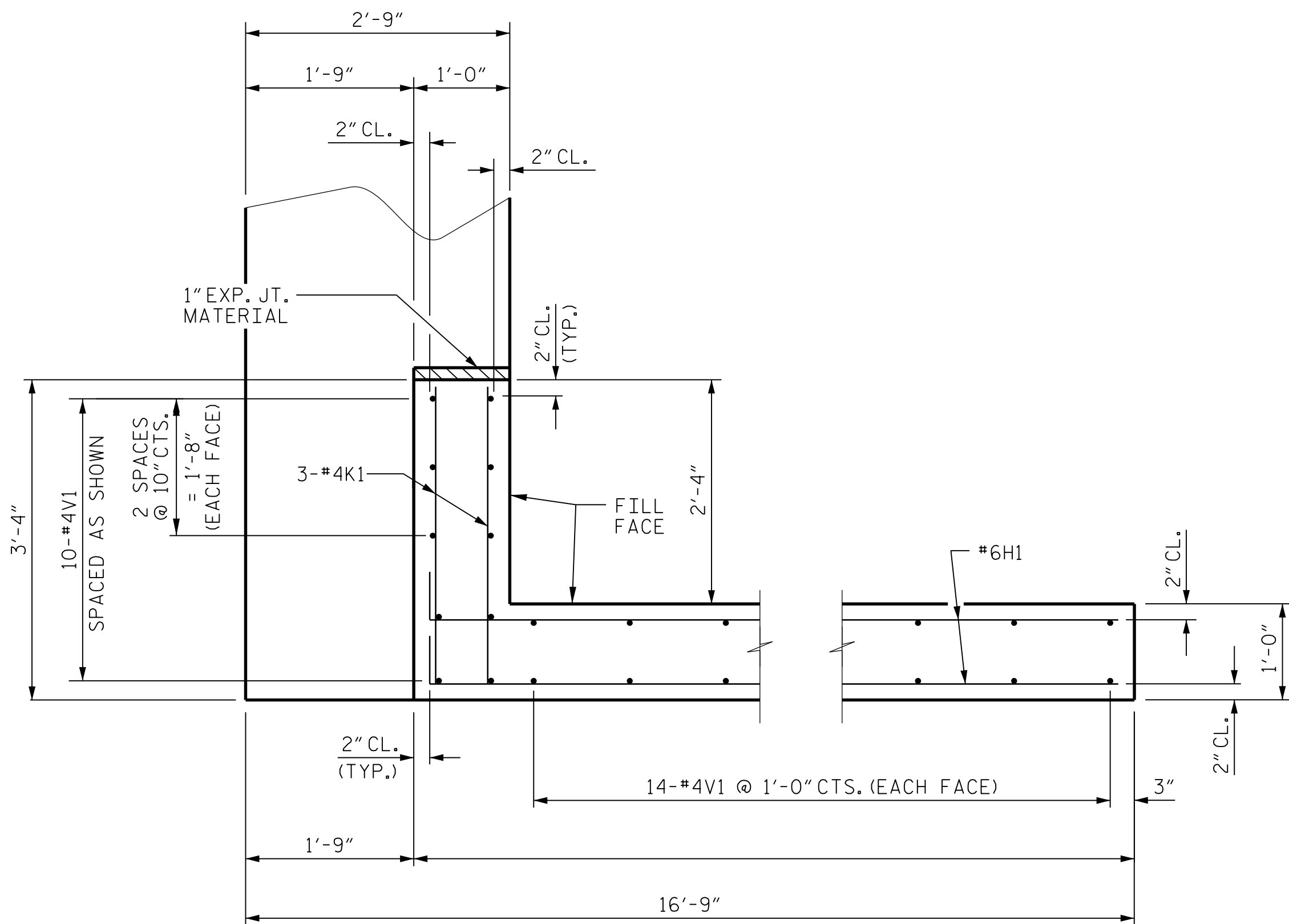
10/2/2024

PLANS PREPARED BY :
 **ARCADIS**
 175 REGENCY WOOD PLACE, SUITE 400
 CARY, NORTH CAROLINA 27518
 NC LICENSE No. 0486277
 FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

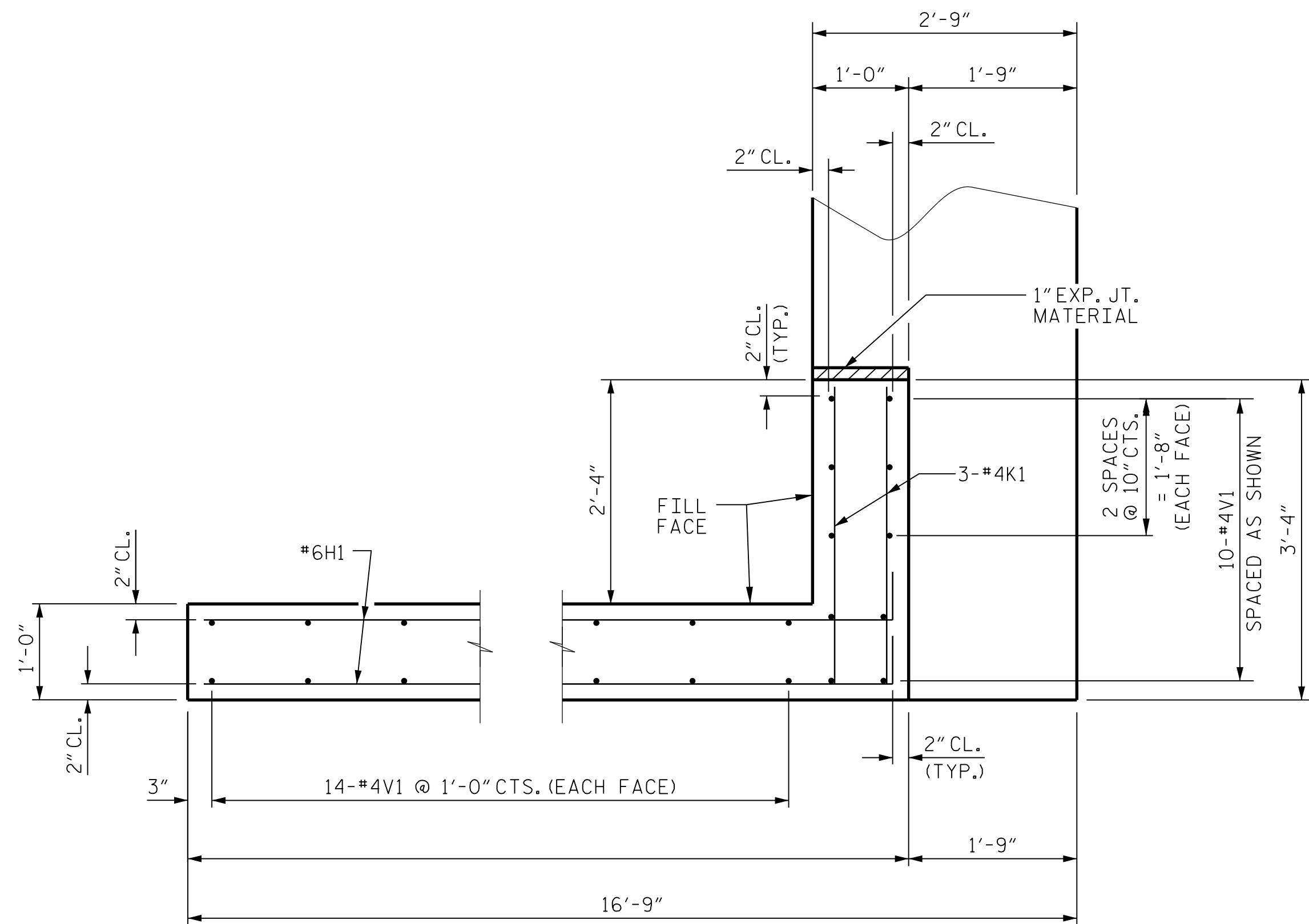
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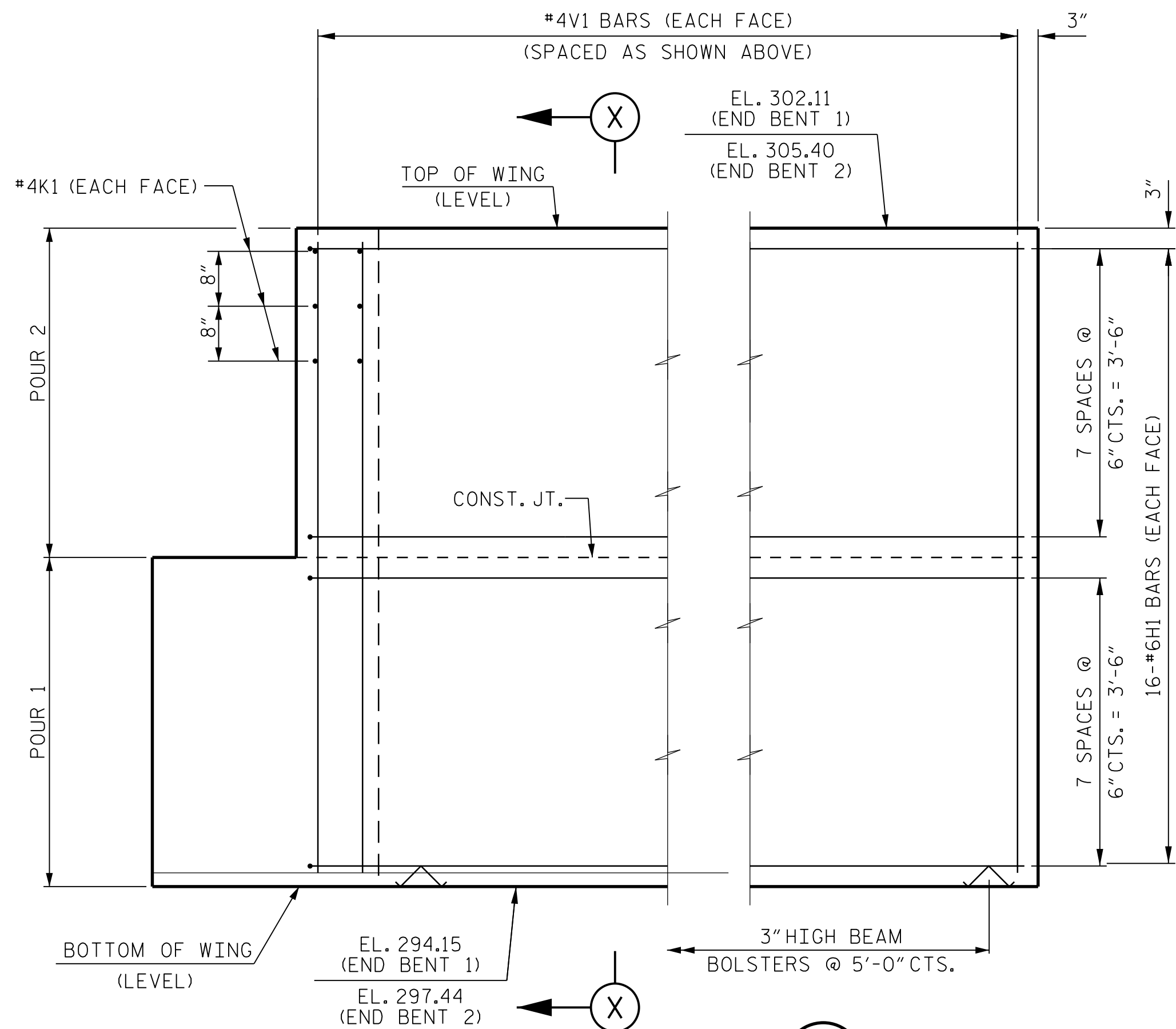
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DATE: 9/4/2024 10:04:50 AM



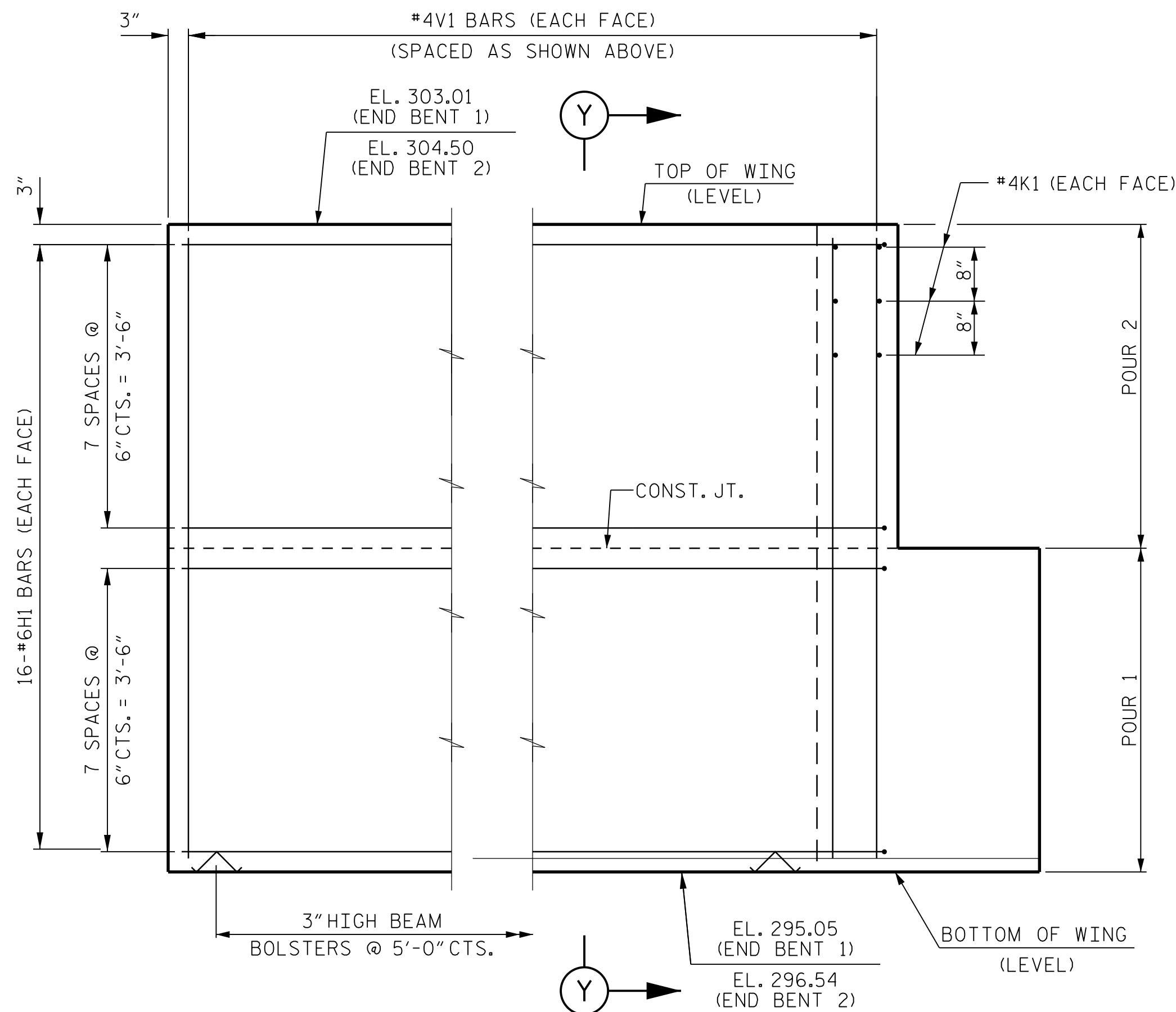
PLAN OF WING (W1)



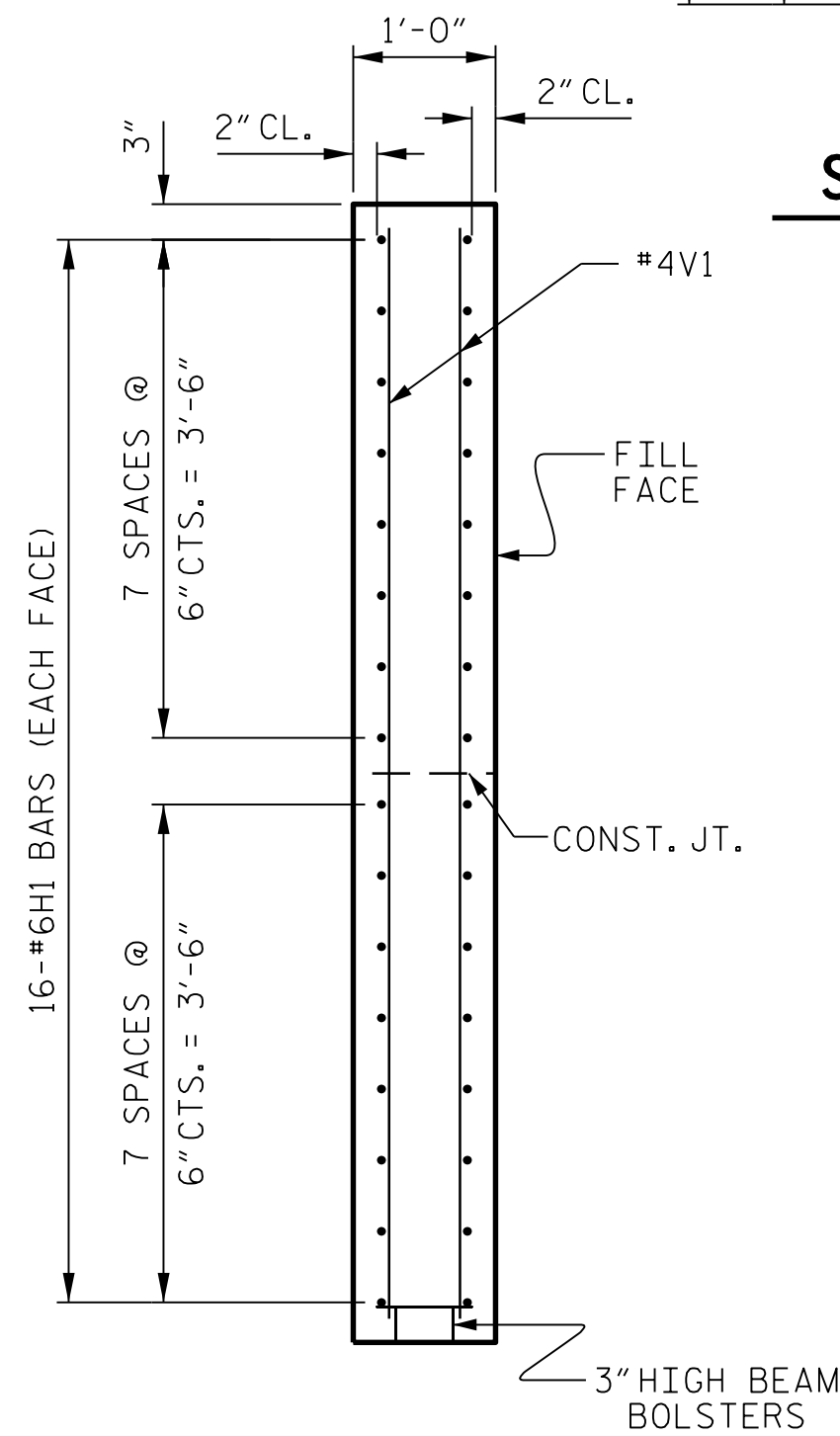
PLAN OF WING (W2)



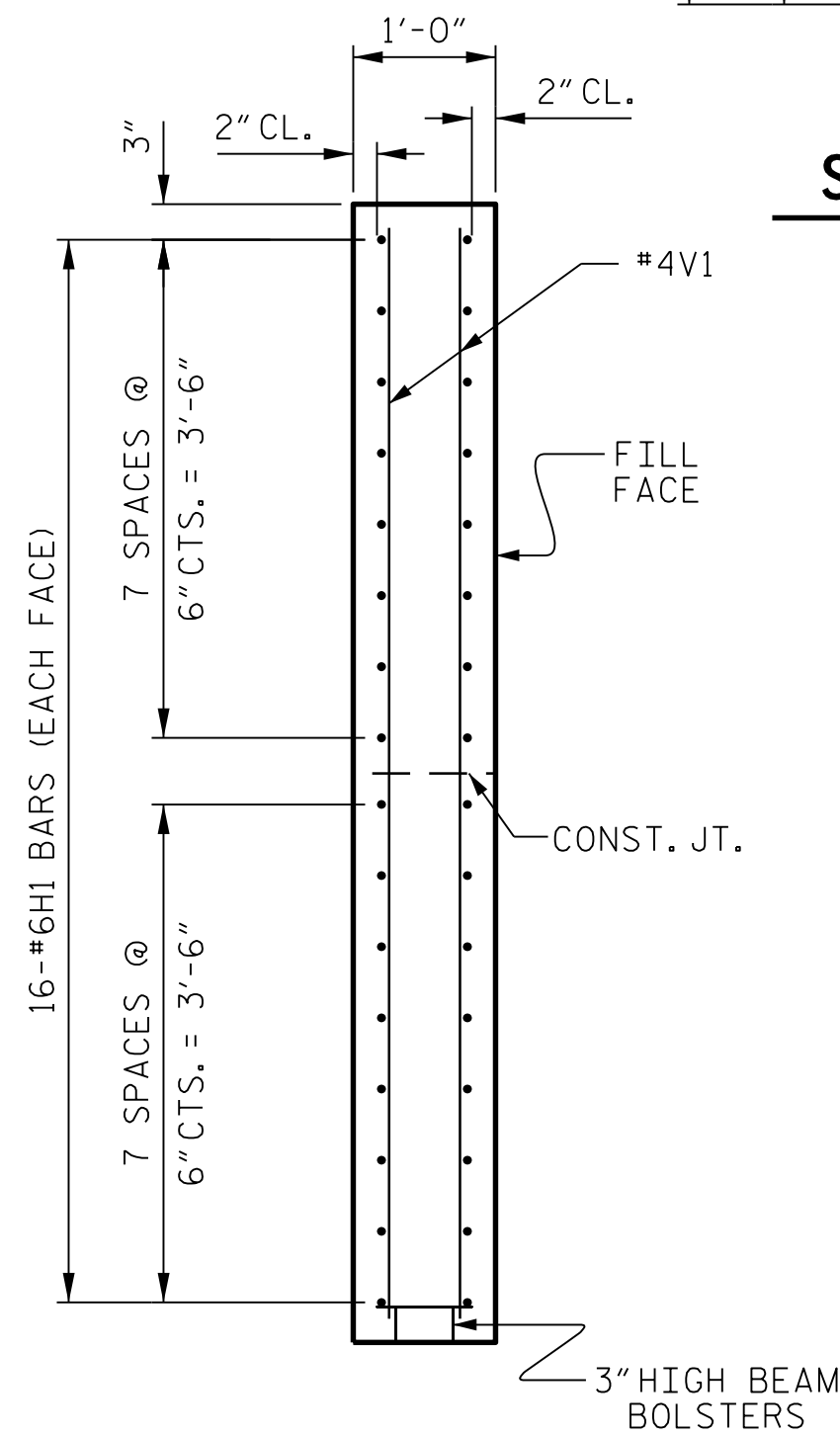
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



SECTION Y-Y

PROJECT NO. BR-0063
ANSON COUNTY
STATION: 20+15.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

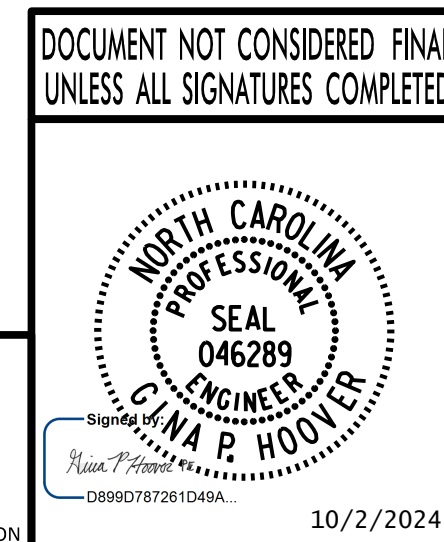
END BENT WING DETAILS

ASSEMBLED BY : K. E. LOFTON	DATE : 6-22
CHECKED BY : G. P. HOOVER	DATE : 9-23
DRAWN BY : WJH	DATE : 12/11
CHECKED BY : AAC	DATE : 12/11

REV. 4/15 MAA/TMG

DRAWN BY : K. E. LOFTON	DATE : 6-22
CHECKED BY : G. P. HOOVER	DATE : 9-23
ENGINEER OF RECORD: G. P. HOOVER	DATE : 9-23

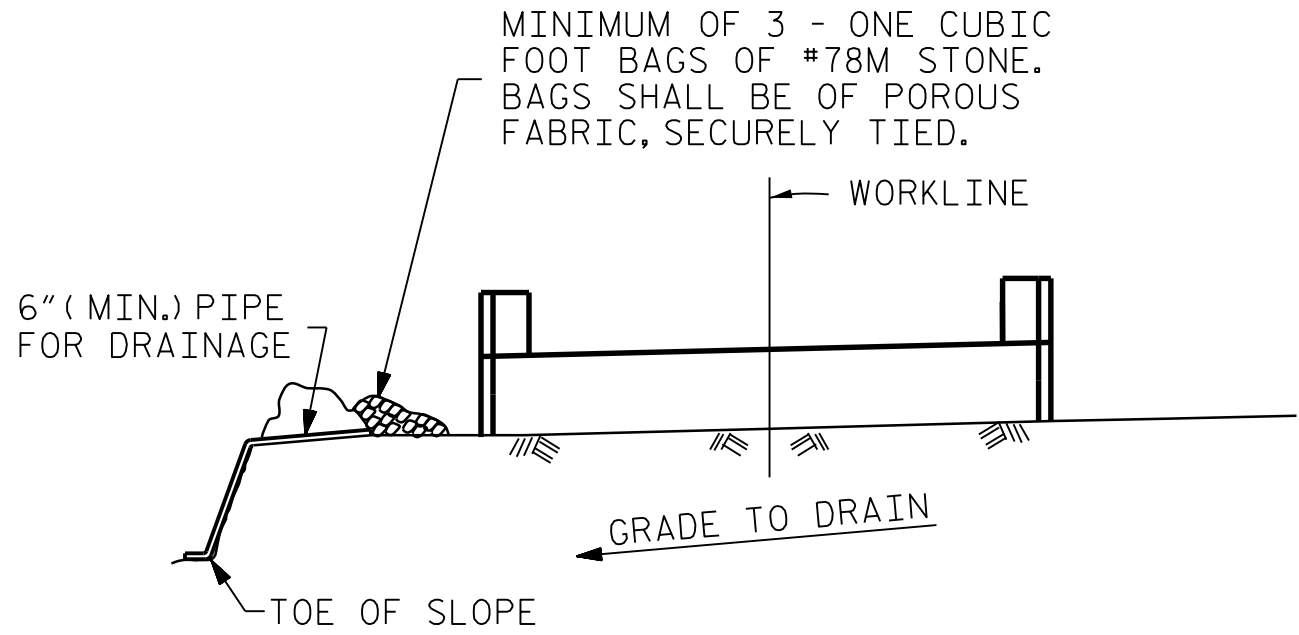
PLANS PREPARED BY :
ARCADIS
175 REGENCY WOOD PLACE, SUITE 400
CARY, NORTH CAROLINA 27518
NC LICENSE No. 0486277
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



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

SHEET No.
S-13
TOTAL SHEETS
19

STD. No. EB_39_90S4-39BB

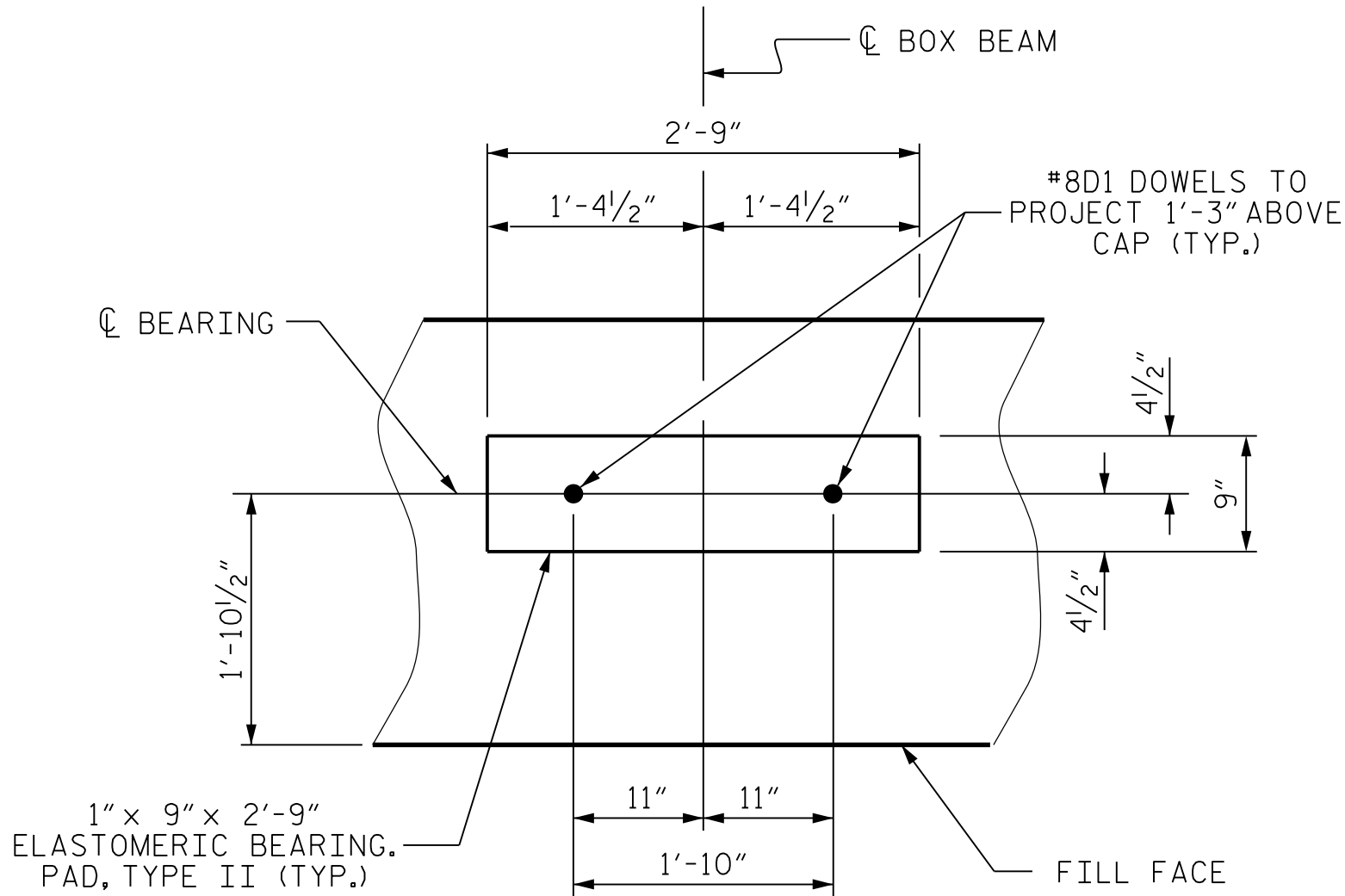


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

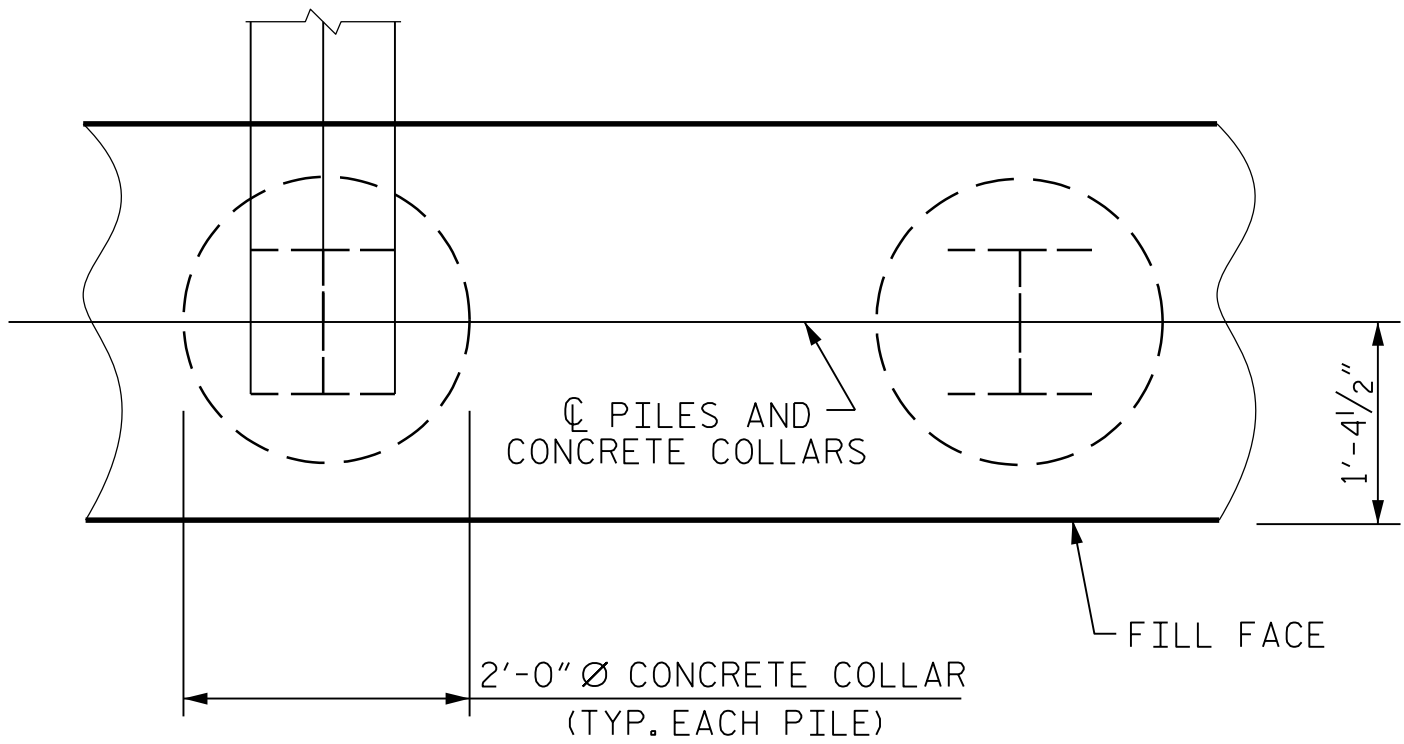
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL A

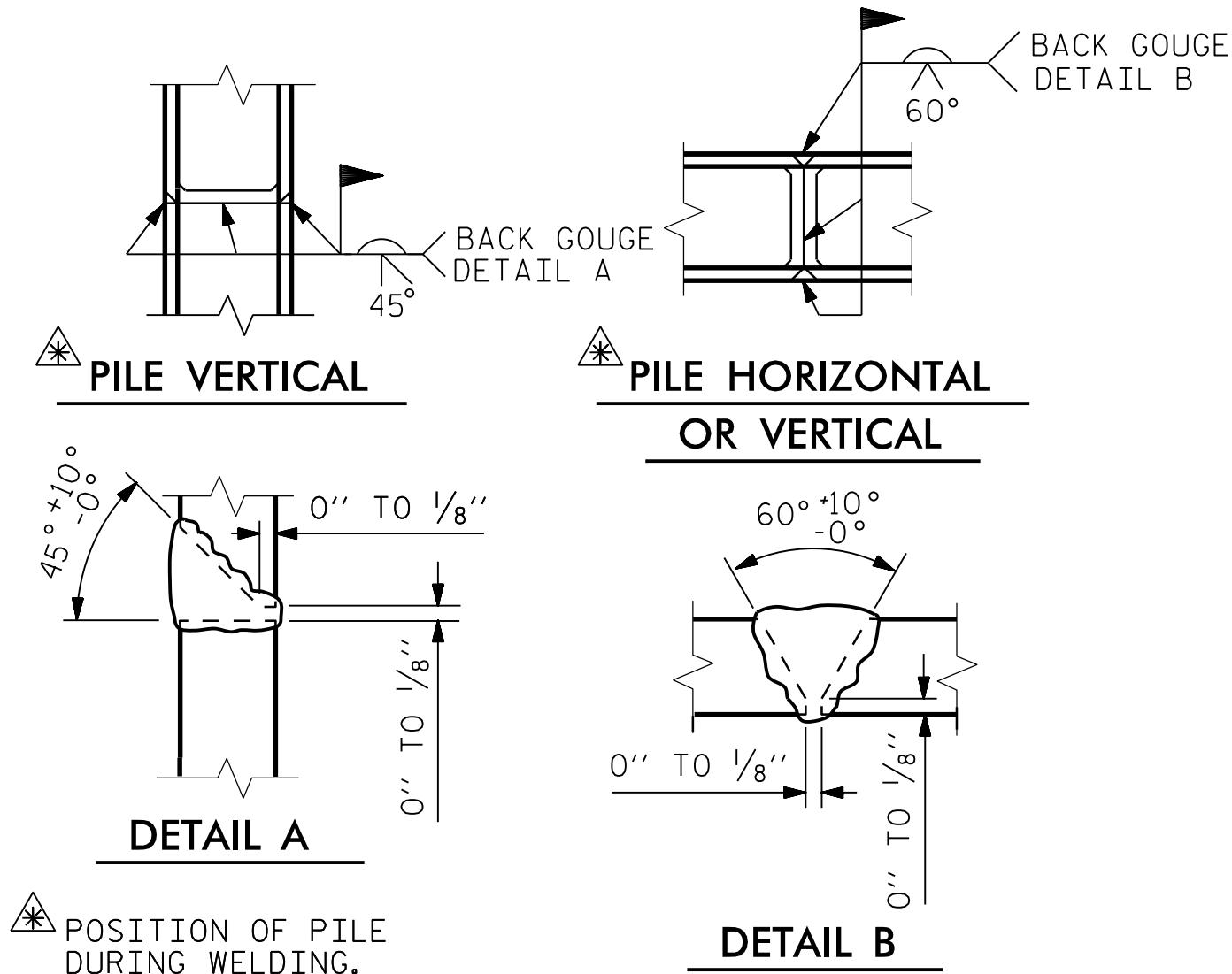
END BENT 1 SHOWN, END BENT 2 SIMILAR.



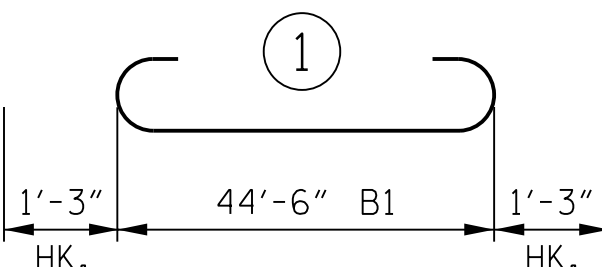
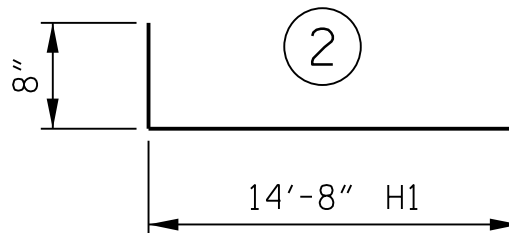
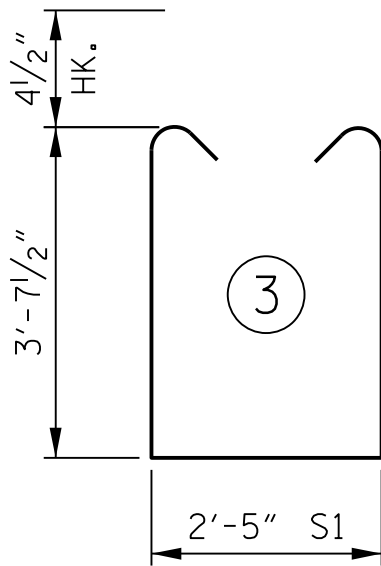
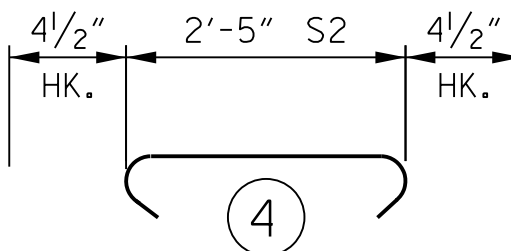
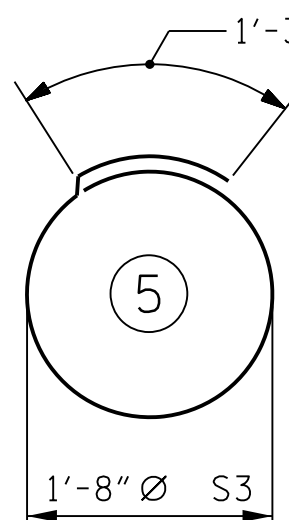
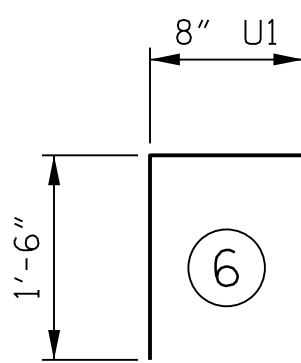
PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

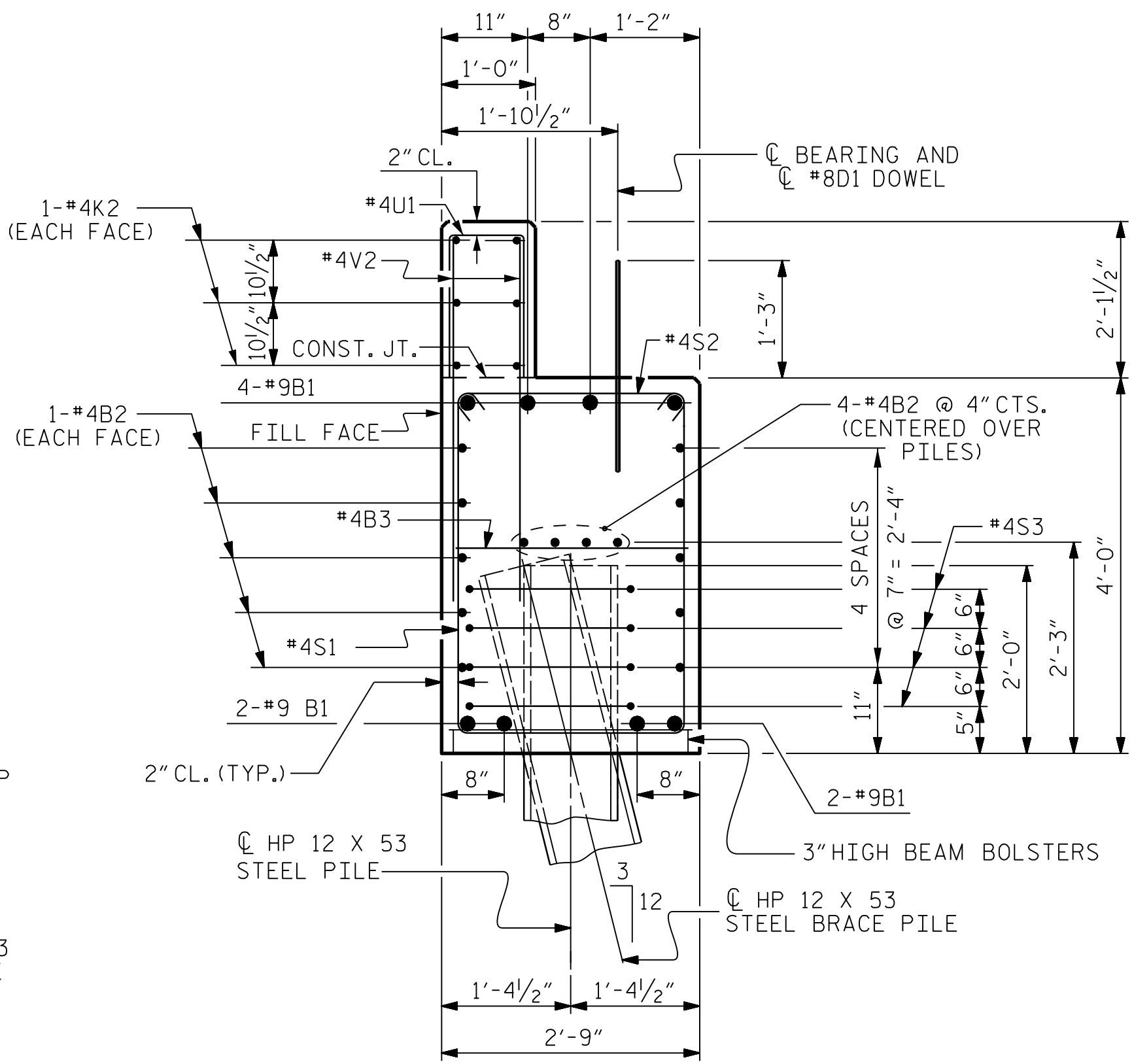
END BENT 1 SHOWN, END BENT 2 SIMILAR.

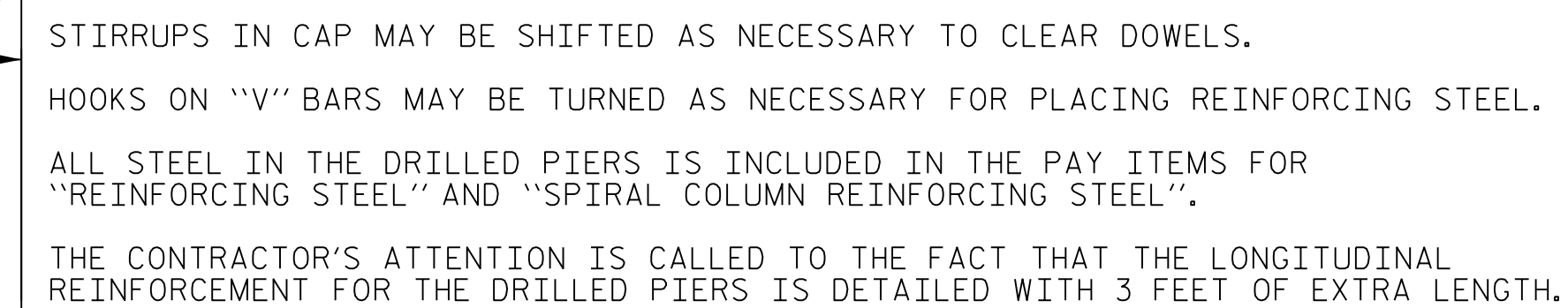


PILE SPLICE DETAILS

BAR TYPES			BILL OF MATERIAL FOR ONE END BENT						
									
ALL BAR DIMENSIONS ARE OUT TO OUT.									
BAR	No.	SIZE	TYPE	LENGTH	WEIGHT				
B1	8	#9	1	47'-0"	1,278				
B2	28	#4	STR	23'-7"	441				
B3	12	#4	STR	2'-5"	19				
D1	26	#8	STR	2'-3"	156				
H1	64	#5	2	15'-4"	1,024				
K1	12	#4	STR	2'-11"	23				
K2	12	#4	STR	23'-7"	189				
S1	56	#4	3	10'-5"	390				
S2	56	#4	4	3'-2"	118				
S3	28	#4	5	6'-6"	122				
U1	39	#4	6	3'-8"	96				
V1	76	#4	STR	7'-8"	389				
V2	78	#4	STR	5'-9"	300				
REINFORCING STEEL (FOR ONE END BENT)					4,545 LBS.				
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)									
POUR 1		CAP, LOWER PART OF WINGS AND CONCRETE COLLARS			23.7 C.Y.				
POUR 2		BACKWALL AND UPPER PART OF WINGS			8.7 C.Y.				
TOTAL CLASS A CONCRETE					31.8 C.Y.				

ALL BAR DIMENSIONS ARE OUT TO OUT.





PROJECT NO. BR-0063
ANSON COUNTY
 STATION: 20 + 15.00 -L-

SHEET 1 OF 2

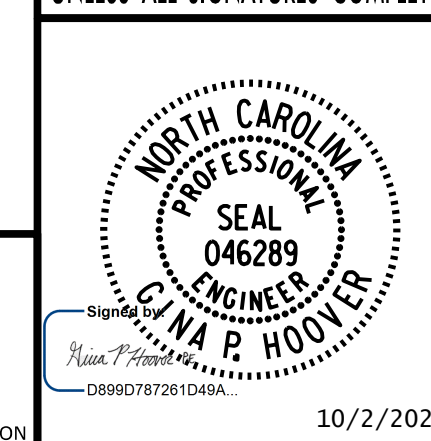
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

INTERIOR BENTS
(BENT 1 OR BENT 2)

REVISIONS						SHEET No. S-15
No.	BY:	DATE:	No.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			

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UNLESS ALL SIGNATURES COMPLETE



10/2/2024

PLANS PREPARED BY :
 **ARCADIS**
 175 REGENCY WOOD PLACE, SUITE 400
 CARY, NORTH CAROLINA 27518
 NC LICENSE No. 0486277
 FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWN BY : K. E. LOFTON DATE : _____
 CHECKED BY : G. P. HOOVER DATE : 9-23
 ENGINEER OF RECORD: G. P. HOOVER DATE : 9-23

NOTES, (CONTINUED)

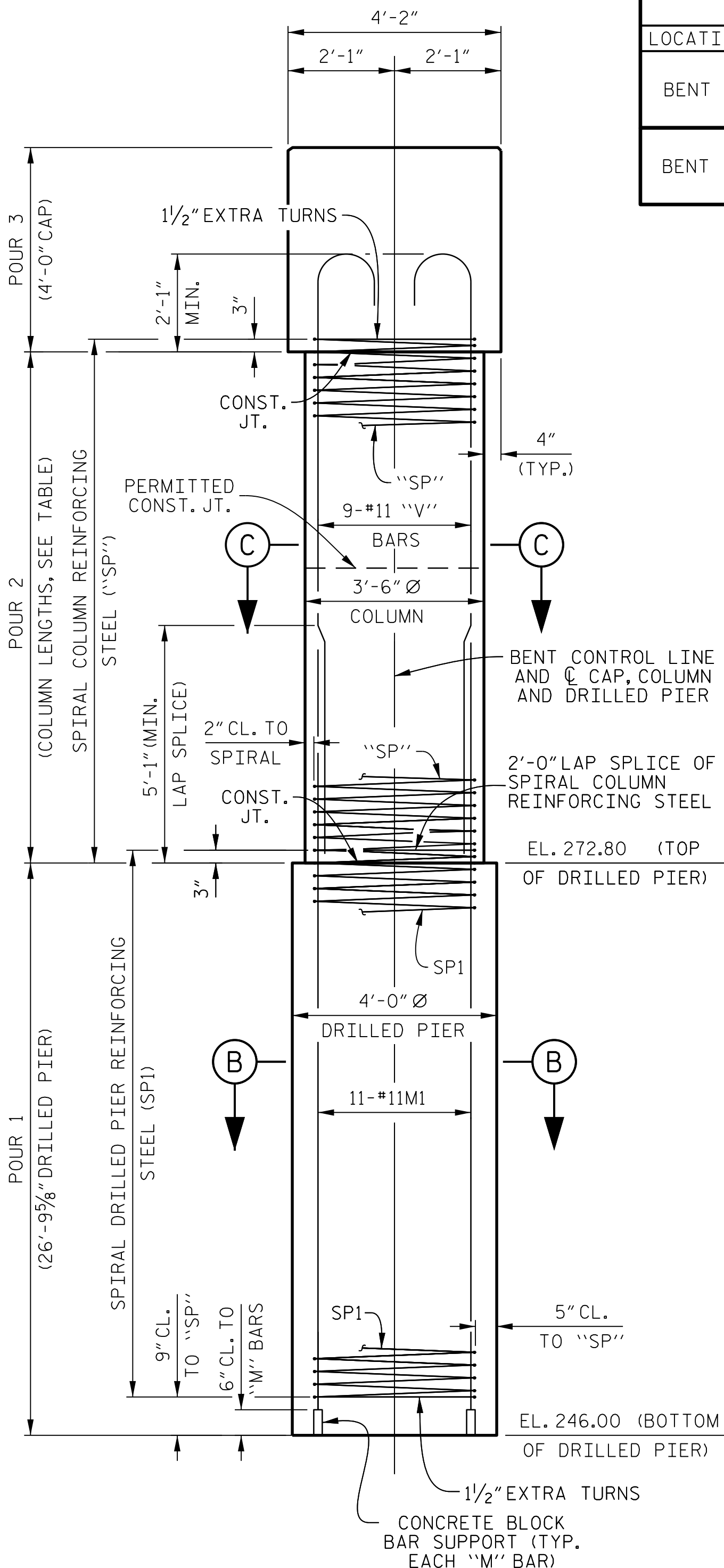
THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FEET BELOW THE GROUND LINE.

NO SEPARATE PAYMENT SHALL BE MADE FOR ANY ADDITIONAL STEEL REQUIRED IN CONSTRUCTION OF DRILLED PIER AS THIS IS CONSIDERED INCIDENTAL TO THE LINEAR FOOT PRICE FOR DRILLED PIER.

INVERT ALTERNATE STIRRUPS.

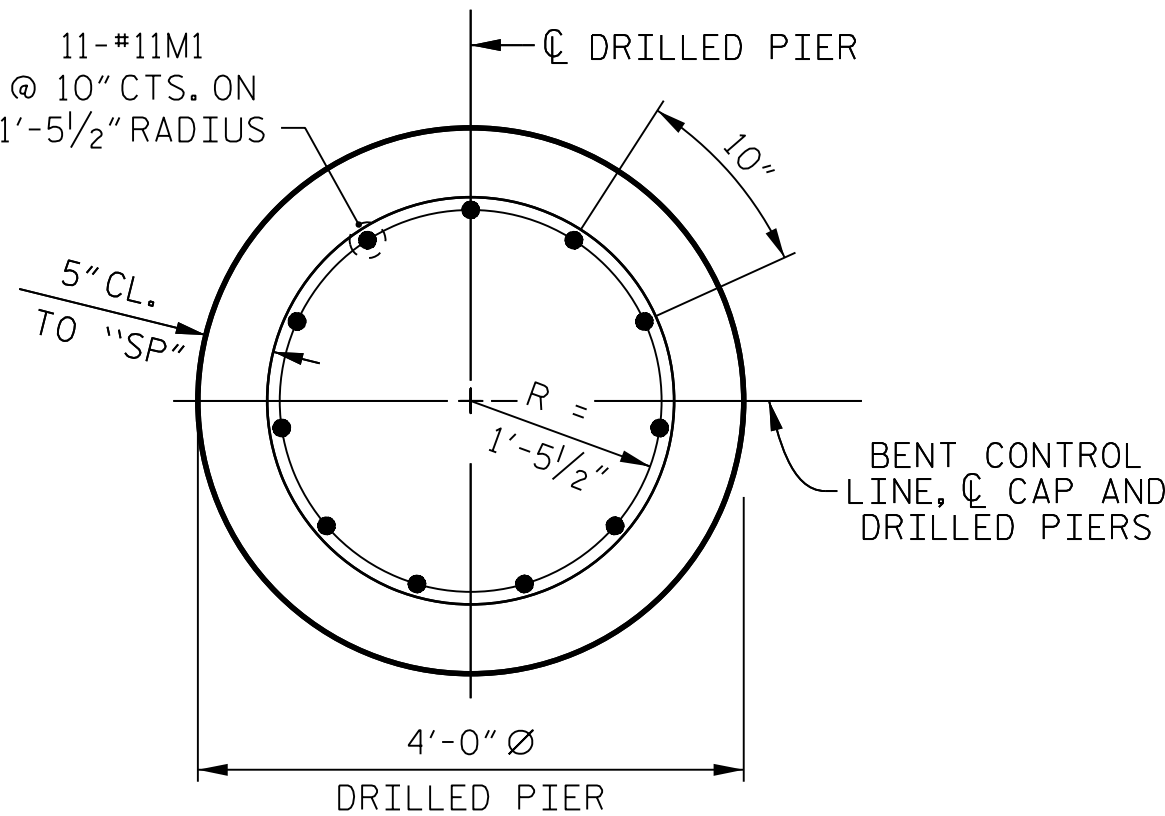
ELEVATION

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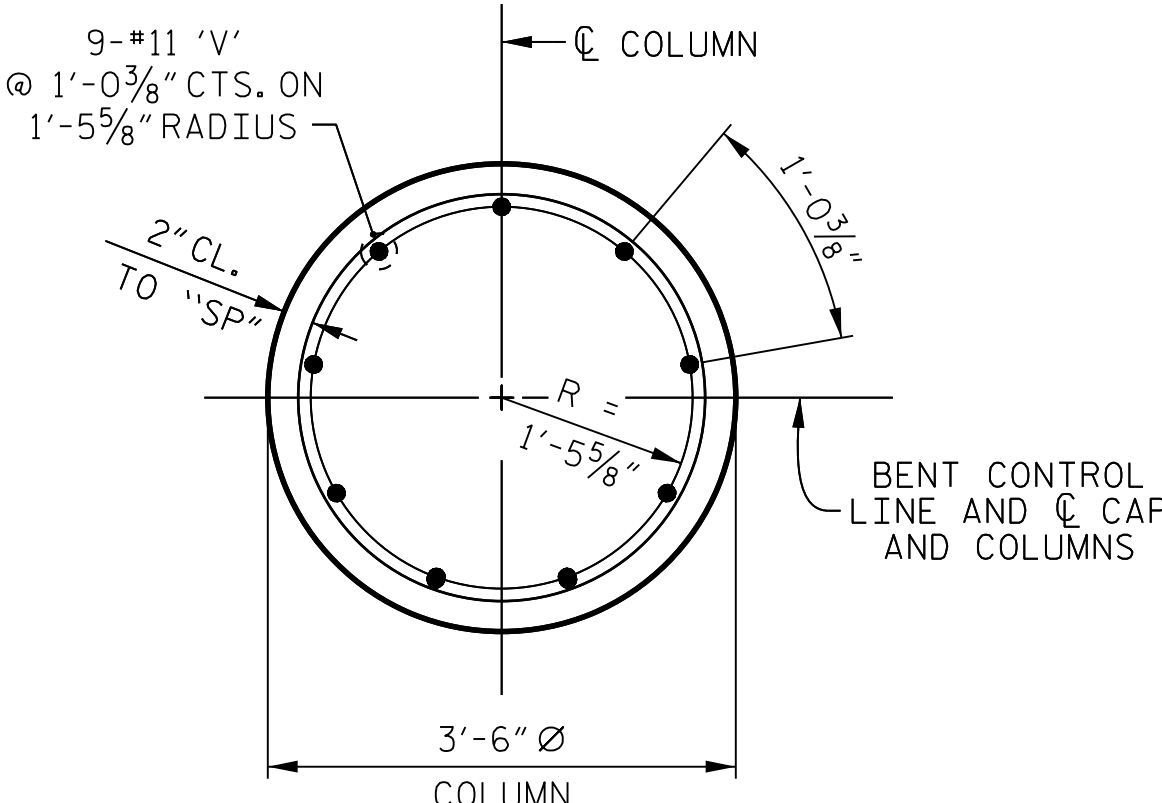
END VIEW

TABLE OF COLUMN REINFORCING				COLUMN LENGTH
LOCATION	COLUMN	SPIRAL	"V" BAR	
BENT 1	1	SP2	V1	22'-3 1/2"
	2	SP3	V2	22'-7 1/4"
	3	SP4	V3	22'-11"
BENT 2	1	SP5	V4	23'-8 1/4"
	2	SP6	V5	24'-0"
	3	SP7	V6	24'-3 3/4"



SECTION B-B

(TYP. ALL DRILLED PIERS)



SECTION C-C

(TYP. ALL COLUMNS)

BILL OF MATERIAL

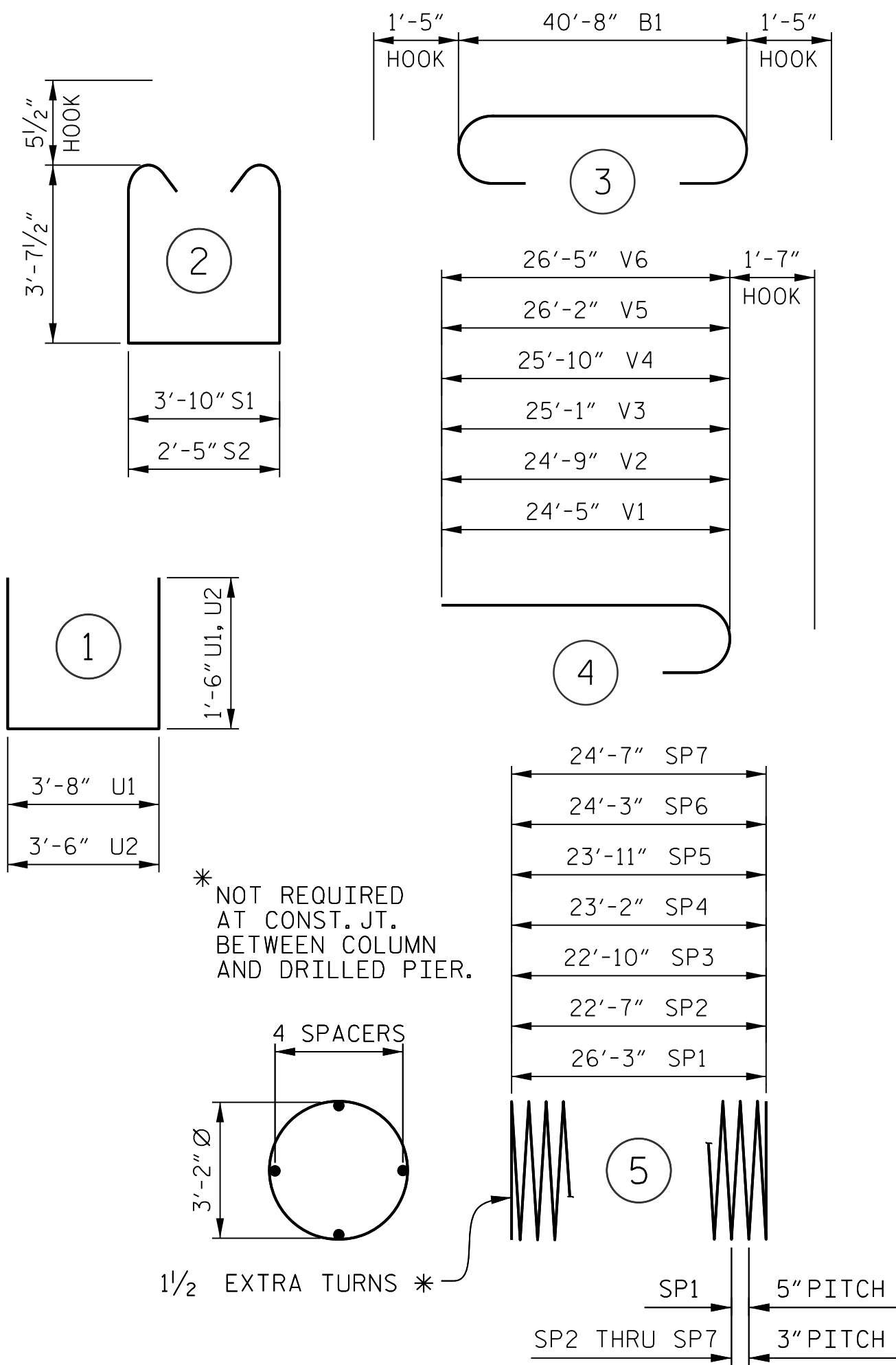
BENT 1						BENT 2					
BAR	No.	SIZE	TYPE	LENGTH	WEIGHT	BAR	No.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#10	3	43'-6"	2,246	B1	12	#10	3	43'-6"	2,246
B2	4	#10	STR	40'-8"	700	B2	4	#10	STR	40'-8"	700
B3	16	#4	STR	21'-3"	227	B3	16	#4	STR	21'-3"	227
D1	52	#8	STR	2'-3"	312	D1	52	#8	STR	2'-3"	312
M1	33	#11	STR	34'-4"	6,020	M1	33	#11	STR	34'-4"	6,020
S1	14	#5	2	12'-0"	175	S1	14	#5	2	12'-0"	175
S2	80	#5	2	10'-7"	883	S2	80	#5	2	10'-7"	883
U1	10	#4	1	6'-8"	45	U1	10	#4	1	6'-8"	45
U2	8	#4	1	6'-6"	35	U2	8	#4	1	6'-6"	35
V1	9	#11	4	26'-0"	1,243	V4	9	#11	4	27'-5"	1,311
V2	9	#11	4	26'-4"	1,259	V5	9	#11	4	27'-9"	1,327
V3	9	#11	4	26'-8"	1,275	V6	9	#11	4	28'-0"	1,339
REINFORCING STEEL					14,420 LBS.	REINFORCING STEEL					14,620 LBS.
SP1	3	**	5	631'-9"	1,977	SP1	3	**	5	631'-9"	1,977
SP2	1	***	5	918'-3"	613	SP5	1	***	5	969'-10"	648
SP3	1	***	5	928'-1"	620	SP6	1	***	5	982'-1"	656
SP4	1	***	5	940'-4"	628	SP7	1	***	5	996'-10"	666
SPIRAL COLUMN REINFORCING STEEL					3,838 LBS.	SPIRAL COLUMN REINFORCING STEEL					3,947 LBS.
CLASS "A" CONCRETE						CLASS "A" CONCRETE					
POUR 3	CAP			25.3 CU. YDS.		POUR 3	CAP			25.3 CU. YDS.	
POUR 2	COLUMNS			24.2 CU. YDS.		POUR 2	COLUMNS			25.0 CU. YDS.	
TOTAL					49.5 CU. YDS.	TOTAL					50.3 CU. YDS.
DRILLED PIER CONCRETE						DRILLED PIER CONCRETE					
POUR 1				37.4 CU. YDS.		POUR 1				37.4 CU. YDS.	

*** THE SP2 THRU SP7 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

** THE SP1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. BR-0063
ANSON COUNTY
STATION: 20+15.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
INTERIOR BENT DETAILS
AND BILL OF MATERIALS

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			

PLANS PREPARED BY:
ARCADIS
175 REGENCY WOOD PLACE, SUITE 400
CARY, NORTH CAROLINA 27518
NC LICENSE No. 0486277
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWN BY: K. E. LOFTON DATE: 7-22
CHECKED BY: G. P. HOOVER DATE: 9-23
ENGINEER OF RECORD: G. P. HOOVER DATE: 9-23

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

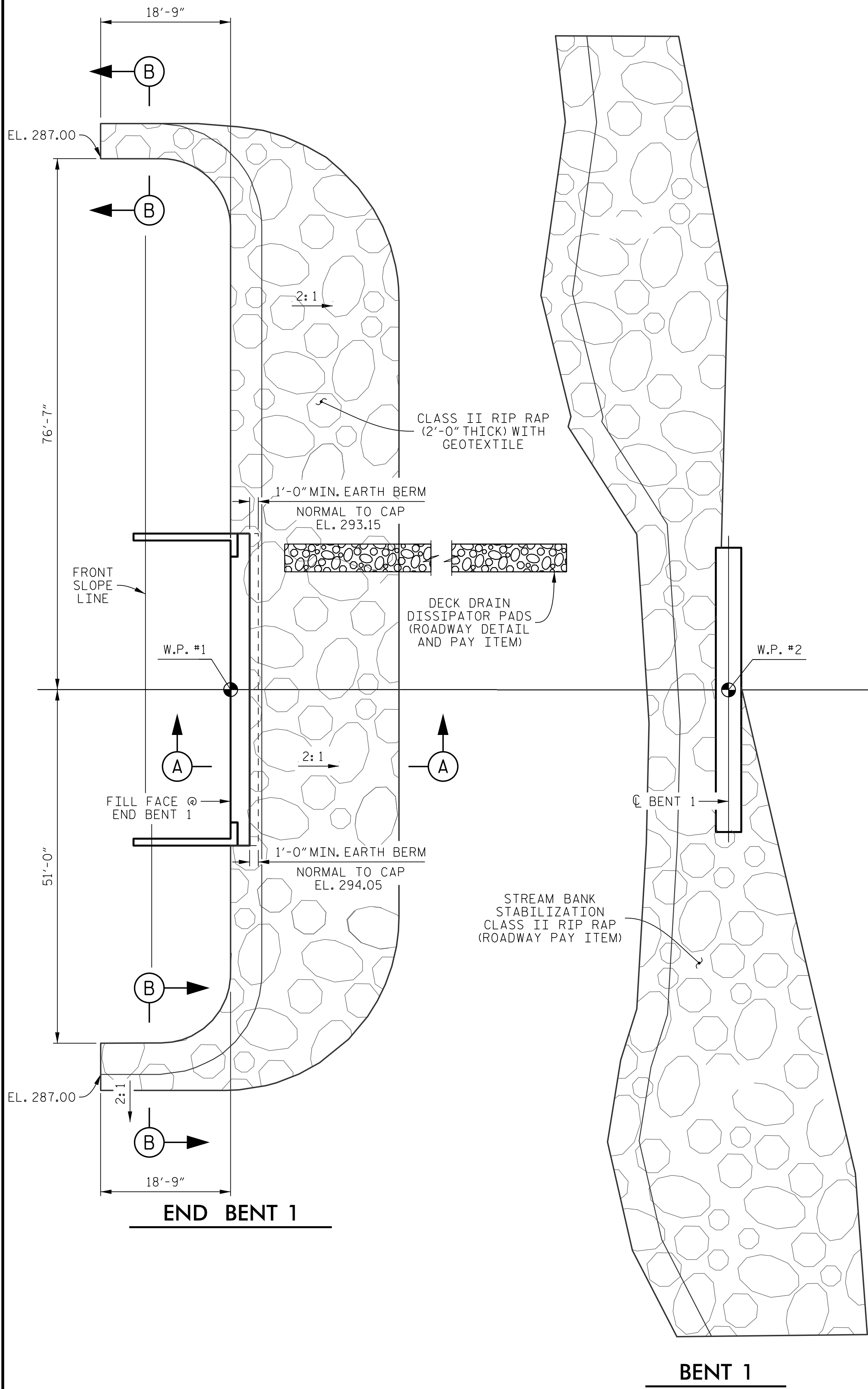
NORTH CAROLINA
PROFESSIONAL
SEAL
046289
ENGINEER
G. N. P. HOOVER

10/2/2024

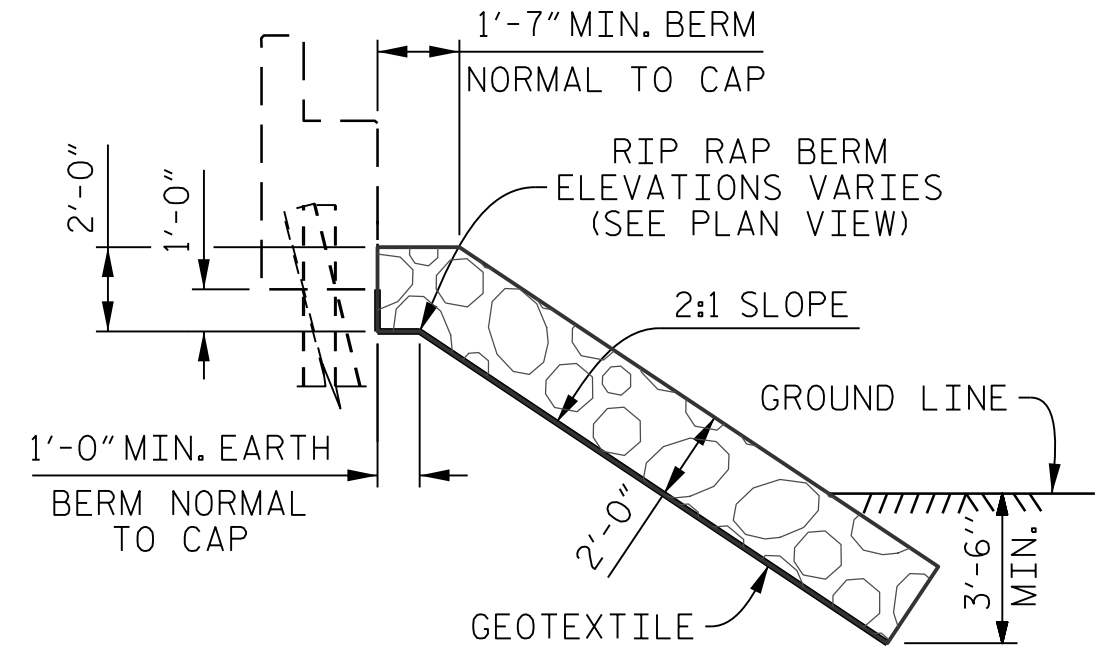
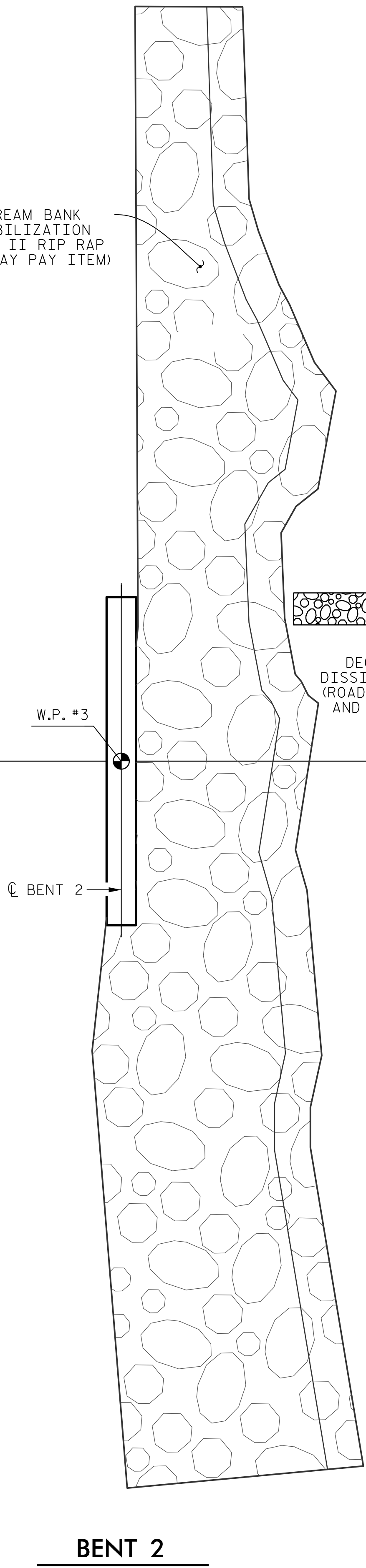
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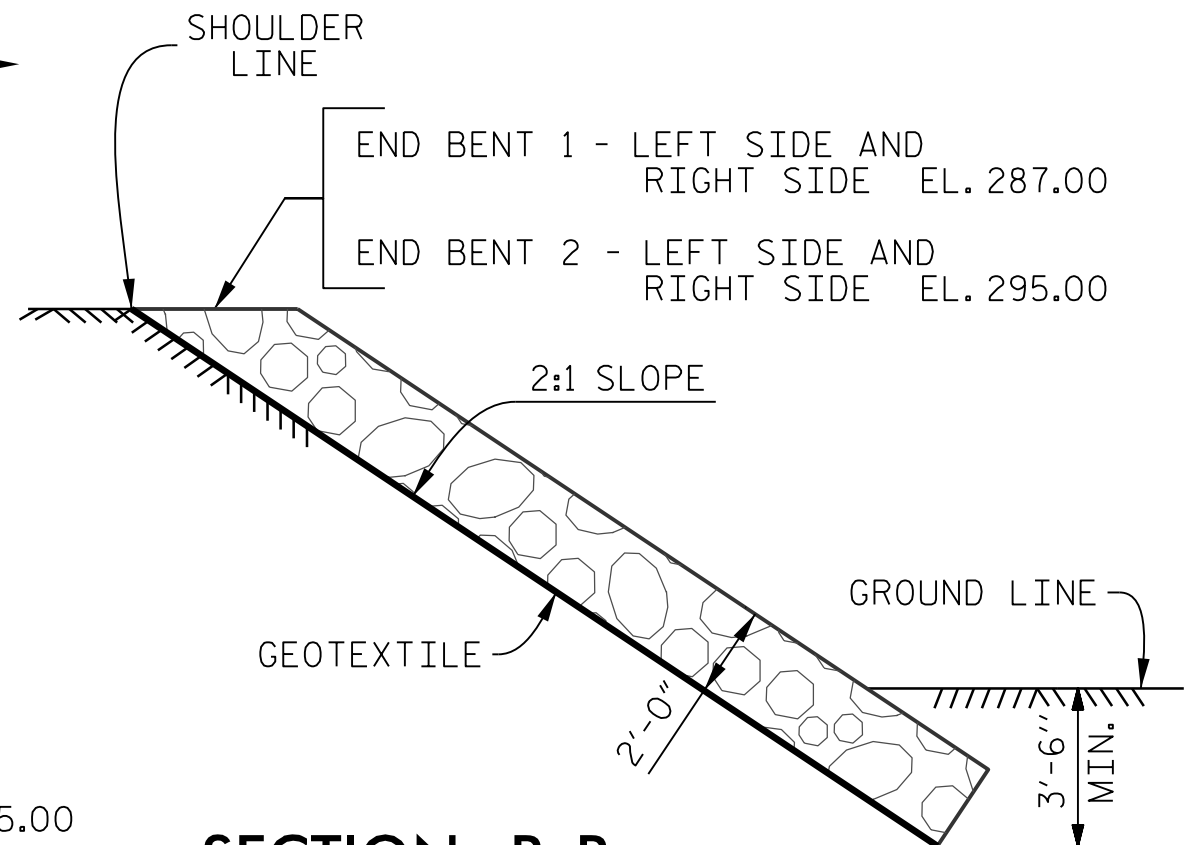
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STREAM BANK STABILIZATION CLASS II RIP RAP (ROADWAY PAY ITEM)



SECTION A-A



SECTION B-B

PROJECT NO. **BR-0063**
ANSON COUNTY
STATION: **20+15.00 -L-**

ESTIMATED QUANTITIES		
BRIDGE @ STA. 20+15.00 -L-	RIP RAP CLASS II (2'-0" THICK) (TONS)	GEOTEXTILE FOR DRAINAGE (SQUARE YARDS)
END BENT 1	325	361
END BENT 2	172	191
TOTAL	497	552

PLANS PREPARED BY :
ARCADIS
5420 WADE PARK BLVD, SUITE 350
RALEIGH, NORTH CAROLINA 27607
NC LICENSE No. 0486277
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

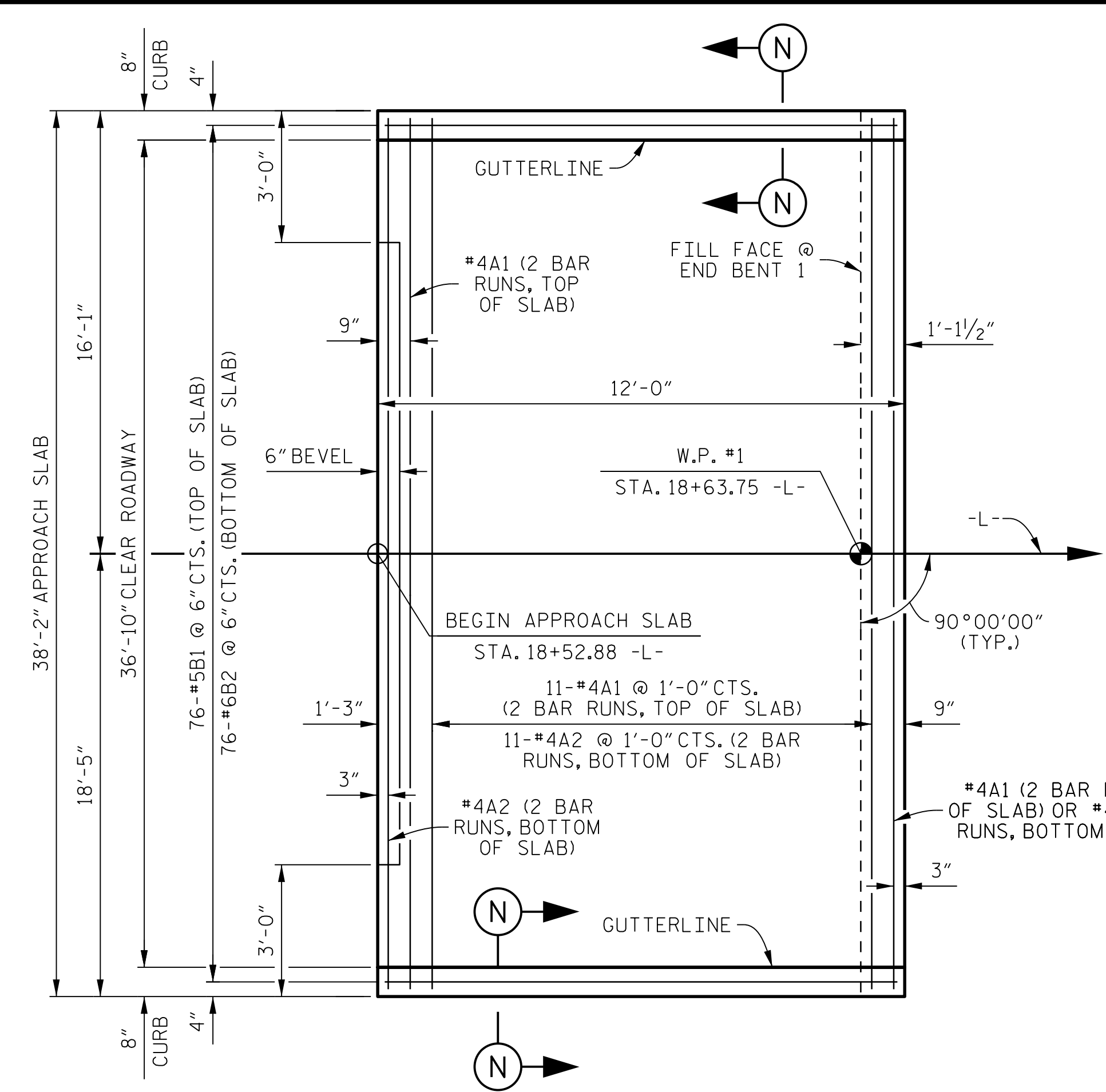
DRAWN BY : K. E. LOFTON DATE : 1-23
CHECKED BY : G. P. HOOVER DATE : 9-23
ENGINEER OF RECORD: G. P. HOOVER DATE : 9-23

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

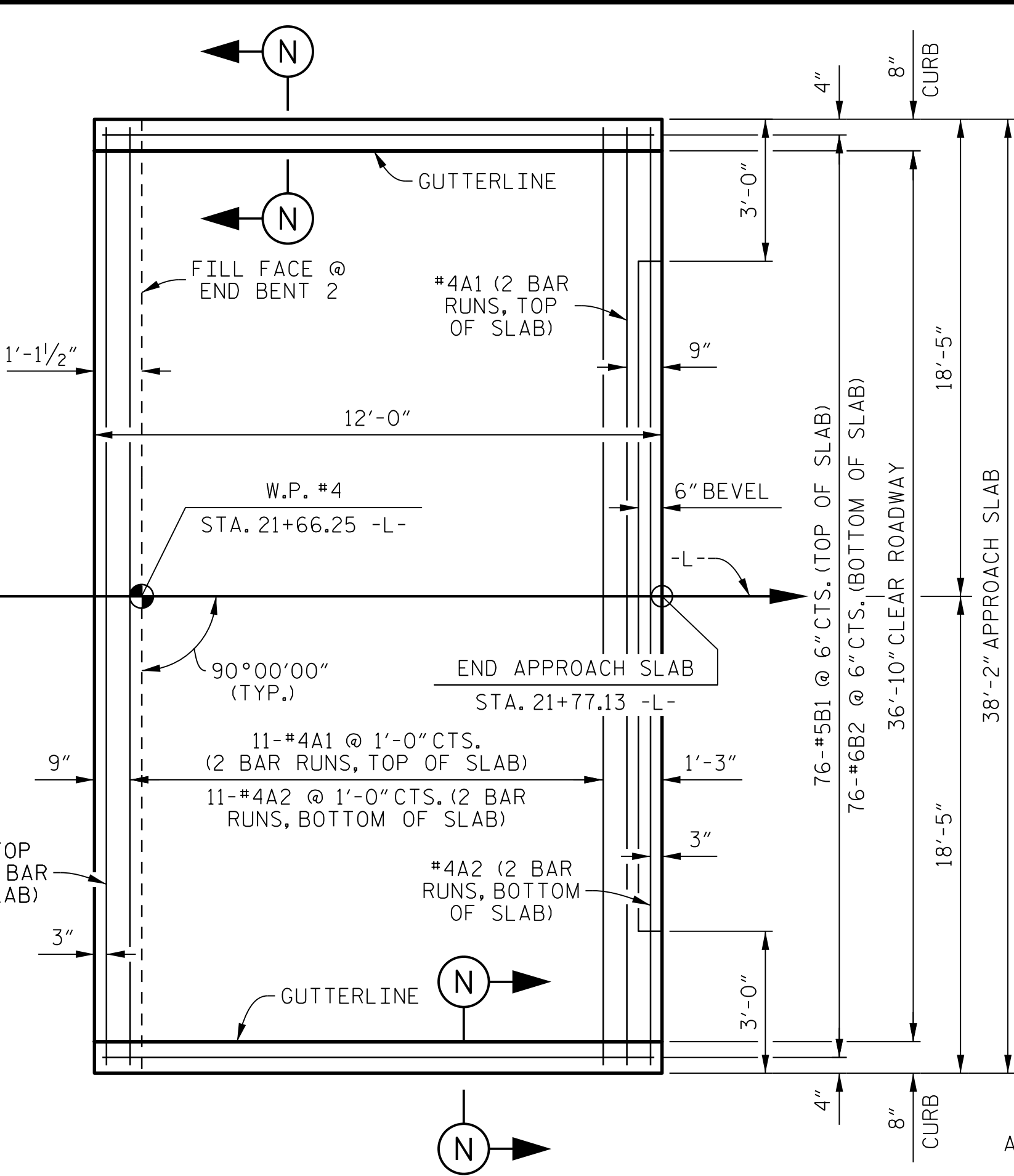
G. P. Hoover
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 046289
G. P. HOOVER
10/2/2024

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
RIP RAP DETAILS					
REVISIONS					
No.	BY:	DATE:	No.	BY:	DATE:
1			3		
2			4		
SHEET No.					TOTAL SHEETS
S-17					19

FILE: c:\pwwork\arcadis\p01\gina.hoover\dnas89249\BR-0063_Div.10_0030087_smu_a.dgn
DATE: 9/4/2024 10:05:27 AM



PLAN OF APPROACH SLAB AT END BENT 1



PLAN OF APPROACH SLAB AT END BENT 2

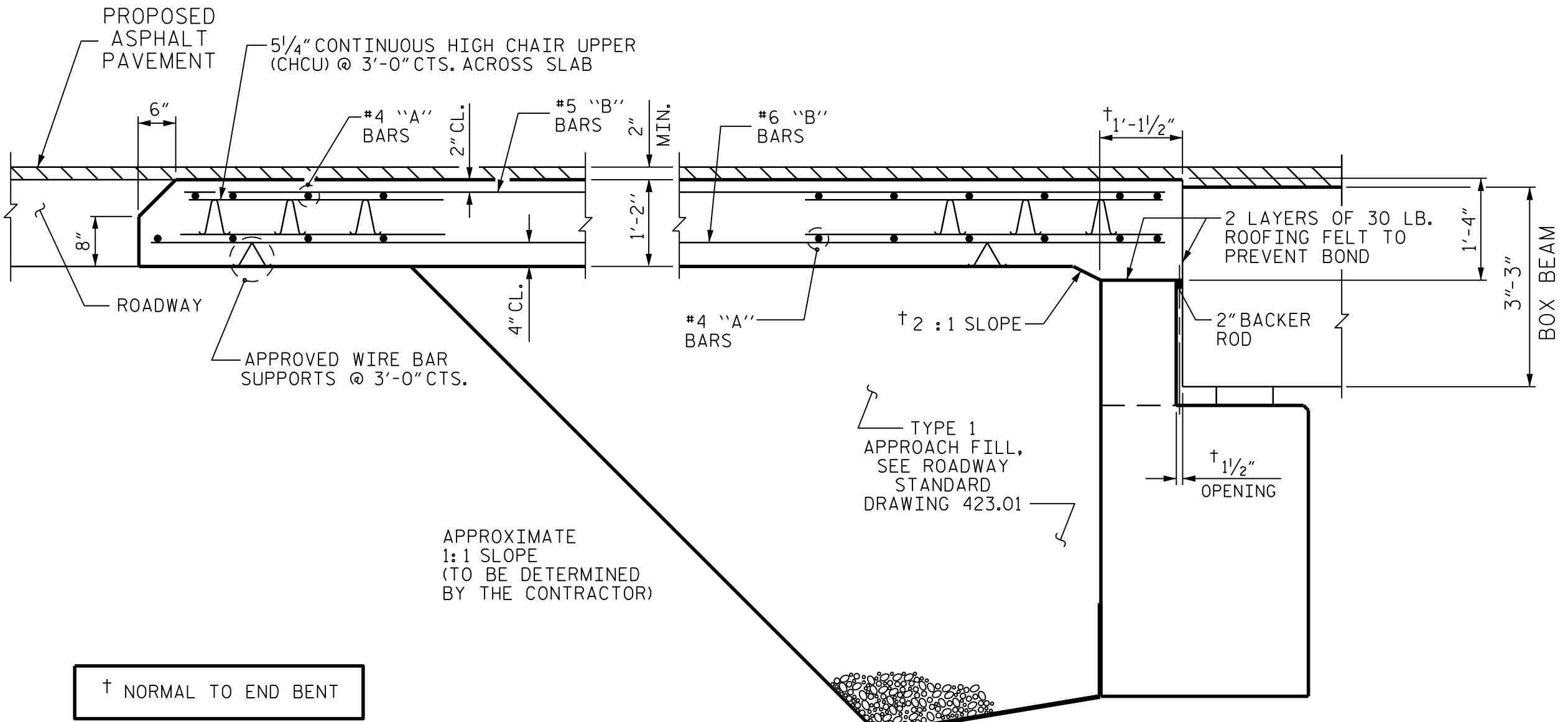
NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

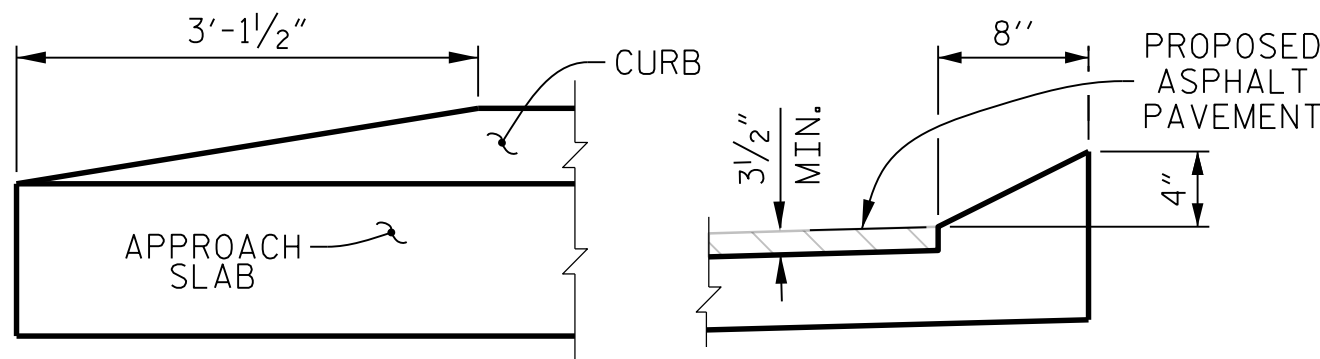
APPROACH FILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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 GROOVING IS NOT REQUIRED.

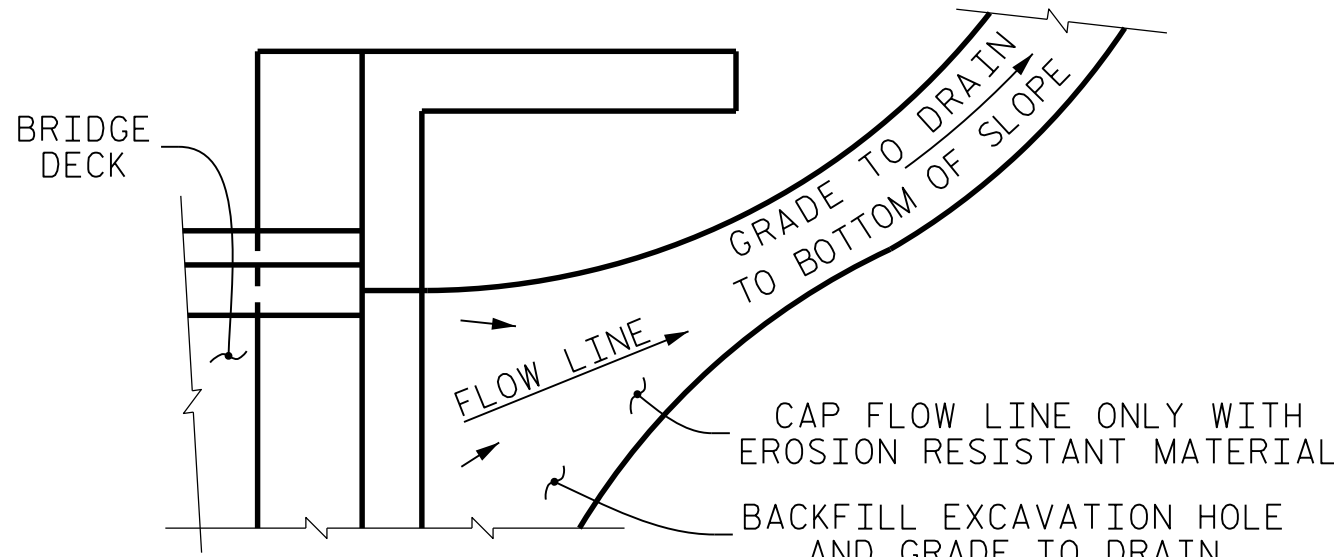


SECTION THRU SLAB
(TYPE I - APPROACH FILL)



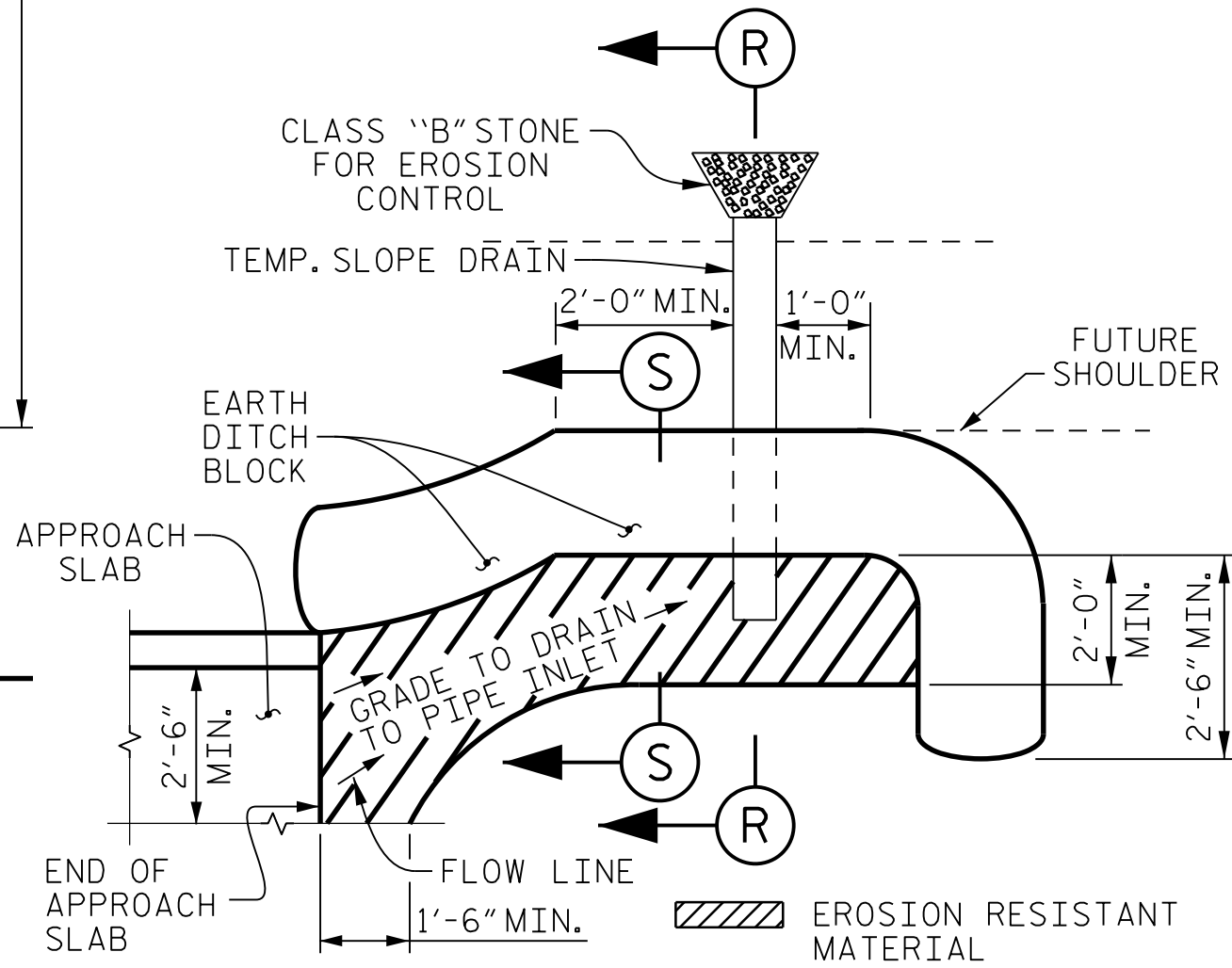
END OF CURB WITHOUT
SHOULDER BERM GUTTER

CURB DETAILS



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

TEMPORARY DRAINAGE DETAIL

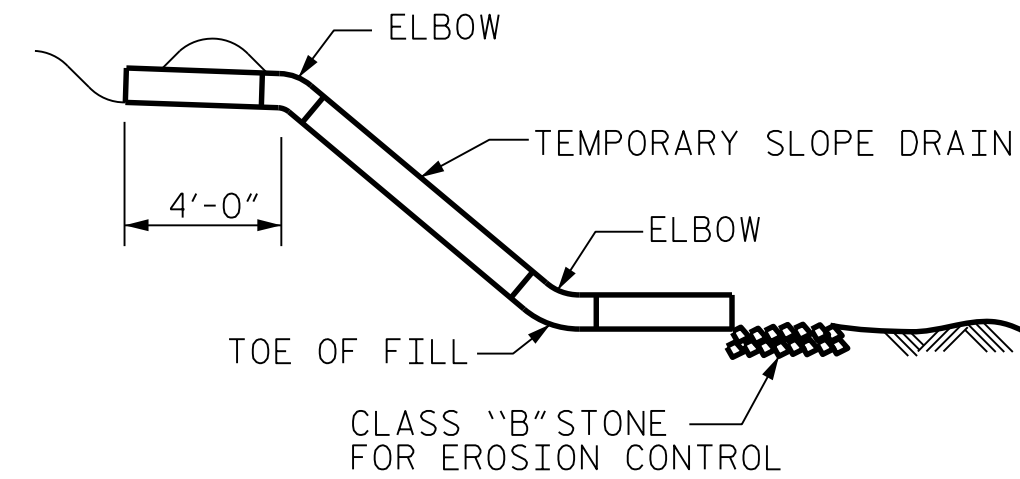


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

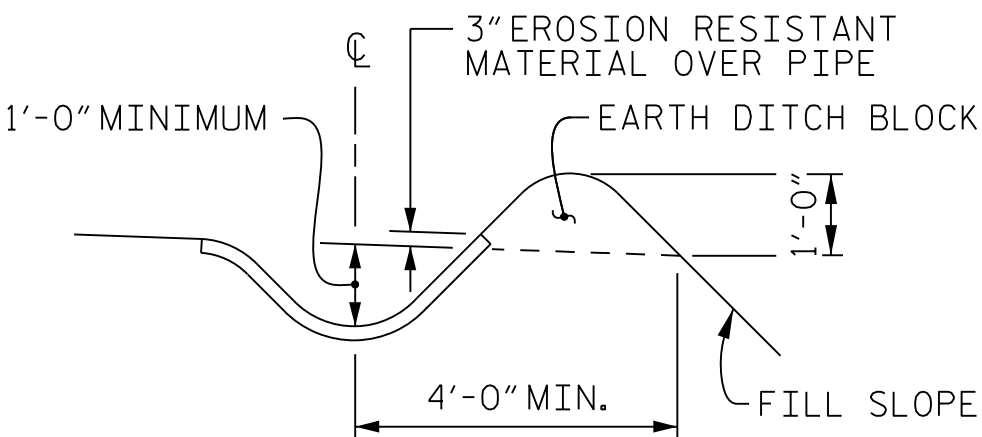
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION R-R



SECTION S-S

PROJECT NO. **BR-0063**
ANSON COUNTY
STATION: **20 + 15.00 -L-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH
SLAB FOR PRESTRESSED
CONCRETE BOX BEAM UNIT
(SUB-REGIONAL TIER - 90° SKEW)

REVISIONS						SHEET No. S-18
No.	BY:	DATE:	No.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			

STD. No. BAS_BB_39.90S

PLANS PREPARED BY :
ARCADIS
175 REGENCY WOOD PLACE, SUITE 400
CARY, NORTH CAROLINA 27518
NC LICENSE No. 0486277
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED
NORTH CAROLINA
PROFESSIONAL
SEAL
046289
ENGINEER
GINA P. HOOVER
10/2/2024

DRAWN BY : **K. E. LOFTON** DATE : **6-22**
CHECKED BY : **G. P. HOOVER** DATE : **9-23**
ENGINEER OF RECORD: **G. P. HOOVER** DATE : **9-23**

FILE: c:\pwwork\enrad\pww01\gina.hoover\dms89249\BR-0063 Div. 10_0030087_sml.dgn
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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 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 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 1'-0" 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" 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.

ENGLISH

JANUARY, 1990

STD. No. SN