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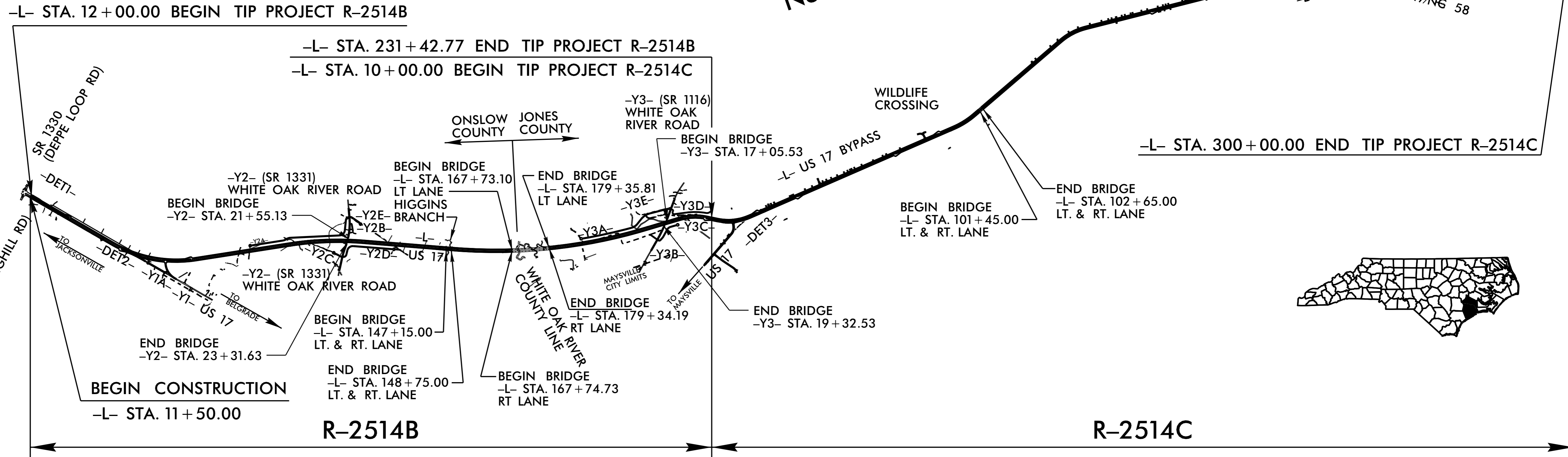
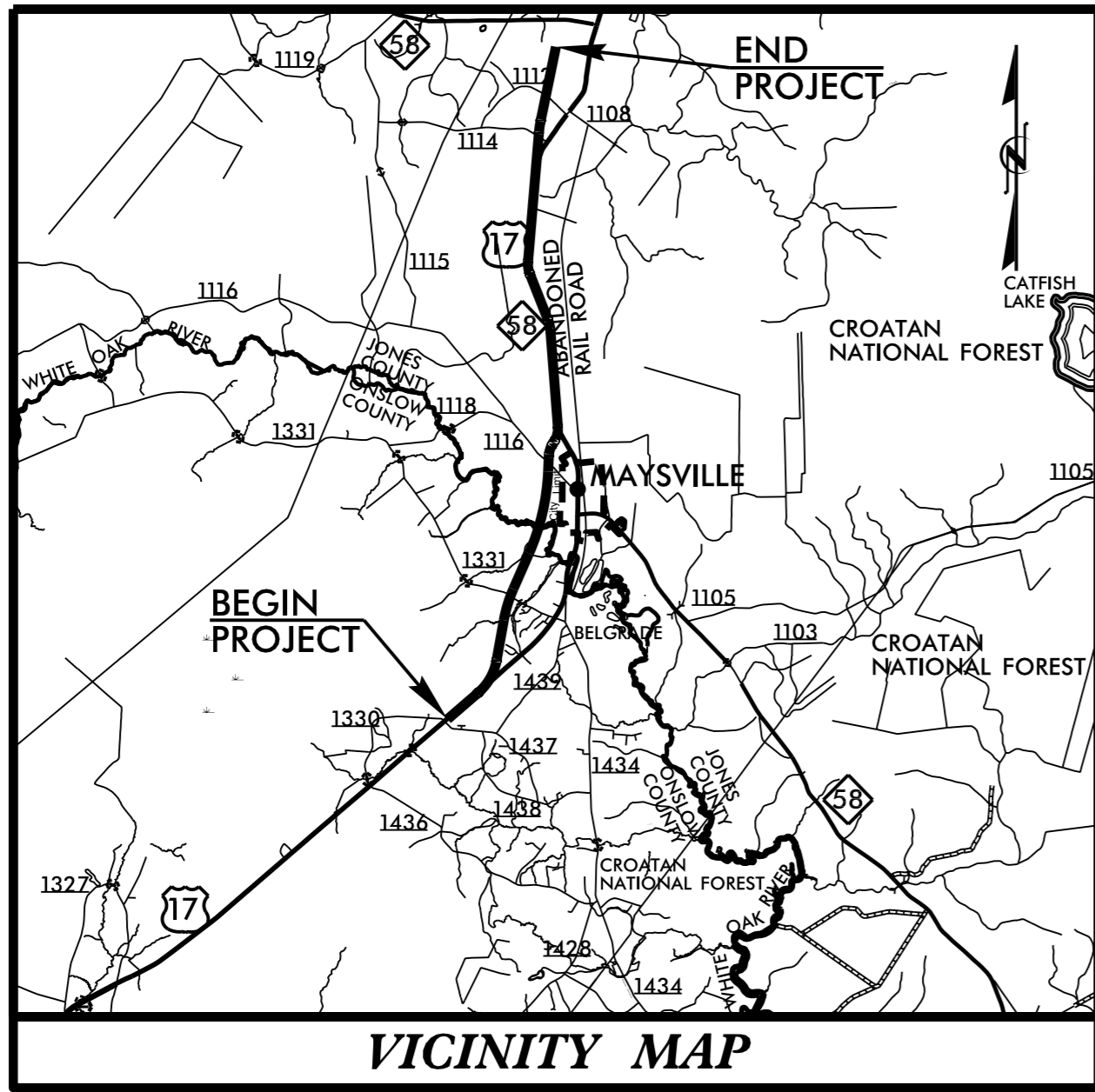
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# ONSLOW & JONES COUNTIES

LOCATION: US 17 FROM SOUTH OF BELGRADE AT  
SR 1330/SR 1439 TO SOUTH OF NC 58 NEAR POLLOCKSVILLE

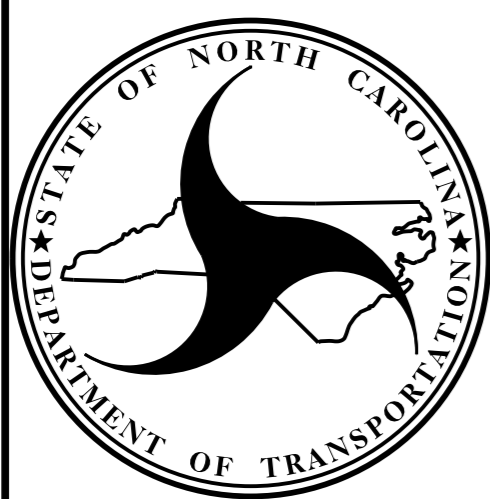
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2514B /R-2514C		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34442.1.3		PE (R-2514B)	
34442.2.S3		ROW & UTIL (R-2514B)	
34442.3.S4		CONST. (R-2514B)	
34442.1.4		PE (R-2514C)	
34442.2.4		ROW & UTIL (R-2514C)	
34442.3.S4		CONST. (R-2514C)	



## STRUCTURES

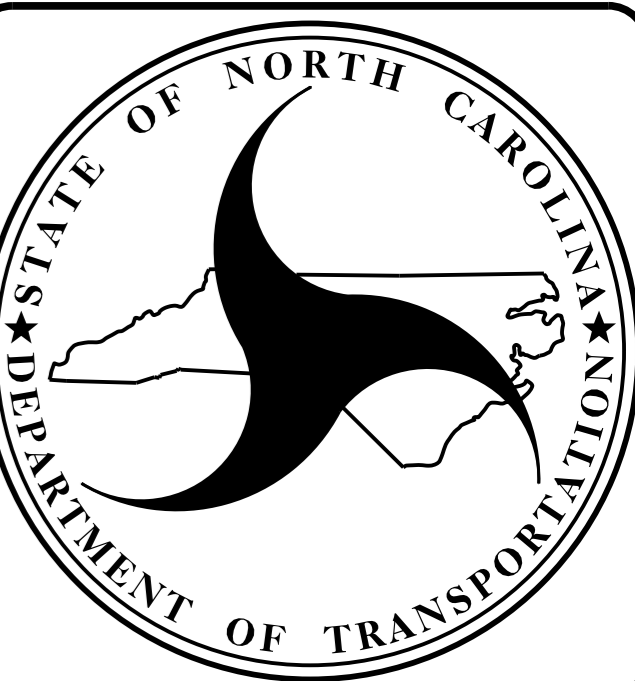
CONTRACT: C203591 TIP PROJECTS: R-2514B /R-2514C



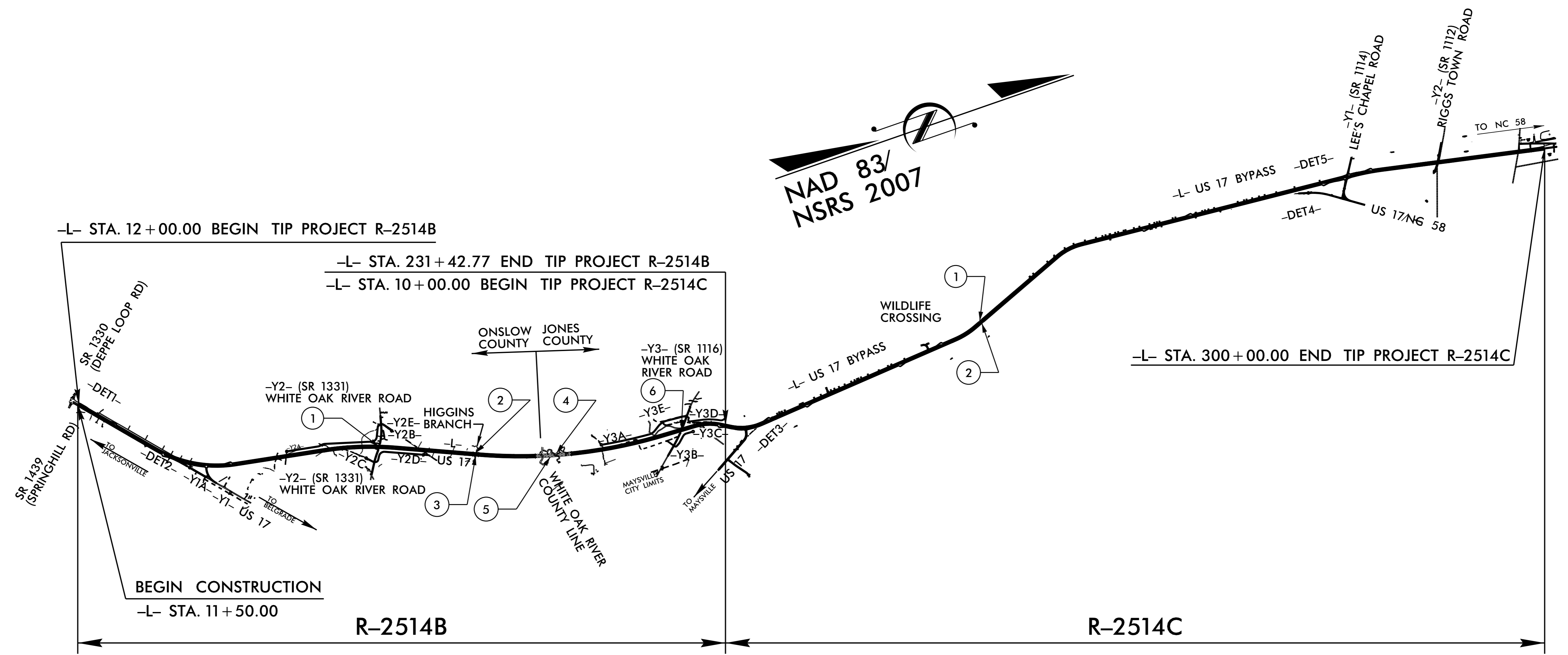
PROJECT LENGTH	
LENGTH ROADWAY OF TIP PROJECT R-2514B	= 3.906 MILES
LENGTH STRUCTURE OF TIP PROJECT R-2514B	= 0.250 MILES
TOTAL LENGTH OF TIP PROJECT R-2514B	= 4.156 MILES
NOTE: -L- NBL USED TO DETERMINE LENGTH OF PROJECT	
LENGTH ROADWAY OF TIP PROJECT R-2514C	= 5.469 MILES
LENGTH STRUCTURE OF TIP PROJECT R-2514C	= 0.023 MILES
TOTAL LENGTH OF TIP PROJECT R-2514C	= 5.492 MILES
NOTE: -L- NBL USED TO DETERMINE LENGTH OF PROJECT	
LENGTH ROADWAY OF TIP PROJECT R-2514B /R-2514C	= 9.375 MILES
LENGTH STRUCTURE OF TIP PROJECT R-2514B /R-2514C	= 0.273 MILES
TOTAL LENGTH OF TIP PROJECT R-2514B /R-2514C	= 9.648 MILES

Prepared In the Office of:	
<b>DIVISION OF HIGHWAYS</b> 1000 Birch Ridge Dr., Raleigh NC, 27610	
2012 STANDARD SPECIFICATIONS	Emily E. Murray, P.E. PROJECT ENGINEER
LETTING DATE: JUNE 16, 2015	Timothy L. Coggins, P.E. PROJECT DESIGN ENGINEER
	A. Keith Paschal, P.E. PROJECT DESIGN ENGINEER

STRUCTURES MANAGEMENT UNIT



24-MAR-2015 09:42  
\$\$\$\$\$DCN\$\$\$\$\$  
nru:fin



R-2514B INDEX			
STR. #	STATION	DESCRIPTION	SHEET #
1	116+07.49 -L-	BRIDGE ON SR 1331 OVER US 17 BYPASS BETWEEN SR 1332 AND SR 1434	S1-1 THRU S1-31
2	147+95.00 -L-	BRIDGE ON PROPOSED US 17 BYPASS OVER HIGGINS BRANCH BETWEEN SR 1331 AND SR 1116 (LEFT LANE)	S2-1 THRU S2-34
3	147+95.00 -L-	BRIDGE ON PROPOSED US 17 BYPASS OVER HIGGINS BRANCH BETWEEN SR 1331 AND SR 1116 (RIGHT LANE)	S3-1 THRU S3-34
4	173+54.46 -L-	BRIDGE ON PROPOSED US 17 BYPASS OVER WHITE OAK RIVER BETWEEN SR 1331 AND SR 1116 (LEFT LANE)	S4-1 THRU S4-75
5	173+54.46 -L-	BRIDGE ON PROPOSED US 17 BYPASS OVER WHITE OAK RIVER BETWEEN SR 1331 AND SR 1116 (RIGHT LANE)	S5-1 THRU S5-75
6	216+65.63 -L-	BRIDGE ON SR 1116 OVER US 17 BYPASS BETWEEN SR 1118 AND US 17 BUSINESS	S6-1 THRU S6-31

R-2514C INDEX			
STR. #	STATION	DESCRIPTION	SHEET #
1	102+05.00 -L-	BRIDGE ON US 17 OVER WILDLIFE CROSSING BETWEEN SR 1116 AND NC 58 (LEFT LANE)	S-1 THRU S-28
2	102+05.00 -L-	BRIDGE ON US 17 OVER WILDLIFE CROSSING BETWEEN SR 1116 AND NC 58 (RIGHT LANE)	S-29 THRU S-56

PROJECT NO. R-2514B/R-2514C  
ONSLOW & JONES COUNTY

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
INDEX					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO.
					TOTAL SHEETS

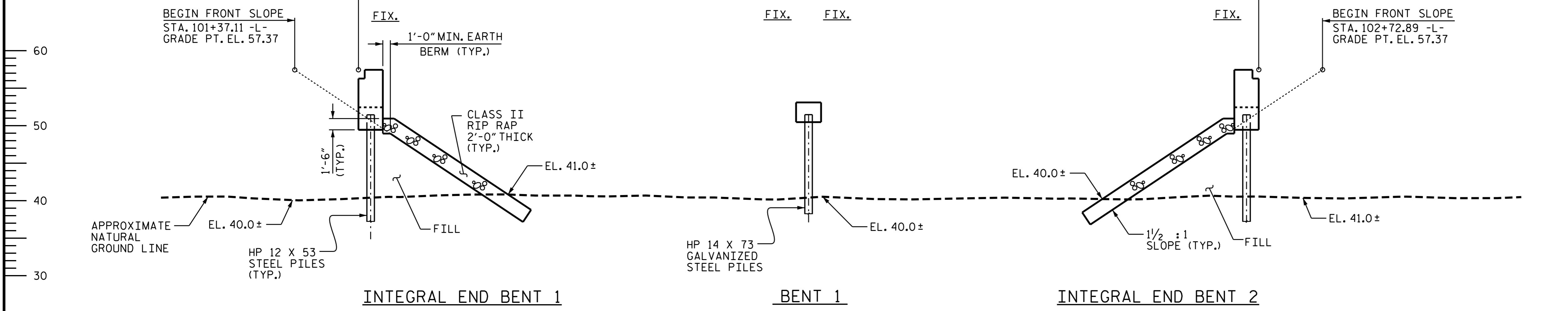
DRAWN BY : N. Ruffin DATE : 2/4/15  
CHECKED BY : A.K. PASCHAL DATE : 2/5/15

101+25      101+50      101+75      102+00      102+25      102+50      102+75      103+00

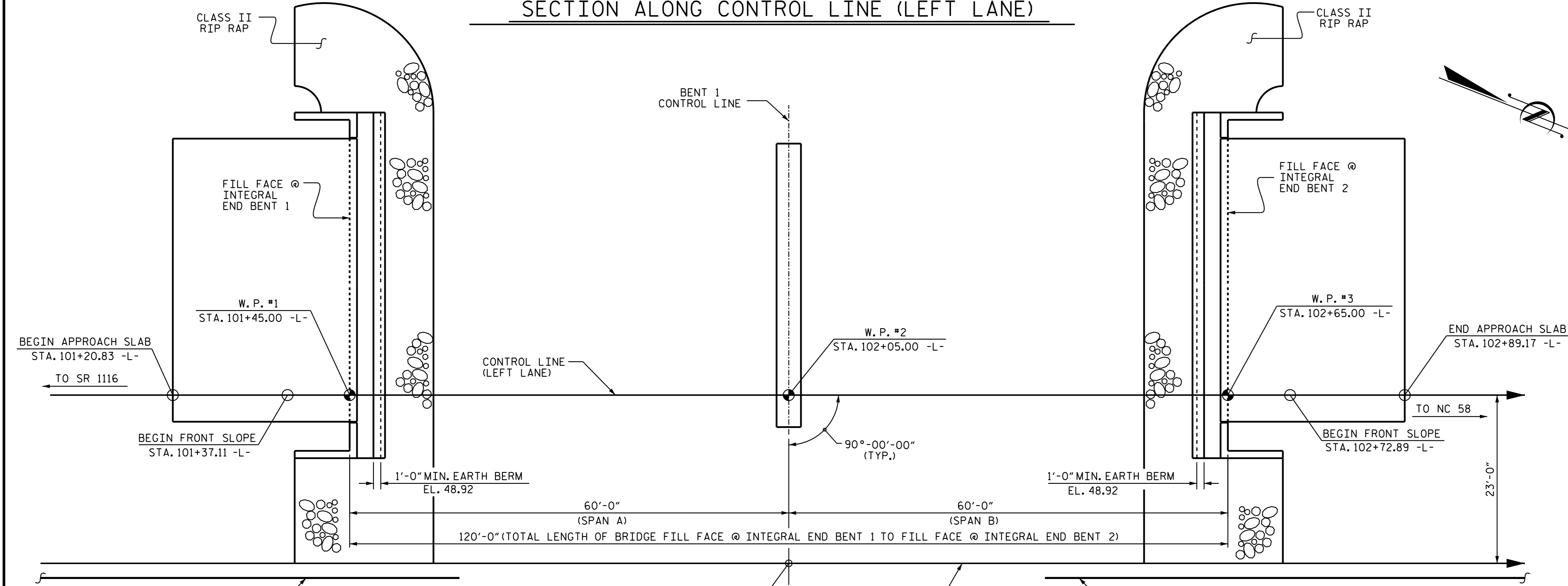
**GRADE DATA**  
 +0.3375 %      -0.3180 %  
 P.I. = 102+00.00 -L-  
 EL. = 57.94  
 V.C. = 670 FT.

SPAN A

SPAN B



SECTION ALONG CONTROL LINE (LEFT LANE)



PLAN

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-  
 SHEET 1 OF 3      BRIDGE #91

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE OVER WILDLIFE  
 CROSSING ON US 17 BETWEEN  
 SR 1116 AND NC 58  
 (LEFT LANE)

DRAWN BY: B. N. BARODAWALA      DATE: 4-23-14  
 CHECKED BY: D. G. ELY      DATE: 6-24-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL      DATE: 2-9-15

NORTH CAROLINA  
 PROFESSIONAL  
 SEAL  
 025516  
 ENGINEER  
 EMILY E. MURRAY  
 CAEBRTAEDCSBAEJ...  
 3/23/2015

NORTH CAROLINA  
 PROFESSIONAL  
 SEAL  
 22005  
 ENGINEER  
 A. KEITH PASCHAL  
 FBBBAEDBDFC48F...  
 3/23/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			56



**FOUNDATION NOTES:**

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 120 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE.

PILES AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 180 TONS PER PILE.

DRIVE PILES AT BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 240 TONS PER PILE.

INSTALL PILES AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 20 FEET.

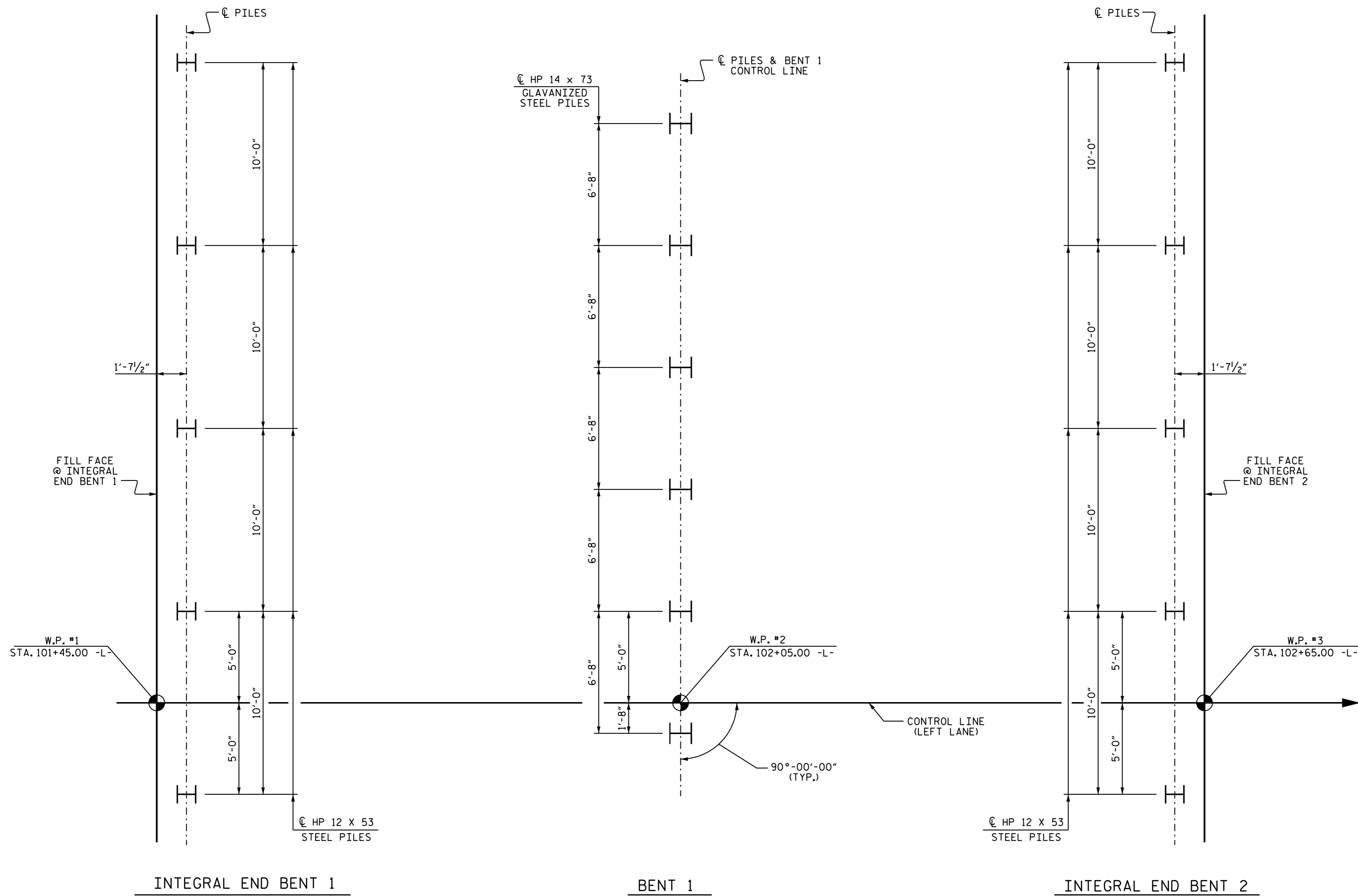
STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT END BENT 1, BENT 1 AND END BENT 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 73,500 FT-LBS TO 91,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT 1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT BENT 1. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED AT END BENT 1 AND END BENT 2. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

OBSERVE A TWO MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO WITHIN 2 FT OF FINISHED GRADE BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT 1 AND END BENT 2.



**FOUNDATION LAYOUT**

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 2 OF 3



DocuSigned by:  
 A. Keith Paschal

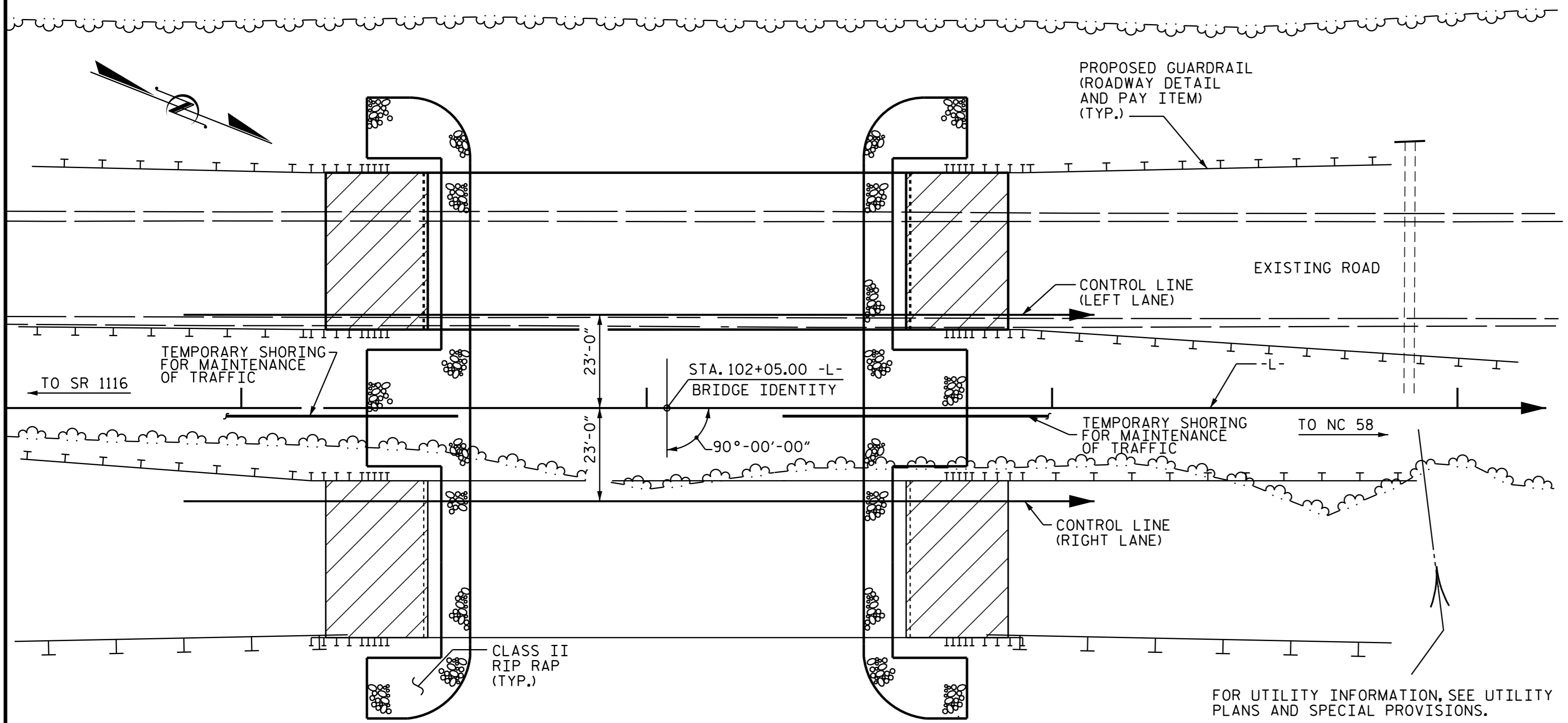
3/23/2015

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE OVER WILDLIFE  
 CROSSING ON US 17 BETWEEN  
 SR 1116 AND NC 58  
 (LEFT LANE)

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2	
1			3			TOTAL SHEETS	
2			4			56	

DRAWN BY : B. N. BARODAWALA DATE : 4-23-14  
 CHECKED BY : D. G. ELY DATE : 6-24-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 2-9-15

B.M. #4 : RR SPIKE IN 20" LEANING PINE @ STA. 102+48.00 -BL-, 321' RIGHT, EL. 38.91'



LOCATION SKETCH

NOTES:

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
- REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.
- FOR INTERIOR BENT 1, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED, SEE INTERIOR BENT SHEETS FOR REQUIRED GALVANIZED LENGTHS. PAYMENT FOR PARTIALLY GALVANIZED PILES WILL BE MADE UNDER THE CONTRACT UNIT PRICE FOR GALVANIZED STEEL PILES.
- TEMPORARY SHORING WILL BE REQUIRED IN THE AREA INDICATED IN THE PLAN VIEW.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

TOTAL BILL OF MATERIAL

	PDA TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	36" PRESTRESSED CONCRETE GIRDERS		HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		STEEL PILE POINTS	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS
							NO.	LIN.FT.	NO.	LIN.FT.	NO.	LIN.FT.						
SUPERSTRUCTURE	EA.	SO. FT.	SO. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	NO.	LIN.FT.	NO.	LIN.FT.	EA.	EA.	LIN.FT.	TONS	SO.YDS.	LUMP SUM
END BENT 1		4950	5845	22.2	LUMP SUM	3718	10	586.25	5	275			5	3	236.67	235	262	LUMP SUM
BENT 1				12.5		2421					6	390	6	3				
END BENT 2				22.2		3718			5	275			5	3		235	262	
TOTAL	2	4950	5845	56.9	LUMP SUM	9857	10	586.25	10	550	6	390	16	9	236.67	470	524	LUMP SUM

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 3 OF 3



DocuSigned by:  
 A. Keith Paschal  
 F8B6AD8D2FC48F...

3/23/2015

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE OVER WILDLIFE  
 CROSSING ON US 17 BETWEEN  
 SR 1116 AND NC 58  
 (LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			56

DRAWN BY : B. N. BARODAWALA DATE : 4-23-14  
 CHECKED BY : D. G. ELY DATE : 6-24-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 2-9-15



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

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

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								
						LIVELOAD FACTORS (%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)	LIVELOAD FACTORS (%LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.03	--	1.75	0.766	1.67	A	ER	28.646	0.867	2.23	A	I	22.917	0.80	0.867	1.03	A	I	28.646		
	HL-93(0pr)	N/A	--	2.16	--	1.35	0.766	2.16	A	ER	28.646	0.867	2.89	A	I	22.917	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.30	46.814	1.75	0.766	2.10	A	ER	28.646	0.867	2.57	A	I	22.917	0.80	0.729	1.30	A	I	28.646		
	HS-20(0pr)	36.000	--	2.73	98.160	1.35	0.766	2.73	A	ER	28.646	0.867	3.33	A	I	22.917	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	--	2.78	37.497	1.40	0.766	5.62	A	ER	28.646	0.867	6.68	A	I	28.646	0.80	0.729	2.78	A	I	28.646	
		SNGARBS2	20.000	--	2.14	42.715	1.40	0.766	4.32	A	ER	28.646	0.867	5.07	A	I	22.917	0.80	0.729	2.14	A	I	28.646	
		SNAGRIS2	22.000	--	2.05	45.132	1.40	0.766	4.15	A	ER	28.646	0.867	4.81	A	I	22.917	0.80	0.729	2.05	A	I	28.646	
		SNCOTTS3	27.250	--	1.38	37.715	1.40	0.766	2.80	A	ER	28.646	0.867	3.37	A	I	28.646	0.80	0.729	1.38	A	I	28.646	
		SNAGGRS4	34.925	--	1.18	41.269	1.40	0.766	2.39	A	ER	28.646	0.867	3.01	A	I	22.917	0.80	0.729	1.18	A	I	28.646	
		SNS5A	35.550	--	1.15	41.017	1.40	0.766	2.33	A	ER	28.646	0.867	3.16	A	I	22.917	0.80	0.729	1.15	A	I	28.646	
		SNS6A	39.950	--	1.07	42.721	1.40	0.766	2.16	A	ER	28.646	0.867	2.97	A	I	22.917	0.80	0.729	1.07	A	I	28.646	
		SNS7B	42.000	--	1.02	42.788	1.40	0.766	2.06	A	ER	28.646	0.867	3.05	A	I	22.917	0.80	0.729	1.02	A	I	28.646	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000	--	1.31	43.139	1.40	0.766	2.64	A	ER	28.646	0.867	3.46	A	I	22.917	0.80	0.729	1.31	A	I	28.646	
		TNT4A	33.075	--	1.32	43.527	1.40	0.766	2.66	A	ER	28.646	0.867	3.28	A	I	22.917	0.80	0.729	1.32	A	I	28.646	
		TNT6A	41.600	--	1.09	45.202	1.40	0.766	2.20	A	ER	28.646	0.867	3.51	A	I	22.917	0.80	0.729	1.09	A	I	28.646	
		TNT7A	42.000	--	1.10	46.106	1.40	0.766	2.22	A	ER	28.646	0.867	3.16	A	I	22.917	0.80	0.729	1.10	A	I	28.646	
		TNT7B	42.000	--	1.15	48.147	1.40	0.766	2.32	A	ER	28.646	0.867	2.88	A	I	22.917	0.80	0.729	1.15	A	I	28.646	
		TNAGRIT4	43.000	--	1.08	46.583	1.40	0.766	2.19	A	ER	28.646	0.867	2.76	A	I	22.917	0.80	0.729	1.08	A	I	28.646	
		TNAGT5A	45.000	--	1.02	45.743	1.40	0.766	2.06	A	ER	28.646	0.867	2.89	A	I	22.917	0.80	0.729	1.02	A	I	28.646	
		TNAGT5B	45.000	3	1.00	44.994	1.40	0.766	2.02	A	ER	28.646	0.867	2.61	A	I	22.917	0.80	0.729	1.00	A	I	28.646	

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)

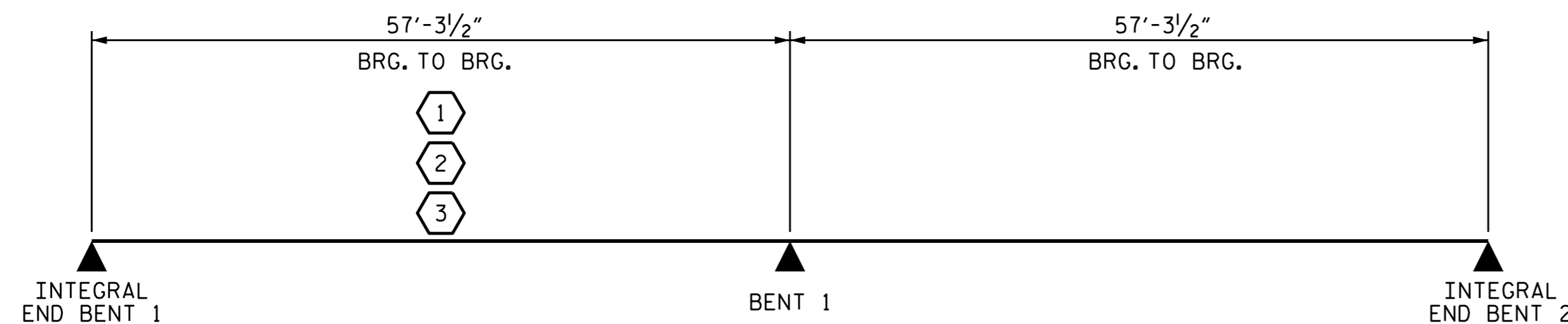
3 LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

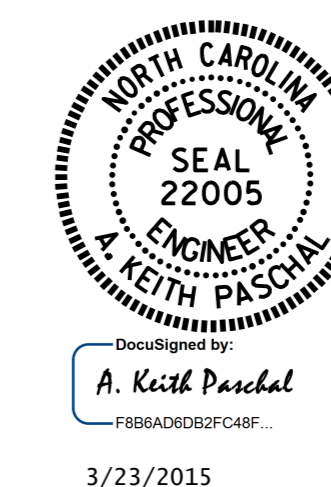
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GIRDER LOCATION

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



PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-



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

ASSEMBLED BY : E. K. POPE DATE : 5-24-13  
 CHECKED BY : O. PUIGCERVER DATE : 2-6-15  
 DESIGN ENGINEER OF RECORD : A. K. PASCHAL DATE : 2-9-15  
 DRAWN BY : MAA 1/08  
 CHECKED BY : GM/DI 2/08

REV. 11/12/08RR MAA/GM  
 REV. 10/1/11 MAA/GM

REVISIONS						SHEET NO. S-4
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

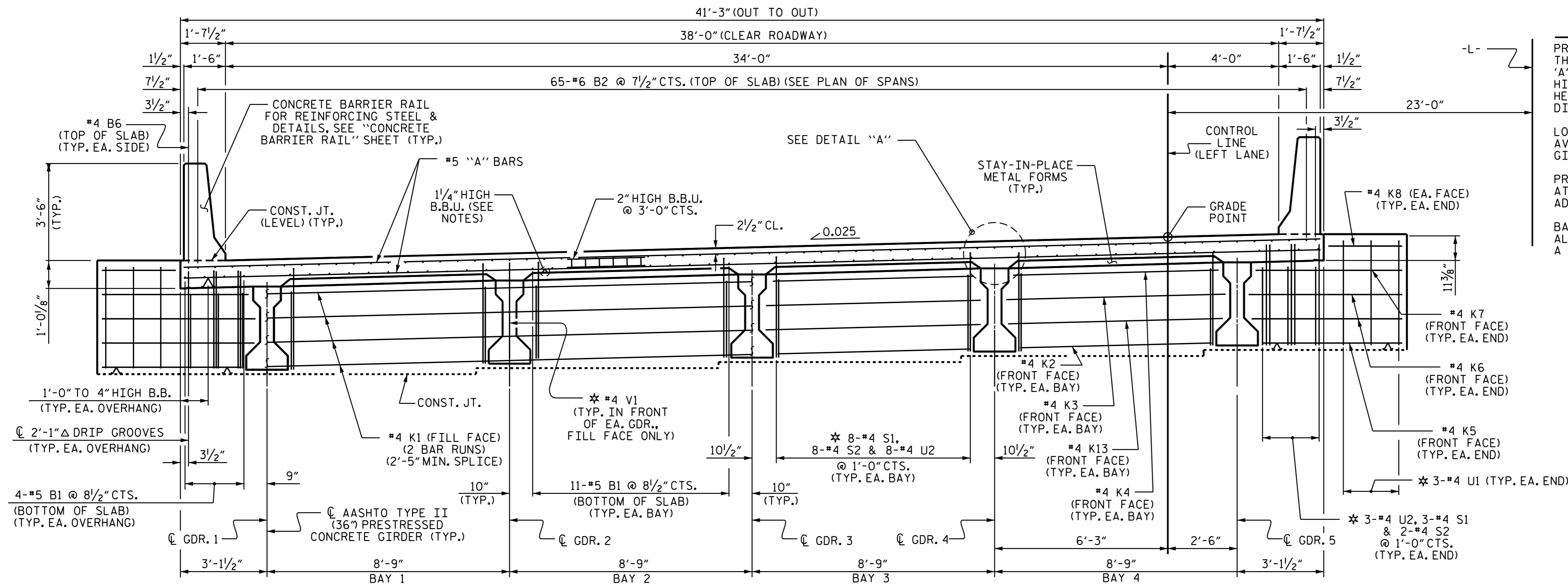
**NOTES**

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.

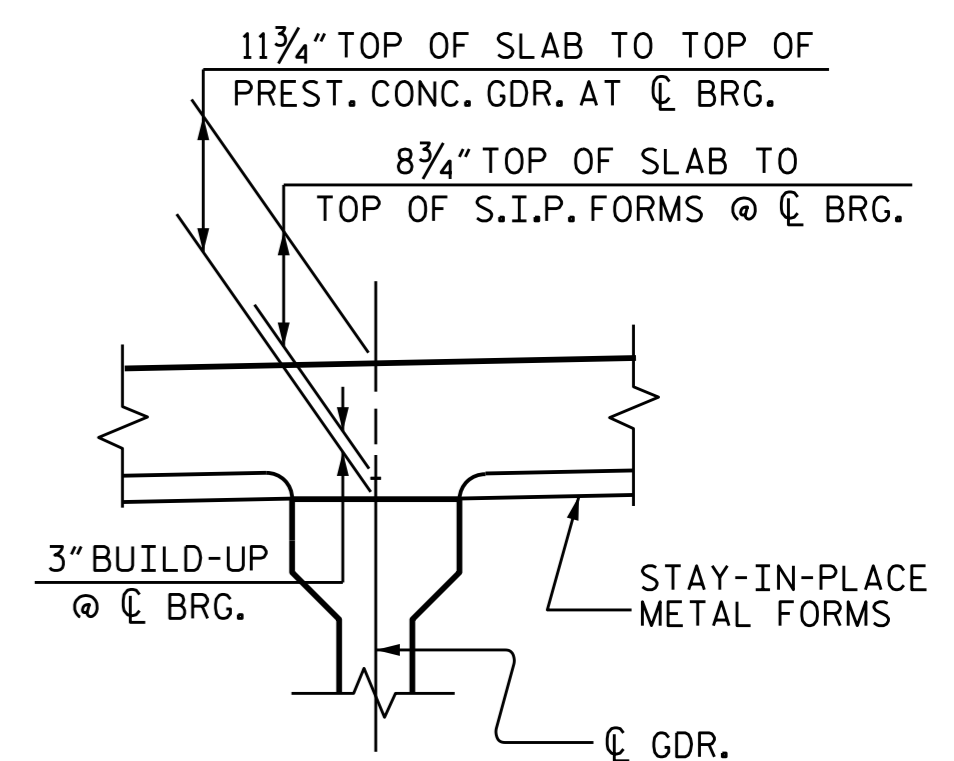
PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

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.

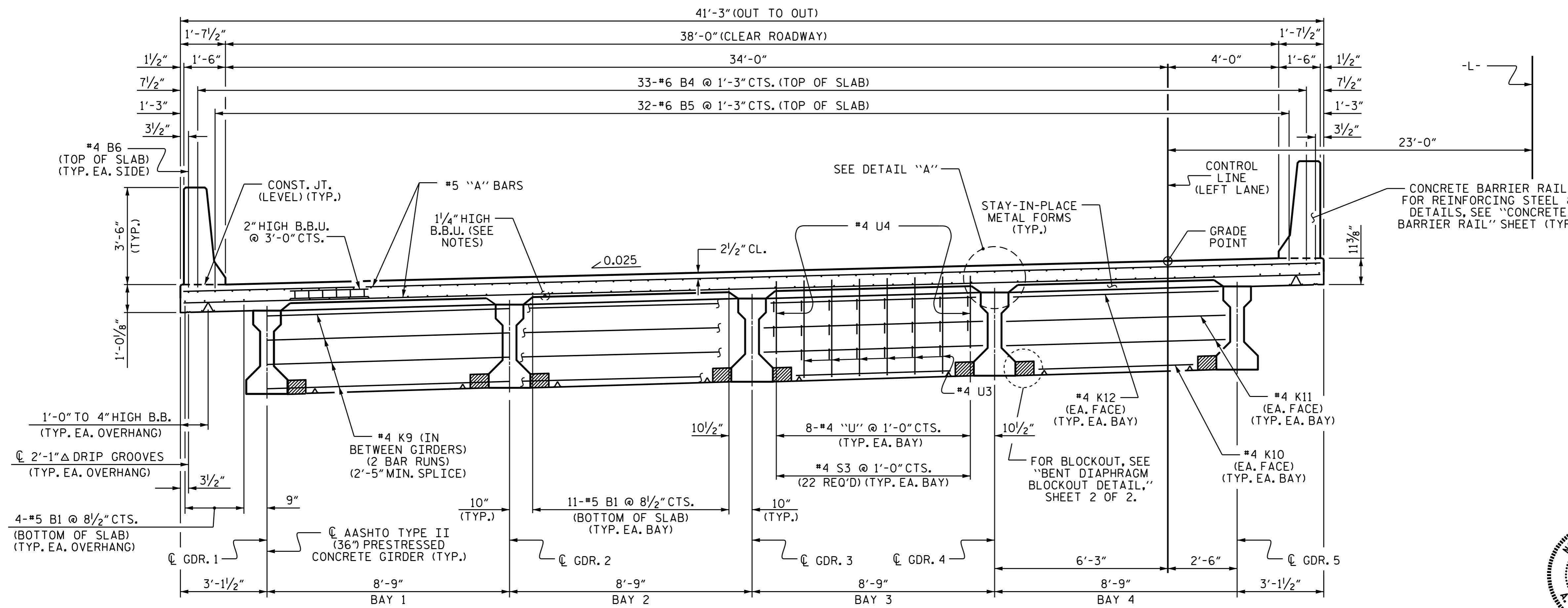


**TYPICAL SECTION @ INTEGRAL END BENT**

\* #4 S1, #4 S2, #4 U1, #4 U2, & #4 V1 BARS TO MATCH WITH #4 'V' BARS IN INTEGRAL END BENT CAP



**DETAIL 'A'**



**TYPICAL SECTION @ BENT DIAPHRAGM**

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

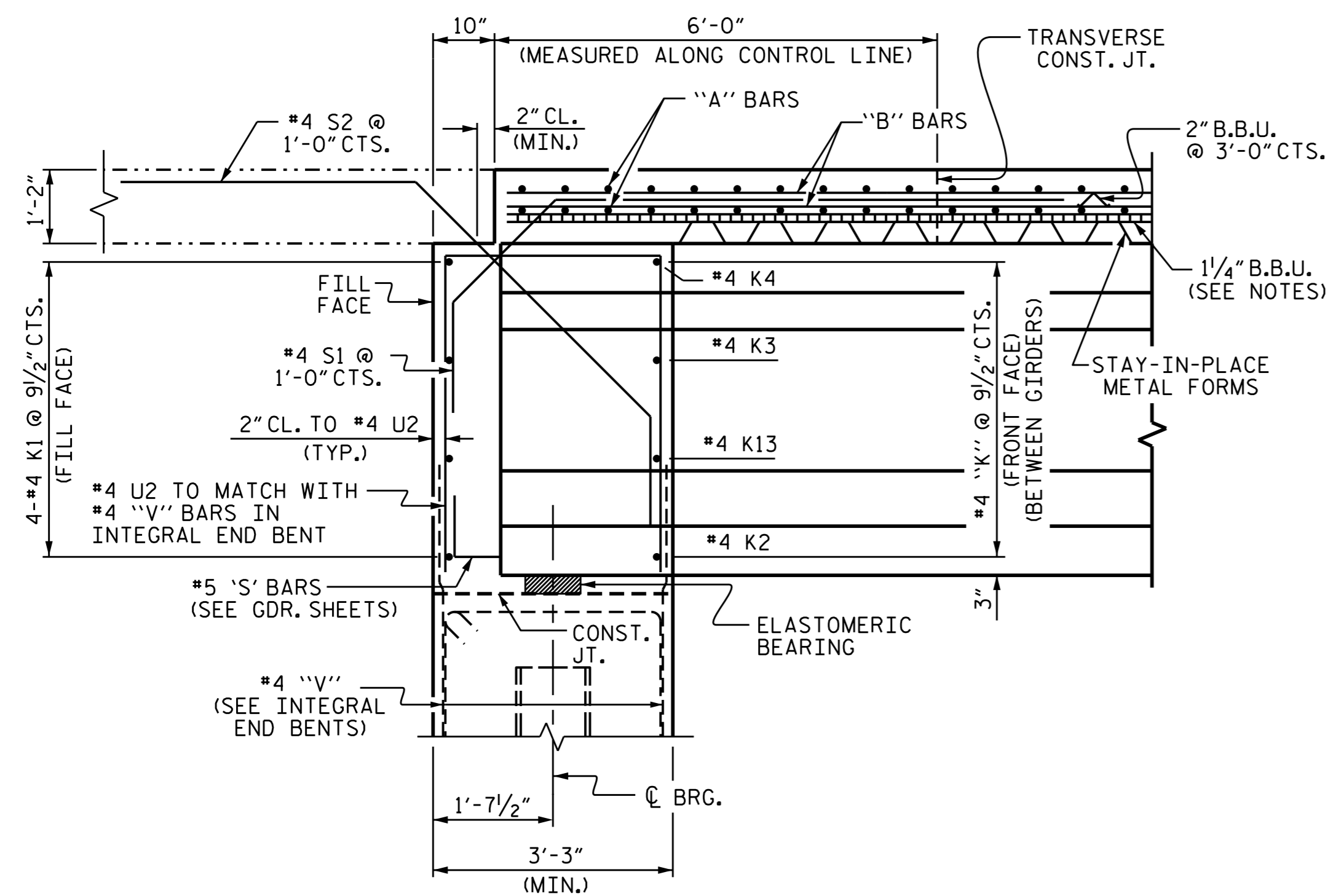
**SUPERSTRUCTURE  
 TYPICAL SECTION  
 (LEFT LANE)**



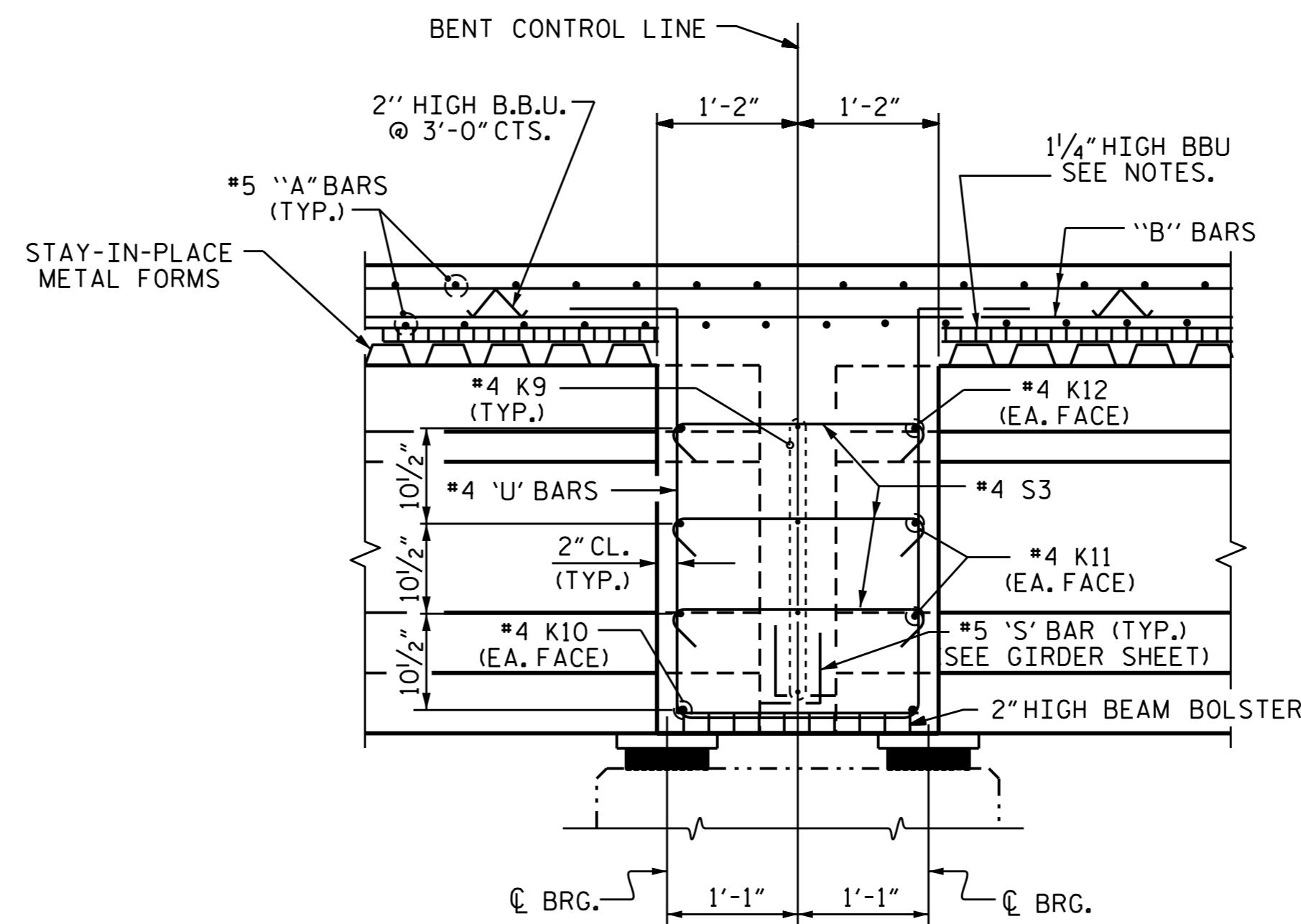
DRAWN BY: D. G. ELY DATE: 05-21-14  
 CHECKED BY: B. N. BARODAWALA DATE: 06-06-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 02-09-15

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5	
1			3			TOTAL	56
2			4			SHEETS	

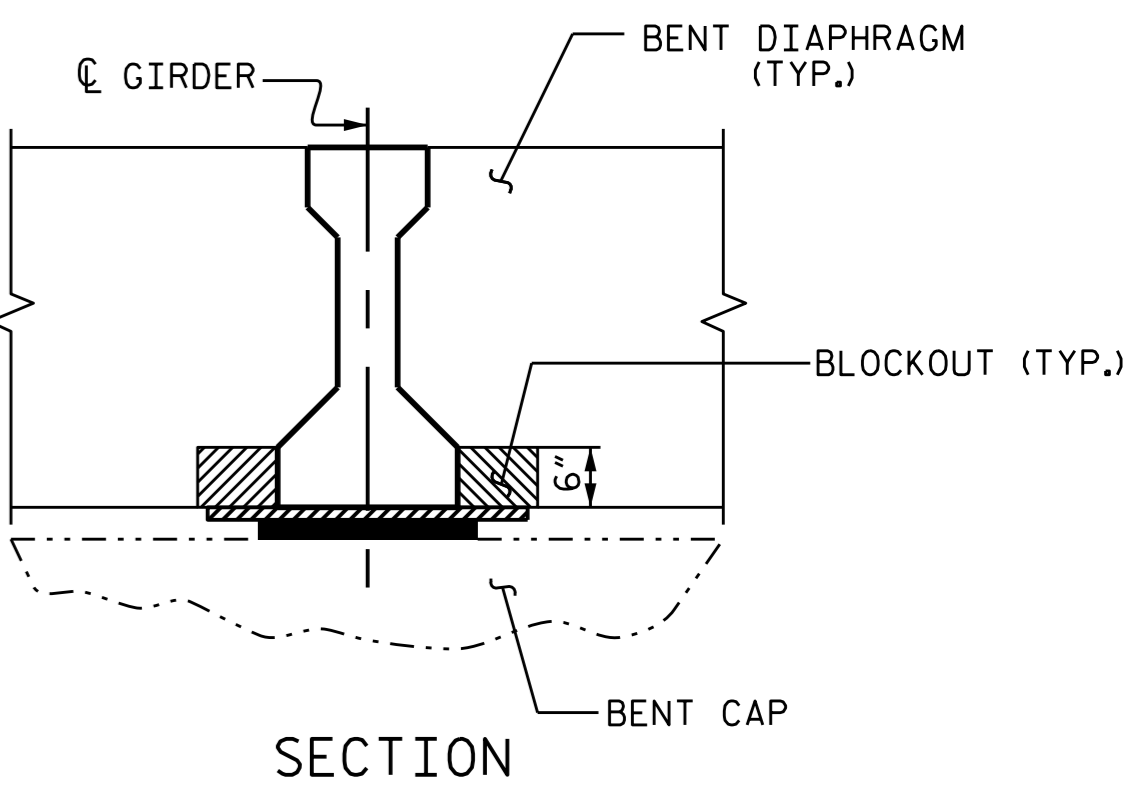
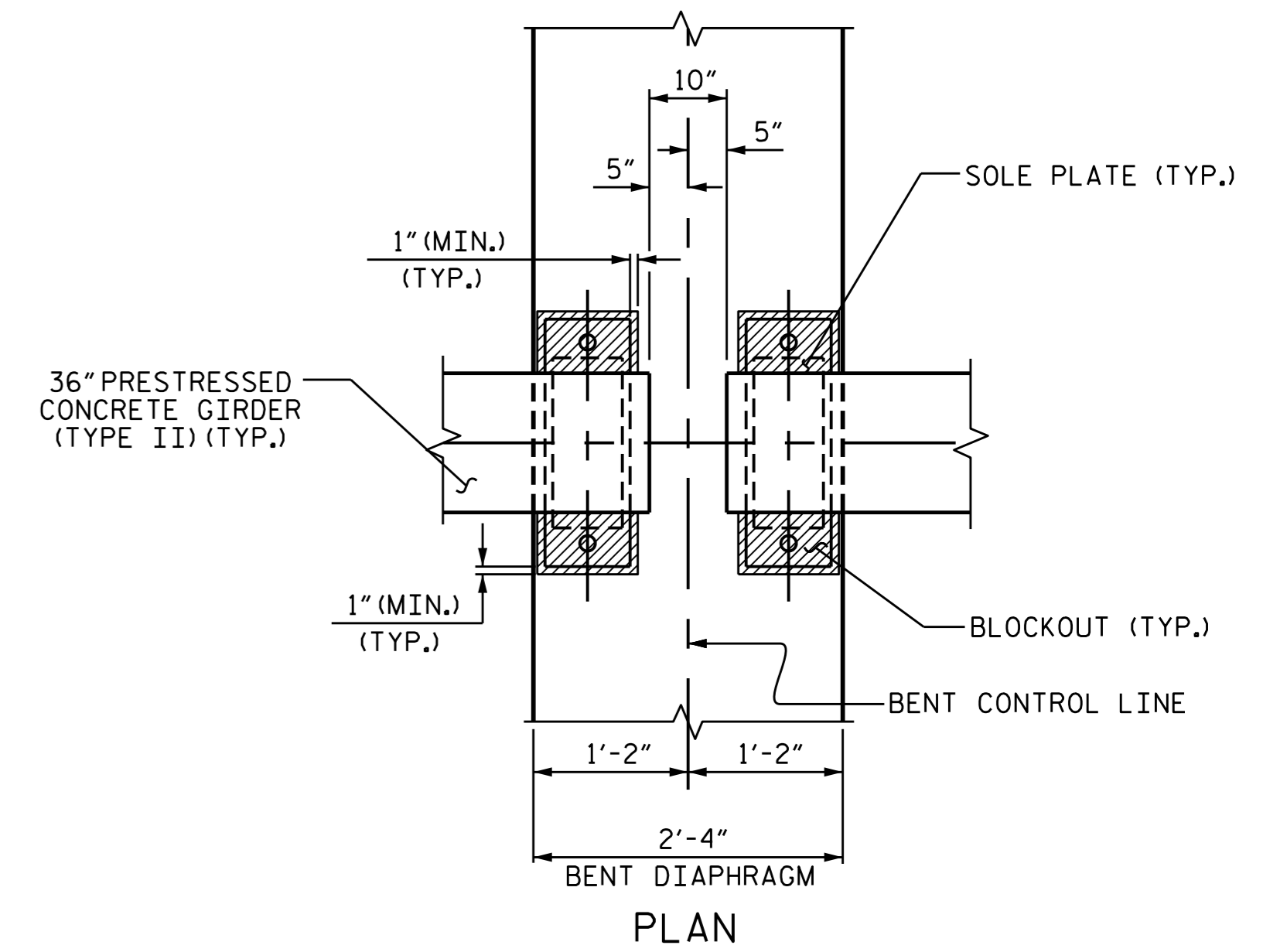




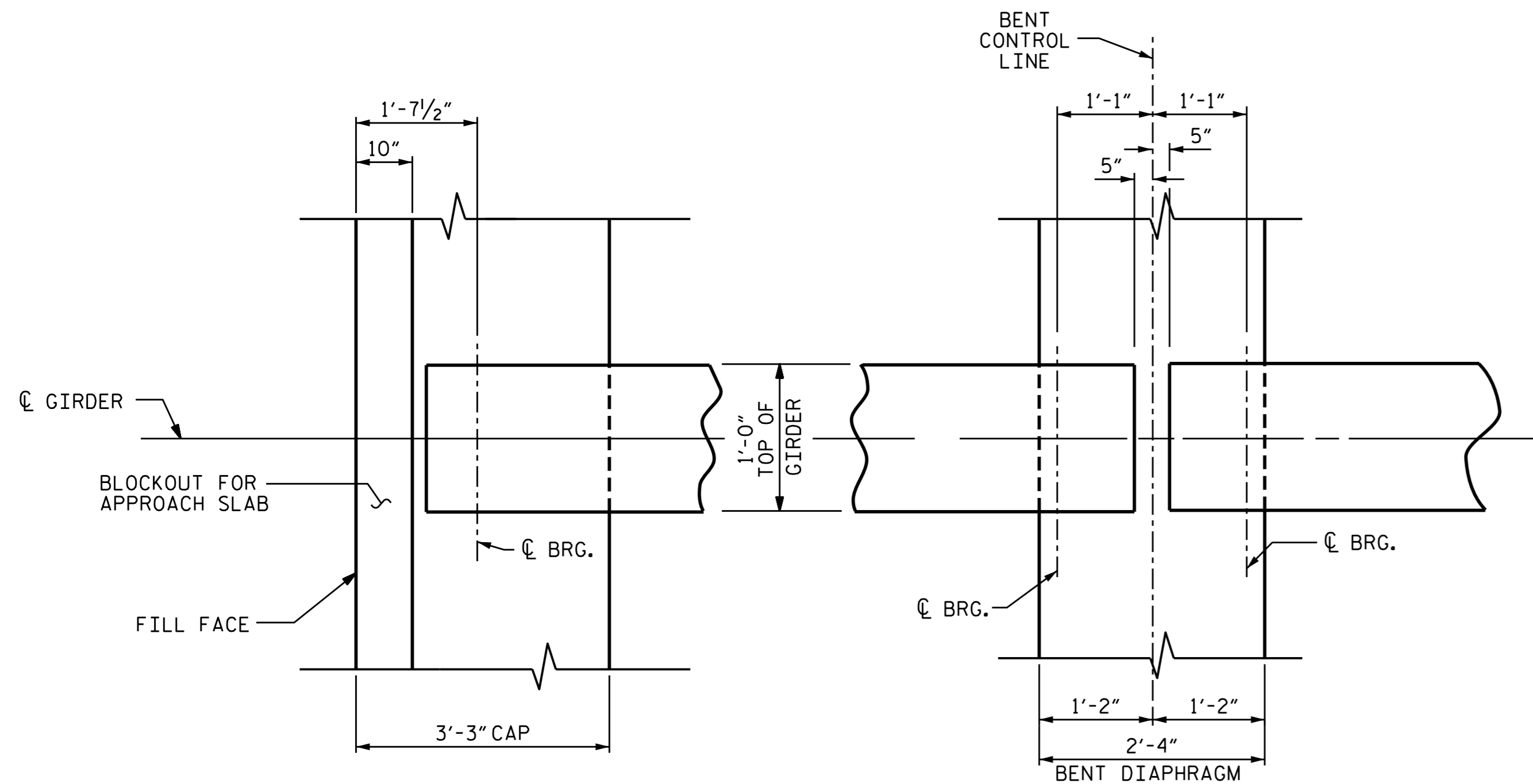
**END OF GIRDER DETAIL AT INTEGRAL END BENT**



**SECTION THRU BENT DIAPHRAGM**



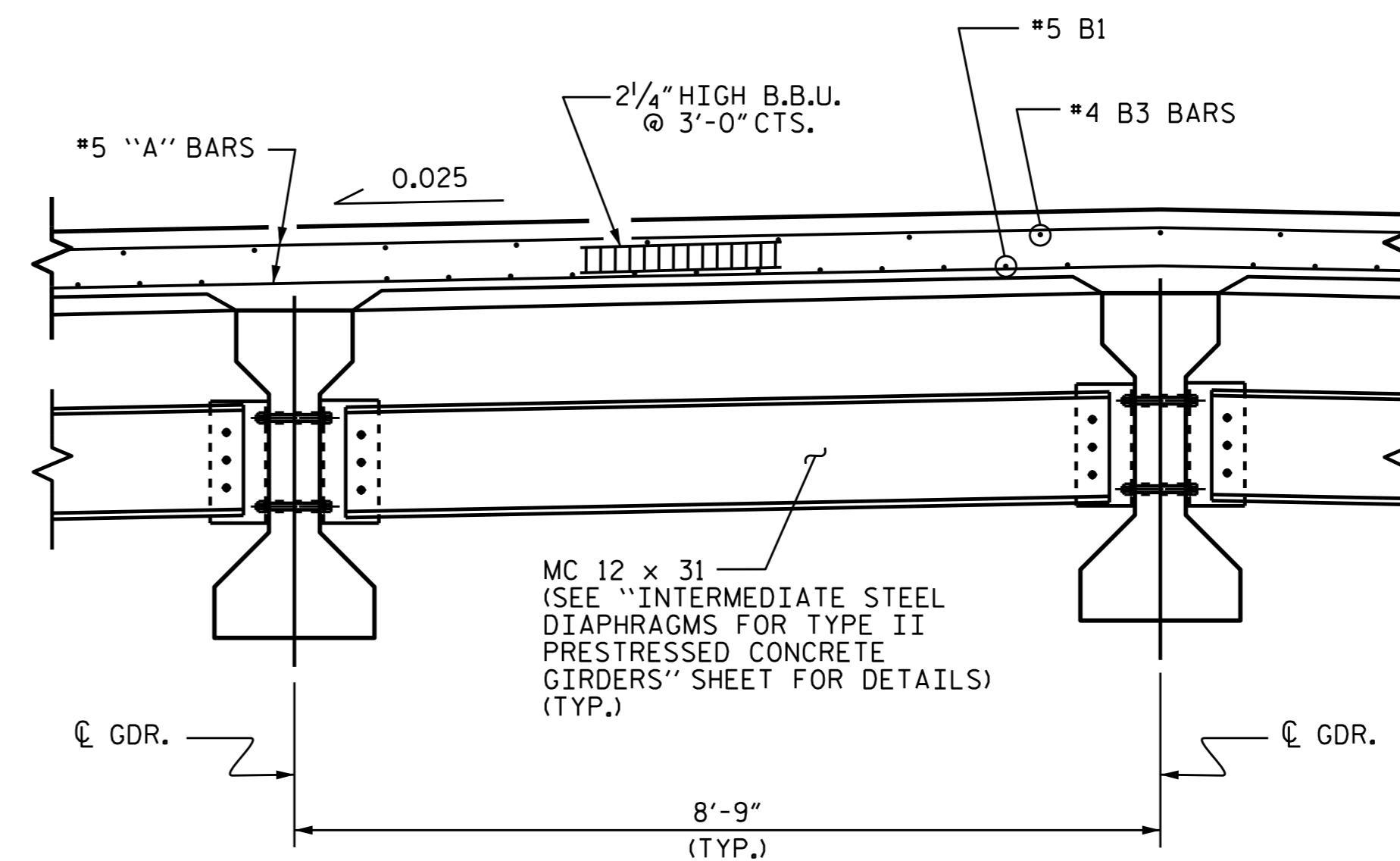
**BENT DIAPHRAGM BLOCK-OUT DETAIL**



**END BENT DIAPHRAGM**

**BENT DIAPHRAGM**

**PLAN**



**PARTIAL TYPICAL SECTION**

**@ INTERMEDIATE DIAPHRAGM**

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 TYPICAL SECTION  
 DETAILS  
 (LEFT LANE)



REVISIONS						SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

DRAWN BY: D. G. ELY DATE: 05-21-14  
 CHECKED BY: B. N. BARODAWALA DATE: 06-06-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 02-09-15

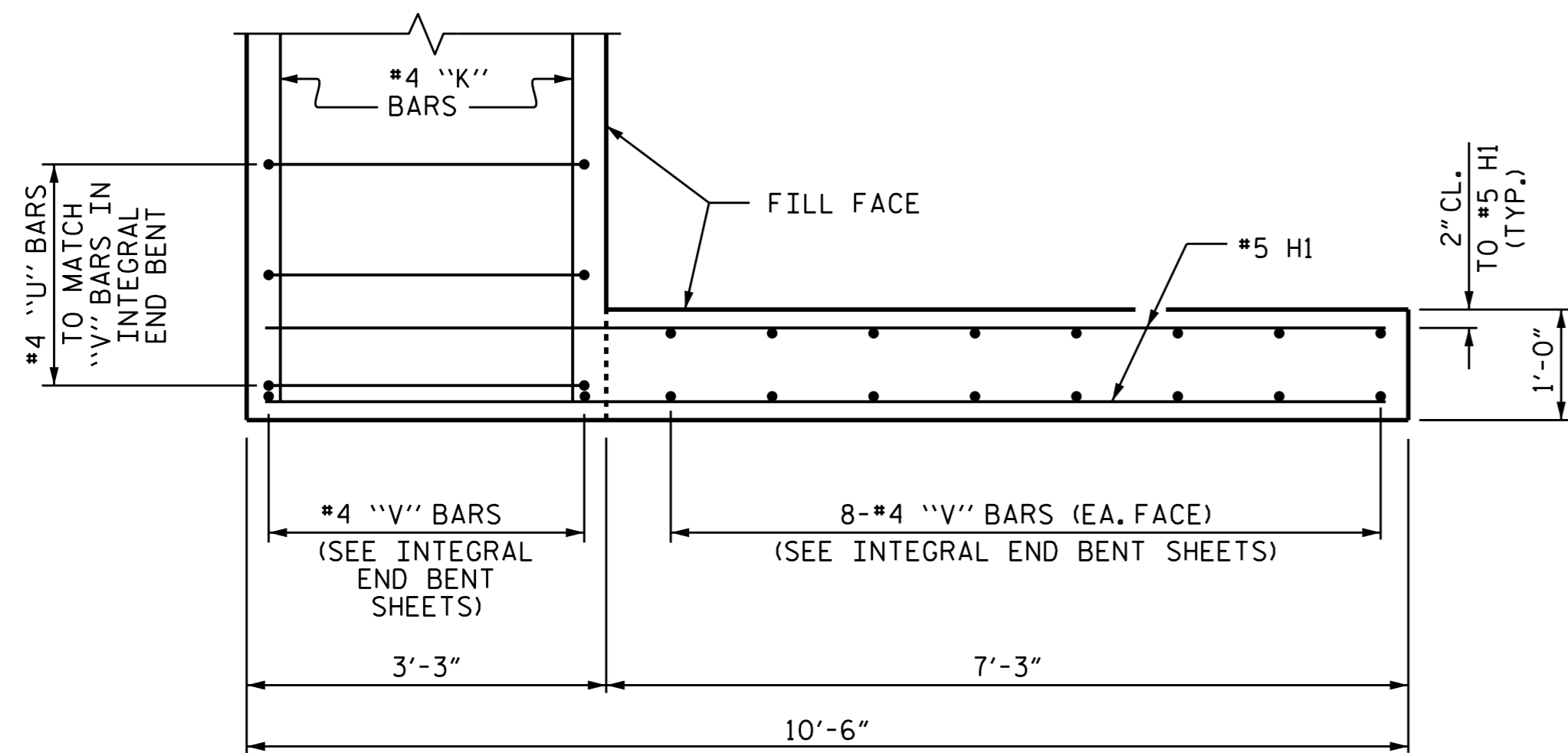
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 kpaschal

DocuSigned by:  
 A. Keith Paschal  
 F8B8A0D0B2FC48F.  
 3/23/2015

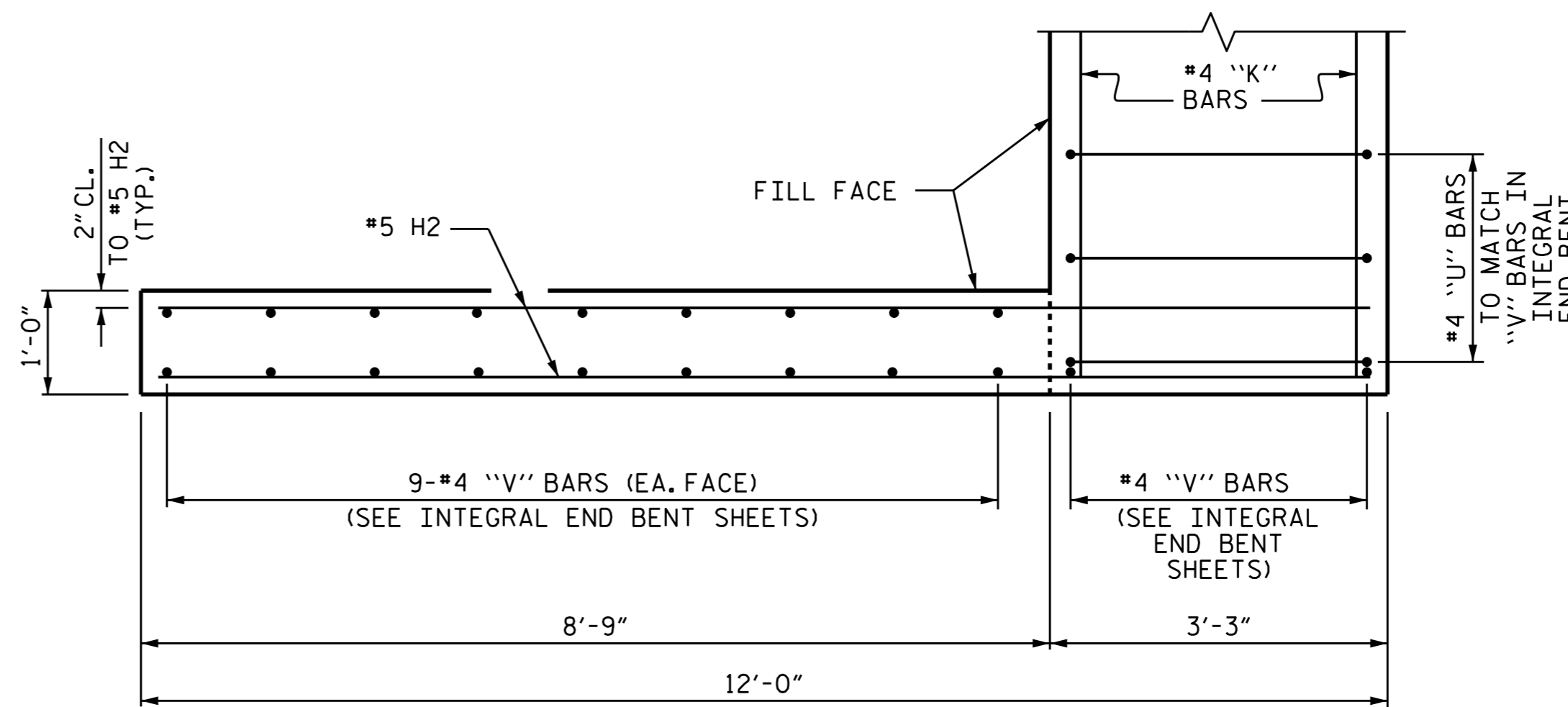




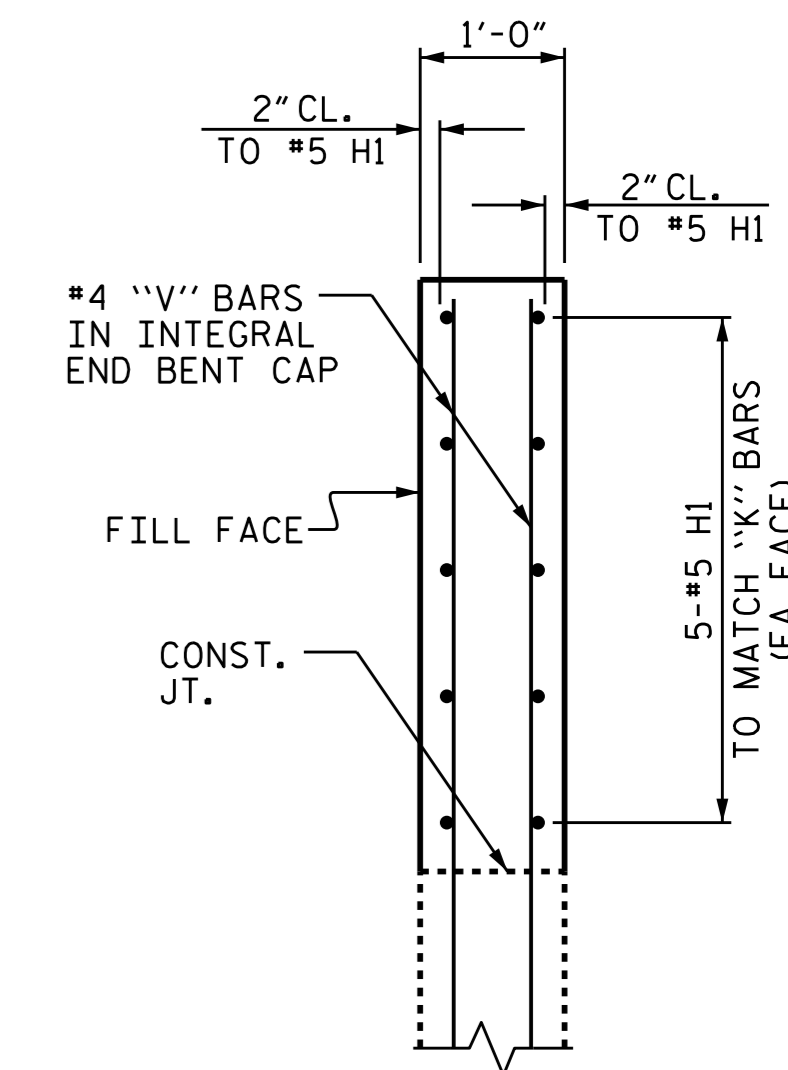




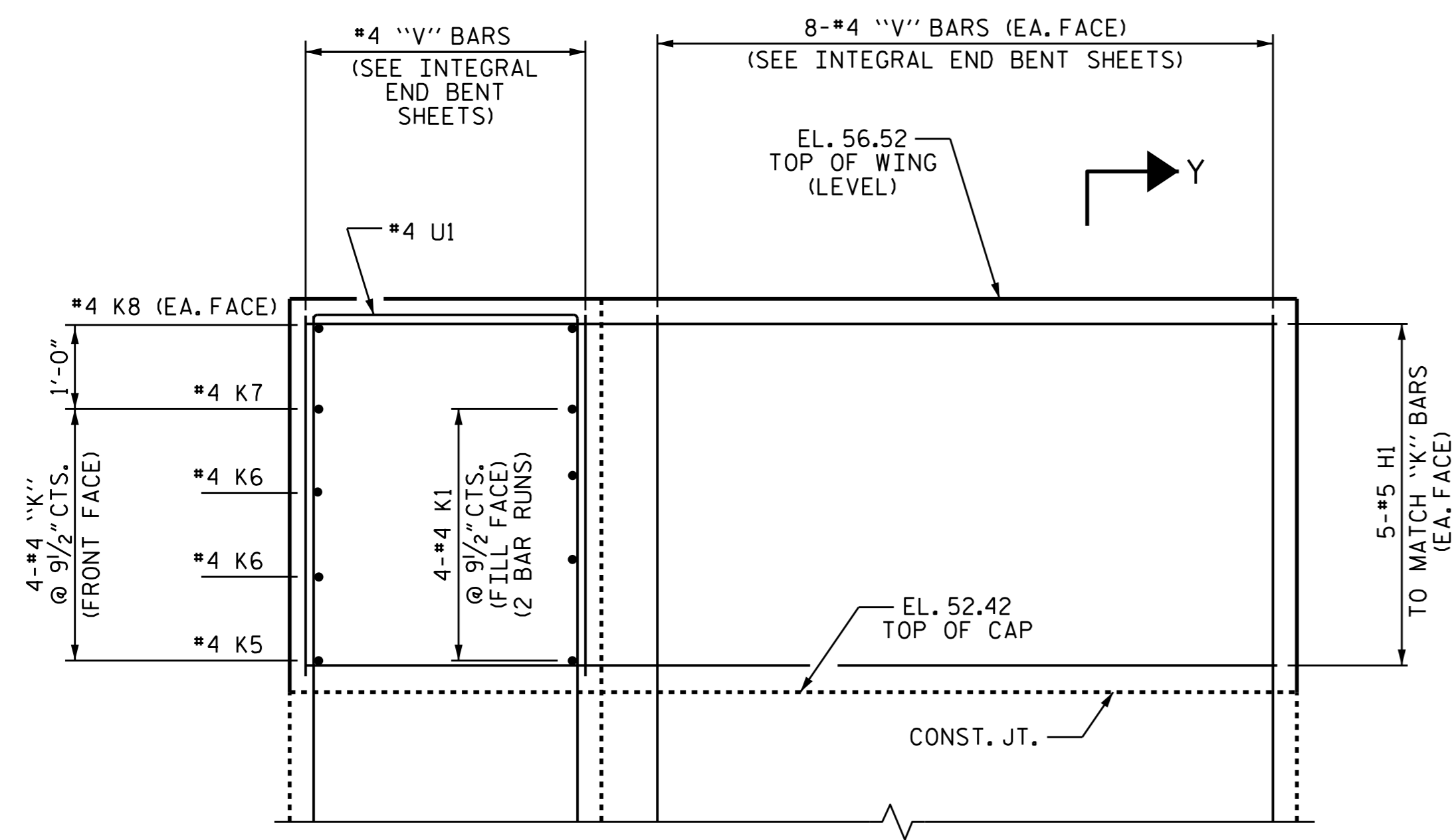
PLAN W1



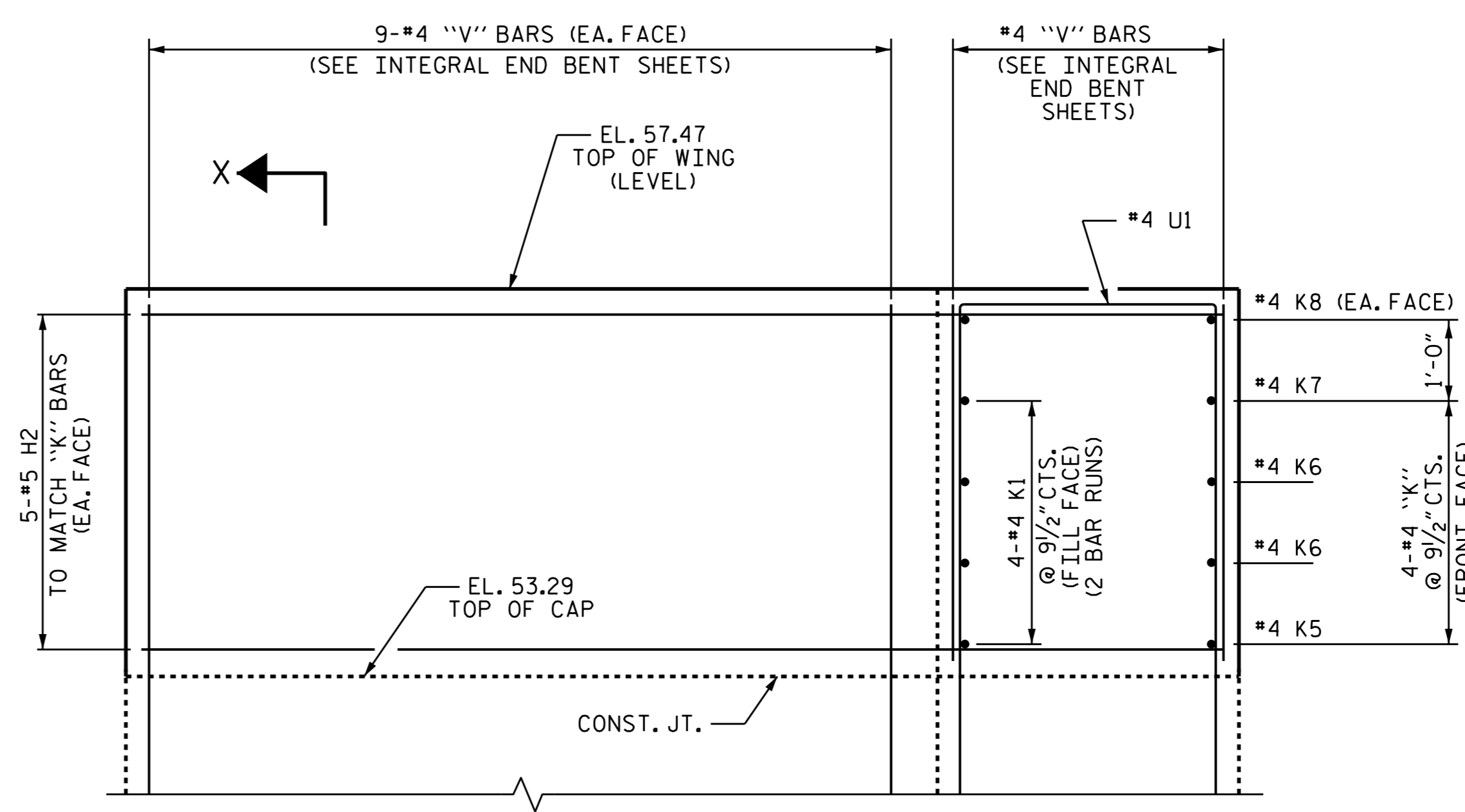
PLAN W2



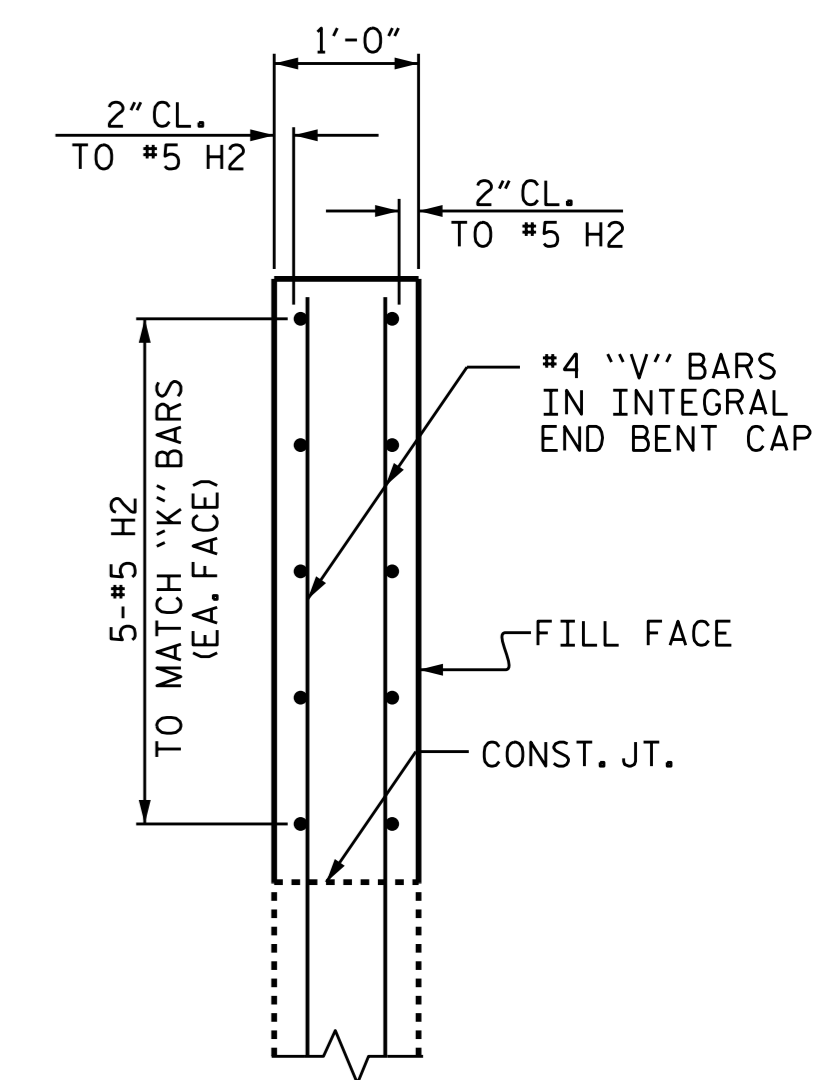
SECTION Y-Y



ELEVATION W1



ELEVATION W2

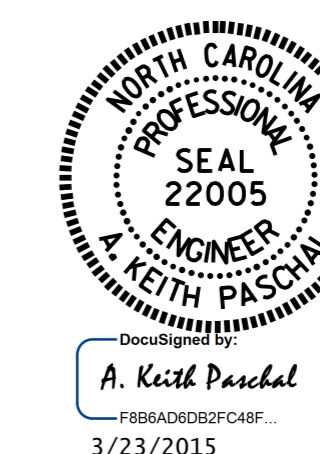


SECTION X-X

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPAN  
 DETAILS  
 (LEFT LANE)

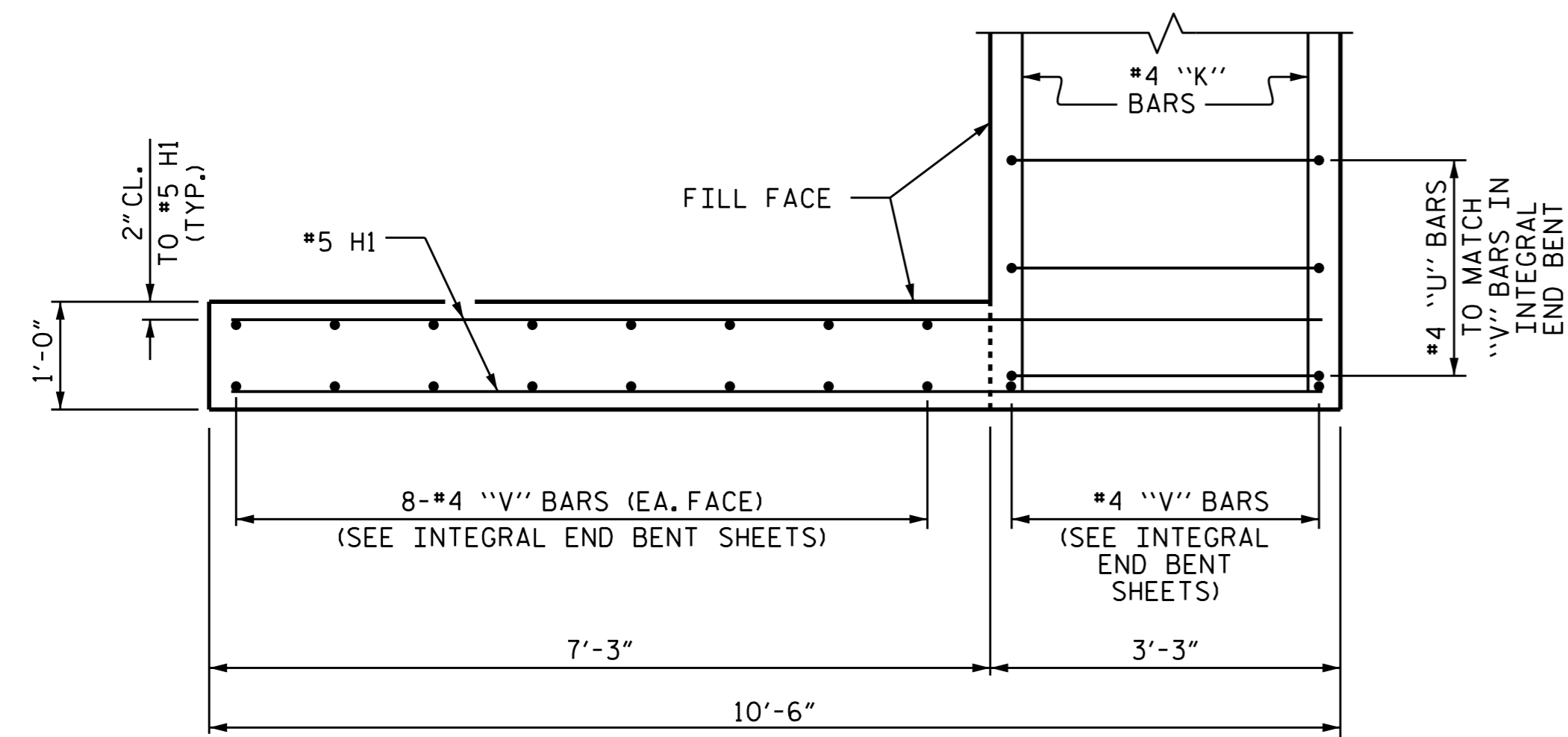


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			TOTAL	56
2			4			SHEETS	

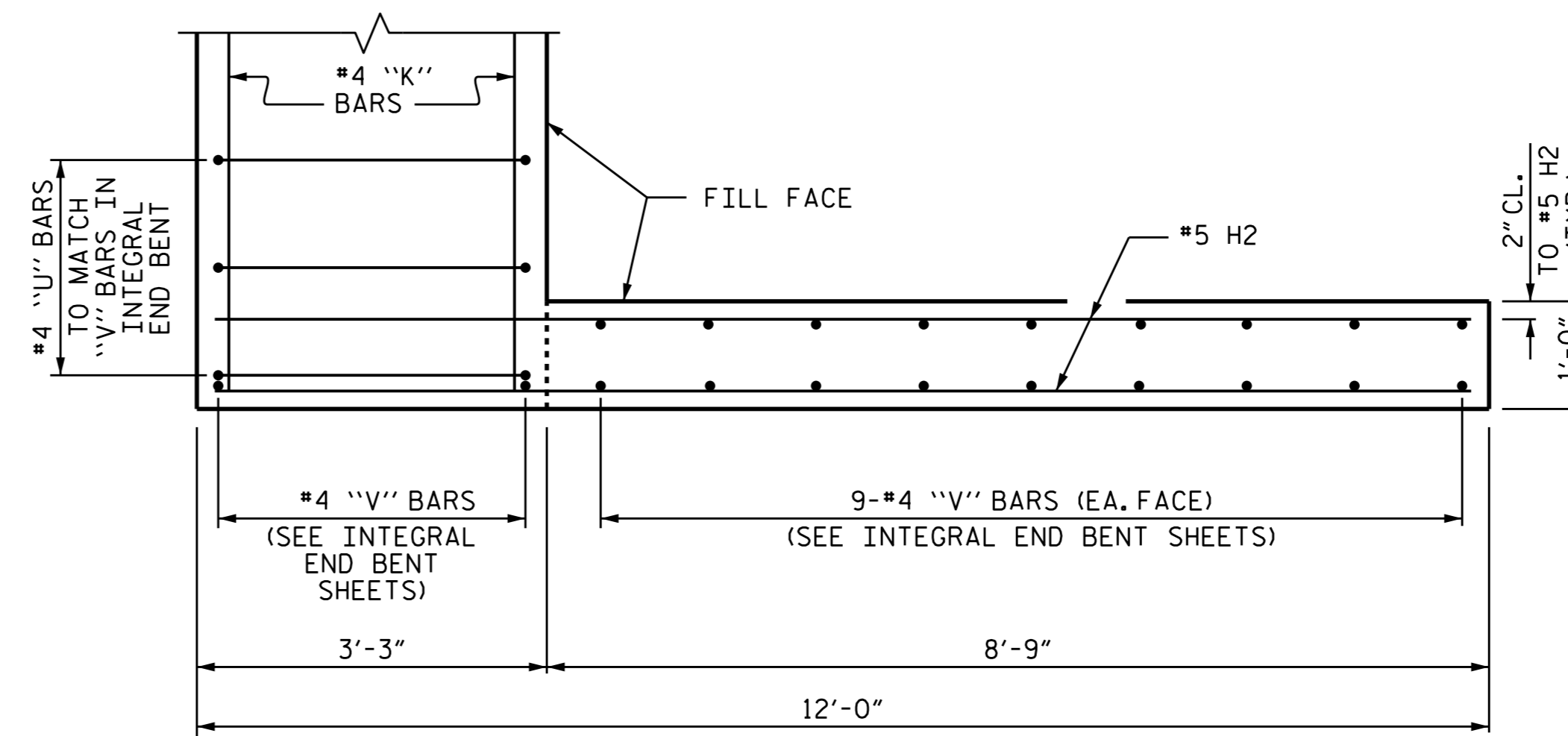
DRAWN BY: D. G. ELY DATE: 05-28-14  
 CHECKED BY: B. N. BARODAWALA DATE: 06-06-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 02-09-15

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 kpaschal

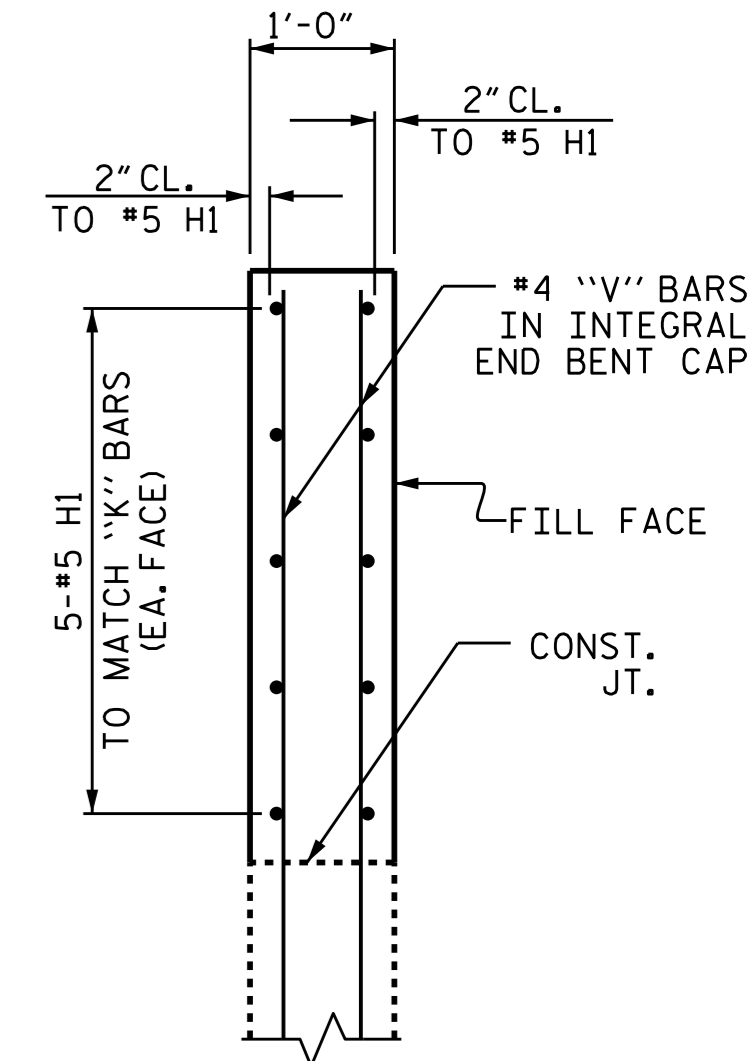
UPPER WINGS @ INTEGRAL END BENT 1  
 (FOR LOWER WING REINFORCING STEEL AND DETAILS, SEE INTEGRAL END BENT SHEETS)



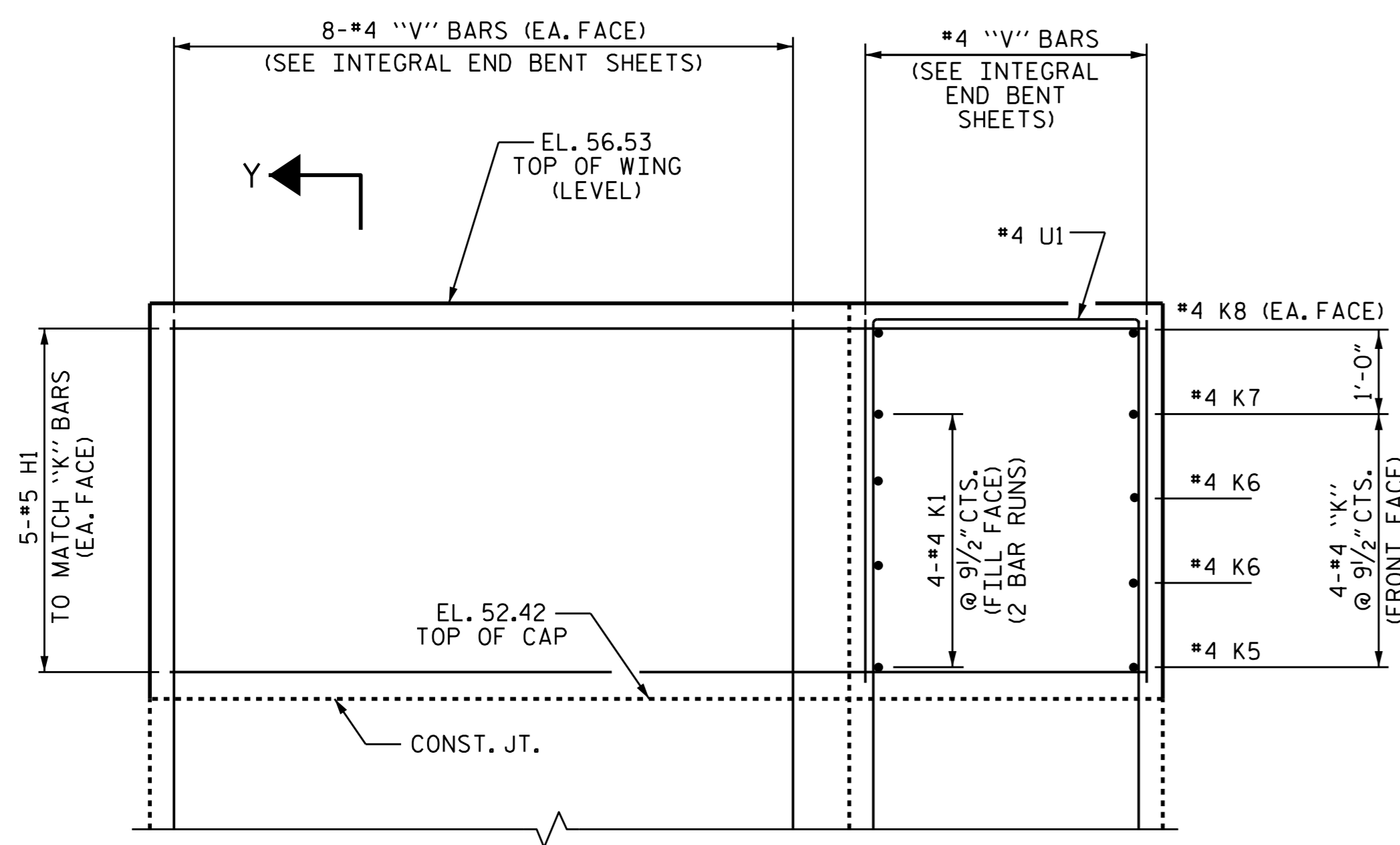
PLAN W3



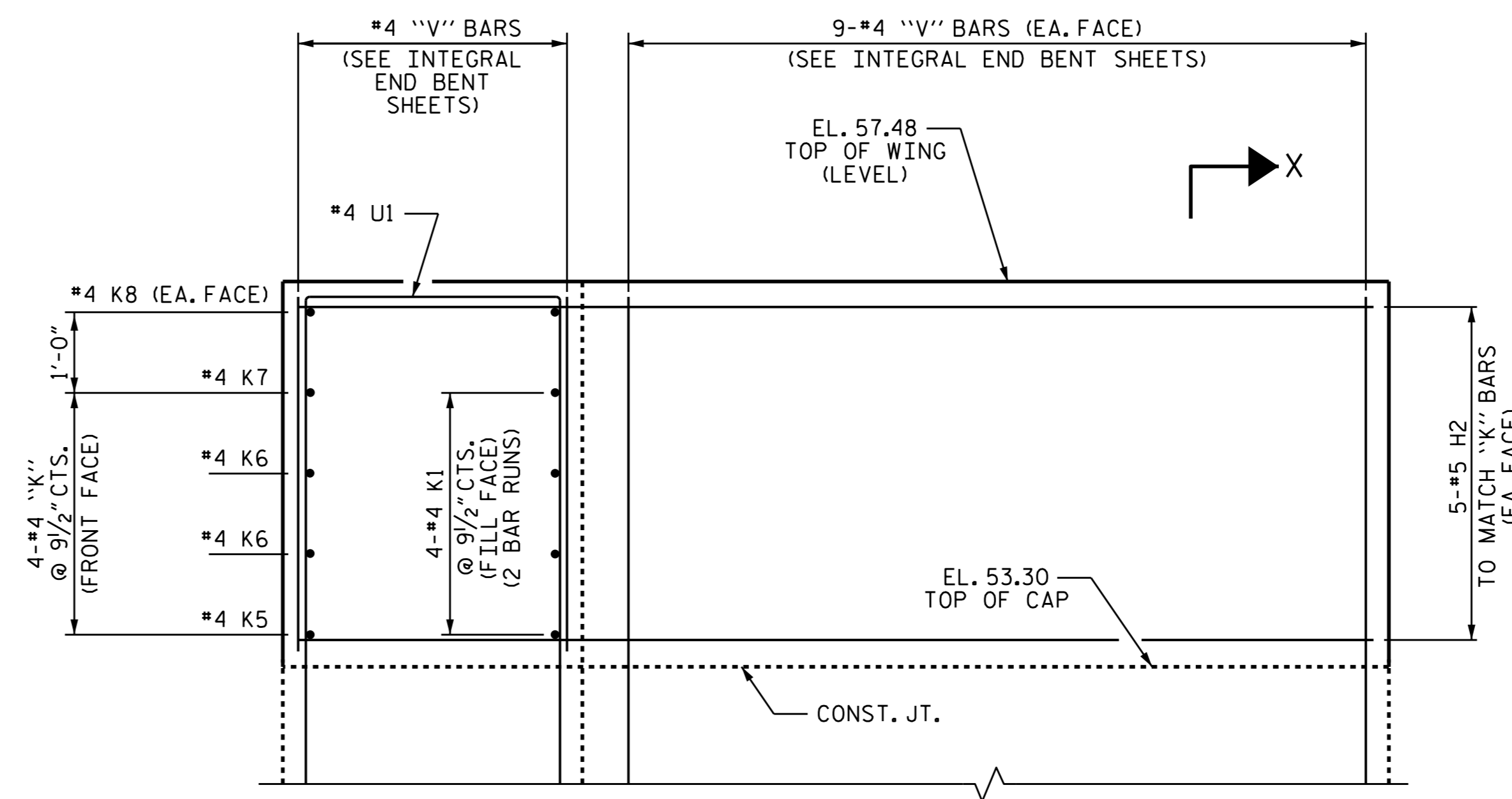
PLAN W4



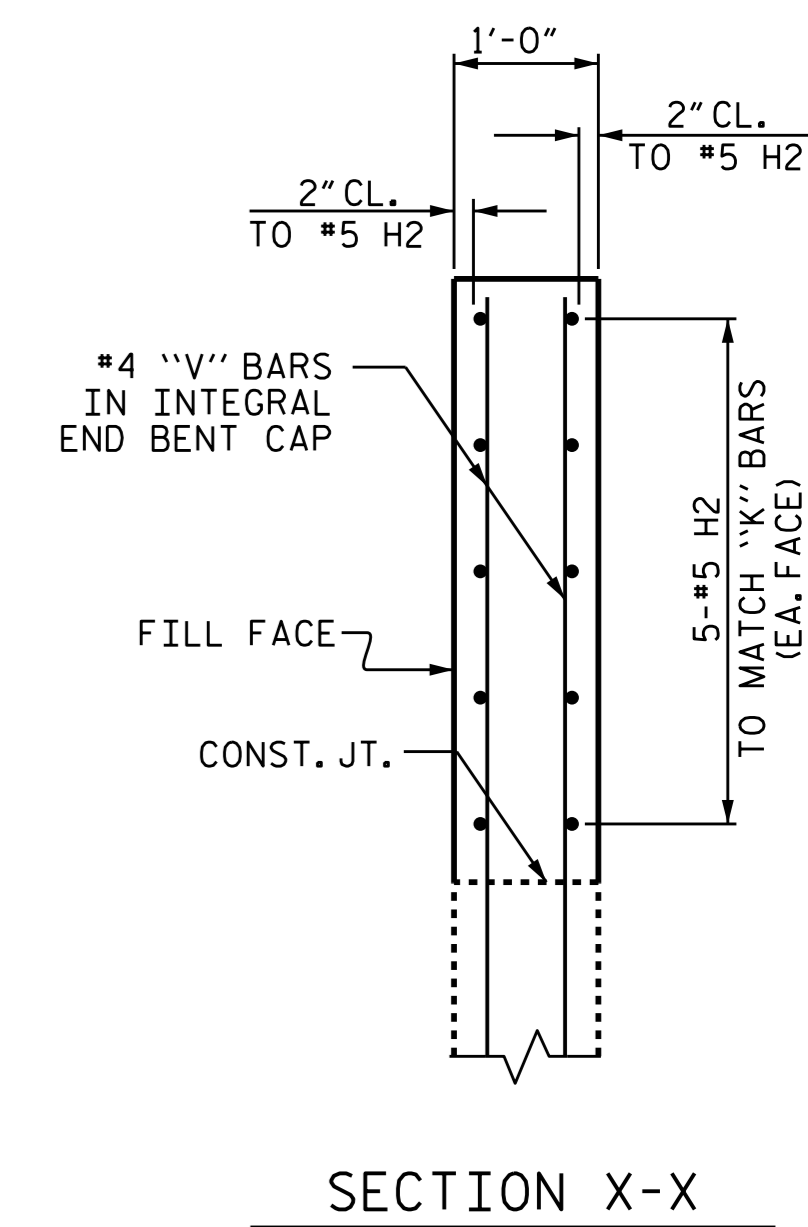
SECTION Y-Y



ELEVATION W3



ELEVATION W4



SECTION X-X

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPAN  
 DETAILS  
 (LEFT LANE)



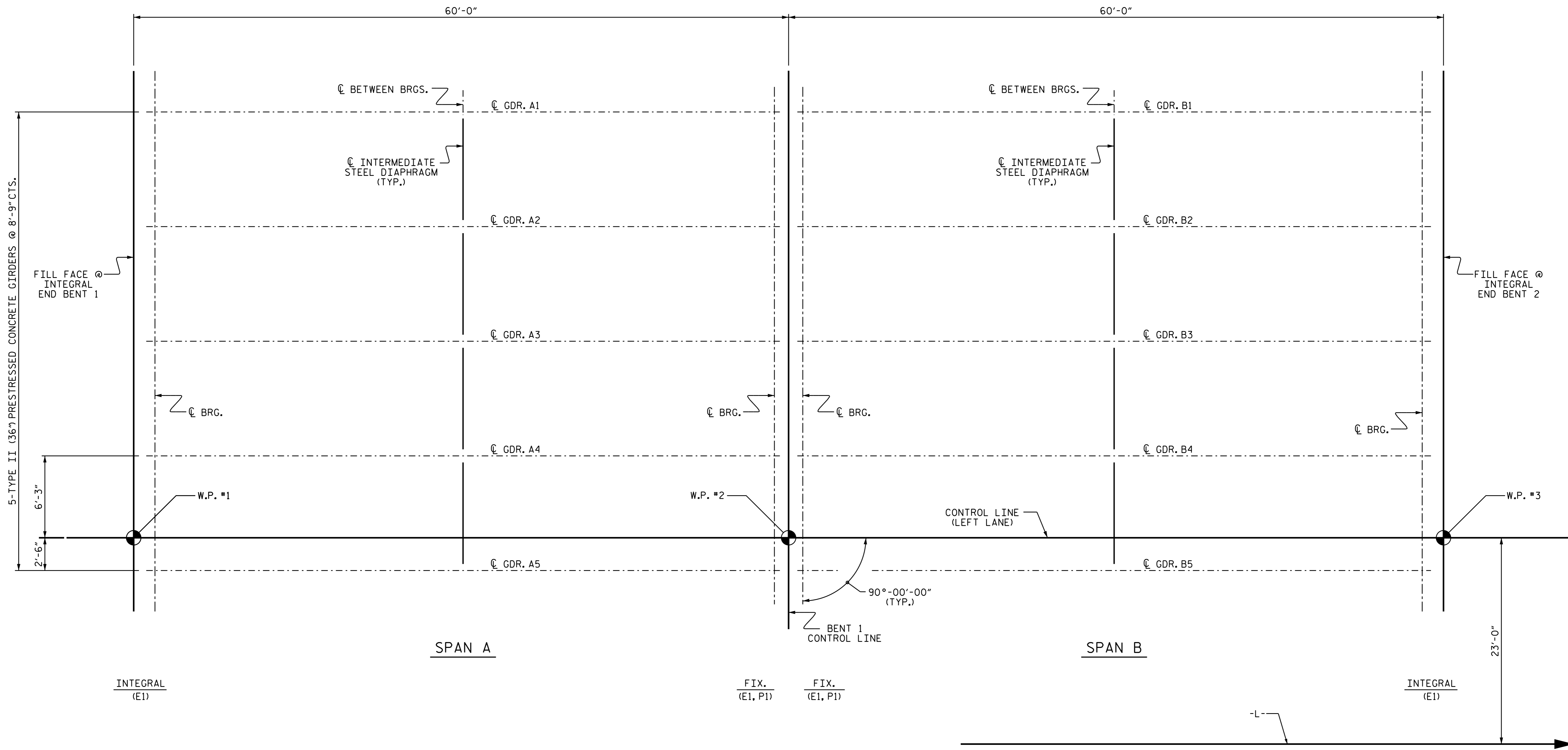
DocuSigned by:  
 A. Keith Paschal  
 FB8BA06282FC48F...  
 3/23/2015

REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

DRAWN BY: D. G. ELY DATE: 05-28-14  
 CHECKED BY: B. N. BARODAWALA DATE: 06-06-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 02-09-15

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 kpaschal

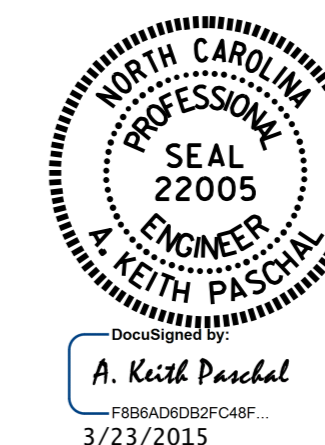
UPPER WINGS @ INTEGRAL END BENT 2  
 (FOR LOWER WING REINFORCING STEEL AND DETAILS, SEE INTEGRAL END BENT SHEETS)



PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

**GIRDER LAYOUT**

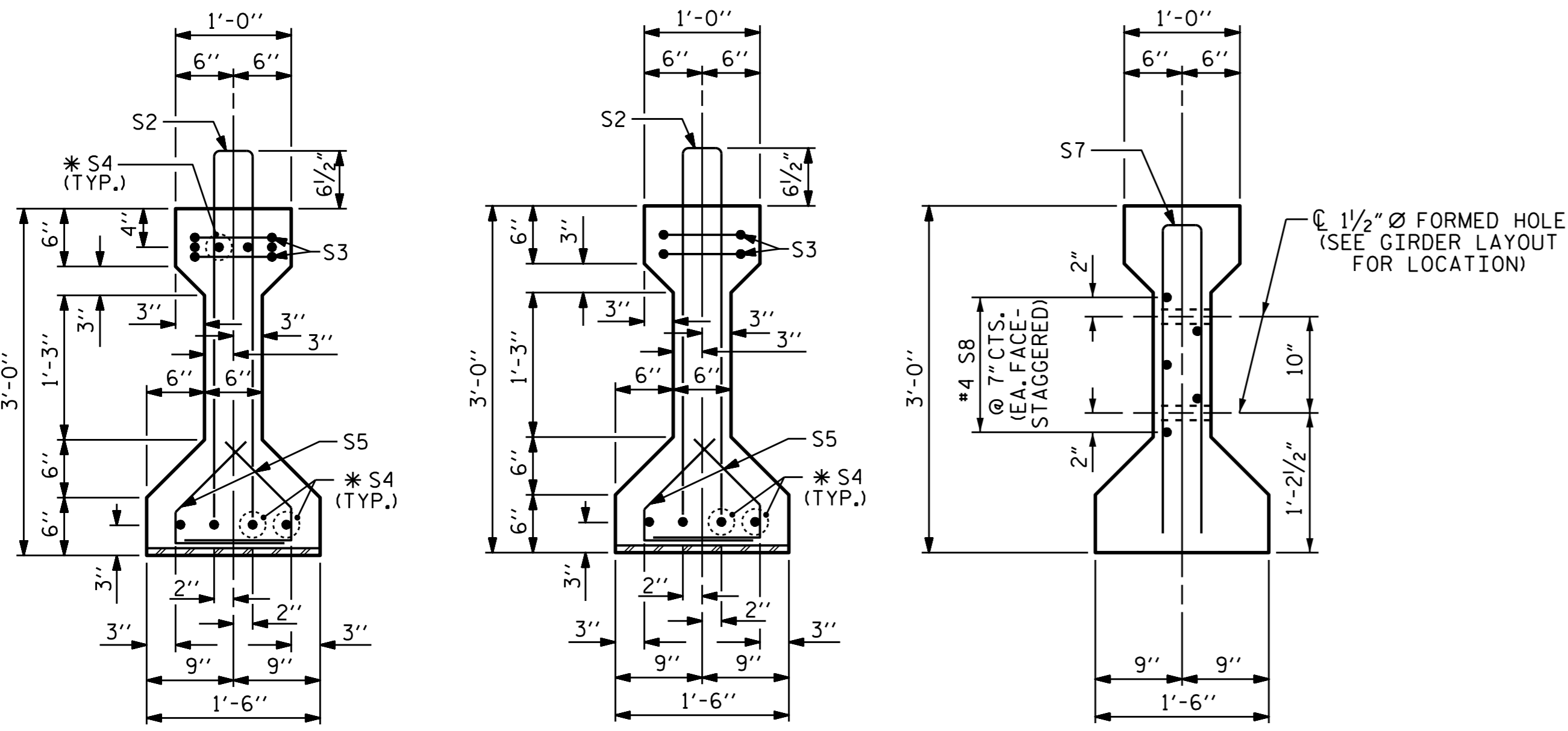
FOR INTERMEDIATE STEEL DIAPHRAGMS,  
 SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR  
 TYPE II PRESTRESSED CONCRETE GIRDERS" SHEET.



STATE OF NORTH CAROLINA						SHEET NO. S-11
DEPARTMENT OF TRANSPORTATION						
RALEIGH						TOTAL SHEETS 56
SUPERSTRUCTURE						
GIRDER LAYOUT						
(LEFT LANE)						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : D. G. ELY DATE : 05-29-14  
 CHECKED BY : B. N. BARODAWALA DATE : 06-06-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 02-09-15



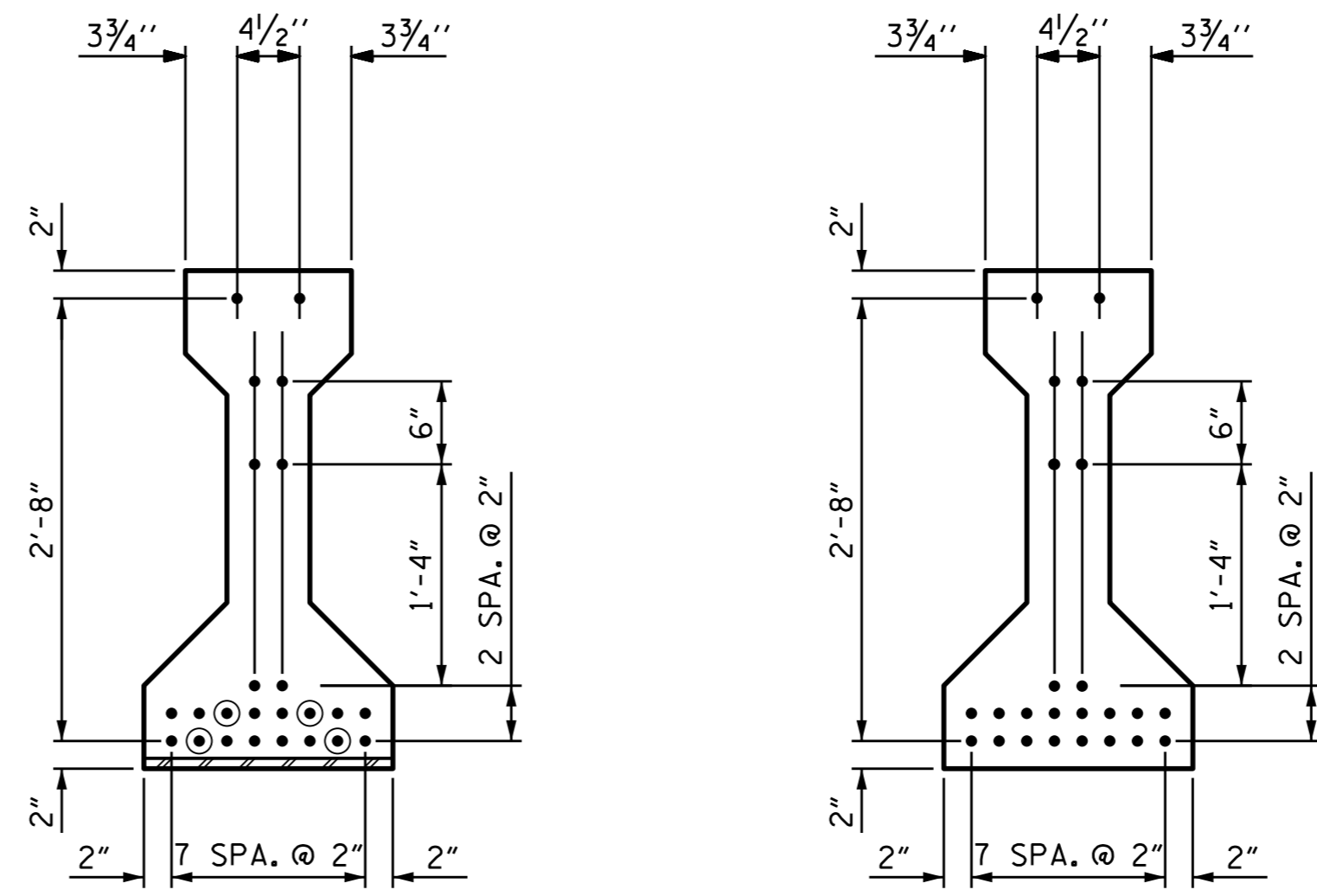


SECTION A-A

SECTION B-B

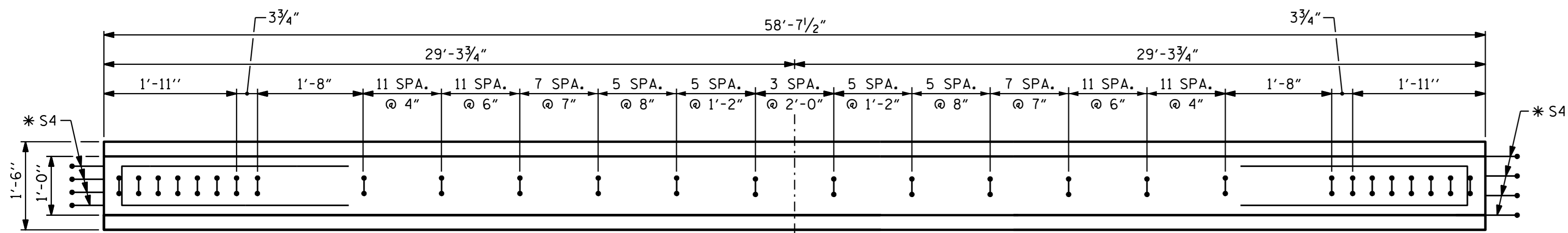
SECTION C-C

(S1 BARS NOT SHOWN)

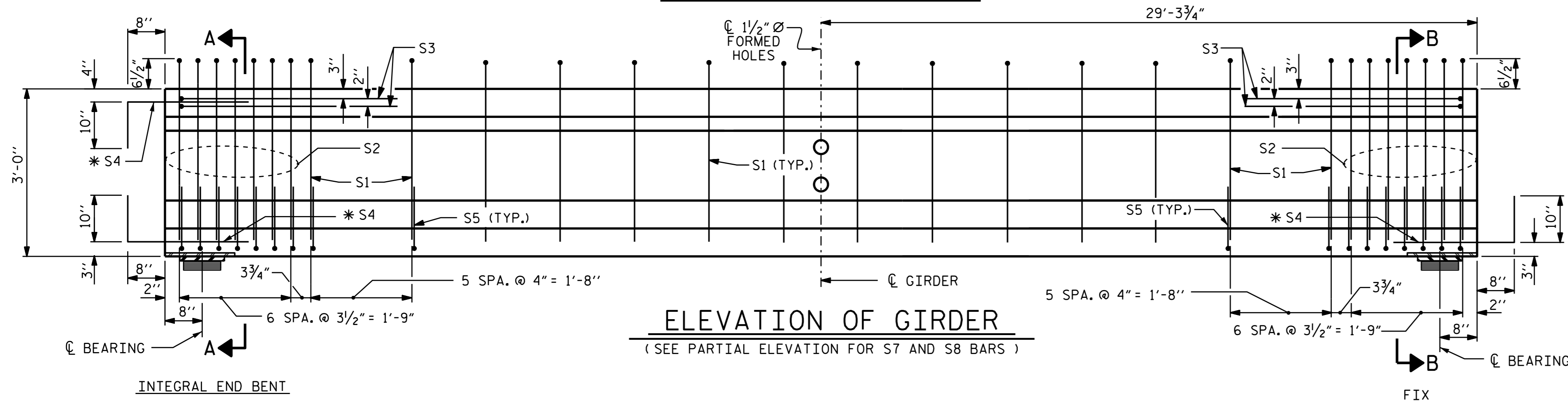


AT END OF GIRDER  
AT C OF GIRDER  
0.6" Ø LOW RELAXATION STRAND LAYOUT

- DEBONDING LEGEND
- FULLY BONDED STRANDS
  - STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER

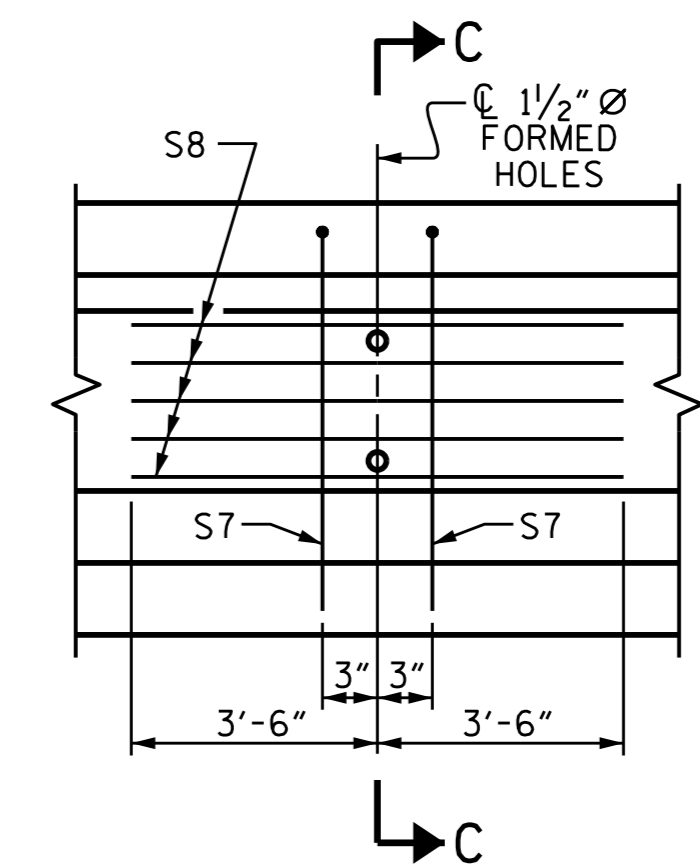


PLAN OF GIRDER



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR S7 AND S8 BARS)



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR ALL GIRDERS.

0.6" Ø L. R. GRADE 270 STRANDS

AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER

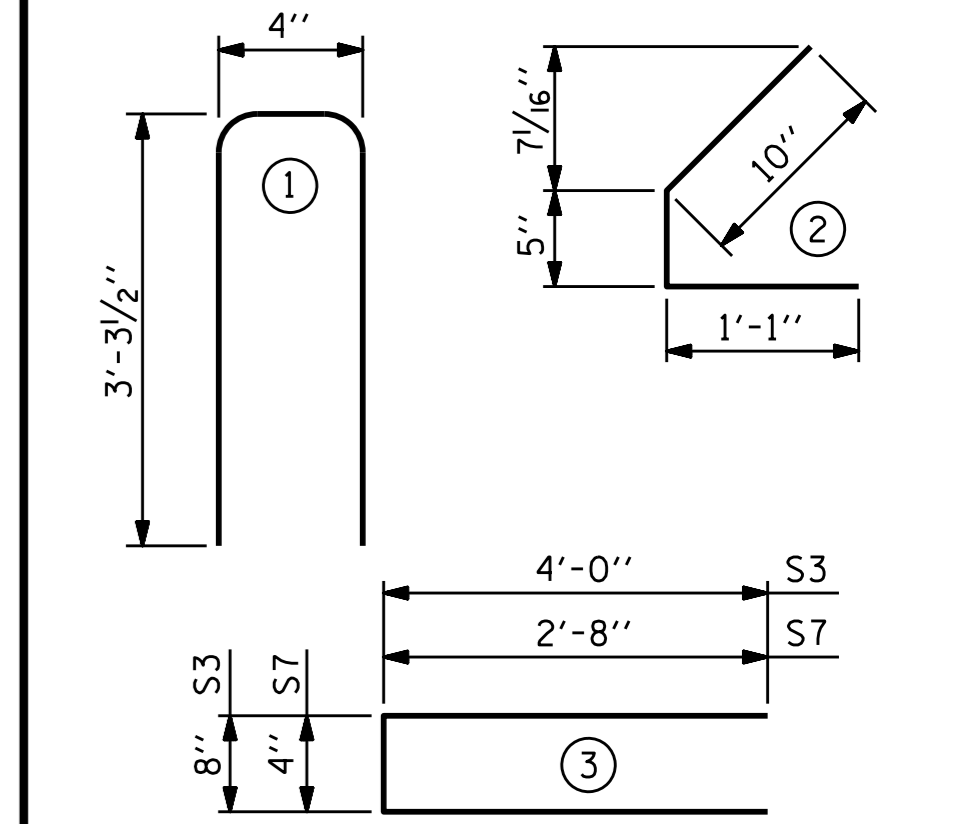
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	92	#4	1	6'-11"	425
S2	14	#5	1	6'-11"	101
S3	4	#4	3	8'-8"	23
*S4	12	#5	STR	3'-8"	46
S5	52	#4	2	2'-4"	81
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

TOTAL REINFORCING STEEL 711 LBS.

\* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	8500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN A	711	5.6	24
SPAN B	711	5.6	24

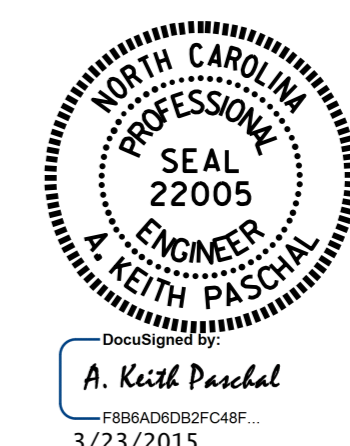
GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
(SPAN A) 5	58'-7 1/2"	293'-1 1/2"
(SPAN B) 5	58'-7 1/2"	293'-1 1/2"

PROJECT NO. R-2514C  
JONES COUNTY  
STATION: 102+05.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
AASHTO TYPE II  
PRESTRESSED CONCRETE  
GIRDER CONTINUOUS  
FOR LIVE LOAD  
(SPAN A & SPAN B)  
(LEFT LANE)



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

ASSEMBLED BY : D. G. ELY DATE : 06/02/14  
 CHECKED BY : B. N. BARODAWALA DATE : 06-06-14  
 DESIGN ENGINEER OF RECORD : A. K. PASCHAL DATE : 02-09-15  
 DRAWN BY : ELR 8/91  
 CHECKED BY : GRP 8/91  
 REV. 10/17/00R RWW/LES  
 REV. 5/1/06R TLA/GM  
 REV. 10/1/11 MAA/GM

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

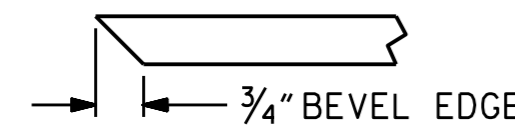
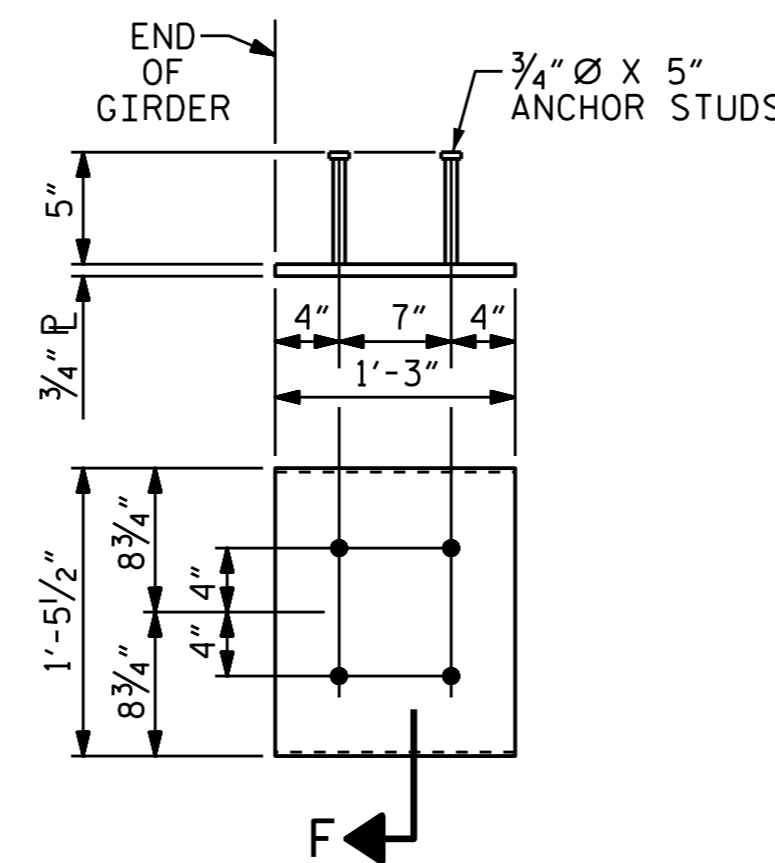
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6800 PSI.

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".

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.

THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.



SECTION "F"

(SEE NOTES)

EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE II GIRDER

(2 REQ'D PER GIRDER)

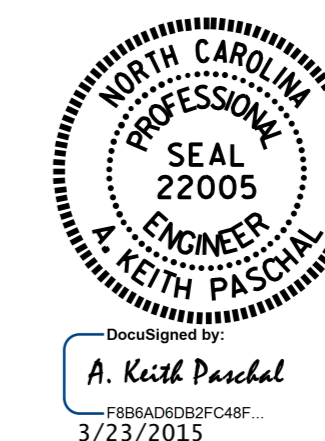
DEAD LOAD DEFLECTION TABLE FOR GIRDERS												
0.6" Ø LOW RELAXATION	SPAN A & B											
	GIRDERS 1 THRU 5											
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	
CAMBER ( GIRDER ALONE IN PLACE )	↑	0.0	0.035	0.065	0.090	0.105	0.110	0.105	0.090	0.065	0.035	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.0	-0.026	-0.049	-0.067	-0.078	-0.082	-0.078	-0.067	-0.049	-0.026	0.0
FINAL CAMBER	↑	0	1/8"	3/16"	1/4"	5/16"	5/16"	5/16"	1/4"	3/16"	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. R-2514C  
JONES COUNTY  
STATION: 102+05.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
PRESTRESSED CONCRETE GIRDER  
CONTINUOUS FOR LIVE LOAD  
DETAILS  
(LEFT LANE)



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			56

DRAWN BY : D. G. ELY DATE : 02-19-15  
CHECKED BY : B. N. BARODAWALA DATE : 02-20-15  
DESIGN ENGINEER OF RECORD : A. K. PASCHAL DATE : 02-23-15

DRAWN BY : ELR 11/91  
CHECKED BY : GRP 11/91

REV. 10/1/11 MAA/GM  
REV. 1/15 MAA/TMG  
REV. 2/15 MAA/TMG



# STRUCTURAL STEEL NOTES

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

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

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

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

FOR METALLIZATION, APPLY AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE 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.

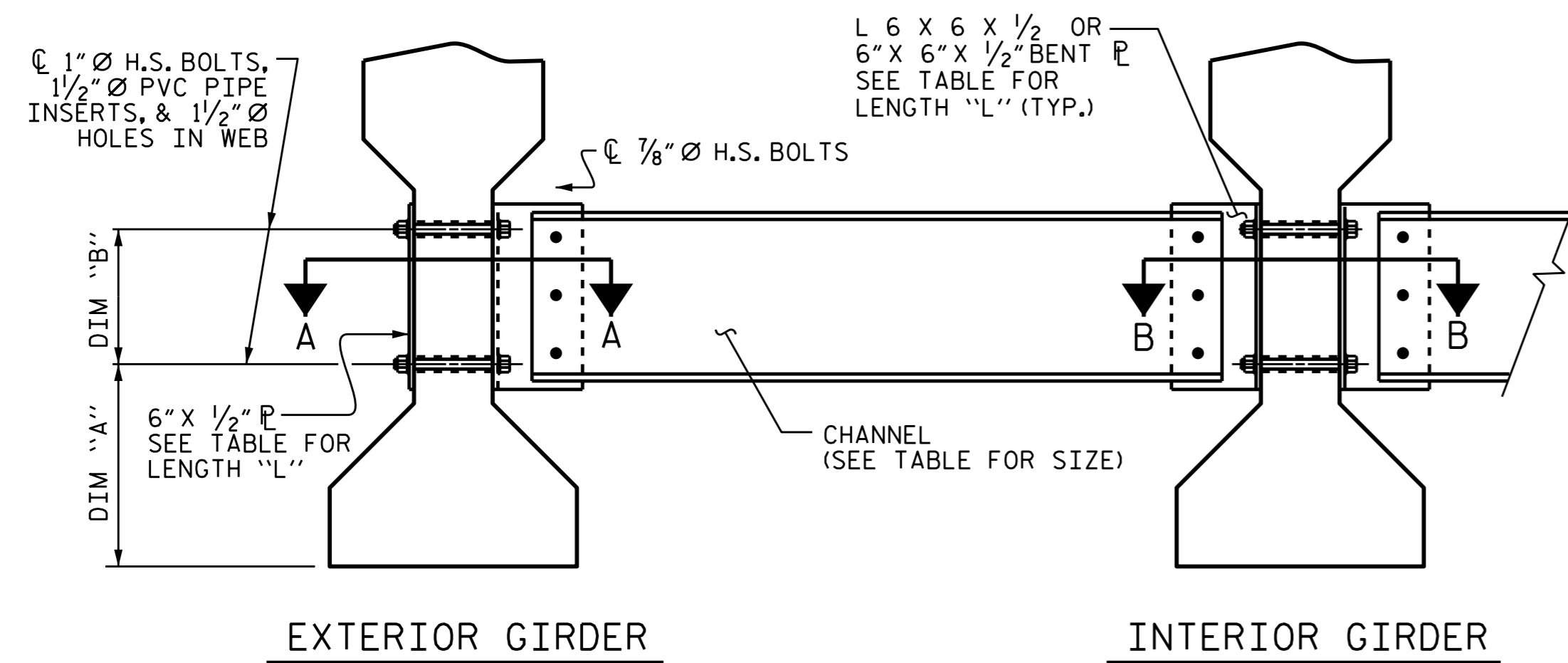
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

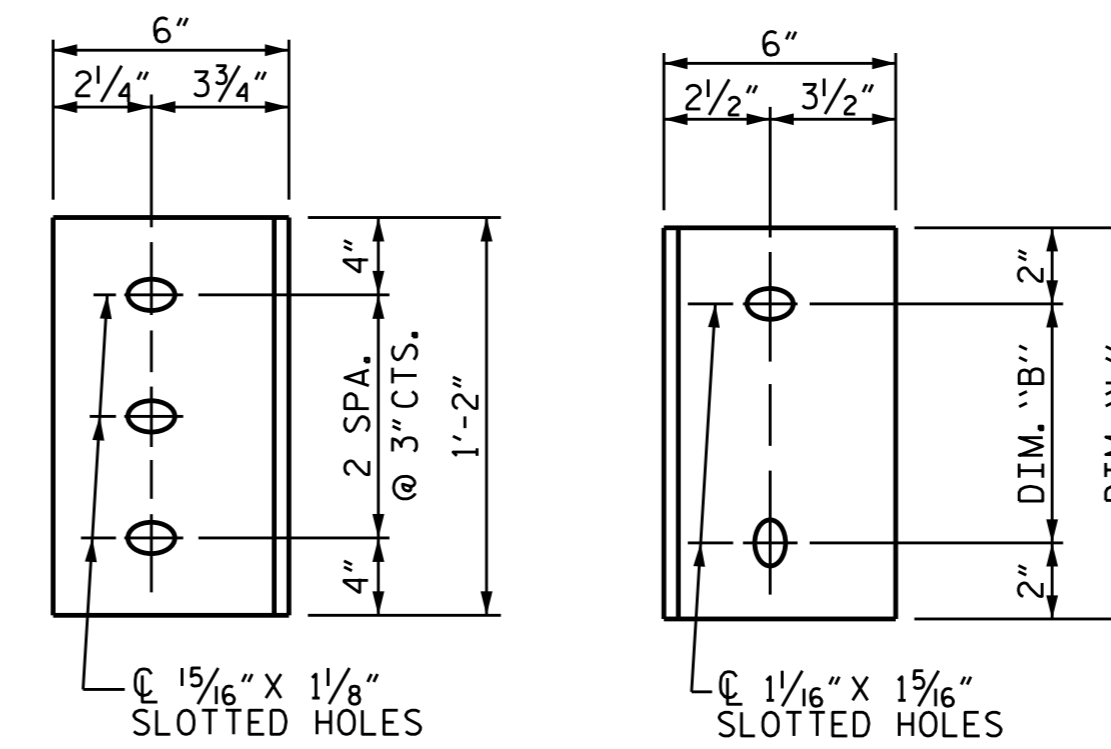
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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.



EXTERIOR GIRDER INTERIOR GIRDER  
PART SECTION AT INTERMEDIATE DIAPHRAGM



DIAPHRAGM FACE WEB FACE  
CONNECTOR PLATE DETAILS

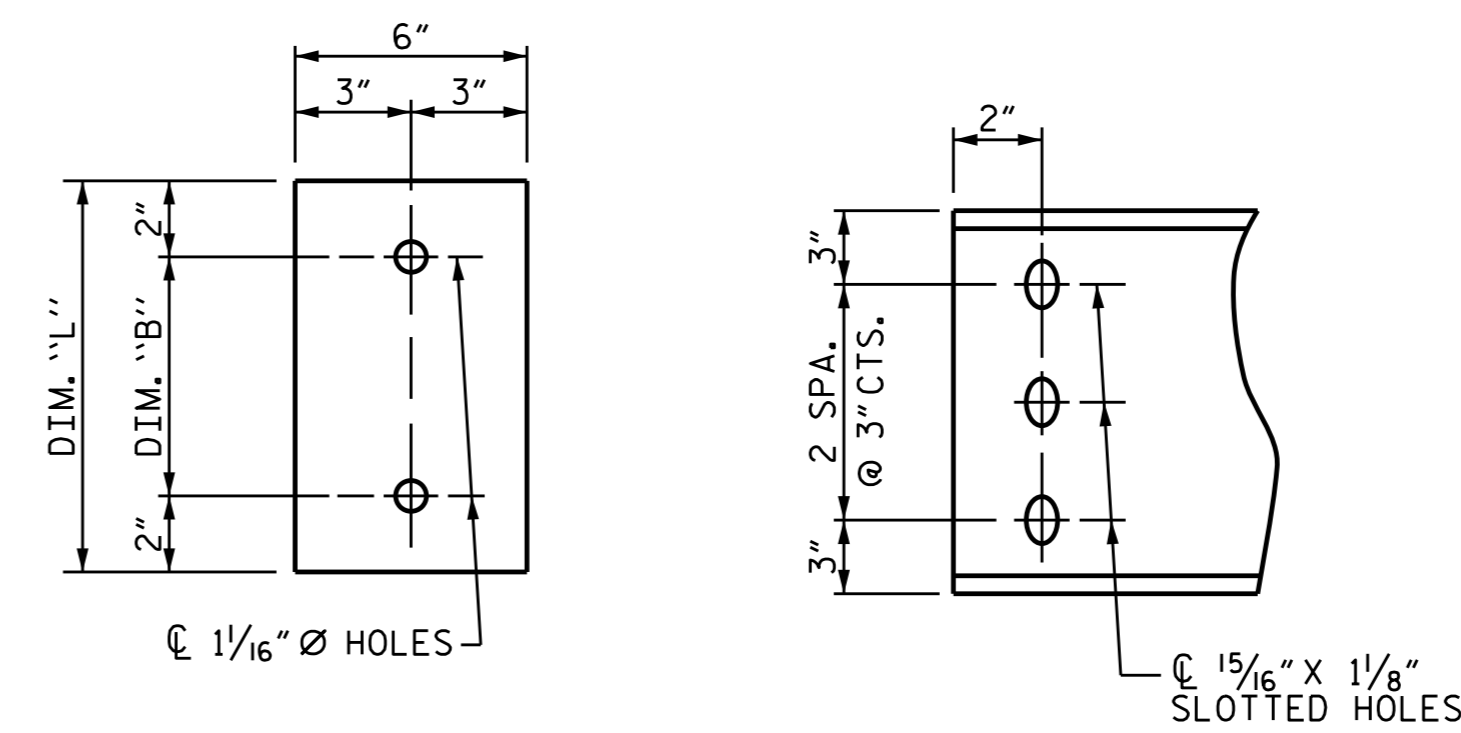
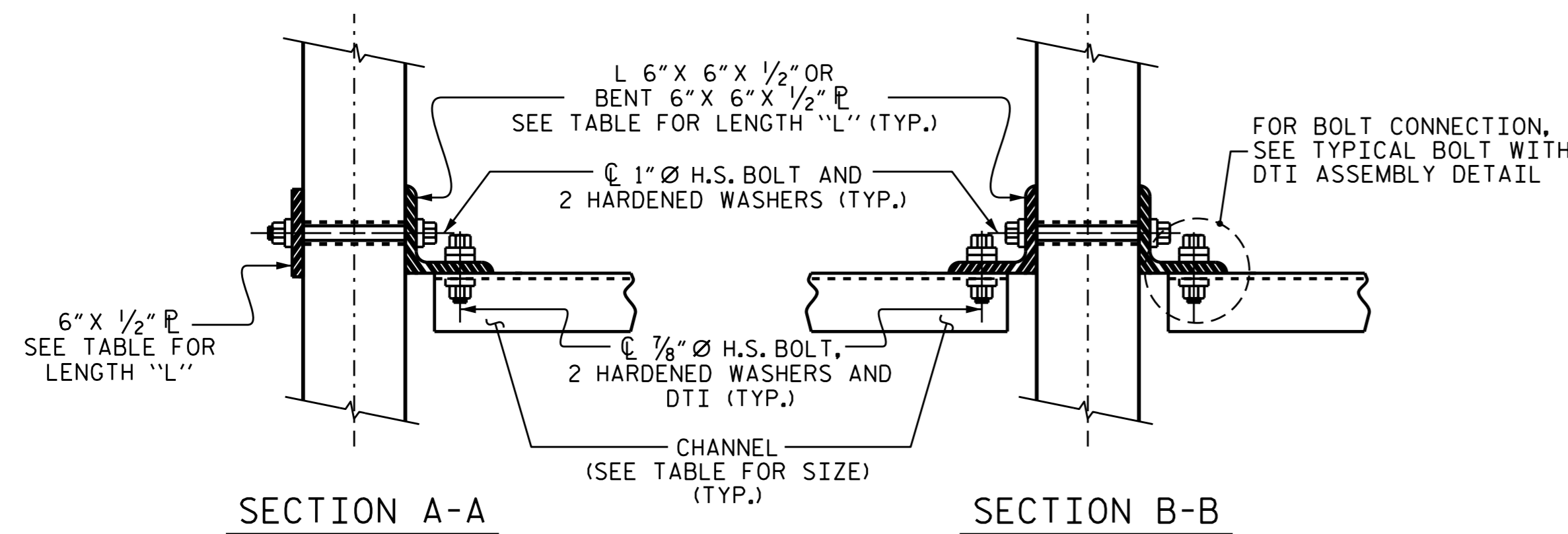


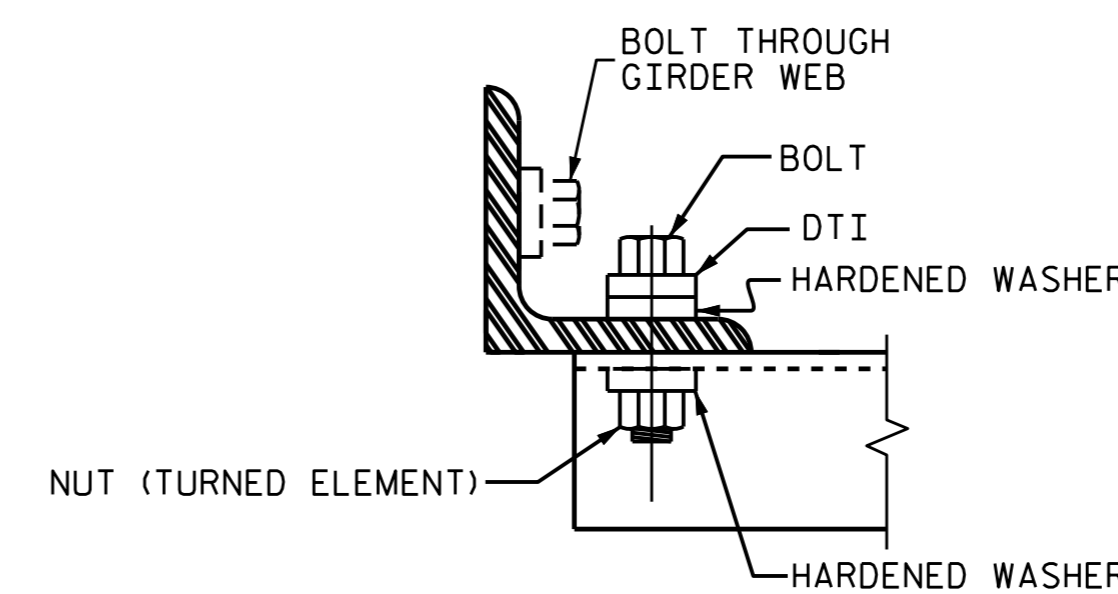
PLATE DETAILS CHANNEL END



SECTION A-A SECTION B-B  
CONNECTION DETAILS

TABLE

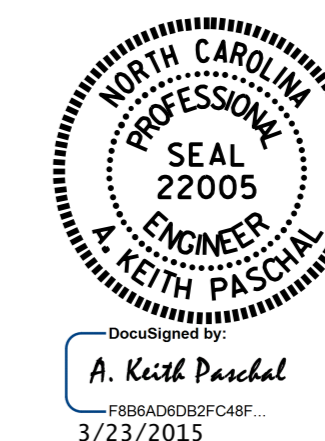
GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
II	MC 12 x 31	1'-2 1/2"	10"	1'-2"



BOLT WITH DTI ASSEMBLY DETAIL

PROJECT NO. R-2514C  
JONES COUNTY  
STATION: 102+05.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
INTERMEDIATE STEEL  
DIAPHRAGMS FOR  
TYPE II PRESTRESSED  
CONCRETE GIRDERS  
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			56

ASSEMBLED BY : D. G. ELY DATE : 05-02-14  
CHECKED BY : B. N. BARODAWALA DATE : 06-06-14  
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 02-09-15  
DRAWN BY : TLA 6/05  
CHECKED BY : VC 6/05  
ADDED 10/21/05  
REV. 5/1/06RRR KMM/GM  
REV. 10/1/11 MAA/GM



**NOTES**

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

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

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

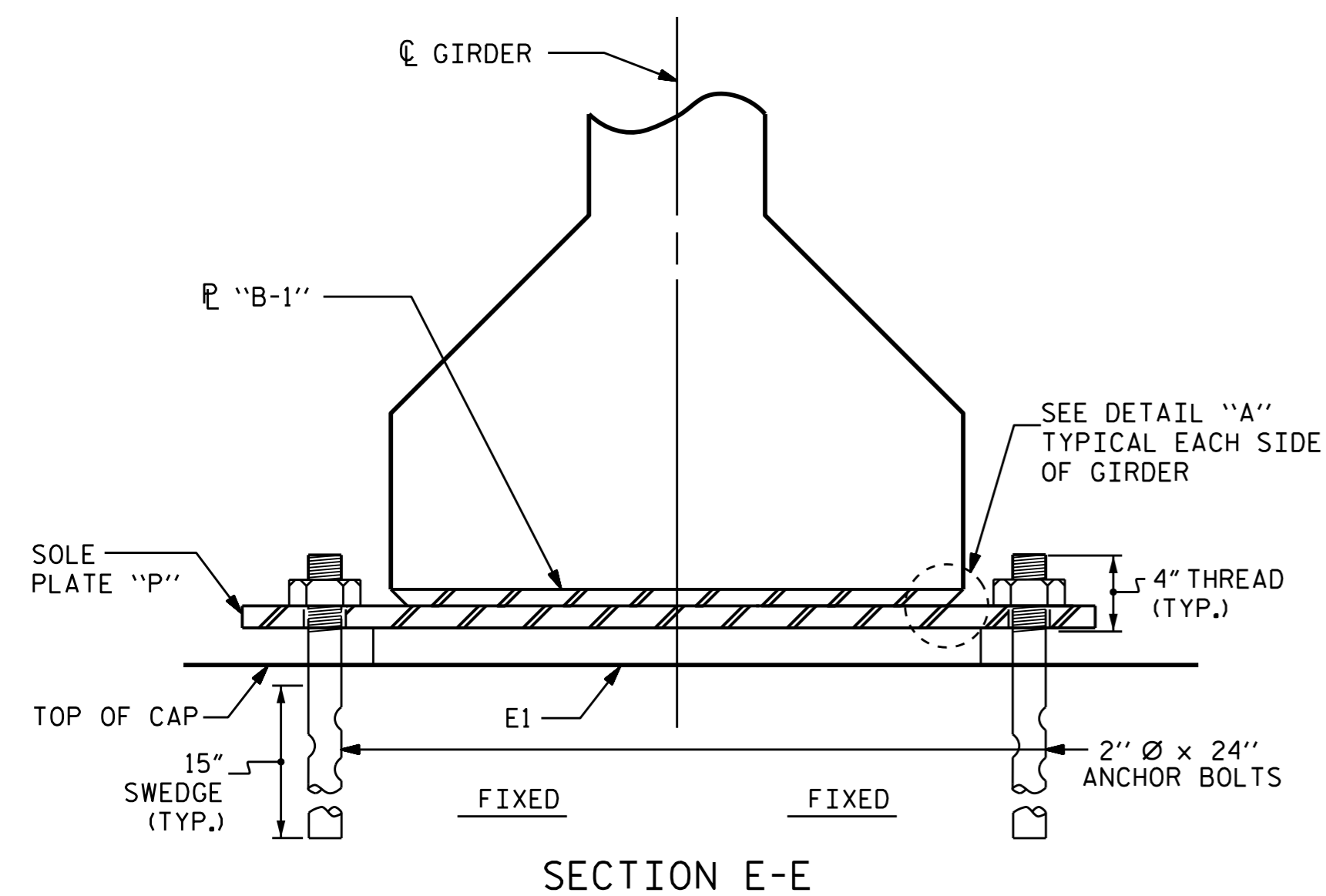
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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

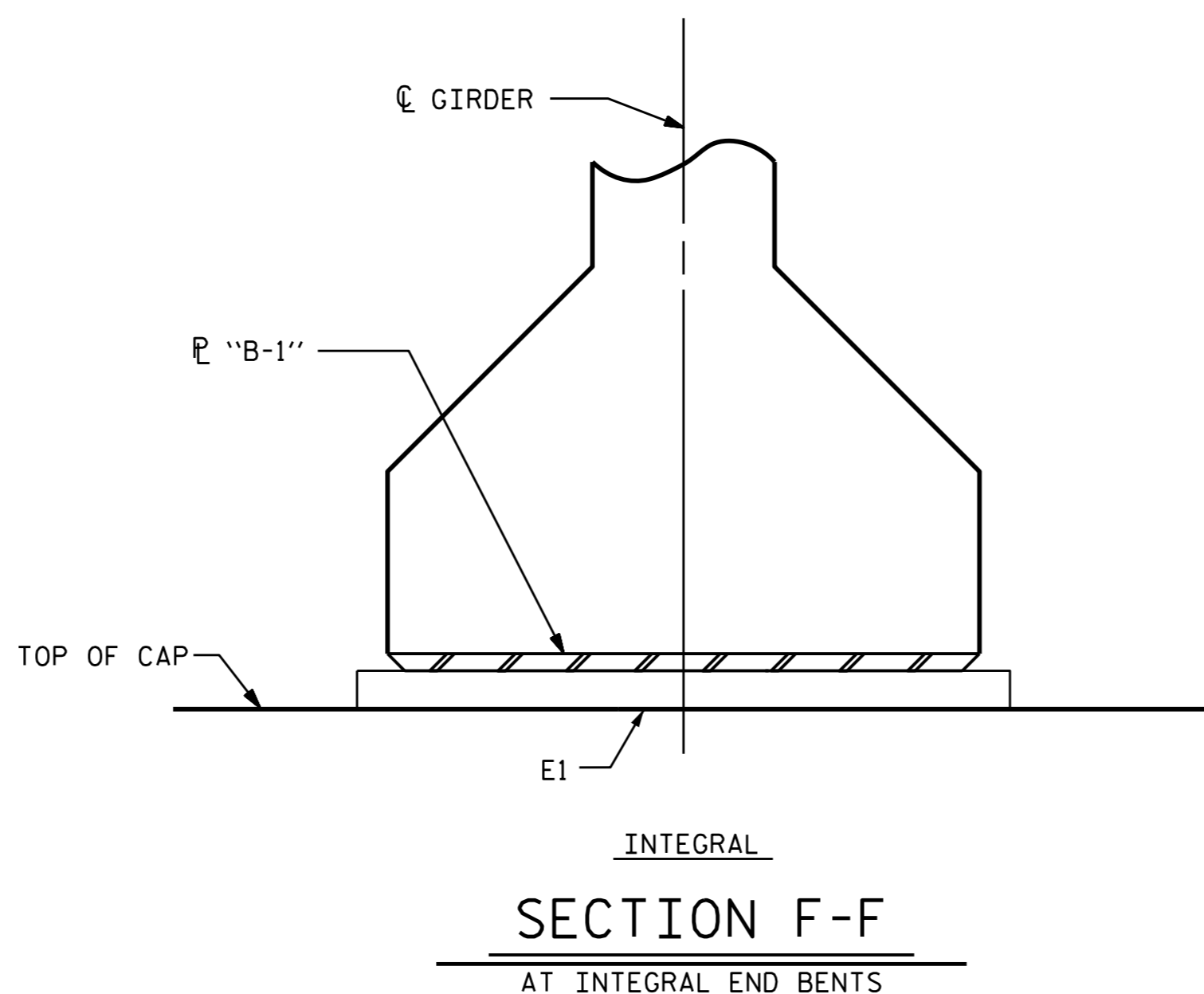
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.



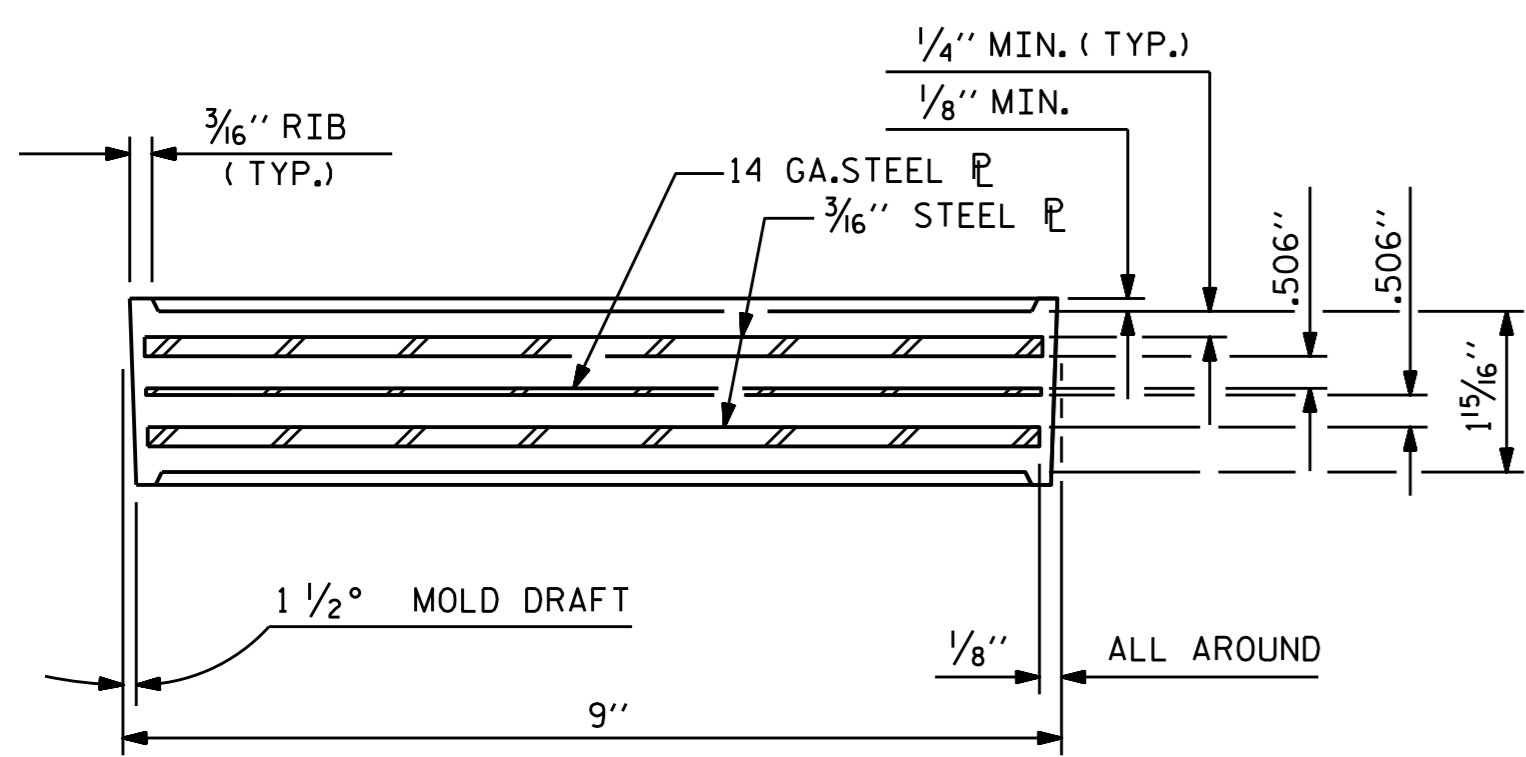
**SECTION E-E**



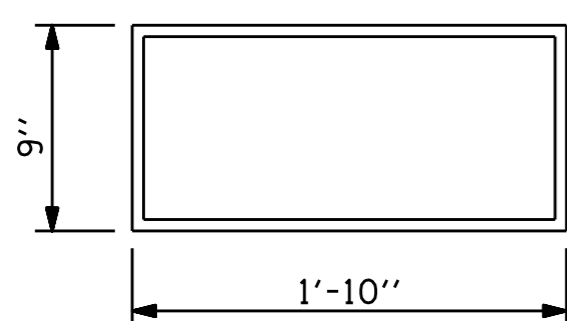
**SECTION F-F**

AT INTEGRAL END BENTS

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE IV	225 k

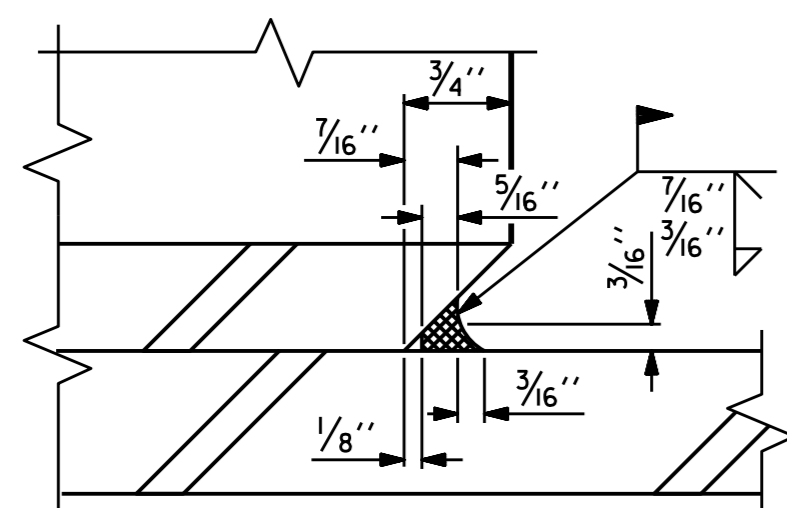


**TYPICAL SECTION OF ELASTOMERIC BEARINGS**



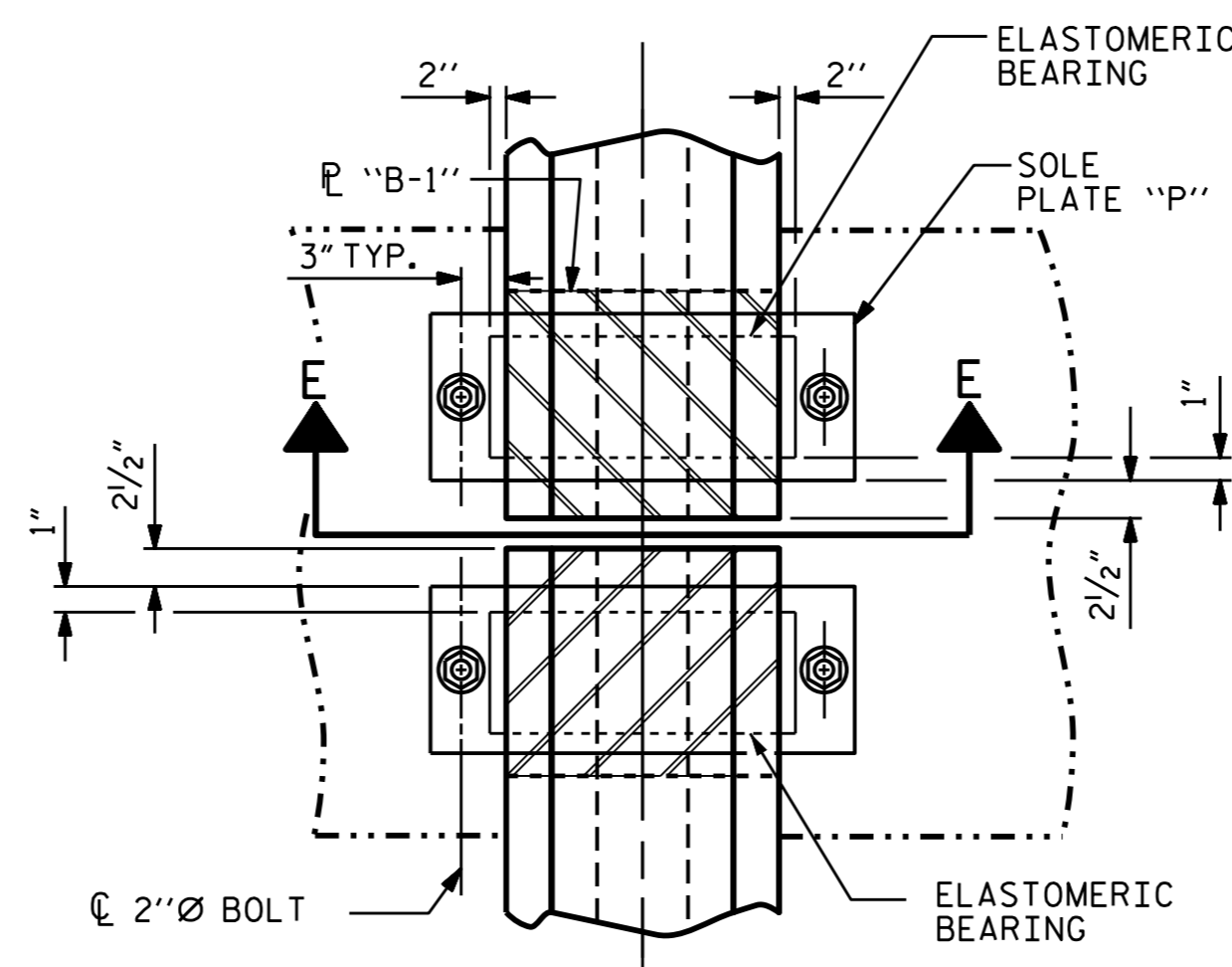
E1 (20 REQ'D)

**PLAN VIEW OF ELASTOMERIC BEARING**



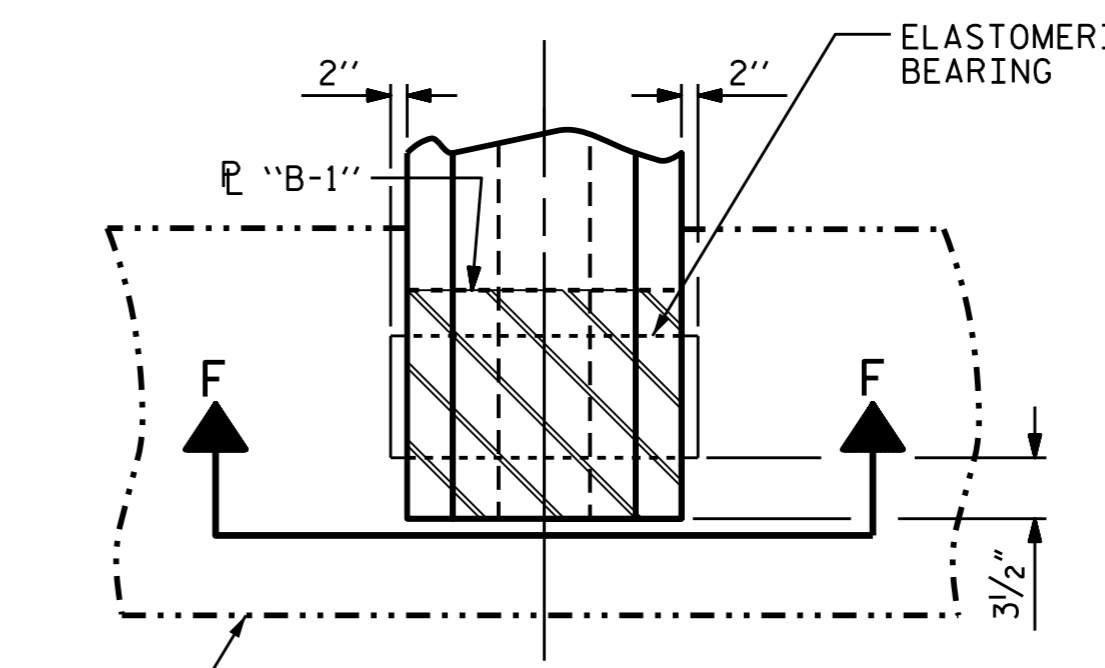
**DETAIL "A"**

TYPE IV



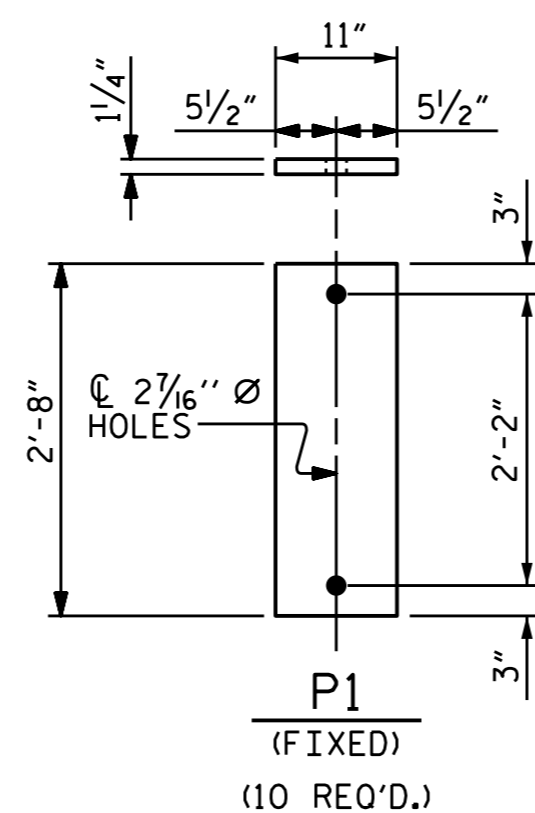
**TYPICAL PLAN**

(SHOWING CONTINUOUS BENT)



**TYPICAL PLAN**

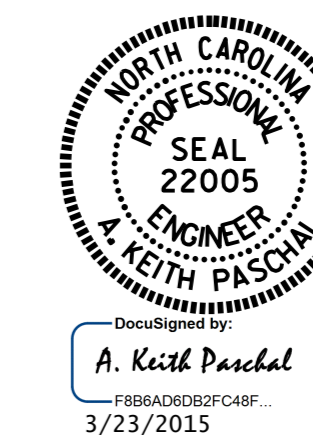
(SHOWING INTEGRAL END BENT)



**SOLE PLATE DETAILS ("P")**

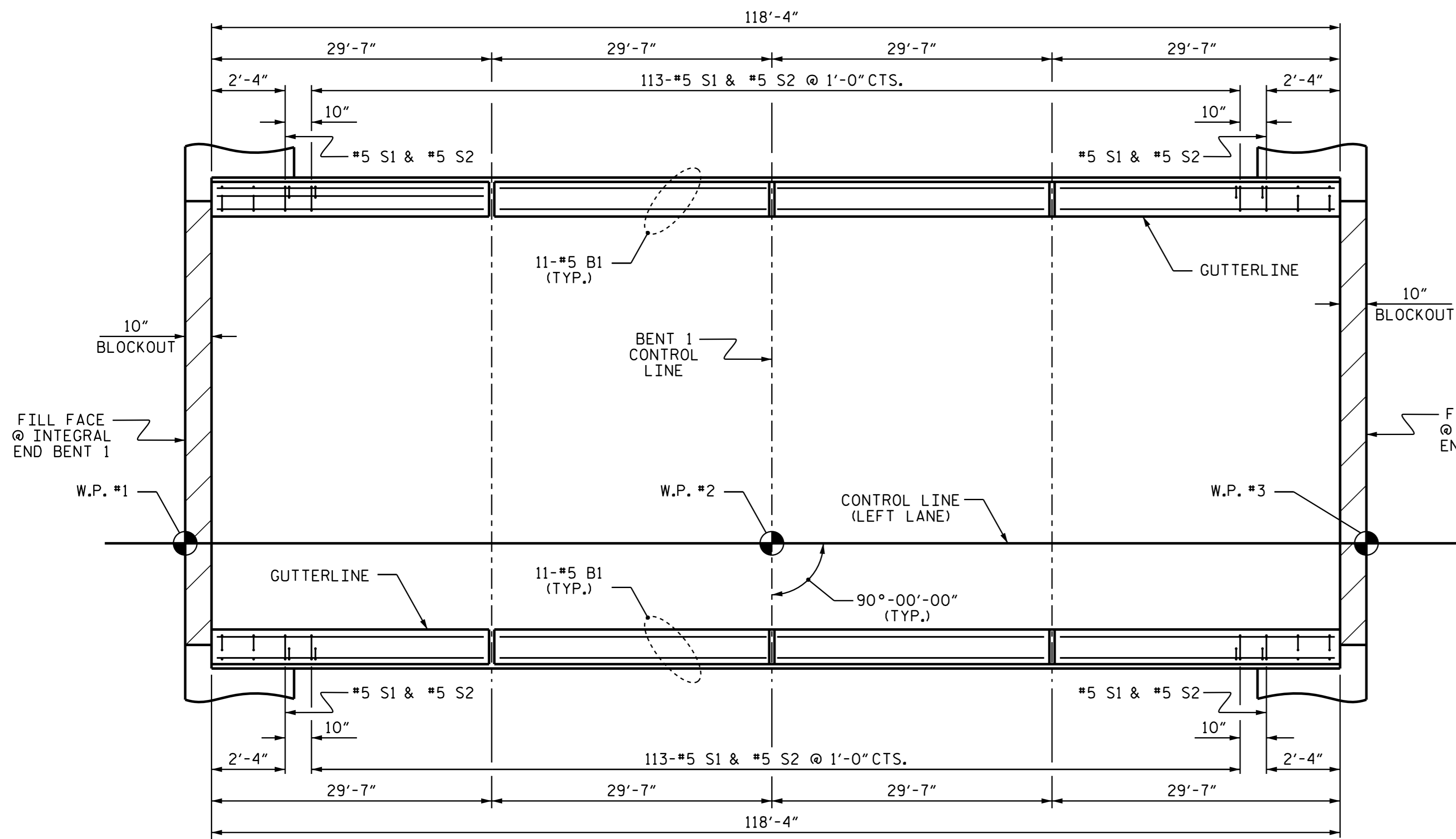
ASSEMBLED BY : D. G. ELY	DATE : 02-19-15
CHECKED BY : B. N. BARODAWALA	DATE : 02-20-15
DESIGN ENGINEER OF RECORD : A. K. PASCHAL	DATE : 02-23-15
DRAWN BY : WJH 8/89	REV. 10/1/11 MAA/GM
CHECKED BY : CRK 8/89	REV. 6/13 AAC/MAA
	REV. 1/15 MAA/TMG

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 105+05.00 -L-

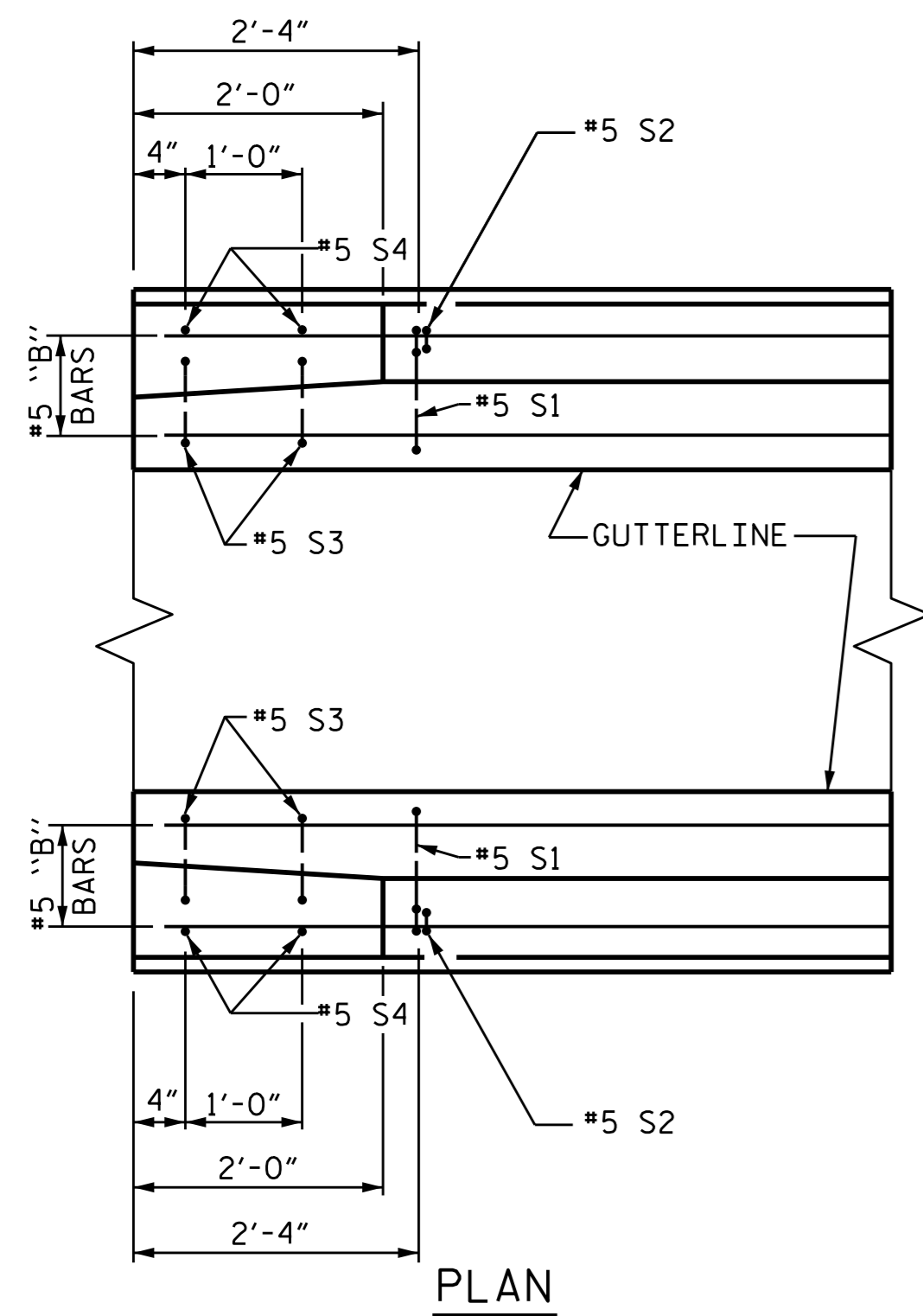


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
**ELASTOMERIC BEARING**  
 DETAILS  
 PRESTRESSED CONCRETE GIRDER  
 SUPERSTRUCTURE  
 (LEFT LANE)

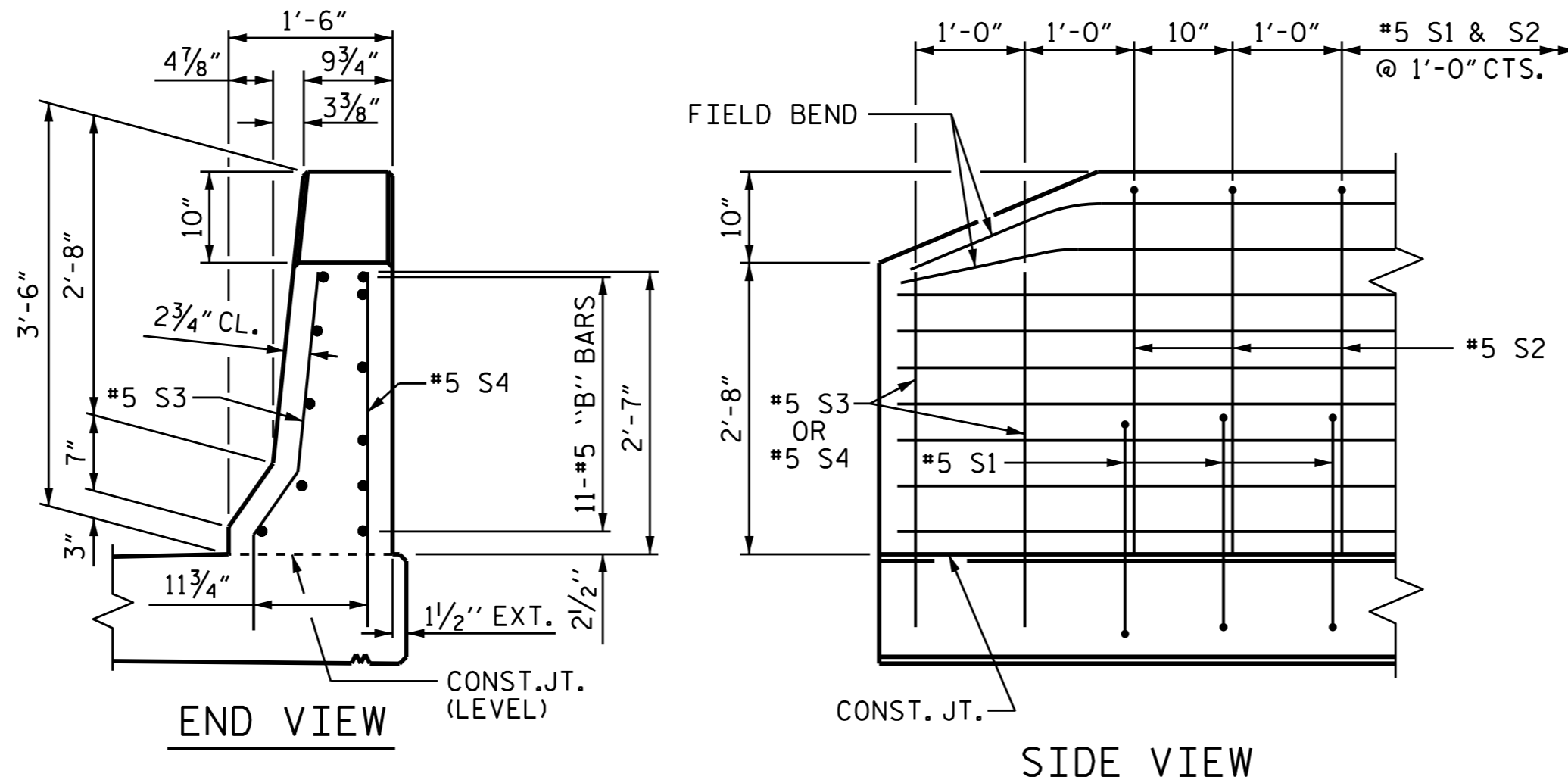
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			56



PLAN

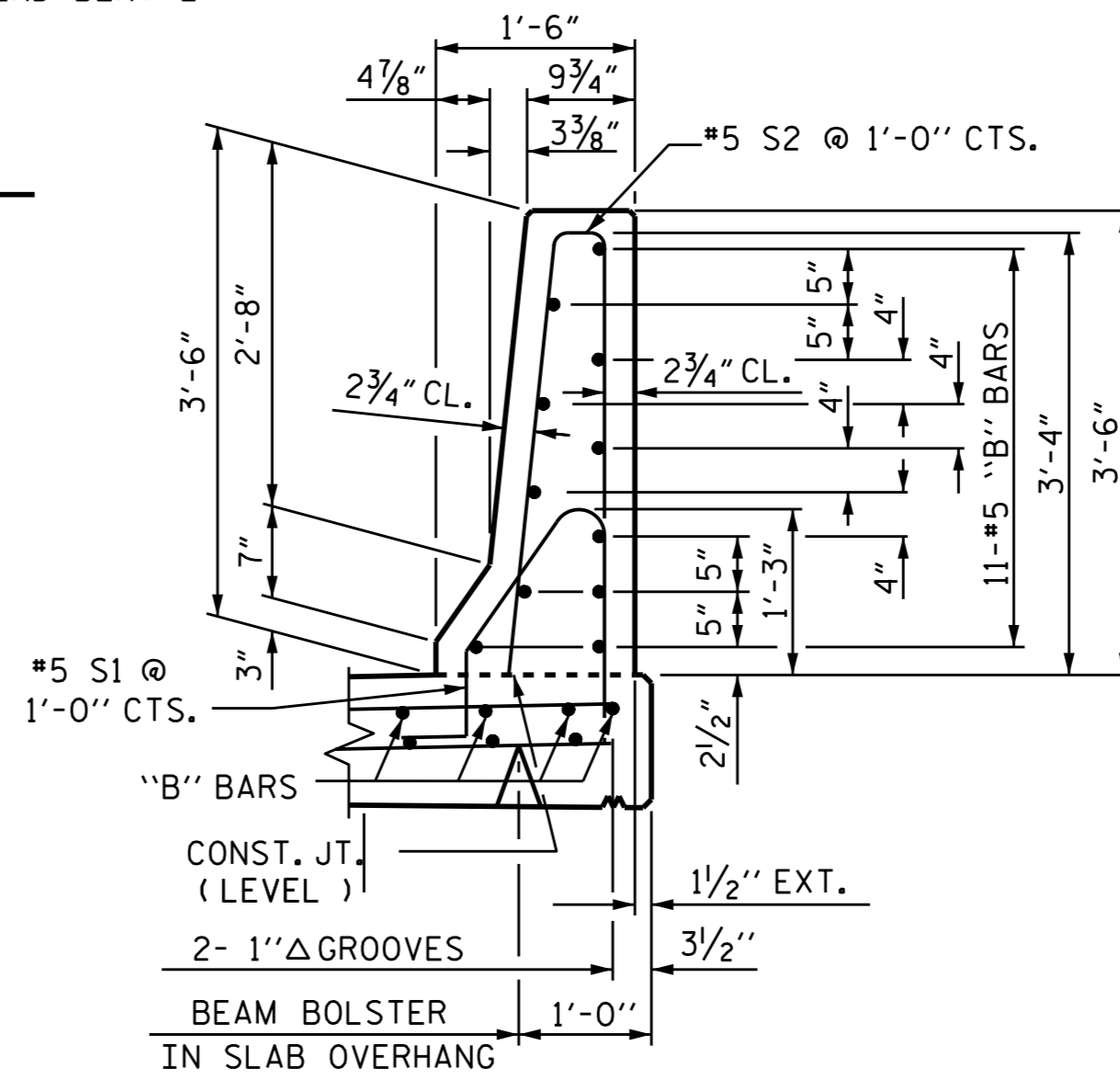


PLAN

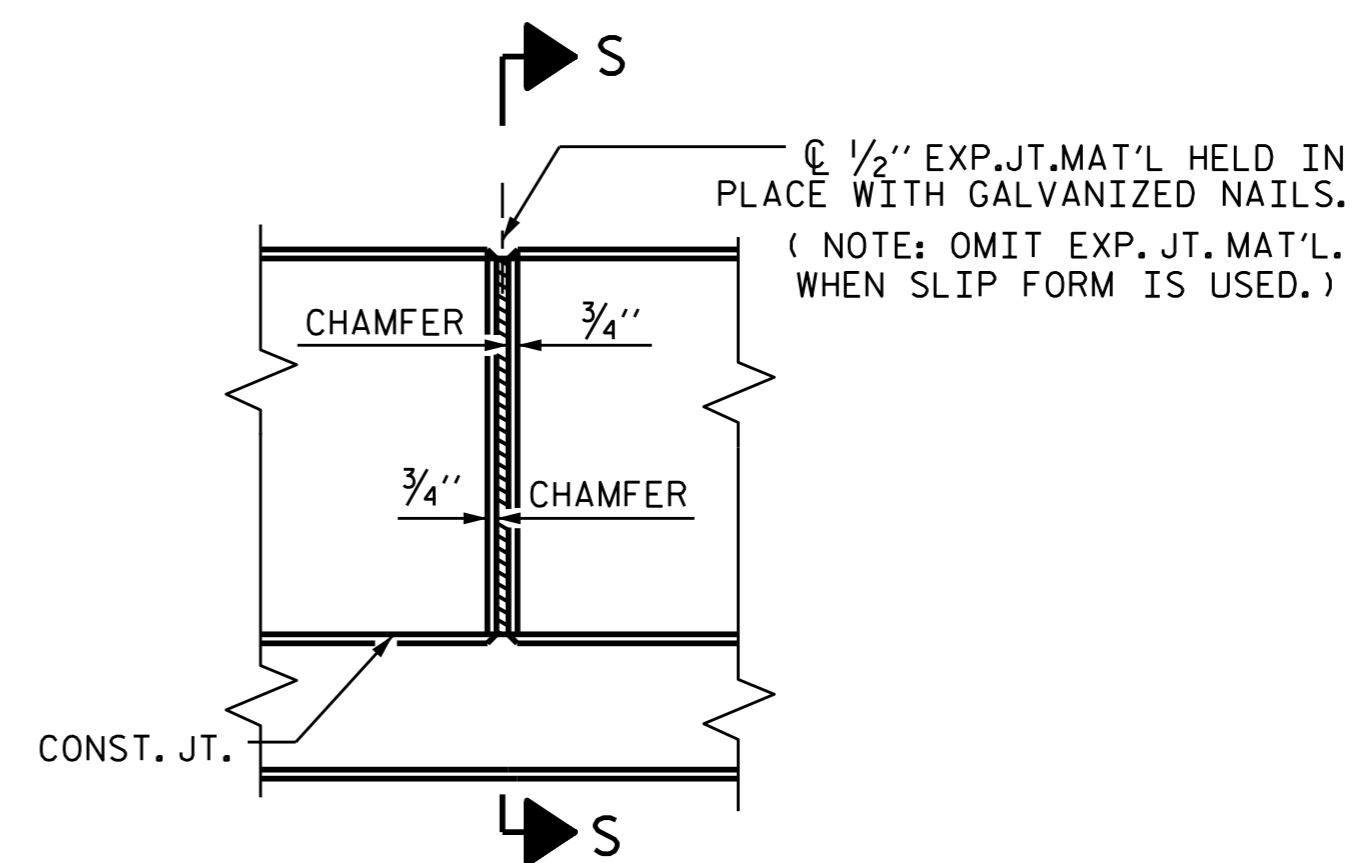


END OF RAIL DETAILS

FOR ADHESIVE ANCHORING AT SAWED JOINTS



SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS  
BARRIER RAIL DETAILS

NOTES

THE BARRIER RAIL IN A CONTINUOUS UNIT 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.

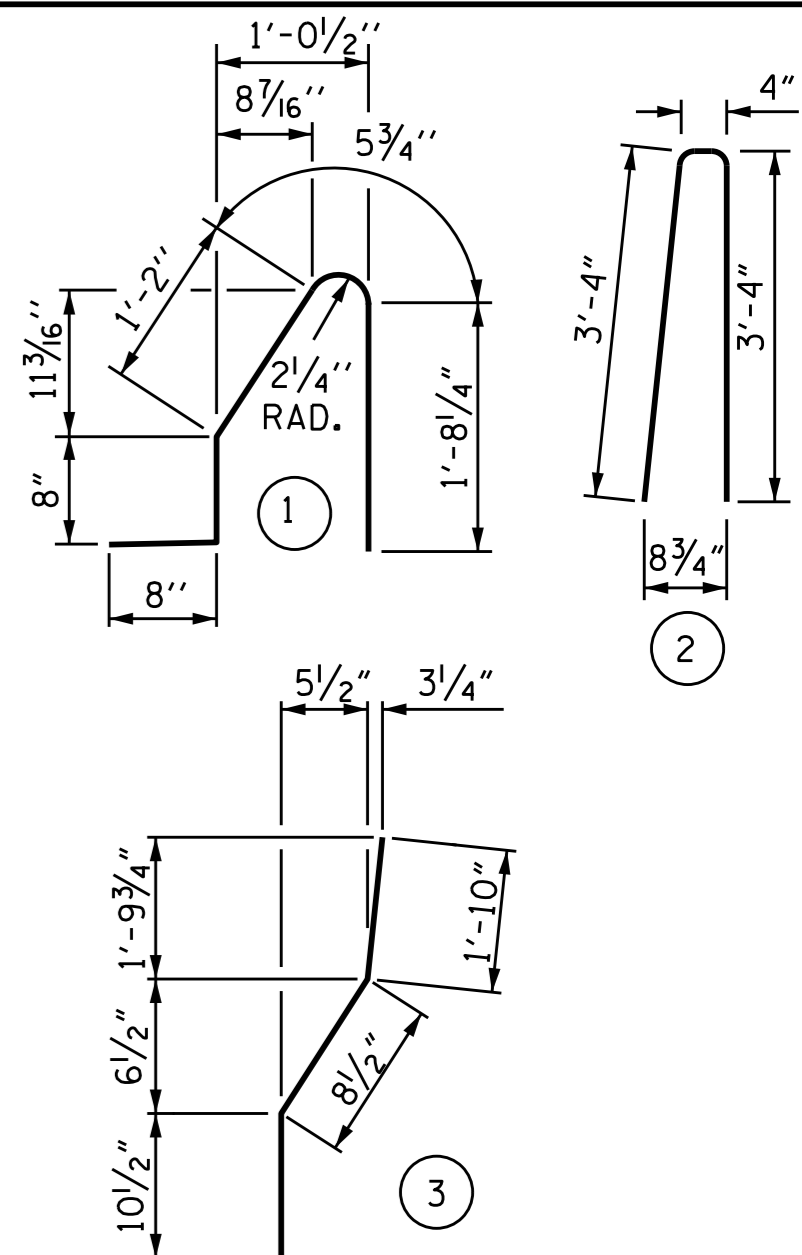
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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.

#5 S1 AND #5 S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN RAIL.

THE #5 S3 AND #5 S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3 AND #5 S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

BAR TYPES



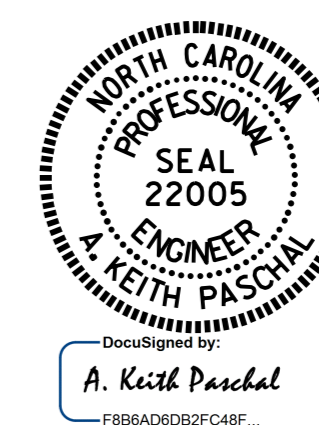
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
* B1	88	#5	STR	29'-2"	2677
* S1	230	#5	1	4'-8"	1119
* S2	230	#5	2	7'-0"	1679
* S3	8	#5	3	3'-5"	29
* S4	8	#5	STR	3'-3"	27
* EPOXY COATED REINFORCING STEEL				5531 LBS.	
CLASS AA CONCRETE				32.2 CU. YDS.	
CONCRETE BARRIER RAIL				236.67 LIN. FT.	

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

PROJECT NO. R-2514C  
JONES COUNTY  
STATION: 102+05.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD CONCRETE BARRIER RAIL (LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: D. G. ELY	DATE: 06-03-14
CHECKED BY: B. N. BARODAWALA	DATE: 06-06-14
DESIGN ENGINEER OF RECORD: A. K. PASCHAL	DATE: 02-09-15
DRAWN BY: ARB 5/87	REV. 10/11 MAA/GM
CHECKED BY: SJD 9/87	REV. 7/12 MAA/GM
	REV. 6/13 MAA/GM



NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 - 7/8" 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 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

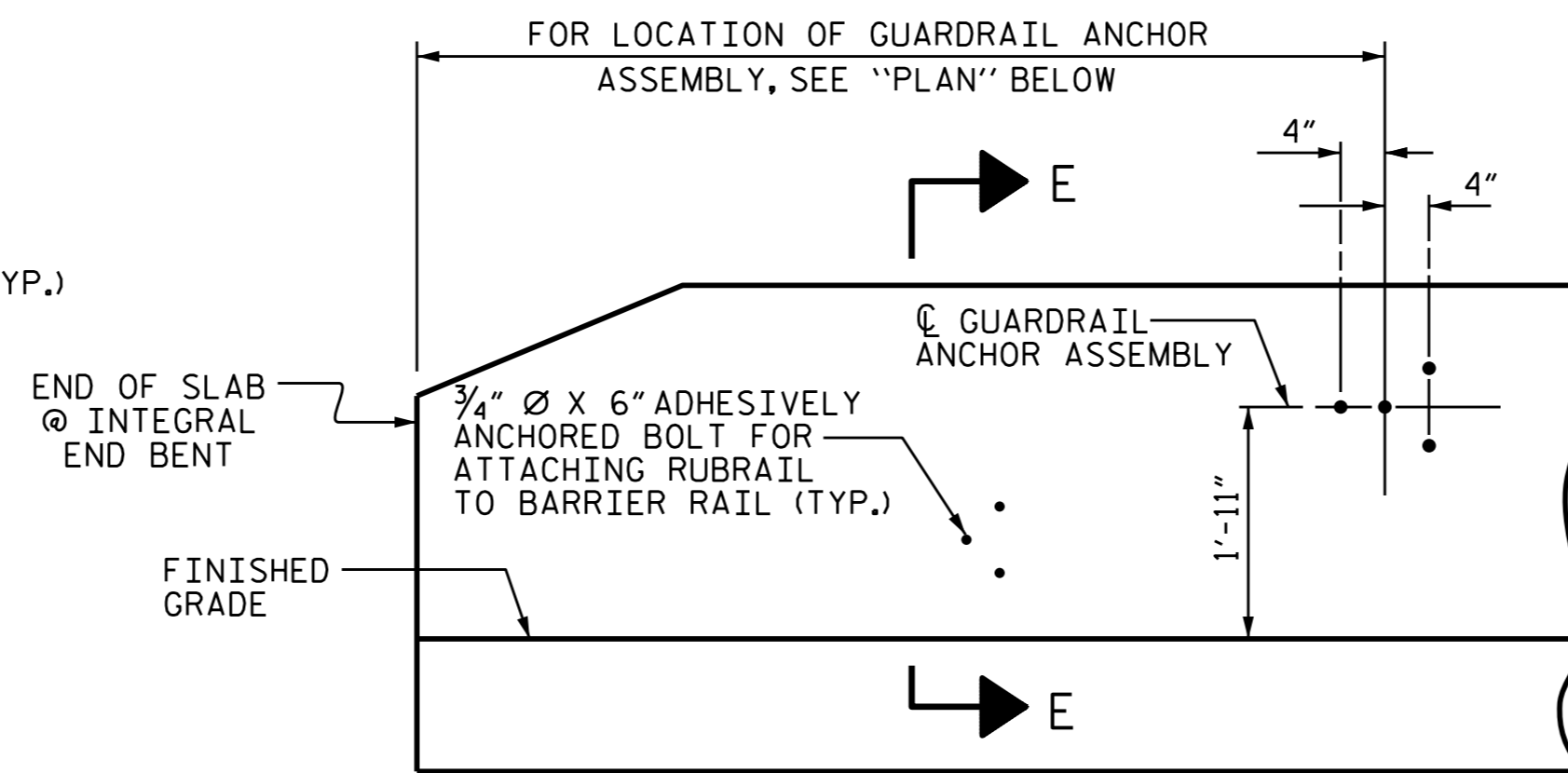
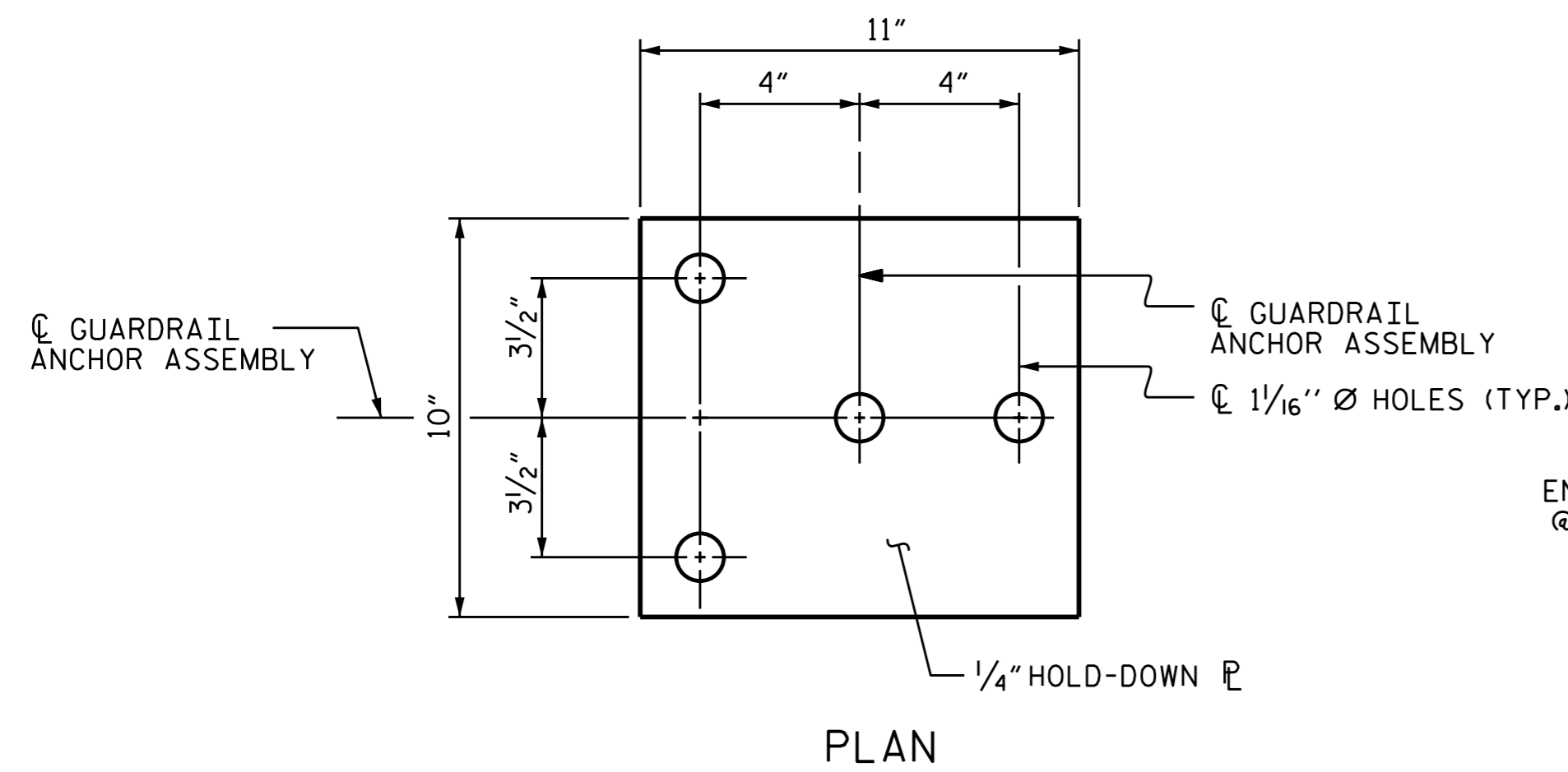
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

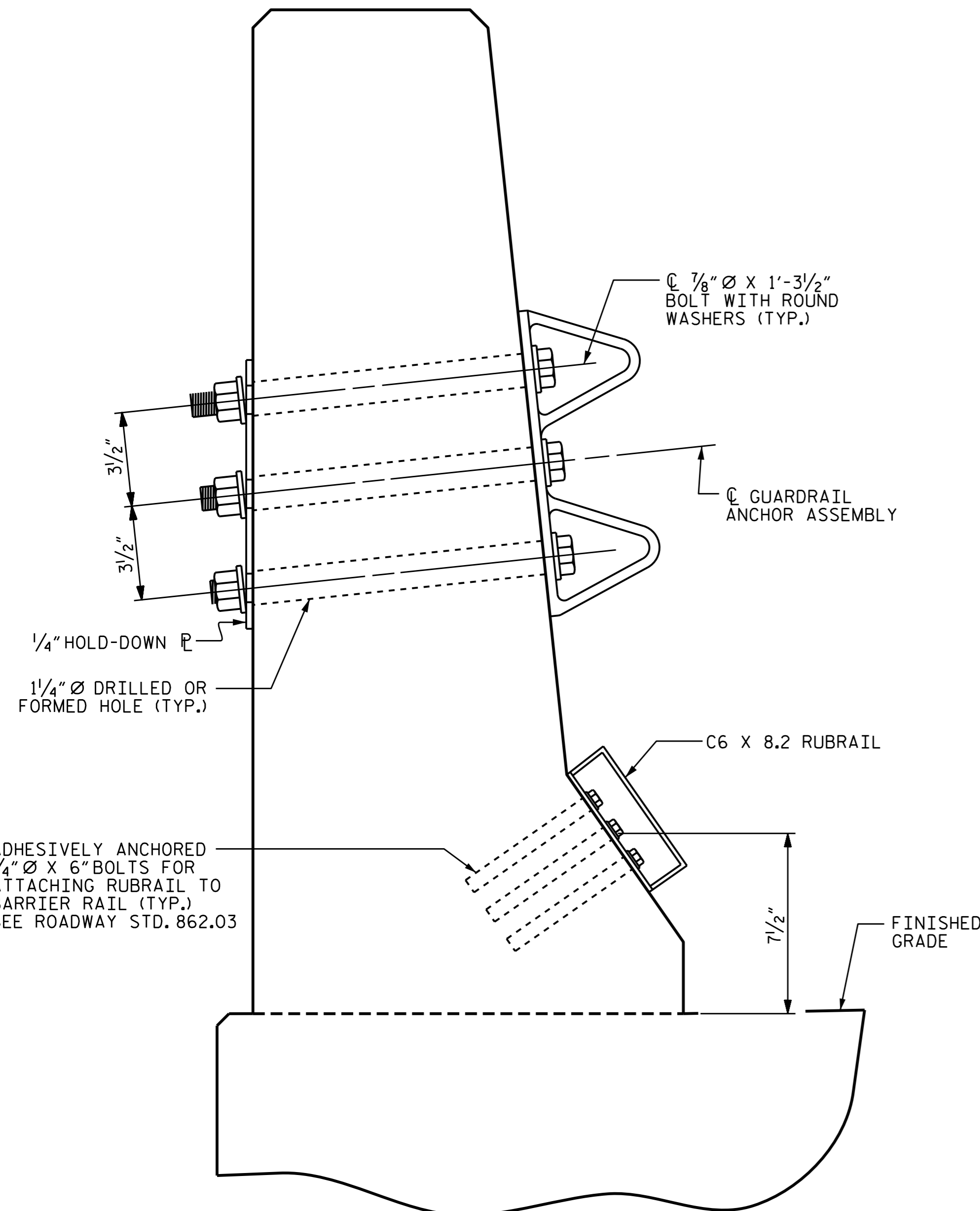
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

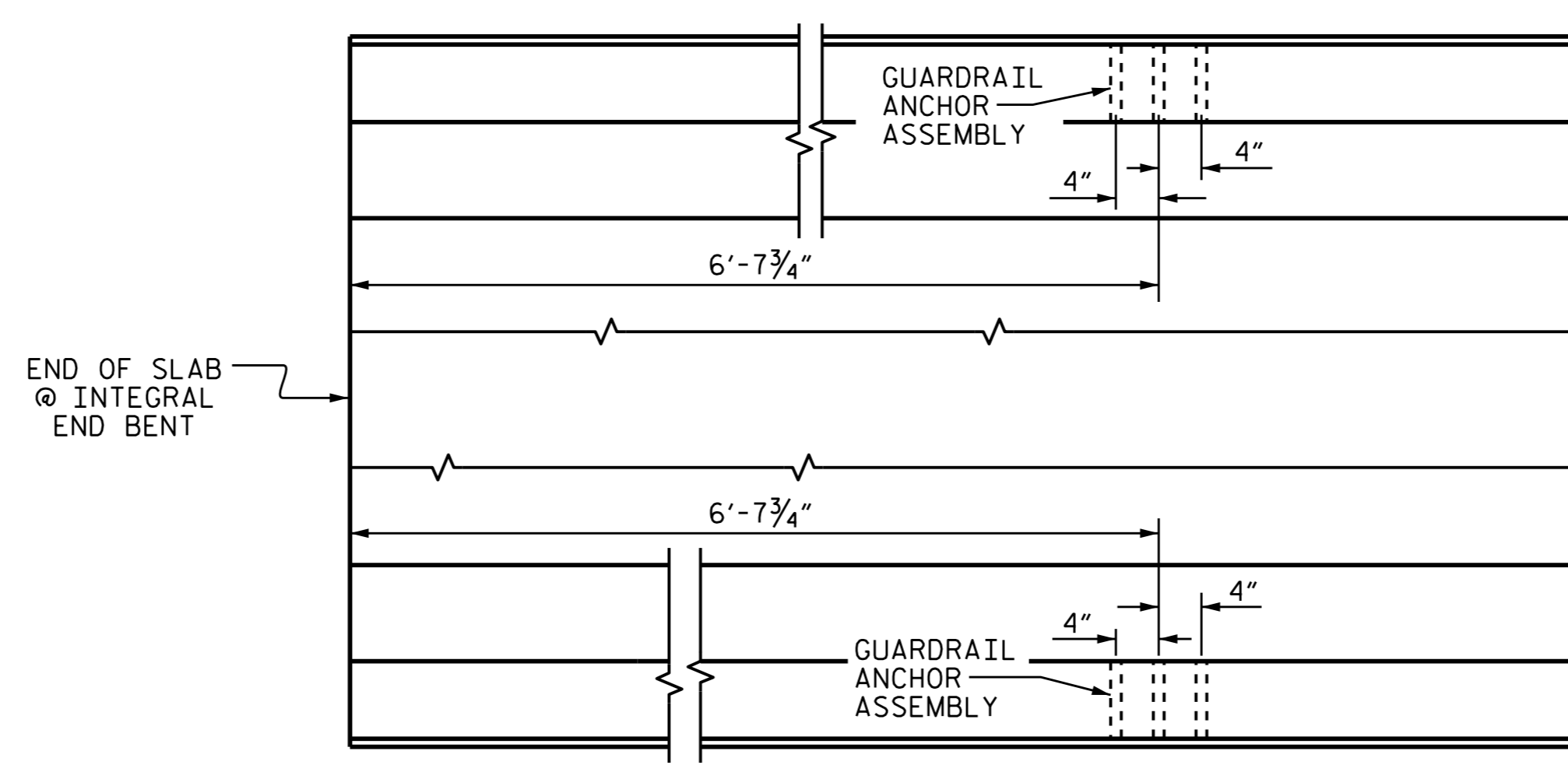
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR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



ELEVATION



SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

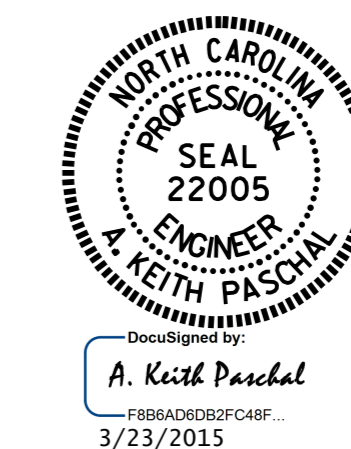
END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 GUARDRAIL ANCHORAGE  
 FOR BARRIER RAIL  
 (LEFT LANE)

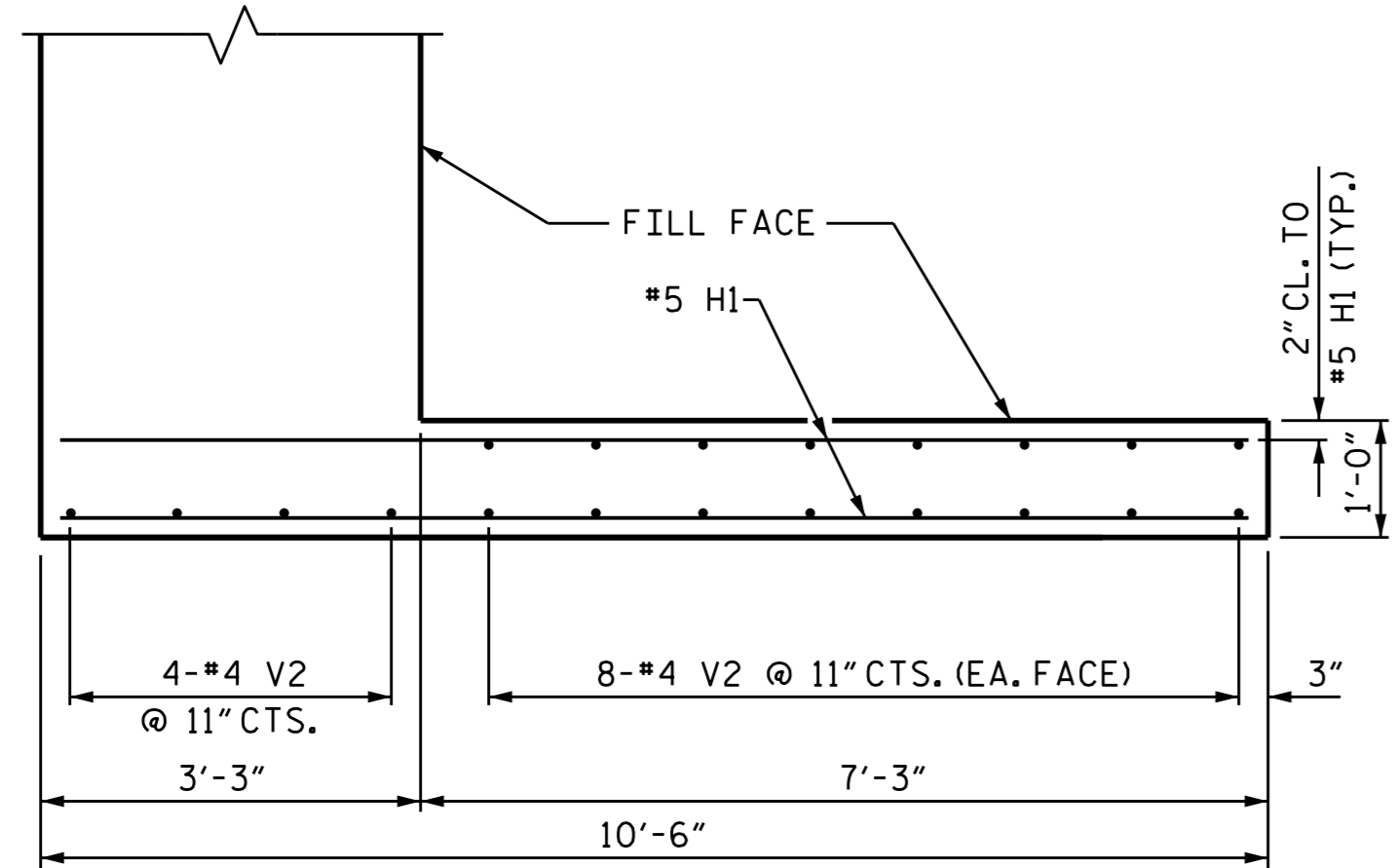
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-17
2			4			56

ASSEMBLED BY : D. G. ELY	DATE : 06-03-14
CHECKED BY : B. N. BARODAWALA	DATE : 06-06-14
DRAWN BY : TLA	5/06
CHECKED BY : GM	5/06
REV. 10/1/11	MAA/GM
REV. 7/12	MAA/GM
REV. 6/13	MAA/GM

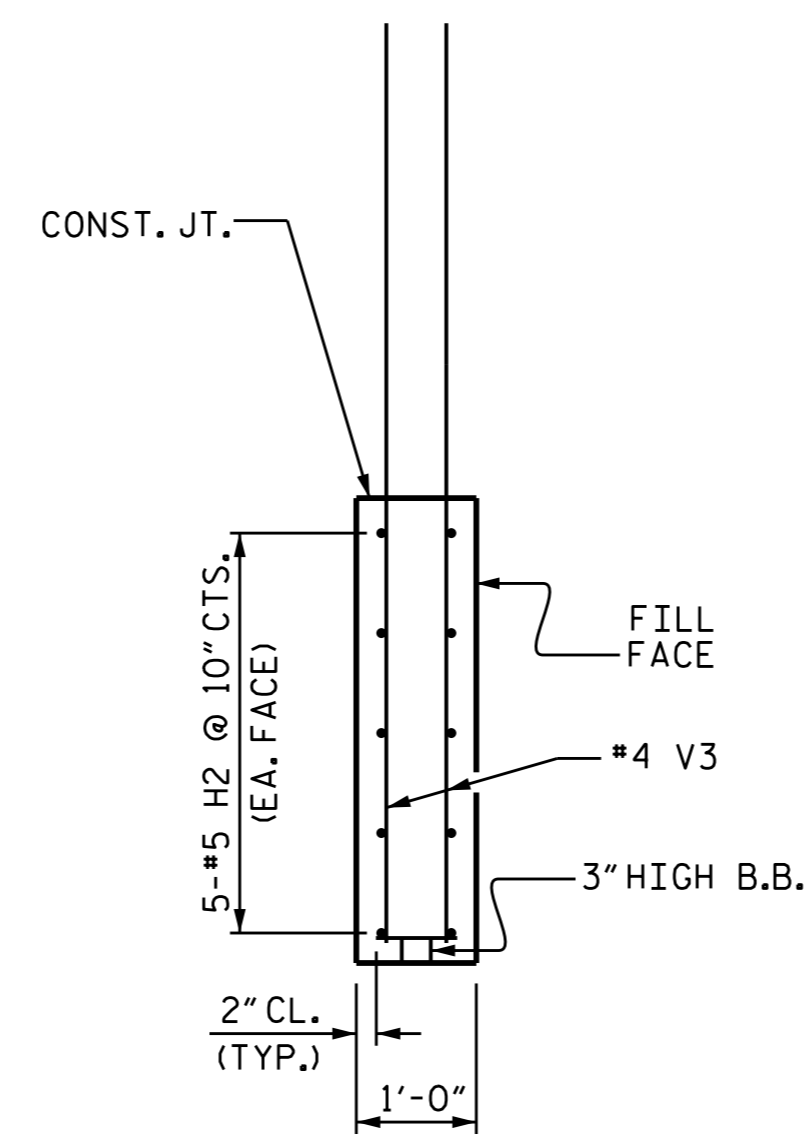




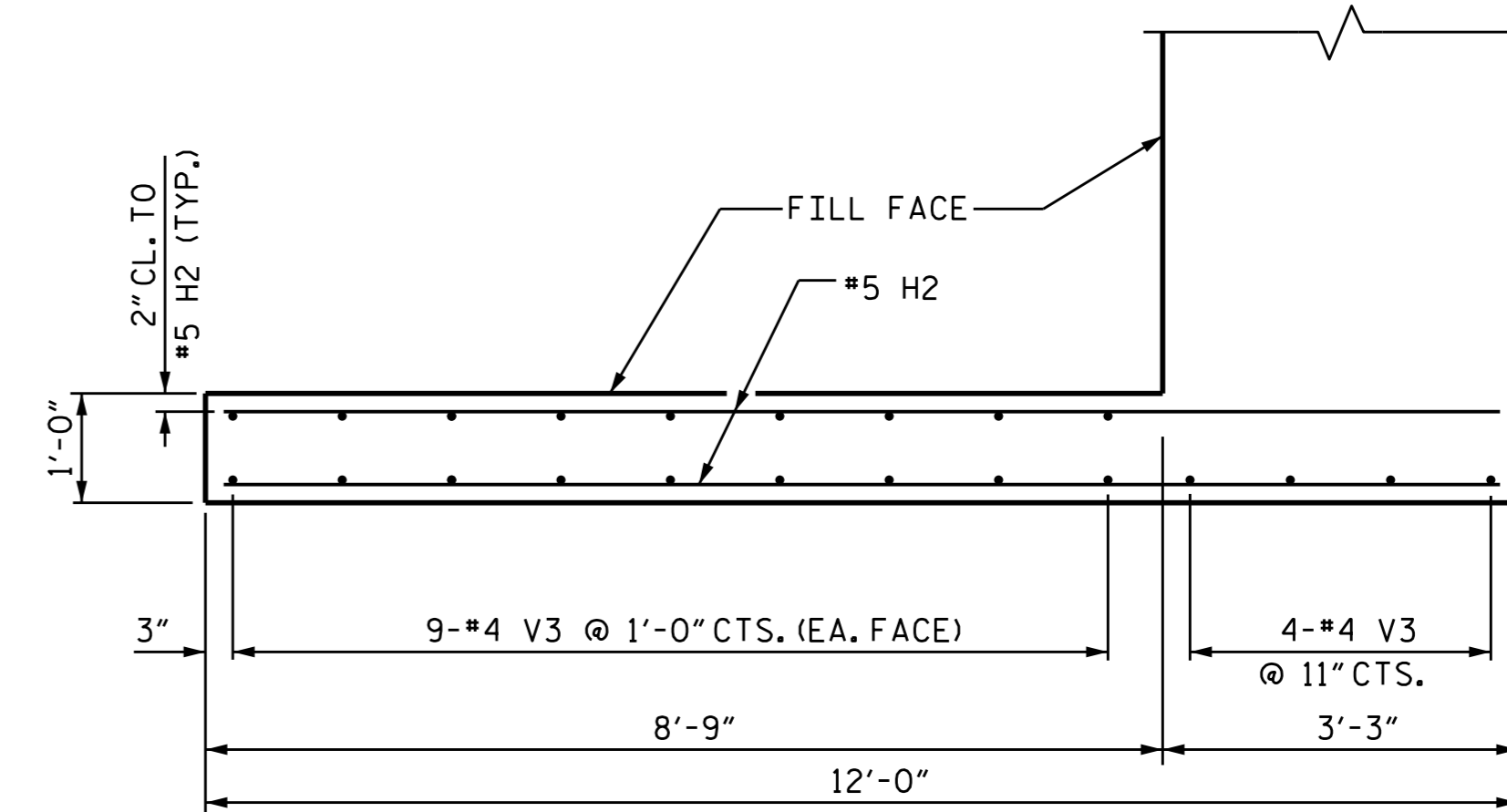




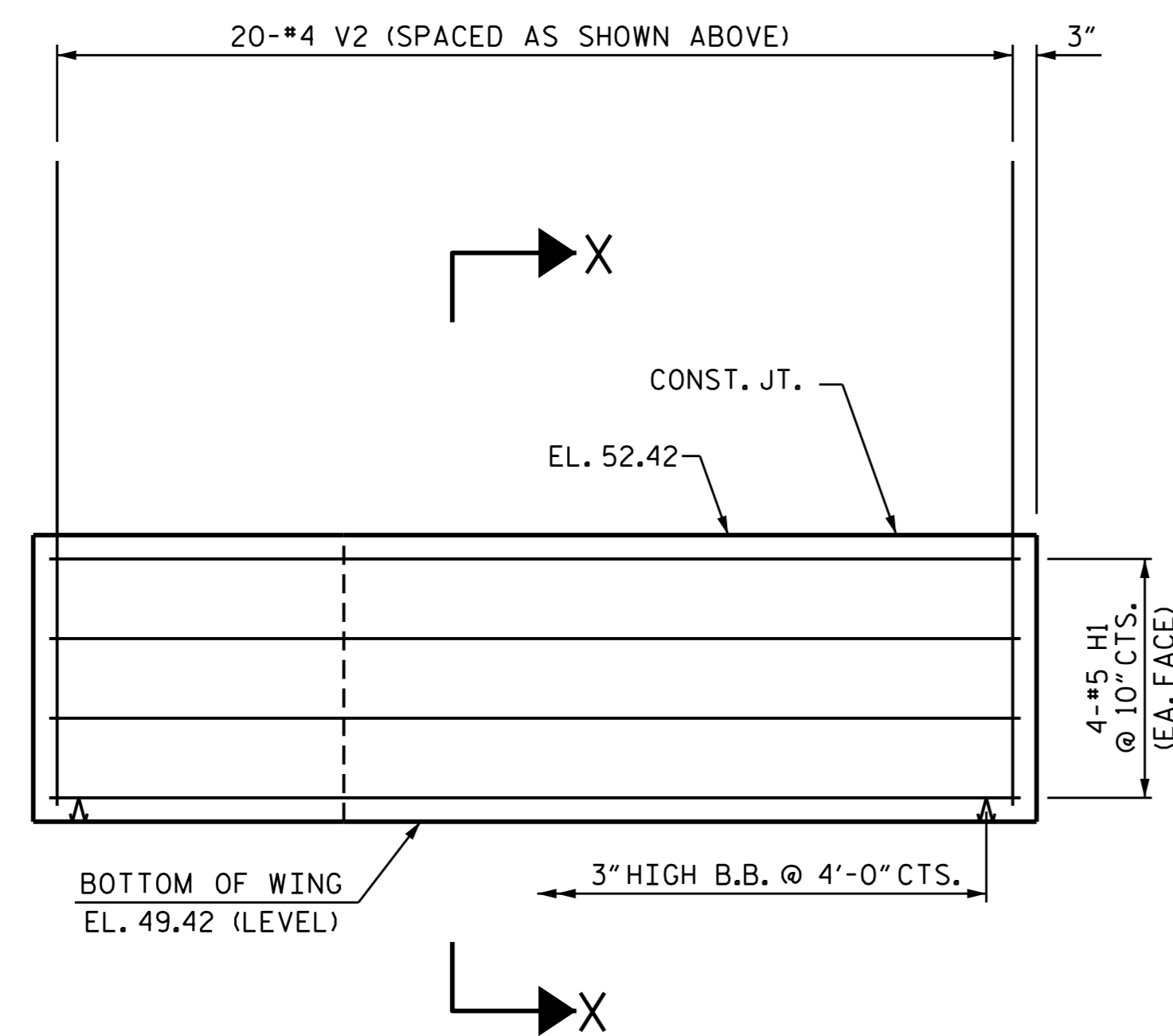
PLAN OF WING (W1)



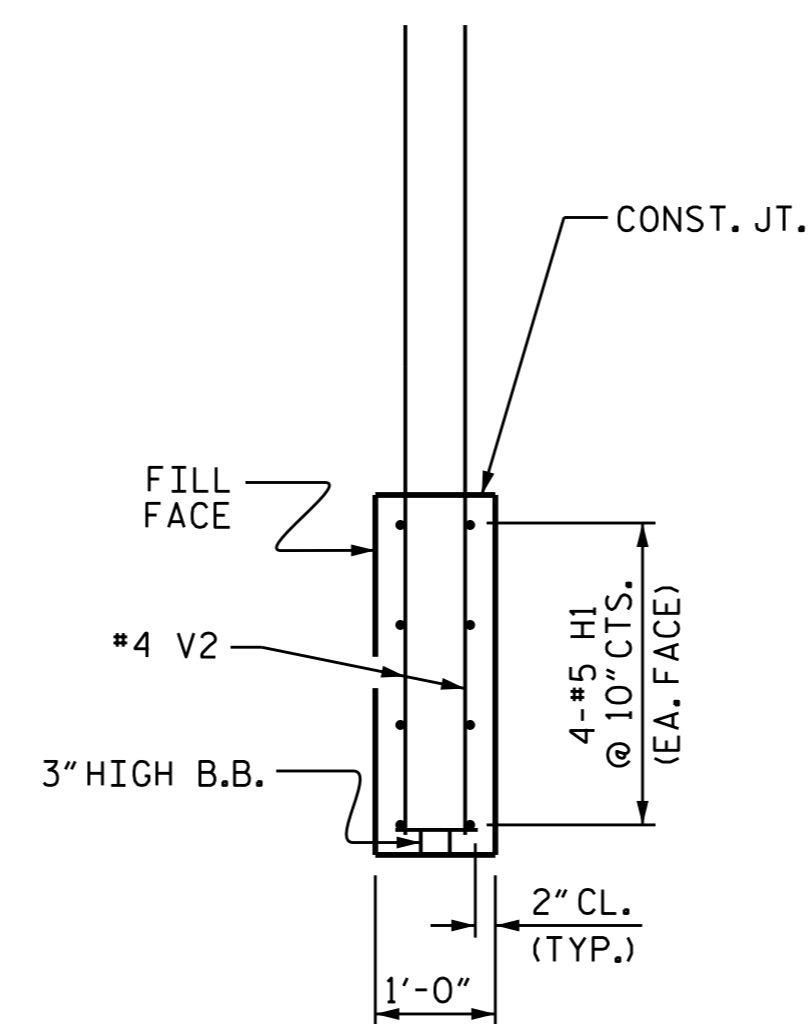
SECTION Y-Y



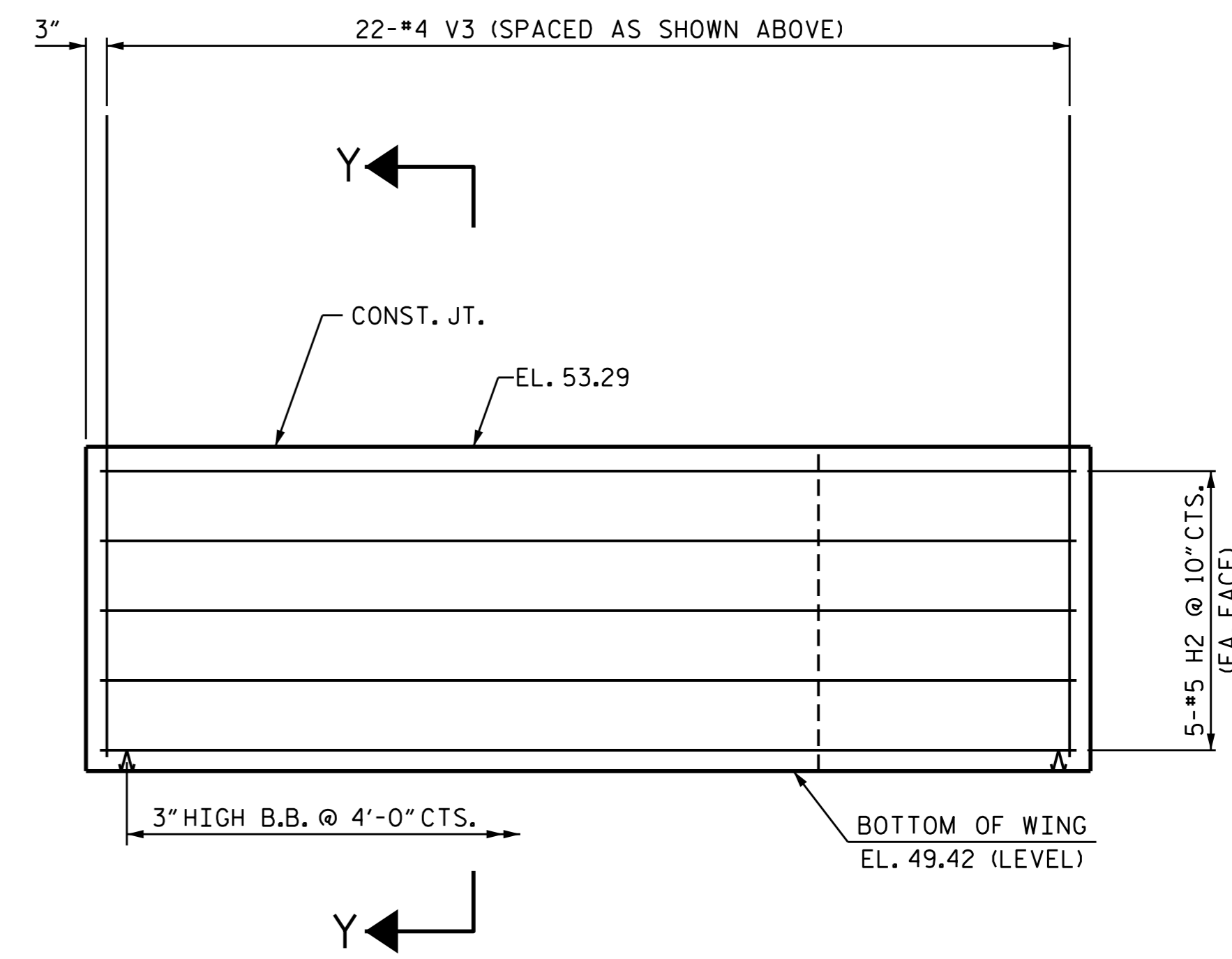
PLAN OF WING (W2)



ELEVATION OF WING (W1)



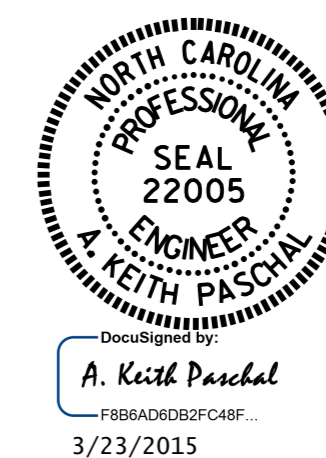
SECTION X-X



ELEVATION OF WING (W2)

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 2 OF 3

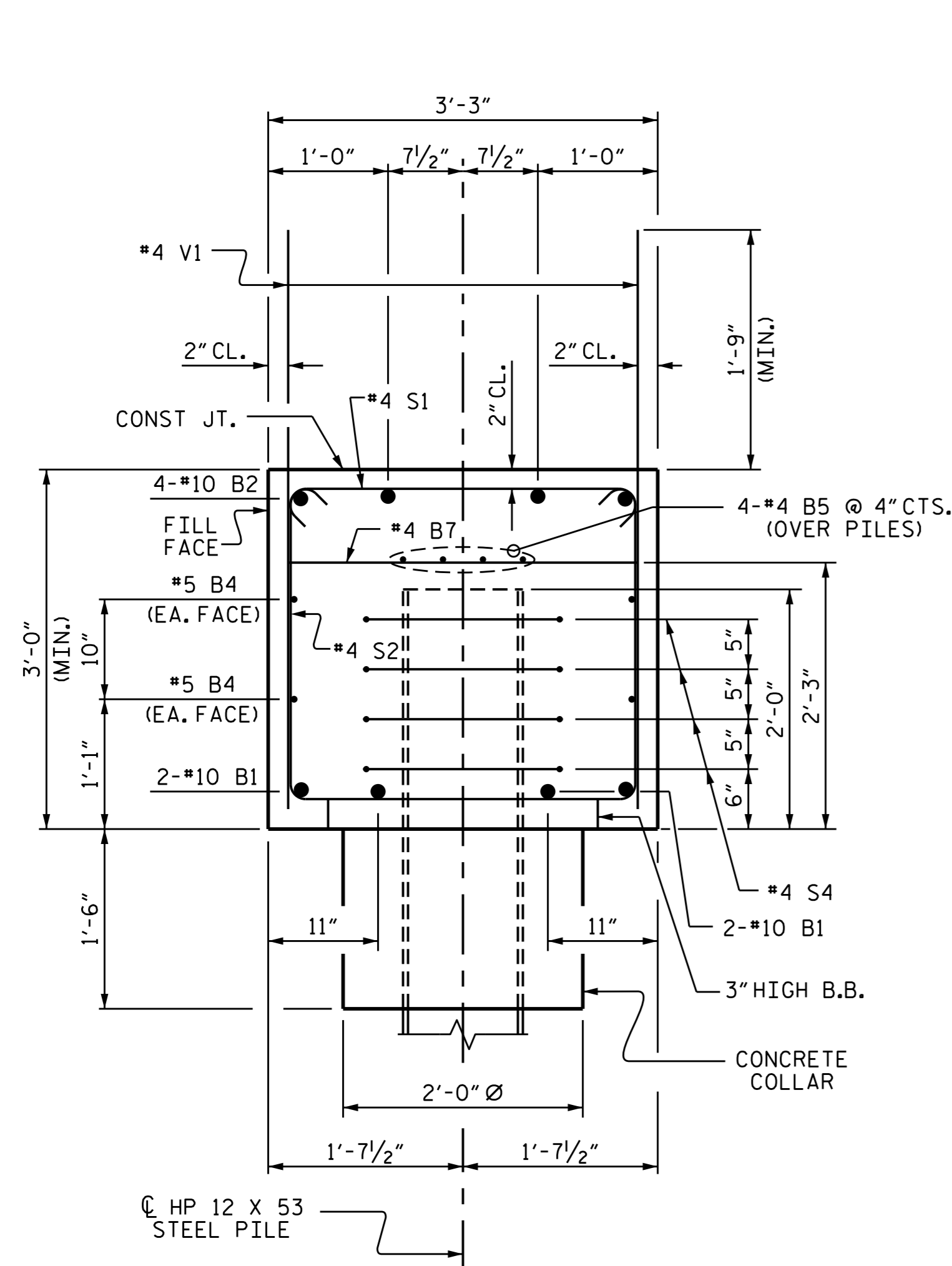


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 INTEGRAL END BENT 1  
 (LEFT LANE)

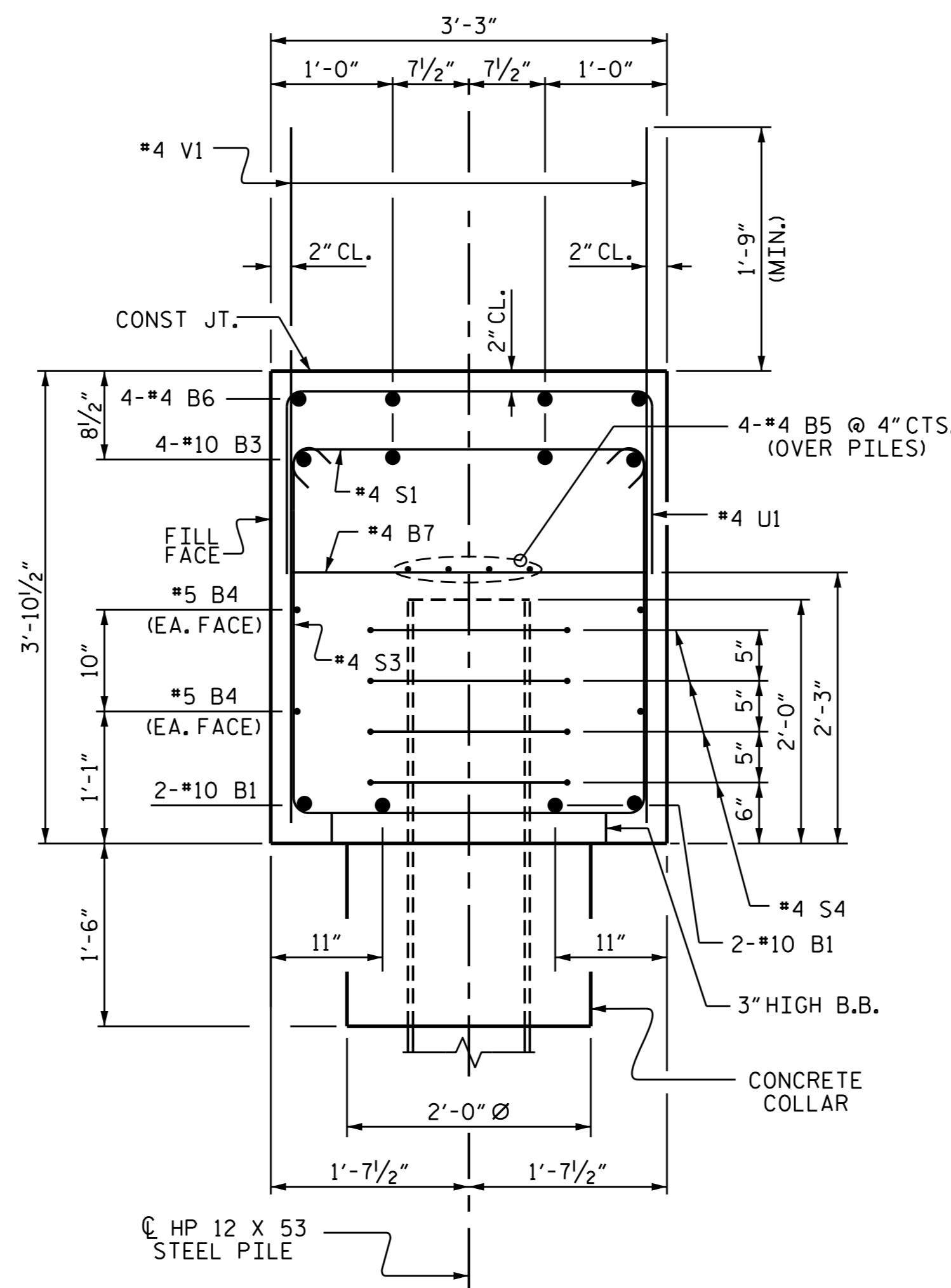
REVISIONS						SHEET NO. S-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

DRAWN BY: D. G. ELY DATE: 6/26/14  
 CHECKED BY: P. N. HOLDER DATE: 7/17/14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2/9/15

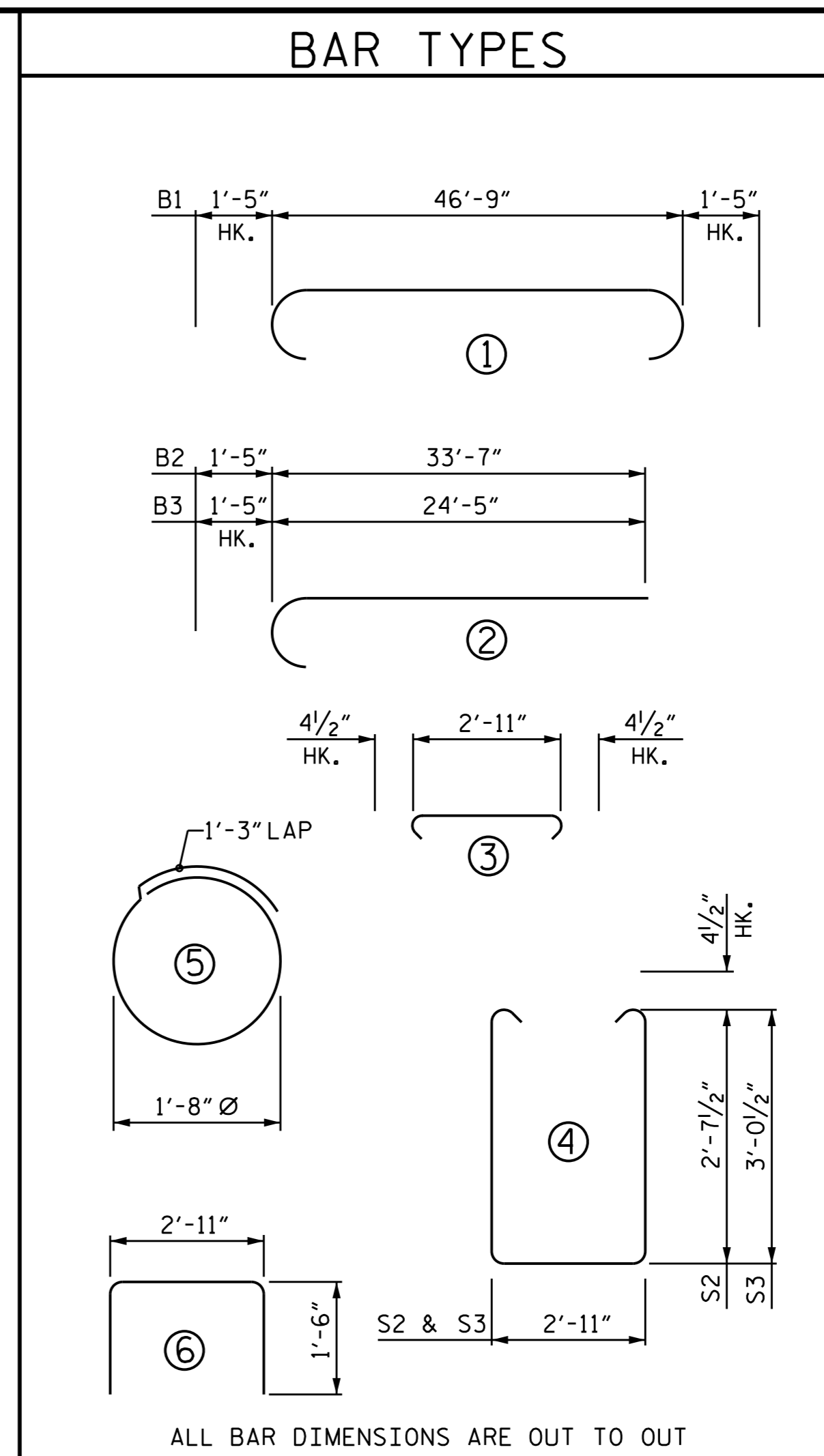




SECTION A-A



SECTION B-B

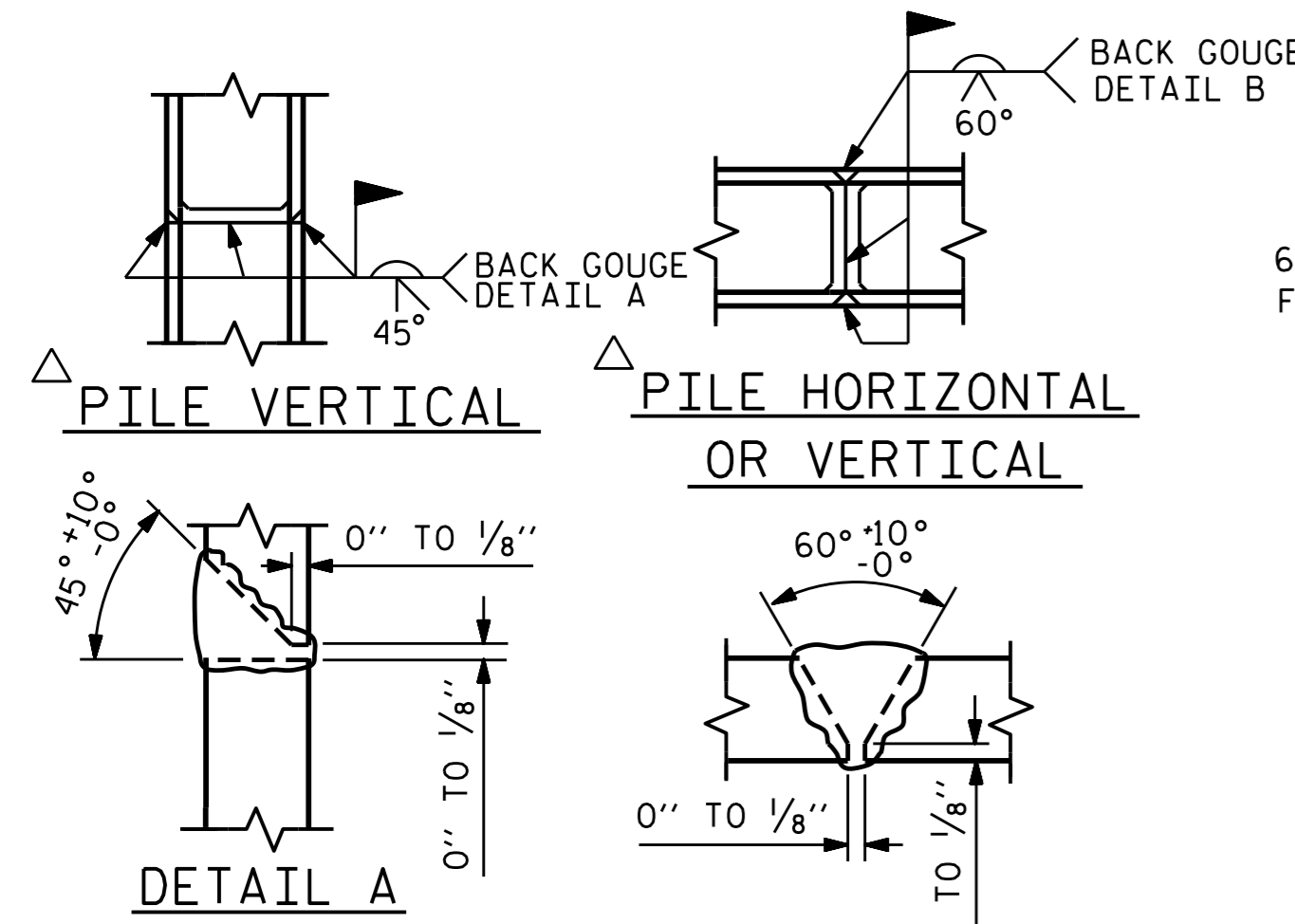


BILL OF MATERIAL

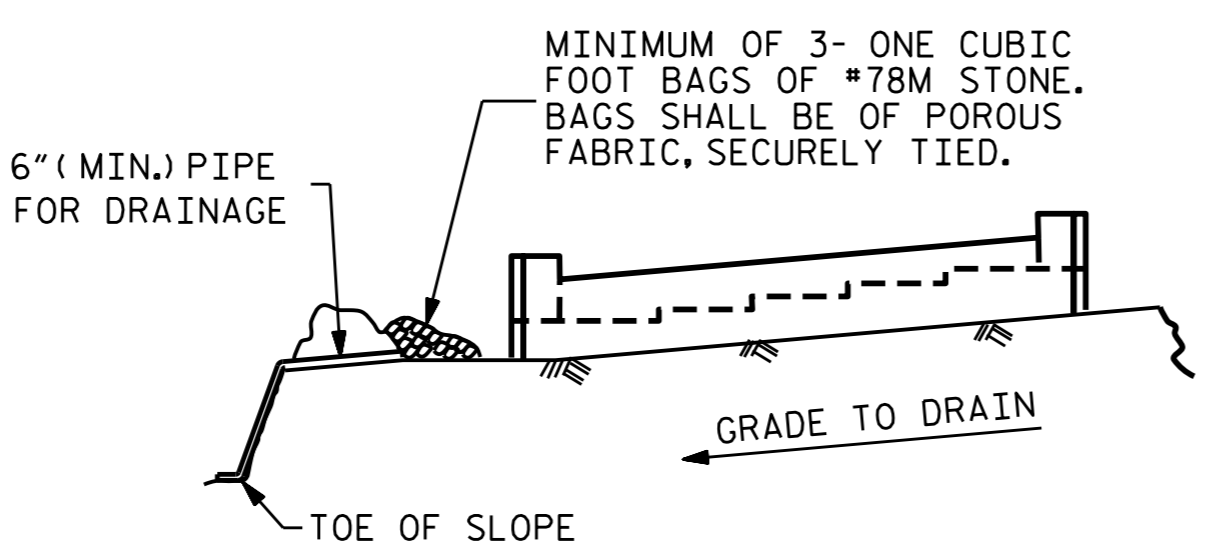
END BENT 1

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	4	#10	1	49'-7"	853
B2	4	#10	2	35'-0"	602
B3	4	#10	2	25'-10"	445
B4	4	#5	STR.	46'-11"	196
B5	8	#4	STR.	24'-8"	132
B6	4	#4	STR.	7'-0"	19
B7	16	#4	STR.	2'-11"	31
H1	8	#5	STR.	10'-2"	85
H2	10	#5	STR.	11'-8"	122
S1	68	#4	3	3'-8"	167
S2	33	#4	4	8'-11"	197
S3	35	#4	4	9'-9"	228
S4	20	#4	5	6'-6"	87
U1	6	#4	6	5'-11"	24
V1	89	#4	STR.	5'-6"	327
V2	20	#4	STR.	6'-9"	90
V3	22	#4	STR.	7'-8"	113

REINFORCING STEEL	3718 LBS.
CLASS A CONCRETE BREAKDOWN	
CAP, LOWER WINGS & COLLARS	22.2 CU.YDS.
HP 12 x 53 STEEL PILES	
NO. 5	275 LIN. FT.
STEEL PILE POINTS	5 EACH
PILE REDRIVES	3 EACH



PILE SPLICE DETAILS



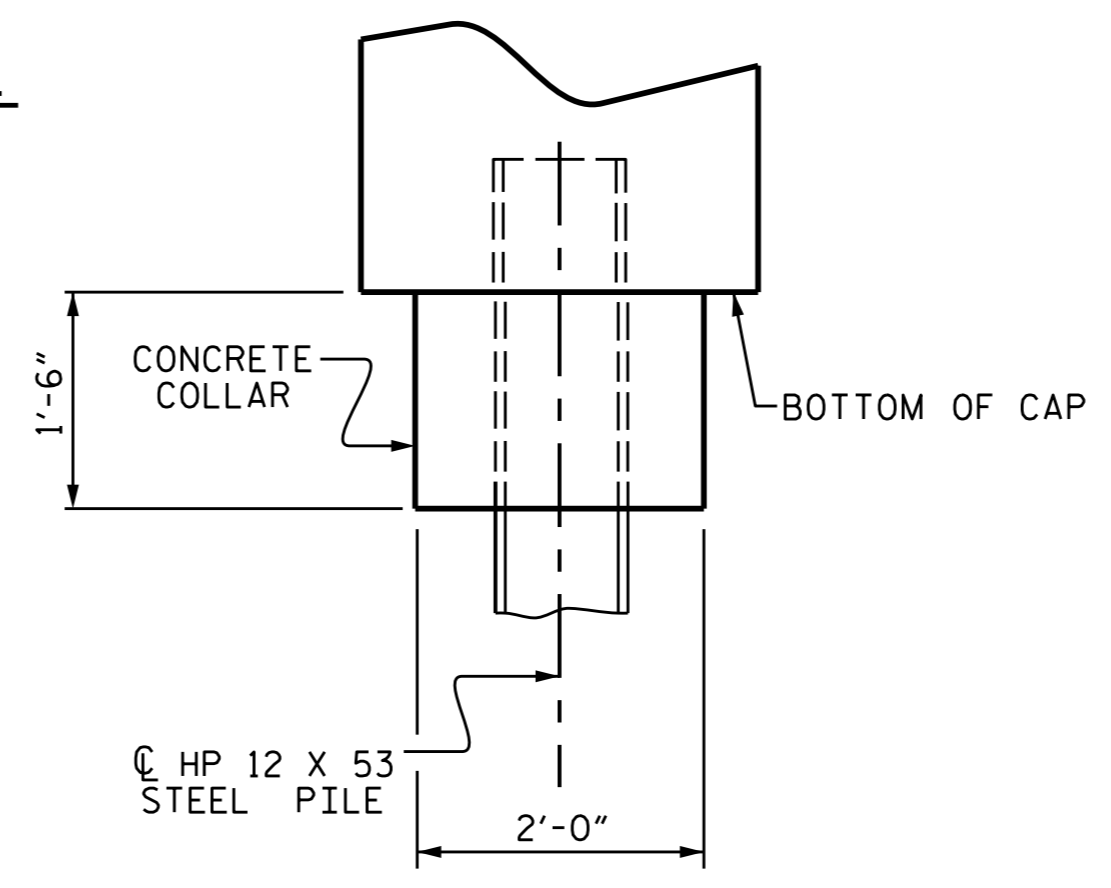
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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.

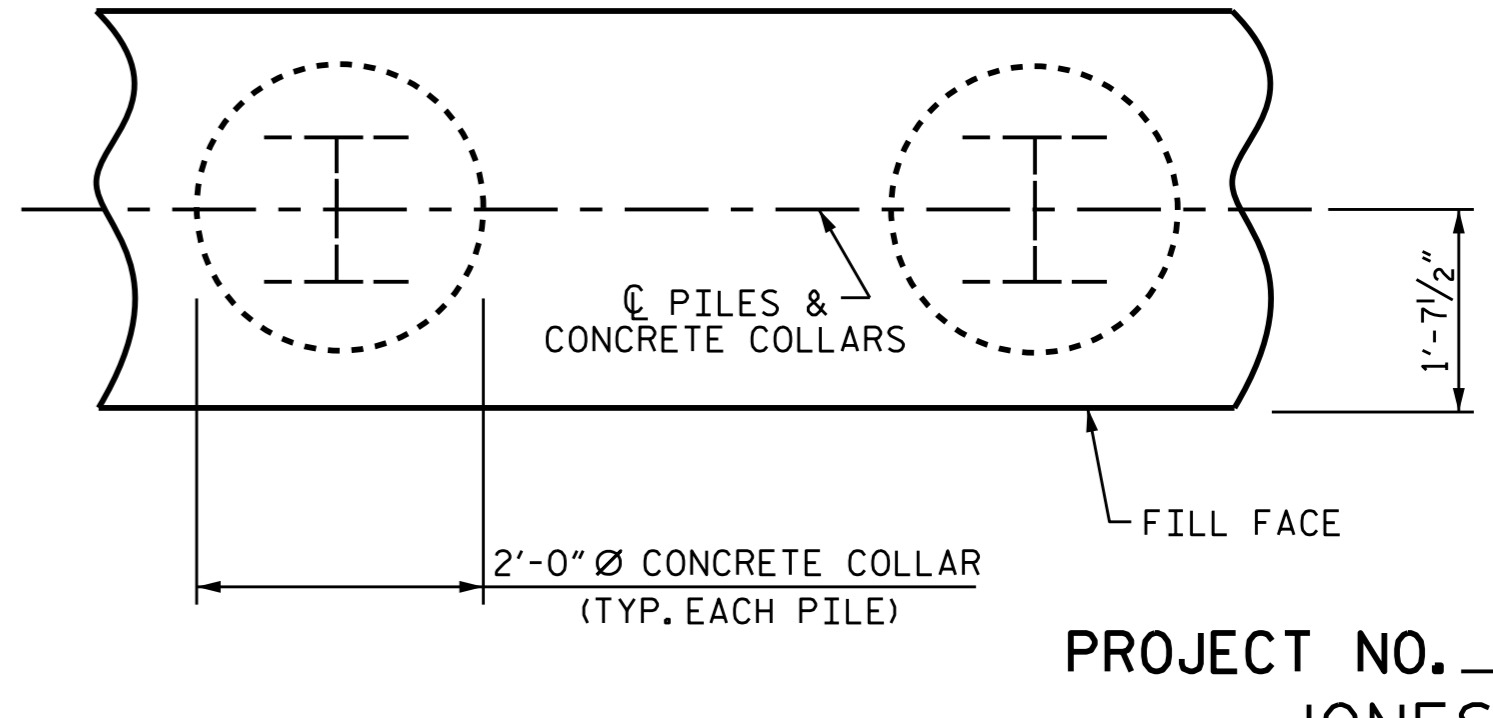
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



ELEVATION



PLAN

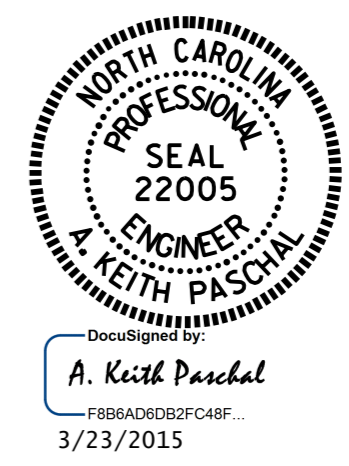
CORROSION PROTECTION FOR STEEL PILES DETAIL

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

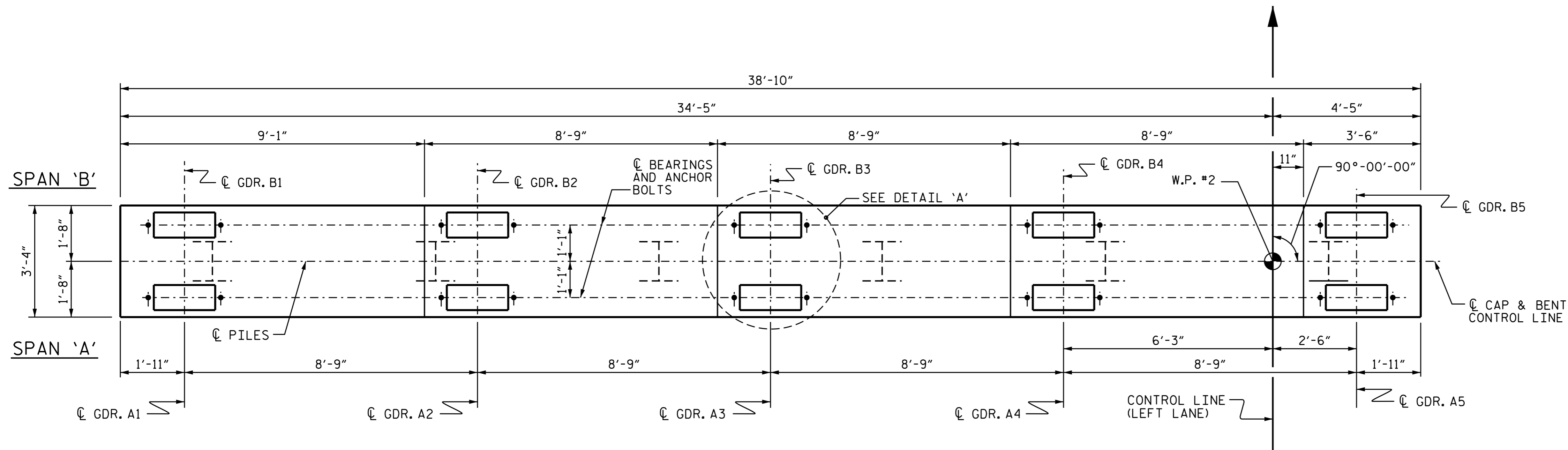
SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 INTEGRAL END BENT 1  
 (LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			56



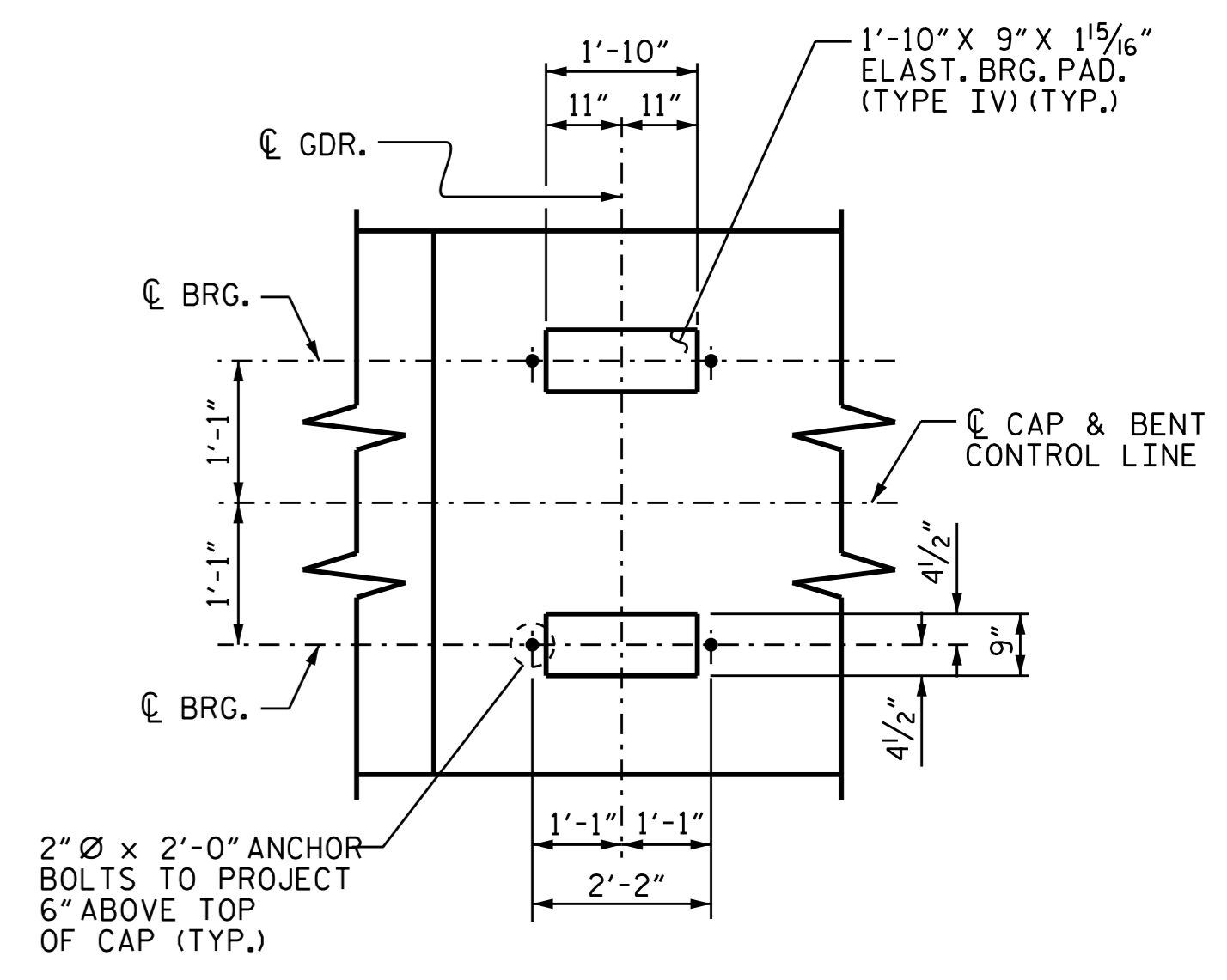
DRAWN BY: D. G. ELY DATE: 6/26/14  
 CHECKED BY: P. N. HOLDER DATE: 7/17/14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2/9/15



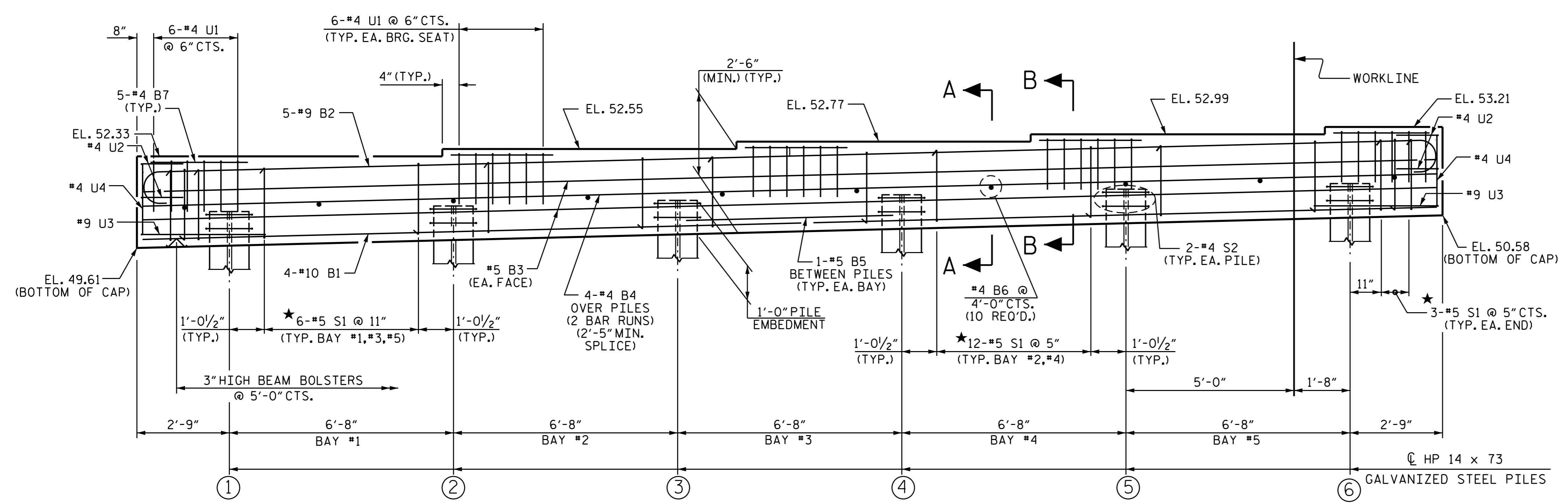
PLAN

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.  
 FOR PILE SPLICE DETAILS, SEE BENT SHEET 2 OF 2.  
 GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 30 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



DETAIL 'A'  
(DIM. TYP. FOR EA. BRG.)



ELEVATION

★ INVERT ALTERNATE STIRRUPS.

TOP OF PILE ELEVATIONS	
PILE NO.	ELEVATION
1	50.69
2	50.86
3	51.03
4	51.19
5	51.36
6	51.52

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 1 OF 2

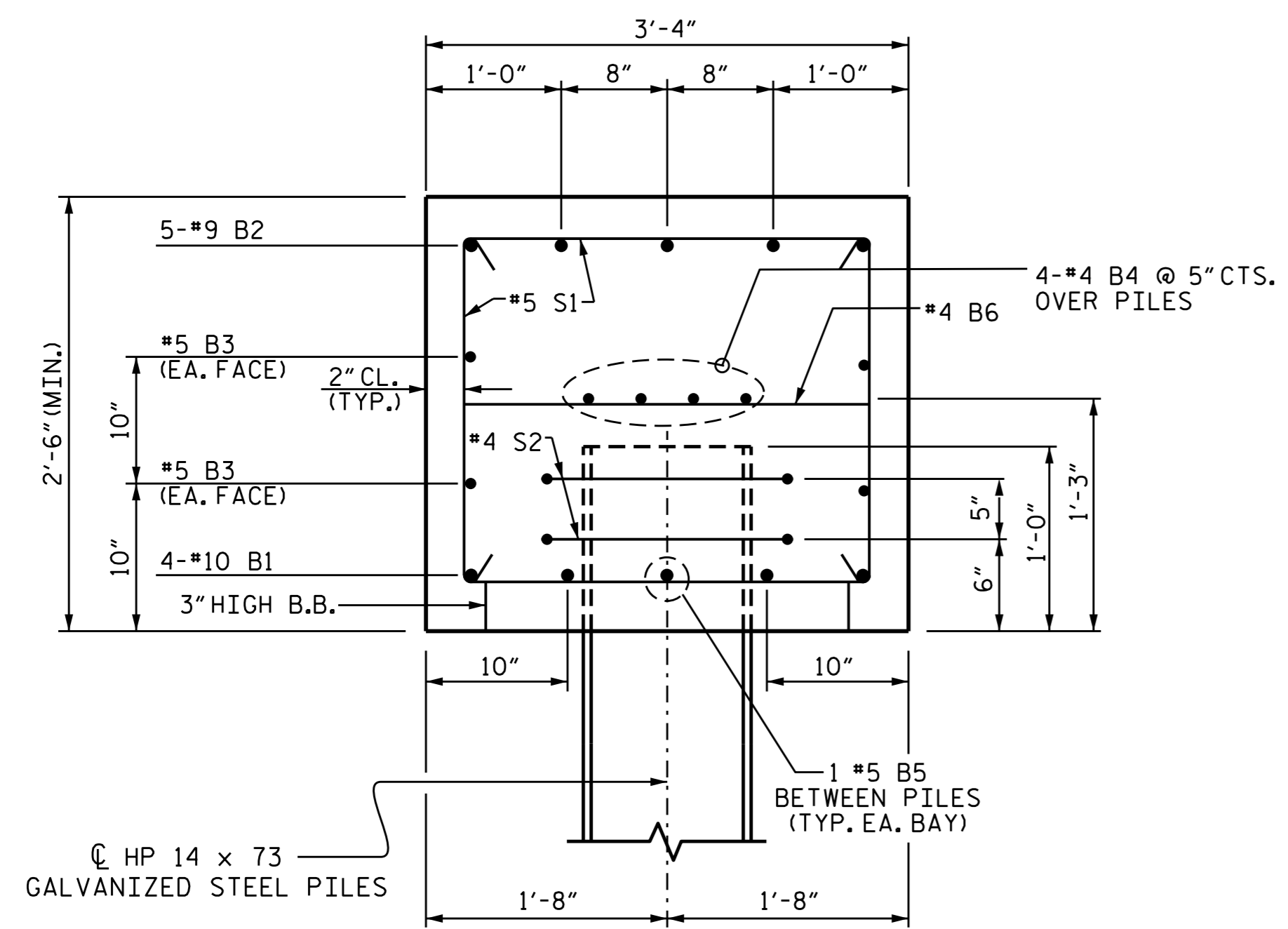


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1  
 (LEFT LANE)

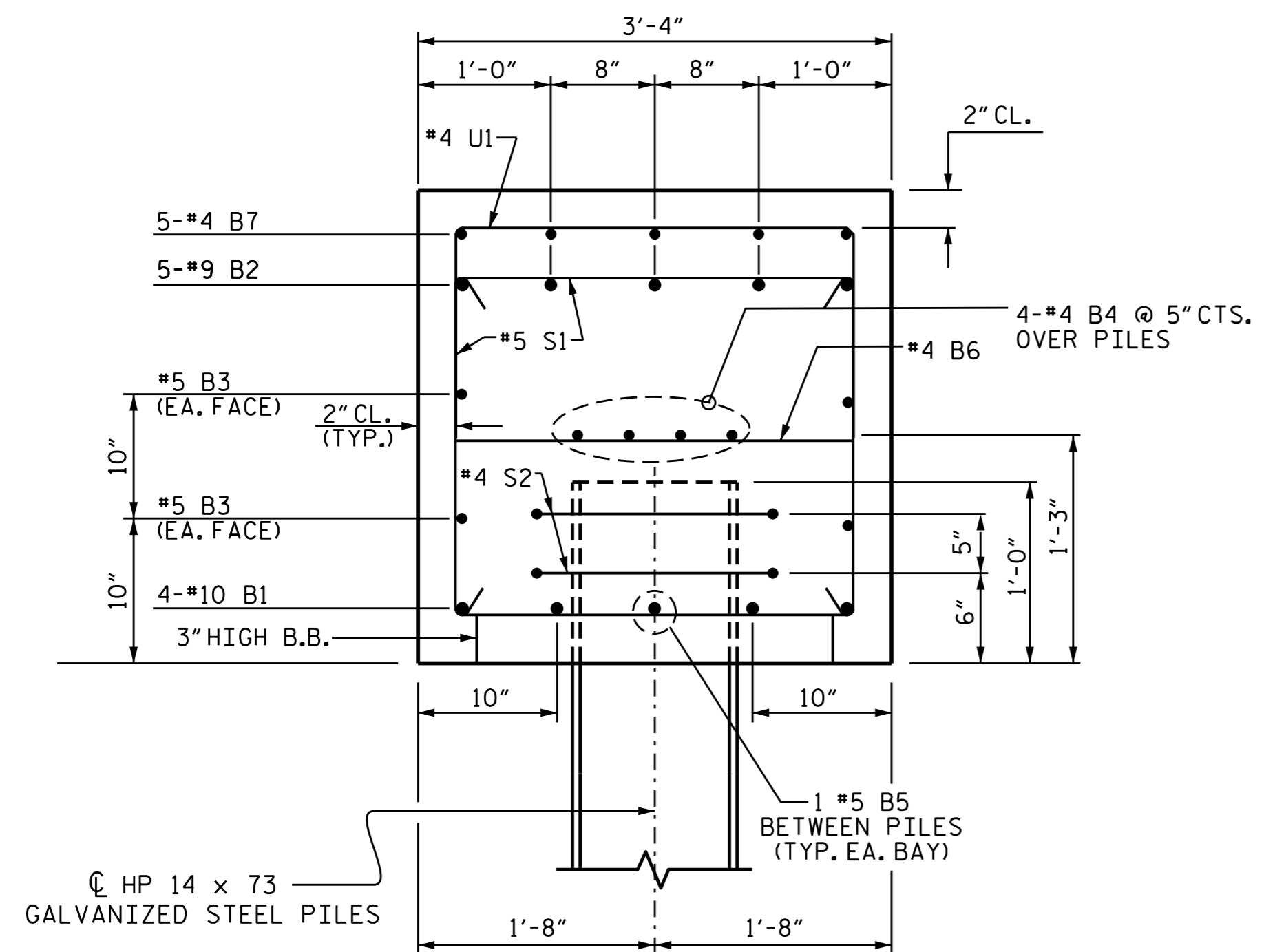
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			56

DRAWN BY: B. N. BARODAWALA DATE: 4-21-14  
 CHECKED BY: P. N. HOLDER DATE: 4-24-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2-9-15

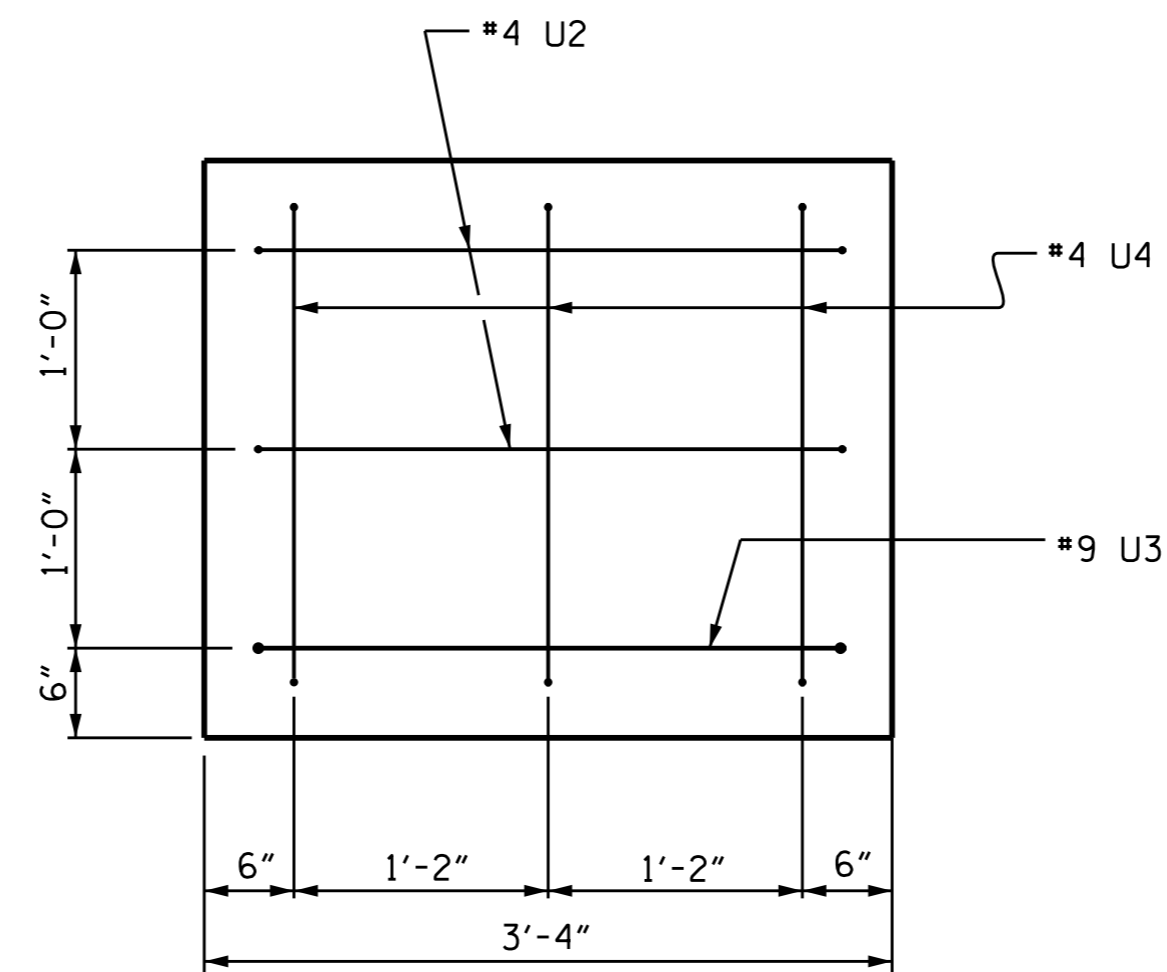




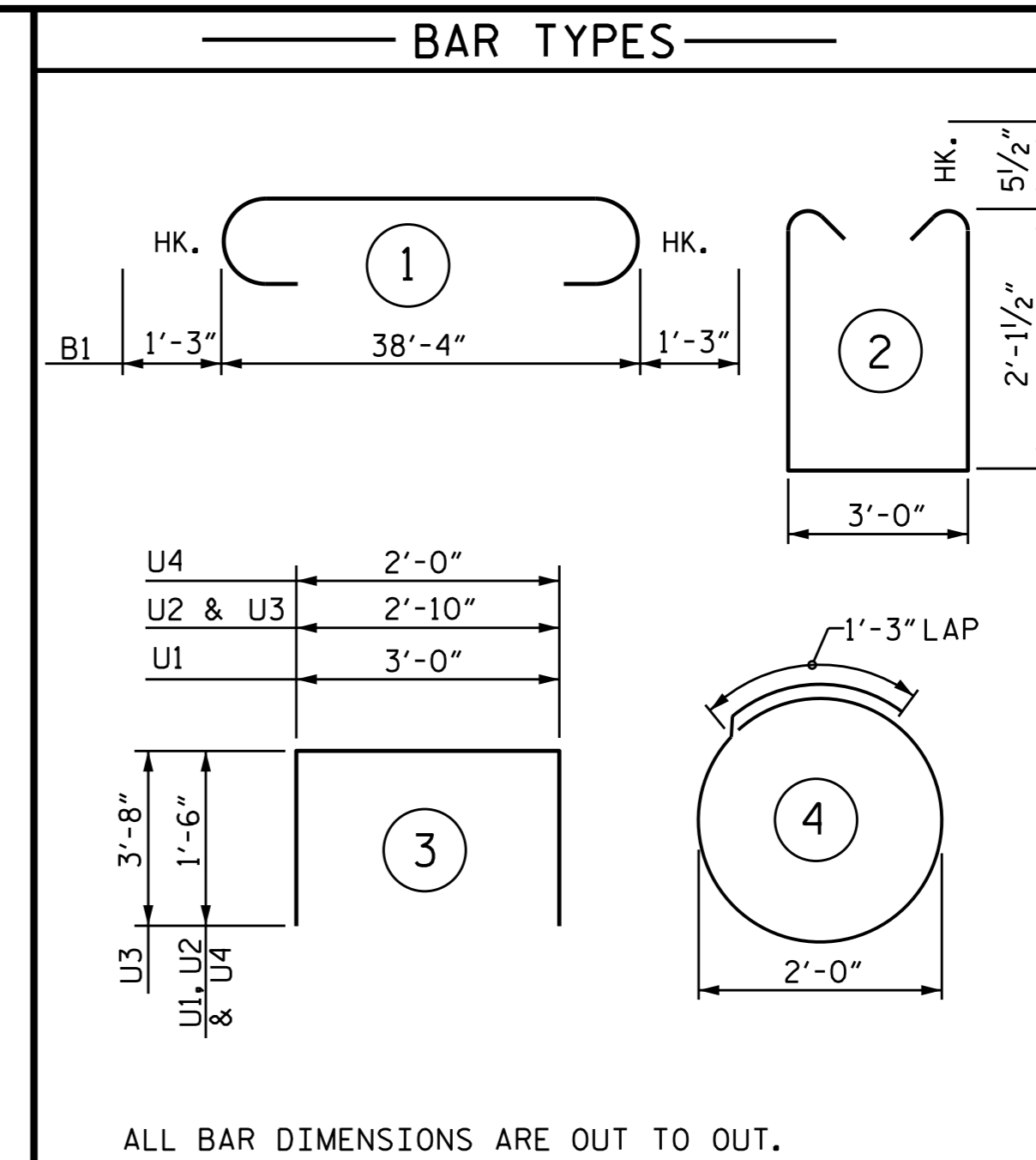
**SECTION A-A**



**SECTION B-B**

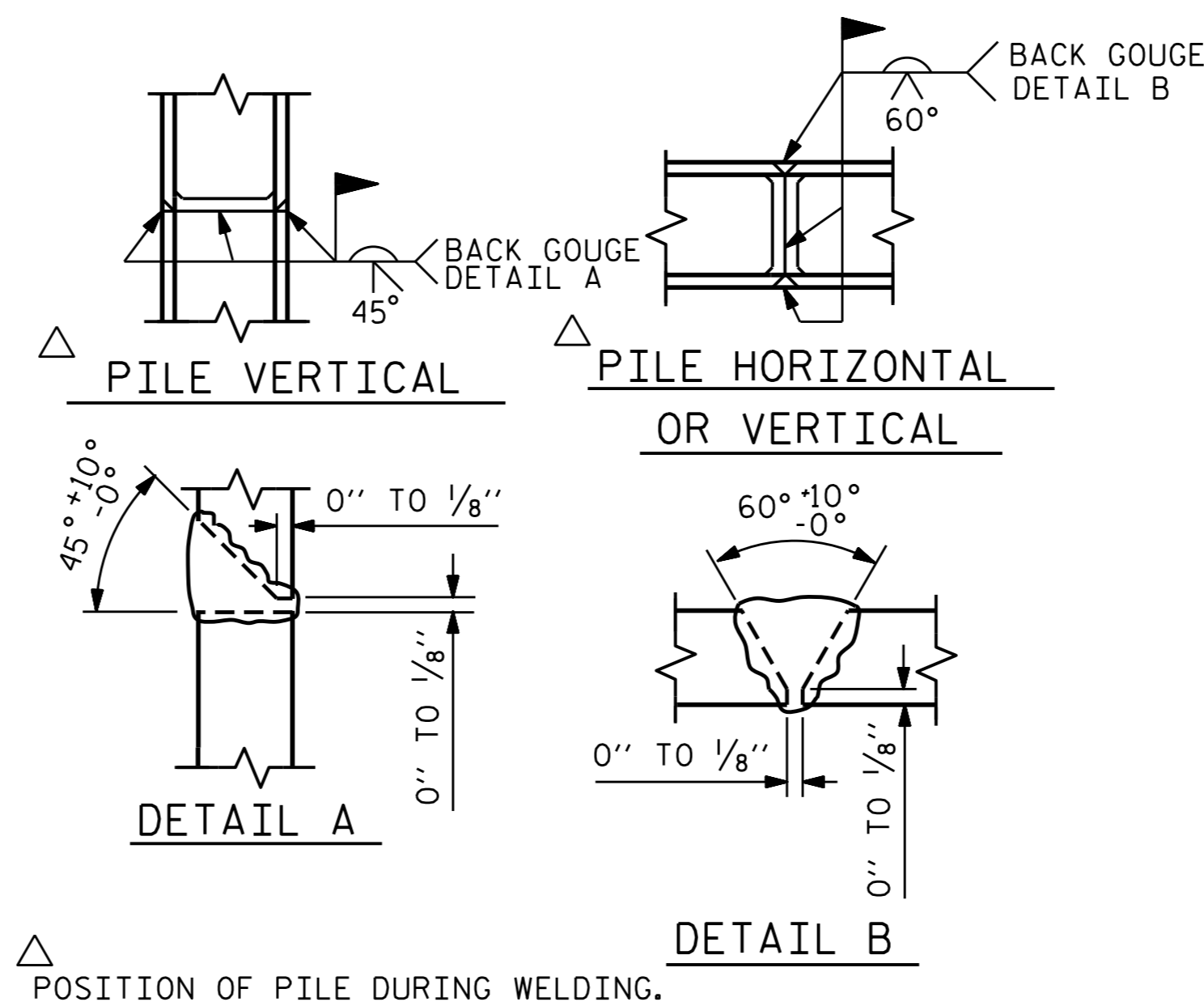


**END OF CAP VIEW**



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	STR.	38'-6"	663
B2	5	#9	1	40'-10"	694
B3	4	#5	STR.	38'-6"	161
B4	8	#4	STR.	20'-6"	110
B5	5	#5	STR.	5'-2"	27
B6	10	#4	STR.	3'-0"	20
B7	25	#4	STR.	3'-1"	51
S1	48	#5	2	8'-2"	409
S2	12	#4	4	7'-7"	61
U1	30	#4	3	6'-0"	120
U2	4	#4	3	5'-10"	16
U3	2	#9	3	10'-2"	69
U4	6	#4	3	5'-0"	20
REINFORCING STEEL				2421 LBS.	
CLASS A CONCRETE				12.5 CU.YDS.	
HP 14 X 73 GALVANIZED STEEL PILES				390 LIN. FT.	
NO. 6					
PILE REDRIVES				EA. 3	
STEEL PILE POINTS				EA. 6	



**PILE SPLICE DETAILS**

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 2 OF 2



DocuSigned by:  
A. Keith Paschal

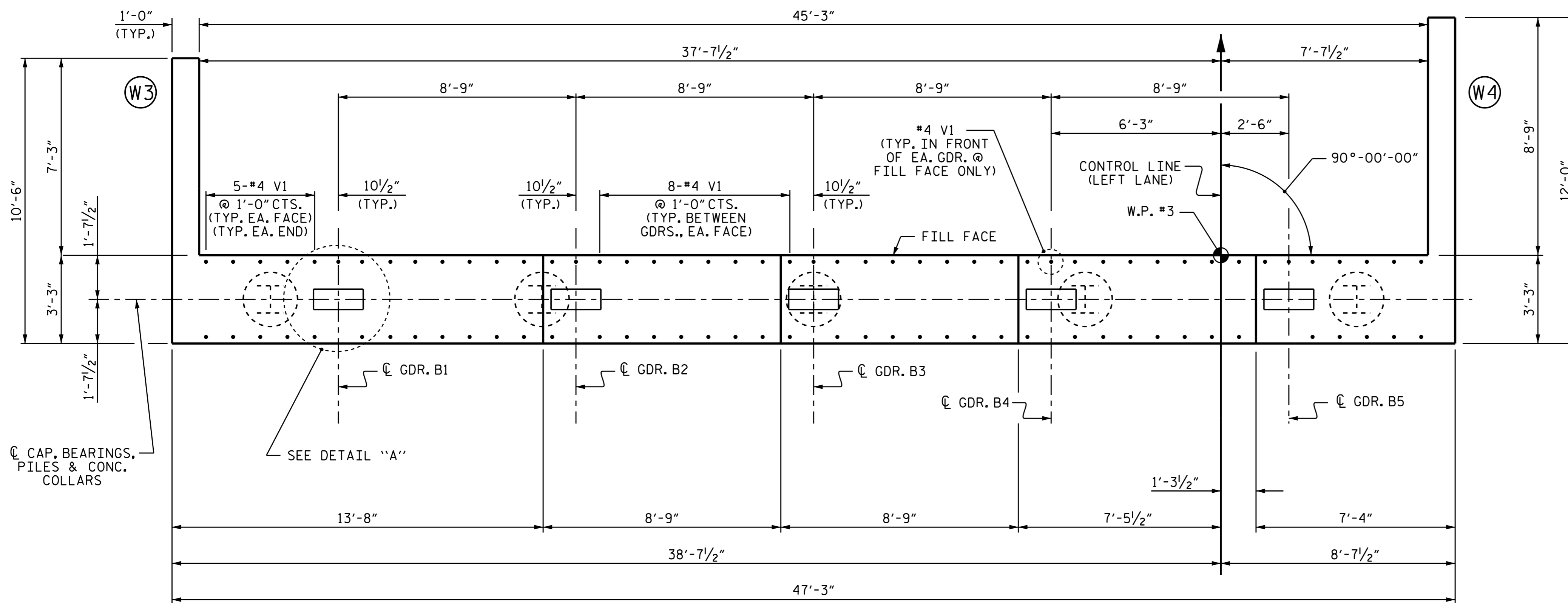
3/23/2015

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1  
 (LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			56

DRAWN BY: B. N. BARODAWALA DATE: 4-21-14  
 CHECKED BY: P. N. HOLDER DATE: 4-24-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2-9-15

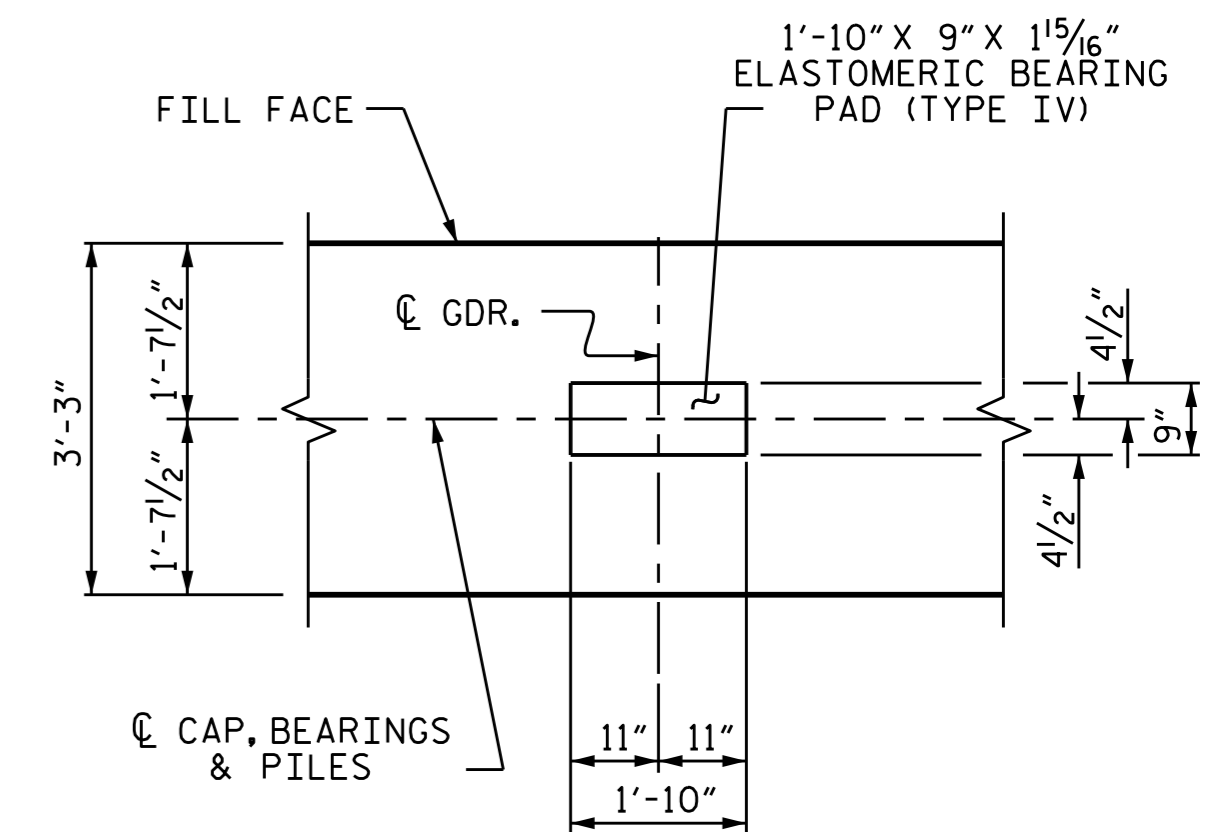




PLAN

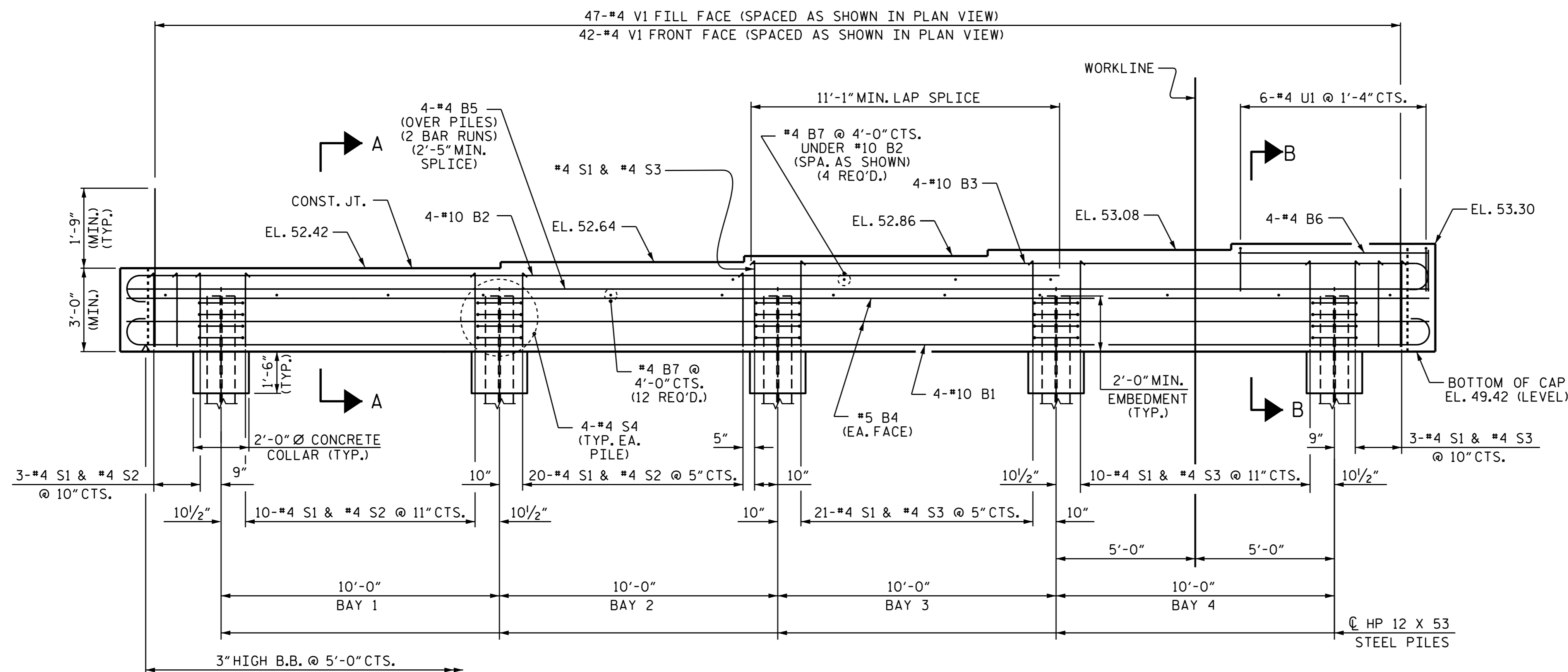
NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #4 V1 BARS.
- INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED BY REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
- THE TOP PART OF THE END BENT CAP AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".
- THE UPPER PORTION OF THE INTEGRAL END BENT CAP AND THE UPPER PORTION OF THE WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. SEE SUPERSTRUCTURE PLANS.



DETAIL "A"

(DETAILS AND DIMENSIONS ARE TYPICAL FOR EACH BEARING)



ELEVATION

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

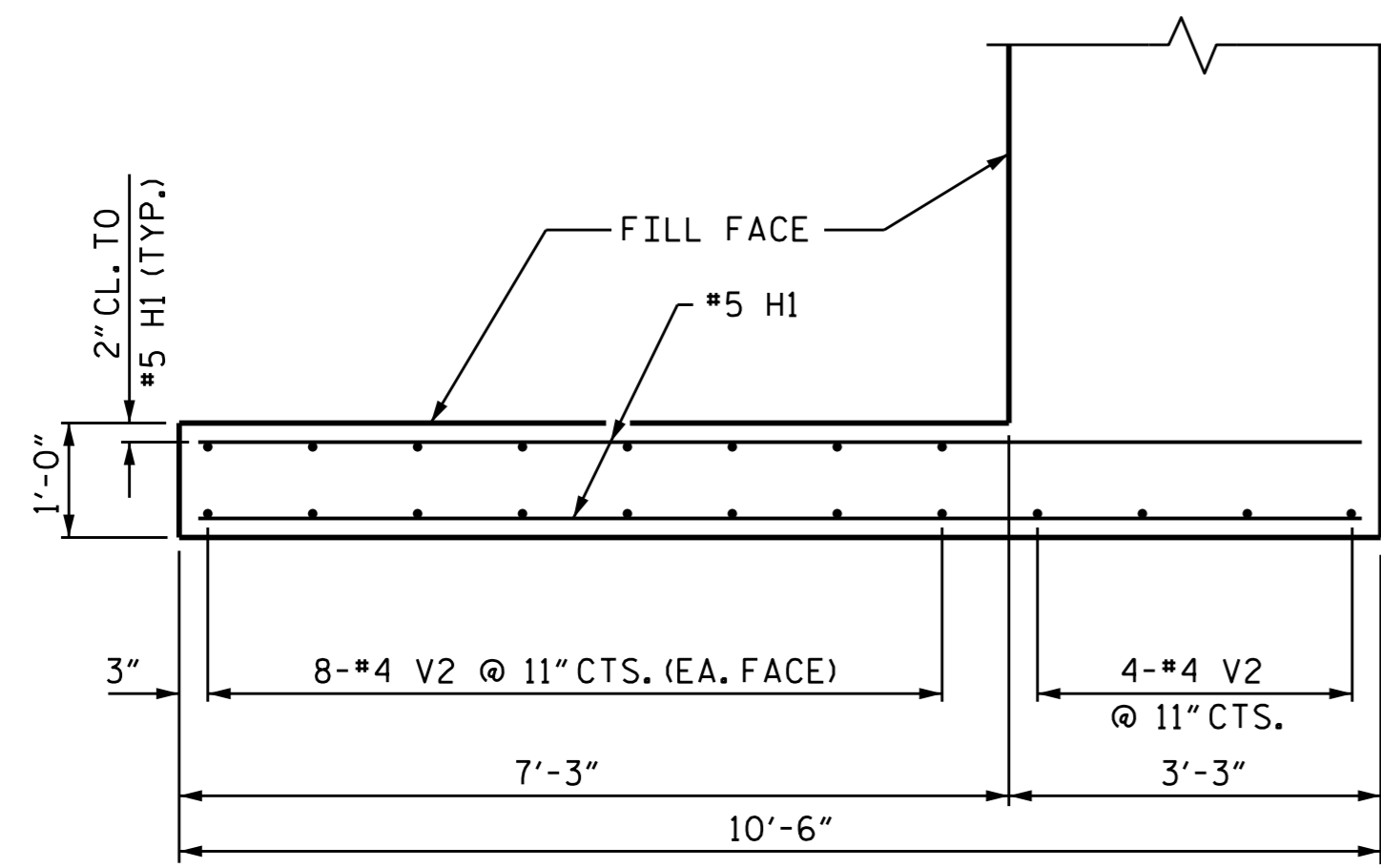
SHEET 1 OF 3



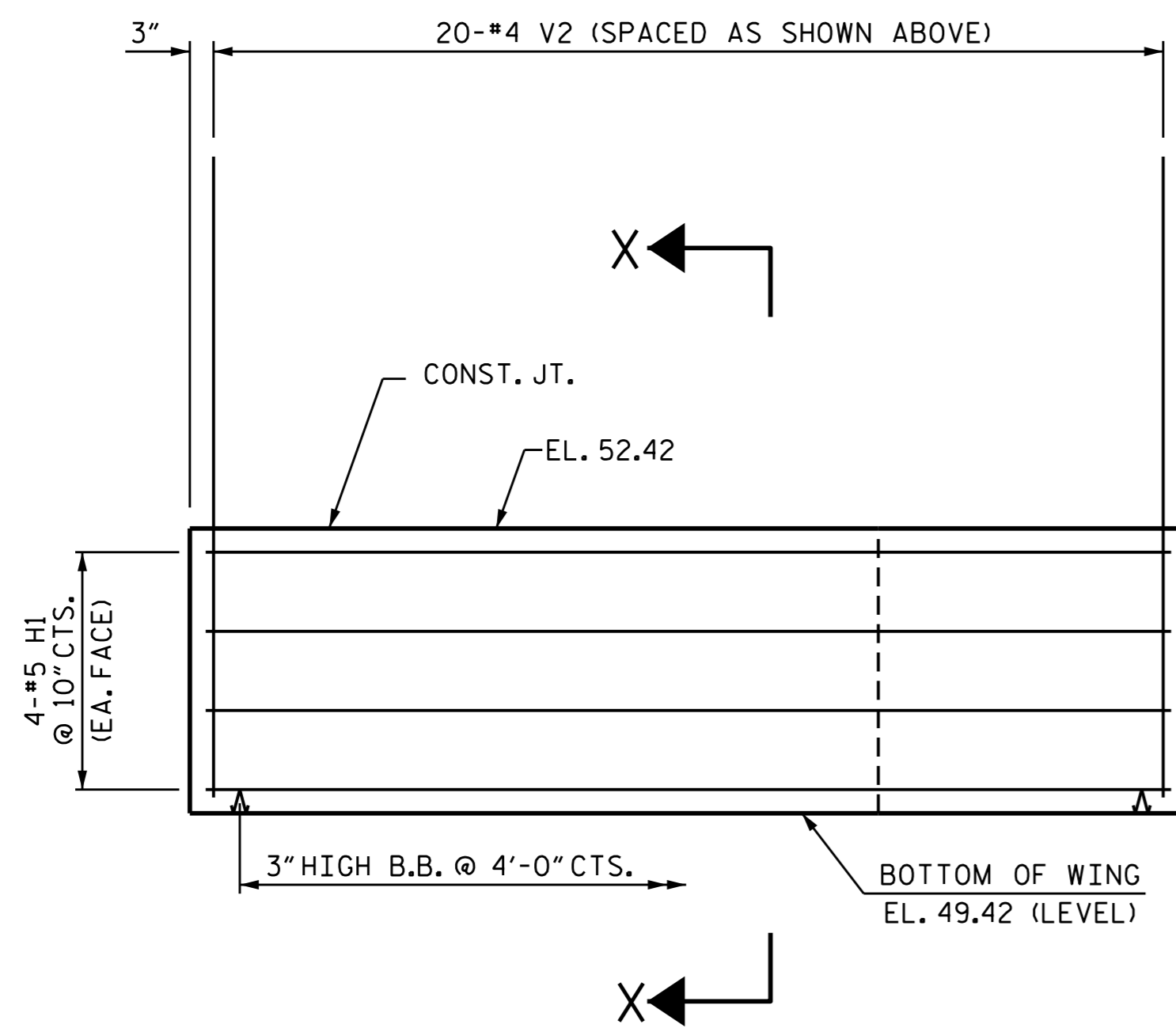
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 INTEGRAL END BENT 2  
 (LEFT LANE)

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24	
1			3			TOTAL SHEETS	
2			4			56	

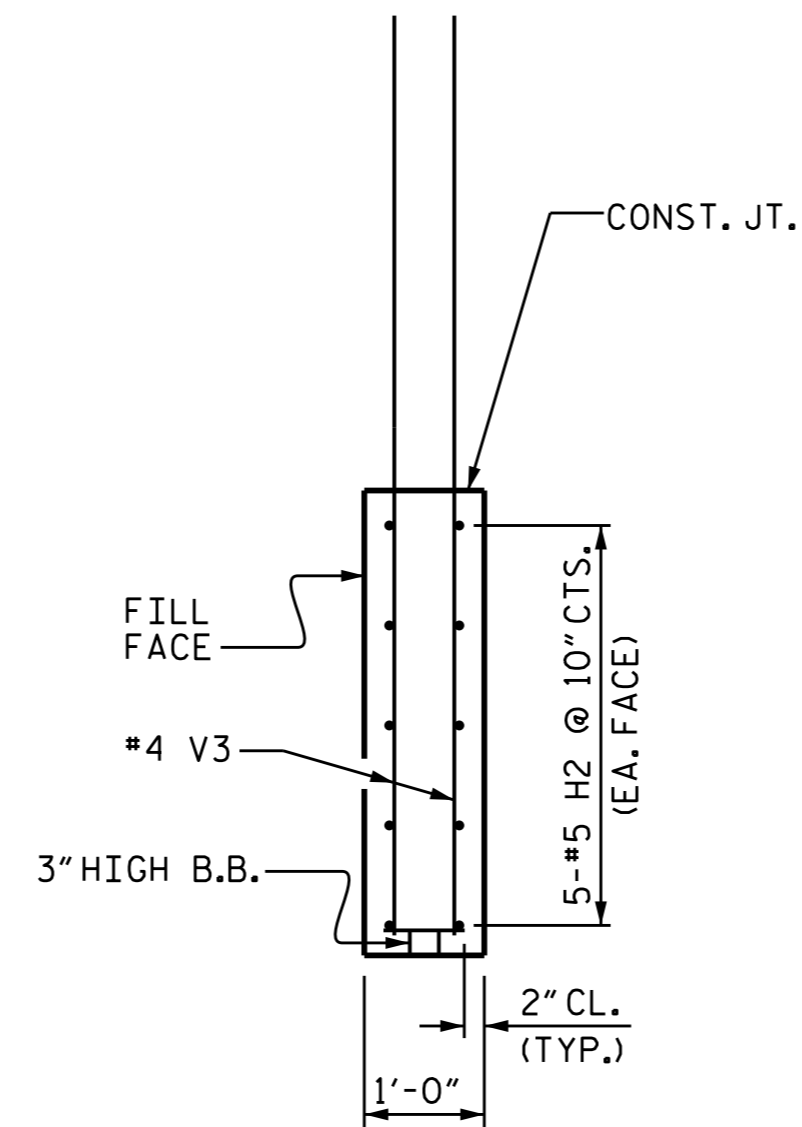
DRAWN BY : D. G. ELY DATE : 6/26/14  
 CHECKED BY : P. N. HOLDER DATE : 7/17/14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 2/9/15



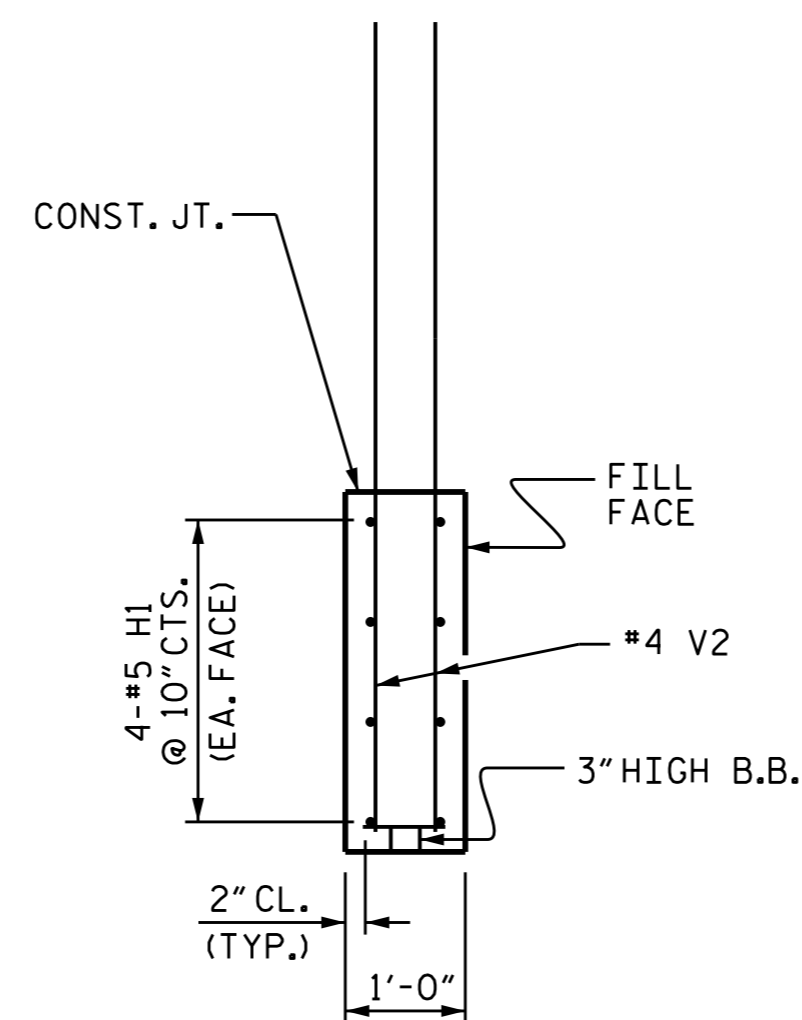
PLAN OF WING (W3)



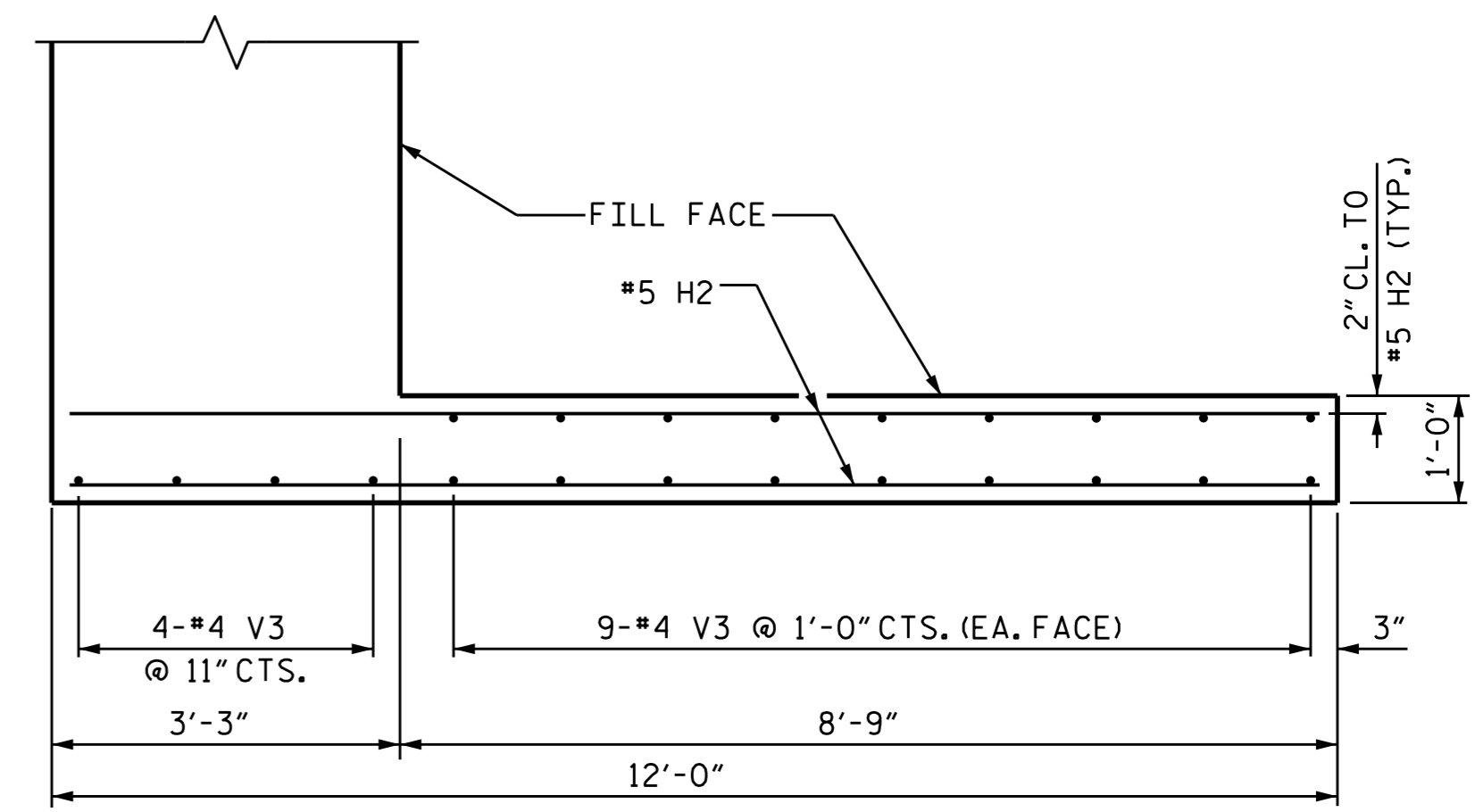
ELEVATION OF WING (W3)



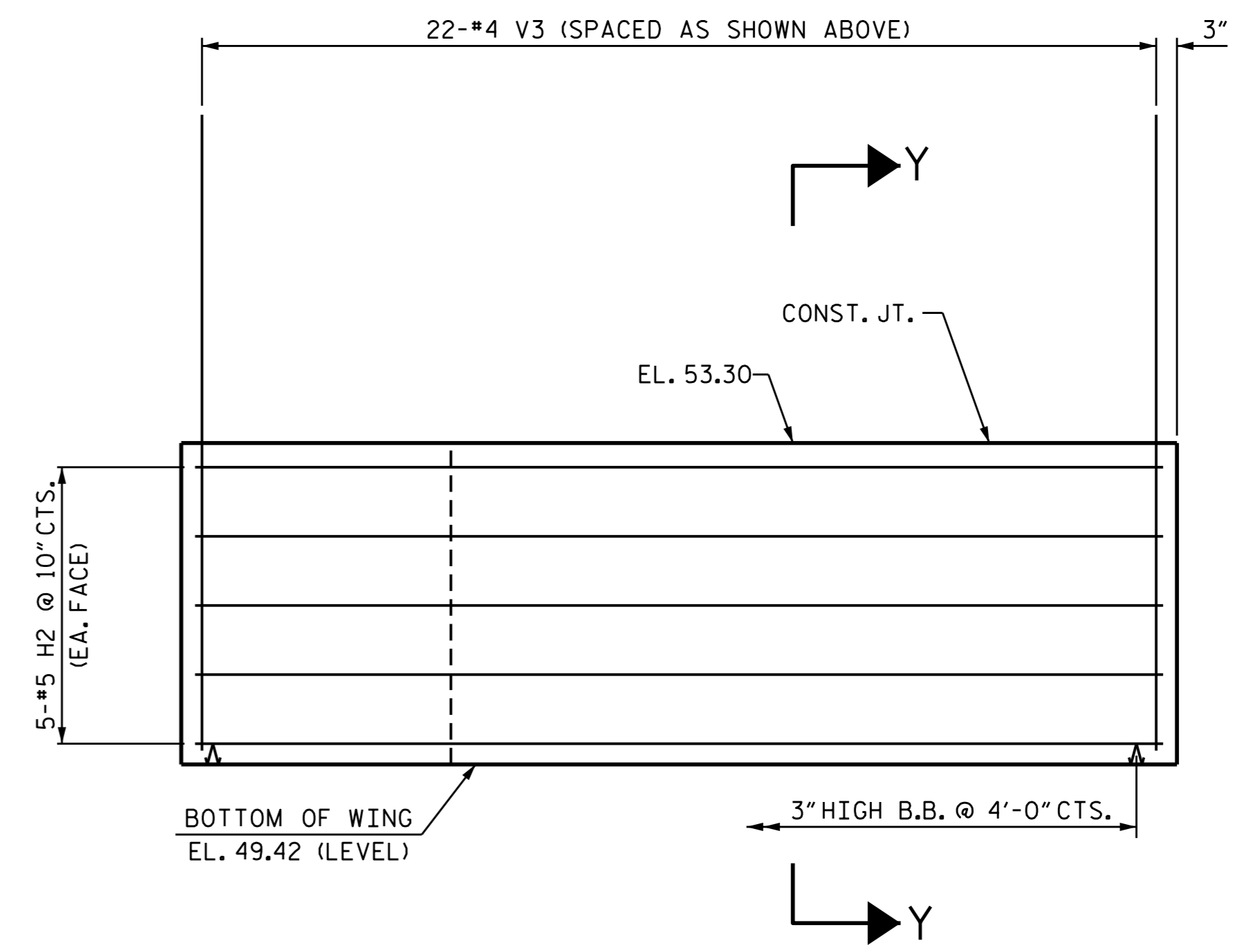
SECTION Y-Y



SECTION X-X



PLAN OF WING (W4)

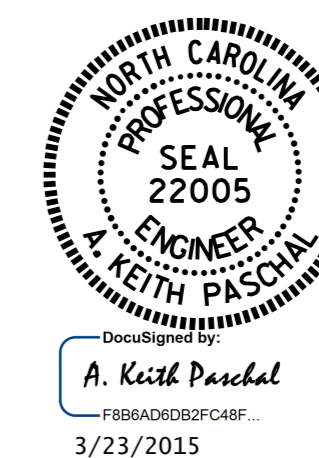


ELEVATION OF WING (W4)

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 INTEGRAL END BENT 2  
 (LEFT LANE)

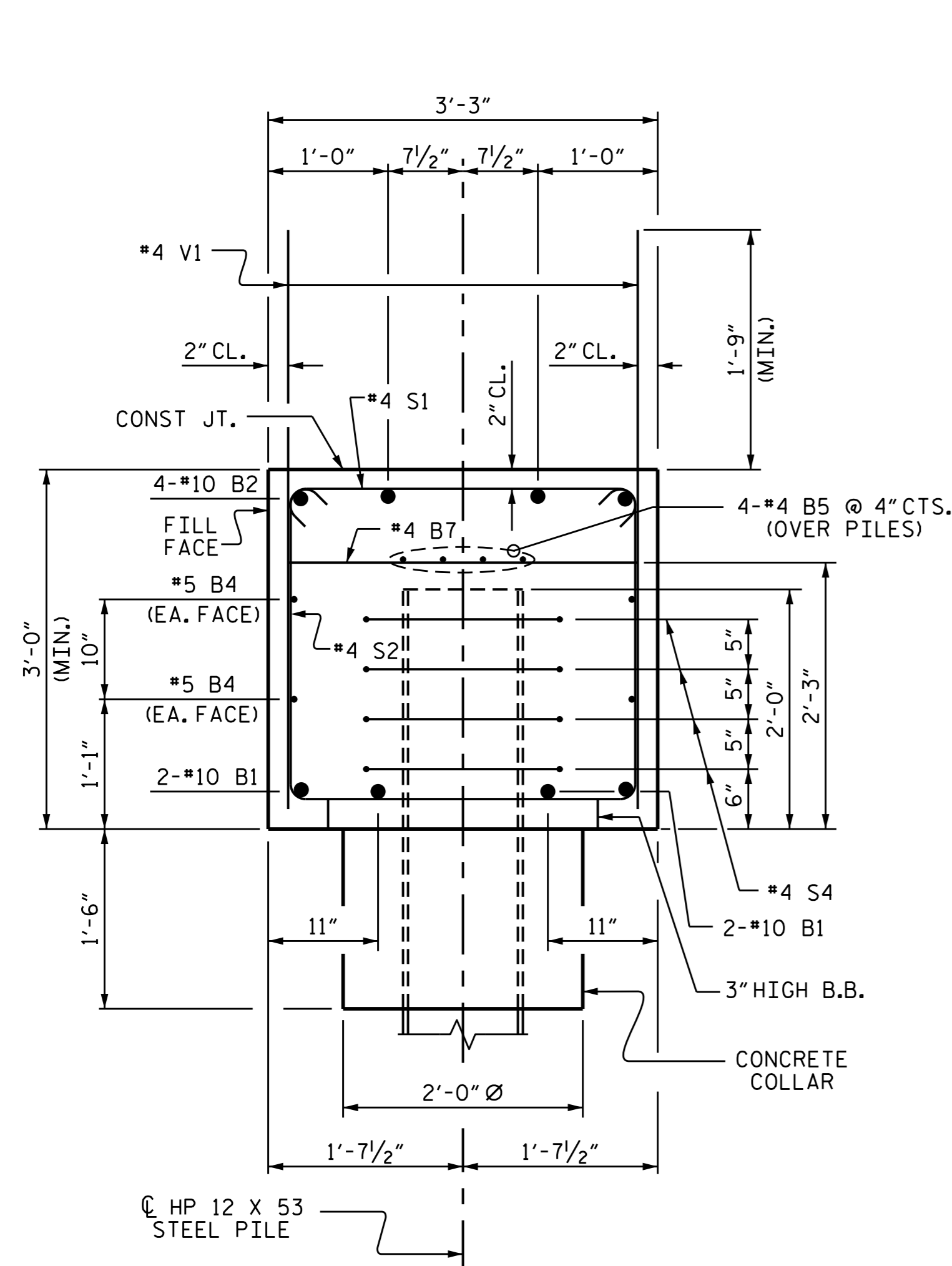


DRAWN BY : D. G. ELY DATE : 6/26/14  
 CHECKED BY : P. N. HOLDER DATE : 7/17/14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 2/9/15

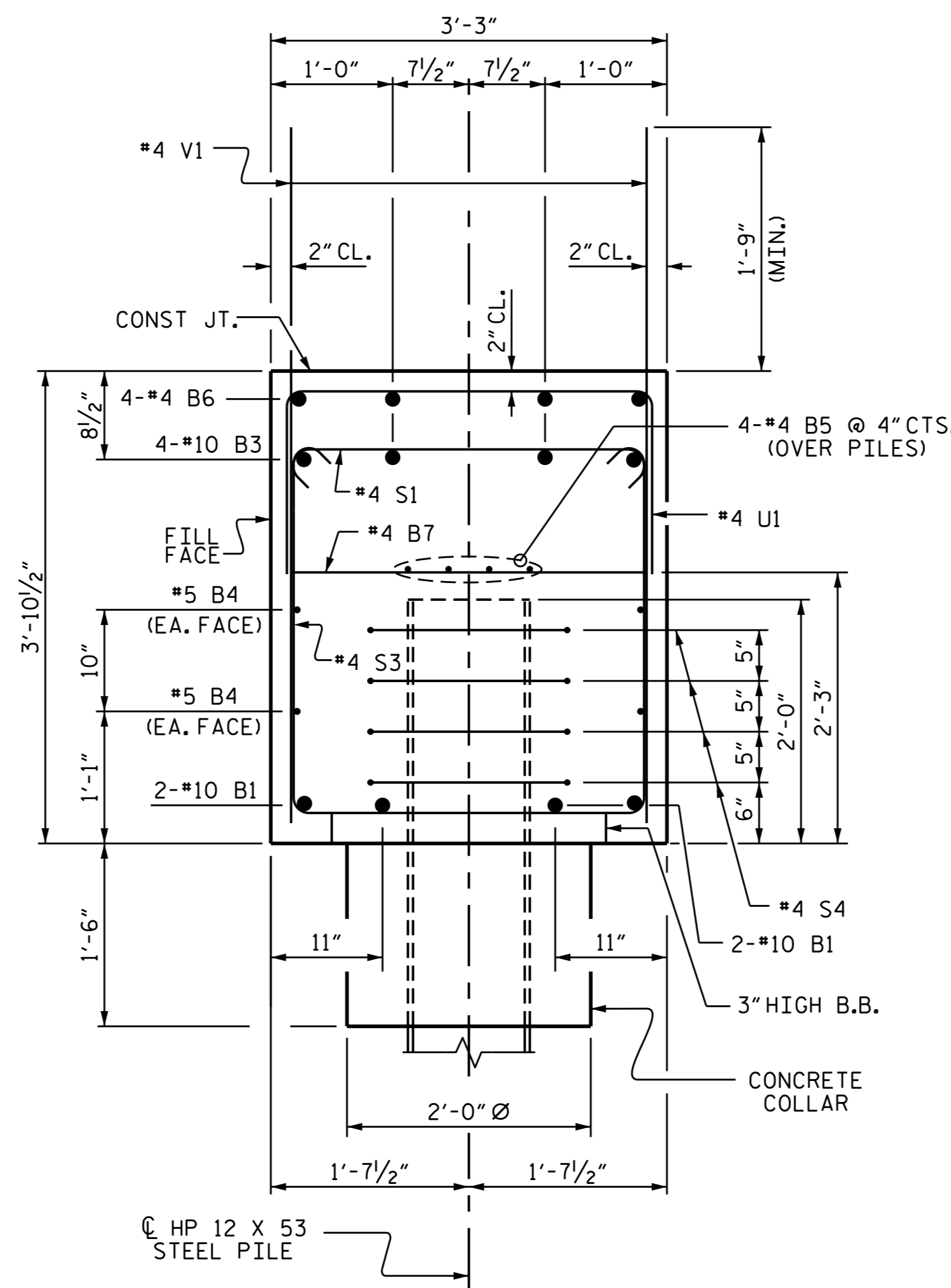
23-MAR-2015 12:03  
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 kpaschal

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			56

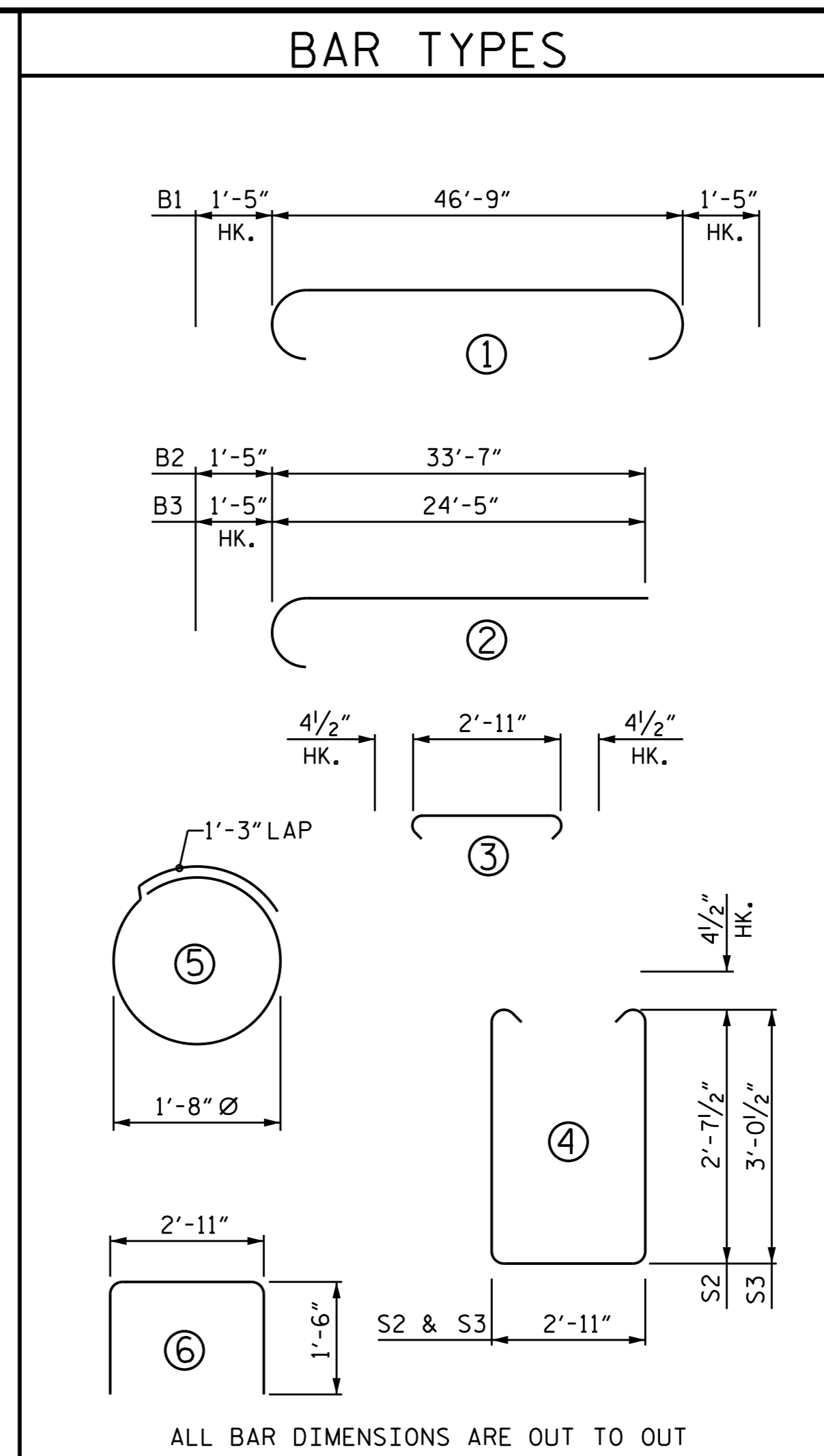
STR. #1



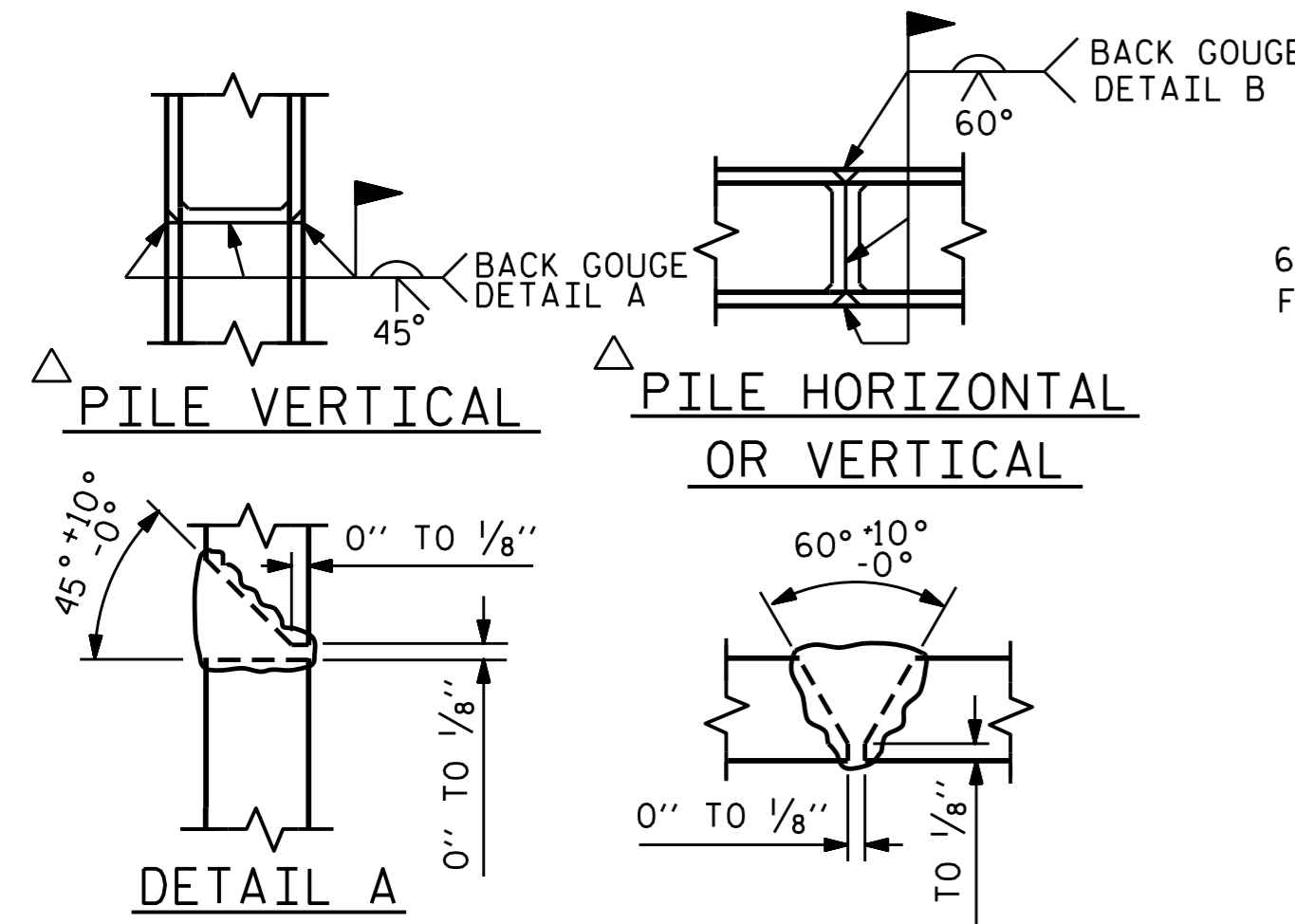
SECTION A-A



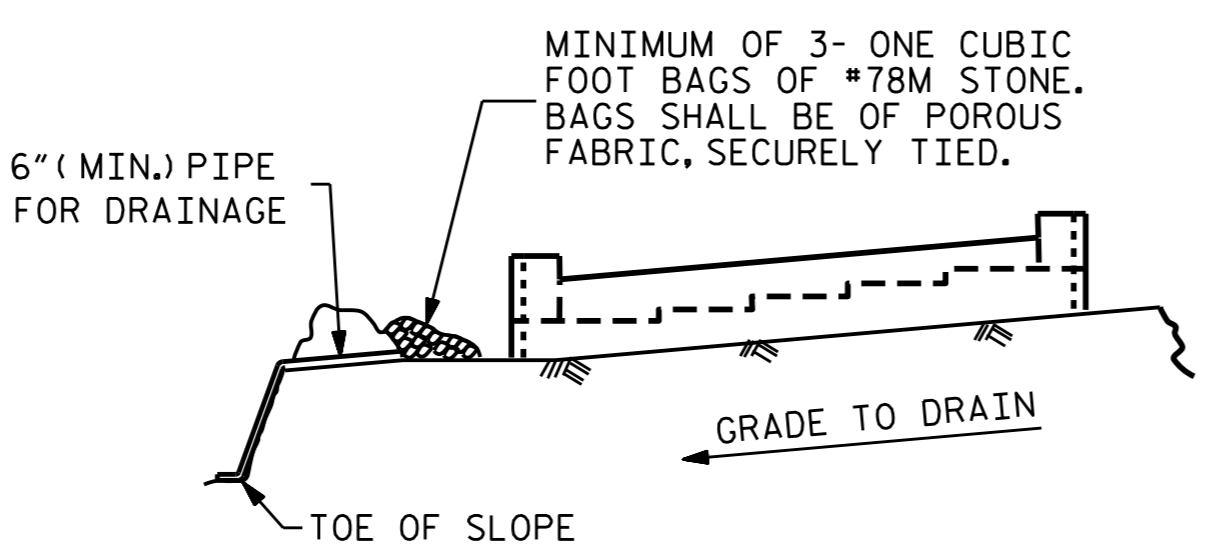
SECTION B-B



BILL OF MATERIAL					
END BENT 2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	49'-7"	853
B2	4	#10	2	35'-0"	602
B3	4	#10	2	25'-10"	445
B4	4	#5	STR.	46'-11"	196
B5	8	#4	STR.	24'-8"	132
B6	4	#4	STR.	7'-0"	19
B7	16	#4	STR.	2'-11"	31
H1	8	#5	STR.	10'-2"	85
H2	10	#5	STR.	11'-8"	122
S1	68	#4	3	3'-8"	167
S2	33	#4	4	8'-11"	197
S3	35	#4	4	9'-9"	228
S4	20	#4	5	6'-6"	87
U1	6	#4	6	5'-11"	24
V1	89	#4	STR.	5'-6"	327
V2	20	#4	STR.	6'-9"	90
V3	22	#4	STR.	7'-8"	113
REINFORCING STEEL					3718 LBS.
CLASS A CONCRETE BREAKDOWN					
CAP, LOWER WINGS & COLLARS					22.2 CU.YDS.
HP 12 x 53 STEEL PILES					
NO. 5					275 LIN. FT.
STEEL PILE POINTS					5 EACH
PILE REDRIVES					3 EACH



PILE SPLICE DETAILS

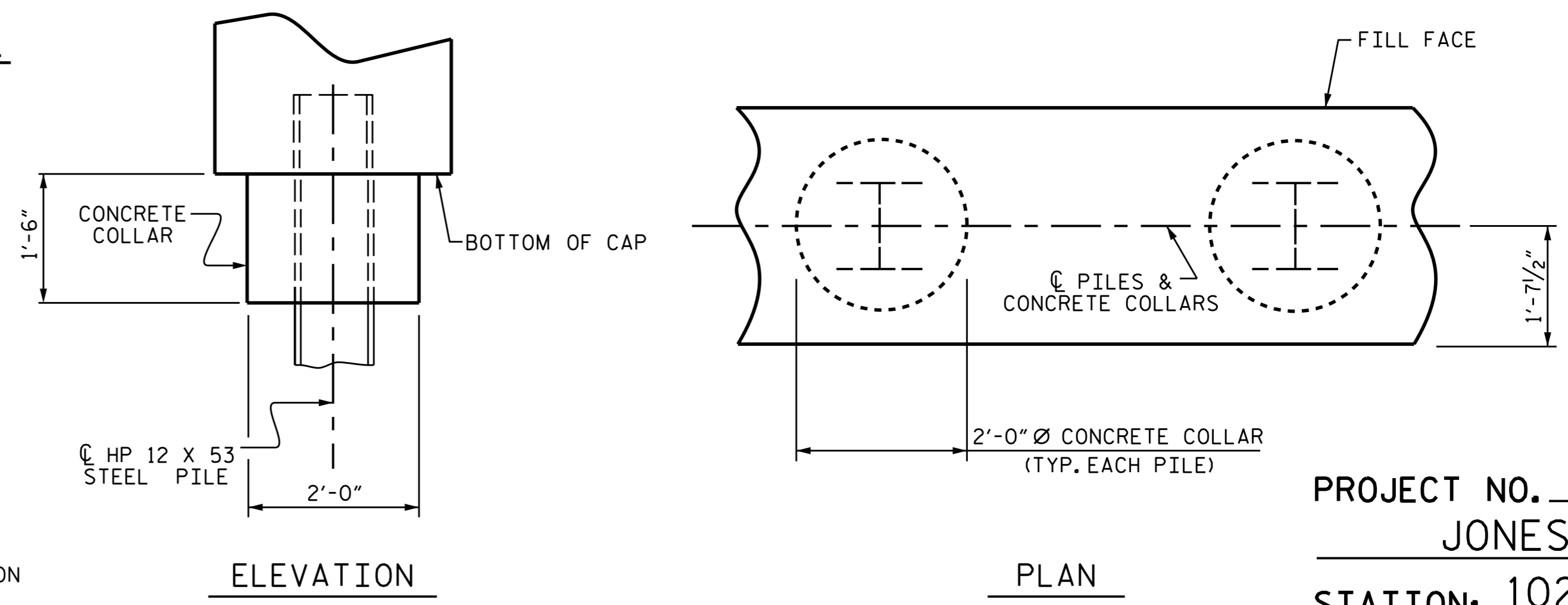


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



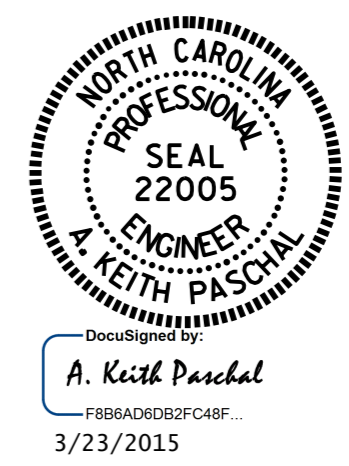
CORROSION PROTECTION FOR STEEL PILES DETAIL

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 INTEGRAL END BENT 2  
 (LEFT LANE)

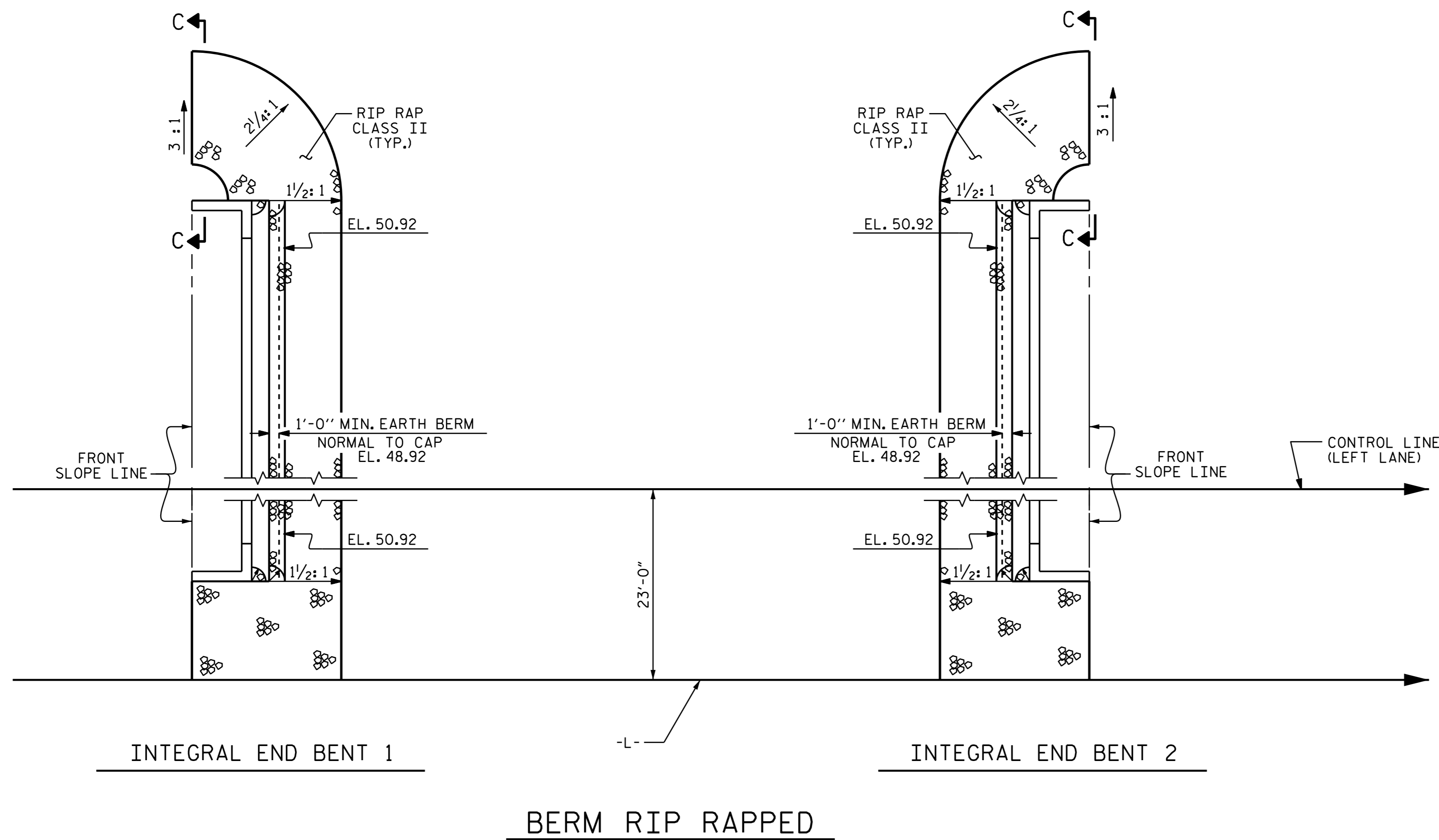


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			56

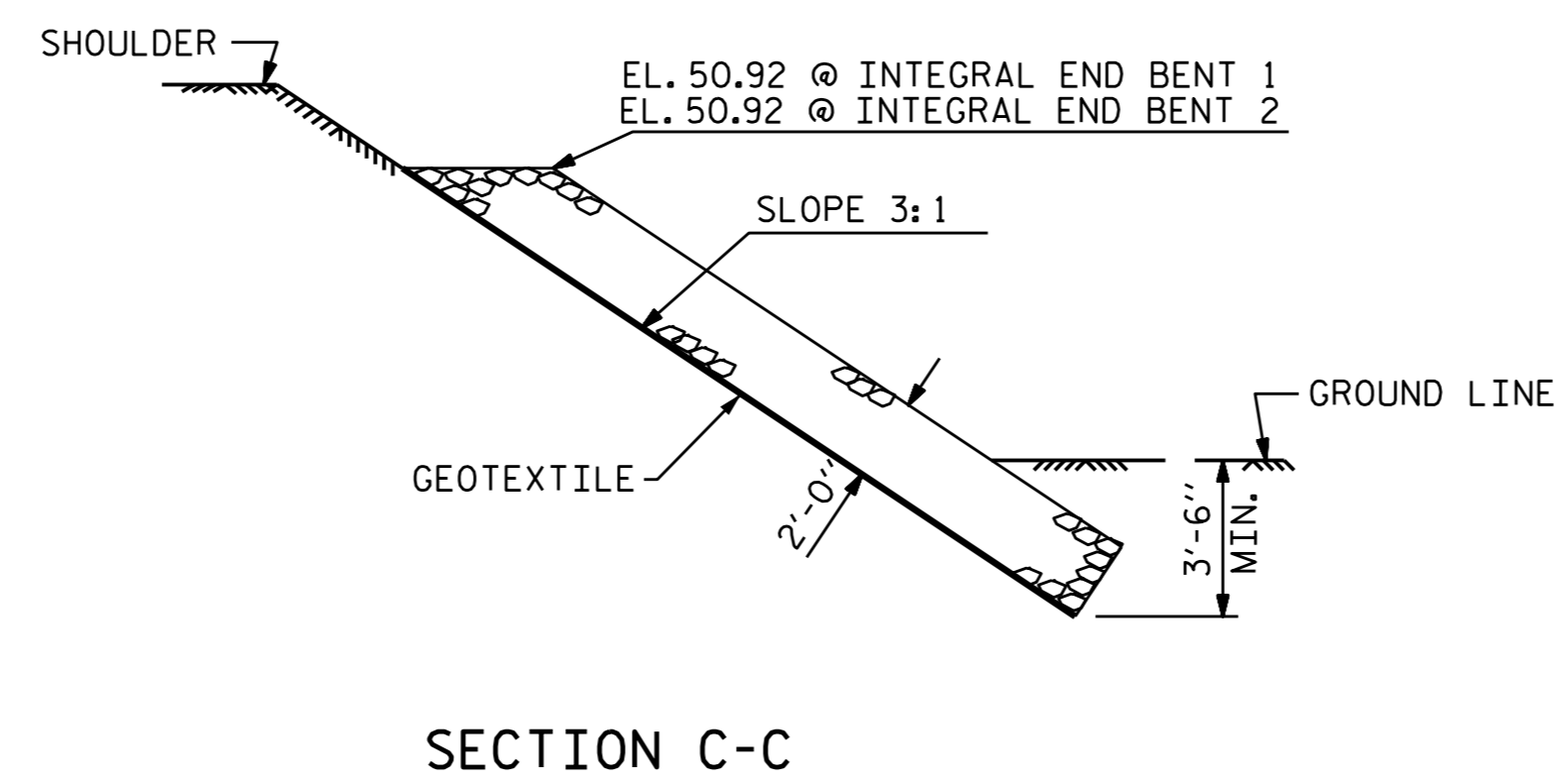
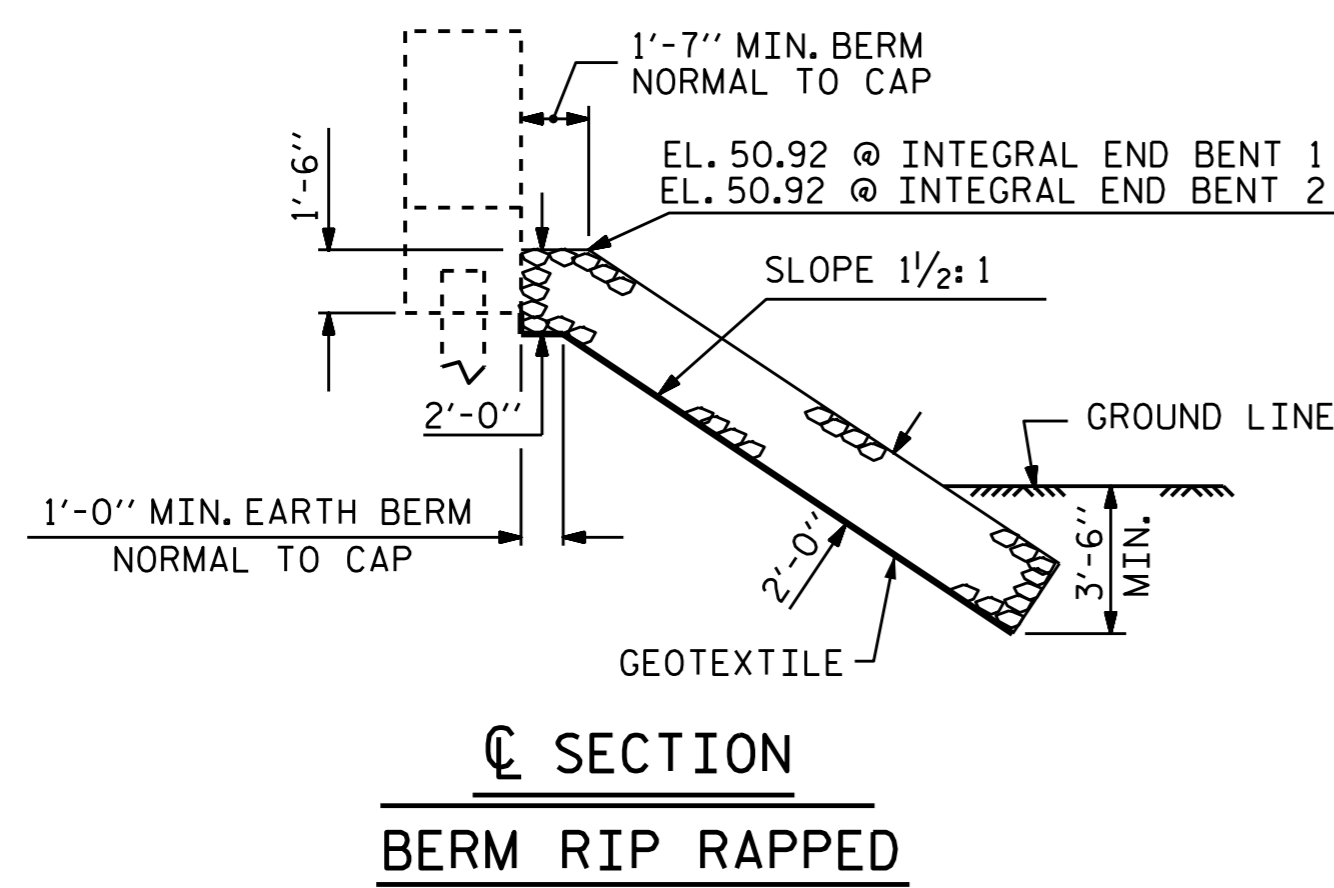
DRAWN BY: D. G. ELY DATE: 6/26/14  
 CHECKED BY: P. N. HOLDER DATE: 7/17/14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2/9/15



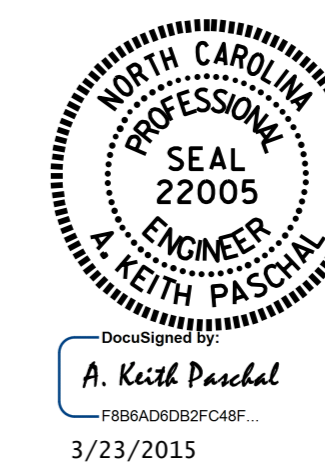
NOTES :  
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



ESTIMATED QUANTITIES		
BRIDGE @ STA. 102+05.00 -L- (LEFT LANE)	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
INTEGRAL END BENT 1	235	262
INTEGRAL END BENT 2	235	262



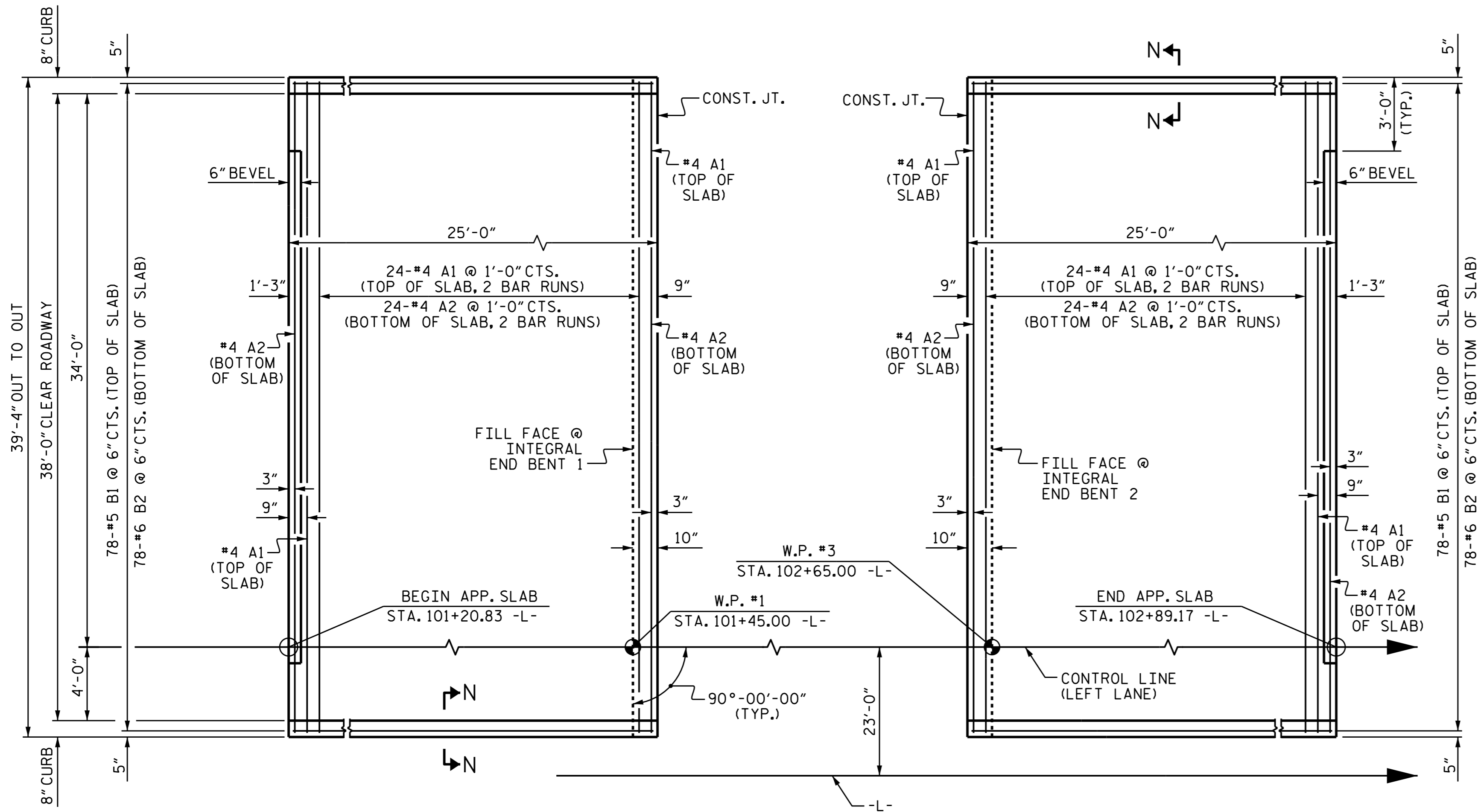
PROJECT NO. R-2514C  
JONES COUNTY  
STATION: 102+05.00 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
—RIP RAP DETAILS—  
(LEFT LANE)

REVISIONS						SHEET NO. S-27
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

ASSEMBLED BY : B. N. BARODAWALA	DATE : 4-23-14
CHECKED BY : D. G. ELY	DATE : 8-5-14
DESIGN ENGINEER OF RECORD : A. K. PASCHAL	DATE : 2-9-15
DRAWN BY : REK 1/84	REV. 5/1/06R TLA/GM
CHECKED BY : RDU 1/84	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM



PLAN @ END BENT 1  
 PLAN @ END BENT 2  
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

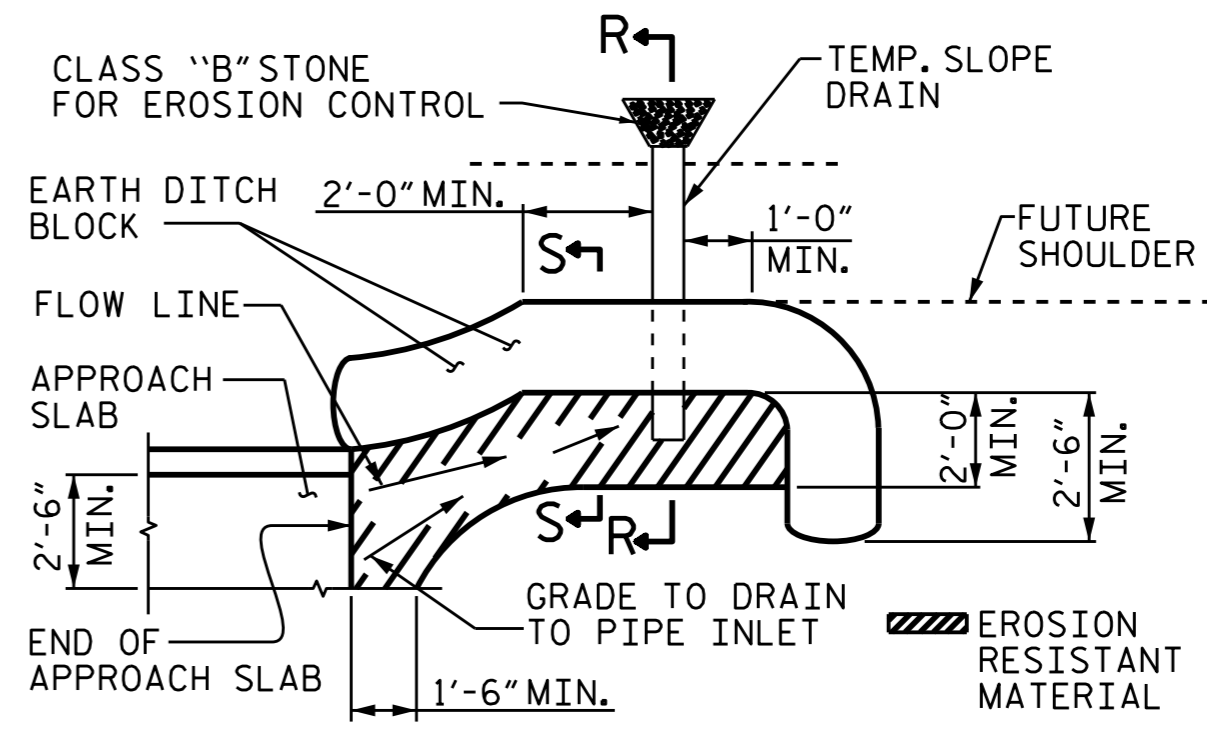
**NOTES**

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

FOR REINFORCED BRIDGE APPROACH FILL FABRIC WALL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, WELDED WIRE FORM, AND SELECT MATERIAL, SEE ROADWAY PLANS.

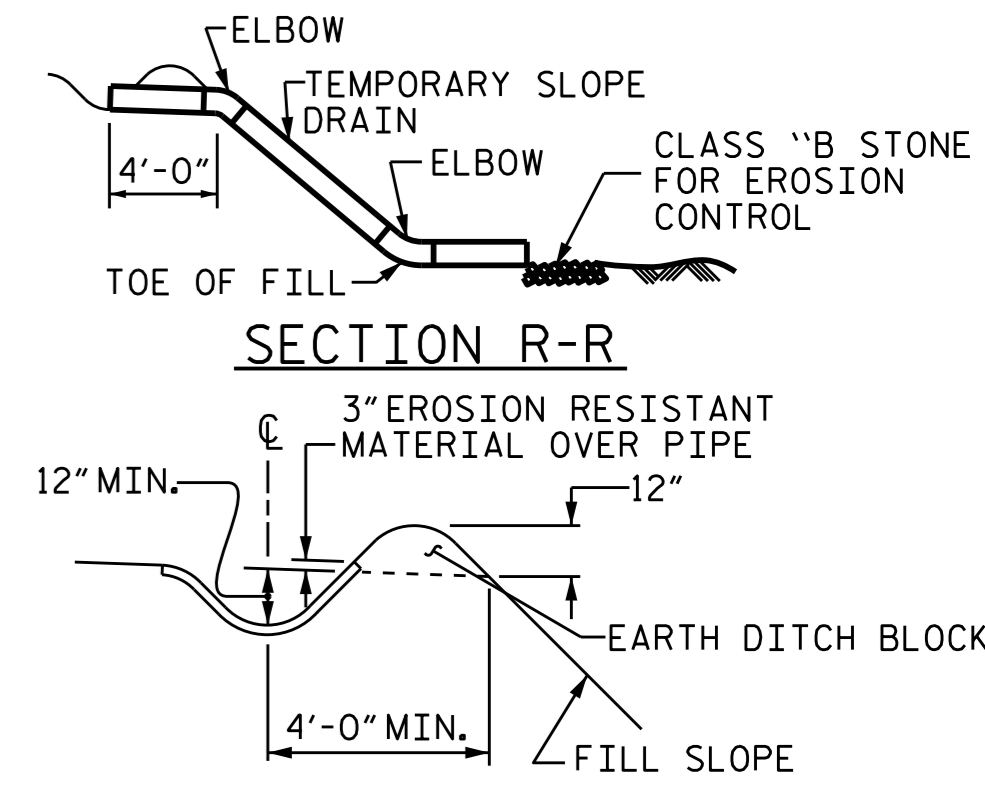
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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.

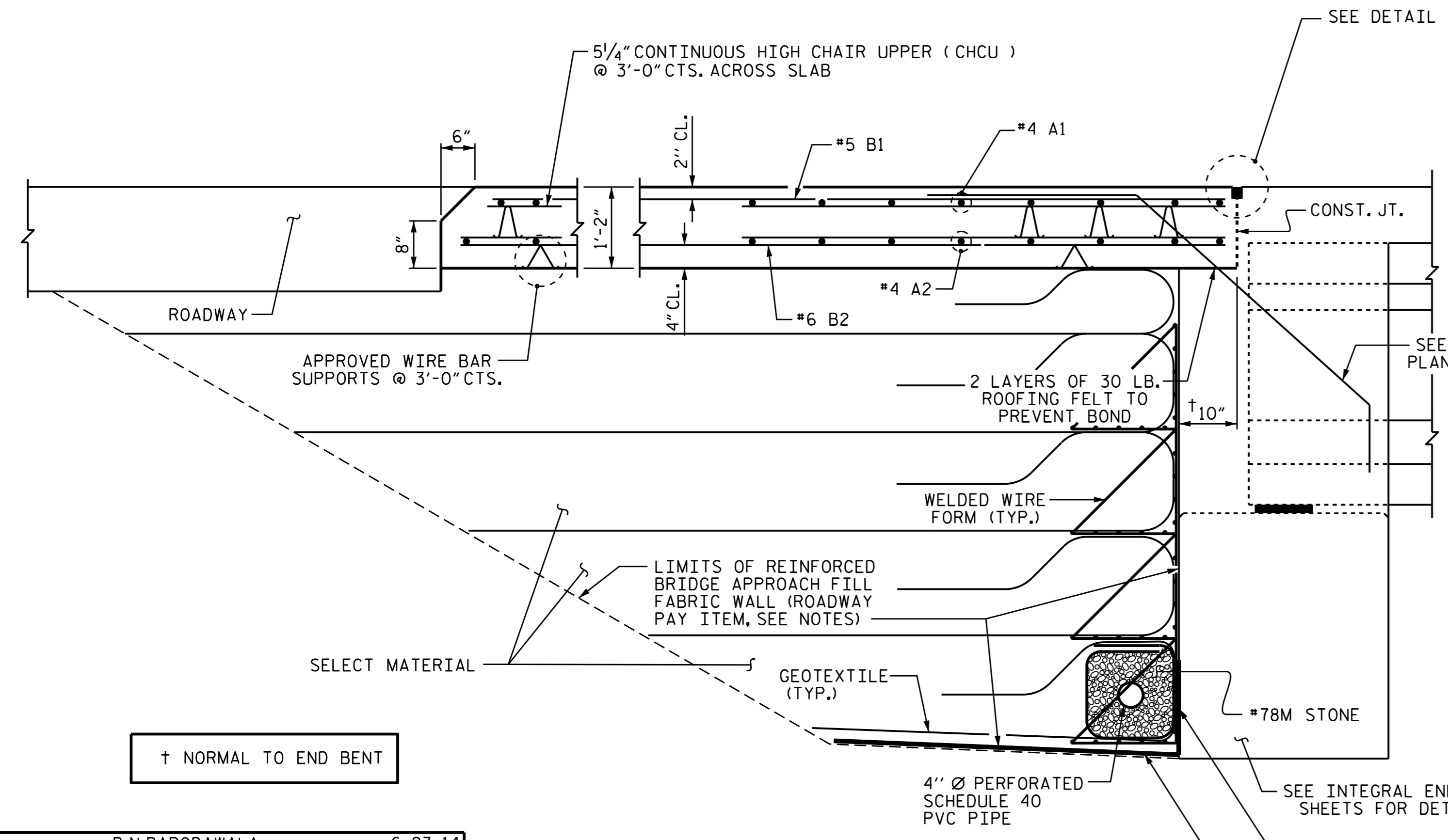


NOTE:  
 IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

**TEMPORARY BERM AND SLOPE DRAIN DETAILS**  
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

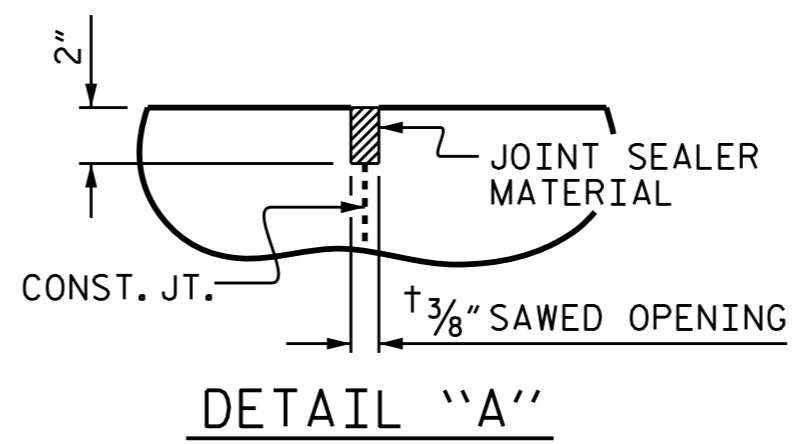


**SECTION S-S**

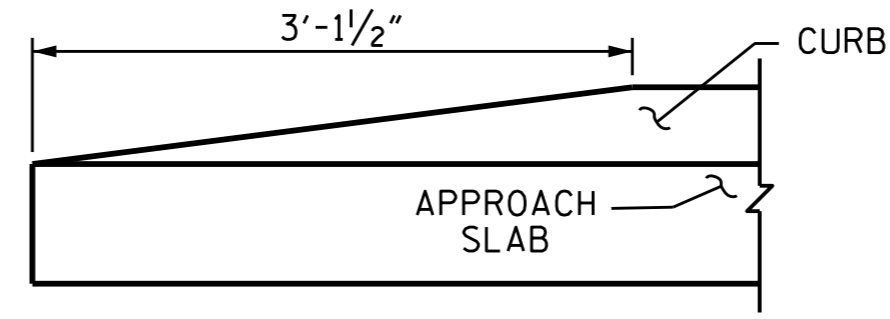


**SECTION THRU SLAB**

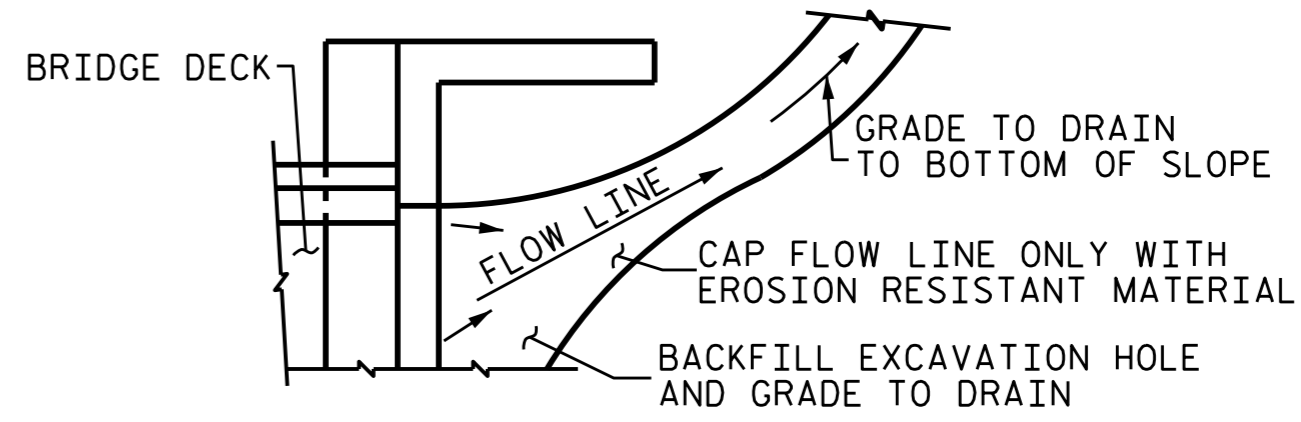
BAR	SPLICE LENGTH
#4 A1	2'-0"
#4 A2	1'-9"



**DETAIL "A"**

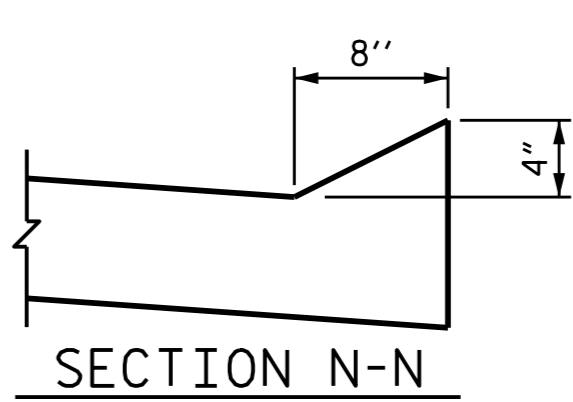


**END OF CURB WITHOUT SHOULDER BERM GUTTER**



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

**TEMPORARY DRAINAGE DETAIL**



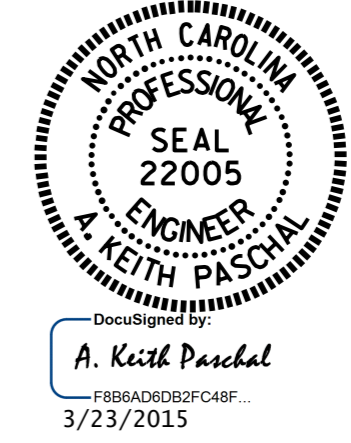
**SECTION N-N**

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			56

ASSEMBLED BY: B.N. BARODAWALA DATE: 6-23-14  
 CHECKED BY: D. G. ELY DATE: 8-4-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2-9-15  
 DRAWN BY: TLA 10/05 REV. 10/1/11 MAA/GM  
 CHECKED BY: GM 5/06 REV. 12/21/11 MAA/GM  
 REV. 6/13 MAA/GM



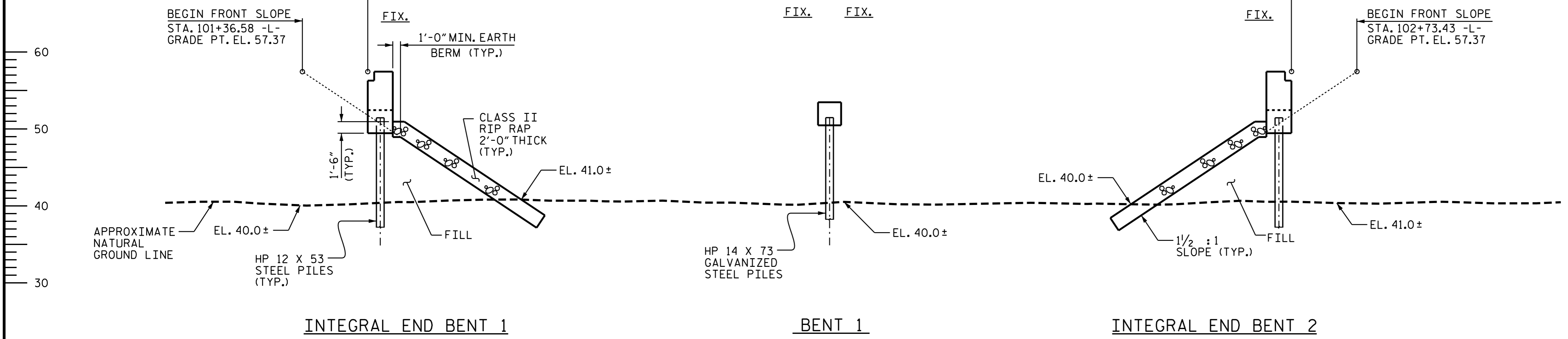


101+25      101+50      101+75      102+00      102+25      102+50      102+75      103+00

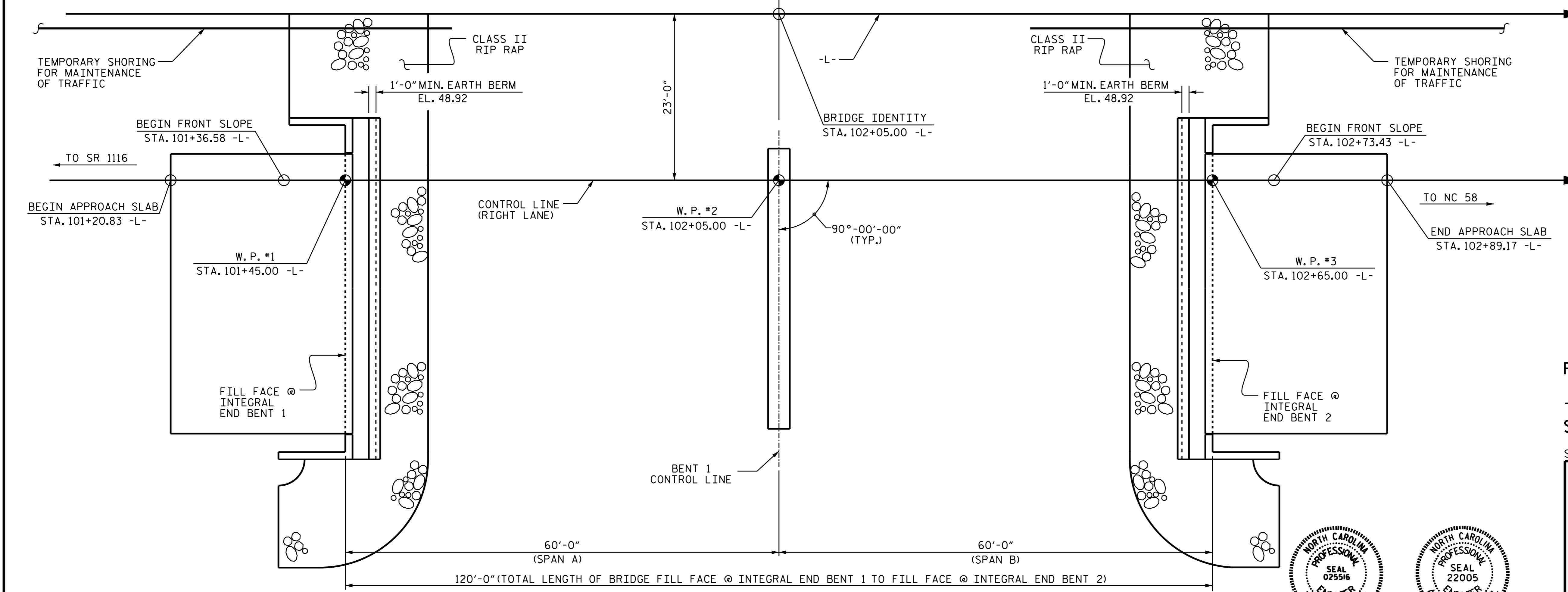
**GRADE DATA**  
 +0.3375 %      -0.3180 %  
 P.I. = 102+00.00 -L-  
 EL. = 57.94  
 V.C. = 670 FT.

SPAN A

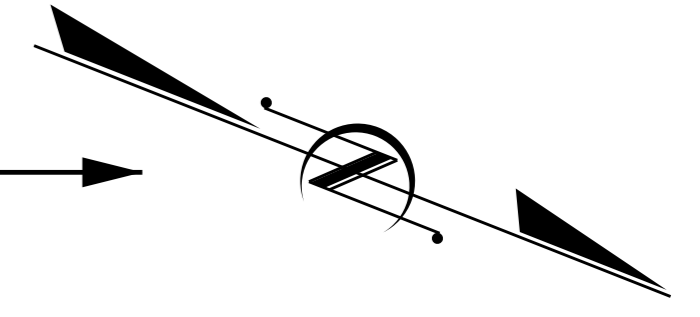
SPAN B



SECTION ALONG CONTROL LINE (RIGHT LANE)



PLAN



PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 1 OF 3      BRIDGE #90

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

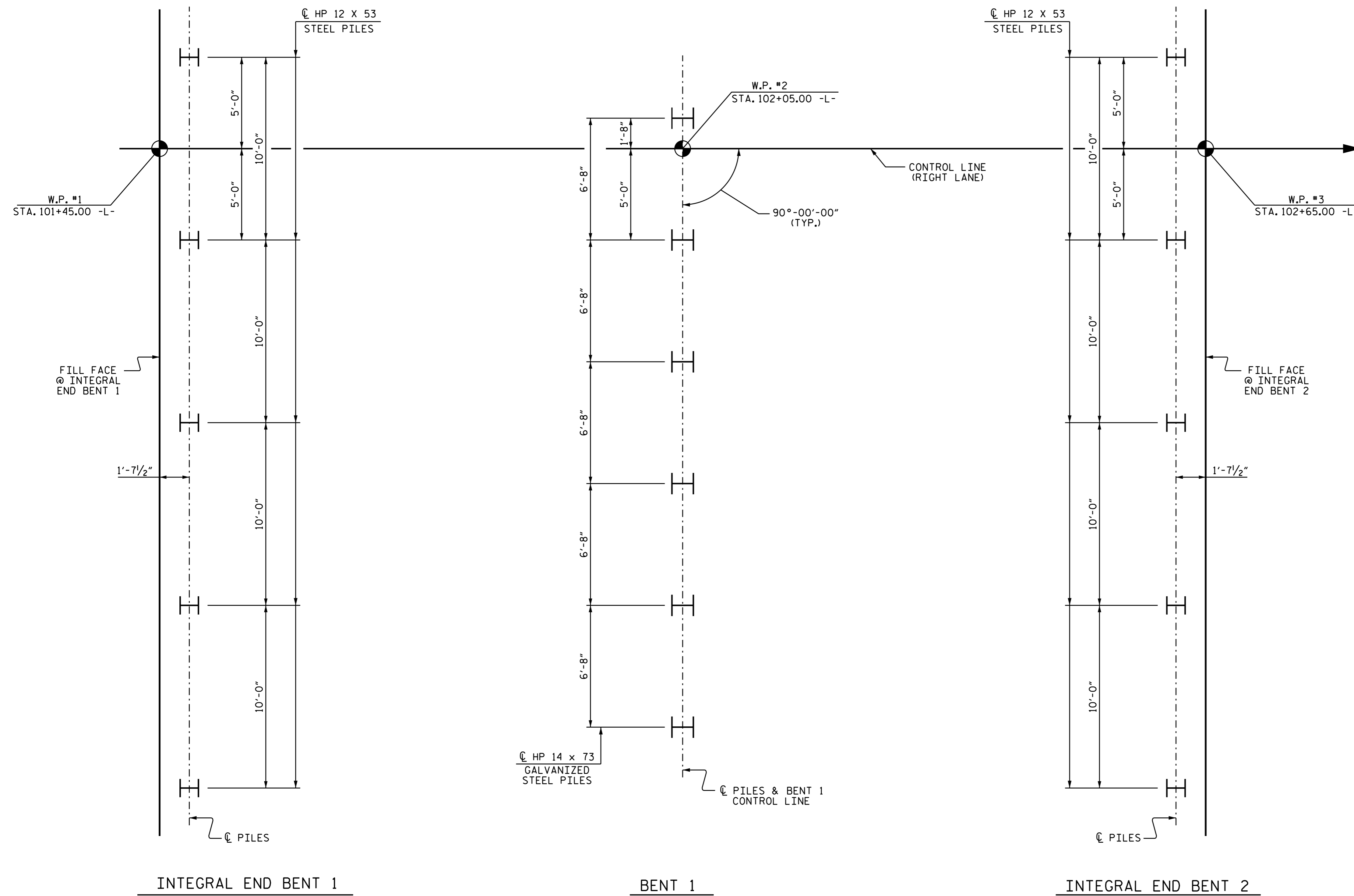
**GENERAL DRAWING**  
 FOR BRIDGE OVER WILDLIFE  
 CROSSING ON US 17 BETWEEN  
 SR 1116 AND NC 58  
 (RIGHT LANE)



DRAWN BY: B. N. BARODAWALA      DATE: 4-23-14  
 CHECKED BY: D. G. ELY      DATE: 6-24-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL      DATE: 2-9-15

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			56





**FOUNDATION NOTES:**

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 120 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE.

PILES AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 180 TONS PER PILE.

DRIVE PILES AT BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 240 TONS PER PILE.

INSTALL PILES AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 15 FEET.

STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT END BENT 1, BENT 1 AND END BENT 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 73,500 FT-LBS TO 91,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT 1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT BENT 1. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED AT END BENT 1 AND END BENT 2. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

OBSERVE A TWO MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO WITHIN 2 FT OF FINISHED GRADE BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT 1 AND END BENT 2.

**FOUNDATION LAYOUT**

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 2 OF 3



DocuSigned by  
 A. Keith Paschal

3/23/2015

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

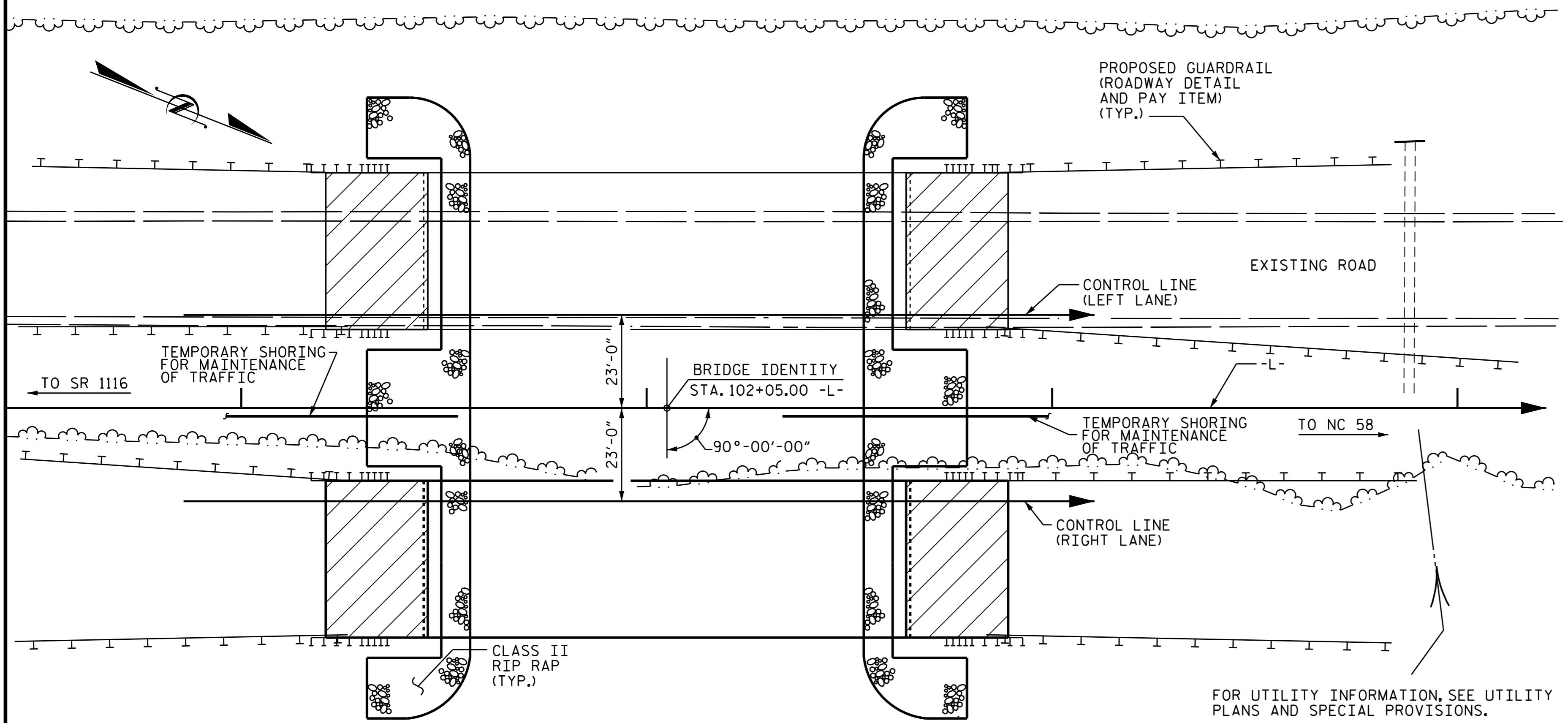
**GENERAL DRAWING**

FOR BRIDGE OVER WILDLIFE  
 CROSSING ON US 17 BETWEEN  
 SR 1116 AND NC 58  
 (RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			56

DRAWN BY : B. N. BARODAWALA DATE : 4-23-14  
 CHECKED BY : D. G. ELY DATE : 6-24-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 2-9-15

B.M. #4 : RR SPIKE IN 20" LEANING PINE @ STA. 102+48.00, 321' RIGHT, EL. 38.91'



LOCATION SKETCH

NOTES:

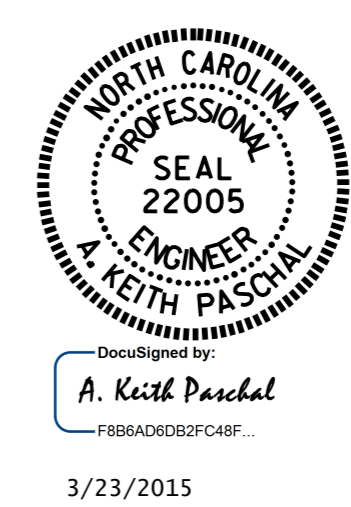
- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
- REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.
- FOR INTERIOR BENT 1, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED, SEE INTERIOR BENT SHEETS FOR REQUIRED GALVANIZED LENGTHS. PAYMENT FOR PARTIALLY GALVANIZED PILES WILL BE MADE UNDER THE CONTRACT UNIT PRICE FOR GALVANIZED STEEL PILES.
- TEMPORARY SHORING WILL BE REQUIRED IN THE AREA INDICATED IN THE PLAN VIEW.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

TOTAL BILL OF MATERIAL

	PDA TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	36" PRESTRESSED CONCRETE GIRDERS		HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		STEEL PILE POINTS	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS
							NO.	LIN.FT.	NO.	LIN.FT.	NO.	LIN.FT.						
SUPERSTRUCTURE	EA.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	NO.	LIN.FT.	NO.	LIN.FT.	EA.	EA.	LIN.FT.	TONS	SQ.YDS.	LUMP SUM
END BENT 1		4950	5845		LUMP SUM	3718	10	586.25	5	275			5	3	236.67	235	262	LUMP SUM
BENT 1				22.2		2421					6	390	6	3				
END BENT 2				22.2		3718			5	275			5	3		235	262	
TOTAL	2	4950	5845	56.9	LUMP SUM	9857	10	586.25	10	550	6	390	16	9	236.67	470	524	LUMP SUM

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE OVER WILDLIFE CROSSING ON US 17 BETWEEN SR 1116 AND NC 58 (RIGHT LANE)

DRAWN BY : B. N. BARODAWALA DATE : 4-23-14  
 CHECKED BY : D. G. ELY DATE : 6-24-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 2-9-15

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			56



LOAD FACTORS:

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

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

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								
						LIVELOAD FACTORS (%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)	LIVELOAD FACTORS (%LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.03	--	1.75	0.766	1.67	A	EL	28.646	0.867	2.23	A	I	22.917	0.80	0.867	1.03	A	I	28.646		
	HL-93(0pr)	N/A	--	2.16	--	1.35	0.766	2.16	A	EL	28.646	0.867	2.89	A	I	22.917	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.30	46.814	1.75	0.766	2.10	A	EL	28.646	0.867	2.57	A	I	22.917	0.80	0.729	1.30	A	I	28.646		
	HS-20(0pr)	36.000	--	2.73	98.160	1.35	0.766	2.73	A	EL	28.646	0.867	3.33	A	I	22.917	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	--	2.78	37.497	1.40	0.766	5.62	A	EL	28.646	0.867	6.68	A	I	28.646	0.80	0.729	2.78	A	I	28.646	
		SNGARBS2	20.000	--	2.14	42.715	1.40	0.766	4.32	A	EL	28.646	0.867	5.07	A	I	22.917	0.80	0.729	2.14	A	I	28.646	
		SNAGRIS2	22.000	--	2.05	45.132	1.40	0.766	4.15	A	EL	28.646	0.867	4.81	A	I	22.917	0.80	0.729	2.05	A	I	28.646	
		SNCOTTS3	27.250	--	1.38	37.715	1.40	0.766	2.80	A	EL	28.646	0.867	3.37	A	I	28.646	0.80	0.729	1.38	A	I	28.646	
		SNAGGRS4	34.925	--	1.18	41.269	1.40	0.766	2.39	A	EL	28.646	0.867	3.01	A	I	22.917	0.80	0.729	1.18	A	I	28.646	
		SNS5A	35.550	--	1.15	41.017	1.40	0.766	2.33	A	EL	28.646	0.867	3.16	A	I	22.917	0.80	0.729	1.15	A	I	28.646	
		SNS6A	39.950	--	1.07	42.721	1.40	0.766	2.16	A	EL	28.646	0.867	2.97	A	I	22.917	0.80	0.729	1.07	A	I	28.646	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	SNS7B	42.000	--	1.02	42.788	1.40	0.766	2.06	A	EL	28.646	0.867	3.05	A	I	22.917	0.80	0.729	1.02	A	I	28.646	
		TNAGRIT3	33.000	--	1.31	43.139	1.40	0.766	2.64	A	EL	28.646	0.867	3.46	A	I	22.917	0.80	0.729	1.31	A	I	28.646	
		TNT4A	33.075	--	1.32	43.527	1.40	0.766	2.66	A	EL	28.646	0.867	3.28	A	I	22.917	0.80	0.729	1.32	A	I	28.646	
		TNT6A	41.600	--	1.09	45.202	1.40	0.766	2.20	A	EL	28.646	0.867	3.51	A	I	22.917	0.80	0.729	1.09	A	I	28.646	
		TNT7A	42.000	--	1.10	46.106	1.40	0.766	2.22	A	EL	28.646	0.867	3.16	A	I	22.917	0.80	0.729	1.10	A	I	28.646	
		TNT7B	42.000	--	1.15	48.147	1.40	0.766	2.32	A	EL	28.646	0.867	2.88	A	I	22.917	0.80	0.729	1.15	A	I	28.646	
		TNAGRIT4	43.000	--	1.08	46.583	1.40	0.766	2.19	A	EL	28.646	0.867	2.76	A	I	22.917	0.80	0.729	1.08	A	I	28.646	
TNAGT5A	45.000	--	1.02	45.743	1.40	0.766	2.06	A	EL	28.646	0.867	2.89	A	I	22.917	0.80	0.729	1.02	A	I	28.646			
TNAGT5B	45.000	3	1.00	44.994	1.40	0.766	2.02	A	EL	28.646	0.867	2.61	A	I	22.917	0.80	0.729	1.00	A	I	28.646			

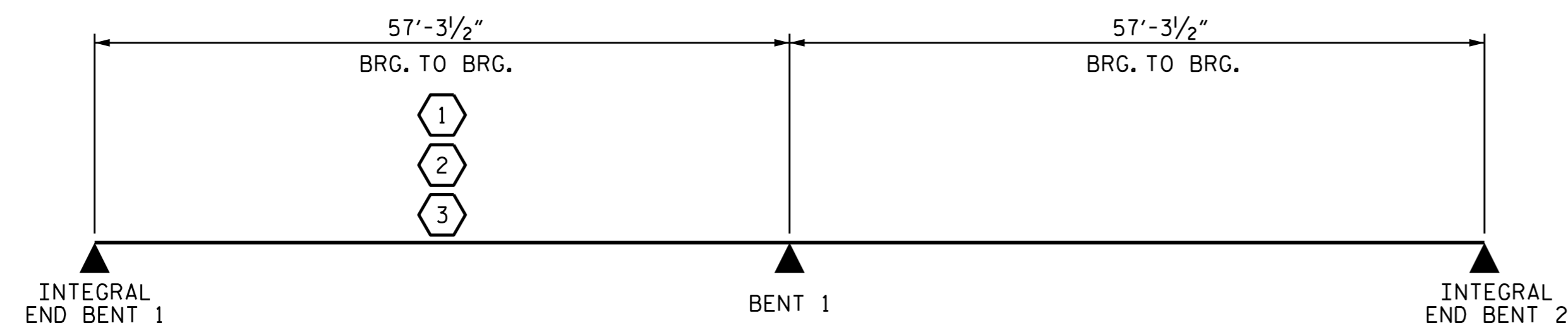
NOTES:

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	



LRFR SUMMARY

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-



DocuSigned by:  
A. Keith Paschal

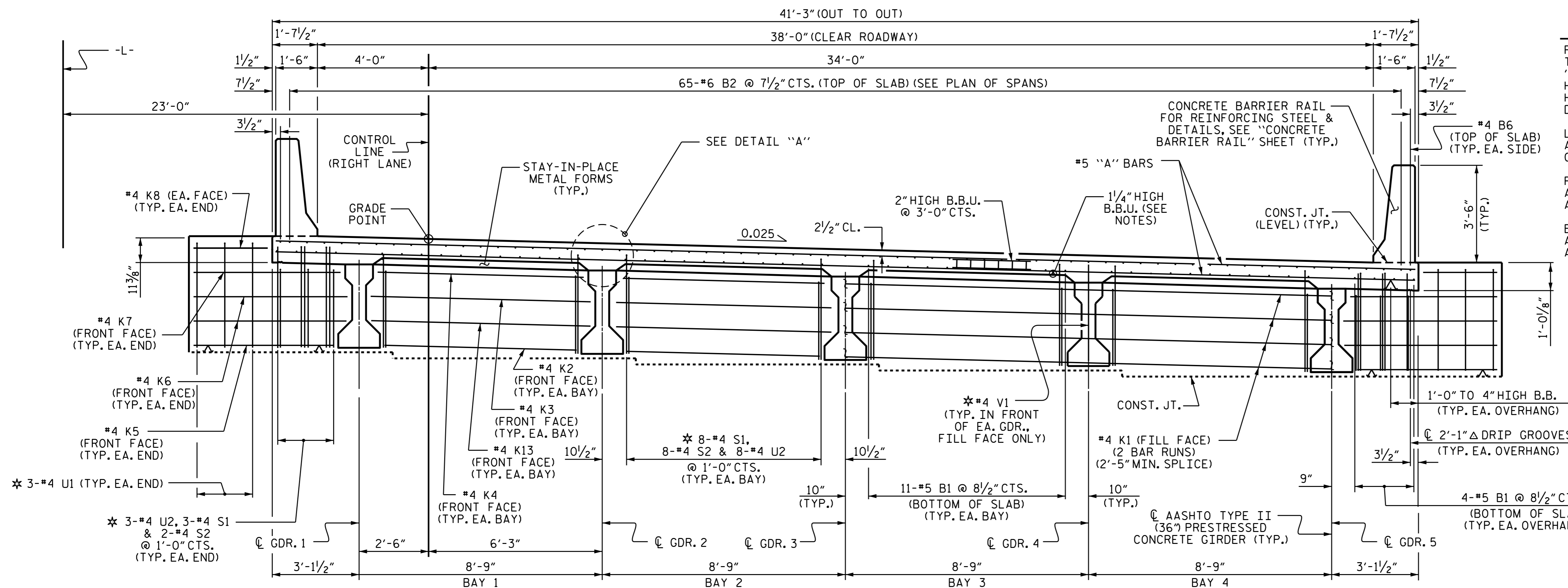
3/23/2015

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

REVISIONS						SHEET NO. S-32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

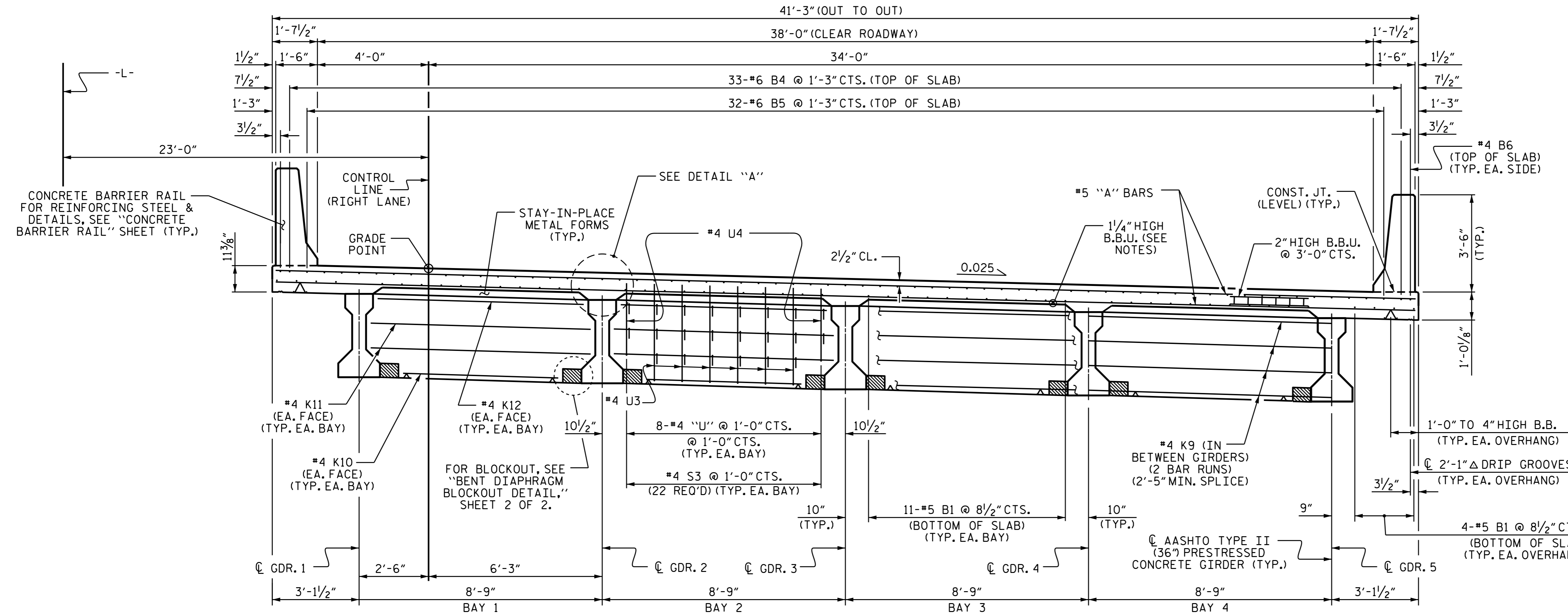
ASSEMBLED BY : E. K. POPE DATE : 5-24-13  
 CHECKED BY : O. PUIGCERVER DATE : 2-6-15  
 DESIGN ENGINEER OF RECORD : A. K. PASCHAL DATE : 2-9-15  
 DRAWN BY : MAA 1/08  
 CHECKED BY : GM/DI 2/08  
 REV. 11/12/08R MAA/GM





**TYPICAL SECTION @ INTEGRAL END BENT**

\* #4 S1, #4 S2, #4 U1, #4 U2, & #4 V1 BARS TO MATCH WITH #4 "V" BARS IN INTEGRAL END BENT CAP



**TYPICAL SECTION @ BENT DIAPHRAGM**

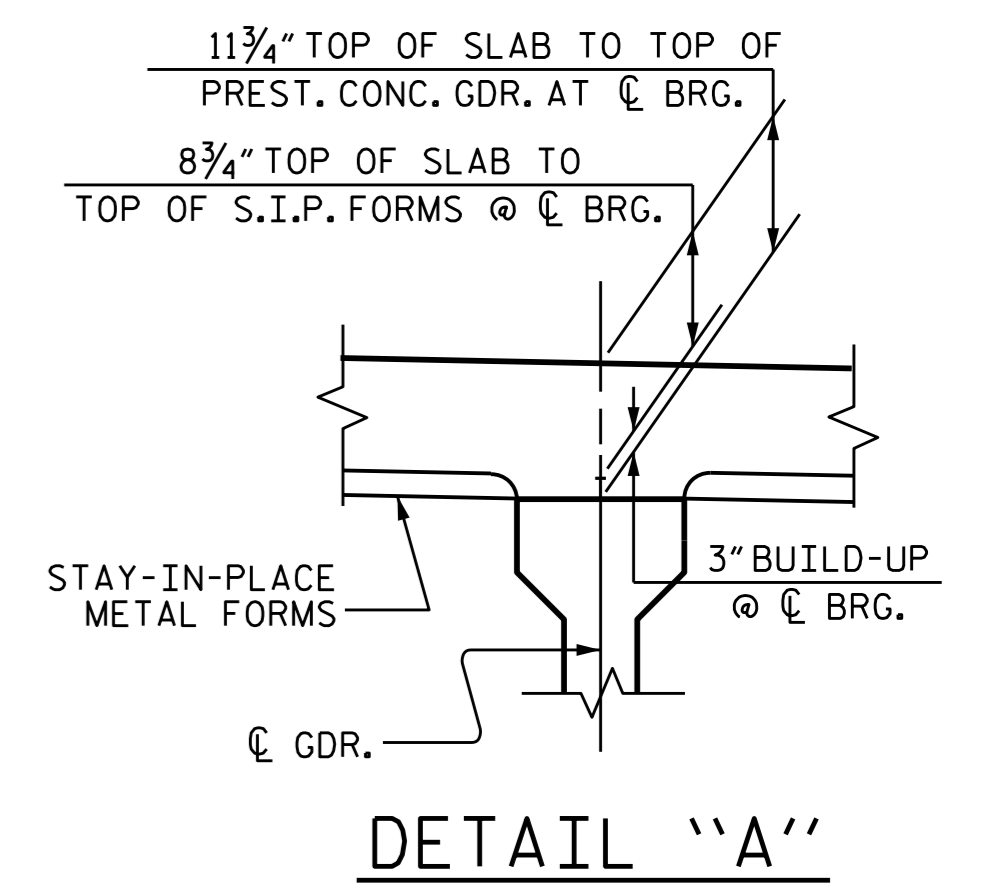
**NOTES**

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.

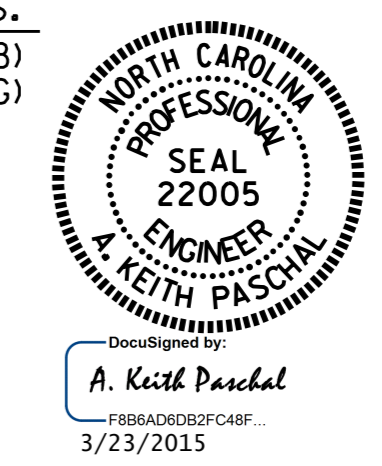
PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

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.



**DETAIL "A"**

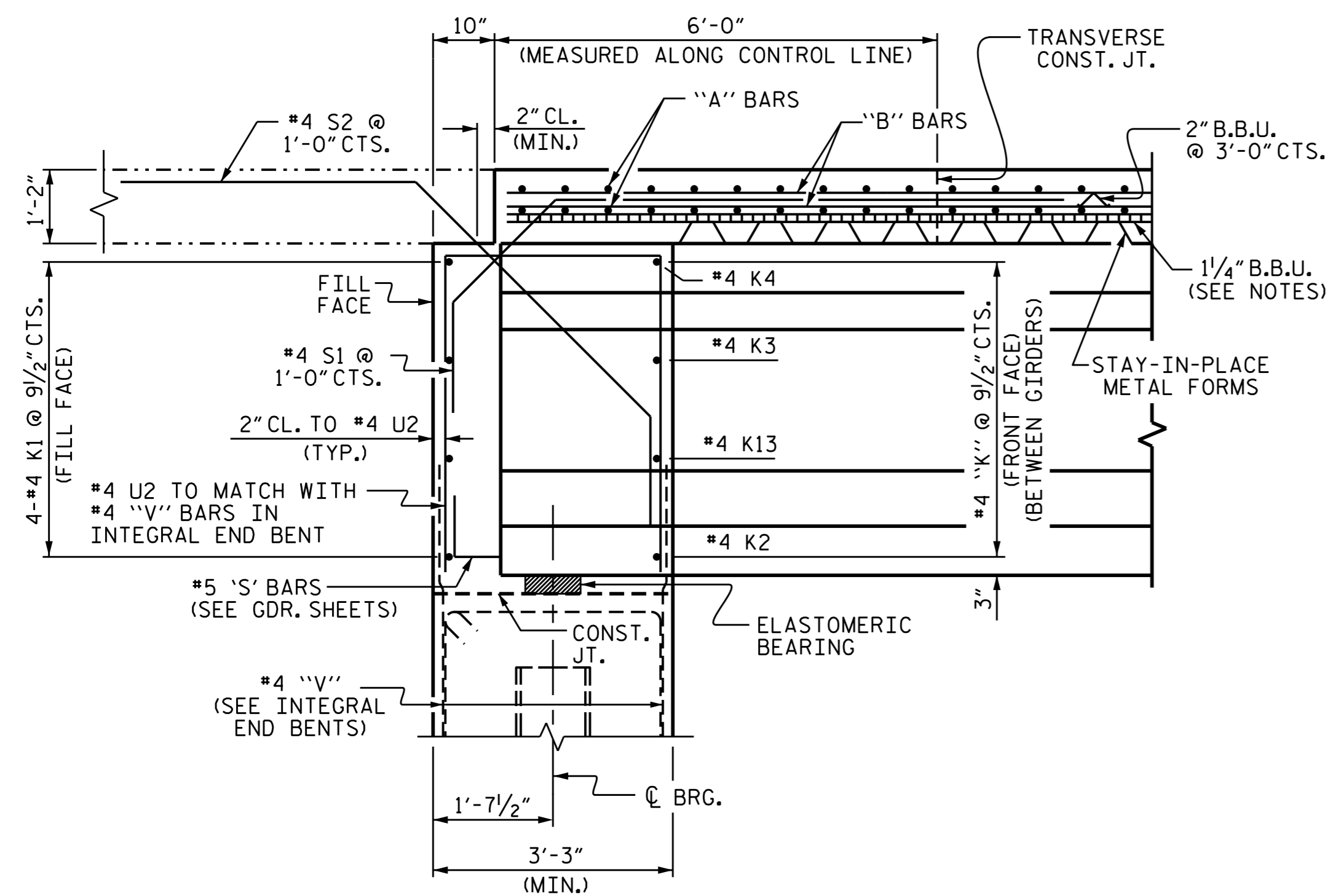
DRAWN BY : D. G. ELY DATE : 05-21-14  
 CHECKED BY : B. N. BARODAWALA DATE : 06-13-14  
 DESIGN ENGINEER OF RECORD : A. K. PASCHAL DATE : 02-09-15



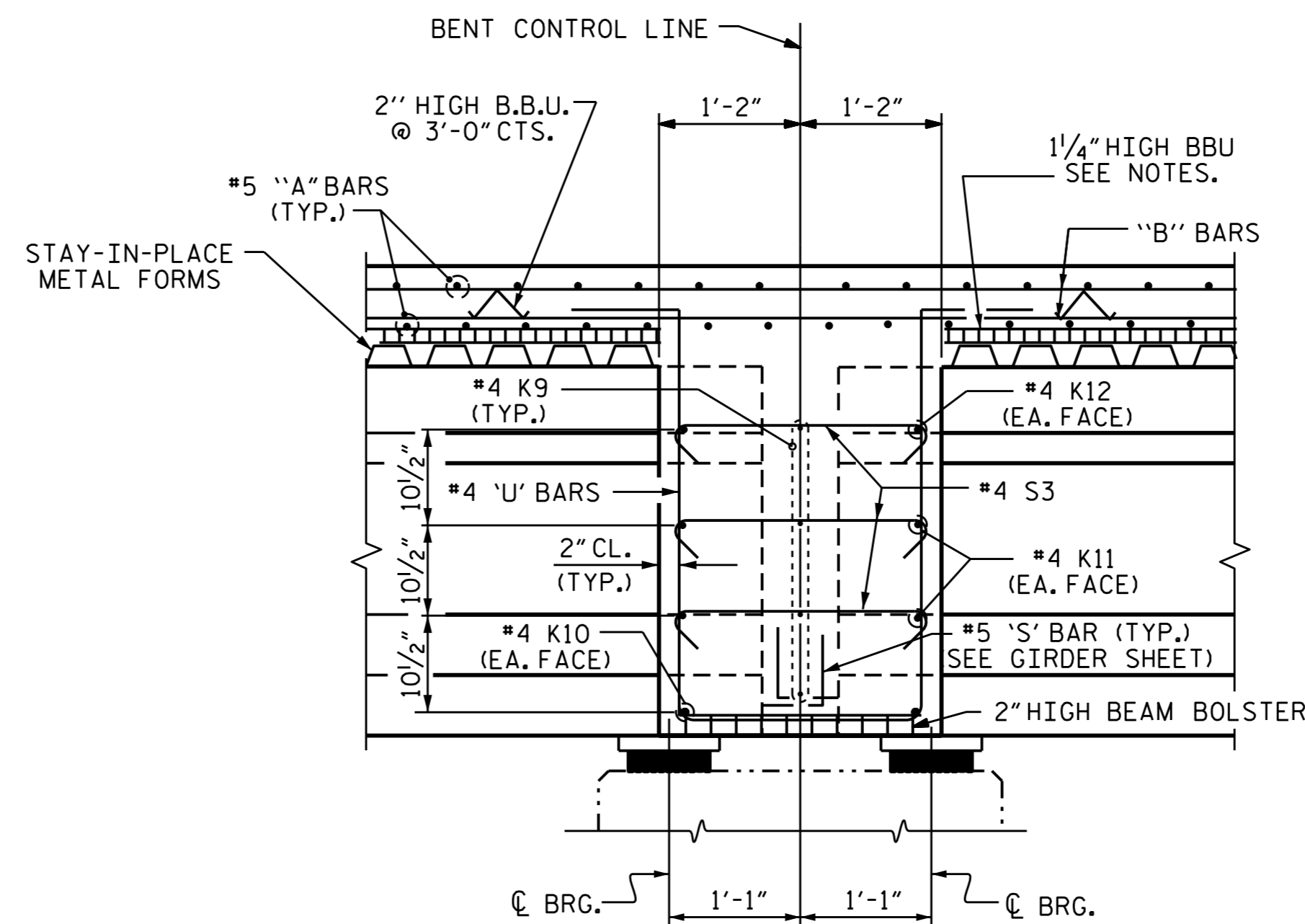
PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 1 OF 2

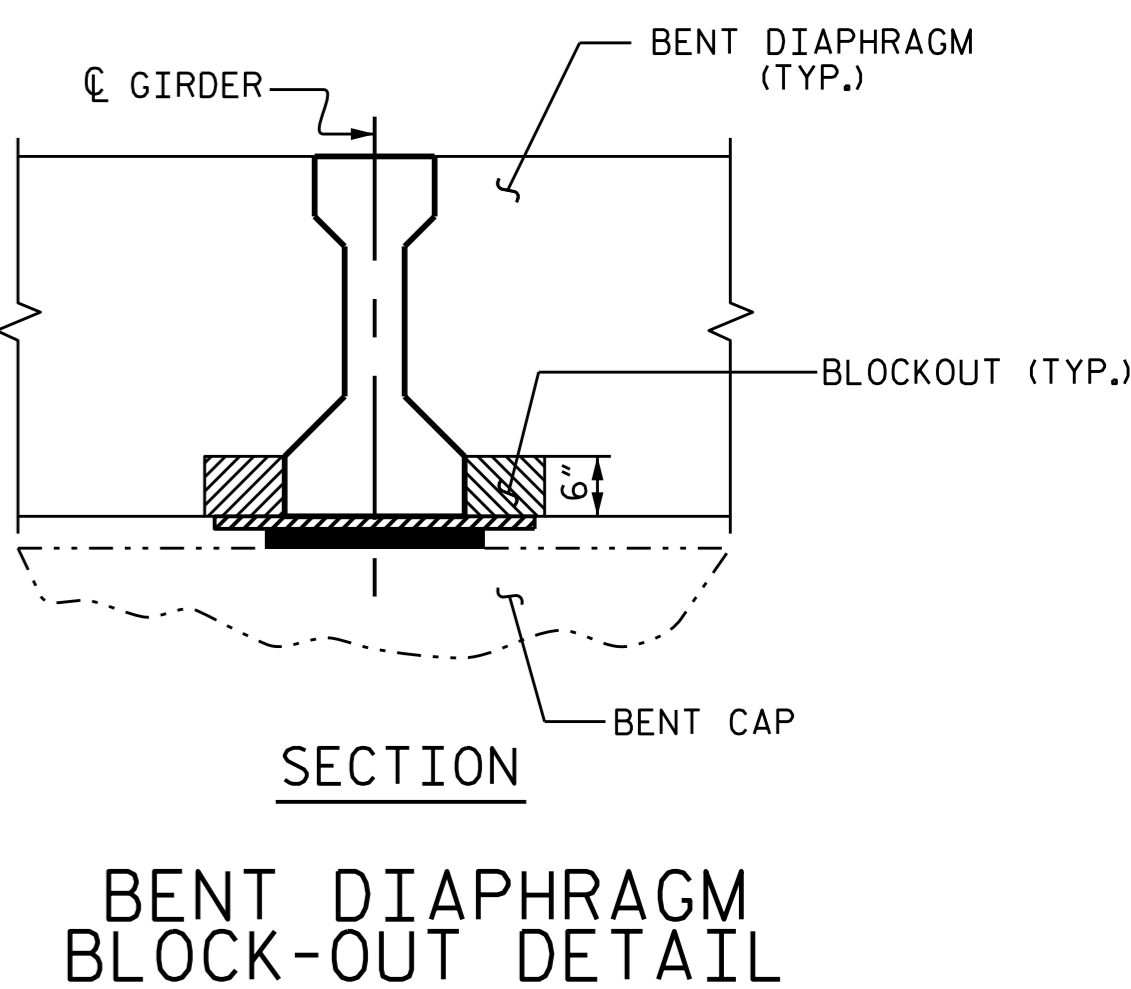
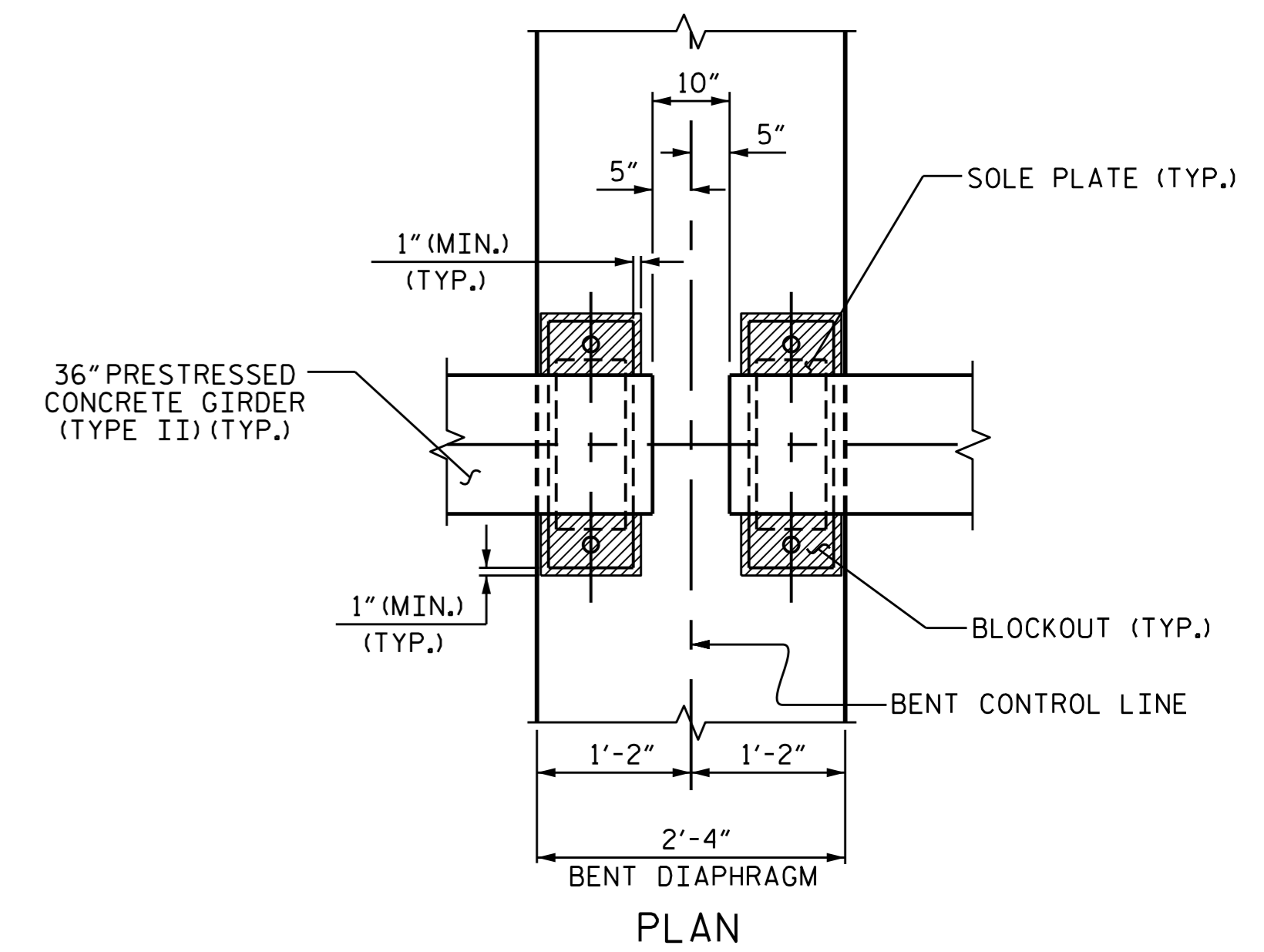
REVISIONS						SHEET NO. S-33
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			



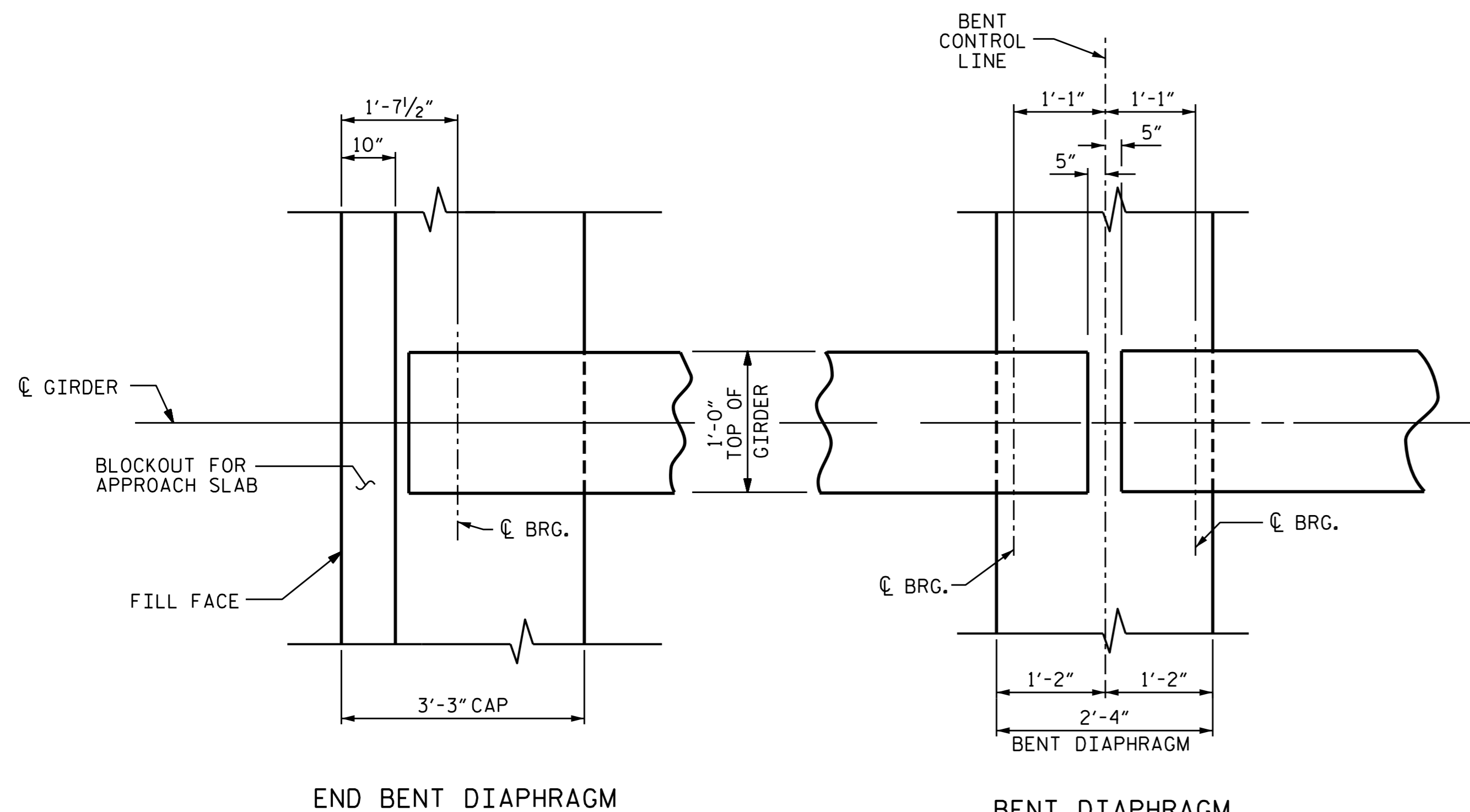
**END OF GIRDER DETAIL  
AT INTEGRAL END BENT**



**SECTION THRU BENT DIAPHRAGM**



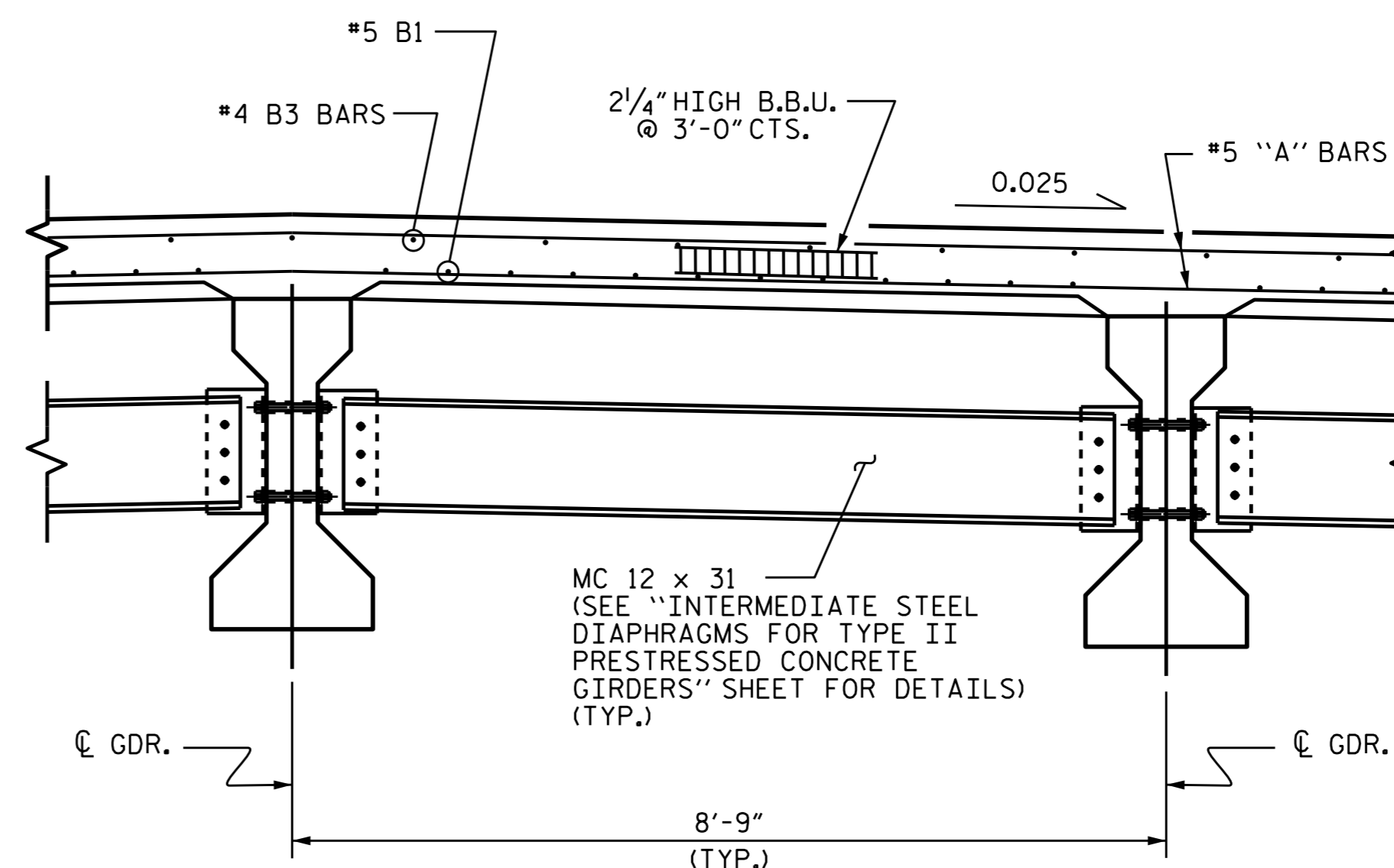
**BENT DIAPHRAGM  
BLOCK-OUT DETAIL**



**END BENT DIAPHRAGM**

**BENT DIAPHRAGM**

**PLAN**



**PARTIAL TYPICAL SECTION**

**@ INTERMEDIATE DIAPHRAGM**

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 TYPICAL SECTION  
 DETAILS  
 (RIGHT LANE)



REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-34
1			3			TOTAL SHEETS
2			4			56

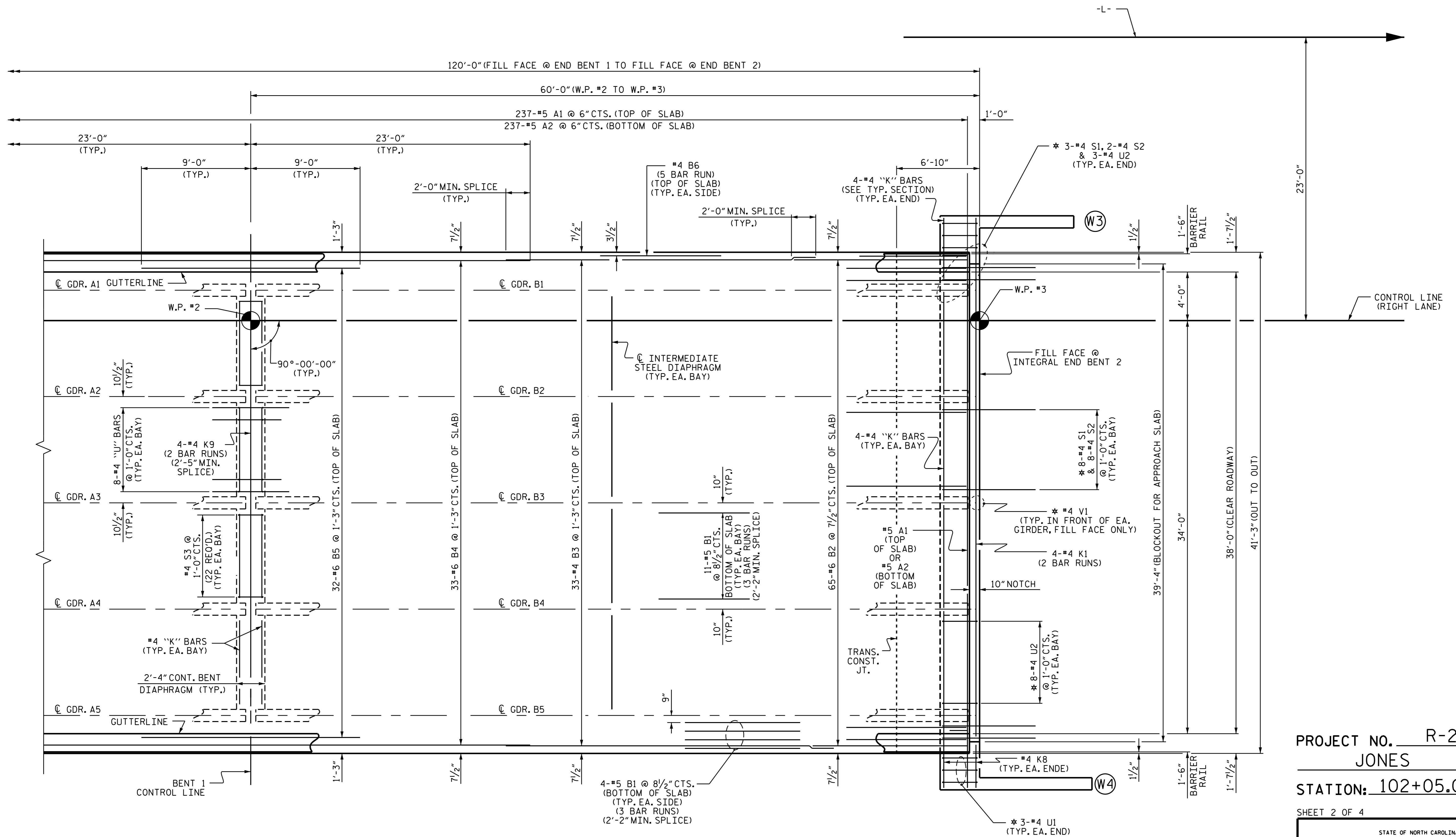
DRAWN BY: D. G. ELY DATE: 05/21/14  
 CHECKED BY: B. N. BARODAWALA DATE: 06-13-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 02-09-15

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 kpaschal









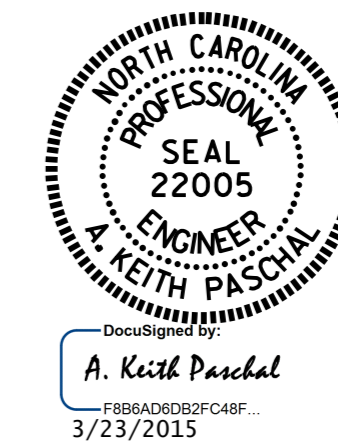
**PLAN OF SPAN B**

\* #4 S1, #4 S2, #4 U1, #4 U2, & #4 V1 TO MATCH WITH #4 "V" BARS IN INTEGRAL END BENT CAP.

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "GIRDER LAYOUT" SHEET.

DRAWN BY : D. G. ELY DATE : 05-22-14  
 CHECKED BY : B. N. BARODAWALA DATE : 06-13-14  
 DESIGN ENGINEER OF RECORD : A. K. PASCHAL DATE : 02-09-15

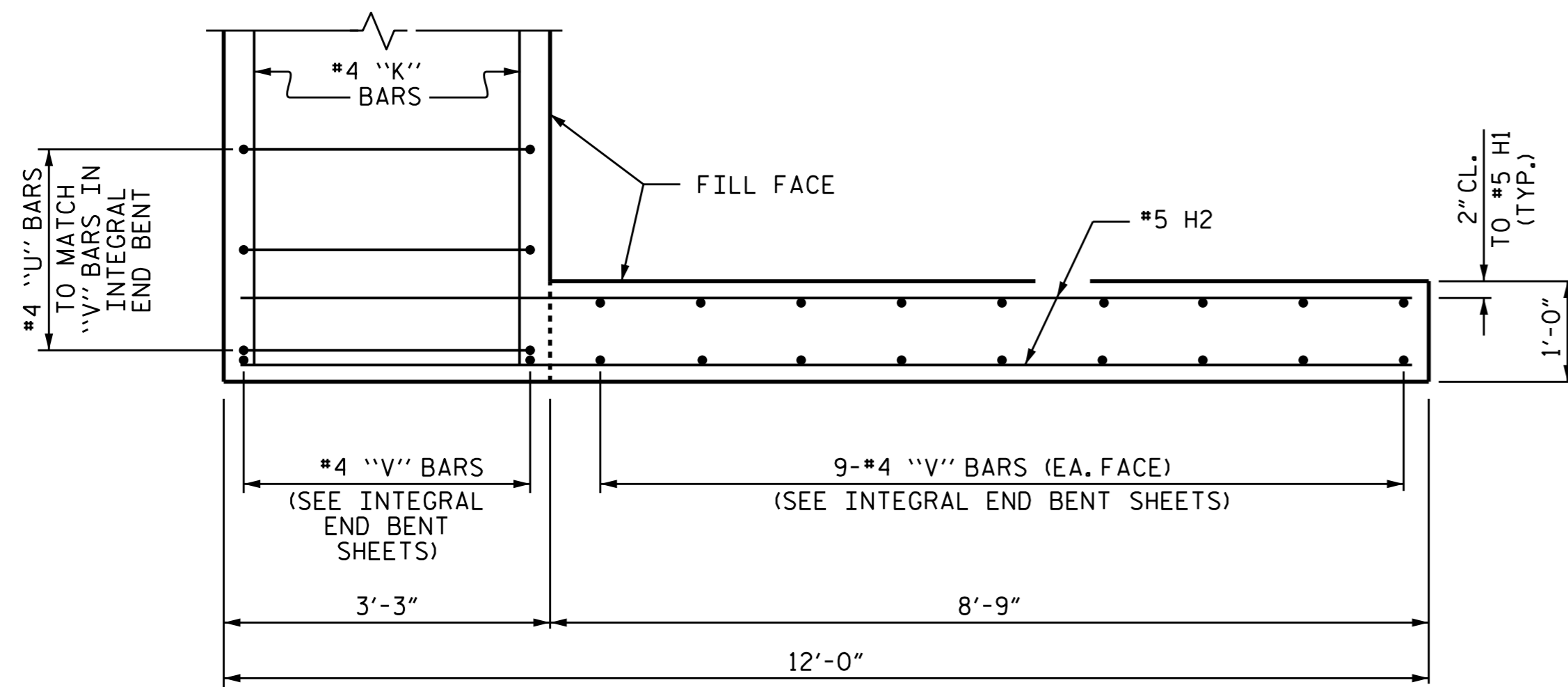
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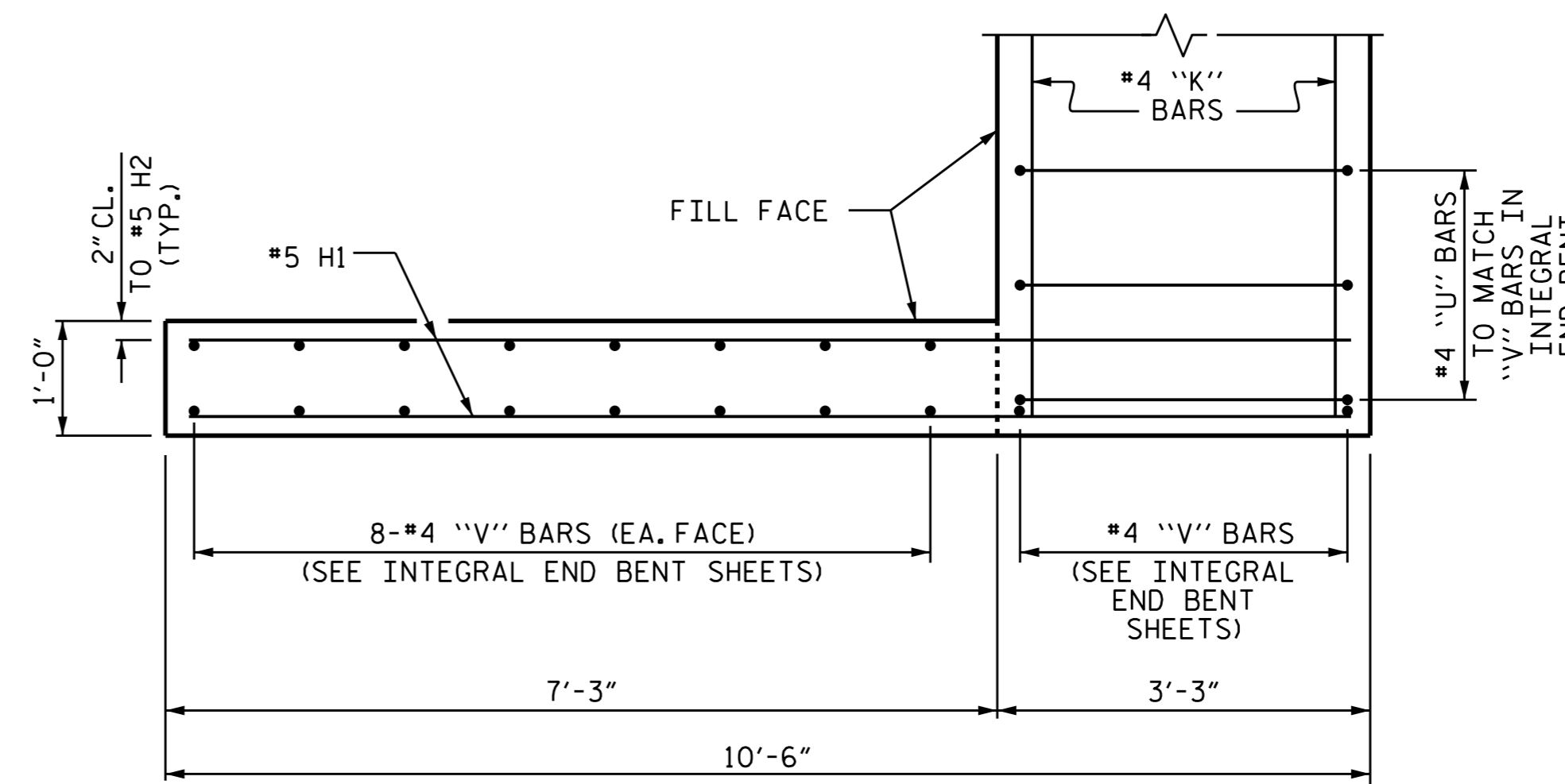
PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 2 OF 4

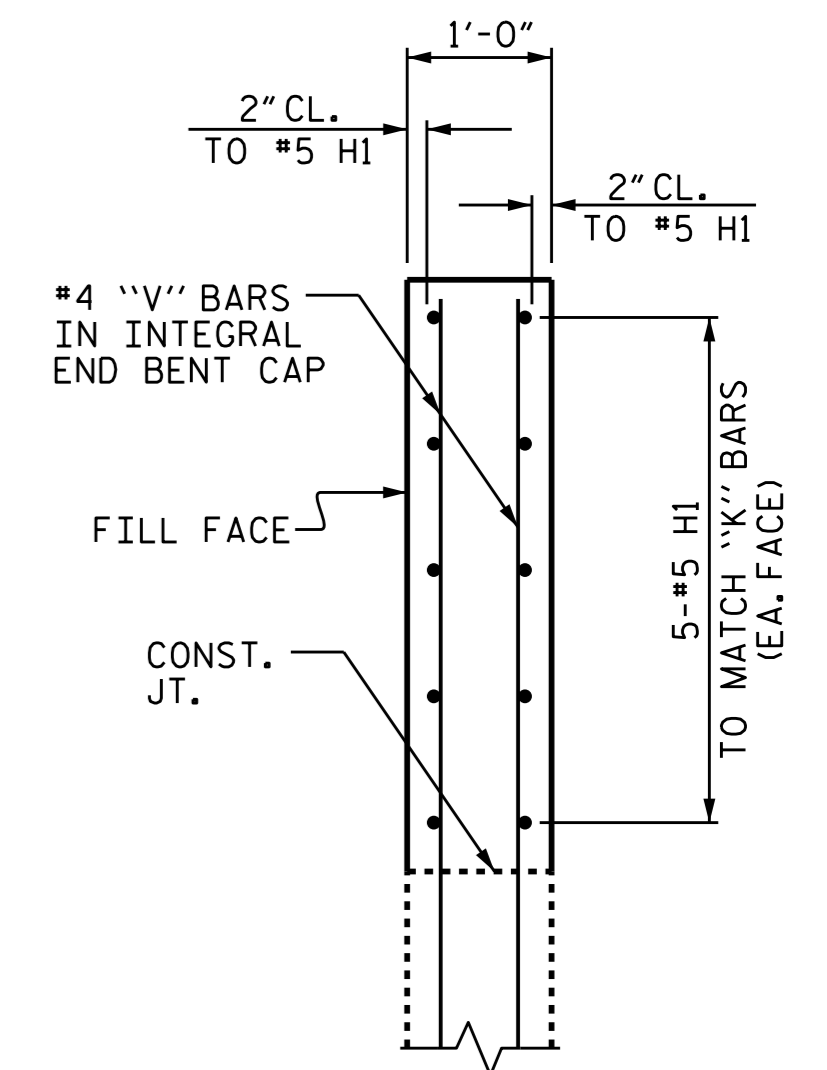
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
1			3			TOTAL SHEETS
2			4			56



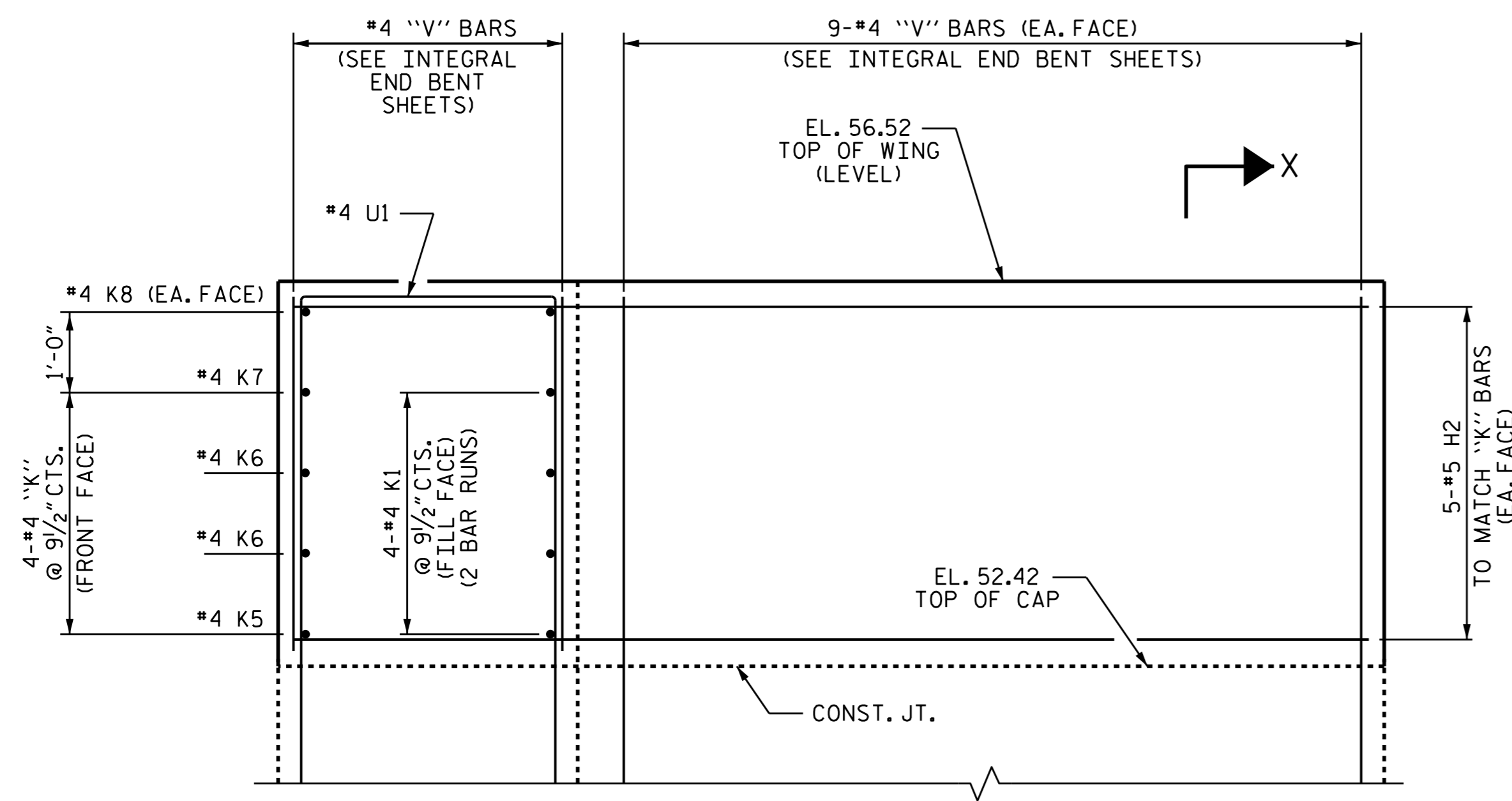
PLAN W1



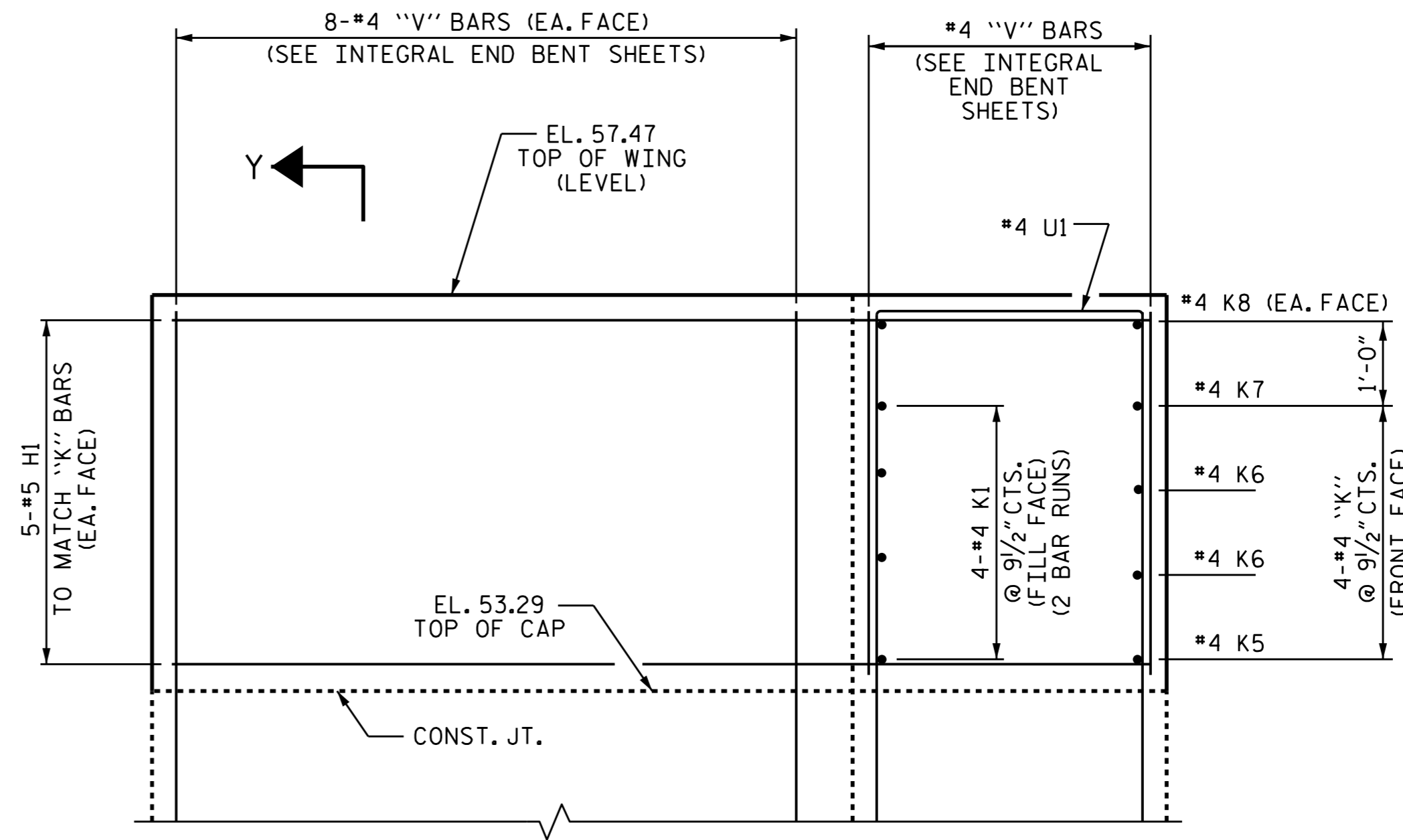
PLAN W2



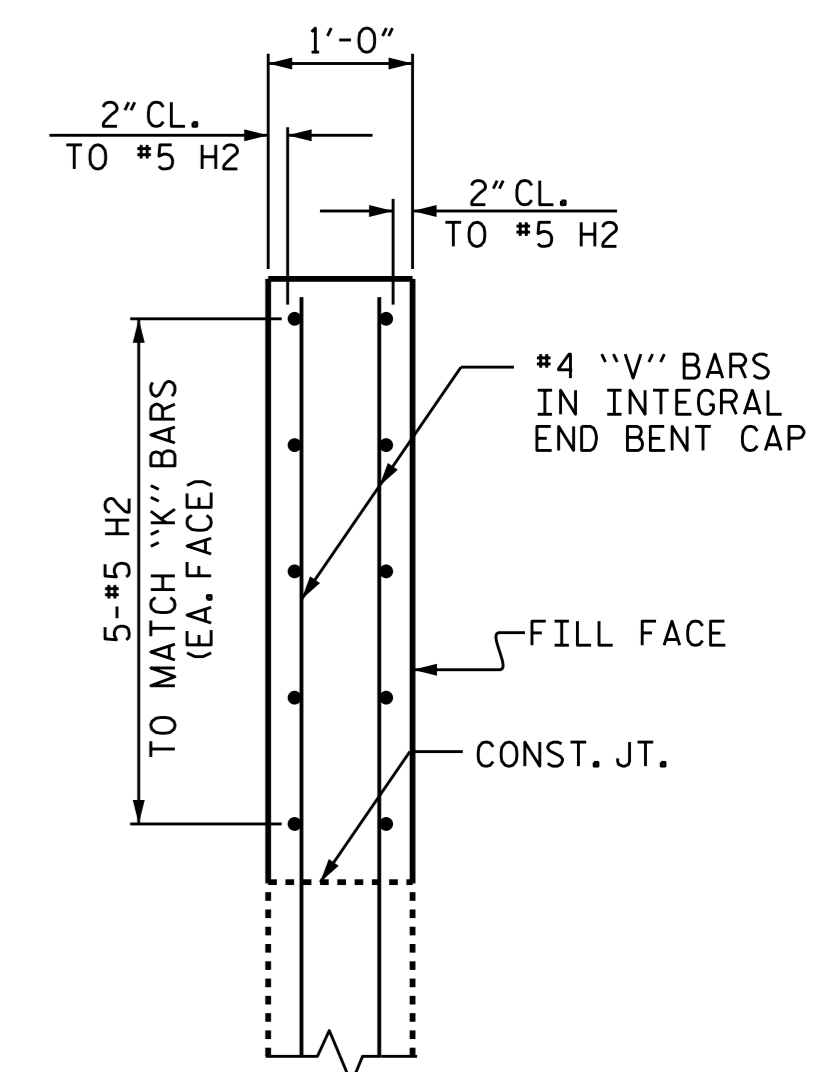
SECTION Y-Y



ELEVATION W1



ELEVATION W2



SECTION X-X

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

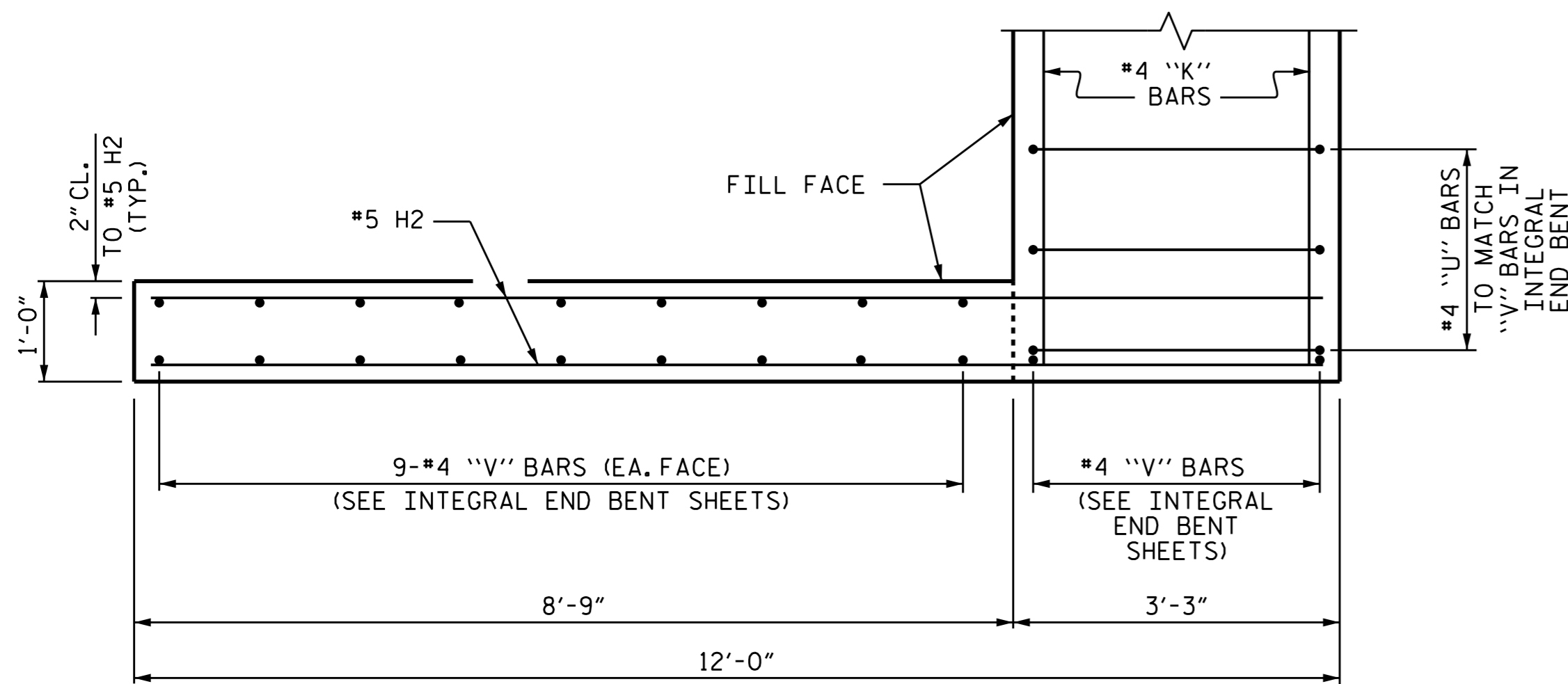
SHEET 3 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPAN  
 DETAILS  
 (RIGHT LANE)

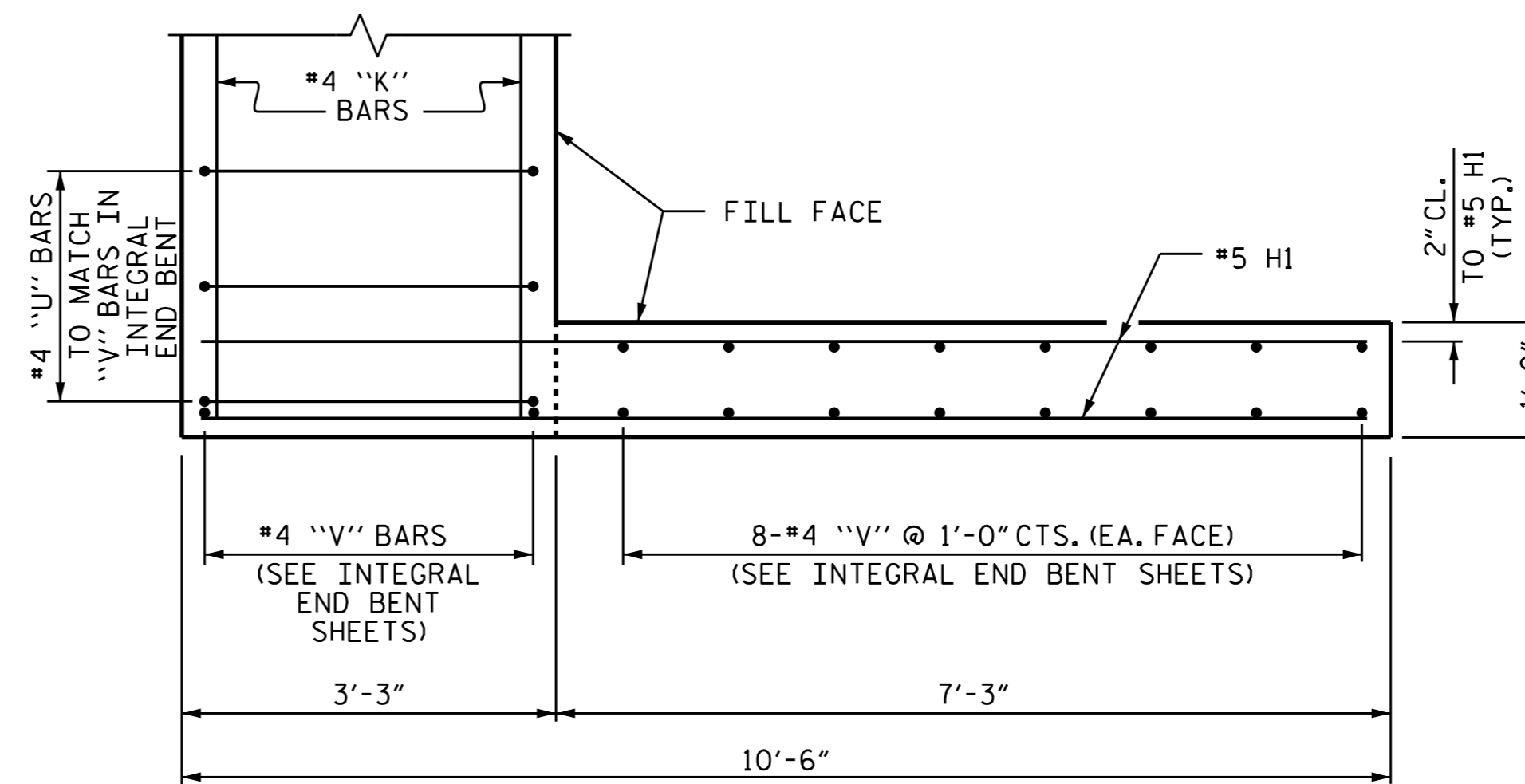


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37	
1			3			TOTAL	56
2			4			SHEETS	

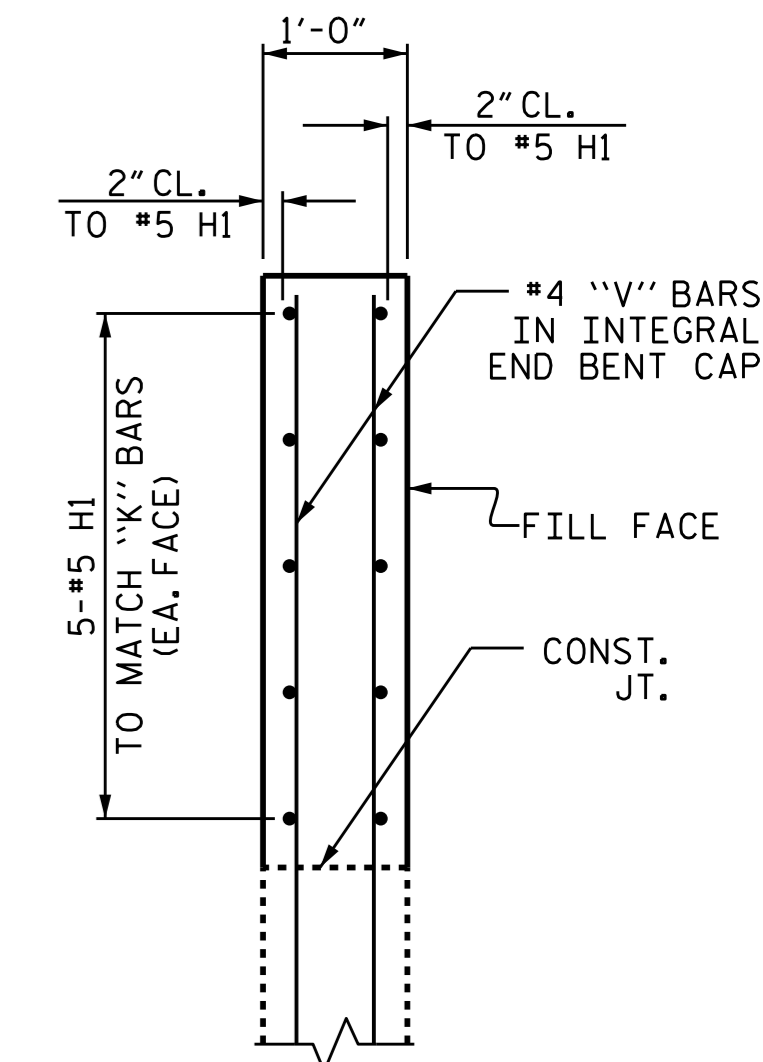
DRAWN BY: D. G. ELY DATE: 05-28-14  
 CHECKED BY: B. N. BARODAWALA DATE: 06-13-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 02-09-15



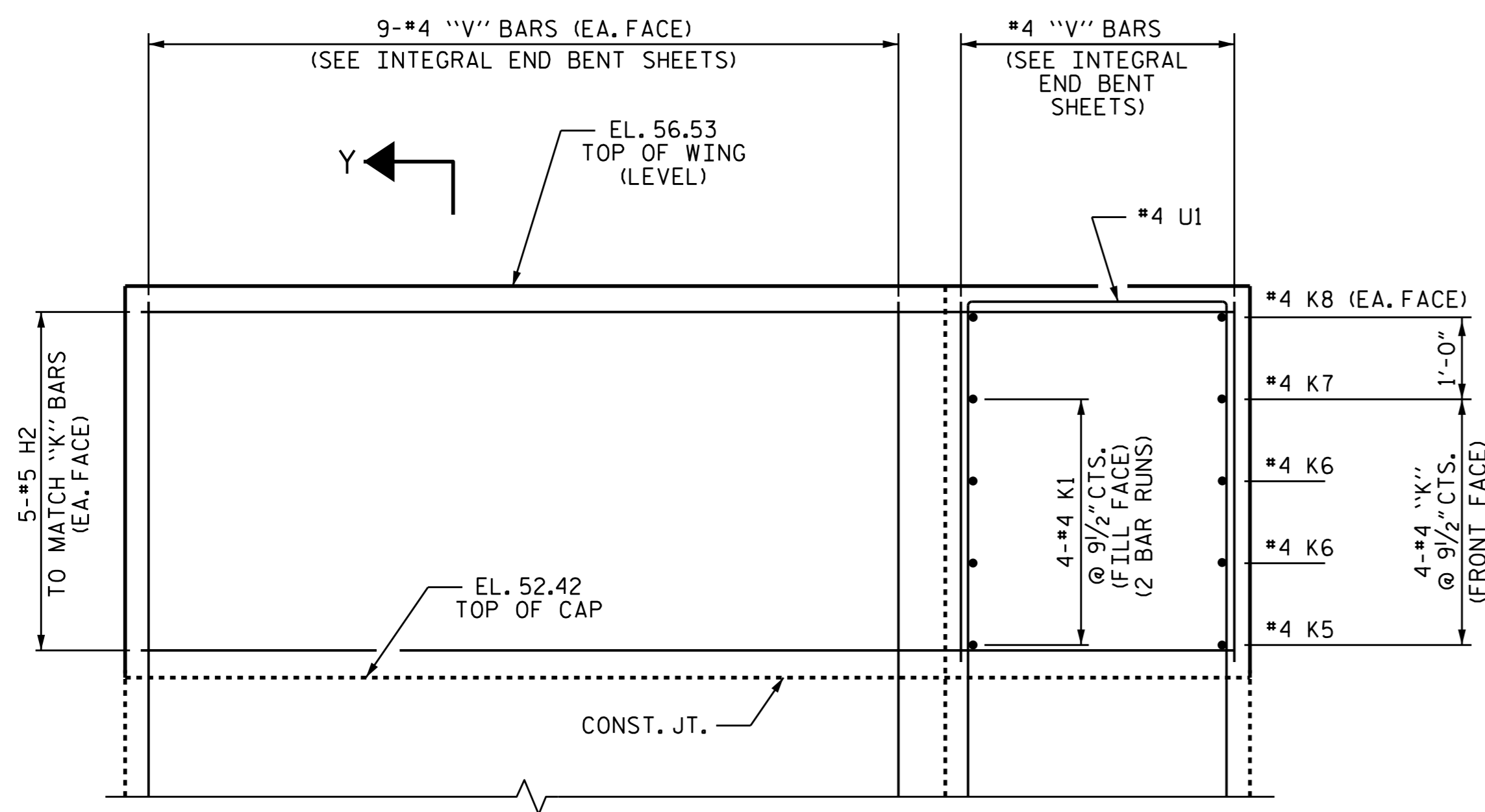
PLAN W3



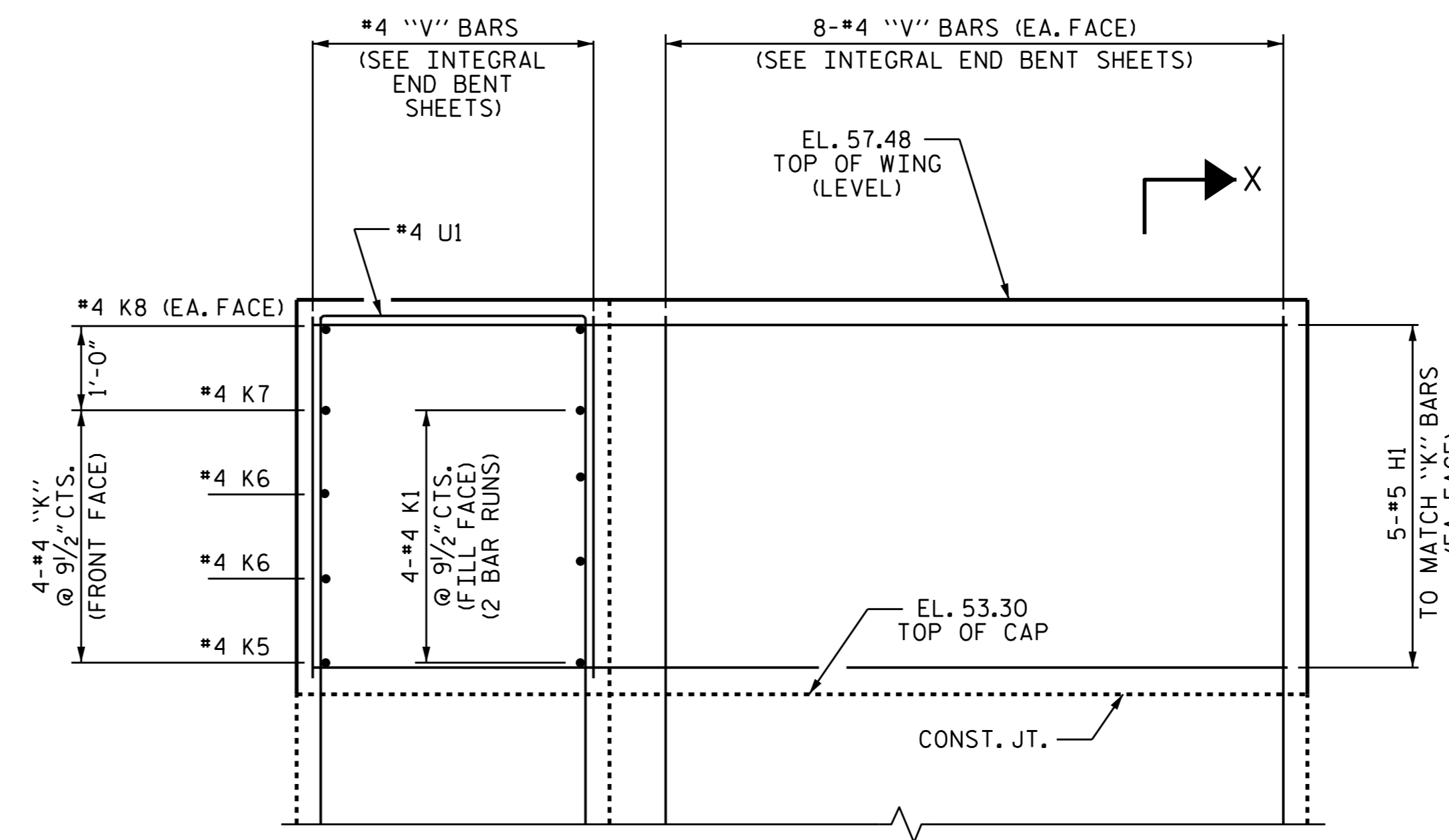
PLAN W4



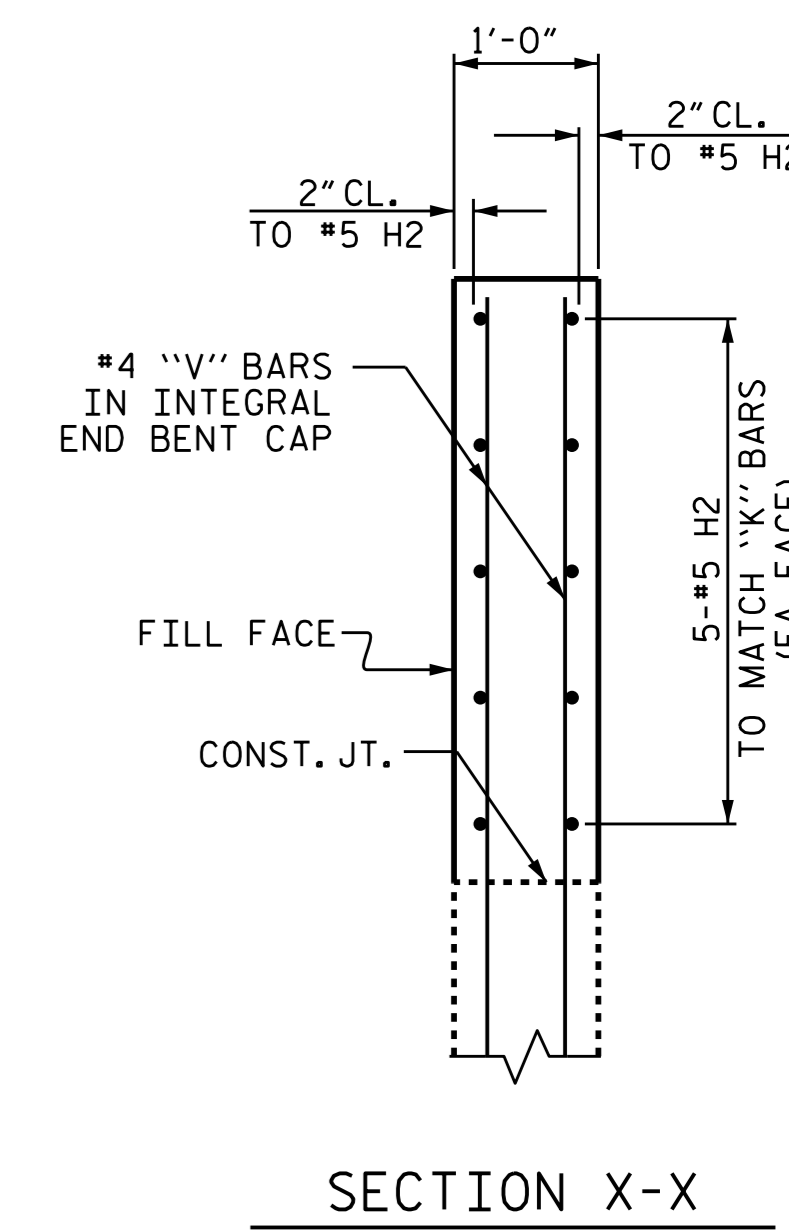
SECTION Y-Y



ELEVATION W3



ELEVATION W4



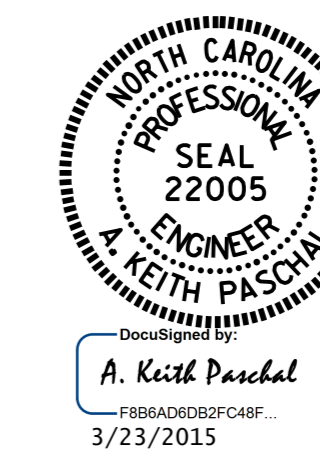
SECTION X-X

UPPER WINGS @ INTEGRAL END BENT 2

(FOR LOWER WING REINFORCING STEEL AND DETAILS, SEE INTEGRAL END BENT SHEETS)

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 4 OF 4

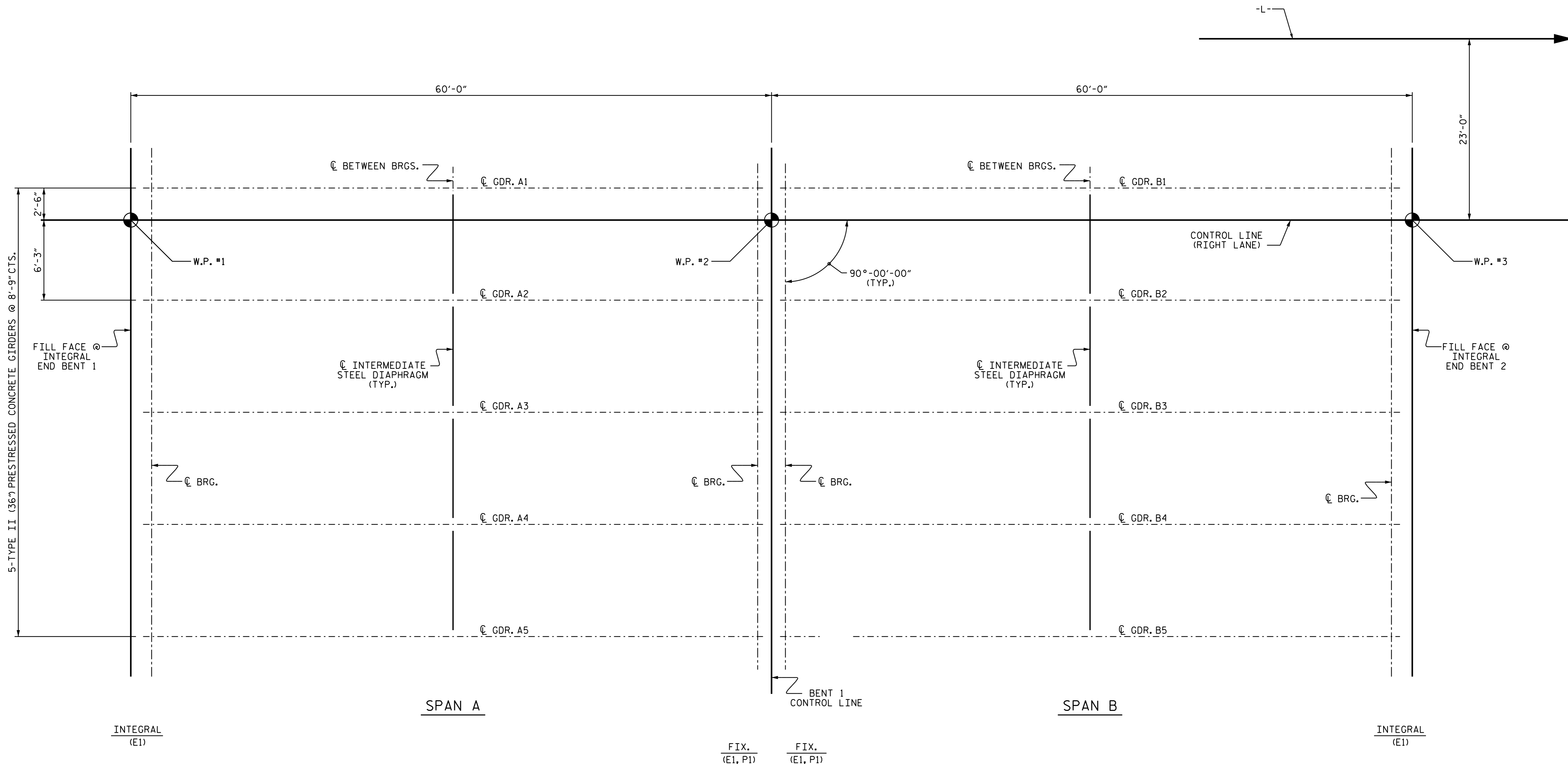


REVISIONS						SHEET NO. S-38
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

DRAWN BY: D. G. ELY DATE: 05-28-14  
 CHECKED BY: B. N. BARODAWALA DATE: 06-13-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 02-09-15

23-MAR-2015 12:05  
 R:\Structures\Plans\Final Plans\DocuSign\_Setup\402.000.R-2514C.SMU.S.0.dgn  
 kpaschal





**GIRDER LAYOUT**

FOR INTERMEDIATE STEEL DIAPHRAGMS,  
SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR  
TYPE II PRESTRESSED CONCRETE GIRDERS" SHEET.

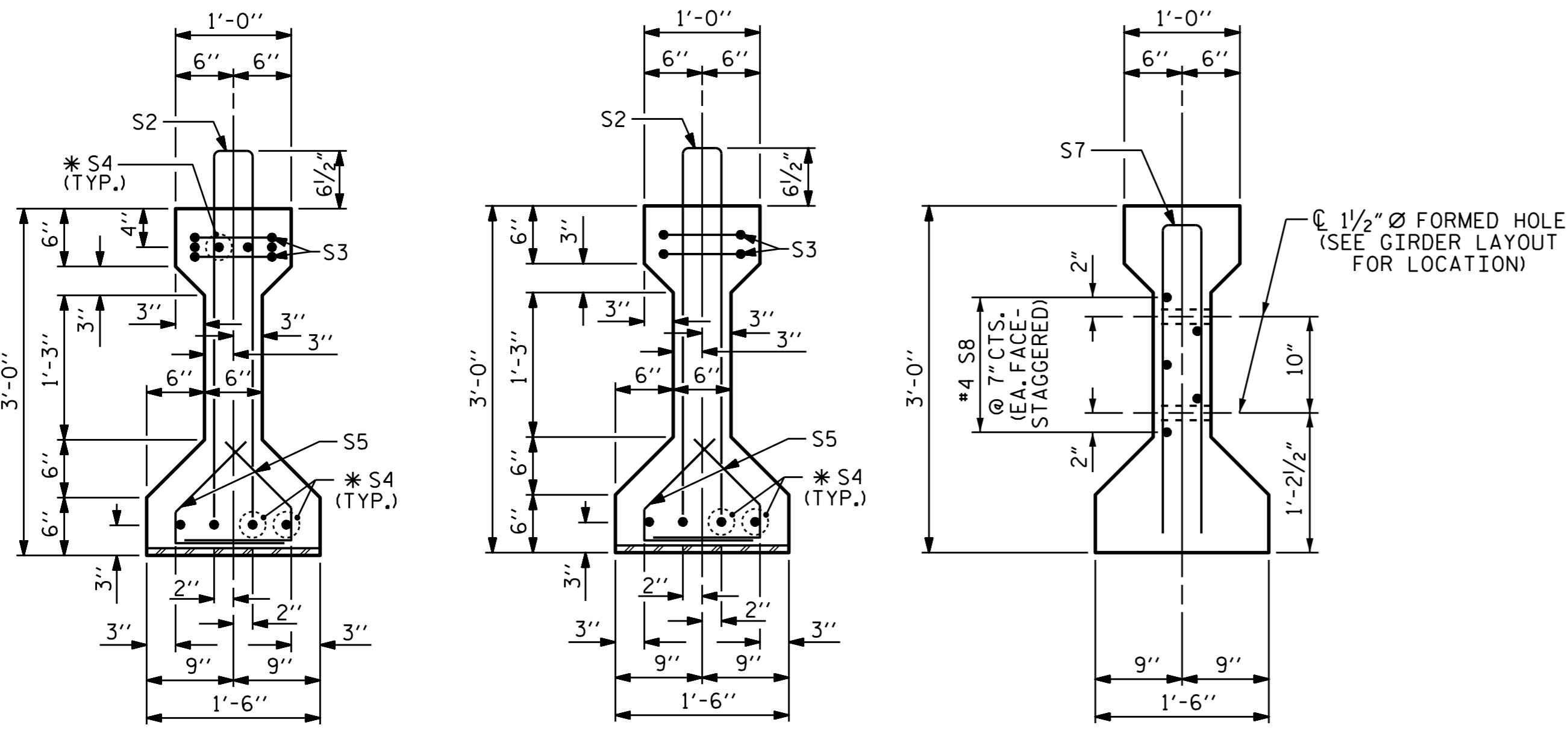
PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 GIRDER LAYOUT  
 (RIGHT LANE)

DRAWN BY: D. G. ELY DATE: 05-29-14  
 CHECKED BY: B. N. BARODAWALA DATE: 06-13-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 02-09-15

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1			3			5	39
2			4			56	

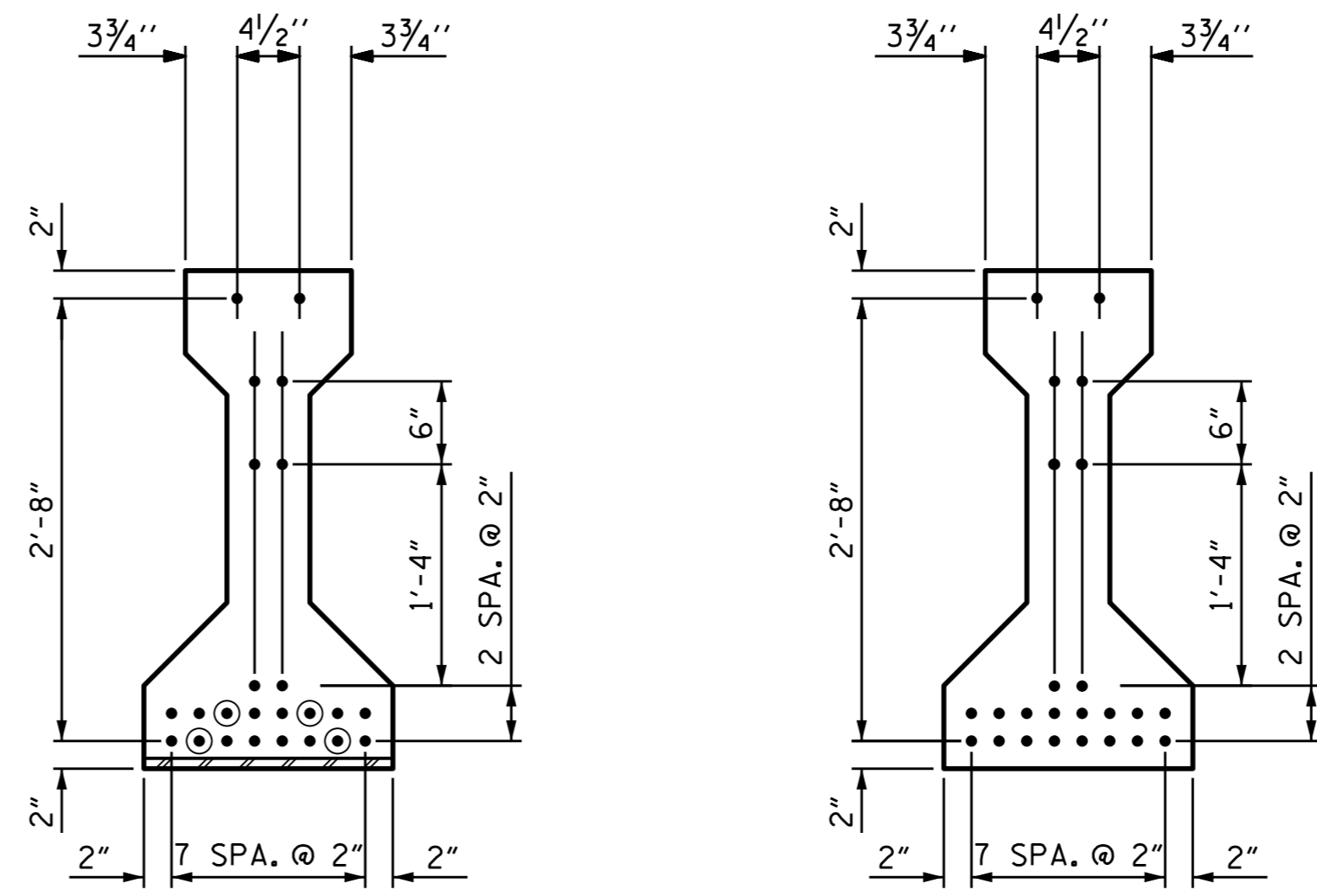


SECTION A-A

SECTION B-B

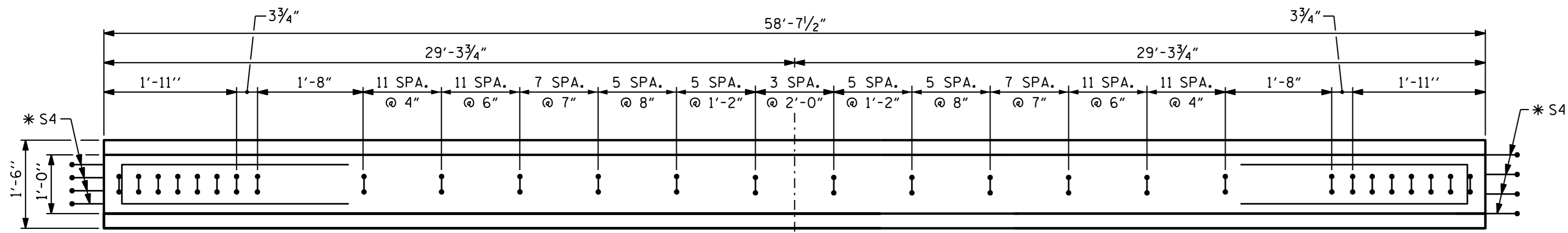
SECTION C-C

(S1 BARS NOT SHOWN)

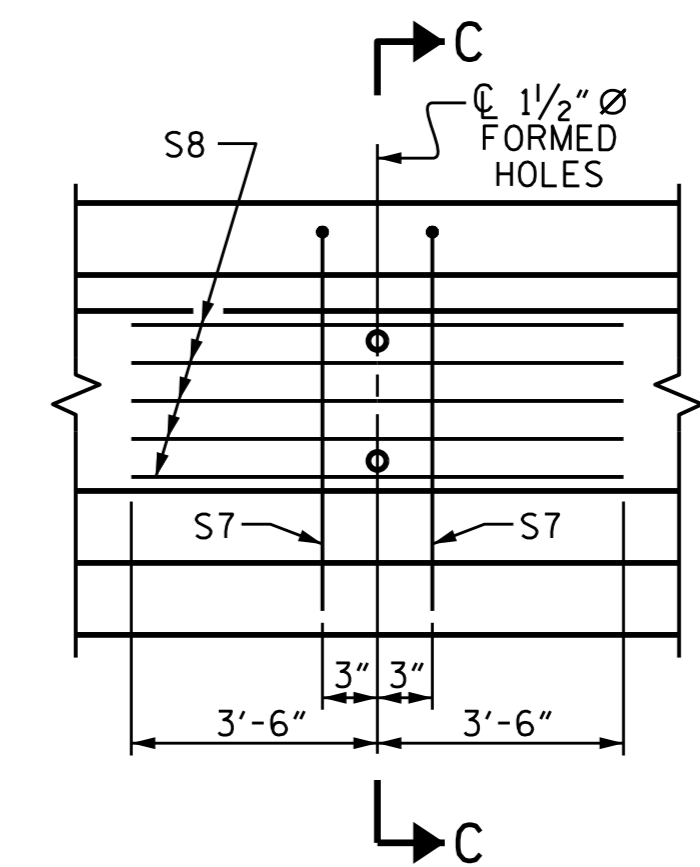


AT END OF GIRDER  
AT C OF GIRDER  
0.6" Ø LOW RELAXATION STRAND LAYOUT

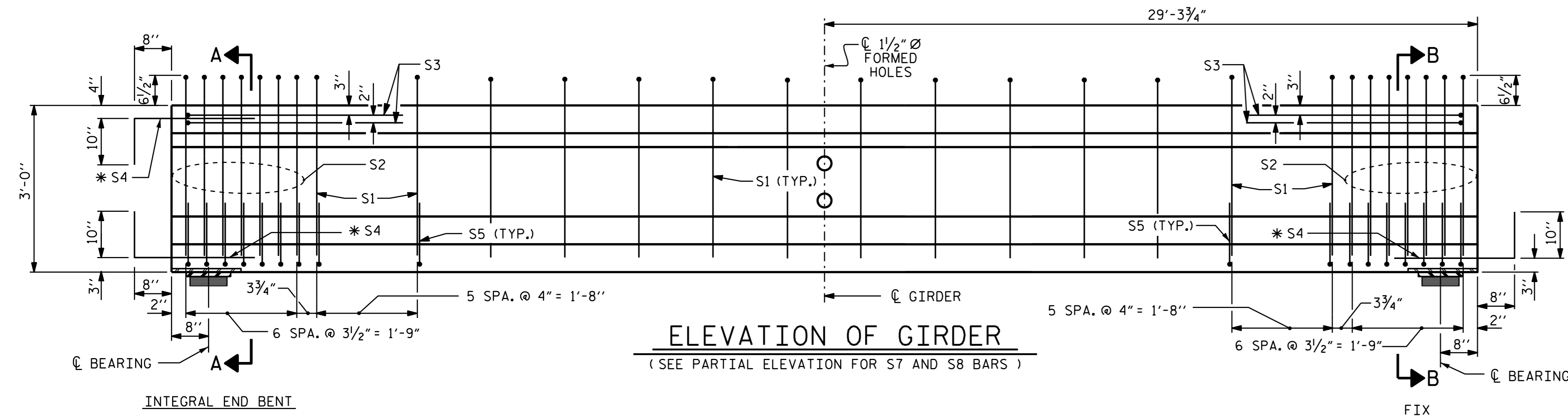
- DEBONDING LEGEND
- FULLY BONDED STRANDS
  - STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER



PLAN OF GIRDER



PARTIAL ELEVATION  
SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR ALL GIRDERS.



ELEVATION OF GIRDER  
(SEE PARTIAL ELEVATION FOR S7 AND S8 BARS)

0.6" Ø L. R. GRADE 270 STRANDS

AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

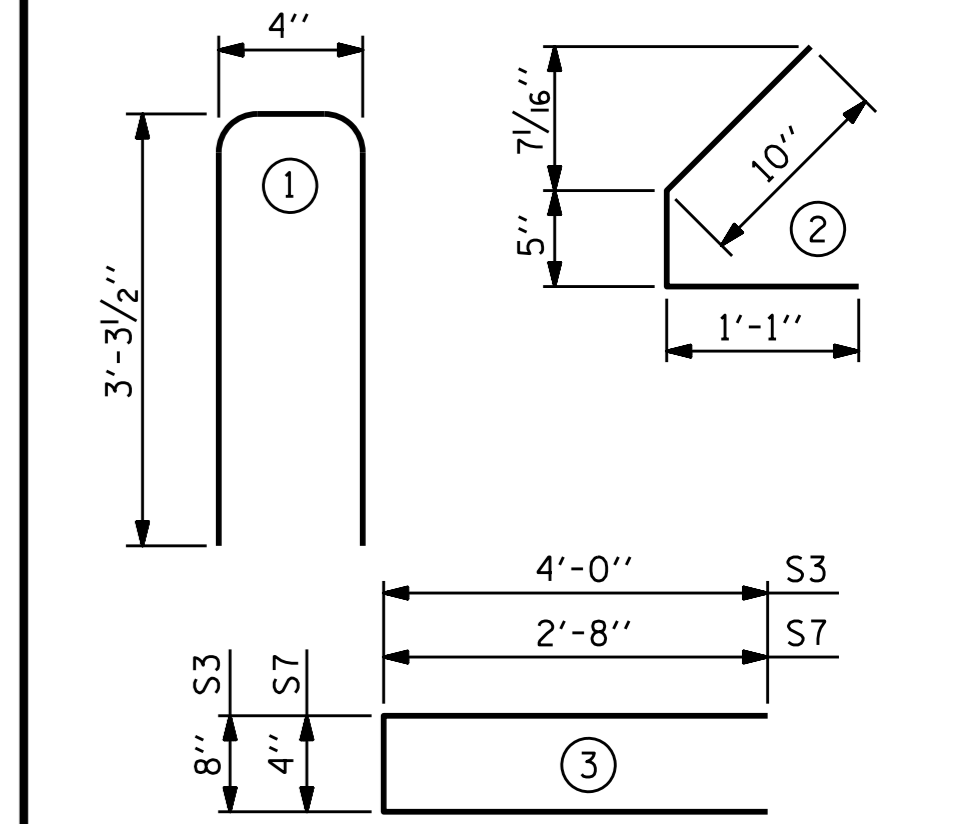
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	92	#4	1	6'-11"	425
S2	14	#5	1	6'-11"	101
S3	4	#4	3	8'-8"	23
*S4	12	#5	STR	3'-8"	46
S5	52	#4	2	2'-4"	81
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

TOTAL REINFORCING STEEL 711 LBS.  
\* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	8500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN A	711	5.6	24
SPAN B	711	5.6	24

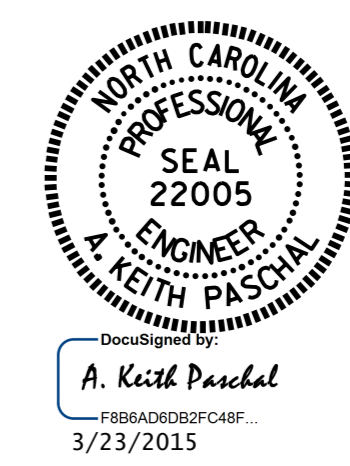
GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
(SPAN A) 5	58'-7 1/2"	293'-1 1/2"
(SPAN B) 5	58'-7 1/2"	293'-1 1/2"

PROJECT NO. R-2514C  
JONES COUNTY  
STATION: 102+05.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
AASHTO TYPE II  
PRESTRESSED CONCRETE  
GIRDER CONTINUOUS  
FOR LIVE LOAD  
(SPAN A & SPAN B)  
(RIGHT LANE)



REVISIONS						SHEET NO. S-40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

ASSEMBLED BY : D. G. ELY DATE : 06-02-14  
CHECKED BY : B. N. BARODAWALA DATE : 06-13-14  
DESIGN ENGINEER OF RECORD : A. K. PASCHAL DATE : 02-09-15  
DRAWN BY : ELR 8/91  
CHECKED BY : GRP 8/91  
REV. 10/17/00R RWW/LES  
REV. 5/1/06R TLA/GM  
REV. 10/1/11 MAA/GM

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

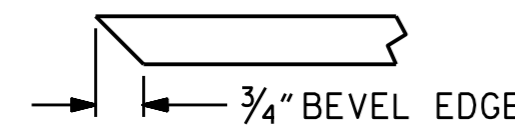
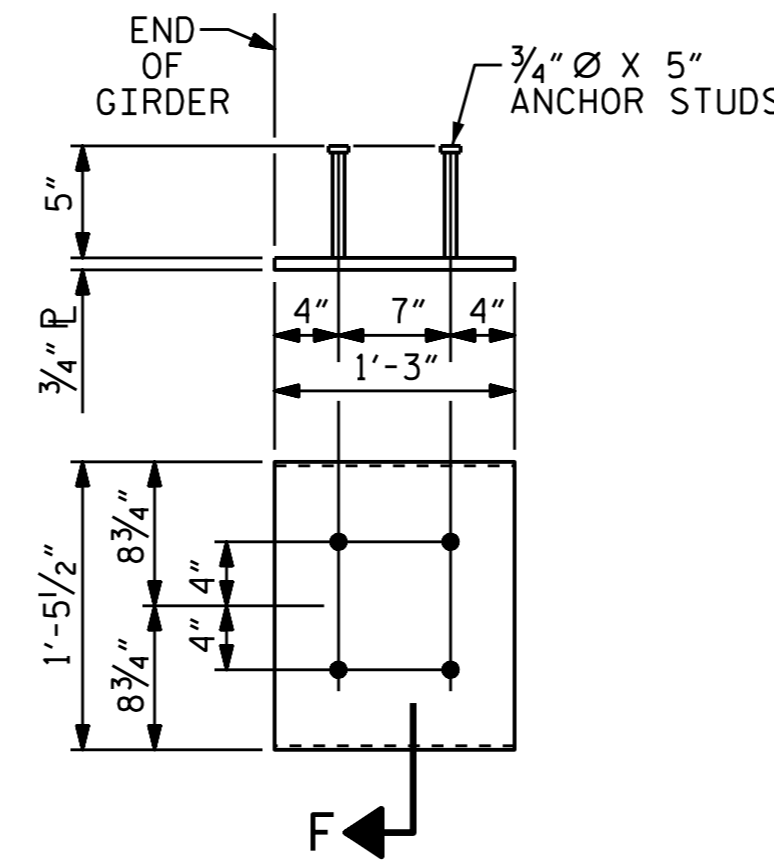
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6800 PSI.

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".

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.

THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.



SECTION "F"

(SEE NOTES)

EMBEDDED PLATE "B-1" DETAILS  
FOR AASHTO TYPE II GIRDER

(2 REQ'D PER GIRDER)

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
0.6" Ø LOW RELAXATION	SPAN A & B										
	GIRDERS 1 THRU 5										
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER ( GIRDER ALONE IN PLACE )	↑ 0.0	0.035	0.065	0.090	0.105	0.110	0.105	0.090	0.065	0.035	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓ 0.0	-0.026	-0.049	-0.067	-0.078	-0.082	-0.078	-0.067	-0.049	-0.026	0.0
FINAL CAMBER	↑ 0	1/8"	3/16"	1/4"	5/16"	5/16"	5/16"	1/4"	3/16"	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. R-2514C  
JONES COUNTY  
STATION: 102+05.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
PRESTRESSED CONCRETE GIRDER  
CONTINUOUS FOR LIVE LOAD  
DETAILS  
(RIGHT LANE)



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			56

DRAWN BY : <u>D. G. ELY</u>	DATE : <u>02-19-15</u>
CHECKED BY : <u>B. N. BARODAWALA</u>	DATE : <u>02-20-15</u>
DESIGN ENGINEER OF RECORD : <u>A. K. PASCHAL</u>	DATE : <u>02-23-15</u>
DRAWN BY : <u>ELR 11/91</u>	REV. 10/1/11 MAA/GM
CHECKED BY : <u>GRP 11/91</u>	REV. 1/15 MAA/TMG
	REV. 2/15 MAA/TMG



# STRUCTURAL STEEL NOTES

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

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

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

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

FOR METALLIZATION, APPLY AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE 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.

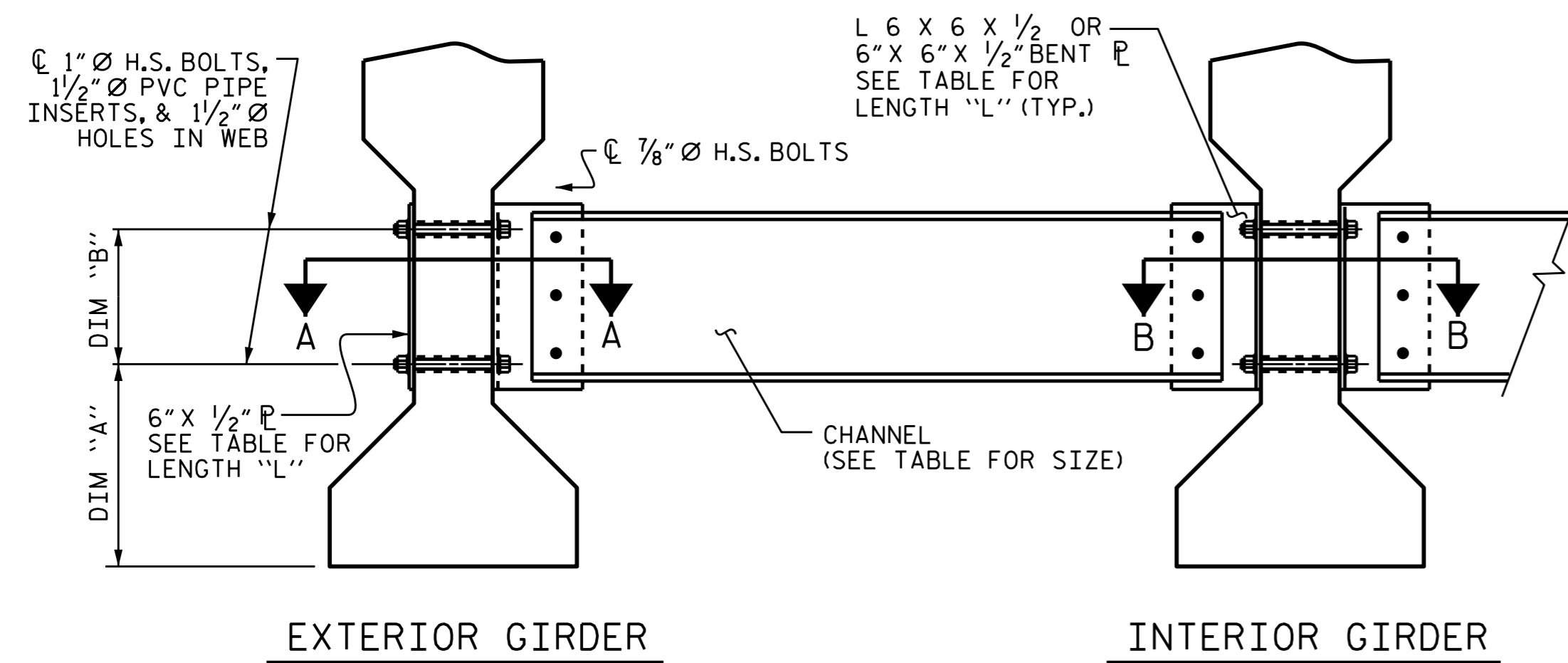
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

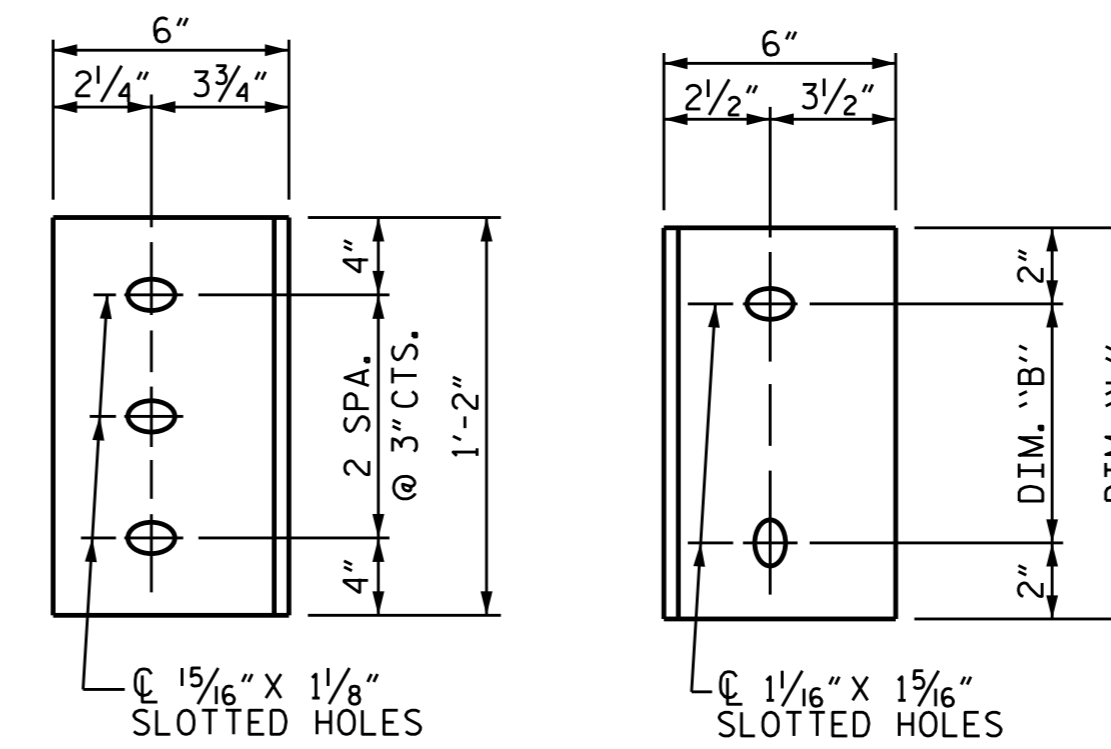
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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



CONNECTOR PLATE DETAILS

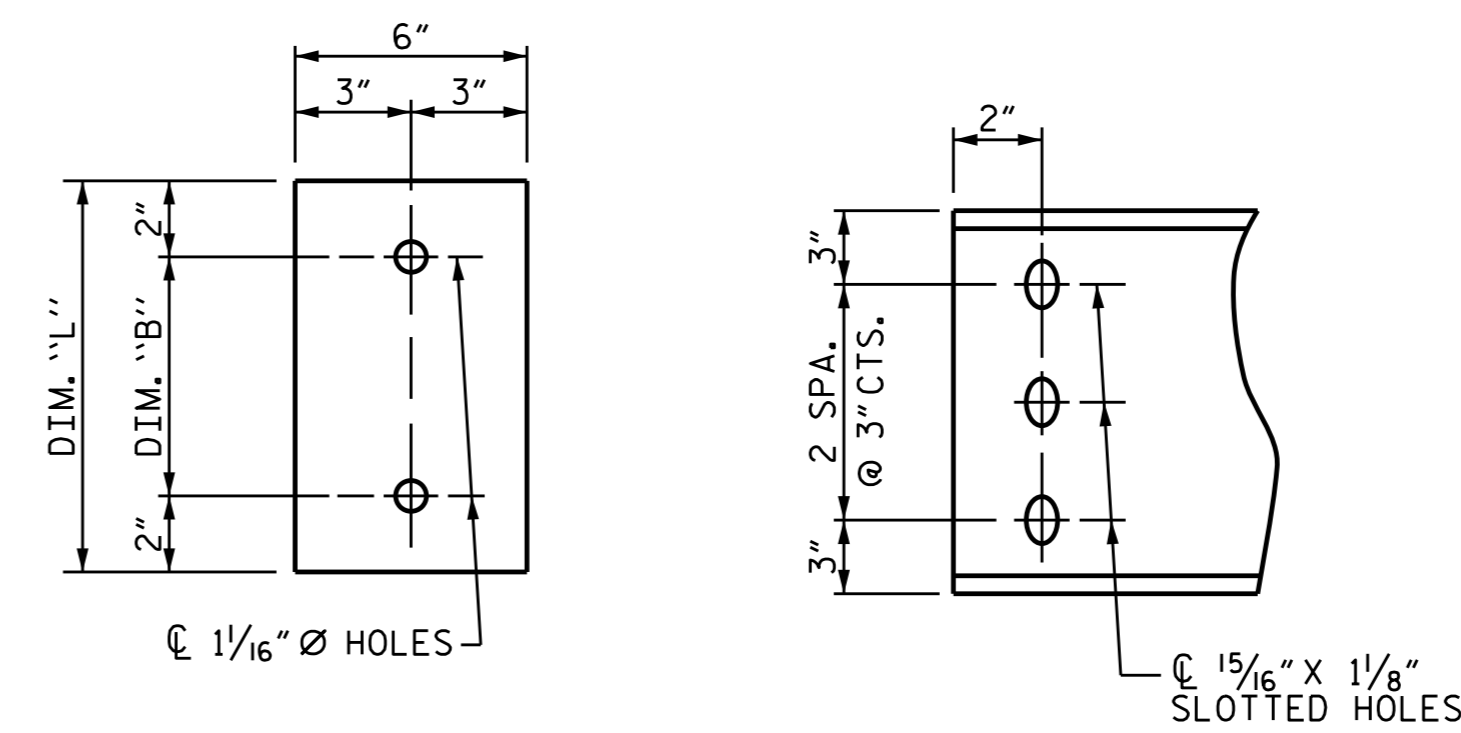
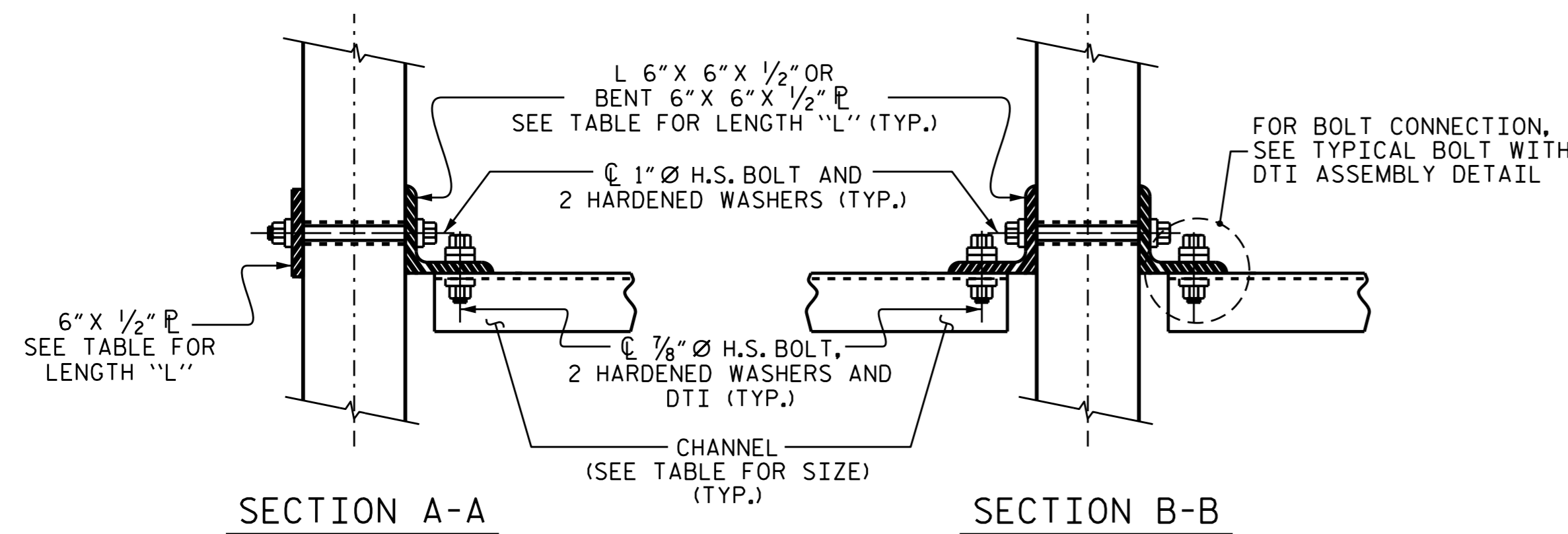


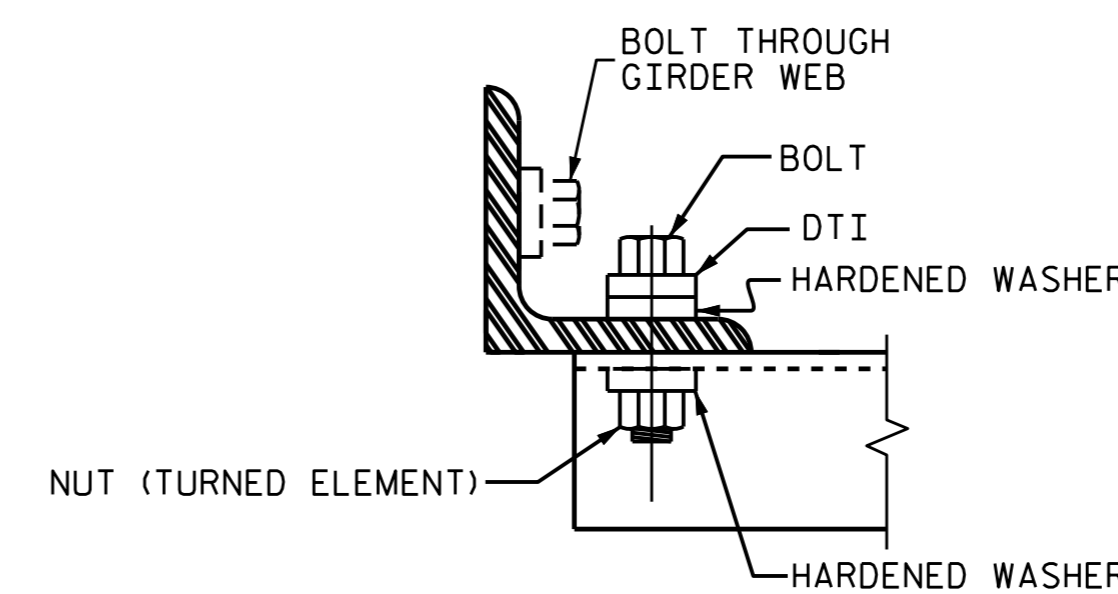
PLATE DETAILS CHANNEL END



CONNECTION DETAILS

TABLE

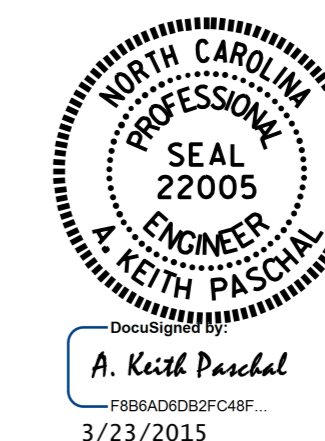
GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
II	MC 12 x 31	1'-2 1/2"	10"	1'-2"



BOLT WITH DTI ASSEMBLY DETAIL

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**INTERMEDIATE STEEL  
 DIAPHRAGMS FOR  
 TYPE II PRESTRESSED  
 CONCRETE GIRDERS**  
 (RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-42
1			3			TOTAL SHEETS
2			4			56

ASSEMBLED BY : D. G. ELY DATE : 05-02-14  
 CHECKED BY : B. N. BARODAWALA DATE : 06-13-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 02-09-15  
 DRAWN BY : TLA 6/05  
 CHECKED BY : VC 6/05  
 REV. 10/21/05 KMM/GM  
 REV. 5/1/06RRR MAA/GM  
 REV. 10/1/11

**NOTES**

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

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

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

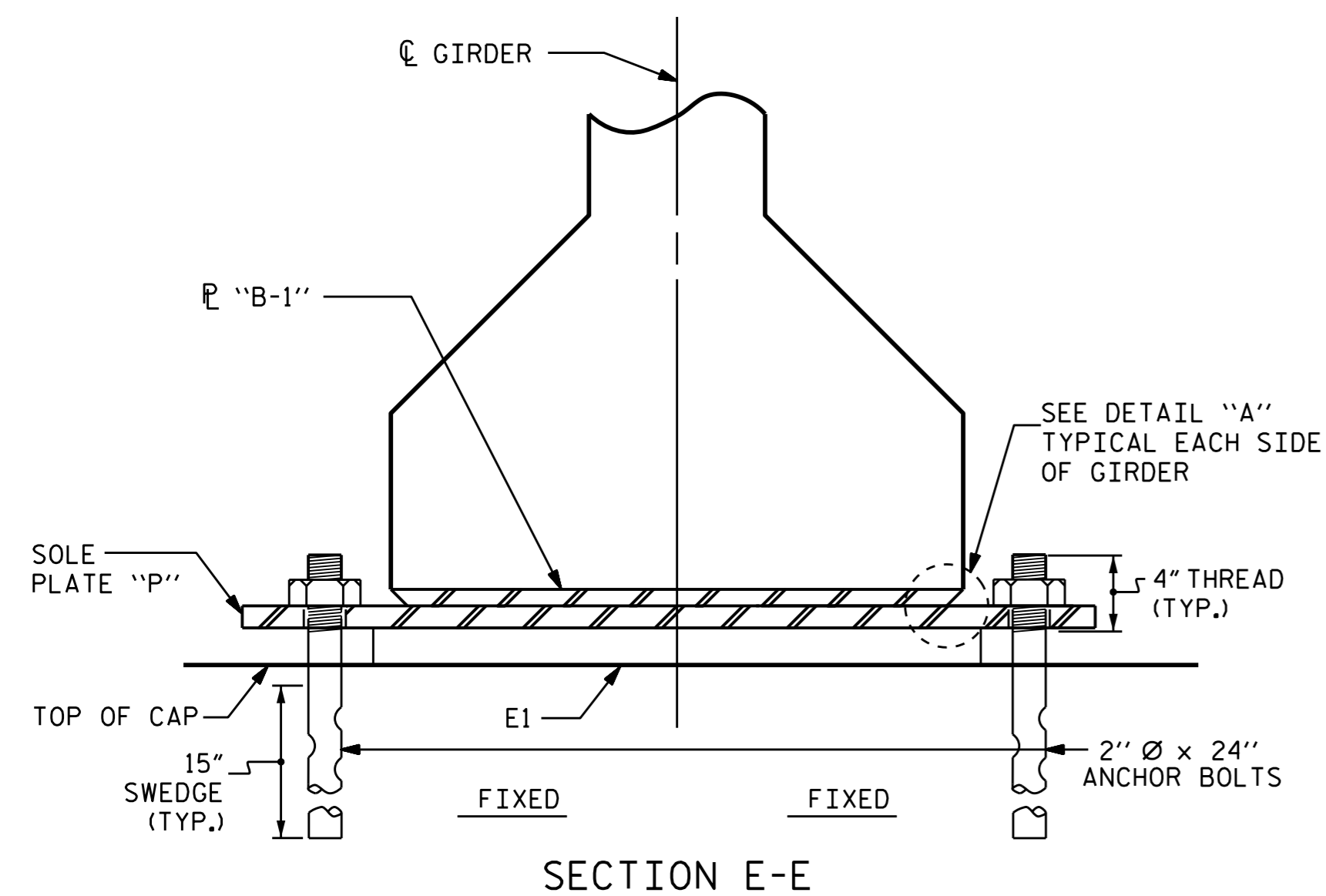
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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

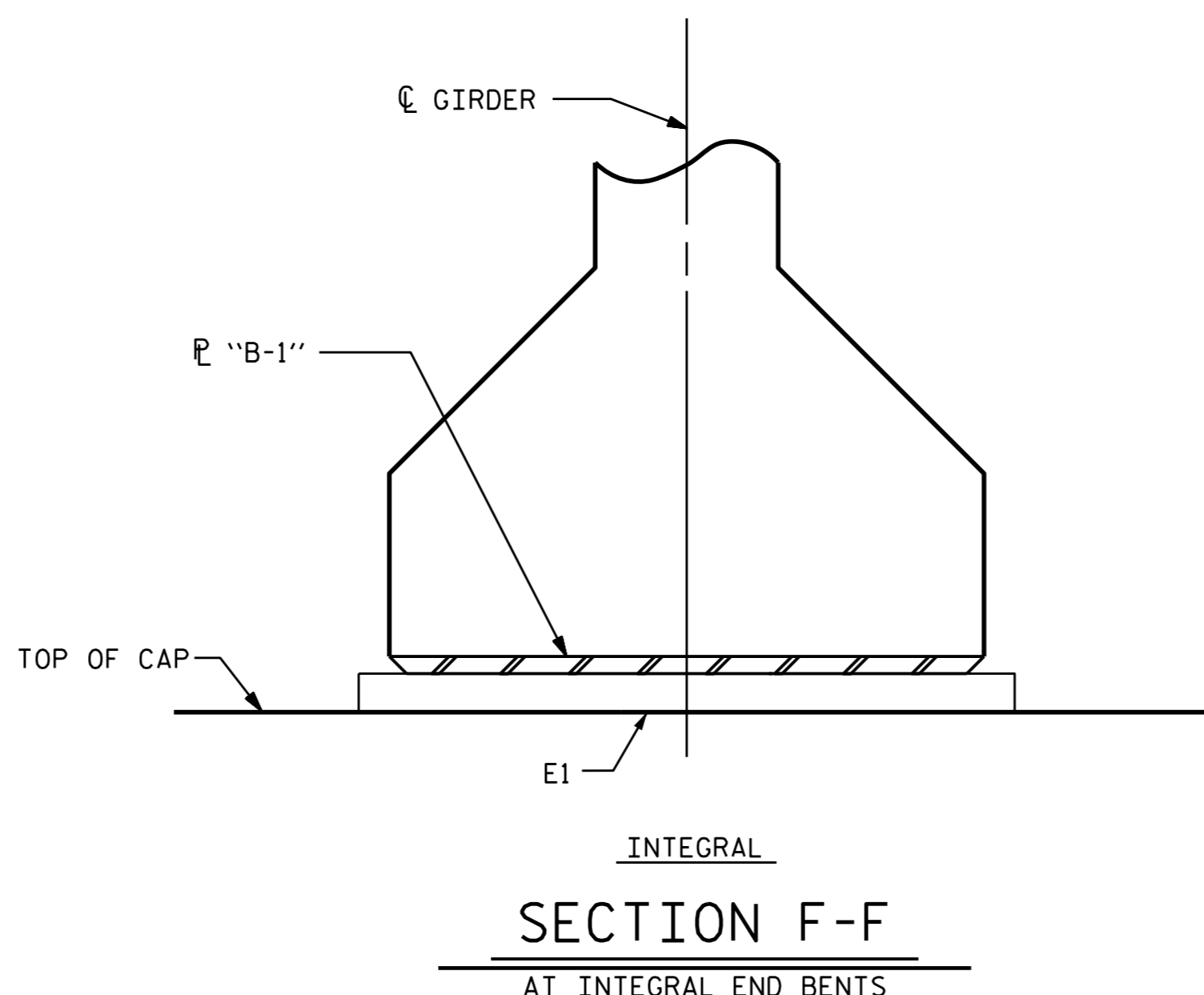
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

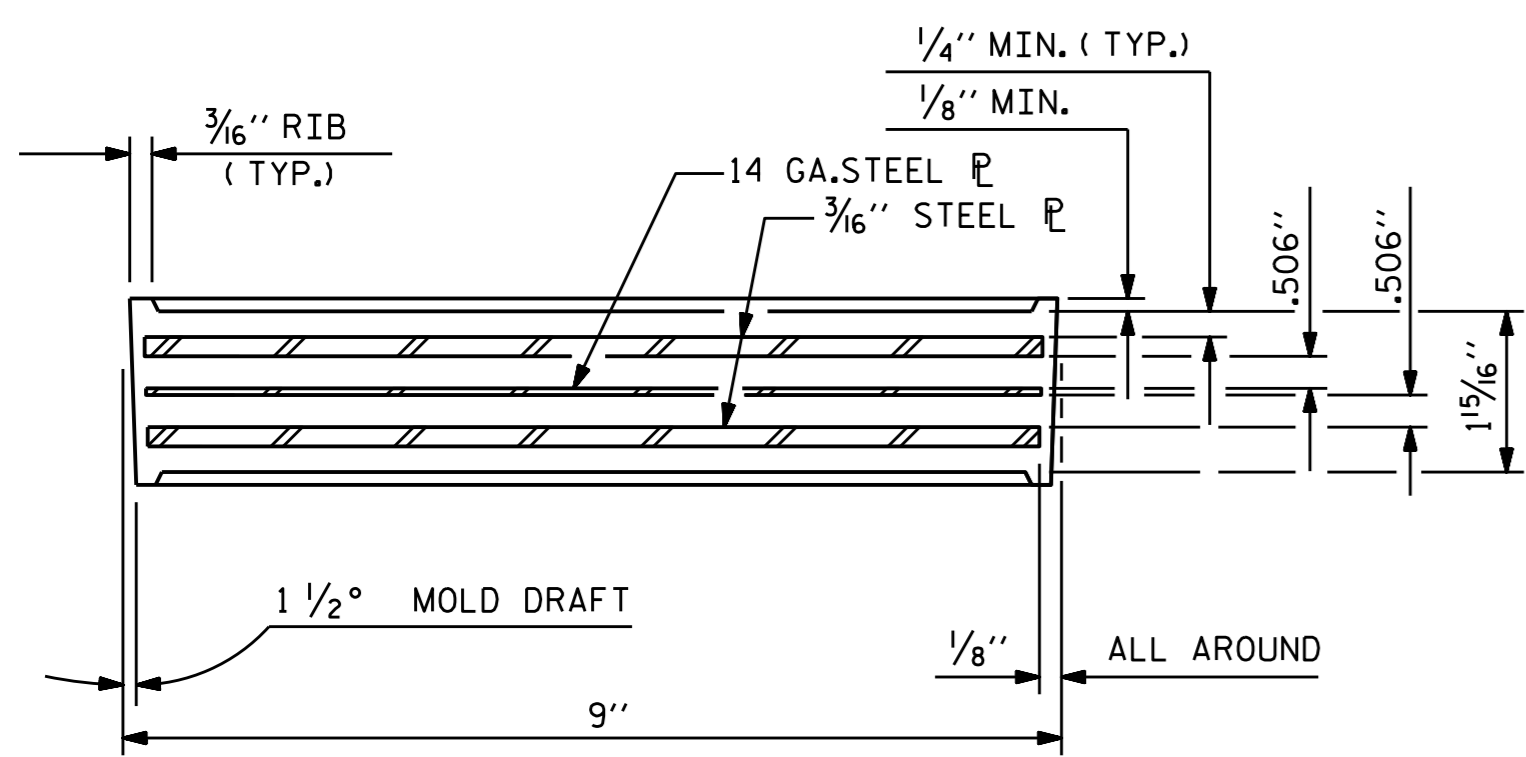


**SECTION E-E**

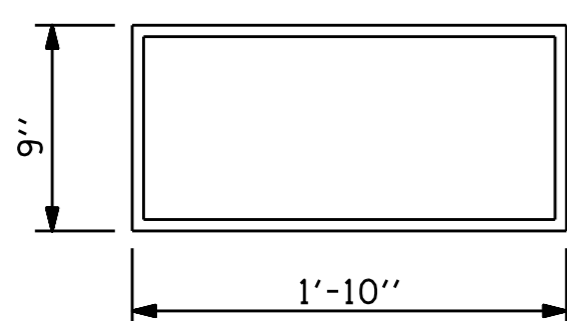


**SECTION F-F**

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE IV	225 k

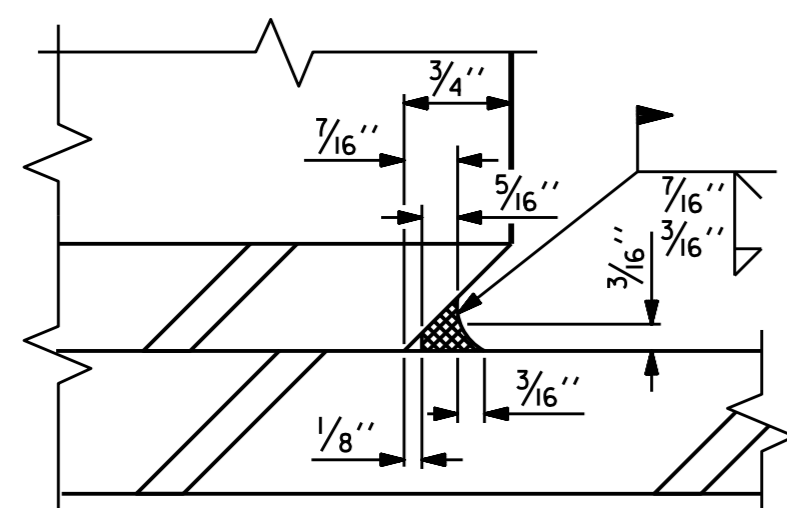


**TYPICAL SECTION OF ELASTOMERIC BEARINGS**



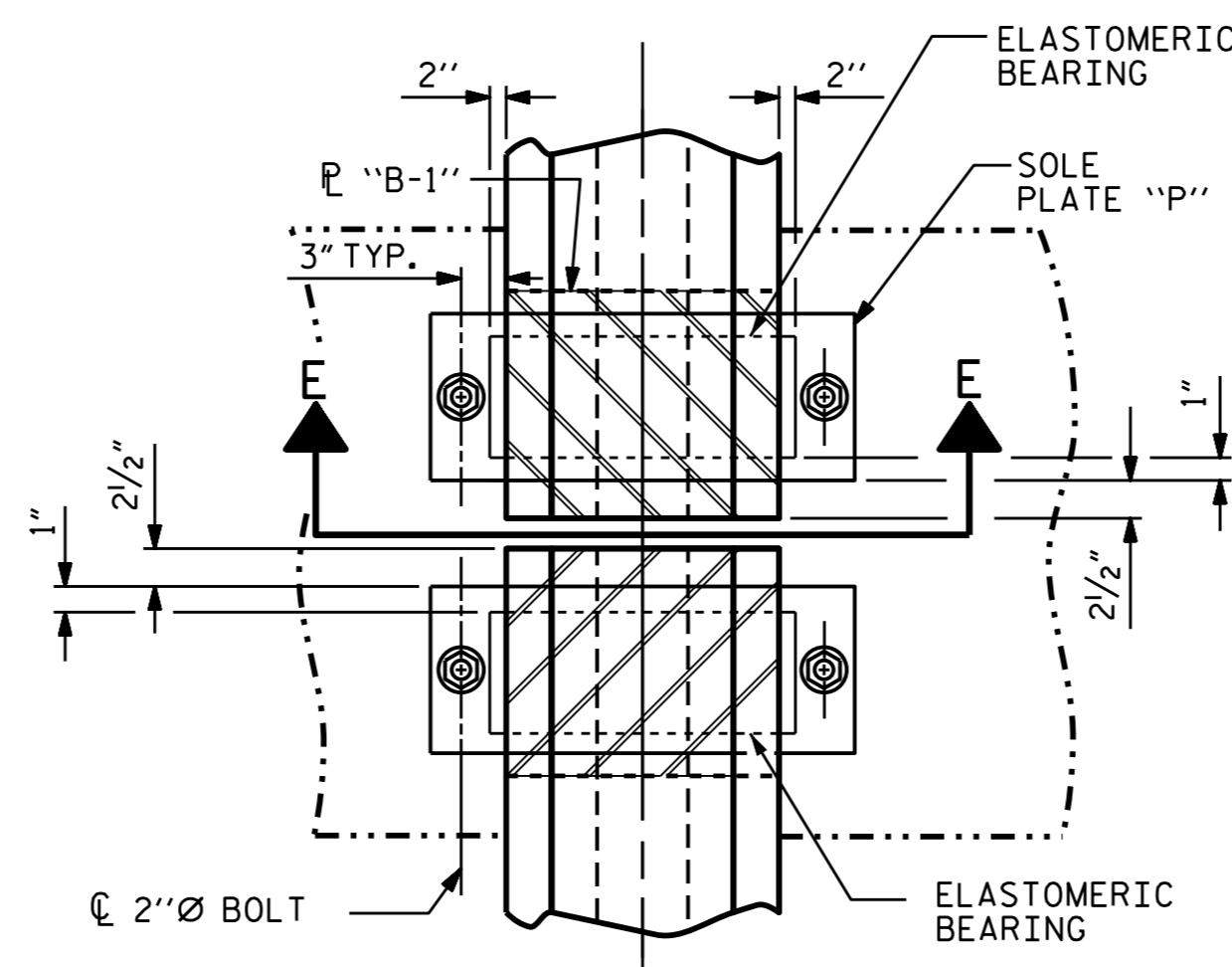
**E1 (20 REQ'D)**

**PLAN VIEW OF ELASTOMERIC BEARING**



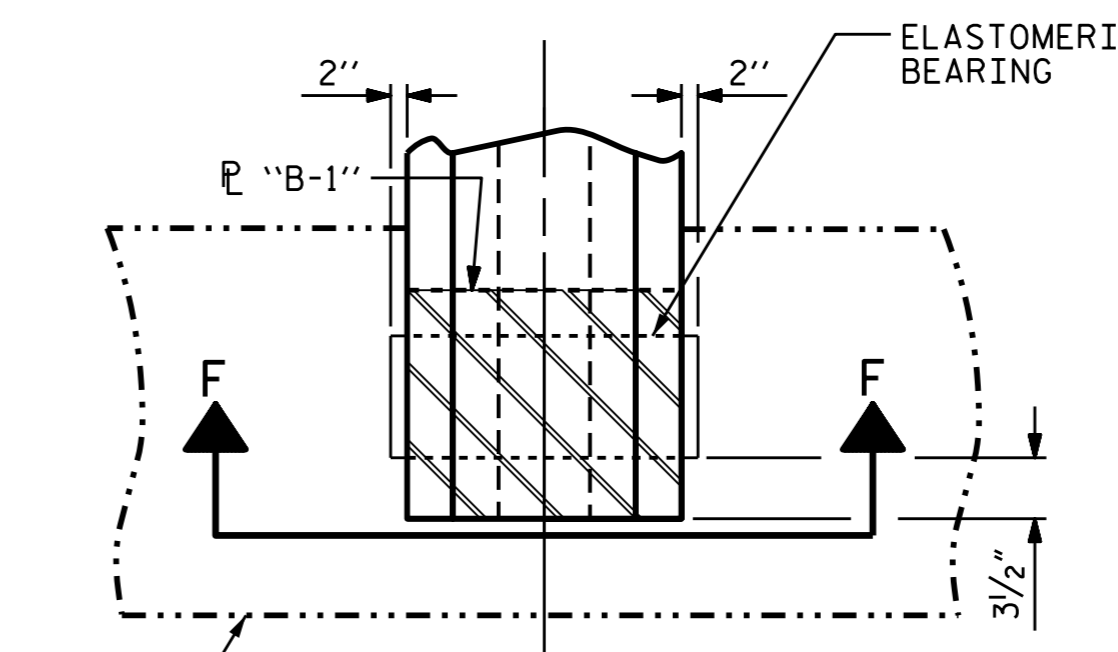
**DETAIL "A"**

**TYPE IV**



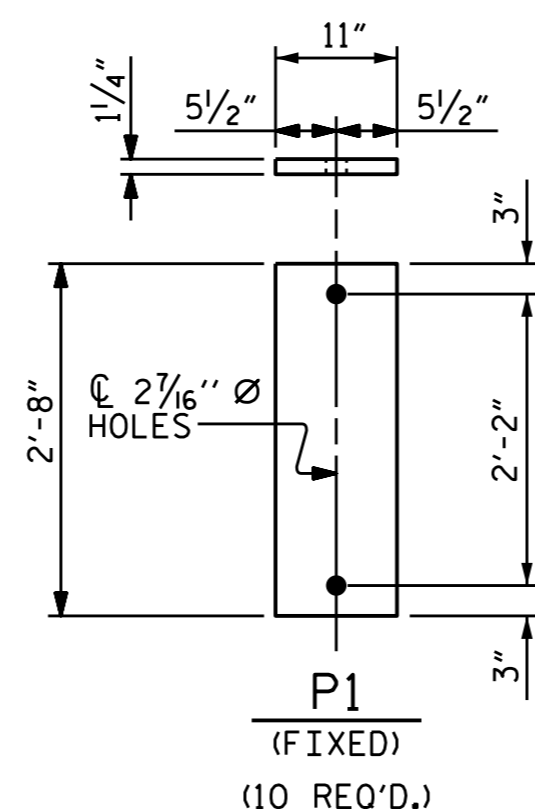
**TYPICAL PLAN**

(SHOWING CONTINUOUS BENT)



**TYPICAL PLAN**

(SHOWING INTEGRAL END BENT)



**SOLE PLATE DETAILS ("P")**

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 105+05.00 -L-

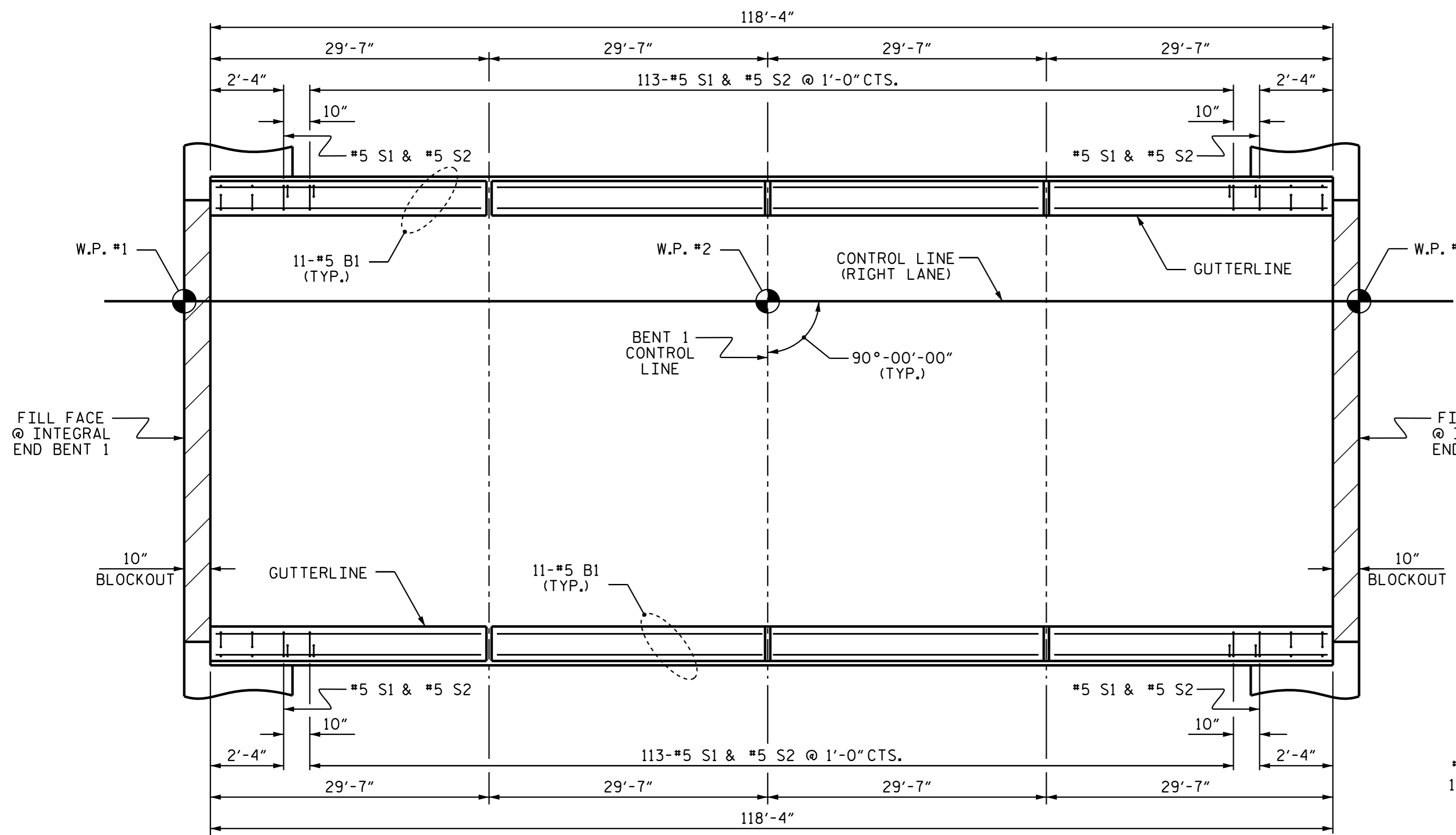
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**STANDARD ELASTOMERIC BEARING DETAILS**  
 PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE (RIGHT LANE)



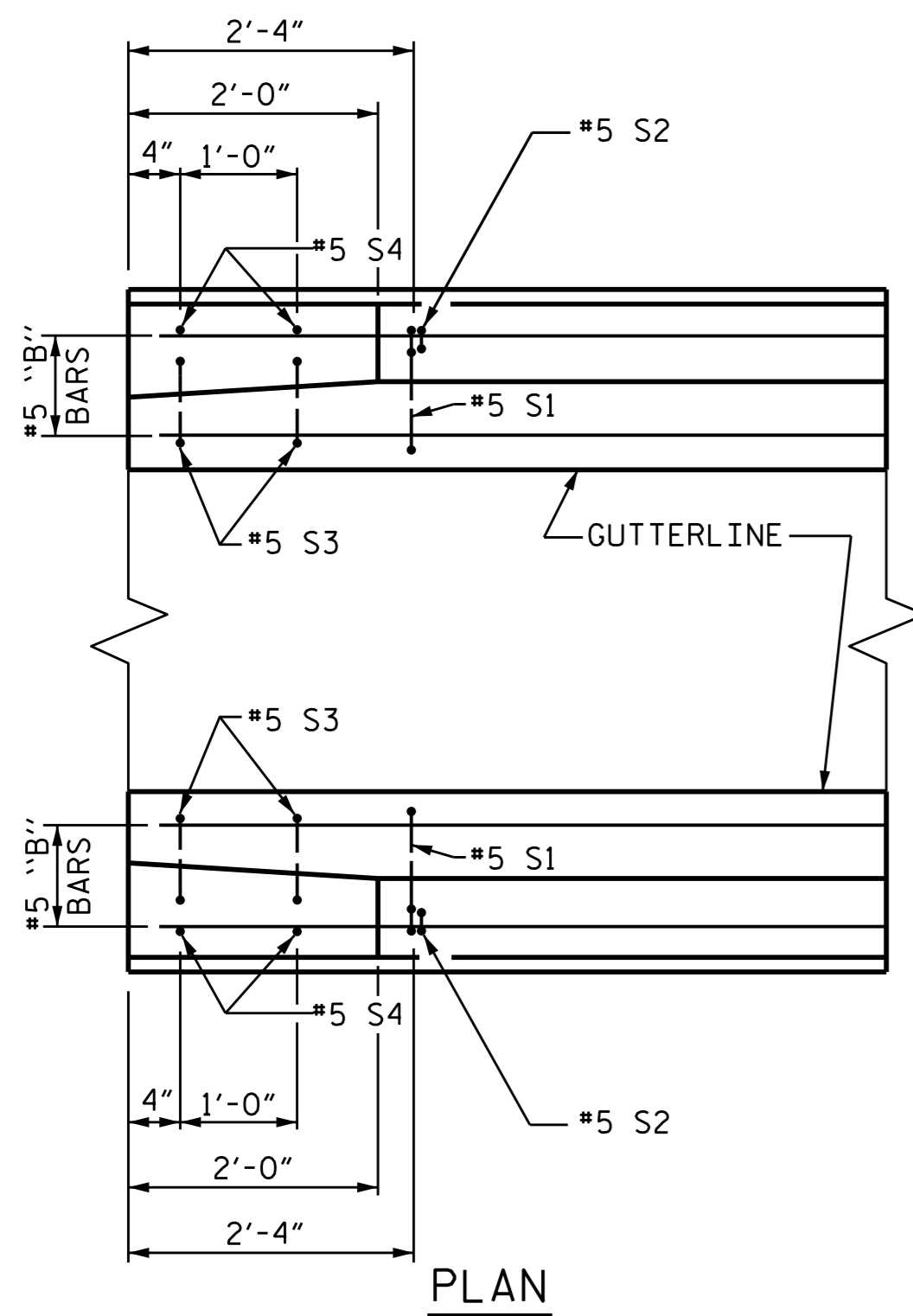
REVISIONS						SHEET NO. S-43
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

ASSEMBLED BY : D. G. ELY	DATE : 02-19-15
CHECKED BY : B. N. BARODAWALA	DATE : 02-20-15
DESIGN ENGINEER OF RECORD : A. K. PASCHAL	DATE : 02-23-15
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

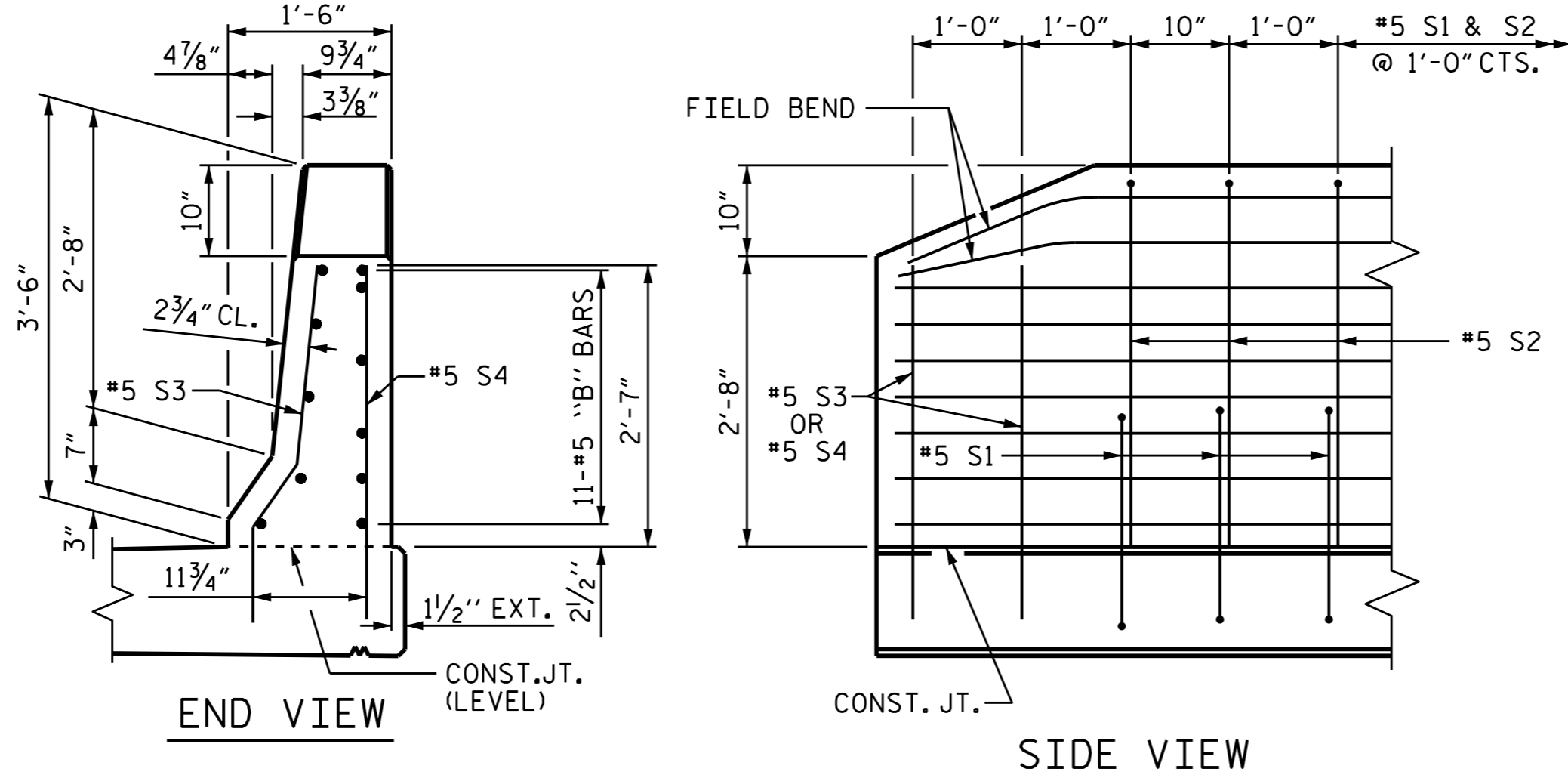




PLAN

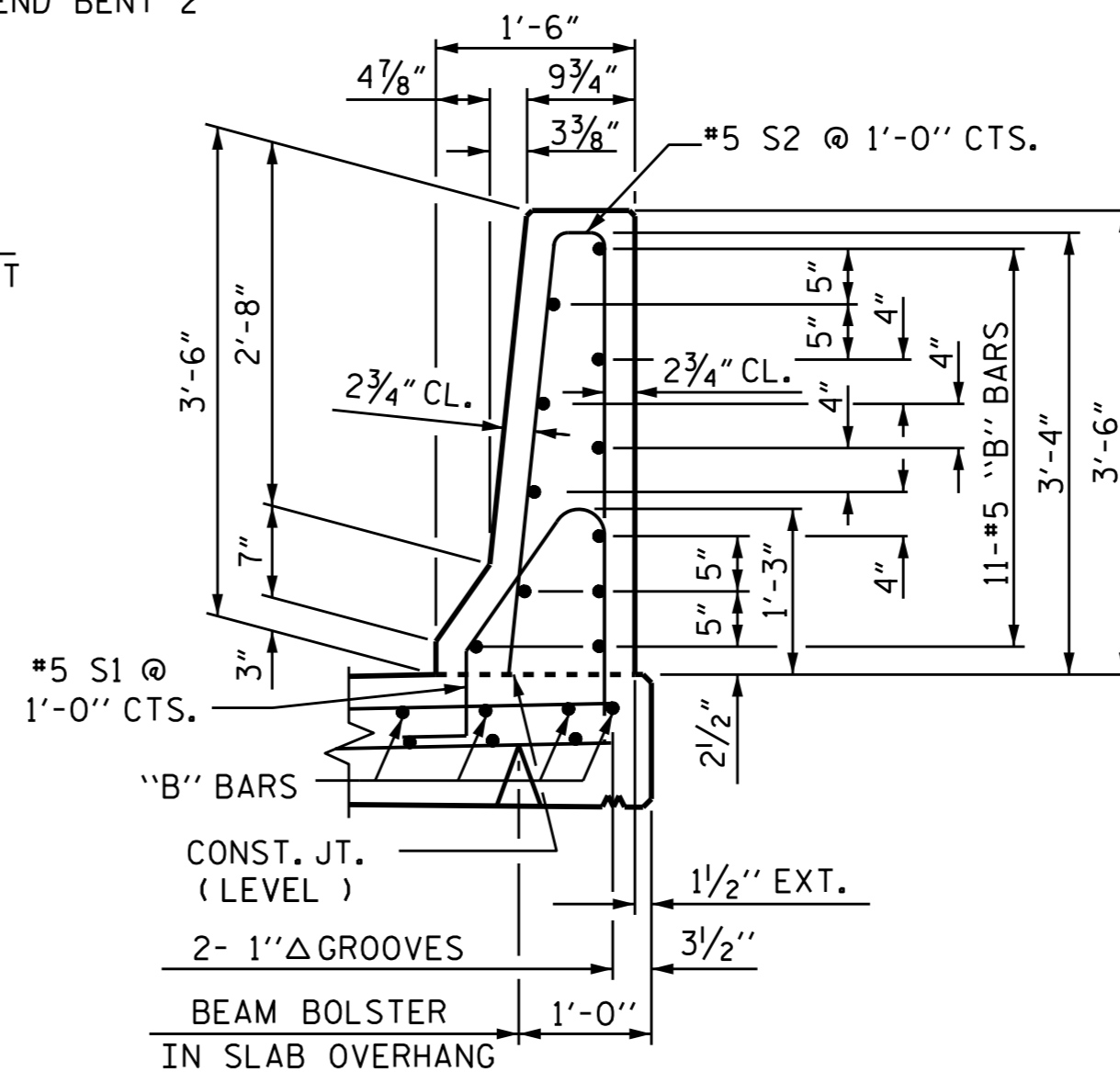


PLAN

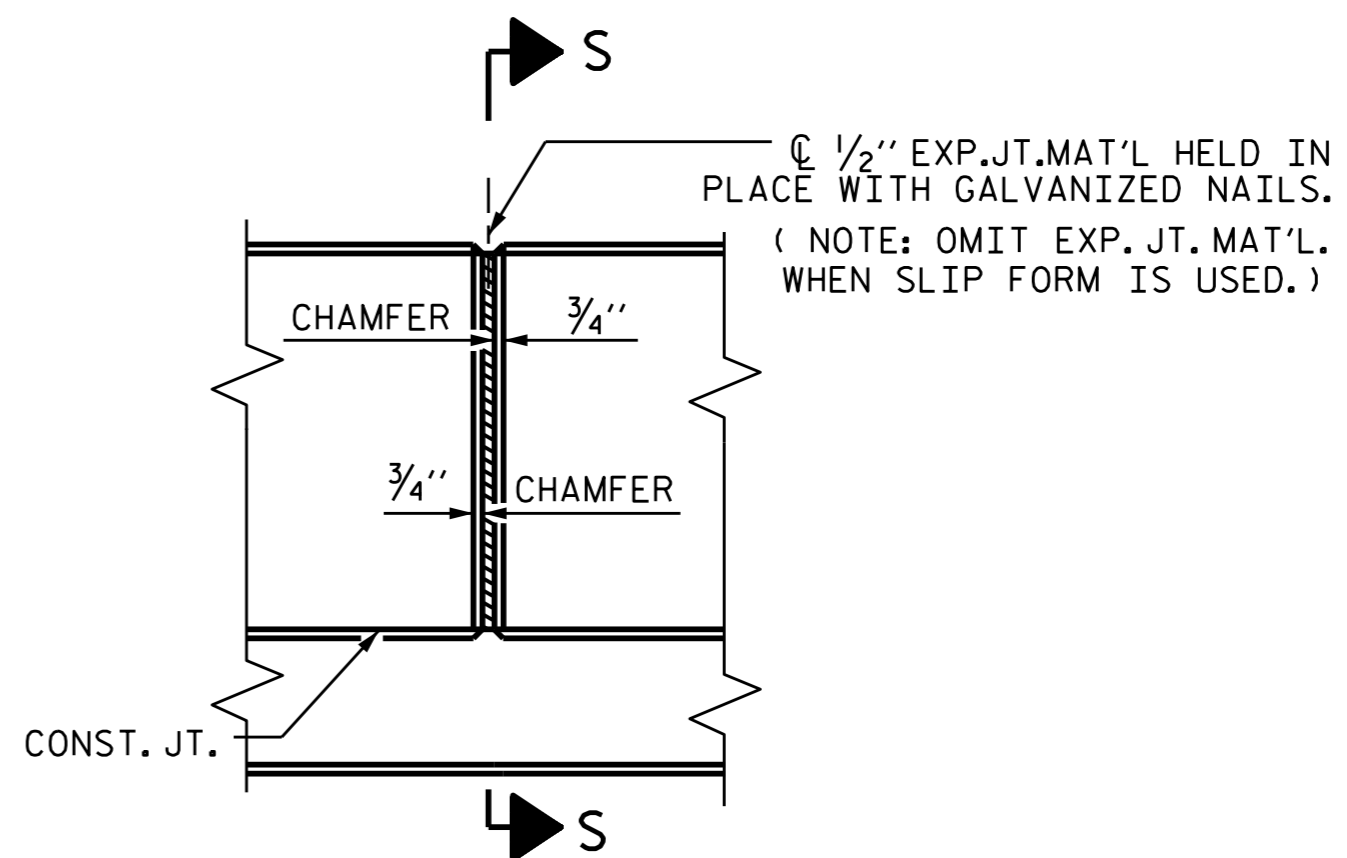


END OF RAIL DETAILS

FOR ADHESIVE ANCHORING AT SAWED JOINTS



SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS  
BARRIER RAIL DETAILS

NOTES

THE BARRIER RAIL IN A CONTINUOUS UNIT 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.

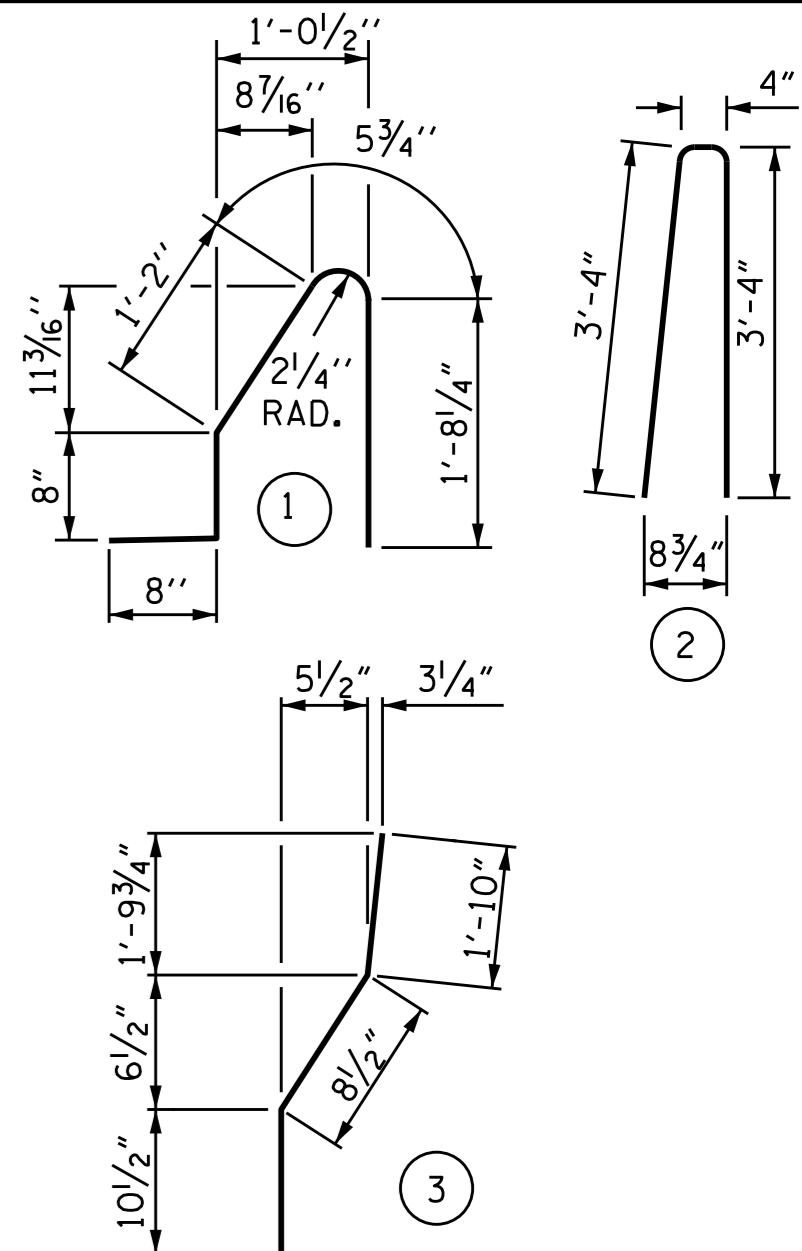
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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.

#5 S1 AND #5 S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN RAIL.

THE #5 S3 AND #5 S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3 AND #5 S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

BAR TYPES

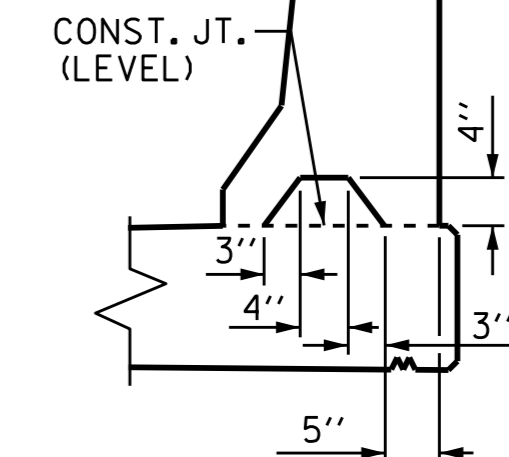


ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
* B1	88	#5	STR	29'-2"	2677
* S1	230	#5	1	4'-8"	1119
* S2	230	#5	2	7'-0"	1679
* S3	8	#5	3	3'-5"	29
* S4	8	#5	STR	3'-3"	27
* EPOXY COATED REINFORCING STEEL				5531 LBS.	
CLASS AA CONCRETE				32.2 CU. YDS.	
CONCRETE BARRIER RAIL				236.67 LIN. FT.	

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



PROJECT NO. R-2514C  
JONES COUNTY  
STATION: 102+05.00 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
CONCRETE  
BARRIER RAIL  
(RIGHT LANE)



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			56

DRAWN BY : D. G. ELY	DATE : 06-03-14
CHECKED BY : B. N. BARODAWALA	DATE : 06-13-14
DESIGN ENGINEER OF RECORD : A. K. PASCHAL	DATE : 02-09-15
DRAWN BY : ARB 5/87	REV. 10/11 MAA/GM
CHECKED BY : SJD 9/87	REV. 7/12 MAA/GM
	REV. 6/13 MAA/GM



NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 - 7/8" 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 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

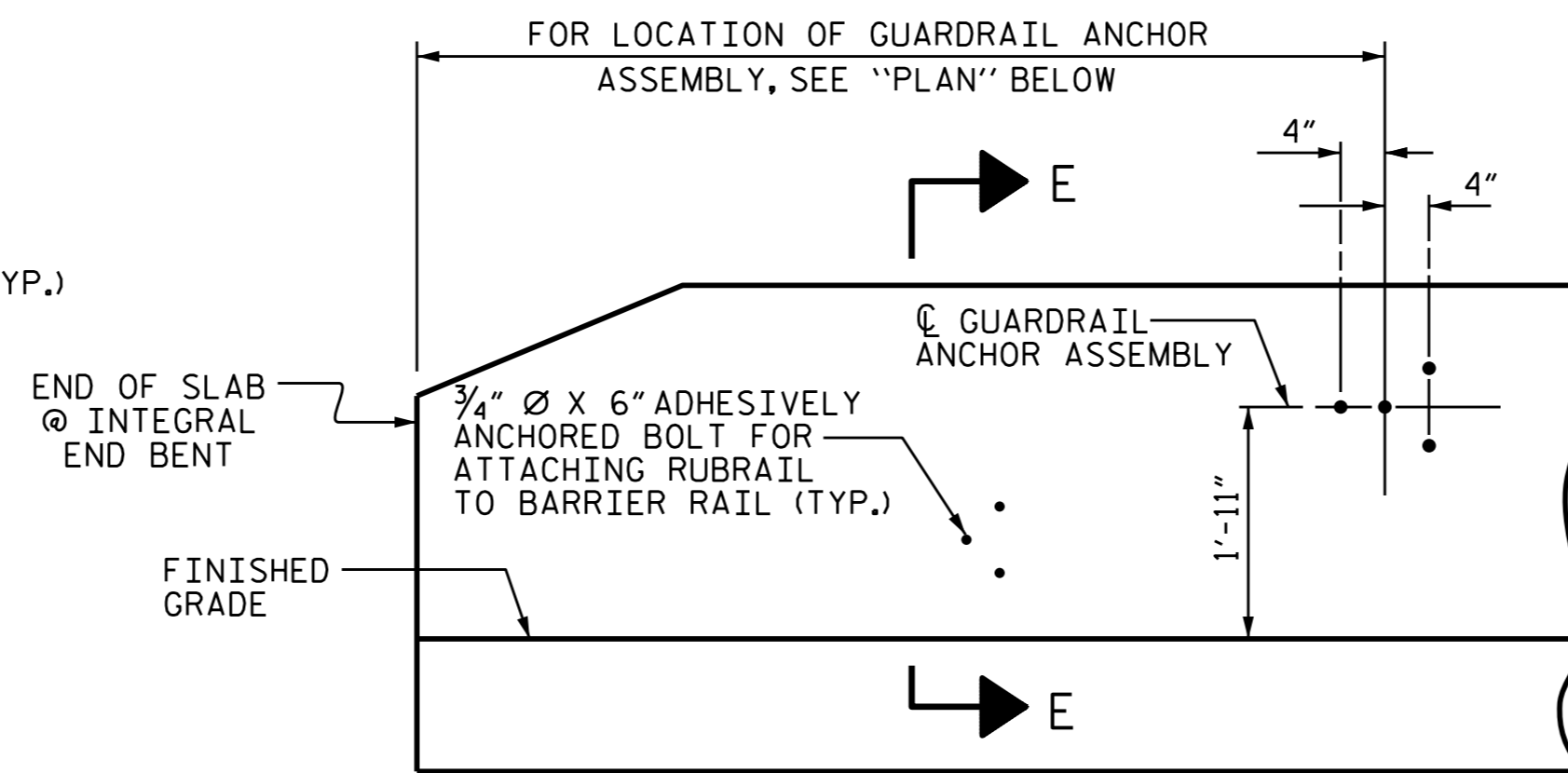
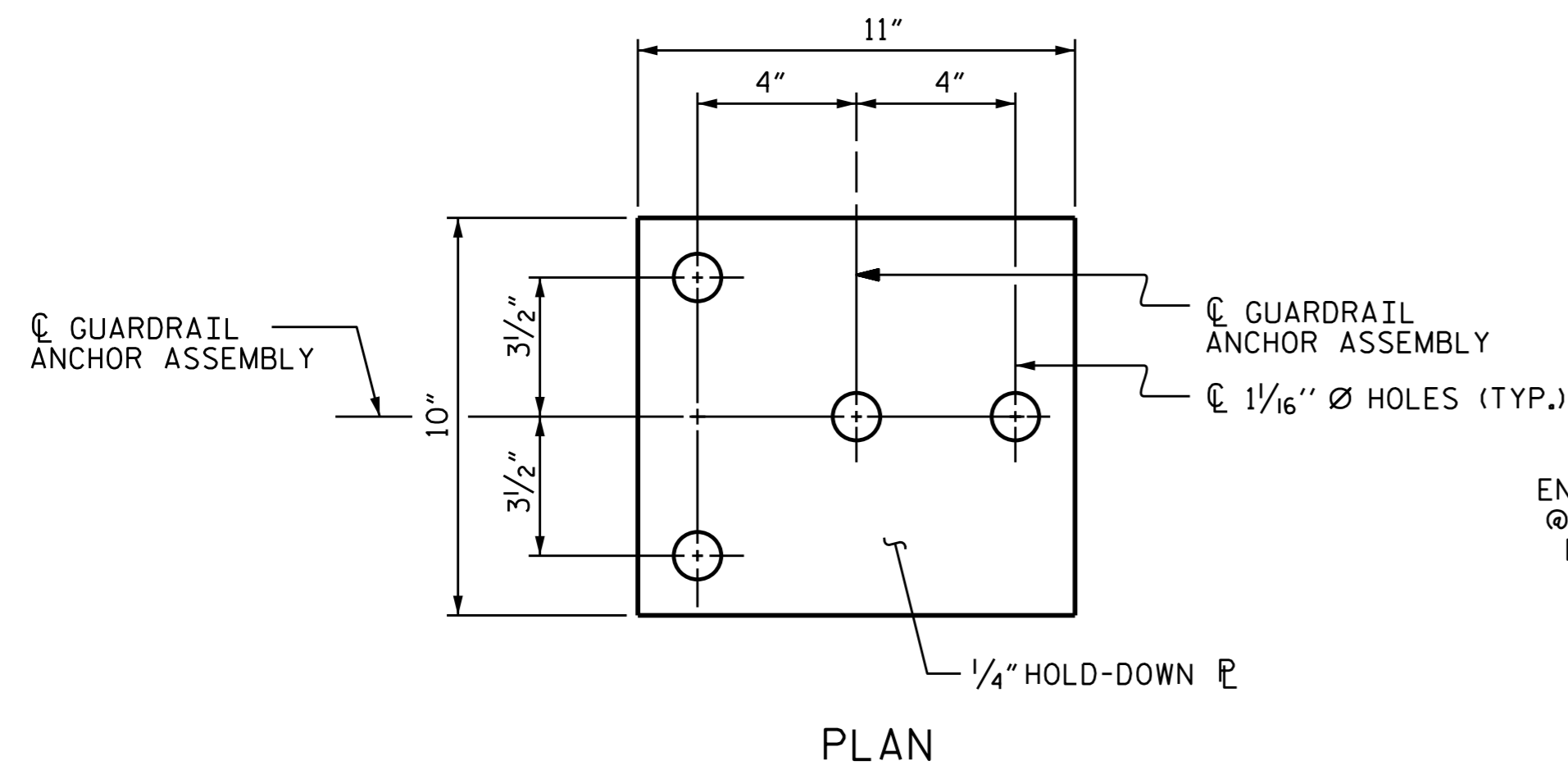
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

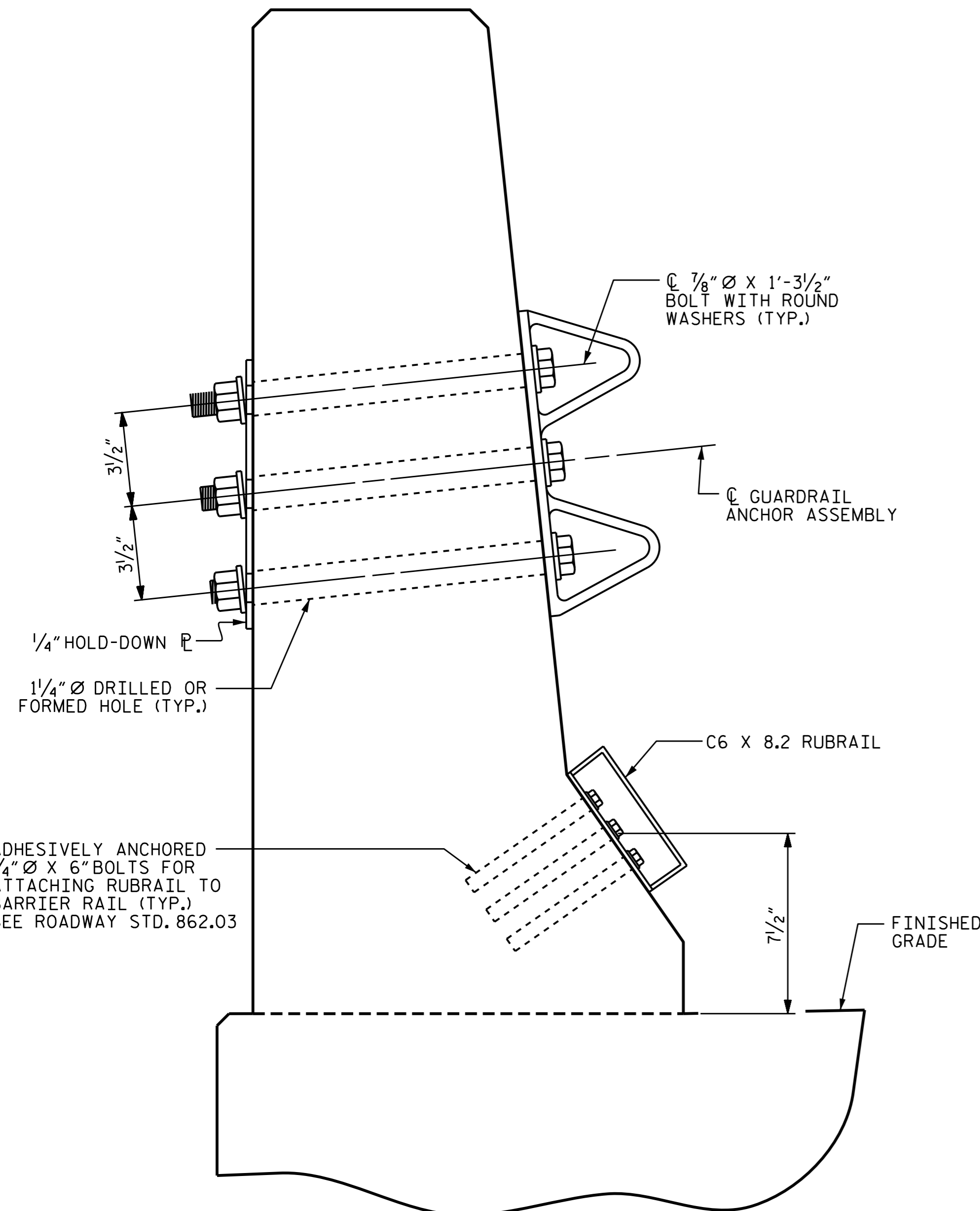
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

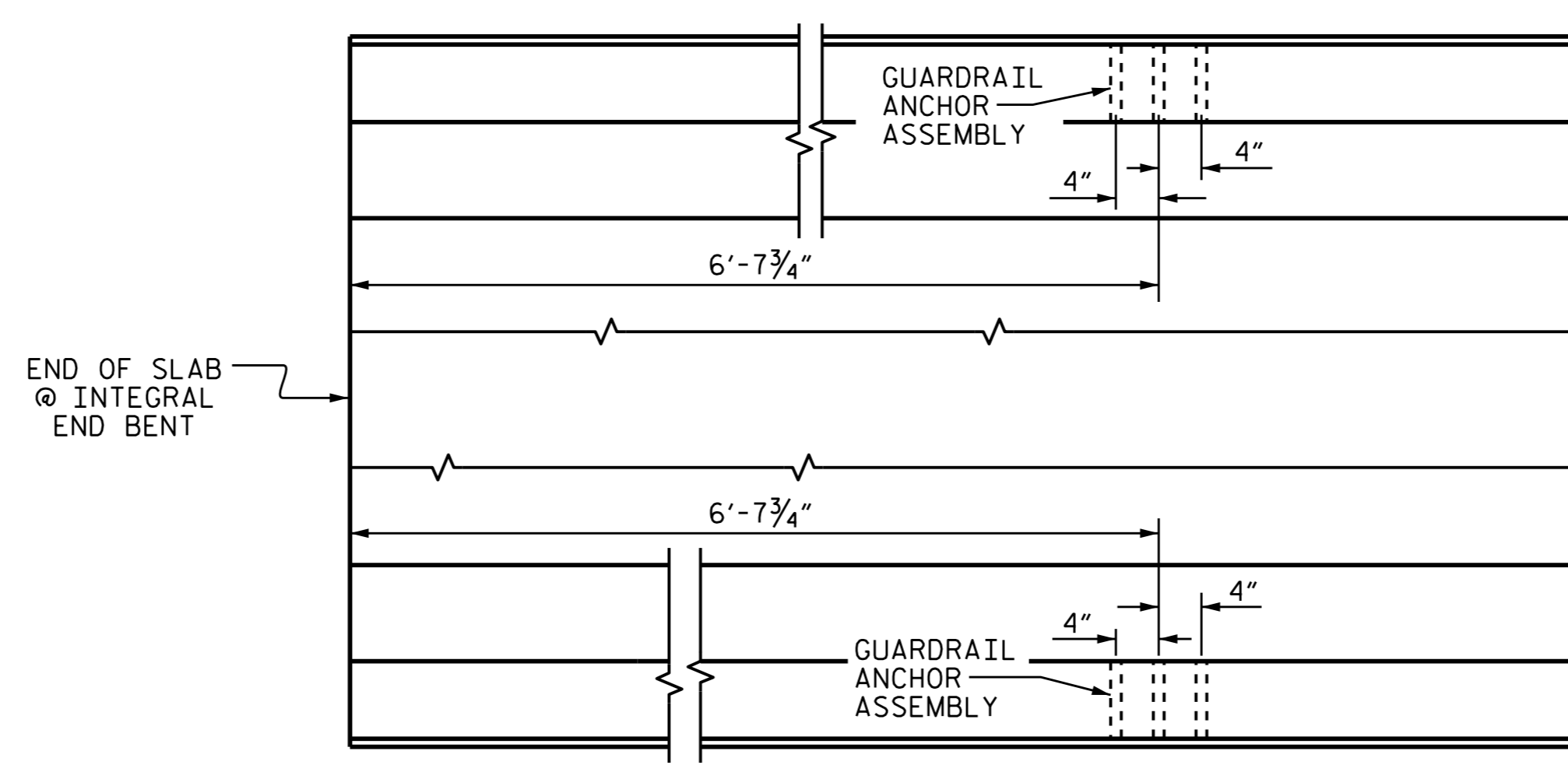
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR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



ELEVATION



SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. R-2514C  
JONES COUNTY  
STATION: 102+05.00 -L-

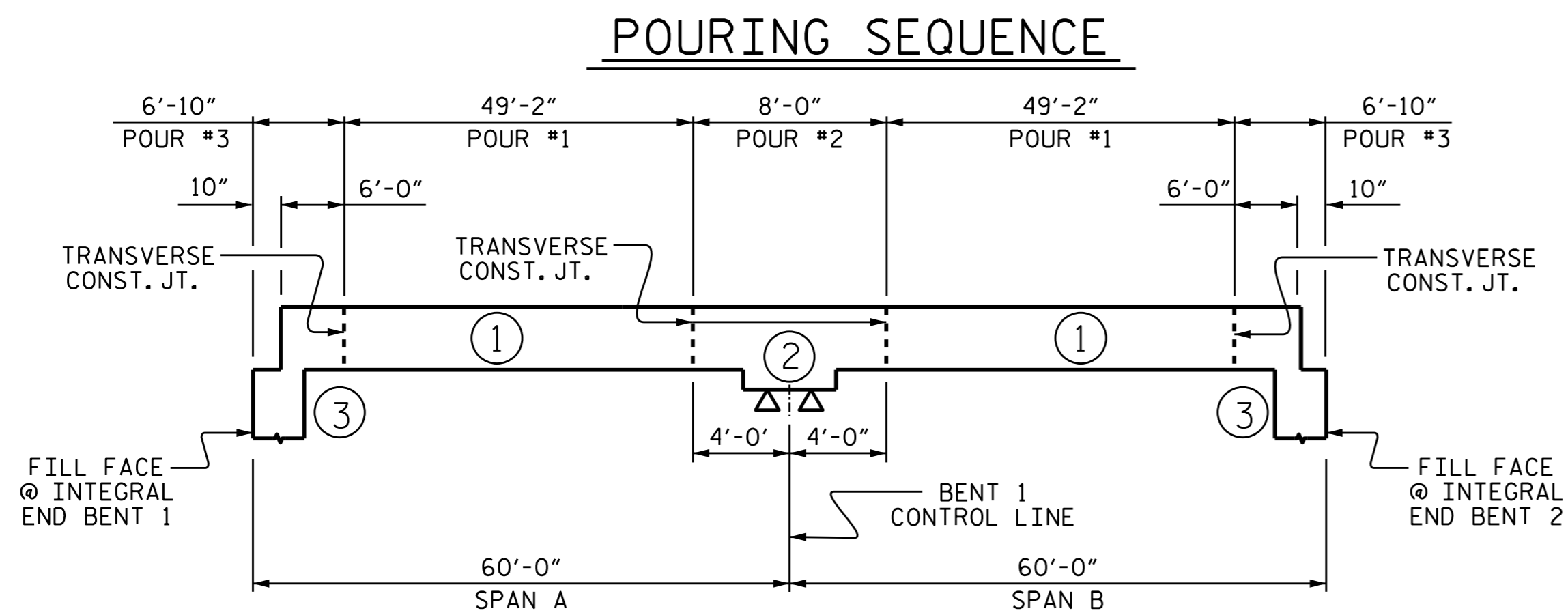
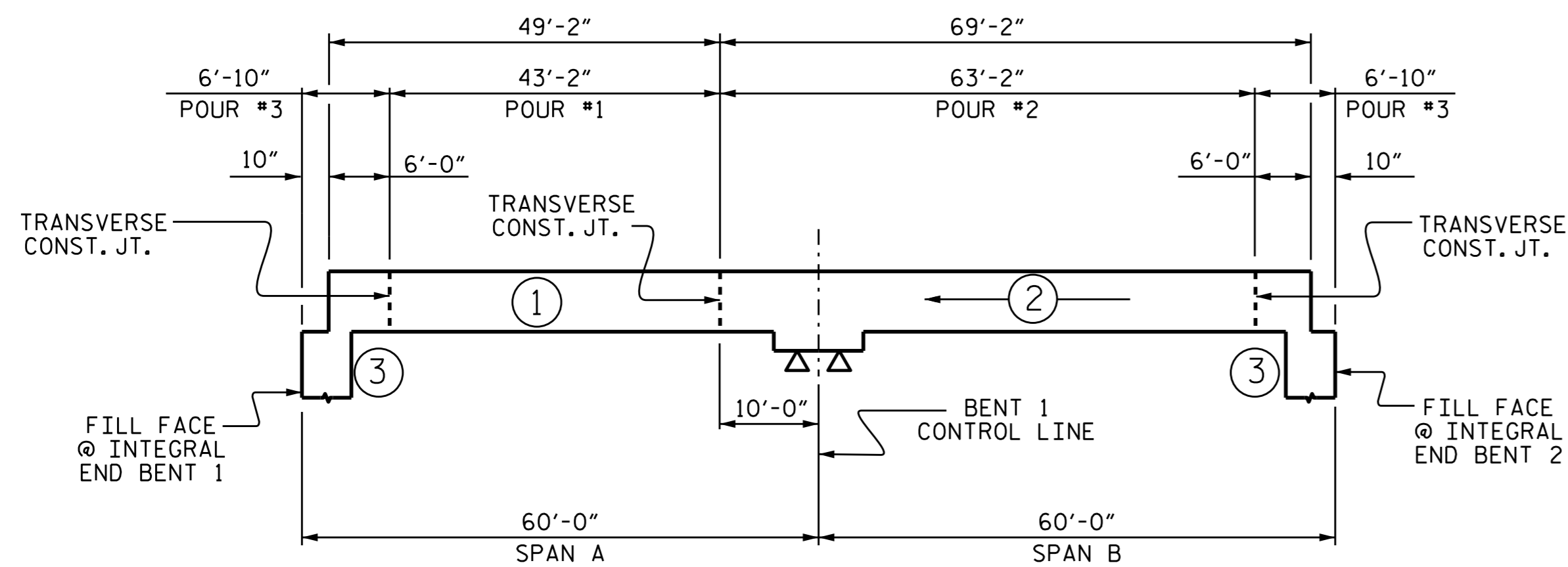


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
GUARDRAIL ANCHORAGE  
FOR BARRIER RAIL  
(RIGHT LANE)

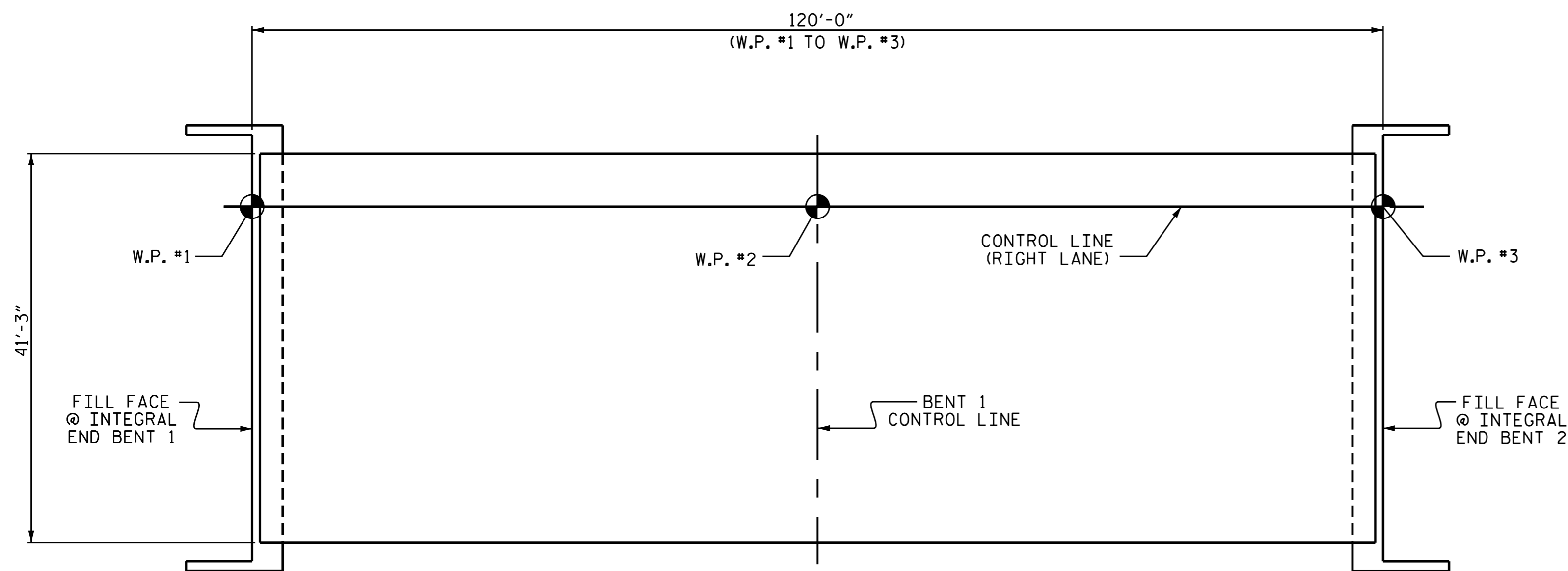
REVISIONS						SHEET NO. S-45
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

ASSEMBLED BY : D. G. ELY	DATE : 06-03-14
CHECKED BY : B. N. BARODAWALA	DATE : 06-13-14
DRAWN BY : TLA	5/06
CHECKED BY : GM	5/06
REV. 10/1/11	MAA/GM
REV. 7/12	MAA/GM
REV. 6/13	MAA/GM

23-MAR-2015 12:05  
R:\Structures\Plans\Final Plans\DocuSign\_Setup\402.000.R-2514C.SMU.S.0.dgn  
kpaschal



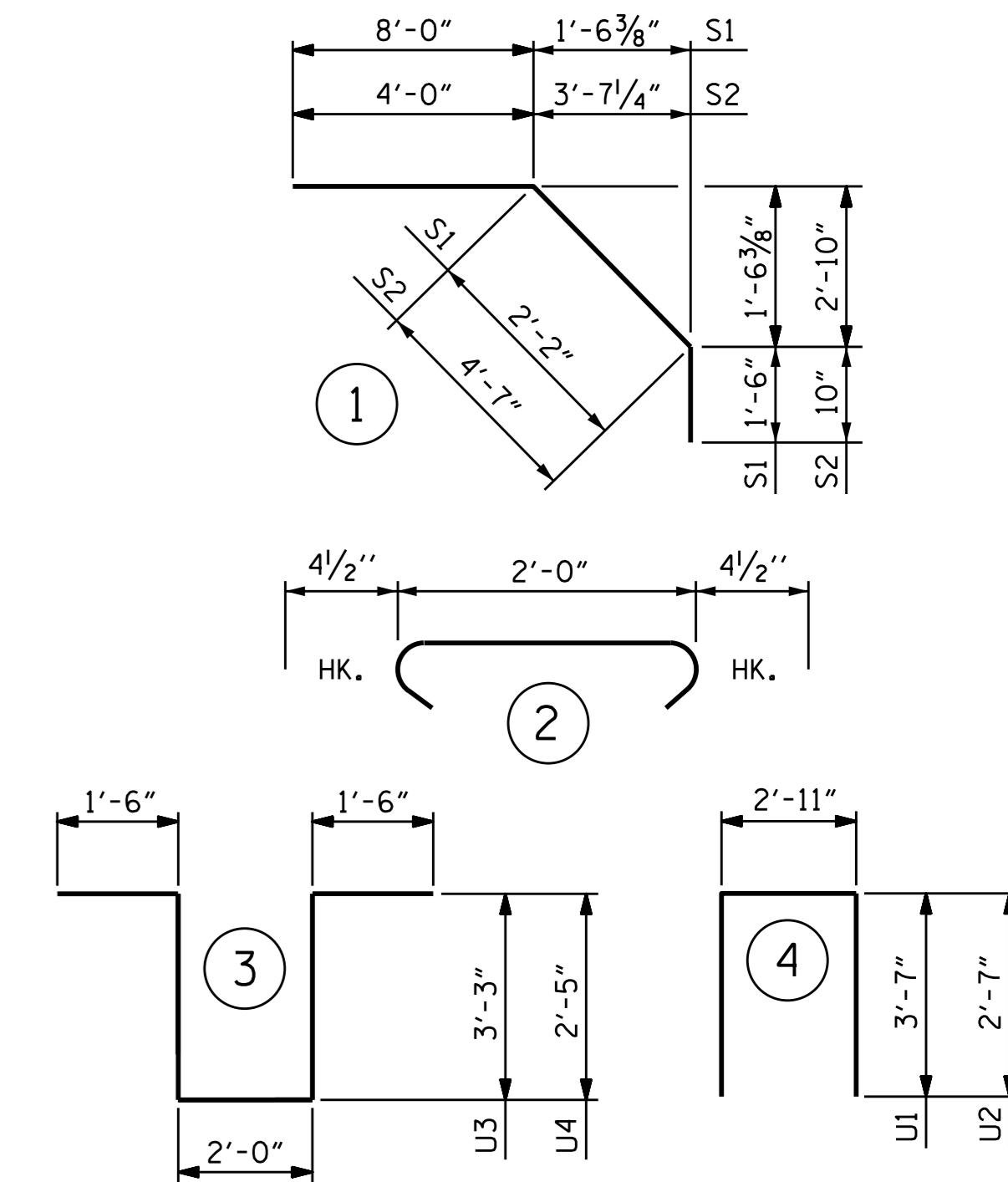
POUR ② CAN NOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH A MINIMUM OF 3000 PSI.



**BILL OF MATERIAL**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	237	#5	STR.	40'-11"	10114
A2	237	#5	STR.	40'-11"	10114
B1	156	#5	STR.	40'-10"	6644
* B2	130	#6	STR.	12'-0"	2343
* B3	66	#4	STR.	28'-0"	1234
* B4	33	#6	STR.	46'-0"	2280
* B5	32	#6	STR.	18'-0"	865
* B6	10	#4	STR.	25'-3"	169
H1	20	#5	STR.	10'-2"	212
H2	20	#5	STR.	11'-8"	243
K1	16	#4	STR.	24'-8"	264
K2	8	#4	STR.	6'-11"	37
K3	8	#4	STR.	7'-11"	42
K4	8	#4	STR.	7'-5"	40
K5	4	#4	STR.	5'-0"	13
K6	8	#4	STR.	5'-5"	29
K7	4	#4	STR.	5'-3"	14
K8	8	#4	STR.	2'-8"	14
K9	8	#4	STR.	18'-10"	100
K10	8	#4	STR.	5'-7"	30
K11	16	#4	STR.	7'-11"	85
K12	8	#4	STR.	7'-5"	40
K13	8	#4	STR.	7'-7"	41
* S1	76	#4	1	11'-8"	592
* S2	72	#4	1	9'-5"	453
S3	88	#4	2	2'-9"	162
U1	12	#4	4	10'-1"	81
U2	76	#4	4	8'-1"	410
* U3	24	#4	3	11'-6"	184
* U4	8	#4	3	9'-10"	53
V1	10	#4	STR.	2'-7"	17
REINFORCING STEEL				18,632	LBS.
* EPOXY COATED REINFORCING STEEL				18,287	LBS.

**BAR TYPES**



ALL BAR DIMENSIONS ARE OUT TO OUT

**SUPERSTRUCTURE BILL OF MATERIAL**

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	57.0		
POUR 2	92.7		
POUR 3 *	57.2		
TOTALS **	206.9	18,632	18,287

\* POUR 3 QUANTITY INCLUDES UPPER POUR OF WINGS & INTEGRAL END BENTS  
\*\* QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

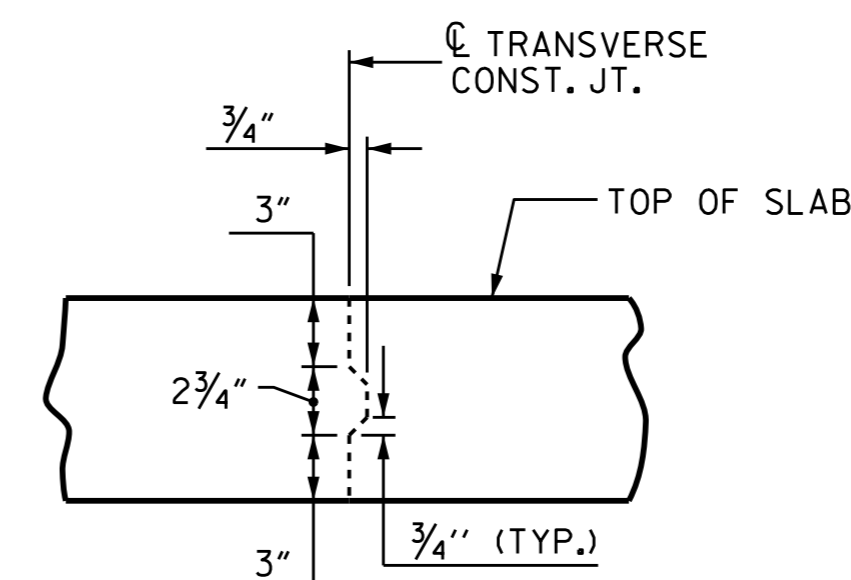
**SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS**

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

**GROOVING BRIDGE FLOORS**

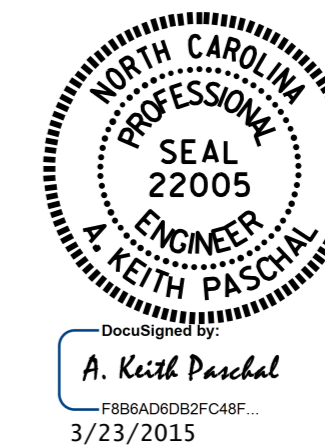
APPROACH SLABS	1703	SO.FT.
BRIDGE DECK	4142	SO.FT.
TOTAL	5845	SO.FT.

PROJECT NO. R-2514C  
JONES COUNTY  
STATION: 102+05.00 -L-



**TRANSVERSE CONSTRUCTION JOINT DETAIL**

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

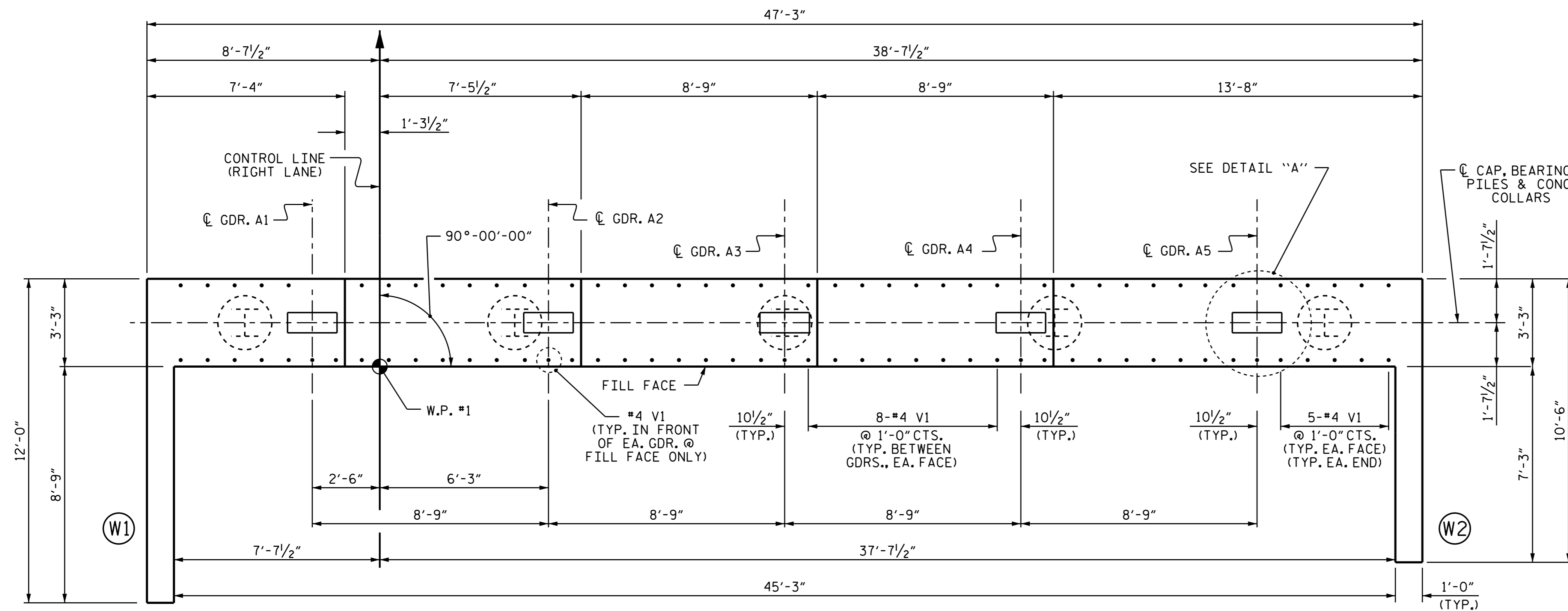


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
SUPERSTRUCTURE  
BILL OF MATERIAL  
(RIGHT LANE)

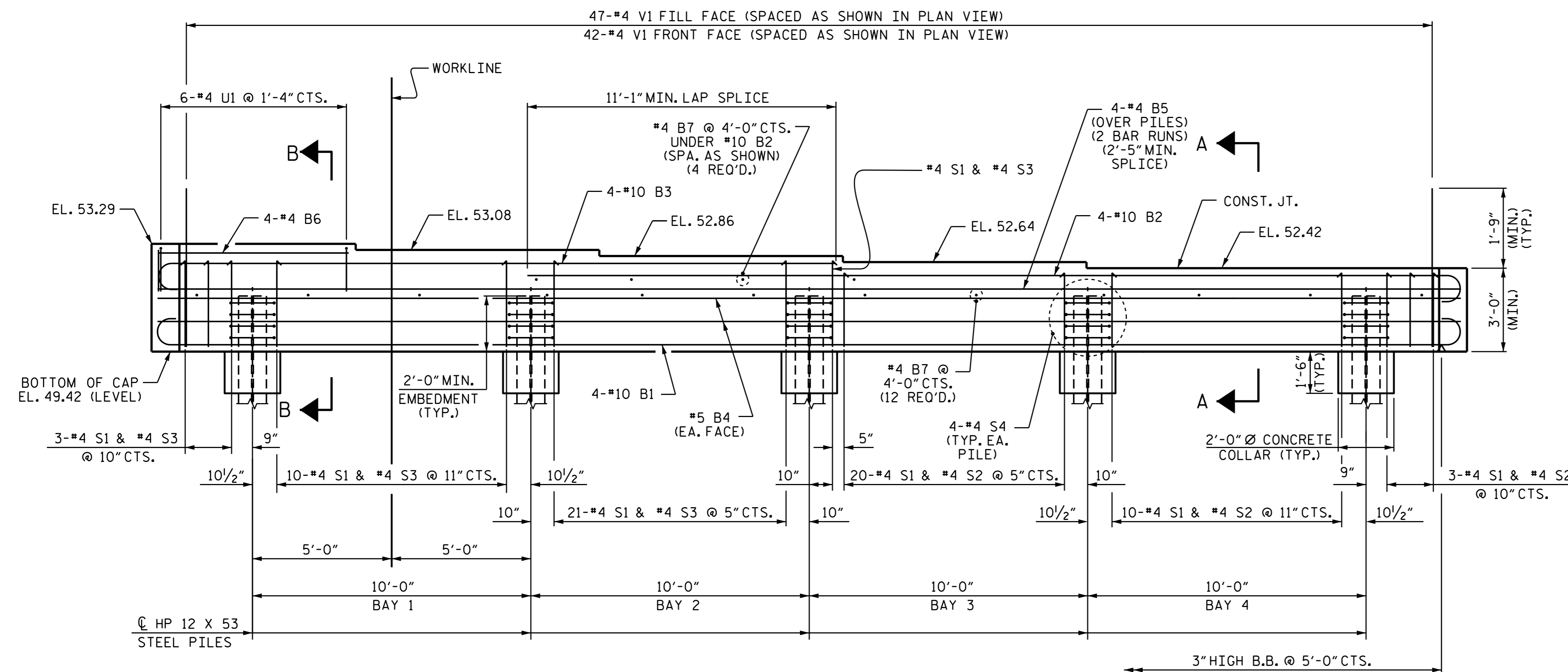
REVISIONS						SHEET NO. S-46
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

ASSEMBLED BY: D. G. ELY	DATE: 05-30-14
CHECKED BY: B. N. BARODAWALA	DATE: 06-13-14
DESIGN ENGINEER OF RECORD: A. K. PASCHAL	DATE: 02-09-15
DRAWN BY: JMB 5/87	REV. 8/16/99 RWW/LES
CHECKED BY: SJD 9/87	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM





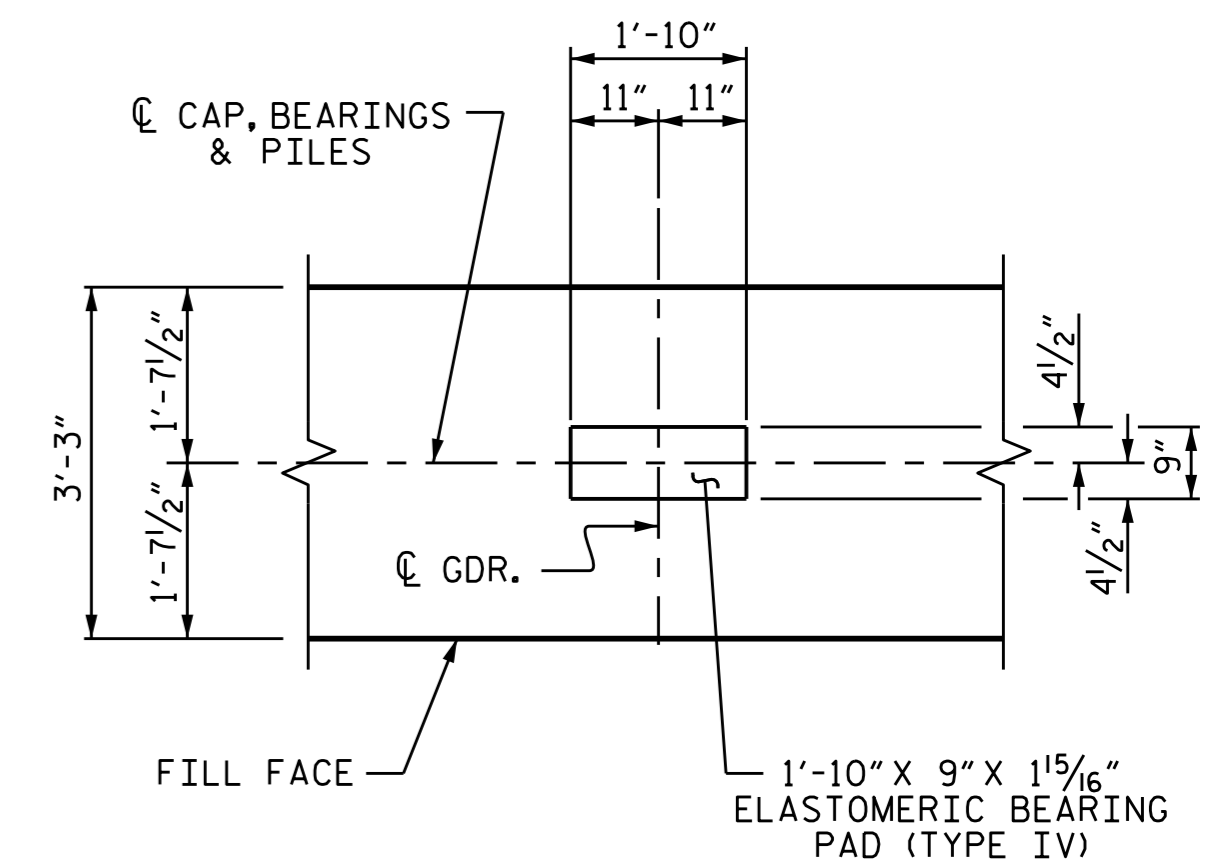
PLAN



ELEVATION

NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #4 V1 BARS.
- INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED BY REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
- THE TOP PART OF THE END BENT CAP AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".
- THE UPPER PORTION OF THE INTEGRAL END BENT CAP AND THE UPPER PORTION OF THE WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. SEE SUPERSTRUCTURE PLANS.



DETAIL "A"

(DETAILS AND DIMENSIONS ARE TYPICAL FOR EACH BEARING)

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 1 OF 3

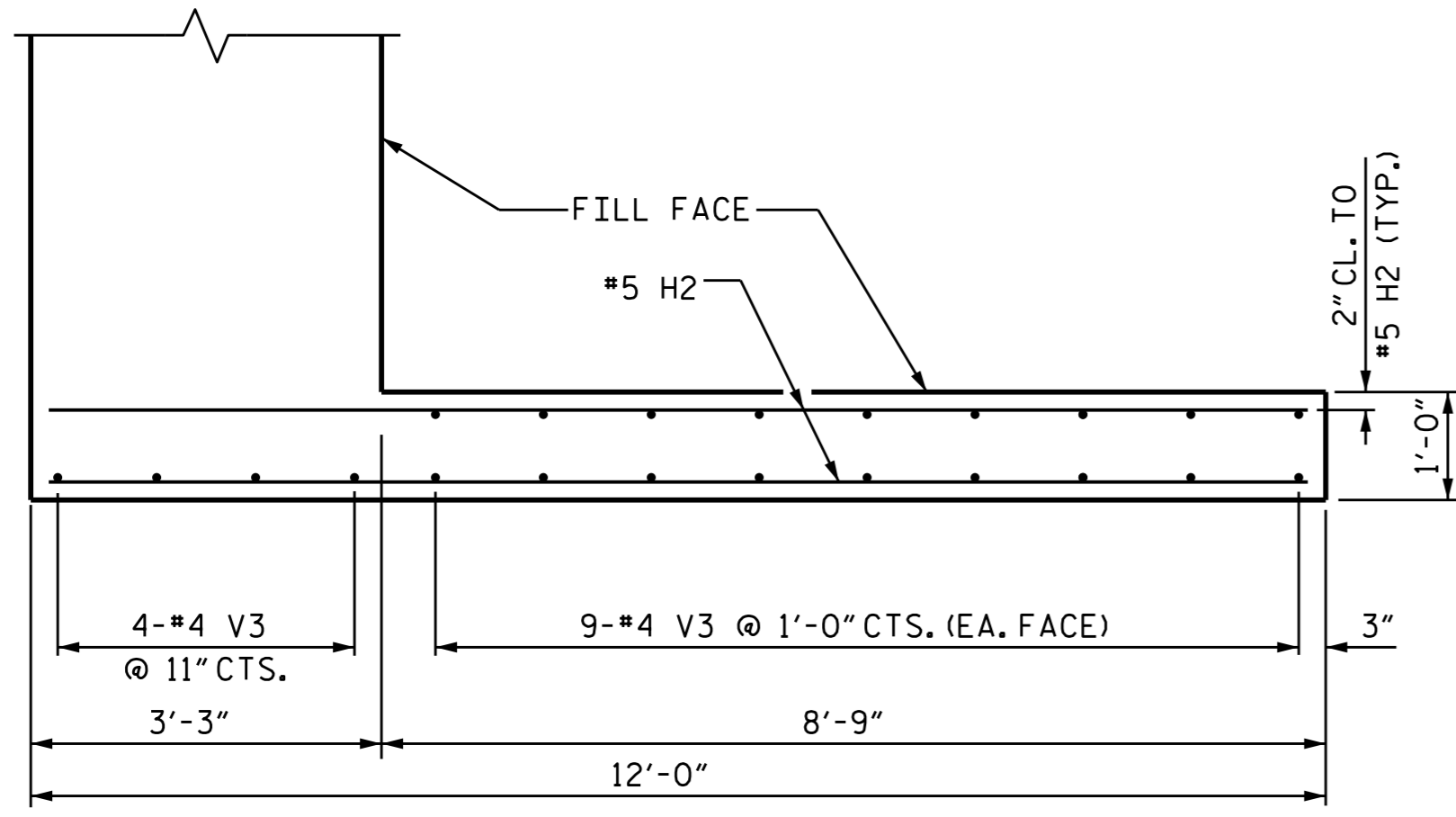


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 INTEGRAL END BENT 1  
 (RIGHT LANE)

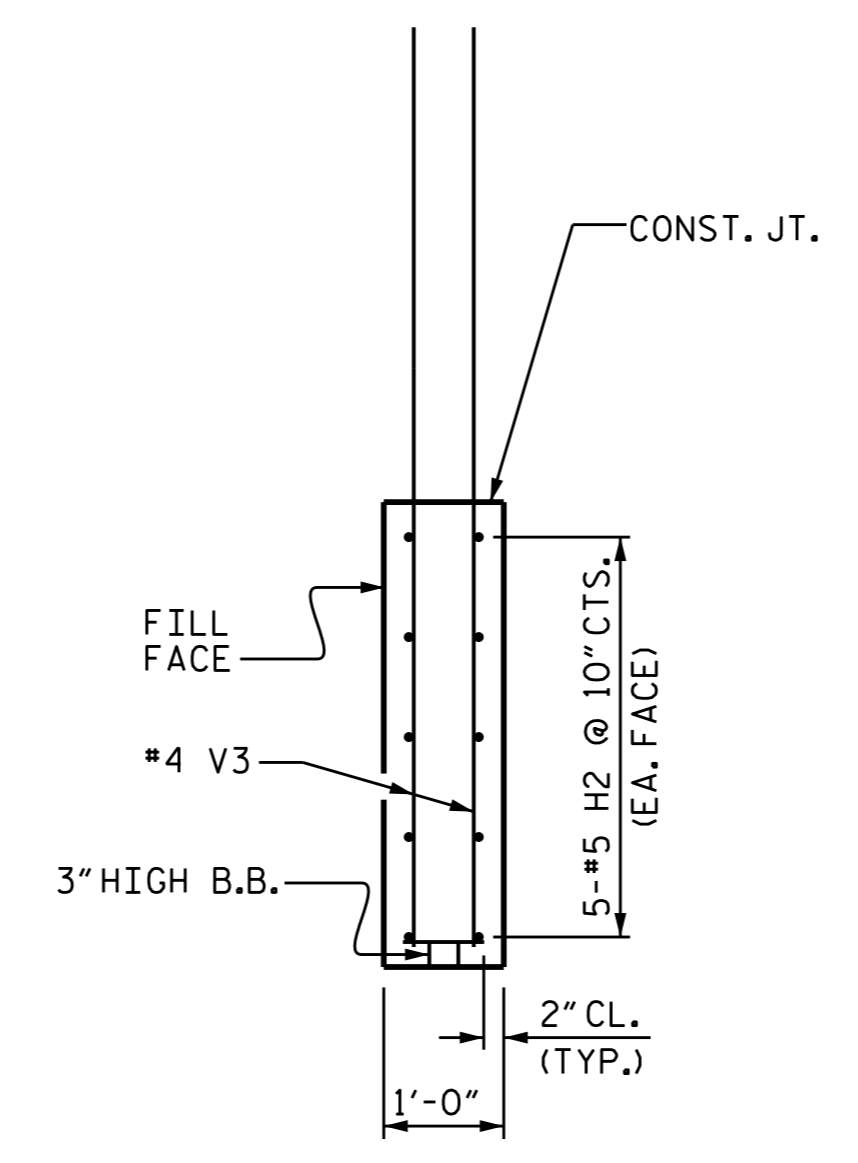
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
1			3			TOTAL SHEETS
2			4			56

DRAWN BY: D. G. ELY DATE: 6/26/14  
 CHECKED BY: P. N. HOLDER DATE: 7/17/14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2/9/15

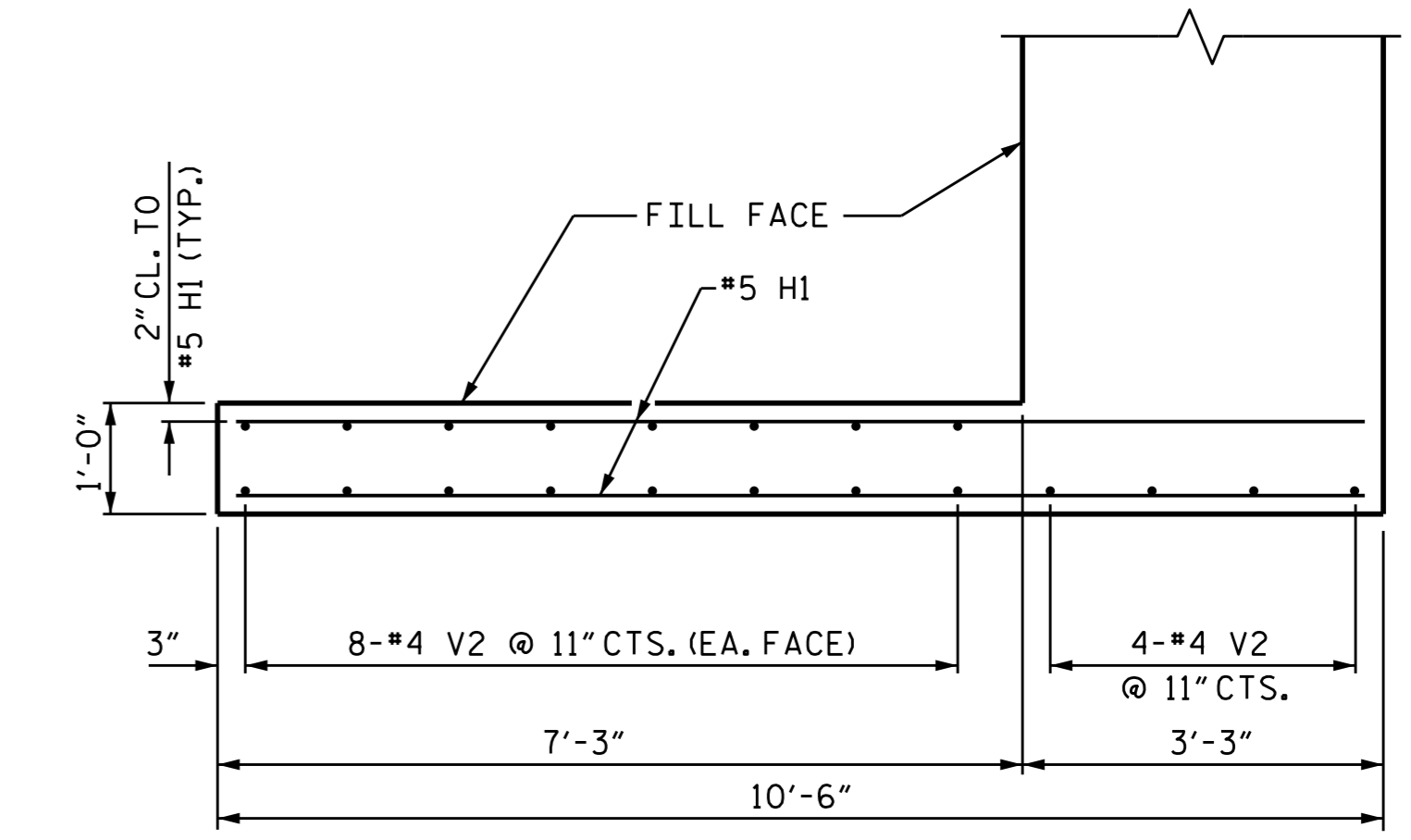




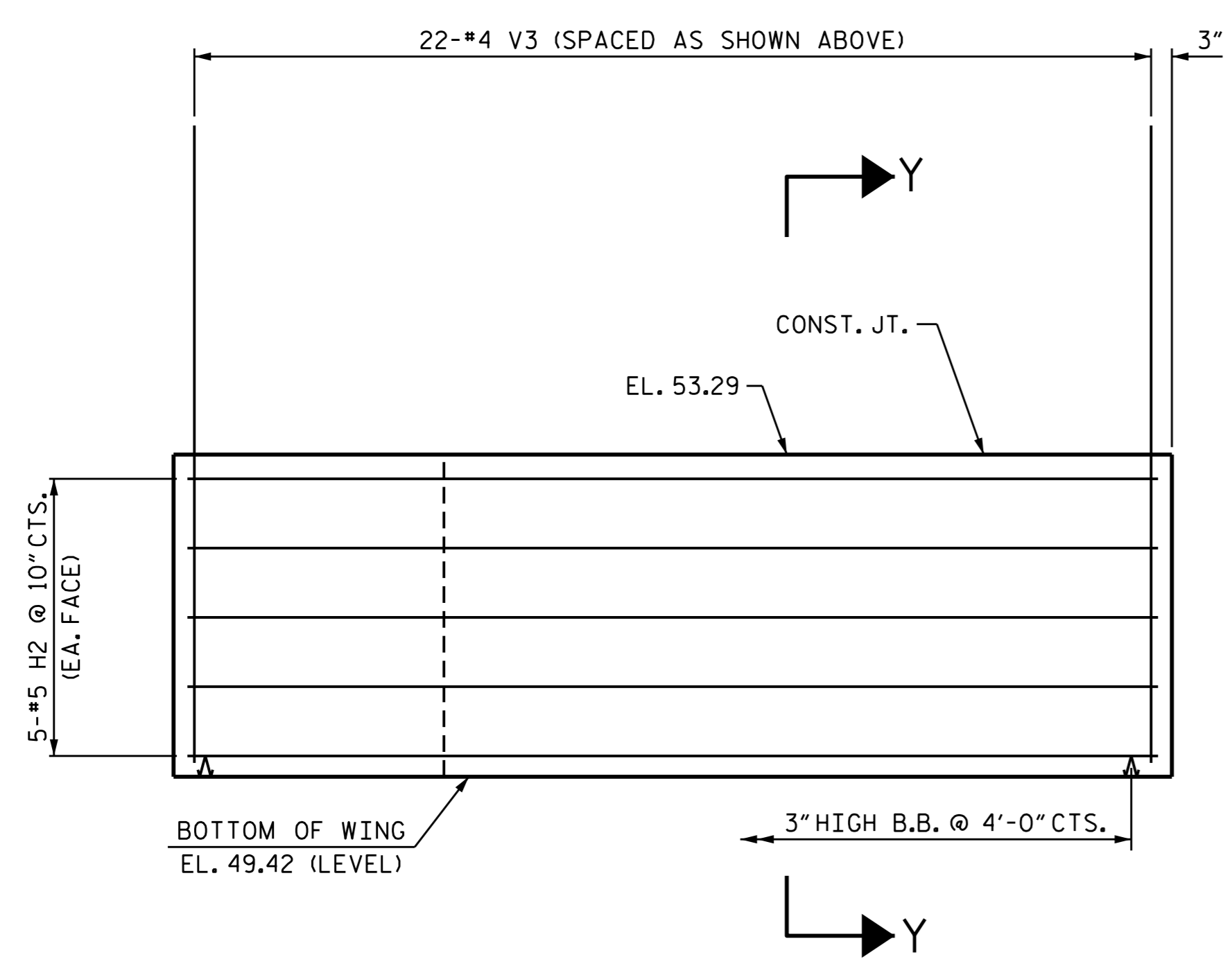
PLAN OF WING (W1)



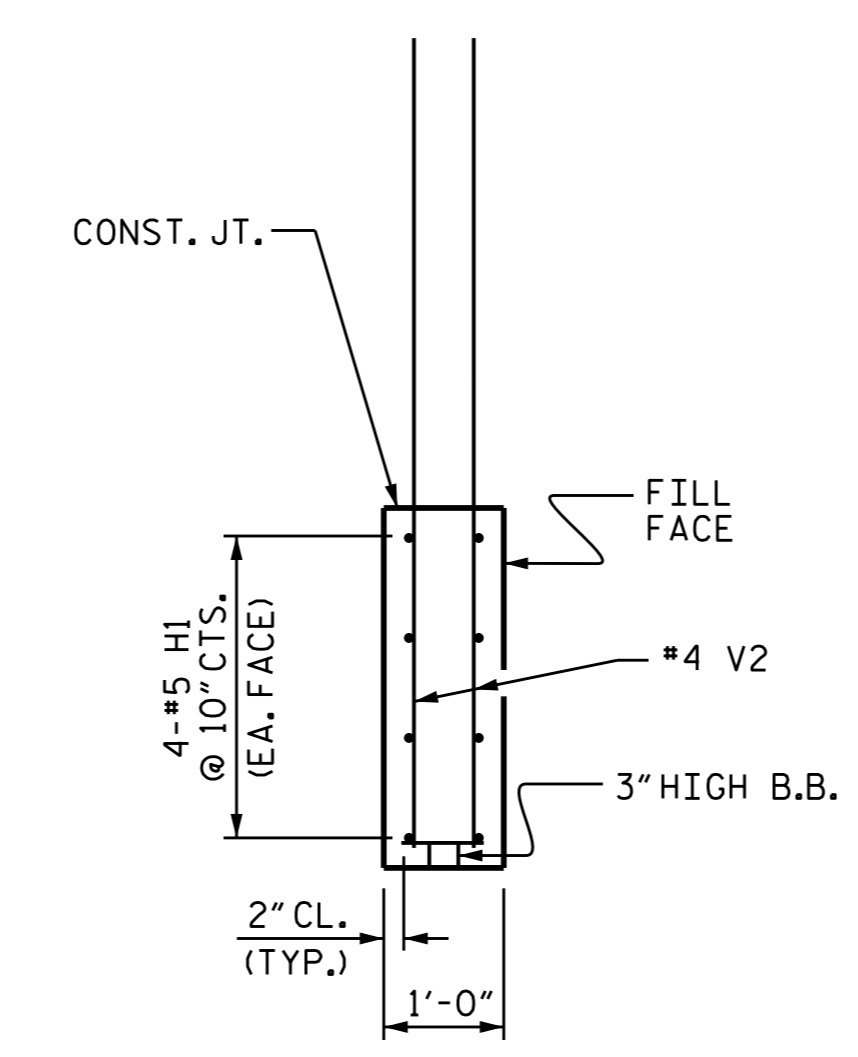
SECTION Y-Y



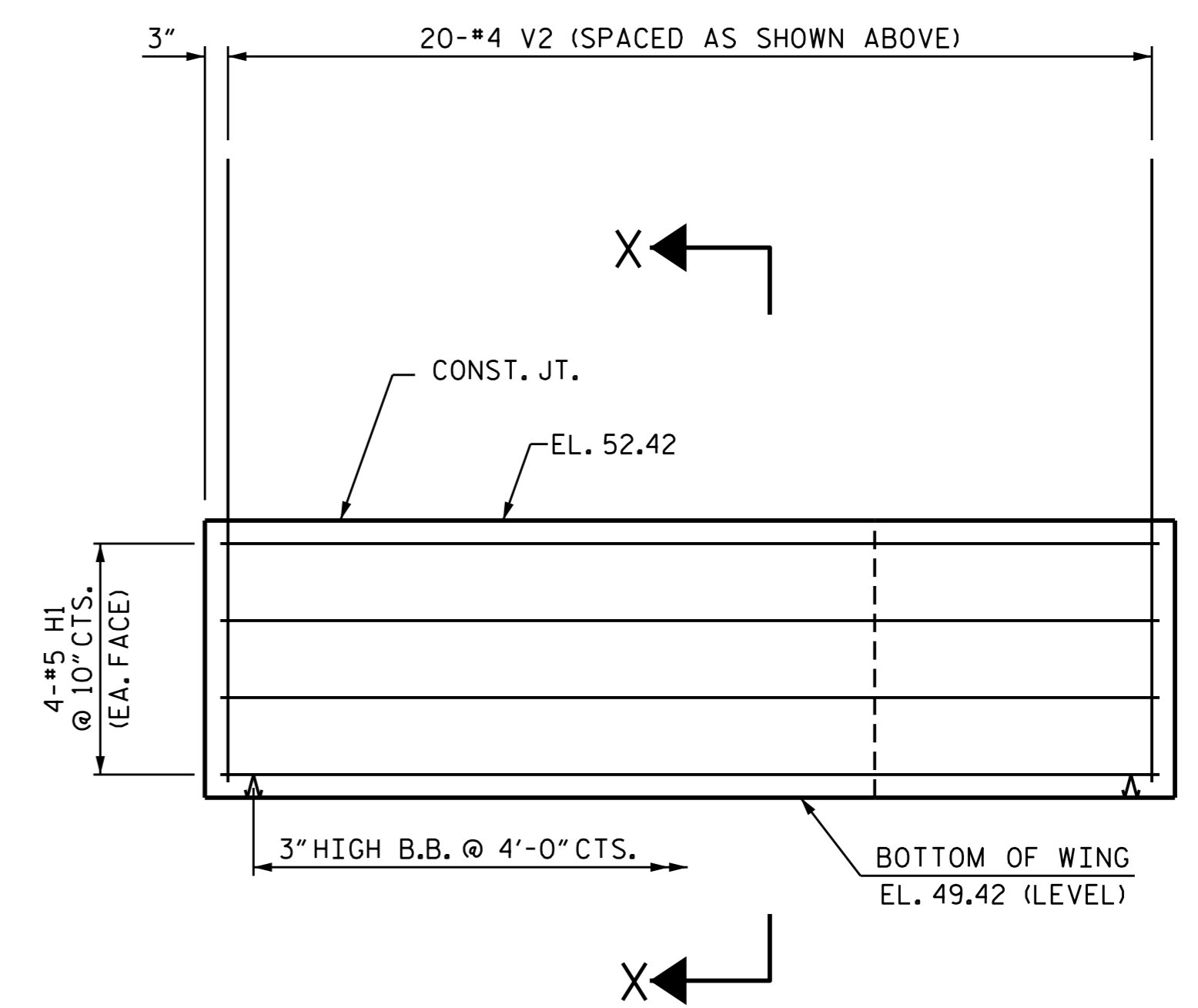
PLAN OF WING (W2)



ELEVATION OF WING (W1)



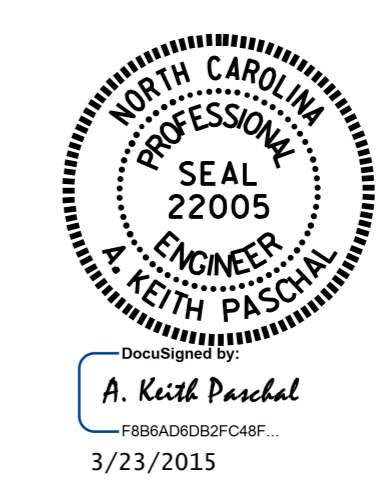
SECTION X-X



ELEVATION OF WING (W2)

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

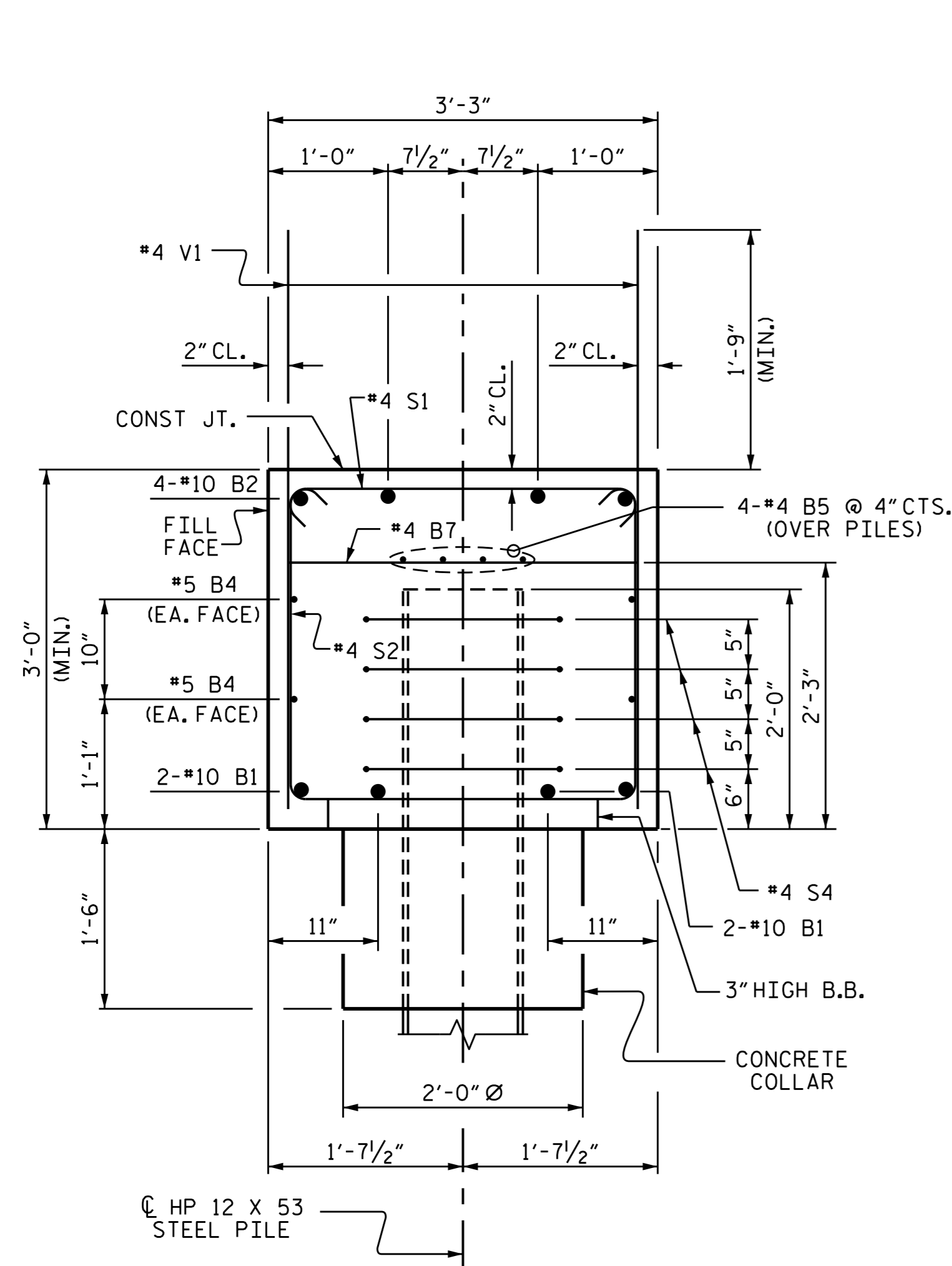
SHEET 2 OF 3



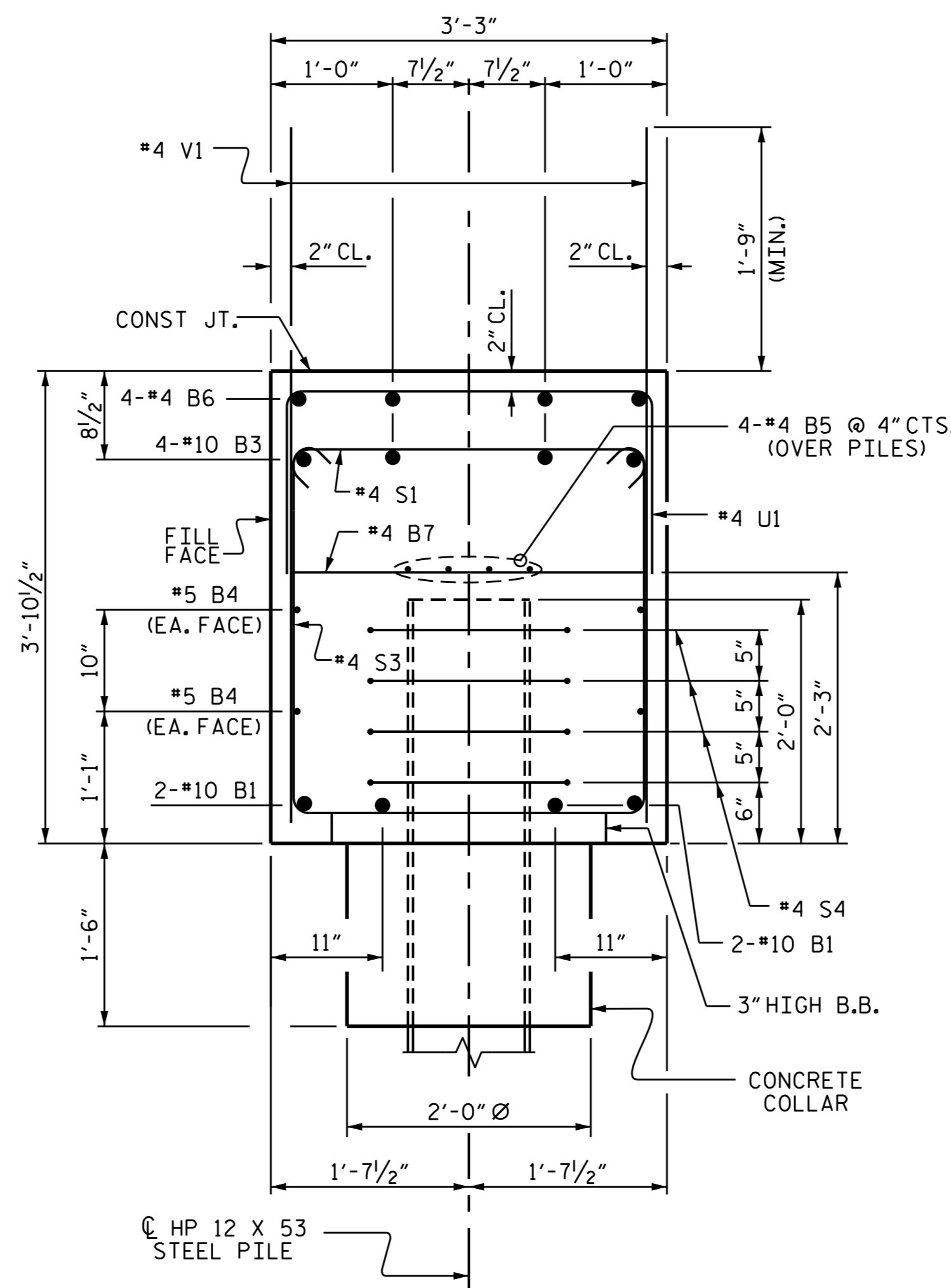
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 INTEGRAL END BENT 1  
 (RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-48
1			3			TOTAL SHEETS
2			4			56

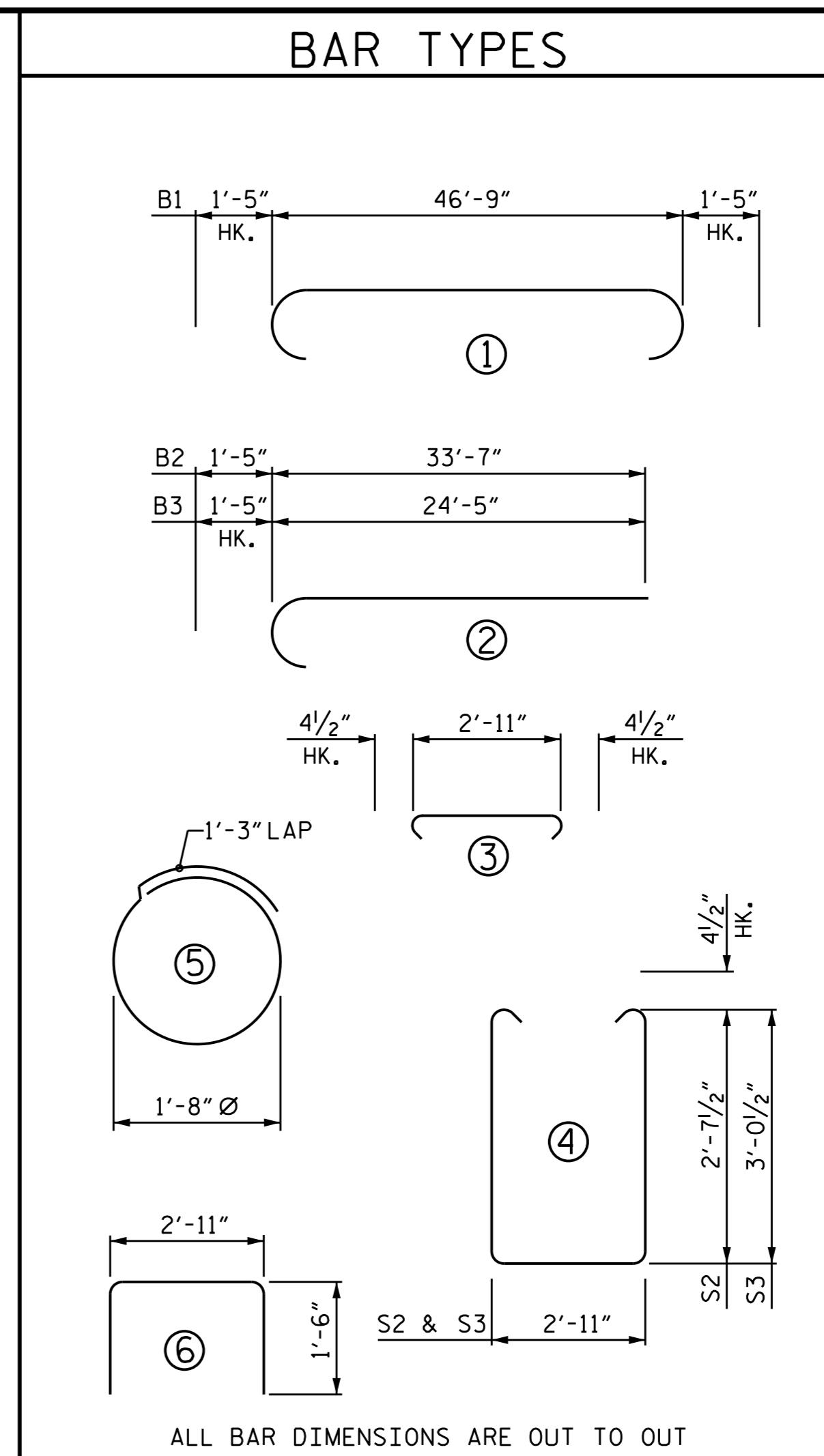
DRAWN BY: D. G. ELY DATE: 6/26/14  
 CHECKED BY: P. N. HOLDER DATE: 7/17/14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2/9/15



SECTION A-A



SECTION B-B

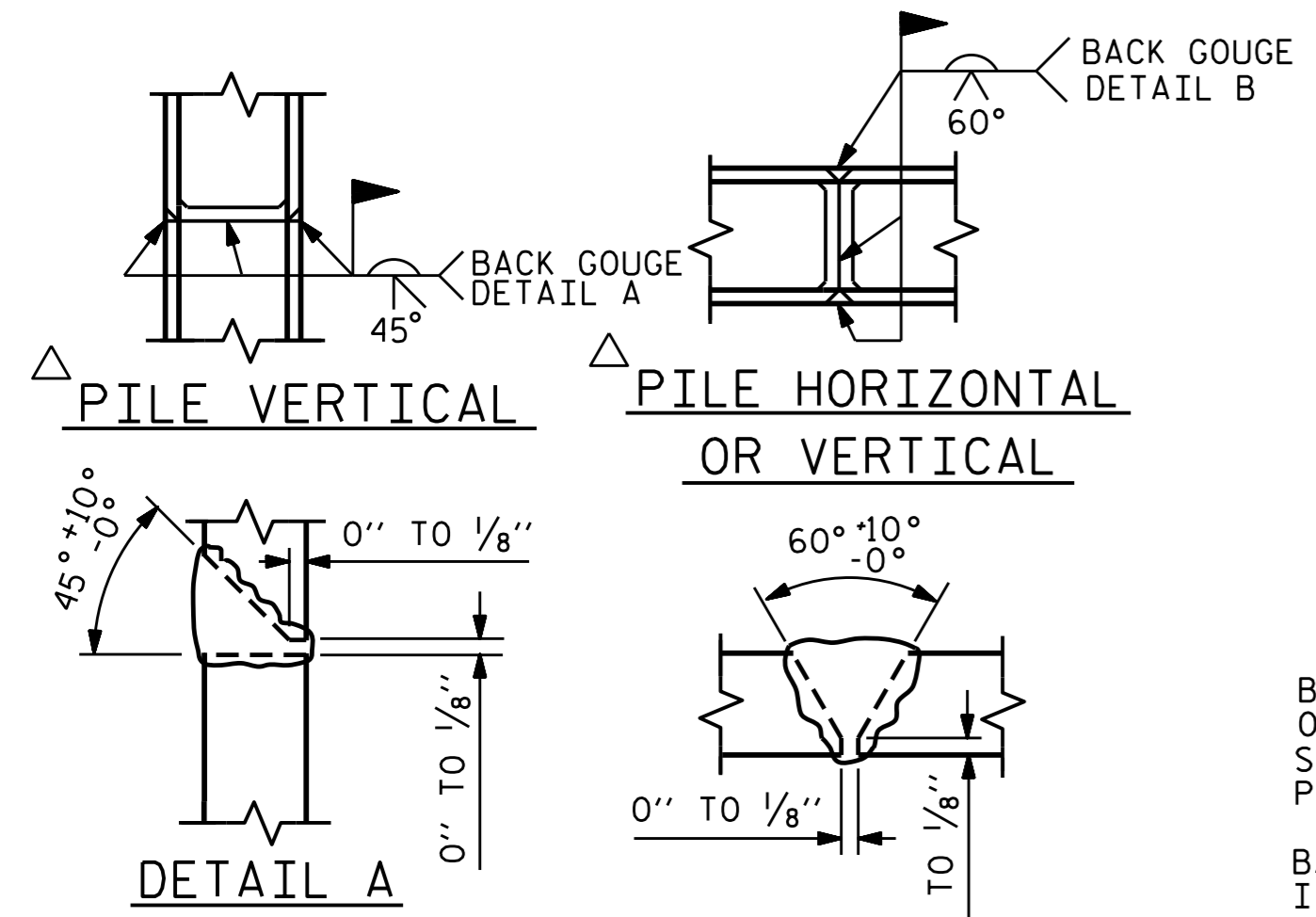


ALL BAR DIMENSIONS ARE OUT TO OUT

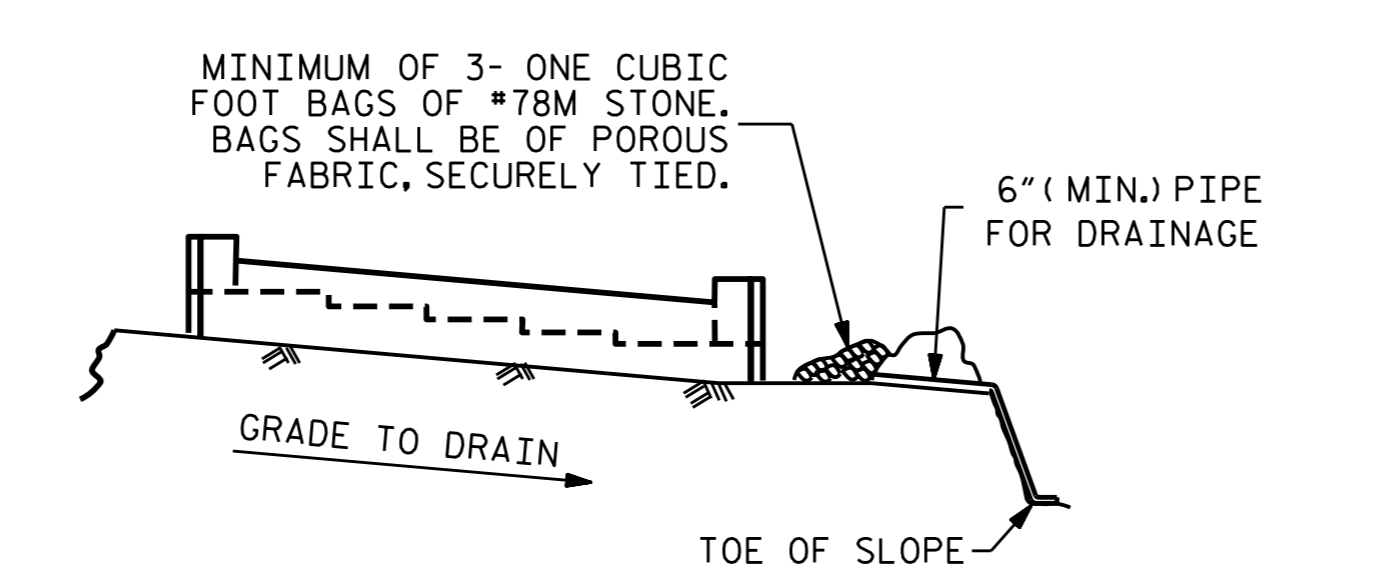
BILL OF MATERIAL

END BENT 1					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	49'-7"	853
B2	4	#10	2	35'-0"	602
B3	4	#10	2	25'-10"	445
B4	4	#5	STR.	46'-11"	196
B5	8	#4	STR.	24'-8"	132
B6	4	#4	STR.	7'-0"	19
B7	16	#4	STR.	2'-11"	31
H1	8	#5	STR.	10'-2"	85
H2	10	#5	STR.	11'-8"	122
S1	68	#4	3	3'-8"	167
S2	33	#4	4	8'-11"	197
S3	35	#4	4	9'-9"	228
S4	20	#4	5	6'-6"	87
U1	6	#4	6	5'-11"	24
V1	89	#4	STR.	5'-6"	327
V2	20	#4	STR.	6'-9"	90
V3	22	#4	STR.	7'-8"	113

REINFORCING STEEL	3718 LBS.
CLASS A CONCRETE BREAKDOWN	
CAP, LOWER WINGS & COLLARS	22.2 CU.YDS.
HP 12 x 53 STEEL PILES	
NO. 5	275 LIN. FT.
STEEL PILE POINTS	5 EACH
PILE REDRIVES	3 EACH



PILE SPLICE DETAILS



MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

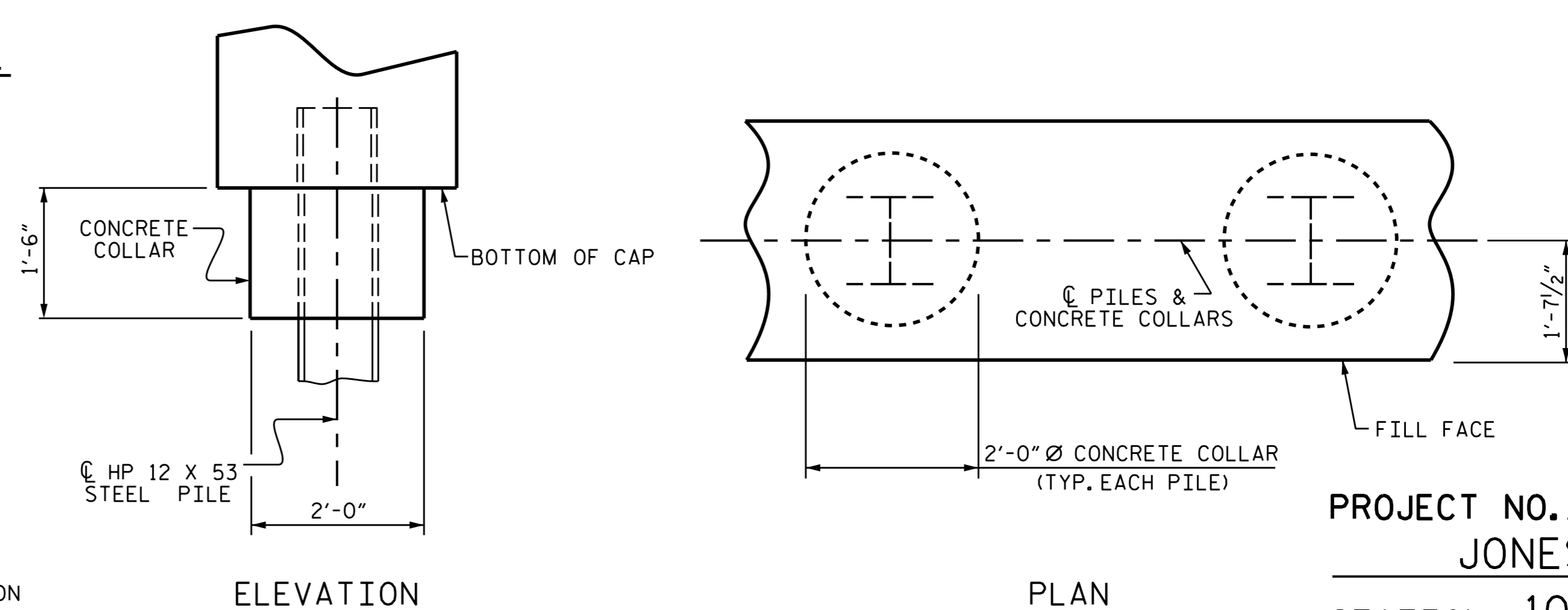
TOE OF SLOPE

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. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 INTEGRAL END BENT 1  
 (RIGHT LANE)

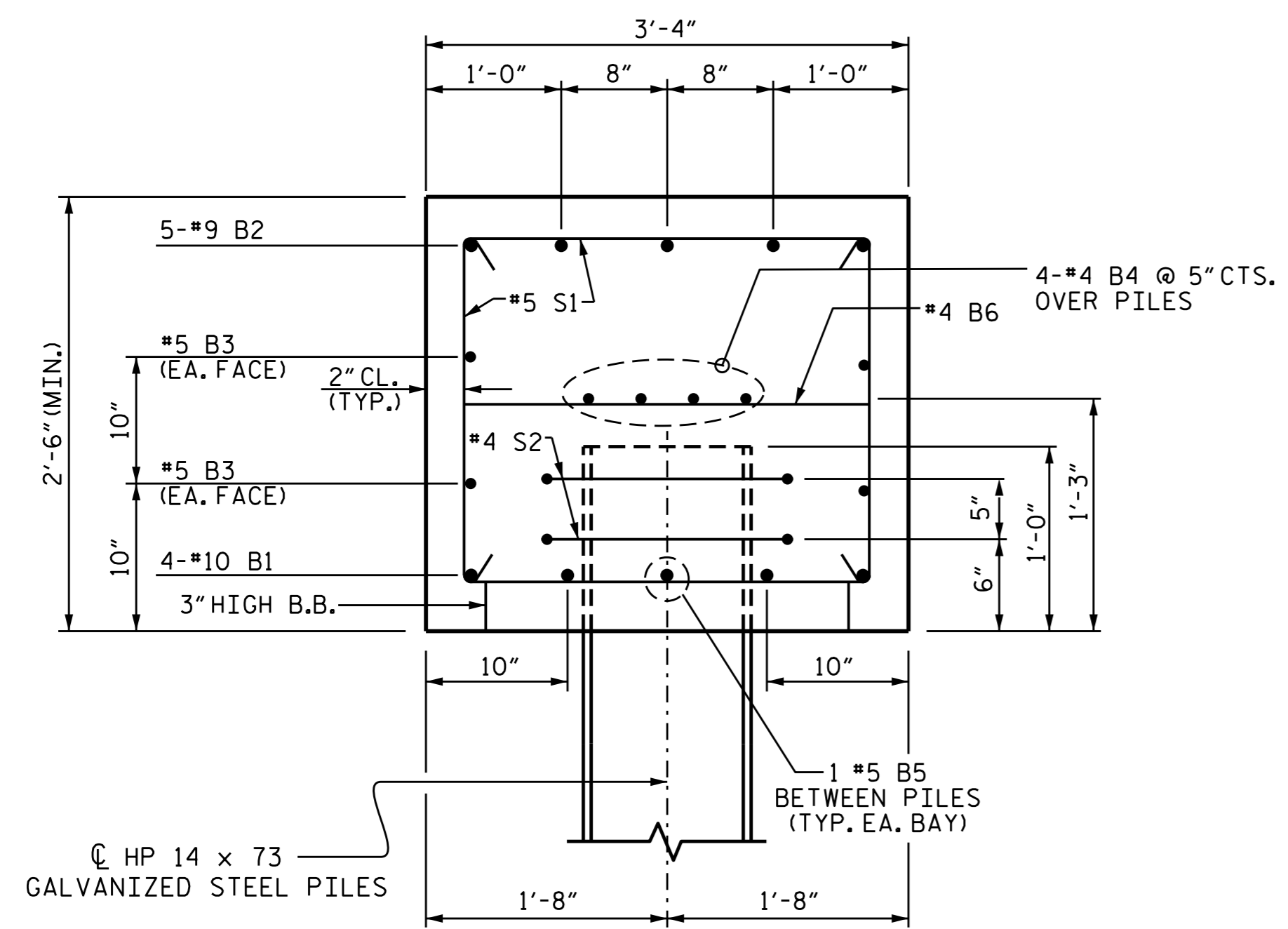


REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

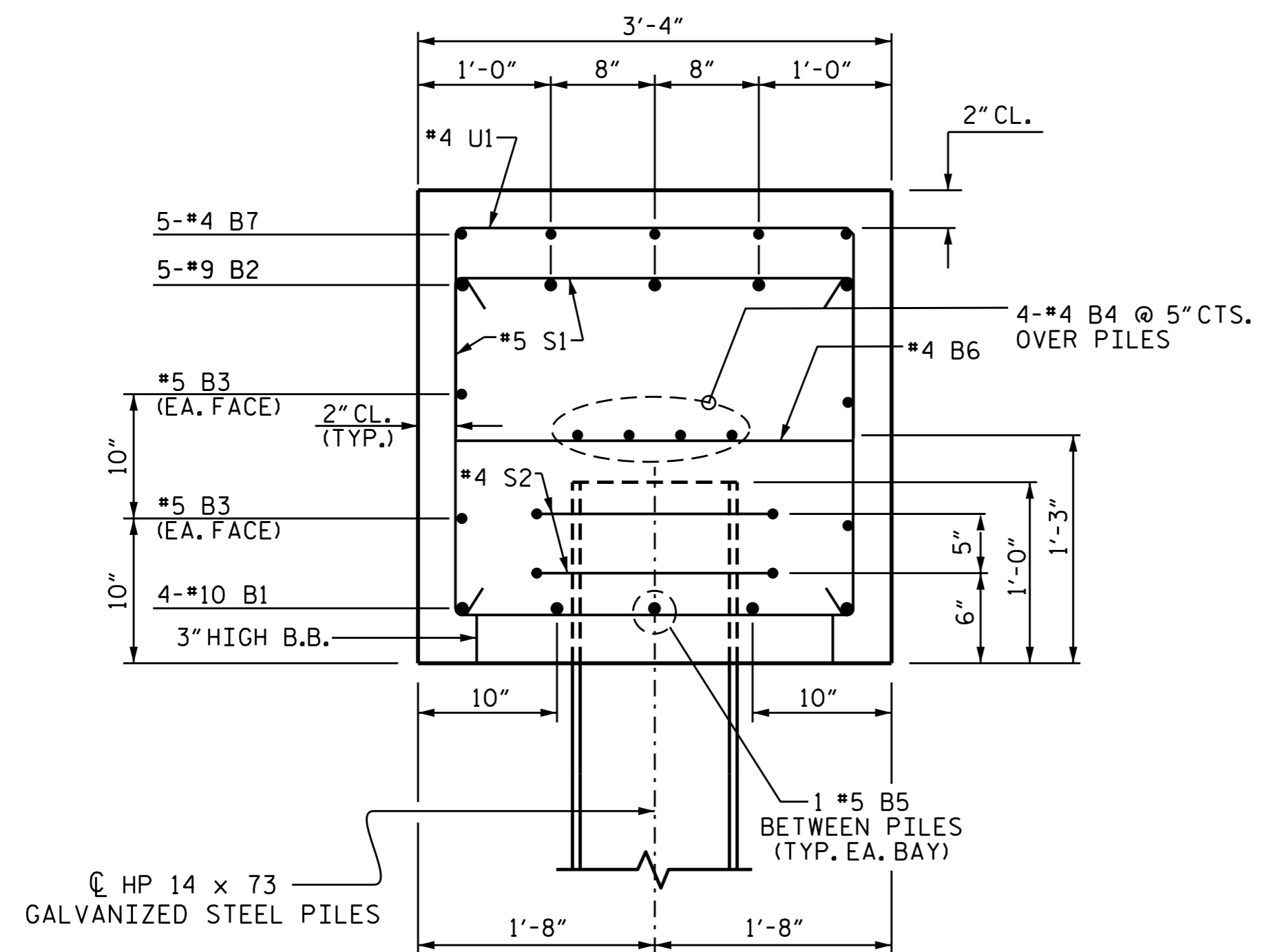
DRAWN BY: D. G. ELY DATE: 6/26/14  
 CHECKED BY: P. N. HOLDER DATE: 7/17/14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2/9/15



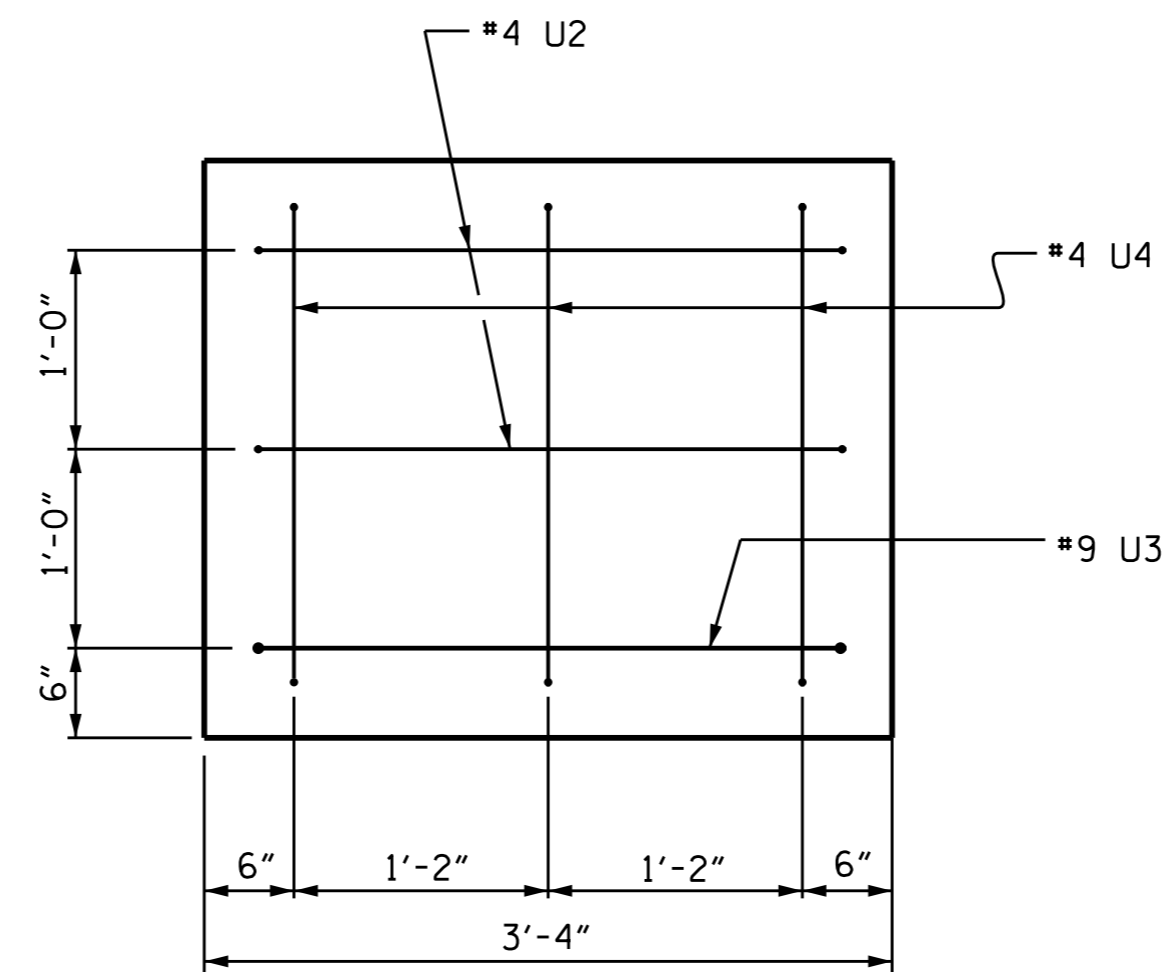




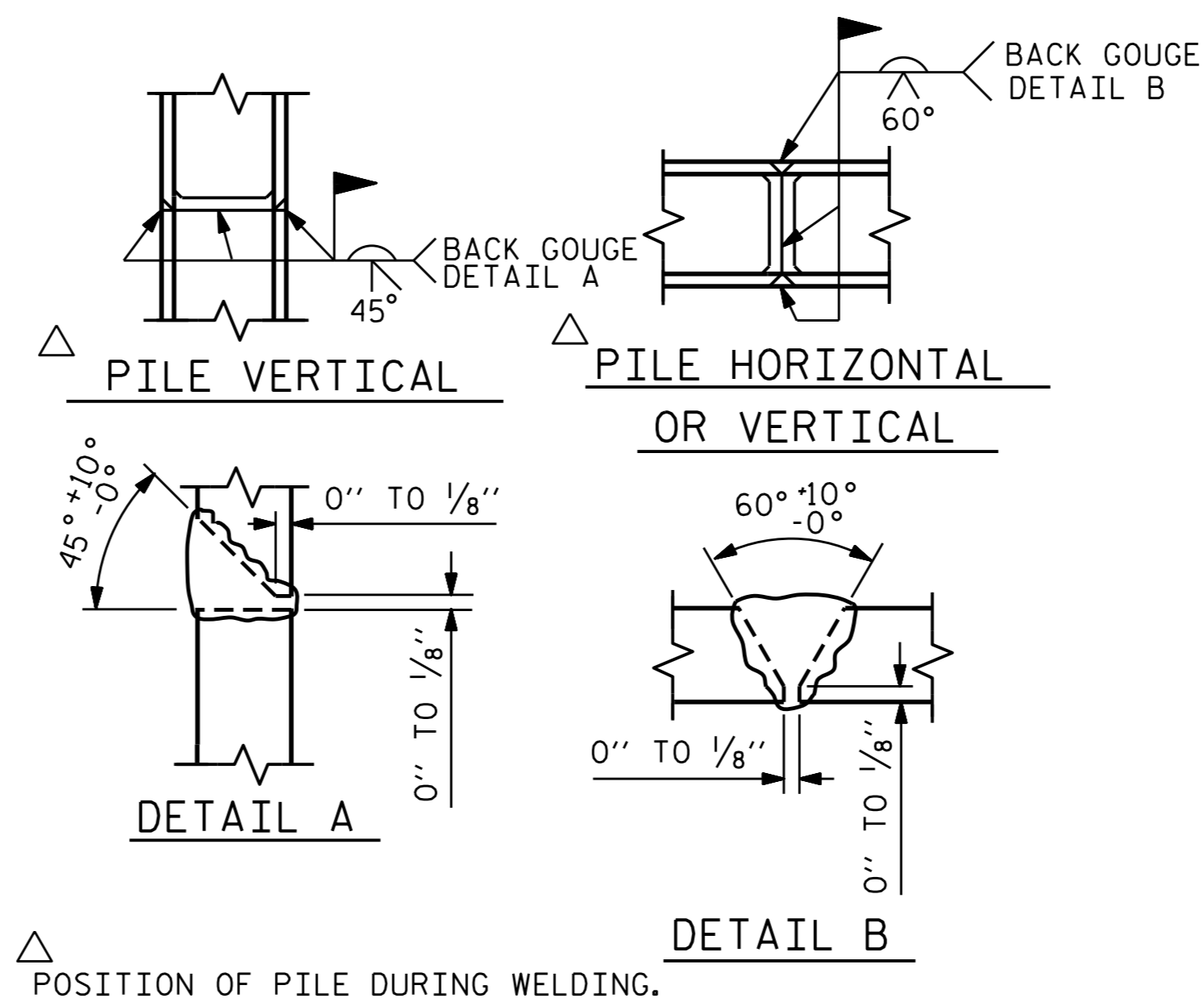
**SECTION A-A**



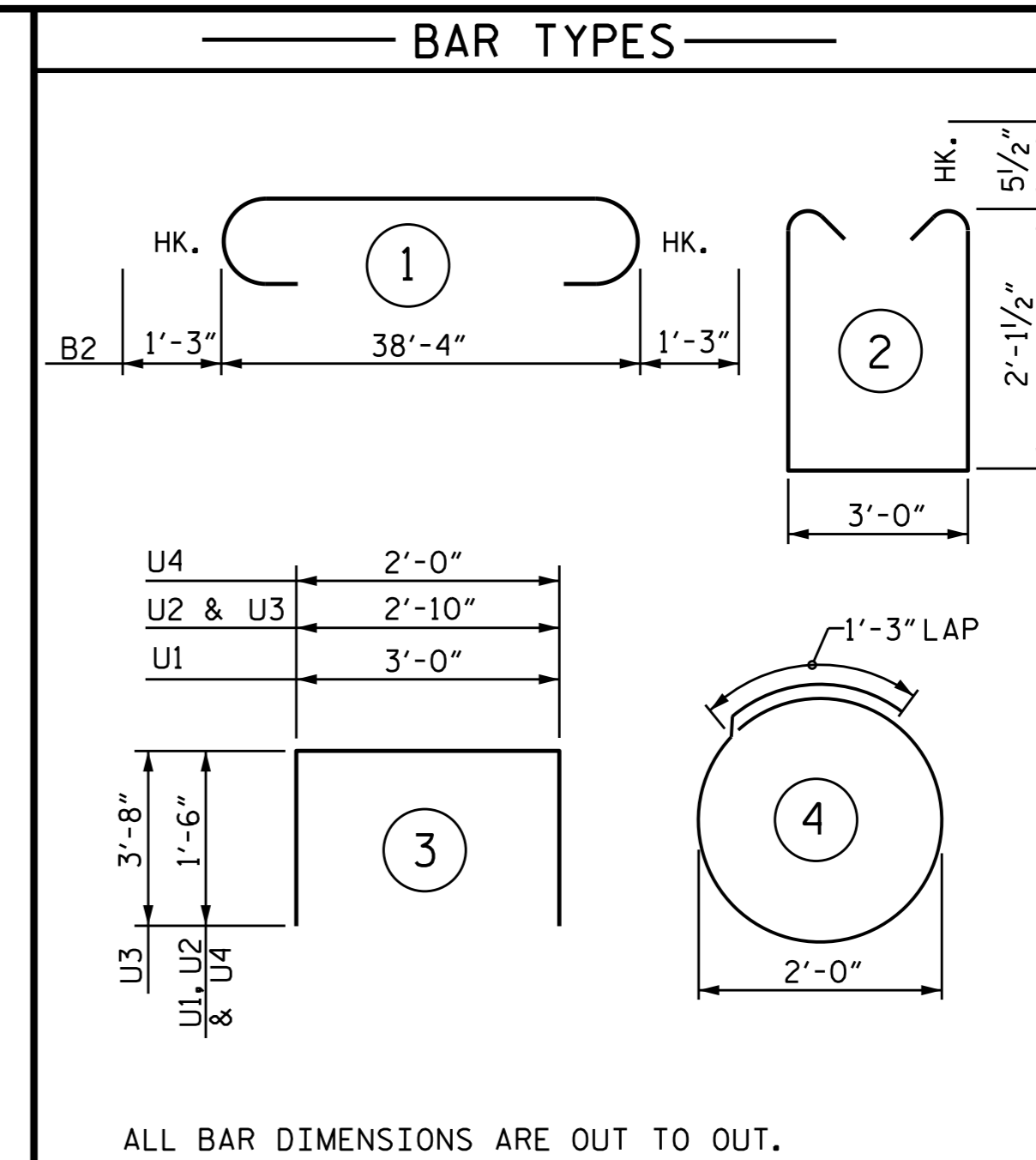
**SECTION B-B**



**END OF CAP VIEW**



**PILE SPLICE DETAILS**



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	STR.	38'-6"	663
B2	5	#9	1	40'-10"	694
B3	4	#5	STR.	38'-6"	161
B4	8	#4	STR.	20'-6"	110
B5	5	#5	STR.	5'-2"	27
B6	10	#4	STR.	3'-0"	20
B7	25	#4	STR.	3'-1"	51
S1	48	#5	2	8'-2"	409
S2	12	#4	4	7'-7"	61
U1	30	#4	3	6'-0"	120
U2	4	#4	3	5'-10"	16
U3	2	#9	3	10'-2"	69
U4	6	#4	3	5'-0"	20
REINFORCING STEEL				2421 LBS.	
CLASS A CONCRETE				12.5 CU.YDS.	
HP 14 X 73 GALVANIZED STEEL PILES					
NO. 6				390 LIN. FT.	
PILE REDRIVES				EA. 3	
STEEL PILE POINTS				EA. 6	

PROJECT NO. R-2514C  
JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 2 OF 2



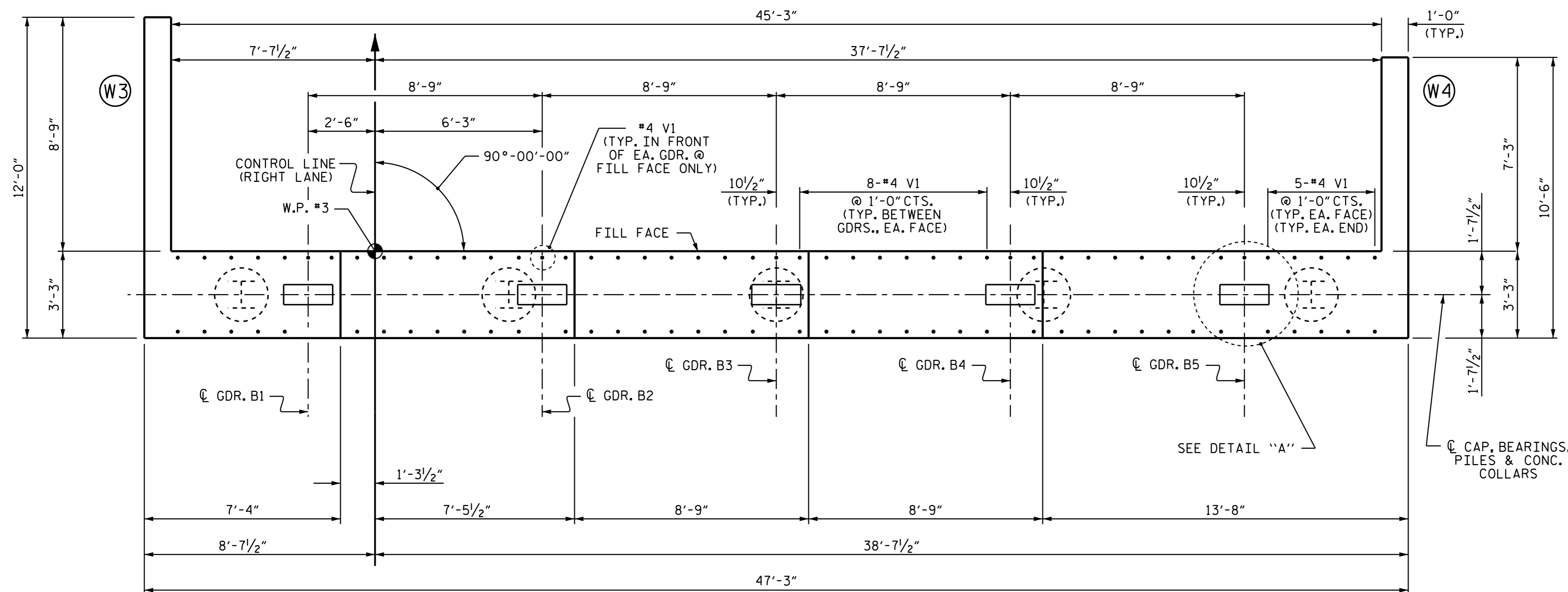
DocuSigned by:  
A. Keith Paschal

3/23/2015

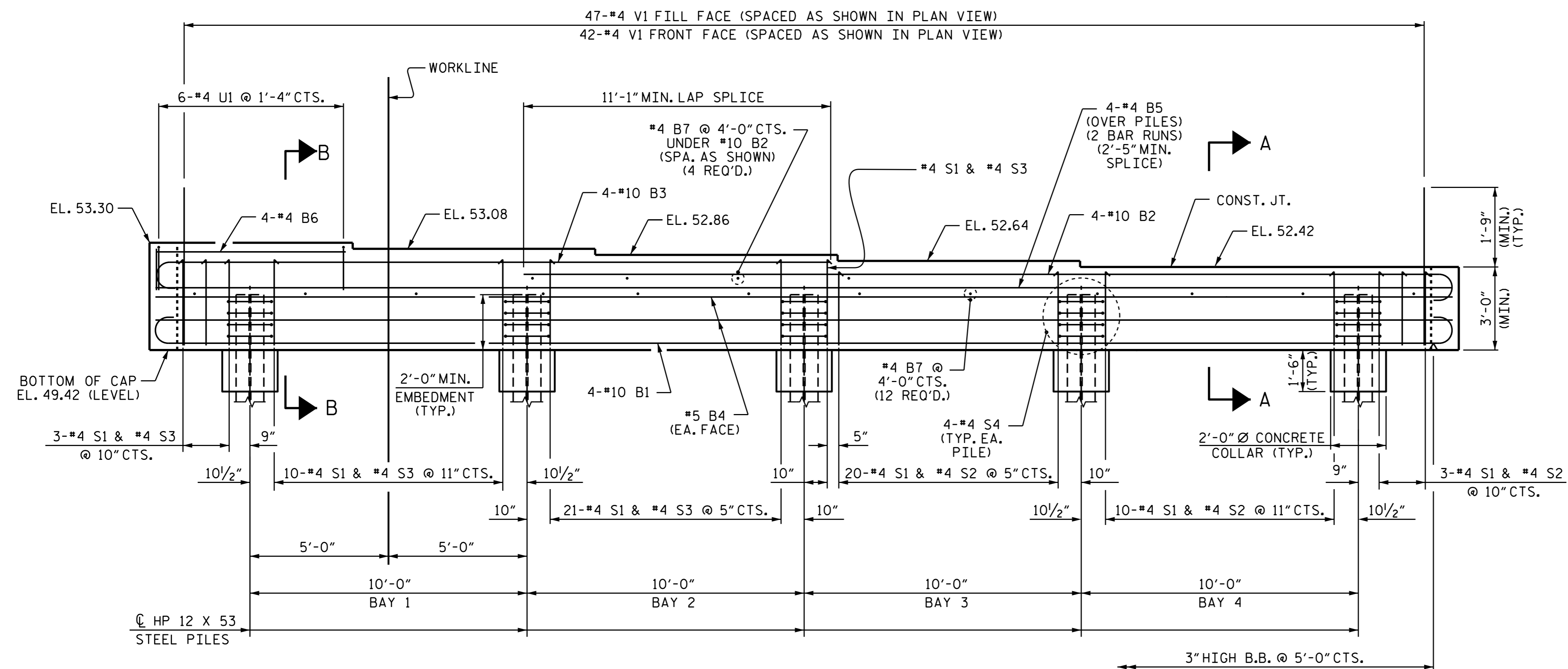
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT 1					
(RIGHT LANE)					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-51
					TOTAL SHEETS
					56

DRAWN BY: B. N. BARODAWALA DATE: 4-21-14  
 CHECKED BY: P. N. HOLDER DATE: 4-24-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2-9-15





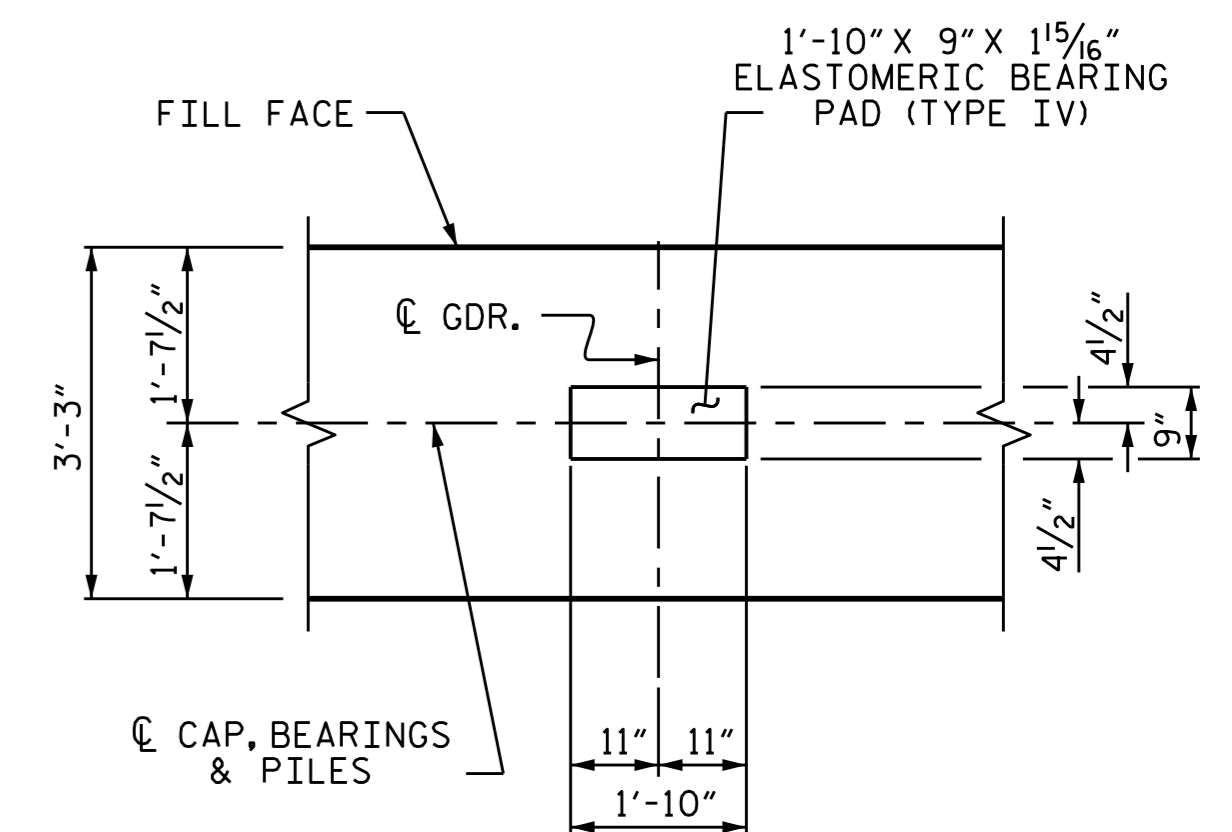
PLAN



ELEVATION

NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #4 V1 BARS.
- INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED BY REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
- THE TOP PART OF THE END BENT CAP AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".
- THE UPPER PORTION OF THE INTEGRAL END BENT CAP AND THE UPPER PORTION OF THE WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. SEE SUPERSTRUCTURE PLANS.

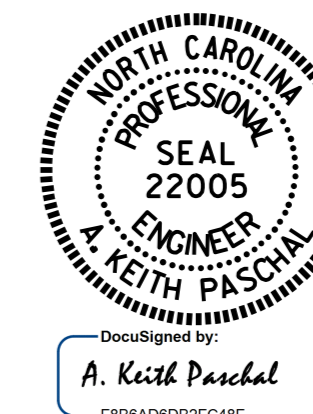


DETAIL "A"

(DETAILS AND DIMENSIONS ARE TYPICAL FOR EACH BEARING)

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

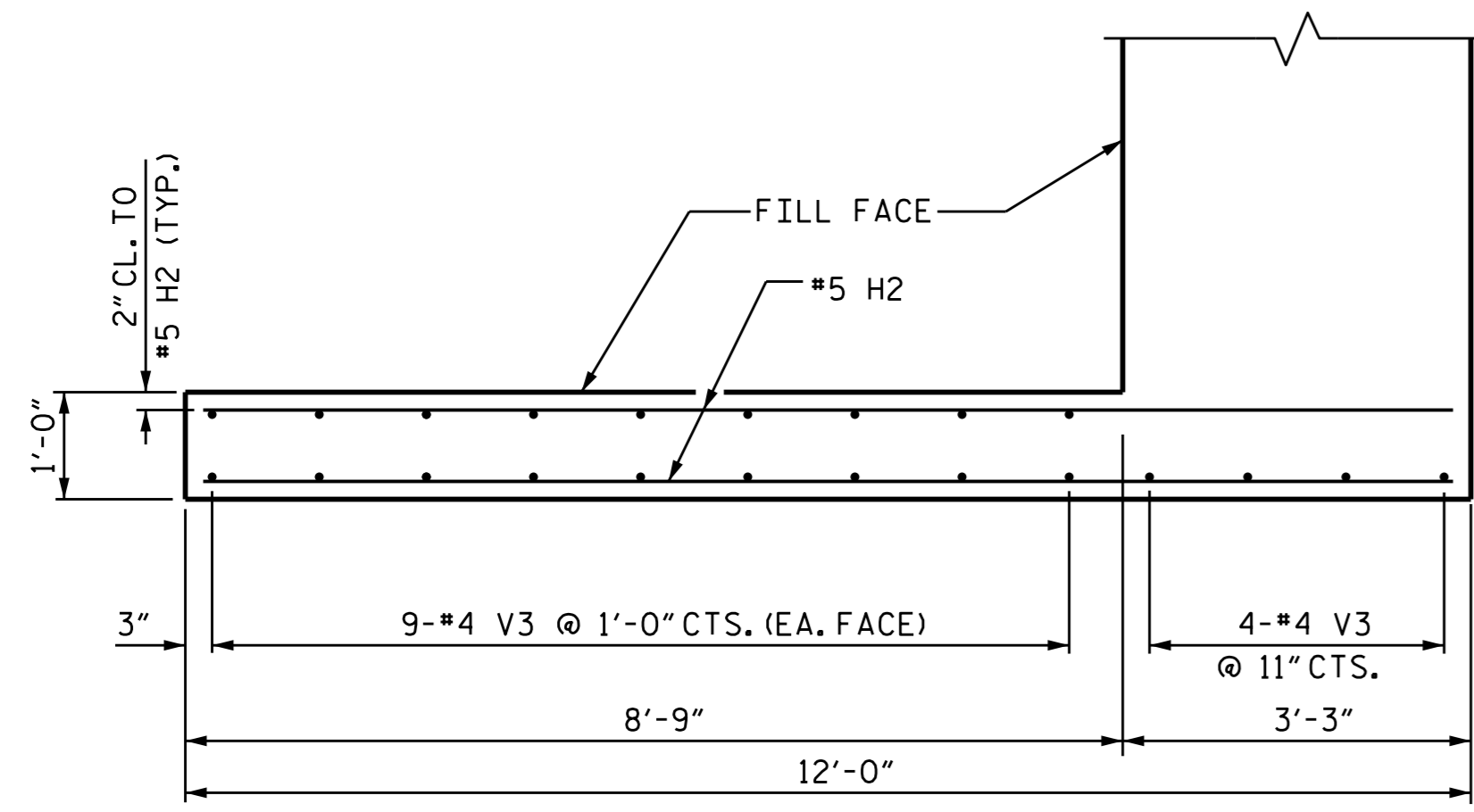
SHEET 1 OF 3



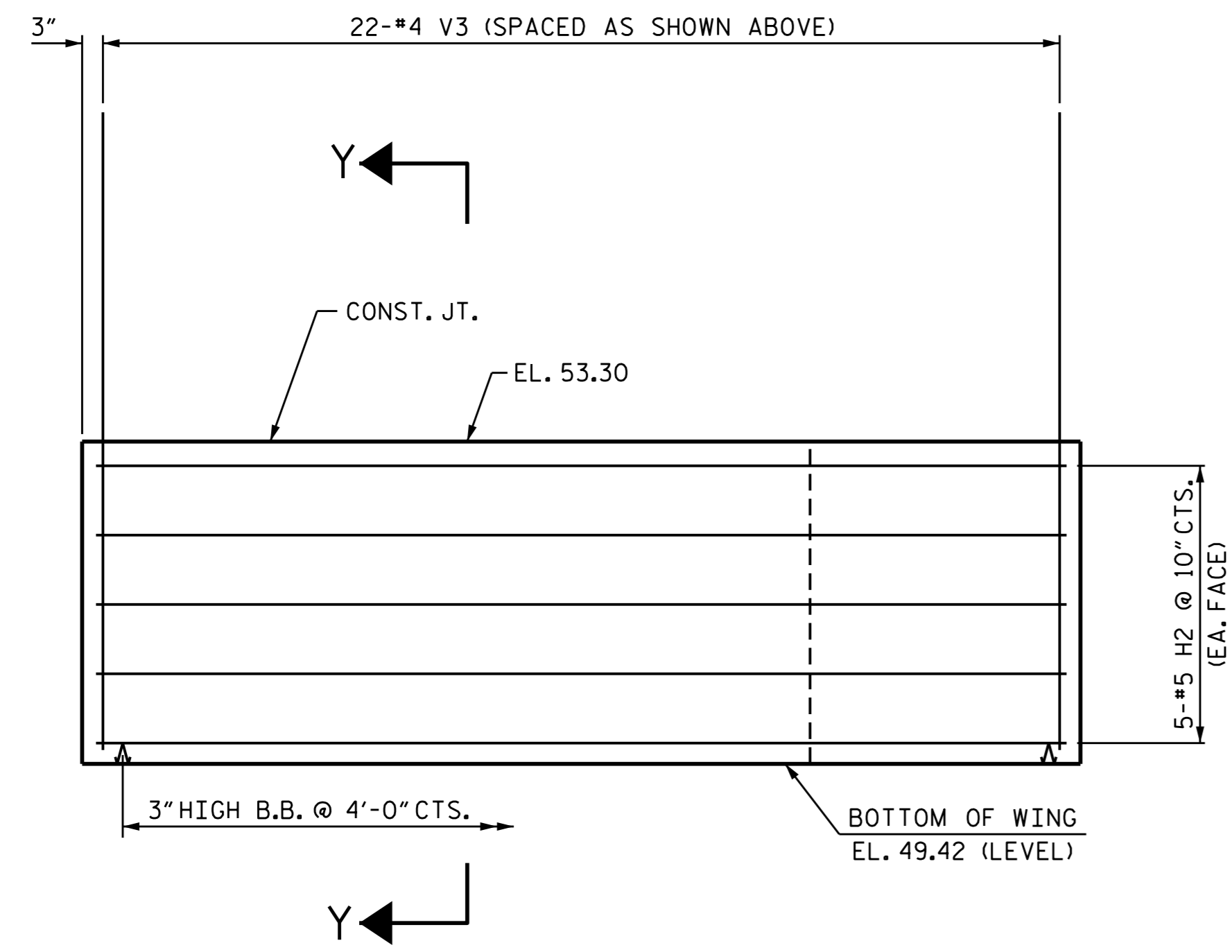
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 INTEGRAL END BENT 2  
 (RIGHT LANE)

REVISIONS						SHEET NO. S-52
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

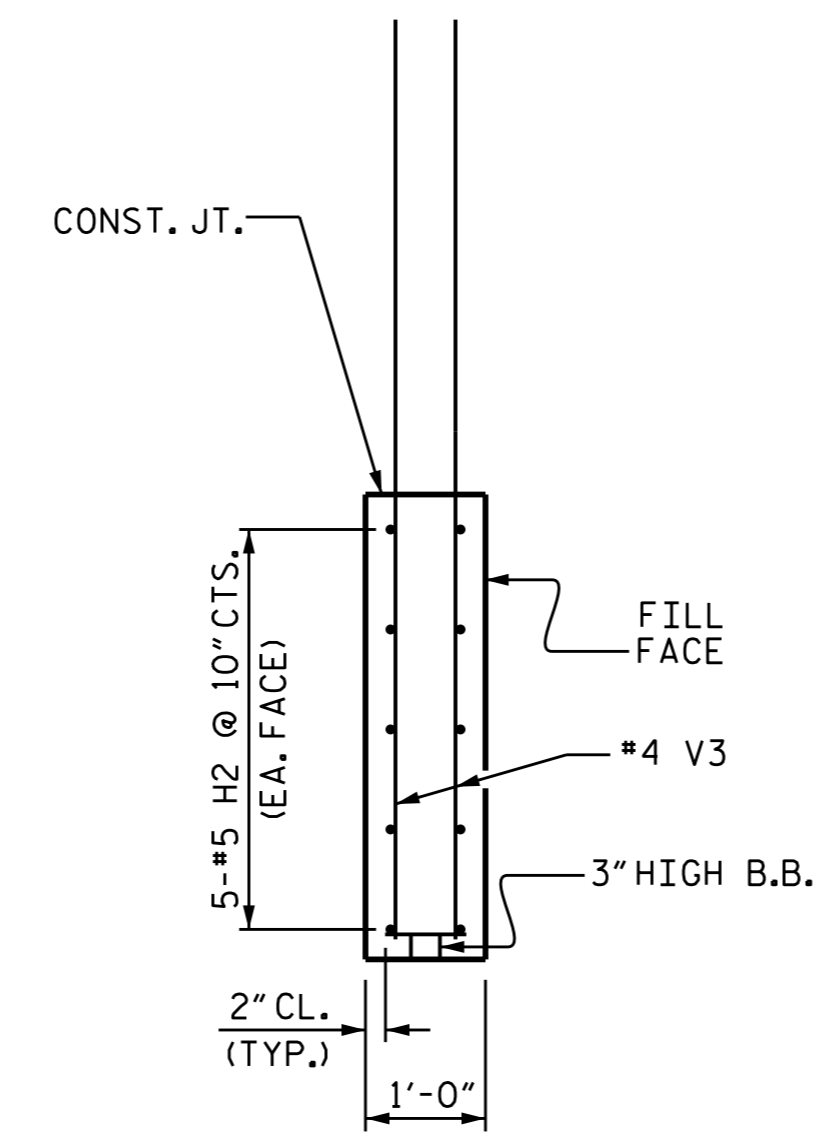
DRAWN BY: D. G. ELY DATE: 6/26/14  
 CHECKED BY: P. N. HOLDER DATE: 7/17/14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2/9/15



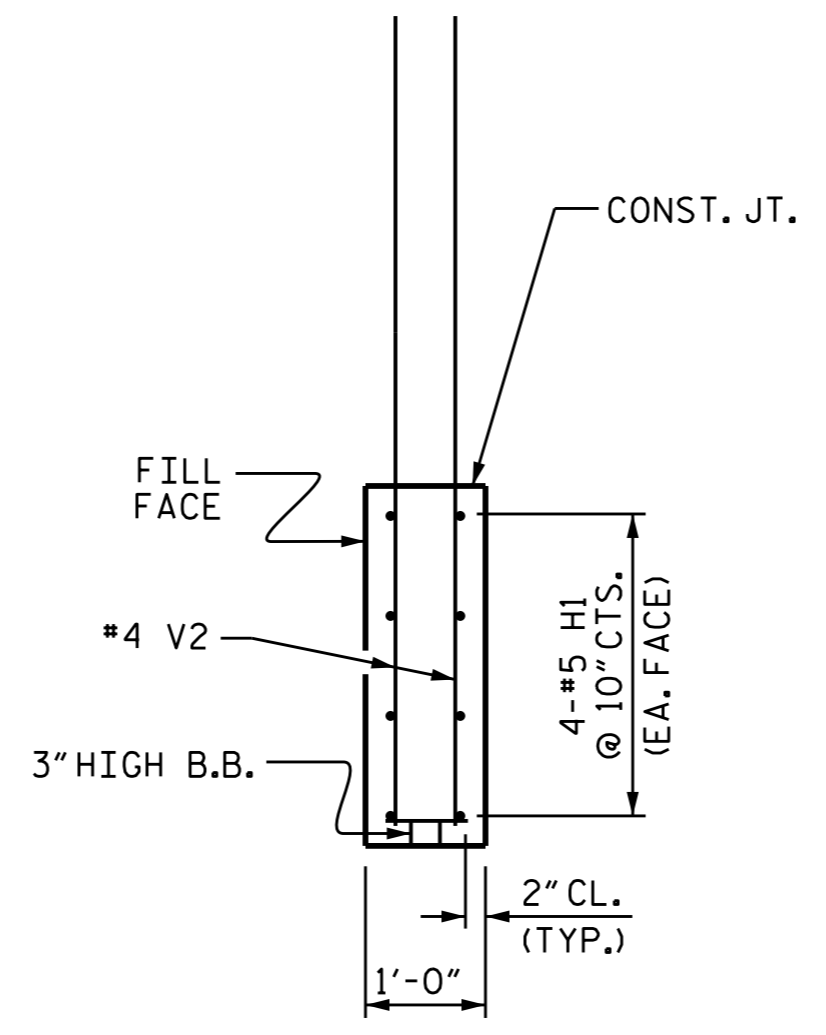
PLAN OF WING (W3)



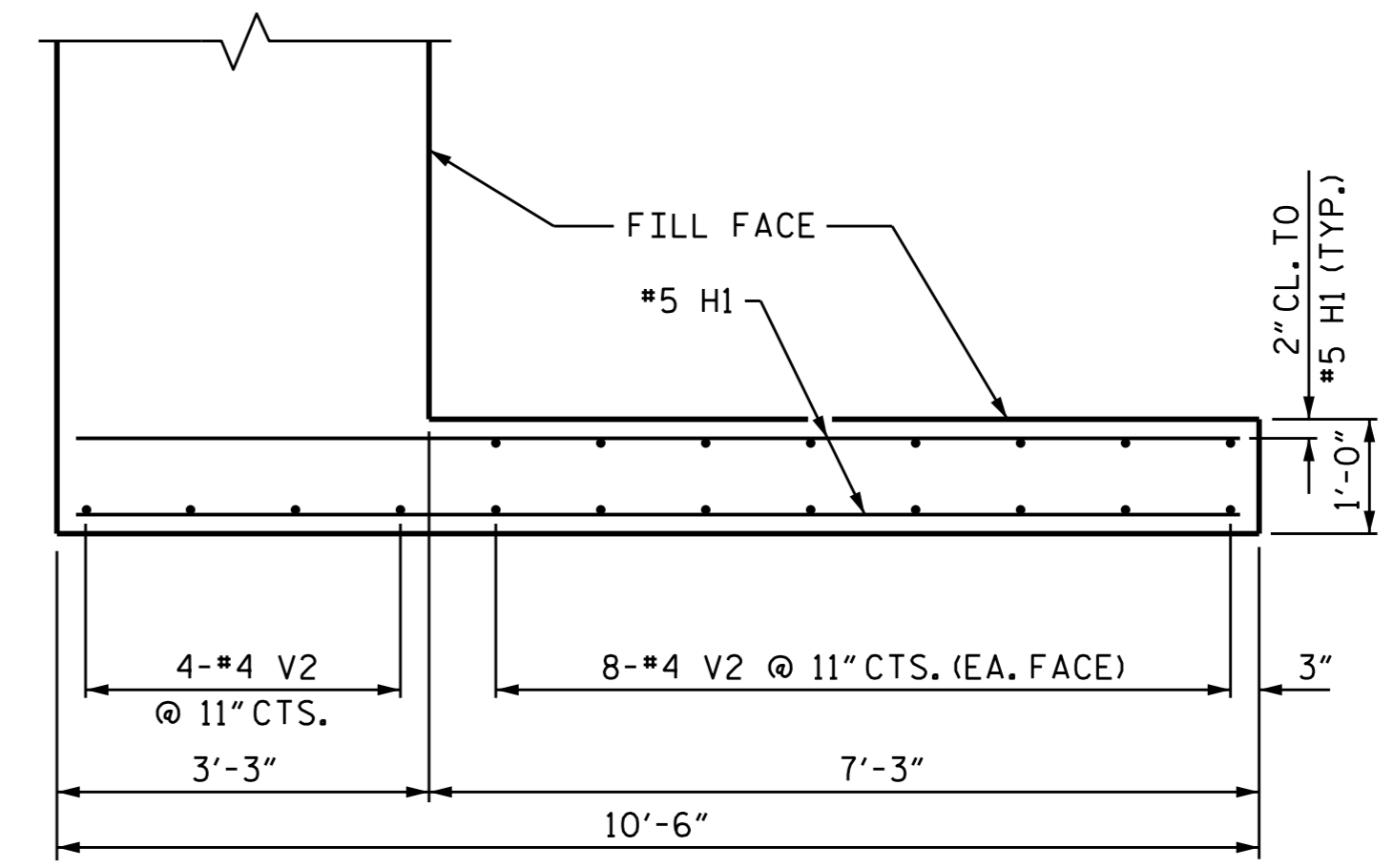
ELEVATION OF WING (W3)



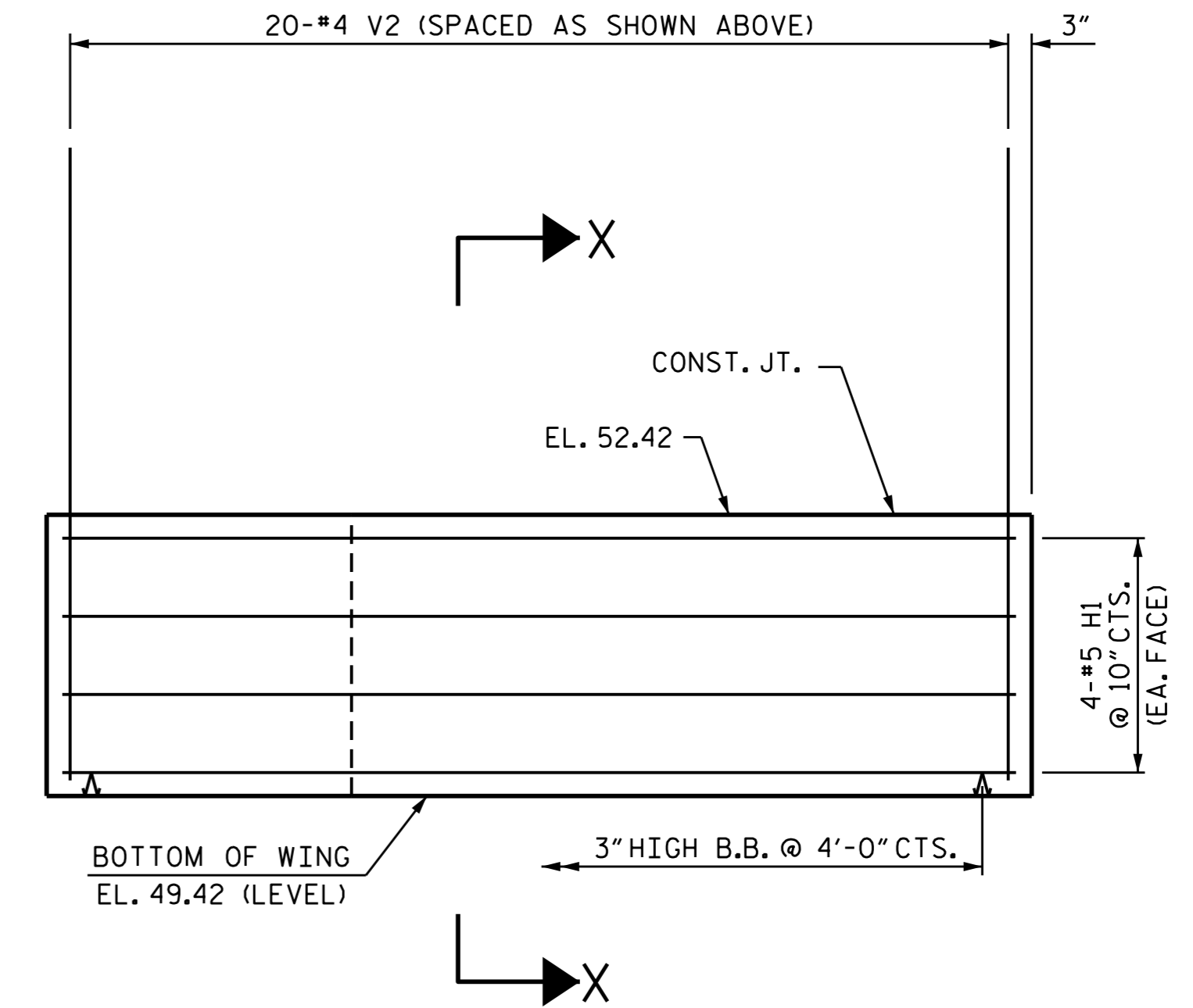
SECTION Y-Y



SECTION X-X



PLAN OF WING (W4)



ELEVATION OF WING (W4)

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

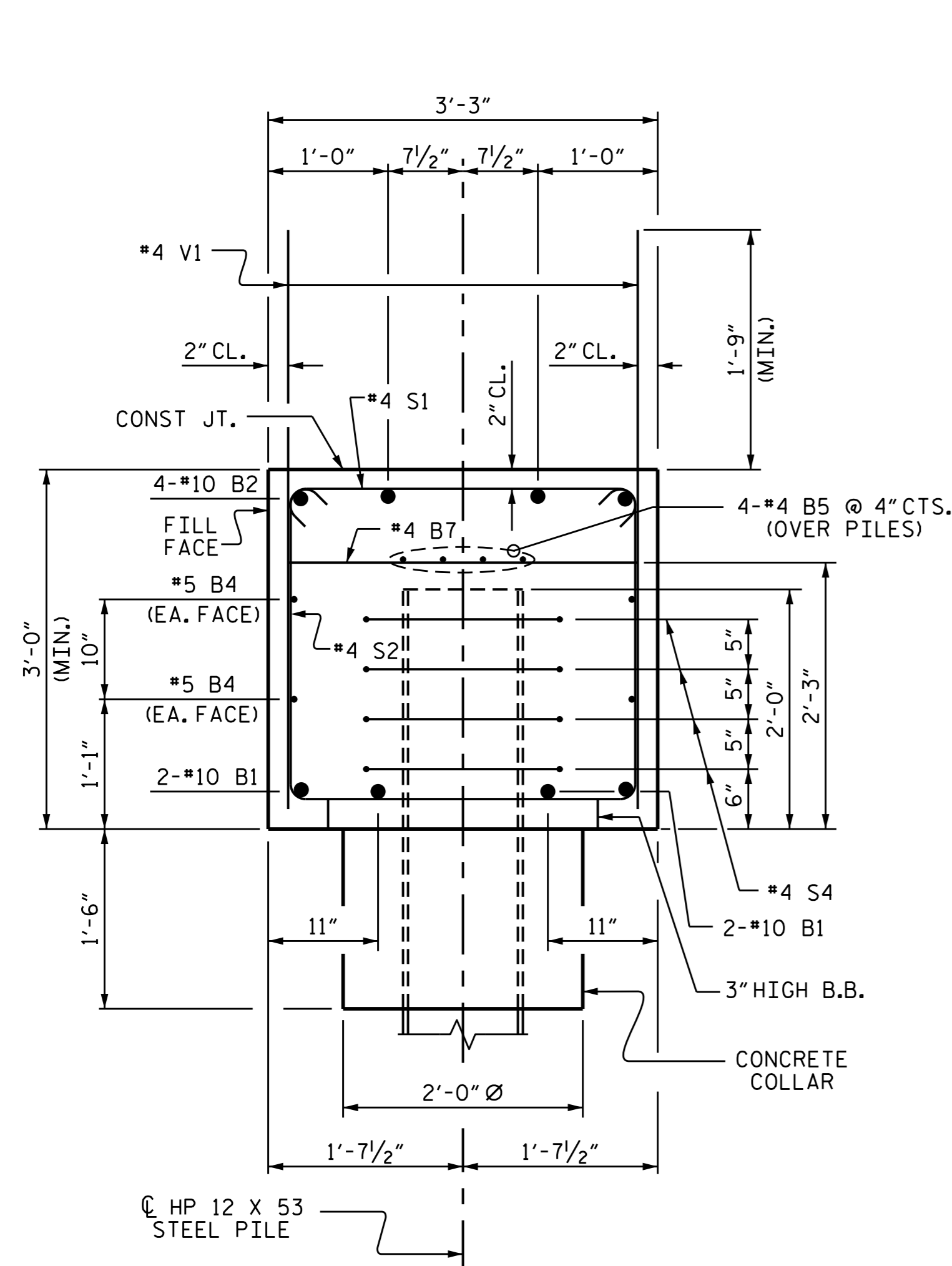
SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 INTEGRAL END BENT 2  
 (RIGHT LANE)

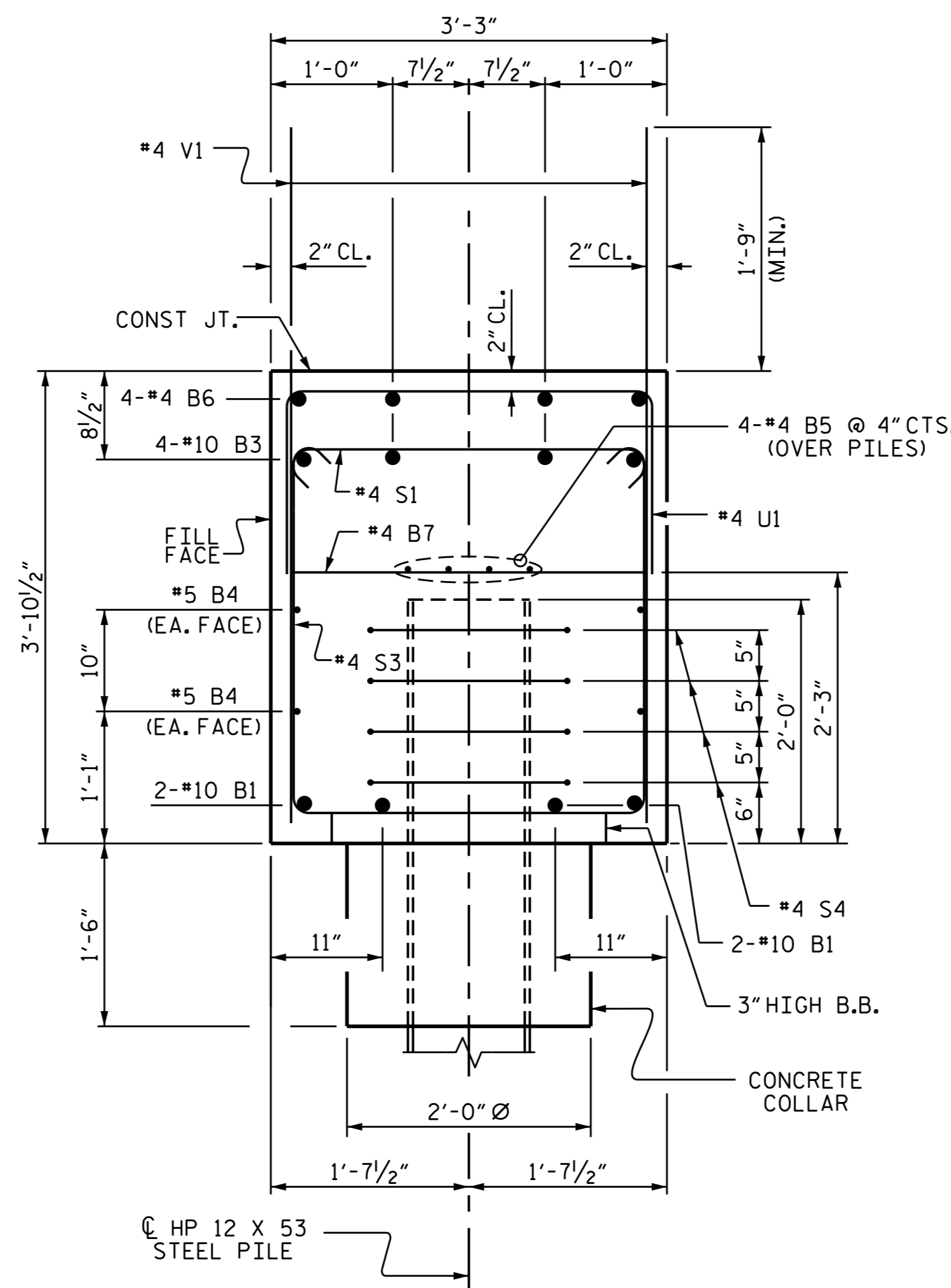


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-53	
1			3			TOTAL SHEETS	
2			4			56	

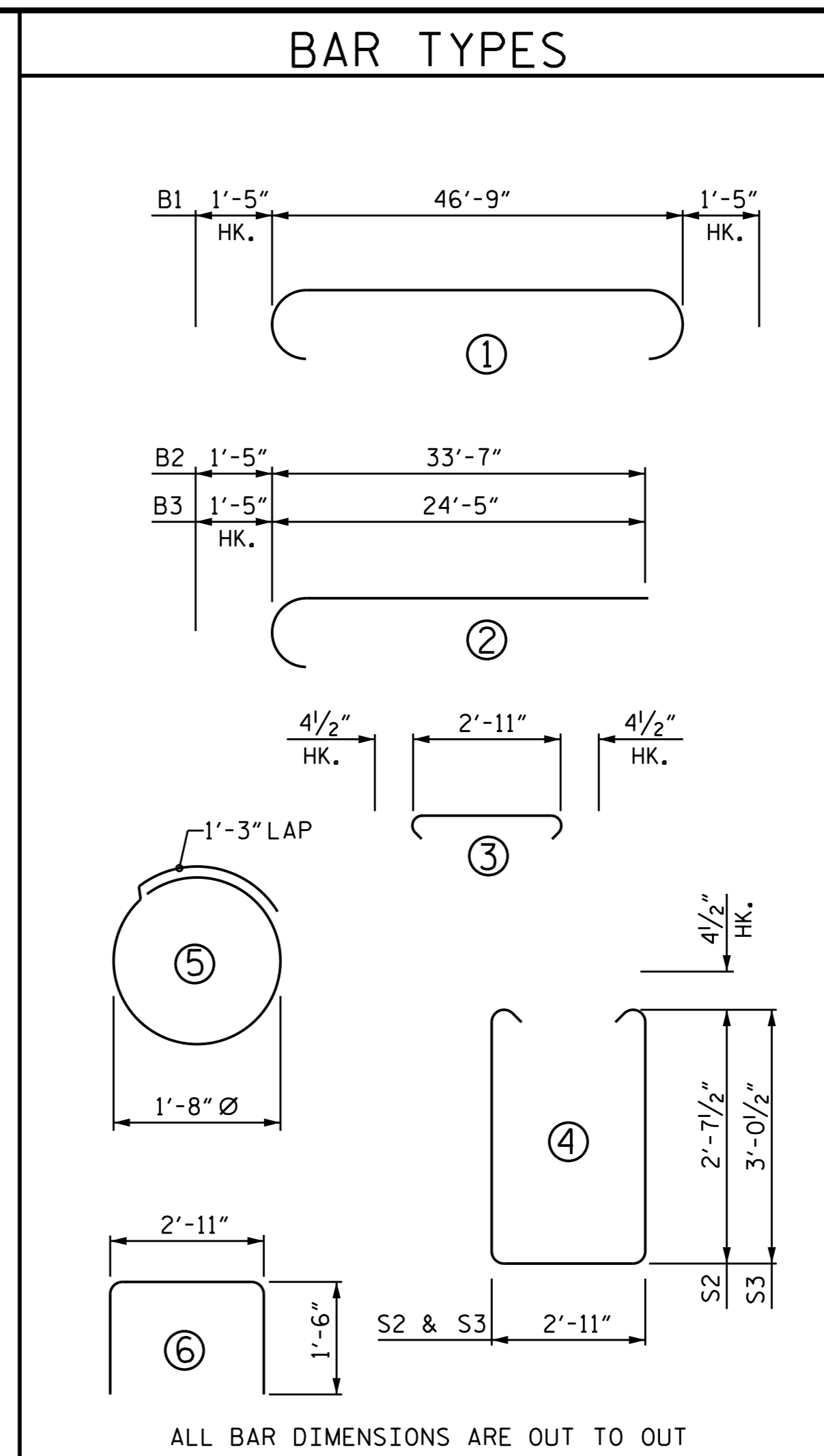
DRAWN BY: D. G. ELY DATE: 6/26/14  
 CHECKED BY: P. N. HOLDER DATE: 7/17/14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2/9/15



SECTION A-A



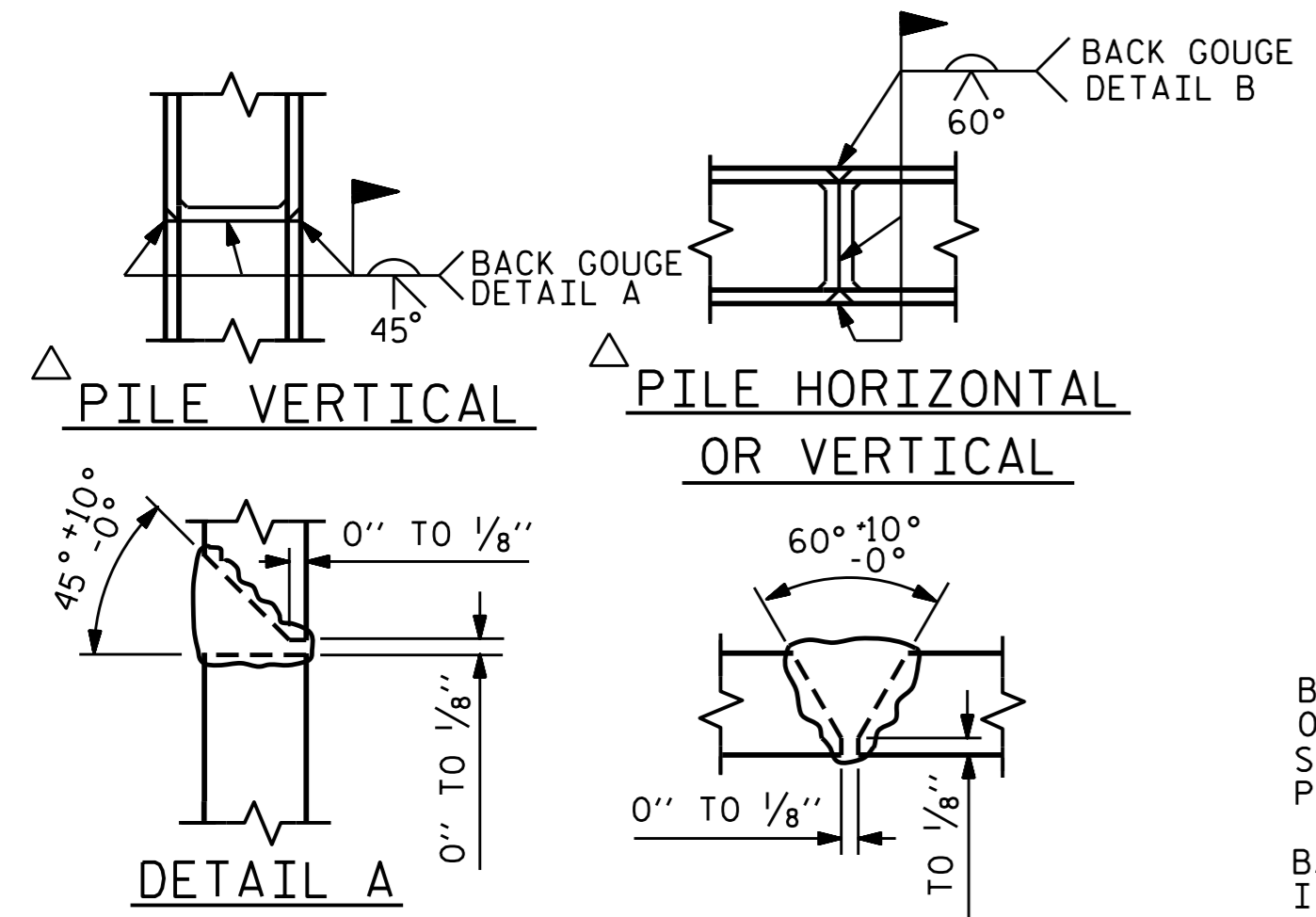
SECTION B-B



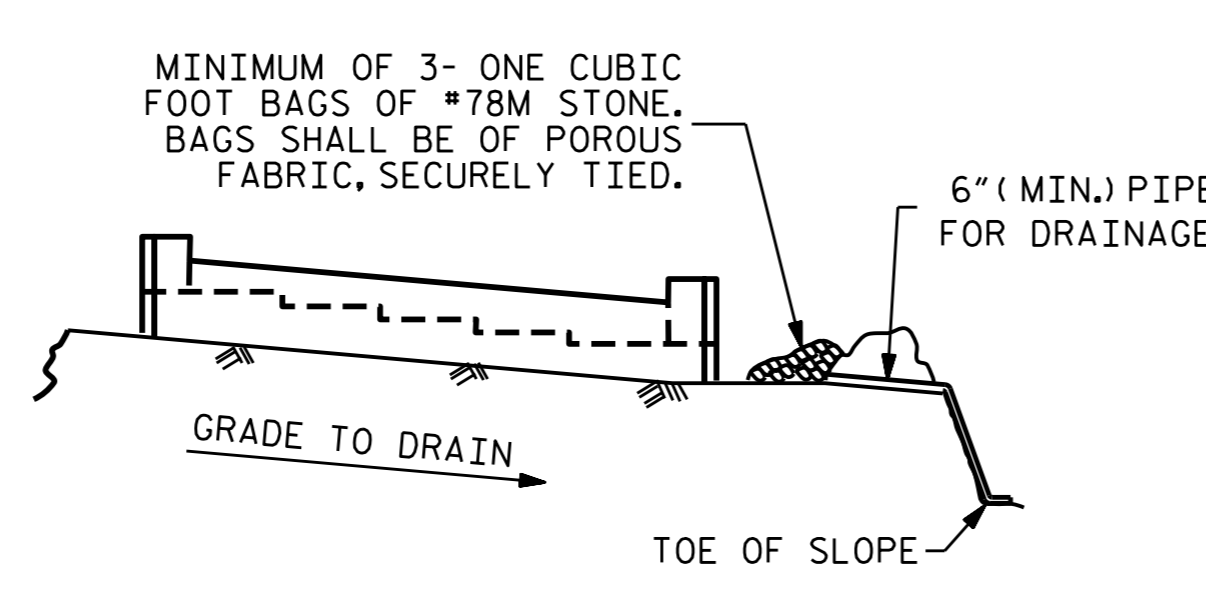
BILL OF MATERIAL

END BENT 2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	49'-7"	853
B2	4	#10	2	35'-0"	602
B3	4	#10	2	25'-10"	445
B4	4	#5	STR.	46'-11"	196
B5	8	#4	STR.	24'-8"	132
B6	4	#4	STR.	7'-0"	19
B7	16	#4	STR.	2'-11"	31
H1	8	#5	STR.	10'-2"	85
H2	10	#5	STR.	11'-8"	122
S1	68	#4	3	3'-8"	167
S2	33	#4	4	8'-11"	197
S3	35	#4	4	9'-9"	228
S4	20	#4	5	6'-6"	87
U1	6	#4	6	5'-11"	24
V1	89	#4	STR.	5'-6"	327
V2	20	#4	STR.	6'-9"	90
V3	22	#4	STR.	7'-8"	113

REINFORCING STEEL	3718 LBS.
CLASS A CONCRETE BREAKDOWN	
CAP, LOWER WINGS & COLLARS	22.2 CU.YDS.
HP 12 x 53 STEEL PILES	
NO. 5	275 LIN. FT.
STEEL PILE POINTS	5 EACH
PILE REDRIVES	3 EACH



PILE SPLICE DETAILS



MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

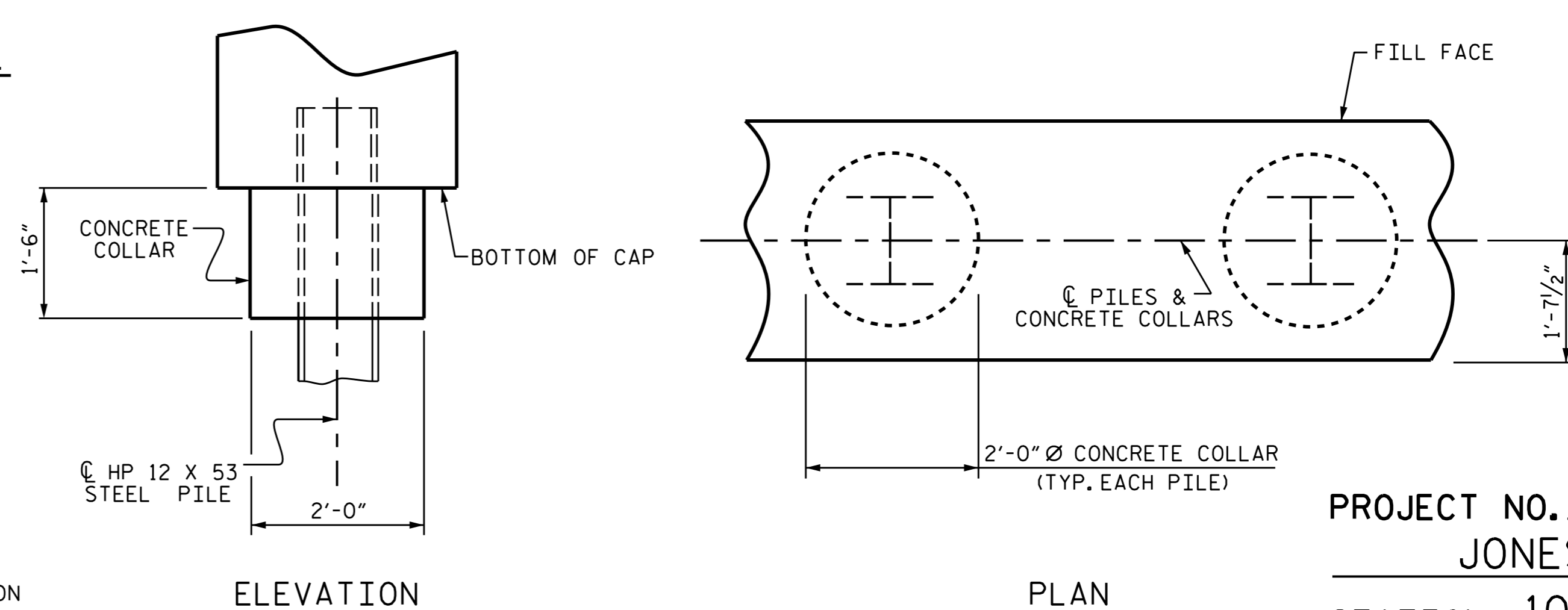
TOE OF SLOPE

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



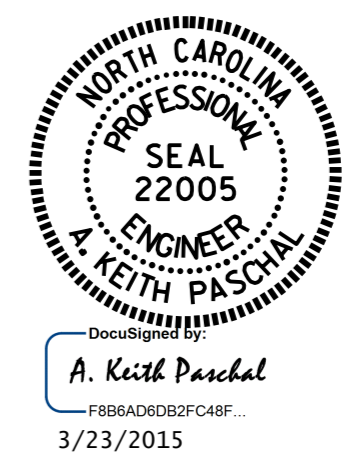
CORROSION PROTECTION FOR STEEL PILES DETAIL

PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 INTEGRAL END BENT 2  
 (RIGHT LANE)

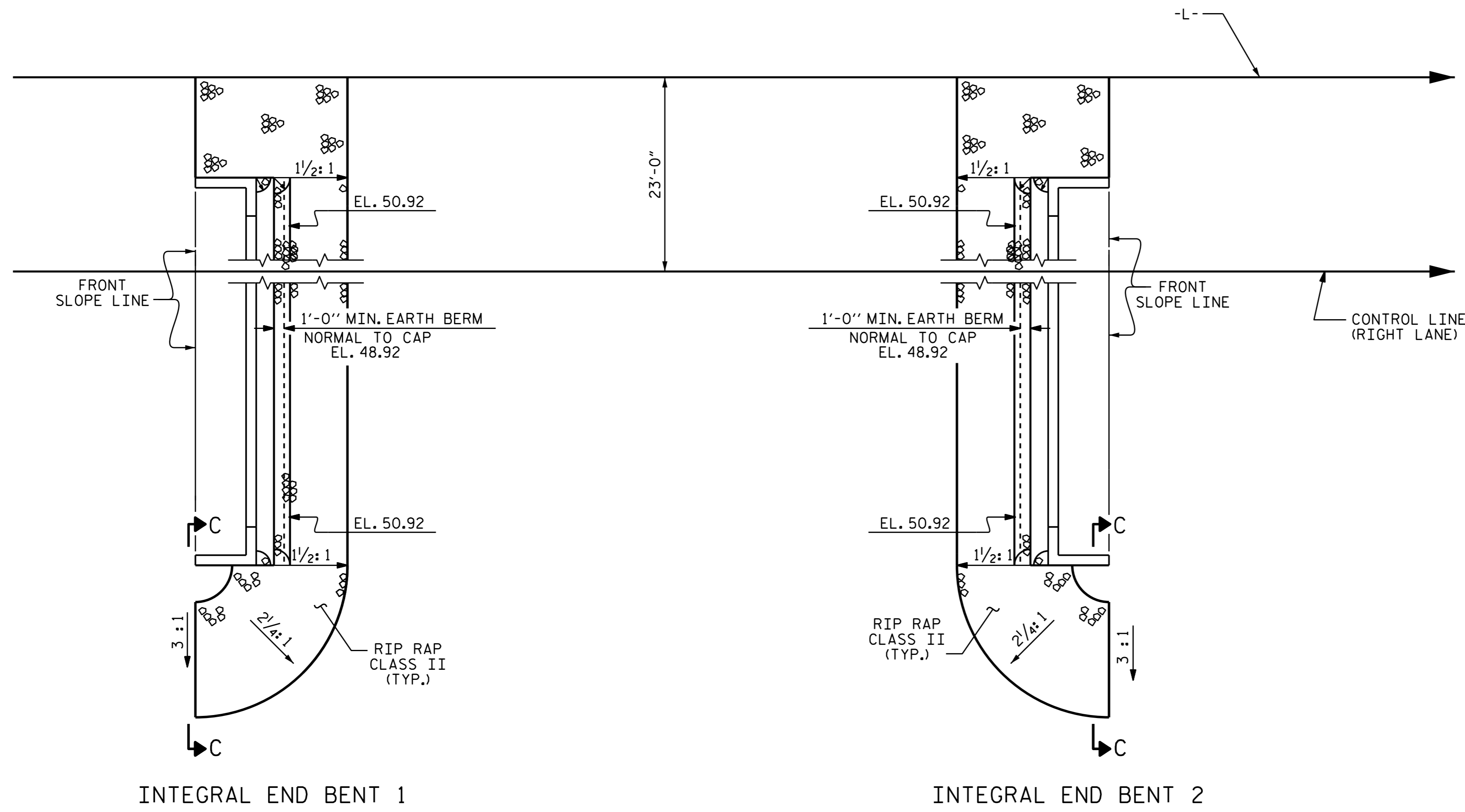


REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: D. G. ELY DATE: 6/26/14  
 CHECKED BY: P. N. HOLDER DATE: 7/17/14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2/9/15

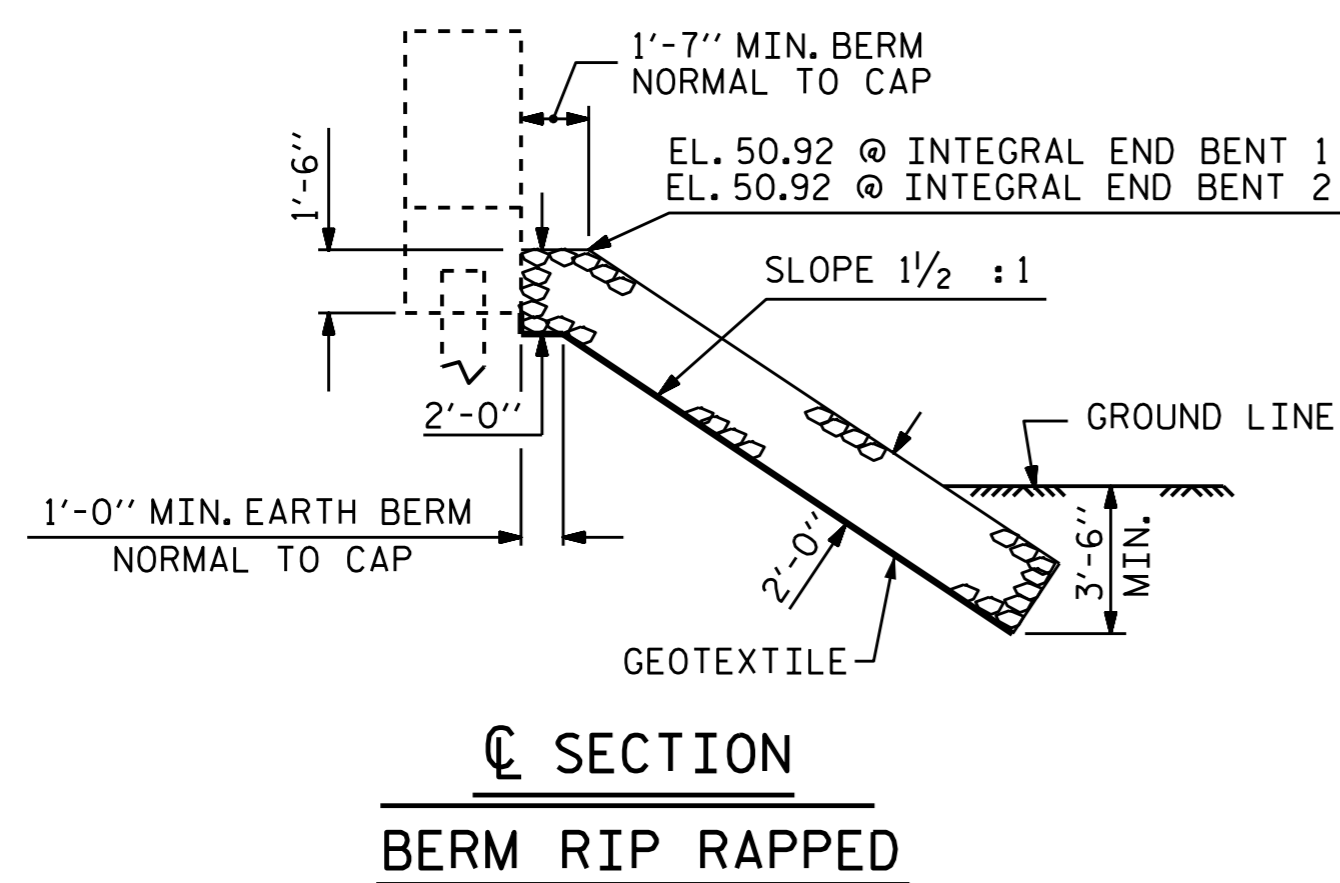


NOTES :  
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

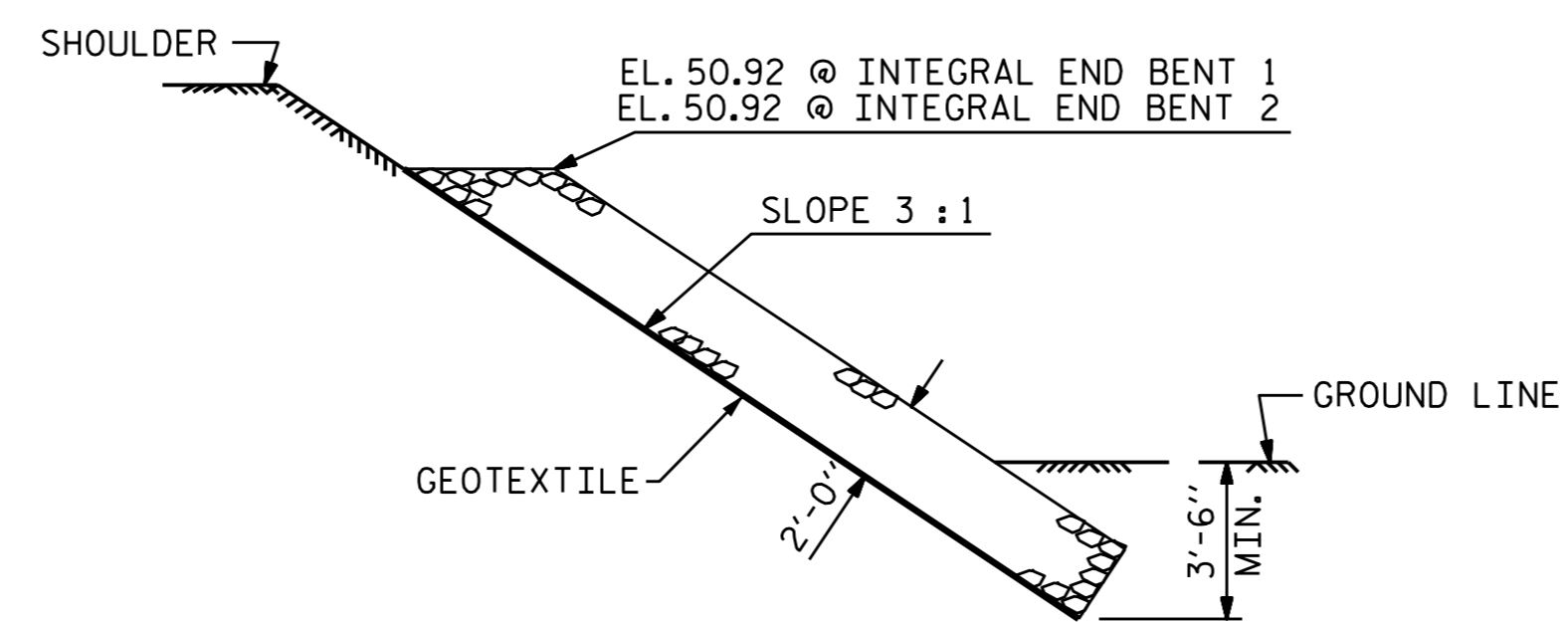


**BERM RIP RAPPED**

ESTIMATED QUANTITIES		
BRIDGE @ STA. 102+05.00 -L- (RIGHT LANE)	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
INTEGRAL END BENT 1	235	262
INTEGRAL END BENT 2	235	262

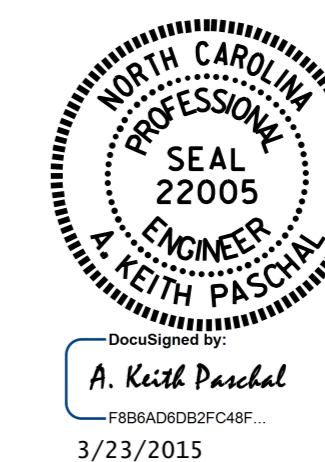


**SECTION C-C  
BERM RIP RAPPED**



**SECTION C-C**

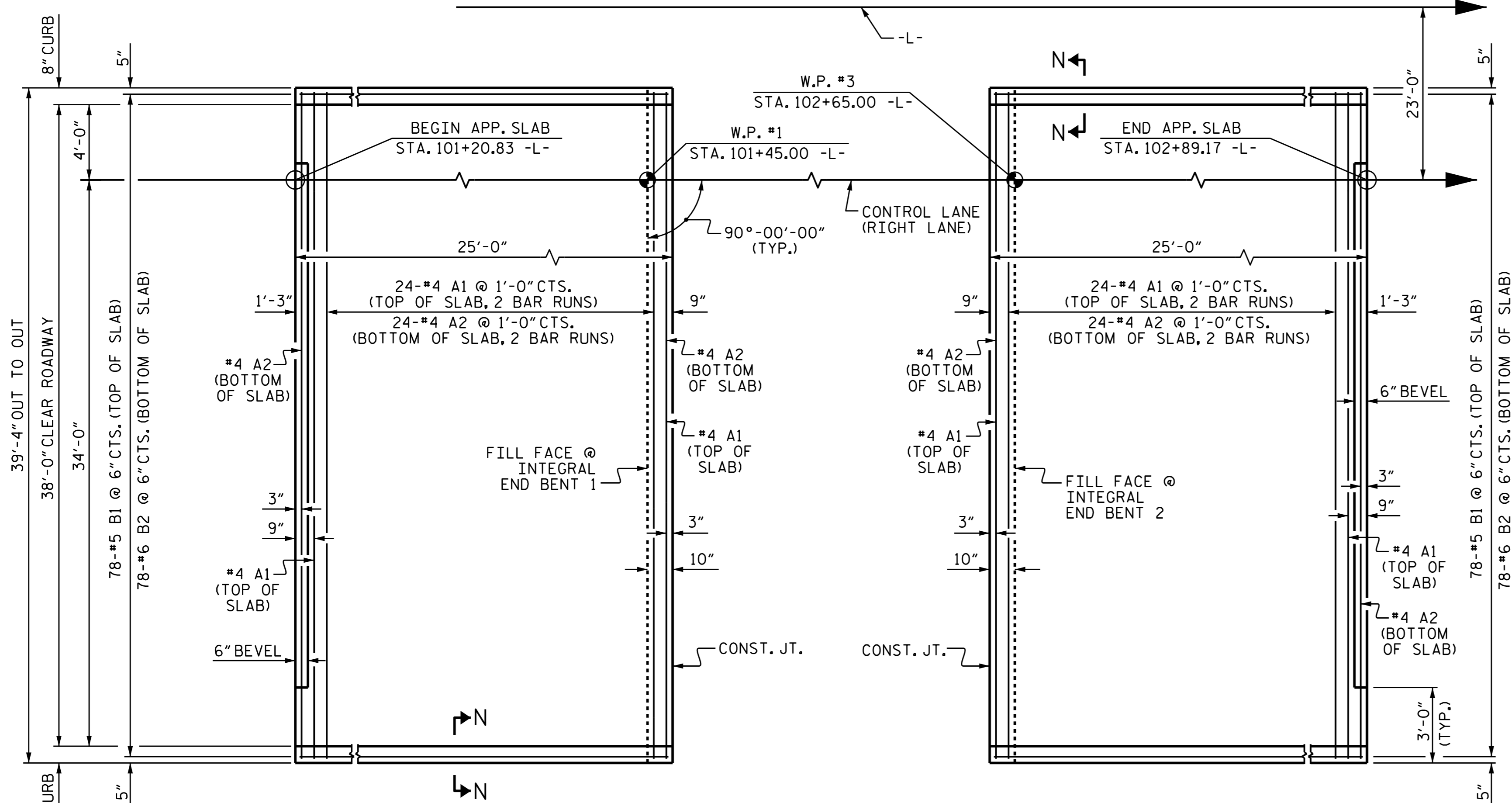
PROJECT NO. R-2514C  
JONES COUNTY  
STATION: 102+05.00 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
**—RIP RAP DETAILS—**  
(RIGHT LANE)

REVISIONS						SHEET NO. S-55
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			

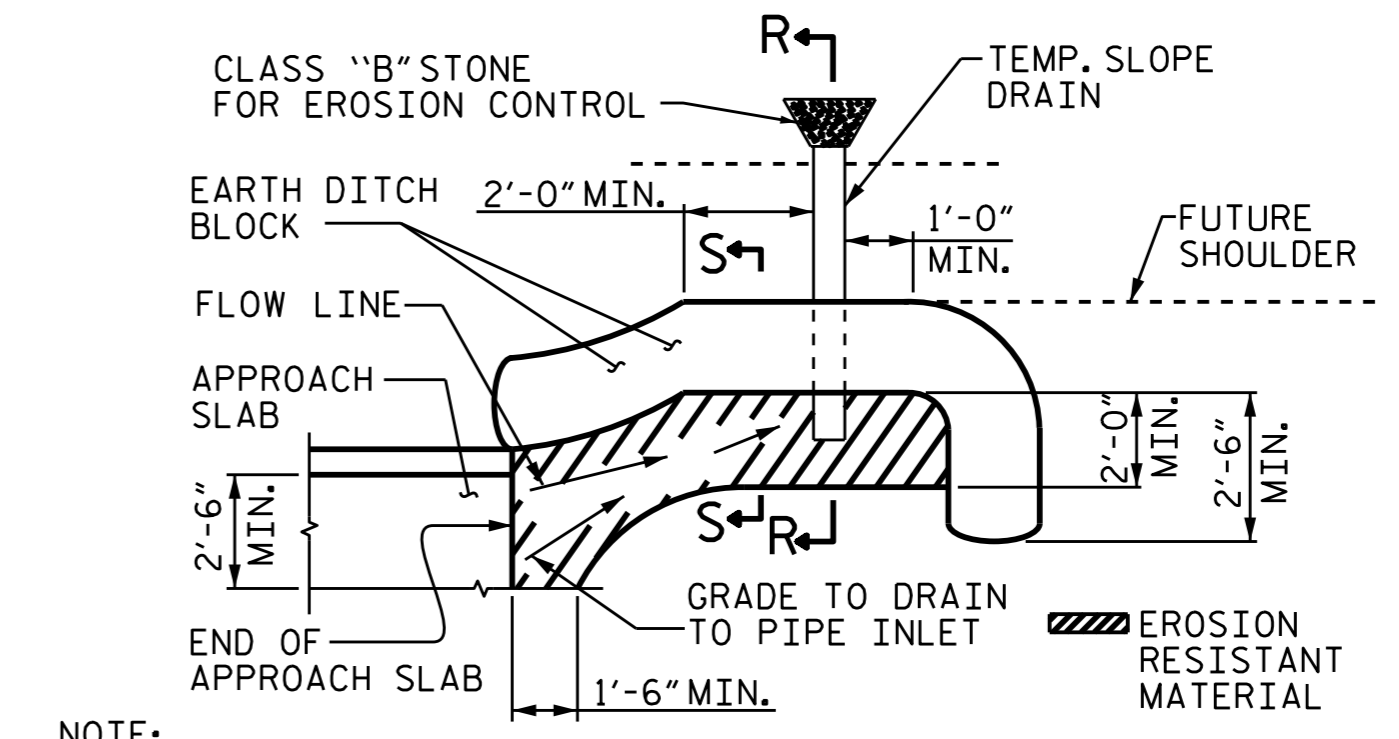
ASSEMBLED BY : B. N. BARODAWALA	DATE : 4-23-14
CHECKED BY : D. G. ELY	DATE : 8-5-14
DESIGN ENGINEER OF RECORD : A. K. PASCHAL	DATE : 2-9-15
DRAWN BY : REK 1/84	REV. 5/1/06R TLA/GM
CHECKED BY : RDU 1/84	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM



PLAN @ END BENT 1 PLAN @ END BENT 2  
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

**NOTES**

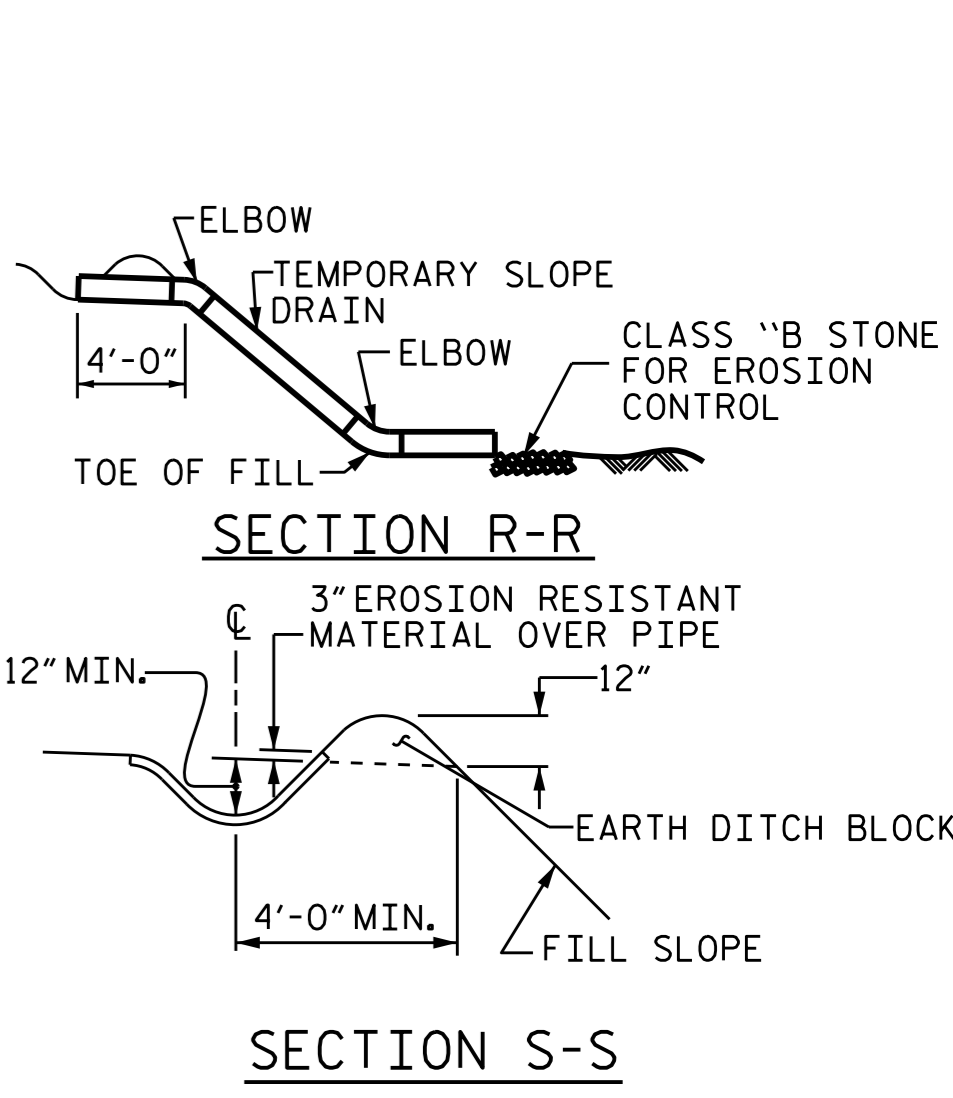
APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.  
 FOR REINFORCED BRIDGE APPROACH FILL FABRIC WALL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, WELDED WIRE FORM, AND SELECT MATERIAL, SEE ROADWAY PLANS.  
 AREA BETWEEN THE WINGWALL AND APPROACH 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 SAWS 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.



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.

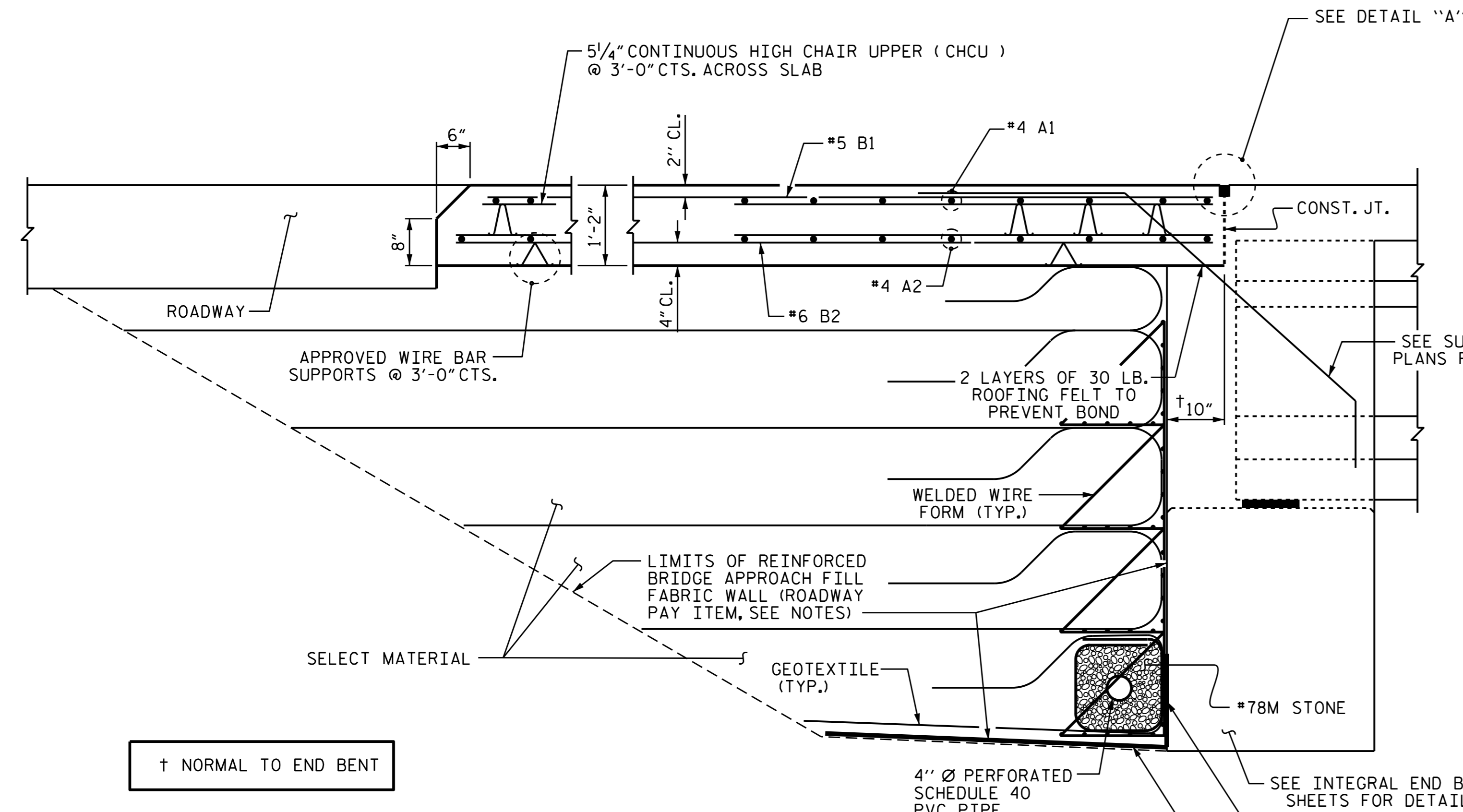
**BILL OF MATERIAL**  
FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	52	#4	STR	20'-6"	712
A2	52	#4	STR	20'-5"	709
* B1	78	#5	STR	24'-2"	1996
B2	78	#6	STR	24'-8"	2890
REINFORCING STEEL					3599 LBS.
* EPOXY COATED REINFORCING STEEL					2678 LBS.
CLASS AA CONCRETE					42.3 C.Y.



**TEMPORARY BERM AND SLOPE DRAIN DETAILS**

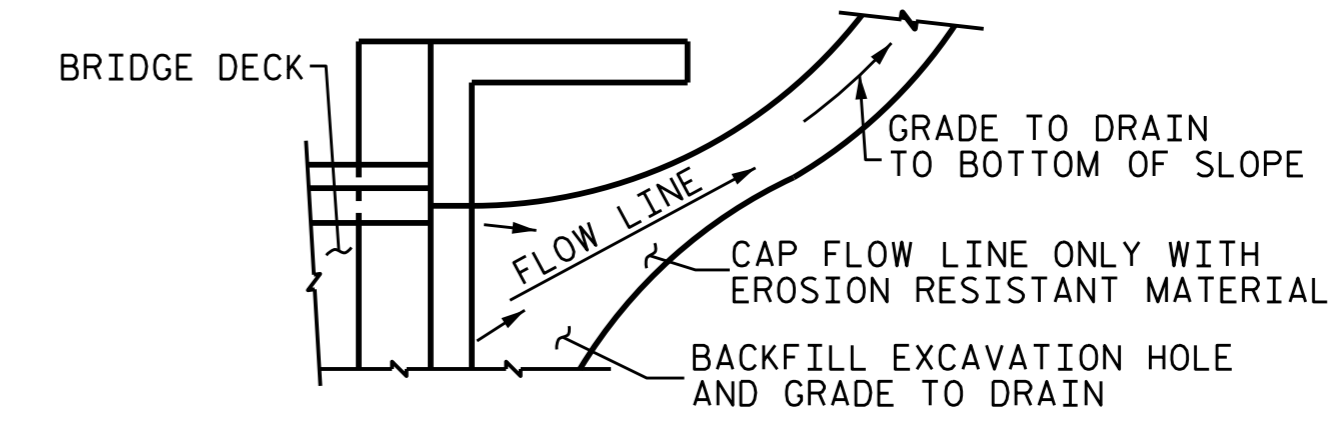
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION THRU SLAB

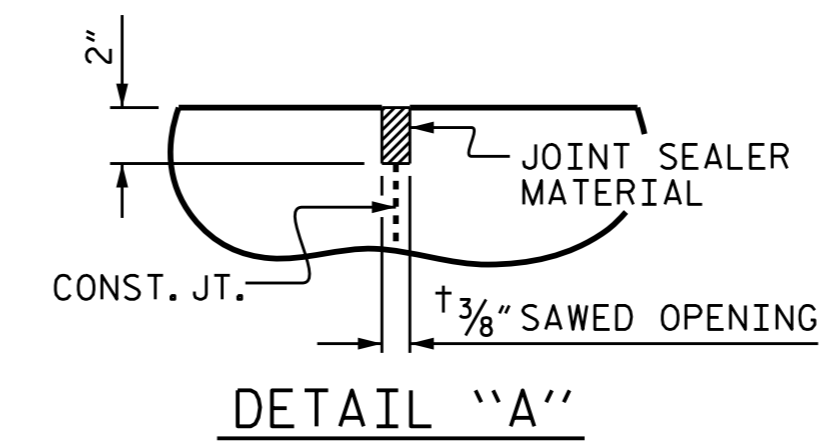
**SPLICE LENGTH CHART**

BAR	SPLICE LENGTH
#4 A1	2'-0"
#4 A2	1'-9"

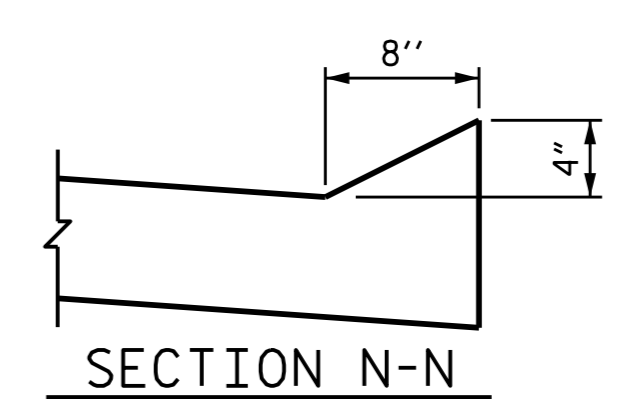


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

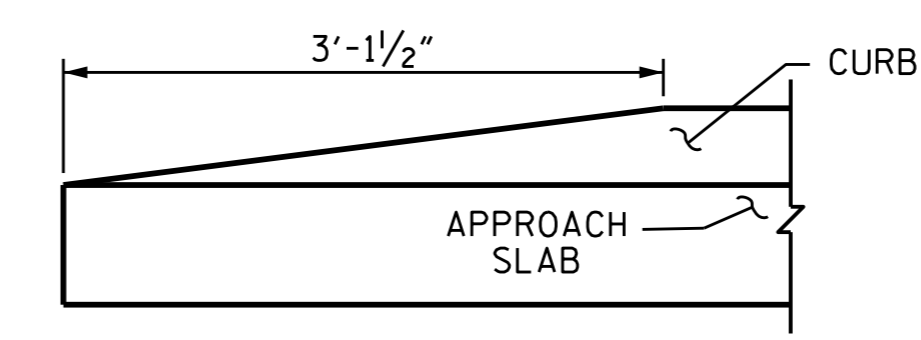
**TEMPORARY DRAINAGE DETAIL**



DETAIL "A"

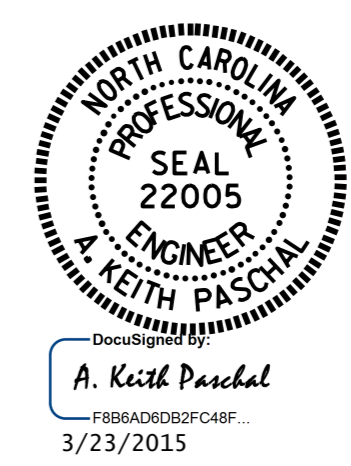


SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

ASSEMBLED BY: B.N. BARODAWALA DATE: 6-23-14  
 CHECKED BY: D. G. ELY DATE: 8-4-14  
 DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE: 2-9-15  
 DRAWN BY: TLA 10/05 REV. 10/1/11 MAA/GM  
 CHECKED BY: GM 5/06 REV. 12/21/11 MAA/GM  
 REV. 6/13 MAA/GM



PROJECT NO. R-2514C  
 JONES COUNTY  
 STATION: 102+05.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BRIDGE APPROACH SLAB  
 FOR INTEGRAL ABUTMENT  
 (RIGHT LANE)

REVISIONS						SHEET NO. S-56
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 56
2			4			



