

09/28/09

TIP PROJECT: B-4116

CONTRACT: C201894

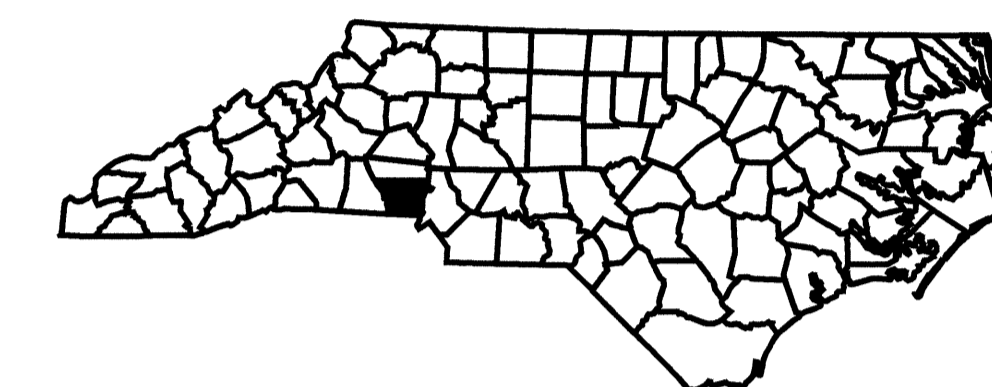
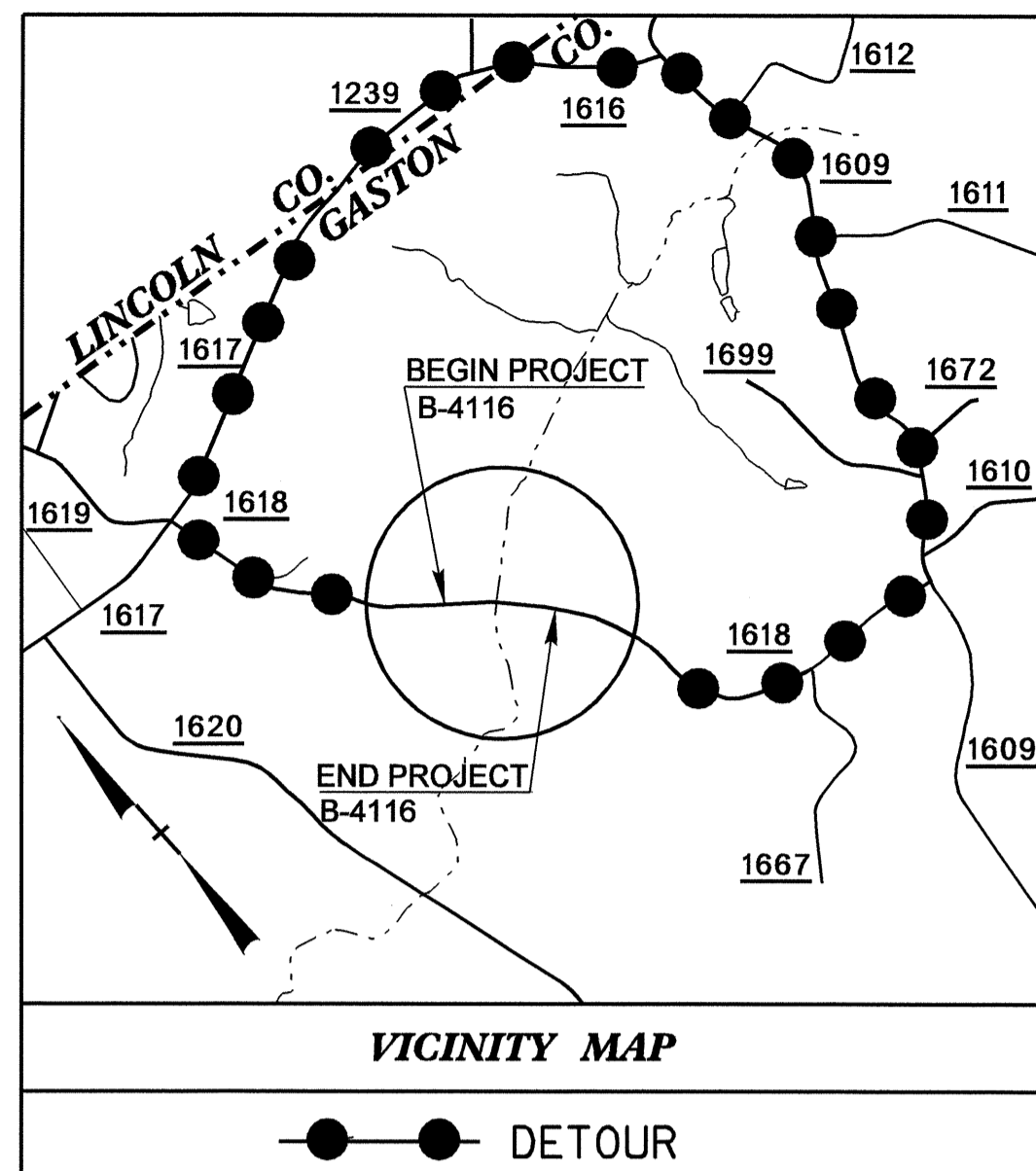
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GASTON COUNTY

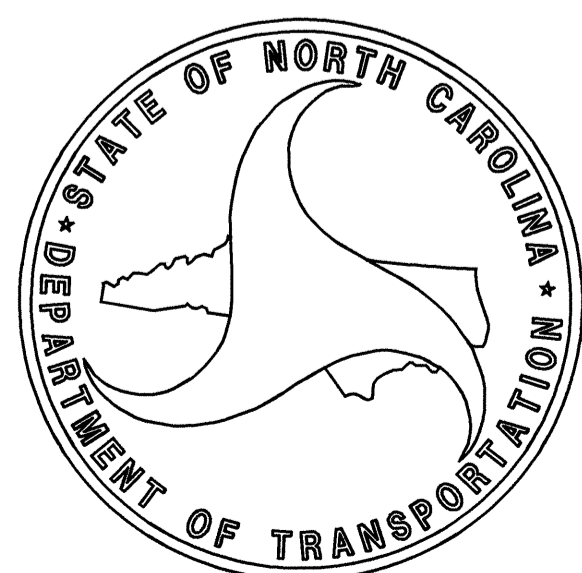
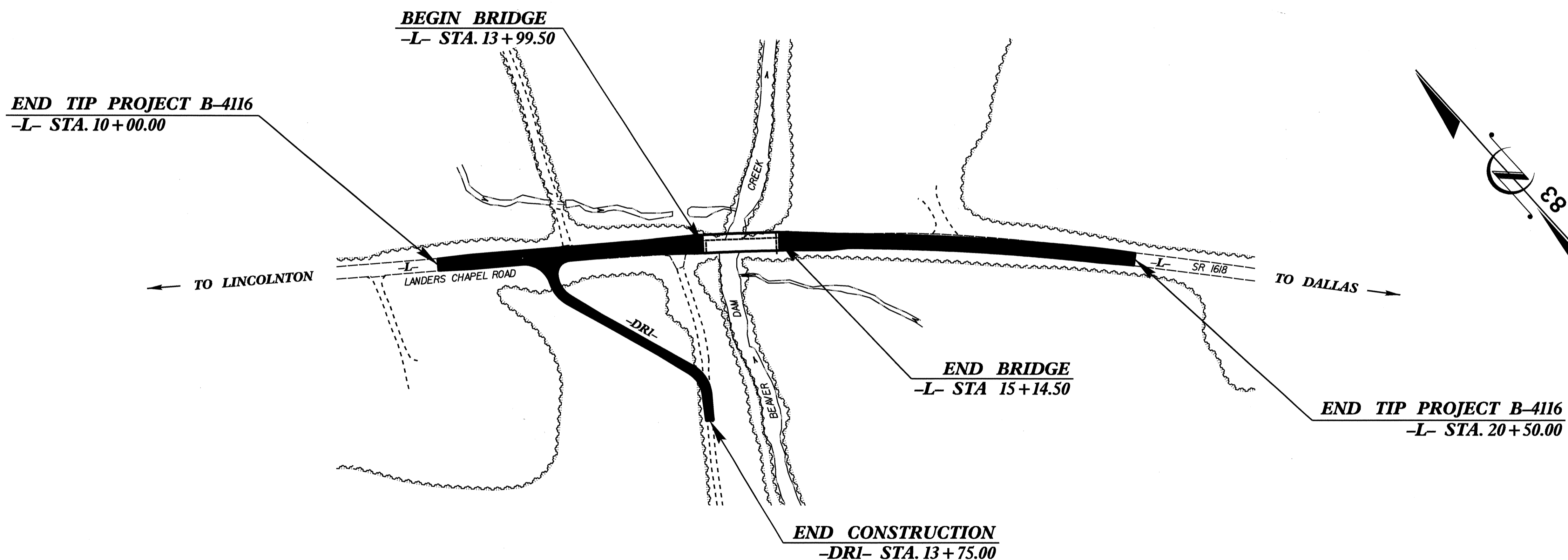
**LOCATION: BRIDGE No. 148 OVER BEAVER DAM CREEK
ON SR 1618**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4116		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33471.1.1	BRZ-1618(1)	PE	
33471.2.1	BRZ-1618(1)	RW, UTIL.	
33471.3.1	BRZ-1618(1)	CONST.	



STRUCTURE



DESIGN DATA

ADT 2008	= 1235
ADT 2030	= 2225
DHV	= 10 %
D	= 60 %
T	= 3 % *
V	= 60 MPH
* TTST	1% DUAL 2%
FUNC CLASS	= LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4116	= 0.177 MILES
LENGTH STRUCTURE TIP PROJECT B-4116	= 0.022 MILES
TOTAL LENGTH OF TIP PROJECT B-4116	= 0.199 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS
LETTING DATE: AUGUST 19, 2008
OMAR R. AZIZI, P.E. PROJECT ENGINEER
TIMOTHY L. COGGINS, P.E. PROJECT DESIGN ENGINEER

STRUCTURE DESIGN

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

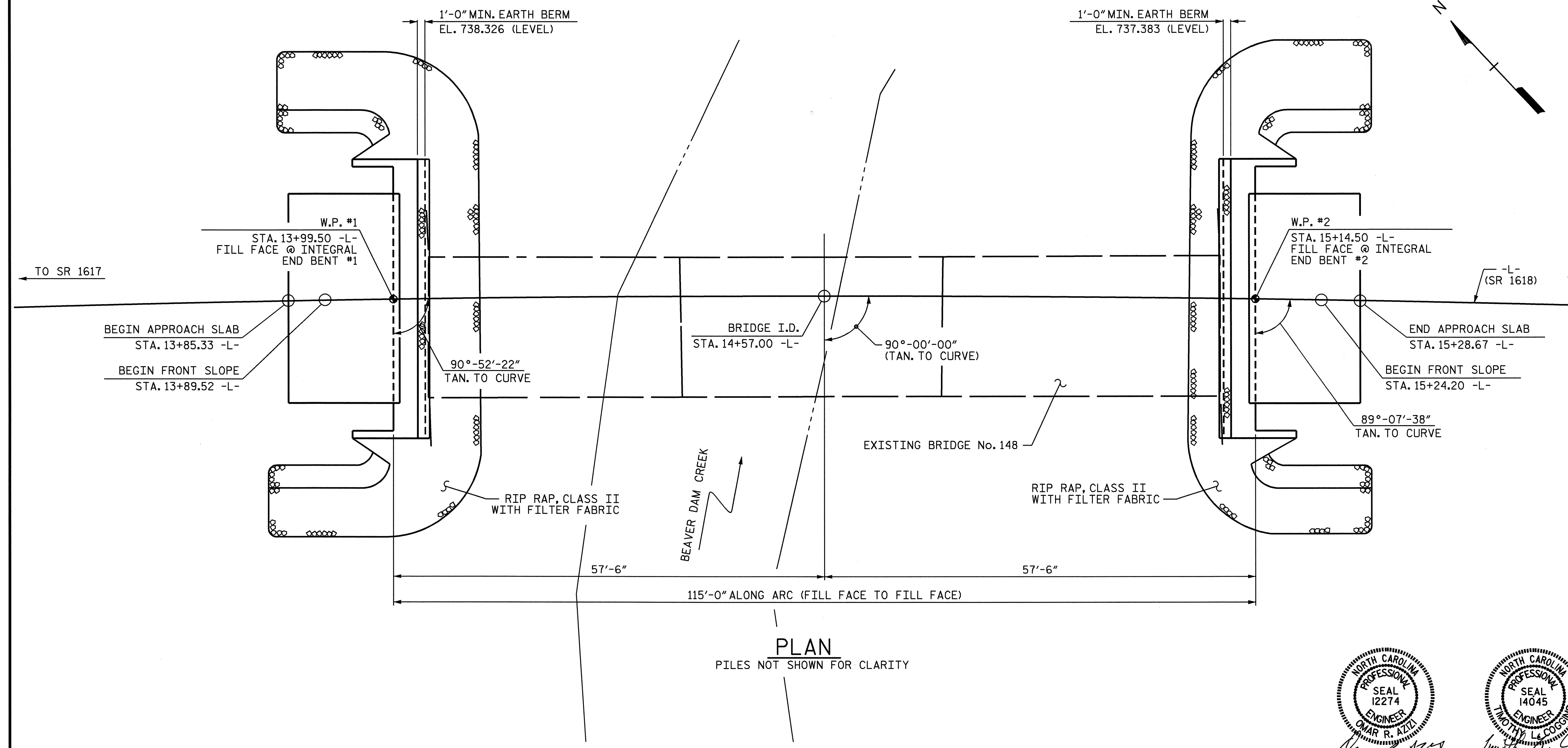
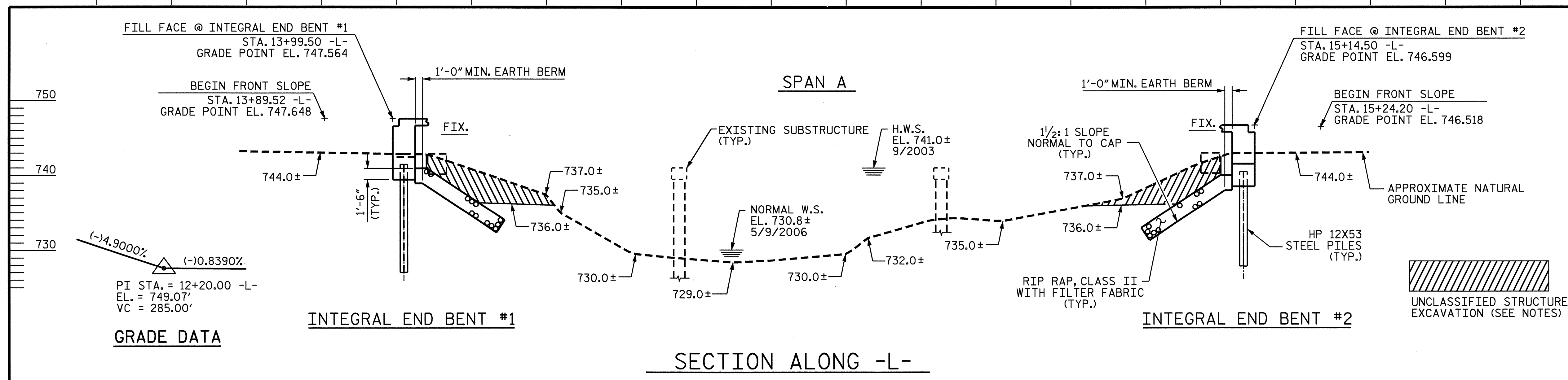
P.E.
STATE DESIGN ENGINEER

**DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED _____
DIVISION ADMINISTRATOR

DATE _____

30-JUN-2008 11:18
\$\$\$\$\$DCN\$\$\$\$\$
+ Coggins



HORIZONTAL CURVE DATA

PI STA. = 16+58.85-L-
Δ = 11°-50'-58.7" (RT.)
D = 1°-31'-04.0"
T = 391.76'
L = 780.73'
R = 3775.00'

PROJECT NO. B-4116
GASTON COUNTY
STATION: 14+57.00 -L-

SHEET 1 OF 4 REPLACES BRIDGE #148

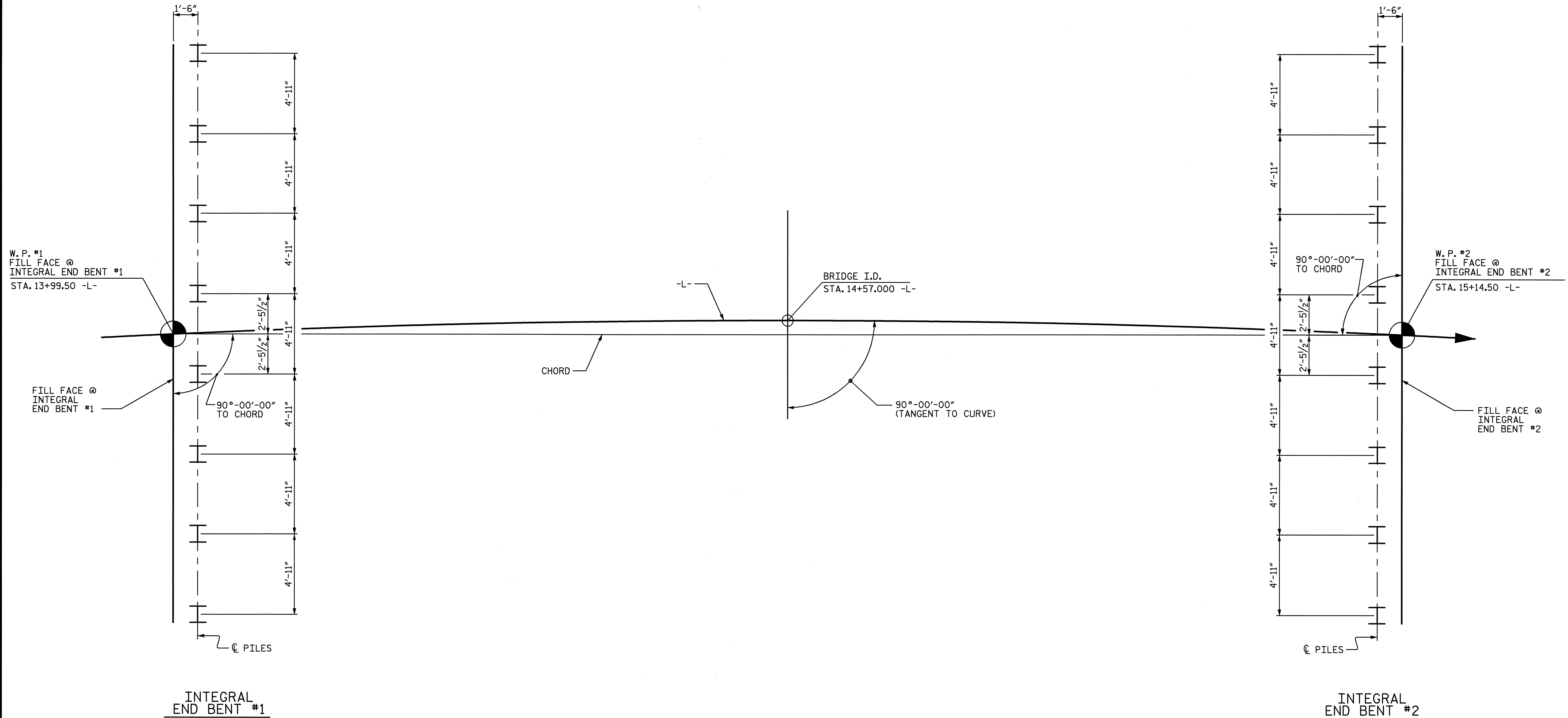
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER
BEAVERDAM CREEK
ON SR 1618 BETWEEN
SR 1617 AND SR 1609

NORTH CAROLINA PROFESSIONAL SEAL 12274 ENGINEER OMAR R. AZIZ
NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. DOUGLASS

DRAWN BY: J.B. WILSON DATE: 12/06
CHECKED BY: M.D. PISO DATE: 01/07

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



INTEGRAL
END BENT #1

INTEGRAL
END BENT #2

FOUNDATION LAYOUT

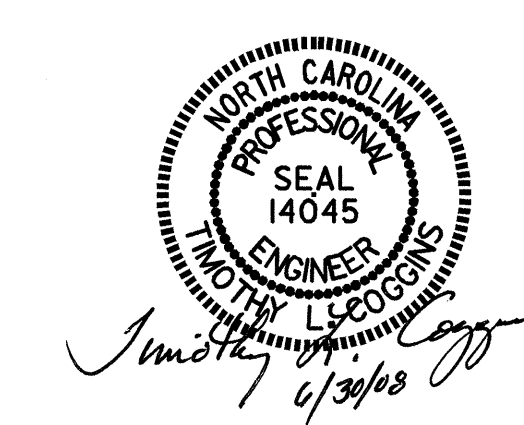
DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.
ALL PILES ARE VERTICAL HP 12 X 53 STEEL PILES.

PROJECT NO. B-4116
GASTON COUNTY
STATION: 14+57.00 -L-

SHEET 2 OF 4

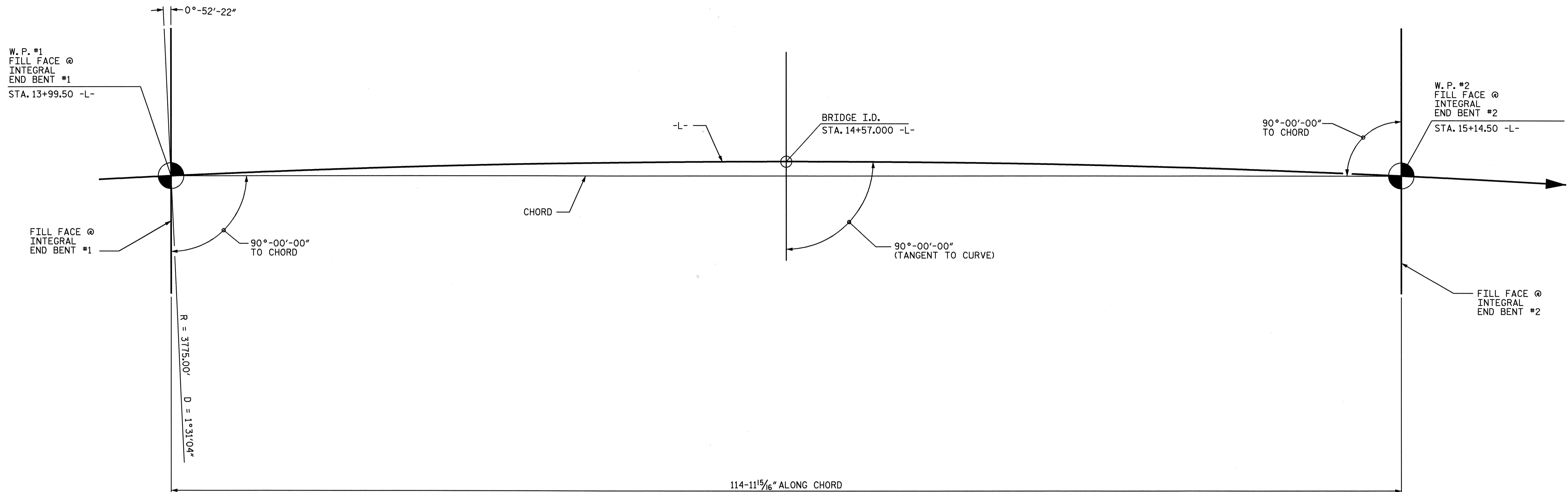
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER
BEAVERDAM CREEK
ON SR 1618 AND SR 1609



DRAWN BY : E. E. MURRAY DATE : 5-23-08
CHECKED BY : T. L. COGGINS DATE : 05/20/08

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



LONG CHORD LAYOUT

PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

SHEET 3 OF 4

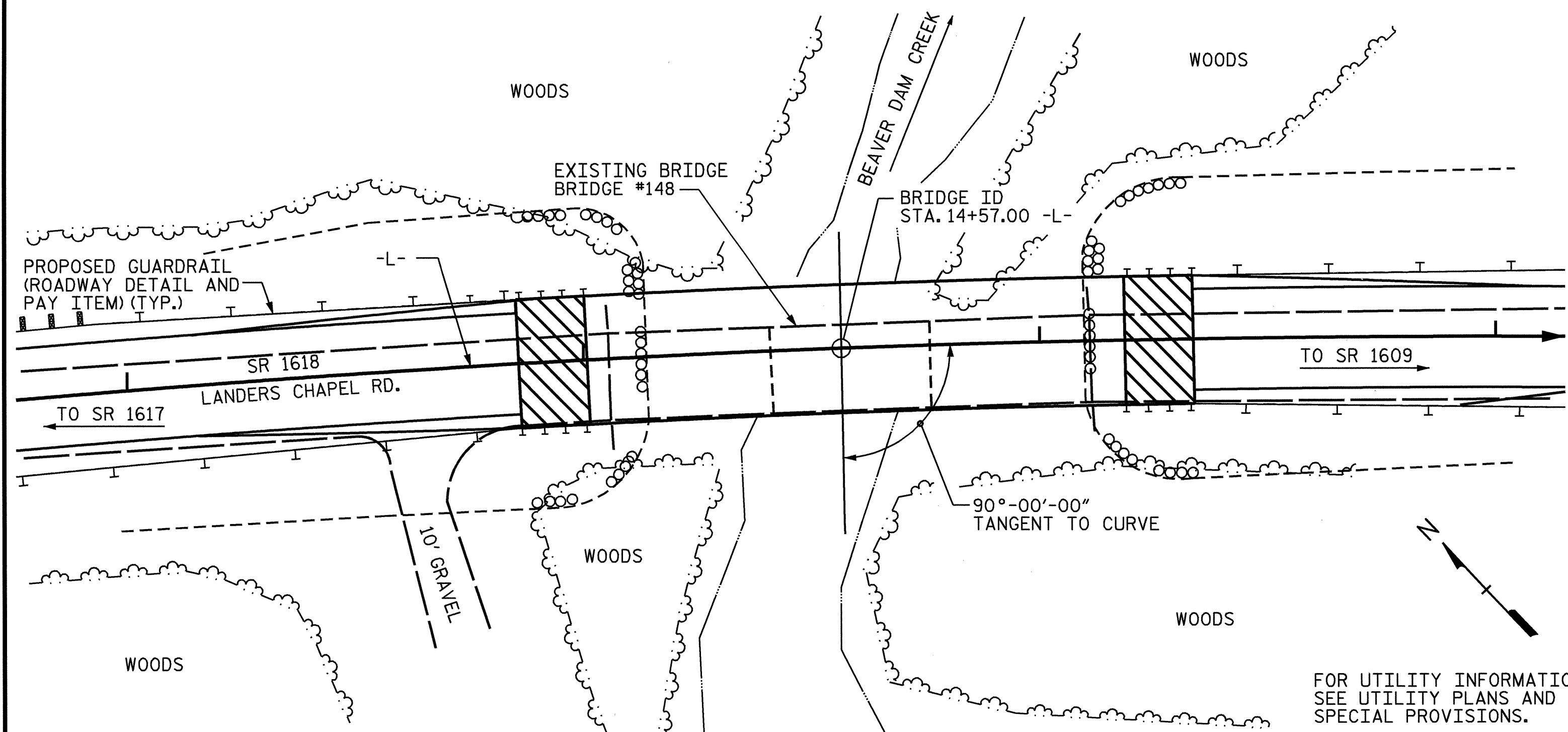
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 BEAVERDAM CREEK
 ON SR 1618 BETWEEN
 SR 1617 AND SR 1609

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



DRAWN BY : E. E. MURRAY DATE : 5-23-08
 CHECKED BY : T. L. COGGINS DATE : 05/2008



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES:

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THE GIRDERS HAVE BEEN DESIGNED FOR HS25.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.

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

THE EXISTING STRUCTURE CONSISTING OF THREE SPANS, 1 @ 35'-3", 1 @ 35'-1", AND 1 @ 35'-4" WITH A TIMBER DECK ON STEEL GIRDERS WITH STEEL & TIMBER STRINGER/FLOOR BEAM SYSTEM HAVING A CLEAR ROADWAY WIDTH OF 19.1' ON TIMBER CAPS ON TIMBER PILES AND TIMBER BULKHEADS LOCATED AT THE SITE OF PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF THE CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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

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

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 14+57.00 -L-."

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO. THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT NO. 1 AND END BENT NO. 2 IS 60 TONS PER PILE.

HYDRAULIC DATA

DESIGN DISCHARGE	= 3400 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 741.1 FT.
DRAINAGE AREA	= 21.0 SQ. MI.
BASIC DISCHARGE (Q100)	= 5000 CFS
BASIC HIGH WATER ELEVATION	= 743.6 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= > 7300 CFS
FREQUENCY OF OVERTOPPING FLOOD	= > 500 YR.
OVERTOPPING FLOOD ELEVATION	= > 747.0 FT.

TOTAL BILL OF MATERIAL

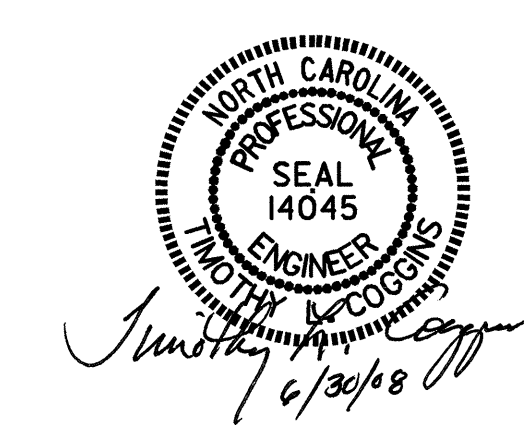
	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	EVAZOTE JOINT SEALS	
	LUMP SUM	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	APPROX.LBS.	NO.	LIN.FT.	LIN.FT.	TON	SQ. YD.	LUMP SUM
SUPERSTRUCTURE			3,594	3,473		LUMP SUM		108,200			226.67			LUMP SUM
END BENT NO.1							3,083		8	400		115	128	
END BENT NO.2							3,083		8	200		108	120	
TOTAL	LUMP SUM	LUMP SUM	3,594	3,473	35.0	LUMP SUM	6,166	108,200	16	600	226.67	223	248	LUMP SUM

PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 BEAVERDAM CREEK
 ON SR 1618 BETWEEN
 SR 1617 AND SR 1609



DRAWN BY: E.E.MURRAY DATE: 5-23-08
 CHECKED BY: T.L. COGGINS DATE: 05/2008

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

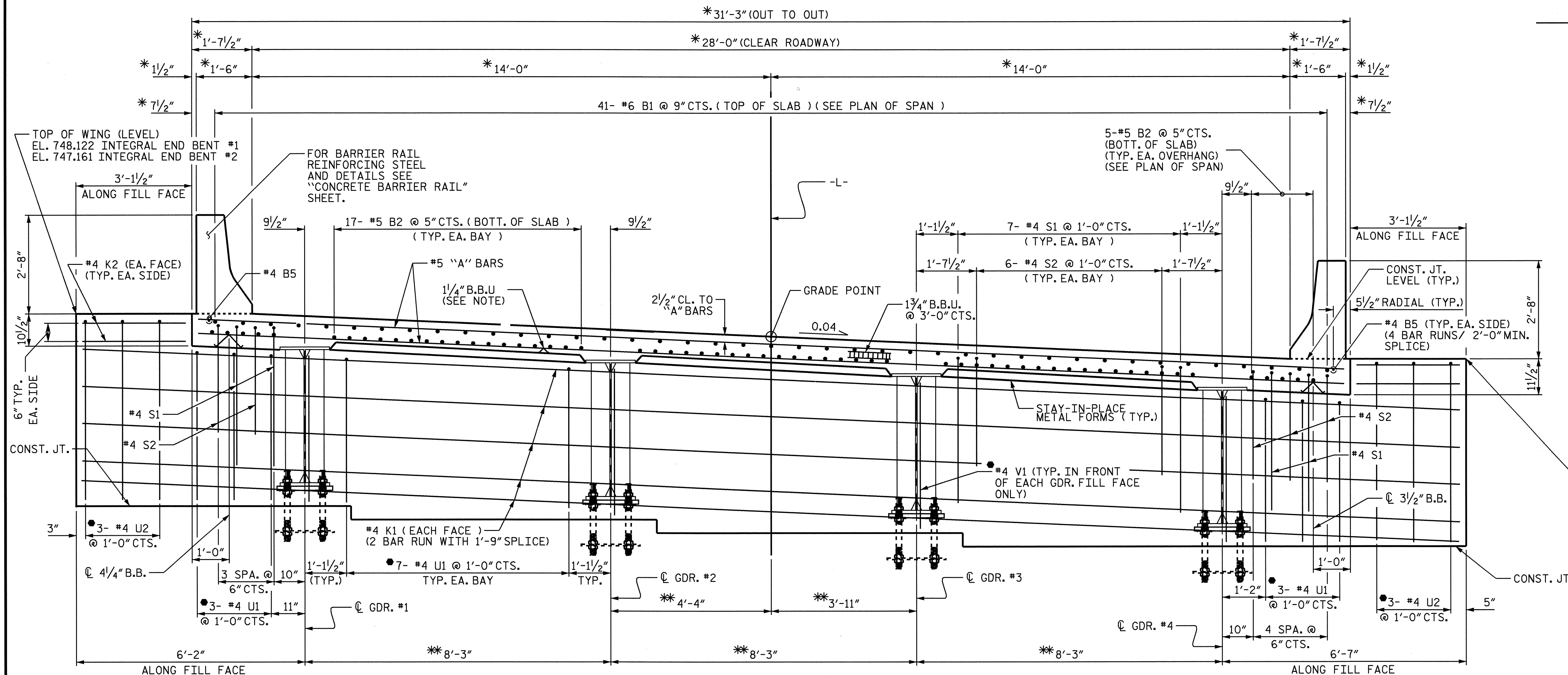
NOTES

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.

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

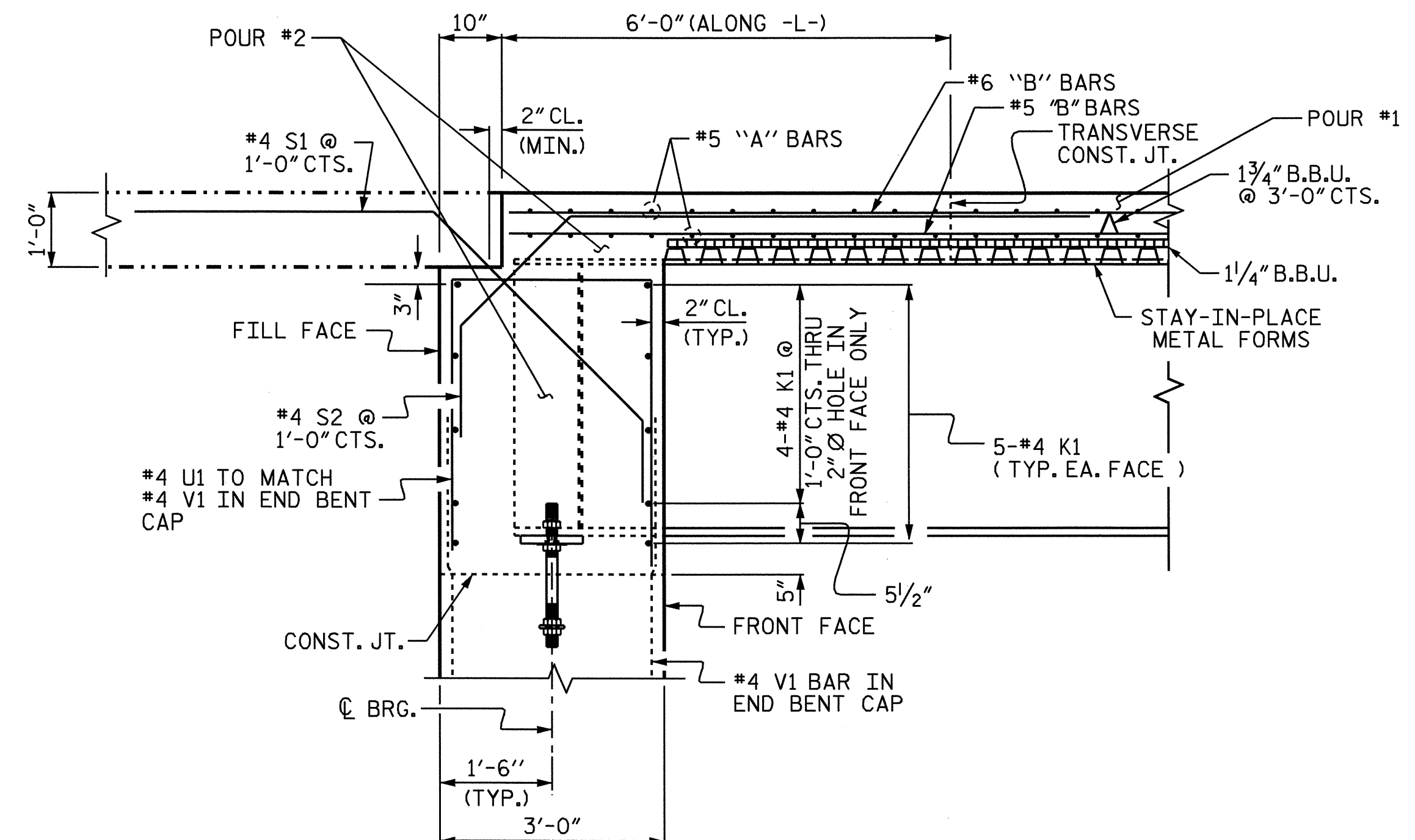
THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

DECK DRAINS NOT SHOWN FOR CLARITY. SEE "PLAN OF SPAN" SHEET FOR DRAIN LOCATIONS. REINFORCING STEEL IN DECK OVERHANG MAY BE SLIGHTLY SHIFTED, AS NECESSARY, TO CLEAR THE DRAIN PIPE.



TYPICAL SECTION

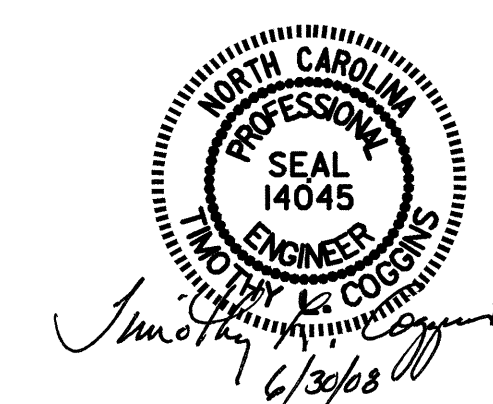
(SHOWING ABUTMENT AT INTEGRAL END BENT)
 (APPROACH SLAB BLOCKOUT & WINGS ARE NOT SHOWN FOR CLARITY)
 * RADIAL DIMENSION
 ** RADIAL DIMENSION THRU WORKPOINT
 • TO MATCH #4 V1 BARS IN INTEGRAL END BENTS



SECTION A-A THROUGH ABUTMENT @ INTEGRAL END BENT

DRAWN BY: *Neil M. Kuffin* DATE: 4/30/08
 CHECKED BY: T. L. COGGINS DATE: 05/2008

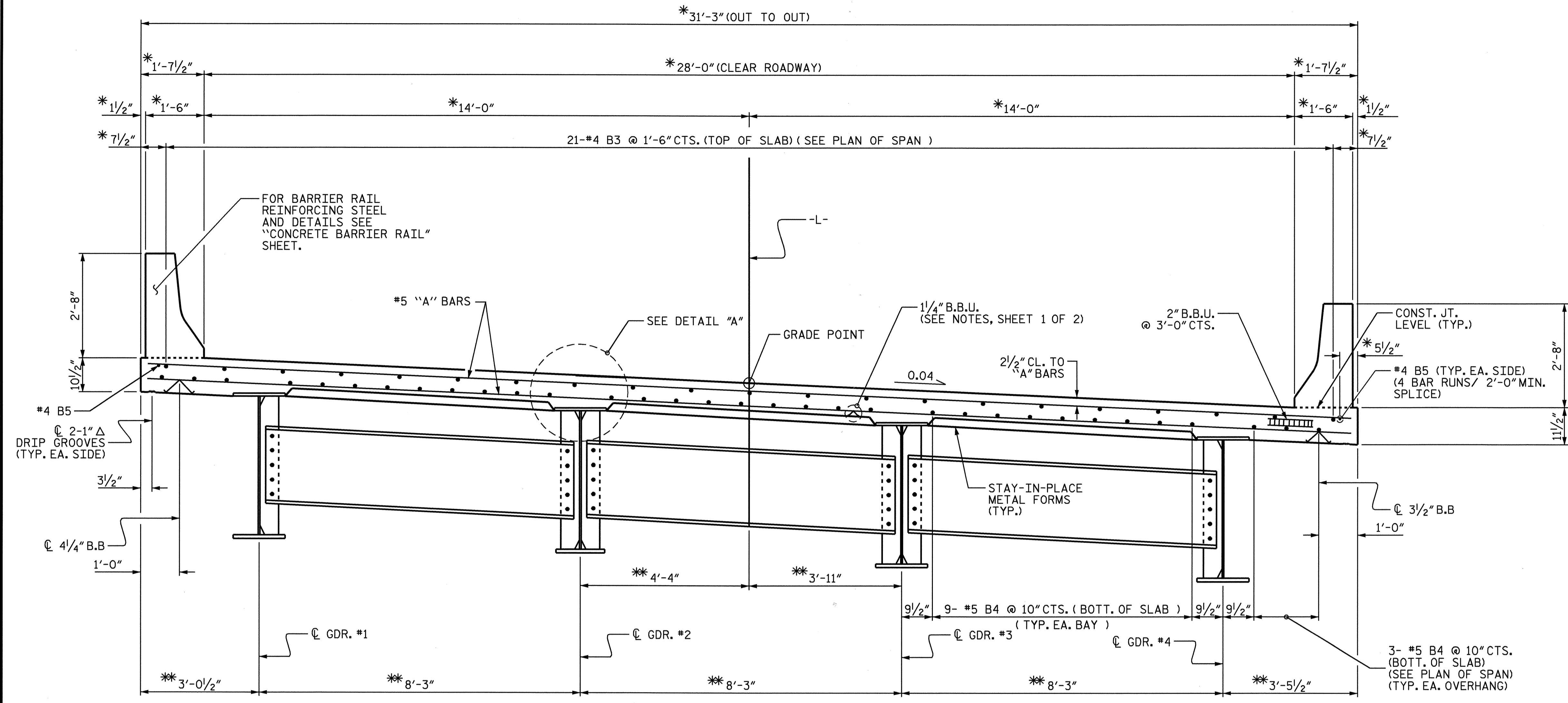
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PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

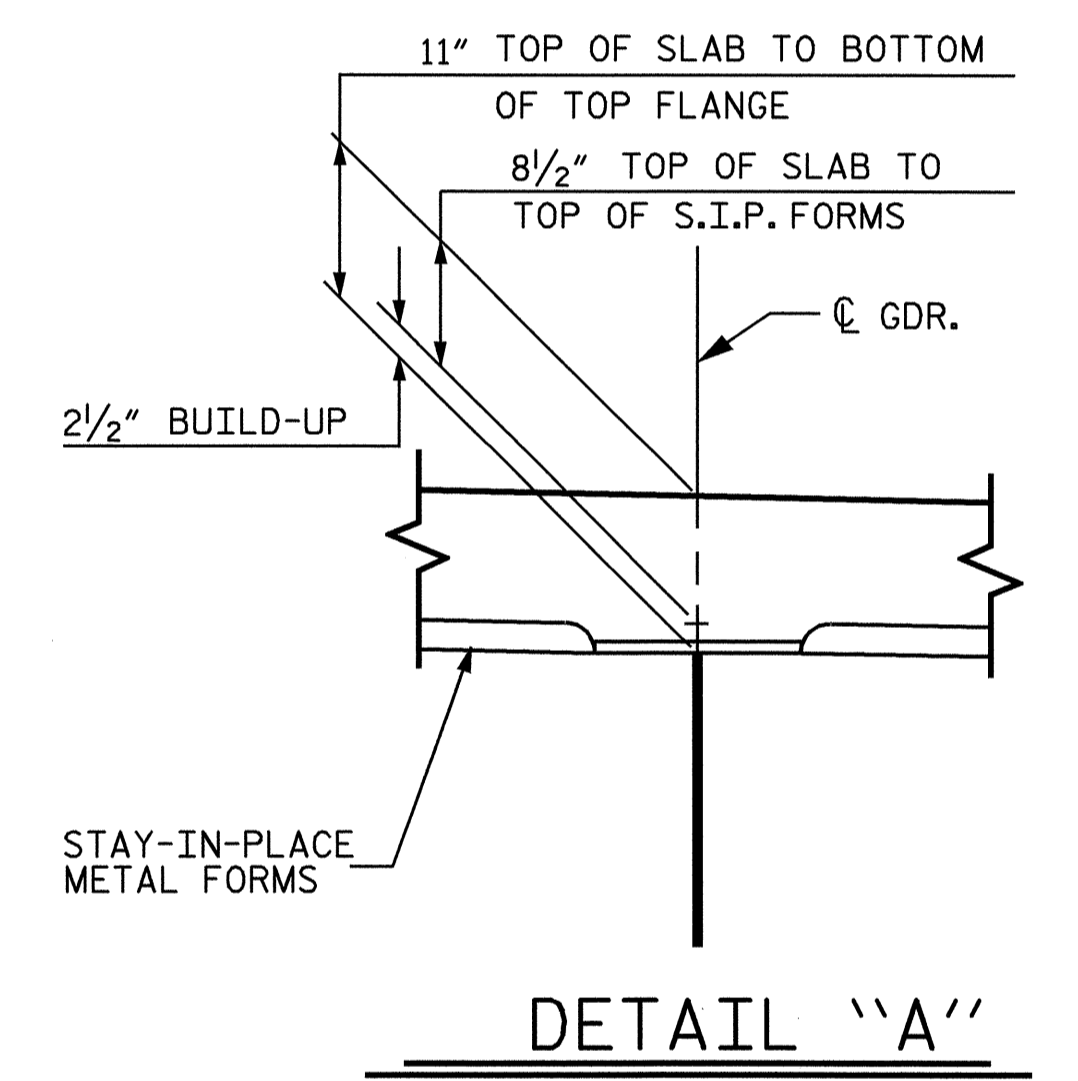
SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-5
SUPERSTRUCTURE TYPICAL SECTION						
REVISIONS						TOTAL SHEETS 24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

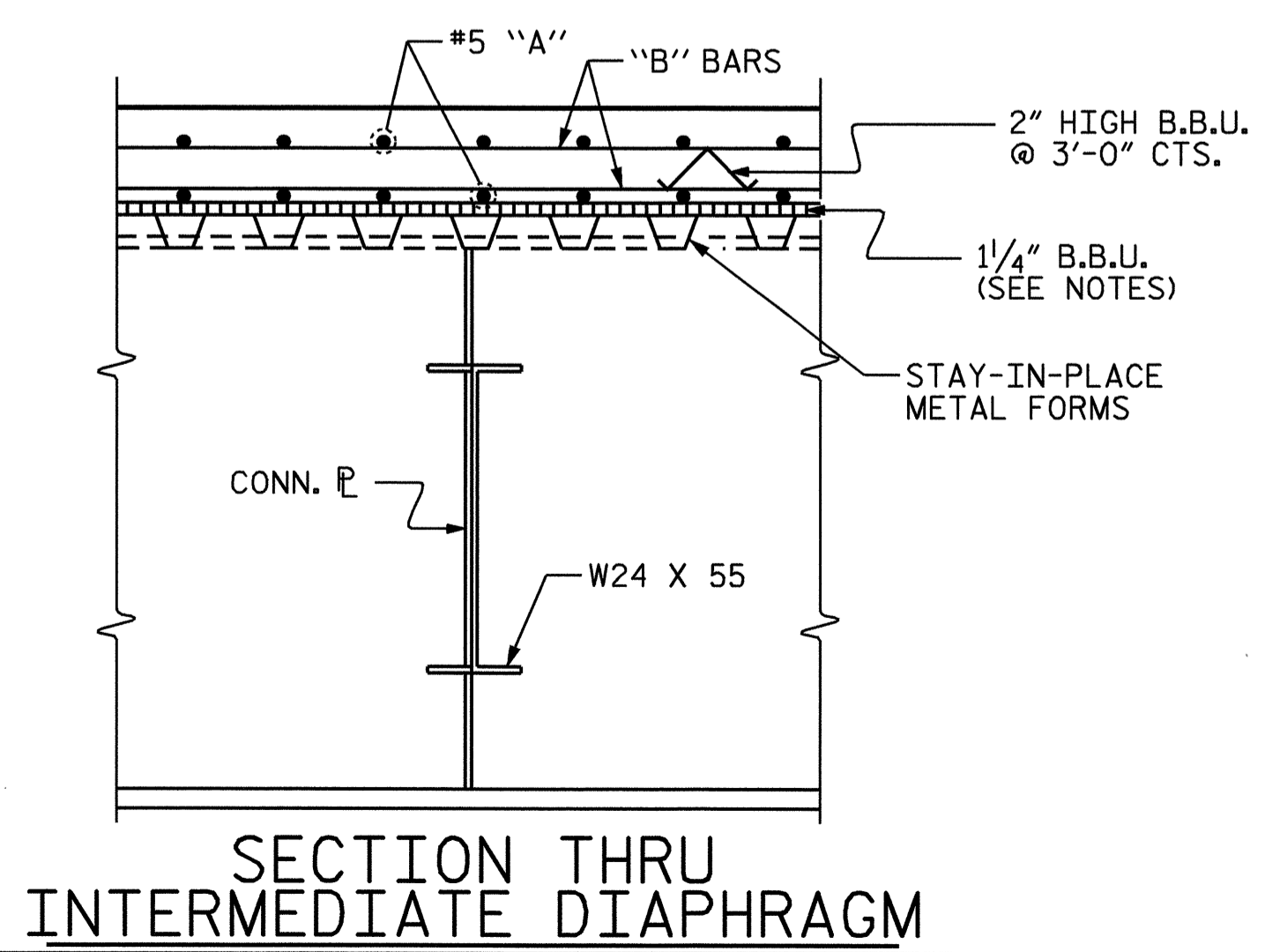


TYPICAL SECTION
SHOWING INTERMEDIATE DIAPHRAGMS

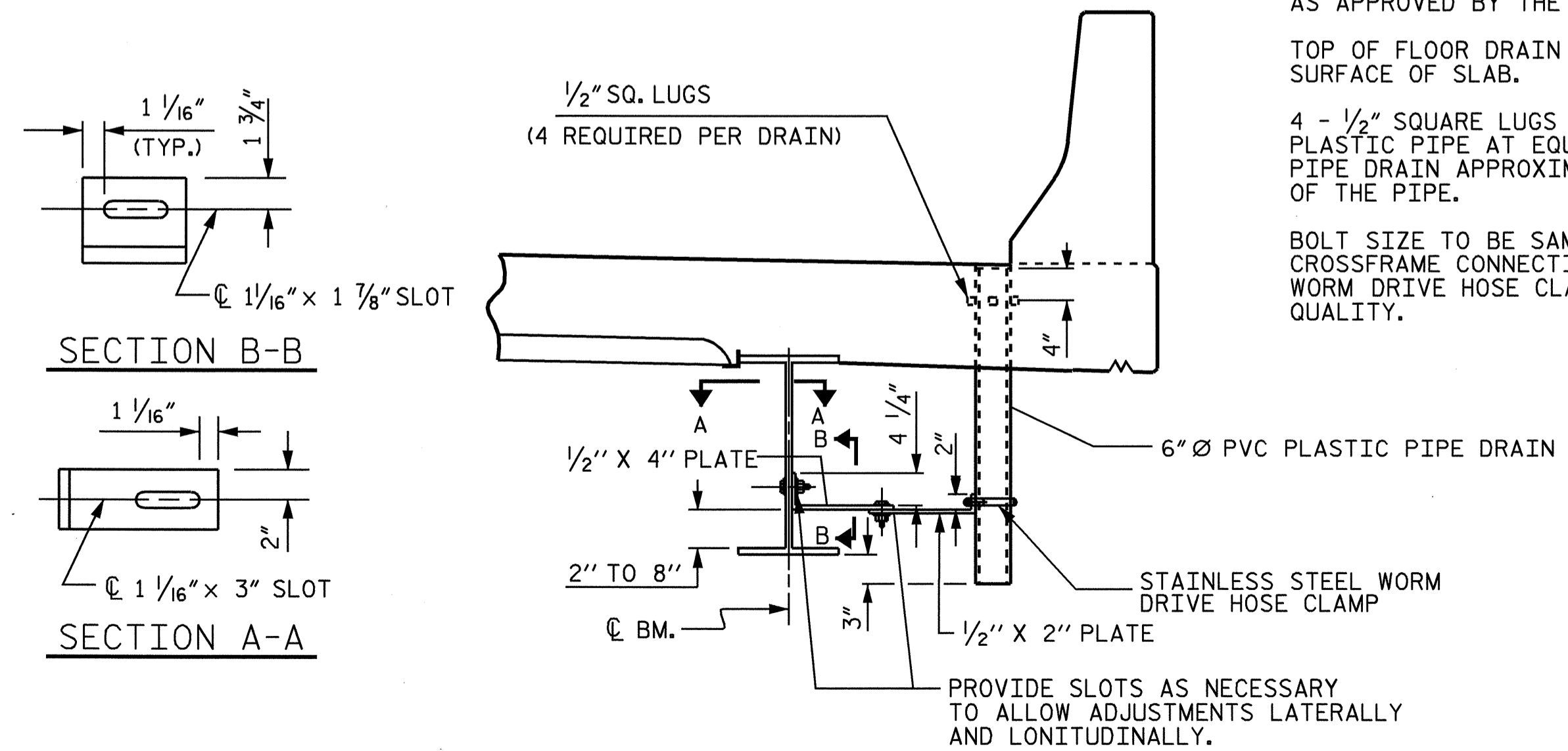
- * RADIAL DIMENSION
- ** RADIAL DIMENSION THRU WORKPOINT



DETAIL "A"



SECTION THRU INTERMEDIATE DIAPHRAGM



DRAIN CONNECTOR DETAIL

COUPLING IN DRAIN PIPE WILL BE PERMITTED AS APPROVED BY THE ENGINEER.

TOP OF FLOOR DRAIN TO BE SET 3/8" BELOW SURFACE OF SLAB.

4 - 1/2" SQUARE LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SOACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.

BOLT SIZE TO BE SAME AS DIAPHRAGM AND CROSSFRAME CONNECTIONS. STAINLESS STEEL WORM DRIVE HOSE CLAMP SHALL BE COMMERCIAL QUALITY.

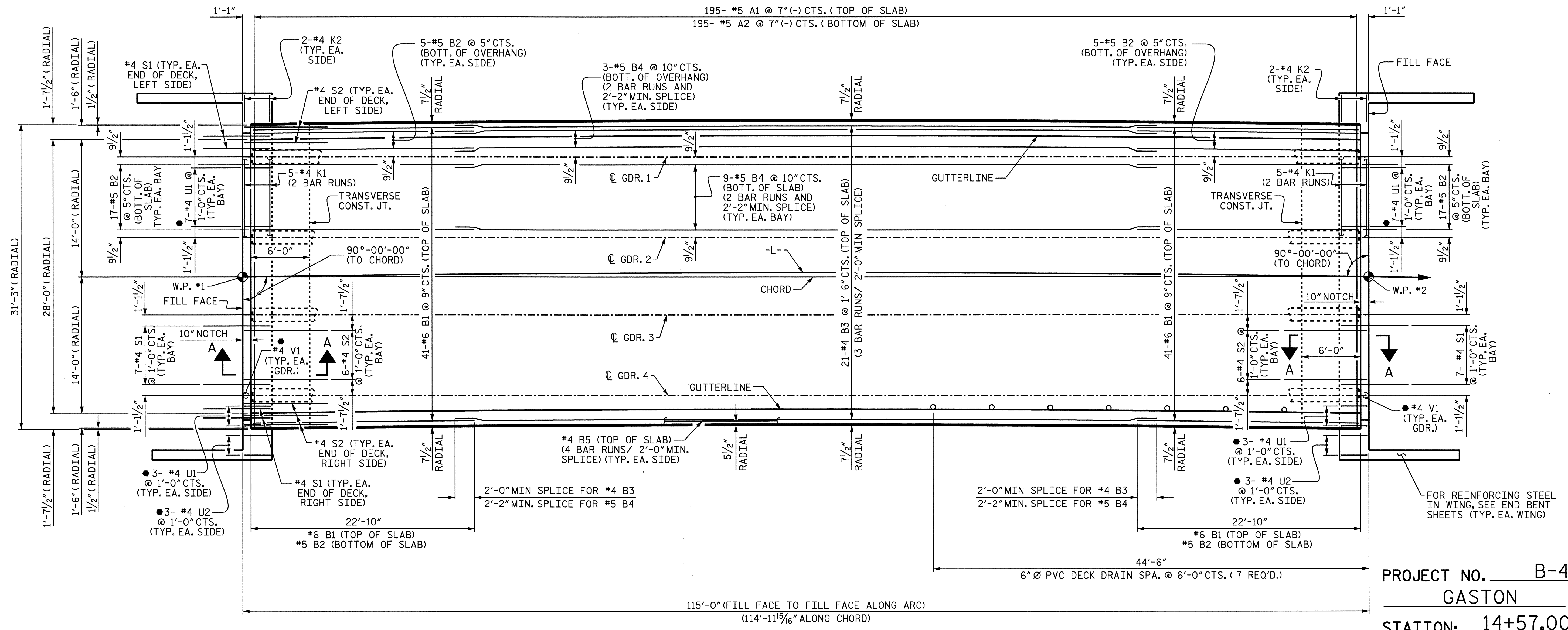
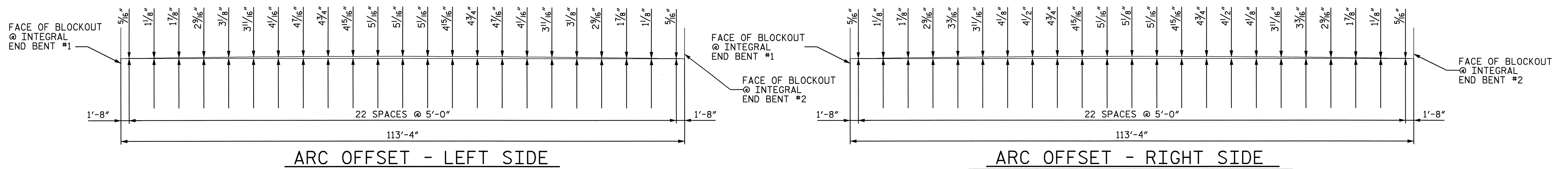


PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
TYPICAL SECTION					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-6
					TOTAL SHEETS 24

DRAWN BY: Neil M. Kuffner DATE: 4/30/08
 CHECKED BY: T.L. COGGINS DATE: 5/21/08

30-JUN-2008 11:18
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 tcoggins



PLAN OF SPAN

*#4 U1, #4 U2, & #4 V1 TO MATCH #4 "V" BARS FROM END BENT CAP.

FOR SECTION A-A, SEE TYPICAL SECTION, SHEET 1 OF 2.

FOR TRANSVERSE CONSTRUCTION JOINT DETAILS, SEE "BILL OF MATERIAL" SHEET.

PROJECT NO. B-4116

GASTON COUNTY

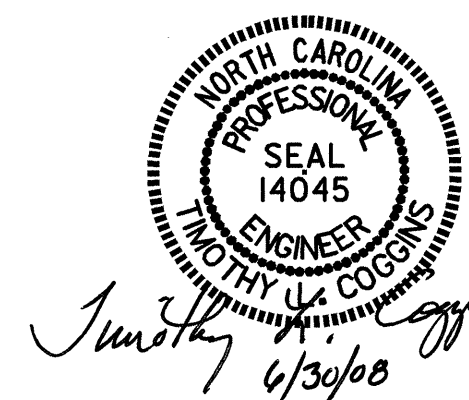
STATION: 14+57.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPAN

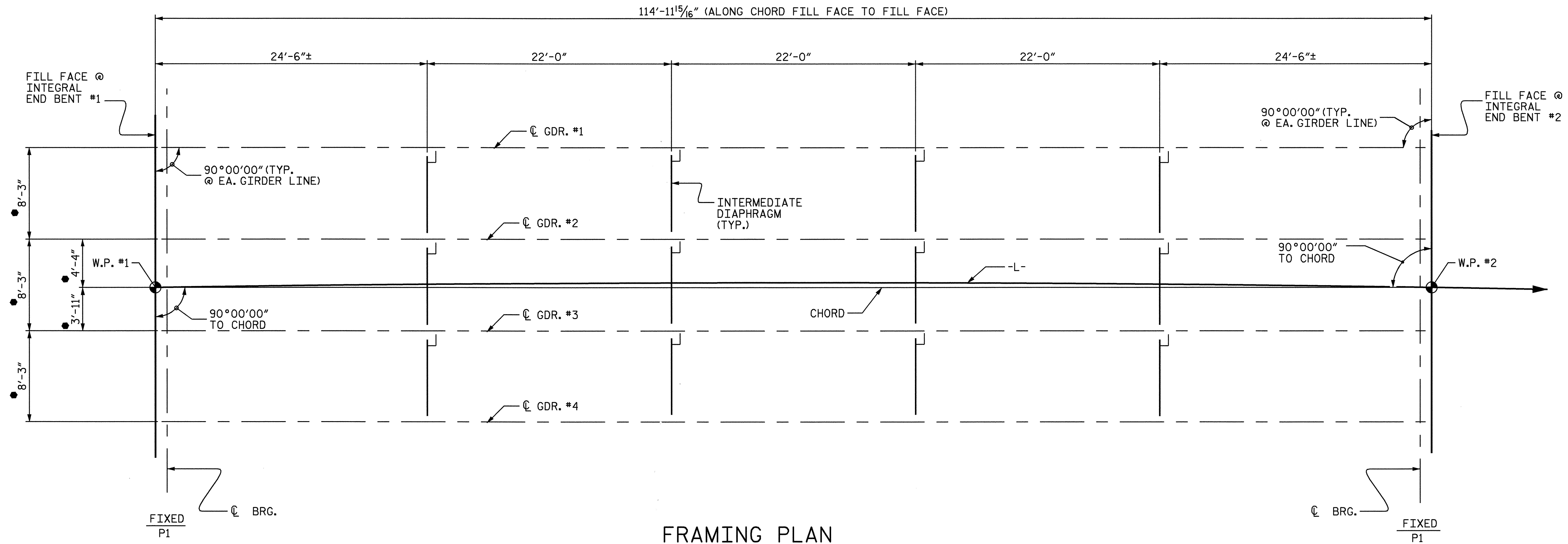
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S-7
TOTAL SHEETS 24



NOTE

• DIMENSIONS ARE RADIAL THRU WORK PONITS.

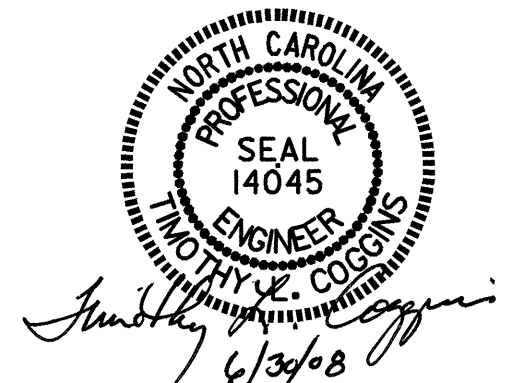


FRAMING PLAN

PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 FRAMING PLAN



DRAWN BY: Neil M. Kuffin DATE: 5/16/08
 CHECKED BY: T.L. COGGINS DATE: 5/2008

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

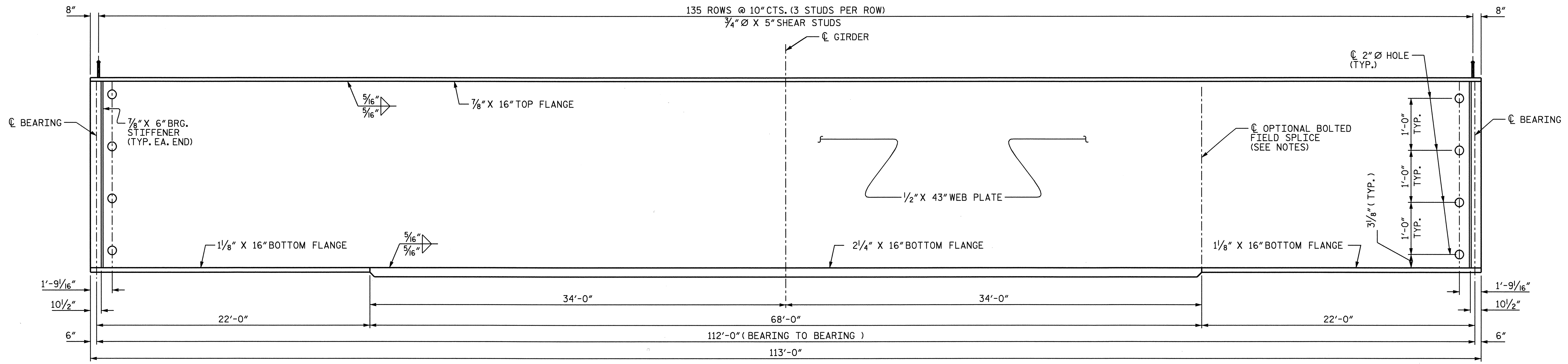
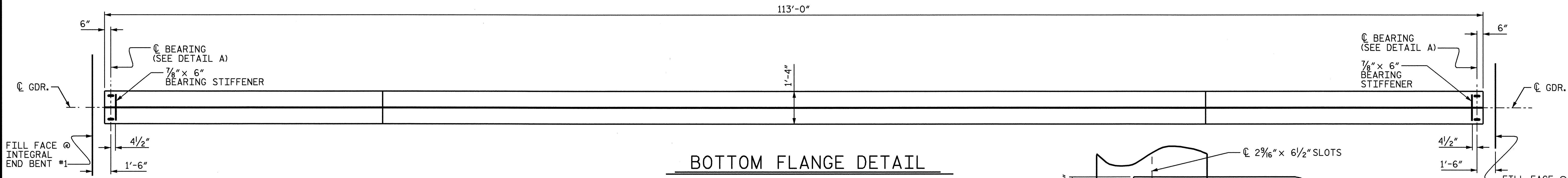
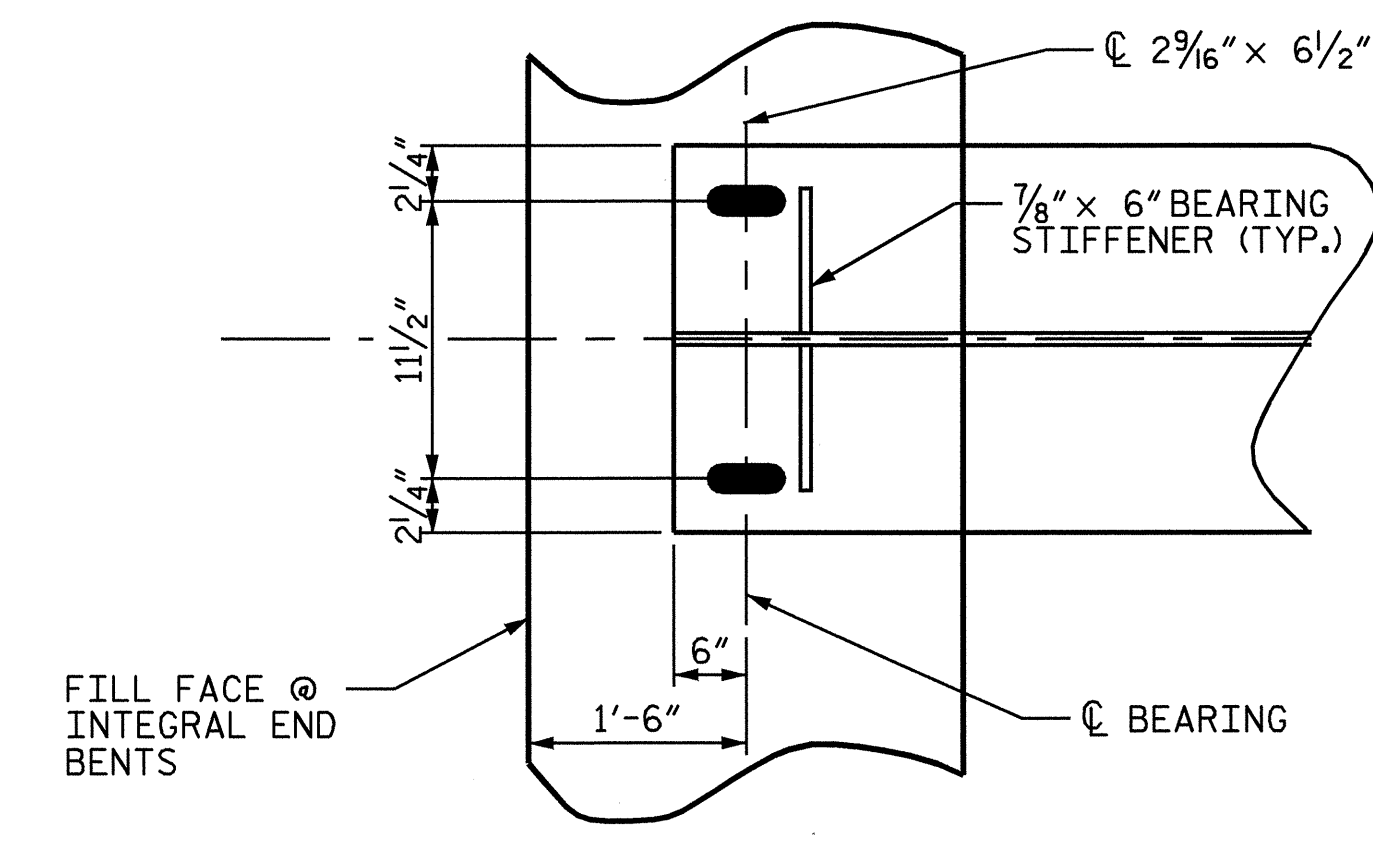


PLATE GIRDER ELEVATION

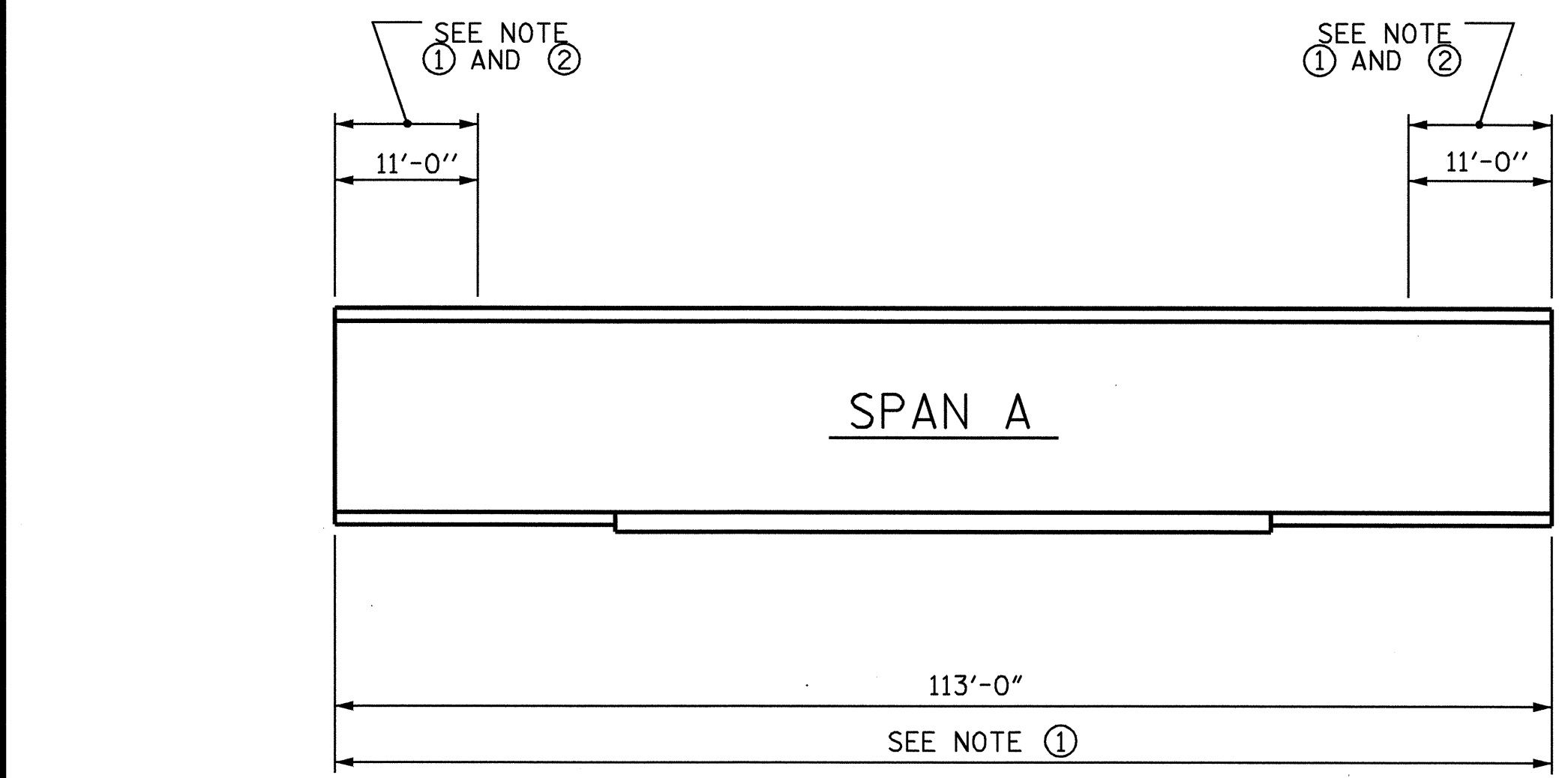


BOTTOM FLANGE DETAIL



DETAIL A

(BOTTOM FLANGE OF GIRDER TYPICAL @ BOTH ENDS)



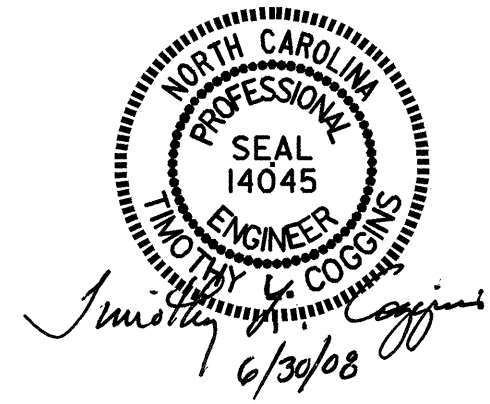
GIRDER MAKE UP

CHARPY V-NOTCH TEST

- NOTE ①: CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS, ALL WEB PLATES, AND SPLICE PLATES. IF A PERMITTED SHOP FLANGE SPLICE IS NOT USED, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR THE ENTIRE FLANGE PLATE. FOR CHARPY V-NOTCH TESTS, SEE ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.
- NOTE ②: NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION.

PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL
 STEEL DETAILS

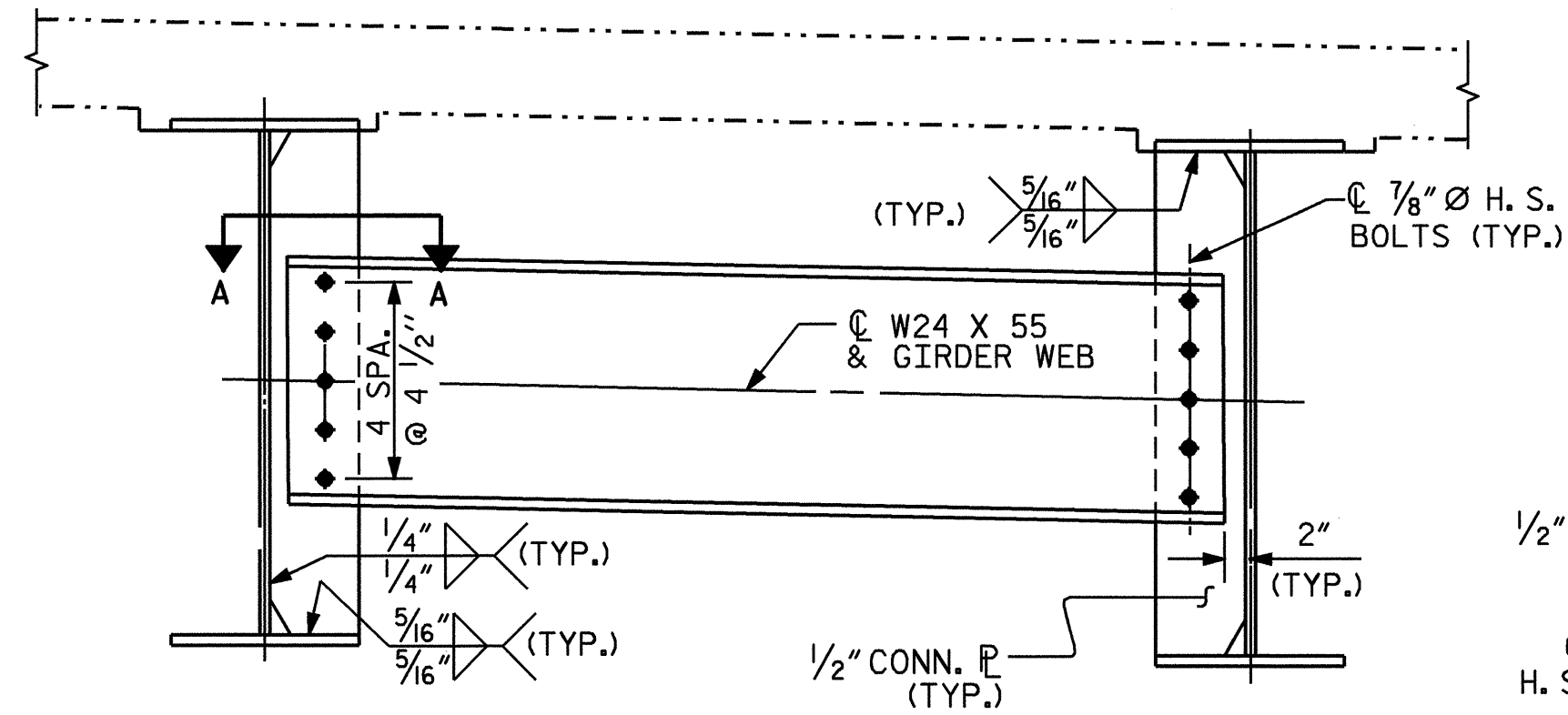


DRAWN BY: Neil M. Ruffin DATE: 5/9/08
 CHECKED BY: T. L. COGGINS DATE: 05/2008

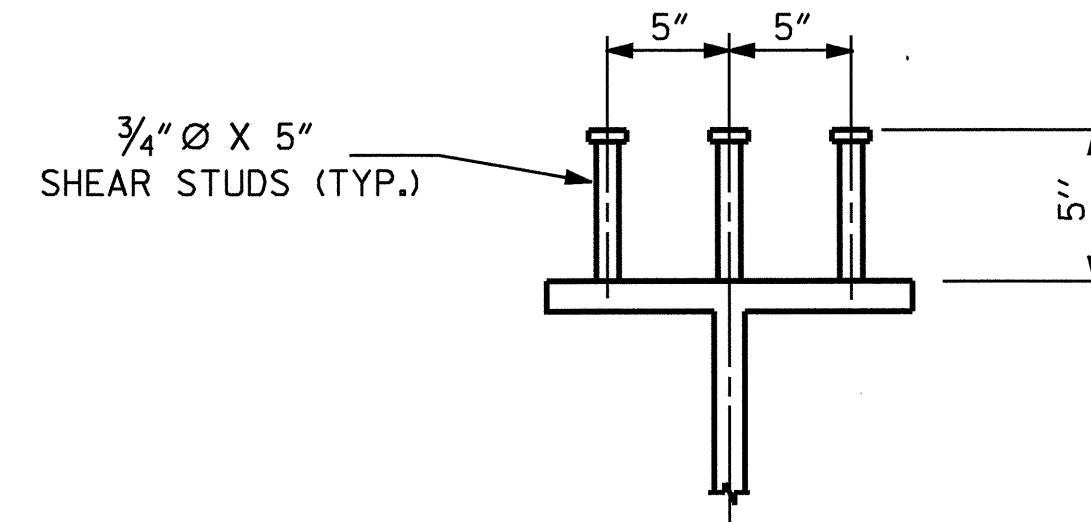
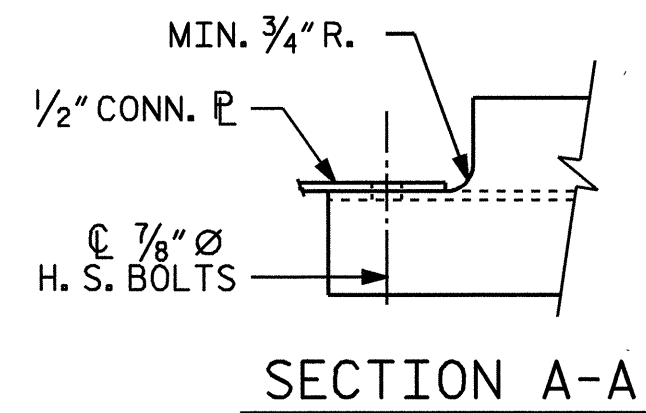
REVISIONS						SHEET NO. S-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 24
2			4			

NOTES

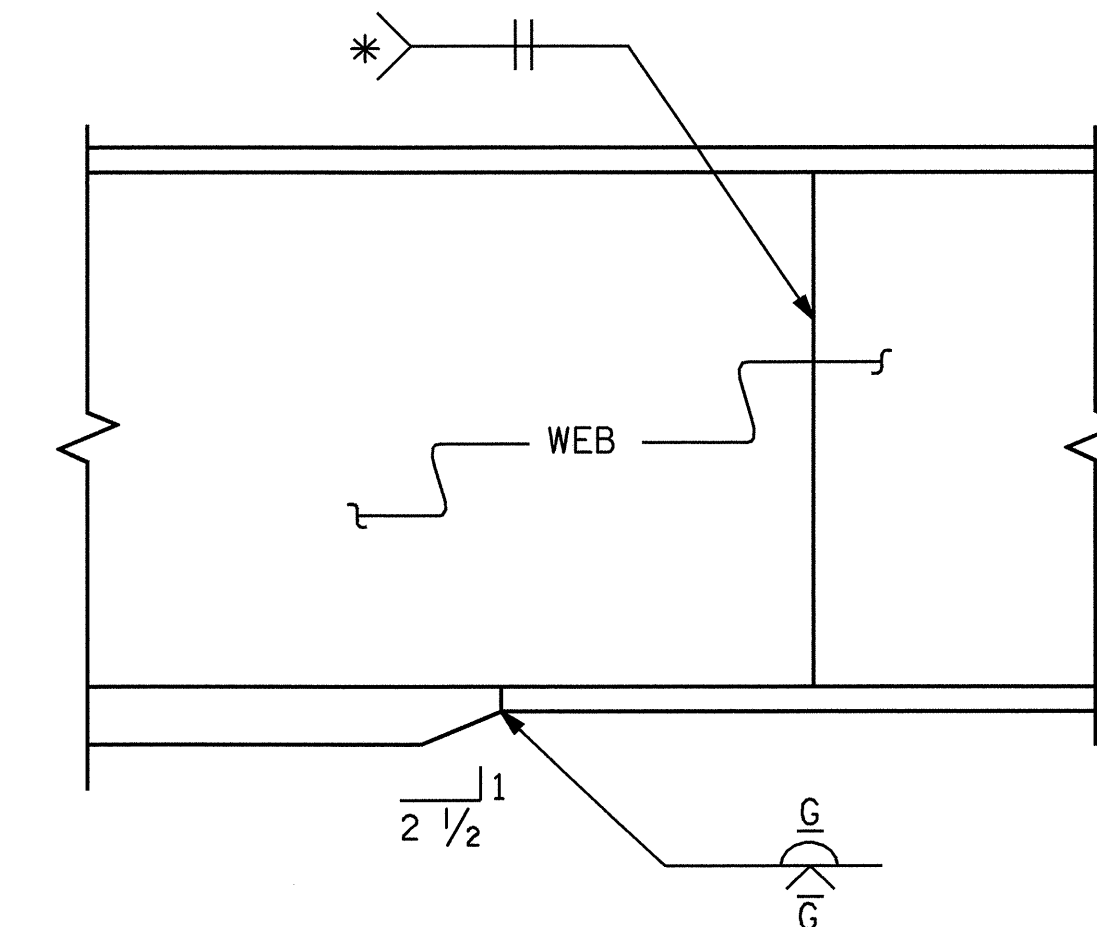
ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.
 ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.
 ALL FIELD CONNECTIONS TO BE 7/8" Ø HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.
 SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION. KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.
 STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.
 A BOLTED FIELD SPLICE WILL BE PERMITTED IN THE GIRDERS. IF A FIELD SPLICE IS USED, IT SHALL BE MADE ENTIRELY AT THE CONTRACTOR'S EXPENSE AND NO ADDITIONAL MEASUREMENT OR PAYMENT WILL BE MADE FOR THE ADDITIONAL MATERIALS REQUIRED. THE LOCATION, DETAILS AND SPLICE MATERIAL WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
 TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.
 BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.
 END OF GIRDERS SHALL BE PLUMB.
 FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.
 FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.



INTERMEDIATE DIAPHRAGM

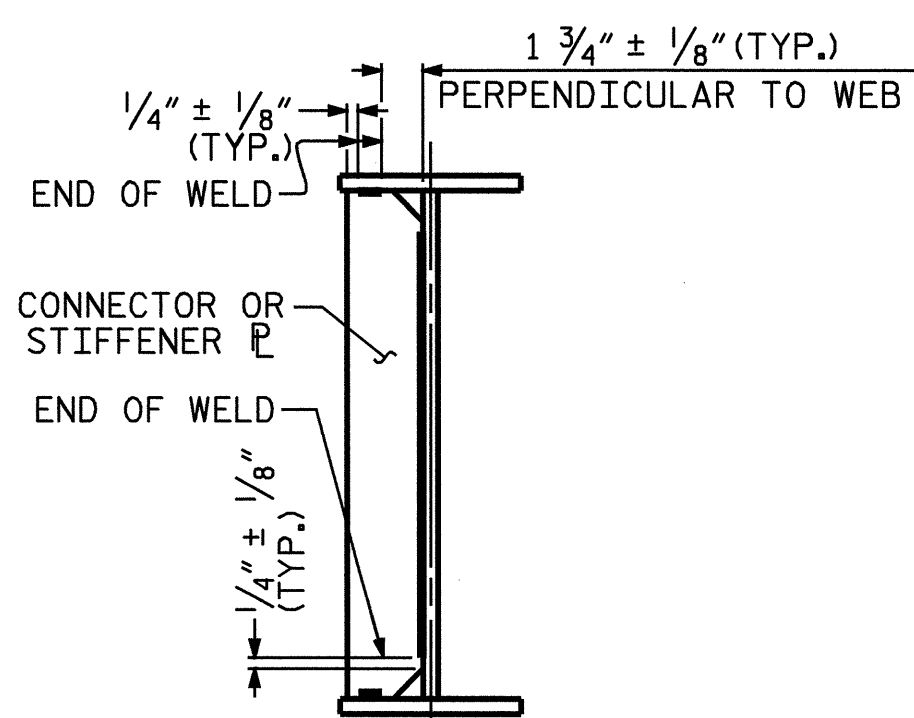


SHEAR STUD DETAILS

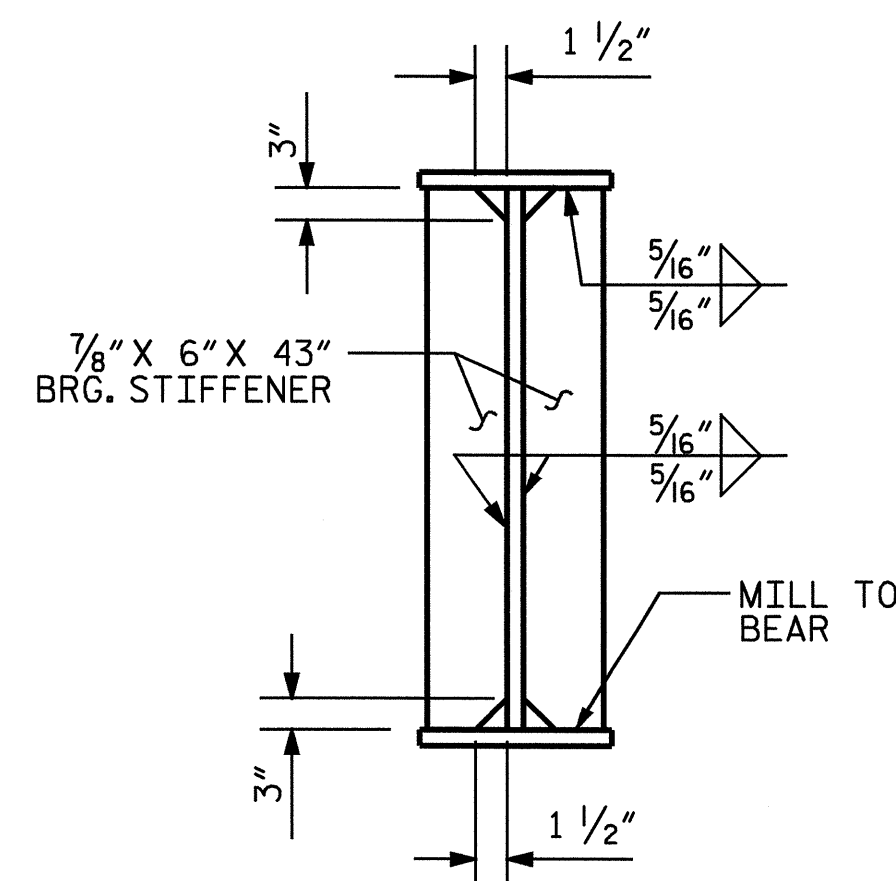


ELEVATION
TYPICAL FLANGE AND WEB BUTT JOINT

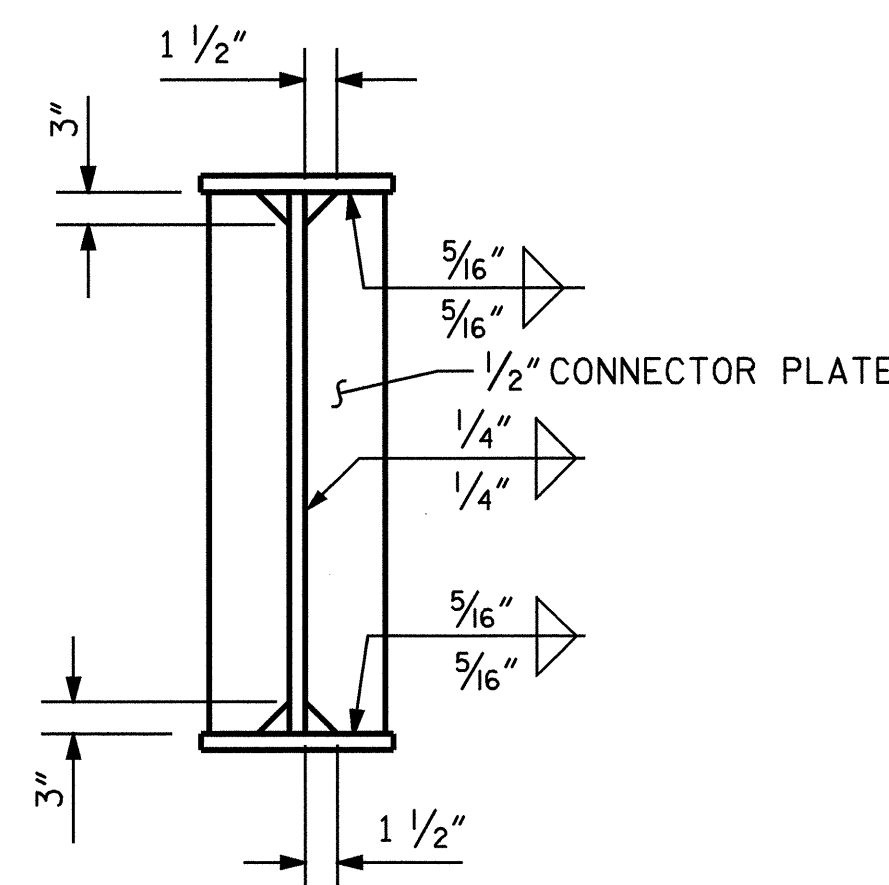
* GRIND SMOOTH AND FLUSH ON OUTER FACE OF EXTERIOR GIRDERS



TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS
WELD TERMINATION DETAILS



BEARING STIFFENER

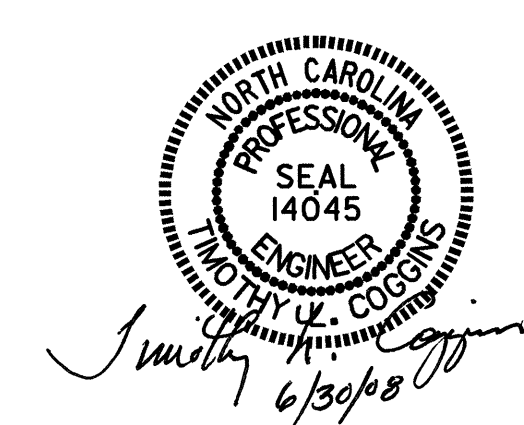


CONNECTOR PLATE DETAILS

PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
STRUCTURAL STEEL DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-10
TOTAL SHEETS					24



DRAWN BY: Neil M. Ruffin DATE: 5/9/08
 CHECKED BY: T. L. COGGINS DATE: 05/2008

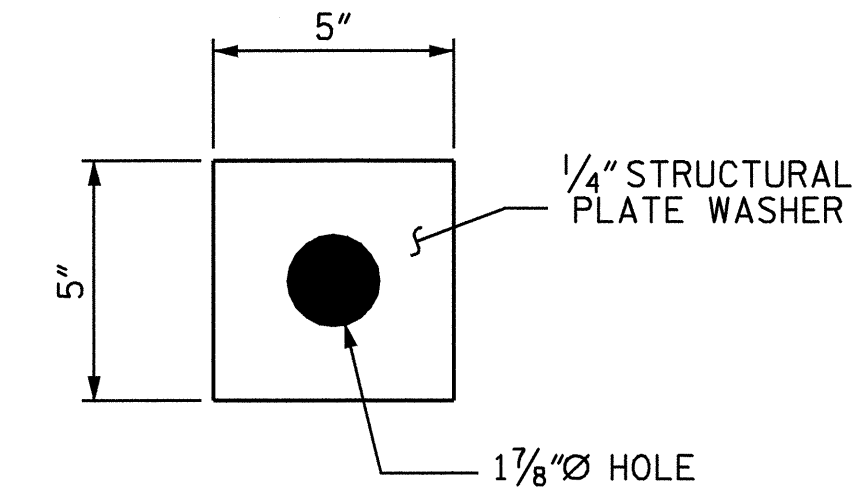
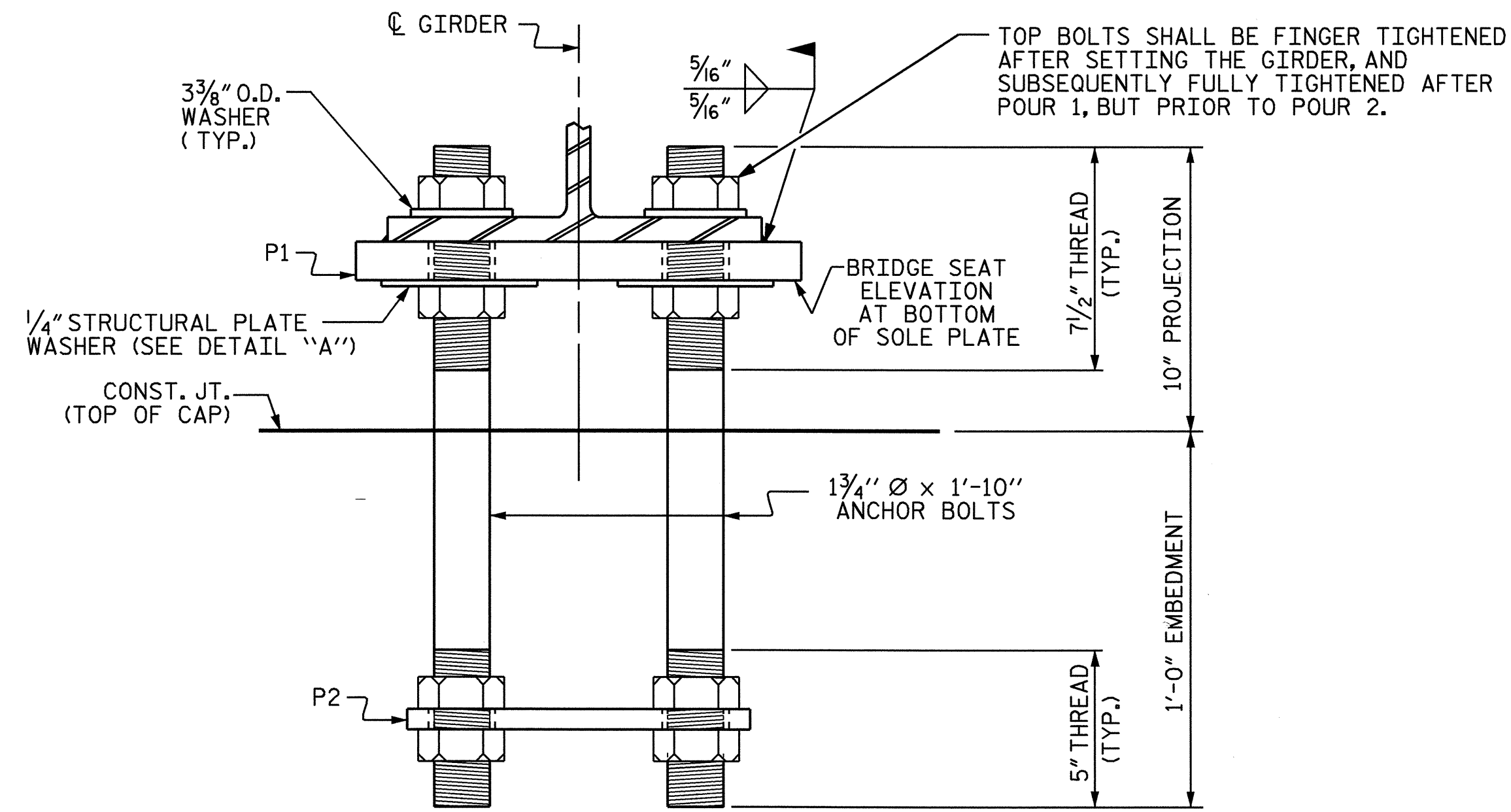
NOTES

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATES SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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 BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

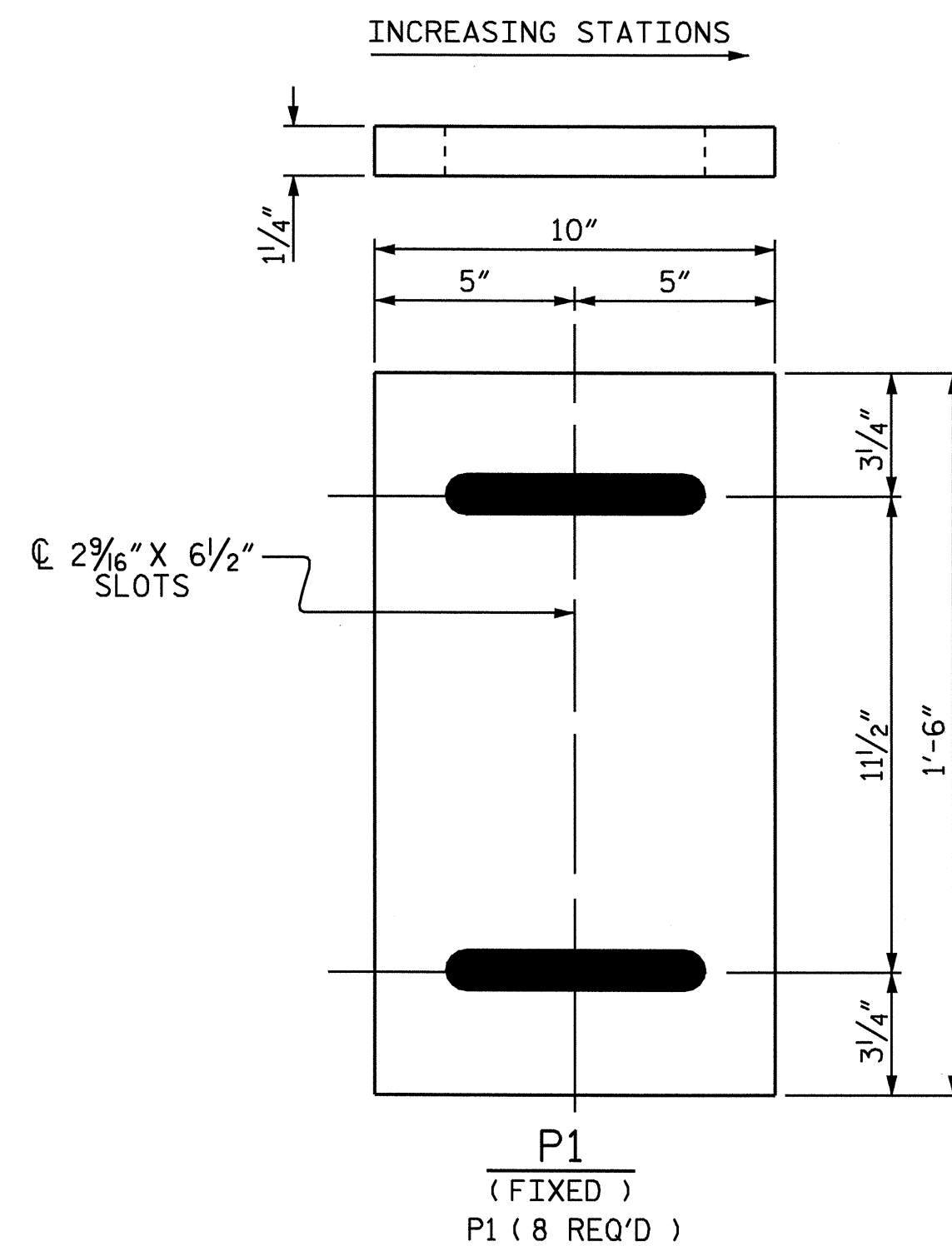
ALL SURFACES OF SOLE PLATES SHALL BE SMOOTH AND STRAIGHT.

STRUCTURAL PLATE WASHERS SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED.

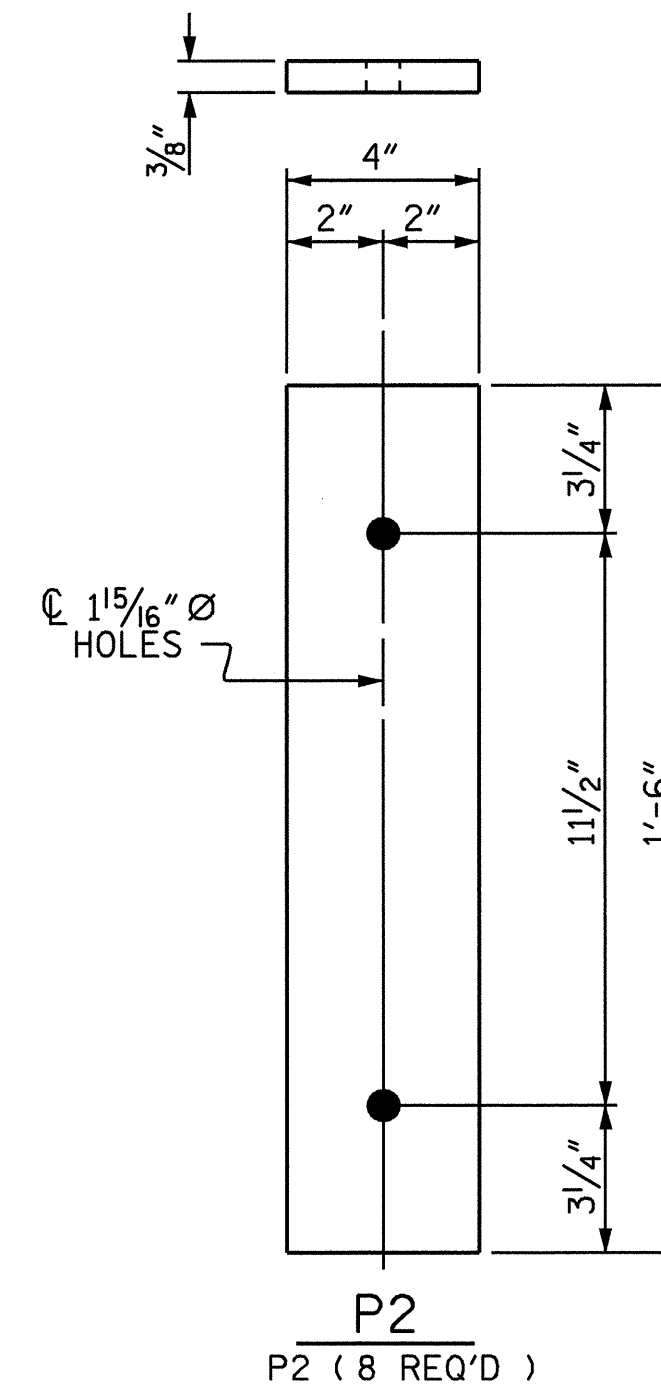


DETAIL "A"

FIXED
END VIEW



SOLE PLATE DETAILS

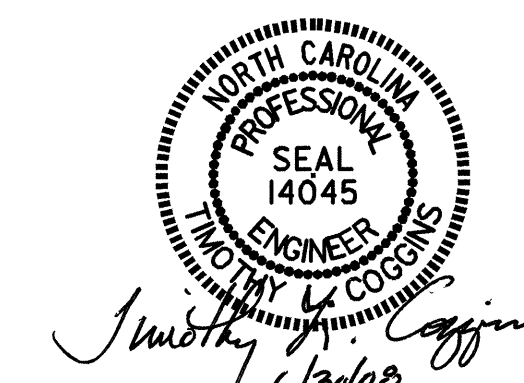


ANCHORAGE PLATE

PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SOLE PLATE
 DETAILS



DRAWN BY: Neil M. Ruffin DATE: 4/29/08
 CHECKED BY: T. L. COGGINS DATE: 5/08

30-JUN-2008 11:18
 W:\B4116\Structures\B4116\FINAL PLANS\B-4116_ed.BG.dgn
 tcoggins

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

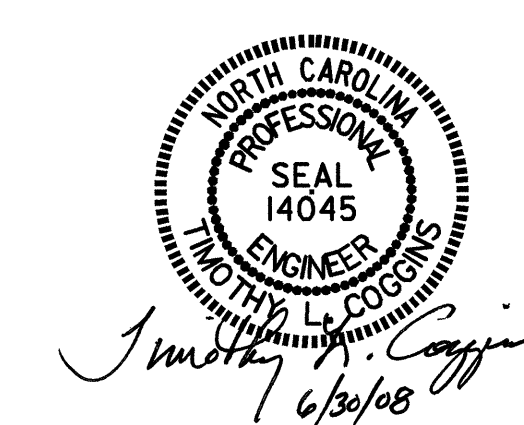
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TWENTIETH POINTS	SPAN A																				
	GIRDER #1 & #4																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.018	0.036	0.052	0.067	0.080	0.090	0.099	0.105	0.109	0.111	0.109	0.105	0.099	0.090	0.080	0.067	0.052	0.036	0.018	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.060	0.131	0.197	0.256	0.307	0.351	0.386	0.411	0.427	0.432	0.427	0.411	0.386	0.351	0.307	0.256	0.197	0.131	0.060	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.007	0.014	0.020	0.025	0.030	0.034	0.037	0.039	0.041	0.041	0.041	0.039	0.037	0.034	0.030	0.025	0.020	0.014	0.007	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.085	0.181	0.269	0.348	0.417	0.475	0.522	0.555	0.577	0.584	0.577	0.555	0.522	0.475	0.417	0.348	0.269	0.181	0.085	0.000
VERTICAL CURVE ORDINATE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	-0.003	-0.006	-0.008	-0.011	-0.012	-0.014	-0.015	-0.016	-0.016	-0.017	-0.016	-0.016	-0.015	-0.014	-0.012	-0.011	-0.008	-0.006	-0.003	0.000
REQUIRED CAMBER		1"	2/8"	3/8"	4/16"	4/8"	5/16"	6/16"	6/16"	6/16"	6 3/4"	6 13/16"	6 3/4"	6 7/16"	6 7/16"	5 9/16"	4 7/8"	4 1/16"	3 7/8"	2 7/8"	1"

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TWENTIETH POINTS	SPAN A																				
	GIRDER #2 & #3																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.018	0.036	0.052	0.067	0.080	0.090	0.099	0.105	0.109	0.111	0.109	0.105	0.099	0.090	0.080	0.067	0.052	0.036	0.018	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.061	0.134	0.201	0.261	0.313	0.358	0.393	0.419	0.435	0.440	0.435	0.419	0.393	0.358	0.313	0.261	0.201	0.134	0.061	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.007	0.014	0.020	0.025	0.030	0.034	0.037	0.039	0.041	0.041	0.041	0.039	0.037	0.034	0.030	0.025	0.020	0.014	0.007	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.086	0.184	0.273	0.353	0.423	0.482	0.529	0.563	0.585	0.592	0.585	0.563	0.529	0.482	0.423	0.353	0.273	0.184	0.086	0.000
VERTICAL CURVE ORDINATE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	-0.003	-0.006	-0.008	-0.011	-0.012	-0.014	-0.015	-0.016	-0.016	-0.017	-0.016	-0.016	-0.015	-0.014	-0.012	-0.011	-0.008	-0.006	-0.003	0.000
REQUIRED CAMBER		1"	2/8"	3 3/16"	4/8"	4 5/16"	5 5/8"	6 3/16"	6 9/16"	6 13/16"	6 7/8"	6 13/16"	6 9/16"	6 3/16"	5 5/8"	4 5/16"	4 1/8"	3 3/16"	2 7/8"	1"	

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. B-4116
GASTON COUNTY
STATION: 14+57.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
DEAD LOAD
DEFLECTIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			24

DRAWN BY: Ned M. Kuffner DATE: 5/7/08
CHECKED BY: T. L. COGGINS DATE: 05/2008

NOTES

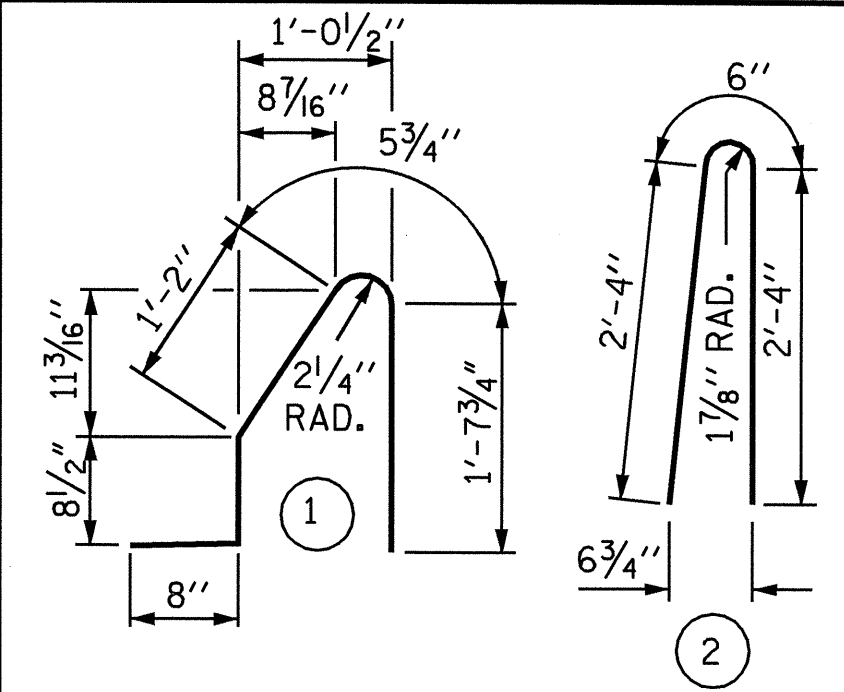
BARRIER RAIL IN THE SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. 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.

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

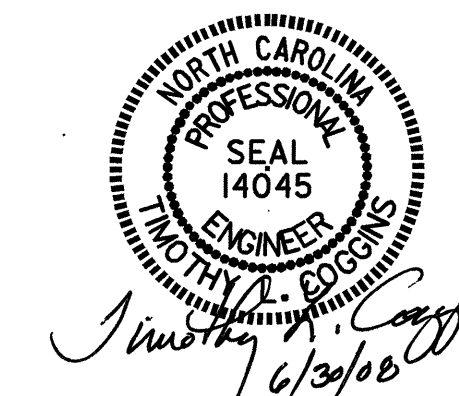
FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	56	#5	STR	27'-11"	1631
* S1	228	#5	1	4'-8"	1110
* S2	228	#5	2	5'-2"	1229

* EPOXY COATED REINFORCING STEEL 3970 LBS.
 CLASS AA CONCRETE 22.7 CU. YDS.
 CONCRETE BARRIER RAIL 226.67 LTN. FT.

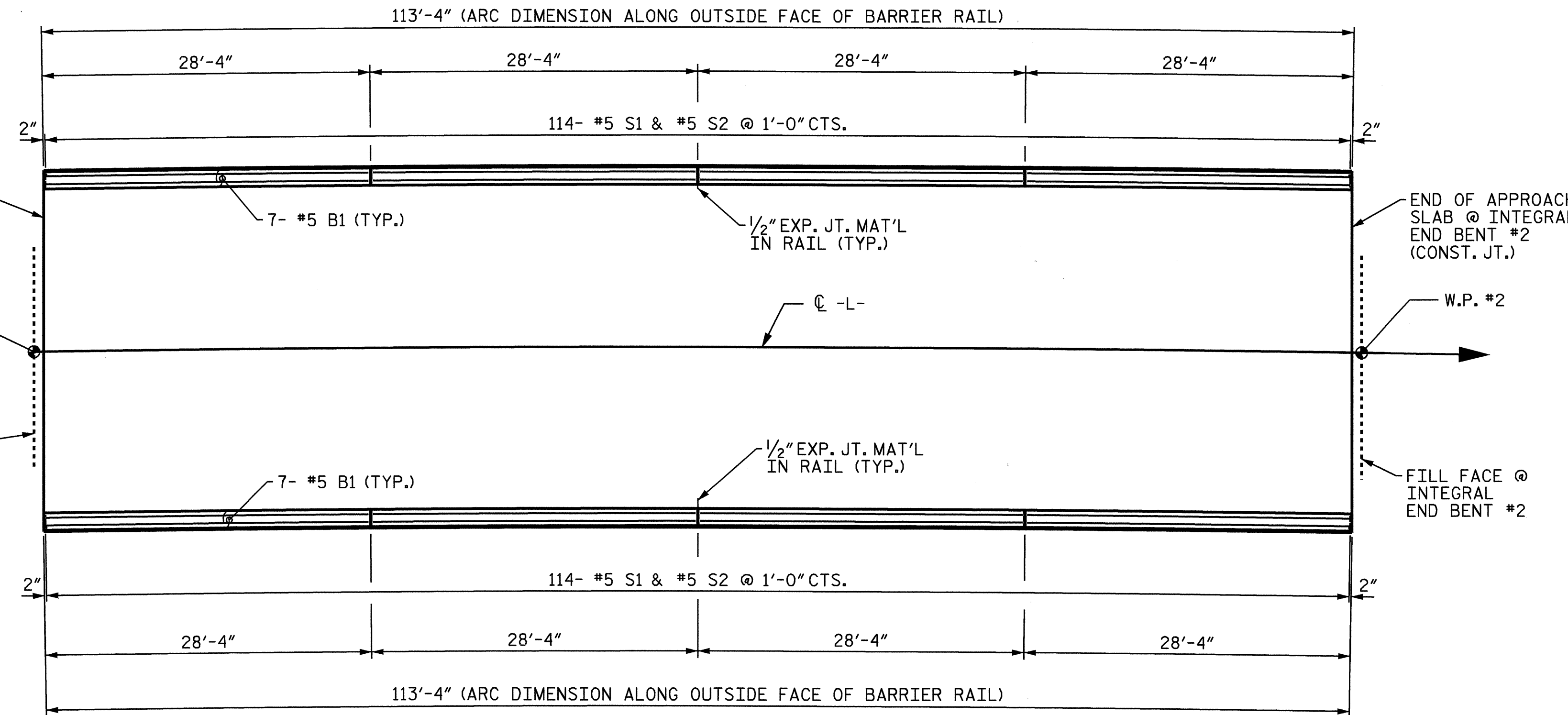
PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

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

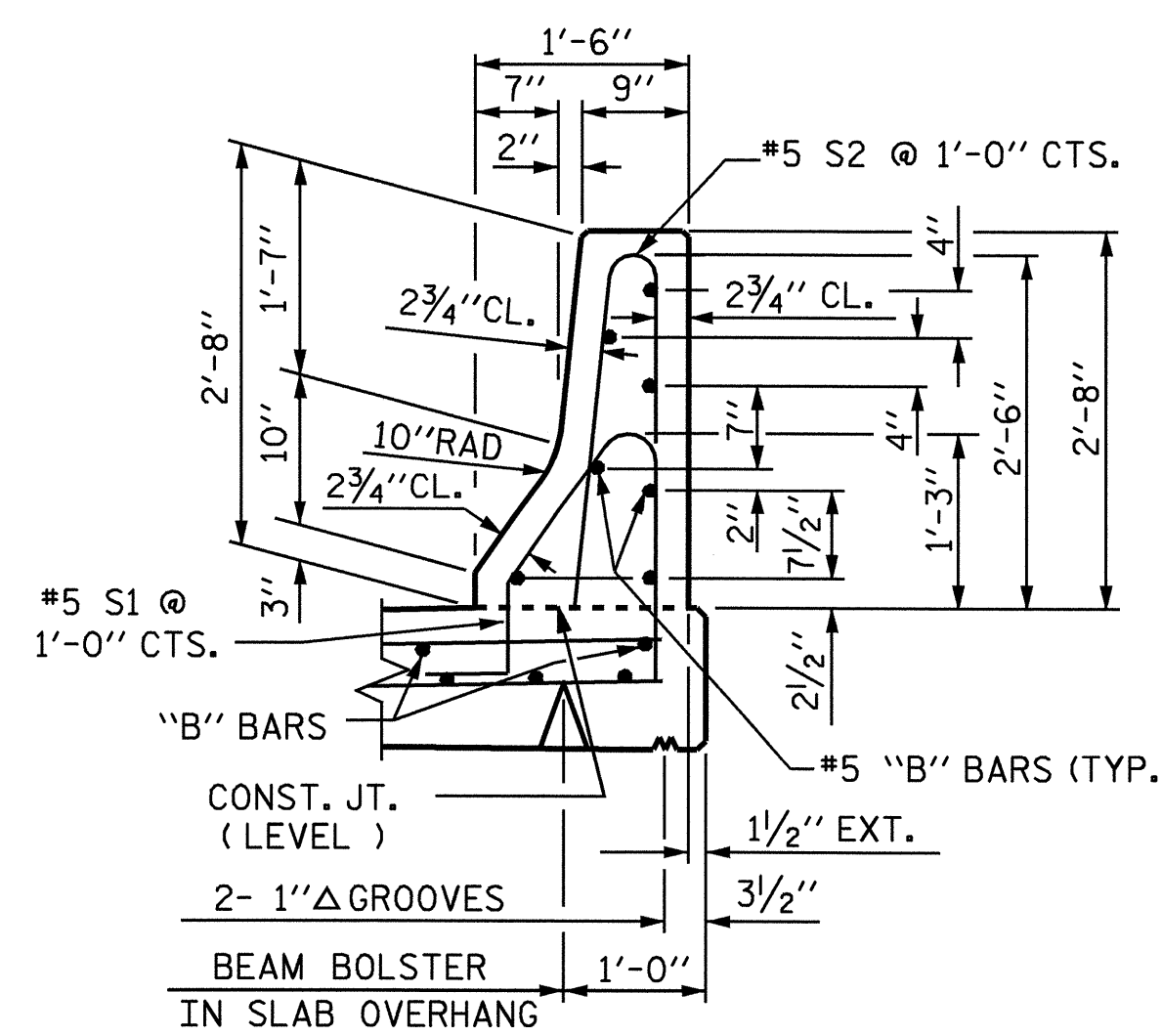


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS 24
2			4			

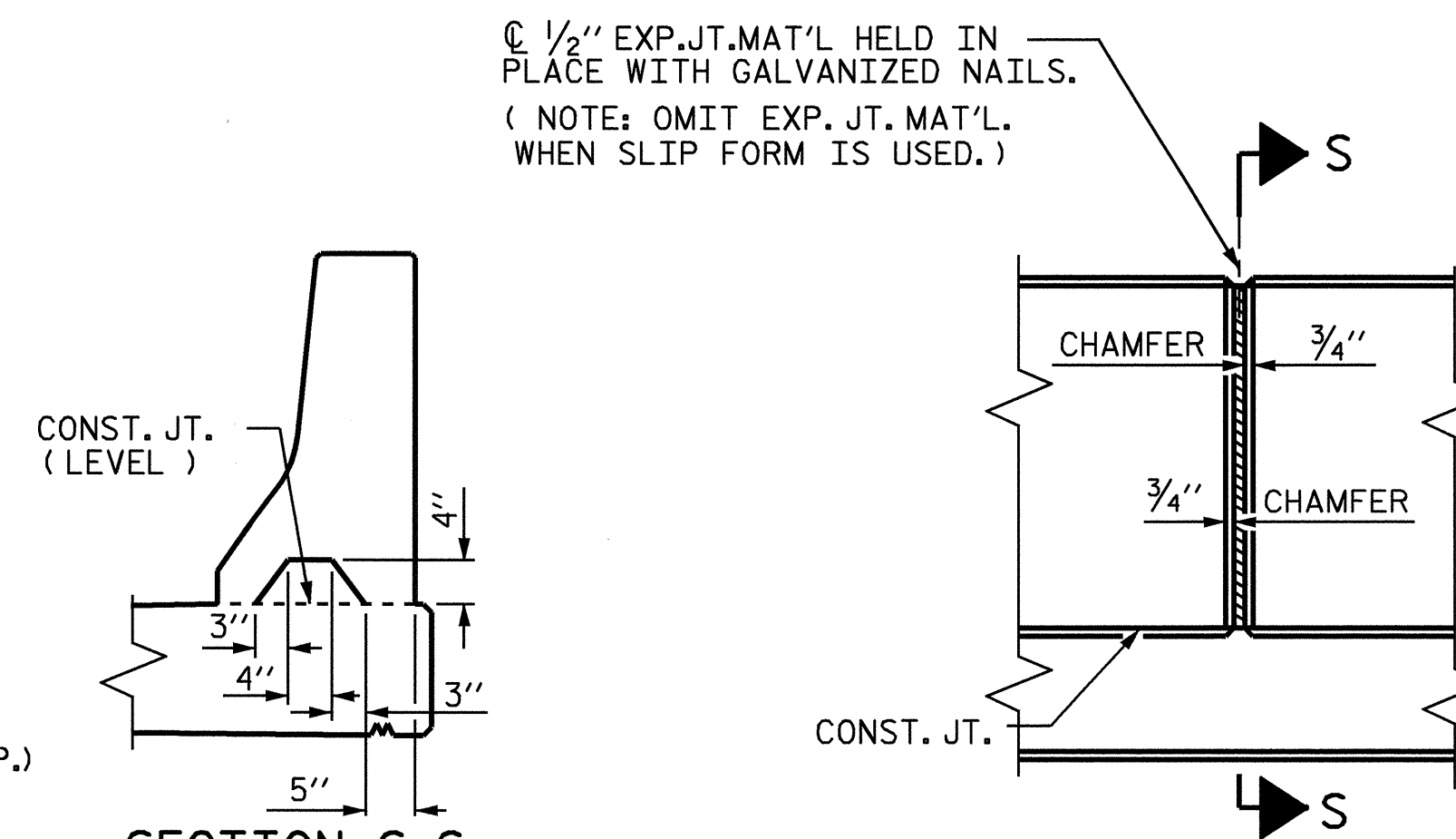
STD. NO. CBR1



PLAN OF SPAN



SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS
 BARRIER RAIL DETAILS

ASSEMBLED BY: Neil M. Ruffin DATE: 5/9/08
 CHECKED BY: T. L. COGGINS DATE: 05/2008
 DRAWN BY: ARB 5/87 REV. 10/17/00 RWW/LES
 CHECKED BY: SJD 9/87 REV. 5/7/03R RWW/JTE
 REV. 5/1/06 TLA/GM

NOTES

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

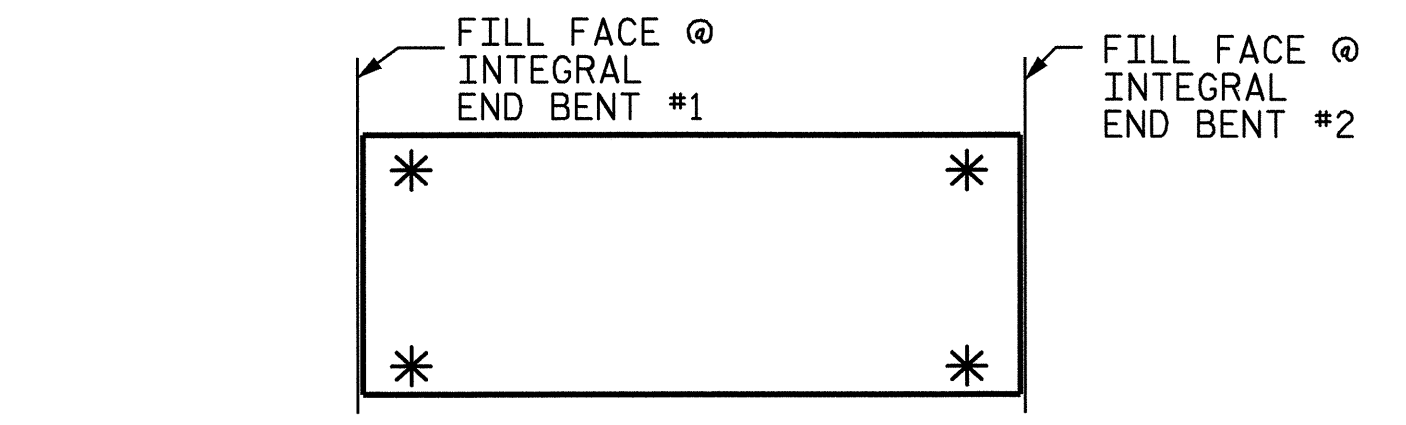
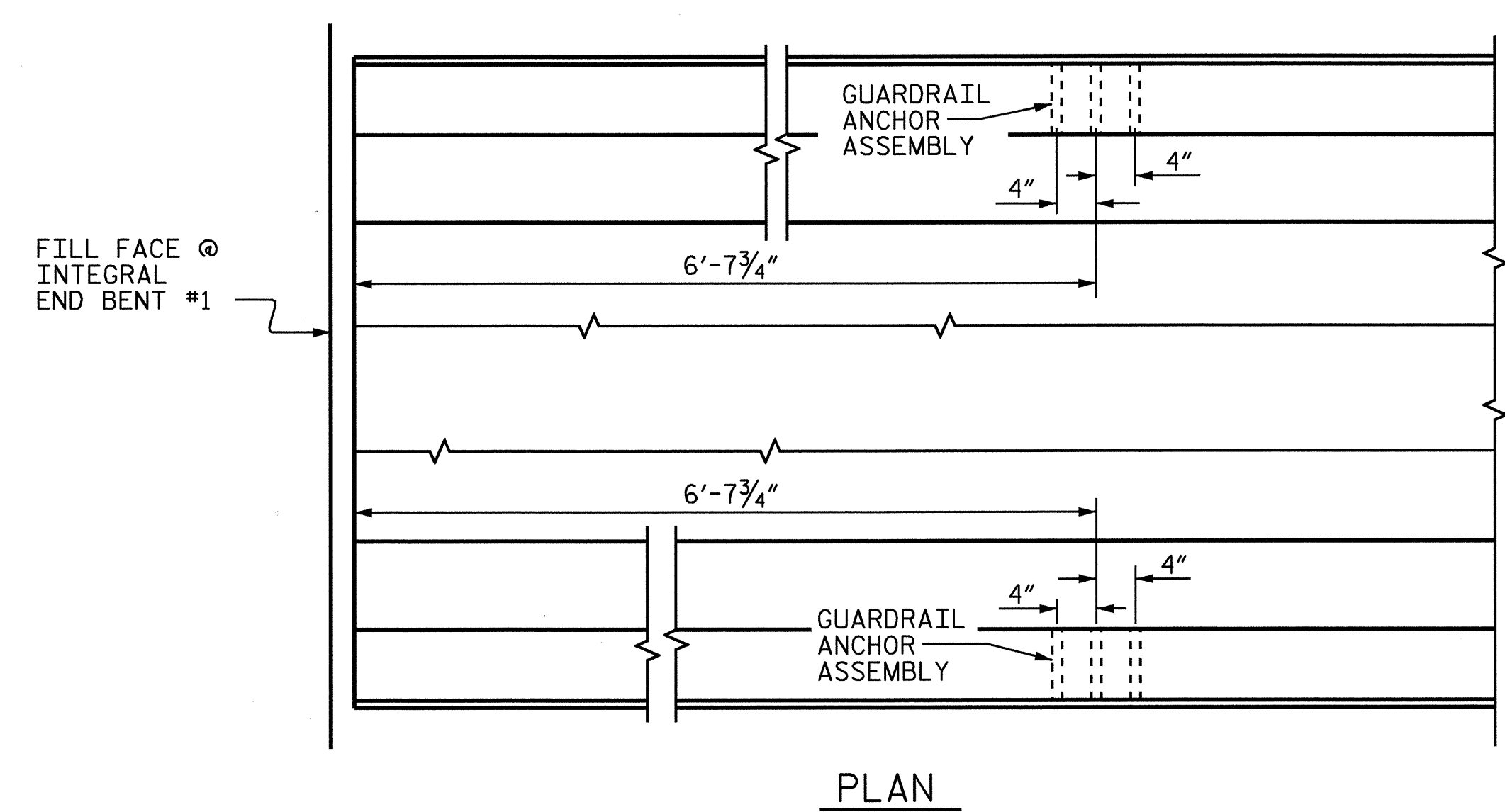
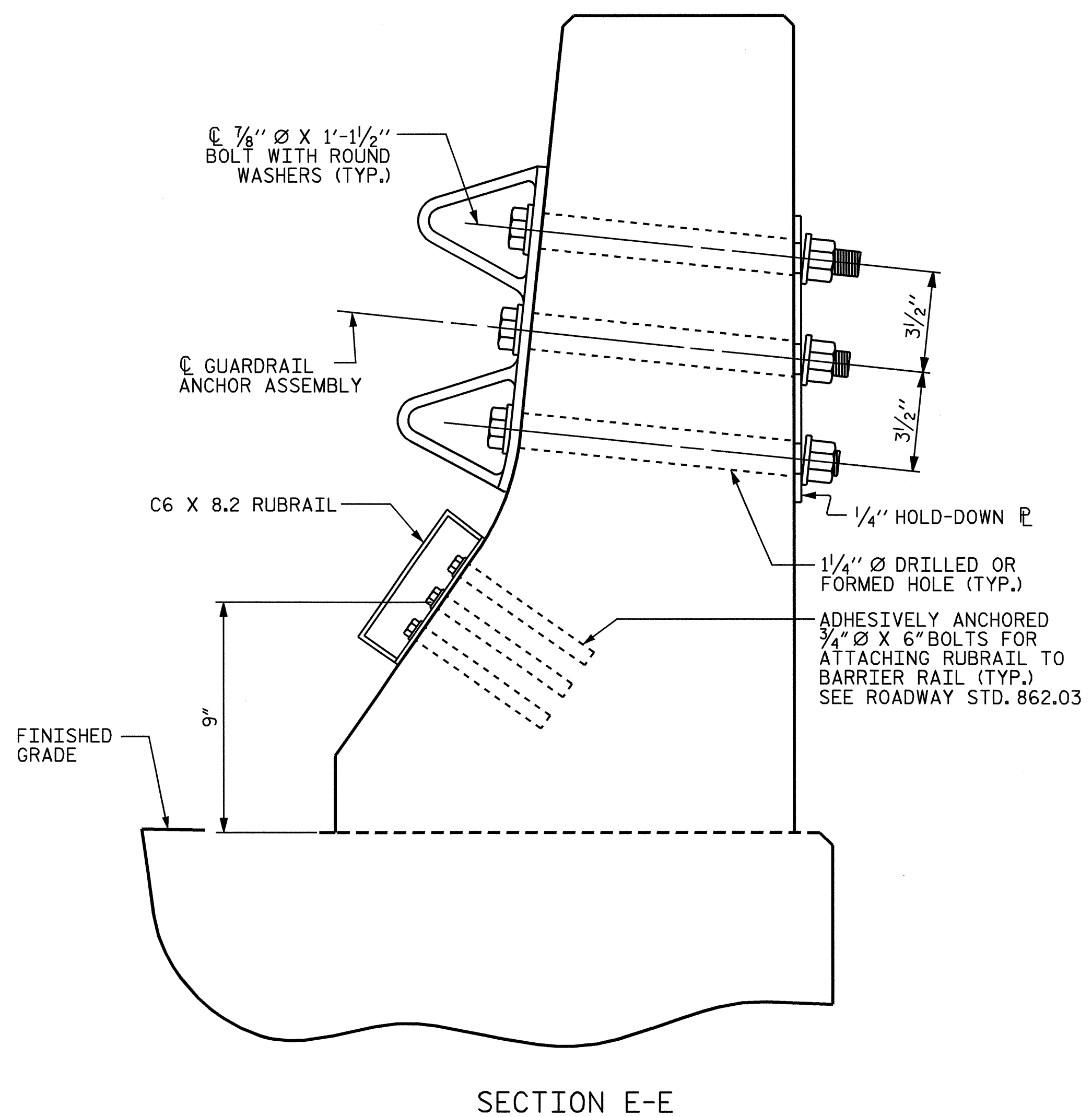
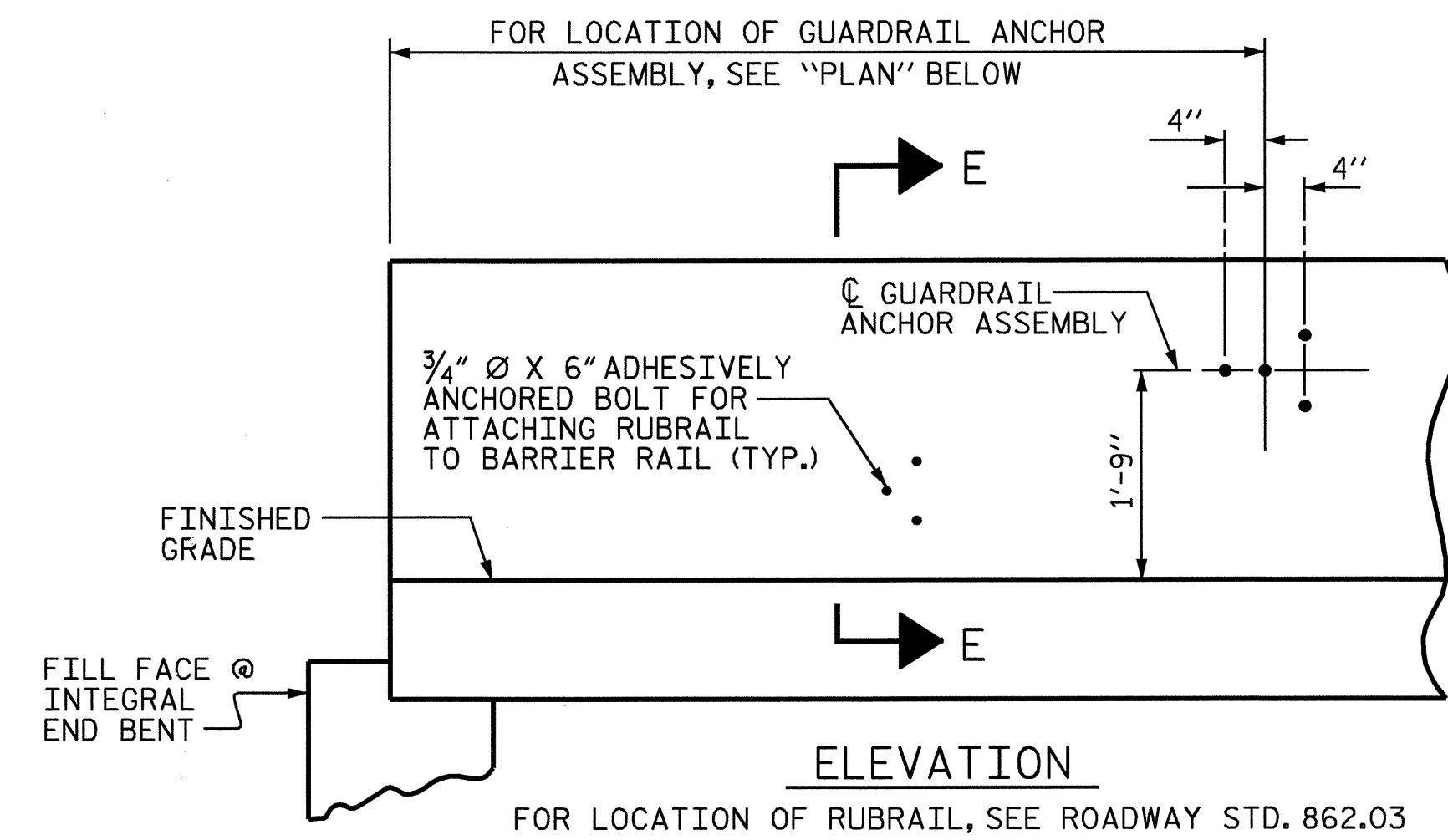
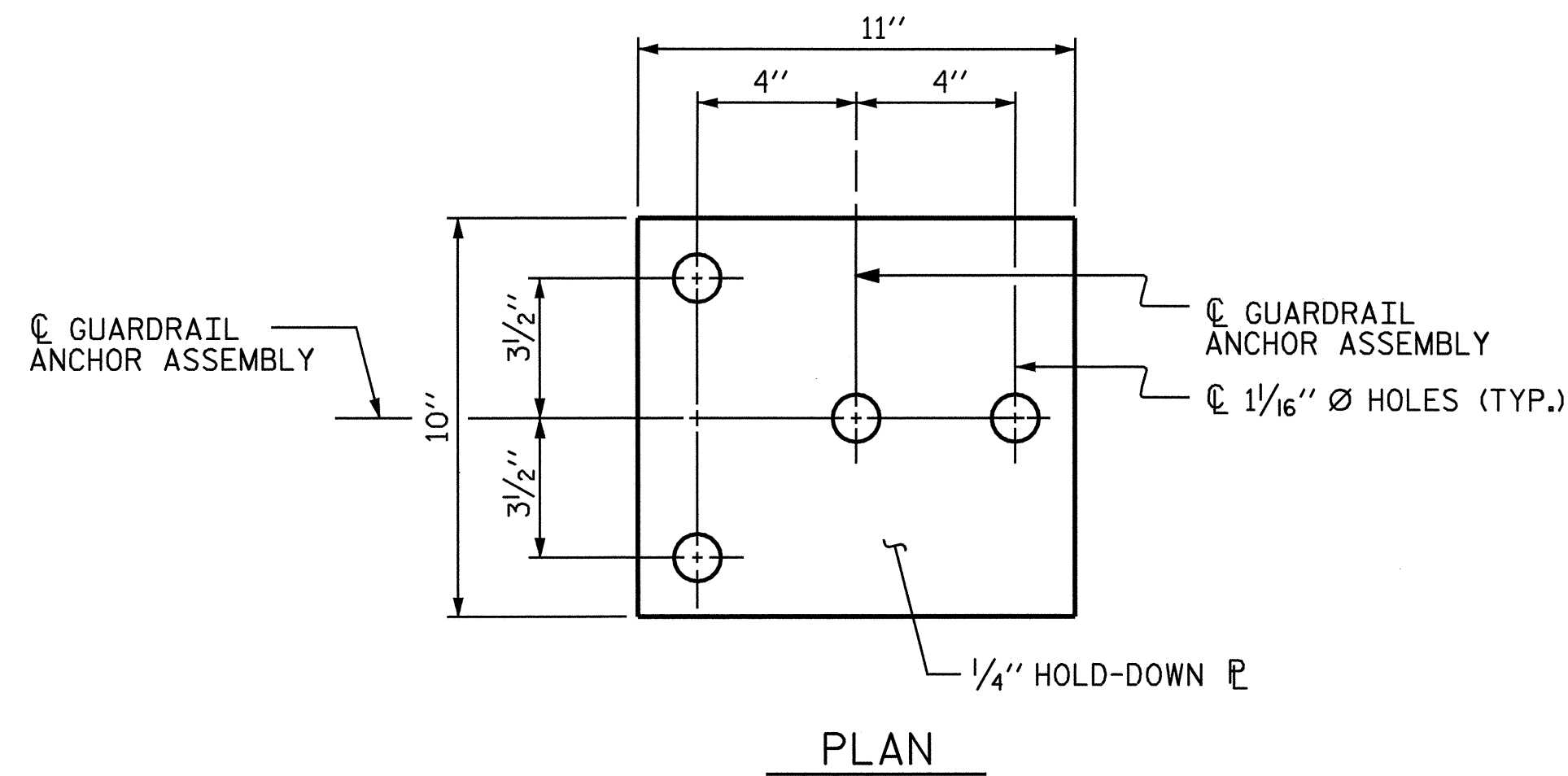
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

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

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



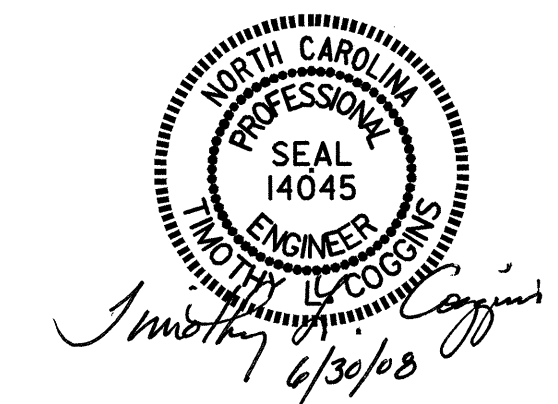
SKETCH SHOWING POINTS OF ATTACHMENTS
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

LOCATION OF ANCHORS FOR GUARDRAIL

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

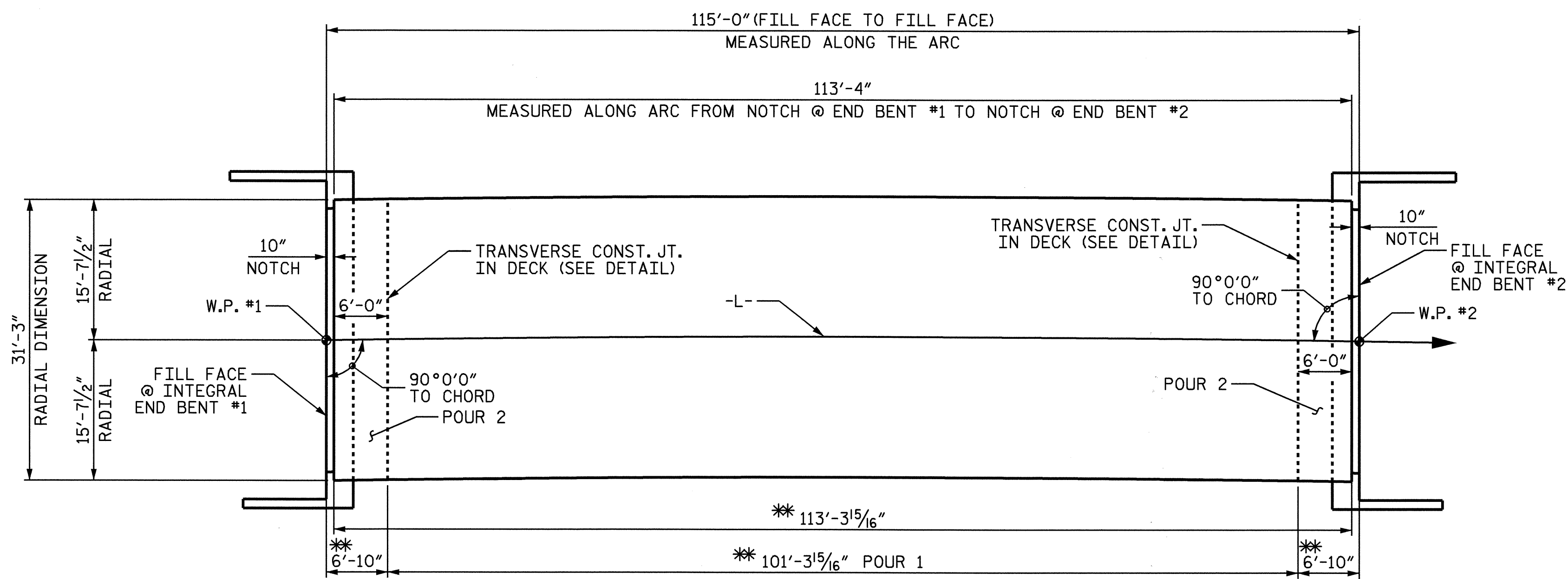
PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

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



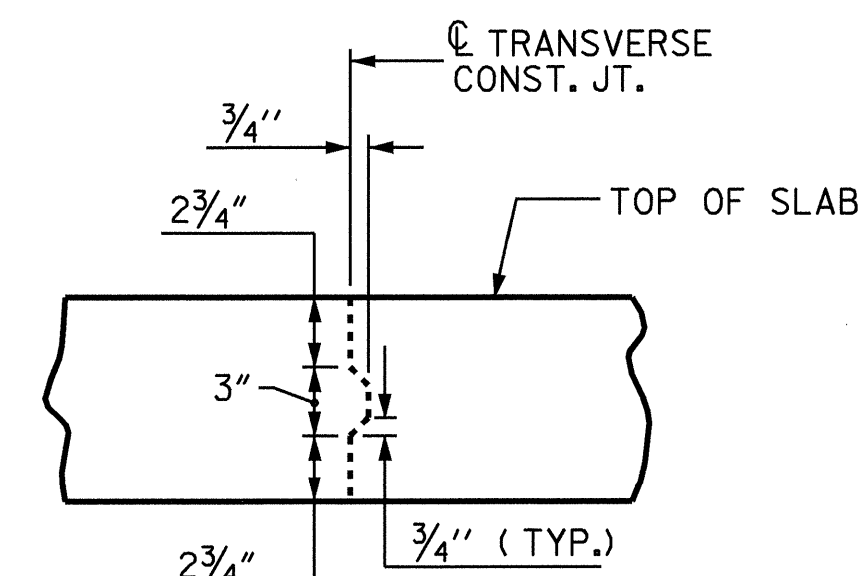
ASSEMBLED BY : <i>Nail M. Ruffin</i>	DATE : 5/16/08
CHECKED BY : T. L. COGGINS	DATE : 05/20/08
DRAWN BY : TLA 5/06	ADDED 5/17/06R KMM/GM
CHECKED BY : GM 5/06	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			24



LAYOUT FOR COMPUTING AREA
OF REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 3,594)

** DIMENSION MEASURED ALONG CHORD



TRANSVERSE CONSTRUCTION JOINT DETAIL

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

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"			

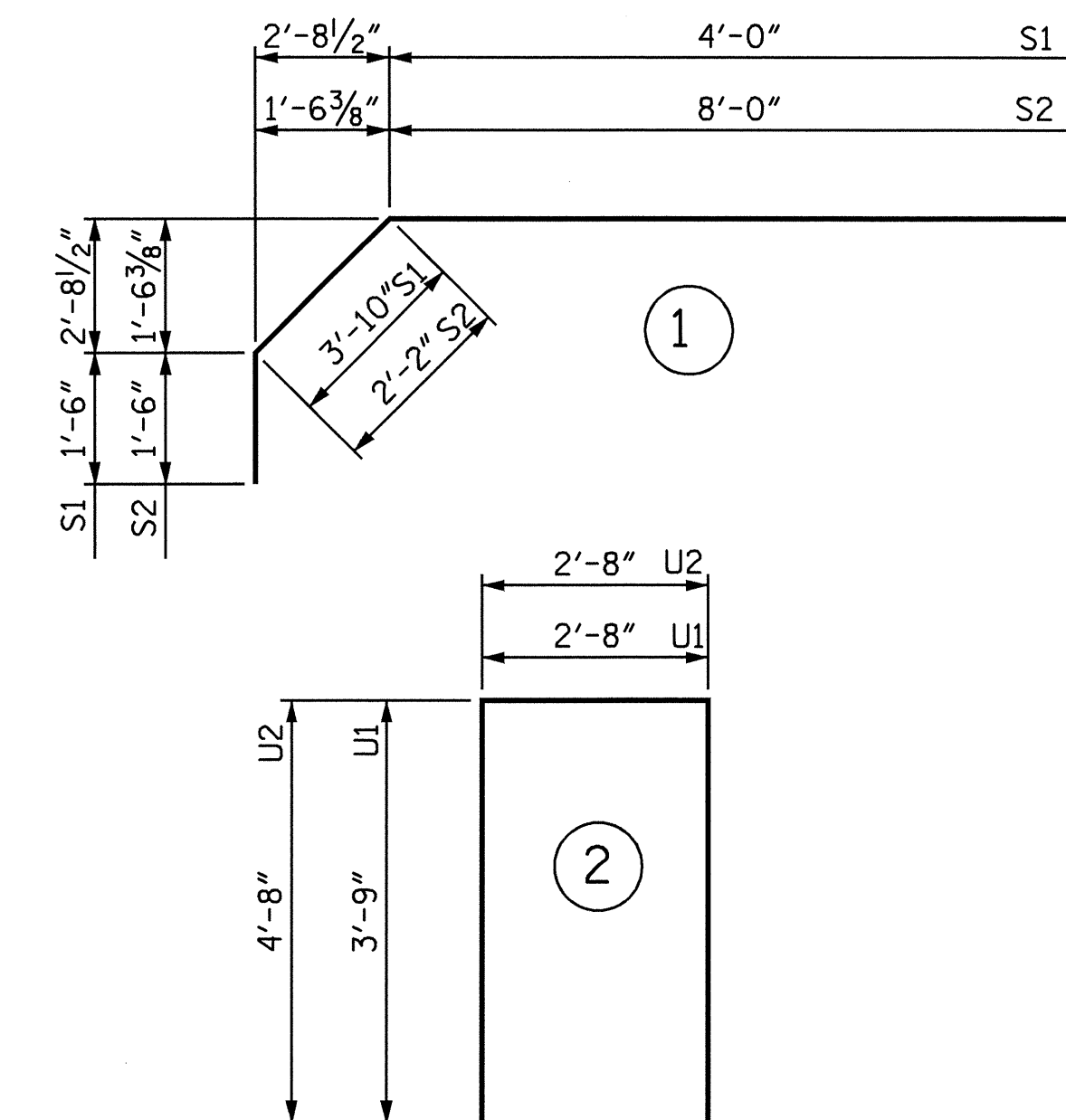
GROOVING BRIDGE FLOORS

APPROACH SLABS	640 SQ.FT.
BRIDGE DECK	2,833 SQ.FT.
TOTAL	3,473 SQ.FT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	195	5	STR	30'-10"	6271
A2	195	5	STR	30'-10"	6271
*B1	82	6	STR	22'-8"	2792
B2	122	5	STR	22'-8"	2884
*B3	63	4	STR	25'-4"	1066
B4	66	5	STR	37'-3"	2564
*B5	8	4	STR	29'-10"	159
K1	40	4	STR	19'-6"	521
K2	16	4	STR	2'-8"	29
*S1	50	4	1	9'-4"	312
*S2	46	4	1	11'-8"	358
U1	54	4	2	10'-2"	367
U2	12	4	2	12'-0"	96
V1	8	4	STR	3'-9"	20
REINFORCING STEEL				LBs.	12,752
*EPOXY COATED REINFORCING STEEL				LBs.	10,958

BAR TYPES



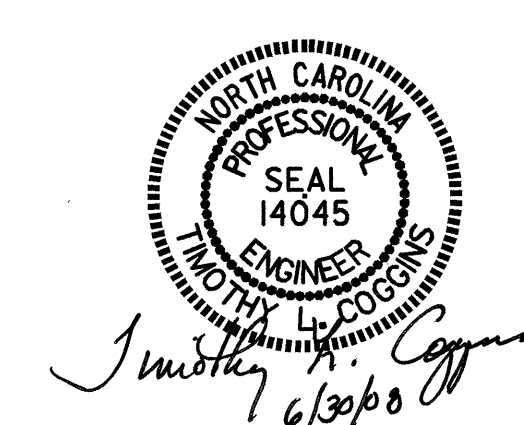
ALL BAR DIMENSIONS ARE OUT TO OUT
— SUPERSTRUCTURE BILL OF MATERIAL —

	CLASS AA CONCRETE (CU.YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	97.8		
POUR 2	58.3		
TOTALS**	156.1	12,752	10,958

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

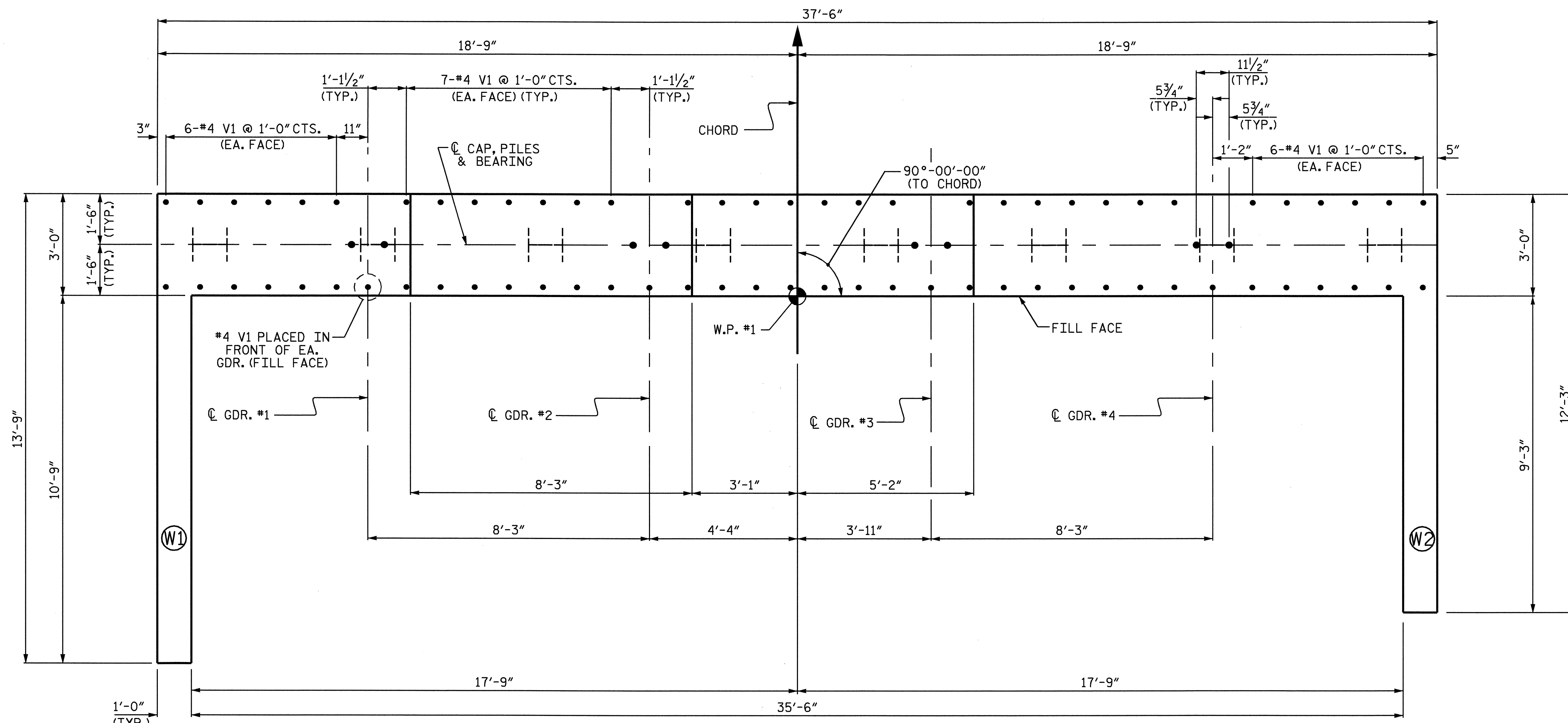
PROJECT NO. B-4116
GASTON COUNTY
STATION: 14+57.00 -L-

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

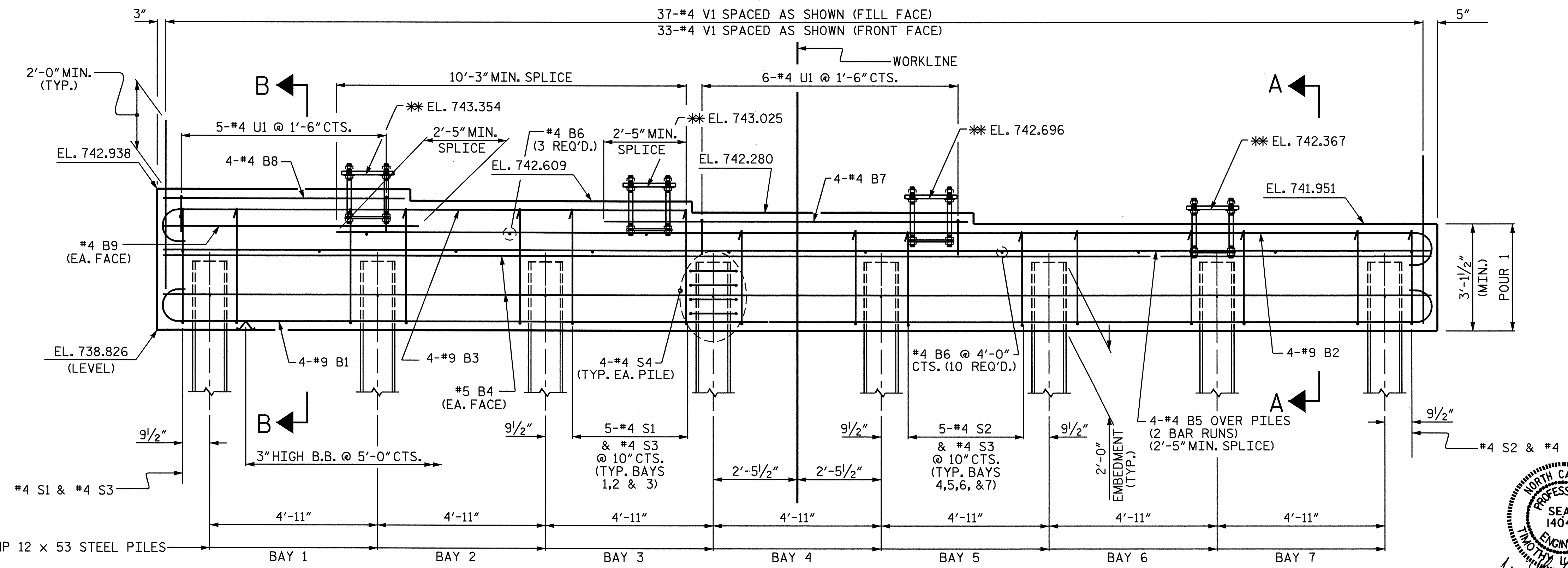


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS 24
2			4			

ASSEMBLED BY : Z. J. RORIE / NMR	DATE : 05/2008
CHECKED BY : T. L. COGGINS	DATE : 05/2008
DRAWN BY : JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87	REV. 8/16/99 RWW/LES
	REV. 5/1/06 TLA/GM



PLAN



ELEVATION

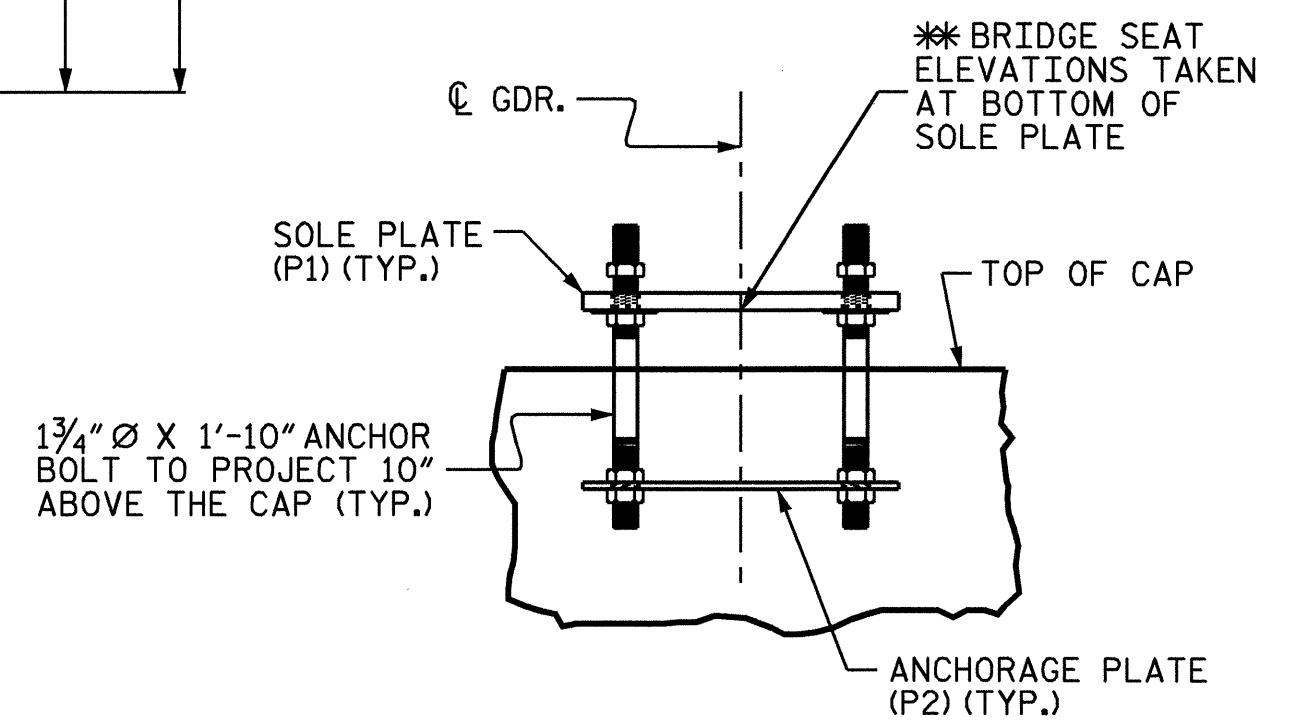
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

SEE SUPERSTRUCTURE SHEETS FOR THE ABUTMENT DETAILS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UPPER PART OF WINGS ARE TO BE POURED WITH THE SUPERSTRUCTURE.



ANCHORAGE DETAILS

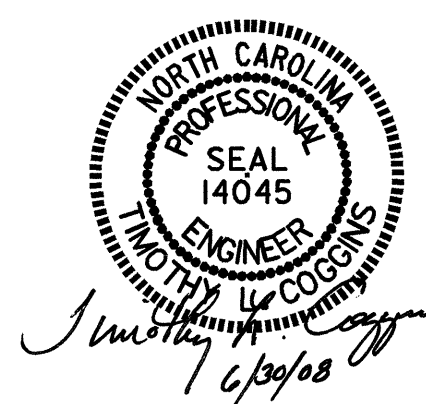
(TYP. EA. GIRDER)
(FOR DETAILS, SEE SOLE PLATE DETAILS SHEET.)

PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

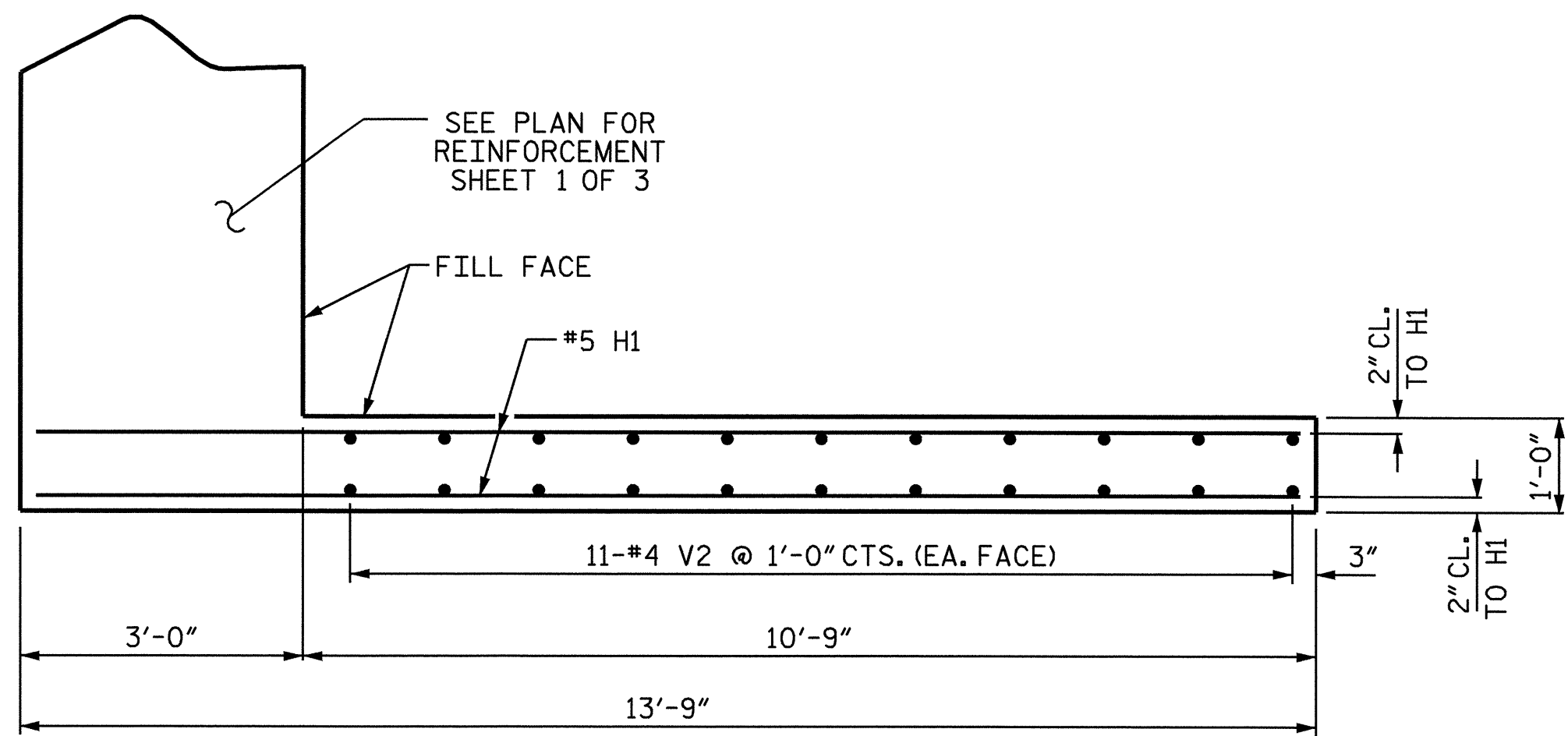
SUBSTRUCTURE
 INTEGRAL END BENT #1



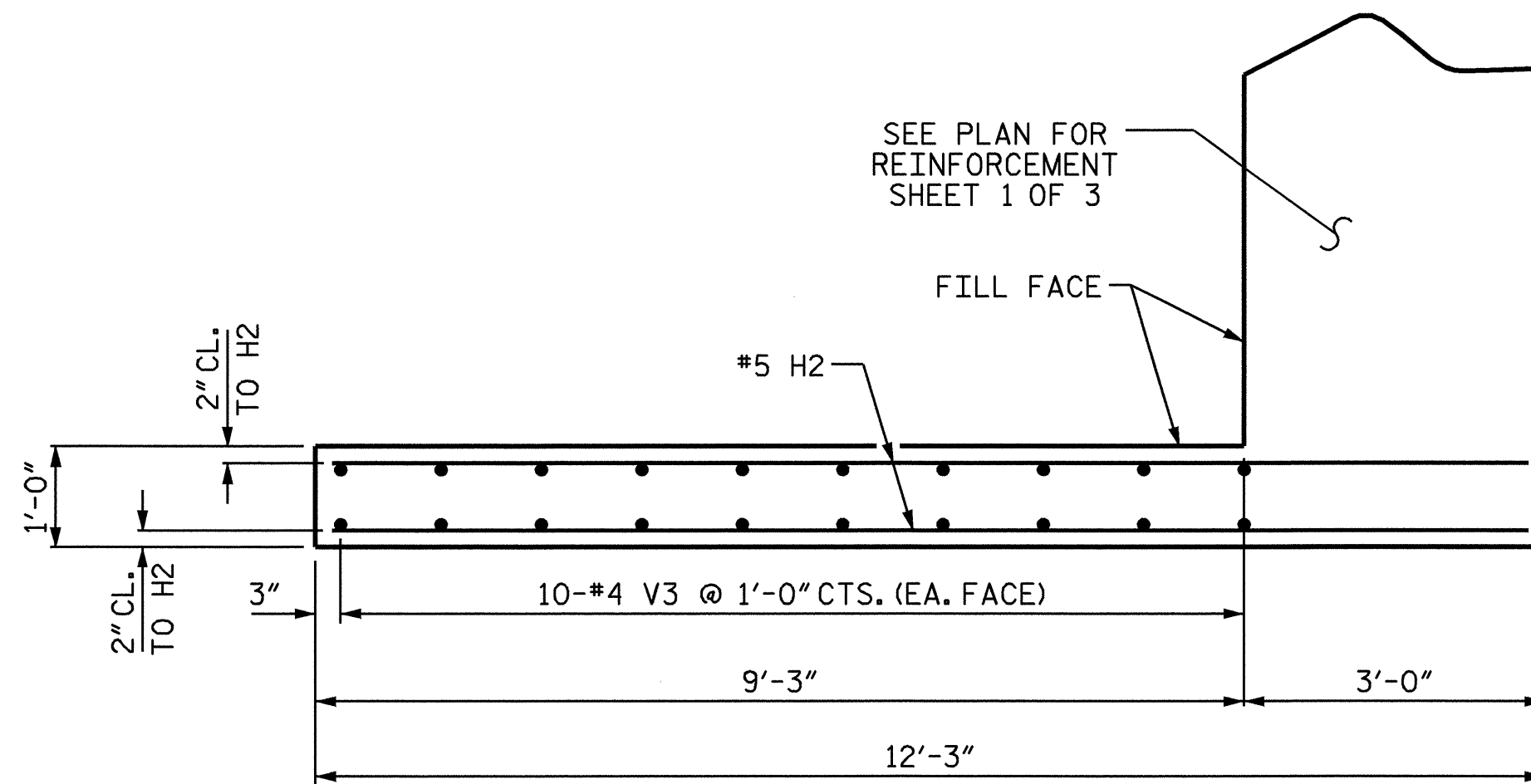
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 CHECKED BY: NEIL RUFFIN DATE: 6/10/08

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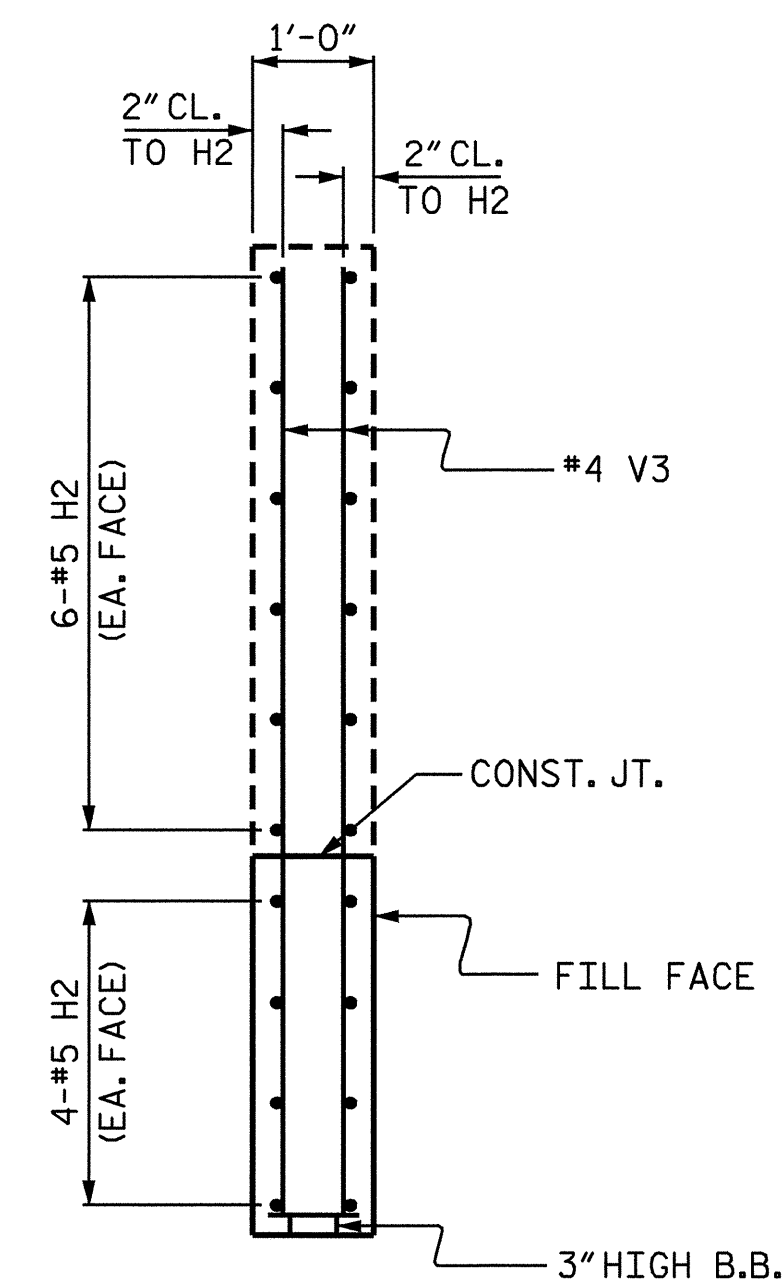
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2			4			



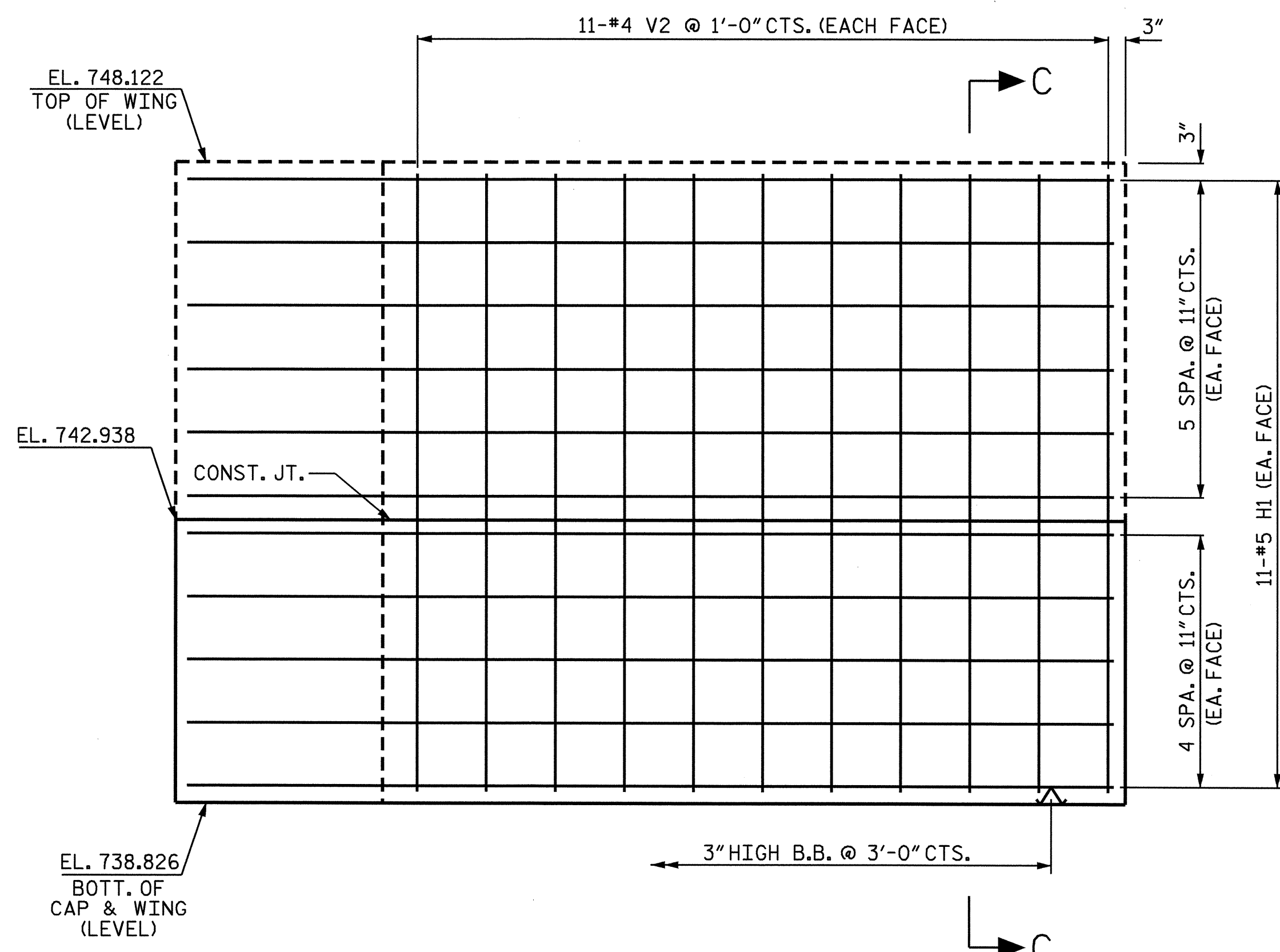
PLAN (W1)



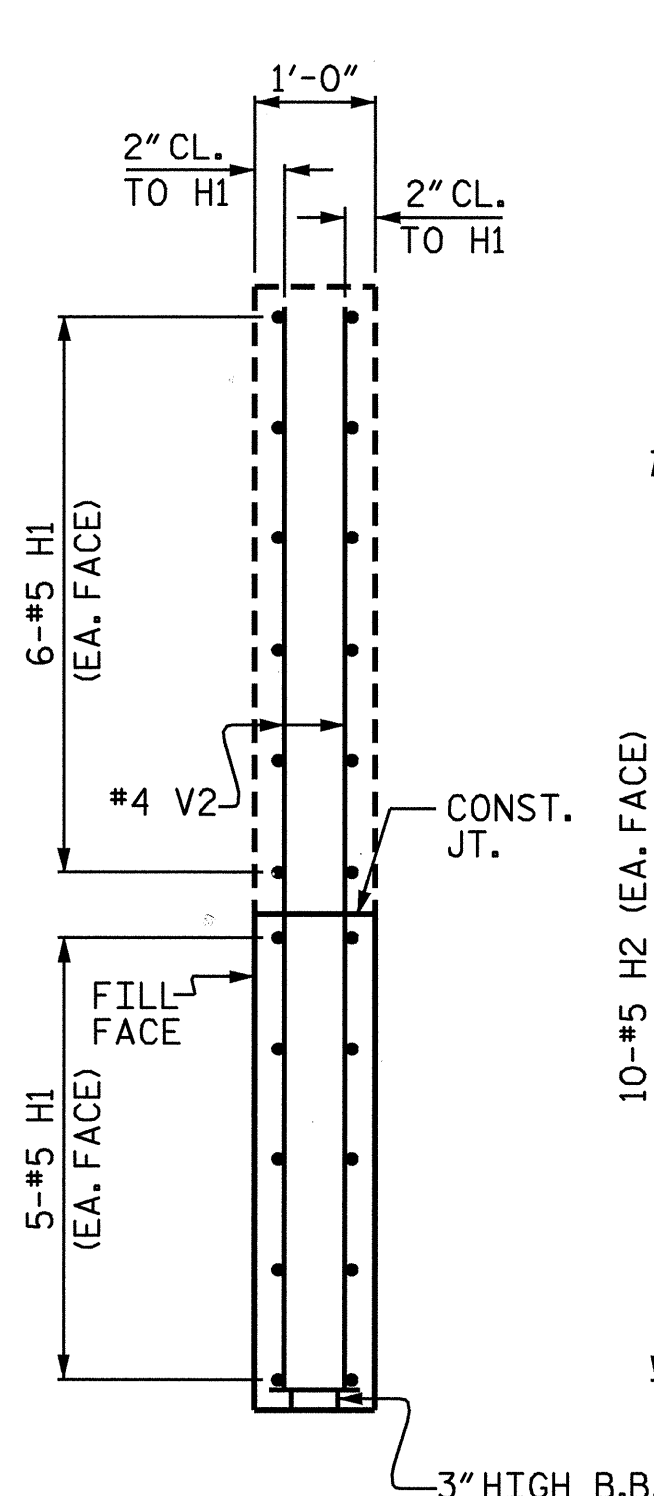
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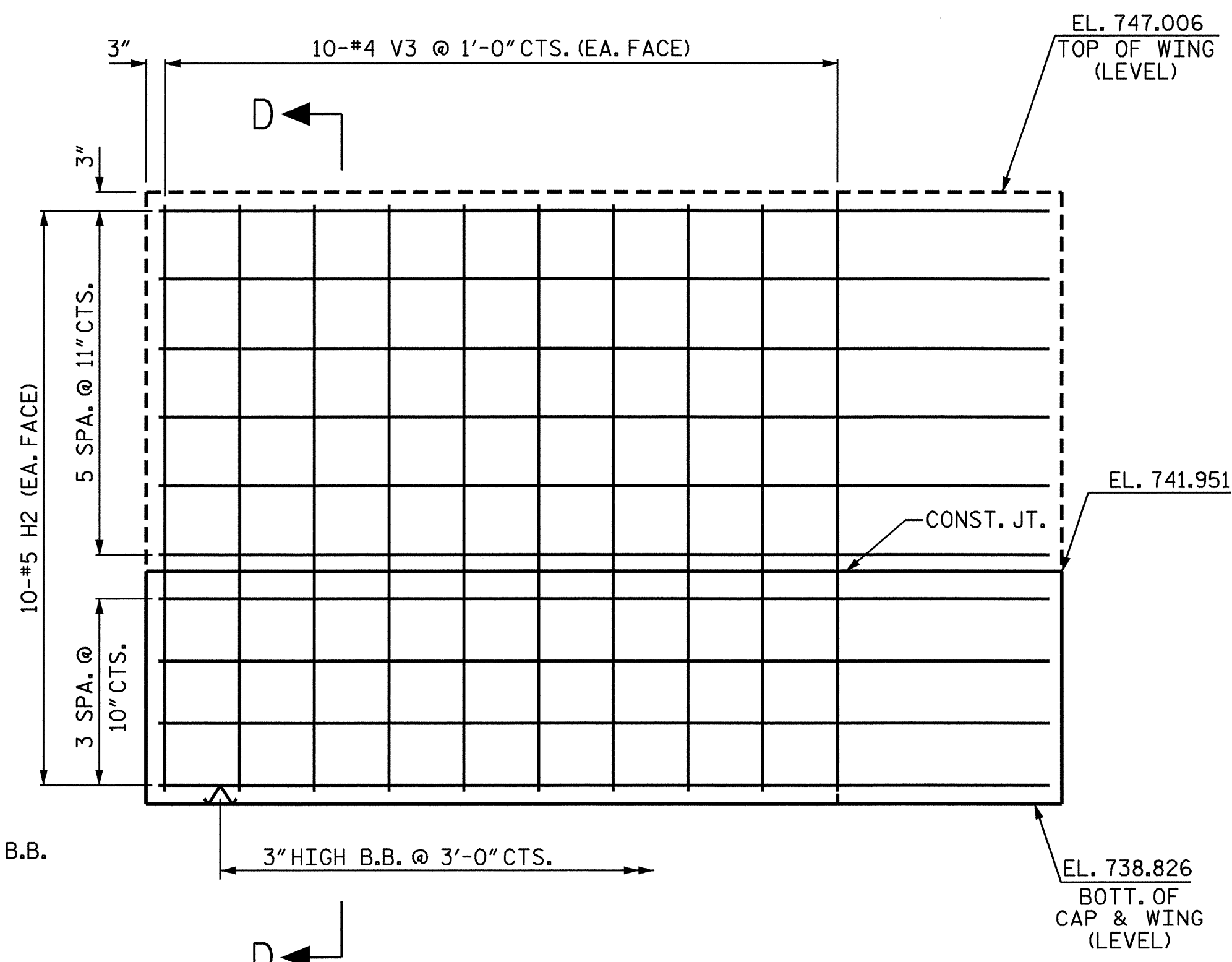
SECTION D-D



ELEVATION (W1)



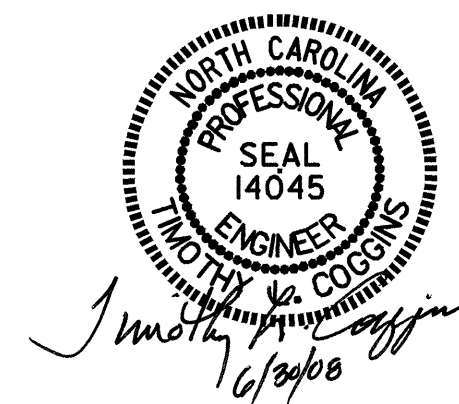
SECTION C-C



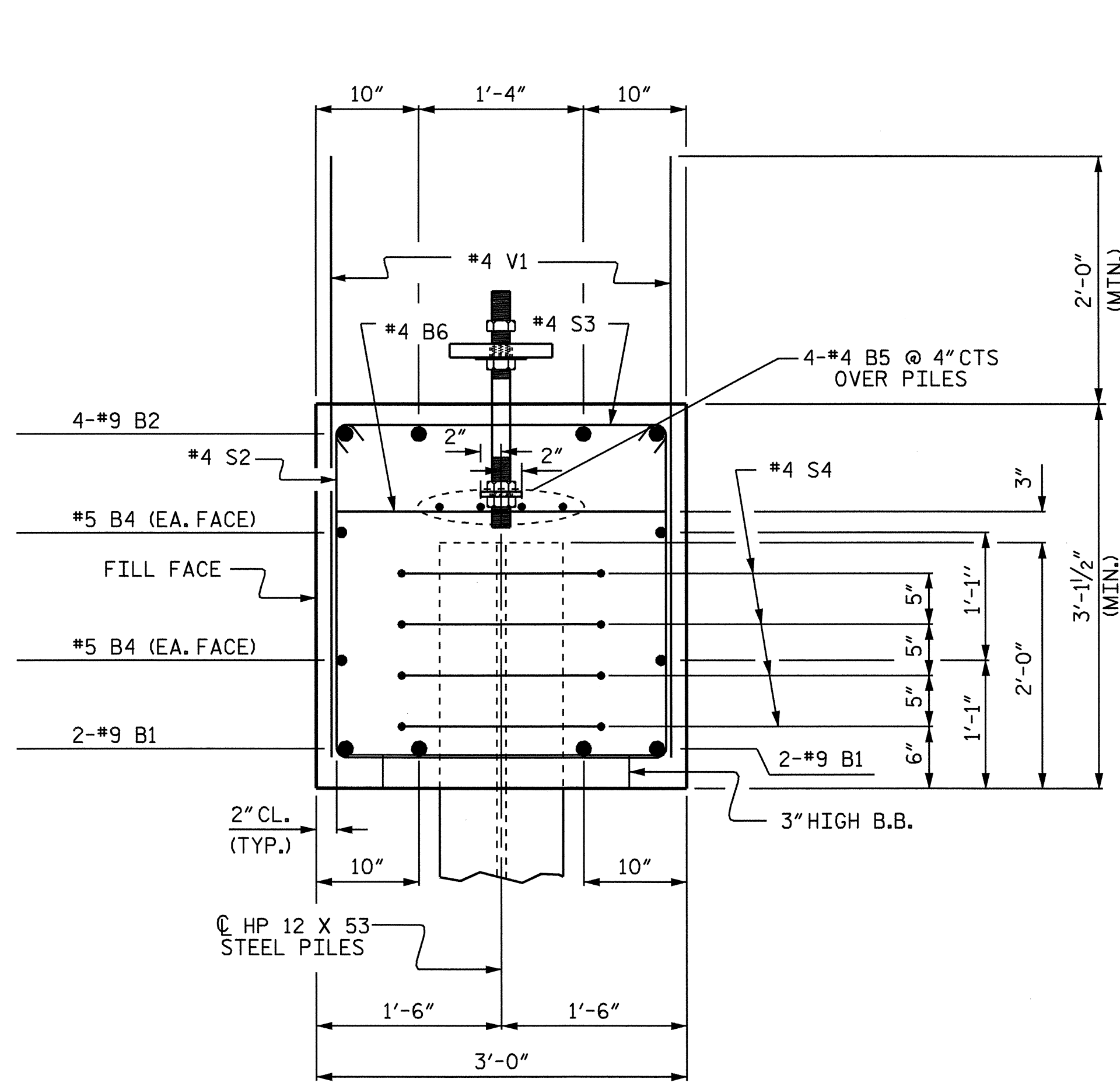
ELEVATION (W2)

PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-
 SHEET 2 OF 3

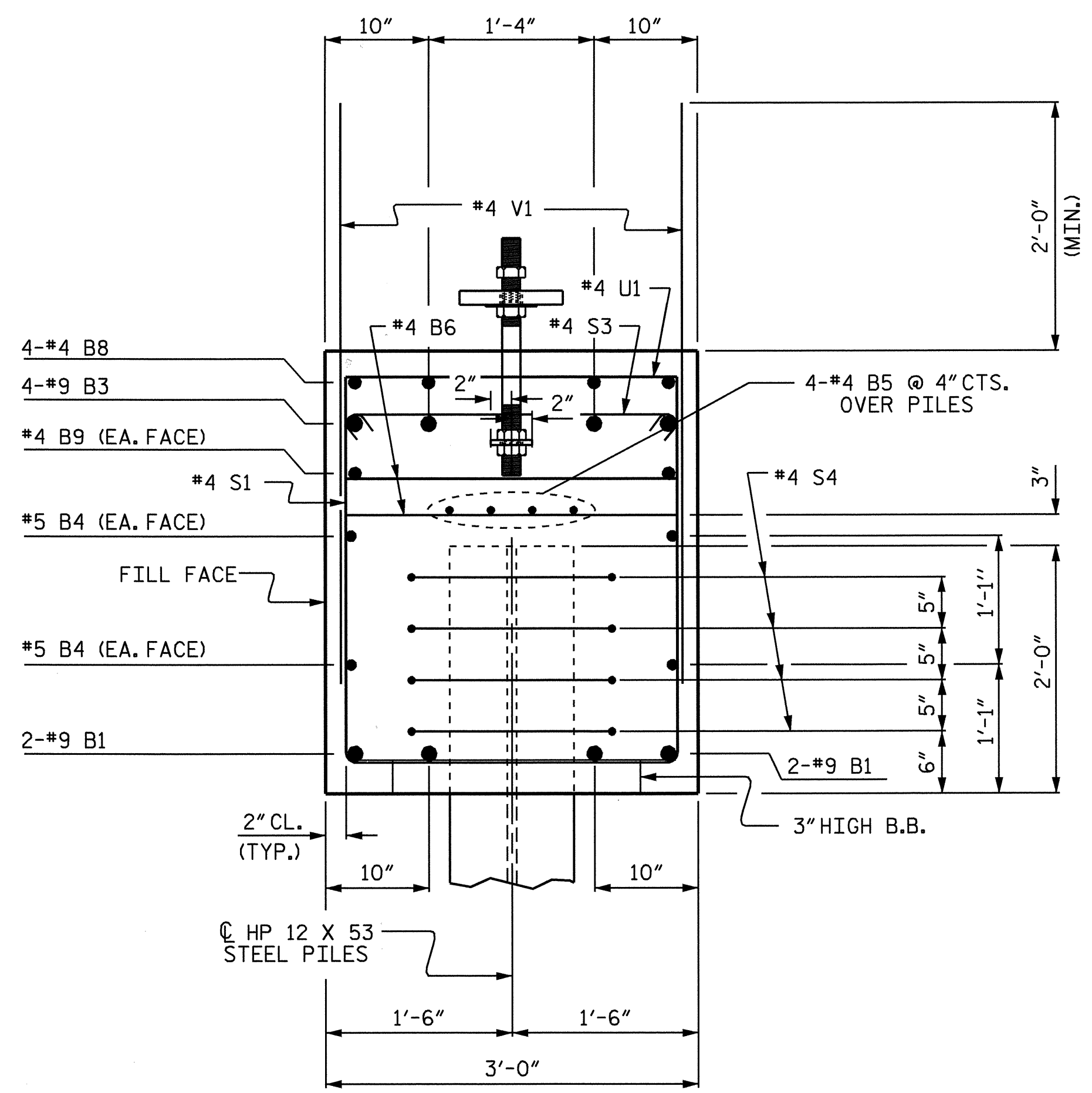
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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SHEET NO. S-17					TOTAL SHEETS 24



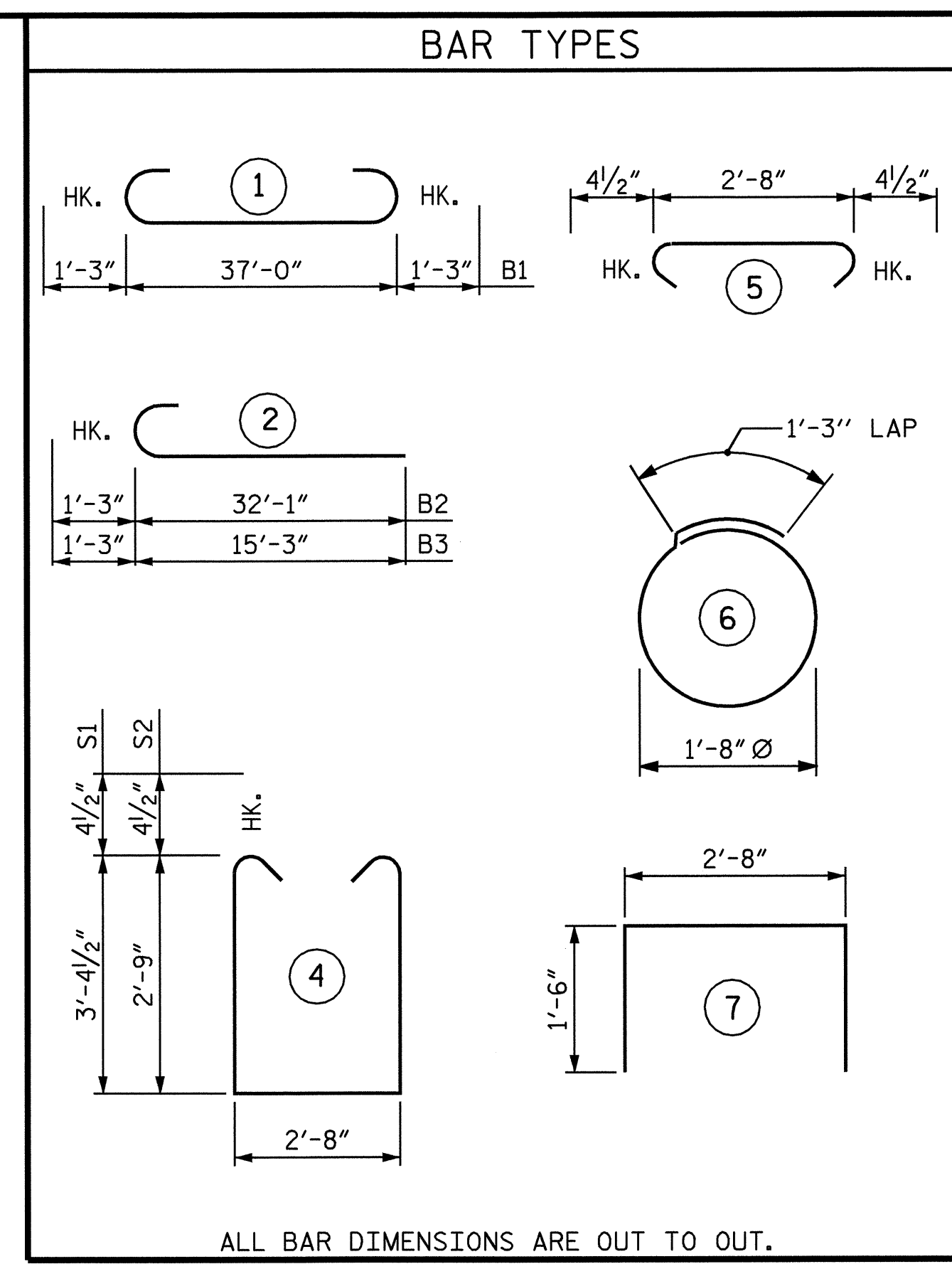
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SECTION A-A

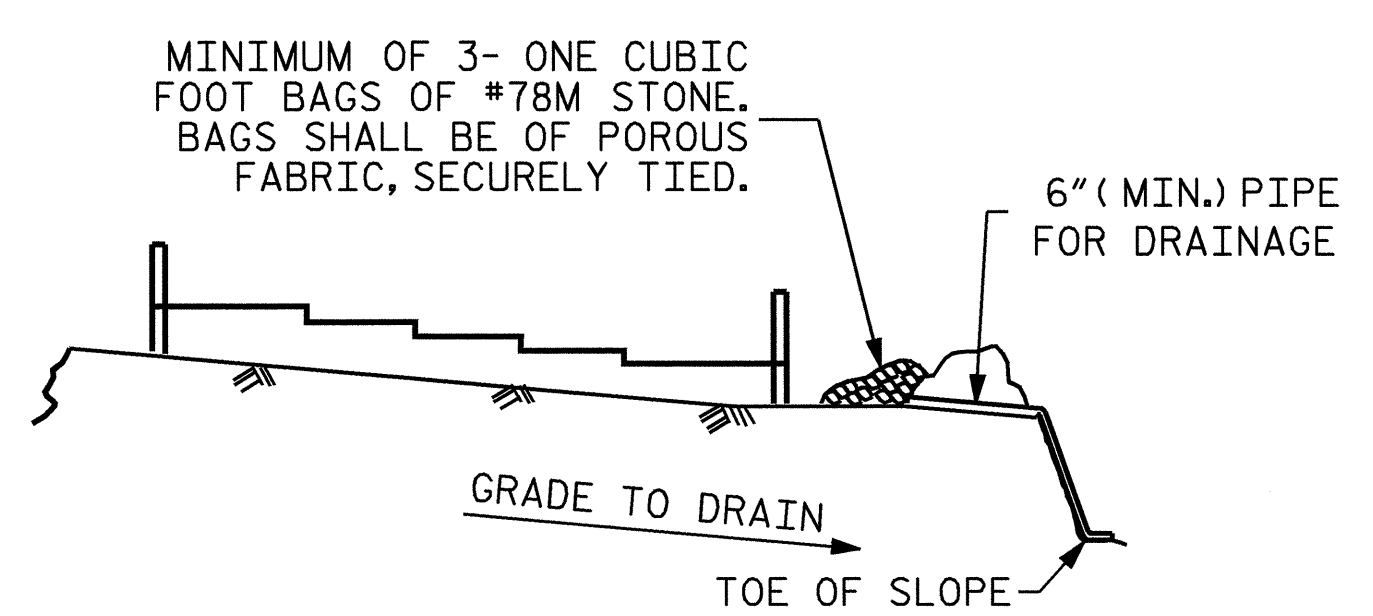


SECTION B-B



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
INTEGRAL END BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	39'-6"	537
B2	4	#9	2	33'-4"	453
B3	4	#9	2	16'-6"	224
B4	4	#5	STR	37'-2"	155
B5	8	#4	STR	19'-10"	106
B6	13	#4	STR	2'-8"	23
B7	4	#4	STR	10'-8"	29
B8	4	#4	STR	7'-1"	19
B9	2	#4	STR	7'-6"	10
H1	22	#5	STR	13'-5"	308
H2	20	#5	STR	11'-11"	249
S1	16	#4	4	10'-2"	109
S2	21	#4	4	8'-11"	125
S3	37	#4	5	3'-5"	84
S4	32	#4	6	6'-6"	139
U1	11	#4	7	5'-8"	42
V1	70	#4	STR	5'-0"	234
V2	22	#4	STR	9'-0"	132
V3	20	#4	STR	7'-10"	105
REINFORCING STEEL					3083 LBS.
CLASS A CONCRETE					
POUR 1 (CAP & LOWER PART OF WINGS)					C.Y. 17.5
TOTAL					C.Y. 17.5
HP 12 x 53 STEEL PILES No. 8					LIN. FT. 400

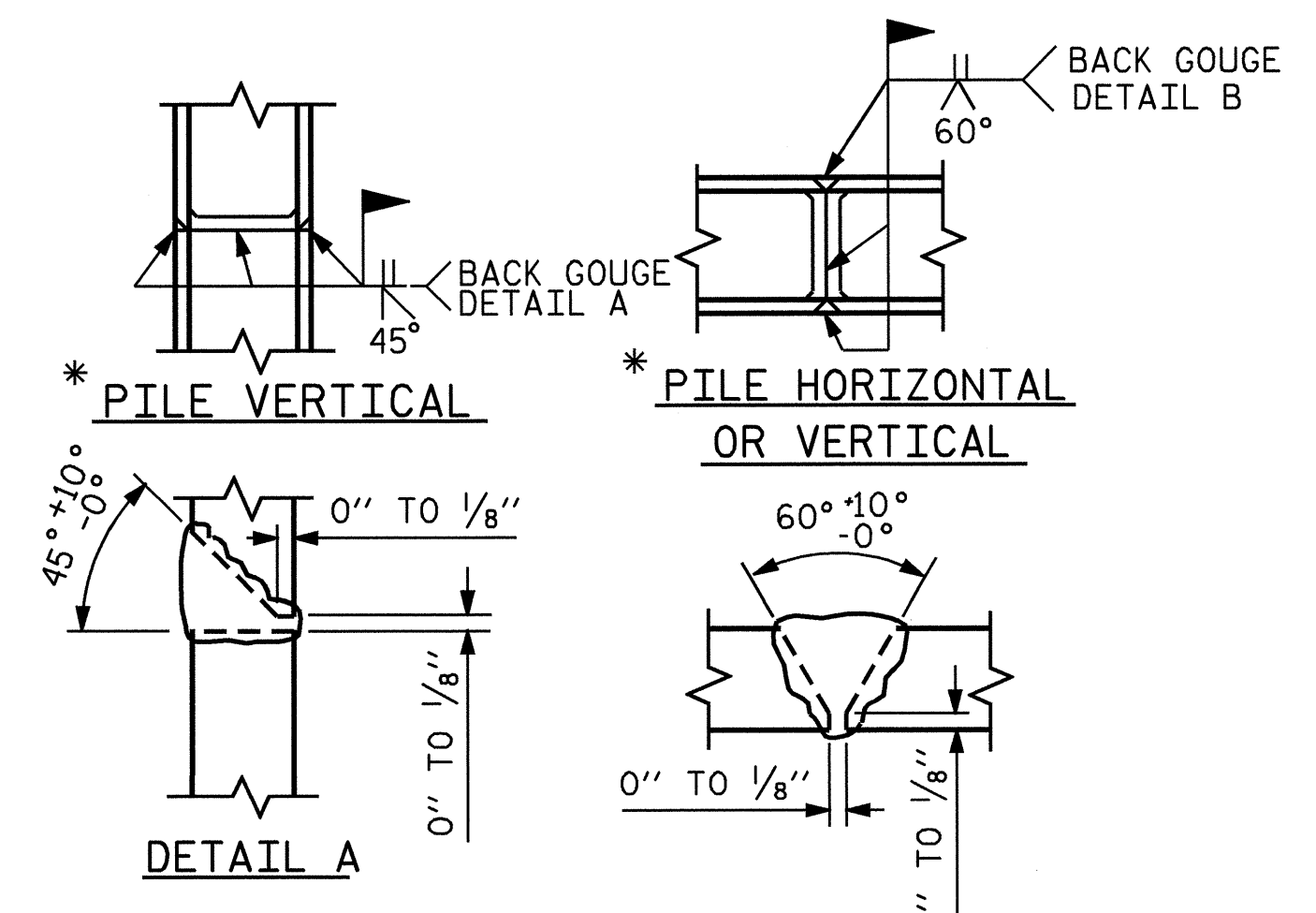


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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 FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

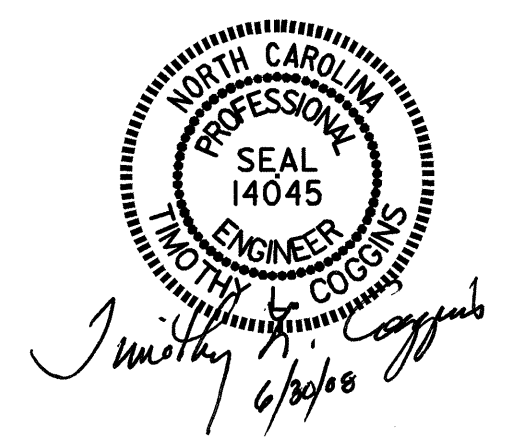


PILE SPLICE DETAILS

PROJECT NO. B-4116
 GASTON COUNTY
 STATION: 14+57.00 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL END BENT #1



DRAWN BY: J.B. WILSON DATE: 4/2008
 CHECKED BY: NEIL RUFFIN DATE: 6/11/08

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

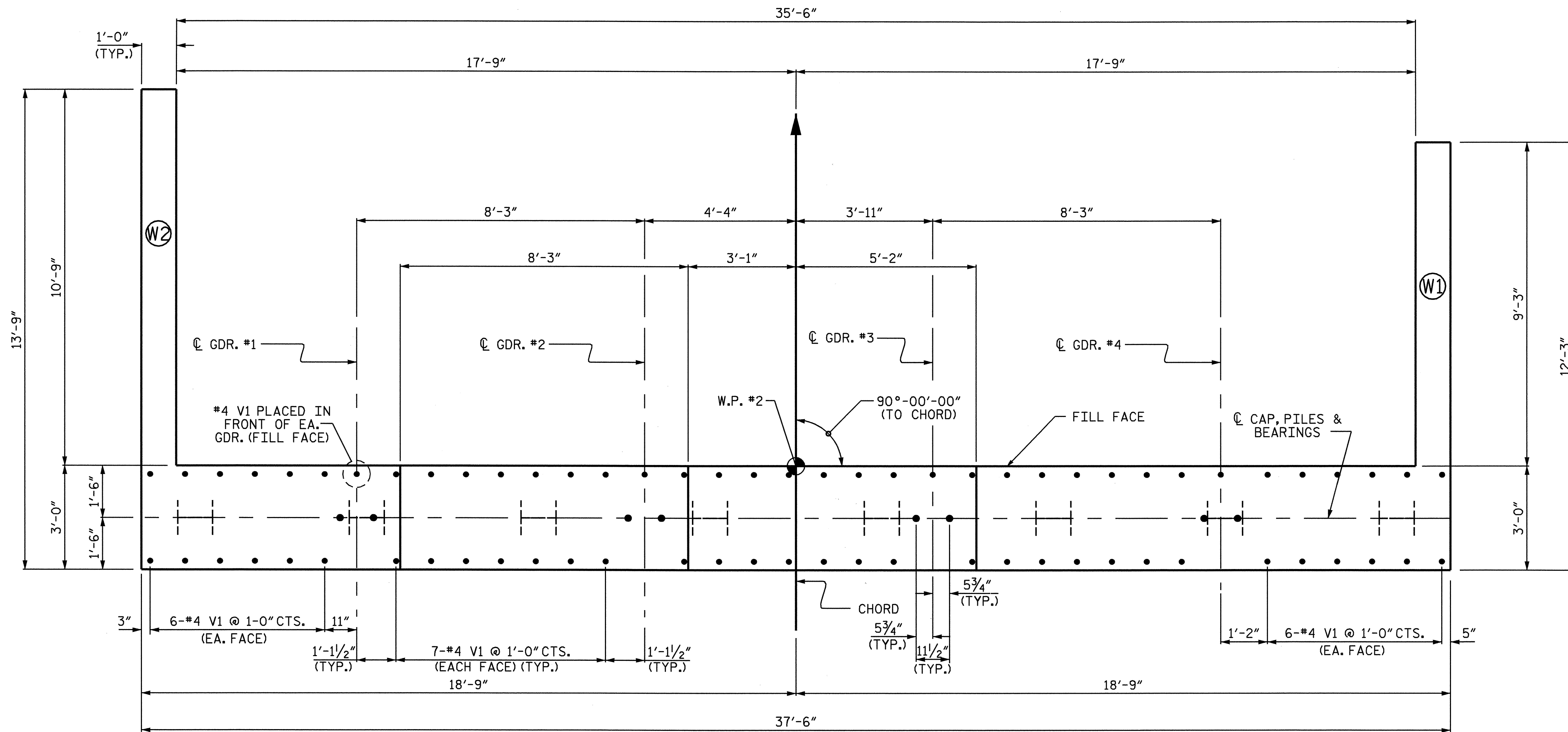
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

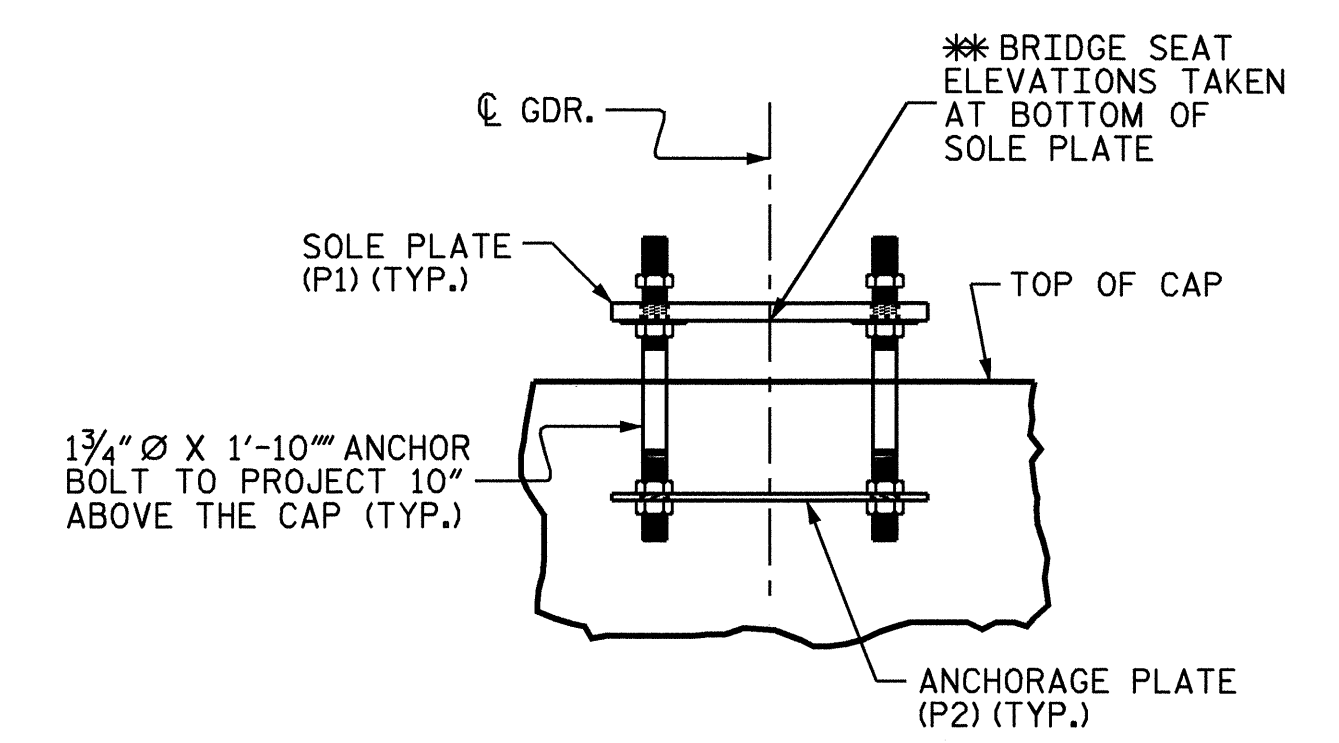
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

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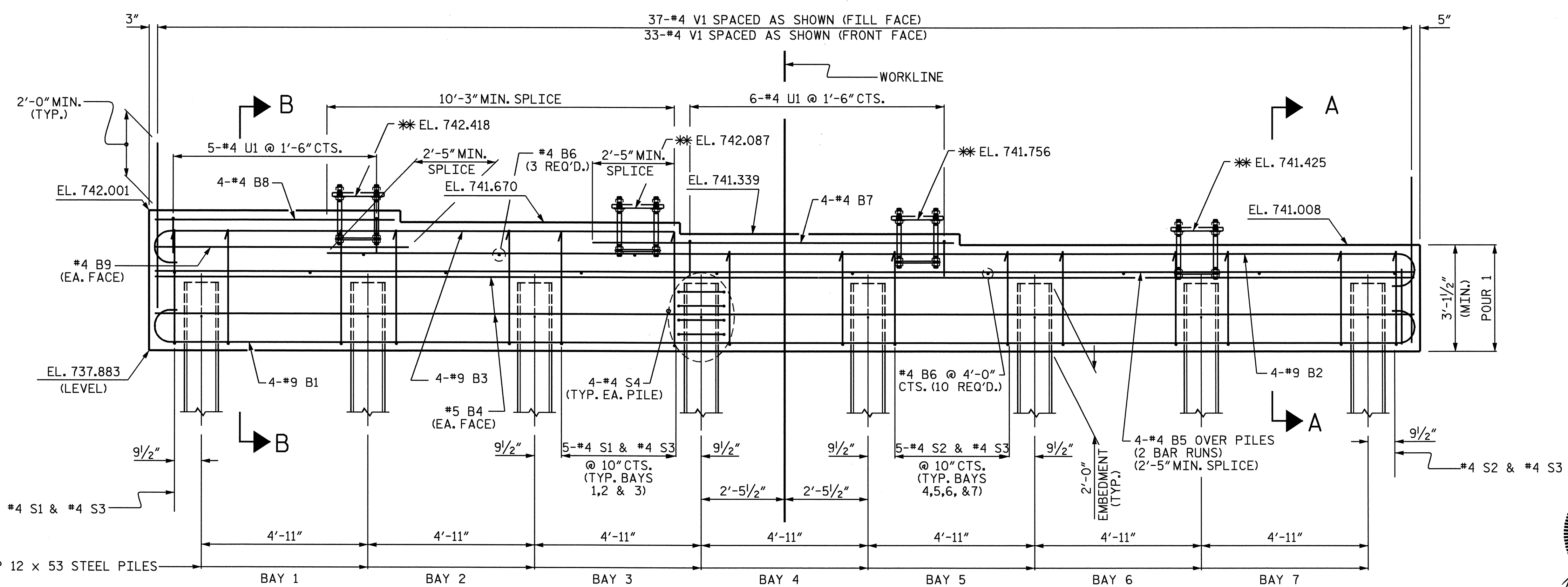


PLAN



ANCHORAGE DETAILS

(TYP. EA. GIRDER)
(FOR DETAILS, SEE SOLE PLATE DETAILS SHEET.)



ELEVATION

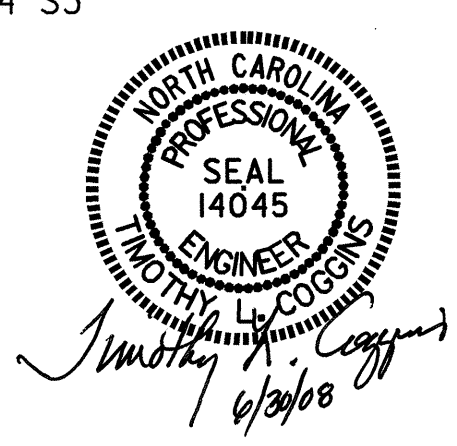
PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

SHEET 1 OF 3

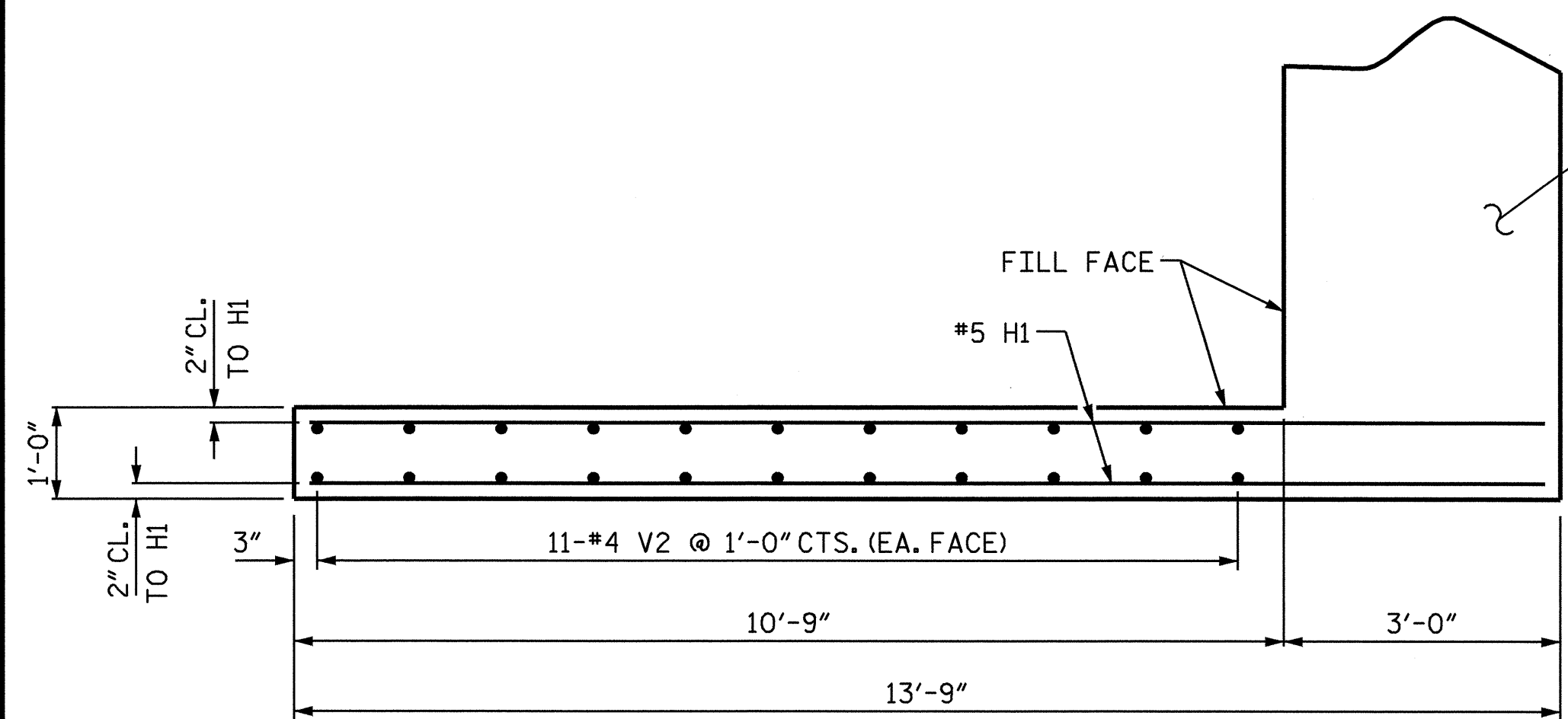
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 INTEGRAL END BENT #2**

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS 24
2			4			



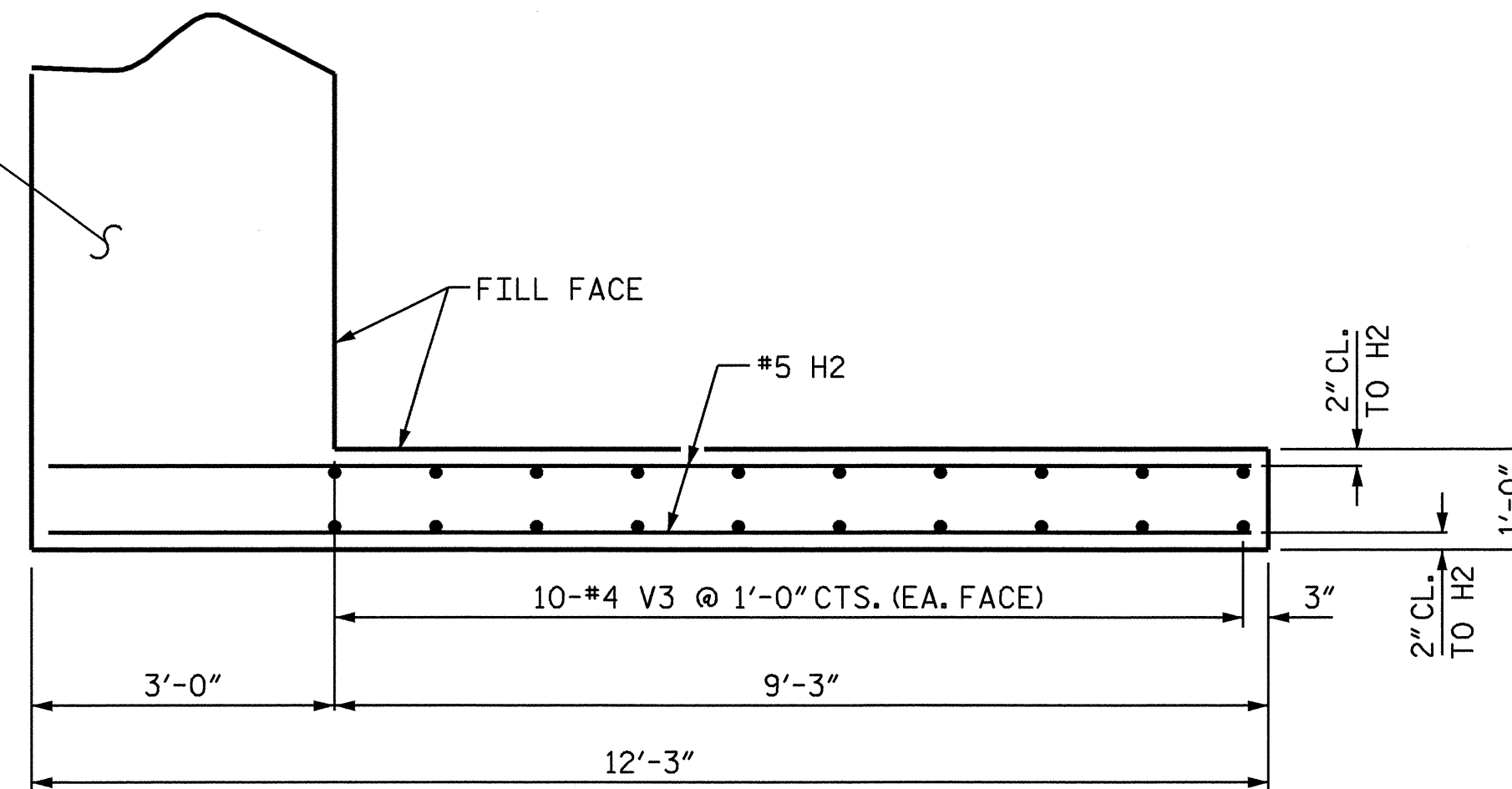
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 CHECKED BY: NEIL RUFFIN DATE: 6/12/08



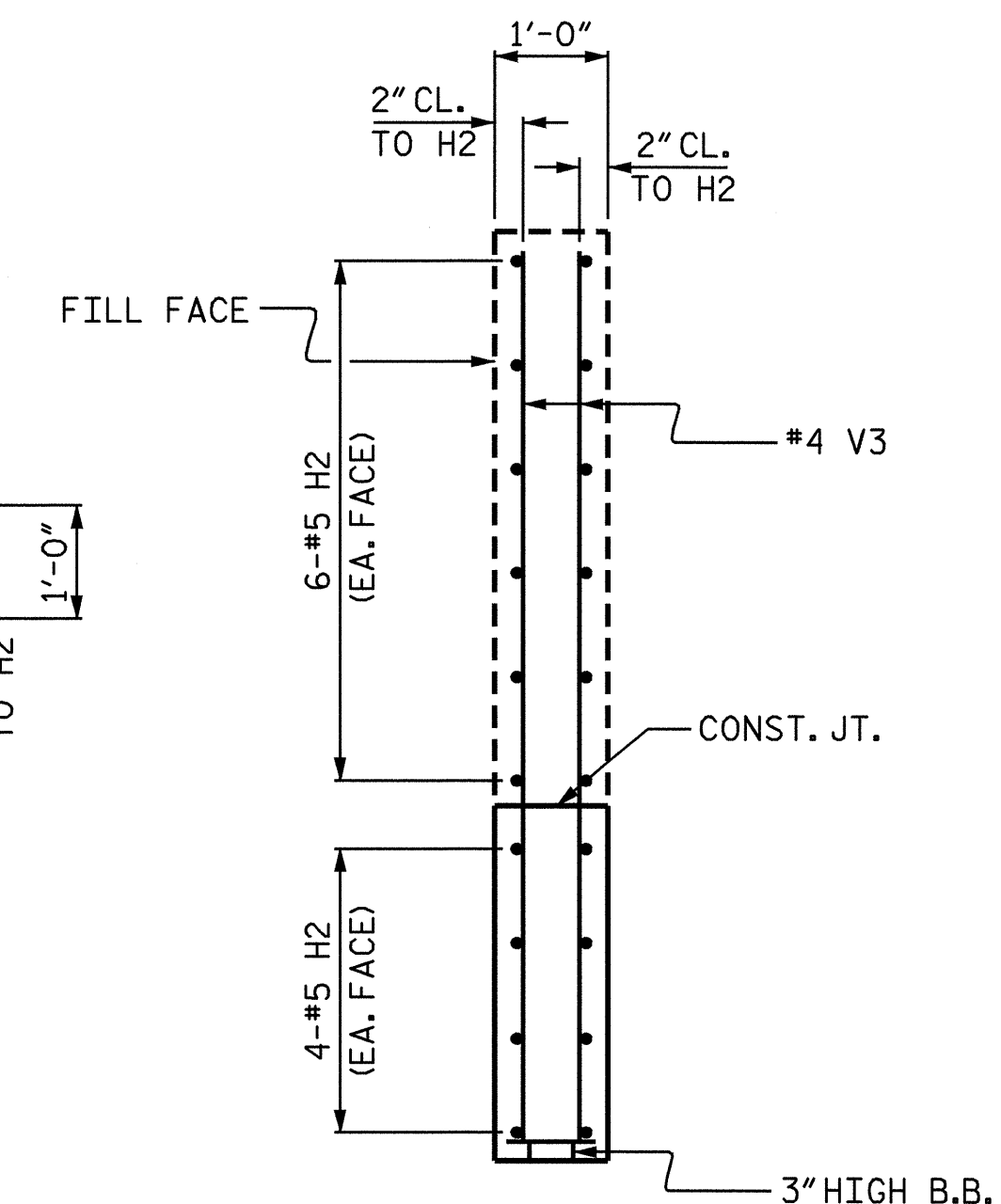
PLAN (W2)

SEE PLAN FOR REINFORCEMENT SHEET 1 OF 3

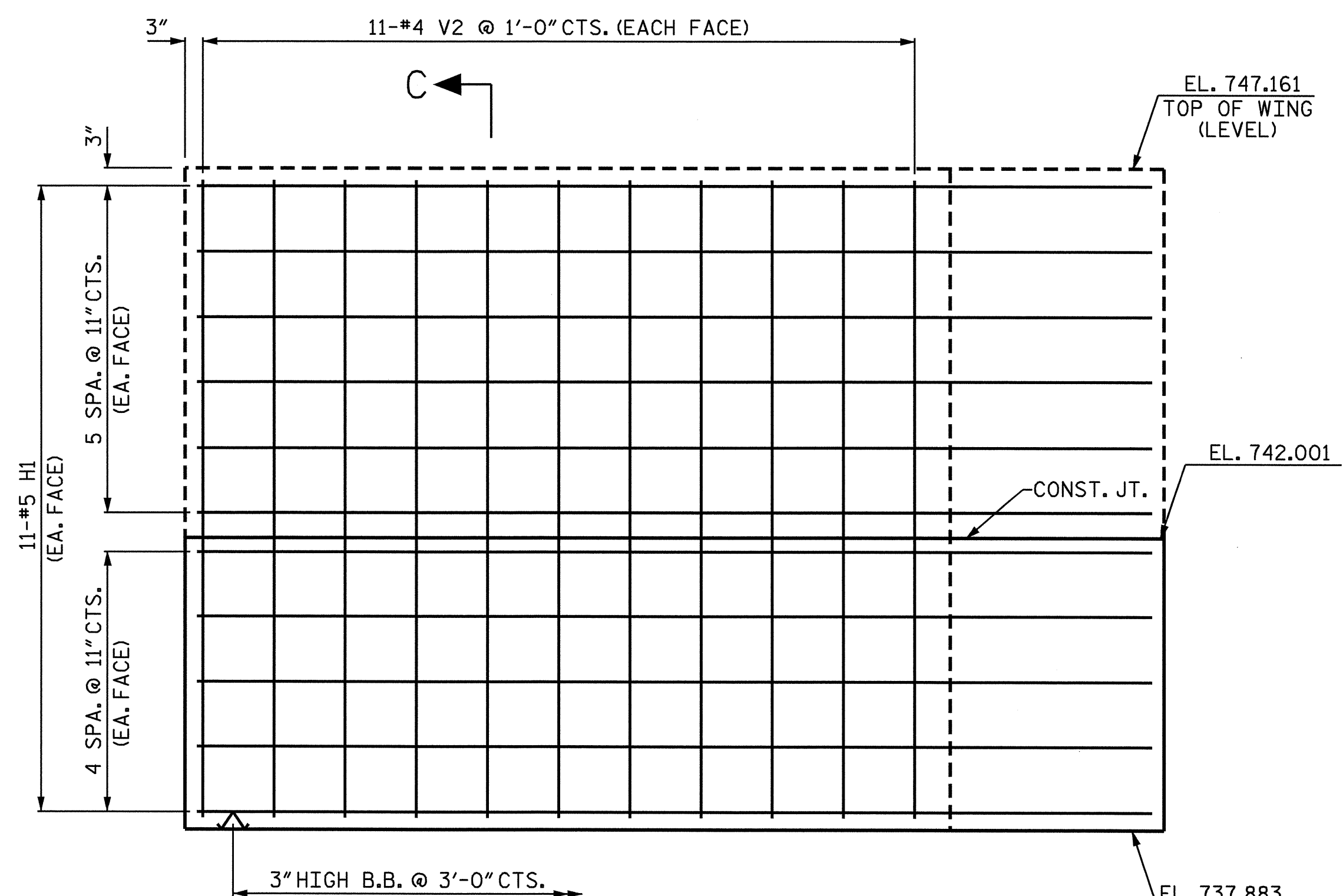
SEE PLAN FOR REINFORCEMENT SHEET 1 OF 3



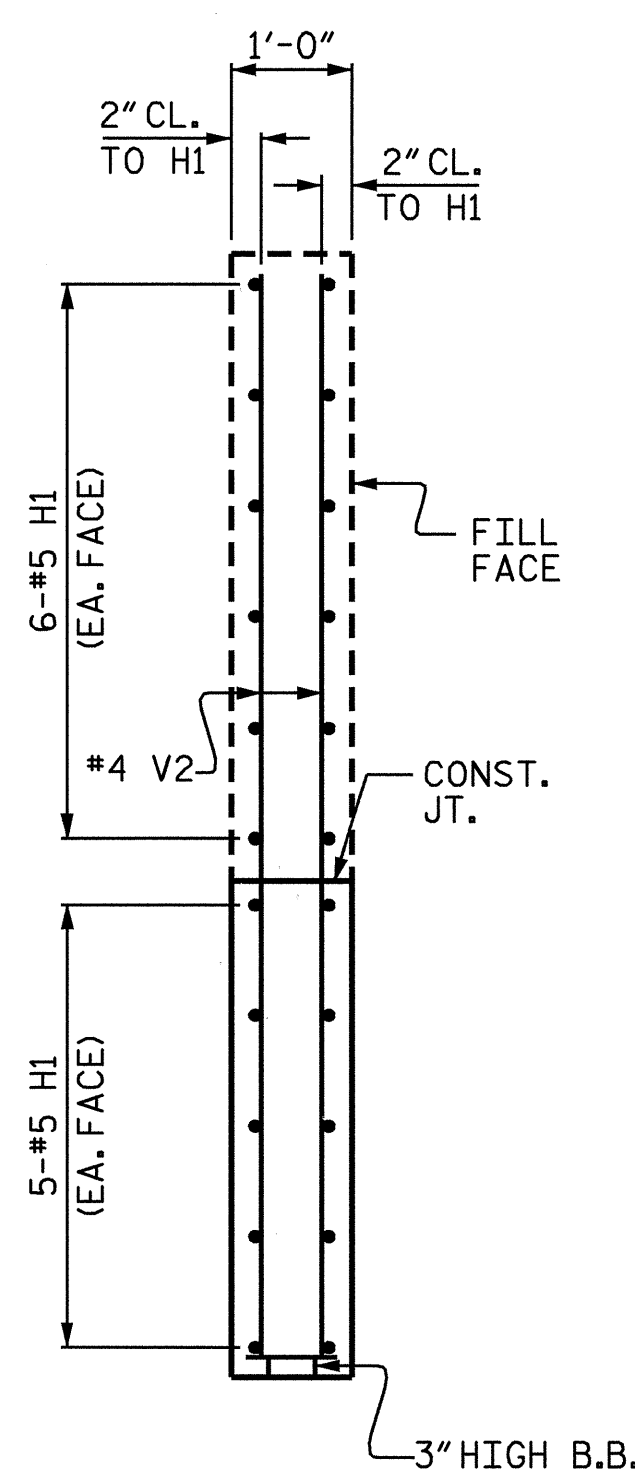
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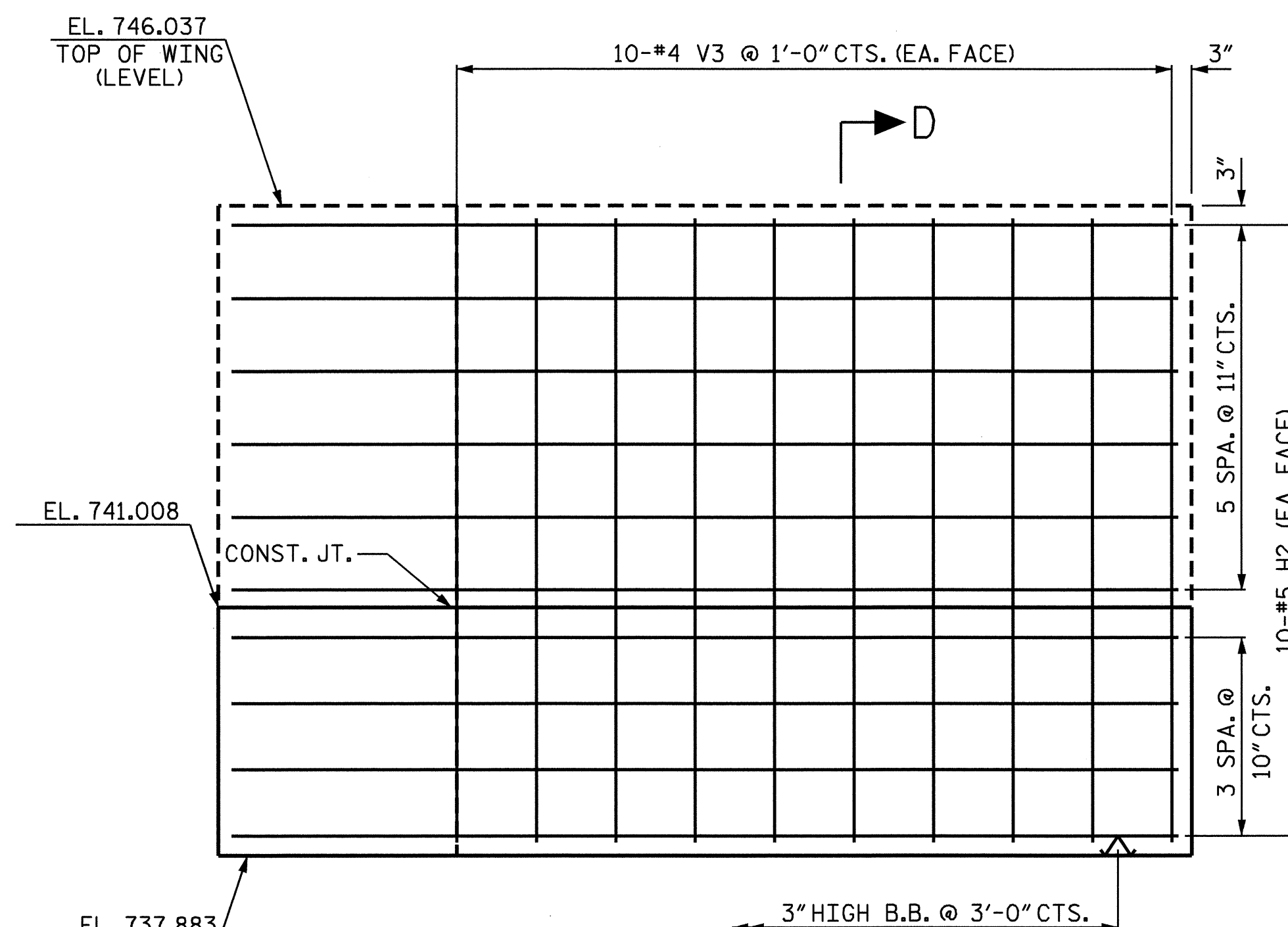
SECTION D-D



ELEVATION (W2)



SECTION C-C



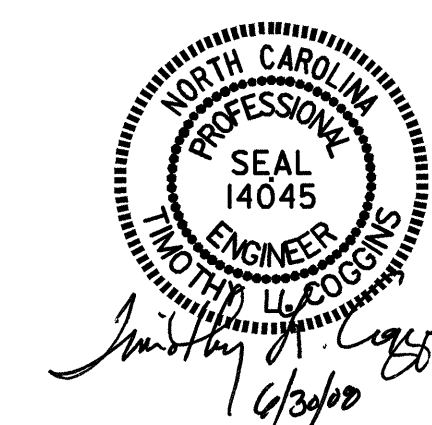
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PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

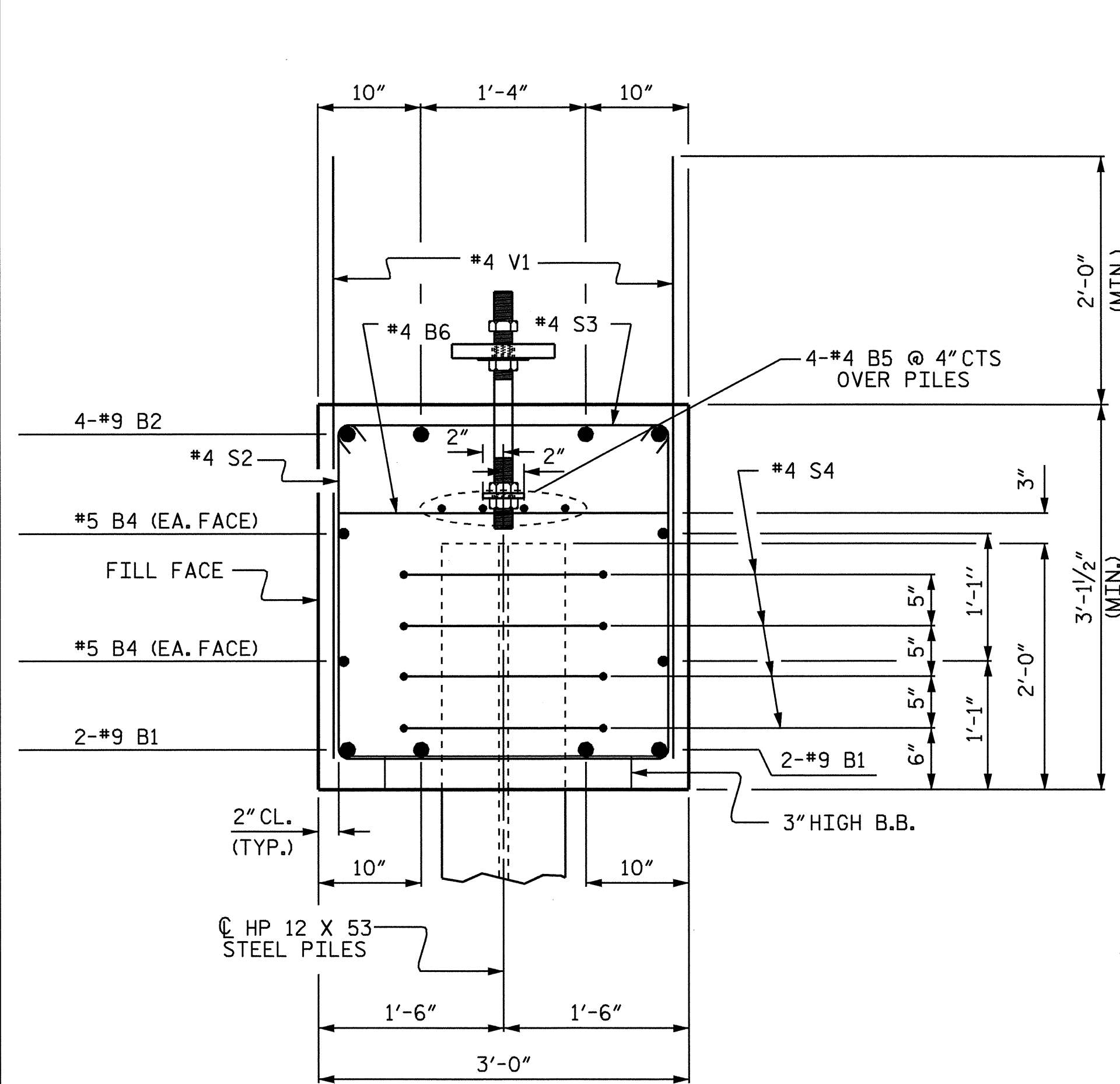
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 INTEGRAL END BENT #2



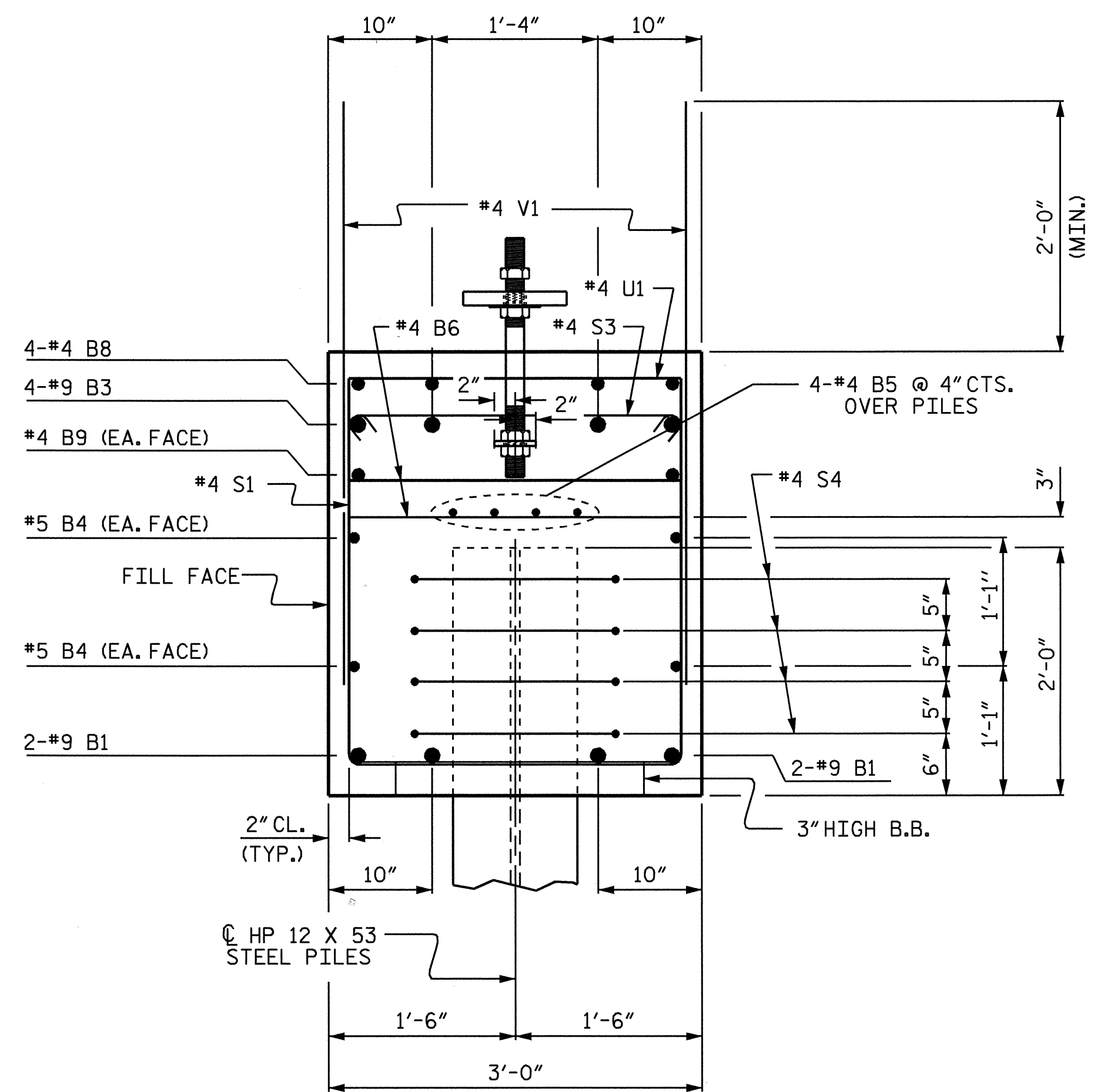
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 CHECKED BY: NEIL RUFFIN DATE: 6/12/08

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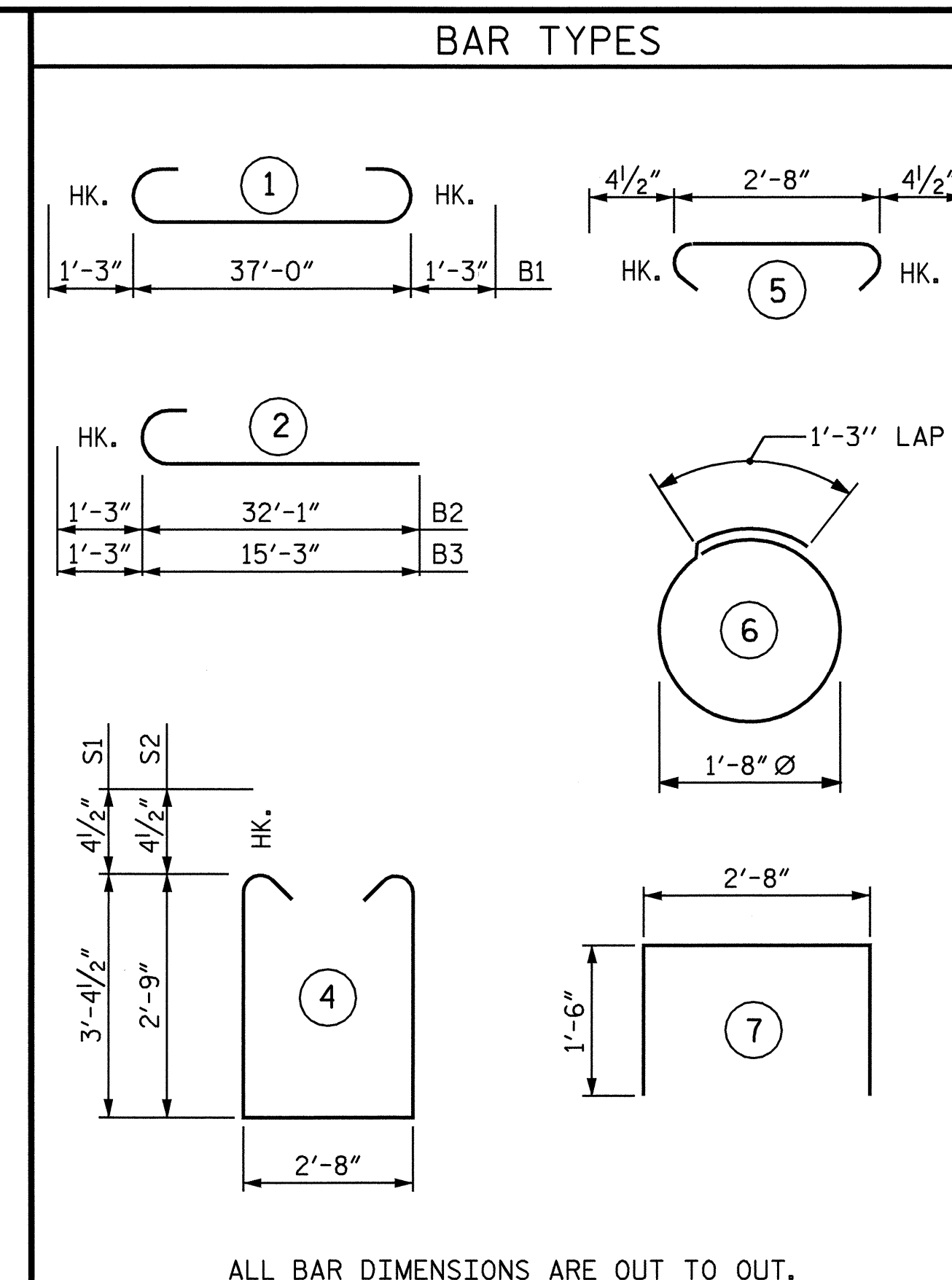
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2			4			24



SECTION A-A

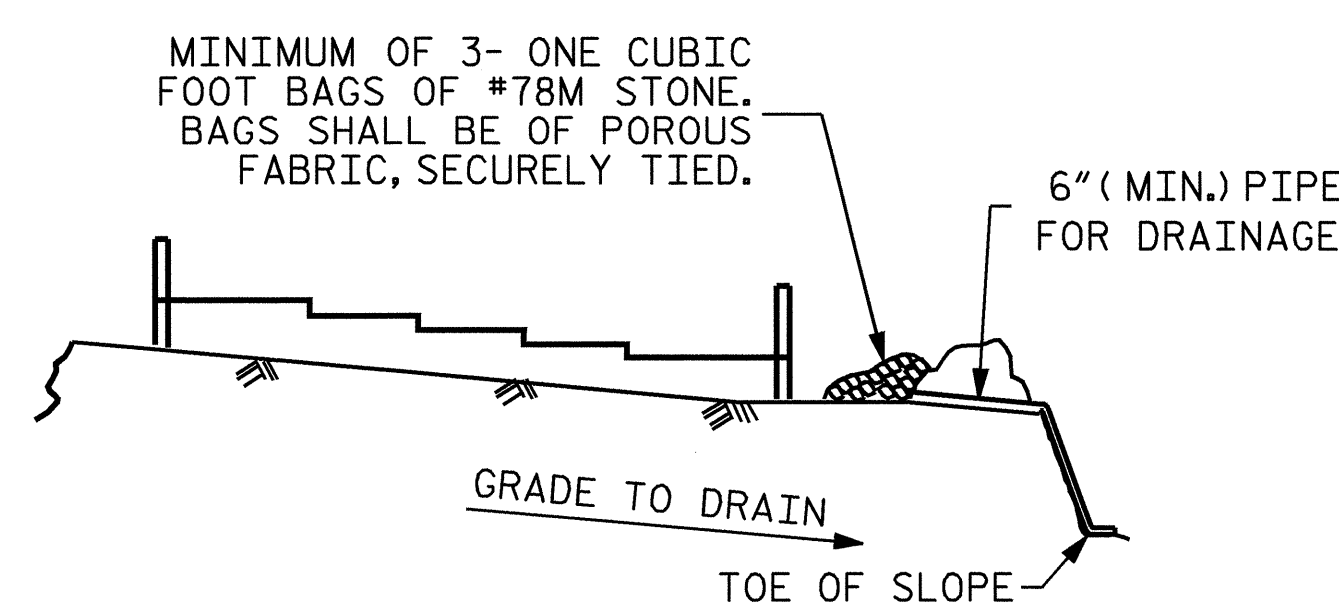


SECTION B-B



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
INTEGRAL END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	39'-6"	537
B2	4	#9	2	33'-4"	453
B3	4	#9	2	16'-6"	224
B4	4	#5	STR	37'-2"	155
B5	8	#4	STR	19'-10"	106
B6	13	#4	STR	2'-8"	23
B7	4	#4	STR	10'-8"	29
B8	4	#4	STR	7'-1"	19
B9	2	#4	STR	7'-6"	10
H1	22	#5	STR	13'-5"	308
H2	20	#5	STR	11'-11"	249
S1	16	#4	4	10'-2"	109
S2	21	#4	4	8'-11"	125
S3	37	#4	5	3'-5"	84
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U1	11	#4	7	5'-8"	42
V1	70	#4	STR	5'-0"	234
V2	22	#4	STR	9'-0"	132
V3	20	#4	STR	7'-10"	105
REINFORCING STEEL					3083 LBS.
CLASS A CONCRETE					
POUR 1 (CAP & LOWER PART OF WINGS)					C.Y. 17.5
TOTAL					C.Y. 17.5
HP 12 x 53 STEEL PILES No. 8					LIN. FT. 200



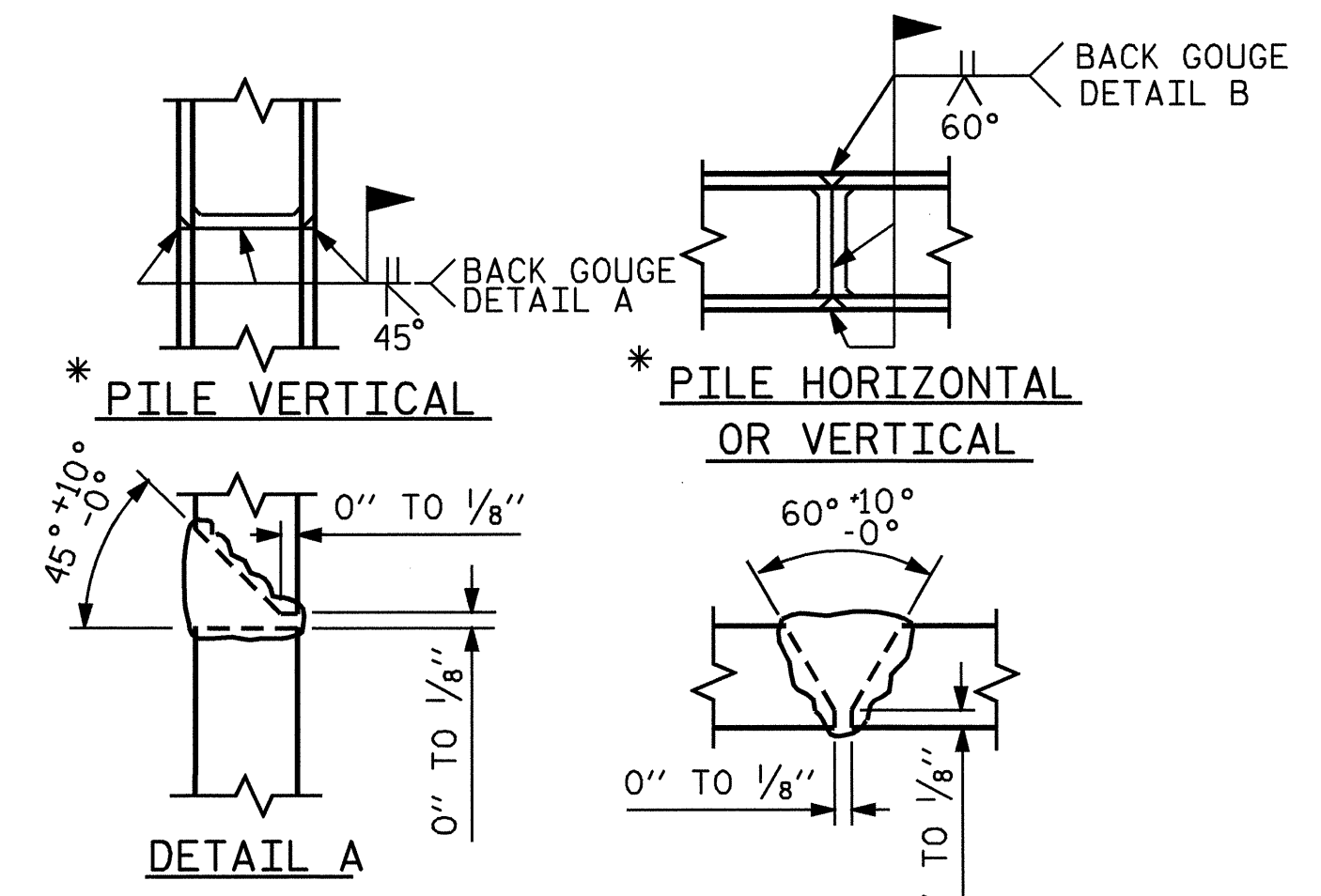
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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.

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TEMPORARY DRAINAGE AT END BENT



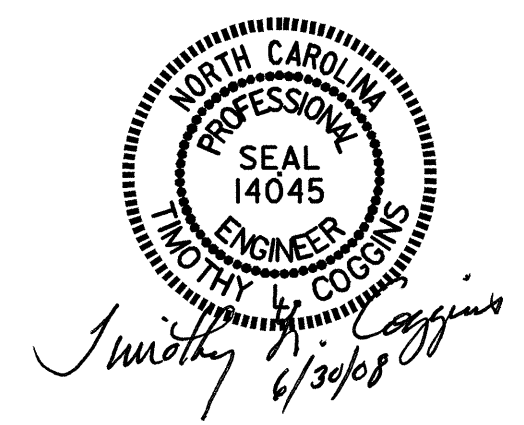
PILE SPLICE DETAILS

PROJECT NO. B-4116
 GASTON COUNTY
 STATION: 14+57.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL END BENT #2

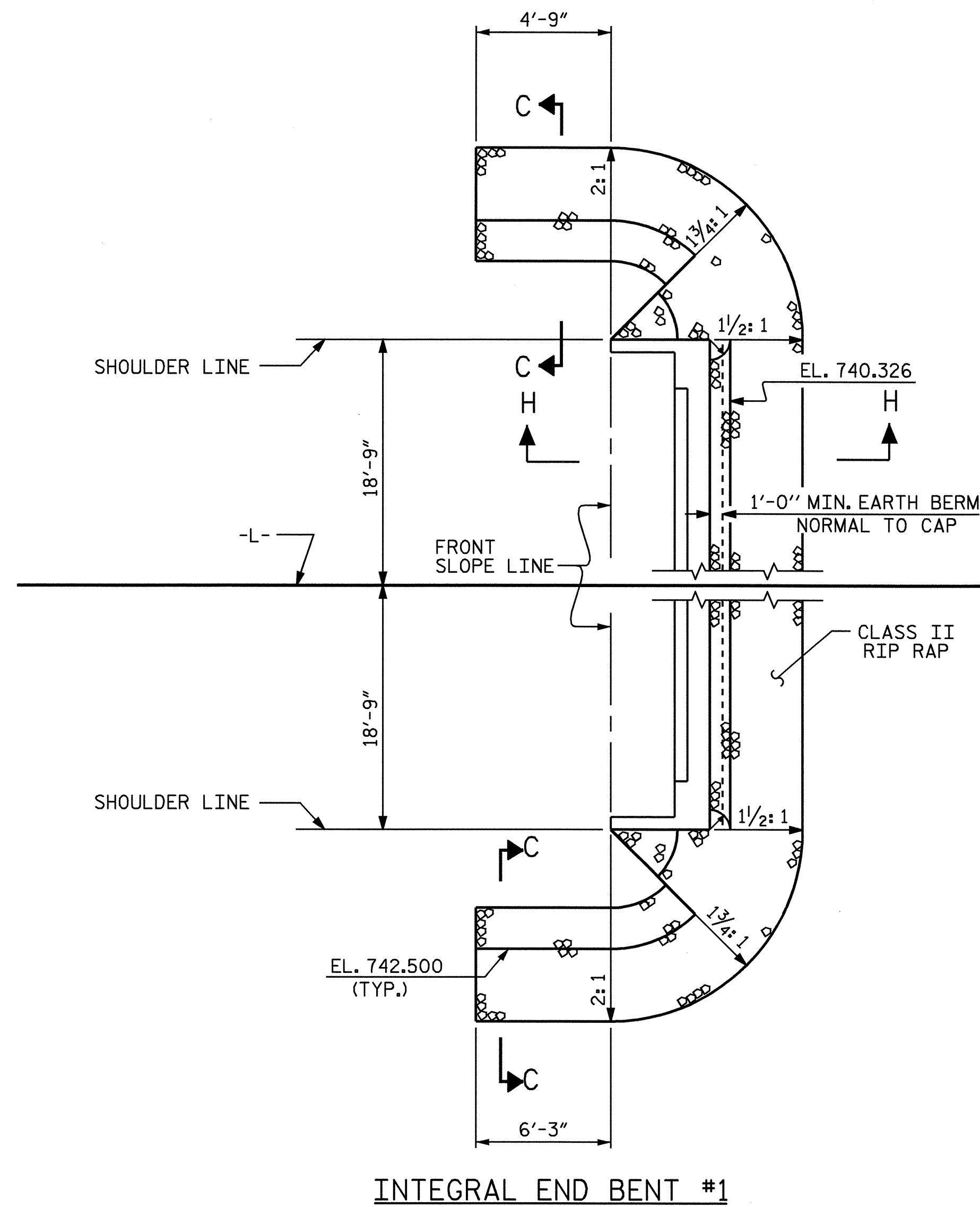


DRAWN BY: J.B. WILSON DATE: 4/2008
 CHECKED BY: NEIL RUFFIN DATE: 6/11/08

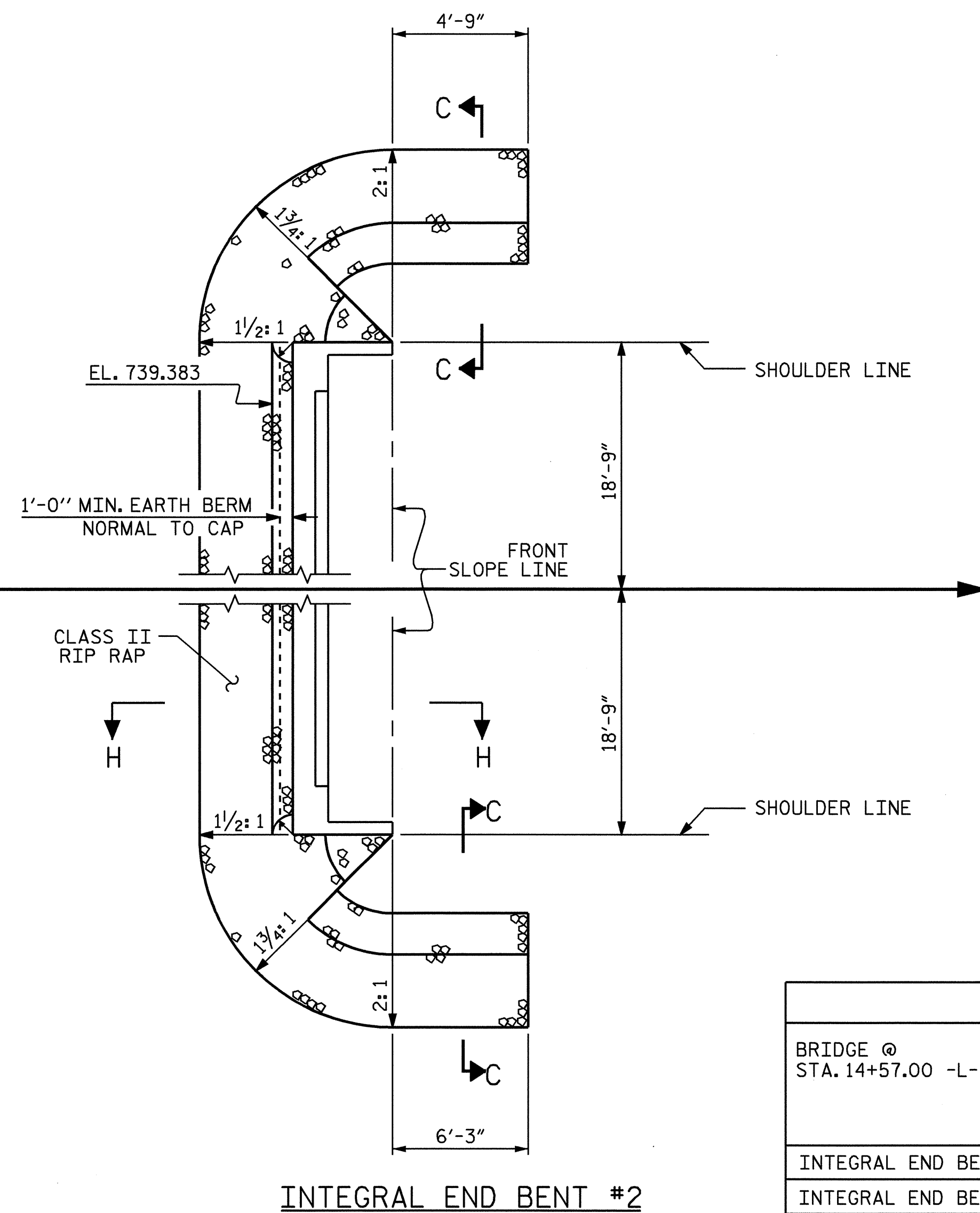
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS 24

NOTES :
FOR BERM WIDTH DIMENSIONS AND ELEVATIONS, SEE GENERAL DRAWING.



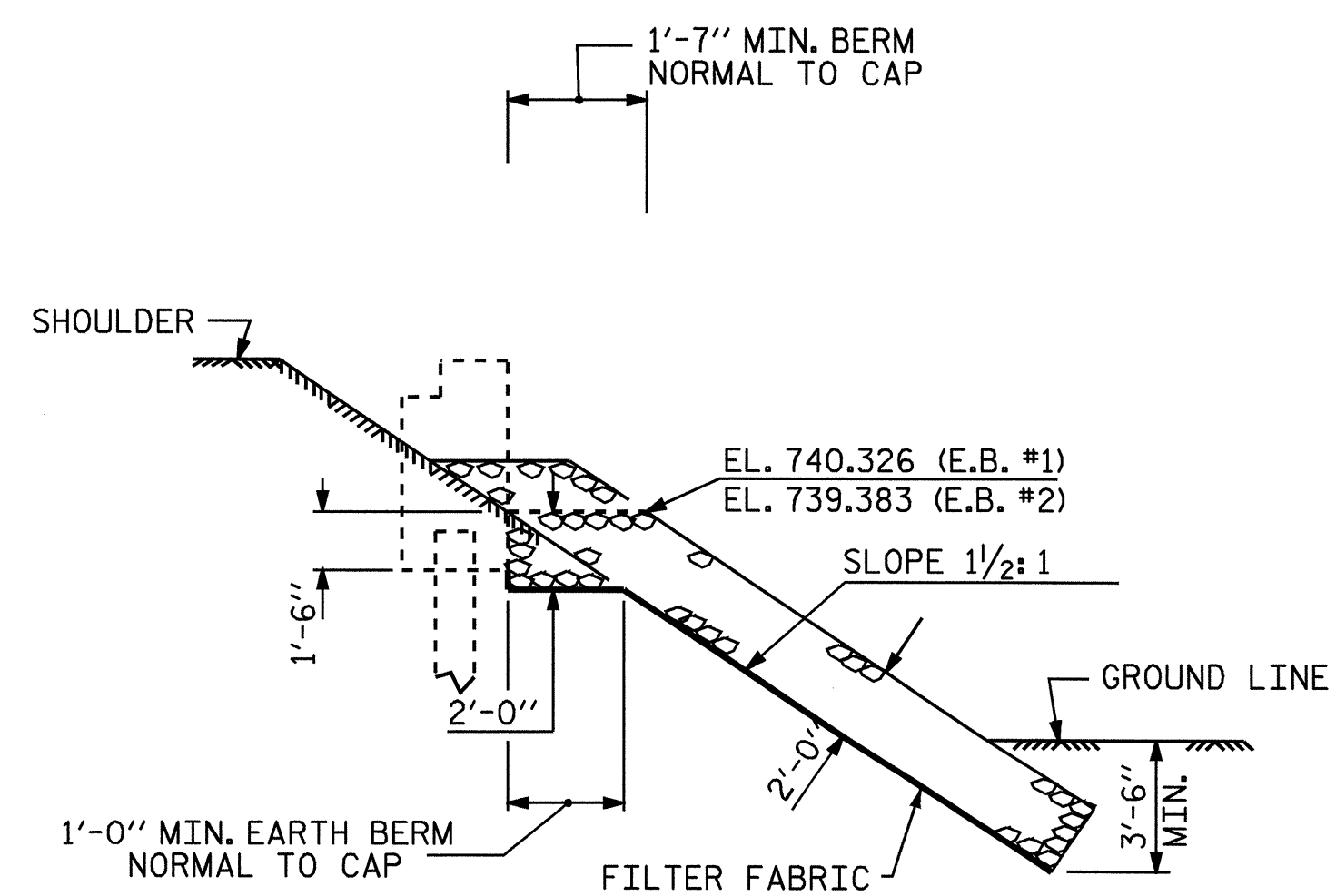
INTEGRAL END BENT #1



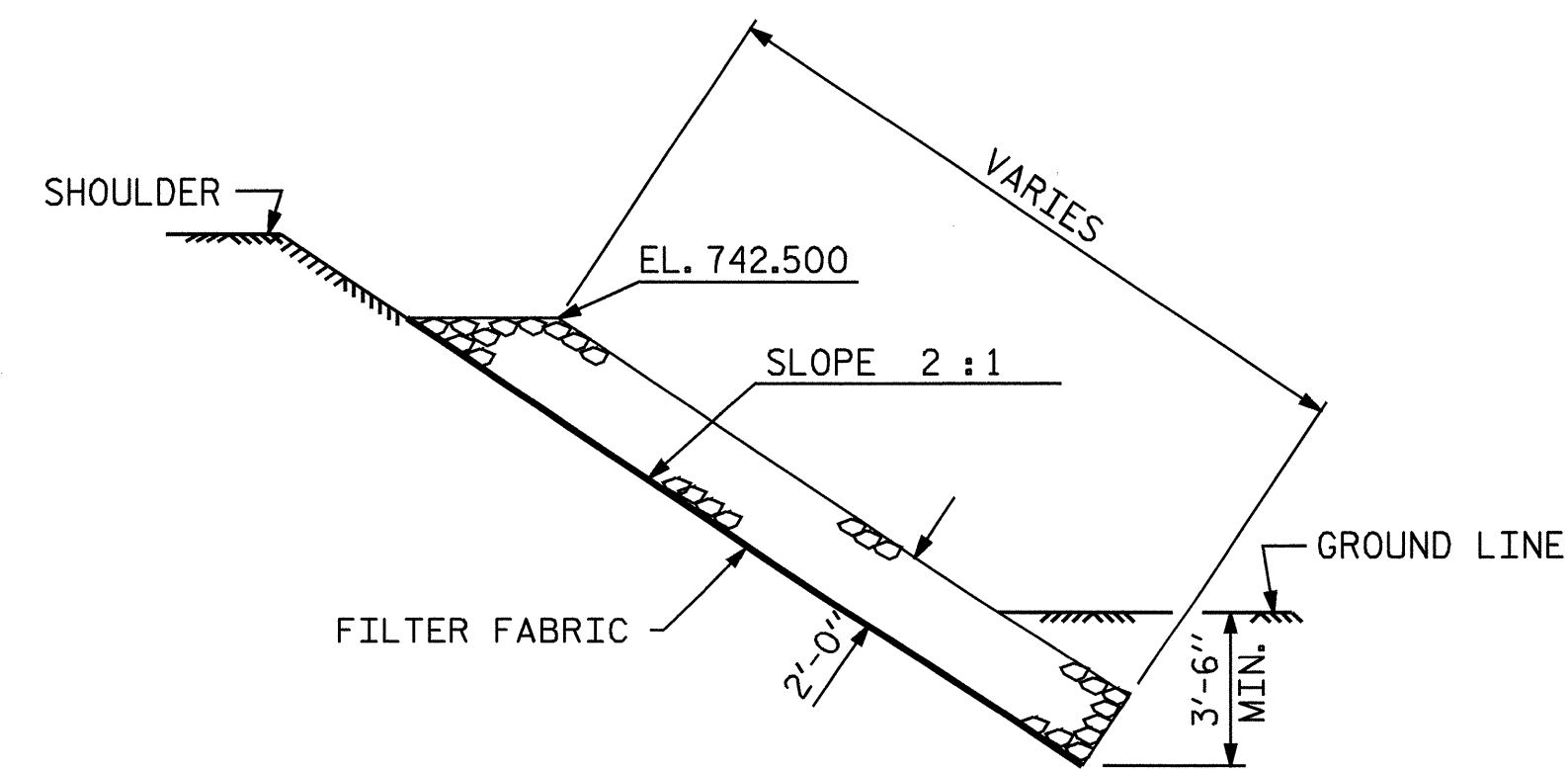
INTEGRAL END BENT #2

BERM RIP RAPPED

ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+57.00 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
INTEGRAL END BENT #1	115	128
INTEGRAL END BENT #2	108	120



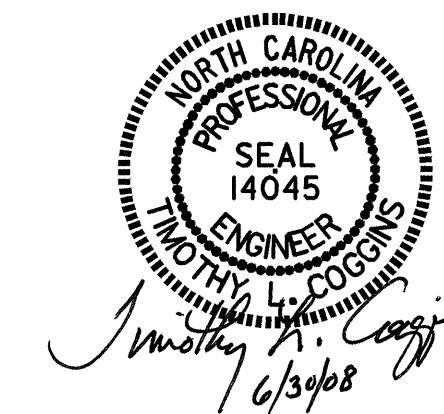
SECTION H-H



SECTION C-C

PROJECT NO. B-4116
GASTON COUNTY
STATION: 14+57.00 -L-

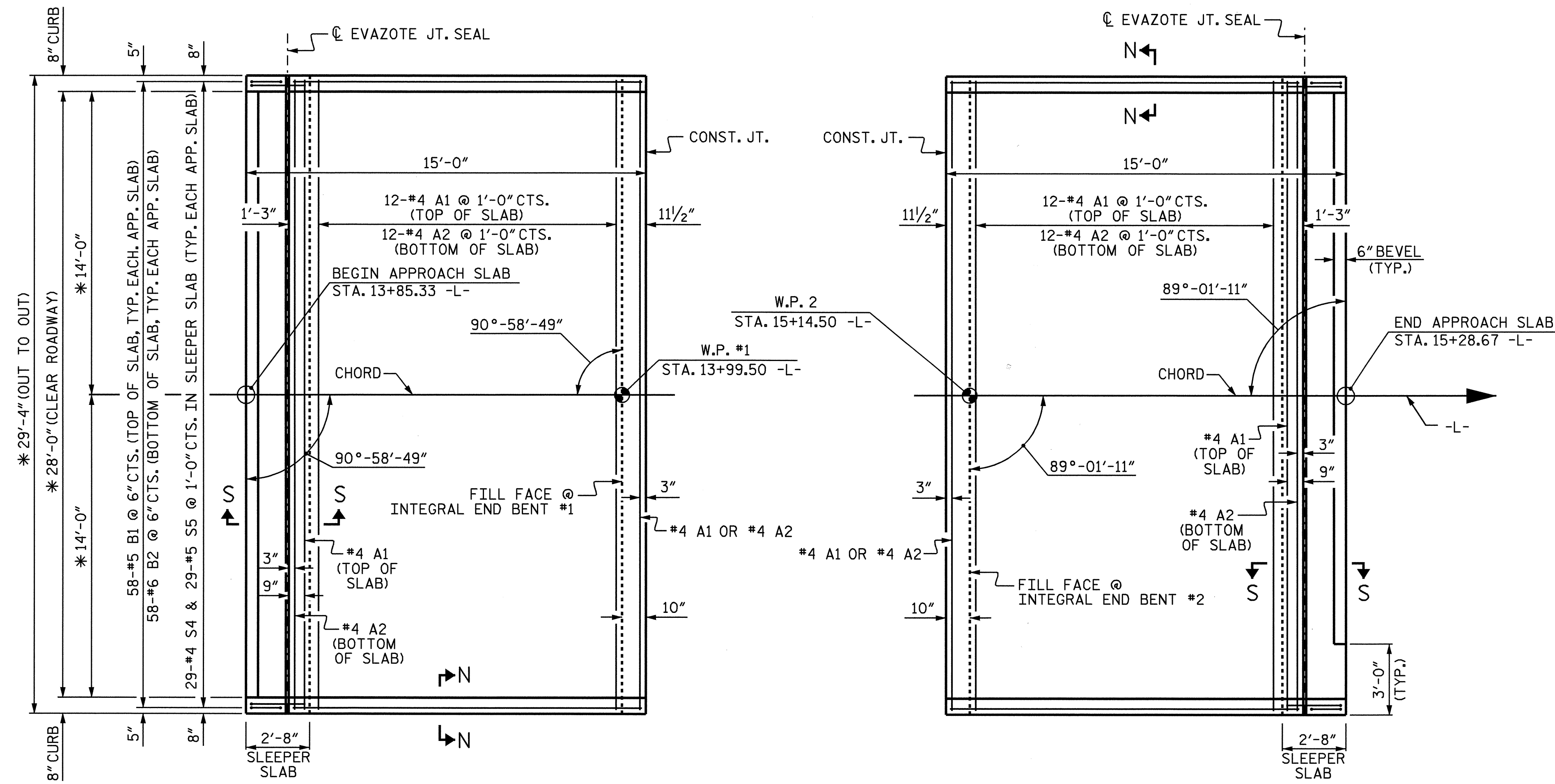
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD RIP RAP DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



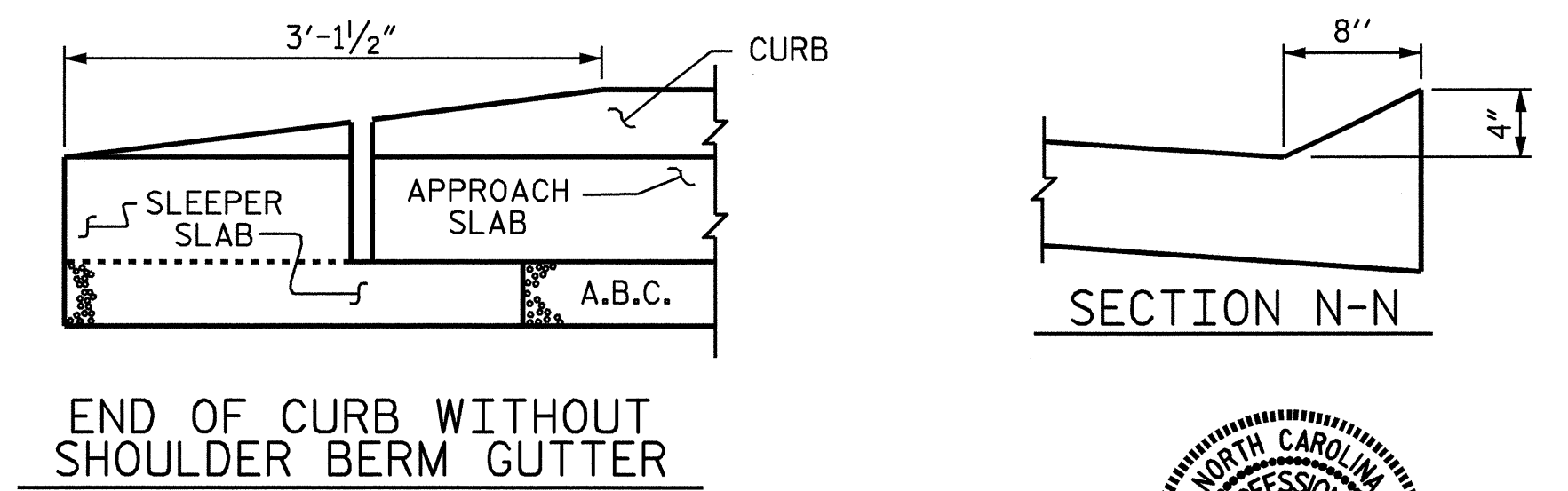
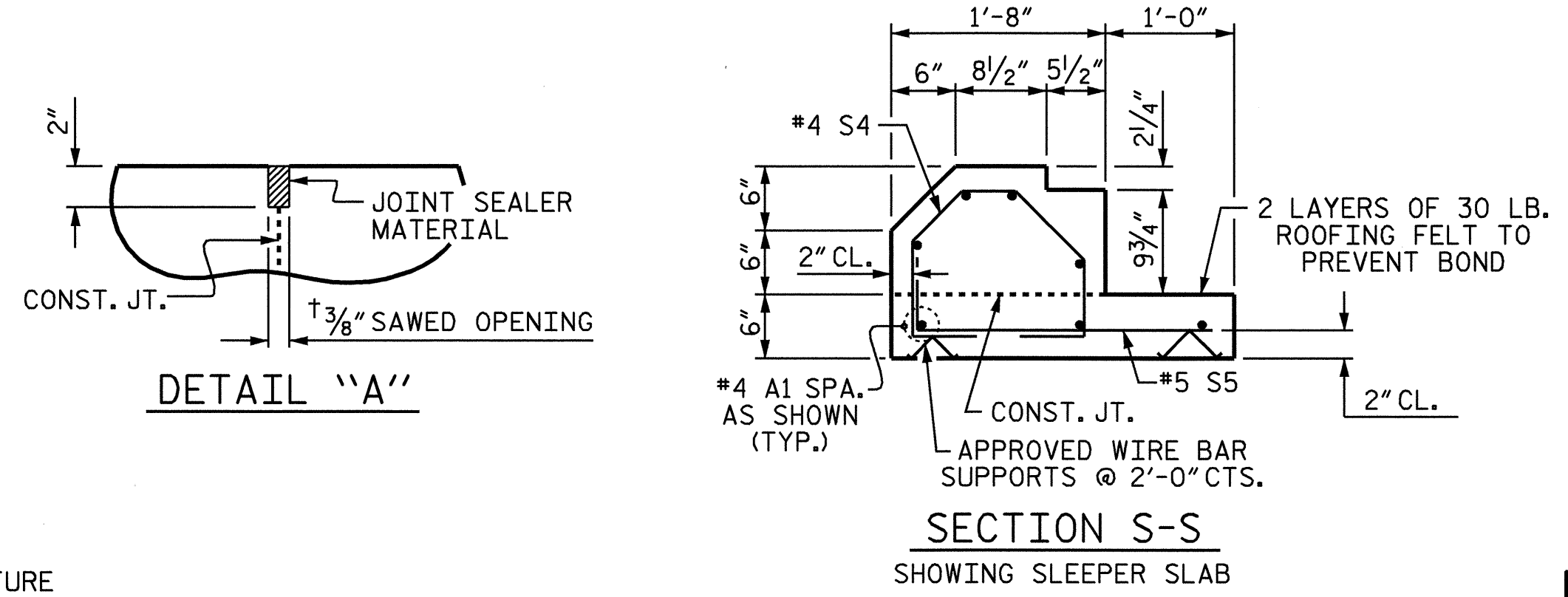
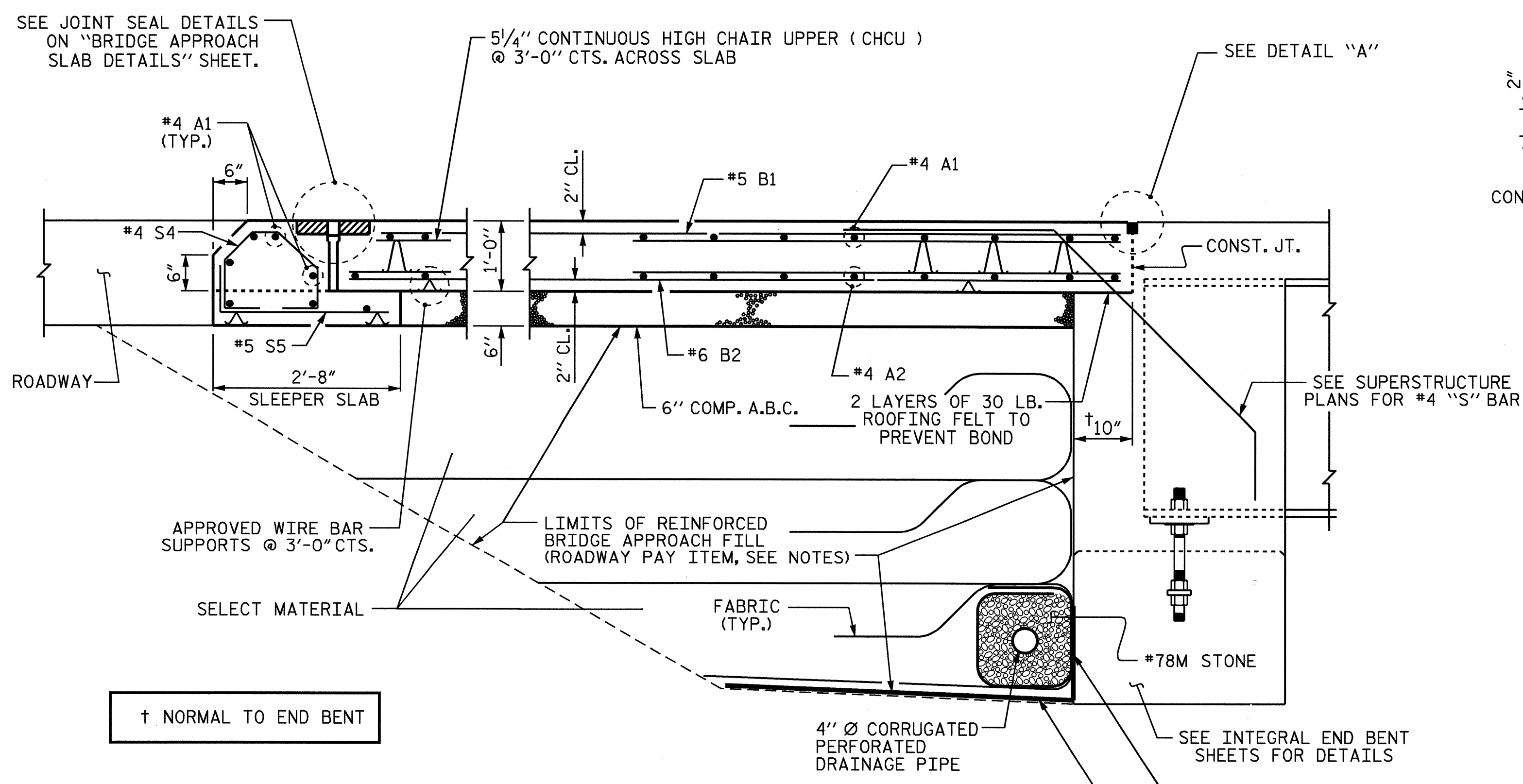
ASSEMBLED BY : J.B. WILSON DATE : 4/2008
CHECKED BY : M. GUDLAUGSSON DATE : 5/2008
DRAWN BY : FCJ 2/88 REV. 8/16/99 RWW/LES
CHECKED BY : ARB 8/88 REV. 10/17/00 RWW/LES
REV. 5/1/06 TLA/GM

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STD. NO. RR2



DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS. #4 A1 BARS IN SLEEPER SLAB NOT SHOWN FOR CLARITY.
 *RADIAL DIMENSIONS



NOTES

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

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, 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 6" COMP. A.B.C. SHALL BE FLUSH WITH THE SLEEPER SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE SLEEPER SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE SLEEPER SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

THE VERTICAL JOINT ON THE RIGHT AND LEFT SIDE OF THE APPROACH SLAB AT THE ENDS OF THE EVAZOTE JOINT SHALL BE FILLED WITH SILICONE OR OTHER APPROVED MATERIAL IN ORDER TO PREVENT BACKFILL FROM ENTERING THE JOINT OPENING.

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 TYPE SL LOW MODULUS SILICONE SEALANT.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

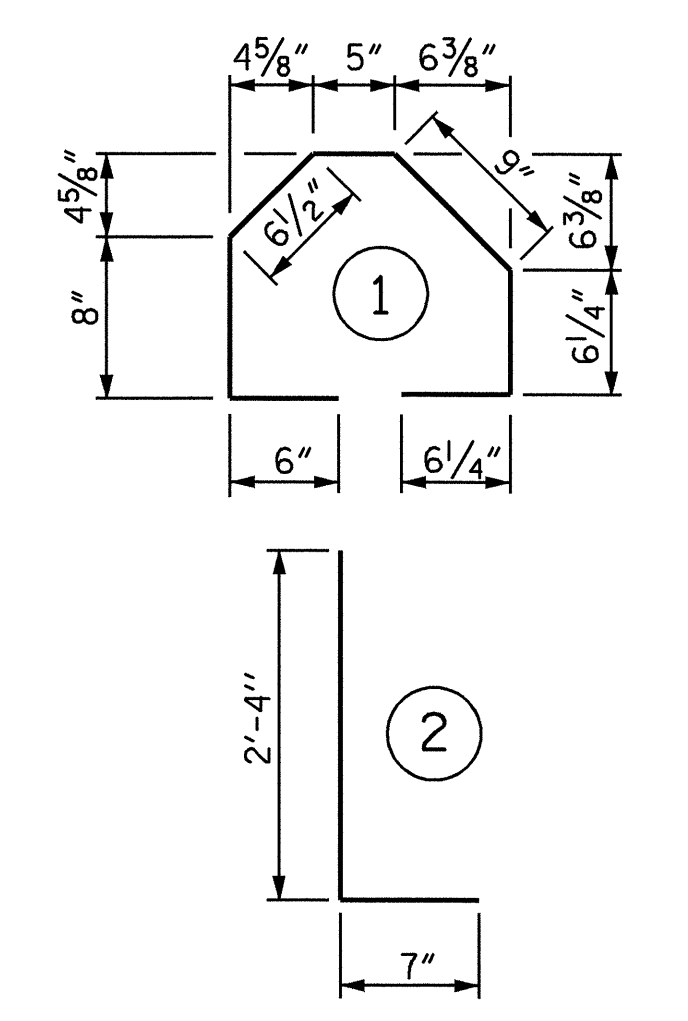
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	21	#4	STR	29'-0"	407
A2	14	#4	STR	29'-0"	271
* B1	58	#5	STR	12'-5"	751
B2	58	#6	STR	12'-11"	1125
* S4	29	#4	1	3'-11"	76
S5	29	#5	2	2'-11"	88
REINFORCING STEEL				1484 LBS.	
* EPOXY COATED REINFORCING STEEL				1234 LBS.	
CLASS AA CONCRETE					
POUR #1 - SLAB & CURB				C. Y.	14.4
POUR #2 - SLEEPER SLAB				C. Y.	3.0
TOTAL				C. Y.	17.4

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

SHEET 1 OF 2

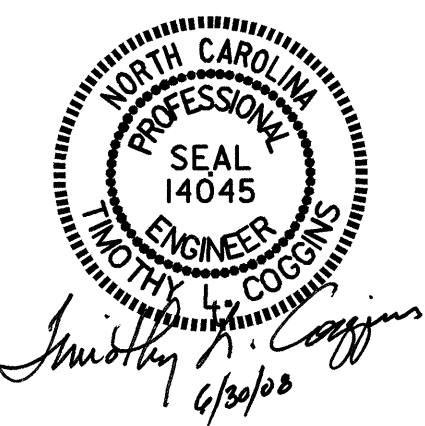
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

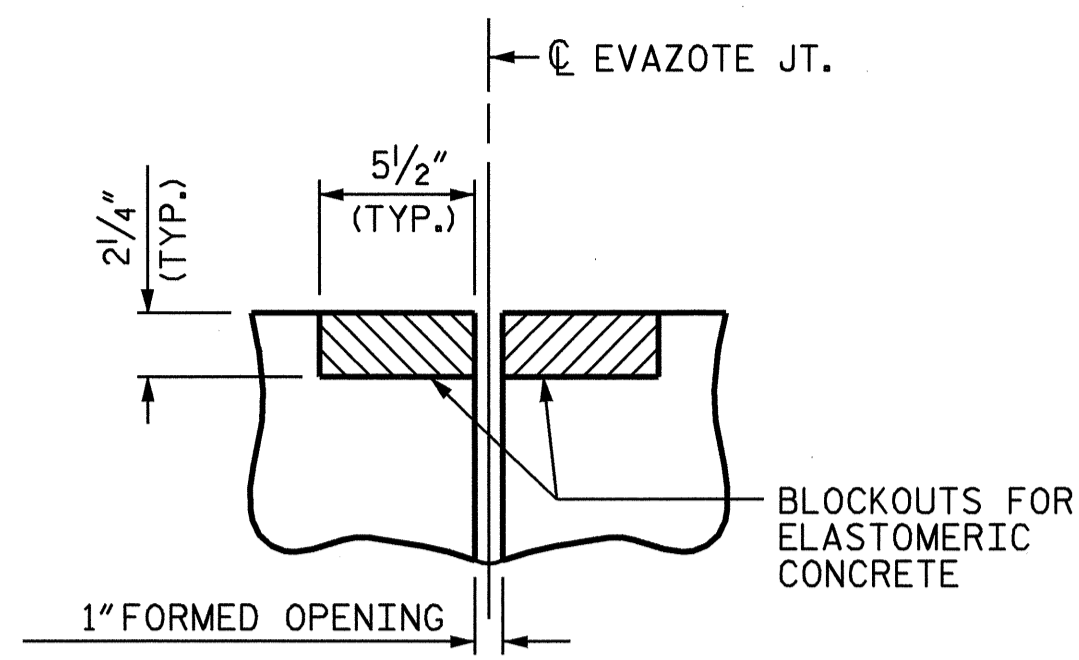
STANDARD
 BRIDGE APPROACH SLAB
 FOR INTEGRAL ABUTMENT

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

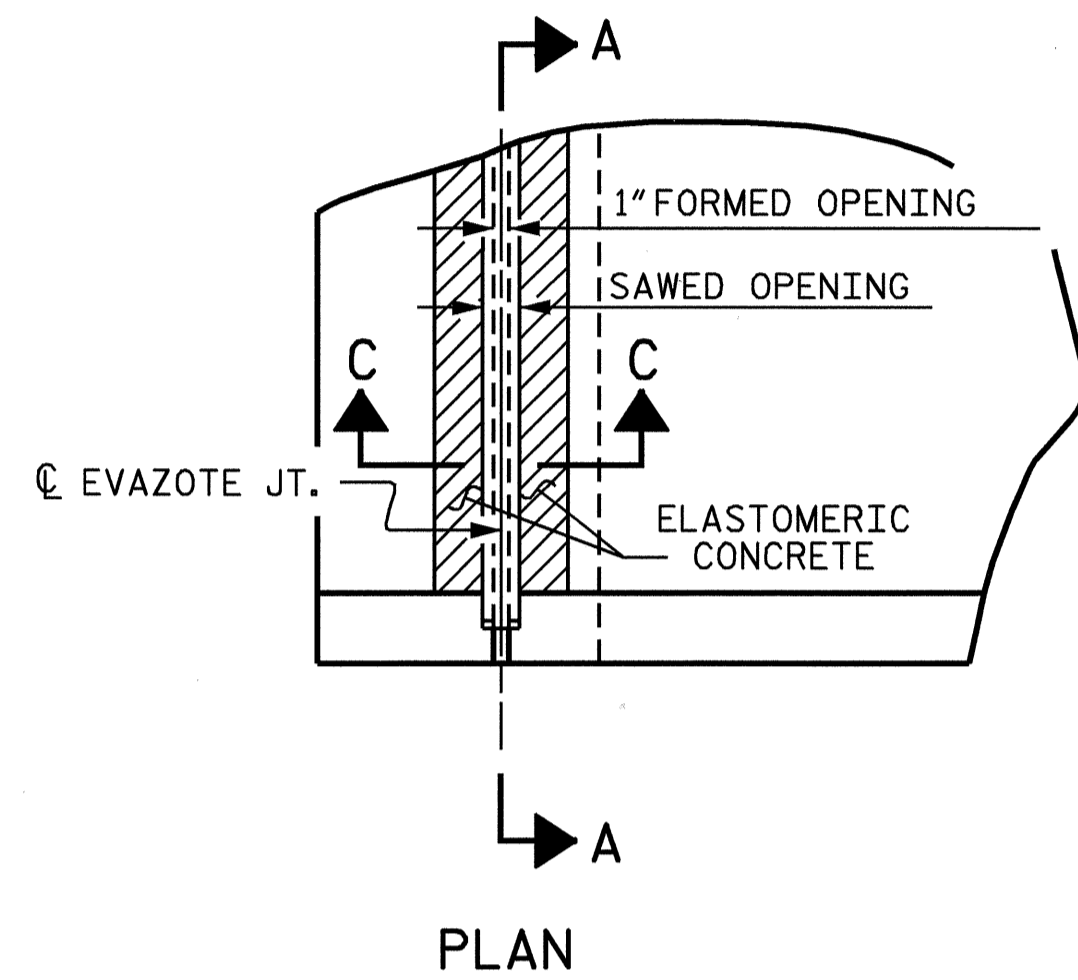
SHEET NO. S-23
 TOTAL SHEETS 24

ASSEMBLED BY: J.B. WILSON DATE: 4/2008
 CHECKED BY: M. GUDLAUGSSON DATE: 5/2008
 DRAWN BY: TLA 10/05
 CHECKED BY: GM 5/06

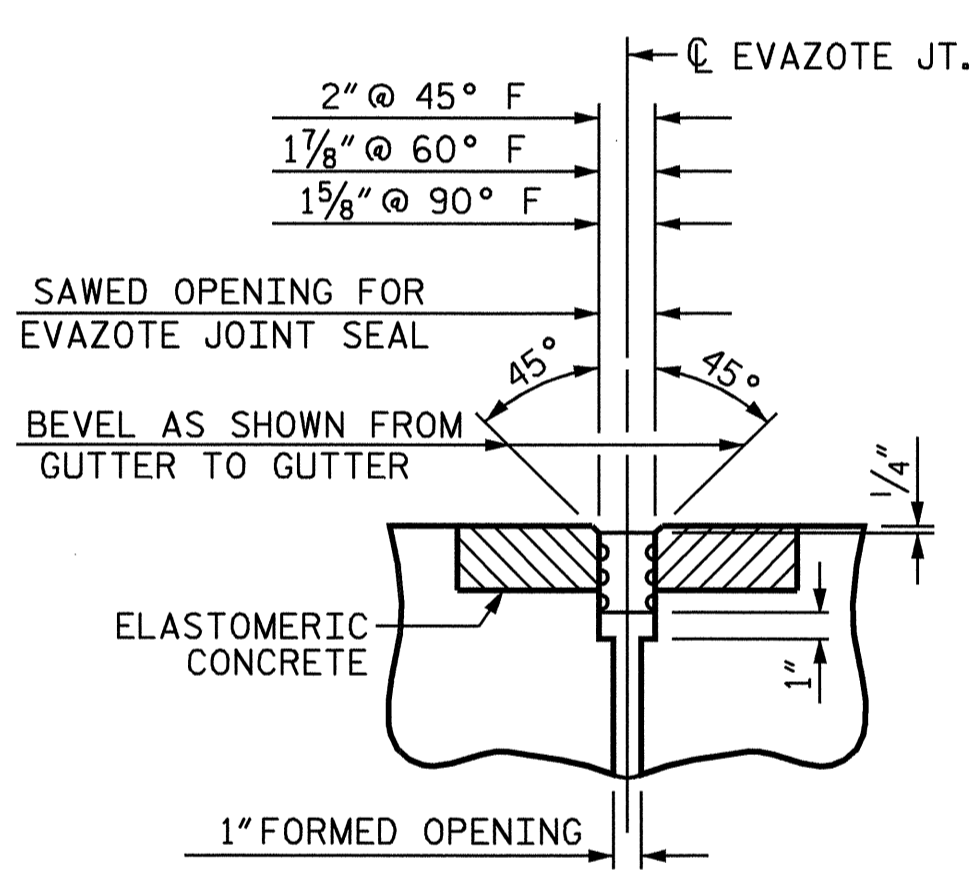




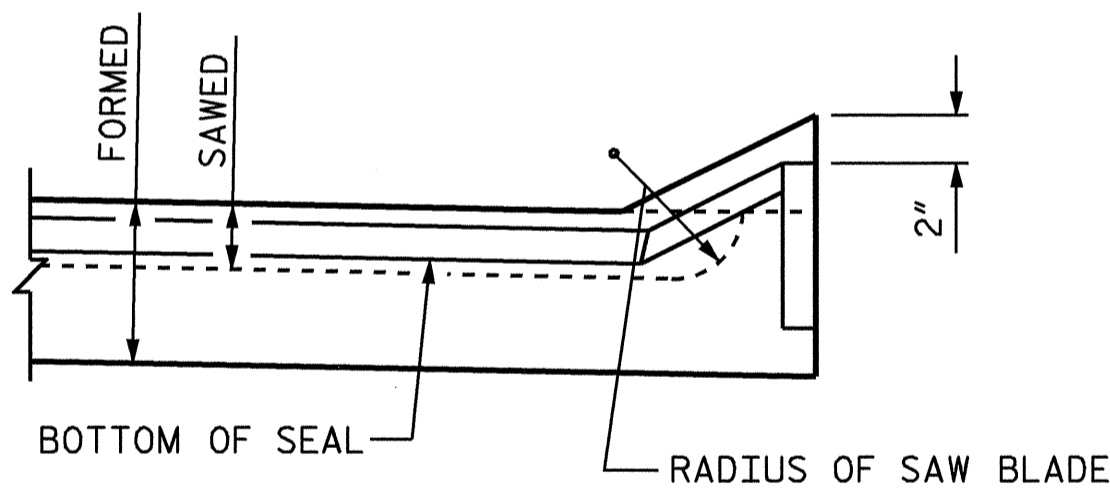
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



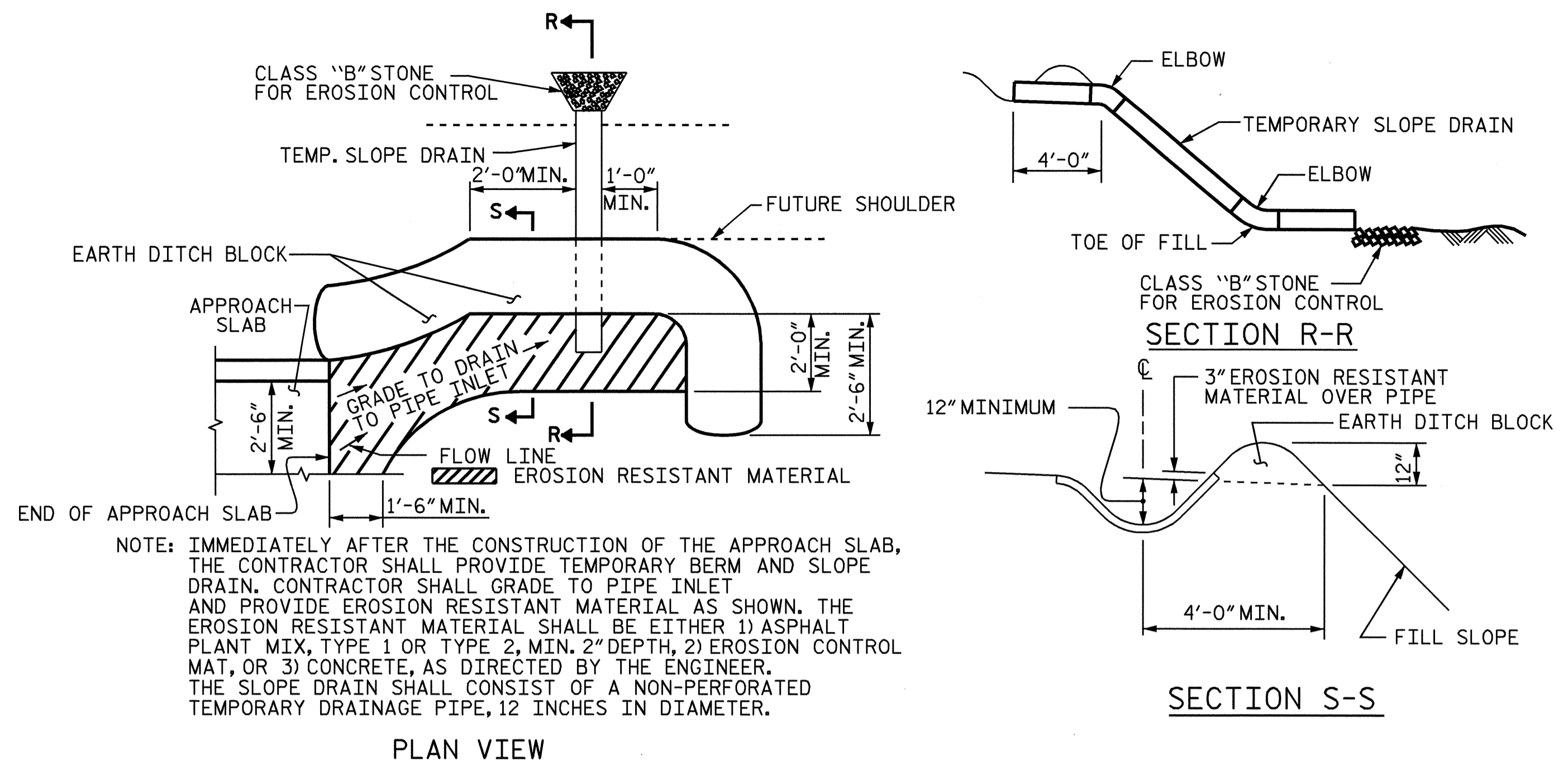
PLAN



SECTION C-C
EVAZOTE JOINT SEAL

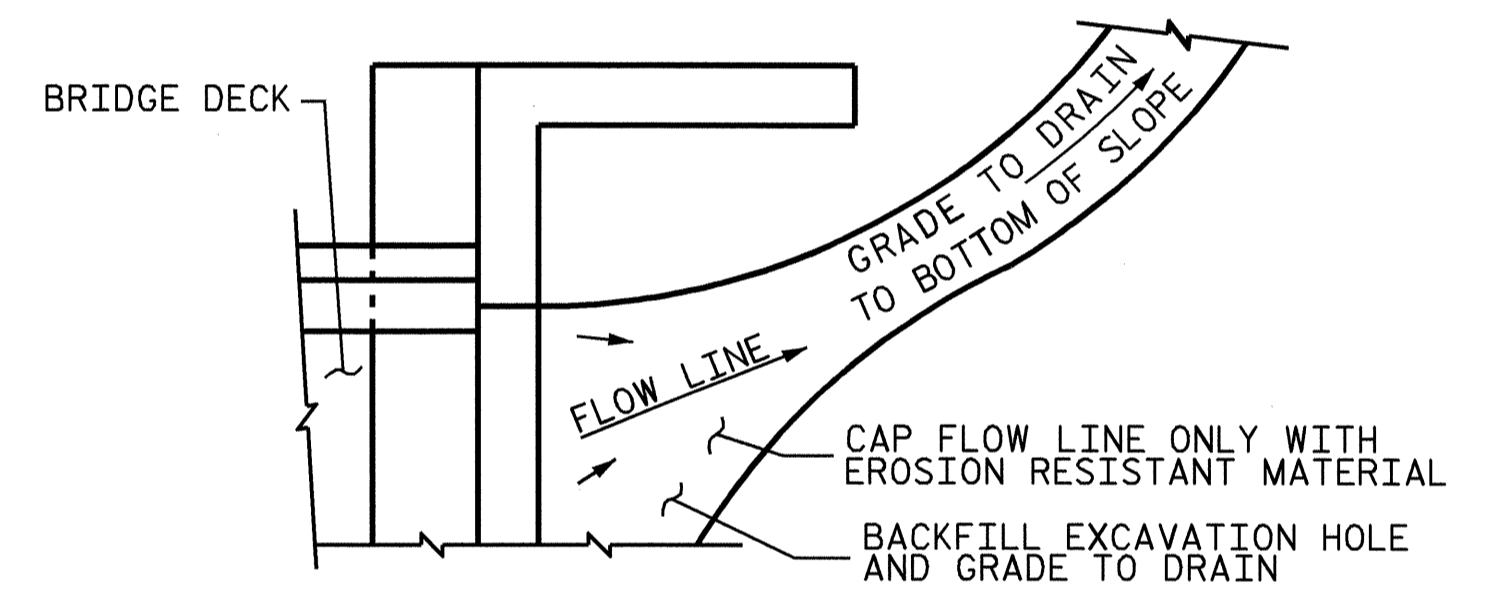


SECTION A-A



TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

TEMPORARY DRAINAGE DETAIL

ELASTOMERIC CONCRETE	
INTEGRAL END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	4.8
2	4.8
TOTAL	9.6

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

ASSEMBLED BY : J.B. WILSON DATE : 4/2008
 CHECKED BY : M. GUDLAUGSSON DATE : 5/2008
 DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/LES
 CHECKED BY : ARB 11/88 REV. 5/7/03 RWW/JTE
 REV. 5/1/06R MAA/KMM



PROJECT NO. B-4116
GASTON COUNTY
 STATION: 14+57.00 -L-

SHEET 2 OF 2

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

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2002 STANDARD SPECIFICATIONS "FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN