

09/08/99
 18-FEB-2014 11:22
 \$\$\$DCN\$\$\$\$\$\$\$SUTTON

TIP PROJECT: B-4748
CONTRACT: C203390

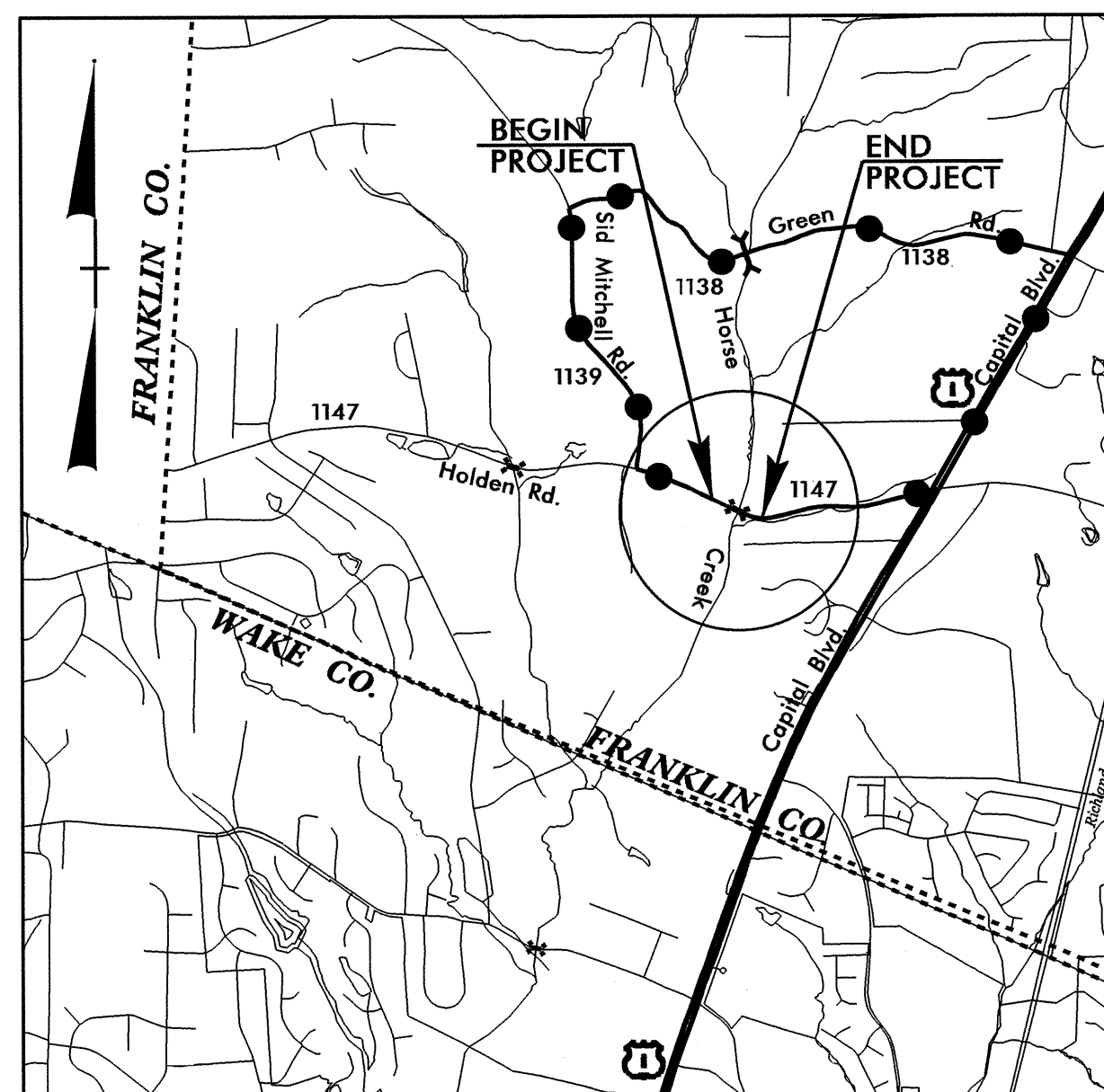
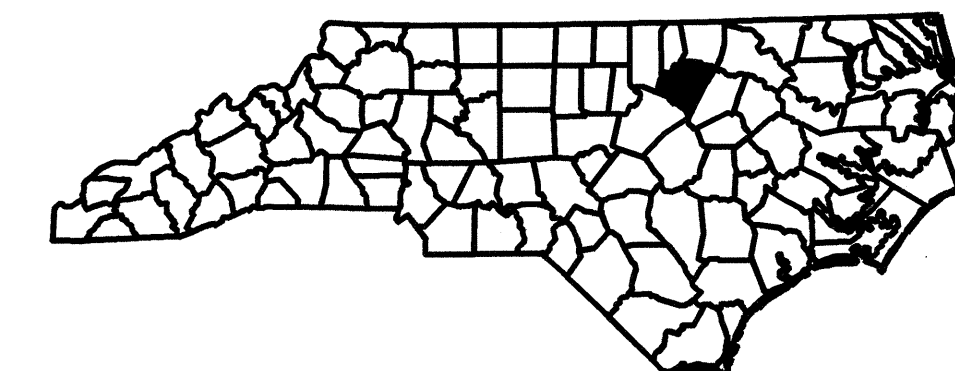
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

FRANKLIN COUNTY

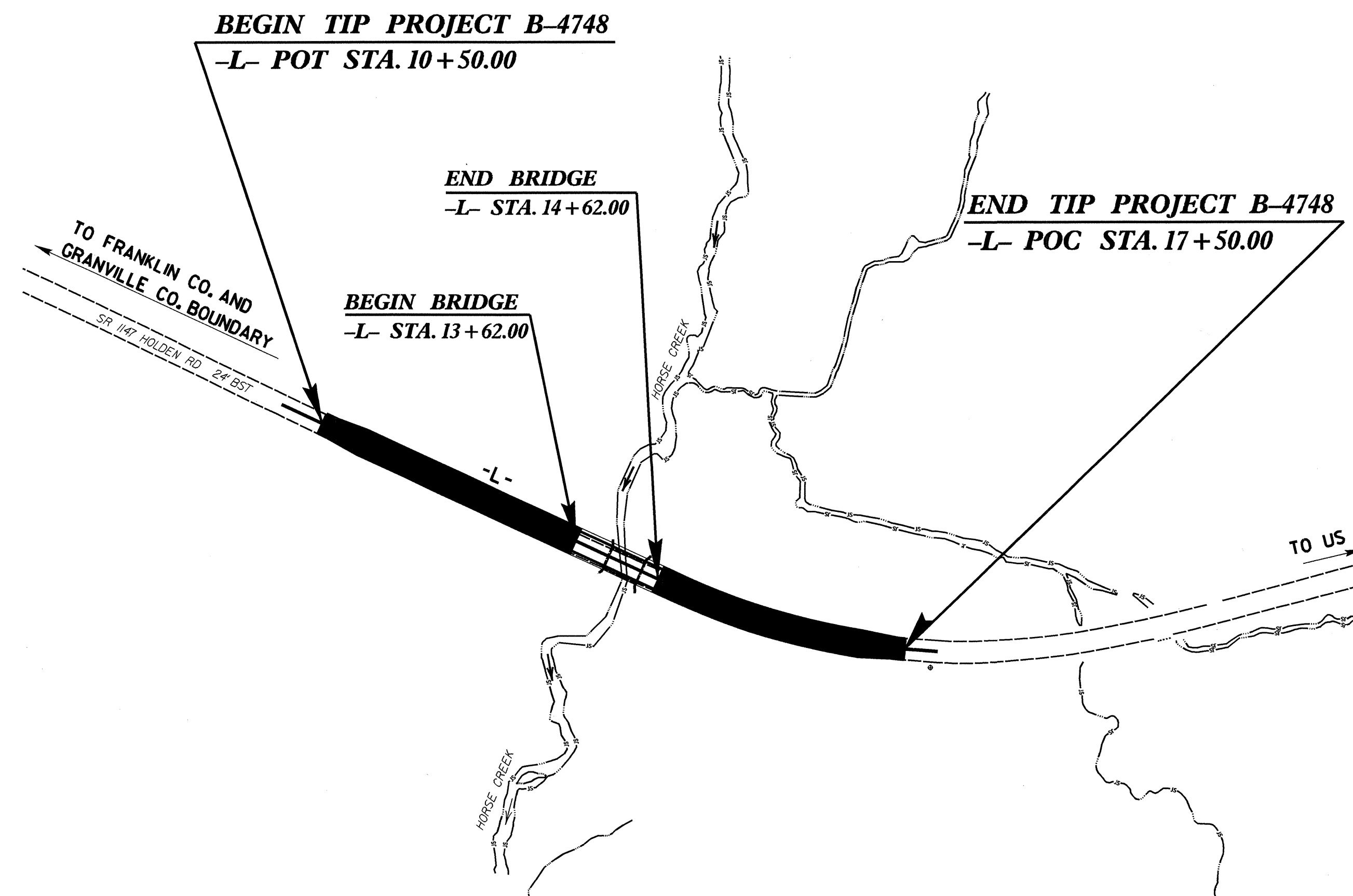
**LOCATION: BRIDGE NO. 2 OVER HORSE CREEK
 ON SR 1147 (HOLDEN ROAD)**

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

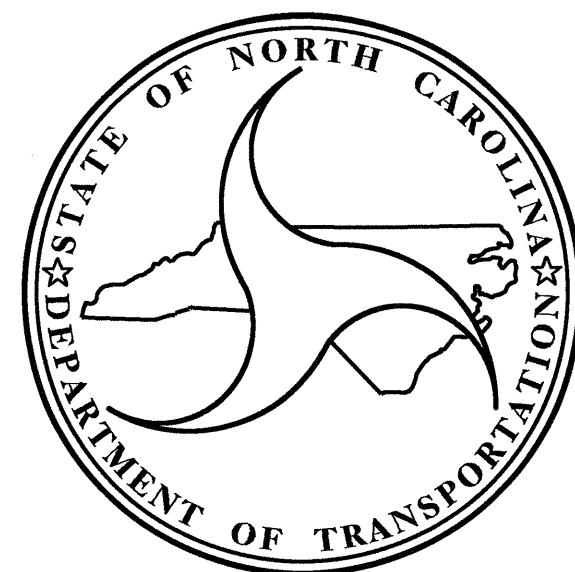
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4748		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38520.1.1	BRZ-1147 (10)	PE	
38520.2.1	BRZ-1147 (10)	ROW & UTIL	
38520.3.FD1	BRZ-1147 (10)	CONSTRUCT	



VICINITY MAP SHOWING LOCATION OF PROJECT B-4748
 OFFSITE DETOUR ROUTE



STRUCTURE



DESIGN DATA

ADT 2014	=	5,316
ADT 2034	=	9,777
DHV	=	13 %
D	=	60 %
T	=	5 % *
V	=	50 MPH

* TTST 3% DUAL 2%
 FUNC CLASS=RURAL LOCAL
 SUB REGIONAL TIER

PROJECT LENGTH

Length Roadway Tip Project B-4748	=	.114 MILES
Length Structure Tip Project B-4748	=	.019 MILES
Total Length of Tip Project B-4748	=	.133 MILES

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

2012 STANDARD SPECIFICATIONS	L.E. SUTTON, P.E. PROJECT ENGINEER
LETTING DATE: APRIL 15, 2014	PROJECT DESIGN ENGINEER

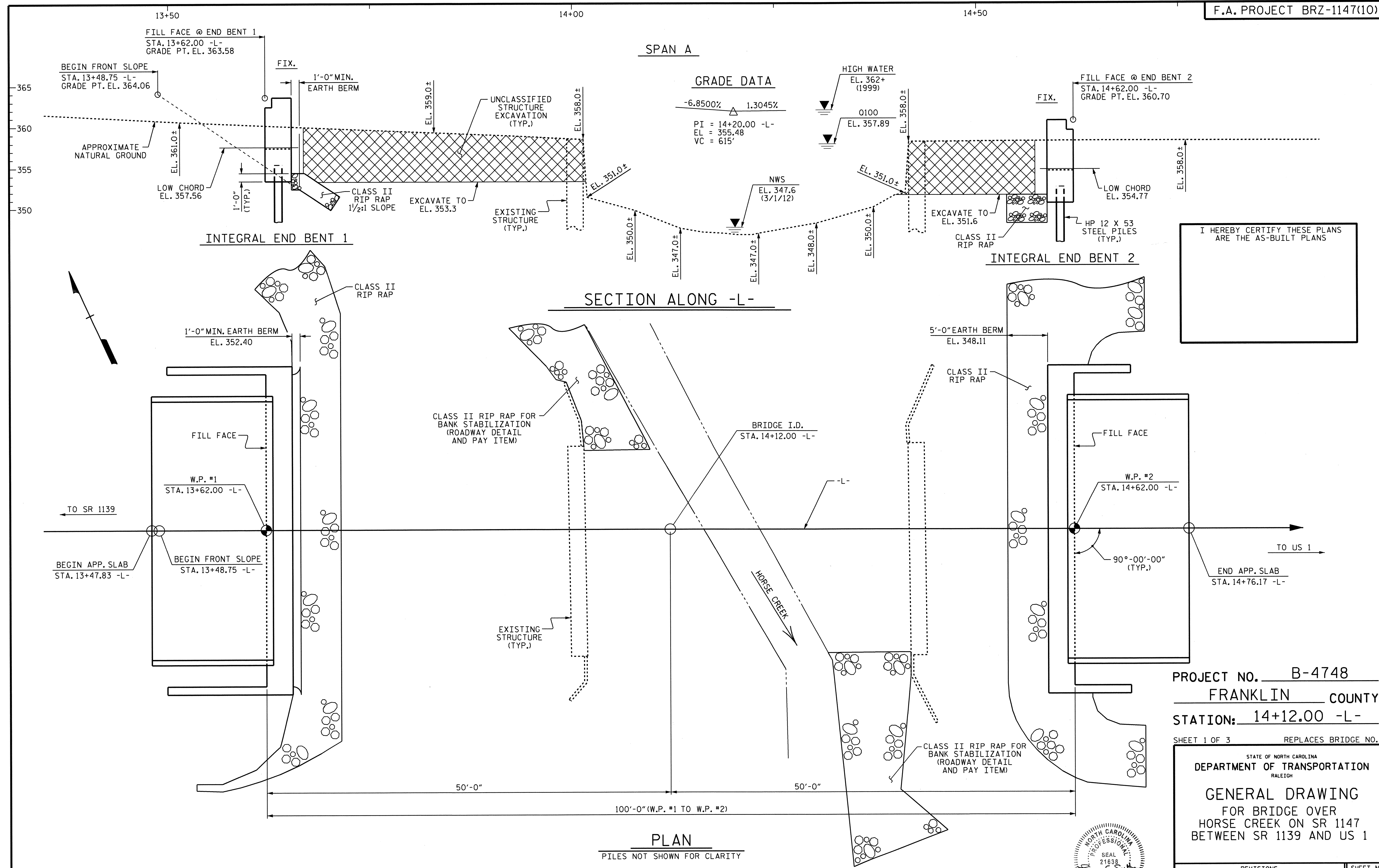
STRUCTURES MANAGEMENT UNIT
 1000 BIRCH RIDGE DR.
 RALEIGH, N.C. 27610

APPROVED
 DIVISION ADMINISTRATOR

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER
 P.E.
 DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION

DATE



GRADE DATA

-6.8500% 1.3045%

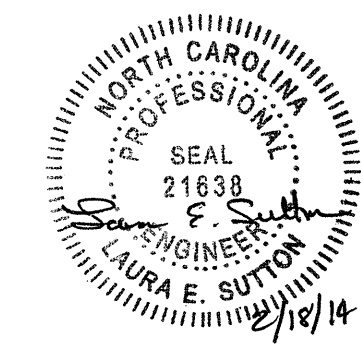
PI = 14+20.00 -L-
 EL = 355.48
 VC = 615'

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. B-4748
 FRANKLIN COUNTY
 STATION: 14+12.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 HORSE CREEK ON SR 1147
 BETWEEN SR 1139 AND US 1



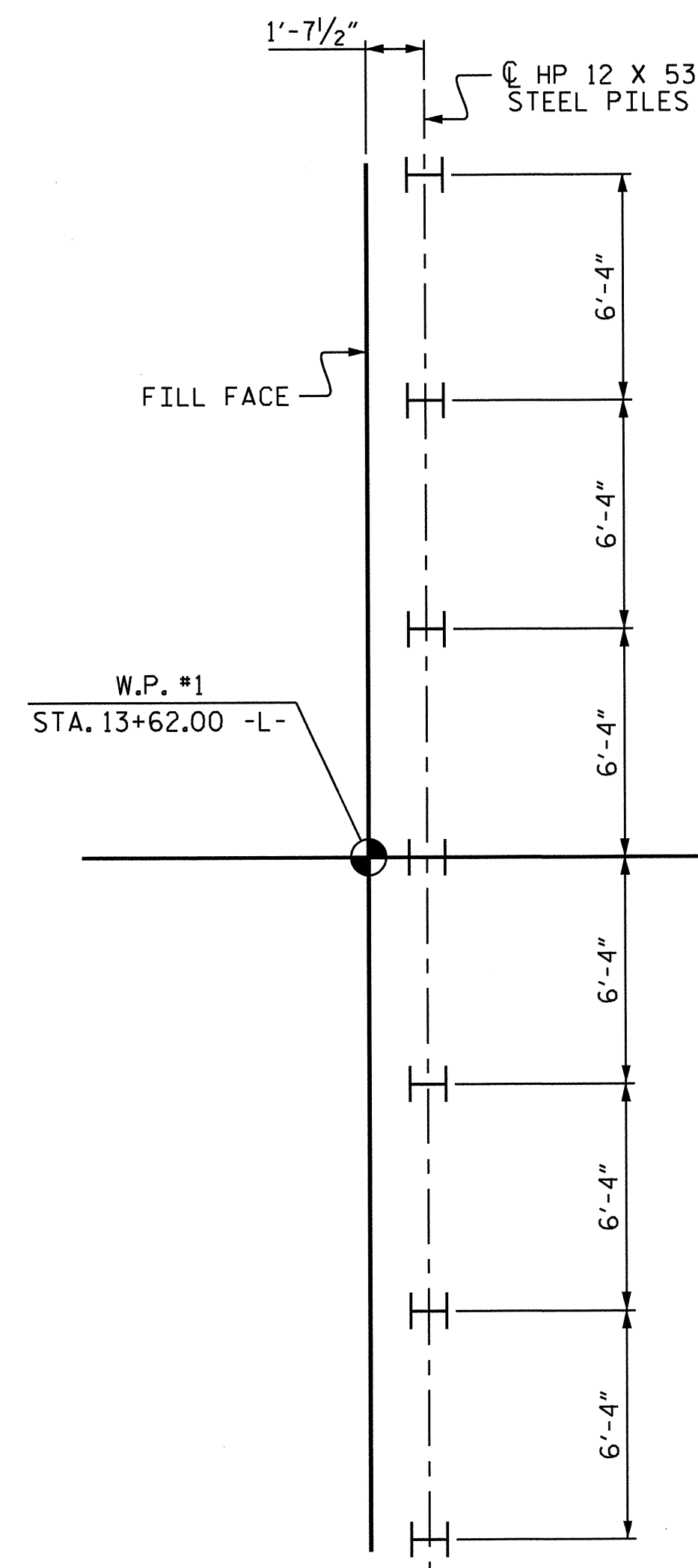
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1	
1			3			TOTAL	27
2			4			SHEETS	

DRAWN BY : B.N. GRADY
 CHECKED BY : K.D. LAYNE
 DESIGN ENGINEER OF RECORD: B.N. GRADY

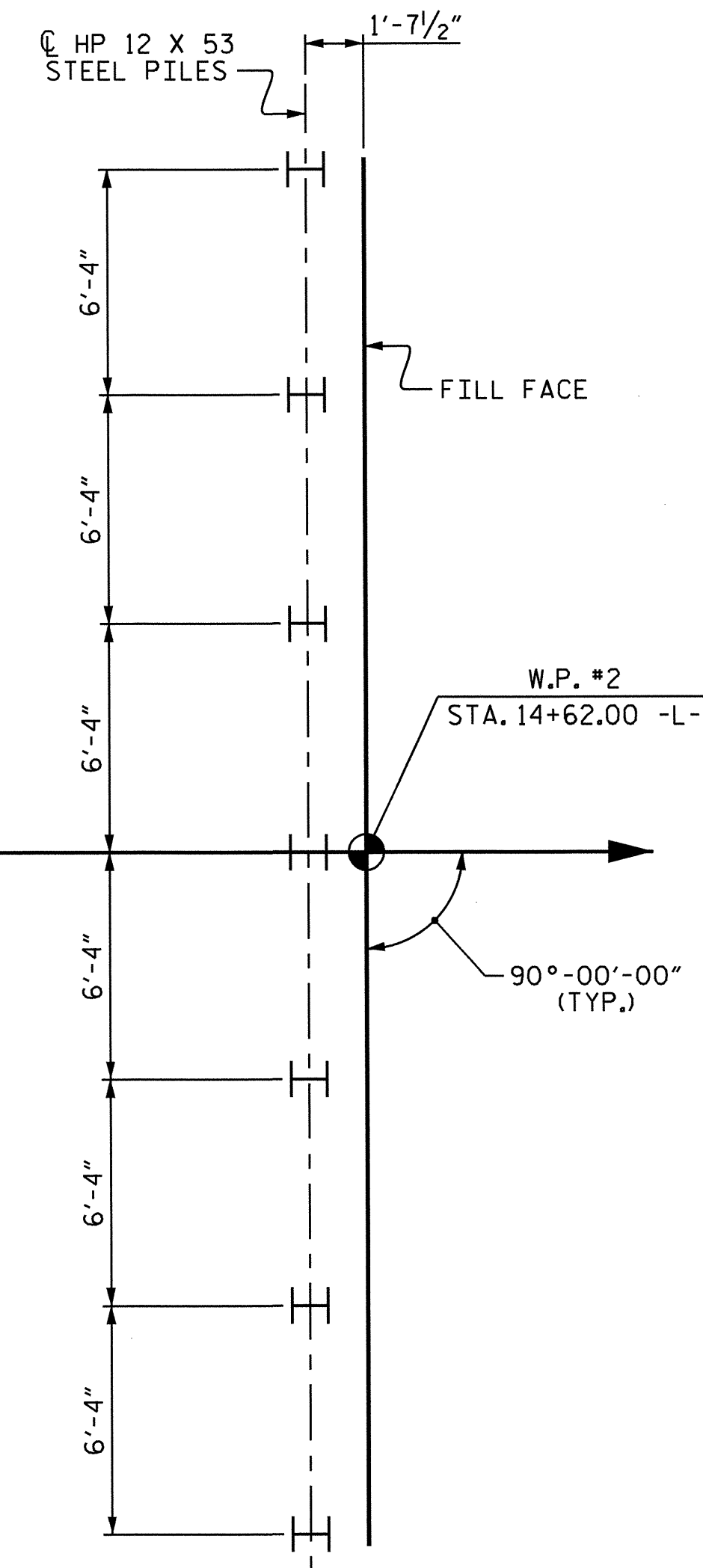
DATE : 2/27/13
 DATE : 6/28/13
 DATE : 12/20/13

18-FEB-2014 11:22
 R:\Structures\Plans\B4748_SD_01.dgn
 lsutton

PLAN
 PILES NOT SHOWN FOR CLARITY



INTEGRAL END BENT 1



INTEGRAL END BENT 2

FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES.

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 110 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 185 TONS PER PILE.

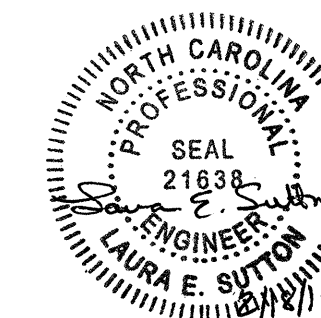
STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT 1. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 HORSE CREEK ON SR 1147
 BETWEEN SR 1139 AND US 1

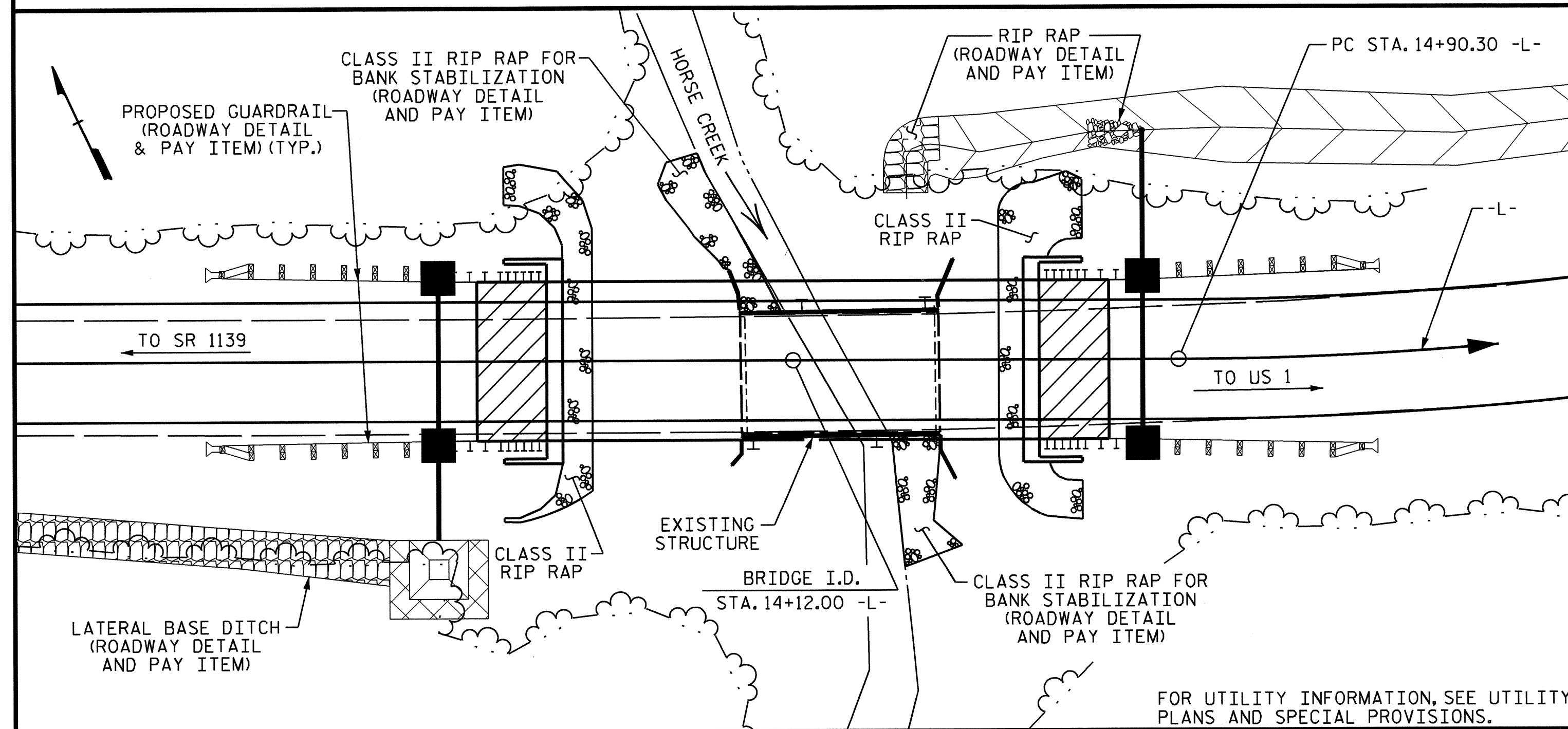


DRAWN BY : B.N. GRADY DATE : 2/27/13
 CHECKED BY : K.D. LAYNE DATE : 6/28/13
 DESIGN ENGINEER OF RECORD: B.N. GRADY DATE : 12/20/13

18-FEB-2014 11:22
 R:\Structures\Plans\B4748_SD.GD_01.dgn
 lsutton

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

B.M. #2: RAILROAD SPIKE IN 16" OAK TREE, 120' LEFT OF STA. 13+48 -L-, EL. 353.90



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 1900 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 356.7
DRAINAGE AREA	= 5.0 SQ.MI.
BASE DISCHARGE (Q100)	= 2495 C.F.S.
BASE HIGH WATER ELEVATION	= 357.89
OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= 3600 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 500± YR.
OVERTOPPING FLOOD ELEVATION	= 359.23 (@ SAG)

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	54" PRESTRESSED CONCRETE GIRDERS	HP 12 X 53 STEEL PILES	STEEL PILE POINTS	TWO BAR METAL RAIL	1'-2" X 2'-6" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	
	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LIN. FT.	NO.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM
SUPERSTRUCTURE			3,459	3,662		LUMP SUM		392.67				181.67	196.67			LUMP SUM
END BENT 1					24.7		3,298		7	90	7			65	70	
END BENT 2					23.1		2,984		7	195				100	110	
TOTAL	LUMP SUM	LUMP SUM	3,459	3,662	47.8	LUMP SUM	6,282	392.67	14	285	7	181.67	196.67	165	180	LUMP SUM

NOTES

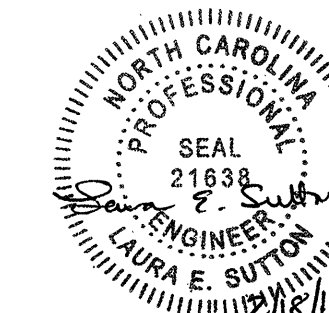
ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES".
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.
 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.
 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. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
 ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.
 NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
 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+12.00 -L-".
 THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. LEFT AND 35 FT. RIGHT SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

THE EXISTING STRUCTURE CONSISTING OF A 40.5' SINGLE SPAN WITH A TIMBER DECK ON A STEEL GIRDER FLOOR BEAM SYSTEM, WITH A CLEAR ROADWAY WIDTH OF 24.2', SUPPORTED BY TIMBER END BENT CAPS ON TIMBER PILES, AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISION FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 14+12.00 -L-".
 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.
 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.

DRAWN BY : B.N. GRADY DATE : 2/27/13
 CHECKED BY : K.D. LAYNE DATE : 6/28/13
 DESIGN ENGINEER OF RECORD: B.N. GRADY DATE : 12/20/13

18-FEB-2014 11:22
 R:\Structures\Plans\B4748_SD_GD_01.dgn
 isutton



PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 HORSE CREEK ON SR 1147
 BETWEEN SR 1139 AND US 1

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

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{dc}	γ_{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			
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.01	--	1.75	0.827	1.71	A	EL	48.375	0.827	3.00	A	EL	48.375	0.80	0.827	1.01	A	EL	48.375		
	HL-93 (OPERATING)	N/A	--	2.22	--	1.35	0.827	2.22	A	EL	48.375	0.827	3.89	A	EL	48.375	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.39	50.123	1.75	0.827	2.37	A	EL	48.375	0.827	3.61	A	EL	48.375	0.80	0.827	1.39	A	EL	48.375		
	HS-20 (OPERATING)	36.000	--	3.08	110.820	1.35	0.827	3.08	A	EL	48.375	0.827	4.68	A	EL	48.375	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500	--	3.29	44.446	1.40	0.827	7.02	A	EL	48.375	0.827	10.27	A	EL	48.375	0.80	0.827	3.29	A	EL	48.375	
		SNGARBS2	20,000	--	2.39	47.767	1.40	0.827	5.09	A	EL	48.375	0.827	7.45	A	EL	48.375	0.80	0.827	2.39	A	EL	48.375	
		SNAGRIS2	22,000	--	2.24	49.181	1.40	0.827	4.77	A	EL	48.375	0.827	6.98	A	EL	48.375	0.80	0.827	2.24	A	EL	48.375	
		SNCOTTS3	27,250	--	1.64	44.593	1.40	0.827	3.49	A	EL	48.375	0.827	5.14	A	EL	48.375	0.80	0.827	1.64	A	EL	48.375	
		SNAGRS4	34,925	--	1.34	46.885	1.40	0.827	2.86	A	EL	48.375	0.827	4.37	A	EL	48.375	0.80	0.827	1.34	A	EL	48.375	
		SNS5A	35,550	--	1.31	46.728	1.40	0.827	2.80	A	EL	48.375	0.827	4.48	A	EL	48.375	0.80	0.827	1.31	A	EL	48.375	
		SNS6A	39,950	--	1.20	47.771	1.40	0.827	2.55	A	EL	48.375	0.827	4.14	A	EL	48.375	0.80	0.827	1.20	A	EL	48.375	
		SNS7B	42,000	--	1.14	47.811	1.40	0.827	2.43	A	EL	48.375	0.827	4.12	A	EL	48.375	0.80	0.827	1.14	A	EL	48.375	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000	--	1.46	48.020	1.40	0.827	3.10	A	EL	48.375	0.827	4.89	A	EL	48.375	0.80	0.827	1.46	A	EL	48.375	
		TNT4A	33,075	--	1.46	48.250	1.40	0.827	3.11	A	EL	48.375	0.827	4.72	A	EL	48.375	0.80	0.827	1.46	A	EL	48.375	
		TNT6A	41,600	--	1.18	49.221	1.40	0.827	2.52	A	EL	48.375	0.827	4.51	A	EL	48.375	0.80	0.827	1.18	A	EL	48.375	
		TNT7A	42,000	--	1.18	49.730	1.40	0.827	2.52	A	EL	48.375	0.827	4.39	A	EL	48.375	0.80	0.827	1.18	A	EL	48.375	
		TNT7B	42,000	--	1.21	50.931	1.40	0.827	2.59	A	EL	48.375	0.827	3.98	A	EL	48.375	0.80	0.827	1.21	A	EL	48.375	
		TNAGRIT4	43,000	--	1.16	49.996	1.40	0.827	2.48	A	EL	48.375	0.827	3.84	A	EL	48.375	0.80	0.827	1.16	A	EL	48.375	
TNAGT5A	45,000	--	1.10	49.527	1.40	0.827	2.35	A	EL	48.375	0.827	3.89	A	EL	48.375	0.80	0.827	1.10	A	EL	48.375			
TNAGT5B	45,000	3	1.09	49.102	1.40	0.827	2.33	A	EL	48.375	0.827	3.65	A	EL	48.375	0.80	0.827	1.09	A	EL	48.375			

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.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

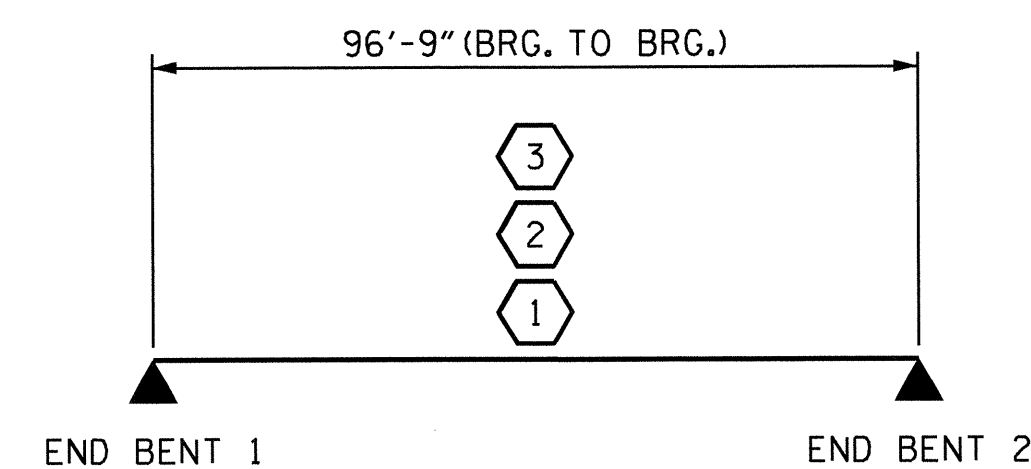
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

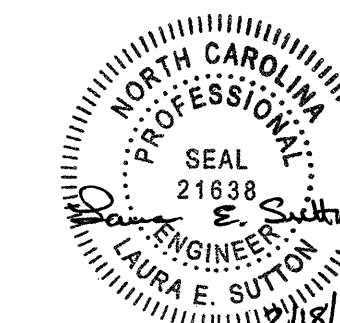
GIRDER LOCATION

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



LRFR SUMMARY

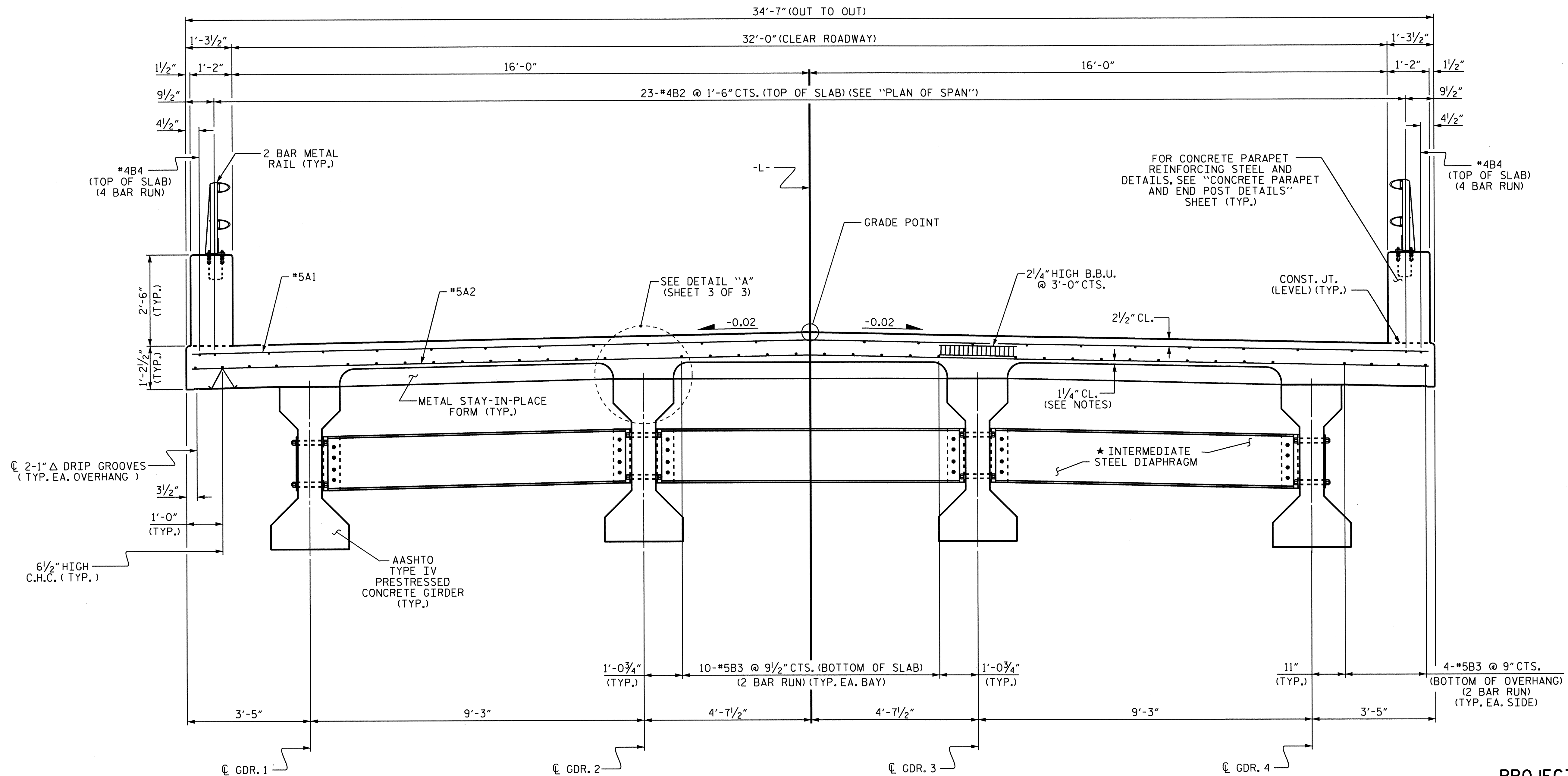
PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-



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

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

ASSEMBLED BY: B.N. GRADY	DATE: 11/25/13	DESIGN ENGINEER OF RECORD: B.N. GRADY
CHECKED BY: H.A. LOCKLEAR	DATE: 11/26/13	
DRAWN BY: MAA 1/08	REV. 11/12/OBRR	DATE: 12/20/13
CHECKED BY: GM/DI 2/08	REV. 10/1/11	



TYPICAL SECTION

SHOWING INTERMEDIATE DIAPHRAGMS
 ★ FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS,
 SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS" SHEET.

PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

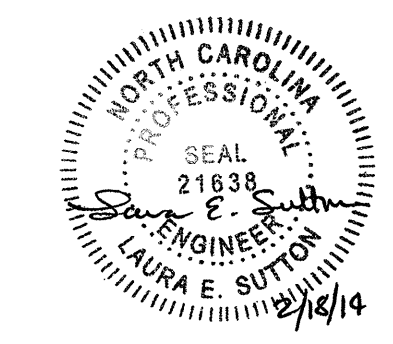
SHEET 1 OF 3

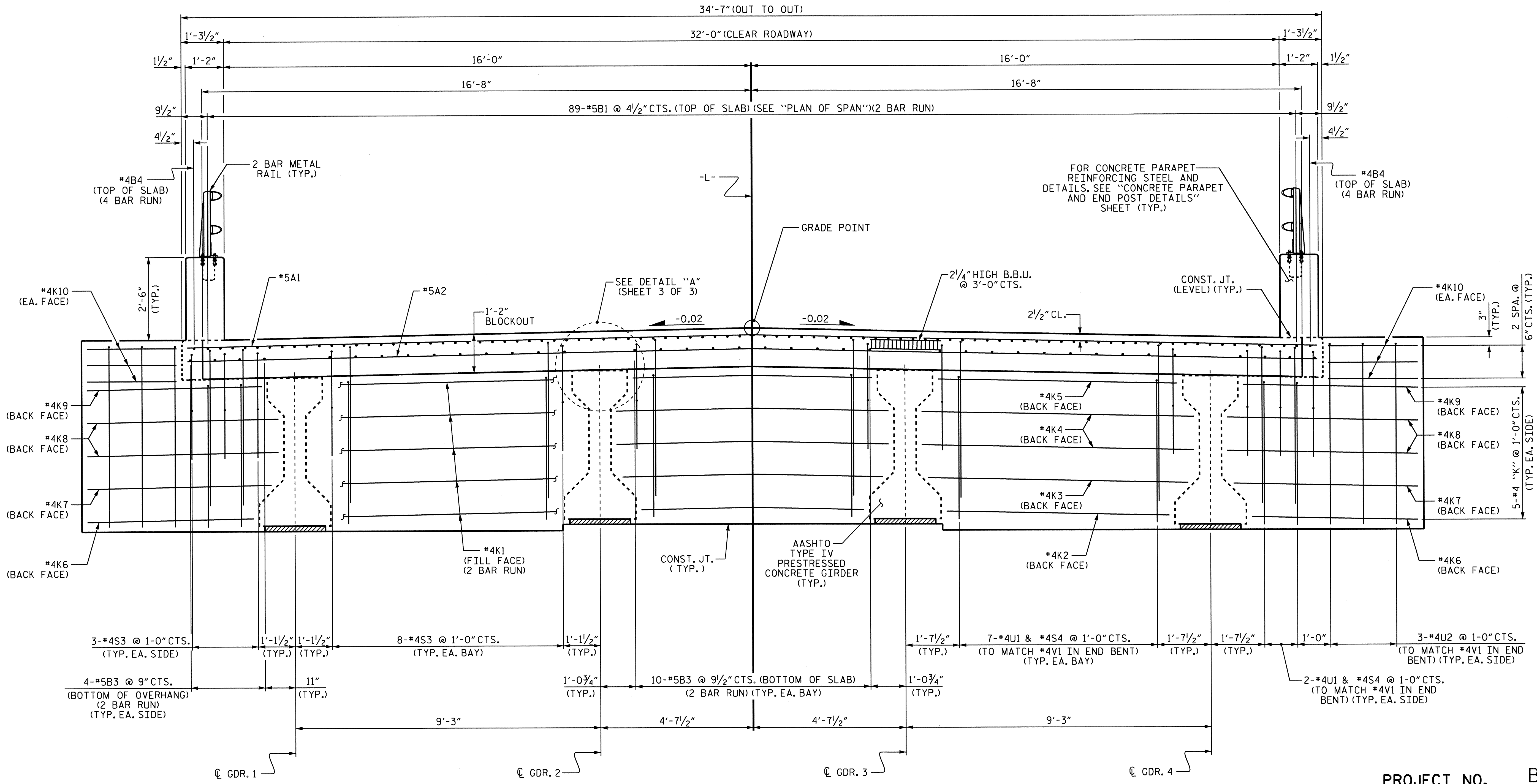
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : J.D. HAWK DATE : 10/11/12
 CHECKED BY : B.N. GRADY DATE : 10/26/12
 DESIGN ENGINEER OF RECORD: B.N. GRADY DATE : 12/20/13





END ELEVATION

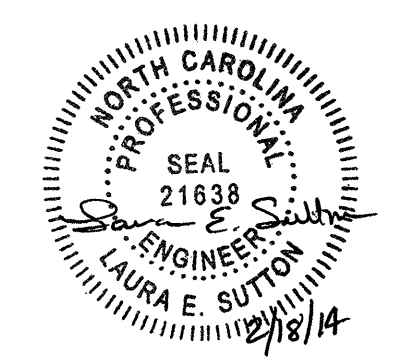
(END BENT 1 SHOWN, END BENT 2 SIMILAR)
(FOR SECTION THROUGH END BENT, SEE SECTION A-A ON SHEET 3 OF 3.)

PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION



DRAWN BY: J.D. HAWK DATE: 10/11/12
 CHECKED BY: B.N. GRADY DATE: 10/26/12
 DESIGN ENGINEER OF RECORD: B.N. GRADY DATE: 12/20/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			27

18-FEB-2014 11:22
 R:\Structures\Plans\B4748.sd_TS.01.dgn
 lsutton

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.

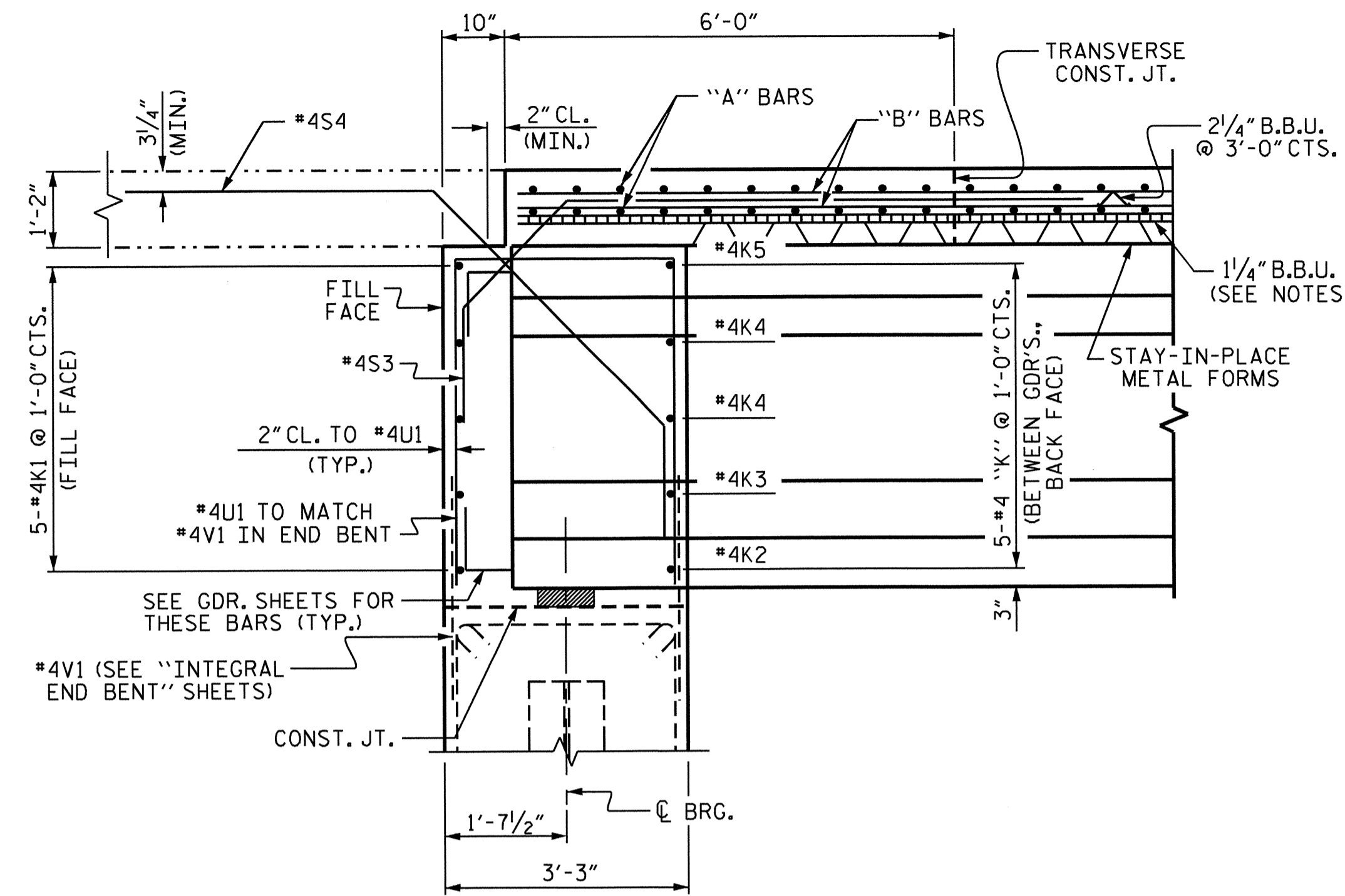
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

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

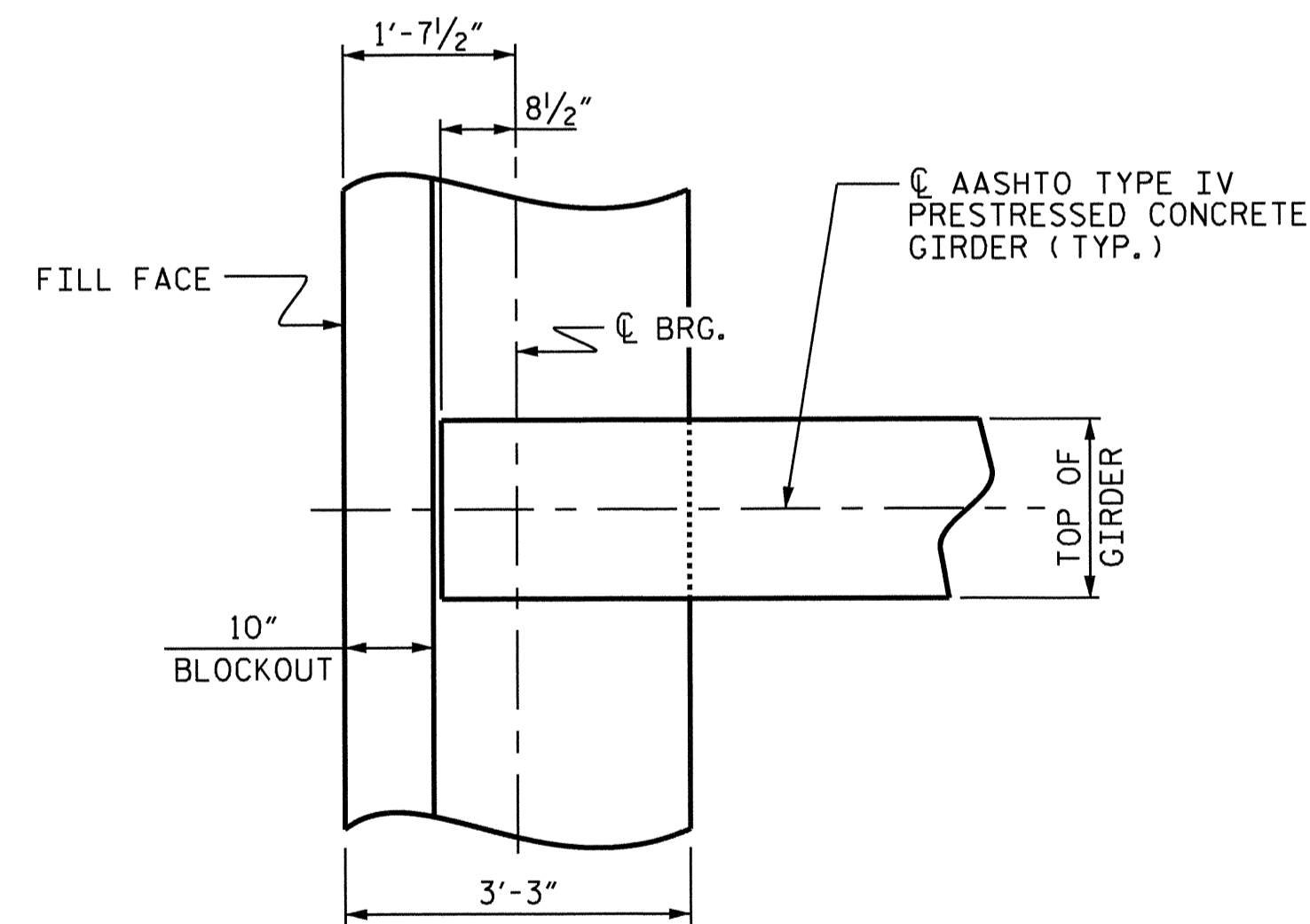
PREVIOUSLY CAST CONCRETE IN A SPAN SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THAT SPAN.

FOR LOCATION OF SECTIONS, SEE "PLAN OF SPAN" SHEETS.

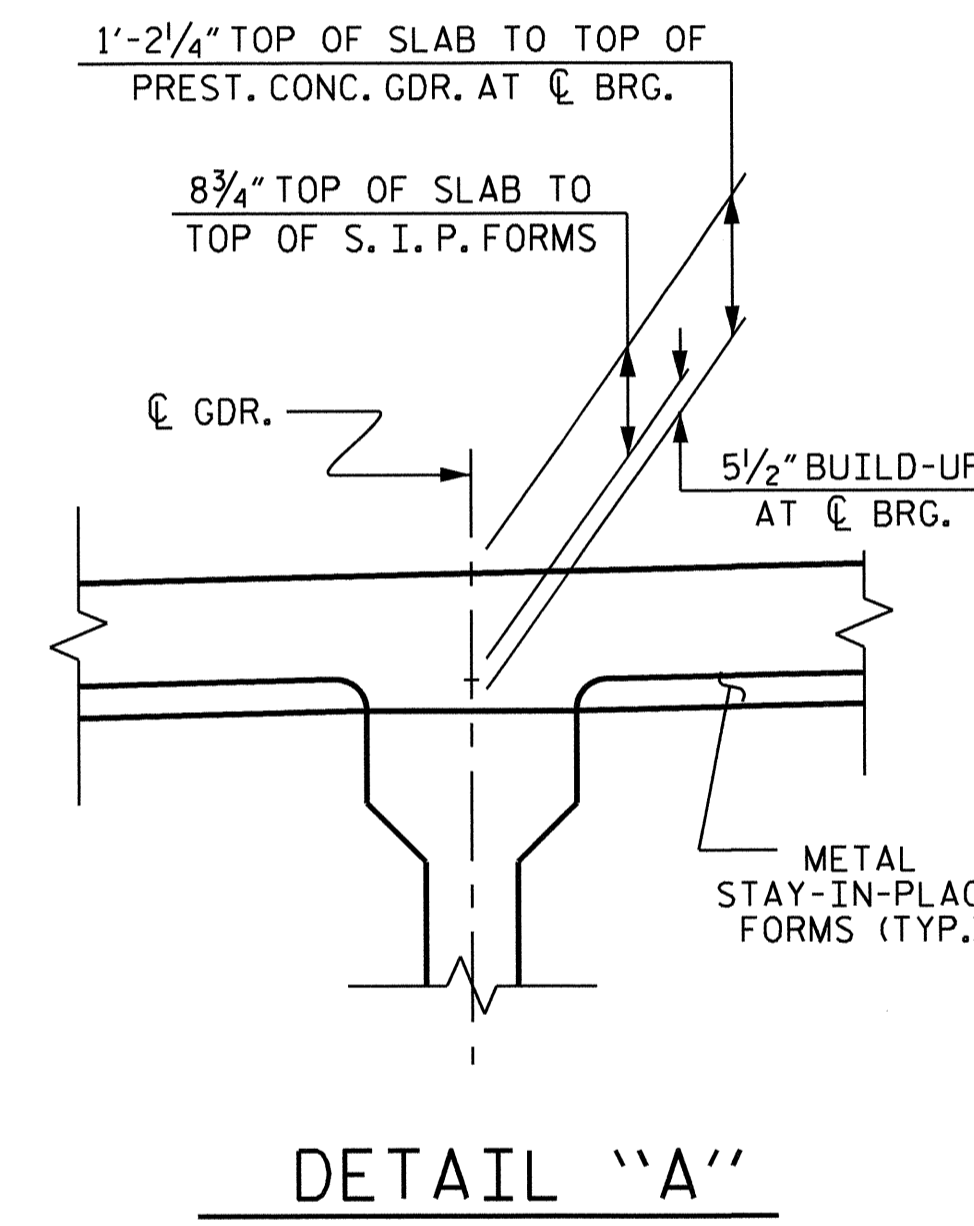
FOR WING DETAILS, SEE "PLAN OF SPAN - WING DETAILS" SHEET.



SECTION A-A



PLAN OF INTEGRAL END BENT



DETAIL "A"

PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

SHEET 3 OF 3

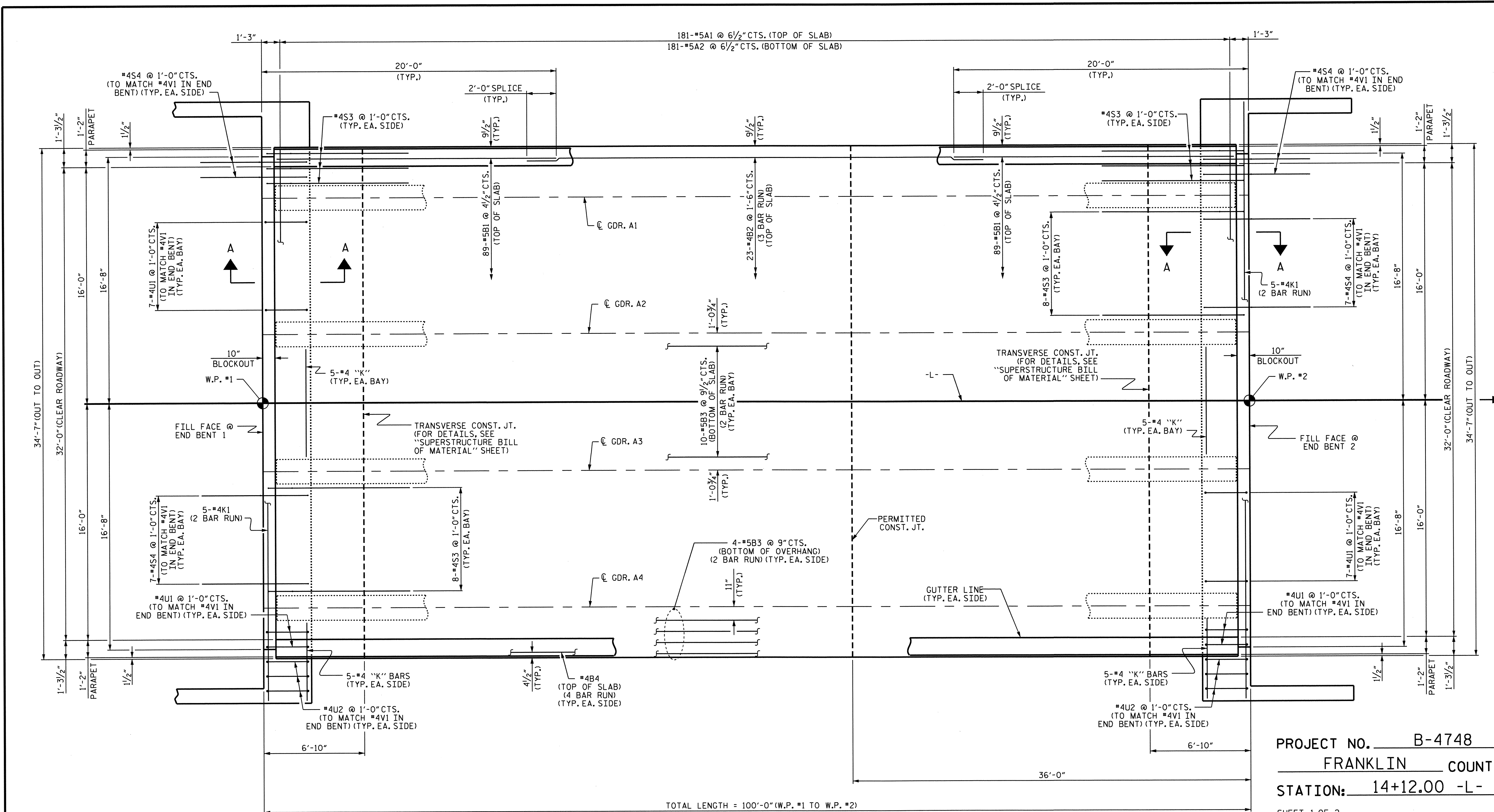
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			27



DRAWN BY: J.D. HAWK DATE: 10/11/12
 CHECKED BY: B.N. GRADY DATE: 10/26/12
 DESIGN ENGINEER OF RECORD: B.N. GRADY DATE: 12/20/13



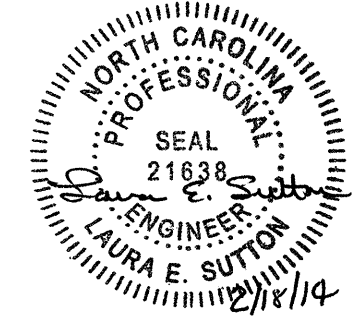
PLAN OF SPAN A

FOR CONCRETE PARAPET DETAILS AND REINFORCING STEEL, SEE "PARAPET AND END POST DETAILS" SHEETS.
 FOR SECTION A-A, SEE "TYPICAL SECTION DETAILS" SHEET.
 FOR ADDITIONAL REINFORCING STEEL IN WINGS, SEE "PLAN OF SPANS - WING DETAILS" SHEETS

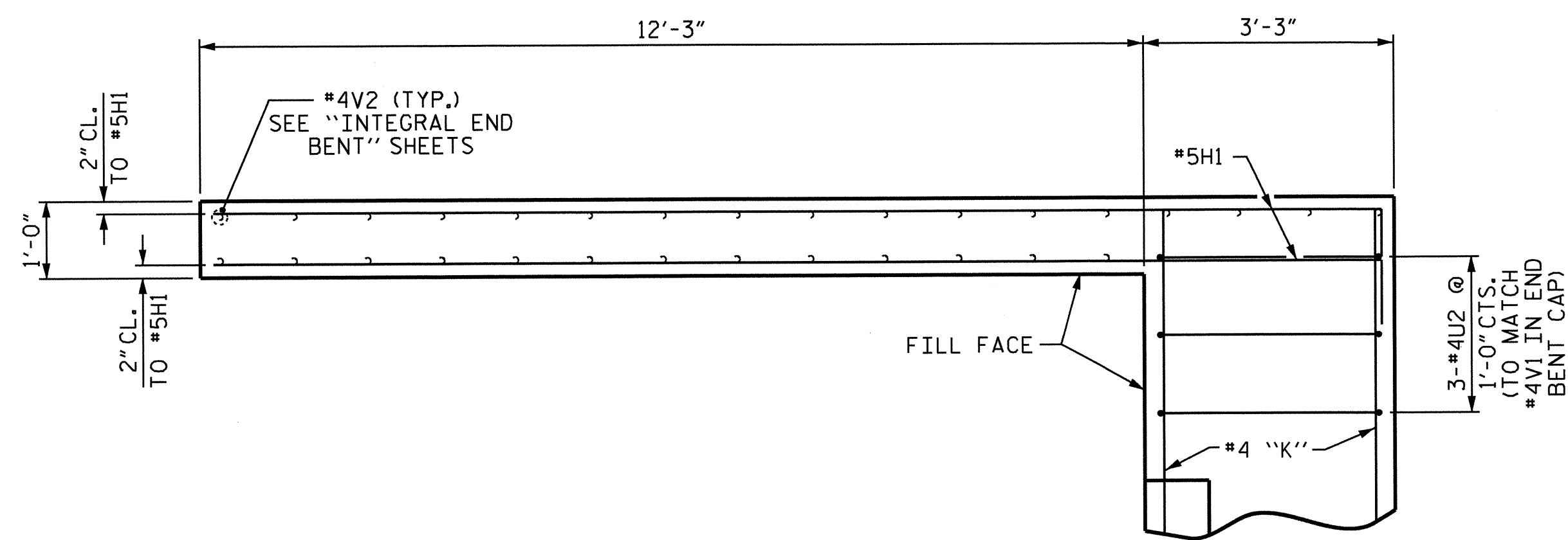
PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

SHEET 1 OF 2

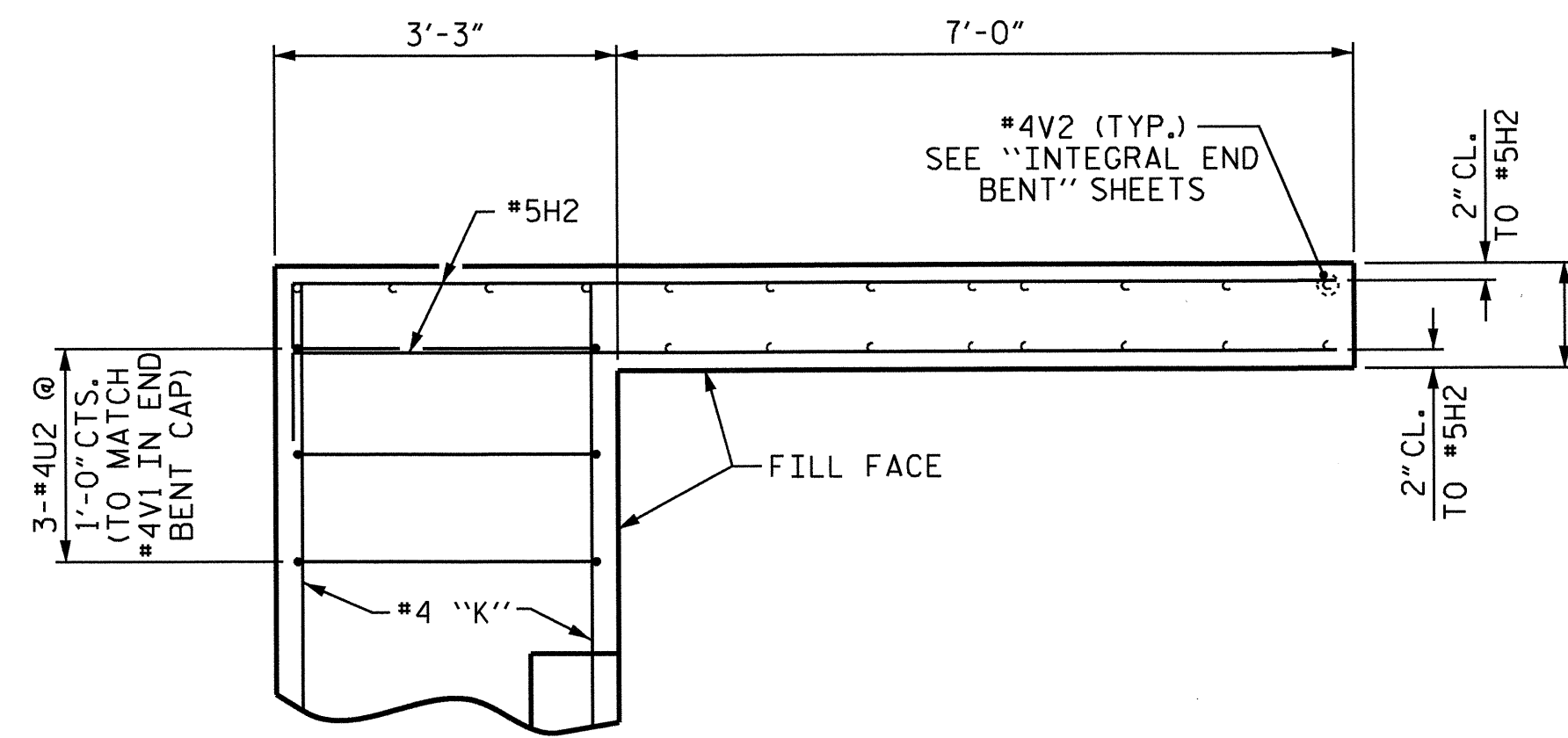
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-8 TOTAL SHEETS 27



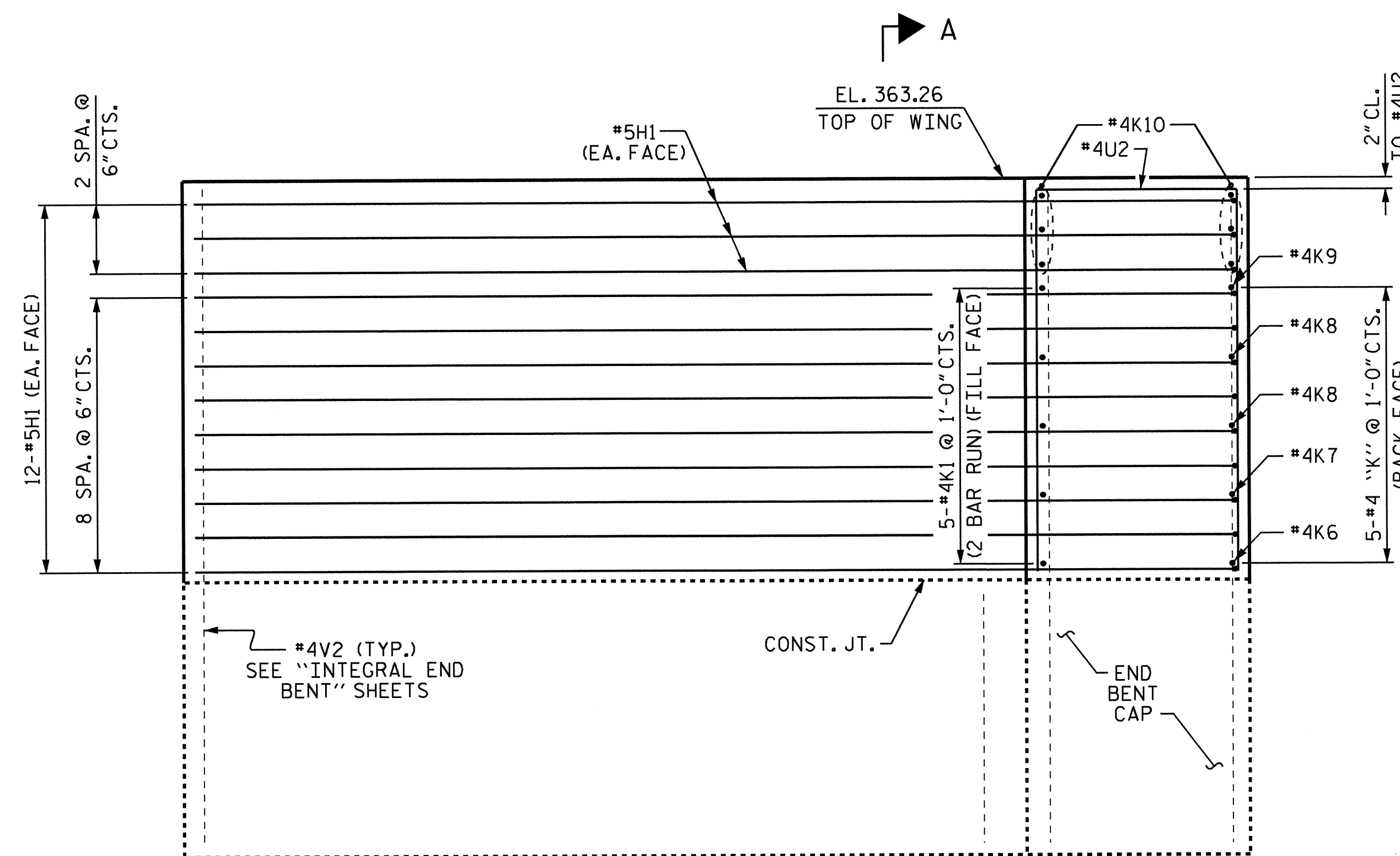
DRAWN BY: J.D. HAWK DATE: 10/11/12
 CHECKED BY: B.N. GRADY DATE: 10/26/12
 DESIGN ENGINEER OF RECORD: B.N. GRADY DATE: 12/20/13



PLAN OF WING

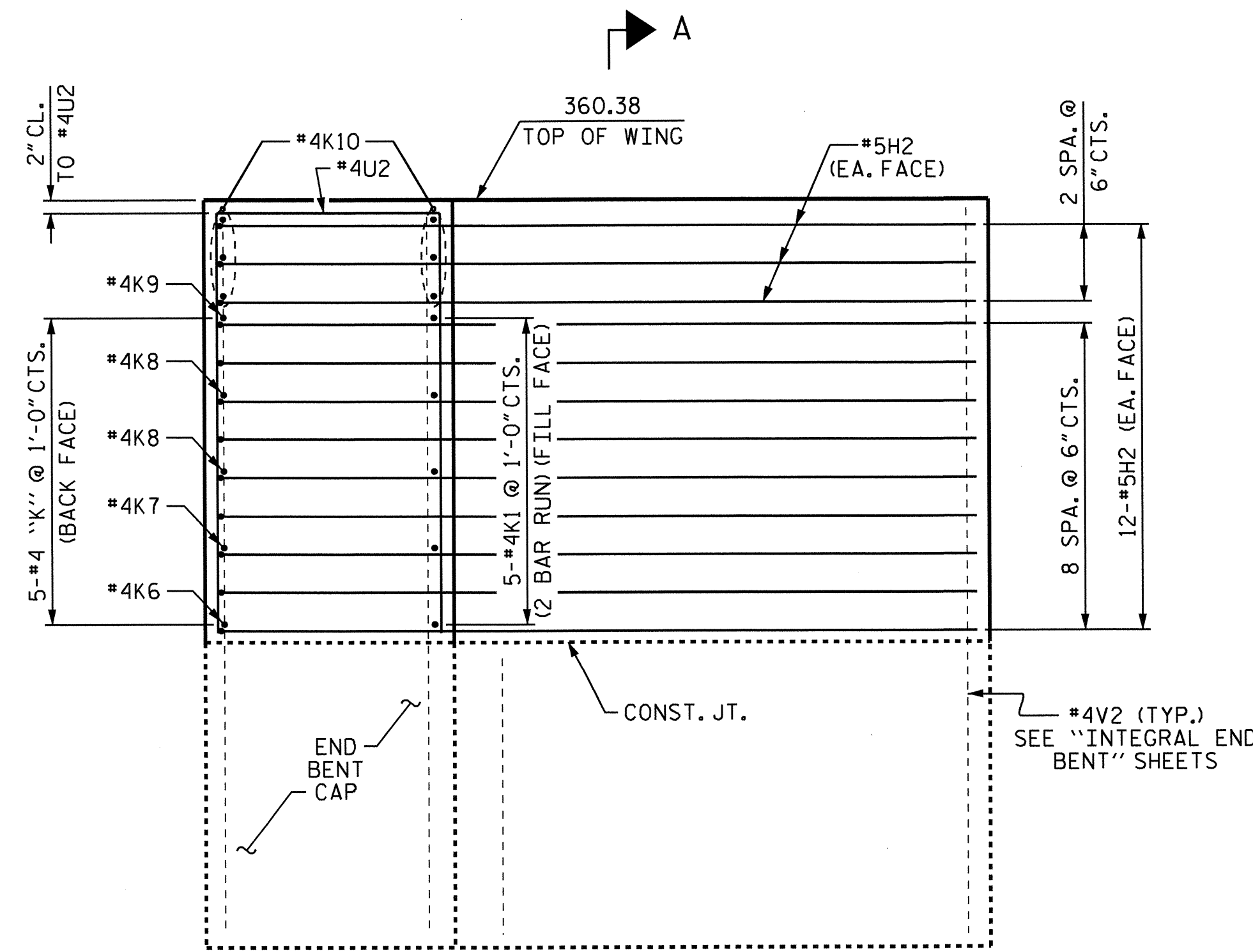


PLAN OF WING



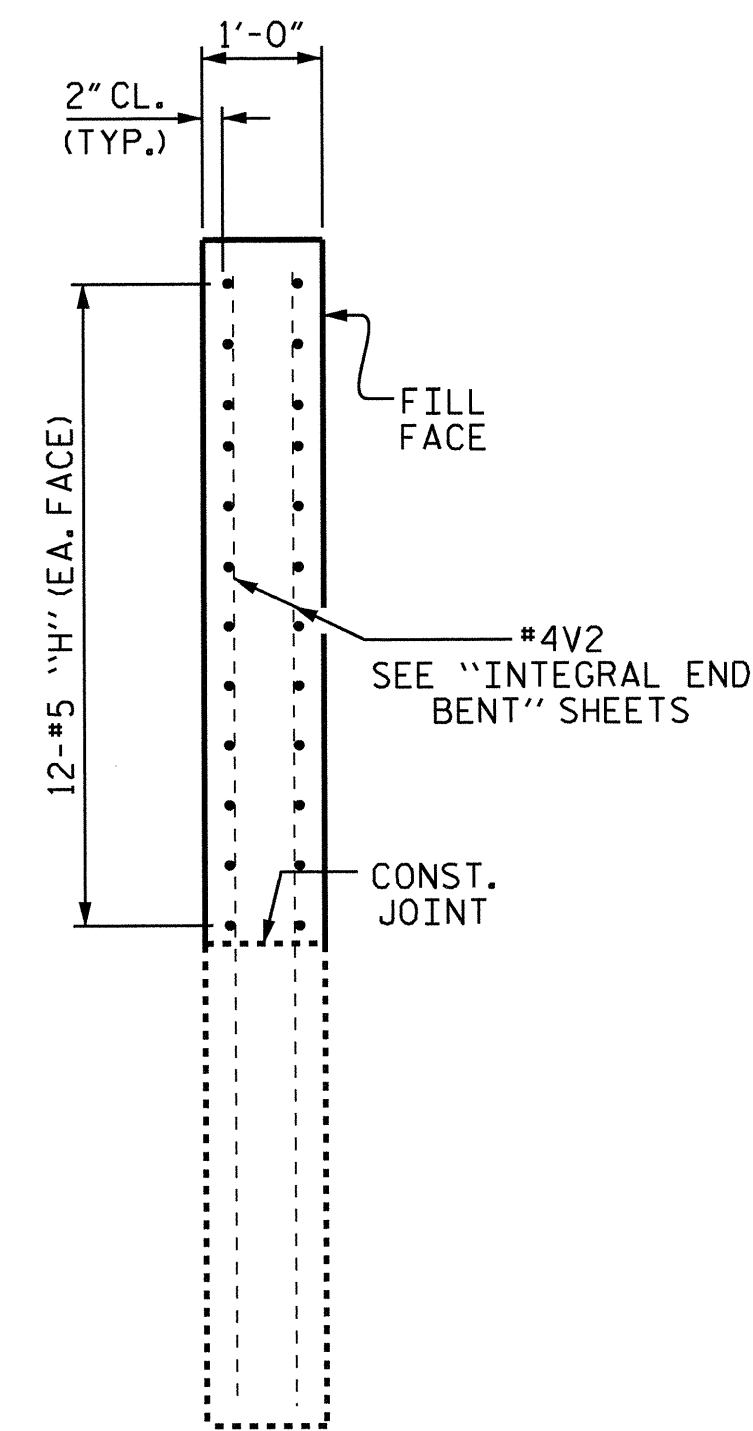
ELEVATION OF WING

INTEGRAL END BENT 1
(LEFT WING SHOWN, RIGHT WING SIMILAR)



ELEVATION OF WING

INTEGRAL END BENT 2
(LEFT WING SHOWN, RIGHT WING SIMILAR)



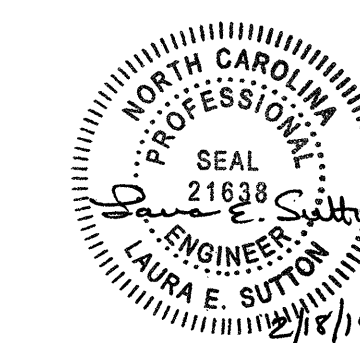
SECTION A-A

PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

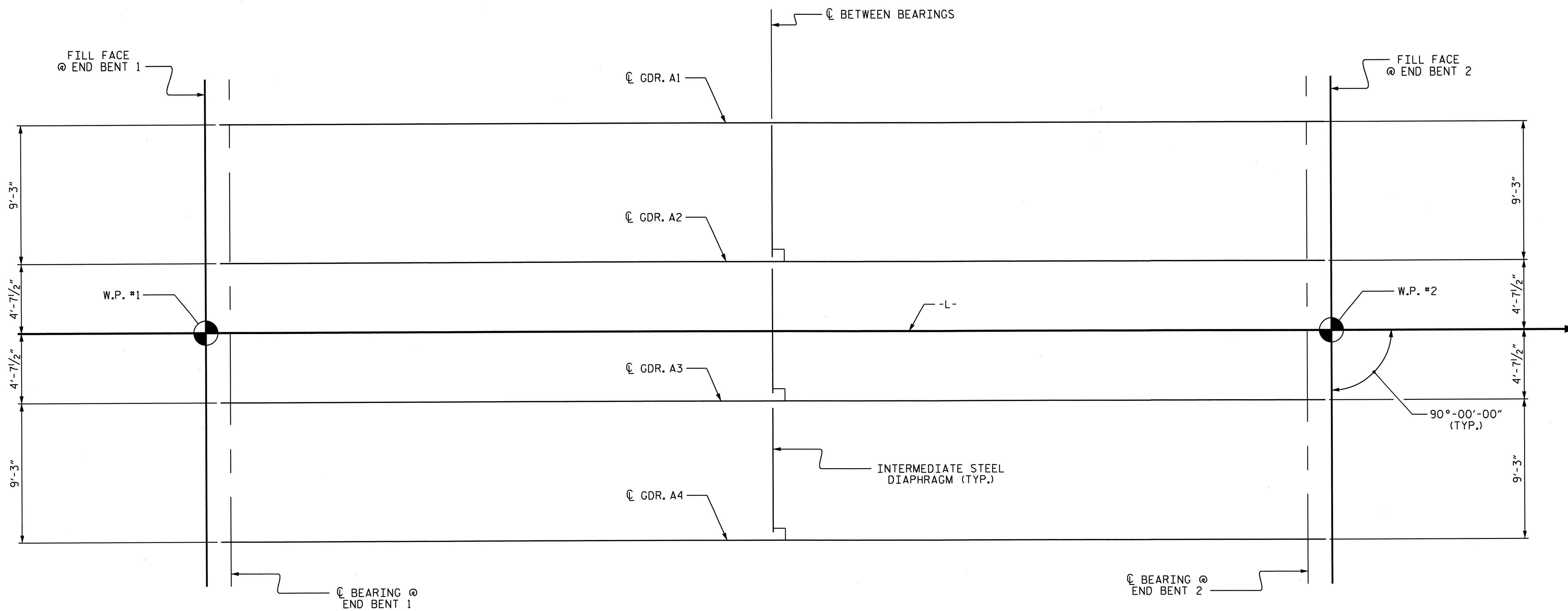
SUPERSTRUCTURE
 PLAN OF SPAN
 WING DETAILS



DRAWN BY: J.D. HAWK DATE: 10/11/12
 CHECKED BY: B.N. GRADY DATE: 10/26/12
 DESIGN ENGINEER OF RECORD: B.N. GRADY DATE: 12/20/13

31-DEC-2013 11:29
 R:\Structures\Plans\B4748.SD.S*.01.dgn
 jdhawk

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-9
2			4			27



INTEGRAL
E3

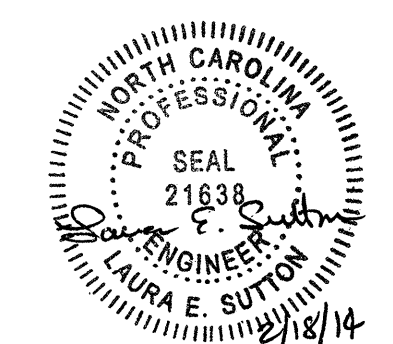
INTEGRAL
E3

SPAN A

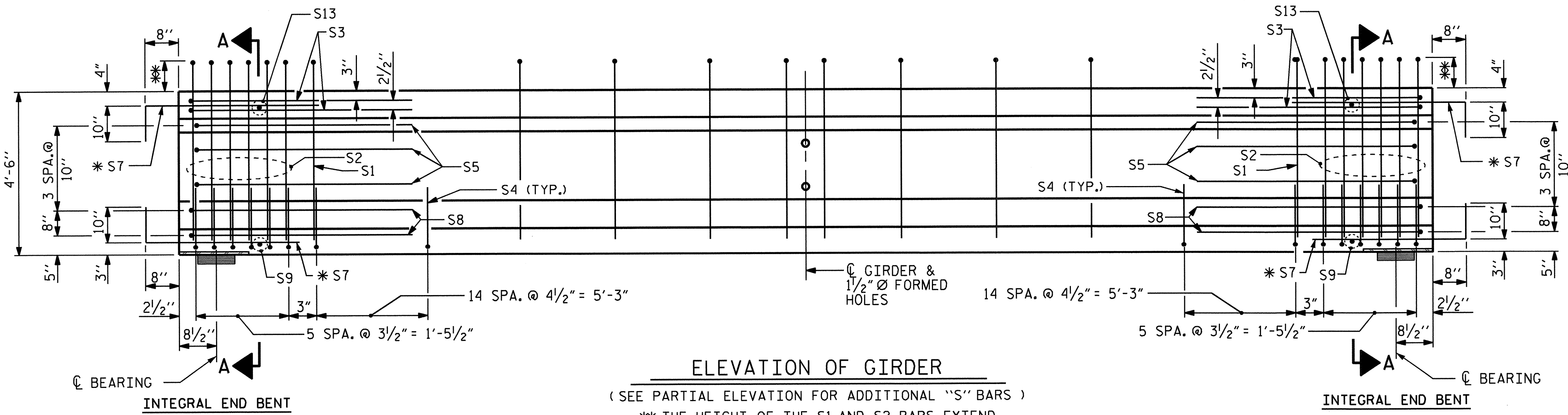
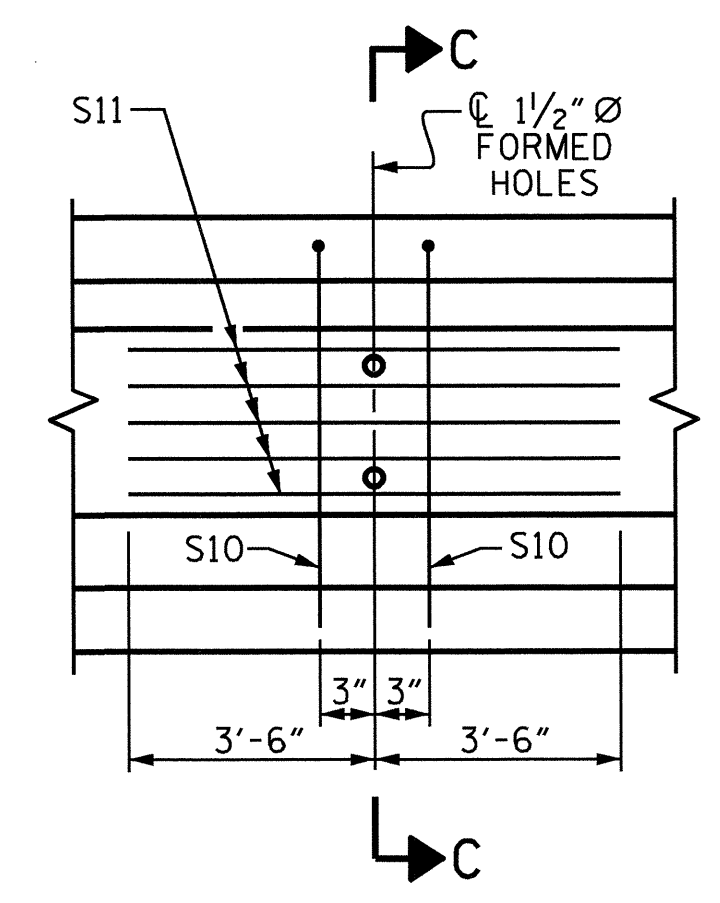
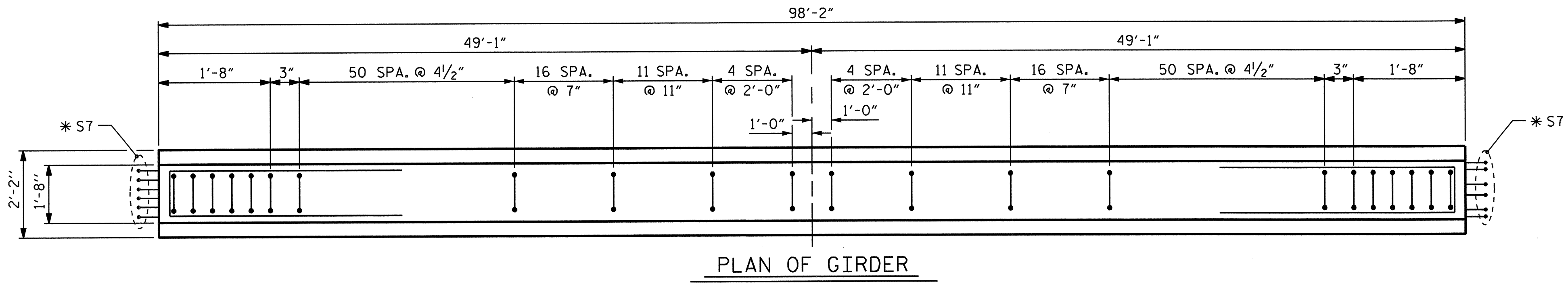
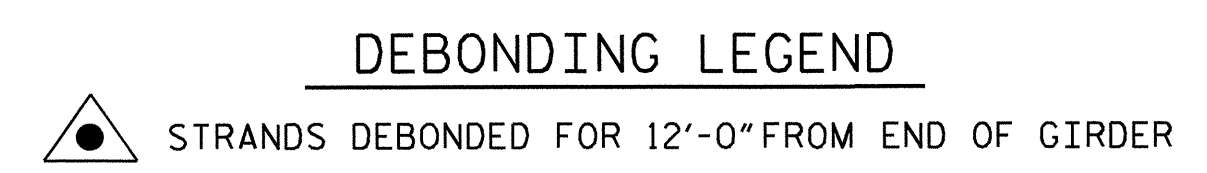
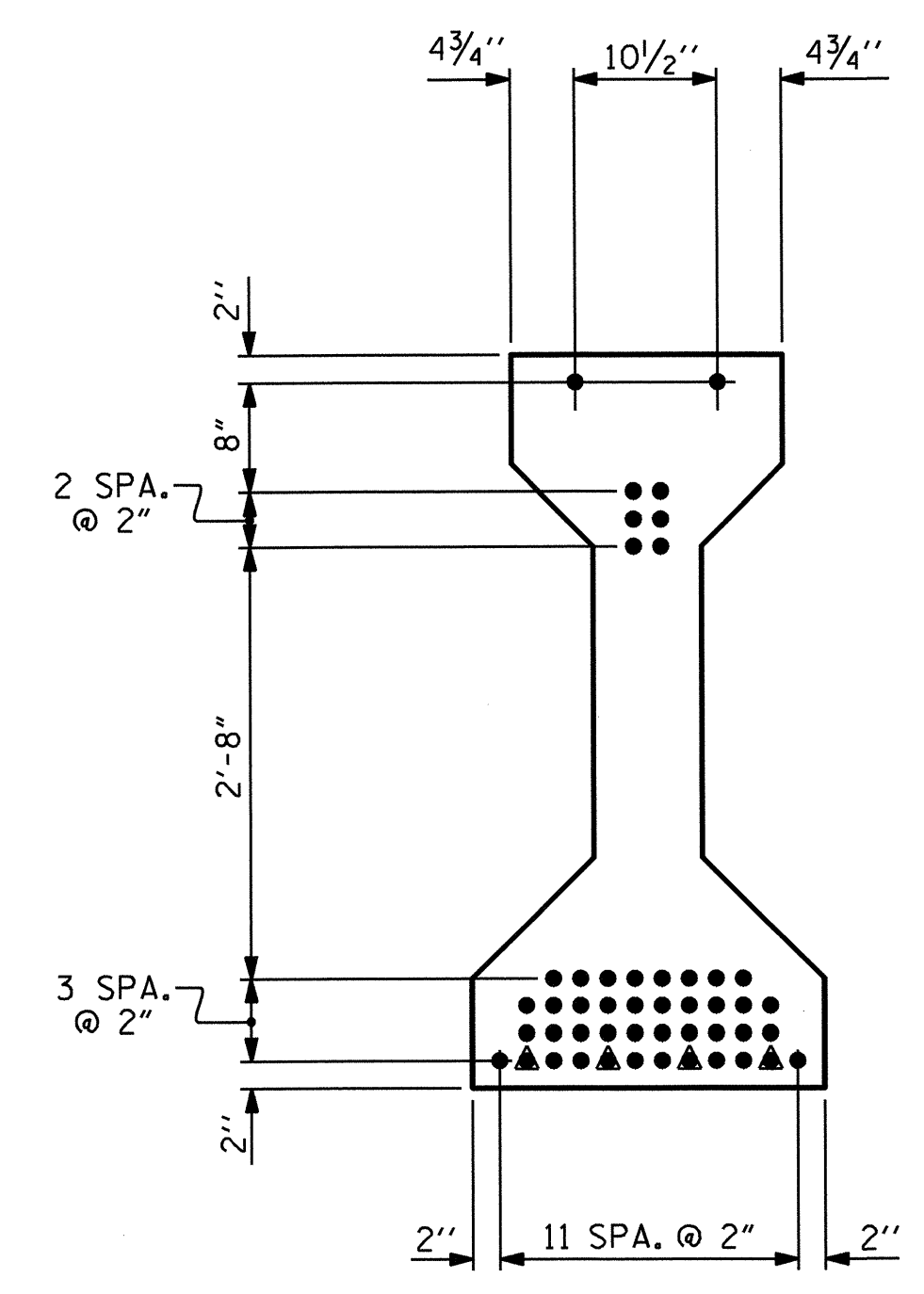
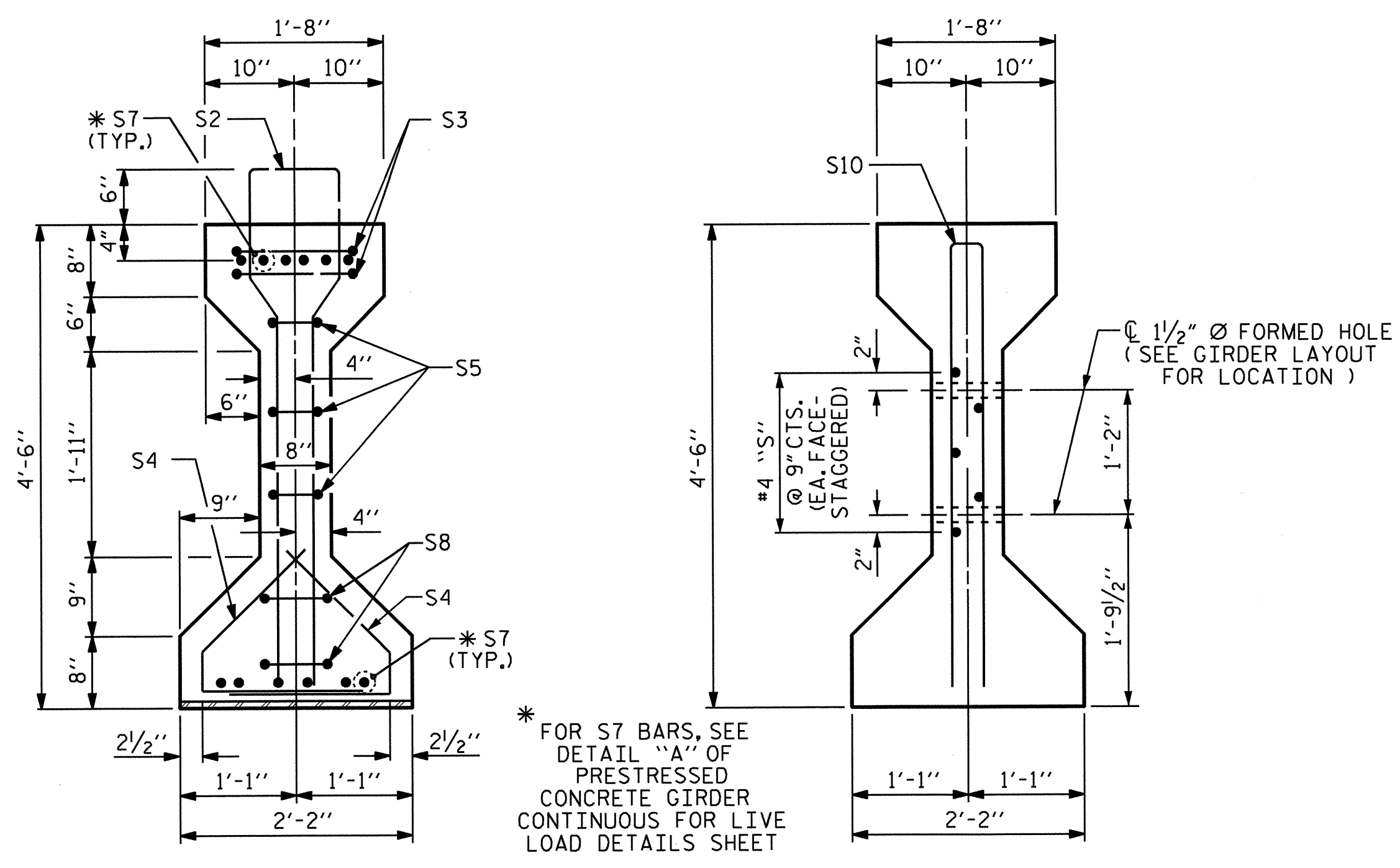
PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GIRDER LAYOUT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			27



DRAWN BY: J.D. HAWK DATE: 10/11/12
 CHECKED BY: B.N. GRADY DATE: 10/26/12
 DESIGN ENGINEER OF RECORD: B.N. GRADY DATE: 12/20/13



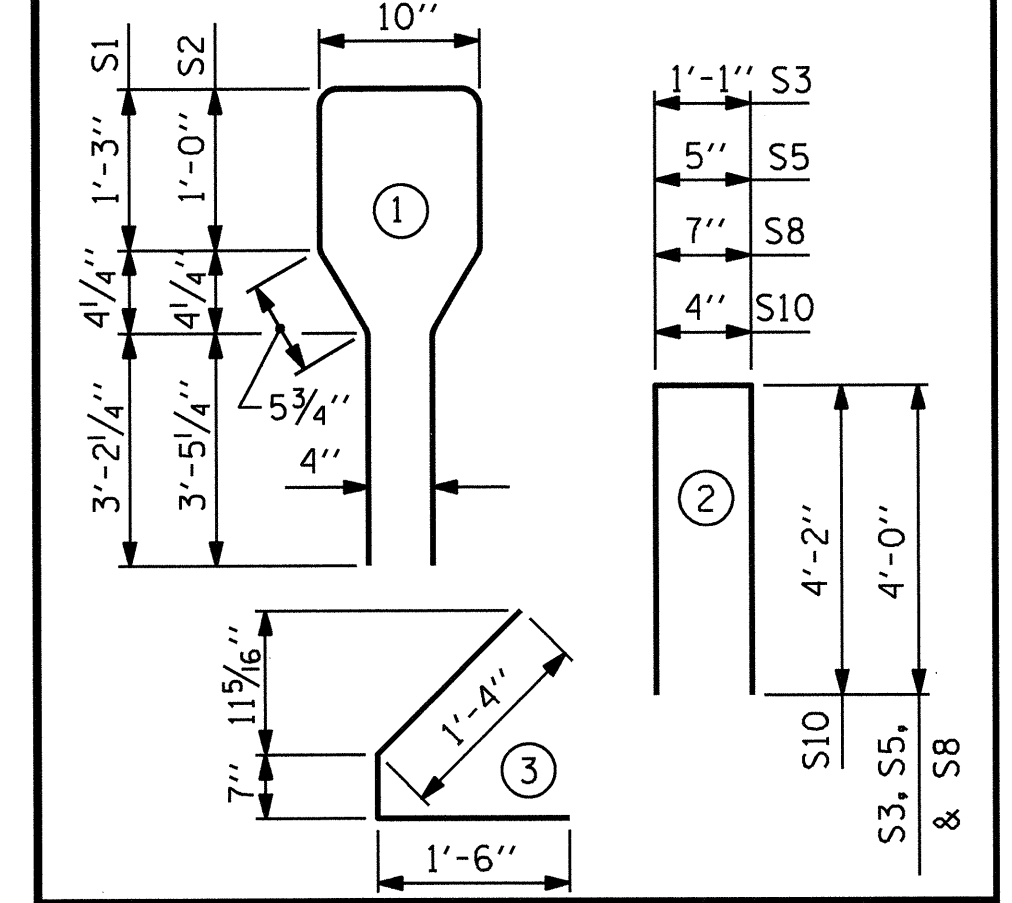
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	164	#4	1	10'-8"	1169
S2	12	#6	1	10'-8"	192
S3	4	#4	2	9'-1"	24
S4	84	#4	3	3'-5"	192
S5	6	#4	2	8'-5"	34
* S7	24	#5	STR	3'-8"	92
S8	4	#4	2	8'-7"	23
S9	2	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	23
S13	2	#3	STR	1'-4"	1

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

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



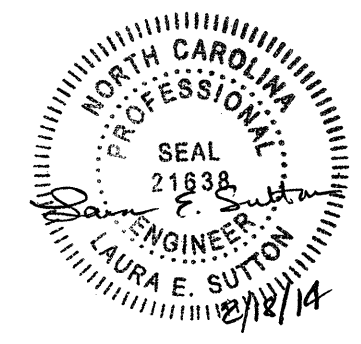
QUANTITIES FOR ONE GIRDER		
REINFORCING STEEL	9000 PSI CONCRETE	0.6" Ø L. R. STRANDS
LB.	C.Y.	No.
1769	20.0	48

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	98'-2"	392'-8"

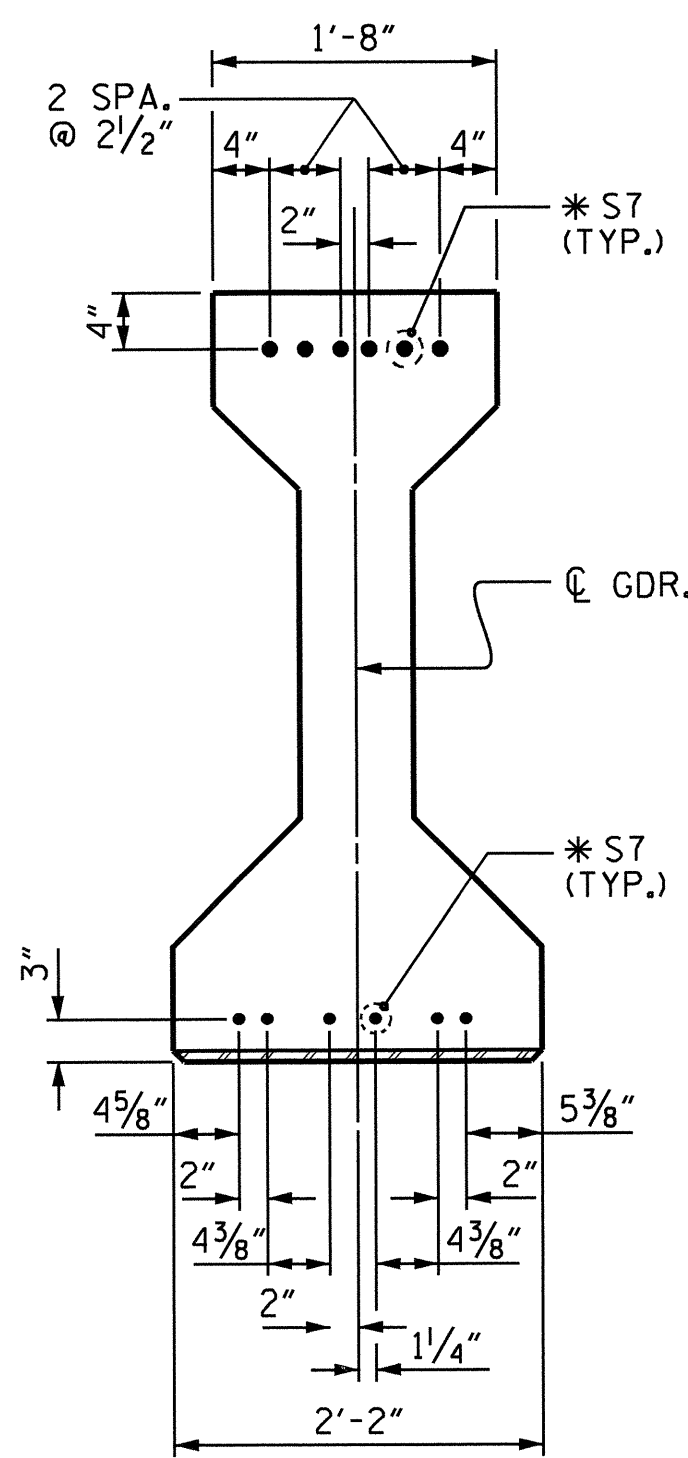
PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

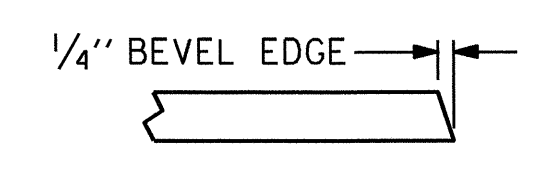
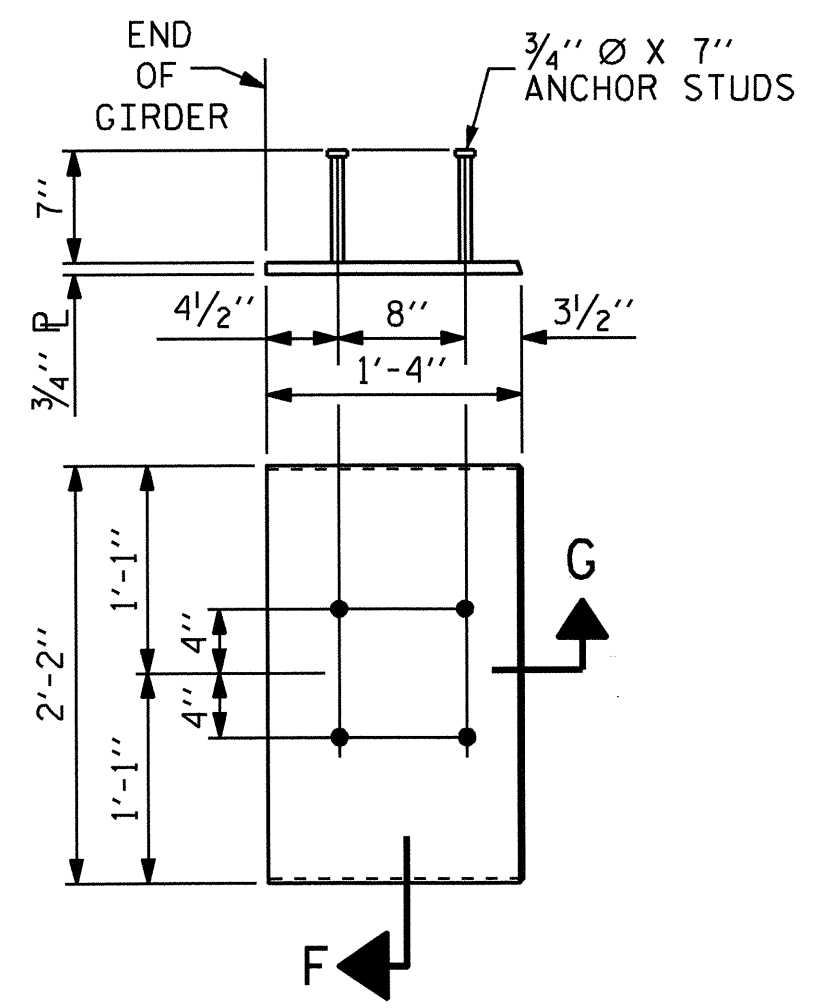
STANDARD
 AASHTO TYPE IV
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD



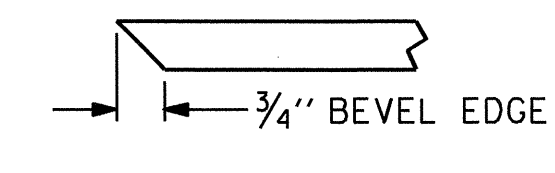
ASSEMBLED BY : J.D. HAWK	DATE : 10/14/12
CHECKED BY : B.N. GRADY	DATE : 10/18/12
DRAWN BY : ELR 8/91	REV. 10/17/00R RWW/LES
CHECKED BY : GRP 8/91	REV. 5/1/06R TLA/GM
	REV. 10/1/11 MAA/GM
DESIGN ENGINEER OF RECORD: B.N. GRADY DATE : 12/20/13	



DETAIL "A"
(FOR AASHTO TYPE IV GIRDERS)



SECTION "G"



SECTION "F"
(SEE NOTES)

EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE IV GIRDER AND 63" & 72" MODIFIED BULB TEES
(2 REQ'D PER GIRDER)

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

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 7,100 PSI.

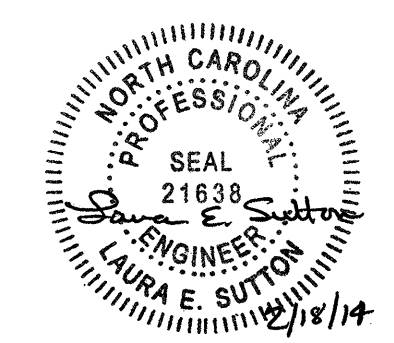
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																							
SPAN A																							
0.6" Ø LOW RELAXATION	GIRDERS 1 & 4											GIRDERS 2 & 3											
TENTH POINTS	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.109	0.207	0.283	0.332	0.348	0.332	0.283	0.207	0.109	0	0	0.109	0.207	0.283	0.332	0.348	0.332	0.283	0.207	0.109	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.050	0.094	0.129	0.151	0.158	0.151	0.129	0.094	0.050	0	0	0.051	0.096	0.131	0.153	0.161	0.153	0.131	0.096	0.051	0
FINAL CAMBER	↑	0	1/16"	13/8"	113/16"	21/8"	21/4"	21/8"	113/16"	13/8"	11/16"	0	0	1/16"	15/16"	113/16"	21/8"	21/4"	21/8"	113/16"	15/16"	11/16"	0

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

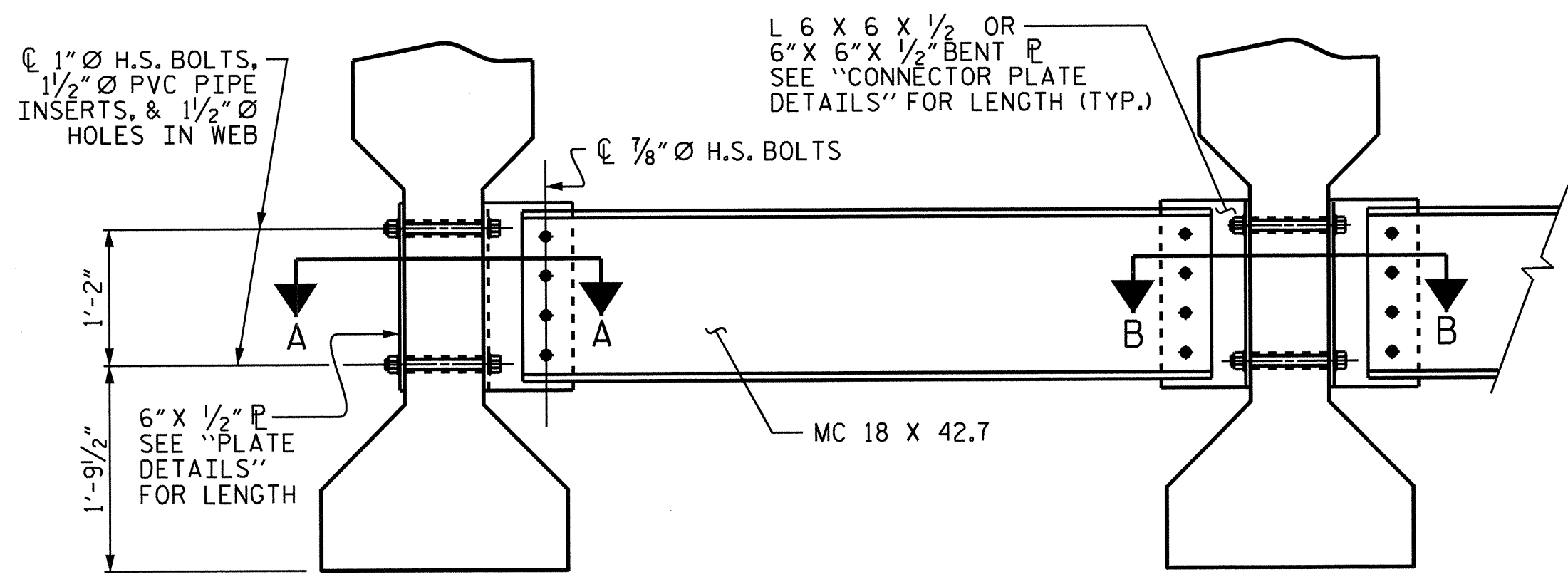
PROJECT NO. B-4748
FRANKLIN COUNTY
STATION: 14+12.00 -L-



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-12
2			4			27

ASSEMBLED BY : J.D. HAWK	DATE : 10/14/12	DESIGN ENGINEER OF RECORD: B.N. GRADY DATE : 12/20/13
CHECKED BY : B.N. GRADY	DATE : 10/18/12	
DRAWN BY : ELR 11/91	REV. 7/10/01RR LES/RDR	
CHECKED BY : GRP 11/91	REV. 5/1/06 TLA/GM	
	REV. 10/17/11 MAA/GM	



EXTERIOR GIRDER

INTERIOR GIRDER

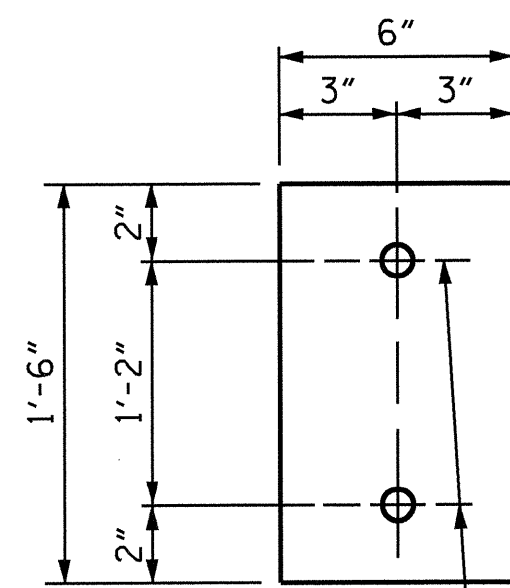
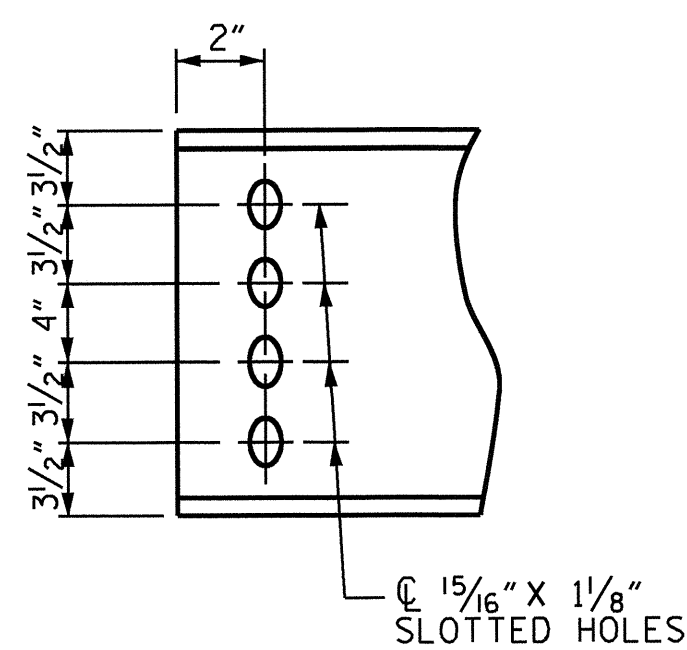
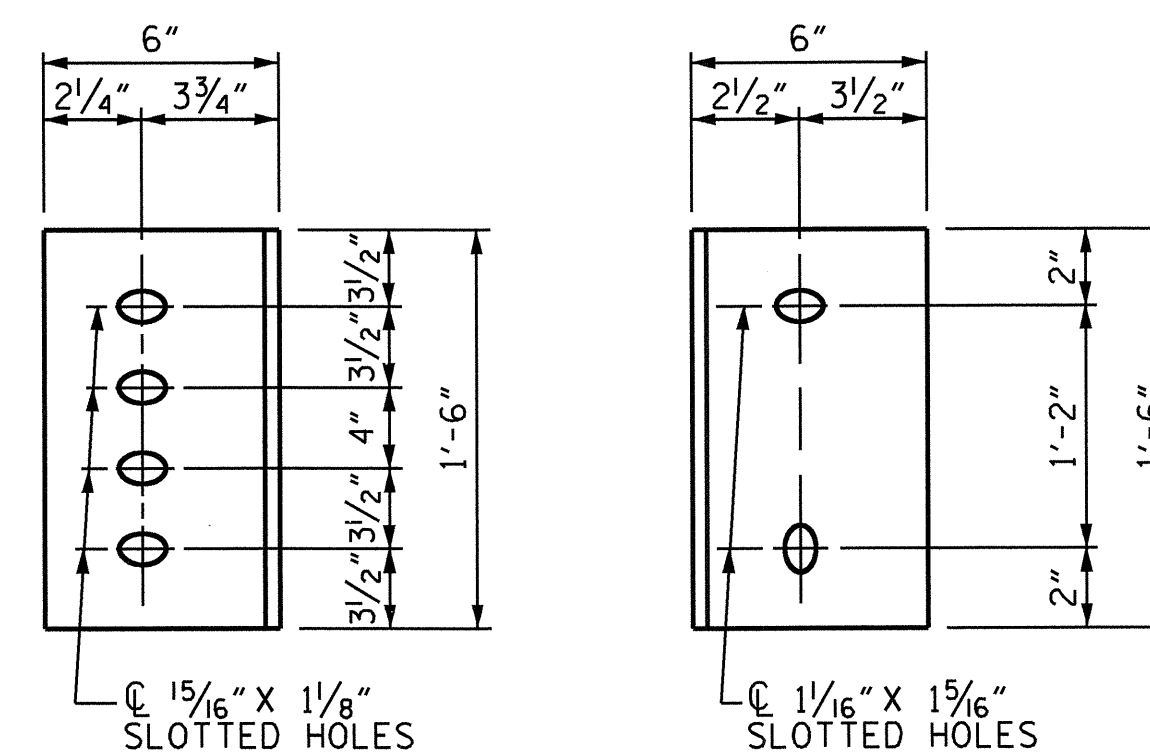


PLATE DETAILS



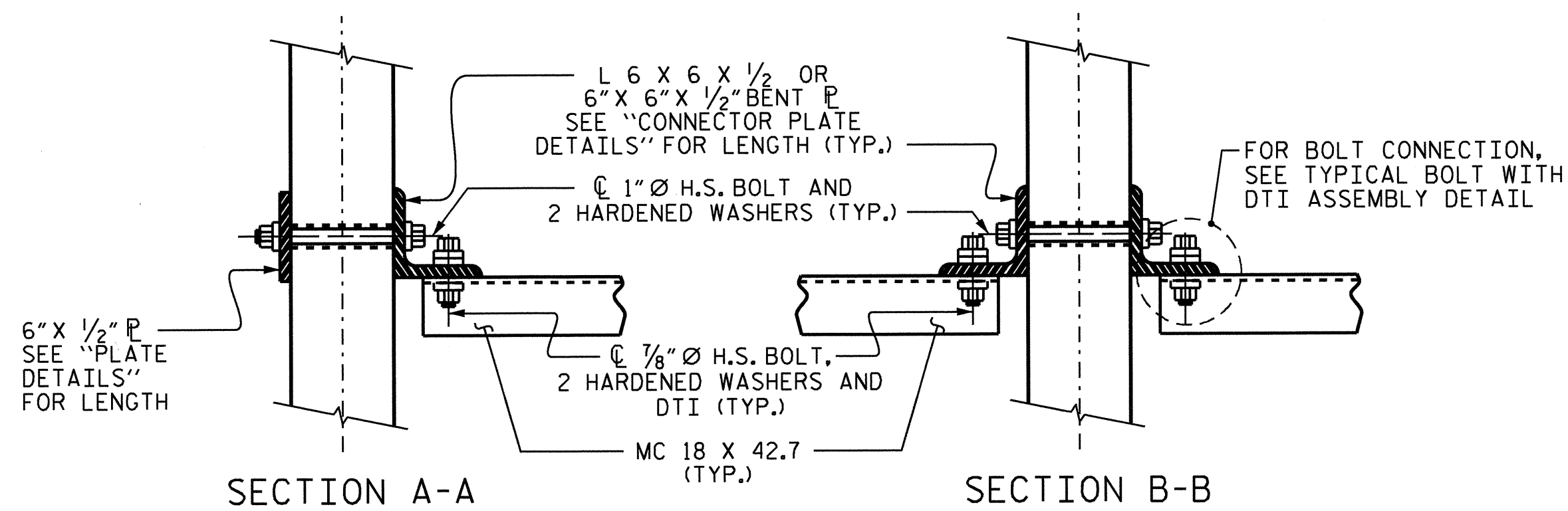
CHANNEL END



DIAPHRAGM FACE

WEB FACE

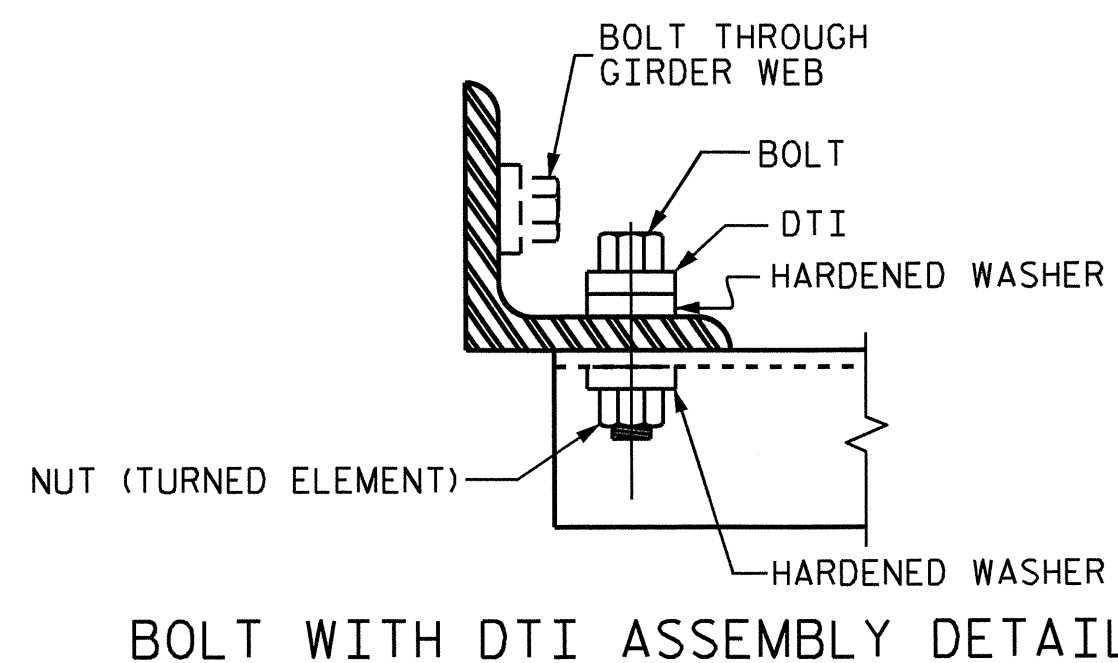
CONNECTOR PLATE DETAILS



SECTION A-A

SECTION B-B

CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

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.

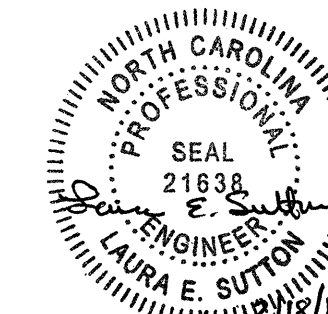
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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.

PROJECT NO. B-4748
 FRANKLIN COUNTY
 STATION: 14+12.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 INTERMEDIATE
 STEEL DIAPHRAGMS
 FOR TYPE IV
 PRESTRESSED CONCRETE
 GIRDERS



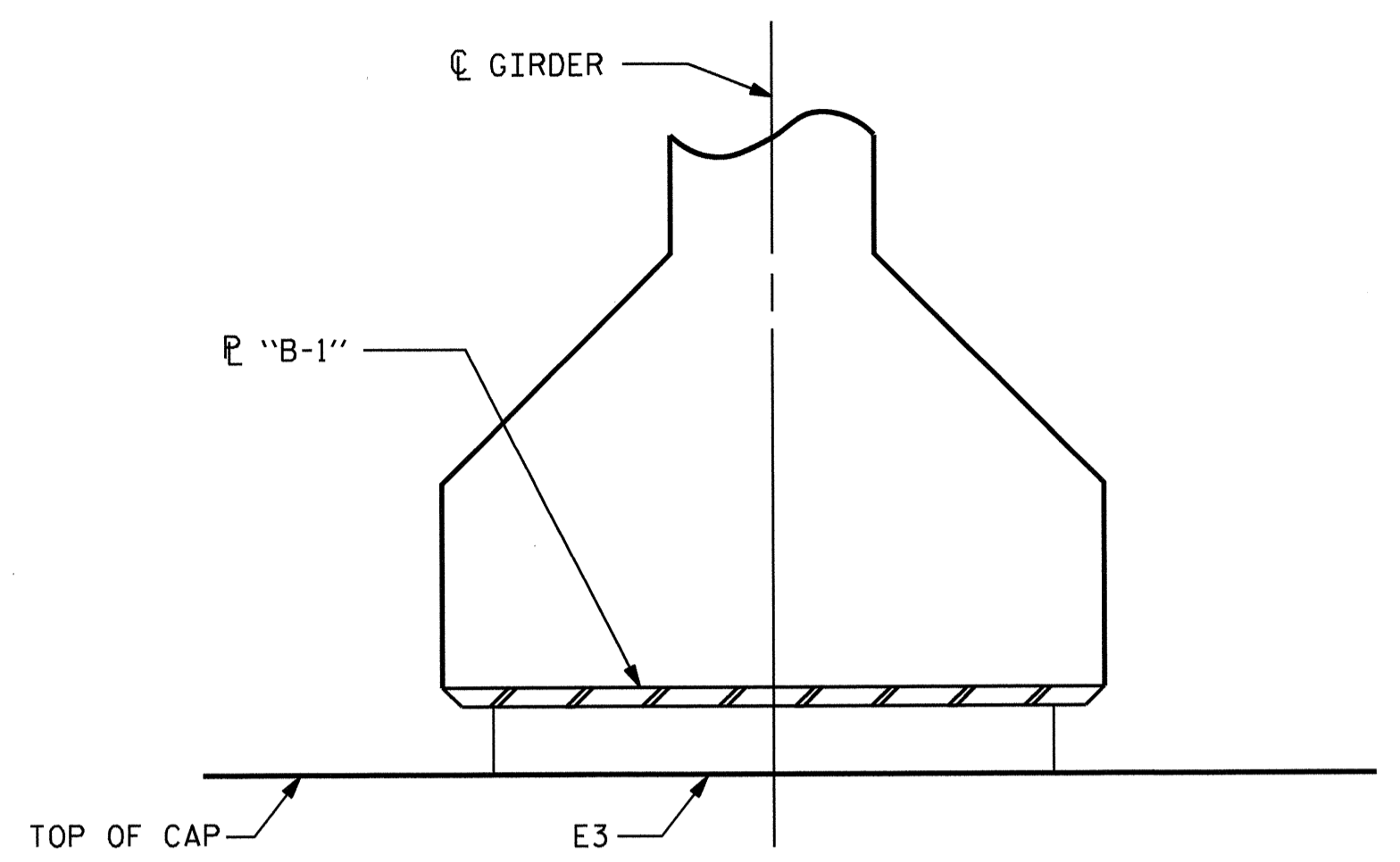
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			27

ASSEMBLED BY : J.D. HAWK	DATE : 10/11/12
CHECKED BY : B.N. GRADY	DATE : 10/26/12
DRAWN BY : TLA 6/05	ADDED 10/21/05
CHECKED BY : VC 6/05	REV. 5/1/06RRR KMM/GM
	REV. 10/1/11 MAA/GM

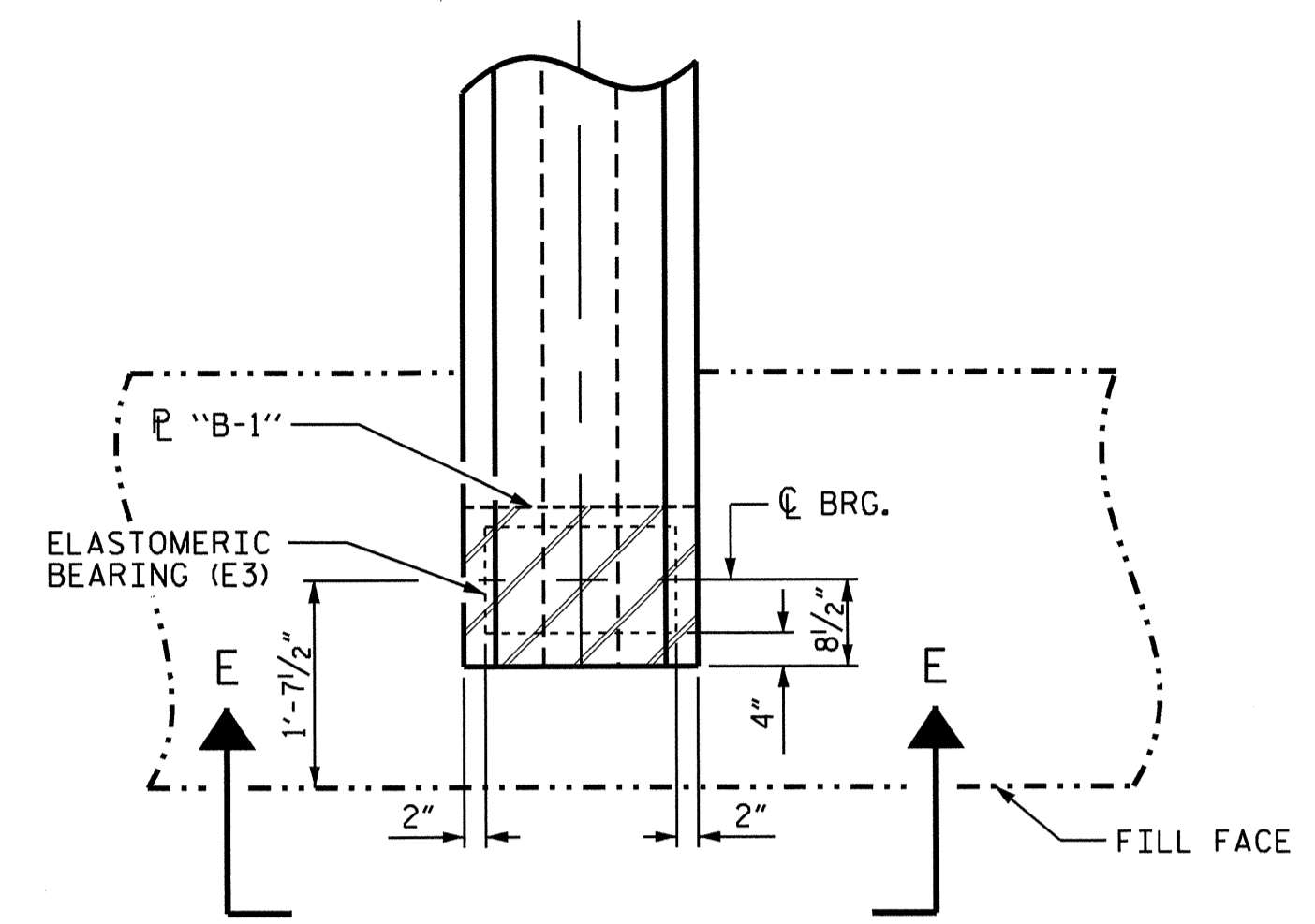
NOTES

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

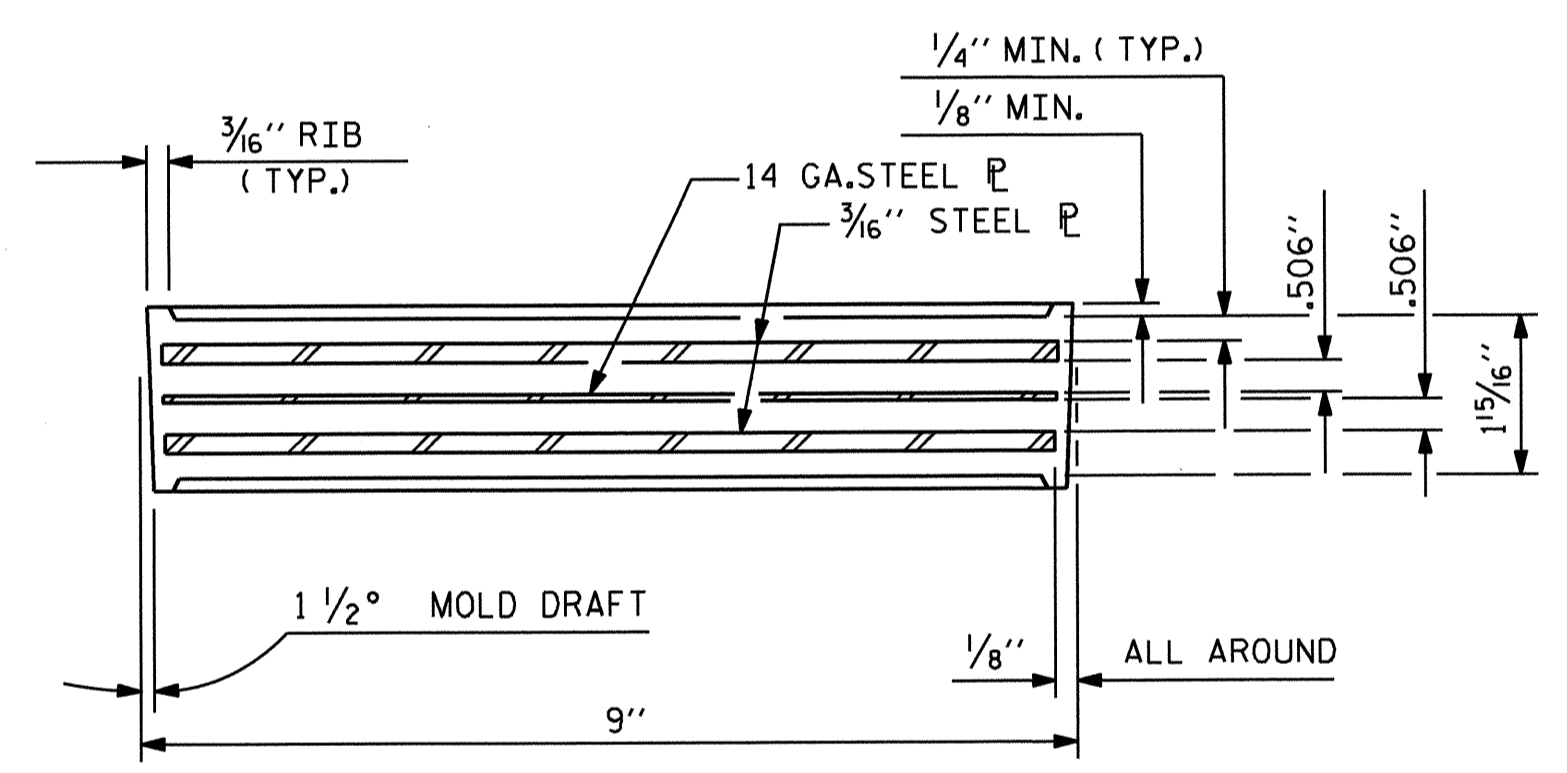
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 ksi IN ACCORDANCE WITH AASHTO M251.



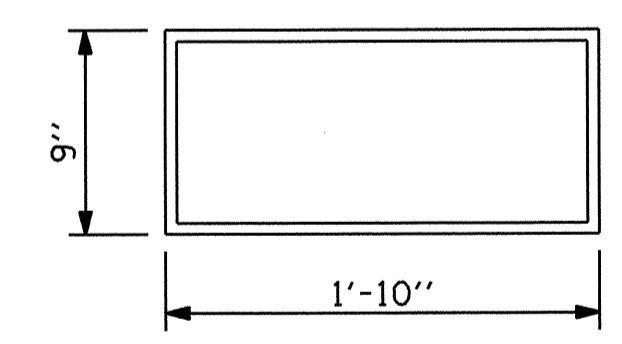
SECTION E-E



PLAN VIEW
(SHOWING INTEGRAL END BENT)



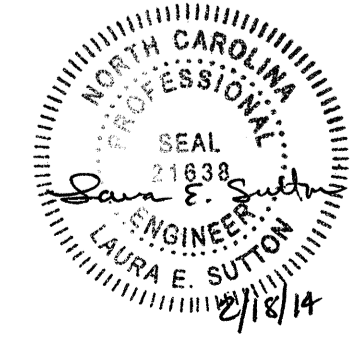
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E3 (8 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE IV

— LOAD RATINGS —	
	MAX.D.L.+L.L.
54" PCG -TYPE IV	172 k

PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

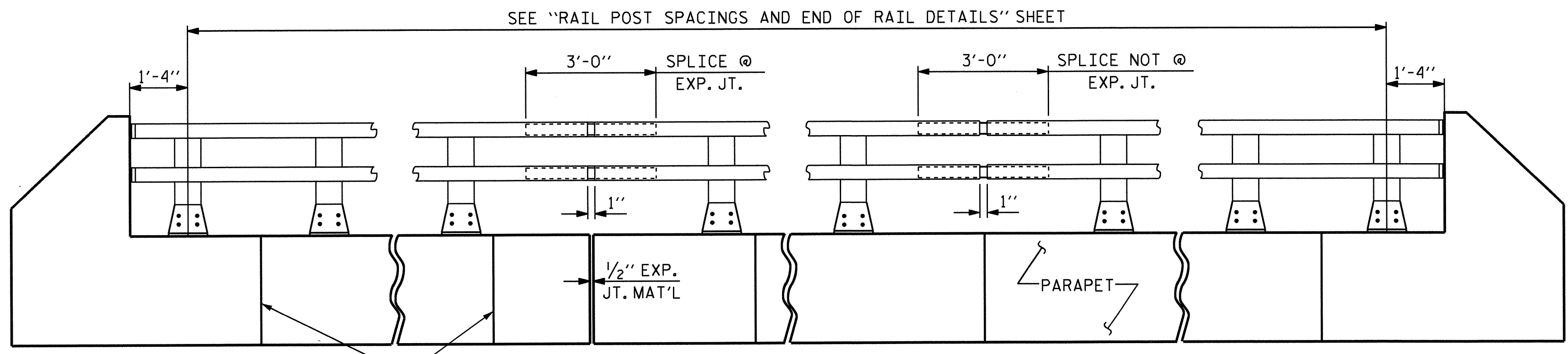
**ELASTOMERIC BEARING
 DETAILS**

PRESTRESSED CONCRETE GIRDER
 SUPERSTRUCTURE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-14
2			4			TOTAL SHEETS 27

DRAWN BY : J.D. HAWK DATE : 10/11/12
 CHECKED BY : B.N. GRADY DATE : 10/26/12
 DESIGN ENGINEER OF RECORD: B.N. GRADY DATE : 12/20/13

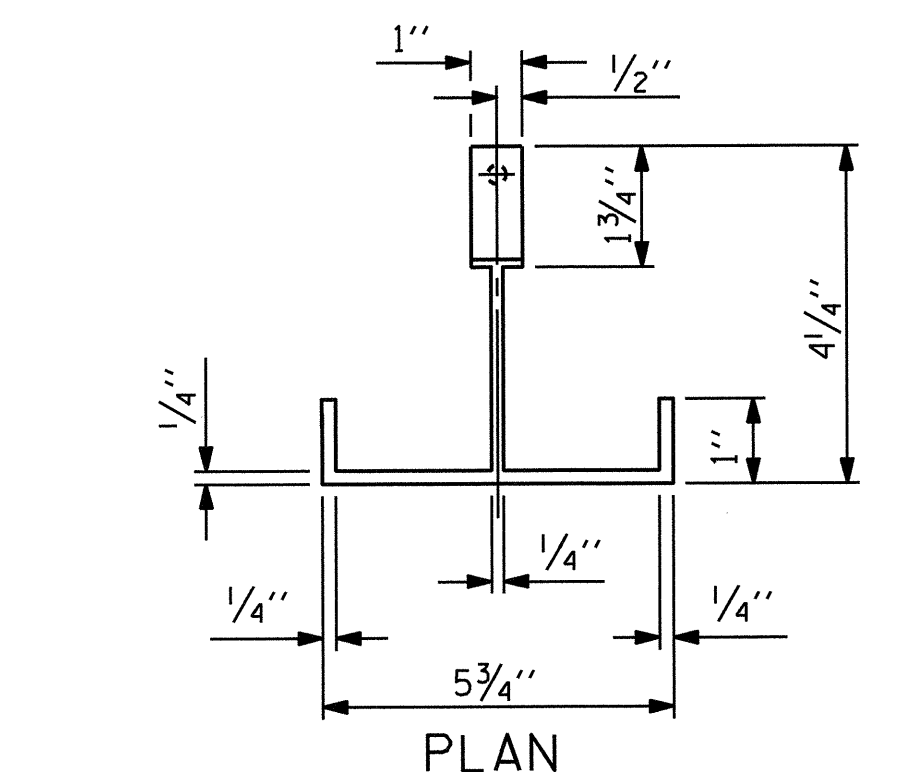
18-FEB-2014 11:21
 R:\Structures\Plans\B4748.sd.BG.01.dgn
 lsutton



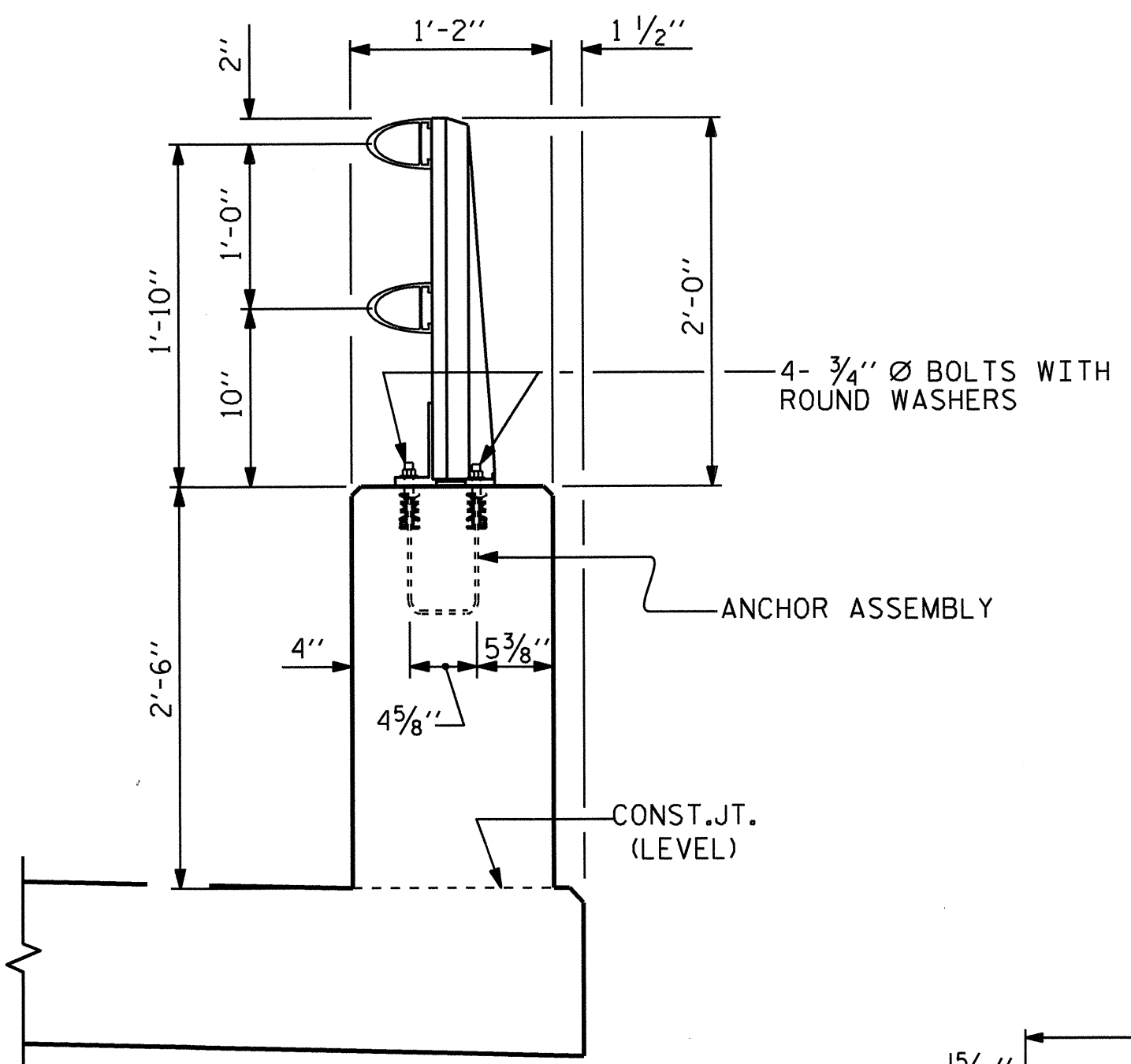
TOOLED CONTRACTION JT. (SEE NOTES)

ELEVATION

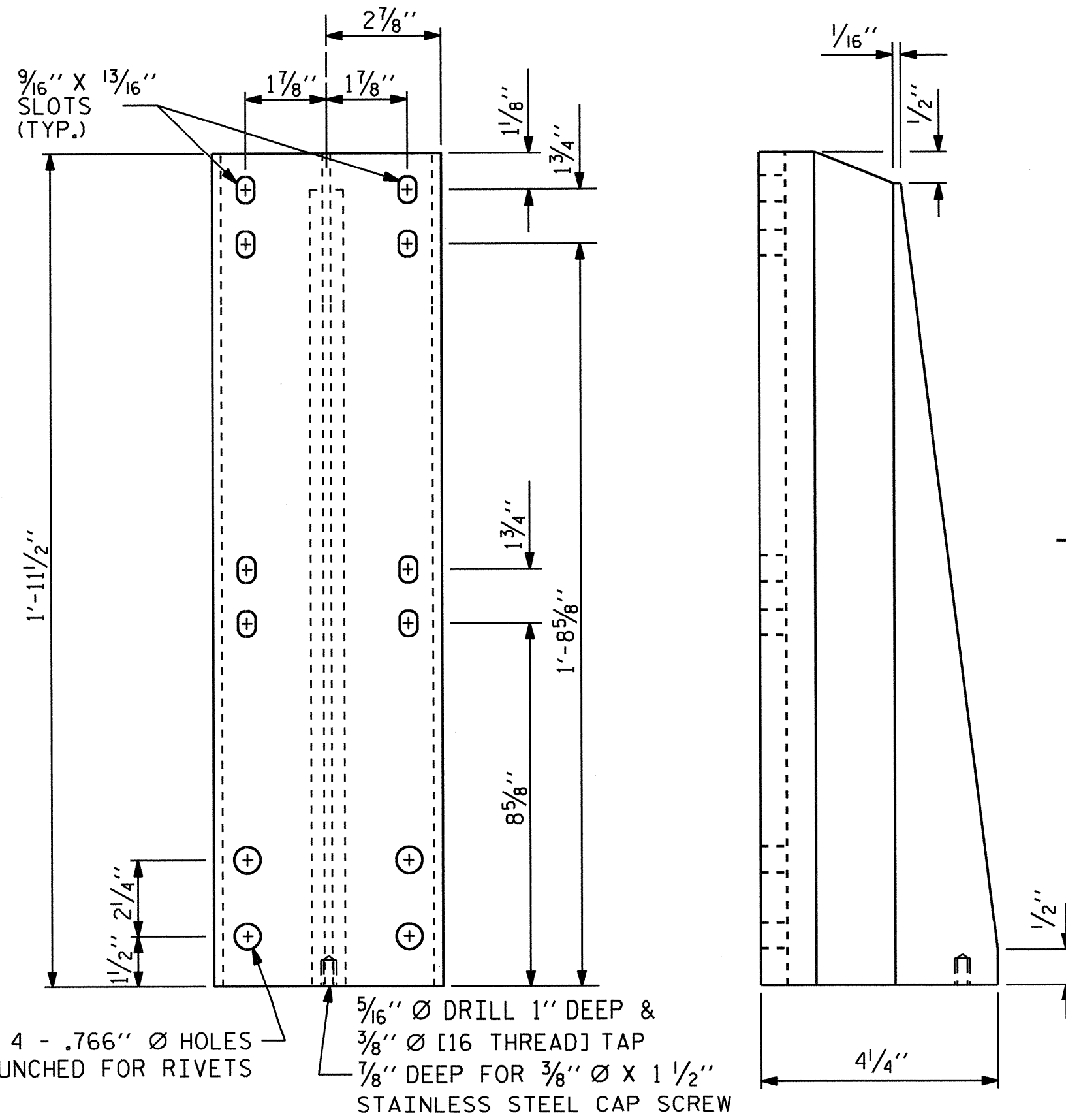
NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR2.



PLAN



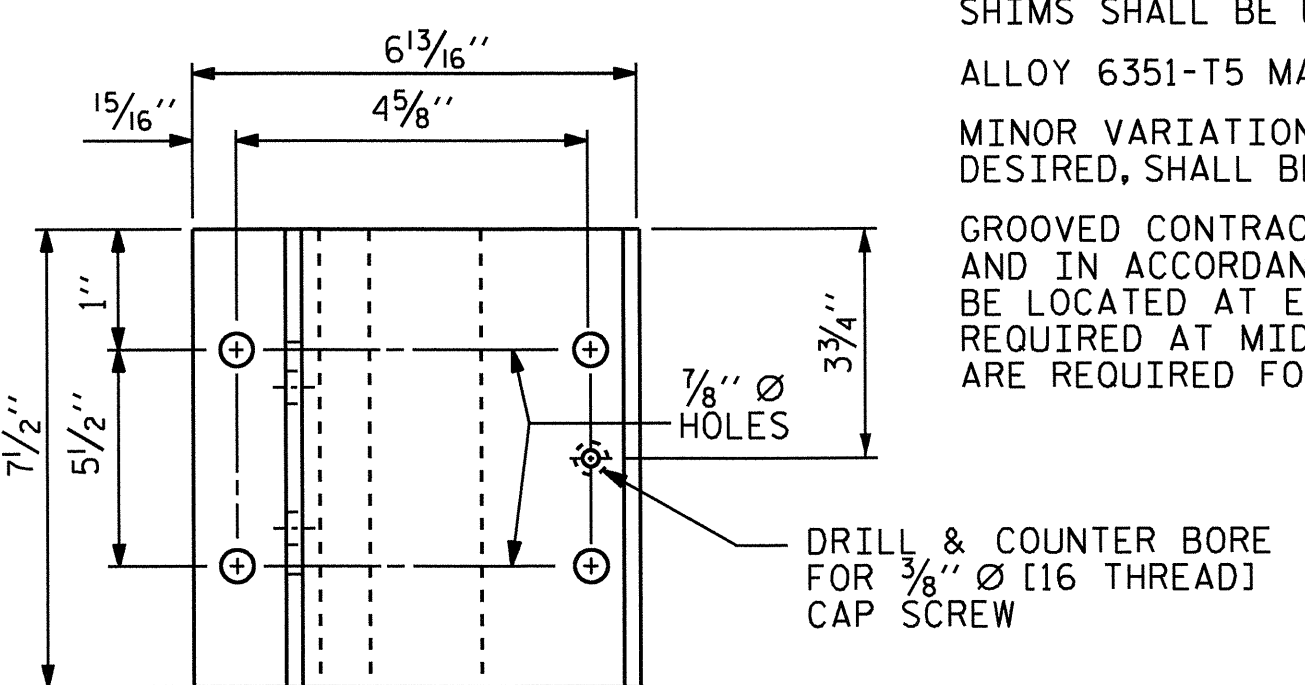
SECTION THROUGH PARAPET AND RAIL



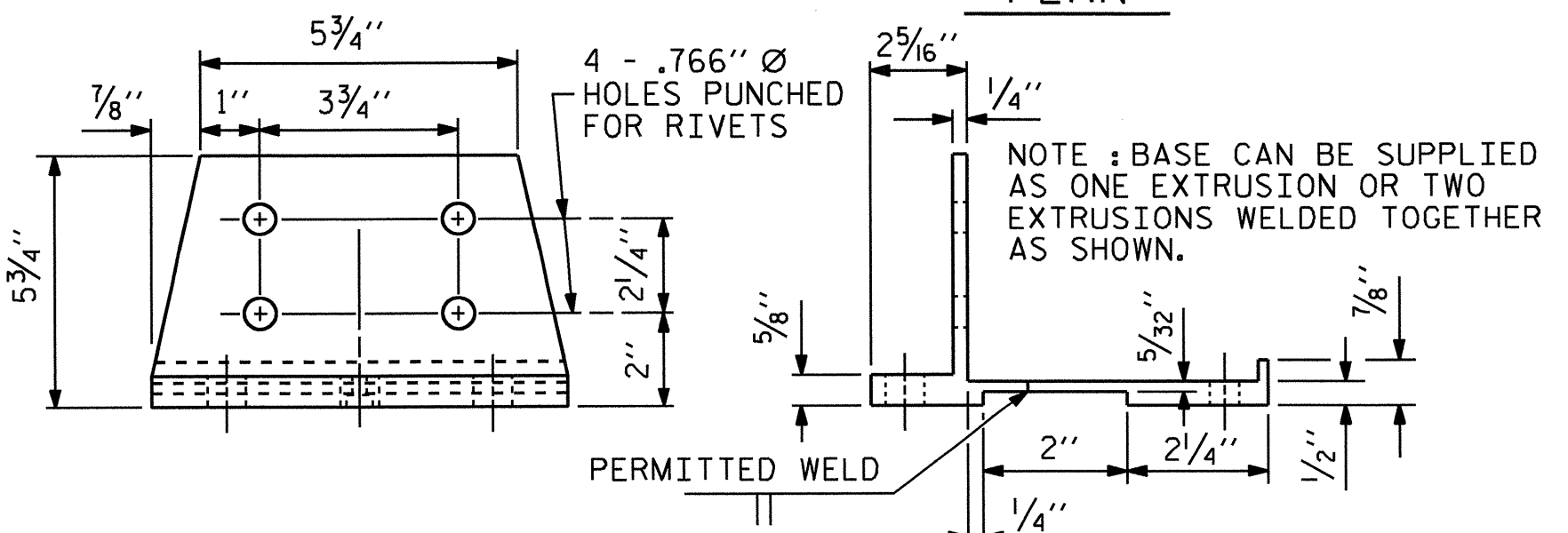
FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST



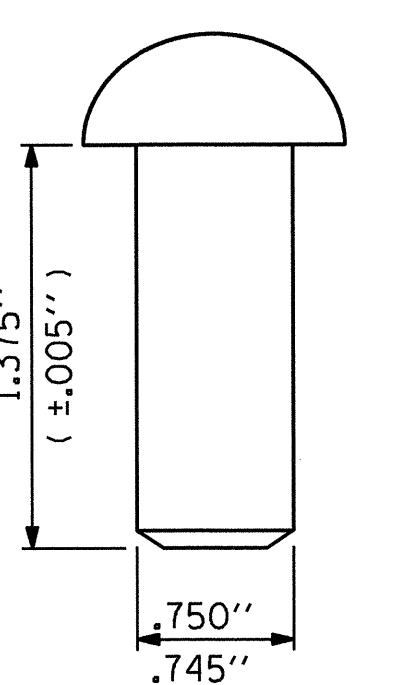
PLAN



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

NOTES

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

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

ALUMINUM RAILS

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

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

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

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M11.

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

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

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M11.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M11.

GENERAL NOTES

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

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

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

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

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

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

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

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

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

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

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

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

PAY LENGTH = 181.67 LIN. FT.

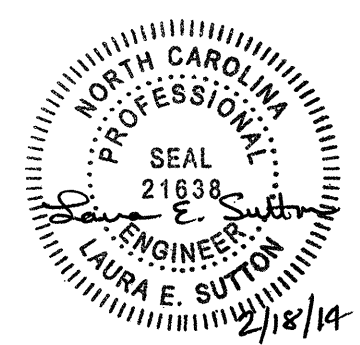
PROJECT NO. B-4748

FRANKLIN COUNTY

STATION: 14+12.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA						SHEET NO. S-15
DEPARTMENT OF TRANSPORTATION						
RALEIGH						TOTAL SHEETS 27
STANDARD						
2 BAR METAL RAIL						
REVISIONS						NO. BY: DATE: NO. BY: DATE:
1			3			
2			4			



ASSEMBLED BY: J.D. HAWK	DATE: 10/11/12
CHECKED BY: B.N. GRADY	DATE: 10/26/12
DRAWN BY: EEM 6/94	REV. 5/1/06 TLA/GM
CHECKED BY: RGW 6/94	REV. 10/1/11 MAA/GM
	REV. 6/13 MAA/GM

NOTES

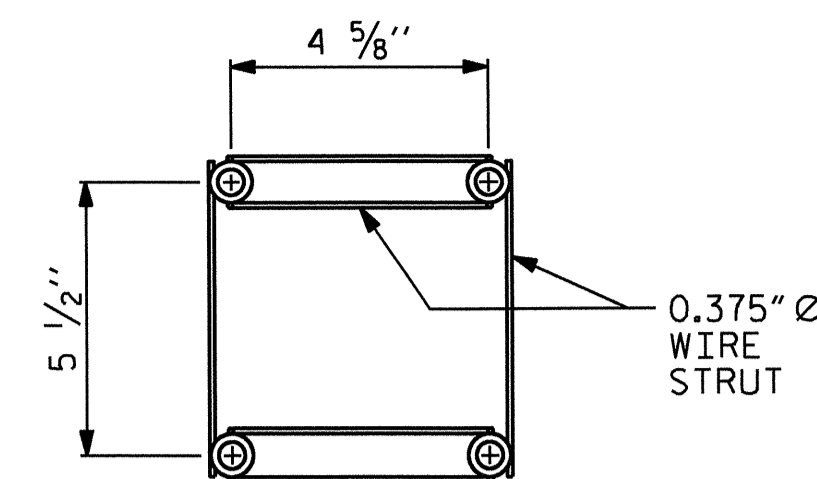
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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

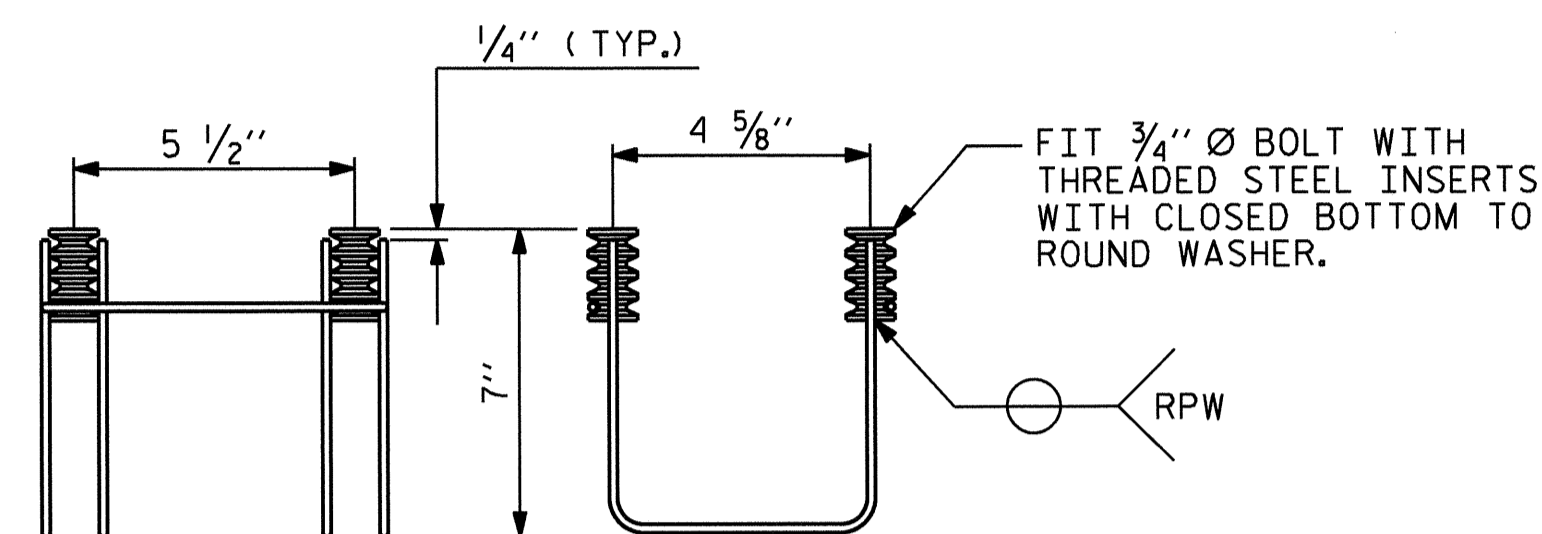
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT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

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

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



PLAN

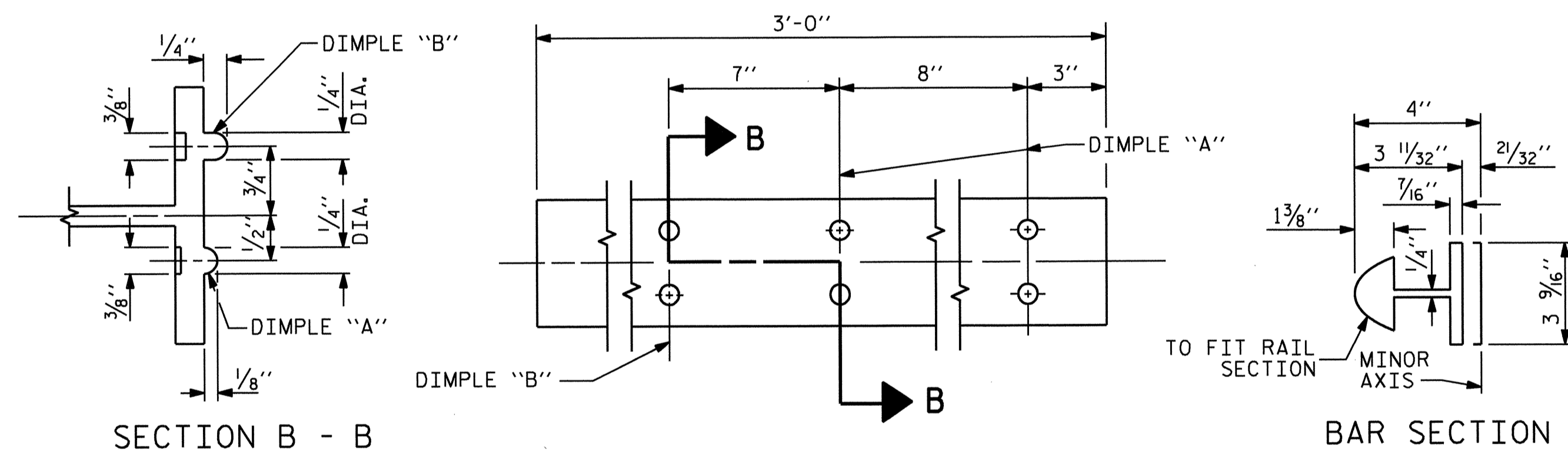


SIDE VIEW

ELEVATION

4-BOLT METAL RAIL ANCHOR ASSEMBLY

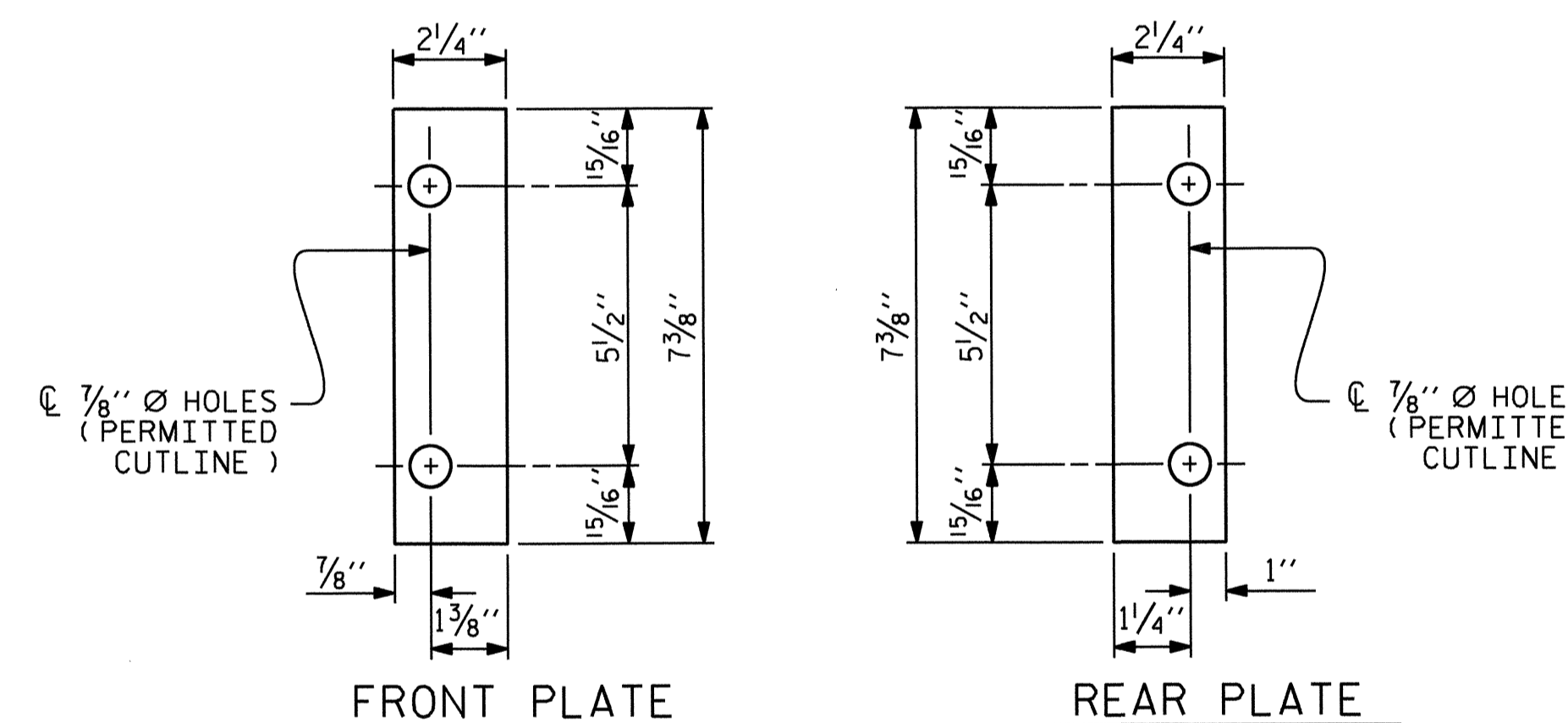
(36 ASSEMBLIES REQUIRED)



SECTION B - B

EXPANSION BAR DETAILS

BAR SECTION

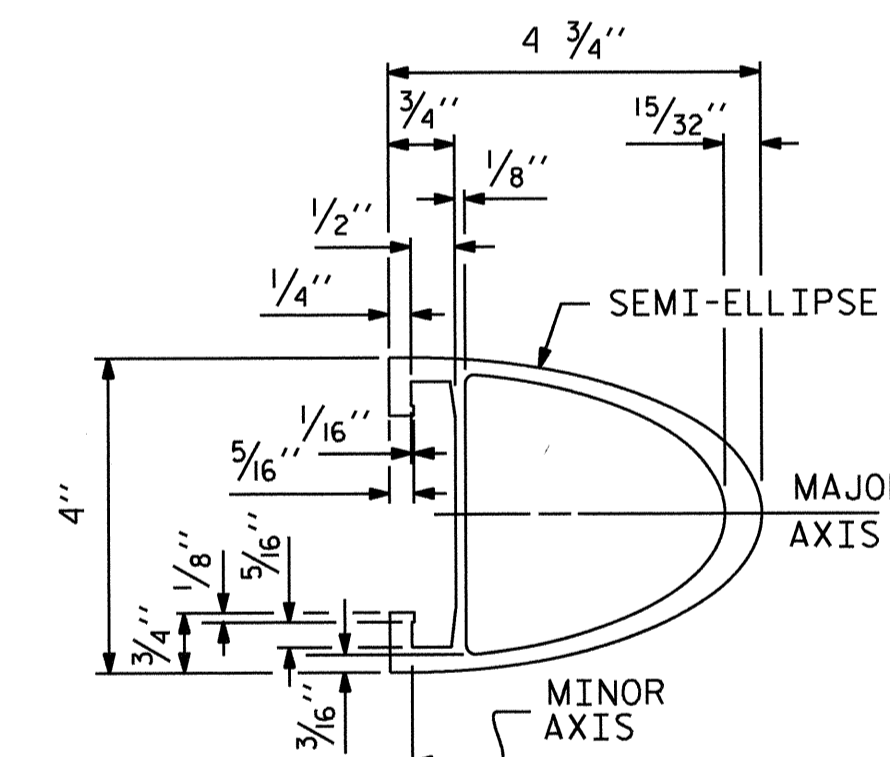


FRONT PLATE

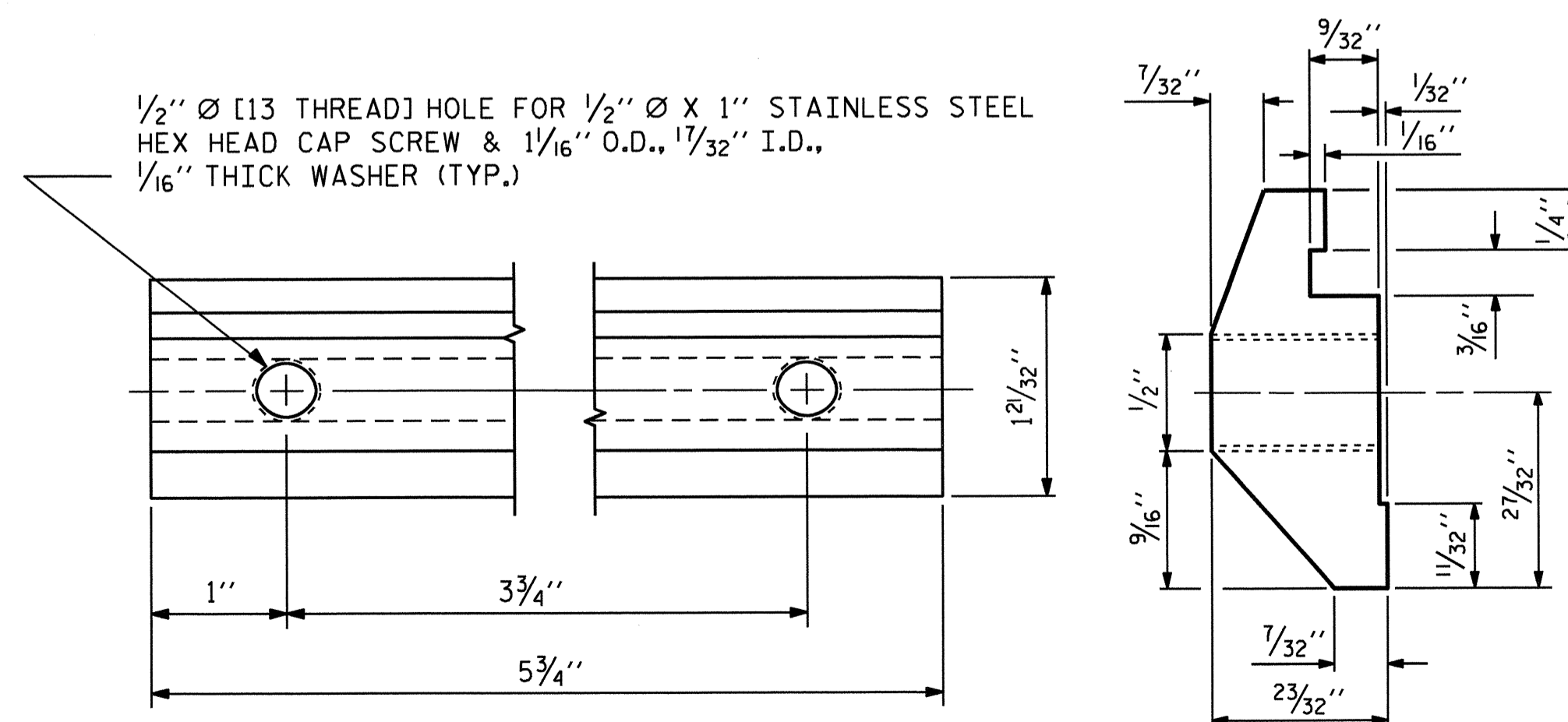
REAR PLATE

SHIM DETAILS

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

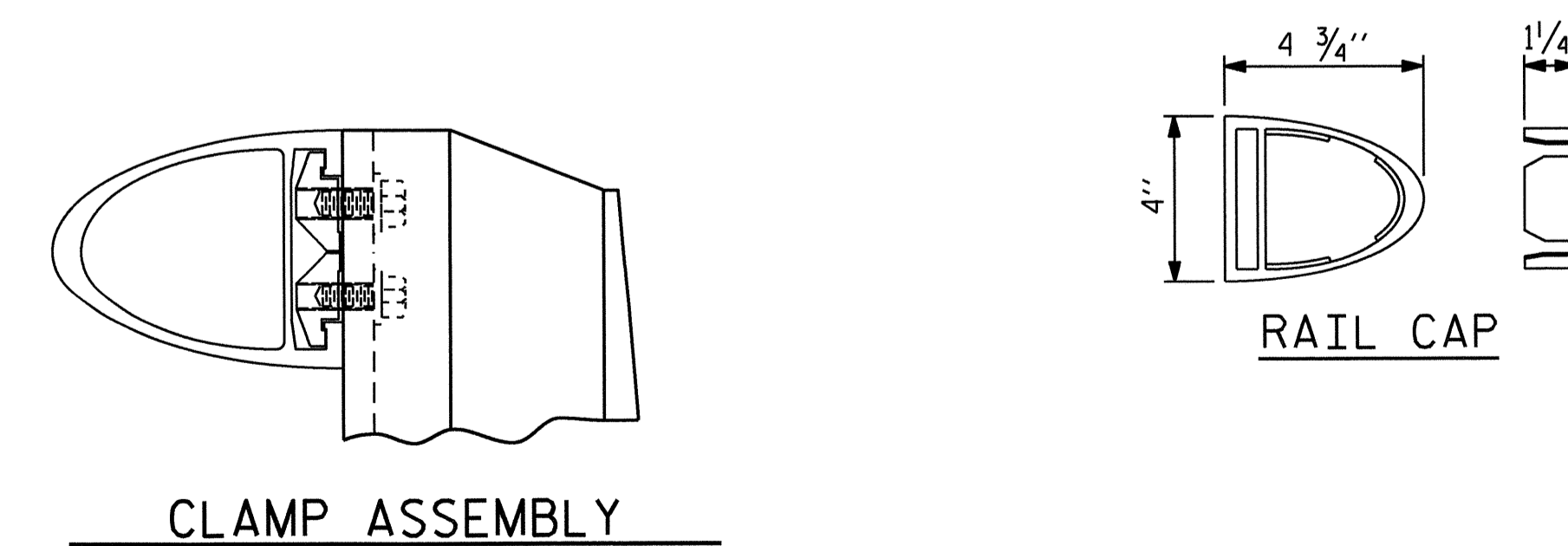


RAIL SECTION



CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY

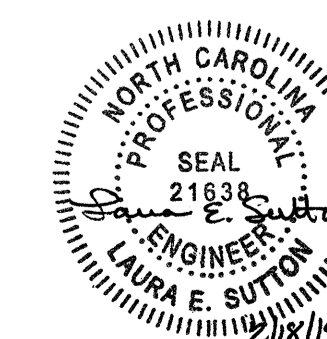
RAIL CAP

PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 2 BAR METAL RAIL



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			27

STD. NO. BMR4

ASSEMBLED BY : J.D. HAWK	DATE : 10/11/12
CHECKED BY : B.N. GRADY	DATE : 10/26/12
DRAWN BY : EEM 6/94	REV. 8/16/99 MAB/LES
CHECKED BY : RGW 6/94	REV. 5/1/06R KMM/GM
	REV. 10/1/11 MAA/GM

NOTES

STRUCTURAL CONCRETE INSERT

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

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

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

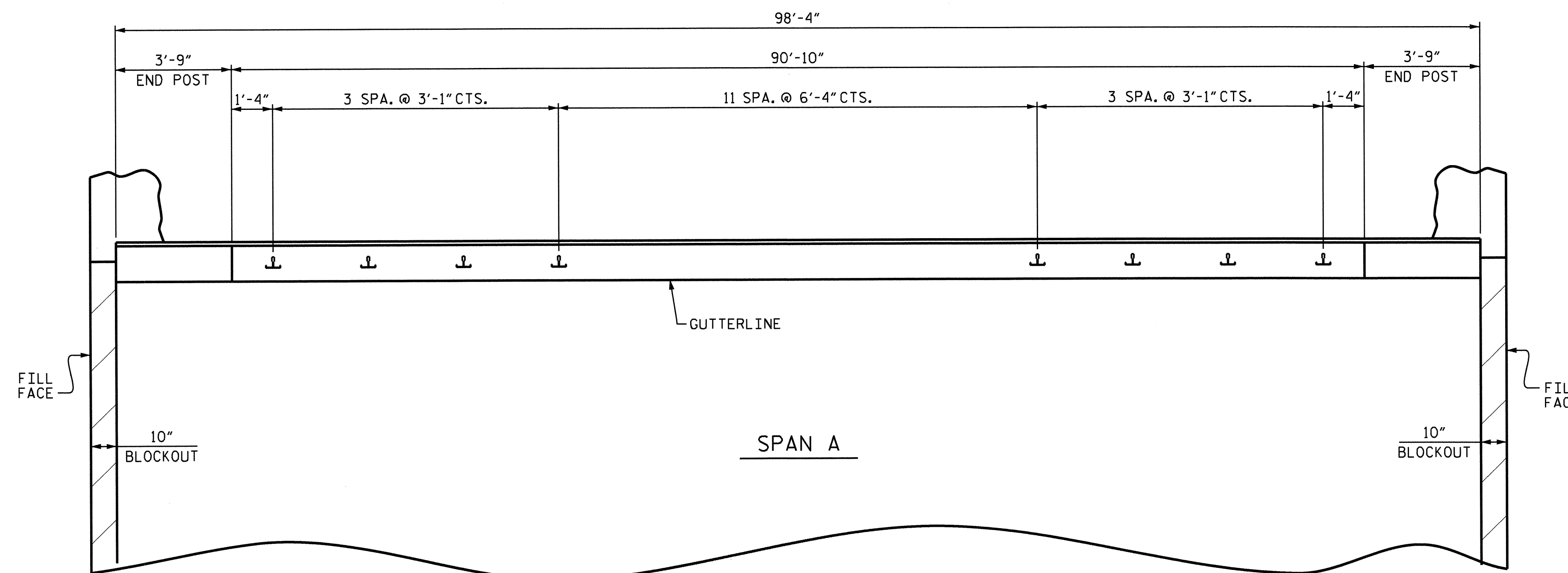
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 1/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 1/8" BOLT SHALL HAVE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

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

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

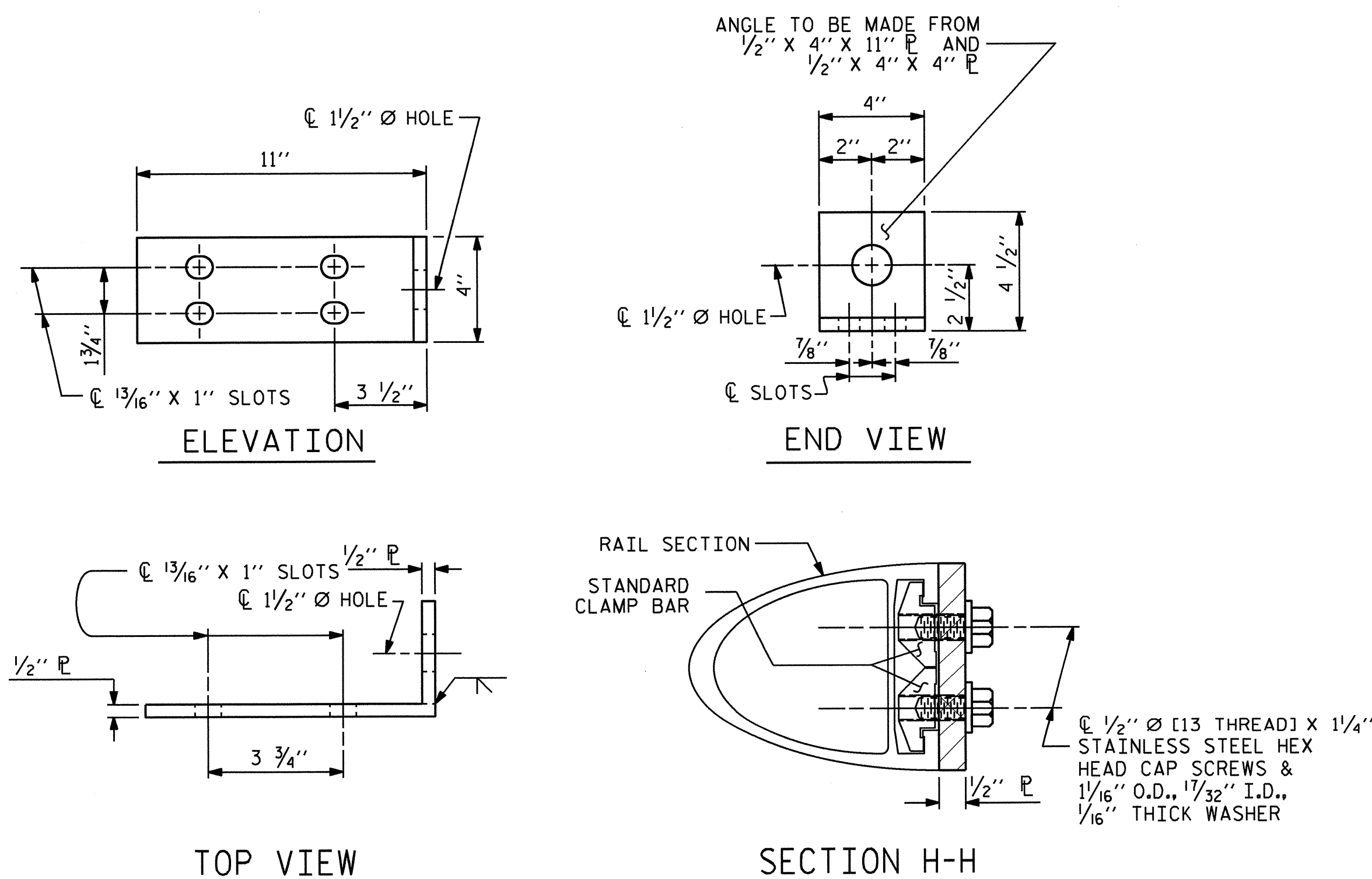
THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

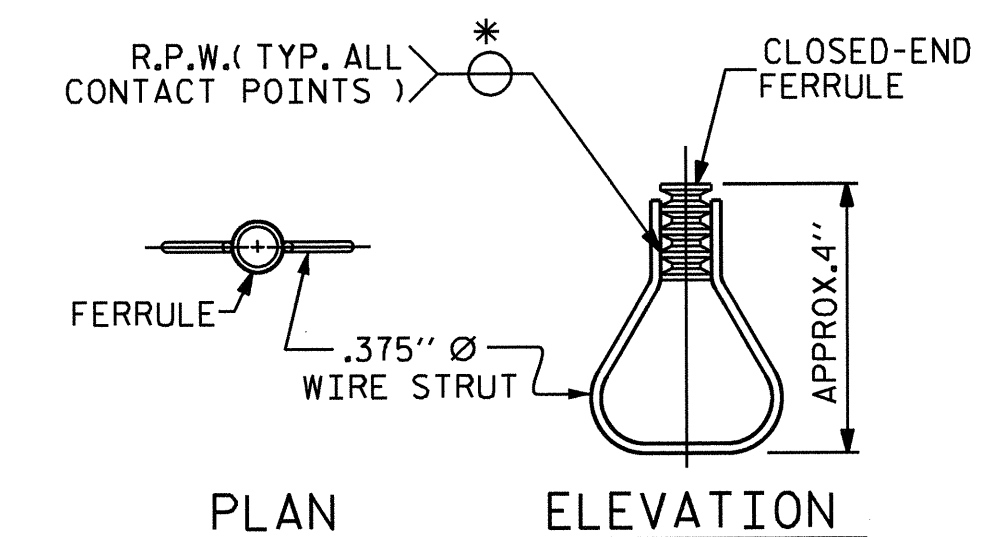


PLAN OF RAIL POST SPACINGS

LEFT SIDE SHOWN, RIGHT SIDE SIMILAR

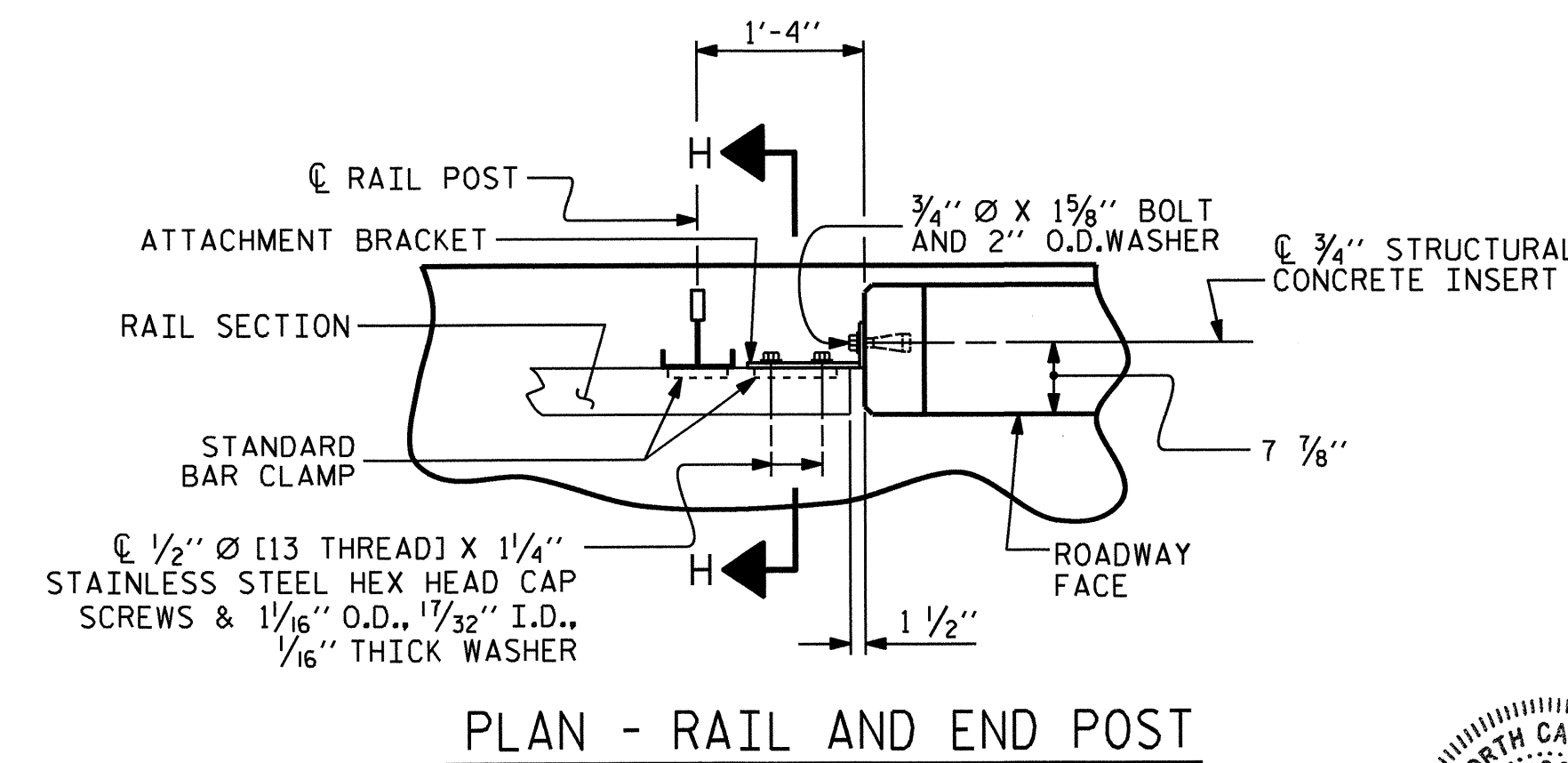


DETAILS FOR ATTACHING METAL RAIL TO END POST



STRUCTURAL CONCRETE INSERT

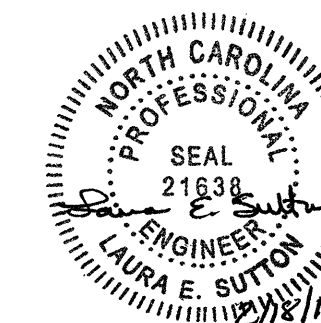
* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



PLAN - RAIL AND END POST

PROJECT NO. B-4748
 FRANKLIN COUNTY
 STATION: 14+12.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS
 FOR TWO BAR METAL RAILS



REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-17
1			3			TOTAL SHEETS
2			4			27

ASSEMBLED BY : J.D. HAWK	DATE : 10/11/12
CHECKED BY : B.N. GRADY	DATE : 10/26/12
DRAWN BY : FCJ 1/88	REV. 5/7/03 RWW/JTE
CHECKED BY : CRK 3/89	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

NOTES

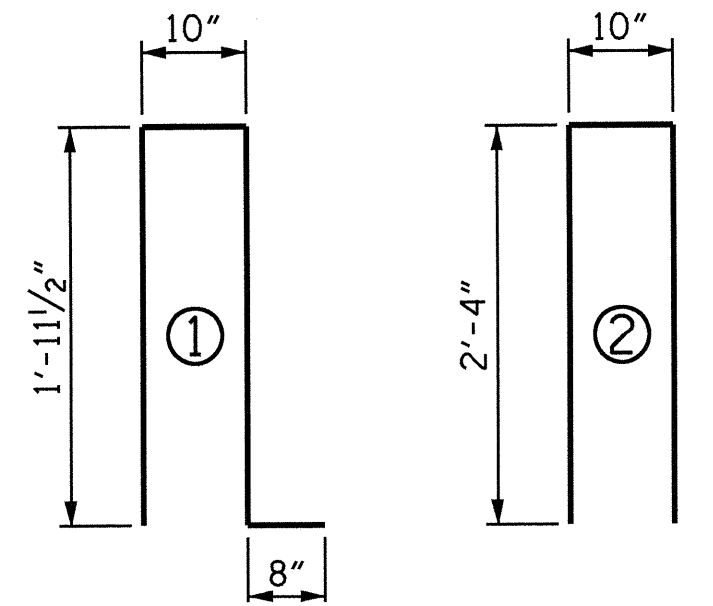
CONCRETE PARAPET IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

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

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

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

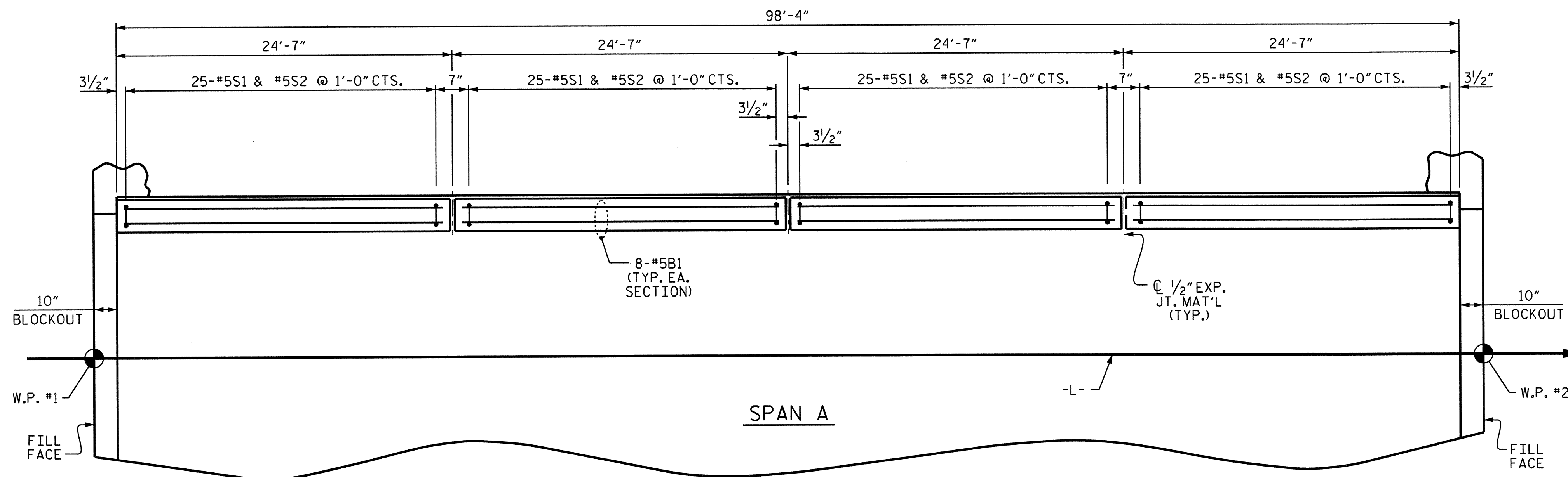
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

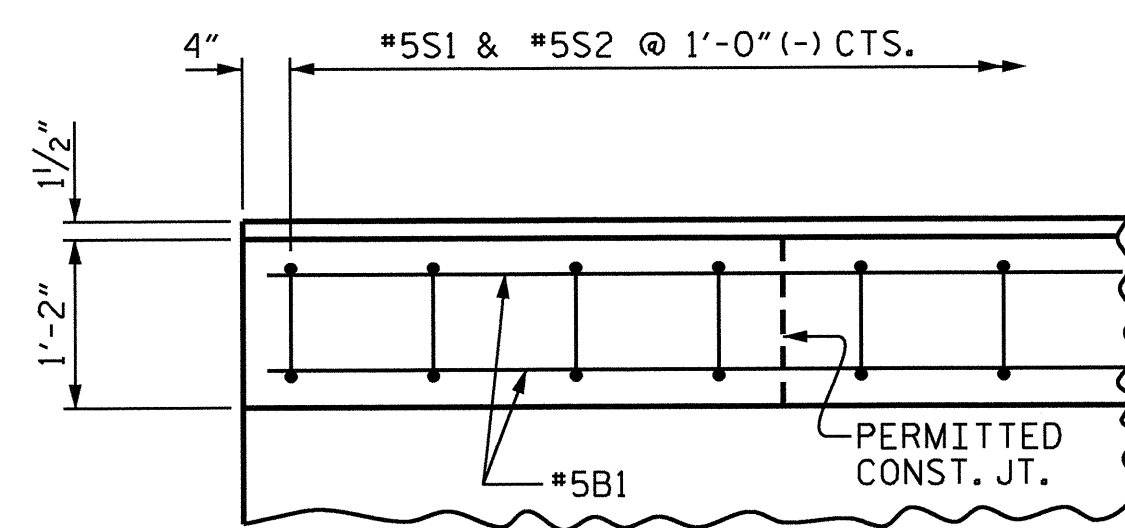
BILL OF MATERIAL FOR PARAPETS AND END POSTS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	64	#5	STR	24'-2"	1613
*E1	8	#7	STR	2'-6"	41
*E2	8	#7	STR	3'-0"	49
*E3	8	#7	STR	3'-6"	57
*E4	8	#7	STR	4'-0"	65
*E5	8	#7	STR	4'-4"	71
*F1	8	#6	STR	1'-10"	22
*F2	8	#6	STR	3'-0"	36
*F3	8	#6	STR	3'-7"	43
*S1	200	#5	1	5'-5"	1130
*S2	200	#5	2	5'-6"	1147
* EPOXY COATED REINFORCING STEEL				LBS.	4,274
CLASS AA CONCRETE				CU. YDS.	22.1
1'-2" X 2'-6" CONCRETE PARAPET				LIN. FT.	196.67

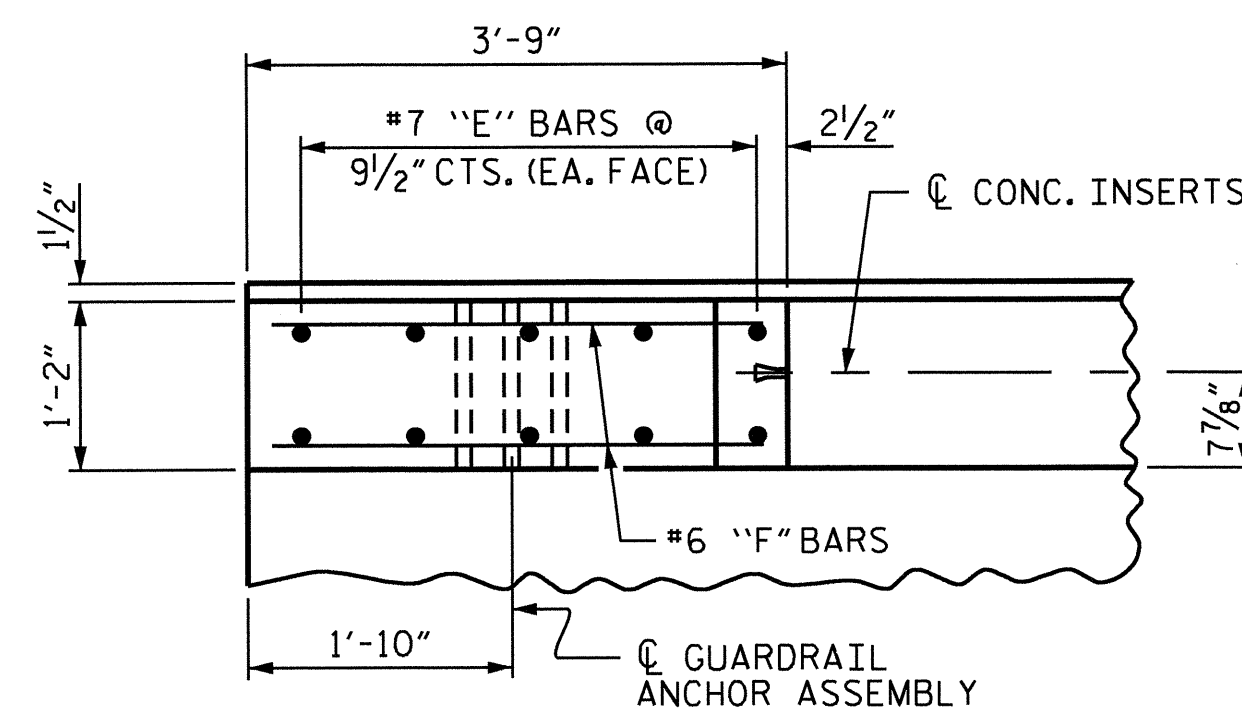


PLAN OF PARAPET

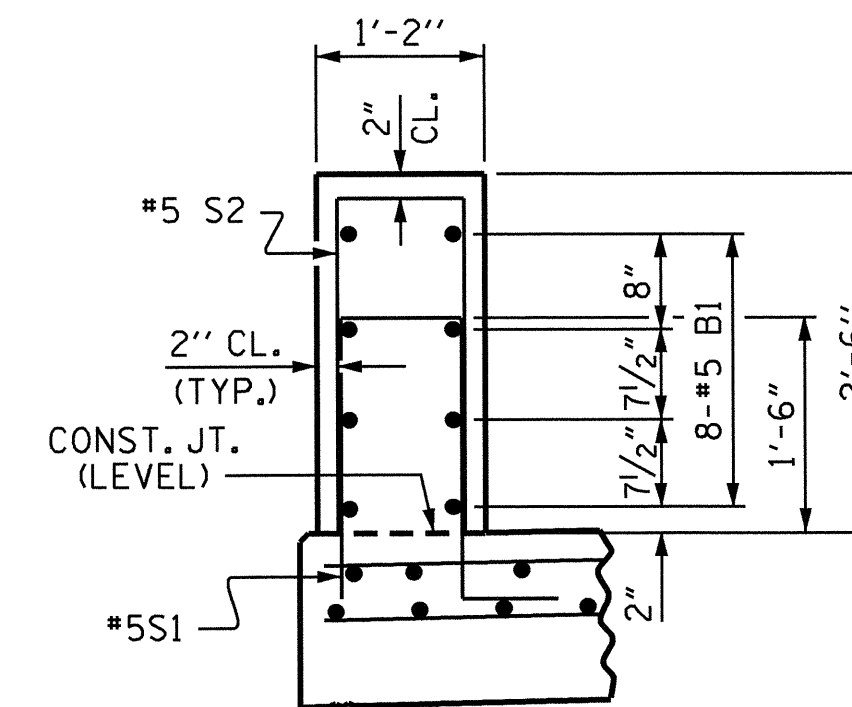
LEFT SIDE SHOWN, RIGHT SIDE SIMILAR



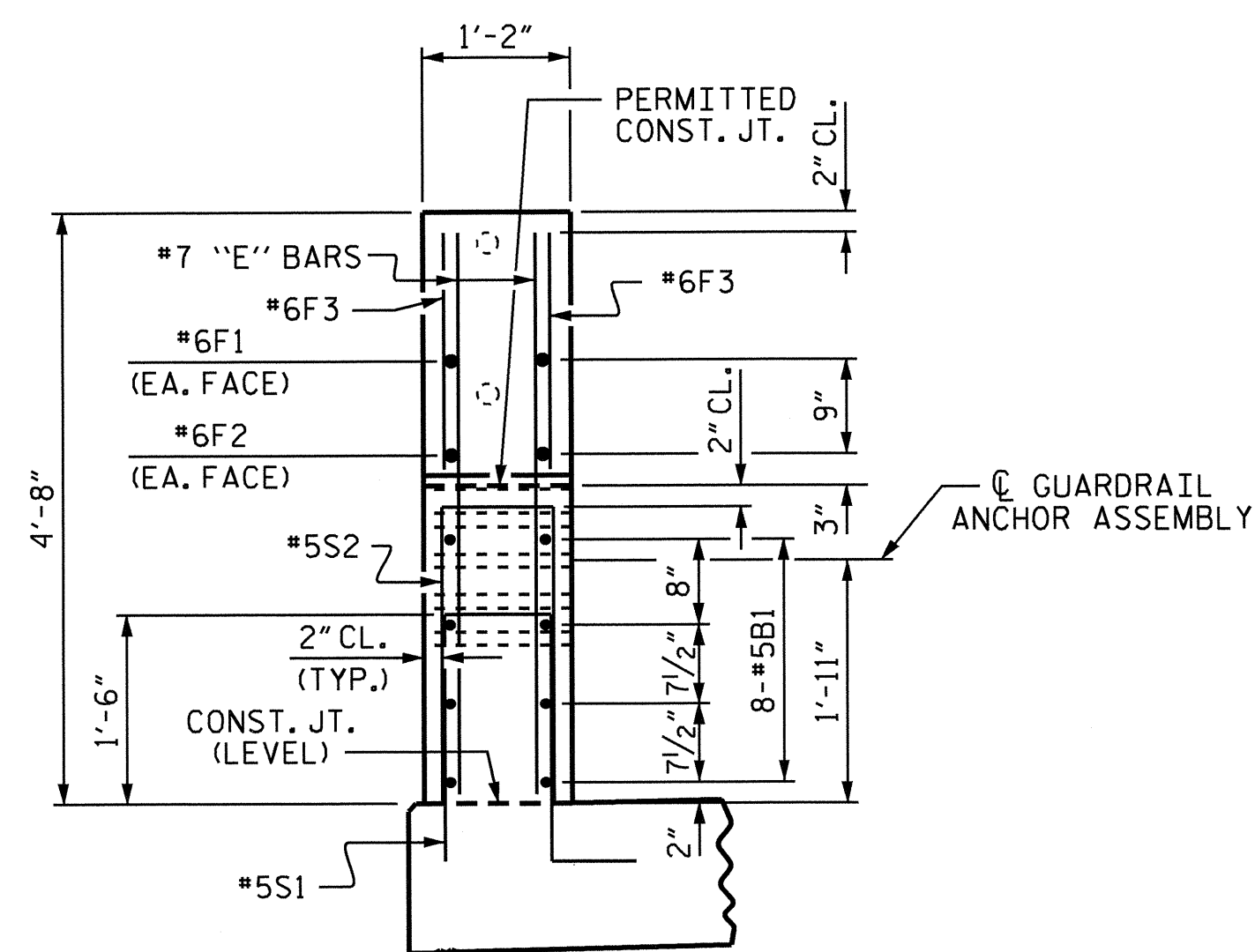
PLAN OF PARAPET



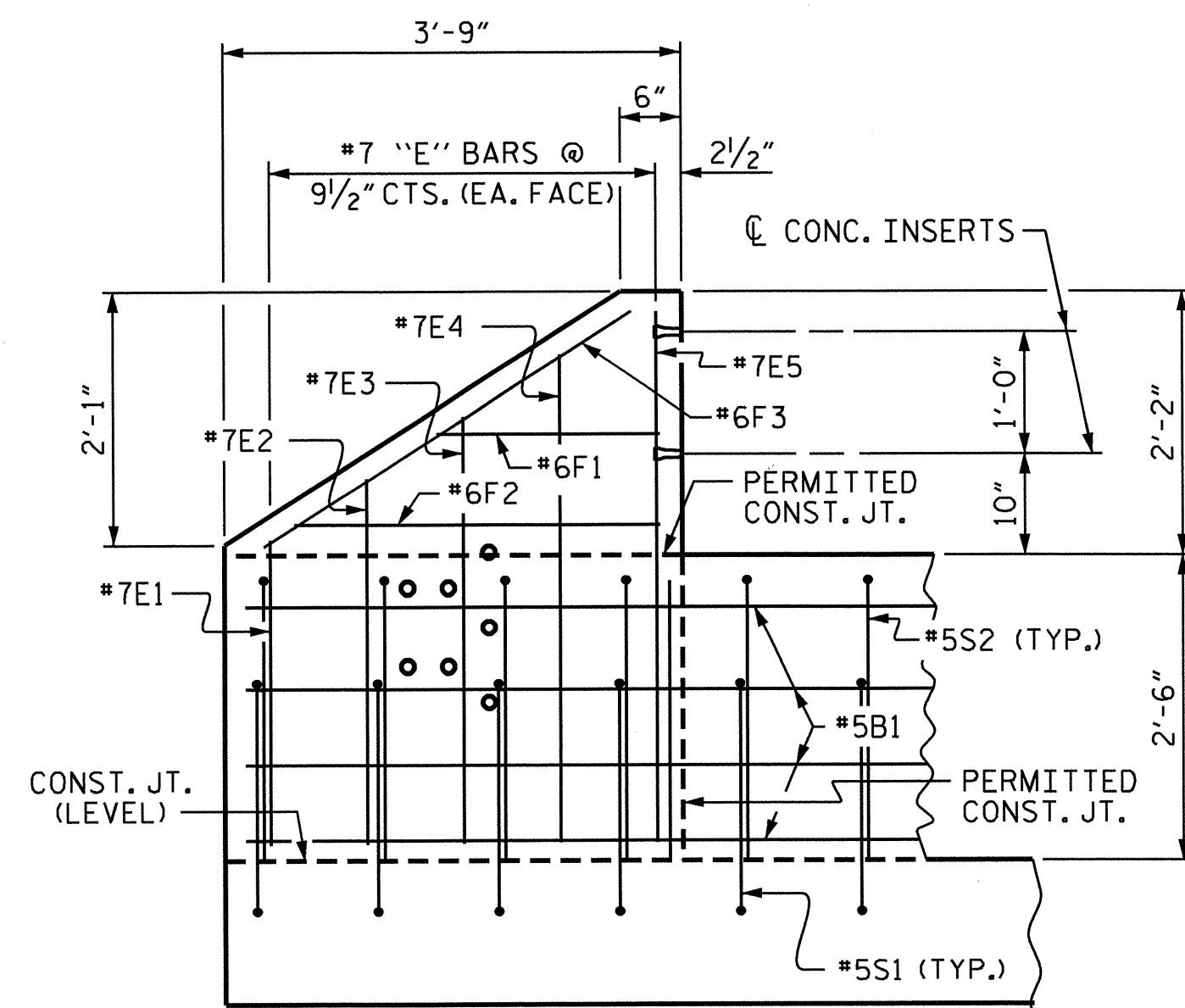
PLAN OF END POST



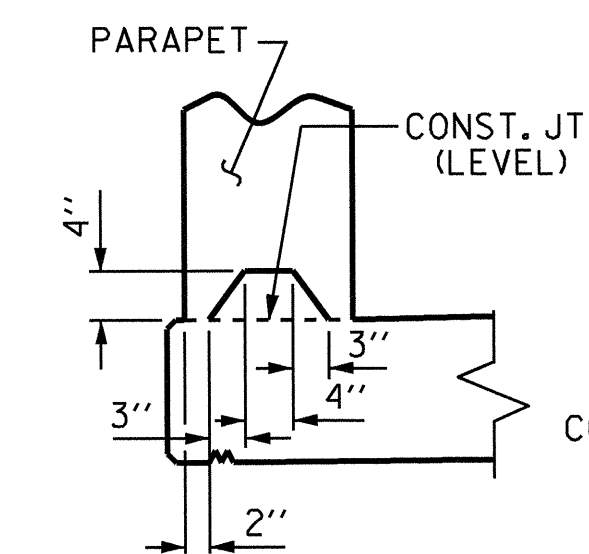
SECTION THROUGH RAIL



END VIEW

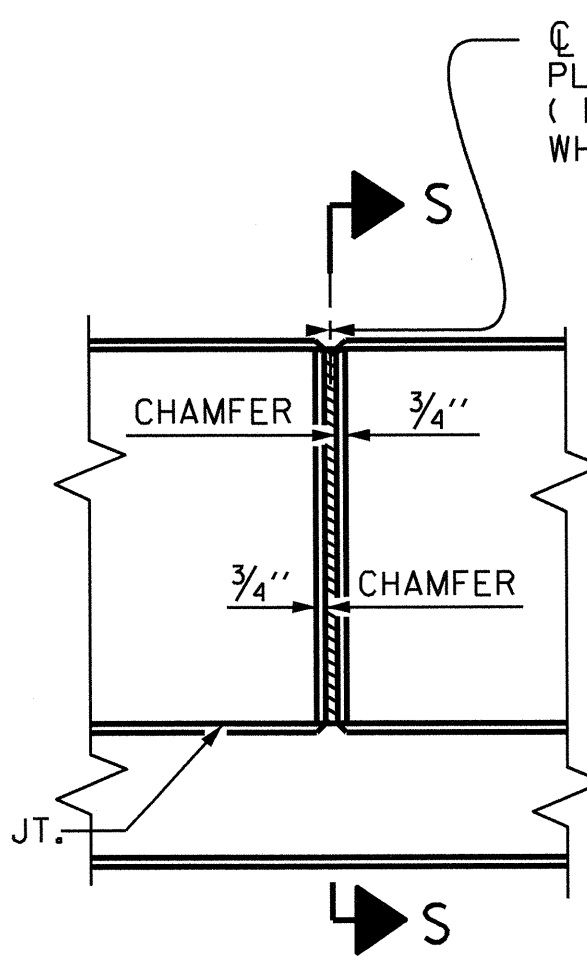


ELEVATION

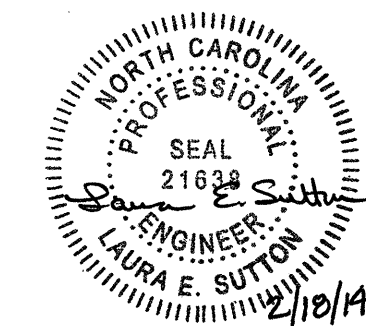


**SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)**

CONCRETE PARAPET DETAILS



**ELEVATION AT
EXPANSION JOINTS**

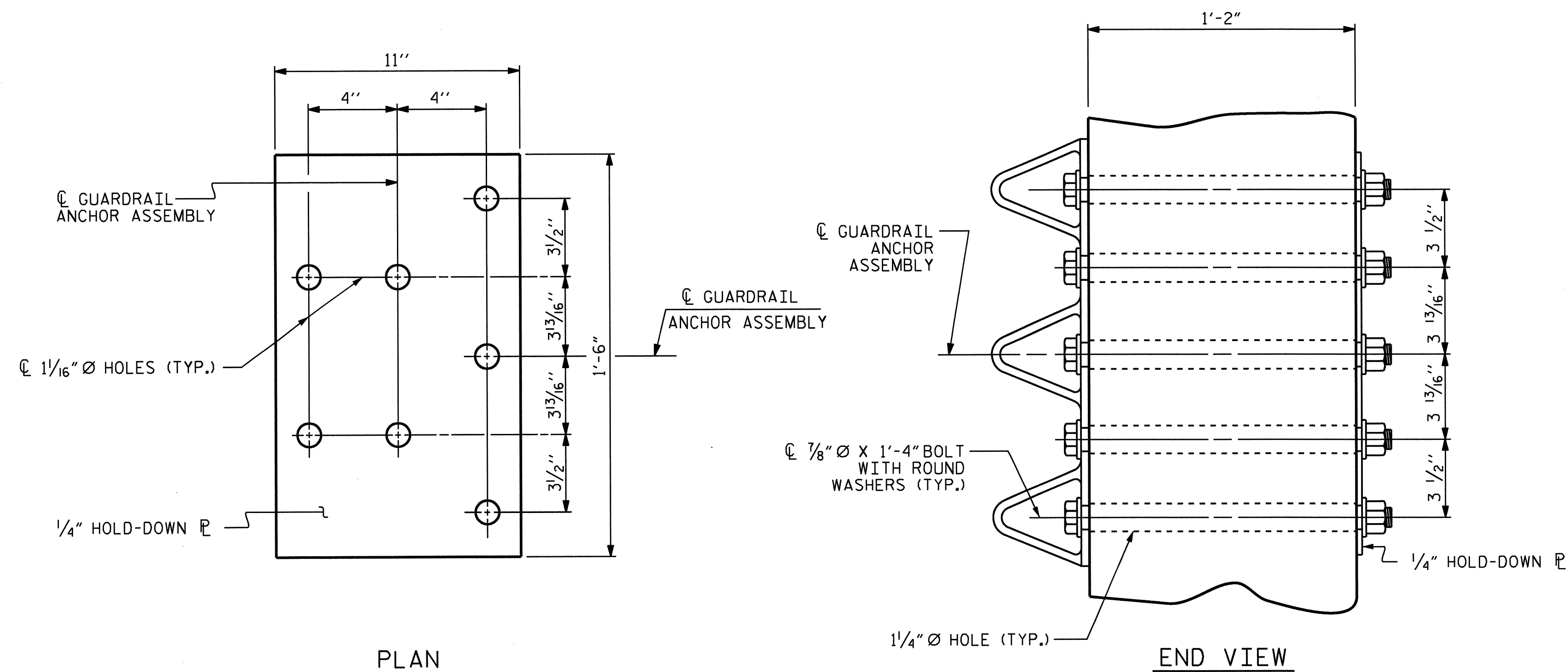


PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CONCRETE PARAPET
 AND
 END POST DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			27

DRAWN BY: J.D. HAWK DATE: 10/11/12
 CHECKED BY: B.N. GRADY DATE: 10/26/12



GUARDRAIL ANCHOR ASSEMBLY DETAILS

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 3/8" Ø BOLTS WITH NUTS AND WASHERS.

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

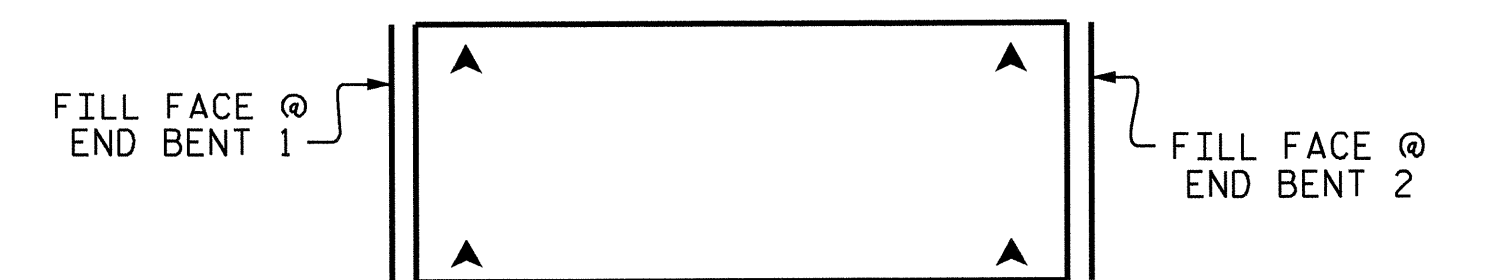
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

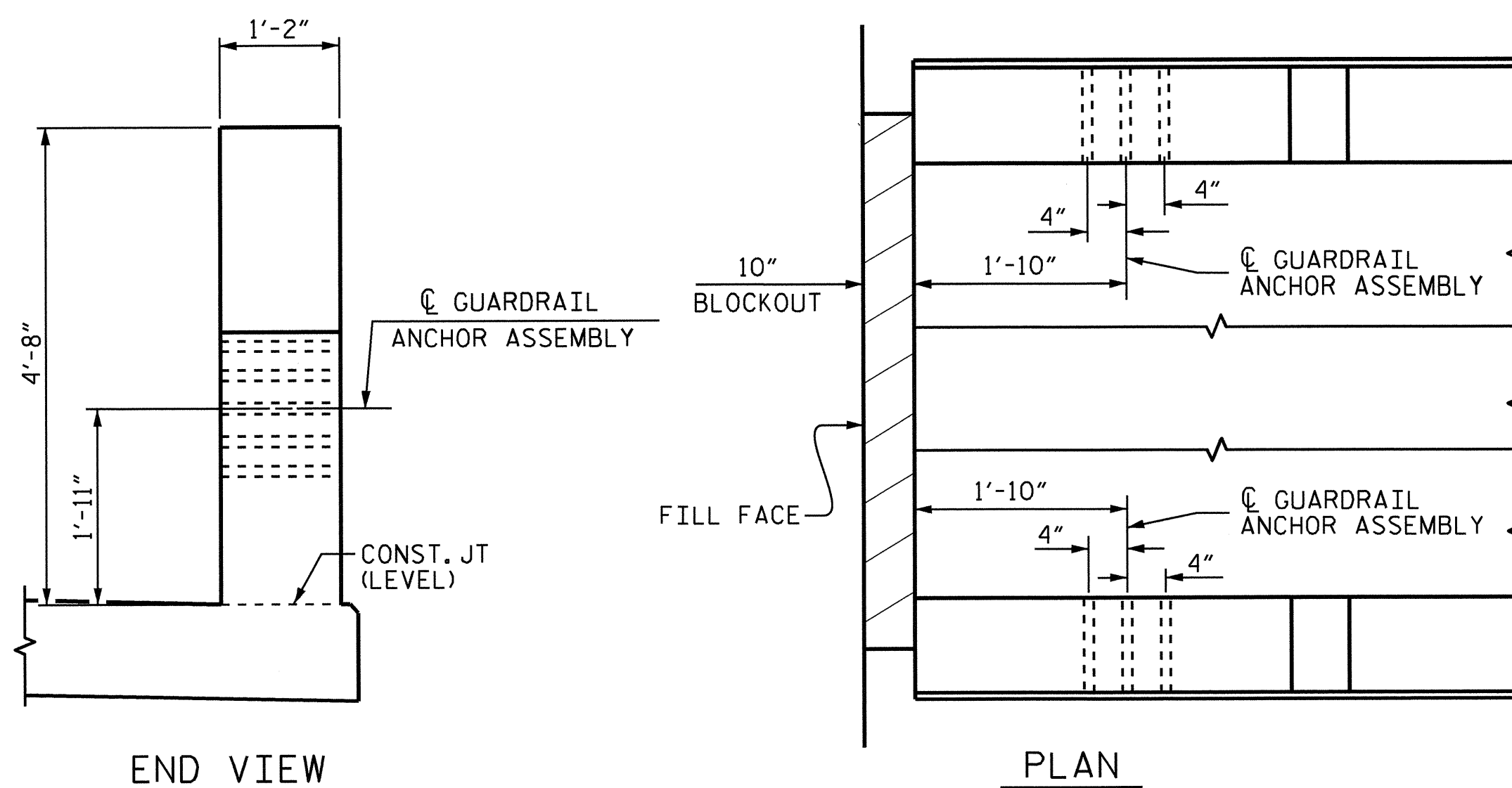
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

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



SKETCH SHOWING POINTS OF ATTACHMENT

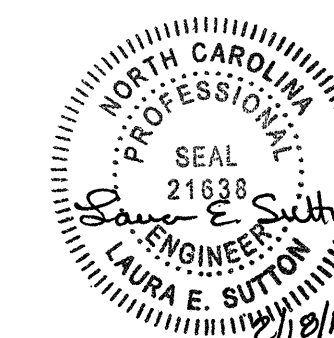
▲ LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

END BENT 1 SHOWN, END BENT 2 SIMILAR

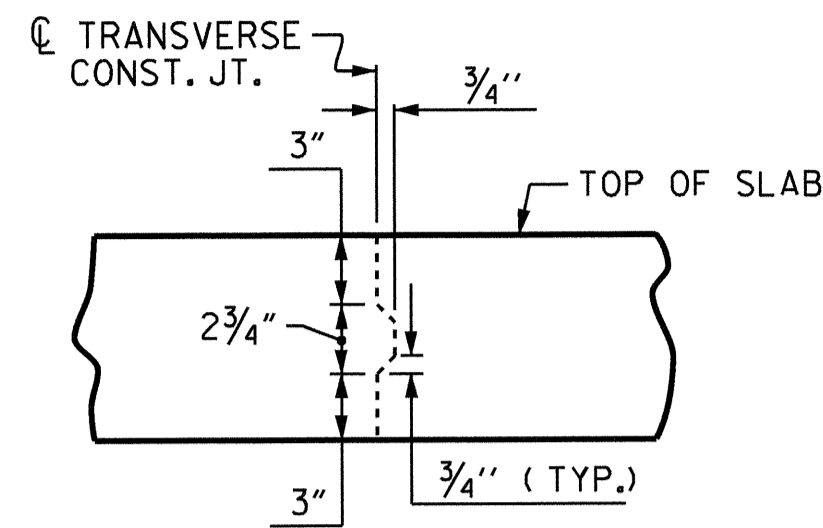
PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS

ASSEMBLED BY : J.D. HAWK	DATE : 10/11/12
CHECKED BY : B.N. GRADY	DATE : 10/26/12
DRAWN BY : MAA 5/10	REV. 10/1/11 MAA/GM
CHECKED BY : GM 5/10	REV. 12/5/11 MAA/GM
	REV. 6/13 MAA/GM

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



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN.
LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH 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"			

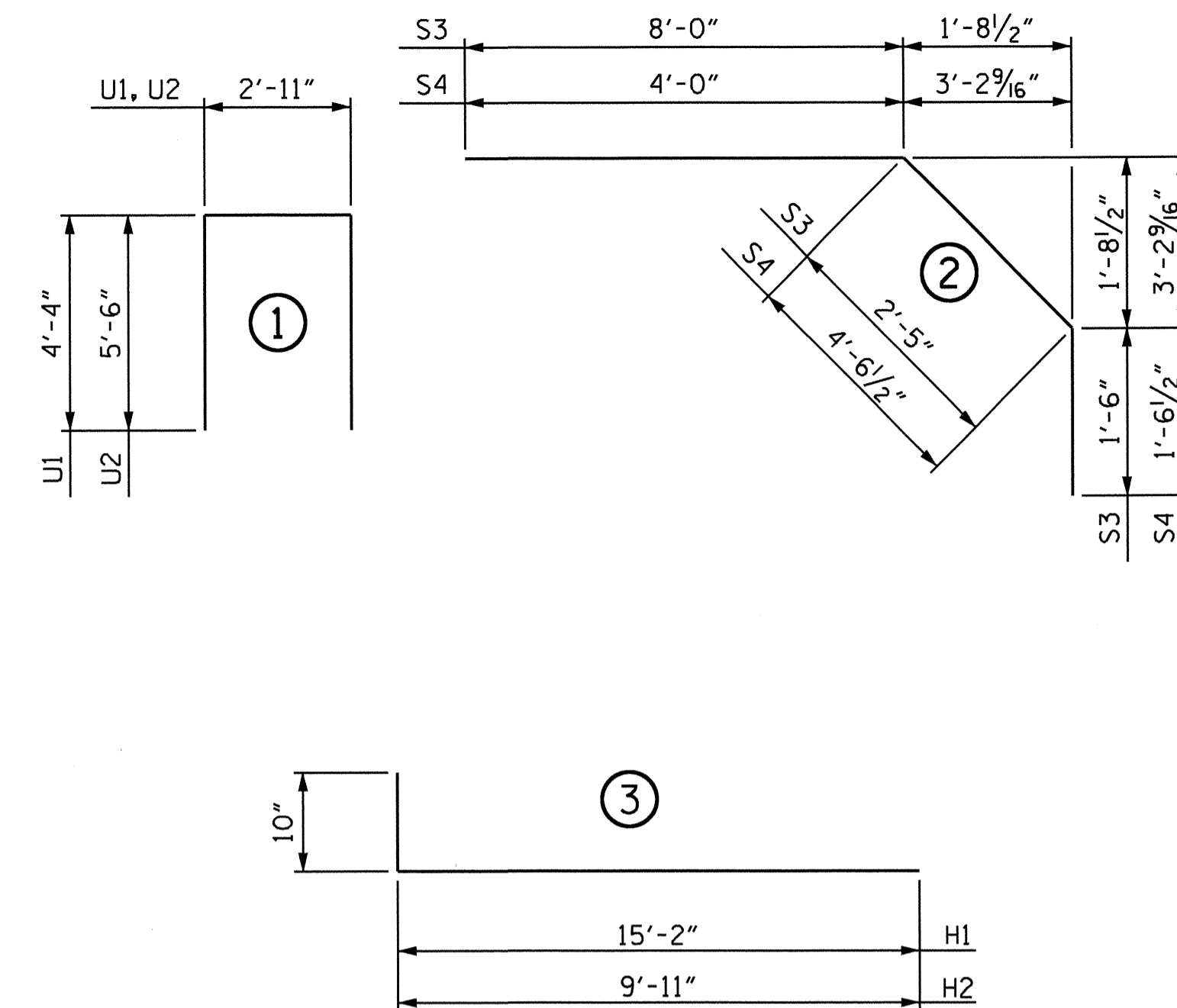
SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR #1	105.4		
POUR #2	68.3		
TOTAL **	173.7	12,157	11,992

** QUANTITIES FOR CONCRETE PARAPET AND END POSTS ARE NOT INCLUDED

GROOVING BRIDGE FLOORS	
APPROACH SLABS	821 SQ. FT.
BRIDGE DECK	2,841 SQ. FT.
TOTAL	3,662 SQ. FT.

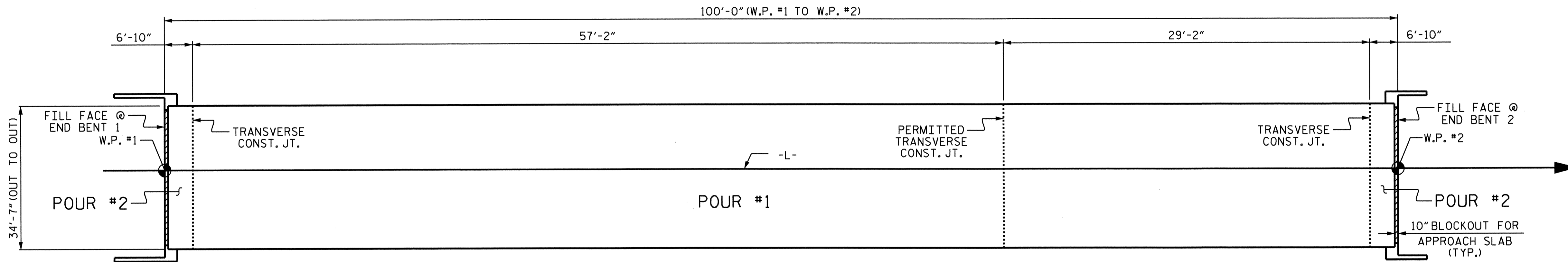
BAR TYPE



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	181	#5	STR	34'-3"	6466
A2	181	#5	STR	34'-3"	6466
*B1	178	#5	STR	19'-0"	3527
*B2	69	#4	STR	22'-8"	1045
B3	76	#5	STR	50'-1"	3970
*B4	8	#4	STR	26'-0"	139
H1	24	#5	3	16'-0"	401
H2	24	#5	3	10'-9"	269
K1	20	#4	STR	21'-1"	282
K2	6	#4	STR	6'-9"	27
K3	6	#4	STR	7'-11"	32
K4	12	#4	STR	8'-3"	66
K5	6	#4	STR	7'-3"	29
K6	4	#4	STR	5'-0"	13
K7	4	#4	STR	5'-7"	15
K8	8	#4	STR	5'-9"	31
K9	4	#4	STR	5'-3"	14
K10	24	#4	STR	2'-8"	43
*S3	60	#4	2	11'-11"	478
*S4	50	#4	2	10'-1"	337
U1	50	#4	1	11'-7"	387
U2	12	#4	1	13'-11"	112
REINFORCING STEEL					LBS. 12,157
* EPOXY COATED REINFORCING STEEL					LBS. 11,992



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB & POURING SEQUENCE (SQ. FT. = 3459)

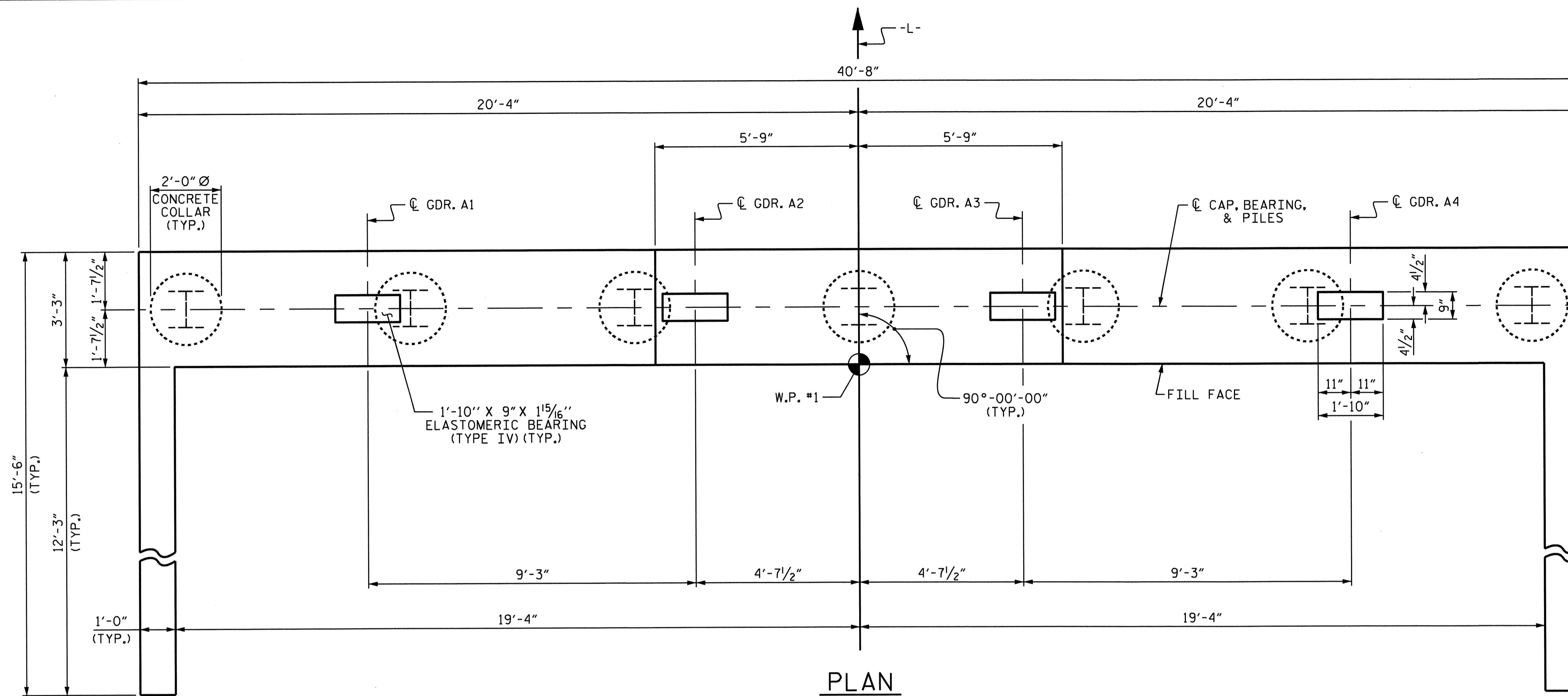
PROJECT NO. B-4748
FRANKLIN COUNTY
STATION: 14+12.00 -L-



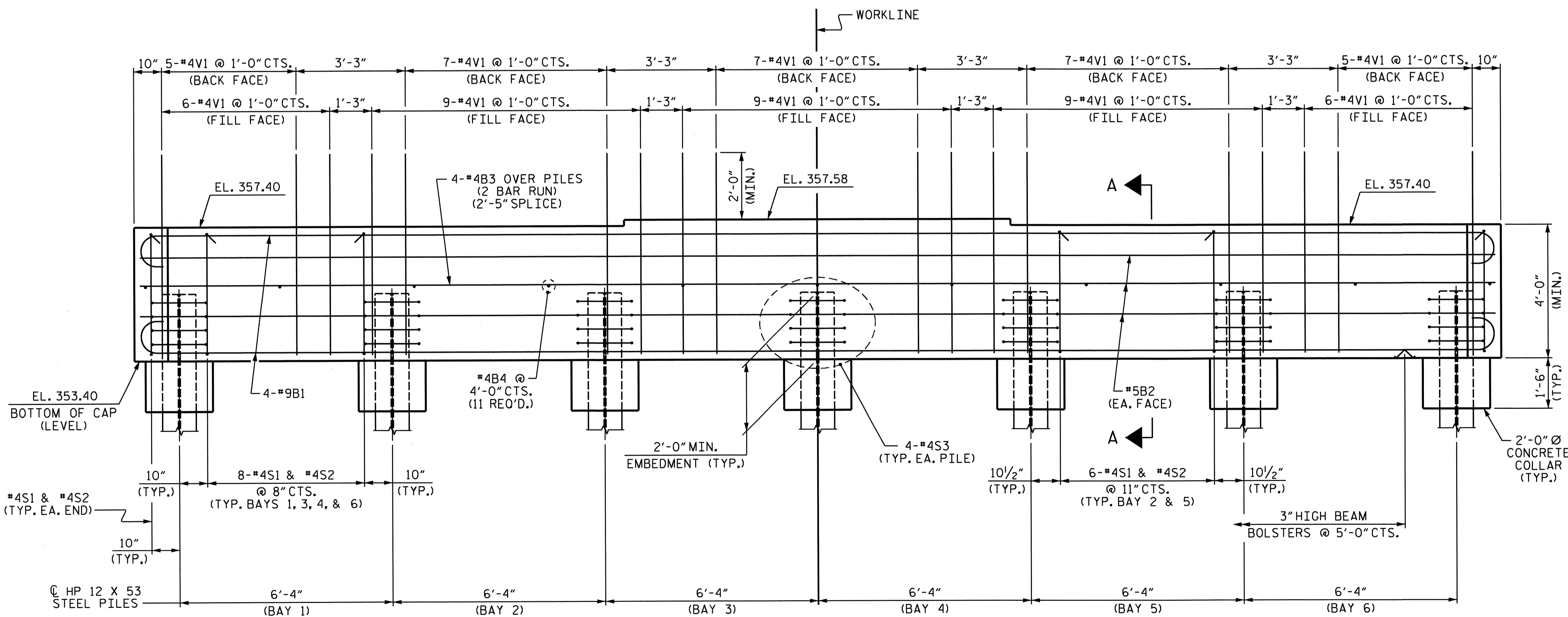
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-20
2			4			27

DRAWN BY: J.D. HAWK DATE: 10/21/12
CHECKED BY: B.N. GRADY DATE: 10/26/12
DESIGN ENGINEER OF RECORD: B.N. GRADY DATE: 12/20/13



PLAN



ELEVATION

NOTES

THE TOP SURFACE 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 WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED IN THE SUPERSTRUCTURE BILL OF MATERIAL. FOR DETAILS, SEE SUPERSTRUCTURE PLANS.

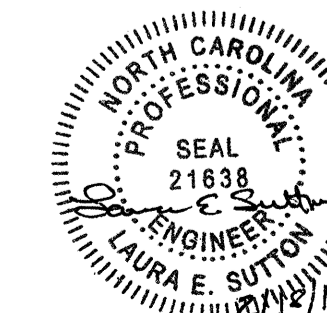
INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

PROJECT NO. B-4748
FRANKLIN COUNTY
STATION: 14+12.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
INTEGRAL
END BENT 1

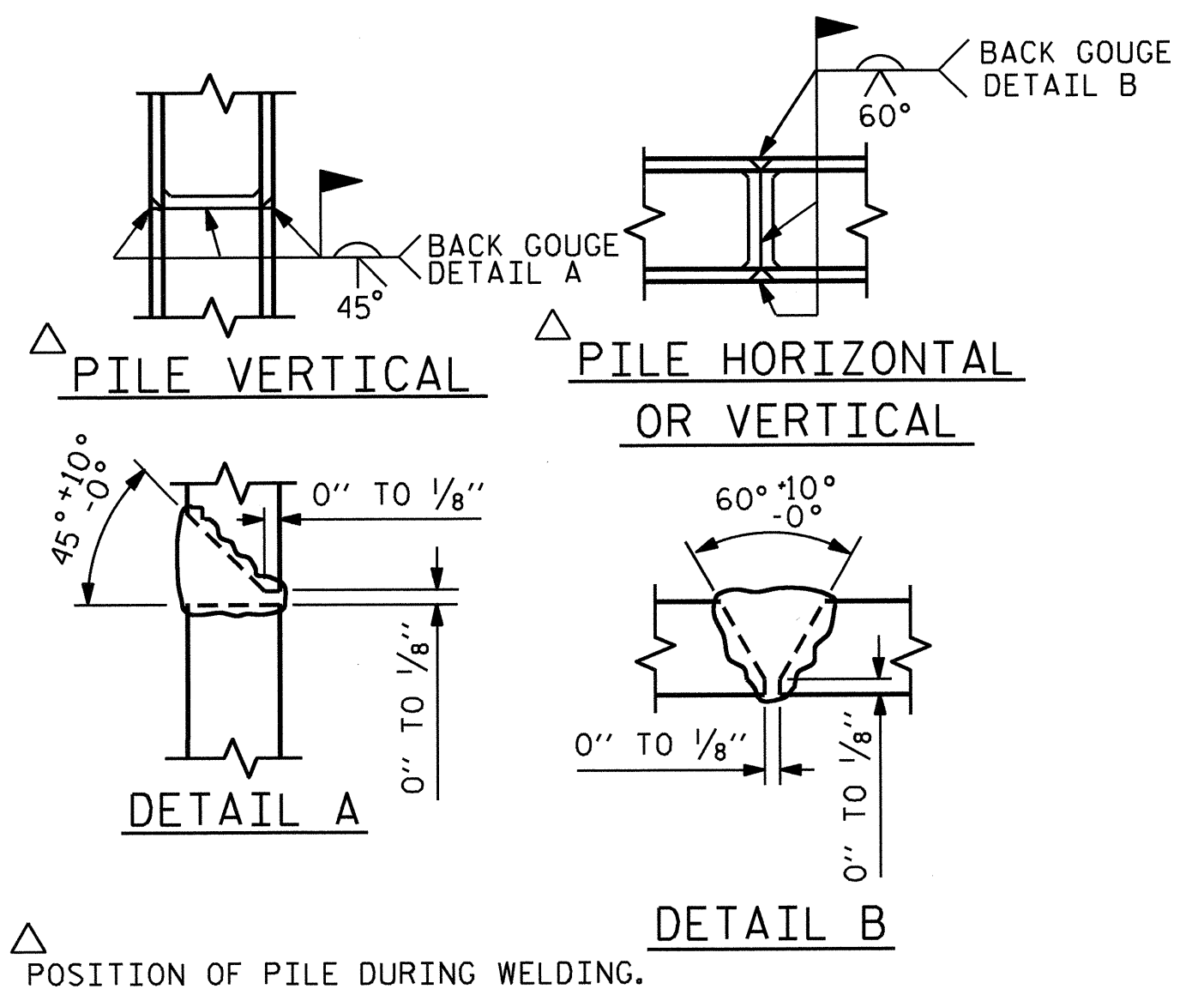


DRAWN BY : B.N. GRADY
CHECKED BY : J.D. HAWK
DESIGN ENGINEER OF RECORD: B.N. GRADY

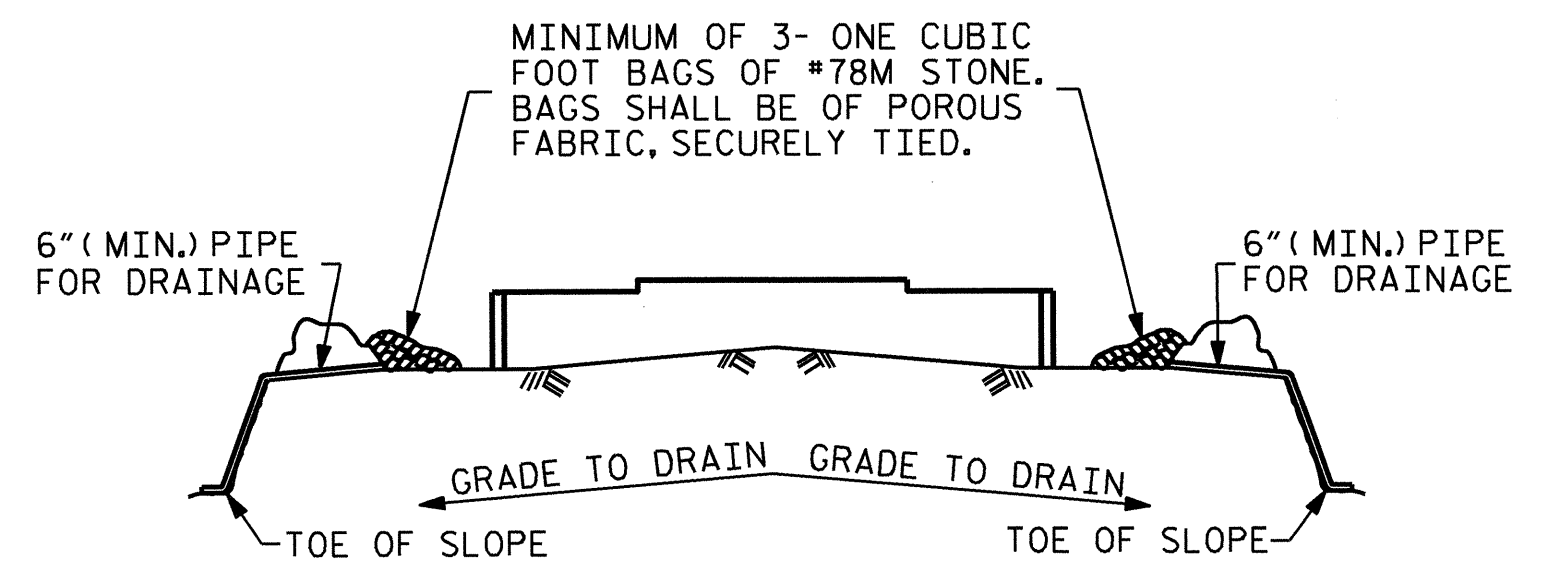
DATE : 1/23/13
DATE : 4/15/13
DATE : 12/20/13

18-FEB-2014 11:21
R:\Structures\Plans\B4748_SD.E*01.dgn
Isutton

REVISIONS						SHEET NO. S-21 TOTAL SHEETS 27
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



PILE SPlice DETAILS

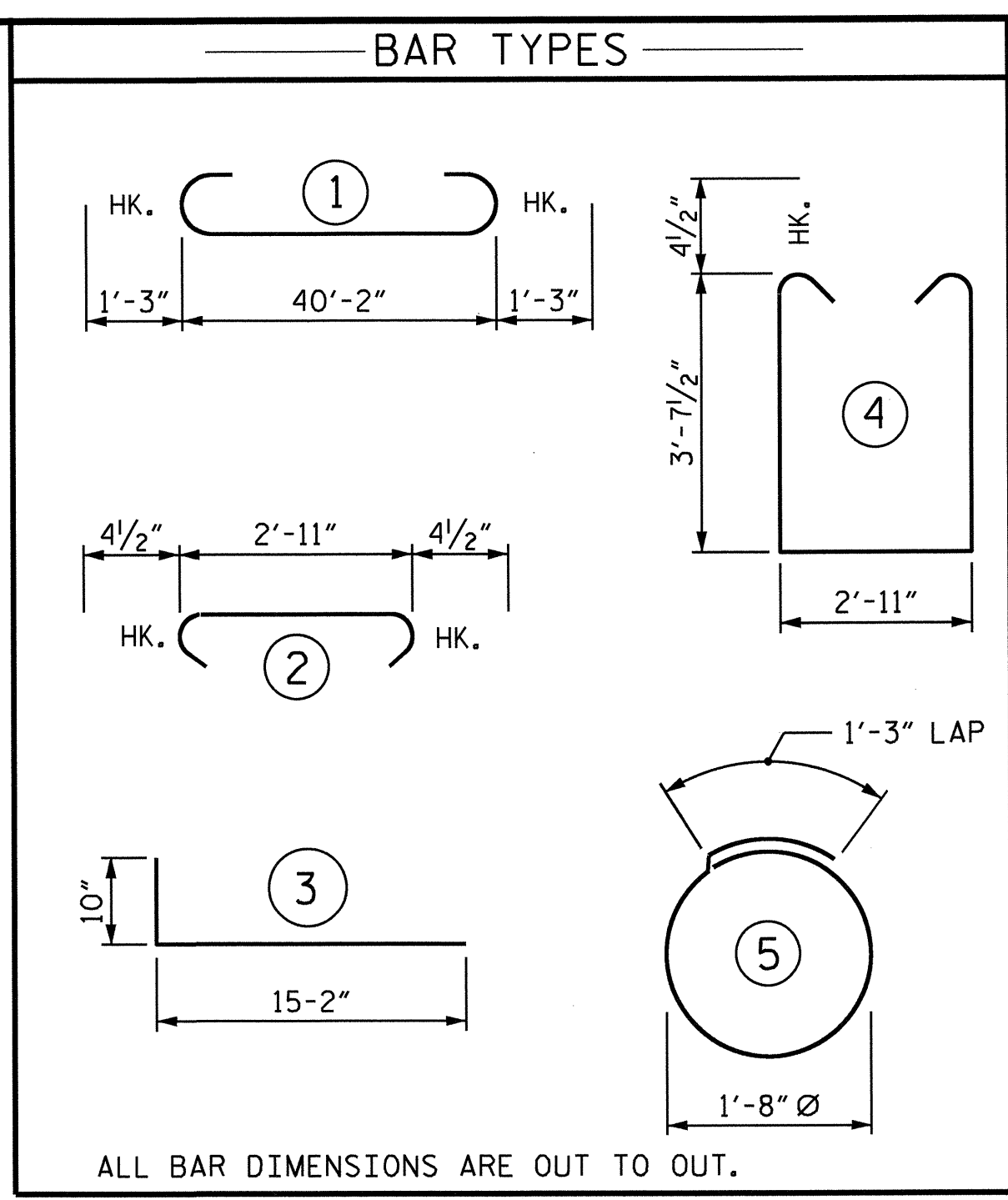


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

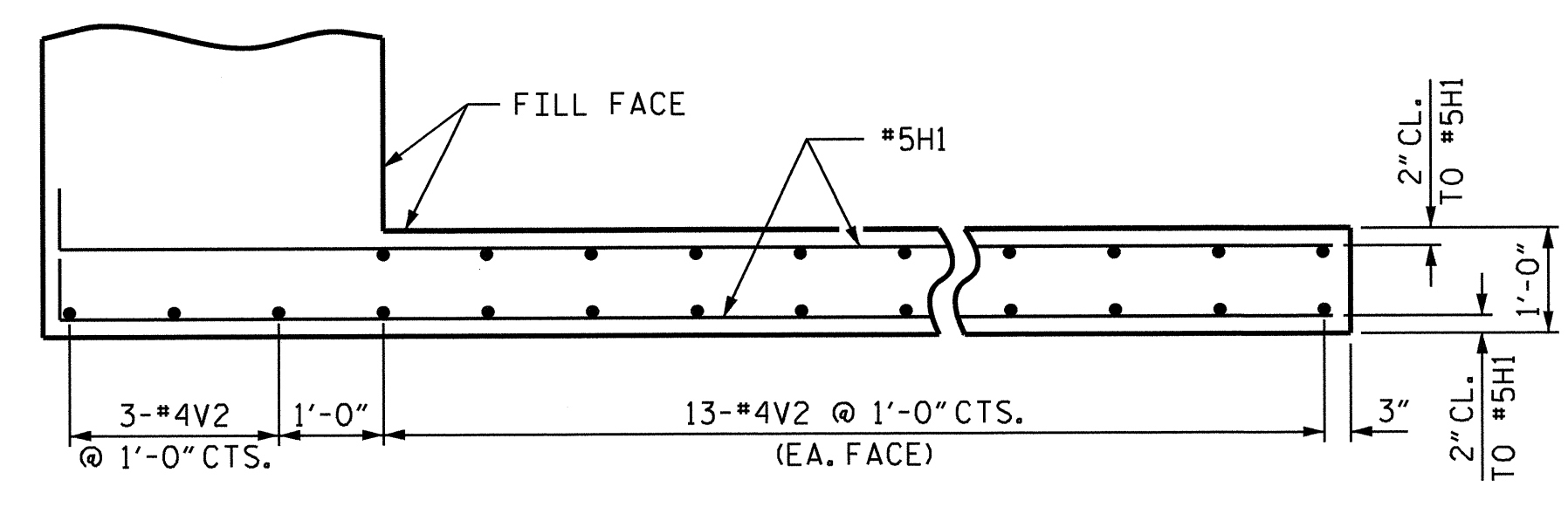
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

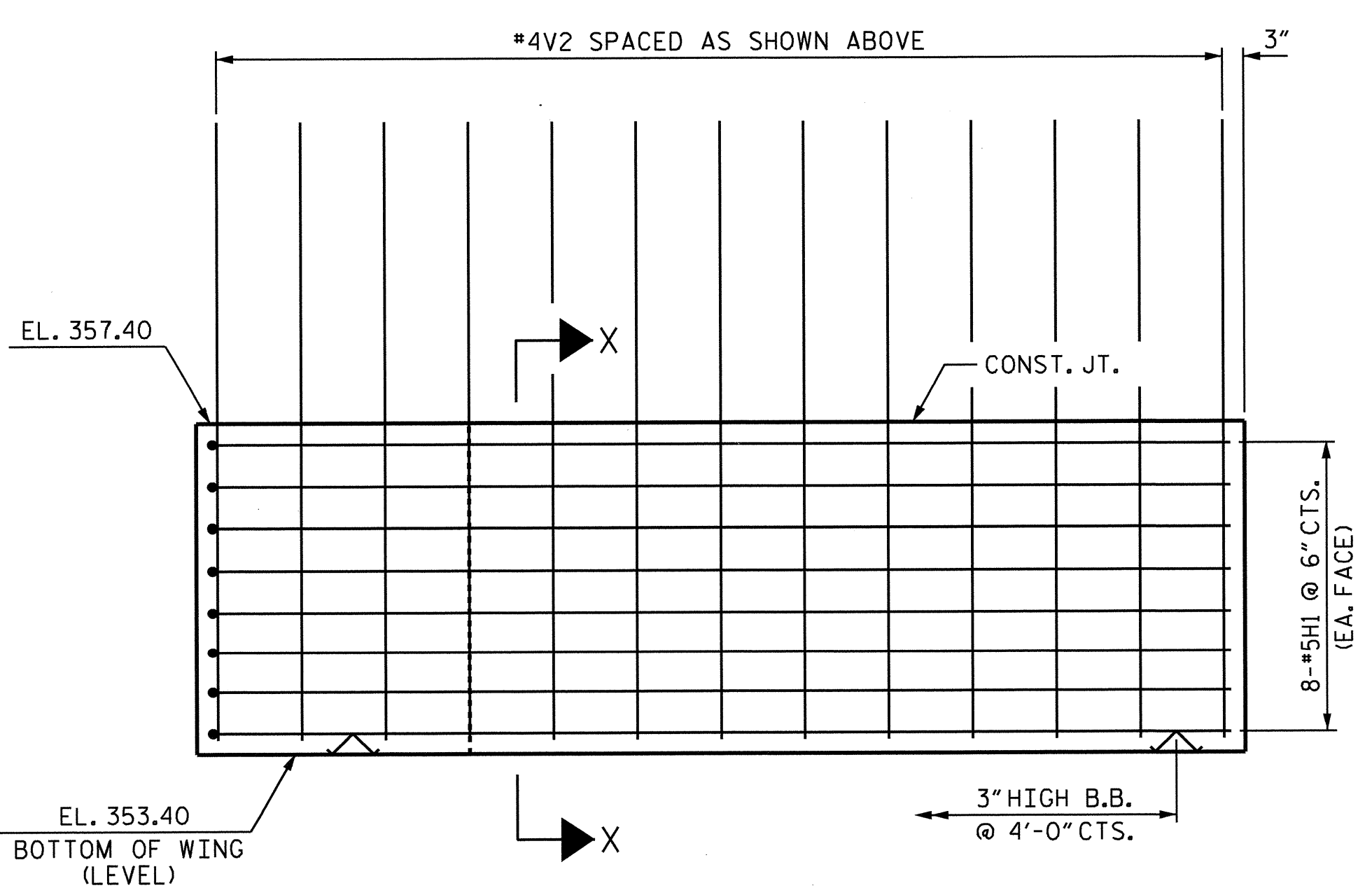
TEMPORARY DRAINAGE AT END BENT



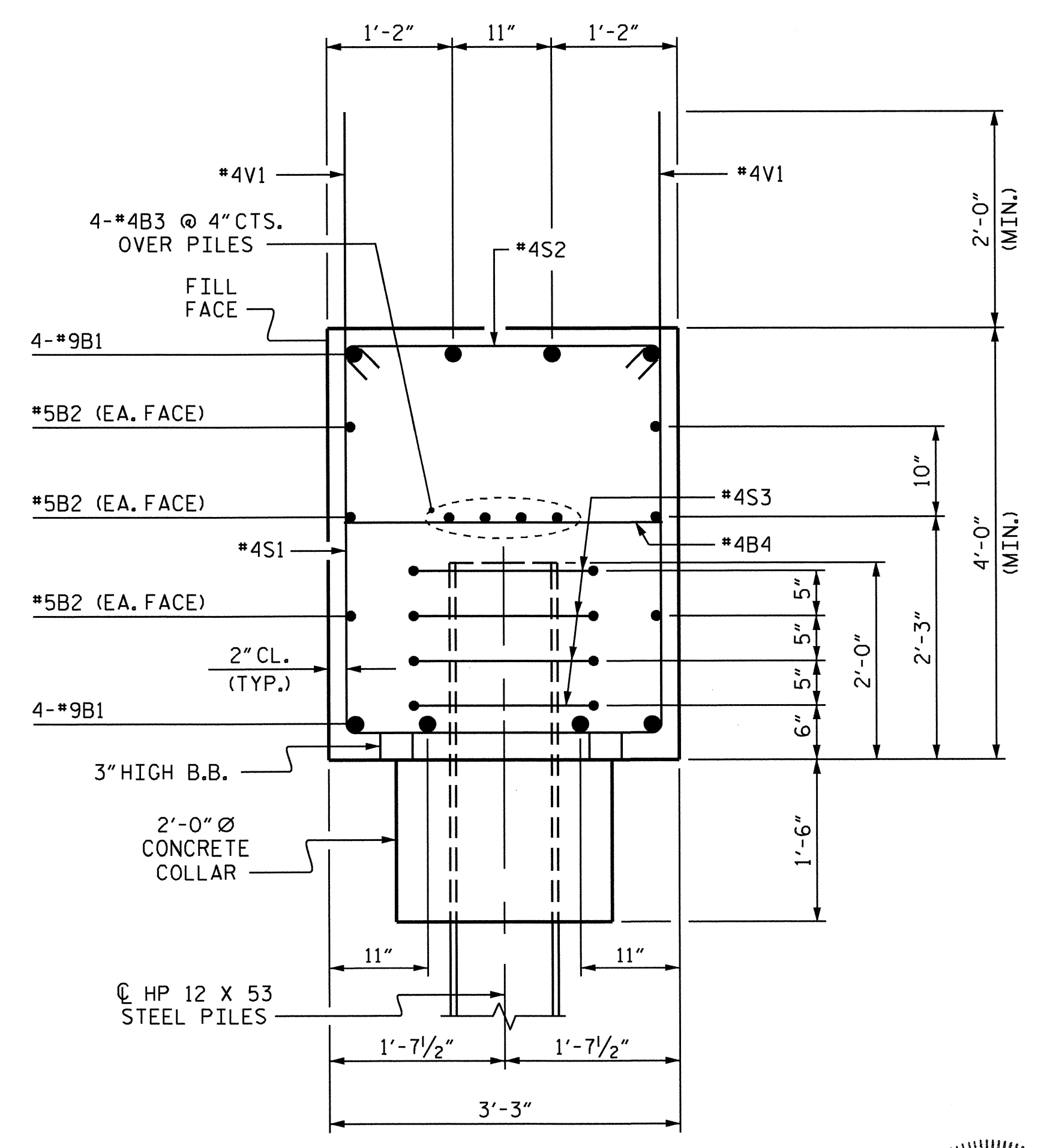
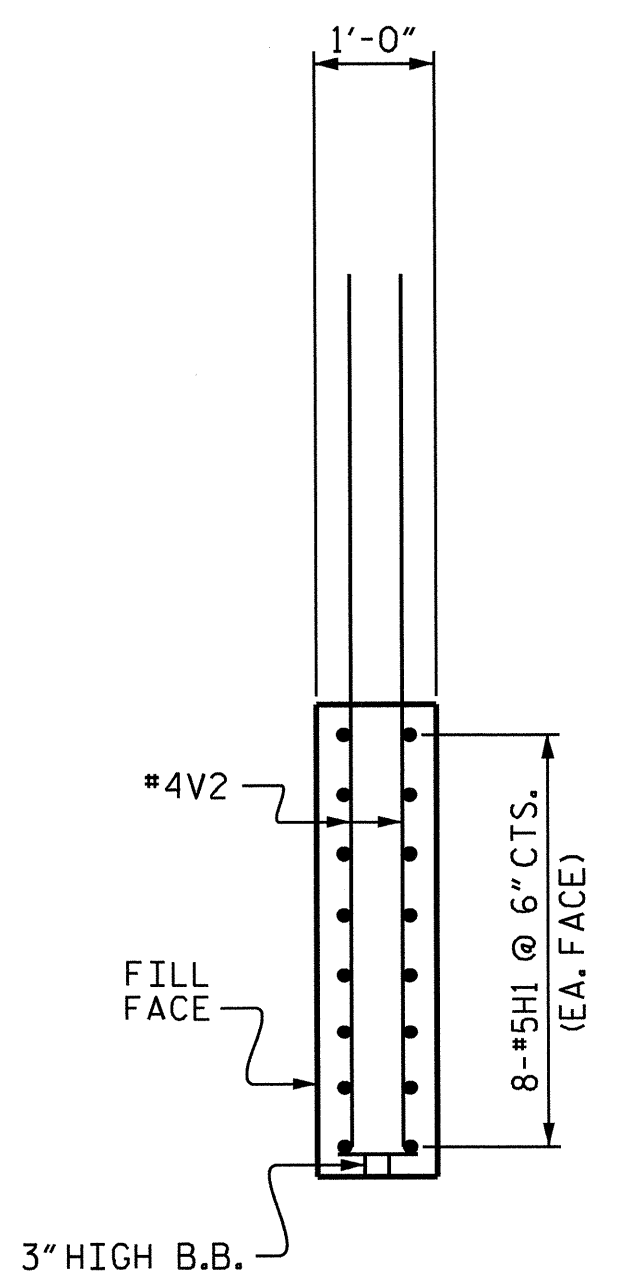
BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	42'-8"	1161
B2	6	#5	STR	40'-4"	252
B3	8	#4	STR	21'-5"	114
B4	11	#4	STR	2'-11"	21
H1	32	#5	3	16'-0"	534
S1	46	#4	4	10'-11"	335
S2	46	#4	2	3'-8"	113
S3	28	#4	5	6'-6"	122
V1	70	#4	STR	6'-0"	281
V2	58	#4	STR	9'-5"	365
REINFORCING STEEL				LBS.	3,298
CLASS A CONCRETE				C.Y.	24.7
HP 12 X 53 STEEL PILES					
NO. 7				LIN. FT.	90
STEEL PILE POINTS				NO.	7



PLAN OF WING



ELEVATION OF WING



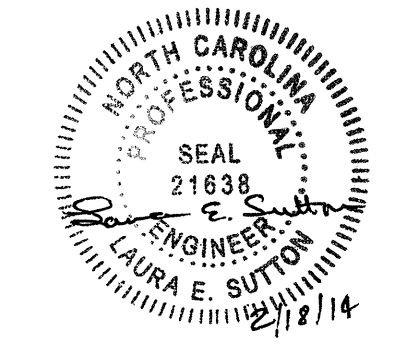
PROJECT NO. B-4748
FRANKLIN COUNTY
STATION: 14+12.00 -L-
SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-22
					TOTAL SHEETS 27

DRAWN BY : B.N. GRADY
CHECKED BY : J.D. HAWK
DESIGN ENGINEER OF RECORD: B.N. GRADY

DATE : 1/23/13
DATE : 4/15/13
DATE : 12/20/13

18-FEB-2014 11:21
R:\Structures\Plans\B4748_SD.E*_*01.dgn
ISutton

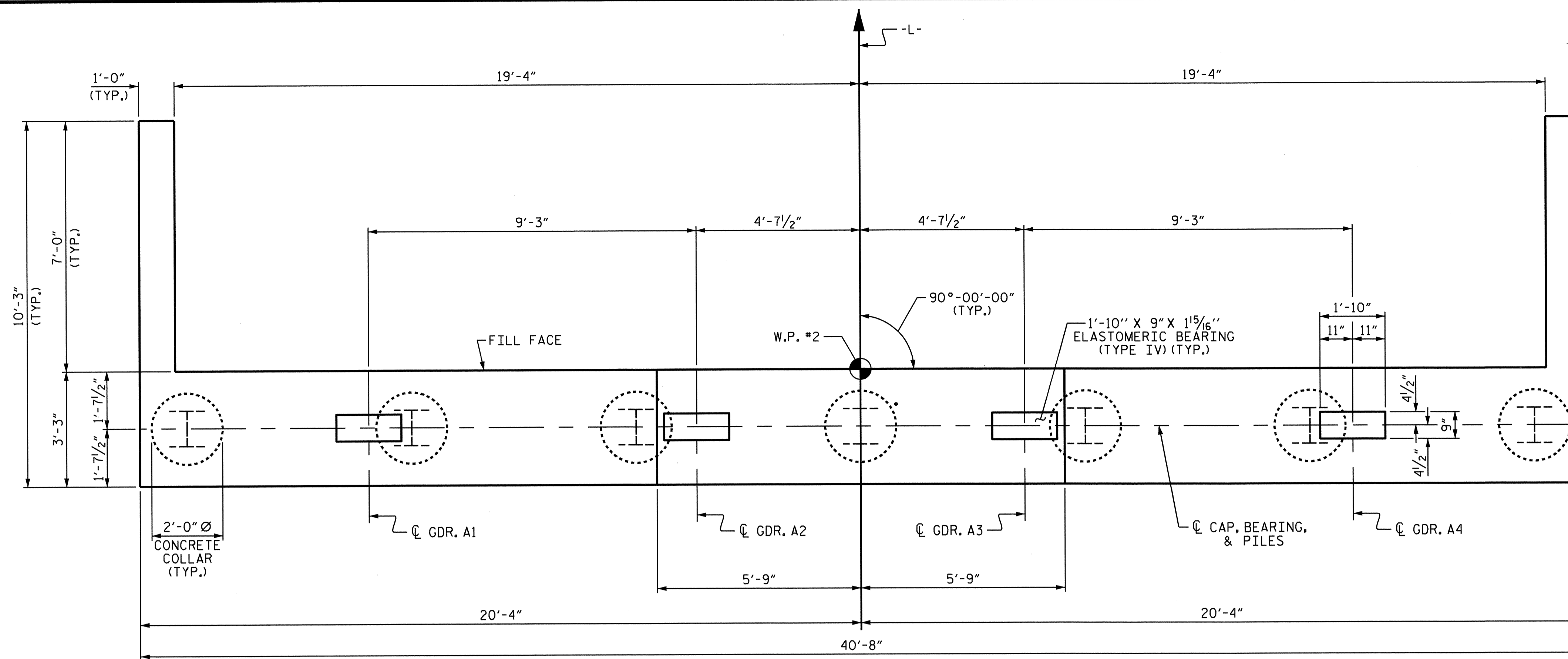


NOTES

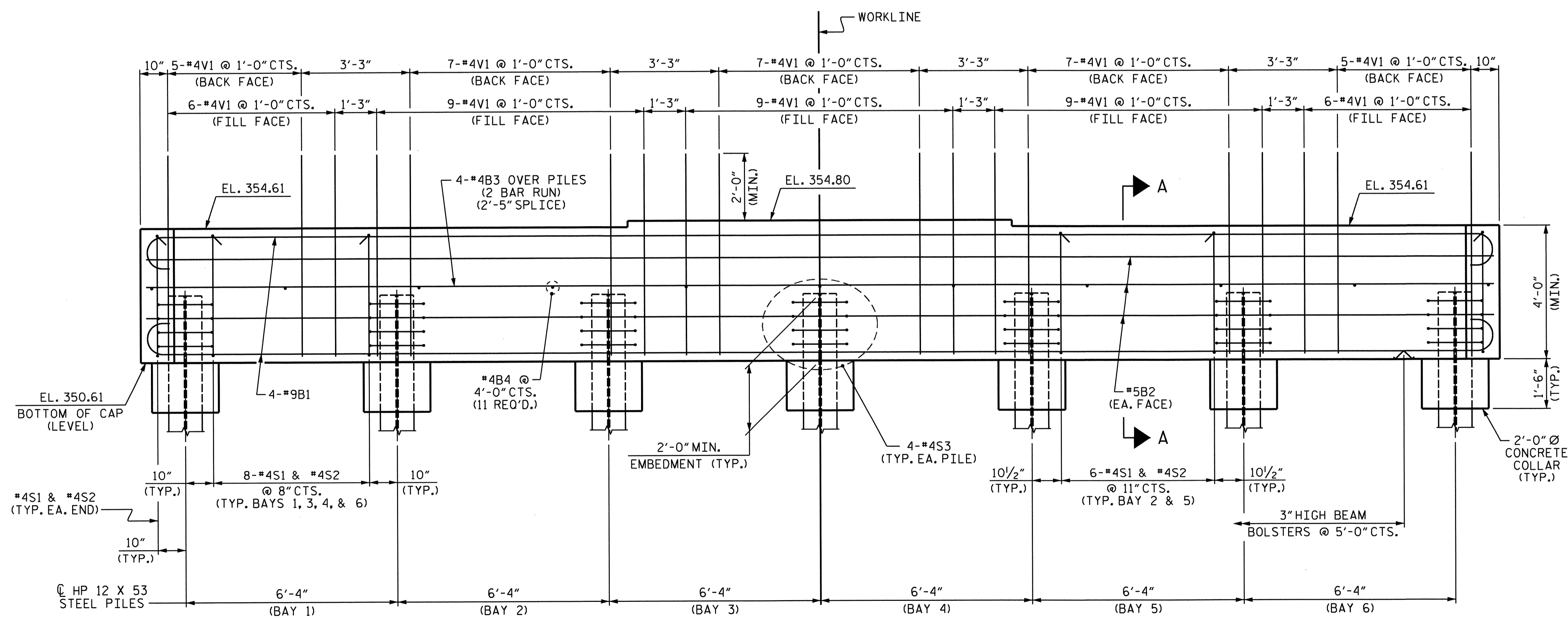
THE TOP SURFACE OF THE END BENT CAP AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".

THE UPPER PORTION OF THE WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED IN THE SUPERSTRUCTURE BILL OF MATERIAL. FOR DETAILS, SEE SUPERSTRUCTURE PLANS.

INSTALL THE 4" DIA. 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.



PLAN



ELEVATION

PROJECT NO. B-4748
 FRANKLIN COUNTY
 STATION: 14+12.00 -L-

SHEET 1 OF 2

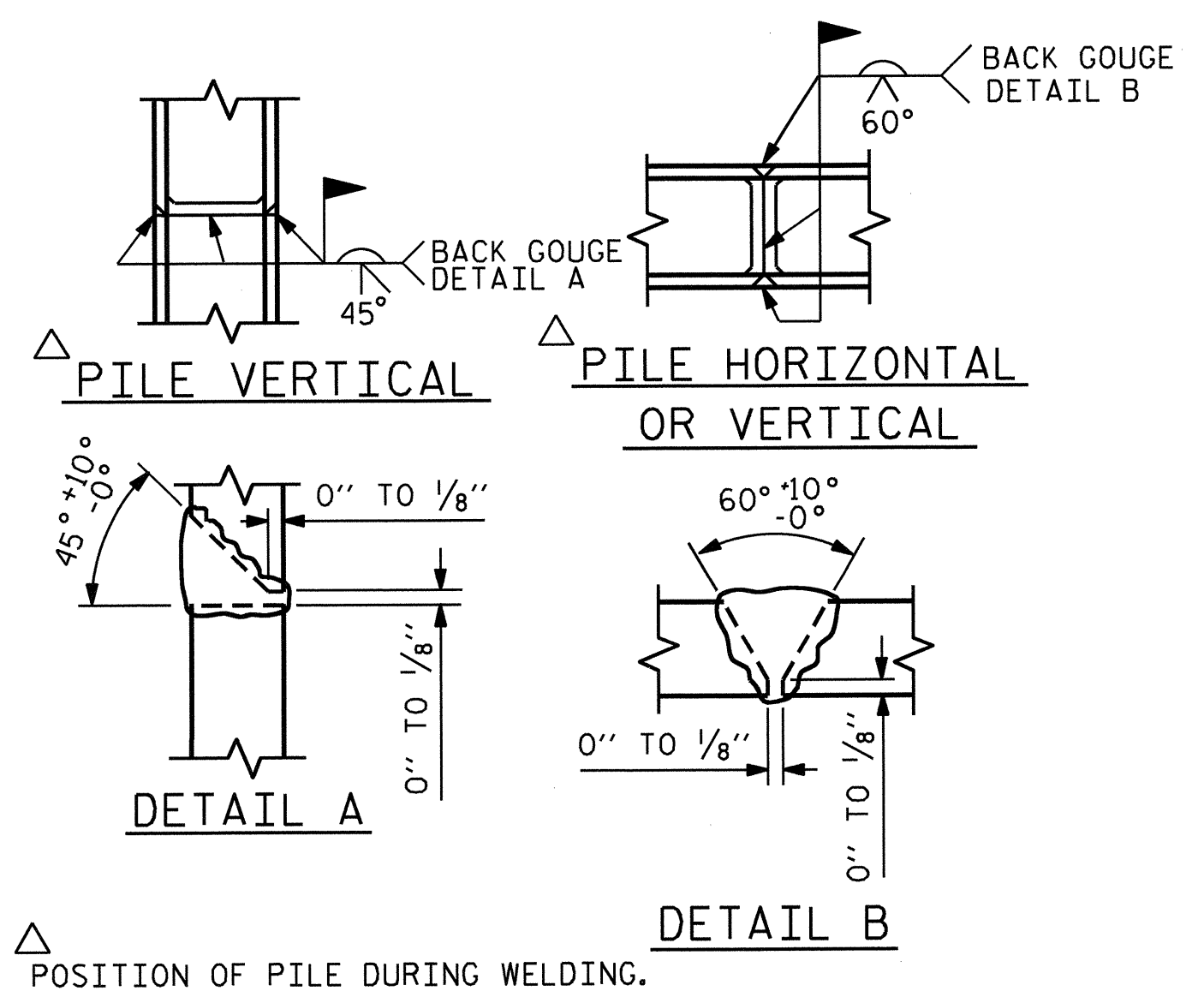
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 INTEGRAL
 END BENT 2



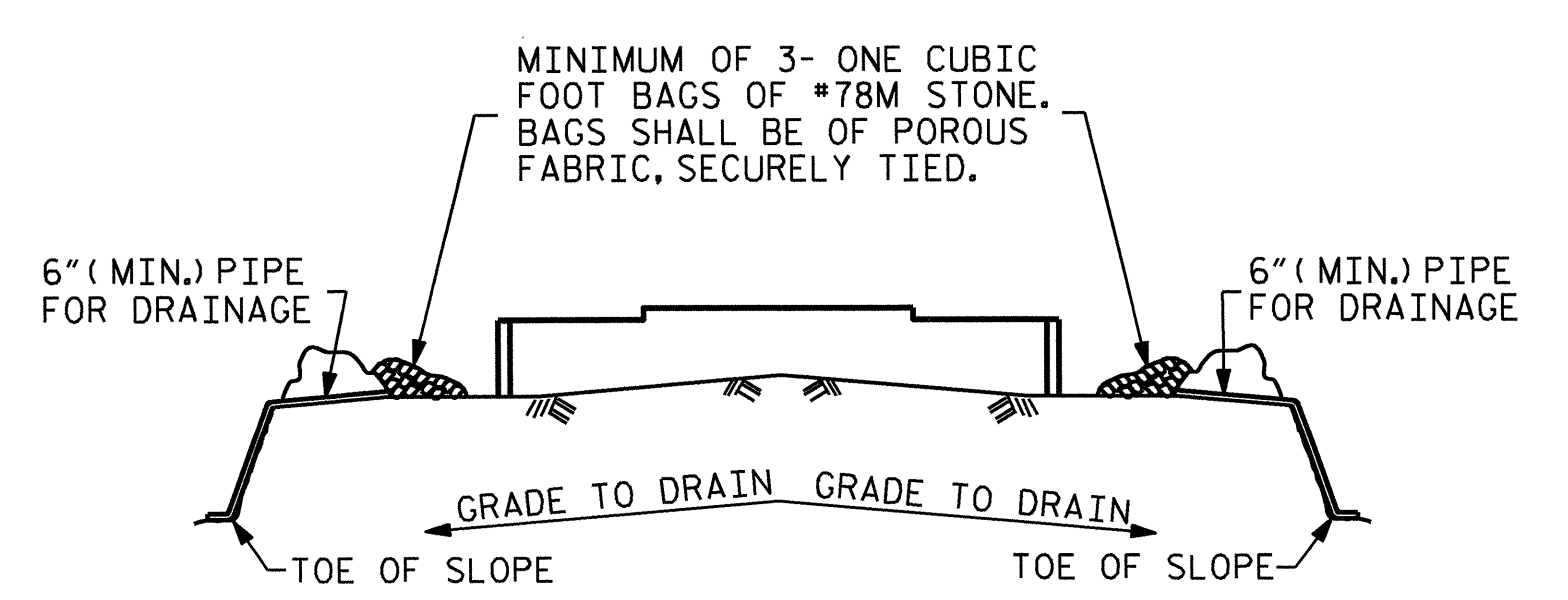
DRAWN BY : B.N. GRADY
 CHECKED BY : J.D. HAWK
 DESIGN ENGINEER OF RECORD: B.N. GRADY
 DATE : 1/23/13
 DATE : 4/15/13
 DATE : 12/20/13

18-FEB-2014 11:21
 R:\Sfructures\Plans\B4748.SD.E*.01.dgn
 ISUTTON

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23	
1			3			TOTAL	27
2			4			SHEETS	



PILE SPLICE DETAILS



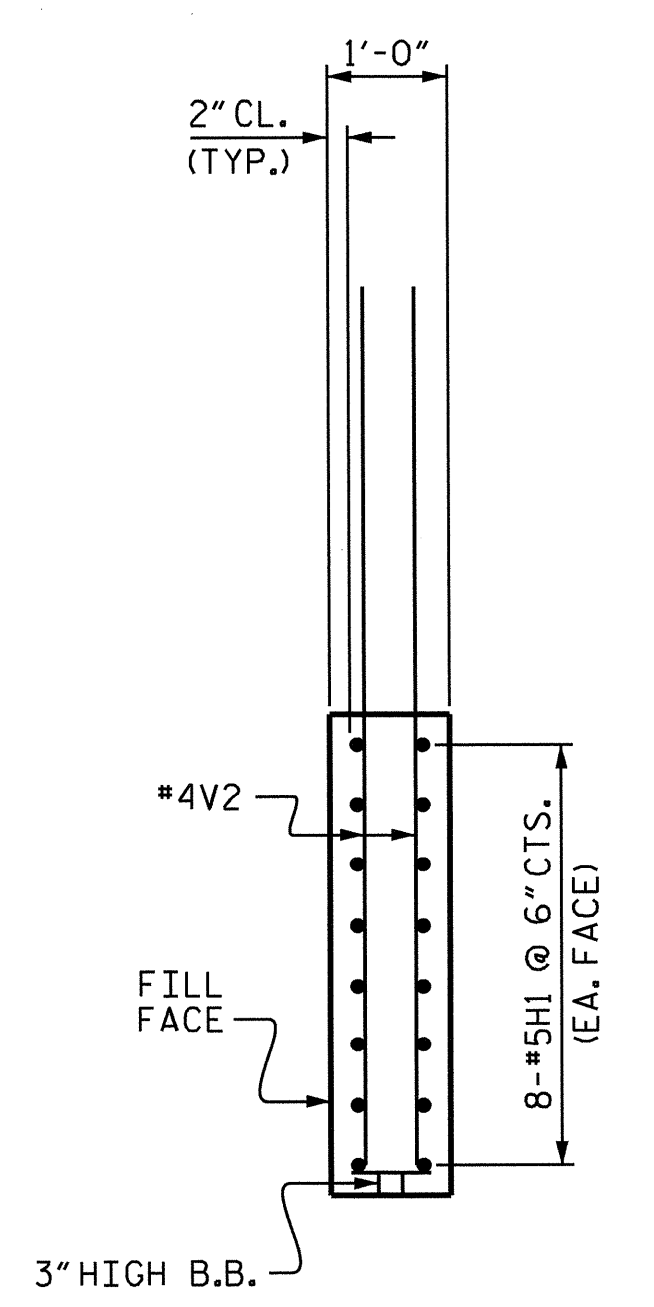
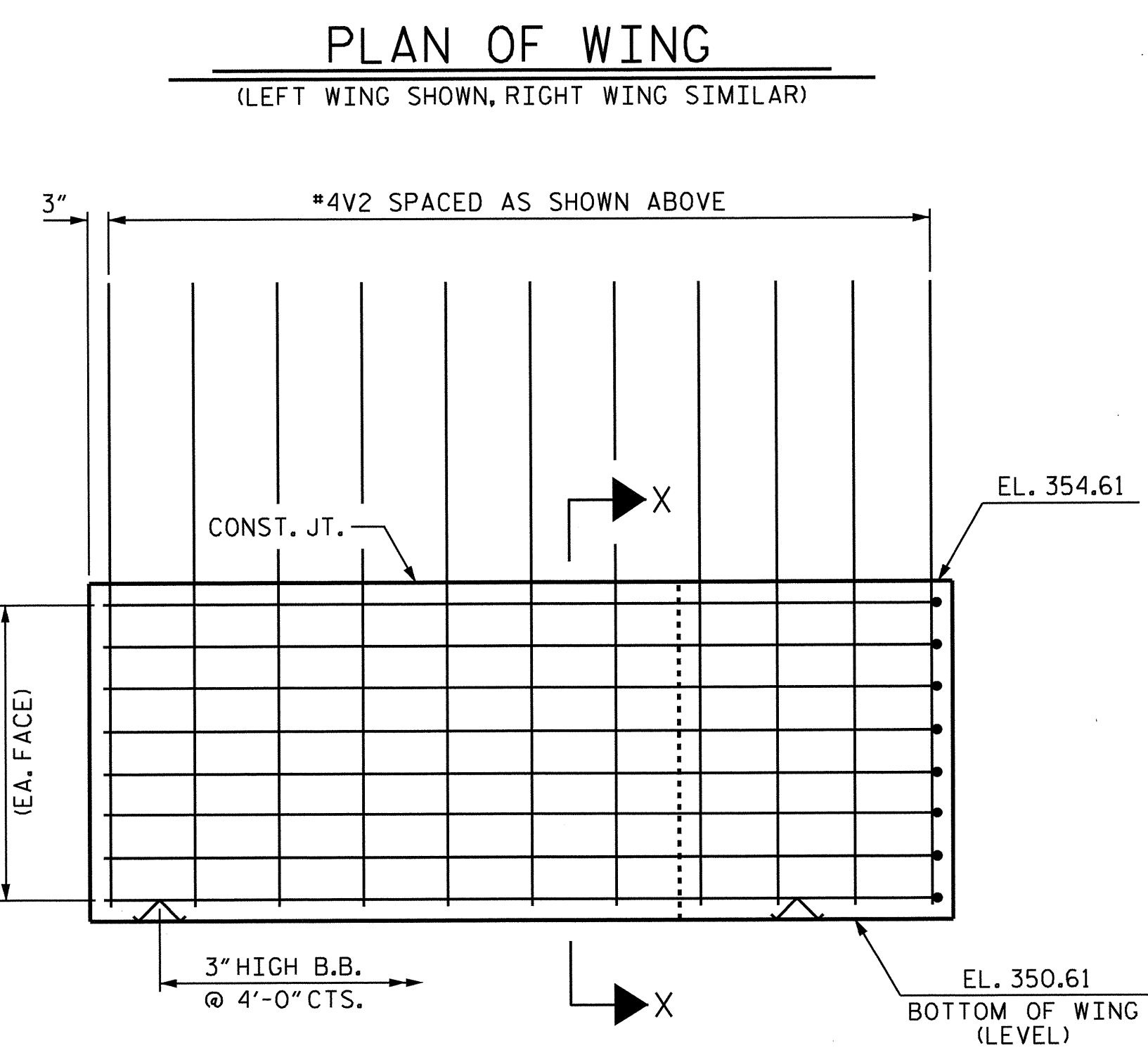
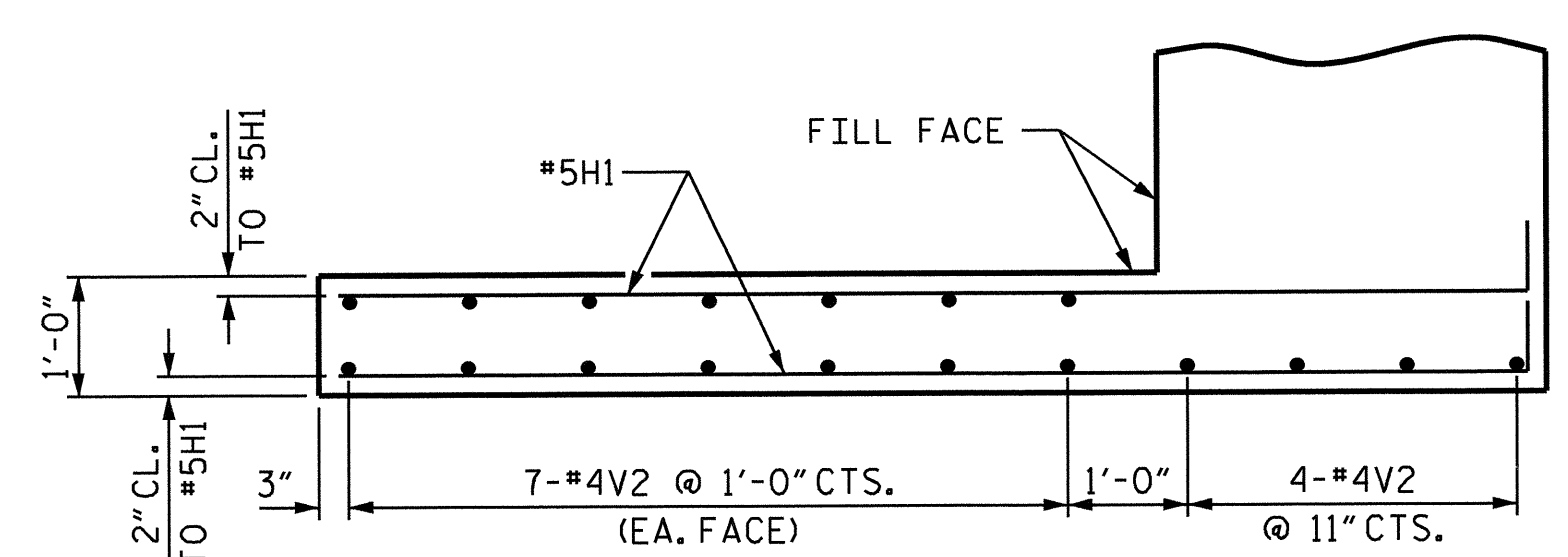
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

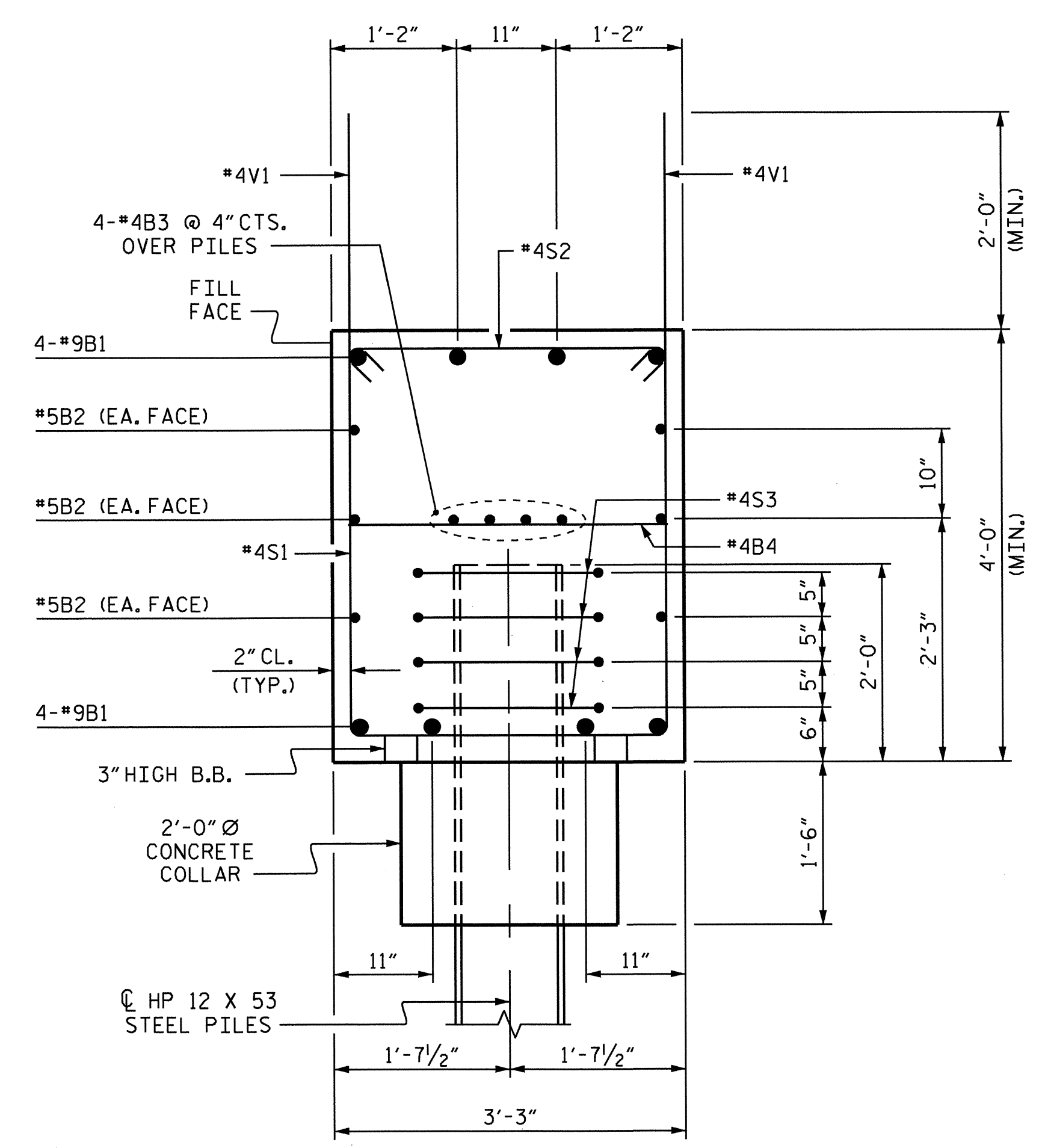
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

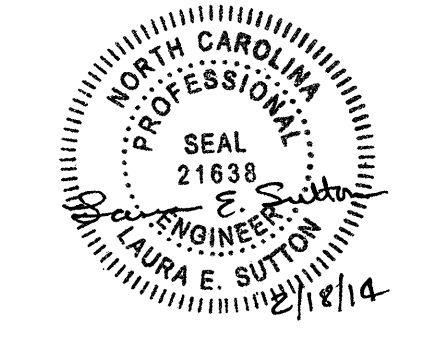
BAR TYPES					BILL OF MATERIAL				
					END BENT 2				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT				
B1	8	#9	1	42'-8"	1161				
B2	6	#5	STR	40'-4"	252				
B3	8	#4	STR	21'-5"	114				
B4	11	#4	STR	2'-11"	21				
H1	32	#5	3	10'-9"	359				
S1	46	#4	4	10'-11"	335				
S2	46	#4	2	3'-8"	113				
S3	28	#4	5	6'-6"	122				
V1	70	#4	STR	6'-0"	281				
V2	36	#4	STR	9'-5"	226				
REINFORCING STEEL					LBS.	2,984			
CLASS A CONCRETE					C.Y.	23.1			
HP 12 X 53 STEEL PILES									
NO. 7					LIN. FT.	195			



SECTION X-X



SECTION A-A



PROJECT NO. B-4748
FRANKLIN COUNTY
STATION: 14+12.00 -L-
SHEET 2 OF 2

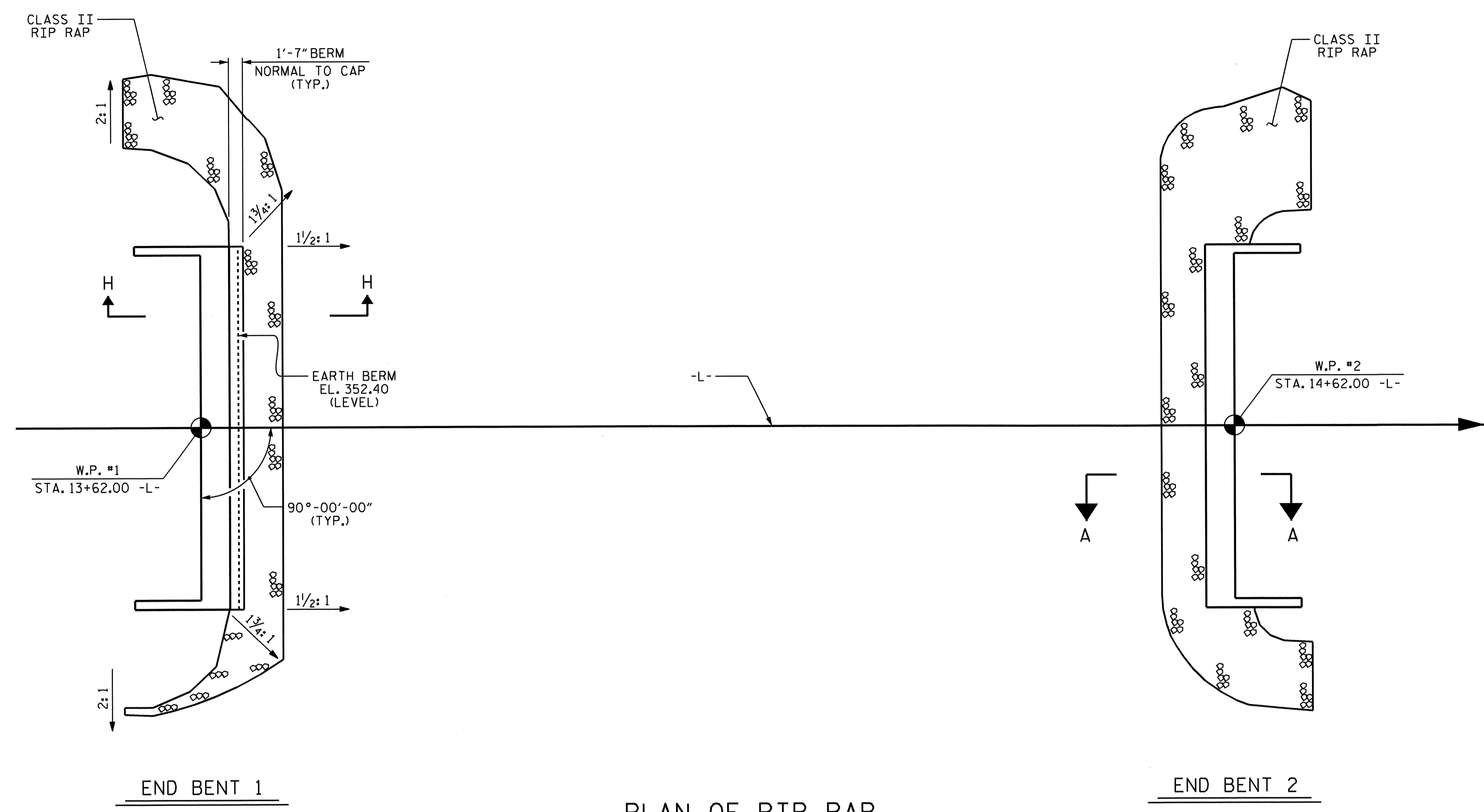
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-24
					TOTAL SHEETS 27

DRAWN BY : B.N. GRADY
CHECKED BY : J.D. HAWK
DESIGN ENGINEER OF RECORD: B.N. GRADY

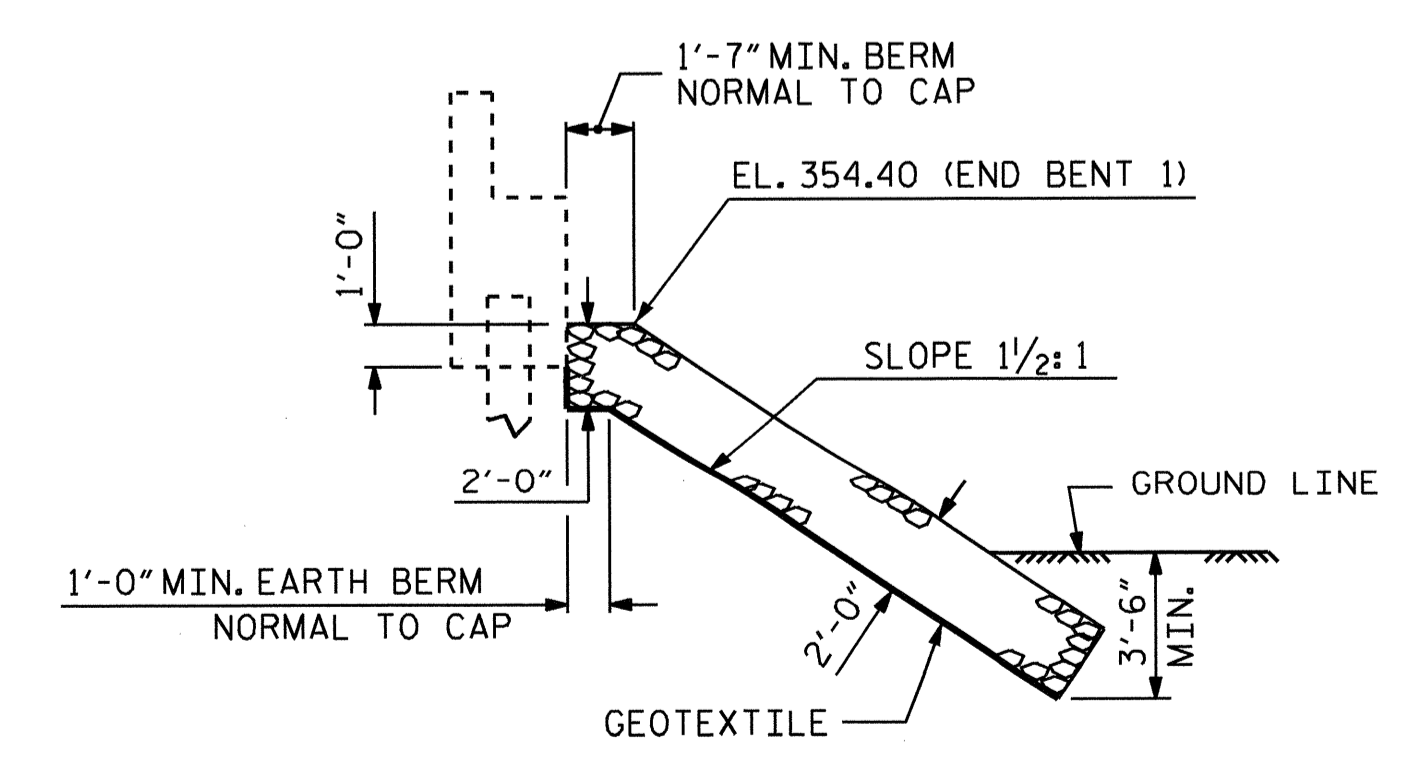
DATE : 1/23/13
DATE : 4/15/13
DATE : 12/20/13

18-FEB-2014 11:21
R:\Structures\Plans\B4748_SD.E*.01.dgn
Isutton

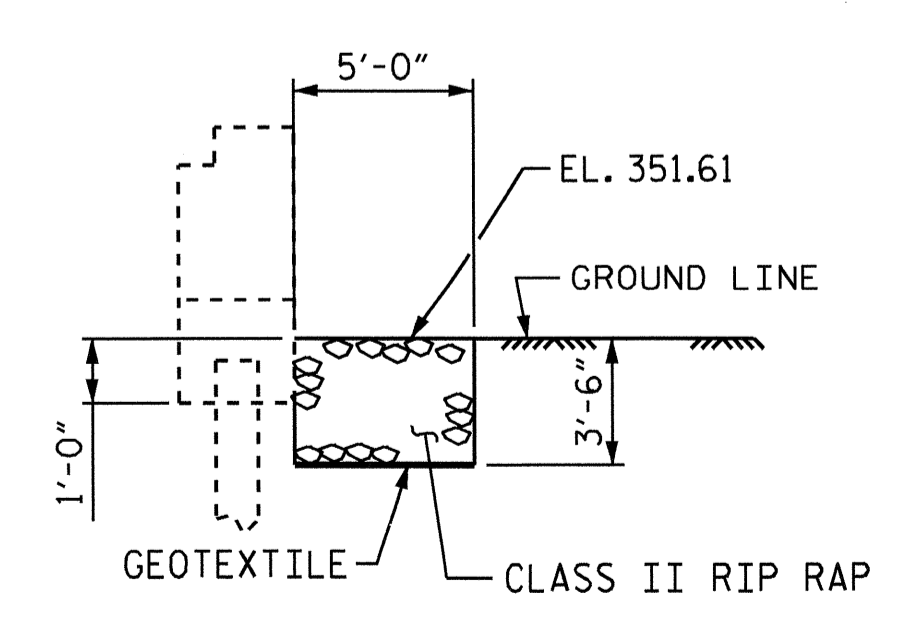
ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+12.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	65	70
END BENT 2	100	110



PLAN OF RIP RAP



SECTION H-H

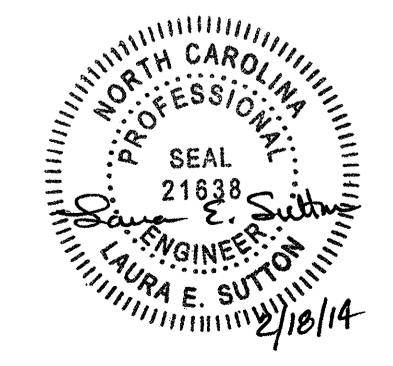


SECTION A-A

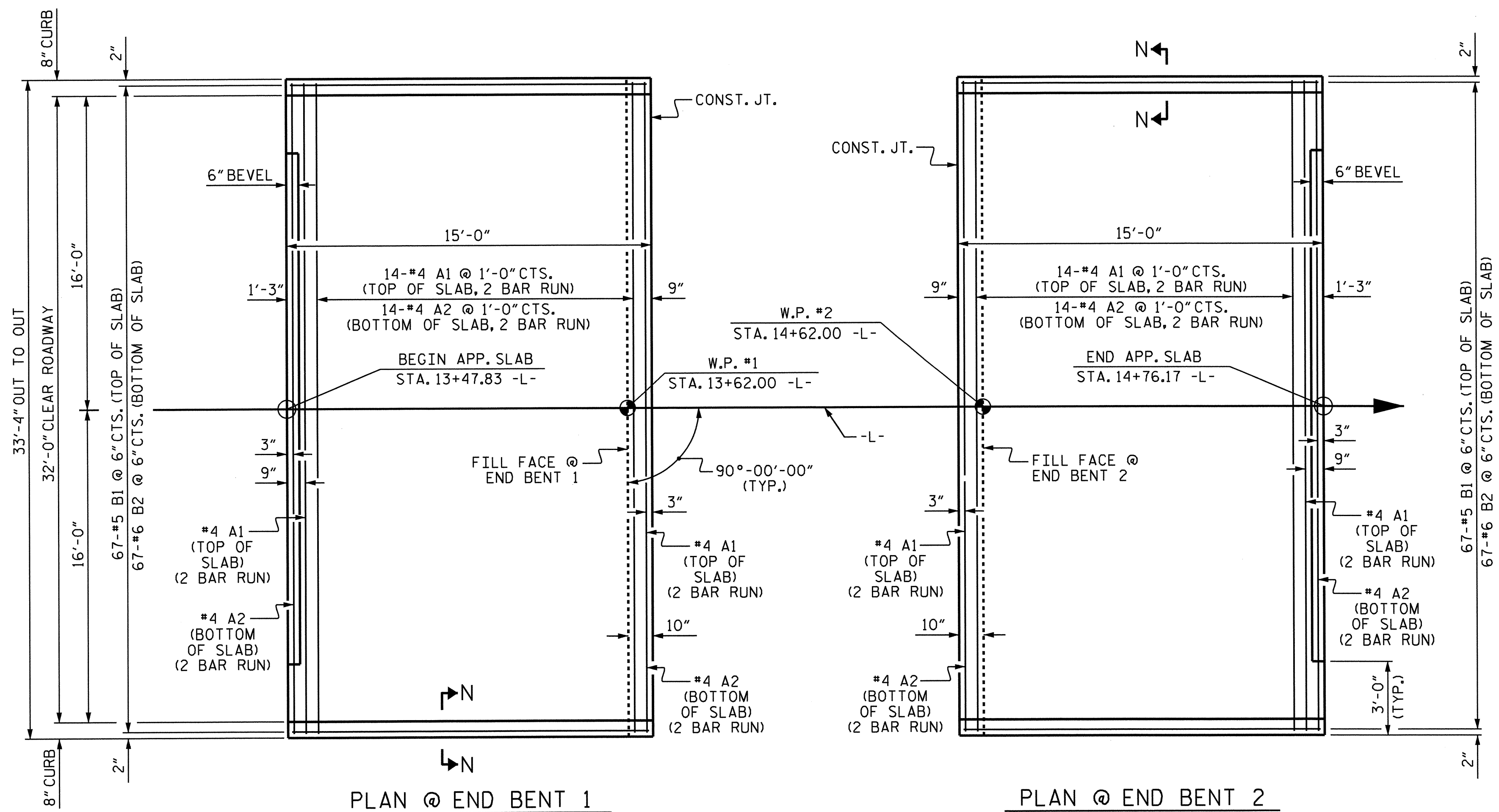
PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 = RIP RAP DETAILS =

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



ASSEMBLED BY : J.D. HAWK DATE : 11/19/13
 CHECKED BY : R.P. PATEL DATE : 11/21/13
 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



NOTES

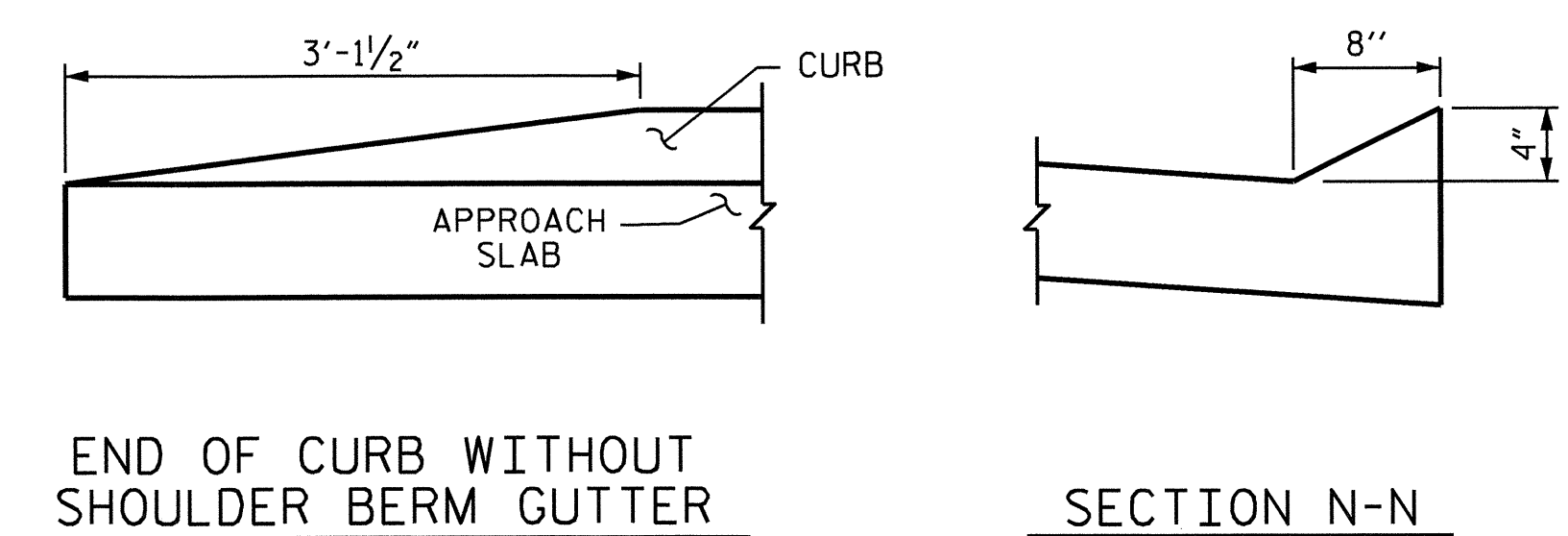
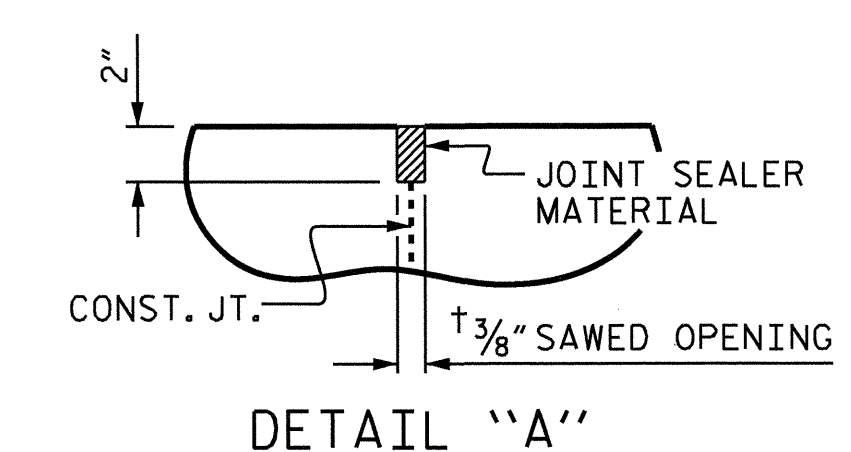
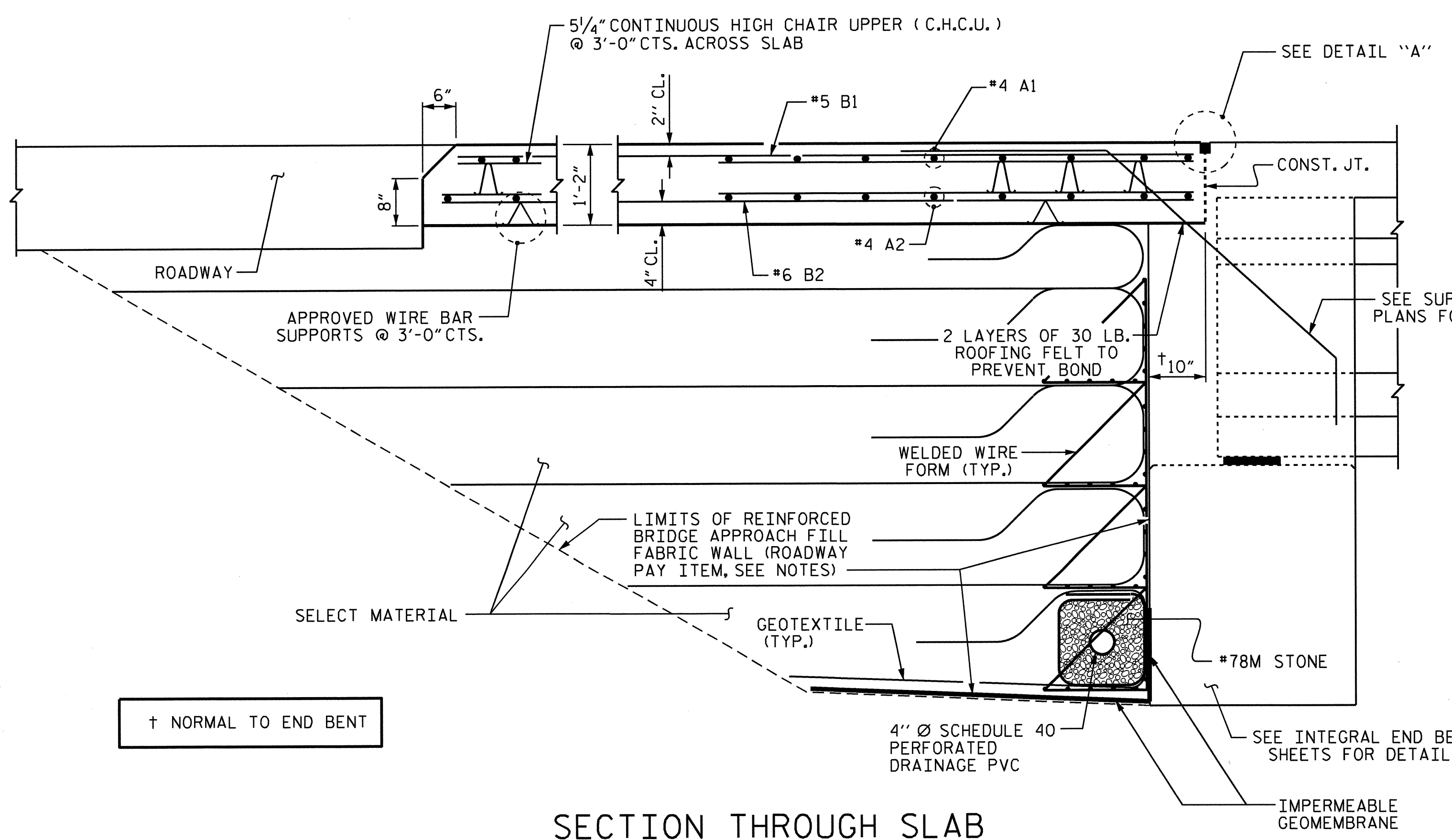
APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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.

BILL OF MATERIAL						
FOR ONE APPROACH SLAB (2 REQ'D)						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	32	#4	STR	17'-6"	374	
A2	32	#4	STR	17'-5"	372	
*B1	67	#5	STR	14'-3"	996	
B2	67	#6	STR	14'-8"	1476	
REINFORCING STEEL				LBS.	1,848	
* EPOXY COATED REINFORCING STEEL				LBS.	1,370	
CLASS AA CONCRETE				C. Y.	21.6	



PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

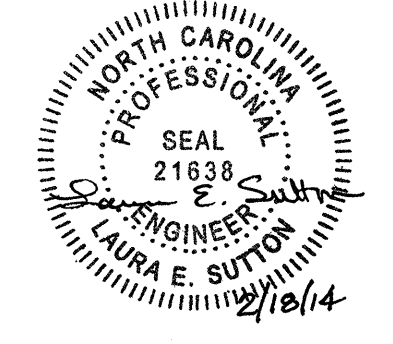
STANDARD
 BRIDGE APPROACH
 SLAB FOR
 INTEGRAL ABUTMENT

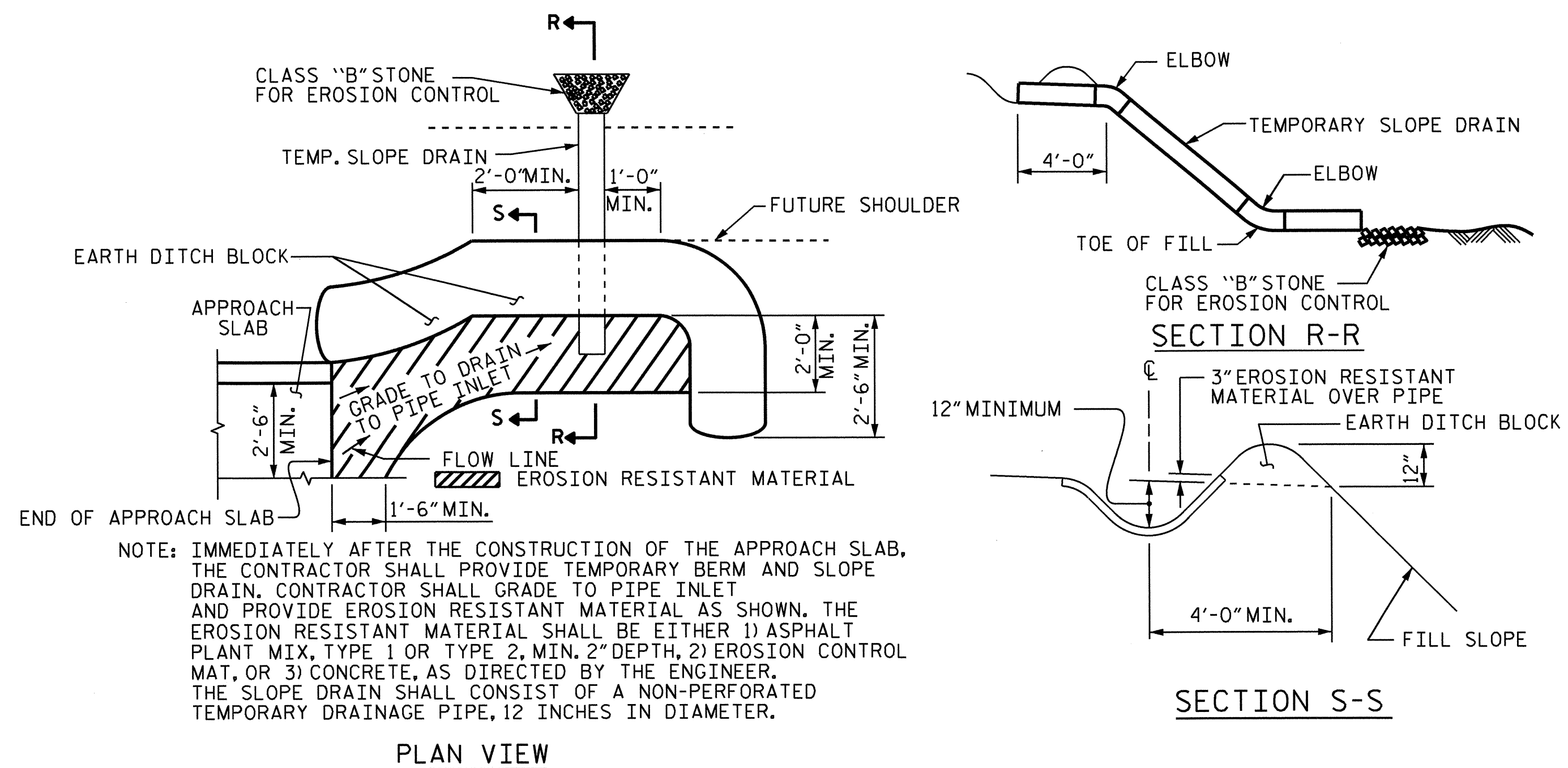
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-26
2			4			27

ASSEMBLED BY : J.D. HAWK
 CHECKED BY : R.P. PATEL
 DATE : 10/15/12
 DATE : 12/03/12

DRAWN BY : TLA 10/05
 CHECKED BY : GM 5/06
 ADDED 5/1/06RR KMM/GM
 REV. 10/1/11 MAA/GM
 REV. 12/21/11 MAA/GM

DESIGN ENGINEER OF RECORD:
 B.N. GRADY DATE : 12/20/13

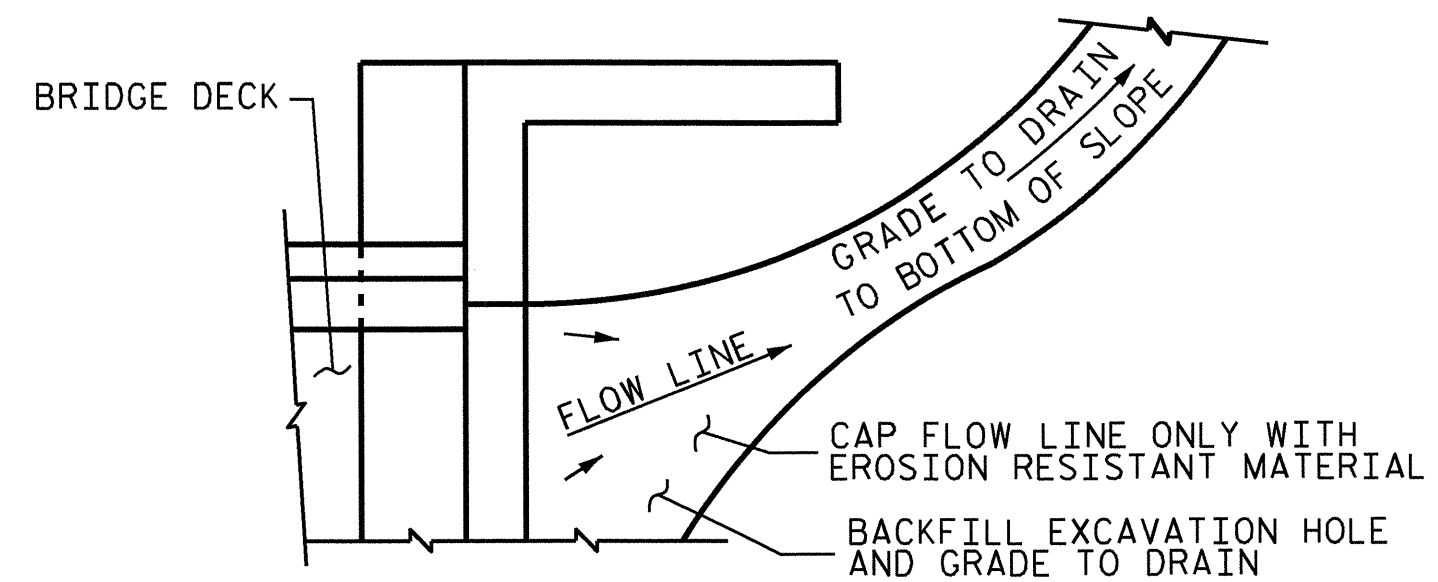




NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



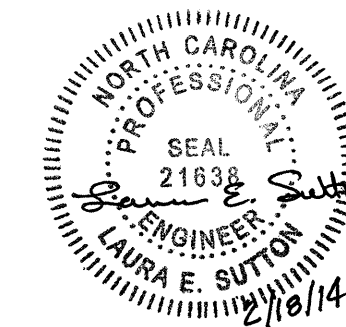
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4748
FRANKLIN COUNTY
 STATION: 14+12.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH
 SLAB DETAILS



ASSEMBLED BY : J.D. HAWK	DATE : 10/15/12
CHECKED BY : R.P. PATEL	DATE : 12/03/12
DRAWN BY : FCJ 11/88	REV. 5/7/03 RWW/JTE
CHECKED BY : ARB 11/88	REV. 5/1/06RRR MAA/KMM
	REV. 10/1/11 MAA/GM

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

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 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

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

STRUCTURAL STEEL:

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

HANDRAILS AND POSTS:

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990